Remedial Investigation Work Plan

Swan and Chicago Streets Site
Buffalo, New York

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Swan Chicago LLC

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List of Acronyms

AA	Alternatives Analysis
AST	Aboveground Storage Tank
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
COC	Chain-of-Custody
COPC	Constituents of Potential Concern
CP	Citizen Participation
CSCO	Commercial Soil Cleanup Objective
cVOC	Chlorinated Volatile Organic Compound
DO	Dissolved Oxygen
DUSR	Data Usability Summary Report
EDD	Electronic Data Deliverable
ELAP	Environmental Laboratory Approval Program
ESA	Environmental Site Assessment
FADL	Field Activity Daily Log
fbgs	Feet below ground surface
FOP	Field Operating Procedures
FWIA	Fish and Wildlife Impact Assessment
GCM	Grossly Contaminated Media
GPS	Global Positioning System
GWQS/GV	Groundwater Quality Standards/Guidance Values
HSA	Hollow Stem Auger
HASP	Health and Safety Plan
HDPE	High density polyethylene
IDW	Investigative Derived Waste
ISCO	Industrial Soil Cleanup Objective
LNAPL	Light Non-Aqueous Phase Liquid
mg/kg	Milligrams per kilogram
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NTU	Nephelometric Turbidity Units
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OHSM	Office Health and Safety Manager
ORP	Oxidation Reduction Potential
OVM	Organic Vapor Monitor
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PFAS	Per- and Polyfluoroalkyl Substances

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PGWSCO	Protection of Groundwater Soil Cleanup Objective
PID	Photoionization Detector
PPE	Personal Protective Equipment
ppm	Parts per million
pVOC	Petroleum Volatile Organic Compound
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
REC	Recognized Environmental Condition
RI	Remedial Investigation
RRSCO	Restricted-Residential Soil Cleanup Objective
SAP	Sampling and Analysis Plan
SCG	Standards, Criteria, and Guidance
SCO	Soil Cleanup Objective
SIM	Selective Ion Monitoring
SRM	Standard Reference Materials
SS	Site Supervisor
SSHO	Site Safety and Health Officer
SVOC	Semi-Volatile Organic Compounds
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compound
USCO	Unrestricted Soil Cleanup Objective
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

Certification Statement

I, Thomas H. Forbes, certify that I am currently a NYS registered Professional Engineer and that this Remedial Investigation Work Plan (RIWP) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) the DER Green Remediation policy (DER-31).

Thomas H. Forbes	Date	Signature/Stamp

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

1. Introduction

This document presents the proposed scope of work and implementation procedures for completion of a Remedial Investigation (RI) at the Swan and Chicago Streets Site (Site), located in the City of Buffalo, New York (see Figure 1 and Figure 2). The Applicant, Swan Chicago LLC, acting as a Volunteer, has elected to pursue cleanup and redevelopment of the Site under the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP). Swan Chicago LLC is submitting a BCP Application concurrently with this work plan.

The proposed redevelopment of the Site will consist of a mixed-use commercial/residential apartment building, affordable housing townhomes, off-street parking, and associated landscaping/greenspace.

The RI will be completed by Roux Environmental Engineering and Geology, D.P.C. (Roux), on behalf of the Applicant. The work will be completed in accordance with NYSDEC DER-10 and DER-31 guidelines.

1.1 Site Background

The Site is located in a commercial and residential area in the City of Buffalo, New York. The Site is bordered by Swan Street, residential properties, and a church to the north, Myrtle Avenue and a commercial parking lot to the south, an auto sales and service property to the east, and Chicago Street and a community center to the west. The 0.39-acre Site consists of four parcels as summarized below (see Figure 2):

Parcel Address	SBL No.	Acreage
275 Swan Street	111.72-1-1	0.09
279 Swan Street	111.72-1-2	0.05
281 Swan Street	111.72-1-3	0.06
425 Chicago Street	111.72-1-53;	0.19

The Site is currently vacant with vegetative grass cover. The Site was originally developed before 1881 and has been used for residential and commercial purposes. The 279 Swan Street parcel appears to have always been used residentially. Historic commercial uses on the 275 and 281 Swan Street parcels included dentistry, a dry goods, meat, and grocery store, Swan Importing Co., a drug store, a physician's office, a church, Salerno Printer, a barber, and a record shop. The 425 Chicago Street parcel was originally developed by at least 1889 with a stable. The building was redeveloped as a public automobile garage, presumably including automotive repair, until it was demolished in 1997. Previously existing Site buildings were demolished between 1978 and 2002, many of which had basements, which were backfilled with material from unknown sources.

The 425 Chicago Street parcel has a history of underground storage tanks (USTs). One gasoline UST was present along the western parcel boundary in at least 1926, and two gasoline USTs were present along the western parcel boundary in at least 1950. Additionally, according to City of Buffalo Fire Department records, one 1,000-gallon UST was installed in 1941 with reference to two pre-existing 550-gallon gasoline USTs. Sufficient closure documentation for the USTs does not exist and as discussed below, orphan USTs remain on-site.

The previous Phase II Investigation at the Site identified two existing orphaned USTs and petroleum-impacted soil with odors and elevated photoionization detector (PID) readings within the southwestern portion of the Site (425 Chicago Street Parcel). Fill material of unknown origin was observed across the Site at 15 test pit

locations with fill material noted greater than 4 feet below ground surface (fbgs) at 6 test pit locations within the northern portion of the Site (concrete refusal observed at three locations between 7-8 fbgs, presumably indicating former basement areas). Roux notes that fill material was greater than the maximum depth of sampling (approximately eight fbgs) at certain investigation locations. Analytical results indicated elevated concentrations of polycyclic aromatic hydrocarbons (PAHs) and/or metals at seven of the ten total soil/fill sample locations (see Figure 3).

1.2 Project Objectives

For sites entering the BCP at the point of investigation, NYSDEC requires completion of the RI detailed in this Work Plan. The primary objectives of this RI are to:

1. Delineate the areal and vertical extent of contaminants in all media at or emanating from the Site;

2. Determine the surface and subsurface characteristics of the site, including topography, geology and hydrogeology, including depth to groundwater;

3. Identify the sources of contamination, the migration pathways, and actual or potential receptors of contaminants on or through air, soil, bedrock, sediment, groundwater, surface water, utilities, and structures at a contaminated site, without regard to property boundaries;

4. Collect and evaluate all data necessary for a fish and wildlife resource impact analysis (FWRIA), pursuant to section 3.10, to determine all actual and potential adverse impact to fish and wildlife resources;

5. Collect and evaluate all data necessary to evaluate the actual and potential threats to public health and the environment. This would include evaluating all current and future potential public health exposure pathways, in accordance with Appendix 3B, as well as potential impacts to biota; and

6. Collect the data necessary to evaluate any release to an environmental medium and develop remedial alternative(s) to address the release.

Two data confidence levels will be employed in the RI: screening level data and definitive level data. In general, screening level confidence will apply to field measurements, including photoionization detector (PID) measurements, groundwater elevation measurements, and field analysis (i.e., pH, temperature, dissolved oxygen (DO), oxidation reduction potential (ORP), specific conductivity, and turbidity). Definitive level confidence will apply to samples for chemical analysis.

The applicability of these levels of data is further specified in the Quality Assurance Project Plan (QAPP) in Section 4. Sampling and analytical acceptance and performance criteria such as precision, accuracy, representativeness, comparability, completeness, and sensitivity, are also defined in the QAPP.

1.3 Project Organization and Responsibilities

The Applicant, Swan Chicago LLC, is applying to the BCP as a “Volunteer” concurrently with submittal of this RIWP, i.e., non-polluters, per ECL§27-1405, as the Applicant became involved with the property after disposal/discharge of contaminants and has no relationship with the previous owners/operators of the Site. Roux will complete the RI on behalf of the Applicant. Roux will also be responsible for verifying and certifying

that the brownfield activities are completed in conformance with the Brownfield Cleanup Agreement (BCA), the approved RIWP, any subsequent work plans, and NYSDEC DER-10/DER-31 requirements.

Résumés for the known members of Roux's project team are included in Appendix A. Roux personnel and subcontractors for this project have not been determined at this time. Once pricing is secured, subcontract agreements are in place, and a field schedule determined, résumés for the selected project team will be provided to the NYSDEC, if requested. The table below presents the planned project team.

Company	Role	Name	Contact Information
NYSDEC	Project Manager	TBD	TBD
NYSDOH	Project Manager	TBD	TBD
Swan Chicago LLC	Applicant Contact	Alexander Burgos	(716) 949-6127 aburgos@draghiburgos.com
Roux	Project Manager	Bryan Mayback	(716) 856-0599 bmayback@rouxinc.com
Roux	Project Principal	Michael Lesakowski	(716) 856-0599 mlesakowski@rouxinc.com
Roux	Principal Engineer	Thomas Forbes, P.E	(716) 856-0599 tforbes@rouxinc.com
Roux	Field Team	TBD	TBD
TBD	Analytical Testing	TBD	TBD
TBD	Drilling Services	TBD	TBD
TBD	Excavation Services	TBD	TBD
Data Validation Services	DUSR	Judy Harry	(518) 251-4429 harry@frontiernet.net

2. Site Description

2.1 General

The Site is currently vacant with vegetative grass cover. The proposed redevelopment of the Site will consist of a mixed-use commercial/residential apartment building, affordable housing townhomes, off-street parking, and associated landscaping/greenspace.

Residential, commercial, and community services properties are identified in the vicinity of the Site; therefore, planned redevelopment would be consistent with the surrounding area. The redevelopment would also be consistent with zoning in the surrounding area, which is N-2E (Mixed-Use Edge), which allows for commercial and residential use.

Further, the Site is located in a New York State (NYS) Climate Act Disadvantaged Community (Census Tract 36029016400,) area and a NYS Environmental Zone (En-Zone), Type B (Census Tract 016400).

Sensitive receptors include residential and community services properties to the north and west, respectively. An unspecified animal species that is listed as threatened or endangered is located approximately 0.25 miles northwest of the Site. There are no wetlands located within 0.5 miles of the Site. Land use/zoning is shown on Figure 4 and ecological resources are shown on Figure 5.

2.2 Site Topography and Drainage

The Site is generally flat lying and has a vegetative grass cover. Precipitation is likely to infiltrate or flow toward Swan Street, Chicago Street, and Myrtle Avenue via overland flow. Regional groundwater likely flows west/southwest toward Lake Erie and the Buffalo River. Groundwater flow will be further evaluated as part of RI activities. Local groundwater flow, however, may be influenced by subsurface features, such as utilities, former development, and localized subsurface fill conditions.

2.3 Geology and Hydrogeology

2.3.1 Overburden

The Site is located within the Lake Erie-Niagara River major drainage basin, which is typified by little topographic relief that gently slopes westward towards Lake Erie and the Niagara River, except in the immediate vicinity of major drainage ways. According to the United States Department of Agriculture (USDA) Web soil survey, the Site soils are characterized as Urban Land-Schoharie Complex (Uu), which typically consists of 60% urban land, 35% Schoharie and similar soils, and 5% of other minor components. Typical surface covering for urban land includes asphalt, concrete, buildings, or other impervious structures, commonly found in an urban environment. Schoharie soil consists of predominantly silty clay loam, silt loam, and clay/silty clay, typically identified as red clayey glaciolacustrine deposits derived from calcareous shale at 0 to 3 percent slopes.

Based on results of the previous investigation, soils generally consisted of non-native fill materials consisting of cinders, ash, black fines, brick fragments, glass, wood, and metal to depths ranging between 4 fbgs and greater than 8 fbgs (maximum reach of the excavator). Fill materials were underlain by native sandy lean clay. Fill materials were noted at all 15 investigation locations.

2.3.2 Bedrock

Based on the bedrock geologic map of Erie County, the Site is situated over the Onondaga Formation of the Middle Devonian. The Onondaga Formation is comprised predominantly of limestone with chert. Bedrock was not encountered during the previous investigation.

2.3.3 Hydrogeology

The Site is located within the Lake Erie-Niagara River major drainage basin, which has little topographic relief that gently slopes westward towards Lake Erie and the Niagara River, except in the immediate vicinity of major drainageways. Groundwater was not encountered during the previous investigation. Regional groundwater likely flows west/south toward Lake Erie and the Buffalo River. However, local groundwater flow may be influenced by subsurface features, such as excavations, utilities, and localized fill-conditions. Localized on-site groundwater flow will be confirmed during the RI.

2.4 Climate

The City of Buffalo has a cold continental climate, with moisture from Lake Erie causing increased precipitation. Average annual precipitation is reported as 40.48 inches and average snowfall is 94 inches. The average temperature is 48.7 degrees Fahrenheit. The ground and lakes typically remain frozen from December to March. Winds are generally from the southwest (USClimateData.com).

2.5 Population and Land Use

The Site is located in a highly developed mixed-use area in the City of Buffalo. The City of Buffalo, encompassing 52.48 square miles, has a population of 278,349. The Site is located within Census Tract 164 (US Census Bureau).

2.6 Utilities and Groundwater Use

The Site has access to major public and private utilities, including potable water (City of Buffalo), sanitary and storm sewers (City of Buffalo), electric (National Grid), and natural gas (National Fuel Gas).

Groundwater at the Site is assigned Class “GA” by 6NYCRR Part 701.15. Currently, there are no deed restrictions on the use of groundwater at the Site; however, the City of Buffalo has a city-wide groundwater use restriction. There are no groundwater supply wells at the Site. Municipal potable water service is provided to the areas surrounding the Site.

2.7 Previous Investigations

The previous investigations completed at the Site are included in Appendix B and summarized below. Soil analytical results are provided on Table 1. Data from the previous investigation has not been validated by an independent third-party and will be identified as “historical” data in the RI. Previous investigation locations and areas of concern are shown on Figure 3.

2.7.1 Phase I Environmental Site Assessment

Environmental Advantage completed a Phase I Environmental Site Assessment in September 2025. Environmental Advantage identified the presence of fill from unknown sources, the presence of USTs, and the historical uses as recognized environmental conditions (RECs).

2.7.2 Phase II Environmental Investigation – November 2025

Roux completed a Phase II Environmental Investigation in October 2025 (report dated November 21, 2025) to assess environmental conditions onsite. As part of the work, Roux completed 15 test pits (TP-1 through TP-15) across the Site using an excavator to depths ranging between 4 fbgs and 8 fbgs. Pertinent findings are summarized below:

- Lithology at the Site is described as non-native fill materials consisting of cinders, ash, black fines, brick fragments, glass, wood, and metal to depths between 4 fbgs and greater than 8 fbgs (maximum reach of the excavator). Fill materials were noted at all 15 investigation locations.
- There are two existing orphaned USTs and petroleum-impacted soil with odors and elevated PID readings within the southwestern portion of the Site (425 Chicago Street parcel).
- Elevated PID readings and petroleum-like odors were identified in the southwestern portion of the Site at TP-1 and TP-2, proximate to the two existing orphaned USTs. Based on field observations indicating the presence of subsurface petroleum impacts (i.e. grossly contaminated material (GCM)) and the presence of orphan USTs, as required by law, the NYSDEC was notified and Spill No. 2506517 was assigned to the Site.
- No petroleum volatile organic compounds (VOCs) were detected at concentrations above 6 NYCRR Part 375 Unrestricted Soil Cleanup Objectives (USCOs) in two soil samples (TP-1 and TP-2) collected proximate to each orphan UST; the lack of petroleum VOCs in these soil samples is indicative of weathered petroleum. Acetone was identified above its USCO, but not its Restricted-Residential SCO (RRSCO), at TP-1 and TP-2.
- PAHs were identified at concentrations exceeding their respective Part 375 USCOs, RRSCOs, Commercial SCOs (CSCOs), and/or Industrial SCOs (ISCOs) in fill samples collected across the Site in one or more fill samples collected from each parcel. The highest total PAH concentrations were identified as 339 milligrams per kilogram (mg/kg) at TP-12 on the 281 Swan Street parcel and 538 mg/kg at TP-10 on the 279 Swan Street parcel.
- One or more fill samples from each parcel yielded metals concentrations above their respective CSCOs and/or ISCOs. Of note, concentrations of mercury exceed its respective ISCO at TP-1 (6.5 mg/kg), TP-10 (159 mg/kg), and TP-15 (8.1 mg/kg). Concentrations of arsenic exceed its ISCO at TP-10 (22 mg/kg), and TP-12 (83.6 mg/kg). Concentrations of barium exceed its CSCO at TP-8 (942 mg/kg), TP-10 (406 mg/kg), and TP-12 (920 mg/kg). In addition, lead exceedances were identified with a significant concentration of 20,000 mg/kg exceeding its ISCO at TP-8, and additional lead concentrations exceeding its respective CSCO at TP-10 (3,800 mg/kg), TP-11 (1,050 mg/kg), and TP-12 (1,900 mg/kg).
- Groundwater was not noted during the test pit investigation.

2.8 Ecological Concerns

There are no State or Federal wetlands or floodplains located on Site or within 0.5 miles of the Site. Ecological resources observed within 0.5 miles of the Site include:

- An unspecified animal species that is listed as threatened or endangered is located approximately 0.25 miles northwest of the Site.

The Site has historically been completely developed with former buildings and utilized for residential and commercial purposes. Former buildings have since been demolished and basements brought to grade with impacted fill materials. The Site is currently vacant with no natural habitat available. No NYS or Federally regulated wetlands were identified proximate to the Site. Despite subsurface petroleum-impacts identified within the southwestern portion of the Site, the Site is currently covered by vegetation (i.e., grass), reducing

the risk for erosion and off-site transport. Additionally, the planned remediation will consist of excavating and removing impacted soil/fill, further reducing the potential for erosion and off-Site transport of contaminated soil/fill.

A Fish and Wildlife Resource Impact Analysis (FWRIA) Decision Key (included in DER-10 Appendix 3C) is provided as Appendix C, which indicates the Site does not require a FWRIA in accordance with DER-10 Section 3.10.1; however, while not anticipated, should a condition be identified during the RI that may potentially impact ecological resources, a FWRIA will be included in the RI Report.

2.9 Primary Constituents of Concern

Based on findings to date, the constituents of potential concern (COPCs) are presented by media below:

- **Soil:** GCM, PAHs, and metals
- **Soil Vapor:** Petroleum-related VOCs

3. Remedial Investigation Scope of Work

This RI is focused on defining the nature and extent of contamination on-site and potential for off-site migration, identifying the sources of contamination, defining chemical constituent migration pathways, qualitatively assessing human health and ecological risks, and obtaining data of sufficient quantity and quality to perform an Alternatives Analysis (AA), which will be included in the Remedial Work Plan. The current goal of this BCP cleanup is to achieve a Track 1 Unrestricted cleanup; however, this is subject to change based on the results of the RI.

Field team personnel will collect environmental samples in accordance with the rationale and protocols described in the QAPP in Section 4. United States Environmental Protection Agency (USEPA) and NYSDEC-approved sample collection and handling techniques will be used as outlined in DER-10 Chapter 2 and included in Field Operating Procedures provided in Appendix D. Soil, groundwater, and soil vapor samples taken for chemical analysis will be analyzed in accordance with USEPA SW-846 methodology with an equivalent Category B deliverable package to meet the definitive-level data requirements. Analytical results will be evaluated by a third-party data validation expert in accordance with provisions described in the QAPP. Data submittals will be provided to the NYSDEC in accordance with the most current electronic data deliverables (EDD) protocols.

During intrusive RI activities, the Community Air Monitoring Program (CAMP) will be implemented. The CAMP is consistent with the requirements for community air monitoring at remediation sites as established by the NYSDOH and NYSDEC. Accordingly, it follows procedures and practices outlined under NYSDEC's DER-10 (May 2010) Appendix 1A (NYSDOH's Generic Community Air Monitoring Plan) and Appendix 1B (Fugitive Dust and Particulate Monitoring).

The investigation approach is described below. The proposed RI sample locations are presented in Figure 6 and the planned sampling and analytical program is identified on Table 2. Soil data will be compared to applicable 6 NYCRR Part 375 SCOs and groundwater data will be compared to TOGS 1.1.1 Groundwater Quality Standards/Guidance Values (GWQS/GV).

3.1 Preparation Activities

3.1.1 Utility Clearance

Prior to any intrusive activities, Dig Safely New York (Call 811) will be contacted by the site contractor a minimum of three business days in advance of the work and informed of the intent to perform intrusive work at the Site. If underground utilities are present on the property and are anticipated to interfere with intrusive activities, the Applicant and the NYSDEC will be contacted to discuss mitigating measures.

3.2 RI Soil/Fill Investigation

A soil/fill investigation will be completed at the Site to assess the extent of known contamination and to determine whether additional areas of environmental impact are present. The soil/fill investigation will include the collection of surface soil samples and completion of test pits and soil borings to allow for characterization of subsurface soil and sample collection. The proposed RI soil sample locations are presented in Figure 6, and the sampling and analytical program is presented on Table 2. Sampling techniques are detailed in field operating procedures (FOPs), included in Appendix D.

3.2.1 Surface Soil/Fill Investigation

Six surface soil samples (SS-1 through SS-6) will be collected from the upper 0 to 2 inches of vegetative cover. Approximate locations are shown on Figure 6 and samples will be analyzed in accordance with the sampling plan on Table 2.

Surface soil/fill samples will be collected using stainless steel tools and decontaminated between sampling locations using potable tap water and a phosphate-free detergent (e.g., Alconox). The soil will be examined by qualified Roux personnel for characterization by visual observation in accordance with ASTM Method D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Field personnel will create a field log and collect photograph documentation from the investigation locations. Soil will be inspected for impacts via visual and olfactory observations and field screened for total volatile organics using a PID equipped with a 10.6 eV lamp as a procedure for ensuring the health and safety of personnel and to identify potentially impacted soil/fill samples for laboratory analysis.

As summarized on Table 2, each surface soil sample will be analyzed for target compound list (TCL) semi-volatile organic compounds (SVOCs, including 1,4-dioxane) plus tentatively identified compounds (TICs), and Target Analyte List (TAL) metals (including total cyanide). Select sample locations will also be analyzed for polychlorinated biphenyls (PCBs), pesticides, and per- and polyfluoroalkyl substances (PFAS). Samples collected for PFAS analysis will be analyzed via USEPA Method 1633A.

Should sustained PID readings above 10 parts per million (ppm) be noted during field screening of surface soil samples, laboratory analysis will be expanded to include analysis of TCL VOC plus TICs.

En-core samplers will be used to collect VOC soil samples. The remaining samples will be placed into pre-cleaned laboratory-provided sample bottles. All samples will be placed on ice and cooled to 4°C (±2°C) in the field and transported under chain-of-custody command to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified analytical laboratory.

3.2.2 Subsurface Soil/Fill Investigation

Twenty-two additional subsurface soil/fill investigation locations will be advanced across the Site during the RI for further characterization purposes, consisting of 17 test pits (TP-16 through TP-32) and five soil borings (MW-1 through MW-5).

Test pits will be completed using an excavator capable of retrieving soil samples from the ground surface to a depth of approximately 15 feet, or until equipment refusal, whichever is shallower. Soil borings will be advanced with a rotary or direct-push drill rig. Each boring will be advanced at least 5 feet into the upper most water bearing zone or until equipment refusal, whichever is shallower. All non-dedicated tools and equipment will be decontaminated between investigation locations using potable tap water and a phosphate-free detergent (e.g., Alconox).

The soil/fill retrieved from the test pit and soil boring locations will be examined by qualified Roux personnel for characterization by visual observation in accordance with ASTM Method D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Field personnel will create a field log and collect photograph documentation from the investigation locations. Soil will be inspected for impacts via visual and olfactory observations and field screened for total volatile organics using a PID equipped with a 10.6 eV

lamp as a procedure for ensuring the health and safety of personnel and to identify potentially impacted soil/fill samples for laboratory analysis.

Test pit spoils will be placed on the ground next to each investigation location. Soil/fill removed from the test pits shall be returned back to their location in the general order that it was excavated/removed. Soil boring spoils will be placed in 55-gallon drums for characterization and disposal.

3.2.2.1 Subsurface Soil/Fill Sample Collection and Analysis

Soil samples will be collected at varying depths throughout the Site to assess fill and native soil conditions, further delineate the extent of contamination, and determine if other impacts requiring remediation are present at the Site. Soil samples will be biased to the suspected location of greatest contamination. Sample locations will be based on professional judgement, visual/olfactory observations, and PID readings. Additional sample intervals may be identified in the field due to elevated PID scan results and/or evidence of visual or olfactory impacts.

Table 2 summarizes the proposed sample collection and analytical program. The sample interval identified as the most impacted (i.e., greatest PID scan result and/or visual-olfactory evidence of impact) will be selected for laboratory analysis. If either the impacts are ubiquitous from grade to final depth or no impacts are identified, the soil/fill directly above water table will be selected for analysis. If the impacts are ubiquitous from grade to final depth, no impacts are identified, and water is not encountered at a particular sample location or within a particular layer, the sample interval will be selected based on the professional discretion of the field personnel and in consultation with the NYSDEC. If differentiable impacts are noted during the investigation, additional sample location(s) will be collected.

As summarized on Table 2, each subsurface soil sample will be analyzed for TCL SVOCs plus TICs, and TAL metals (including total cyanide). Select sample locations will be analyzed for full suite, including TCL VOCs plus TICs, PCBs, pesticides, and PFAS. Samples collected for PFAS analysis will be analyzed via USEPA Method 1633A.

En-core samplers will be used to collect VOC soil samples. The remaining samples will be placed into pre-cleaned laboratory-provided sample bottles. All samples will be placed on ice and cooled to 4°C (±2°C) in the field and transported under chain-of-custody command to a NYSDOH ELAP-certified analytical laboratory.

3.3 Groundwater Investigation

Five groundwater monitoring wells, identified as MW-1 through MW-5, will be advanced to allow for assessment of groundwater quality and flow. Proposed groundwater monitoring well locations are shown on Figure 6. Monitoring well installation and groundwater sample collection details are discussed in the following sections.

3.3.1 Monitoring Well Installation

Each monitoring well boring will be advanced to a target minimum depth of five feet below the first encountered water. Final depth and placement of wells may be modified based on the soil type identified, hydrogeology, and consideration of potential contaminants with approval of the NYSDEC Project Manager. All non-dedicated drilling tools and equipment will be decontaminated between boring locations using potable tap water and a phosphate-free detergent (e.g., Alconox).

Each well will be constructed with two 2-inch diameter Schedule (SCH) 40 PVC with a minimum five 5-foot flush joint SCH 40 PVC 0.010-inch machine-slotted well screen. Each well screen and attached riser will be placed at the bottom of the borehole and a silica sand filter pack (size #0) will be installed from the base of the well to a minimum of two 2-feet above the top of the screen. A seal (e.g., bentonite chip) will then be installed to mitigate the potential for downhole contamination. The newly installed monitoring wells will be completed with keyed-alike locks, a lockable J-plug, and protective casing/road box.

3.3.2 Well Development

After installation, but not within 24 hours, newly installed monitoring wells will be developed in accordance with Roux's FOP for Monitoring Well Development (see Appendix D) and NYSDEC protocols. Monitoring wells will be developed via surge and purge methodology (alternating between agitation of the water column and water removal) using dedicated, disposable high-density polyethylene (HDPE) or polyvinyl chloride (PVC) bailers. Non-dedicated equipment will be decontaminated prior to and after use, in accordance with Roux's FOP for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination. Field parameters including pH, temperature, specific conductance, turbidity, DO, and ORP will be measured periodically (i.e., every well volume or as necessary) during development. Development will continue until field parameters become stable, turbidity measurements fall below 50 Nephelometric Turbidity Units (NTU) or become stable above 50 NTU regardless of volume purged, and a minimum of ten well volumes have been evacuated from the well. Stability will be defined as summarized below:

- Dissolved Oxygen: ±10%
- Turbidity: ±10%
- Specific Conductance: ±3%
- ORP: ±10 mV
- pH: ±0.1 units

If LNAPL/DNAPL is encountered within a particular well, development waters from that location will be containerized. Drums will be labeled with regard to contents, origin, and date of generation using a paint stick marker on two sides and the top of each drum. The drums will be staged on-Site pending analyses and remedial measures assessment.

3.3.3 Groundwater Sample Collection

Groundwater sampling will be completed at least one week following well development to allow natural groundwater conditions to become reestablished. During the duration of the RI, two (2) groundwater sampling events will be completed in accordance with DER-10 3.7.2(c)8 the ensure proper characterization of groundwater. The second sampling event should occur approximately 3-6 months after the first sampling event. Prior to sample collection, static water levels will be measured and recorded from the on-Site monitoring wells in accordance with Roux's FOP for Groundwater Level Measurement to facilitate the preparation of a Site-wide isopotential map. Following water level measurement, field personnel will purge and sample monitoring wells in accordance with Roux's FOPs for Groundwater Purging and Sample Collection and NYSDEC protocols using a submersible pump with dedicated pump tubing following low-flow/minimal drawdown purge and sample collection procedures. In the event of pump failure or if the saturated unit does not permit the proper implementation of low-flow sampling, a dedicated HDPE or PVC bailer will be used to purge and sample the well(s). When utilizing low-flow methodology, groundwater will be

evacuated from each well at a low-flow rate (typically less than 0.1 liters per minute) while maintaining a generally consistent water level. Non-dedicated equipment will be decontaminated prior to and after use, in accordance with Roux's FOP for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination. Field measurements for pH, temperature, specific conductance, turbidity, DO, ORP, and water level, as well as visual and olfactory field observations, will be periodically recorded and monitored for stabilization. Purging will be considered complete when field parameters stabilize (as discussed in Section 3.4.2) and when turbidity measurements fall below 50 NTU or become stable above 50 NTU regardless of volume purged or to dryness. Once purging is complete, groundwater samples will be collected and analyzed as discussed below.

If LNAPL/DNAPL is encountered within a particular well, purge waters from that location will be containerized. Drums will be labeled with regard to contents, origin, and date of generation using a paint stick marker on two sides and the top of each drum. The drums will be staged on-Site pending analyses and remedial measures assessment.

Groundwater samples will be completed as soon as practical after purging at any time after the well has recovered sufficiently to sample, or within 24 hours after evacuation, if the well recharges slowly. Groundwater sampling methods will conform with the protocol acceptable for the collection of PFAS in accordance with the NYSDEC'S April 2023 Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) and Roux's FOP for Groundwater Sampling (see Appendix D). Clean nitrile gloves be worn while handling sample containers, during the groundwater sampling, and sealing/placement of samples into the laboratory supplied cooler. Non-dedicated equipment will be decontaminated prior to and after use, in accordance with Roux's FOP for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination. Sample collection methods that will be implemented during the RI include:

- **Submersible Pump with Dedicated Pump Tubing**

  Monitoring wells will be purged and sampled using a non-dedicated plastic submersible pump and dedicated HDPE or PVC tubing following low-flow (minimal drawdown) purge and sample collection procedures, as described above. Non-dedicated pumps will require decontamination prior to use at each well location and the collection of an equipment blank.

- **Disposable Bailer**

  If low flow is not feasible (e.g., due to depth to groundwater), wells of any depth (up to 100 fbgs) may be purged and sampled using a disposable HDPE or PVC bailer via direct grab. In general, a bottom filling dedicated HDPE or PVC bailer is attached to a length of dedicated rope and lowered into the well smoothly and slowly as not to agitate the groundwater or damage the well.

Prior to, and immediately following collection of groundwater samples, field measurements for pH, temperature, specific conductance, turbidity, DO, ORP, and water level, as well as visual and olfactory field observations, will be recorded. All collected groundwater samples will be placed in pre-cleaned, pre-preserved, pre-labeled laboratory provided sample bottles, cooled to 4°C (±2°C) in the field, and transported under chain-of-custody command to a NYSDOH-approved laboratory for analysis.

3.3.4 Groundwater Sample Analysis

Table 2 summarizes the proposed groundwater sampling program. Groundwater samples will be analyzed for TCL VOCs plus TICs, TCL SVOCs plus TICs, TAL metals (including total cyanide), PCBs, pesticides,

PFAS, and 1,4-dioxane. Groundwater samples will be collected and analyzed in accordance with USEPA SW 846 methodology with equivalent NYSDEC Category B deliverables to allow for independent third-party data usability assessment. Samples for dissolved metals analysis will be filtered at the laboratory. Samples collected for 1,4-dioxane will be analyzed via USEPA Method 8270 Selective Ion Monitoring (SIM) mode and samples collected for PFAS analysis will be analyzed via USEPA Method 1633A.

3.4 Soil Vapor Sampling

Soil vapor sampling will be completed to evaluate the potential for soil vapor intrusion into areas where future buildings may be constructed and to complete a qualitative exposure assessment for the Site. Sampling equipment will be advanced to a target depth of 5-6 fbgs to approximate foundation depth of future buildings (depending on depth to groundwater observed during soil boring and test pit investigations). Soil vapor sample locations, identified as SV-1 through SV-4, are shown on Figure 6. One ambient outdoor air sample will be collected concurrent with the soil vapor samples. Soil vapor sampling probes will be installed in conformance with the NYSDOH Soil Vapor Intrusion Guidance.

Each soil vapor sampling probe will be installed using specialized stainless steel soil probes. Sampling equipment includes stainless steel sampling screens, ¼-inch inside diameter inert sample tubing and dedicated Summa canisters. Soil boreholes will be advanced to a depth up to 5-6 fbgs. The steel rod will be equipped with an anchor point at the driving end of the rod. The anchor point will be connected to the sampling screen and tubing on the inside of the steel rod. Once the steel rod is advanced to the target depth, the steel rod will be retracted, leaving the anchor point, sampling screen, and sampling tubing within the borehole annulus. Glass beads (or equivalent) will be poured around the sampling screen in a manner to cover the entire length of the sampling screen. Bentonite or bentonite/soil mixture will be placed above the glass beads to the ground surface to create a seal to prohibit infiltration of ambient air into the sampling area.

Once the sample probes are installed, the probe and tubing will be purged (three volumes) using a syringe and helium tracer gas will be used during the purging phase (in the same manner as recommended for soil vapor intrusion probes) to ensure that the probes are well sealed. Samples will be collected over an approximate 24-hour period. All soil vapor samples will be collected and analyzed for VOCs plus TICs by EPA Method TO-15.

Each canister will be fitted with a sampling valve that uses a critical orifice and mass flow controller to regulate the air flow into the canister for the selected sampling period. The mass flow controller will maintain a relative constant air flow rate throughout the sampling period. Summa canister valves will remain closed until the sample holes are complete and all of the canisters are in their respective positions. The valves will then be opened for the designated collection period.

3.5 Waste Characterization Sampling

Six waste characterization samples will be collected at the time of the investigation and analyzed for Toxicity Characteristic Leaching Procedure (TCLP) VOCs, TCLP SVOCs, TCLP metals, PCBs, ignitability, corrosivity, and reactivity to assess landfill disposal requirements and options.

3.6 Field Specific Quality Assurance/Quality Control Sampling

In addition to the soil/fill, groundwater, and soil vapor samples described above, field-specific QA/QC samples will be collected and analyzed to ensure the reliability of the generated data as described in the QAPP (see

Section 4) and to support the required third-party data usability assessment effort. Site-specific QA/QC samples will include matrix spikes, matrix spike duplicates, blind duplicates, equipment blanks, field blanks, and trip blanks.

3.7 Decontamination and Investigation-Derived Waste Management

Every attempt will be made to utilize dedicated sampling equipment during the RI; however, if non-dedicated equipment is required and/or used, the equipment will be decontaminated, at a minimum, with a non-phosphate detergent (i.e., Alconox®) and potable water mixture, rinsed with distilled water, and air-dried before each use in accordance with Roux's FOPs presented in Appendix D. Decontaminated sampling equipment will be kept in a clean environment prior to sample collection. Heavy equipment, such as an excavator (if used) and drilling tools, will be decontaminated by the subcontractor, as necessary.

RI generated drilling spoils, groundwater, decontamination rinse water, or other Investigative-Derived Waste (IDW) not exhibiting gross contamination (i.e., visible product, odor, sheen, etc.) will be either returned to the investigation location from which it was removed (soil/fill) or in the case of soil boring spoils, groundwater, and rinse water, containerized in sealed New York State Department of Transportation (NYSDOT) approved drums. Soil/water will remain in the drums until associated analytical results are received to determine if the soil IDW can be returned to ground surface, used on Site, or requires off-site disposal and if the water IDW can be discharged to the ground surface or will require offsite disposal. IDW materials exhibiting gross contamination will be segregated and/or containerized for subsequent characterization and disposal.

All generated IDW drums will be labeled alpha-numerically with regard to contents, origin, and date of generation using a paint stick marker on two sides and the top of each drum. Drums will be securely staged on-site pending characterization analyses and remedial measures assessment. Field personnel will coordinate the on-site handling and temporary storage of IDW drums, including transportation, characterization sampling, and offsite disposal arrangements, as necessary.

Discarded personal protective equipment (PPE) (i.e., latex gloves, Tyvek, paper towels, etc.) and disposable sampling equipment (i.e., bailers or stainless steel spoons) will be placed in sealed plastic garbage bags and disposed of as municipal solid waste.

3.8 Site Mapping & Survey

A Site map will be developed during the field investigation. Sample points and relevant Site features will be located on the map. Roux will employ a handheld global positioning system (GPS) unit to identify all sample locations including test pits, surface soil samples, near surface soil samples, monitoring wells, and soil vapor samples relative to State planar grid coordinates. Monitoring well elevations will be surveyed by Roux. An isopotential map showing the general direction of groundwater flow will be prepared based on water level measurements relative to an arbitrary vertical datum. Site maps will be provided with the RI report.

3.9 Documentation

3.9.1 Daily Field Logs

RI field activities will be documented on field activity daily logs (FADLs). FADLs will provide a record of activities conducted at the Site. Entries will be signed and dated at the end of each day of fieldwork (or as produced) by the Field Team Leader. Field notes will include, at a minimum, the: date and time of all entries, names of personnel on site, weather conditions (temperature, precipitation, etc.), location of activity,

description of activity, and CAMP data including exceedances of CAMP action levels and subsequent corrective actions(s), if applicable (note that NYSDEC and NYSDOH will be notified within 24-hours of any CAMP action level exceedances observed during RI activities). Daily field logs will be provided to the NYSDEC Project Manager by the end of the following day throughout the duration of the RI. Sampling activities will be logged and photographed as necessary to document the activities at the Site. Progress photographs will be collected to document investigation activities. Field personnel will, at a minimum, complete the following standard field forms (see Appendix E):

- Tailgate Safety Meeting Form
- Field Activity Daily Log (FADL)
- Field Borehole/Monitoring Well Log
- Test Pit Excavation Log
- Groundwater Field Form
- Equipment Calibration Log
- Air Canister Field Records
- Problem Identification Report (if necessary)
- Corrective Measures Report (if necessary)
- Chain of Custody Form (per selected laboratory)
- Photographic Log

4. Quality Assurance Project Plan

A QAPP has been prepared in support of the RI activities. The QAPP dictates implementation of the investigation tasks delineated in this Work Plan. A Sampling and Analysis Plan (SAP) identifying methods for sample collection, decontamination, handling, and shipping, is provided in Section 4.7.

The QAPP will assure the accuracy and precision of data collection during the Site characterization and data interpretation periods. The QAPP identifies procedures for sample collection to mitigate the potential for cross-contamination, as well as analytical requirements necessary to allow for independent data validation. The QAPP has been prepared in accordance with USEPA's Requirements for Quality Assurance Project Plans for Environmental Data Operations, the EPA Region II CERCLA Quality Assurance Manual, and NYSDEC's DER-10 Technical Guidance for Site Investigation and Remediation (May 2010).

4.1 Scope of the QAPP

This QAPP was prepared to provide QA and QC guidelines to be implemented during the RI activities. This document may be modified for subsequent phases of investigative work, as necessary. The QAPP provides:

- A means to communicate exactly what is to be done, by whom, and when it is to be done, with the person(s) executing the various activities.
- A culmination of the planning process that ensures that the program includes provisions for obtaining quality data (e.g., suitable methods of field operations).
- A historical record that documents the investigation in terms of the methods used, calibration standards used, frequencies, and auditing.
- A document that can be used by the Project Manager (PM) and QA Officer to assess if the planned activities are being implemented and to assess the importance of each activity for accomplishing the goal of quality data.
- A plan to document and track project data and results.
- Detailed descriptions of the data documentation materials and procedures, project files, and tabular and graphical reports.

The QAPP is primarily concerned with the QA and QC aspects of the procedures involved in the collection, preservation, packaging, and transportation of samples; field testing; record keeping; data management; chain-of-custody procedures; laboratory analyses; and other necessary matters to ensure that the investigation activities, once completed, will yield data whose integrity can be defended.

QA refers to the conduct of all planned and systematic actions necessary to perform satisfactorily all task-specific activities and to provide information and data confidence as a result of such activities. The QA for task-specific activities includes the development of procedures, auditing, monitoring, and surveillance of the performance.

QC refers to the activity performed to determine if the work activities conform to the requirements. This includes activities such as inspections of the work activities in the field (e.g., verification that the items and materials installed conform to applicable codes and design specifications). QA is an overview monitoring of the performance of QC activities through audits rather than first time inspections.

4.2 QAPP Organization and Responsibility

The principal organizations involved in verifying achievement of data collection goals for the Site include: Swan Chicago LLC (Volunteer), Roux (Volunteers' Consultant), the drilling and test pit subcontractor(s), the independent environmental laboratory, and the independent third-party data validator. Roles, responsibilities, and required qualifications of these organizations are discussed in the following subsections. Résumés are included in Appendix A.

4.2.1 Volunteer

Swan Chicago LLC will be responsible for complying with the QA requirements as specified herein and for monitoring and controlling the quality of the Brownfield cleanup construction either directly or through their designated environmental consultant and/or legal counsel. The designated project manager is responsible for implementing the project and has the authority to commit the resources necessary to meet project objectives and requirements.

4.2.2 Environmental Consultant

Roux is the engineering and scientific consultant on this project and is responsible for the implementation of the RIWP, including, but not limited to, field operations, laboratory testing, data management, data analysis, and reporting. Any member of Roux's staff may fill more than one of the identified project positions (e.g., site supervisor and site safety and health officer). The various quality assurances, field, laboratory, and management responsibilities of key project personnel are defined below.

- *Project Principal (PP):* *Michael Lesakowski*

  The PP has the responsibility for ensuring conformance with the BCP program requirements. The PP will report directly to the Applicants and the NYSDEC/NYSDOH Project Managers and is responsible for project oversight. The PP will:

  - Define project objectives and develop a detailed work plan schedule.
  - Acquire and apply technical and corporate resources as needed to assure performance within budget and schedule constraints.
  - Review the work performed on the project to assure its quality, responsiveness, and timeliness.
  - Certify deliverables before their submission to NYSDEC.

- *Project Manager (PM):* *Bryan Mayback*

  The PM has the responsibility for ensuring that the project meets the Work Plan objectives. The PM will report directly to the Applicants' Project Coordinator and the NYSDEC/NYSDOH Project Managers and is responsible for technical and project oversight. The PM will:

  - Define project objectives and develop a detailed work plan schedule.
  - Establish project policy and procedures to address the specific needs of the project as a whole, as well as the objectives of each task.
  - Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product.
  - Review the work performed on each task to assure its quality, responsiveness, and timeliness.

- Review and analyze overall task performance with respect to planned requirements and authorizations.
- Review all deliverables before their submission to NYSDEC.
- Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product.
- Ultimately be responsible for the preparation and quality of interim and final reports.
- Represent the project team at meetings.

- *Site Supervisor / Site Health and Safety Officer:* *TBD*

  The Site Supervisor (SS) has the responsibility for implementation of specific project tasks identified at the Site and is responsible for the supervision of project field personnel, subconsultants, and subcontractors. The SS reports directly to the PM. The SS will:

  - Define daily work activities.
  - Orient field staff concerning the project's special considerations.
  - Monitor and direct subcontractor personnel.
  - Review the work performed on each task to ensure its quality, responsiveness, and timeliness.
  - Assure that field activities, including sample collection and handling, are carried out in accordance with this QAPP.

  The Site Safety and Health Officer (SSHO) is responsible for implementing the procedures and required components of the Site Health and Safety Plan (HASP), determining levels of protection needed during field tasks, controlling site entry/exit, briefing the field team and subcontractors on site-specific health and safety issues, and all other responsibilities as identified in the HASP.

4.3 Quality Assurance (QA) Responsibilities

The QA Officer will have direct access to corporate executive staff as necessary, to resolve any QA dispute, and is responsible for auditing the implementation of the QA program in conformance with the demands of specific investigations and Roux policies, and NYSDEC requirements. The QA Officer has sufficient authority to stop work on the investigation as deemed necessary in the event of serious QA issues.

- *Project QA Officer:* *Lori Riker*

  Specific function and duties include:

  - Performing QA audits on various phases of the field operations.
  - Reviewing and approving QA plans and procedures.
  - Providing QA technical assistance to project staff.
  - Reporting on the adequacy, status, and effectiveness of the QA program on a regular basis to the PM for technical operations.
  - Responsible for assuring third party data review of all sample results from the analytical laboratory.

4.4 Field Responsibilities

Roux field staff for this project are drawn from a pool of qualified personnel. The PM will use staff to gather and analyze data and to prepare various task reports and support materials. The designated technical team members will be experienced professionals who possess the degree of specialization and technical competence required to effectively and efficiently perform the required work.

4.5 Quality Assurance Objectives for Measurement Data

The overall objectives and criteria for assuring quality for this effort are discussed below. This QAPP addresses how the acquisition and handling of samples and the review and reporting of data will be documented. The objectives of this QAPP are to address the following:

- The procedures to be used to collect, preserve, package, and transport samples.
- Field data collection.
- Record keeping.
- Data management.
- Chain-of-custody procedures.
- Assess the precision, accuracy, completeness, representativeness, decision rules, comparability, and level of QC effort conformance for sample analysis and data management by the laboratory under EPA analytical methods.

4.6 Level of QC Effort for Sample Parameters

Field blank, equipment blank, trip blank, field duplicate, laboratory duplicate, laboratory control, standard reference materials (SRM), and matrix spike samples will be analyzed to assess the quality of the data resulting from the field sampling and analytical programs. QC samples are discussed below.

- Field and trip blanks consisting of distilled water will be submitted to the analytical laboratories to provide the means to assess the quality of the data resulting from the field-sampling program. Field/equipment blank samples are analyzed to check for procedural sample contamination during sample collection and analysis. Trip blanks are used to assess the potential for contamination of samples due to contaminant migration during sample shipment and storage.
- Method blank samples are generated within the laboratory and used to assess contamination resulting from laboratory procedures.
- Duplicate samples are analyzed to check for sampling and analytical reproducibility.
- Matrix spike (MS) and matrix spike duplicate (MSD) samples provide information about the effect of the sample matrix on the digestion and measurement methodology. Depending on site-specific circumstances, one MS and one MSD should be collected for every 20 or fewer investigative samples to be analyzed for organic and inorganic chemicals of a given matrix.

The general level of QC effort will be one field (blind) duplicate, one MS, and one MSD for every 20 or fewer investigative samples of a given matrix. An equipment blank will be collected for VOCs and PFAS when non dedicated equipment is used for every 20 or fewer aqueous samples. One field blank sample will be collected consisting of distilled, deionized water for every 20 or fewer aqueous PFAS samples. One trip blank

consisting of distilled, deionized water will be included along with each sample delivery group of aqueous VOC samples.

4.7 Sampling and Analysis Plan

Methods and protocol to be used to collect environmental samples (i.e., soil and groundwater) for this investigation are described in the Roux FOPs. Applicable FOPs are summarized on Table 3 and presented electronically in Appendix D.

The number and types of environmental samples to be collected are summarized in Table 2. Sample parameter lists, holding times and sample container requirements are summarized in Table 4. The sampling program and related site activities are discussed below. To the extent allowed by existing physical conditions at the facility, sample collection efforts will adhere to the specific methods presented herein. If alternative sampling locations or procedures are implemented in response to facility specific constraints, each will be selected on the basis of meeting data objectives. Such alternatives will be approved by NYSDEC before implementation and subsequently documented for inclusion in the project file.

4.7.1 Custody Procedures

Sample custody is controlled and maintained through the chain-of-custody (COC) procedures. Chain of custody is the means by which the possession and handling of samples will be tracked from the source (field) to their final disposition (laboratory). A sample is considered to be in a person's custody if it is in the person's possession or it is in the person's view after being in his or her possession or it was in that person's possession and that person has locked it in a vehicle or room. Sample containers will be cleaned and preserved at the laboratory before shipment to the Site. The following sections and the FOP for Sampling, Labeling, Storage, and Shipment (see Appendix D), describe procedures for maintaining sample custody from the time samples are collected to the time they are received by the analytical laboratory.

4.7.2 Sample Storage

Samples are stored in secure limited-access areas. Walk-in coolers or refrigerators are maintained at 4°C, ± 2°C, or as required by the applicable regulatory program. The temperatures of all refrigerated storage areas are monitored and recorded a minimum of once per day. Deviations of temperature from the applicable range require corrective action, including moving samples to another storage location if necessary.

4.7.3 Sample Custody

Sample custody is defined by this document as when any of the following occur:

- It is in someone's actual possession.
- It is in someone's view after being in his or her physical possession.
- It was in someone's possession and then locked, sealed, or secured in a manner that prevents unsuspected tampering.
- It is placed in a designated and secured area.

Samples are removed from storage areas by the sample custodian or analysts and transported to secure laboratory areas for analysis. Access to the laboratory and sample storage areas is restricted to laboratory

personnel and escorted visitors only; all areas of the laboratory are therefore considered secure. If required by the applicable regulatory program, internal chain-of-custody is documented in a log by the person moving the samples between laboratory and storage areas.

Laboratory documentation used to establish COC and sample identification may include the following:

- Field COC forms or other paperwork that arrives with the sample.
- The laboratory COC.
- Sample labels or tags are attached to each sample container.
- Sample custody seals.
- Sample preparation logs (i.e., extraction and digestion information) recorded in hardbound laboratory books that are filled out in legible handwriting, signed, and dated by the chemist.
- Sample analysis logs (e.g., metals, GC/MS, etc.) information recorded in hardbound laboratory books that are filled out in legible handwriting, signed, and dated by the chemist.
- Sample storage log (same as the laboratory COC).
- Sample disposition log, which documents sample disposal by a contracted waste disposal company.

4.7.4 Sample Tracking

All samples are maintained in the appropriate coolers prior to and after analysis. The analysts remove and return their samples as needed. Samples that require internal COC are relinquished to the analysts by the sample custodians. The analyst and sample custodian must sign the original COC relinquishing custody of the samples from the sample custodian to the analyst. When the samples are returned, the analyst will sign the original COC returning sample custody to the sample custodian. Sample extracts are relinquished to the instrumentation analysts by the preparatory analysts. Each preparation department tracks internal COC through their logbooks/spreadsheets.

Any change in the sample during the time of custody will be noted on the COC (e.g., sample breakage or depletion).

4.7.5 Split Sampling

The NYSDEC may split any soil or groundwater samples at the NYSDEC's expense, during this RI. Roux personnel will cooperate with the NYSDEC to facilitate split sampling, as requested.

4.8 Calibration Procedures and Frequency

This section describes the calibration procedures and the frequency at which these procedures will be performed for both field and laboratory instruments.

4.8.1 Field Instrument Calibration

Quantitative field data to be obtained during groundwater sampling include pH, temperature, specific conductance, turbidity, DO, ORP, and depth to groundwater. Quantitative water level measurements will be obtained with an electronic sounder or steel tape, which require no calibration. Quantitative field data to be obtained during soil sampling include screening for the presence of volatile organic constituents using a PID.

FOPs located in Appendix D describe the field instruments used to monitor for these parameters and the calibration methods, standards, and frequency requirements for each instrument. Calibration results will be recorded on the appropriate field forms and in the FADLs.

4.9 Analytical Procedures

Samples collected during this investigation field sampling activities will be analyzed by a NYSDOH-approved laboratory.

4.9.1 Field Analytical Procedures

Field procedures for collecting and preserving groundwater and soil samples are described in FOPs located in Appendix D. A summary of the FOPs is presented in Table 3.

4.10 Data Usability Evaluation

Data usability evaluation procedures shall be performed for both field and laboratory operations as described below.

4.10.1 Procedures Used to Evaluate Field Data Usability

Procedures to validate field data for this project will be facilitated by adherence to the FOPs identified in Appendix D. The performance of all field activities, calibration checks on all field instruments at the beginning of each day of use, manual checks of field calculations, checking for transcription errors and review of field log books is the responsibility of the Site Supervisor.

4.10.2 Procedures Used to Evaluate Laboratory Data Usability

Data evaluation will be performed by the third-party data validator using the most current methods and quality control criteria from the USEPA's Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, and Contract Laboratory Program, National Functional Guidelines for Inorganic Data Review. The data review guidance will be used only to the extent that it is applicable to the SW-846 methods; SW-846 methodologies will be followed primarily and given preference over CLP when differences occur. Also, results of blanks, surrogate spikes, MS/MSDs, and laboratory control samples will be reviewed/evaluated by the data validator. All sample analytical data for each sample matrix shall be evaluated. The third-party data validation expert will also evaluate the overall completeness of the data package. Completeness checks will be administered on all data to determine whether deliverables specified in this QAPP are present. The reviewer will determine whether all required items are present and request copies of missing deliverables.

5. Investigation Support Documents

5.1 Health and Safety Protocols

Roux has prepared a Site-Specific Health and Safety Plan (HASP) for use by our employees in accordance with 40 CFR 300.150 of the NCP and 29 CFR 1910.120. The HASP, provided in Appendix F, includes the following site-specific information:

- Emergency contact information for on- and off-site personnel.
- Health and safety roles & responsibilities.
- A hazard assessment.
- Training requirements.
- A site control program including definitions of exclusion, contaminant reduction, and other work zones.
- Monitoring procedures for site operations.
- Safety procedures.
- Personal protective clothing and equipment requirements for various field operations.
- Disposal and decontamination procedures.
- Assessment of environmental conditions and stressors.
- Tailgate health and safety meeting requirements.
- Emergency response plan.

Health and safety activities will be monitored throughout the field investigation. A member of the field team will be designated to serve as the on-site Health and Safety Officer throughout the field program. This person will report directly to the PM and the Office Health and Safety Manager (OHSM) and Office Operations Manager (OM). The HASP will be subject to revision as necessary, based on new information that is discovered during the RI activities.

5.2 Community Air Monitoring

Real-time community air monitoring will be performed during the RI activities at the Site. A Community Air Monitoring Plan (CAMP) is included in Appendix G. Particulate and VOC monitoring will be performed along the downwind perimeter of the work area during RI test pit excavations, RI soil boring advancement, and soil/fill handling activities in accordance with this plan. The CAMP is consistent with the requirements for community air monitoring at remediation sites as established by the NYSDOH and NYSDEC. Accordingly, it follows procedures and practices outlined under NYSDEC's DER-10 (May 2010) Appendix 1A (NYSDOH's Generic Community Air Monitoring Plan) and Appendix 1B (Fugitive Dust and Particulate Monitoring).

NYSDEC and NYSDOH will be notified within 24 hours of any CAMP action level exceedances observed during RI activities. CAMP exceedances and corrective measures will be also reported in daily field logs.

5.3 Citizen Participation Activities

NYSDEC will coordinate and lead community relations throughout the course of the project. Roux will support NYSDEC's community relations activities, as necessary. A Citizen Participation (CP) Plan will be prepared by Roux and submitted to NYSDEC under separate cover. The CP Plan will follow NYSDEC's CP Plan template for BCP sites entering the BCP at the point of site investigation.

6. Reporting and Scheduling

Upon completion of the RI fieldwork, a comprehensive RI Report will be completed summarizing the RI tasks completed as described below.

6.1 Remedial Investigation Reporting

The RI section of the RI Report will include the following information and documentation, consistent with the NYSDEC's DER-10 Technical Guidance for Site Investigation and Remediation (May 2010) and DER-31 Green Remediation.

- Introduction and background;
- A description of the Site and the investigation areas;
- A description of the field procedures and methods used during the RI;
- The collection of geospatial data and presentation of investigation drawings detailing the investigation locations, potential areas of concern, presence of buildings, utility poles, and subgrade utilities.
- A discussion of the nature and rationale for any significant variances from the scope of work described in this Work Plan;
- The data obtained during the RI and previous investigations, considered by Roux to be of usable quality, including geochemical data, field measurements, validated analytical results, etc.;
- A discussion of contaminant fate and transport including a description of Site hydrogeology and an evaluation of the lateral and vertical movement of groundwater;
- Results of a FWRIA to be conducted as a component of the RI (if needed);
- Conclusions regarding the extent and character of environmental impact in the media being investigated;
- The conclusions of the on-site and off-site qualitative human health and environmental exposure assessment completed in accordance with DER-10; and
- Supporting materials for RI data. These will include test pit logs, boring logs, monitoring well construction diagrams, laboratory analytical reports, and similar information.

In addition, Roux will require third-party analytical data review by a qualified, independent data validation expert for the RI and historic investigation data. Specifically, a Data Usability Summary Report (DUSR) will be prepared, with appropriate data qualifiers added to the results. The DUSR will follow NYSDEC format per the NYSDEC's September 1997 DUSR guidelines and May 2010 DER-10 guidance. The DUSR and any necessary qualifications to the data will be appended to the RI report.

6.2 Remedial Work Plan (RWP)

The Remedial Work Plan (RWP) will be developed to include the alternatives analysis (AA) and detail planned remedial activities. The AA is developed to provide a forum for evaluating and selecting a recommended remedial approach, in accordance with DER-10. A list of remedial action objectives will be developed based on findings of the RI and the requirement for the selected remedial measures to be protective of human

health and the environment under the proposed future use scenario. Proposed SCOs for the Site for the contaminants will also be presented based on the proposed future use of the Site. After that, volumes and areas of media requiring remediation will be calculated. General response actions will then be delineated to address each of the Site problem areas. These response actions will form the foundation for the development and screening of applicable remedial alternatives against the following criteria as described in 6NYCRR 375-1.8(f) and DER-10-4.2:

- Overall Protection of Human Health and the Environment
- Compliance with Standards, Criteria, & Guidance (SCGs)
- Long-term Effectiveness & Permanence
- Reduction of Toxicity, Mobility, or Volume
- Short-term Effectiveness
- Implementability
- Cost Effectiveness
- Land Use

In addition, the criteria of community acceptance will be considered based on public comments on the RWP and proposed remedial action. Following the screening of alternatives, a comparative analysis will be performed against the above criteria. The comparative analysis will allow for better understanding of the relative advantages and disadvantages of each of the alternatives and will facilitate identification of a recommended remedial approach. Procedures for completing the recommended remedial approach will be included in the RWP.

7. Project Schedule

A tentative project schedule for the major tasks to be performed in support of the RIWP is presented as Figure 7.

8. References

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New York State Department of Environmental Conservation. 6 NYCRR Part 375 Environmental Remediation Programs. December 31, 2025.

New York State Department of Environmental Conservation. DER-10; Technical Guidance for Site Investigation and Remediation. May 2010.

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United States Department of Agriculture (USDA), Soil Conservation Service. Soil Survey of Erie County, New York. December 1986.

United States Environmental Protection Agency Region II. CERCLA Quality Assurance Manual, Revision I. October 1989.

United States Environmental Protection Agency. Requirements for Quality Assurance Project Plans for Environmental Data Operations (EPA QA/R-5). October 1998.

TABLES

1. Summary of Historic Soil/Fill Analytical Results
2. Sampling and Analysis Plan
3. Summary of Field Operating Procedures
4. Sample Container, Volume, Preservative & Holding Time Requirements

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TABLE 1
SUMMARY OF HISTORIC SOIL/FILL ANALYTICAL RESULTS
REMEDIAL INVESTIGATON WORK PLAN
SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

PARAMETER [1]	Unrestricted Use SCOs[2]	Restricted Residential Use SCOs[2]	Commercial Use SCOs[2]	Industrial Use SCOs[2]	SAMPLE LOCATION (DEPTH)									
					TP-1 0-1 ft	TP-1 6-8 ft	TP-2 0-1 ft	TP-2 4-6 ft	TP-8 0-2.5 ft	TP-9 0-2 ft	TP-10 0-2 ft	TP-11 2-4 ft	TP-12 1-3 ft	TP-15 0-3 ft
Sample Date					10/21/2025									
Volatile Organic Compounds (VOCs) - mg/kg[3]														
Chloroform	**0.37**	**24**	**180**	**180**	--	0.0012 JBvs	--	0.011 JBvs	--	--	--	--	--	--
1,2-Dichloroethane	**0.02**	**5.8**	**30**	**30**	--	0.0012 Jvs	--	ND	--	--	--	--	--	--
Ethylbenzene	**1**	**76**	**390**	**390**	--	0.0083 vs	--	ND	--	--	--	--	--	--
p/m-Xylene	**--**	**--**	**--**	**--**	--	0.001 Jvs	--	0.025 Jvs	--	--	--	--	--	--
Xylene (Total)	**0.26**	**100**	**500**	**1000**	--	0.001 Jvs	--	0.025 Jvs	--	--	--	--	--	--
Acetone	**0.03**	**100**	**500**	**1000**	--	**0.034 vs**	--	**0.097**	--	--	--	--	--	--
tert-Butylbenzene	**11**	**100**	**500**	**1000**	--	0.00082 Jvs	--	ND	--	--	--	--	--	--
Isopropylbenzene	**--**	**--**	**--**	**--**	--	0.0059 Jvs	--	ND	--	--	--	--	--	--
p-Isopropyltoluene	**--**	**--**	**--**	**--**	--	0.0035 Jvs	--	0.017	--	--	--	--	--	--
n-Propylbenzene	**5**	**100**	**500**	**500**	--	0.018 vs	--	ND	--	--	--	--	--	--
1,3,5-Trimethylbenzene	**3.1**	**100**	**500**	**1000**	--	ND	--	0.22	--	--	--	--	--	--
1,2,4-Trimethylbenzene	**5.9**	**100**	**500**	**1000**	--	0.0026 Jvs	--	0.7	--	--	--	--	--	--
Polyaromatic Hydrocarbons (PAHs)[3]														
Acenaphthene	**20**	**100**	**500**	**1000**	ND	ND	ND	ND	--	2.3	3.4 J	ND	ND	3.8
Acenaphthylene	**100**	**100**	**500**	**1000**	ND	ND	ND	ND	--	0.59 J	7.4	ND	8.8	0.71 J
Anthracene	**100**	**100**	**500**	**1000**	ND	ND	ND	ND	--	4.8	16 J	0.076 J	7.2	7.6
Benzo(a)anthracene	**1**	**1.4**	**37**	**37**	ND	ND	ND	ND	--	**14**	**45**	0.28	**42**	**12**
Benzo(a)pyrene	**1**	**1**	**3.7**	**3.7**	0.78 J	ND	0.038 J	ND	--	**12**	**42**	0.32	**32**	**9.5**
Benzo(b)fluoranthene	**1**	**1.4**	**37**	**37**	**1.1 J**	ND	ND	ND	--	**14**	**51**	0.44	**41**	**12**
Benzo(ghi)perylene	**0.64**	**4.9**	**47**	**78**	**0.83 J**	ND	0.05 J	ND	--	**8.9**	**34**	0.26	**20**	**6**
Benzo(k)fluoranthene	**0.8**	**4.9**	**47**	**78**	ND	ND	ND	ND	--	**7.7**	**26 J**	0.16 J	**19**	**5.2**
Chrysene	**1**	**4.9**	**47**	**78**	ND	ND	ND	ND	--	**13**	**46**	0.42	**37**	**12**
Dibenzo(a,h)anthracene	**0.33**	**0.33**	**3.7**	**3.7**	ND	ND	ND	ND	--	ND	**8.5**	ND	**9.4**	**2.2 J**
Fluoranthene	**85**	**100**	**500**	**1000**	1.7 J	ND	0.06 J	ND	--	26	**93**	0.54	57	31
Fluorene	**30**	**100**	**500**	**1000**	ND	ND	ND	ND	--	2	3.7 J	ND	0.64 J	3.8
Indeno(1,2,3-cd)pyrene	**0.5**	**1.4**	**37**	**37**	**0.59 J**	ND	ND	ND	--	**7.5**	**28 J**	0.18 J	**19**	**5.1**
Naphthalene	**12**	**100**	**500**	**1000**	ND	0.1 J	ND	0.55	--	0.79 J	ND	ND	ND	ND
Phenanthrene	**1.1**	**4.9**	**47**	**78**	ND	ND	ND	ND	--	**18**	**57**	0.5	**7.6**	**28**
Pyrene	**64**	**100**	**500**	**1000**	1.1 J	ND	0.054 J	ND	--	21	**77**	0.53	38	20
Total PAHs	**--**	**--**	**--**	**--**	6.1	0.1	0.202	0.55	--	152.58	538	3.706	338.64	158.91
Metals - mg/Kg														
Arsenic	**13**	**16**	**16**	**16**	7.3	--	3.2	--	12.7	9.1	**22**	**13.7**	**83.6**	8.7
Barium	**410**	**410**	**410**	**10,000**	88.8 ^5+	--	155 ^5+	--	**942**	240	406 ^5+	186 ^5+	**920**	333
Cadmium	**2.5**	**2.5**	**3.7**	**4.4**	0.48	--	0.2 J	--	**7.8**	1.1	1.2	1.2	1.6	1.4
Chromium	**30**	**110**	**1700**	**2000**	21.6	--	13.7	--	**52.2**	22	**40.7**	17.5	**41.1**	17.8
Lead	**63**	**400**	**1000**	**3900**	**502 ^5+**	--	58.3 ^5+	--	**20000**	**820**	**3800**	**1050**	**1900**	**543**
Mercury	**0.18**	**0.3**	**1.1**	**1.1**	**6.5**	--	0.065	--	**0.5**	**0.37 F1**	**159 J**	**0.23**	**0.61**	**8.1**
Selenium	**3.9**	**110**	**1700**	**2000**	ND	--	ND	--	1.4 J	ND	2.3	ND	2.4 J	3 J
Silver	**2**	**110**	**1700**	**2000**	0.48 J^5-	--	0.48 J^5-	--	0.47 J^5-	0.48 J^5-	0.67 J^5-	0.51 J^5-	1.5 ^5-	1.4 ^5-

Notes:
1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per 6NYCRR Part 375 Soil Cleanup Objectives (SCOs).
3. Sample results were reported by the laboratory in ug/kg and converted to mg/kg for comparisons to SCOs.

Definitions:
ND = Parameter not detected above laboratory detection limit.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
^5-= Linear Range Check (LRC) is outside acceptance limits, low biased.
^5+= Linear Range Check (LRC) is outside acceptance limits, high biased.
F1= MS and/or MSD recovery exceeds control limits.
B = Compound was found in the blank and sample.
vs = Reported analyte concentrations are below 200 ug/kg and may be biased low due to the sample not being collected according to 5035A- L low-level specifications.

Bold	= Results Exceed Part 375 Unrestricted Use SCOs
Bold	= Results Exceed Part 375 Restrcited Residential Use SCOs
Bold	= Results Exceed Part 375 Commercial Use SCOs
Bold	= Results Exceed Part 375 Industrial Use SCOs

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TABLE 2
SAMPLING AND ANALYSIS PLAN
REMEDIAL INVESTIGATION WORK PLAN
SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

Location	Number of Proposed Locations	Matrix	Parameter[1]							
			TCL VOCs plus TICs[2]	TCL SVOCs plus TICs[2]	TAL Metals	PCBs	Pesticides	PFAS	TCL VOCs	Waste Characterization Parameters[7]
			EPA Method 8260	EPA Method 8270	EPA Method 2010/7470/7471	EPA Method 8082	EPA Method 8081	EPA Method 1633A	EPA Method TO-15	Various Methods
Surface Soil										
Surface Soil (0-2")	6	Soil	--	6	6	3	3	3	--	--
Blind Duplicate [3]	-	Soil	--	1	1	1	1	1	--	--
MS/MSD [3]	-	Soil	--	1	1	1	1	1	--	--
Surface Soil Subtotal			0	8	8	5	5	5	0	0
Subsurface Soil										
Test Pits (Fill Material)	17	Soil	10	10	10	10	10	10	--	6
Test Pits (Native 5-10')		Soil	1	4	4	1	1	1	--	--
Test Pits (Native 10'-15')		Soil	1	4	4	1	1	1	--	--
Monitoring Wells (Fill Material)	5	Soil	3	5	5	3	3	3	--	--
Monitoring Wells (Native 5-10')		Soil	1	3	3	1	1	1	--	--
Monitoring Wells (Native 10-15')		Soil	1	3	3	1	1	1	--	--
Blind Duplicate [3]	-	Soil	1	2	2	1	1	1	--	--
MS/MSD [3]	-	Soil	1	2	2	1	1	1	--	--
Subsurface Soil Subtotal			19	33	33	19	19	19	0	6
Soil Vapor (Method TO-15)										
Soil Vapor	4	Soil Vapor	--	--	--	--	--	--	4	--
Outdoor Air	1	Ambient Air	--	--	--	--	--	--	1	--
Soil Vapor Subtotal			0	0	0	0	0	0	5	0
Groundwater										
Monitoring Well	5	Groundwater	5	5	5	5	5	5	--	--
Blind Duplicate [3]	-	Groundwater	1	1	1	1	1	1	--	--
MS/MSD [3]	-	Groundwater	1	1	1	1	1	1	--	--
Trip Blank [4]	-	Water	1	--	--	--	--	--	--	--
Equipment Blank [5]	-	Water	1	--	--	--	--	1	--	--
Field Blank [6]	-	Water	--	--	--	--	--	1	--	--
Groundwater Subtotal			9	7	7	7	7	9	0	0
Waste Characterization										
Subsurface Soil	7	Soil	--	--	--	--	--	--	--	7
Sampling Totals			**28**	**48**	**48**	**31**	**31**	**33**	**5**	**6**

Notes:

1. Analyses will be performed via USEPA SW-846 methodology with equivalent Category B deliverables package.
2. Tentatively identified compounds (TICs) and 1,4 Dioxane (soil via USEPA Method 8270 and groundwater via USEPA Method 8270 SIM) will also be reported.
3. Blind duplicate and MS/MSD samples will be collected at a frequency of 1 per 20 samples/media collected.
4. Trip blanks will be submitted to the laboratory each day aqueous volatile organic samples are collected.
5. One equipment blank will be submitted to the laboratory when non-dedicated equipment is used at a frequency of 1 per 20 aqueous samples collected for VOC or PFAS analysis.
6. One blanks will be submitted to the laboratory at a frequency of 1 per 20 aqueous samples collected for PFAS analysis.
7. Waste characterization parameters are likely to include the following anaysis requirements: TCLP VOCs, TCLP SVOCs, TCLP Metals, PCBs, ignitability, corrosivity, and reactivity.

Acronyms:

VOCs = volatile organic compounds
SVOCs = semi-volatile organic compounds
TCL = Target Compound List
TAL = Target Analyte List
PCBs = Polychlorinated Biphenyls
PFAS = Per- and polyfluoroalkyl substances

TABLE 3
SUMMARY OF FIELD OPERATING PROCEDURES
REMEDIAL INVESTIGATION WORK PLAN
SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

FOP No.	Procedure
001.1	Abandonment of Borehole Procedures
002.0	Abandonment of Monitoring Wells Procedure
004.7	Soil Vapor Sample Collection Procedures
007.0	Calibration and Maintenance of Portable Dissolved Oxygen Meter
008.0	Calibration and Maintenance of Portable Field pH/Eh Meter
009.0	Calibration and Maintenance of Portable Field Turbidity Meter
011.1	Calibration and Maintenance of Portable Photoionization Detector
012.0	Calibration and Maintenance of Portable Specific Conductance Meter
013.1	Composite Sample Collection Procedure for Non-Volatile Organic Analysis
015.0	Documentation Requirements for Drilling and Well Installation
017.0	Drill Site Selection Procedure
018.0	Drilling and Excavation Equipment Decontamination Procedures
021.0	Establishing Horizontal and Vertical Control
022.0	Groundwater Level Measurement
023.1	Groundwater Purging Procedures Prior to Sample Collection
024.1	Groundwater Sample Collection Procedures
024.3	Groundwater Sample Collection Procedures for PFAS
025.0	Hand Augering Procedures
026.1	Hollow Stem Auger (HSA) Drilling Procedures
031.2	Low Flow (Minimal Drawdown) Groundwater Purging & Sampling Procedure
032.2	Management of Investigation-Derived Waste (IDW)
033.0	Monitoring Well Construction for Hollow Stem Auger Boreholes
036.0	Monitoring Well Development Procedures
039.1	NAPL Detection and Sample Collection Procedure
040.1	Non-Disposable and Non-Dedicated Sampling Equipment Decontamination
046.1	Sample Labeling, Storage and Shipment Procedures
047.0	Screening of Soil Samples for Organic Vapors During Drilling Activities
054.2	Soil Description Procedures Using The Visual-Manual Method
057.0	Soil Sample Collection for VOC Analysis - EnCore
058.0	Split-Spoon Sampling Procedures
063.4	Surface and Subsurface Soil Sampling Procedures
065.1	Test Pit Excavation and Logging Procedures
070.0	Well/Piezometer Construction Materials & Design
073.2	Real-Time Air Monitoring During Intrusive Activities
076.0	"Before Going Into the Field" Procedure
078.0	Geoprobe Drilling Procedure
085.0	Field Quality Control Procedures

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TABLE 4
SAMPLE CONTAINER, VOLUME, PRESERVATIVE & HOLDING TIME REQUIREMENTS
SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

Matrix	Parameter [1]	Method [1]	Container Type	Minimum Volume	Preservation (Cool to 2-4 °C for all samples)	Holding Time from Sample Date
Soil	TCL VOCs + TICs	8260	EnCore/WMG	5 gm / 4 oz.	Cool to 2-4 °C, Zero Headspace	48 - hours / 14 days
	TCL SVOCs + TICs	8270	WMG	4 oz.	Cool to 2-4 °C	14 days extrac./40 days
	TAL Metals	6010/7471	WMG	4 oz.	Cool to 2-4 °C	6 months/Hg 28 days
	Pesticides	8081	WMG	4 oz.	Cool to 2-4 °C	14 days extrac./40 days
	PCBs	8082	WMG	4 oz.	Cool to 2-4 °C	14 days extrac./40 days
	PFAS	1633	HDPE/Polypropylene	8 oz.	Cool to 2-4 °C	14 days extrac./40 days
Groundwater	TCL VOCs + TICs	8260	glass vial	3 - 40 mL	HCl to pH<2, Zero Headspace, Cool to 2-4 °C	14 days
	TCL SVOCs	8270	amber glass	2 - 250 mL	Cool to 2-4 °C	7 days extrac/40 days
	1,4-Dioxane	8270 SIM	8270 SIM	2 - 250 mL	Cool to 2-4 °C	7 days extrac/40 days
	TAL Metals	6010/7470	plastic	250 mL	HNO_3 to pH<2, Cool to 2-4 °C	6 months/Hg 28 days
	Pesticides	8081B	amber glass	2 - 250 mL	Cool to 2-4 °C	14 days extrac./40 days
	PCBs	8082	amber glass	2 - 250 mL	Cool to 2-4 °C	7 days extrac/40 days
	PFAS	1633	HDPE/Polypropylene	2 - 125 mL	Cool to 2-4 °C	14 days
Air/Soil Vapor	TCL VOCs	TO-15	Summa Cannister	6 liters	None	Analyze within 14 days of sample date of collection

Notes:

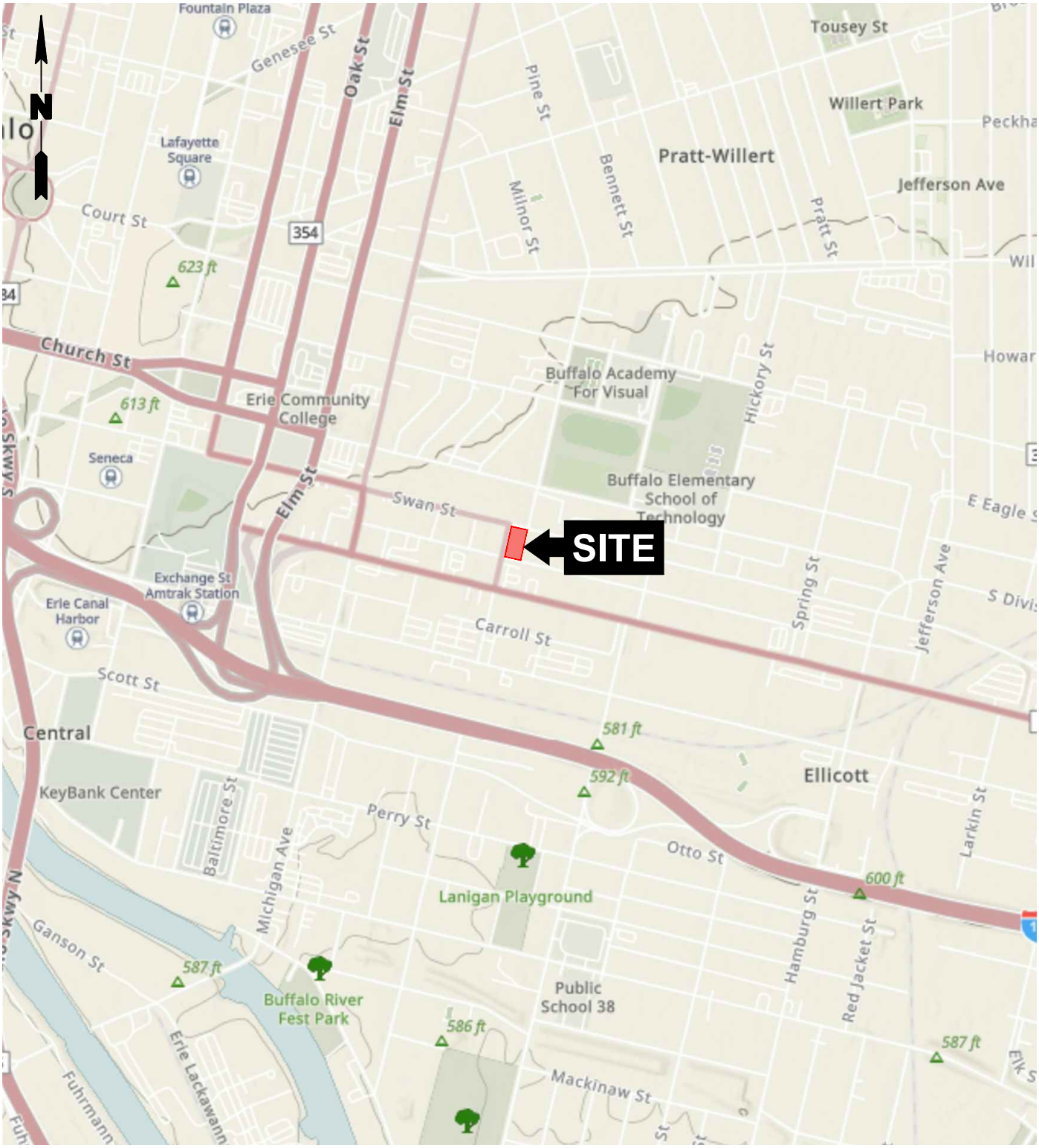
1. Analyses will be completed in accordance with EPA Test Methods for Evaluating Solid Wastes, USEPA SW-846, Update III, 1991.

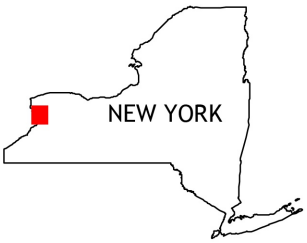
Acronyms:

VOCs = Volatile Organic Compounds
SVOCs = Semi-Volatile Organic Compounds
TCL = Target Compound List
TAL = Target Analyte List
WMG = Wide Mouth Glass
PCBs = Polychlorinated Biphenyls
PFAS = Per- and Polyfluoroalkyl Substances

FIGURES

1. Site Location and Vicinity Map
2. Site Plan (Aerial)
3. Historic Investigation Locations and Areas of Concern
4. Zoning Map
5. Ecological Resources Map
6. Planned Remedial Investigation Locations
7. Preliminary Project Schedule





BUFFALO NE QUADRANGLE
NEW YORK - ERIE COUNTY
7.5-MINUTE SERIES

1000' 0 1000'

Title: **SITE LOCATION AND VICINITY MAP**

SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

REMEDIAL INVESTIGATION WORK PLAN

Prepared for:

SWAN CHICAGO LLC

ROUX

Compiled by: CMS	Date: JULY 2026	FIGURE
Prepared by: CMS/CNK	Scale: AS SHOWN	1
Project Mgr: BWM	Project: 5143.0001B000	
File: FIGURE 1; SITE LOCATION AND VICINITY MAP.DWG		

F:\CAD\0-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\RIWP\FIGURE 1; SITE LOCATION AND VICINITY MAP.DWG

MAP PER GOOGLE EARTH, JUNE 2024.

LEGEND:

BCP SITE BOUNDARY

PARCEL BOUNDARY

30' 0 30'

Title:

SITE PLAN (AERIAL)

SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

REMEDIAL INVESTIGATION WORK PLAN

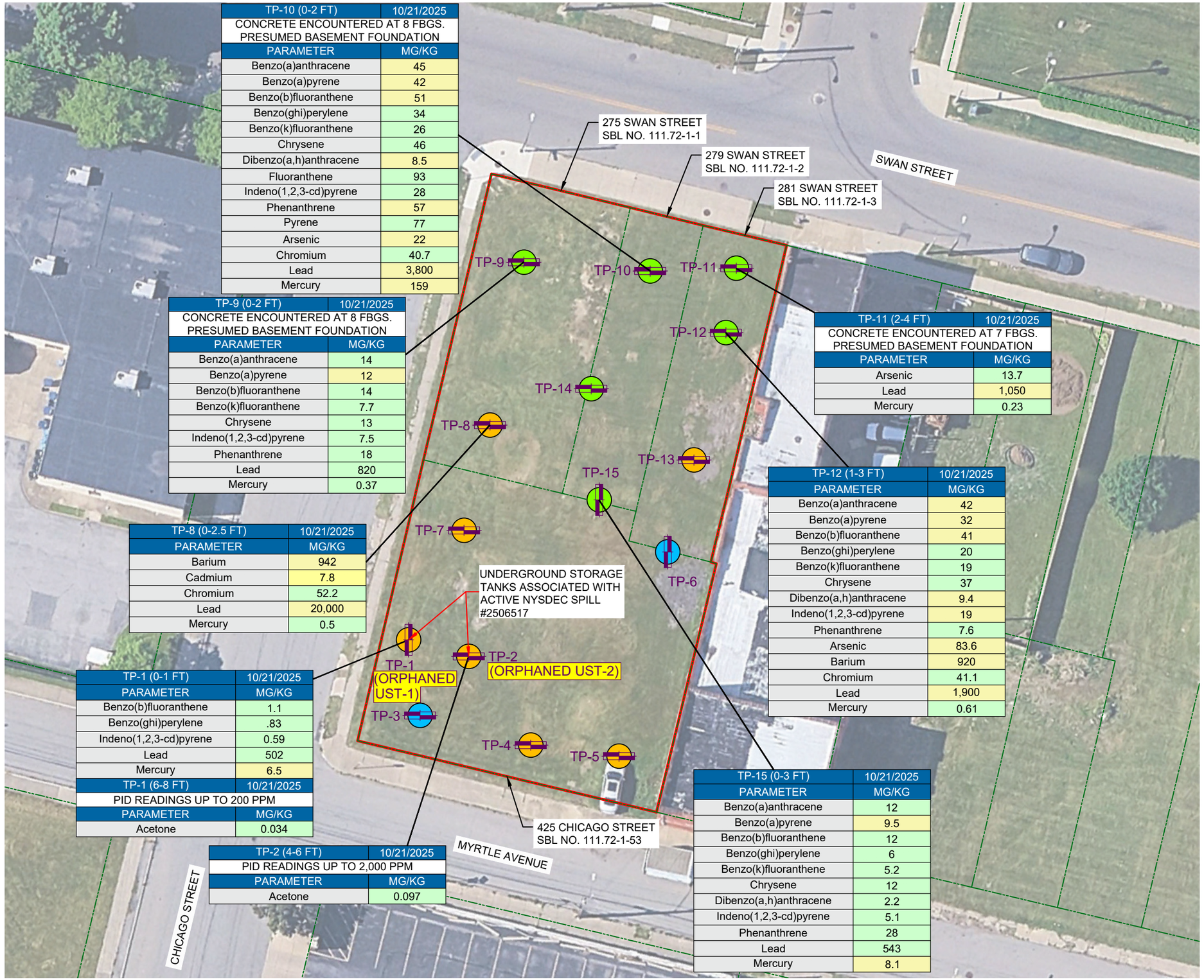
Prepared for:

SWAN CHICAGO LLC

ROUX

Compiled by: CMS	Date: JULY 2026	FIGURE
Prepared by: CMS/CNK	Scale: AS SHOWN	2
Project Mgr: BWM	Project: 5143.0001B000	
File: FIGURE 2; SITE PLAN (AERIAL).DWG		

F:\CAD\0-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\RIWP\FIGURE 2; SITE PLAN (AERIAL).DWG



TP-10 (0-2 FT)	10/21/2025
CONCRETE ENCOUNTERED AT 8 FBGS. PRESUMED BASEMENT FOUNDATION	
PARAMETER	MG/KG
Benzo(a)anthracene	45
Benzo(a)pyrene	42
Benzo(b)fluoranthene	51
Benzo(ghi)perylene	34
Benzo(k)fluoranthene	26
Chrysene	46
Dibenzo(a,h)anthracene	8.5
Fluoranthene	93
Indeno(1,2,3-cd)pyrene	28
Phenanthrene	57
Pyrene	77
Arsenic	22
Chromium	40.7
Lead	3,800
Mercury	159

TP-9 (0-2 FT)	10/21/2025
CONCRETE ENCOUNTERED AT 8 FBGS. PRESUMED BASEMENT FOUNDATION	
PARAMETER	MG/KG
Benzo(a)anthracene	14
Benzo(a)pyrene	12
Benzo(b)fluoranthene	14
Benzo(k)fluoranthene	7.7
Chrysene	13
Indeno(1,2,3-cd)pyrene	7.5
Phenanthrene	18
Lead	820
Mercury	0.37

TP-8 (0-2.5 FT)	10/21/2025
PARAMETER	MG/KG
Barium	942
Cadmium	7.8
Chromium	52.2
Lead	20,000
Mercury	0.5

TP-1 (0-1 FT)	10/21/2025
PARAMETER	MG/KG
Benzo(b)fluoranthene	1.1
Benzo(ghi)perylene	.83
Indeno(1,2,3-cd)pyrene	0.59
Lead	502
Mercury	6.5
TP-1 (6-8 FT)	10/21/2025
PID READINGS UP TO 200 PPM	
PARAMETER	MG/KG
Acetone	0.034

TP-2 (4-6 FT)	10/21/2025
PID READINGS UP TO 2,000 PPM	
PARAMETER	MG/KG
Acetone	0.097

TP-11 (2-4 FT)	10/21/2025
CONCRETE ENCOUNTERED AT 7 FBGS. PRESUMED BASEMENT FOUNDATION	
PARAMETER	MG/KG
Arsenic	13.7
Lead	1,050
Mercury	0.23

TP-12 (1-3 FT)	10/21/2025
PARAMETER	MG/KG
Benzo(a)anthracene	42
Benzo(a)pyrene	32
Benzo(b)fluoranthene	41
Benzo(ghi)perylene	20
Benzo(k)fluoranthene	19
Chrysene	37
Dibenzo(a,h)anthracene	9.4
Indeno(1,2,3-cd)pyrene	19
Phenanthrene	7.6
Arsenic	83.6
Barium	920
Chromium	41.1
Lead	1,900
Mercury	0.61

TP-15 (0-3 FT)	10/21/2025
PARAMETER	MG/KG
Benzo(a)anthracene	12
Benzo(a)pyrene	9.5
Benzo(b)fluoranthene	12
Benzo(ghi)perylene	6
Benzo(k)fluoranthene	5.2
Chrysene	12
Dibenzo(a,h)anthracene	2.2
Indeno(1,2,3-cd)pyrene	5.1
Phenanthrene	28
Lead	543
Mercury	8.1

LEGEND:

- BCP SITE BOUNDARY
- PARCEL BOUNDARY
- TP-1 PHASE II TEST PIT
- FILL MATERIAL OBSERVED
- DEEP FILL MATERIAL OBSERVED (>4 FBGS)
- REWORKED CLAY FILL MATERIAL OBSERVED
- EXCEEDS UNRESTRICTED USE SCOs[1]
- EXCEEDS COMMERCIAL USE SCOs[1]

NOTES:
1. SOIL RESULTS COMPARED TO 6 NYCRR PART 375 SOIL CLEANUP OBJECTIVES (SCOs).
2. IMAGE PER GOOGLE EARTH, JUNE 2024.

N

30' 0 30'

Title:
HISTORIC INVESTIGATION LOCATIONS AND AREAS OF CONCERN
SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

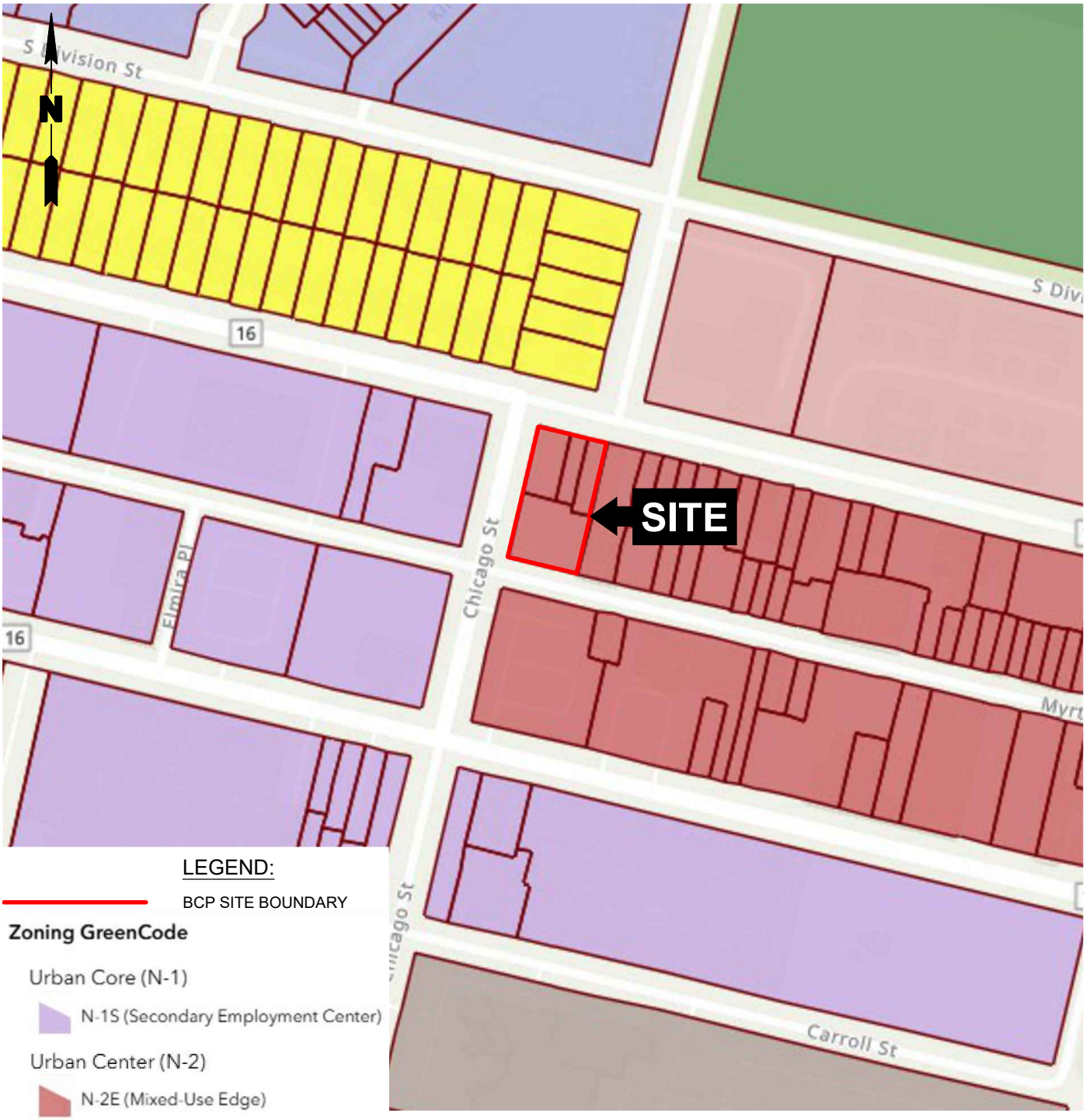
REMEDIAL INVESTIGATION WORK PLAN

Prepared for:
SWAN CHICAGO LLC

ROUX

Compiled by: CMS	Date: JULY 2026	FIGURE
Prepared by: CMS/CNK	Scale: AS SHOWN	3
Project Mgr: BWM	Project: 5143.0001B000	
File: FIGURE 3; HISTORIC INVESTIGATION LOCATIONS AND AREAS OF CONCERN.DWG		

F:\CAD\0-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\RIWP\FIGURE 3; HISTORIC INVESTIGATION LOCATIONS AND AREAS OF CONCERN.DWG



LEGEND:

BCP SITE BOUNDARY

Zoning GreenCode

Urban Core (N-1)

- N-1S (Secondary Employment Center)

Urban Center (N-2)

- N-2E (Mixed-Use Edge)
- N-2R (Residential)

Urban Edge (N-4)

- N-4-30 (Single Family)

Open Space

- D-OG (Green)

Campus

- D-R (Residential Campus)

Employment

- D-C (Flex Commercial)

MAP PER CITY OF BUFFALO EXPLORER.

200' 0 200'

Title:

ZONING MAP

SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

REMEDIAL INVESTIGATION WORK PLAN

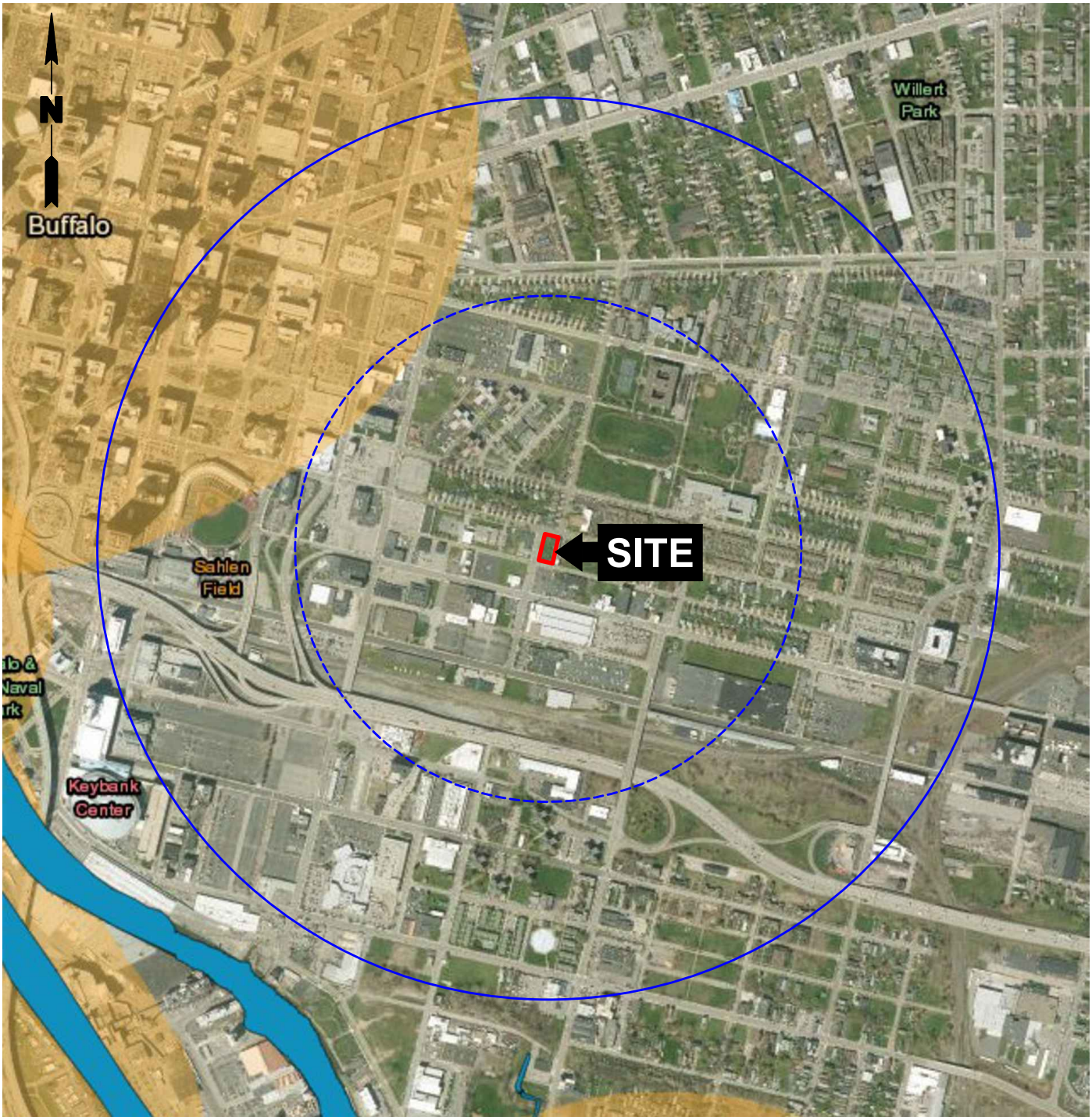
Prepared for:

SWAN CHICAGO LLC

ROUX

Compiled by: CMS	Date: JULY 2026	FIGURE
Prepared by: CMS/CNK	Scale: AS SHOWN	4
Project Mgr: BWM	Project: 5143.0001B000	
File: FIGURE 4; ZONING MAP.DWG		

F:\CAD\0-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\RIWP\FIGURE 4; ZONING MAP.DWG



LEGEND:

- BCP SITE BOUNDARY
- 0.25-MILE RADIUS FROM SITE BOUNDARY
- 0.5-MILE RADIUS FROM SITE BOUNDARY
- NYSDEC AREA OF ANIMALS LISTED AS ENDANGERED OR THREATENED

MAP PER NYSDEC ENVIRONMENTAL RESOURCE MAPPER.

1000' 0 1000'

Title:

ECOLOGICAL RESOURCES MAP

SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

REMEDIAL INVESTIGATION WORK PLAN

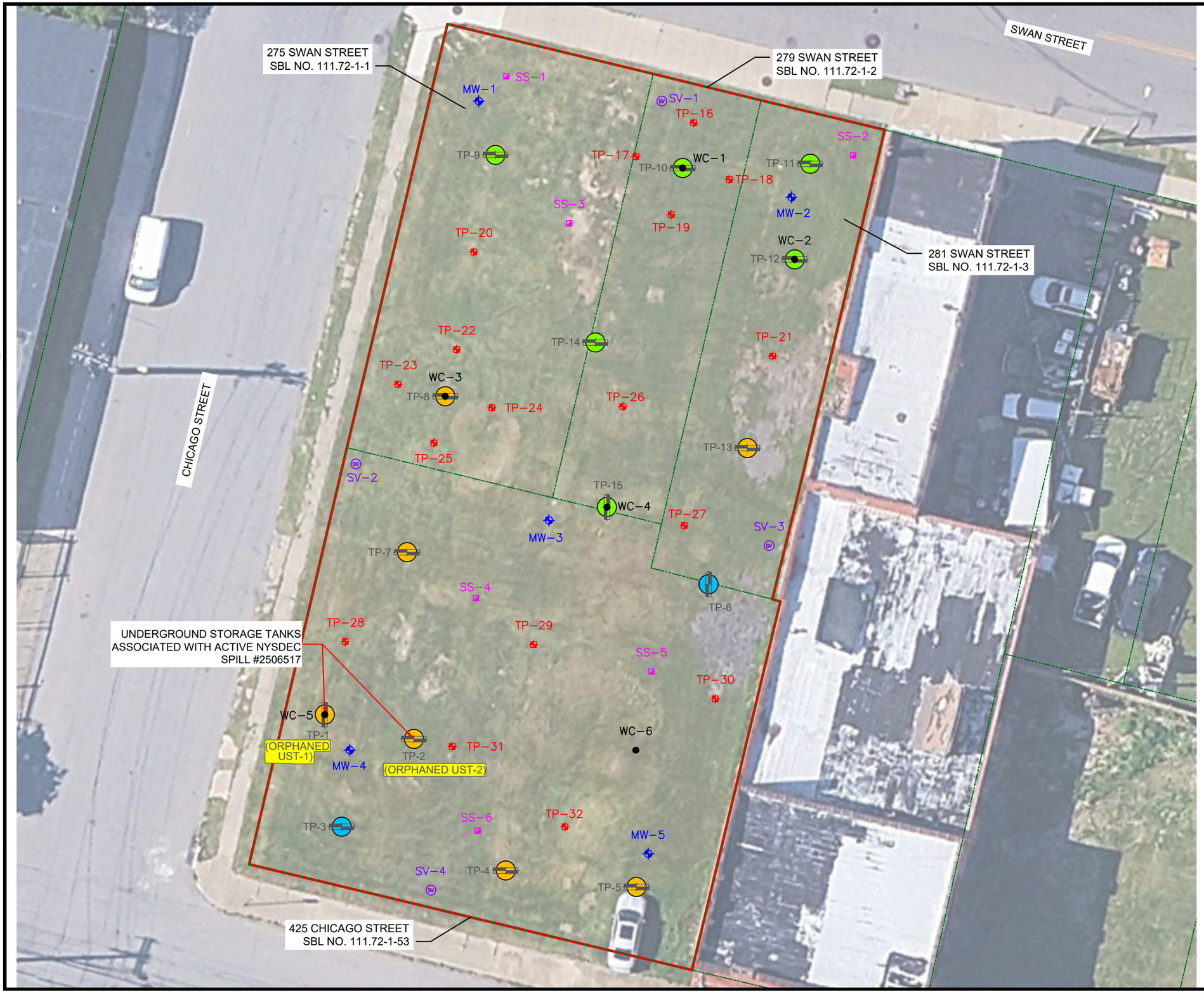
Prepared for:

SWAN CHICAGO LLC

ROUX

Compiled by: CMS	Date: JULY 2026	FIGURE
Prepared by: CMS/CNK	Scale: AS SHOWN	5
Project Mgr: BWM	Project: 5143.0001B000	
File: FIGURE 5; ECOLOGICAL RESOURCES MAP.DWG		

F:\CAD\0-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\RIWP\FIGURE 5; ECOLOGICAL RESOURCES MAP.DWG



LEGEND:

- BCP SITE BOUNDARY
- PARCEL BOUNDARY
- TP-1 PHASE II TEST PIT
- SS-1 PROPOSED RI SURFACE SOIL SAMPLE
- TP-16 PROPOSED RI TEST PIT
- MW-1 PROPOSED RI SOIL BORING/ MONITORING WELL
- SV-1 PROPOSED RI SOIL VAPOR SAMPLE
- WC-1 PROPOSED RI WASTE CHARACTERIZATION SAMPLE
- FILL MATERIAL OBSERVED
- DEEP FILL MATERIAL OBSERVED (>4 FBGS)
- REWORKED CLAY FILL MATERIAL OBSERVED

NOTES:
1. IMAGE PER GOOGLE EARTH, JUNE 2024.

N

20' 0 20'

Title:
PLANNED REMEDIAL INVESTIGATION LOCATIONS
SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

REMEDIAL INVESTIGATION WORK PLAN

Prepared for:
SWAN CHICAGO LLC

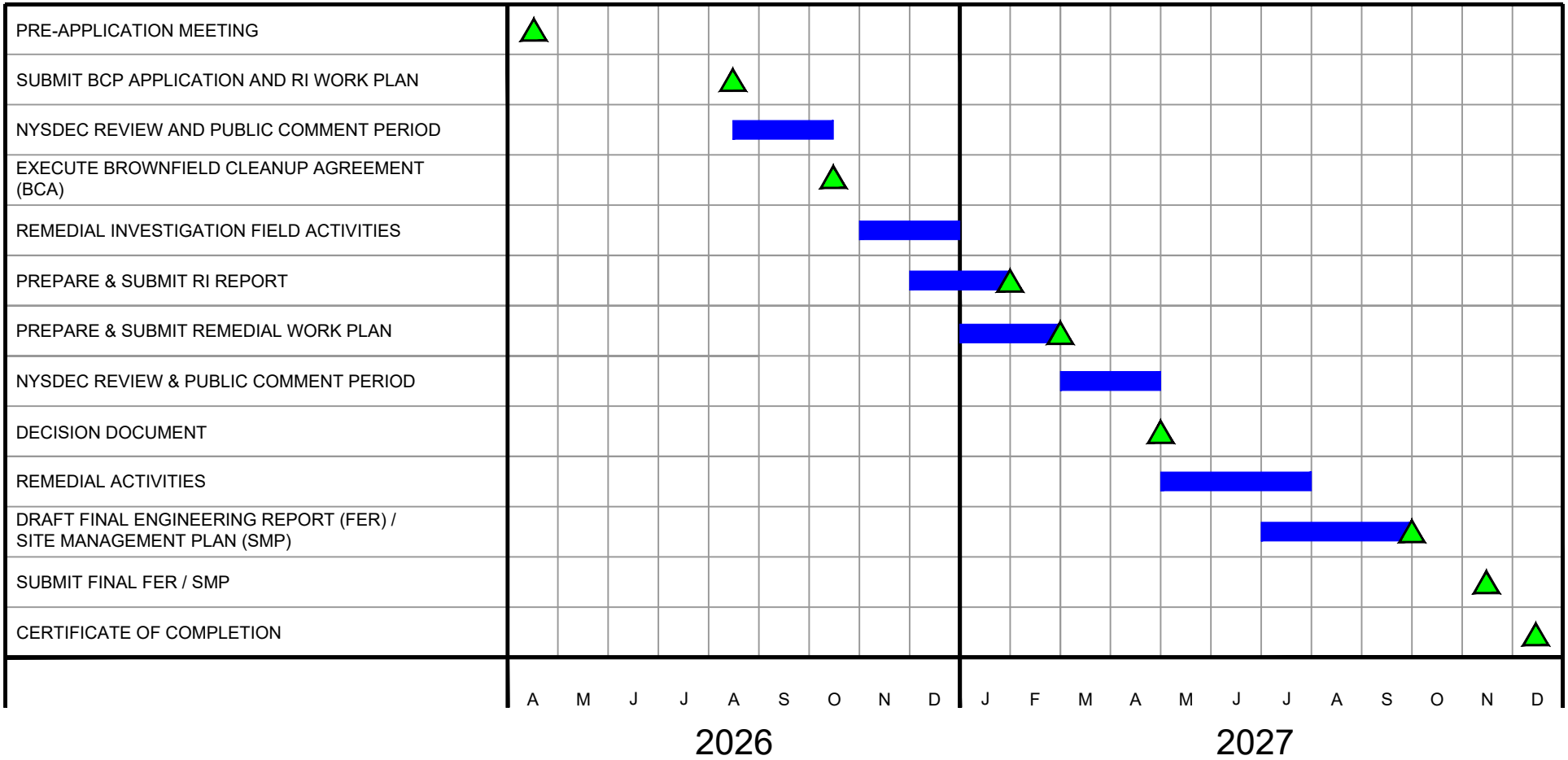
ROUX

Compiled by: CMS	Date: AUGUST 2026	FIGURE
Prepared by: CNK	Scale: AS SHOWN	6
Project Mgr: BWM	Project: 5143.0001B000	
File: FIGURE 6; PLANNED REMEDIAL INVESTIGATION LOCATIONS_REV1.DWG		

F:\CADIO-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\RIWP\FIGURE 6; PLANNED REMEDIAL INVESTIGATION LOCATIONS_REV1.DWG

F:\CAD\0-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\RIWP\FIGURE 7; PRELIMINARY PROJECT SCHEDULE.DWG

PROJECT TASKS:



Title:

PRELIMINARY PROJECT SCHEDULE

SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

REMEDIAL INVESTIGATION WORK PLAN

Prepared for:

3701 RIVER ROAD, LLC

ROUX

Compiled by: CMS	Date: AUGUST 2026	FIGURE
Prepared by: CMS/CNK	Scale: NA	7
Project Mgr: BWM	Project: 4369.0005B000	
File: FIGURE 7; PRELIMINARY PROJECT SCHEDULE.DWG		

APPENDICES

APPENDIX A

Resumes

PROFESSIONAL PROFILE

Thomas H. Forbes, PE

Vice President | Principal Engineer | Co-operations Manager

CONTACT INFORMATION

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Direct: (716) 864-1730
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Website: www.rouxinc.com

2558 Hamburg Turnpike
Suite 300
Buffalo, New York 14218

EDUCATION

BS, Chemical Engineering, State University of New York at Buffalo, 1988

Graduate of State University of New York at Buffalo School of Management Center for Entrepreneurial Leadership, 2002

Graduate-level courses in Biological Principles of Engineering and Hazardous Waste Management through the State University of New York at Buffalo Department of Environmental Engineering

PROFESSIONAL LICENSES

Professional Engineer: NY, PA, and OH

EXPERIENCE SUMMARY

Mr. Forbes has more than thirty-six years of environmental engineering experience: Vice President, Principal Engineer, and Co-operations Manager at Roux, July 2023 to Present; Principal Engineer and President at Benchmark Civil/Environmental Engineering & Geology, PLLC, June 1998 to July 2023; and Project Engineer, Malcolm Pirnie, Inc., June 1988 to June 1998.

TECHNICAL SPECIALTIES

Mr. Forbes is a registered professional engineer licensed in the States of New York, Ohio, and Pennsylvania. He has over thirty-six years of experience focused on brownfield and hazardous waste site investigation and remediation; petroleum-impacted site remediation; due diligence for environmentally-impaired properties; groundwater and industrial wastewater treatment; and environmental regulatory compliance services. He holds a BS in Chemical Engineering from the University at Buffalo. He is currently a Vice President and Principal Engineer for Roux (2023- present). Mr. Forbes' investigations and cleanups have included well over 250 sites contaminated with a wide range of materials, including per- and polyfluoroalkyl substances (PFAS), chlorinated solvents, polyaromatic hydrocarbons, polychlorinated biphenyls (PCBs), dioxins, heavy metals, cyanide, radioactive isotopes, and petroleum contamination. He has evaluated and successfully implemented cost-saving and innovative treatment technologies on a conventional and design-build basis (e.g., in situ and ex situ physical-chemical, thermal, and biological treatment), as well as removal and containment methods for remediation. Mr. Forbes has also played an instrumental role in extending and improving the New York State Brownfield Cleanup Program (BCP) through voluntary consulting efforts with congressional and senate leaders, as well as the New York State Department of Environmental Conservation (NYSDEC). He has also assisted numerous manufacturing and pharmaceutical clients through the development of strategies, plans, and permit applications necessary to secure and maintain state and federal environmental regulatory compliance.

REPRESENTATIVE PROJECTS

- Project manager for remedial investigation, alternatives analysis, and remedial construction to facilitate redevelopment of over 450-acres of former Bethlehem Steel Corp manufacturing site property encompassing 33 separate Brownfield Cleanup Program (BCP) sites in Lackawanna, New York. Contaminants of concern primarily include petroleum organics, solvents, PCBs, and heavy metals. Currently managing remediation of over 500 acres of additional property under an NYSDEC RCRA Corrective Action Program.
- Expert witness to legal defense team for a former electronic parts manufacturer under suit by Orange County Water District, Fullerton, California for primary drinking water aquifer contamination by chlorinated solvents and emergent organic contaminants. Served as technical consultant during mediation and settlement discussions; prepared expert report and lead technical arguments on behalf of defendant to support claim dismissal.
- Project manager for remediation of spill area soils associated with the Lehigh Valley Railroad Derailment National Priority List (NPL) Site in LeRoy, New York. Developed and implemented a USEPA-approved comprehensive remedial design to address chlorinated solvents in site soils via in situ soil vapor extraction.
- Assisted confidential client's legal counsel negotiate a consent decree with New Mexico Environment Department related to cleanup of chlorinated solvent releases to overburden and the fractured bedrock aquifer from a former manufacturing operation in Albuquerque, NM. Presently assisting in management of in situ groundwater cleanup and monitoring work.

- Project Officer for BCP remediation and civil engineering design on a former industrial property to facilitate construction of a 290,000 SF manufacturing building which currently produces a consumer cleaning product for Proctor & Gamble.
- Serve as primary environmental consultant and environmental regulatory compliance manager for a Fortune 500 pharmaceutical manufacturing company in Western New York.
- Assisted in development of an in situ PFAS stabilization pilot test and Remedial Design Work Plan for a western New York Brownfield Cleanup Program Site impacted by suspected firefighting foam practice operations.
- Successfully designed and implemented groundwater pump and treat systems incorporating advanced oxidation processes to remove organic solvents and emerging contaminants at a former municipal landfill and at a former superfund site in central New York.
- Supervised monitoring and remedial measures during redevelopment of the Riverbend Site in Buffalo, New York for a new solar panel and battery system manufacturing operation. Developed a technologically enhanced naturally occurring radioactive material (TENORM) reuse work plan and variance application, which was the first ever employed in New York State. The plan was accepted by New York State, saving tens of millions in disposal costs.
- Served as Project Officer for NYSDEC Brownfield Cleanup Program (BCP) investigation and remediation of 441 Ohio Street, a former freight house located along the Buffalo River. Remedial activities included bank reshaping, hotspot soil/fill removal, and cover system placement to allow redevelopment as a residential apartment building.
- Serving as Project Officer for remedial investigation and cleanup activities at 1176 South Park Avenue, an NYSDEC BCP Site and the location of a former large-scale petroleum storage facility located on the Buffalo River.
- Served as Project Officer for NYSDEC Brownfield Cleanup Program (BCP) investigation and remediation of the former Millard Fillmore Gates Circle hospital complex in Buffalo, New York.
- Project officer for NYSDEC BCP investigation and cleanup of 154 South Ogden Street in concert with construction of the South Buffalo Charter School.
- Project manager for RI/FS, remedial design, and remedial construction at the Sycamore Village Site, a 4-acre New York State Environmental Restoration Program (ERP) site in Buffalo, New York. Responsible for all technical and administrative aspects of the project, involving removal of over 18,000 cubic yards of soil from an impacted residential neighborhood and site restoration.
- Served as project manager and supervising contractor for design-build remedial activities at the Markhams National Priority List (NPL) site in Dayton, NY. Successfully implemented remedial measures leading to USEPA-designated Preliminary Site Closeout status in October 2008 and delisting in 2009.
- Served as project manager representing multiple potential responsible party (PRP)-led remedial construction activities to address heavy metal and chlorinated solvent impacts at the Peter Cooper Landfill NPL site. Responsible for oversight and coordination of RI/FS planning and implementation activities, lead technical contact with USEPA, and remedial measures design and construction. Achieved site closeout in 2011.
- Assisted in the development of a voluntary cleanup plan for remediation of a 120-acre former steel manufacturing site in Buffalo, New York which was contaminated with volatile organic compounds, heavy metals, poly-nuclear aromatic hydrocarbons. Specific assistance involved design of a groundwater remediation system to address VOC and SVOC source area impacts proximate to a residential neighborhood and development and implementation of a Community Air Monitoring Plan involving quantitative monitoring (Summa Canister and respirable particulate analysis) and qualitative monitoring (field instruments).
- Served as Project Manager for RI/FS and cleanup activities related to solvent releases from a former paint and specialty coatings manufacturing facility in Buffalo, New York. The work, carried out under NY State Superfund program, included in situ treatment of soils and groundwater impacted by chlorinated and non-chlorinated volatile organics and heavy metals.
- Currently serving as Project Manager for New York State Voluntary Cleanup efforts for chlorinated solvent cleanup at a former degreasing and electroplating facility in Rochester, NY. Designed and implemented interim remedial measures involving low-profile air stripping and in situ hydrogen infusion.
- Served as Project Manager for multiple EPA Pilot-Grant funded investigations for City of Buffalo Department of Strategic Planning.
- Managed design-build cleanup of former New 7th Street Brownfield Cleanup Program Site in Buffalo, New York. The project involved design-build removal of several hundred tons of petroleum-impacted soil and fill material and preparation of related engineering reports resulting in Certificate of Completion issuance.

- Led remedial efforts for petroleum releases at a Western New York refinery and major oil storage facility, achieving site inactivation within 3 months of the release.
- Managed spill site investigation and cleanup work including underground storage tank removal work at numerous petroleum and chemical spill sites in Western New York.
- Led design-build construction of a 5 MGD capacity cooling water pH adjustment system for PVS Chemical Corporation. The project included design of feed forward pH control system, adjustment tank and mixer construction, process, and chemical feed piping modifications to neutralize sulfuric acid discharges. Successfully implemented startup and demonstration testing.
- Designed a 75 gpm groundwater treatment system and served as quality assurance officer for remedial efforts at the Steelfields site (former LTV Steel/Hanna Furnace Site), Buffalo, New York. The treatment system removes petroleum-based volatile organic and semi-volatile organic compounds prior to discharge to the Buffalo Sewer Authority.
- Assisted the City of Buffalo Department of Community Development in implementing an emergency PCB-contaminated soil removal effort from a residential neighborhood in Buffalo, New York. Responsibilities included coordination of hazmat excavation contractor and secure landfill, preparation of an emergency excavation and confirmatory sampling plan, and oversight of community air monitoring during the removal work.
- Performed a Feasibility Study and prepared an Engineering Design Report for remediation of PCB-contaminated soils and sediments at the Columbus McKinnon Corporation, Tonawanda, New York. Responsibilities included detailed evaluation of several remedial processes, completion of design calculations and remedial cost estimates, and preparation of a final report for submission to NYSDEC.
- Assisted in performance of a Feasibility Study for the West Valley Nuclear Demonstration Site. The Feasibility Study evaluated alternatives for remediation of groundwater contaminated with radioactive isotopes from a former containment area release.
- Assisted in the design and performed start-up of a groundwater remediation system for Moog, Inc., an aerospace parts manufacturer. The project, performed on a design-build basis, involved preparation of design plans, securing contractor bids for construction, and start-up of the remediation system, which incorporates filtration and air stripping to remove chlorinated volatile organic contaminants from groundwater.
- Designed and implemented groundwater monitoring well decommissioning procedures for the Love Canal site, Niagara Falls, New York. The project was performed on behalf of NYSDEC and included abandoning monitoring wells no longer used in the Love Canal landfill or in adjoining neighborhoods.
- Prepared an environmental monitoring plan for remediation of PCB-contaminated sediments in the St. Lawrence River along the General Motors, Inc. Powertrain Division facility in Massena, New York.
- Assisted in the performance of a Feasibility Study for remediation of volatile organic, PCB and heavy metal-contaminated soils and ground water at the Rochester Fire Academy, Rochester, New York.

PUBLICATIONS/PRESENTATIONS

Forbes, Thomas H. and Frappa, Richard H. "Innovative Remedial Measures for the Mercury Aircraft Site" Proceedings of the Purdue University 50th Annual Industrial Waste Conference, May 1995.

Frappa, Richard H., Forbes, Thomas H. and McManus, Anne Marie "A Blast to Remediate" Industrial Wastewater, July/August 1996.

Forbes, Thomas H. and McManus, Anne Marie "Advanced Oxidation Technology and Application" Proceedings of the University at Buffalo 28th Mid-Atlantic Industrial and Hazardous Waste Conference, July 1996.

Forbes, Thomas H. et al - "Pay to Throw in Buffalo" Proceedings of 1997 Solid Waste Association of North America annual conference.

Forbes, T.H. & Werthman, P.H. "Development of Site-Specific Cleanup Levels for Commercial Redevelopment of a Large Former Steel Works," presented at the Brownfields 2000 Conference, Atlantic City NJ, October 2000.

Forbes, Thomas H. and Frappa, Richard H. "Innovative Remedial Measures Almost 10 Years Later at the Former Mercury Aircraft Site" Proceedings of the National Groundwater Association Northeast Conference, October 2002.

Forbes, Thomas H. "Ins and Outs of the New York State Brownfield Cleanup Program" Air & Waste Management Association, Niagara Frontier Section, Annual Environmental Seminar (presentation), April 2006.

Forbes, Thomas H. "Brownfield Redevelopment" Proceedings of Half Moon Seminar's "New York Environmental Compliance for Design Professionals" conference, September 2008.

Forbes, Thomas H. "New York State Brownfield Cleanup Program Update" Air & Waste Management Association Annual Environmental Seminar (presentation), April 2009.

PROFESSIONAL PROFILE

Michael Lesakowski

Vice President | Principal Scientist | Co-Operations Manager

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Email: mlesakowski@rouxinc.com
Website: www.rouxinc.com

2558 Hamburg Turnpike
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Buffalo, NY 14218

EDUCATION

MS, Environmental Engineering Science, University at Buffalo, 2008

BS, Biology, State University of New York at Fredonia, 1994

EXPERIENCE SUMMARY

Over twenty-five years professional experience in environmental engineering, science, and consulting at numerous contaminated sites throughout the northeast United States as Vice President (Roux Environmental Engineering and Geology, DPC), President, Principal Scientist, Sr. Project Manager and Project Manager (TurnKey Environmental Restoration, LLC), Executive Vice President, Project Manager and Environmental Scientist (LCS, Inc.) and Environmental Scientist (GZA GeoEnvironmental of NY).

TECHNICAL SPECIALTIES

Expert in all aspects of the New York Brownfield Cleanup Program, including technical assessment and analysis of the site investigation/remedy selection process, and site remediation. Expert in the business of the NY BCP sites, including cost/credit analysis and structured liability transfers of contaminated properties. Mr. Lesakowski has investigated and remediated over 100 NY brownfield projects, including ten renewable energy redevelopment projects on remediated brownfield sites. He has managed assessments, investigations and remediation projects on properties with a multitude of historic uses (e.g., petroleum storage refineries and terminals, gas stations, automobile dealerships, rail yards, foundries, dry cleaners, steel manufacturing, metallurgical plants, metal plating operations, junk yards), media types (surface and subsurface soil, groundwater, sediments, soil vapor, indoor air, building materials) and contaminants (e.g., volatile organic compounds [VOCs], semi-volatile organic compounds [SVOCs], polychlorinated biphenyls [PCBs], heavy metals, per- and polyfluoroalkyl substances [PFAS]). Mr. Lesakowski has managed remediation projects, ranging from simple underground storage tank (UST) removals to large-scale soil excavations, in situ soil stabilization, and complex groundwater remediation programs, such as biological and/or chemical in situ groundwater treatment and permeable reactive barriers for VOCs and PFAS.

REPRESENTATIVE PROJECTS

GLR Holdings Site, Niagara Falls, New York

Manager and Principal Investigator/Remediator for Remedial Investigation (RI), Interim Remedial Measure (IRM) and Remedial Alternatives Analysis under the NYSDEC guidance for a former automotive repair facility with significant soil, groundwater and soil vapor chlorinated volatile organic compounds impact. The RI included a hydrogeologic assessment, including soil borings using a hollow stem auger drill rig, installation, development and sampling of groundwater monitoring wells, an on-site and off-site soil vapor assessment and dye test to trace drains and sewers to evaluate potential preferential pathways. The remediation approach included:

- Soil excavation and disposal.
- In situ enhanced biodegradation of groundwater.
- The newly constructed building included an active subslab depressurization system to protect the occupants from potential soil vapor intrusion.

The site was redeveloped as a restaurant.

Seneca Market I, LLC Site, Watkins Glen, New York

Manager of Site Investigation and Remediation at a former drycleaner, bus garage and asphalt plant under NYSDEC guidance with significant chlorinated volatile organic compounds impact. The investigation included a hydrogeologic assessment, including soil borings, test pits and monitoring well installation, development, and sampling. The remediation approach involved:

- Underground storage tank removal;
- In-ground hydraulic lift removal;

- Hazardous soil excavation and disposal proximate a commercial building;
- Enhanced biodegradation of groundwater;
- Groundwater extracted during excavation was treated with granular activated carbon and discharged to the municipal sewer system
- An active sub-slab depressurization system to protect the occupants from potential soil vapor intrusion; and
- Portions of the site included an engineered soil cover system.

The Property was redeveloped with an up-scale hotel.

330 Maple Road Site, Amherst, New York

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance for a small arms shooting range with hazardous lead and semi-volatile organic compounds (SVOCs) in soil. The RI involved collecting over 1,000 soil samples on 26-acre parcel slated for future mixed-use commercial and residential development. Bench-scale testing was completed to select a substrate to treat the characteristic hazardous soil to below toxicity characteristic leaching procedure (TCLP) thresholds. Remedial Action included:

- Physical removal of lead shot from the soil matrix;
- In-situ stabilization of characteristically hazardous lead-impacted soil; and
- Excavation and off-site disposal of lead and SVOC-impacted soil.

The site was remediated to allow for residential re-use.

275 Franklin Street Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site formerly used as drycleaner in western New York with significant soil and groundwater chlorinated VOC impacts. The investigation included a hydrogeologic assessment, including soil borings and overburden and bedrock monitoring well installation, development, and sampling. Soil was successfully remediated using a combination of soil vapor extraction and excavation and off-site disposal. Groundwater remediation involved in-situ treatment of impacted groundwater at the downgradient property boundary whereby groundwater migrated through a permeable reactive barrier. An active sub-slab depressurization system design and installation is planned in the new building during construction.

Niagara Street and Pennsylvania Avenue Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site formerly used as gasoline and service station in Buffalo, New York with significant petroleum impacts. The investigation included a hydrogeologic assessment, including soil borings and overburden monitoring well installation, development, and sampling. Remedial Action included:

- Demolition of the former service station building and product dispenser canopy and disposal of construction and demolition debris;
- Removal and recycling of approximately 80 tons of concrete at Iron City in Lackawanna, New York;
- Removal of five underground storage tanks, including all associated dispensing units and underground product piping;
- Excavation of petroleum-impacted soil/fill followed by off-site transportation and disposal a commercial landfill;
- Extraction and treatment of approximately 6,000-gallons of groundwater from the excavation during remediation activities using bag filtration and granular activated carbon and discharge to the municipal sewer; and
- Placement and compaction of approximately crusher run stone backfill to the approximate pre-existing grade.

1501 College Avenue Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former heavy industrial and manufacturing facility in Niagara Falls, New York. The investigation included a hydrogeologic assessment, including soil borings, test pits and overburden monitoring well installation, development, and sampling. Remedial Action included:

- Disposal of galbestos roofing and building materials;
- Collection and removal of seven (7) roll-off containers of abandoned drums and containers of off-spec former carbon electrode manufacturing materials;
- Waste petroleum oil was vacuumed out of two abandoned tanker trucks;
- Cleaning and collection of steel ASTs, empty drums and two (2) abandoned tanker trucks and transported off-site with other on-Site scrap metals (i.e., building demolition metals);
- Excavation and disposal of non-hazardous petroleum-impacted soil/fill;
- Excavation of PCB-impacted soil/fill;
- Extraction and storage of approximately 20,000 gallons of impacted water removed from the excavation for solidification and final disposal at a commercial landfill; and
- A soil cover system across the site.

500 South Union Street Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former dry cleaning facility in Spencerport, New York. The investigation included a hydrogeologic assessment, including exterior and interior soil borings, test pits and monitoring well installation, development and sampling, soil vapor testing and hydrogeologic assessment to design the in-situ groundwater treatment program. Remedial Action included:

- Installation of an active subslab depressurization system within the existing building to prevent migration of vapors into the building air;
- In-situ injection of treatment agent at 71 injection points located across the Site to enhance natural biodegradation of cVOCs in groundwater;
- Limited excavation and off-Site disposal of surface soil/fill exceeding commercial use soil cleanup objectives; and
- Construction and maintenance of a soil cover system consisting of the existing building, pavement (asphalt), sidewalks, and soil cover in all other areas at a minimum of one foot thick over the demarcation layer, to prevent human exposure to remaining contaminated soil/fill remaining at the Site;

The site is currently used as a multi-tenant commercial facility.

Scott Rotary Seals Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former petroleum refining facility in Olean, New York. The investigation included a hydrogeologic assessment, including soil borings, test pits and monitoring well installation, development, and sampling, as well as subslab vapor/indoor air testing. Remedial Action included:

- Limited excavation and off-Site disposal of shallow grossly contaminated soil to a depth of approximately 6-feet below final grade within the northwest area of the Site, including the building footprint and utility corridors;
- Installation of a soil vapor extraction system to treat grossly contaminated soil in the deeper vadose zone soil/fill from approximately 6-fbgs to the top of the groundwater surface;
- Construction and maintenance of a soil cover system consisting of buildings, pavement (asphalt and concrete), sidewalks, and soil cover in all other areas at a minimum of one foot thick over the demarcation layer, to prevent human exposure to remaining contaminated soil/fill remaining at the Site;
- Installation of an active sub-slab depressurization system within the newly constructed on-Site building to prevent migration of vapors into the buildings; and
- Installation of a LNAPL removal system within certain on-Site wells, utilizing absorbent socks.
- The site was redeveloped as a light industrial and commercial facility.

Olean Redevelopment Parcel 2 Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former petroleum refining and major storage facility in Olean, New York. The comprehensive investigation, which was completed over three separate sites (Olean Redevelopment Parcels 1,2 and 3) totaling approximate 60-acres, included a hydrogeologic assessment, including soil borings, test pits and monitoring well installation, development, and sampling.

As part of the investigation, bench-scale studies were completed to assess treatment of grossly contaminated petroleum soil (GCPS) impacted soil and lead-impacted soil. Soil/fill batches were treated by mixing to simulate landfarming; stabilized with lime, Portland cement, and fly ash (all amendments added at 2% and 5% by weight); and chemically oxidized with hydrogen peroxide (1% and 3% by weight).

Based on the results of the bench-scale treatability studies, four pilot-scale treatability studies were performed: in-situ SVE; ex-situ landfarming; force vented biopiles (FVBP); and solidification/stabilization. As part of these pilot-scale treatability studies, biofiltration was assessed as component of treatment of the extracted air from the in-situ SVE pilot study and for the FVBP pilot study.

Remedial Action included:

- Approximately 2,715-tons of arsenic contaminated soil/fill, 143-tons of mercury contaminated soil/fill and 638-tons of grossly contaminated petroleum soil (GCPS) was excavated, loaded, and transported off-Site to a commercial landfill;
- Approximately 34,313 linear feet of subsurface metallic product piping (steel, cast iron, lead and copper) was exposed, tapped, evacuated of contents, removed, cleaned and recycled or disposed. An additional 156 linear feet of wood pipe was also exposed, tapped, evacuated of contents, removed, cleaned and disposed off-site. Piping which extended beyond the property boundary was capped and/or grouted at the apparent property line. Approximately 240 cubic yards of GCPS was excavated during piping removal activities and treated on the on-site force-vented biopiles FVBPs and reused as backfill below the cover system;
- Approximately 24, 55-gallon drums were generated from the removal of the abandoned subsurface piping. The contents of the piping included LNAPL, residual pipe scale, and product sludge. The 24 drums (15 non-hazardous and 9 hazardous) were disposed at a commercial landfill. In addition to the drums, approximately 3.5 tons of tank contents that were placed into roll-off containers and solidified with Portland cement due to liquid content were disposed at a commercial landfill. Water extracted from excavations during piping removal was pumped into holding tanks, treated with bag filters and granular activated carbon (GAC) on-site, pumped into a secondary on-Site temporary holding tank, sampled, and discharged to the municipal sanitary sewer with approval under an Industrial Pretreatment Program permit. Approximately 4 drums of wash water generated during holding tank cleaning were disposed at a commercial landfill;
- Design, installation, and operation of a SVE system to address GCPS in the deeper soil/fill from approximately 2 to 15 fbgs. The SVE system included the installation of 13 SVE wells, associated conveyance piping, and placement of three trailer-mounted SVE blowers. Emissions from the SVE system were controlled using biofilters, which allowed the naturally occurring microbes

to bioremediate the air stream and control the nuisance odors from the SVE systems.

- Light non-aqueous phase liquid (NAPL) recovery was completed utilizing hydrocarbon absorbent socks at one well and a product pump at one well. LNAPL thicknesses at these locations have been measured to vary from 0 to 6.5 ft. Recovered product was transferred to properly labeled and sealed 55-gallon drums at the Site for future off-Site disposal.
- A site cover system was constructed to allow for commercial use of the Site. The cover system consists of a minimum of one foot of soil. A portion of the Site is covered with an asphalt road that serves as part of the cover system The soil cover was placed over a demarcation layer, consisting of orange plastic mesh, and was hydroseeded and fertilized. On-Site drainage ditches were lined with rip-rap.

Olean Redevelopment Parcel 3 Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former petroleum refining and major storage facility in Olean, New York. The comprehensive investigation, which was completed over three separate sites (Olean Redevelopment Parcels 1,2 and 3) totaling approximate 60-acres, included a hydrogeologic assessment, including soil borings, test pits and monitoring well installation, development, and sampling.

As part of the investigation, bench-scale studies were completed to assess treatment of grossly contaminated petroleum soil (GCPS) impacted soil and lead-impacted soil. Soil/fill batches were treated by mixing to simulate landfarming; stabilized with lime, Portland cement, and fly ash (all amendments added at 2% and 5% by weight); and chemically oxidized with hydrogen peroxide (1% and 3% by weight).

Based on the results of the bench-scale treatability studies, four pilot-scale treatability studies were performed: in-situ SVE; ex-situ landfarming; force vented biopiles (FVBP); and solidification/stabilization. As part of these pilot-scale treatability studies, biofiltration was assessed as component of treatment of the extracted air from the in-situ SVE pilot study and for the FVBP pilot study.

Remedial Action included:

- Approximately 425-tons of arsenic contaminated soil/fill, 235-tons of GCPS was excavated, loaded, and transported off-Site to a commercial landfill;
- Approximately 7,592-tons of lead contaminated soil/fill was stabilized in-place utilizing Portland cement to treat the soil and render it non-hazardous;
- Approximately 50,667 linear feet of subsurface metallic product piping (steel, cast iron, lead and copper) was exposed, tapped, evacuated of contents, removed, cleaned, and recycled or disposed. An additional 232 linear feet of wood pipe was also exposed, tapped, evacuated of contents, removed, cleaned, and disposed off-site. Piping which extended beyond the property boundary was capped and/or grouted at the apparent property line. Approximately 2,552 cubic yards of GCPS was excavated during piping removal activities and treated on the on-site FVBPs and reused as backfill below the cover system;
- Approximately 33, 55-gallon drums were generated from the removal of the abandoned subsurface piping. The contents of the piping included LNAPL, residual pipe scale, and product sludge. The 33 drums (21 non-hazardous and 12 hazardous) were disposed at a commercial landfill. In addition to the drums, approximately 4.9 tons of tank contents that were placed into roll-off containers and solidified with Portland cement due to liquid content were disposed at a commercial landfill. Water extracted from excavations during piping removal was pumped into holding tanks, treated with bag filters and granular activated carbon (GAC) on-site, pumped into a secondary on-Site temporary holding tank, sampled, and discharged to the municipal sanitary sewer with approval under an Industrial Pretreatment Program permit. Approximately 6 drums of wash water generated during holding tank cleaning were disposed at a commercial landfill;
- Installation and operation of a SVE system to address GCPS in the deeper soil/fill from approximately 2 to 15 fbgs. The SVE system included the installation of 58 SVE wells, associated conveyance piping, and placement of three trailer-mounted SVE blowers. Emissions from the SVE system were controlled using biofilters, which allowed the naturally occurring microbes to bioremediate the air stream and control the nuisance odors from the SVE systems.
- LNAPL recovery was completed utilizing hydrocarbon absorbent socks;
- A site cover system was constructed to allow for commercial use of the Site. The soil cover was placed over a demarcation layer, consisting of orange plastic mesh, and was hydroseeded and fertilized. On-Site drainage ditches were lined with rip-rap.

The site was redeveloped as a commercial solar power generating facility.

Olean Redevelopment Parcel 1 Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former petroleum refining and major storage facility in Olean, New York. The comprehensive investigation, which was completed over three separate sites (Olean Redevelopment Parcels 1,2 and 3) totaling approximate 60-acres, included a hydrogeologic assessment, including soil borings, test pits and monitoring well installation, development, and sampling.

As part of the investigation, bench-scale studies were completed to assess treatment of grossly contaminated petroleum soil (GCPS) impacted soil and lead-impacted soil. Soil/fill batches were treated by mixing to simulate landfarming; stabilized with lime, Portland cement,

and fly ash (all amendments added at 2% and 5% by weight); and chemically oxidized with hydrogen peroxide (1% and 3% by weight).

Based on the results of the bench-scale treatability studies, four pilot-scale treatability studies were performed: in-situ SVE; ex-situ landfarming; force vented biopiles (FVBP); and solidification/stabilization. As part of these pilot-scale treatability studies, biofiltration was assessed as component of treatment of the extracted air from the in-situ SVE pilot study and for the FVBP pilot study.

- Approximately 1,652 tons of arsenic contaminated soil/fill, 110 tons of mercury contaminated soil/fill, approximately 357 tons of PCB contaminated soil/fill, and approximately 5,722 tons of PAH (SVOC)-contaminated was excavated, loaded, and transported off-site to a commercial landfill;
- Removal of an ammonia tank, approximately 500-gallon stainless steel vertical UST with no piping, and associated PCB- and ammonia-impacted soil;
- Approximately 49,976 linear feet of subsurface metallic product piping was exposed, tapped, evacuated of contents, removed, cleaned, and recycled. An additional approximate 578 tons of GCPS contaminated soil/fill was excavated, loaded, and transported off-site to a commercial landfill;
- Approximately 48, 55-gallon drums were generated during the remedial work, 42 of which were generated from the removal of the abandoned subsurface piping. The contents of the piping included LNAPL, residual pipe scale, and product sludge. Water extracted from excavations during piping removal was pumped into holding tanks, treated with bag filters and granular activated carbon (GAC) on-site, pumped into a secondary on-site temporary holding tank, sampled, and discharged to the municipal sanitary sewer;
- Installation and operation of a SVE system to address GCPS in the soil/fill from approximately 2 to 15 fbgs. The SVE system included the installation of seven SVE wells, associated conveyance piping, and placement of an SVE blower. Emissions from the SVE system were controlled using a biofilter to bioremediate the air stream and control the nuisance odors from the SVE system;
- LNAPL recovery was completed using hydrocarbon absorbent socks and/or manual bailing at six wells and a product skimmer at one well. LNAPL thicknesses at these locations has been measured to vary from 0.3 to 5.05 ft. Recovered product was transferred to properly labeled and sealed 55-gallon drums at the Site for off-site disposal; and
- Construction and maintenance of a site cover system.

A portion of the site was redeveloped as a hotel.

251 Homer Street Redevelopment Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former petroleum refining and major petroleum storage facility in Olean, New York. The investigation included a hydrogeologic assessment, including soil borings, test pits and monitoring well installation, development, and sampling. Remedial Action included:

- Removal and recycling of approximately 10,644 linear feet of piping (approx. 97 tons) ranging in diameter from 2-inch to 12-inch. Removal and disposal of 51, 55-gallon drums containing oil, sludge, and scale from within the piping. Extraction, treatment, and discharge of approximately 21,000 gallons of water from within the pipes and perched water encountered during trench excavation under a temporary discharge permit issued by the municipal Wastewater Treatment Plant (WWTP);
- Excavation and off-site disposal of 49,670 tons of grossly contaminated soil (GCS) followed by backfill with clean imported soil. The on-site drainage ditch was converted to a closed 30-inch subsurface drainage pipe as discussed with NYSDEC;
- Excavation and off-site disposal of approximately 2,106 tons of arsenic-impacted soil/fill followed by backfill with clean imported soil;
- Extraction, treatment using granular activated carbon (GAC), and discharge of approximately 250,000 gallons of water encountered during excavation activities under a temporary discharge permit issued by the municipal WWTP;
- Temporary re-routing of Two Mile Creek, followed by excavation of approximately 4,000 tons on-site and 973 tons off-site of Two Mile Creek bed and bank material followed by off-site disposal, and backfilling. The creek bed and banks were restored with stone (creek bottom), and clay and clean soil (creek banks), including biodegradable erosion control blanket, riparian shrubs and hydro-seeding of creek banks;
- Construction and maintenance of a cover system consisting of a minimum 12 inches of clean soil or gravel to prevent human exposure to remaining contaminated soil/fill remaining at the site.

The site was redeveloped as a commercial solar power generating facility.

300 Ohio Street Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former petroleum storage and sales facility in Buffalo, New York. The investigation included a hydrogeologic assessment, including soil borings, test pits and monitoring well installation, development, and sampling, as well as sub-slab vapor/indoor air testing. Remedial Action included:

- Excavation and off-site disposal of the underground storage tank (UST) system. A total of sixteen (16) USTs and related piping and appurtenances were uncovered and removed, cleaned of residual contents and transported off-site for recycling as scrap;

- Excavation and off-site disposal of approximately 18,650 tons of grossly contaminated petroleum soil, approximately 220 tons of soil/fill exceeding 500 ppm total PAHs, and approximately 425 tons of soil/fill exceeding Commercial Use SCOs for arsenic and lead;
- Approximately 500 cubic yards (cy) of recyclable concrete and stone generated from the removal of buildings and sign footers/foundations, was crushed on-Site and used for backfill and subsurface grading beneath the cover system; and
- Construction and maintenance of a cover system consisting a minimum of 12 inches of approved soil/stone material above a demarcation fabric to prevent human exposure to contaminated soil/fill remaining at the site.

A portion of the site was redeveloped as a brewery and restaurant.

229 Homer Street Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former petroleum refining and major petroleum storage facility in Olean, New York. The investigation included a hydrogeologic assessment, including soil borings, test pits and monitoring well installation, development, and sampling, as well as a soil vapor intrusion assessment. Remedial Action included:

- Approximately 5,815 tons of grossly contaminated soil GCS-impacted soil/fill was excavated and transported off-site for disposal at a commercial landfill;
- Approximately 1,946 linear feet of subsurface metallic product piping was exposed, tapped, evacuated of contents, removed, cleaned and recycled. Piping which extended beyond the property boundary was capped and/or grouted at the property line.
- Approximately 19 tons of piping was recycled as scrap metal. Cleaning of the pipes generated 4 drums of pipe scale, oil, and water, which was transported off-site for incineration.
- Design, installation, and operation of an air sparge/soil vapor extraction (AS/SVE) system to address GCS in the deeper soil/fill from approximately 5 to 15 fbgs and in the upper 5 ft of the water table (i.e., smear zone). The air sparge portion of the system includes 53 injection wells connected to an air compressor in a climate-controlled trailer via individual 1" polyethylene lines. The SVE system includes 14 extraction wells connected by 2" polyethylene lines to one of two blowers in a separate climate-controlled trailer. Emissions from the SVE system are controlled using a biofilter, which allows naturally occurring microbes to bioremediate the air stream and control the nuisance odors from the AS/SVE system;
- Construction and maintenance of a site cover system.

Former Trico Plant Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former manufacturing facility in Buffalo, New York. The investigation included a hydrogeologic assessment, including soil borings, test pits and monitoring well installation, development, and sampling, as well as subslab vapor/indoor air testing. Remedial Action included:

- Construction and maintenance of a site cover system.
- In-situ on-site treatment of groundwater contaminated with chlorinated volatile organic compounds (cVOCs);
- Removal of six (6) hydraulic lifts and associated infrastructure and impacted soil/fill;
- Pumping and on-site treatment of water present in the building sub-basement prior to sanitary sewer discharge under a temporary discharge permit;
- Cleaning accessible sump and sewer structures with evidence of potential impacts;
- Removing and properly disposing off-site miscellaneous abandoned regulated waste materials; and abating building components for lead, asbestos, oil staining, PCBs, etc. as required during redevelopment. Building surfaces and features planned to remain with evidence of impacts from historic operations will be encapsulated or sealed;
- Installing an active sub-slab depressurization (ASD) system within the existing buildings; and
- Maintaining existing cover system in accordance with 6NYCRR Part 375 and NYSDEC DER-10 guidelines. The cover system includes building foundations and asphalt on former Burton Street.

The site is being redeveloped as a mixed-use commercial and residential complex.

Jamison Road Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at an active industrial facility in Elma, New York. The Remedial Investigation was completed across the BCP Site and off-site on adjacent parcels to supplement previous environmental data and delineate or identify areas requiring remediation. Field activities included soil boring advancement; test pit excavations; surface and near-surface soil/fill sampling; overburden and bedrock monitoring well installation; groundwater and storm water quality sample collection; soil vapor sample collection; and sub-slab vapor, indoor air, and outdoor air sample collection in six on-site buildings and one off-site building. Hydraulic conductivity testing was also completed in the overburden groundwater zone as well as the bedrock groundwater to assess groundwater transmissivity. Remedial Action included:

- Excavation of 2,430 tons of contaminated soil/fill, which was disposed off-site at a commercial landfill;
- 314 tons of flowable fill proximate to a sewer line was excavated as it was deemed unsuitable due to structural considerations, which was also disposed off-site at commercial landfill;
- Two steel former pipes that ran along the eastern boundary of an on-site building were removed and disposed at a

commercial landfill. Approximately 10-gallons of residual hydraulic oil removed from the pipes was transported and recycled off-site;

- Approximately 13,415 cubic yards (CY) of non-impacted soil was excavated for the construction of new buildings. With NYSDEC approval, 12,250 CY of soil was exported for reuse at another site and the remaining soil was reused on-site;
- During overburden soil removal, approximately 1,100,000 gallons of Chlorinated VOC-impacted groundwater was extracted, treated using granular activated carbon, tested, and discharged;
- A former 15" concrete storm sewer was encountered during foundation excavation for new buildings. Approximately 150 gallons of emulsified oil and water were removed using a vacuum truck, transported to an on-site frac tank and later disposed. A portion of the former sewer was removed, and the remaining portion of the sewer was filled in with concrete;
- Installing an active sub-slab depressurization (ASD) system within two new building and two existing buildings;
- As part of the remedial design, a bench-scale treatability study evaluation of media was conducted. The study included four column reactors filled with four different material combinations to determine which most effectively removed CVOCs from the Site groundwater. A proprietary product comprised of granular carbon and zero-valent iron was selected as the treatment medium;
- Implementation of in-Situ Chemical Reduction (ISCR) in the form of a permeable reactive barrier (PRB) with two approximate 250-feet long slurry wall legs to direct the groundwater toward the PRB. The slurry walls consist of a homogeneous mixture of soil, bentonite, and water, with a maximum hydraulic conductivity of 1x10-6 cm/s. The PRB and slurry wall legs were installed in the northwestern corner of the site to treat groundwater impacted by chlorinated volatile organic compounds;
- Implementation of in-situ phytoremediation using hybrid poplar trees to treat groundwater impacted by 1,4-dioxane. The hybrid poplar trees were planted in two rows in the northwestern corner of the site, upgradient of the PRB; and
- Installation of an in-line air stripper to remove CVOCs from storm water prior to discharge.

The site has been redeveloped with a mixed-use industrial manufacturing facility and related research and development offices.

1827 Fillmore Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former gravel pit filled in with miscellaneous soil/fill and construction and demolition debris in Buffalo, New York located adjacent to two public schools. The Remedial Investigation included a hydrogeologic assessment, including soil borings, test pits and monitoring well installation, development, and sampling. As part of the Remedial Investigation, bench-scale studies were completed to assess treatment characteristically hazardous lead-impacted soil. Soil/fill batches were treated by mixing different amendments, including Portland cement and phosphoric acid, at varying percentages by weight. 5% Portland cement was selected as the soil amendment.

Remedial action included:

- In-situ stabilization of approximately 3,091 cubic yards of characteristic hazardous lead soil/fill using Portland cement in two remedial areas of concern;
- Excavation and off-site disposal of contaminant source areas, including soil exceeding the site-specific action levels (SSALs) of 3,900 ppm of lead and soil containing total semi-volatile organic compounds (SVOCs) exceeding 500 ppm. Approximately 2,200 tons of soil was removed and disposed off-Site, including 160 tons of soil exceeding the hazardous criteria for lead, which was treated in-situ and rendered non-hazardous prior to disposal; and
- Construction and maintenance of a soil cover system consisting of a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer to prevent human exposure to remaining contaminated soil/fill.

The site is planned to be redeveloped with mixed-use commercial and residential buildings.

3100 Clinton Street Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former railyard filled in with miscellaneous soil/fill in West Seneca, New York and located adjacent to a regulated wetland. The Remedial Investigation included a hydrogeologic assessment, including soil borings, test pits and monitoring well installation, development, and sampling. Remedial Action included:

- Clearing and grubbing of vegetation, shrubs, and trees to allow remedial excavation activities. Approval to complete work activities within designated wetland areas was received from the United States Army Corps of Engineers and NYSDEC prior to starting work in those areas;
- Excavation and off-site disposal of approximately 45,850 tons (approximately 30,600 cubic yards) of PAH- and metals-impacted soil/fill;
- Excavation and off-site transport to an approved location of a total of 761 loads of surplus native soils which were determined to be structurally unsuitable for redevelopment purposes;
- Excavation and off-site disposal of 5.9 tons of treated/weathered wood (former railroad ties);
- Collection, storage, volume measurement, and discharge of 1,005,000 gallons of groundwater and/or rainwater encountered during remedial activities;

- Backfilling of the excavation area with approximately 172,724 tons of backfill including screened backfill and surge stone. Surge stone was required in areas of the site where natural soils were not suitable for geotechnical requirements of the planned building. In those areas, certain native soils were removed and/or bridged with filter fabric and surge stone was installed beneath compacted gravel.

The site was redeveloped with state-of-the-art food processing protein plant.

351 Franklin Street Site

Manager and Principal Investigator/Remediator for a Remedial Investigation/Alternatives Analysis and Remedial Action under NYSDEC guidance at a NYSDEC Brownfield Cleanup Program site at a former petroleum refining and major storage facility in Olean, New York. The Remedial Investigation included a hydrogeologic assessment, including soil borings, test pits and monitoring well installation, development, and sampling. Exterior soil vapor sampling and an interior soil vapor intrusion (SVI) assessment was completed within one on-site building. A pre-design investigation included additional groundwater monitoring wells and gauging/monitoring levels of light non-aqueous phase liquid (LNAPL). As part of the remedial design, bench-scale studies will be completed to assess potential treatment options for grossly contaminated material (GCM), including assessment of Portland cement and other potential amendments (e.g., lime-kiln dust), at varying percentages by weight.

Remedial actions to be completed include:

- Excavation and reuse of the top one foot of SVOC- and arsenic-impacted soil under the cover system, and disposal of excess material;
- Excavation of non-GCM-impacted soil/fill that resides over the GCM and staging of the material on-site for reuse as backfill under the cover system;
- Excavation and disposal of approximately 16,000 tons of GCM-impacted soil/fill and completion of in-situ solidification (ISS) as needed to address GCM-impacted soil/fill at the water table, followed by backfill and site grading. After the completion of ISS mixing activities, the solidified soil will be allowed to cure for 28 days. After the mixture has cured, core samples will be collected from the solidified soil and post-treatment tests, including unconfined compressive strength (UCS), permeability testing and free liquid testing, will be completed to ensure that the solidified soil meets ISS performance requirements;
- Solidification of excavated soil, as needed, prior to disposal, based on landfill requirements;
- Removal and transferal of abandoned petroleum piping encountered during GCM excavation activities to a recycling facility and extraction and disposal of piping contents;
- Management of impacted groundwater and stormwater during remedial activities;
- Placement of a cover system across the entire Site;
- Installation of an active sub-slab depressurization (ASD) system in the newly constructed building during construction and completion of SVI sampling;
- Monitoring of groundwater level and LNAPL; and
- Removal of LNAPL via bailing or in-well pumps as needed from monitoring wells over time.

The site is planned for a redevelopment as a mixed use commercial and light industrial building.

PROFESSIONAL PROFILE

Bryan Mayback

Technical Director

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EDUCATION

BS, Earth Sciences, Environmental Concentration, State University of New York College at Buffalo

AAS, Environmental Technology, Trocaire College

EXPERIENCE SUMMARY

Bryan Mayback has over 20 years of experience various aspects of the environmental field and has extensive experience with environmental due diligence, investigation, and remediation activities with focus on Brownfield Cleanup Program (BCP) and spill incident projects. Mr. Mayback has completed/managed thousands of Phase I Environmental Site Assessments and hundreds of Phase II Environmental Investigations on sites with a wide variety of uses from farmland to industrial, located in Western New York (WNY) and throughout the US. Many of the Western New York properties went on to become New York State BCP Sites.

TECHNICAL SPECIALTIES

Mr. Mayback has performed various field services such as remedial oversight, groundwater monitoring activities including well gauging, purging (bailers and low flow), and sampling. In addition to management of large-scale investigation projects, Mr. Mayback has also managed large-scale remediation projects that involved soil/fill excavation, tank pulls, groundwater injection activities, groundwater management, sensitive receptor surveys, hydrogeologic studies, impact delineation studies, and pilot testing relative to remedial alternatives. Mr. Mayback is experienced in project management, written reports, and final report reviews. He has also provided environmental consulting services for major petroleum companies. Currently, Mr. Mayback continues to manage environmental due diligence, BCP, and spill projects.

REPRESENTATIVE PROJECTS

- Environmental Due Diligence Projects. Managed thousands of Phase I Environmental Site Assessments and hundreds of Phase II Environmental Investigations involving virtually every property type from vacant farmland to heavy industrial sites.
- Remediation Projects. Manager for hundreds of remedial projects, mostly in regulatory programs, involving various remediation approaches including excavation, product recovery/vacuum extraction, injection activities, and construction of a temporary biotreatment facility (TBTF).
- Orchard Park Road, West Seneca, NY. Manager during environmental due diligence activities completed as part of a property transaction (purchase), which led to remediation being required due to significant concentrations of 2,4-D (up to 1,600 ug/L) identified in on-site groundwater. In situ groundwater treatment injection activities resulted in a significant decrease in 2,4,-D to non-detect concentrations. The remedial goals were achieved, no additional investigation or remediation was warranted, and the property transaction moved forward (with bank financing).
- Jefferson Avenue Apartments BCP Site. Manager involved with investigation, remediation, and redevelopment of a 1.5-acre site, which initially consisted of ten city lots that were later combined (after successful entry into the BCP) and redeveloped with two apartment buildings. The remedial action involved building demolition activities and removal of over 16,000 tons of impacted soil/fill from property line to property line. The Site was successfully remediated to a Track 1 cleanup level, allowing unrestricted use.
- Silo City Phase I BCP Site. Manager during environmental due diligence activities (pre-BCP) and all BCP tasks involving a six-acre property that had a variety of historic uses, most notably a grain malting/milling facility and a rail yard. The redevelopment plans involved renovating existing industrial buildings located along the Buffalo River into an affordable housing complex with commercial and community spaces, and construction of a parking lot.

Investigation activities supported successful entry of the Silo City Phase I Site into the BCP. Supplemental investigation activities completed under the BCP (i.e., Remedial Investigation), revealed the presence of soil/fill impacted by polycyclic aromatic hydrocarbons (PAHs) and metals, concrete impacted by polychlorinated biphenyls (PCBs), and groundwater impacted by volatile organic compounds (VOCs). Remedial activities involved excavation and disposal of over 10,000 tons of soil/fill, groundwater injection activities, and installation of a site-wide cover system. In addition, PCB-impacted concrete was removed from within the existing buildings. A mixed Track 4 Cleanup was achieved consisting of restricted-residential on the affordable housing part of the Site, and commercial in the newly constructed parking lot area.

PROFESSIONAL TRAININGS

ASTM Conference on Environmental Site Assessments for Property Transfer

OSHA 40 Hour Hazardous Material Handling/HAZWOPER

OSHA HAZWOPER 8-Hour Supervisor Training

OSHA 10 Hour Construction Safety Training

PROFESSIONAL PROFILE

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EDUCATION
BASc, Civil Engineering, University of Waterloo
MASc, Environmental Engineering, University of Guelph

PROFESSIONAL LICENSES
Professional Engineer, New York

Lori E. Riker, PE

Principal Engineer

EXPERIENCE SUMMARY
Ms. Riker has over thirty years of environmental and civil engineering experience: Roux (July 2023-Present), Benchmark Civil/Environmental Engineering & Geology, PLLC (May 2003-July 2023), Malcolm Pirnie, Inc. (November 1996-May 2002), and ENVIRON Corporation (February 1995-October 1996).

TECHNICAL SPECIALTIES
Ms. Riker's experience has focused on industrial regulatory compliance assistance; Phase I environmental site assessments; Phase II investigations; remedial investigations and alternative analyses under various state and federal cleanup programs; remedial investigation and remediation cost estimating; detailed wastewater and industrial process design; and construction administration.

Ms. Riker's regulatory compliance experience consists of petroleum bulk storage (PBS) and chemical bulk storage (CBS) auditing and the associated spill prevention reporting; Emergency Planning and Community Right-to-Know Act (EPCRA) Tier II and Toxic Release Inventory (Form R) reporting; air permitting (Title V, State facility, air facility registrations), compliance reporting, and emission statement preparation; storm water permitting, reporting, Storm Water Pollution Prevention Plans (SWPPPs), and Best Management Practices (BMP) Plans; State Environmental Quality Review Act (SEQRA) environmental assessment forms (EAFs); industrial wastewater design and pretreatment permitting; and hazardous waste auditing, annual reporting, and reduction plans.

REPRESENTATIVE PROJECTS

- Currently serving as environmental consultant for two western NY pharmaceutical manufacturers. Providing on-going wastewater compliance assistance; and developed and updated Spill Prevention Control and Countermeasure (SPCC)/Hazardous Waste Contingency Plan, air emissions permits, Hazardous Waste Reduction Plans, EPCRA reporting, and annual hazardous waste reporting. Assisted with wastewater treatment plant expansion, including sequencing batch reactors and UV disinfection, and NYSDEC State Pollutant Discharge Elimination System (SPDES) permit modifications for increased flow and new cooling tower water treatment chemicals.
- Currently serving as adjunct environmental compliance specialist for a vacuum and heat transfer equipment manufacturer, food manufacturer, scrap metal recycling facility, specialty chemical manufacturer, medical equipment manufacturer, and other industrial facilities. Environmental regulatory compliance auditing, sampling, inspecting, permitting, and reporting services including EPCRA Tier II and Form R reports; NYSDEC Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activity discharge monitoring reports (DMRs) and SWPPPs; PBS/CBS inspections and SPCC Plans/Spill Prevention Report (SPR); solid and hazardous waste management; air permitting; and wastewater pretreatment system assistance.
- Currently serving as a third-party environmental consultant to Delta Sonic Car Wash Systems, Inc. for its NY and PA gasoline stations and lube oil shops. Providing regulatory support for spills and releases. Performing environmental compliance audits focusing on NYSDEC PBS regulations and preparing SPCC Plans and an overall BMP Plan.

- Assisted in the RCRA Corrective Measures Study (CMS) for the Former Bethlehem Steel Site located in Lackawanna, NY. Duties included preparing work plans for Interim Corrective Measures (ICMs); reviewing analytical data obtained for the solid waste management units (SWMUs) and water courses; reviewing reports/assessments prepared by other consultants retained by NYSDEC and other agencies; and evaluating numerous slag/fill and groundwater remedial alternatives, including cost estimating, and recommending a final remedial approach in the CMS Report. Currently performing pre-design investigations prior to remedy implementation.
- Managing numerous successful NYSDEC BCP projects for former steel plant sites and industrial/commercial properties in western NY. Prepared Remedial Investigation (RI) Work Plans, RI/Alternative Analysis (AA) Reports, Interim Remedial Measures (IRM) Work Plans, and Remedial Action Work Plans (RAWPs), including remedial cost estimating; managed implementation of remedial actions; and prepared Final Engineering Reports (FERs) and Site Management Plans (SMPs). Conducting post-Certificate of Completion (COC) annual site inspections and Periodic Review Reports. Contaminants of concern primarily include petroleum, chlorinated solvents, heavy metals, and emerging contaminants.
- Providing/managing on-going environmental compliance assistance to scrap metal recycling facilities in NY and PA including permitting, sampling, inspection, and reporting requirements under the MSGP for Storm Water Associated with Industrial Activity and SPDES Permits; PBS inspections and preparing SPCC Plans; EPCRA Tier II reporting; preparing landfill disposal applications; preparing water treatment chemical notifications; hazardous waste annual reporting; and air permitting modifications and compliance reporting.
- Providing/managing on-going environmental compliance assistance to industrial facilities including air permit applications and modifications; SPDES/NPDES storm water permitting, BMP Plan/SWPPP preparation, compliance monitoring, and DMR preparation; PBS and CBS applications for tank registration under NYSDEC's bulk storage programs and associated SPCC Plans and SPRs; water withdrawal and sewer metering reports; PBS registration, SPCC Plan preparation, and tank inspection; and annual hazardous waste reporting.
- Assisting with Site Plan approval application, SEQRA EAF, SWPPP/NOI, and Erosion and Sediment Control (ESC) Plan support for multiple photovoltaic solar array installations across New York State.
- Performing environmental regulatory compliance audits for numerous active industrial facilities including research and interpretation of federal, state, and local environmental regulations and preparing reports to summarize the findings and prioritize corrective measures. Assisting clients with voluntary disclosure under USEPA's Small Business Compliance Policy.
- Assisted with permitting and design of facilities for storage and handling compressed gas in accordance with the NYS Fire Code, and prepared Emergency Action Plans, Fire Prevention Plans, and Hazardous Materials Management Plans required of NFPA 55.
- Provided environmental compliance assistance to NOCO Energy Corp. for its major petroleum distribution terminal and warehouse in Tonawanda, NY and multiple retail gasoline stations in NY and VT. Specific projects included storm water permitting and preparation of a SWPPP; preparation of SPCC Plans and SPR; Title V air permitting assistance and emission statement preparation; EPCRA Form R reporting; review of and recommendations for updating the USCG Facility Response Plan; and permitting and conceptual design for upgrades to a PBS warehouse facility.

PROFESSIONAL AFFILIATIONS

Air and Waste Management Association, Niagara Frontier Section Board Member (Education Director)

PROFESSIONAL TRAININGS

Certified OSHA 40-Hour Hazardous Waste Site Training

PRESENTATIONS

Dooley, M. and Riker, L.E. "Adapting a Remedy to Achieve Site Closure for a Challenging, Century-Old, New York Brownfield Site," presented as a poster at the Twelfth International Conference on the Remediation of Chlorinated and Recalcitrant Compounds (Battelle Conference), Palm Springs, CA. May 22-26, 2022.

Riker, L.E. and Miller, A. "A Remedy to Achieve Site Closure: Fast and Permanent Remedy Replaces Pump and Treat System," presented as a webinar hosted by Regenesis. March 30, 2022.

Riker, L.E. and Dooley, M. "Achieving Remedial Goals at Challenging Sites in WNY," presented at the Air & Waste Management Association, Niagara Frontier Section, Annual Enrichment Seminar. June 9, 2021.

Riker, L.E. and McManus, A.C. "Energize Your Business," presented at the Fall Seminar of the New York Water Environment Association, Genesee Valley Chapter, Industrial Issues Committee, Webster, NY. November 1, 2001.

Riker, L.E., McManus, A.C., and Sanders, L. A. "Life after Registration: Integrating Environmental Management Systems into Business and Operating Cultures," Proceedings, 94th Annual Conference and Exhibition of the Air & Waste Management Association, Orlando, FL. June 26, 2001.

Riker, L.E., McManus, K.R., Kreuz, D.E., and Mistretta, M.V. "Trash to Treasure: Revitalization of Buffalo's Waterfront," presented at a Conference of the New York State Society of Professional Engineers, Erie/Niagara Chapter, Environmental Affairs Committee, Buffalo, NY. January 10, 2001.

Secker, L.E., Zytner, R.G., and Stiver, W.H., School of Engineering, University of Guelph, Guelph, Ontario. "Soil Remediation using Supercritical Fluid Extraction," presented at the 49th Annual Purdue Industrial Waste Conference, Purdue University, West Lafayette, IN. May 9-11, 1994.

Secker, L.E., Zytner, R.G., and Stiver, W.H., School of Engineering, University of Guelph, Guelph, Ontario. "Supercritical Fluid Extraction for Large-Scale Soil Remediation," presented as a poster at the 1993 Technology Transfer Conference, Ontario Ministry of Environment and Energy, Toronto, Canada. November 22-23, 1993.

APPENDIX B

Previous Investigations

Environmental
Advantage

Environmental Advantage, Inc. 3636 N. Buffalo Road Orchard Park, New York 14127
Industrial Compliance, Hazardous Materials Management, Site Assessment/Remediation

September 26, 2025

Alexander Burgos, Managing Member
Draghi Burgos Construction
681 Michigan Avenue
Buffalo, New York 14203

Via Email: aburgos@draghiburgos.com

Re: Phase I Environmental Site Assessment
Vacant Commercial Properties, Swan & Chicago Street, Buffalo, NY
Project No. e2413

Dear Mr. Burgos:

Please find attached one electronic copy of the final report for a Phase I Environmental Site Assessment (ESA) completed on the above-referenced Site. This Phase I ESA was completed in accordance with our agreement signed on August 8, 2025. The attached report, as noted therein, has been prepared in general accordance with the ASTM Standard E1527-21.

Information accumulated for this assessment will be retained with your project file. The report and information in your file is considered confidential and will not be released without your written authorization.

If you have any questions concerning the information presented in this report, please contact me directly. Thank you for the opportunity to provide these site assessment services.

Very truly yours
ENVIRONMENTAL ADVANTAGE, INC.

C. Mark Hanna, CHMM
President

Attachments

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Vacant Commercial Properties
Swan & Chicago Street
Buffalo, New York 14204

Prepared For:
Draghi Burgos Construction
681 Michigan Avenue
Buffalo, New York 14203
EA Project No: e2413

Prepared By:
Environmental Advantage, Inc.
3636 North Buffalo Road
Orchard Park, New York 14127
(716) 667-3130

C. Mark Hanna, CHMM
President

September 26, 2025

Environmental Advantage

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PHASE I ENVIRONMENTAL SITE ASSESSMENT

Vacant Commercial Properties
Swan & Chicago Street
Buffalo, New York 14204

EXECUTIVE SUMMARY

In accordance with the executed agreement, dated August 8, 2025, Environmental Advantage, Inc. (EA) completed a Phase I Environmental Site Assessment (ESA) of the above-referenced property (hereinafter "subject Site") for Draghi Burgos Construction (hereinafter "Client"). This ESA includes figures in Appendix A, completed user/client and owner questionnaires in Appendix B, site inspection photographs in Appendix C, field notes and various communications in Appendix D, regulatory databases in Appendix E, historical information and requests in Appendix F, report objectives and limitations in Appendix G, professional qualifications in Appendix H, environmental professional(s) statement in Appendix I and references and footnotes in Appendix J.

The subject Site consists of four parcels totaling approximately 0.39 acres of currently vacant land located on the southeast corner of Swan Street and Chicago Street in the City of Buffalo, Erie County, New York. The subject Site is located on the east side of Chicago Street, bound to the north by Swan Street and to the south by Myrtle Avenue (Refer to Figure 1 presented in Appendix A). Approximate Site boundaries and Site features are illustrated in Figure 2. According to information obtained from the Erie County Public Assessment Data Parcel Search website and the City of Buffalo Assessor's Office[1], the subject Site parcels are owned by Ms. Maria Cipriano, described as follows:

- **Parcel 1** – Addressed at 275 Swan Street and includes approximately 0.09 acres of land, identified as SBL #111.72-1-1.

- **Parcel 2** – Addressed at 279 Swan Street and includes approximately 0.05 acres of land, identified as SBL #111.72-1-2.

- **Parcel 3** – Addressed at 281 Swan Street and includes approximately 0.06 acres of land, identified as SBL #111.72-1-3.

- **Parcel 4** – Addressed at 425 Chicago Street and includes approximately 0.19 acres of land, identified as SBL #111.72-1-53.

Parcel 1 – 275 (historically 275-277 Swan Street and 435-439 Chicago Street)

A summary of the most probable parcel history indicates that the parcel was originally developed by at least 1881 with a two to three-story building ("Building 1") with two store fronts facing Swan Street on the first floor and residential apartments on the second and third floors. By 1889, three additional store fronts were located along

Chicago Street, addressed as 435-439 Chicago Street. The store fronts along Swan Street were occupied by a series of occupants including a dentistry, dry goods, meat, and grocery store, and Swam Importing Co. The store fronts along Chicago Street were also occupied by a series of occupants including Salerno Printer, barber, and record shop. Building 1 was demolished sometime between 1995 and 2002 and the parcel has been vacant land since that time.

Parcel 2 – 279 Swan Street

A summary of the most probable parcel history indicates that the parcel was originally developed by at least 1881 with 1½-story residential building ("Building 2"). By 1913, the original residential building was demolished and rebuilt as two separate two-story residential buildings, roughly within the same foot print as the original Building 2. These residential buildings were demolished in 1977 and 1978 and the parcel has been vacant land since that time.

Parcel 3 – 281 Swan Street (historically 281, 283 Swan Street):

A summary of the most probable parcel history indicates that the parcel was originally developed by at least 1881 with one-story residential building ("Building 3"). By 1914, Building 3 was converted to a store front with residential in the rear and second floor. The store front along Swan Street was occupied by a series of occupants including a drug store, physician's office, and church. Building 3 was demolished in 1978 and the parcel has been vacant land since that time.

Parcel 4 – 425 Chicago Street (historically 421-431 Chicago Street, 110 Myrtle Avenue):

A summary of most probable Site history indicates that this parcel was originally developed by at least 1889 with a stable ("U.S. Express Stables"). This building existed as a stable until approximately 1926, when it was re-developed as a public automobile garage ("Chicago St. Garage"). In the 1926 Sanborn map, one gasoline UST was located along the western parcel boundary. Fire Department records indicated one 1,000-gallon gasoline UST was installed for a public garage in 1941 with two pre-existing 550-gallon gasoline USTs. In the 1950 Sanborn map, two gasoline USTs were located along the western parcel boundary. This parcel existed as a public garage until the building was demolished sometime before 2002, after which the parcel existed as vacant land until present day.

EA has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM practice E1527-21 of the subject Site located at 275-281 Swan Street and 425 Chicago Street in the City of Buffalo, Erie County, New York. Any exceptions to or deletions from this practice are described in Appendix G (Objectives and Limitations) of this report.

This assessment has revealed no evidence of recognized environmental conditions in connection with the subject site, except for the following:

- The subject Site has had a history of several commercial occupants and was originally developed by 1881 with residences, commercial store fronts, and a

stable ("U.S. Express Stables"). Parcel 2 appears to have been always utilized residentially. The store fronts along Swan Street on Parcels 1 and 3 were occupied by several occupants including a dentistry, dry goods, meat, and grocery store, Swam Importing Co., drug store, physician's office, and church. The store fronts along Chicago Street in the southern portion of Parcel 1 were also occupied by several occupants including Salerno Printer, barber, and record shop. All of these former buildings (Buildings 1-3) were demolished between 1978 and 2002. These former buildings had basements, which would have had to have been backfilled with material from unknown sources. This aspect should be further investigated to determine the nature of this backfill material.

Parcel 4 was originally developed by at least 1889 with a stable ("U.S. Express Stables"). This building existed as a stable until approximately 1926, when it was re-developed as a public automobile garage ("Chicago St. Garage"). In the 1926 Sanborn map, one gasoline UST was located along the western parcel boundary. Buffalo Fire Department records indicated one 1,000-gallon gasoline UST was installed for a public garage in 1941 with two pre-existing 550-gallon gasoline USTs. In the 1950 Sanborn map, two gasoline USTs were located along the western parcel boundary. This parcel existed as a public garage until the building was demolished in 1997, after which the parcel existed as vacant land until present day. No records of removal associated with these gasoline tanks were identified by EA. Although the locations of the reported 550-gallon gasoline USTs and 1,000-gallon gasoline UST were not confirmed by EA, it is probable the two 550-gallon gasoline USTs may correspond with the two gasoline USTs mapped within the Chicago Street roadway/sidewalk on the Sanborn Maps. Additionally, a suspect fill port labeled "OPW" was identified by EA on-site within the western portion of Parcel 4, near the two gasoline USTs depicted on the Sanborn Maps.

In addition, NYSDEC Spill #9615008 was identified for the subject Site associated with the "Hernandez Lot" on March 28, 1997. According to the ERIS database listing, the NYSDEC reported 12 drums (some full and three empty) and two 275-gallon oil tanks with one tank partially crushed with holes in it, were abandoned on the vacant lot. The drums and tanks were reportedly removed from the building ("Building 4") prior to demolition, placed on the vacant lot, and were never removed from the Site following demolition activities. It was estimated that approximately 30 gallons of oil was spilled to the ground. Minimal cleanup was initially completed by a subcontractor, in which the NYSDEC inspected and requested further cleanup for the oil-stained grass and soil. Reportedly, one overpacked drum, five drums of oil, four drums of parts washer fluid (hazardous waste), one drum of paint waste, and 12 drums of contaminated soil were initially removed from the property and placed into a roll off with additional contaminated soil. Additional soil was excavated and a disposal receipt showing 13.5 tons of oil-contaminated soil was disposed of at Lakeview Landfill. However, the only bill of lading provided to NYSDEC for the

waste oil liquid and hazardous waste was for four drums not signed by the disposal facility. The contractor was scheduled to provide the remaining disposal receipts the following week (07/21/1997). However, no further indication regarding this matter was noted and the NYSDEC considered the spill as "closed" on January 1, 1998. EA has not received a FOIL response from the Department regarding this spill; however, based on the available information within the database listing reviewed by EA, it is unclear if the cleanup activities and/or reported completed sampling in 1997 meet current Department standards.

Therefore, concern exists with respect to possible past release(s) of regulated substances both on-site and off-site related to their use, storage, and/or disposal from past commercial uses at the Site.

- The adjoining properties to the south, east and west of the subject Site have been used for commercial purposes (including a gasoline UST to the northeast and west, repair shop, blacksmith, and "laundries" and "Cleaners"). EA has assumed that the various operations at these properties included routine use, storage and handling of various regulated substances. Therefore, concern exists with respect to possible past release(s) of regulated substances off-site related to their use, storage, and/or disposal from past commercial uses.

In this context, EA recommends that a Phase II ESA subsurface investigation with incorporation of a ground penetrating radar (GPR) be completed on the subject Site to assess if the soil profile and/or groundwater have been impacted by the historical Site and off-site regulated substances and/or chemical usages.

This assessment has revealed no evidence of controlled or historical recognized environmental conditions in connection with the subject Site.

No significant data gaps, which could have significantly affected EA's ability to identify recognized environmental conditions associated with the subject Site, were identified, except for the following:

- EA did not receive a response from the FOIL request submitted to the USEPA and NYSDEC, specifically regarding RCRA ID: NYD000037994 and Spill #9615008, identified for the subject Site.

- EA was not provided with a current owner or Key Site Manager contact, nor was a completed owner/occupant questionnaire provided to EA.

EA did note the following de minimis matters which, although not rising to the level of a recognized environmental condition, present limited liability and/or business risk and should be considered by the Client:

- According to NYSDEC, emerging contaminants (ECs) describe pollutants detected in waterbodies that may cause environmental or human health impacts and typically are not regulated under current environmental laws. For example, per- and polyfluoroalkyl substances (PFAS) are man-made chemicals that have been widely used in various consumer, commercial, and industrial products since the 1950s. These chemicals' unique properties make them resistant to heat, oil, stains, grease, and water and are useful in a wide variety of everyday products. No current and/or previous potential PFAS use on-site was identified during this investigation. It should be noted that all of the former on-site buildings have records of fire damage. Although past firefighting techniques in the City of Buffalo are not known, the historical use of firefighting foam for residential and commercial structure fires does not appear to be common.

Finally, EA did note the following non-scope consideration which, although addressed as additional issues under the ASTM E1527-21 Standard, presents limited liability and should be considered by the Client:

- The site reconnaissance did reveal vapor encroachment conditions at the subject Site, based on gasoline tanks being located potentially on-site and adjoining the Site to the west and northeast, as well as potential adjoining dry cleaning use to the east and south. A Vapor Encroachment Screen or Vapor Intrusion Monitoring does appear to be warranted in this case based on past Site and adjoining property use. It should be noted that if an adequate Phase II ESA is conducted which also addresses vapor intrusion pathways, such a screen will likely not be necessary.

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Vacant Commercial Properties
Swan & Chicago Street
Buffalo, New York 14204

1.0 INTRODUCTION

In accordance with the executed agreement, dated August 8, 2025, Environmental Advantage, Inc. (EA) completed a Phase I Environmental Site Assessment (ESA) of the above-referenced property (hereinafter “subject Site”) for Draghi Burgos Construction (hereinafter “Client”). This ESA includes figures in Appendix A, completed user/client and owner questionnaires in Appendix B, site inspection photographs in Appendix C, field notes and various communications in Appendix D, regulatory databases in Appendix E, historical information and requests in Appendix F, report objectives and limitations in Appendix G, professional qualifications in Appendix H, environmental professional(s) statement in Appendix I and references and footnotes in Appendix J.

This report is an instrument of service of EA and reflects the use of limited research, a review of specified and reasonably ascertainable listings, and a site reconnaissance upon which to base the identification of "recognized environmental conditions" in conformance with the American Society for Testing and Materials (ASTM) Standard E1527-21. However, this ESA may also reflect additional or reduced service enhancements requested or authorized by the Client. "Recognized environmental conditions" are defined under the ASTM standard as "(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment." This ESA was completed by EA in accordance with generally accepted practices of the profession undertaken in similar studies within the same time frame and geographic area, and EA observed that degree of care and skill generally exercised by the profession under similar circumstances and conditions.

This ESA and report have been prepared on behalf of, and for the exclusive use of, EA's Client solely for its reliance in the environmental assessment of this Site. The Client is the only party to which EA has explained the risks involved and which has been involved in shaping the scope of services needed to satisfactorily manage those risks, if any, from EA’s Client's point of view. Accordingly, reliance on this report by any other party may involve assumptions whose extent and nature lead to a distorted meaning and impact of the findings and opinions related herein. EA's findings and opinions related in this report may not be relied upon by any party except EA’s Client.

2.0 SUBJECT SITE DESCRIPTION

2.1 Location and Current Use

The subject Site consists of four parcels totaling approximately 0.39 acres of currently vacant land located on the southeast corner of Swan Street and Chicago Street in the City of Buffalo, Erie County, New York. The subject Site is located on the east side of Chicago Street, bound to the north by Swan Street and to the south by Myrtle Avenue (Refer to Figure 1 presented in Appendix A). Approximate Site boundaries and Site features are illustrated in Figure 2. According to information obtained from the Erie County Public Assessment Data Parcel Search website and the City of Buffalo Assessor's Office[1], the subject Site parcels are owned by Ms. Maria Cipriano, described as follows:

- **Parcel 1** – Addressed at 275 Swan Street and includes approximately 0.09 acres of land, identified as SBL #111.72-1-1.

- **Parcel 2** – Addressed at 279 Swan Street and includes approximately 0.05 acres of land, identified as SBL #111.72-1-2.

- **Parcel 3** – Addressed at 281 Swan Street and includes approximately 0.06 acres of land, identified as SBL #111.72-1-3.

- **Parcel 4** – Addressed at 425 Chicago Street and includes approximately 0.19 acres of land, identified as SBL #111.72-1-53.

2.2 Site and Area Features

The subject Site is currently a vacant, undeveloped grass-covered land and is not improved with any structures.

2.3 Adjoining and Near-by Properties

The properties surrounding the subject Site are currently developed as follows:

North	Swan Street / Pine Street / First Shiloh Baptist Church (15 Pine Street) / residential
South	Myrtle Avenue / United Business Systems – Buffalo (316 Seneca Street) / paved parking lot / Buffalo Scale & Supply Co. Warehouse (280 Seneca Street)
West	Chicago Street / Agustin Olivencia Community Center (261 Swan Street)
East	Leon's Auto Sales & Services (116 Myrtle Avenue)

2.4 Topography and Surface Water Drainage

The USGS 7.5 minute Topographic Quadrangle Map of Buffalo NY[2] indicates that the subject Site's ground surface is generally flat and slopes gradually west-southwest toward the Buffalo River and Lake Erie. The surface elevation for the subject Site is approximately 590 feet above mean sea level. Surface water drainage is expected to flow to storm drains in adjoining roadways or infiltrate into the on-site soil profile.

2.5 Utilities

The subject Site is currently vacant, undeveloped land and is not improved with any structures.

3.0 USER PROVIDED INFORMATION

In accordance with the ASTM Standard, information must be obtained from both the current owners and/or occupants of the subject Site, as well as the user of this Phase I ESA. To that end, a user/client questionnaire was completed by Mr. Alexander Burgos, Managing Member of Draghi Burgos Construction. Through completion of the user/client questionnaire, Mr. Burgos provided the following:

- Indicated the reason for completing the Phase I ESA was for purchase of the property.
- Was not aware of environmental cleanup liens or activity use limitations (AULs) at the subject Site.
- Did not have specialized knowledge or experience related to the subject Site or nearby properties.
- Indicated the purchase price being paid for this property reasonably reflects the fair market value of the property.
- Was not aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases.
- Indicated he was not aware of the past use(s) of the subject Site.
- Indicated he does not know specific chemicals present or once present at the subject Site.
- Was not aware of any spills, other chemical releases, or any environmental cleanups that have taken place at the subject Site.
- Indicated that based on his knowledge and experience related to the subject Site, there are no obvious indicators that point to the presence or likely presence of contamination at the subject Site.

4.0 HYDROGEOLOGIC CONDITIONS

4.1 Soil, Wetland and Flood Plain Conditions

According to soils data obtained from the USDA Soil Conservation Service[3], the soil beneath the subject Site is classified as Uban land-Schoharie complex (Uu), generally described as moderately well-draining reddish clayey and silty glaciolacustrine deposits.

A review of the available wetlands maps[4] for this area indicated state regulated wetlands are not located on or adjoining the subject Site. According to the available FEMA floodplain maps[4] for this area, the subject Site and adjoining properties are not located within the 100 or 500-year flood zones.

4.2 Site Geology

According to the Geologic Map of New York State[5], the bedrock in the area of the subject Site is identified as a part of the Onondaga Limestone Formation, including Seneca Limestone, Morehouse Limestone, Clarence Limestone, Edgecliff cherty Limestone, and Bois Blanc Limestone members.

4.3 Regional Groundwater Conditions

Based on a review of the Site topographic conditions as depicted on the USGS 7.5 minute Topographic Quadrangle Map of Buffalo NY[2], shallow regional groundwater is expected to flow west-southwest toward the Buffalo River and Lake Erie. The surface elevation for the subject Site is approximately 590 feet above mean sea level. EA has assumed that the groundwater table typically conforms to surface and bedrock topography. Localized groundwater flow may vary as a result of underground utilities, site features, or other subsurface conditions.

5.0 HISTORICAL INFORMATION

5.1 Review of Aerial Photographs

Aerial photographs obtained through various sources[6] were reviewed by EA. It should be noted that EA reviewed aerial photographs from 1959, 1963, 1966, 1974, 1983, 1985, 1995, 2002, 2005, 2006, 2008, 2009, 2011, 2013, 2015, 2017, 2019, 2021, and 2022. The results of the aerial photograph review are summarized below. EA's evaluation of aerial photographs was limited by photographic scale and quality.

Year	Subject Site	Adjoining Properties
1927, 1951, 1959	The subject Site appeared to be developed with at least six structures covering the entire Site. Four buildings in the northeastern portion of the Site appear to be residential structures, while the northwestern and southern buildings appeared to be commercial structures.	The northern, eastern, and southern adjoining properties appeared to be developed both residentially and commercially with multiple structures. The western adjoining property appeared to be vacant, undeveloped land.
1963	Generally appeared similar to the previous aerial.	All of the structures on the northern adjoining properties were no longer present, and the properties appeared to be vacant, cleared land.
1966	Generally appeared similar to the previous aerial.	The current First Shiloh Baptist Church structure was present to the northeast, across Swan and Pine Streets.
1974	Generally appeared similar to the previous aerial.	A portion of the current commercial structure was present

Year	Subject Site	Adjoining Properties
		to the west, across Chicago Street. No structures were present on the southern adjoining property, across Myrtle Avenue
1983, 1985	The former structure in the northeastern portion of the subject Site was no longer present.	The western adjoining property appeared similar in size to its current configuration. The southern adjoining property appeared to be developed as a parking lot.
1995	Generally appeared similar to the previous aerial.	The northern adjoining properties appeared to be developed with residential structures. The adjoining properties appeared similar to their current configurations.
2002, 2011, 2013, 2015, 2017	No structures were present and the Site appeared to be vacant, grass-covered land.	Generally appeared similar to the previous aerial.
2004, 2005, 2006	A circular disturbance was noted in the southwestern corner of the subject Site. An additional area of disturbance was noted in the southeastern corner of the subject Site.	Generally appeared similar to the previous aerial.
2007, 2008, 2009, 2011, 2013, 2014, 2015, 2016, 2017, 2018	The Site appeared to be grass-covered.	Generally appeared similar to the previous aerial.
2019	Two large areas of disturbances were observed within the northern central and southern portions of the subject Site.	Generally appeared similar to the previous aerial.
2020, 2021, 2022, 2024, 2025	The two large areas of disturbances appeared to be mostly grass-covered; however, several smaller areas of disturbances were noted throughout the subject Site, specifically along the eastern property boundary.	Generally appeared similar to the previous aerial.

5.2 Fire Insurance Maps

Sanborn Fire Insurance Maps (Sanborn maps) were provided by ERIS[7] and by the City of Buffalo Library dated 1889, 1899, 1913, 1926, 1950, 1961, 1981, and 1986. The following was identified on the maps:

Year	Subject Site	Adjoining Properties
1881 corrected to 1888*, 1889	The subject Site was developed one smaller structure (Building 1) in the northwestern portion (Parcel 1) occupied by stores including a smoke house in the central portion, two small residential structures (Buildings 2 and 3) in the northeastern portion (Parcels 2 and 3, respectively), and one large stable/wagon house (Building 4) in the southern portion (Parcel 4) labeled "U.S. Express",). Site addresses were labeled as 275-283 Swan Street and 429-439 Chicago Street.	A 14,000-gallon cistern was located northwest of the subject Site, in the Swan and Chicago Street intersection in the 1881 map. One store was present to the north, across Swan Street, and residential structures and associated stables were present to the north and east. The western adjoining property was labeled "Wood Yard" with a few smaller structures. The areas to the south of the subject Site were developed with a mix of commercial and residential buildings, labeled livery, saloon, and feed. Myrtle Street was labeled as Folsom Street in the 1881 map.
1899	Building 4 was now labeled "Express Stables". An engine and upright boiler were noted in the southeastern corner of Building 1.	The western adjoining property was labeled "Philip Bachert & Co. Coal & Wood Yard" and the southern adjoining property was also labeled "Express Stable"
1899 corrected to 1913*	Generally appeared similar to the previous map.	The building on the southern adjoining property was labeled "Zero Valve & Brass MFG Co.", with a blacksmith and foundry.
1926	Building 1was occupied by four stores. Building 3 was occupied by a drug store, with a dwelling in the southern portion of Parcel 3. Building 4 was now labeled "Chicago St. Garage", with a 45-car capacity. One gasoline tank was present directly west of Parcel 4, which appeared to be located within the roadway/sidewalk.	Further development was noted on the eastern adjoining building, which was labeled "Garage & Repair Shop" along Myrtle Avenue and "Bank" along Swan Street, with an associated gasoline tank which appeared to be located within the Swan Street roadway/sidewalk. The building on the southern adjoining property is now labeled "Gardner's Towel Supply Co., Inc." with a laundry and private trucking garage noted.

Year	Subject Site	Adjoining Properties
1926 corrected to 1961*, 1950	A second gasoline tank was present directly west of Parcel 4, which appeared to be located within the roadway/sidewalk. Site addressed included	The structures on the western adjoining property were no longer present, and it was labeled as "Play Ground". The One structure remained on the southern adjoining property, labeled as auto washing. The eastern adjoining property along Myrtle Street was labeled as a vegetable pre-packing facility.
1981	The former structures on Parcels 2 and 3 were no longer present.	A new structure appeared on the western adjoining property labeled "P". The residential structures on the northern adjoining properties are no longer present, and a church appeared on the northeastern adjoining property. The eastern adjoining property along Myrtle Street is now labeled as an industrial hardware warehouse. The southern adjoining property appeared to be developed with a parking lot.
1986	Generally appeared similar to the previous map.	An addition was added to the structure on the western adjoining property.

*Sanborn map reviewed at the Buffalo & Erie County Public Library.

5.3 Municipal Directories

City Directories were provided by ERIS[7]. City Directories were provided for the years from 1930 to 2024. The subject Site was historically addressed at 275 – 281 Swan Street, 425 – 439 Chicago Street, and 110 Myrtle Street. **Please Note**: there were no listings for 110 Myrtle Street.

Subject Site

The following historical occupants were listed for the subject Site addressed as 275 – 283 Swan Street (Parcels 1-3):

- 1930: Amarante Albert B Dentist, Curtis Alex Importer (275 Swan Street), Moron & Joseph dry goods (277 Swan Street), Fortunate Thos drugs, DeDominicis Rocco N phys, residential (281 Swan Street)
- 1935: Curtis Alex Inc grocery (275 Swan Street), Curtis Alex Inc meats, residential (277 Swan Street), Fortunato Thos Drugs, DeDominicis Rocco N phys (281 Swan Street)
- 1940: Curtis Alex Inc grocery (275-277 Swan Street), residential (279, 281 Swan Street), DeDominicis Rocco N phys (283 Swan Street)

- 1946: Curtis Alex Inc grocery (275-277 Swan Street), residential (277, 279 Swan Street), Cell Guilliano whole cigars (279 Swan Street), residential (283 Swan Street)
- 1950: Curtis Alex Inc grocery (275-277 Swan Street), residential (277, 279 Swan Street), Cell Guilliano whole cigars, residential (279), DeDominicis Rocco N phys (283 Swan Street)
- 1955: Curtis Alex Inc grocery (275-277 Swan Street), residential (277, 279 Swan Street), Disciples of Jesus Christ, residential (281 Swan Street), DeDominicis Rocco N phys, residential (283 Swan Street)
- 1960: Curtis Alex Inc grocery (275-277 Swan Street), residential (279 Swan Street), Disciples of Jesus Christ, residential (281 Swan Street), DeDominicis Rocco N phys (283 Swan Street)
- 1965: Swan Importing Co (275-277 Swan Street), residential (279 Swan Street), Swan Market Grocery, residential (281 Swan Street), residential (283 Swan Street)
- 1968: Curtis wholesale grocers (275 Swan Street), residential (279, 281 Swan Street), No return (283 Swan Street)
- 1971: Curtis wholesale grocers, Swan Importing Co (275 Swan Street), residential (279, 281 & 283 Swan Street)
- 1976: Curtis wholesale grocers, Swan Importing Co (275 Swan Street), residential (279 Swan Street)
- 1980: Curtis wholesale grocers, Swan Importing Co (275 Swan Street), residential (283 Swan Street)
- 1985, 1990: Curtis wholesale grocers, Swan Importing Co (275 Swan Street)
- 1995, 2000, 2003, 2008, 2011, 2016, 2020, 2023, 2024: Not listed

The following historical occupants were listed for the subject Site addressed as 425 – 439 Chicago Street and 110 Myrtle Avenue (Parcel 4 and southern portion of Parcel 1):

- 1930: Weiglelnd Frank O Garage (429 Chicago Street), Salerno Jos Barber (437 Chicago Street), residential (437, 439 Chicago Street)
- 1935: Chicago Street Garage (429 Chicago Street), Salerno Jos Printer (435 Chicago Street), Salerno Jos Barber (437 Chicago Street), residential (437, 439 Chicago Street)
- 1935: Chicago Street Garage (429 Chicago Street), Vacant (435 Chicago Street), Salerno Jos Barber (437 Chicago Street), residential (437, 439 Chicago Street)
- 1946, 1950: Thomas Sam A garage (429 Chicago Street), Salerno Jos Barber (437 Chicago Street), residential (435, 439 Chicago Street)
- 1955: Thomas Sam A Auto Repair (429 Chicago Street), Salerno Jos Barber (437 Chicago Street), residential (435, 439 Chicago Street)
- 1960: Chicago Street Garage (429 Chicago Street), Valentine Geo Gro, residential (435 Chicago Street), Salerno Jos Barber (437 Chicago Street), residential (439 Chicago Street)

- 1965: Chicago Street Garage auto repair (429 Chicago Street), Puerto Rico Record Shop (435 Chicago Street), Borinquen Barber Shop (437 Chicago Street), No return (439 Chicago Street)
- 1968: Chicago Street Garage auto repair (429 Chicago Street), Vacant (435, 437, 439 Chicago Street)
- 1976, 1980, 1985: Chicago Street Garage (Bus, Res, New) (429 Chicago Street)
- 1990, 1995, 2000, 2003, 2008, 2011, 2016, 2020, 2023, 2024: Not addressed/listed

Adjoining properties

The following historical occupants were listed for the eastern adjoining property, in the northern portion, addressed as 285 Swan Street:

- 1930: Pepe A & Sons bankers
- 1935: Pepe A & Sons, residential
- 1940: Swan Cleaners, residential
- 1946, 1950: Argenio Saml radios
- 1955, 1960: Brock JC Co. Food brokers
- 1965, 1968, 1971, 1976: Johnson Don & Sons industrial supplies (ind sups)
- 1980, 1985, 1990: Johnson Fastener Corporation
- 1990, 2000, 2003: Residential
- 2008, 2011, 2016, 2020, 2023, 2024: Not listed

The following historical occupants were listed for the eastern adjoining property, in the southern portion, addressed as 116 Myrtle Avenue:

- 1930: Not listed
- 1935, 1940: Fisher Louis A Used Boxes
- 1946: Bray Chick Hatchery
- 1950: Chef Salad & Dressing Corp.
- 1955, 1960: Brock J Corp (rear entrance)
- 1965, 1968, 1971, 1976, 1980, 1985, 1990, 1995, 2000, 2003, 2008: Not addressed/listed
- 2011, 2016: Leons Auto Sales and Services (New Car Dealer)
- 2020, 2023: Not listed
- 2024: Leons Auto Sales and Services (New Car Dealer)

The following historical occupants were listed for the western adjoining property, across Swan Street, addressed as 261 Swan Street:

- 1971: International Inst.
- 1976: Not listed
- 1980, 1985, 1990: Puerto Rican Amer
- 1995, 2000, 2003: Agustin Olivencia Pucho Center (halls and auditoriums)
- 2008: Agustin Olivencia Pucho Center (halls and auditoriums), Puchos (Youth Prevention Agency)
- 2011: Agustin Olivencia Pucho Center (halls and auditoriums), Fiesta Latina (radio station)

- 2016: Agustin Olivencia Pucho Center (halls and auditoriums)
- 2020, 2023, 2024: Agustin Olivencia Pucho Center (halls and auditoriums), Fiesta Latina (radio station)

City Directories for the northern adjoining property across Swan Street, currently addressed at 15 Pine Street, were not requested by ERIS. However, based on aerial images, topographical maps, and Fire Insurance Maps, the northern adjoining property appeared to be mixed used residential and commercial, historically addressed 272-280 Swan Street prior to 1962, and was residential thereafter. Several occupants were identified on the city directories reviewed from 1935 through 1965 including a contractor, grocery store, monumental works, chiropractor, Creamery Corp., drug store, and shoe repair shop.

City Directories for the southern adjoining property across Myrtle Avenue, currently addressed as 316 and 280 Seneca Street, were not requested from ERIS. However, based on aerial images, topographical maps, and Fire Insurance Maps, the southern adjoining property appeared to be historically associated with multiple addresses (109 – 115 Myrtle Avenue and 417 – 419 Seneca Street) for residential, commercial, and industrial use including laundry, a private trucking garage, and a blacksmith from at least 1926 to 1950. There was also a City Directory listing in 1935 for 113 Myrtle Avenue for Buffalo Laundry (garage).

5.4 Topographic Maps

Topographic Maps, dated 1894, 1899, 1901, 1903, 1909, 1913, 1925, 1931, 1940, 1947, 1950, 1958, 1959, 1967, 2013, 2016, 2019, and 2023 were reviewed on the Historic Aerials website[6]. The following was identified on the maps:

Year	Subject Site	Adjoining Properties
1894,1899, 1901, 1903, 1909, 1913, 1925, 1931, 1940, 1947	The general area appears flat. No structures were visible on these maps.	The general topography of the area appears to be flat and gradually sloping to the south toward the Buffalo River. No structures were visible on these maps.
1950, 1958	Generally appeared similar to the previous map.	A few apparent commercial structures were mapped on the northwestern and southwestern adjoining properties.
1967	Generally appeared similar to the previous map.	The commercial structures on the northwestern and southwestern adjoining properties were no longer present. A church was mapped on the northeastern adjoining property.
2013, 2016, 2019, 2023	Generally appeared similar to the previous map.	No structures were visible on these maps.

5.5 Prior Site Investigation/Remediation Records

No prior environmental records were provided to EA for review.

5.6 Environmental Lien and Title Search

EA requested Environmental Lien Search information and Title Search from the Client. As of the date of the report, Environmental Lien Search nor title search were not provided. The completion of a lien search was not included in the scope of this assessment. According to the Erie County Geographic Information Systems website (https://gis.erie.gov/Html5Viewer133/index.html?viewer=ErieCountyNY.HTML5_2_11_0) the following ownership information was provided:

Parcel 1 – 275 Swan Street:

Owner	CUSIMANO REV J & MARY	**Date**	03/17/1950
Owner	HERNANDEZ JOSE R	**Date**	03/09/1988
Owner	CIPRIANO MARIA T	**Date**	12/04/2018

Parcel 2 – 279 Swan Street:

Owner	AUDACE ROSE	**Date**	03/23/1942
Owner	JOHNSON WILLIAM A	**Date**	07/30/1981
Owner	HERNANDEZ JOSE R	**Date**	04/13/1988
Owner	CIPRIANO MARIA T	**Date**	12/04/2018

Parcel 3 – 281 Swan Street:

Owner	PERALES MARIA	**Date**	02/26/1962
Owner	JOHNSON WILLIAM A	**Date**	07/30/1981
Owner	HERNANDEZ JOSE R	**Date**	04/13/1988
Owner	CIPRIANO MARIA T	**Date**	12/04/2018

Parcel 4 – 425 Chicago Street:

Owner	THOMAS ERNEST J	**Date**	04/07/1976
Owner	HERNANDEZ JOSE R	**Date**	11/09/1990
Owner	CIPRIANO MARIA T	**Date**	12/04/2018

5.7 Local Agency Review

EA visited the City of Buffalo Building Department and Fire Prevention Office and filed a Freedom of Information Law (FOIL) request with the City of Buffalo Assessor's Office and Permit and Inspection Services Department to obtain additional

historical Site information. Information on permits, assessments, USTs or other environmental concerns was requested. Copies of pertinent documents are included in Appendix F.

- The City of Buffalo Assessor's Office provided the following:

Parcel 1 – 275 Swan Street (historically 275-277 Swan Street, 435-439 Chicago Street):

- Previous Owners: Mary Cusimano (in at least 1978), Salvotore Cusimano (prior to 1978)
- Archived property record cards identified the following information:
  - Property Address: 275-277 Swan Street
  - SBL Number: 111.72-1-1
  - Lot Size: 0.09 acres
  - Supplied with natural gas and electric and connected to public sewer and water systems.
  - 1947 – Fire damage
  - 1973 – The previous structure included four apartments labeled not in use as of 11/30/1973.
  - Additional archived property record cards were provided to EA, which were associated with 305-307 Swan Street (SBL #111.72-1-11), located approximately 215 feet east of the subject Site, which indicates the property was used for dry cleaning. **Please Note**: based on the information reviewed, this does not appear to be associated with the subject Site.
- A property record card dated 1978 through 1997 provided the following information:
  - Lot Size: 0.09 acres
  - Previously occupied by a 3,960-square foot structure originally built in 1900 with a basement, occupied by Swan Importing Co. The structure was reportedly not used for over 20 years and was demolished in 1996.
- 1973 – Building permit to alter and reduce the existing three-story brick structure to be used for a store only. Additional building permits were provided which did not appear to be associated with the subject Site based on EA's review.

Parcel 2 – 279 Swan Street:

- Previous owners: Rose Audace (1942), Erie Co. Savings Bank (1942), Antonio Mancino (prior 1942)
- Archived property record cards identified the following information:
  - Property Address: 279 Swan Street
  - SBL Number: 111.72-1-2
  - Lot Size: 0.05 acres

    - Supplied with natural gas and electric and connected to public sewer and water systems.
    - 1960 – Fire damage
    - 1979 – building demolished
- 1976 – Record documenting a fire occurring on the property causing $15,000 worth of damage.
- 1977 – Building permit to demolish a 2½ story family dwelling with fire damage. Future land use listed as vacant.
- 1978 – Building permit to demolish a 2½ story family dwelling. Future land use listed as vacant

Parcel 3 – 281 Swan Street (historically 281, 283 Swan Street):

- Previous owners: Maria Perales, Celle & Wife Giuliano, Buffalo Series B. Corp.
- Archived property record cards identified the following information:
    - Property Address: 281 Swan Street
    - SBL Number: 111.72-1-3
    - Lot Size: 0.06 acres
    - Supplied with natural gas and electric and connected to public sewer and water systems.
    - Previously used as a church with an apartment and partial basement.
- 1976 – Record documenting a fire occurring on the property causing $7,000 worth of damage. Cause of fire was listed as arson.
- 1978 – Building permit to demolish existing 2½ story family dwellings and store to grade.

Parcel 4 – 425 Chicago Street (historically 421-431 Chicago Street, 110 Myrtle Avenue):

- Previous owners: Ernest Thomas (1976), Samuel Thomas (prior to 1976),
- Archived property record cards identified the following information:
    - Property Address: 425 Chicago Street
    - SBL Number: 111.72-1-53
    - Lot Size: 0.19 acres
    - Supplied with natural gas and electric and connected to public sewer and water systems.
    - The previous structure was approximately 7,960-square feet in size, with four overhead doors, constructed in 1900.
    - 1991 – building permit for repair only
    - 1997 – building demolished
- 1987 – Building permit for the repair of the existing 1½ story garage. Repair work consisted of re-roofing and replacing rafters where needed. No structural changes.

- 1991 – Building permit for gutter and roof repair on existing two-story garage.
- 1996 – Building permit for the demolition of a three-story brick/frame store/storage building located at 275 Swan Street and 425 Chicago Street. Future land use listed as vacant.

- The following Building Department records were identified for the subject Site:

Parcel 1 – 275 Swan Street (historically 275-277 Swan Street, 435-439 Chicago Street):
- 1946 – Repair fire damage on brick store and one family dwelling (#43457; 435 Chicago Street)
- 1973 – To comply with Buffalo Housing & Property Code; alter and reduce three-story brick dwelling – store only (#134912; 277 Swan Street)
- 1987 – Repair brick three-story store; soffit repair, brick painting, repair wall; no structural changes (#6911; 275-277 Swan Street)

Parcel 2 – 279 Swan Street:
- 1913 – Two-story frame two family dwelling; also move present two family dwelling to rear (#40393; 279 Swan Street)
- 1940 – Alter and convert for a tenement (#32498; 279 Swan Street)
- 1956 – Demolish old porch and replace with new patio (#202; 279 Swan Street)
- 1977 – Demolish 2½ story two family frame and brick dwelling; City orders L7600237 (#09177; 279 Swan Street - Front)
- 1978 – Demolish to grade 2½ story frame two family dwelling; Future land use vacant; City Emergency Block Grant Project 88-141 (#13281; 279 Swan Street - Rear)

Parcel 3 – 281 Swan Street (historically 281, 283 Swan Street):
- 1914 – Two story frame store and dwelling on front; Two story frame family dwelling on rear (#42502; 281 Swan Street)
- 1965 – Demolish to grade; one-story concrete building; Future use – vacant; Sewer and water conc. to remain for service so other building on same premises inc. exp. comp. 4/3/69 (#42201; 283-287 Swan Street). **Please Note**: based on EA's review this appears to be associated with the eastern adjoining property.
- 1978 – Demolish to grade 2 – 2½ story three family and store; Future use vacant apartment (#11035; 281 Swan Street)
- 1988 – Installed third channel for upper front apartment; Installed circuit breaker panel for front upper apartment; Balanced loads of front apartment; Offices/two upper apartments (#07924; 283 Swan Street). **Please Note**: based on EA's review this appears to be associated with the eastern adjoining property.

Parcel 4 – 425 Chicago Street (historically 421-431 Chicago Street, 110 Myrtle Avenue):

- 1931 – Repair frame store (#35837; 431 Chicago Street – Texas Oil Company)
- 1939 – Alter brick Garage (#32390; 429 Chicago Street)
- 1941 – Install gasoline tank; 1,000 gallons (#34133; 429 Chicago Street)
- 1941 – Repair frame store (#R035837; 431 Chicago Street, Texas Oil Co.)
- 1946 – Repair fire damage on brick store and family dwelling (#RO43457; 435 Chicago Street)
- 1955 – General repairs and alter brick garage; no structural changes (#54905; 429 Chicago Street)
- 1979 – Repair two-story brick and frame garage; repair roof damage by winds (#18140; 429 Chicago Street)
- 1987 – Repair brick 1½ story garage; re-roof and replace rafters where needed; no structural changes (#4310; 429 Chicago Street)

- The following Fire Department records were identified for the subject Site:
  - 1930 – Replacement of a 550-gallon gasoline storage tank on city property next to 287 Swan Street. **Please Note**: Based on additional records reviewed by EA, this appears to be associated with the eastern adjoining property, in the northern portion along Swan Street.
  - 1941 – Inspection records for the installation of a 1,000-gallon gasoline storage tank for a public garage and service station with two pre-existing 550 gallon gasoline storage tanks (429 Chicago Street).
  - 1974 – Inspection records for 429 Chicago Street citing violations of the Flammable Liquid Ordinance of the City of Buffalo for improvement in housekeeping and heating unit must be installed at a minimum eight feet above the floor.
  - 1992 – An inspection of a second-hand store citing a suspended natural gas-fed heating device, in which the vent location was unknown and requires further investigation (275 Swan Street).

5.8 Site Descriptive Chain of Use

Parcel 1 – 275 (historically 275-277 Swan Street and 435-439 Chicago Street)

A summary of the most probable parcel history indicates that the parcel was originally developed by at least 1881 with a two to three-story building ("Building 1") with two store fronts facing Swan Street on the first floor and residential apartments on the second and third floors. By 1889, three additional store fronts were located along Chicago Street, addressed as 435-439 Chicago Street. The store fronts along Swan Street were occupied by a series of occupants including a dentistry, dry goods, meat, and grocery store, and Swam Importing Co. The store fronts along Chicago Street were also occupied by a series of occupants including Salerno Printer, barber, and record shop. Building 1 was demolished sometime between 1995 and 2002 and the parcel has been vacant land since that time.

Parcel 2 – 279 Swan Street

A summary of the most probable parcel history indicates that the parcel was originally developed by at least 1881 with 1½-story residential building ("Building 2"). By 1913, the original residential building was demolished and rebuilt as two separate two-story residential buildings, roughly within the same foot print as the original Building 2. These residential buildings were demolished in 1977 and 1978 and the parcel has been vacant land since that time.

Parcel 3 – 281 Swan Street (historically 281, 283 Swan Street):

A summary of the most probable parcel history indicates that the parcel was originally developed by at least 1881 with one-story residential building ("Building 3"). By 1914, Building 3 was converted to a store front with residential in the rear and second floor. The store front along Swan Street was occupied by a series of occupants including a drug store, physician's office, and church. Building 3 was demolished in 1978 and the parcel has been vacant land since that time.

Parcel 4 – 425 Chicago Street (historically 421-431 Chicago Street, 110 Myrtle Avenue):

A summary of most probable Site history indicates that this parcel was originally developed by at least 1889 with a stable ("U.S. Express Stables"). This building existed as a stable until approximately 1926, when it was re-developed as a public automobile garage ("Chicago St. Garage"). In the 1926 Sanborn map, one gasoline UST was located along the western parcel boundary. Fire Department records indicated one 1,000-gallon gasoline UST was installed for a public garage in 1941 with two pre-existing 550-gallon gasoline USTs. In the 1950 Sanborn map, two gasoline USTs were located along the western parcel boundary. This parcel existed as a public garage until the building was demolished sometime before 2002, after which the parcel existed as vacant land until present day.

5.9 History of Adjoining/Nearby Properties

The surrounding areas have been utilized residentially, commercially, and/or industrially since at least the late 1800s. The adjoining property to the north, across Swan Street, historically addressed 272-280 Swan Street prior to 1962, included several occupants from at least 1881 through 1962 including a contractor, grocery store, monumental works, chiropractor, Creamery Corp., drug store, and shoe repair shop. From 1962 the property appeared to be vacant, undeveloped land until it was developed residentially by at least 1995 and is currently utilized as such. The adjoining property to the east has been developed since at least 1888, has been utilized residentially and commercially with various occupants including a bank, cleaners, vegetable packers, industrial hardware warehouse, and most recently a repair shop. The adjoining property to the west, across Chicago Street, has been developed since at least 1888, has been utilized commercially with various occupants including a bank, cleaners, vegetable packers, industrial hardware warehouse, and most recently a repair shop. he adjoining property to the south, across Myrtle Avenue,

has been utilized residentially, commercially, and industrially including laundry, blacksmith, private trucking garage, and truck washing from at least 1881 to 1966. The property has been utilized as a parking lot since at least 1974 through current.

6.0 SITE RECONNAISSANCE

6.1 Description of Site Processes

A Site reconnaissance was completed on September 18, 2025 by EA Project Manager Mallory Behlmaier and Environmental Scientist Caitlyn Roesch. The Site reconnaissance consisted of a walking observation of the subject Site. Site features are depicted on Figure 2. Photographs and field notes taken of/at the subject Site during the site reconnaissance are presented in Appendix C and Appendix D, respectively.

6.2 Exterior Observations

The subject Site includes approximately 0.39 acres of grass-covered vacant land, located on the southeast corner of Swan Street and Chicago Street in the City of Buffalo, Erie County, New York. The subject Site was not improved with any structures and consisted of primarily open, grass-covered land.

6.2.1 Hazardous Substances and Petroleum Products – No hazardous substances were observed during the exterior reconnaissance.

6.2.2 Underground and Aboveground Storage Tanks – A suspect fill port labeled “OPW” for a potential underground storage tank was observed along the southwestern boundary of the subject Site during the exterior site reconnaissance.

6.2.3 Pits, Ponds or Lagoons – No pits, ponds, or lagoons were observed during the exterior site reconnaissance.

6.2.4 Stained Soil or Pavement – Two areas of darkened/discolored soil/fill were observed along the eastern boundary of the subject Site along the adjoining property.

6.2.5 Stressed Vegetation – Two areas of stressed vegetation were observed along the eastern boundary of the subject Site, associated with the two areas of darkened/discolored soil/fill.

6.2.6 Fill/Solid Waste – No fill or solid waste material was identified during the exterior site reconnaissance.

6.2.7 Wastewater and Stormwater Discharge – No wastewater or stormwater discharges were observed during the site reconnaissance.

6.2.8 Wells or Drywells – No water supply wells or drywells were observed on the subject Site during the exterior site reconnaissance.

6.2.9 Septic System – No evidence of a former or existing on-site septic system was observed during the exterior site reconnaissance.

6.2.10 Pools of Liquids – No pooled liquids were observed on the subject Site exterior during the site reconnaissance.

6.2.11 Electrical Transformers/Hydraulic Equipment – No electrical transformers or hydraulic equipment were observed during the exterior site reconnaissance.

6.2.12 Other Exterior Observations – Several areas throughout the Site appeared to have been previously disturbed and/or displaced with gravel or asphalt. Furthermore, apparent "trenches" or previous subsurface disturbances were noted in the soil along the western and central portions of the Site.

6.3 Interior Observations

The subject Site is currently vacant, undeveloped land and is not improved with any structures.

6.4 Non-Scope Considerations

6.4.1 Asbestos – The subject Site is not improved with any structures.

6.4.2 Lead Paint – The subject Site is not improved with any structures.

6.4.3 Lead in Drinking Water – The subject Site is not improved with any structures.

6.4.4 Radon – Radon is a gas that is generated from the breakdown of uranium in soil, rock and/or water and can be a potential issue when built up indoors. The potential for Radon gas to be present in the breathing space within the buildings, near openings (e.g., floor drains, joints, cracks, etc.), can be a concern. According to basement readings prepared by the New York State Department of Health[8], the City of Buffalo study area has an average Radon concentration of 1.14 picocuries/liter. This level is above the USEPA Action Level of 4.0 piC/L; however, these levels are based on a limited number of measurements of basement dwellings in the City of Buffalo and may or may not reflect the actual conditions at the subject Site.

6.4.5 Mold and Mildew – The subject Site is not improved with any structures.

6.4.6 Vapor Encroachment Conditions – The site reconnaissance did reveal vapor encroachment conditions at the subject Site, based on gasoline tanks being located potentially on-site and adjoining the Site to the west and

northeast, as well as potential adjoining dry cleaning use to the east and south. A Vapor Encroachment Screen or Vapor Intrusion Monitoring does appear to be warranted in this case based on past Site and adjoining property use. It should be noted that this Phase I report was not conducted in accordance with ASTM Standard E2600-15 (Vapor Encroachment Screening on Property Involved in Real Estate Transactions).

6.4.7 PCBs and Building Materials – The subject Site is not improved with any structures.

6.4.8 Emerging Contaminants – According to NYSDEC, emerging contaminants (ECs) describe pollutants detected in waterbodies that may cause environmental or human health impacts and typically are not regulated under current environmental laws. For example, per- and polyfluoroalkyl substances (PFAS) are man-made chemicals that have been widely used in various consumer, commercial, and industrial products since the 1950s. These chemicals' unique properties make them resistant to heat, oil, stains, grease, and water and are useful in a wide variety of everyday products. No current and/or previous potential PFAS use on-site was identified during this investigation. It should be noted that all of the former on-site buildings have records of fire damage. Although past firefighting techniques in the City of Buffalo are not known, historical use of firefighting foam for residential and commercial structure fires does not appear to be common.

7.0 REGULATORY INFORMATION

7.1 Background

The purpose of the regulatory review is to obtain and review reasonably ascertainable records to help identify recognized environmental conditions regarding the subject site. For this review, records were obtained from Environmental Risk Information Service (ERIS)[7]. Under ASTM, information requested and not received within 20 calendar days of the report date will not be incorporated into this report. The approximate minimum search distance (MSD) for the site vicinity review is noted for each database listed below. The regulatory database report for facilities with recognized environmental conditions is presented in Appendix E. A summary of the database information for the subject site vicinity is presented below.

7.2 Federal Database Review

The subject Site addressed at 275 Swan Street (425 Chicago Street) and Swan and Chicago Street corner, identified as Jose Hernandez Lot, was identified on the following federal databases:

- Facility Registry Service/Facility Index (FINDS / FRS) database listing, which identifies facilities, sites, or places subject to environmental regulations or of environmental interest. Unspecified universe was listed on the database as the

Site's "interest types" with EPA Registry ID: 110008098209. The listing appears to be associated with the RCRA ID: NYR000037994. No further information was provided.

- RCRA Non-Generator (NYD000037994) associated with a Small Quantity Generator listing in 1997 for the generation of ignitable waste (D001) and verified non-generator in 1999, 2006, and 2007. No violations were recorded and the owner/Operator was listed as Jose Hernandez.

According to municipal records, the subject Site historically included addresses 275 – 283 Swan Street; 425 – 439 Chicago Street; and 110 Myrtle Avenue and was also identified as Chicago Street Garage. EA has determined that the following facilities identified on the federal database were likely located on the subject Site:

- Ciepiela Michl A, addressed at 281 Swan Street, was listed on the Historical Business Activity Risk (HIST RISK), which identifies facilities which have potentially engaged in an activity that poses a higher-than-normal risk of contamination. In 1935, the property was identified as a gasoline and oil service station, listed as Ciepiela Michl A.

- Thomas Sam A, addressed at 429 Chicago Street, was identified on the Historical Business Activity Risk listed as the following:
  - 1920; Automobile Garage, listed as Chicago Street Garage;
  - 1920; Automobile Garage, listed as Power City Garage;
  - 1925; Garage, listed as Chicago Street Garage;
  - 1930; Automobile Garage, listed as Weiglein Frank C; and
  - 1950; Automobile Repairing, listed as Thomas Sam A.

- Chicago Street Garage, addressed at 420 Chicago Street, was identified on the Historical Business Activity Risk listed as the following:
  - 1939; Automobile Repairing, listed as Chicago Street Garage;
  - 1942; Automobile Garage, listed as Chicago Street Garage.

The following nearby facilities were identified on the federal databases reviewed, either adjoining the subject Site or in a potential upgradient direction, based on an estimated west-southwesterly groundwater flow direction, as listed below:

- Kee Hong, addressed at 287 Swan Street, adjoining the subject Site to the east, was identified on the Historical Business Activity Risk listed as the following:
  - 1920: Laundries (Potential Hazardous Chemical User), listed as Kee Hong;
  - 1925: Garage (Fuel and Automotive), listed as Elsen Harry J.
  - 1930: Automobile Repairing, listed as Jarrett Alex.;
  - 1939: Gasoline and Oil Service Station, listed as Capozzi Carmen;
  - 1950: Cleaners and Dryers, listed as D Carlo Louis.

Based on the available information, this listing may present a readily-apparent threat to the subject Site.

- Traders Towel Supply Co., addressed at 417-419 Chicago Street, adjoining the subject Site to the west, was identified on the Historical Business Activity Risk listed as the following:
  - 1920 and 1925: Laundries, listed as Traders Towel Supply Co.
  - 1935: Laundries Steam, listed as Buffalo General Laundry Coop.

  Based on the available information and estimated cross to downgradient location from the subject Site, this listing does not appear to present a readily-apparent threat to the subject Site.

- Castiglia Chas., addressed at 346 Swan Street, located approximately 0.10 miles east of the subject Site, was identified on the Historical Business Activity Risk in 1950 for Gasoline Station, listed as Castiglia Chas. Based on the available information, this listing does not appear to present a readily-apparent threat to the subject Site.

- Pescara Vito, addressed at 348 Swan Street, located approximately 0.11 miles east of the subject Site, was identified on the Historical Business Activity Risk in 1935 for Clothes Pressers and Cleaners, listed as Pescara Vito. Based on the available information, this listing does not appear to present a readily-apparent threat to the subject Site.

In addition to the above listings, the following listings were identified on the federal databases reviewed within the indicated search radii: one SEMS listing, two SEMS Archive listings, two CERCLIS listings, two CERCLIS NFRAP listings, three RCRA CORRACTS listings, one RCRCA TSD listings, one RCRA VSQG listing, five RCRA Non-Generator listings, one FED Brownfield, one FINDS/FRS listing, one PFAS TRI listing, four PFAS Industrial Sector listings, two FUDS listings, one MRDS listing, and 10 Historical Risk listings. However, based on the facility's regulatory status and/or distance/direction from the subject site, these listings do not appear to present a readily-apparent environmental threat to the subject Site.

7.3 State Database Review

The subject Site addressed at 275 Swan Street (425 Chicago Street) and Swan and Chicago Street corner, identified as Jose Hernandez Lot, was identified on the following state databases:

- NY Spill #9615008 associated with a report from the NYSDEC at the Jose Hernandez Lot on March 28, 1997. According to the ERIS database listing, the NYSDEC reported 12 drums (some full and three empty) and two 275-gallon oil tanks with one tank partially crushed with holes in it, were abandoned on the vacant lot. The drums and tanks were reportedly removed from the building ("Building 4") prior to demolition, placed on the vacant lot, and were never removed from the Site following demolition activities. It was estimated that

approximately 30 gallons of oil was spilled to the ground. Minimal cleanup was initially completed by a subcontractor, in which the NYSDEC inspected and requested further cleanup for the oil-stained grass and soil. Reportedly, one overpacked drum, five drums of oil, four drums of parts washer fluid (hazardous waste), one drum of paint waste, and 12 drums of contaminated soil were initially removed from the property and placed into a roll off with additional contaminated soil. Additional soil was excavated and a disposal receipt showing 13.5 tons of oil-contaminated soil was disposed of at Lakeview Landfill. However, the only bill of lading provided to NYSDEC for the waste oil liquid and hazardous waste was for four drums not signed by the disposal facility. The contractor was scheduled to provide the remaining disposal receipts the following week.

- A Generator of Hazardous Waste Manifest listing (NYD000037994) associated with the disposal of 220 gallons of Ignitable Waste (D001) in 1997.

The following nearby facilities were identified on the state databases reviewed, either adjoining the subject Site or in a potential upgradient direction, based on an estimated west-southwesterly groundwater flow direction, as listed below:

- Old Gasoline Station, addressed at 348 Swan Street, approximately 0.11 miles east of the subject Site, was listed as NY Spill #0075570 associated with contaminated soil identified during a Phase II Investigation, on January 18, 2001. The Phase I Investigation indicated a former gas station was on the property with UST's and no record of removal. The areas of contaminated soil were sampled, excavated and disposed of. The confirmation samples were all below STARS guidance and the area was backfilled. NYSDEC considered the spill as "closed" on December 17, 2002. Based on the available information, cleanup deemed closed by NYSDEC, and distance from the subject Site, this listing does not appear to present a readily-apparent environmental threat to the subject Site.

- Buffalo School #6, addressed at Hickory Street at South Division, approximately 0.28 miles east of the subject Site was listed as the following:
  - NY UST Site with an active PBS Registration No. 9-425419 for the following USTs:
    - One (1) 10,000-gallon #6 fuel oil UST, installed in 1960 and closed-removed in 2005; and
    - One (1) 10,000-gallon #2 fuel oil UST, installed in 2005 and out-of-service as of 2019.
  - NY Spill #0550673 on July 20, 2005. Contaminated soil was encountered while removing a 10,000-gallon #6 Fuel Oil tank. Contamination was only found near the lines and the soil was excavated and removed. The UST and tar remnants around the older UST's were removed. Samples were collected and analytical results were all below detection level. NYSDEC considered the spill as "closed" on September

7, 2005. Based on the available information, cleanup deemed closed by NYSDEC, and distance from the subject Site, this listing does not appear to present a readily-apparent environmental threat to the subject Site.

In addition to the above listings, the following listings were identified on the state databases reviewed within the indicated search radii: three SHWS listings, 10 delisted SHWS listings, four HSWDS listings, one SWF/LF listing, four UST listings, two AST listings, three generators from hazardous waste manifests, 42 NY Spill sites (LUST/SPILLS), three Engineering and Institutional Controls listings, one environmental restoration program listing, and one Brownfield listing, one manufactured gas plant listing, one PFAS listing, two cooling tower listings, and two air permit listings. However, based on the facility's regulatory status and/or distance/direction from the subject site, these listings do not appear to present a readily-apparent environmental threat to the subject site.

7.4 Unplottable Summary Report

Unplottable listings are records that could not be mapped due to various reasons, including limited geographic information. Five (5) unplottable listings were identified on the databases reviewed within the indicated search radii. EA reviewed these listings which do not appear to be associated with the subject Site or adjoining properties.

7.5 Regulatory Agency File and Records Review

If the subject Site or any of the adjoining properties is identified on one or more of the standard governmental record resources, pertinent regulatory files and/or records associated with the identified listing should be reviewed. The purpose of the regulatory agency file/records review is to obtain sufficient information to assist the environmental professional in determining if a recognized environmental condition, historical recognized environmental condition, controlled recognized environmental condition, or a de minimis condition exists at the subject Site in connection with any listings identified on the subject Site or adjoining properties.

The subject Site and adjoining properties were identified on the ERIS database, as described above. However, based on the sufficient regulatory provided within the listings and the Freedom of Information Law (FOIL) request already submitted to the NYSDEC, municipality, and County Health Department, a further regulatory file review of the subject Site and adjoining properties are not warranted.

8.0 INTERVIEWS AND INFORMATION REQUESTS

8.1 Owners/Operators

Interviews with persons familiar with the Site are completed to obtain information pertinent to the environmental evaluation of the Site. Information from interviews conducted during the site reconnaissance is included in Section 6.0 and referenced throughout the text of the report. To that end, an owner/occupant

questionnaire was provided to Mr. Burgos to be provided to the current owner of the subject Site. As of the date of this report, EA has not received a completed owner/occupant questionnaire.

8.2 Federal and State Agencies

EA searched USEPA websites https://www3.epa.gov/enviro/facts/myproperty/ and https://enviro.epa.gov/facts/multisystem.html for Site records. The subject Site location, Swan and Chicago Street, was identified on the website as "Hernandez Jose" associated with a RCRA Denerator ID (NYR000037994), as described in Section 7.2 above. Based on the subject Site listing, a Freedom of Information Law (FOIL) request was submitted to USEPA. As of the date of this report, EA has not received a response from the Agency.

According to the NYSDEC, applicable information is available through DECInfo Locator at https://gisservices.dec.ny.gov/gis/dil/, Manifest Search Database at http://ny.formax.us/manifest/manifest.aspx, and through database searches at https://www.dec.ny.gov/chemical/8437.html. The subject Site was identified on the NYSDEC Spills Database for NY Spill #9615008, as described in Section 7.3 above. No other listings were identified which appeared to be associated with the subject Site.

EA also forwarded a written inquiry to the NYSDEC regarding the subject site. The purpose of this inquiry was to obtain information regarding the presence of hazardous materials, underground bulk storage tanks, known environmental releases, prior environmental studies and the past asbestos remediation work, if any, at or near the subject Site. As of the date of this report, EA has not received a response from the Department.

8.3 Local Agencies

EA forwarded a written inquiry to the Erie County Department of Health regarding the subject Site. The purpose of the inquiry was to obtain information with regard to the presence of hazardous materials, underground bulk storage tanks, known environmental releases, prior environmental studies, septic system records and the past asbestos remediation work, if any, at or near the subject Site. As of the date of this report, EA has not received a response from the Department.

9.0 FINDINGS AND CONCLUSIONS

EA has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM practice E1527-21 of the subject Site located at 275-281 Swan Street and 425 Chicago Street in the City of Buffalo, Erie County, New York. Any exceptions to or deletions from this practice are described in Appendix G (Objectives and Limitations) of this report.

This assessment has revealed no evidence of recognized environmental conditions in connection with the subject site, except for the following:

- The subject Site has had a history of several commercial occupants and was originally developed by 1881 with residences, commercial store fronts, and a stable ("U.S. Express Stables"). Parcel 2 appears to have been always utilized residentially. The store fronts along Swan Street on Parcels 1 and 3 were occupied by several occupants including a dentistry, dry goods, meat, and grocery store, Swam Importing Co., drug store, physician's office, and church. The store fronts along Chicago Street in the southern portion of Parcel 1 were also occupied by several occupants including Salerno Printer, barber, and record shop. All of these former buildings (Buildings 1-3) were demolished between 1978 and 2002. These former buildings had basements, which would have had to have been backfilled with material from unknown sources. This aspect should be further investigated to determine the nature of this backfill material.

  Parcel 4 was originally developed by at least 1889 with a stable ("U.S. Express Stables"). This building existed as a stable until approximately 1926, when it was re-developed as a public automobile garage ("Chicago St. Garage"). In the 1926 Sanborn map, one gasoline UST was located along the western parcel boundary. Buffalo Fire Department records indicated one 1,000-gallon gasoline UST was installed for a public garage in 1941 with two pre-existing 550-gallon gasoline USTs. In the 1950 Sanborn map, two gasoline USTs were located along the western parcel boundary. This parcel existed as a public garage until the building was demolished in 1997, after which the parcel existed as vacant land until present day. No records of removal associated with these gasoline tanks were identified by EA. Although the locations of the reported 550-gallon gasoline USTs and 1,000-gallon gasoline UST were not confirmed by EA, it is probable the two 550-gallon gasoline USTs may correspond with the two gasoline USTs mapped within the Chicago Street roadway/sidewalk on the Sanborn Maps. Additionally, a suspect fill port labeled "OPW" was identified by EA on-site within the western portion of Parcel 4, near the two gasoline USTs depicted on the Sanborn Maps.

  In addition, NYSDEC Spill #9615008 was identified for the subject Site associated with the "Hernandez Lot" on March 28, 1997. According to the ERIS database listing, the NYSDEC reported 12 drums (some full and three empty) and two 275-gallon oil tanks with one tank partially crushed with holes in it, were abandoned on the vacant lot. The drums and tanks were reportedly removed from the building ("Building 4") prior to demolition, placed on the vacant lot, and were never removed from the Site following demolition activities. It was estimated that approximately 30 gallons of oil was spilled to the ground. Minimal cleanup was initially completed by a subcontractor, in which the NYSDEC inspected and requested further cleanup for the oil-stained grass and soil. Reportedly, one overpacked drum, five drums of oil, four drums of parts washer fluid (hazardous waste), one drum of paint waste, and 12 drums of contaminated soil were initially removed from the property and placed into a roll

off with additional contaminated soil. Additional soil was excavated and a disposal receipt showing 13.5 tons of oil-contaminated soil was disposed of at Lakeview Landfill. However, the only bill of lading provided to NYSDEC for the waste oil liquid and hazardous waste was for four drums not signed by the disposal facility. The contractor was scheduled to provide the remaining disposal receipts the following week (07/21/1997). However, no further indication regarding this matter was noted and the NYSDEC considered the spill as "closed" on January 1, 1998. EA has not received a FOIL response from the Department regarding this spill; however, based on the available information within the database listing reviewed by EA, it is unclear if the cleanup activities and/or reported completed sampling in 1997 meet current Department standards.

Therefore, concern exists with respect to possible past release(s) of regulated substances both on-site and off-site related to their use, storage, and/or disposal from past commercial uses at the Site.

- The adjoining properties to the south, east and west of the subject Site have been used for commercial purposes (including a gasoline UST to the northeast and west, repair shop, blacksmith, and "laundries" and "Cleaners"). EA has assumed that the various operations at these properties included routine use, storage and handling of various regulated substances. Therefore, concern exists with respect to possible past release(s) of regulated substances off-site related to their use, storage, and/or disposal from past commercial uses.

In this context, EA recommends that a Phase II ESA subsurface investigation with incorporation of a ground penetrating radar (GPR) be completed on the subject Site to assess if the soil profile and/or groundwater have been impacted by the historical Site and off-site regulated substances and/or chemical usages.

This assessment has revealed no evidence of controlled or historical recognized environmental conditions in connection with the subject Site.

No significant data gaps, which could have significantly affected EA's ability to identify recognized environmental conditions associated with the subject Site, were identified, except for the following:

- EA did not receive a response from the FOIL request submitted to the USEPA and NYSDEC, specifically regarding RCRA ID: NYD000037994 and Spill #9615008, identified for the subject Site.

- EA was not provided with a current owner or Key Site Manager contact, nor was a completed owner/occupant questionnaire provided to EA.

EA did note the following de minimis matters which, although not rising to the level of a recognized environmental condition, present limited liability and/or business risk and should be considered by the Client:

- According to NYSDEC, emerging contaminants (ECs) describe pollutants detected in waterbodies that may cause environmental or human health impacts and typically are not regulated under current environmental laws. For example, per- and polyfluoroalkyl substances (PFAS) are man-made chemicals that have been widely used in various consumer, commercial, and industrial products since the 1950s. These chemicals' unique properties make them resistant to heat, oil, stains, grease, and water and are useful in a wide variety of everyday products. No current and/or previous potential PFAS use on-site was identified during this investigation. It should be noted that all of the former on-site buildings have records of fire damage. Although past firefighting techniques in the City of Buffalo are not known, the historical use of firefighting foam for residential and commercial structure fires does not appear to be common.

Finally, EA did note the following non-scope consideration which, although addressed as additional issues under the ASTM E1527-21 Standard, presents limited liability and should be considered by the Client:

- The site reconnaissance did reveal vapor encroachment conditions at the subject Site, based on gasoline tanks being located potentially on-site and adjoining the Site to the west and northeast, as well as potential adjoining dry cleaning use to the east and south. A Vapor Encroachment Screen or Vapor Intrusion Monitoring does appear to be warranted in this case based on past Site and adjoining property use. It should be noted that if an adequate Phase II ESA is conducted which also addresses vapor intrusion pathways, such a screen will likely not be necessary.

If information is received through the Freedom of Information Letter requests, which identify any further environmental concerns, EA will contact our Client immediately with the revised conclusions. Field notes and other information relating to this project are available for review at EA in Orchard Park, New York.

10.0 DEVIATIONS AND ADDITIONAL SERVICES

10.1 Data Gaps

EA has performed a Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of ASTM practice E1527-21 of the subject site. A data gap is defined as "a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information. EA identified the following data gaps:

- EA did not receive a response from the FOIL request submitted to the Erie County Health Department.

The data gaps alone do not inherently identify as significant. No significant data gaps were identified by EA that could have significantly affected EA's ability to identify recognized environmental conditions associated with the subject site.

10.2 Deviations

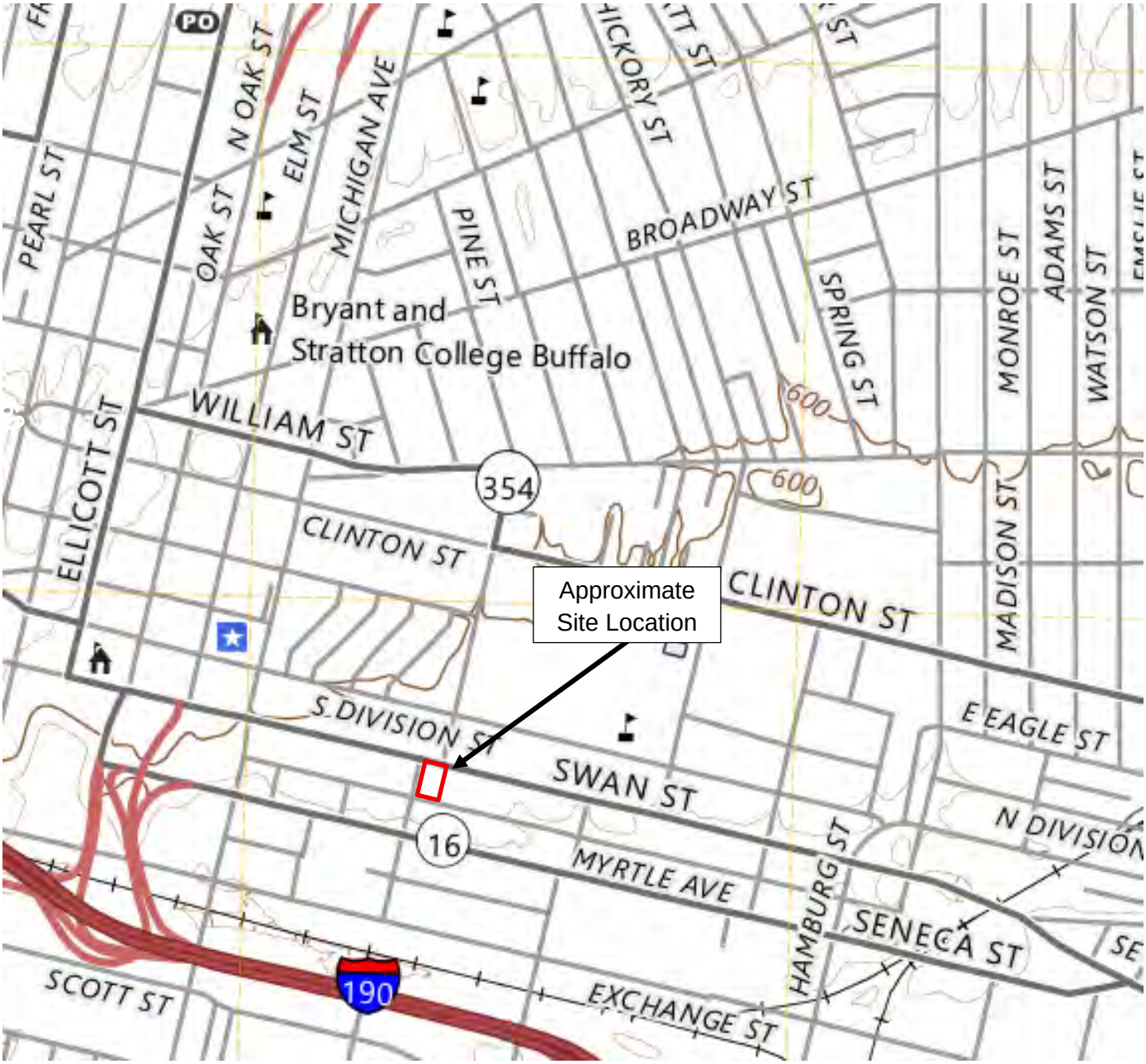
Except for the limitations and exceptions noted in Appendix G, this Phase I ESA is generally compliant with ASTM Standard E1527-21.

10.3 Additional Services

No additional services beyond the scope of the ASTM Standard E1527-21 other than the limited non-scope items listed above were conducted as part of this Phase I ESA.

APPENDIX A

FIGURES



THIS DRAWING IS FOR ILLUSTRATIVE AND INFORMATIONAL PURPOSES ONLY AND WAS ADAPTED FROM USGS, BUFFALO NE QUADRANGLE, NEW YORK (2023)

ENVIRONMENTAL ADVANTAGE, INC.

Regulatory Compliance – Site Investigations – Facility Inspections

SITE LOCATION
DRAGHI BURGOS CONSTRUCTION
SWAN & CHICAGO STREET PROPERTIES
BUFFALO, NEW YORK

DRAWN BY: CR	SCALE: NOT TO SCALE	PROJECT: e2413
CHECKED BY: MB	DATE: 08/2025	FIGURE NO: 1

KEY

- Approximate Historical Building Footprints
- Gasoline USTs from Sanborn Maps
- Suspect Fill Port
- Stained/Discolored Soil/Fill/Gravel

ENVIRONMENTAL ADVANTAGE, INC.

Regulatory Compliance – Site Investigations – Facility Inspections

SITE MAP

SWAN & CHICAGO STREET PROPERTIES
BUFFALO, NEW YORK

DRAGHI BURGOS CONSTRUCTION

BUFFALO, NEW YORK

DRAWN BY: CR	SCALE: NOT TO SCALE	PROJECT: e2413
CHECKED BY: MB	DATE: 09/2025	FIGURE NO: 2

APPENDIX B

COMPLETED USER/CLIENT and/or OWNER QUESTIONNAIRES

PHASE I ESA
USER/CLIENT QUESTIONNAIRE

Site Name/Address: 275 Swan St., Buffalo, NY 14204
279 Swan St., Buffalo, NY 14204
281 Swan St., Buffalo, NY 14204
425 Chicago St., Buffalo, NY 14204

User (Business) Name: Swan Chicago LLC.

User Address: 681 Michigan Avenue, Buffalo, NY 14203

Name & Title of Representative: Alexander Burgos, managing member

Reason for Conducting Phase I: property purchase

1) Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?

NO

2) Are you aware of any Activity Use Limitations (AULs), such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

NO

3) As the user of this ESA, do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

NO

4) Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

yes

5) Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases?

No

6) Do you know the past uses(s) of the property?

No

7) Do you know of specific chemicals that are present or once were present at the property?

No

8) Do you know of any spills or other chemical releases that have taken place at the property?

No

9) Do you know of any environmental cleanups that have taken place at the property?

No

10) As the user of this ESA, based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property?

No

Name: Alexander Burgos

Signature: Alexander Burgos

Title: Managing Member

Date: 9/24/2025

APPENDIX C

SITE PHOTOGRAPHS

1. View of the subject Site, facing northwest.

2. View of the subject Site, facing southeast.

3. View of the central portion of the subject Site, facing northeast.

4. Typical view of staining/stressed vegetation in the eastern portion of the subject Site.

5. View of suspect fill port observed in the southwestern portion of the subject Site, facing south.

6. View of suspect fill port observed in the southwestern portion of the subject Site.

APPENDIX D

FIELD NOTES AND VARIOUS COMMUNICATIONS

Site Inspection Form

Due Date: ASAP Client: Draghi Burgos Ph I / TS?: Ph I

Site Inspector: MB | CR Date: 9/18/25 Job#: e2413

Site Contact Name: Alex Burgos Site Contact Phone #: _____

Site Address: Swan + Chicago St. City/Town: Buffalo

Current Site Occupant: Vacant

Site Processes / Operations: Vacant

Current Site Owner / Year Purchased: Maria Cipriano (2018)

Previous studies available? N/A

Limitations (visual obstructions, all areas observed?): None

Adjacent Sites Uses

North Adjacent: Residential + Swan St.

South Adjacent: Myrtle St. | Parking lot

East Adjacent: Leon's Auto Sales + Service

West Adjacent: Chicago St. / Community Center

Utilities and Providers

Water: N/A Sewer: N/A

Electric: N/A Natural Gas: N/A

Building Description and Notable Features (year built, # stories, heat source, basement?)

The subject site is a vacant, undeveloped lot.

Type	Ext.	Int.	Details: (*usage*, *size*, *type*, *full/empty*, *staining*?)
Hazardous Substances	N	N/A	
Petroleum Products	N		
Drums / Containers	N		
Stains / Corrosion	Y		Petroleum Staining along E. Site boundary
USTs / ASTs	Y		Suspect fill port in W. Portion of parcel #4.
Oil / Water Separator	N		
Grease Trap	N		
PCBs / Transformers / Hydraulic Equip.	N		
Hazardous Waste Generation	N		
Fill / Solid Waste Disposal	N		
Wastewater / Stormwater Discharge	N		

Drains / Sumps	N	N/A	
Septic System	N		
Pits / Ponds / Lagoons	N		
Pools of Liquids	N		
Stressed Vegetation	Y		Stressed veg. Surrounding Petroleum Staining.
Wells / Drywells	N		
Odors	N		
Mold / Mildew	N/A		
Asbestos (tiles; fire doors; pipe insulation)	N/A		
Lead (peeling/chipping paint; steel/copper pipe)	N/A		

Additional Notes

APPENDIX E

REGULATORY DATABASES

Property Information

Order Number:	25091500141p
Date Completed:	September 15, 2025
Project Number:	e2413
Project Property:	Swan & Chicago Street Swan & Chicago Street Buffalo NY 14204
Coordinates:	
Latitude:	42.8798597
Longitude:	-78.8653863
UTM Northing:	4749683.85245 Meters
UTM Easting:	674330.495871 Meters
UTM Zone:	UTM Zone 17T
Elevation:	592.15 ft
Slope Direction:	S

Topographic Information....2
Hydrologic Information....4
Geologic Information....8
Soil Information....10
Wells and Additional Sources....15
Summary....16
Detail Report....18
Radon Information....39
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Liability Notice....42

The ERIS ***Physical Setting Report - PSR*** provides comprehensive information about the physical setting around a site and includes a complete overview of topography and surface topology, in addition to hydrologic, geologic and soil characteristics. The location and detailed attributes of oil and gas wells, water wells, public water systems and radon are also included for review.

The compilation of both physical characteristics of a site and additional attribute data is useful in assessing the impact of migration of contaminants and subsequent impact on soils and groundwater.

Disclaimer

This Report does not provide a full environmental evaluation for the site or adjacent properties. Please see the terms and disclaimer at the end of the Report for greater detail.

Topographic Information

Current USGS Topo (2023)

0 0.2 0.4 0.8 Miles

N

Quadrangle(s): Buffalo SE,NY; Buffalo SE OE W,NY; Buffalo NE,NY; Buffalo NW,NY

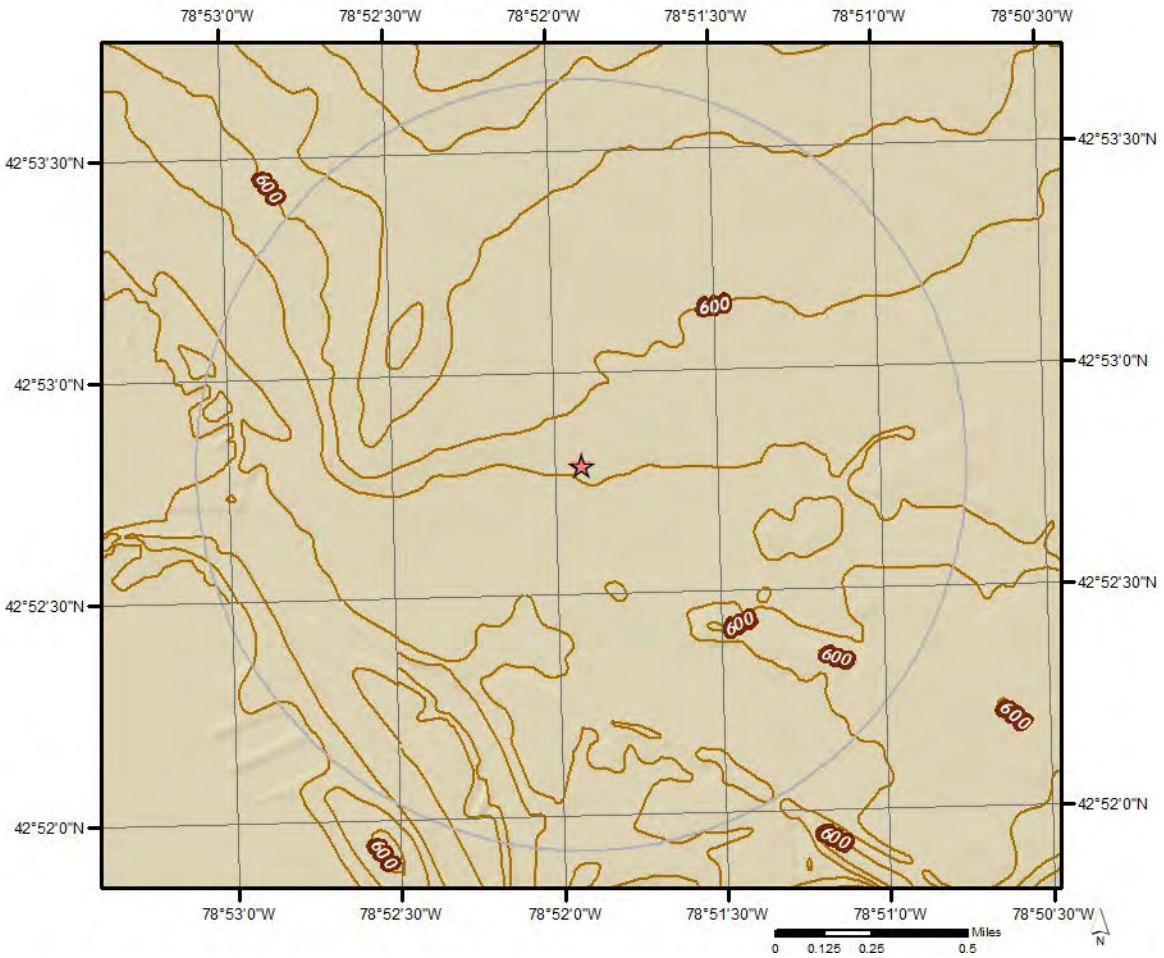
Source: USGS 7.5 Minute Topographic Map

Topographic Information

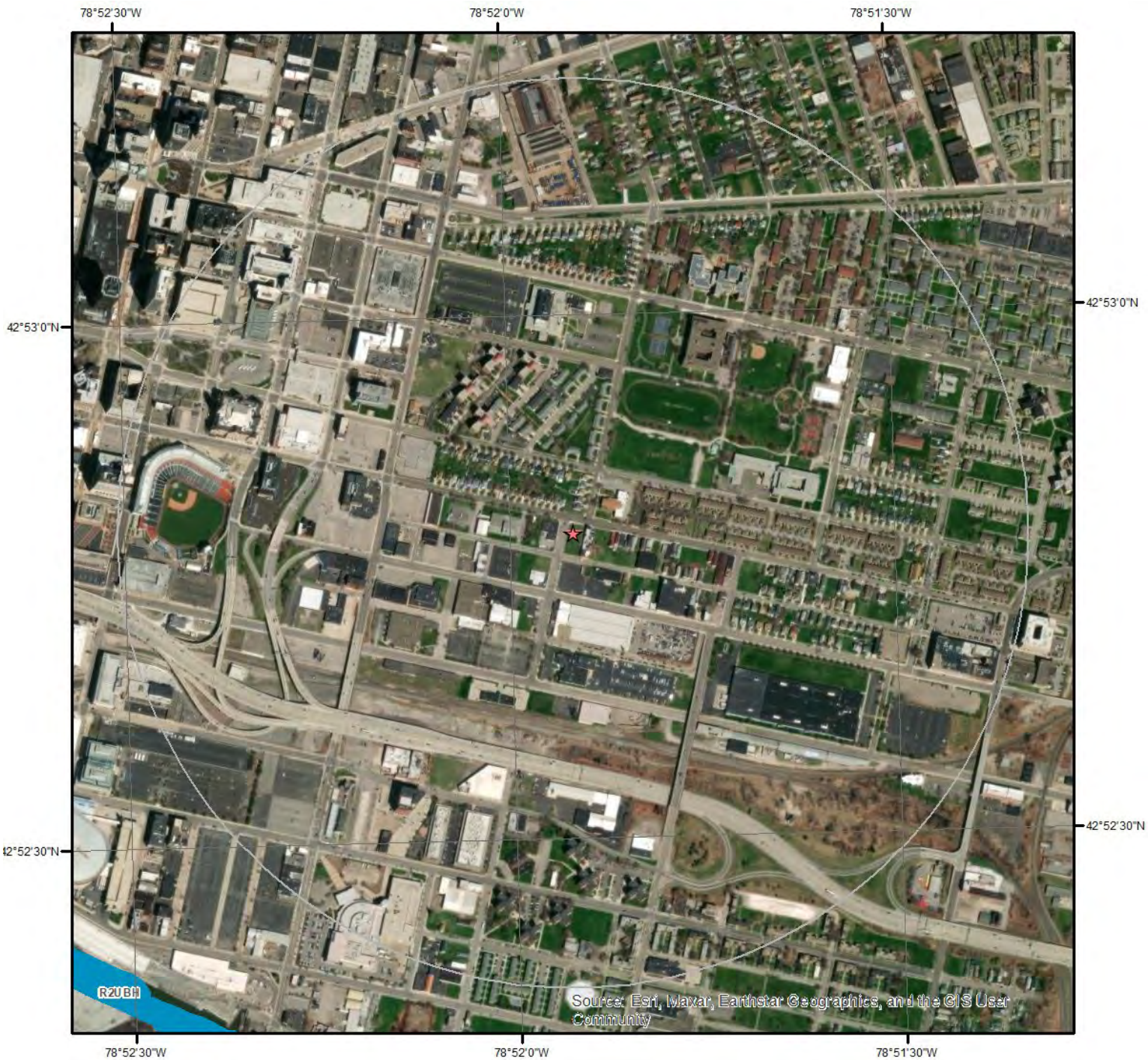
The previous topographic map(s) are created by seamlessly merging and cutting current USGS topographic data. Below are shaded relief map(s), derived from USGS elevation data to show surrounding topography in further detail.

Topographic information at project property:

Elevation:	592.15 ft
Slope Direction:	S



Hydrologic Information



Wetland

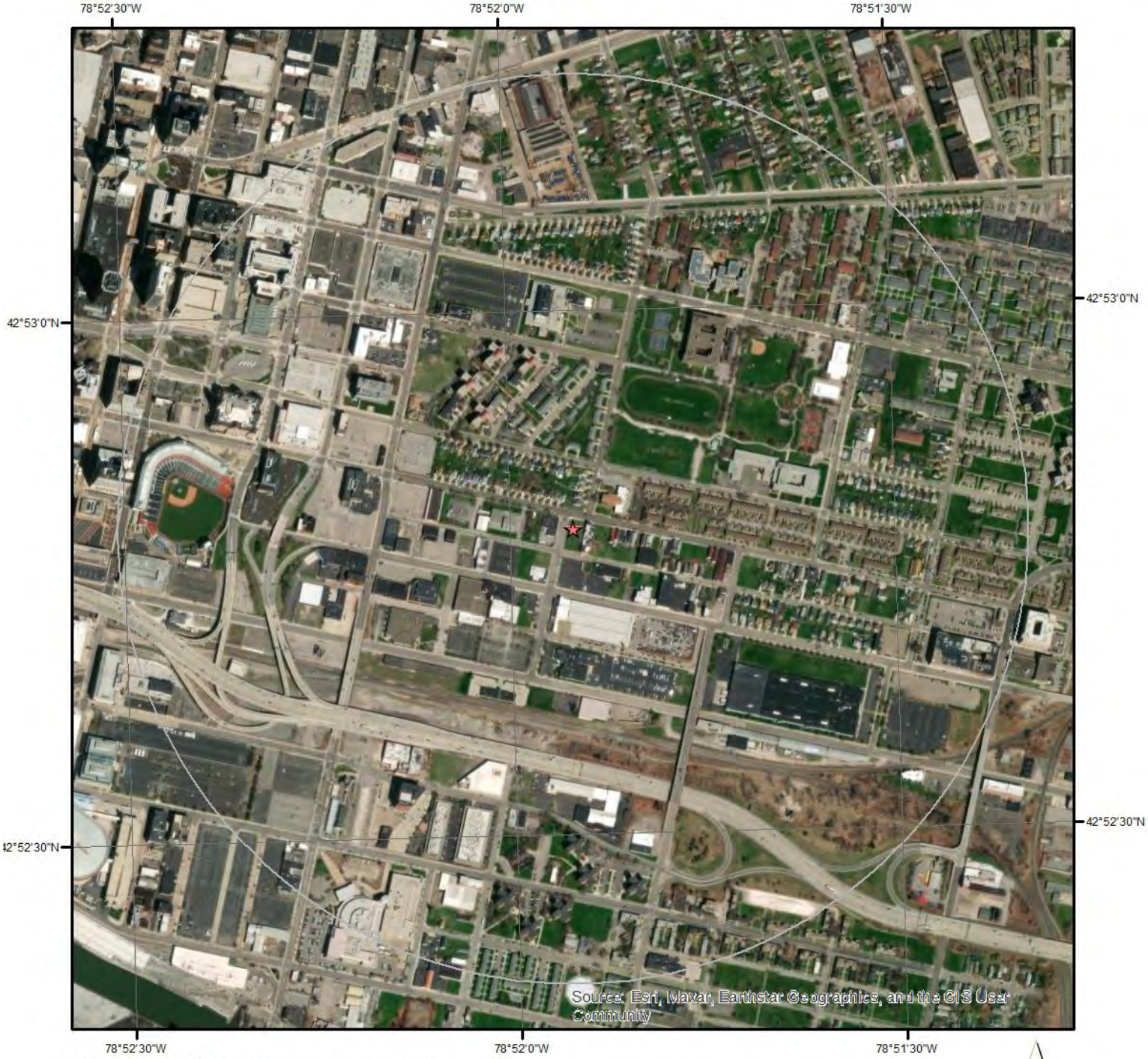
Miles
0 0.05 0.1 0.2

N

This map shows wetland existence using data from US Fish & Wildlife.
Data coverage is shown to the right. Gray indicates no data available in the area.

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Hydrologic Information



Wetland (State Source)

Miles
0 0.075 0.15 0.3
N

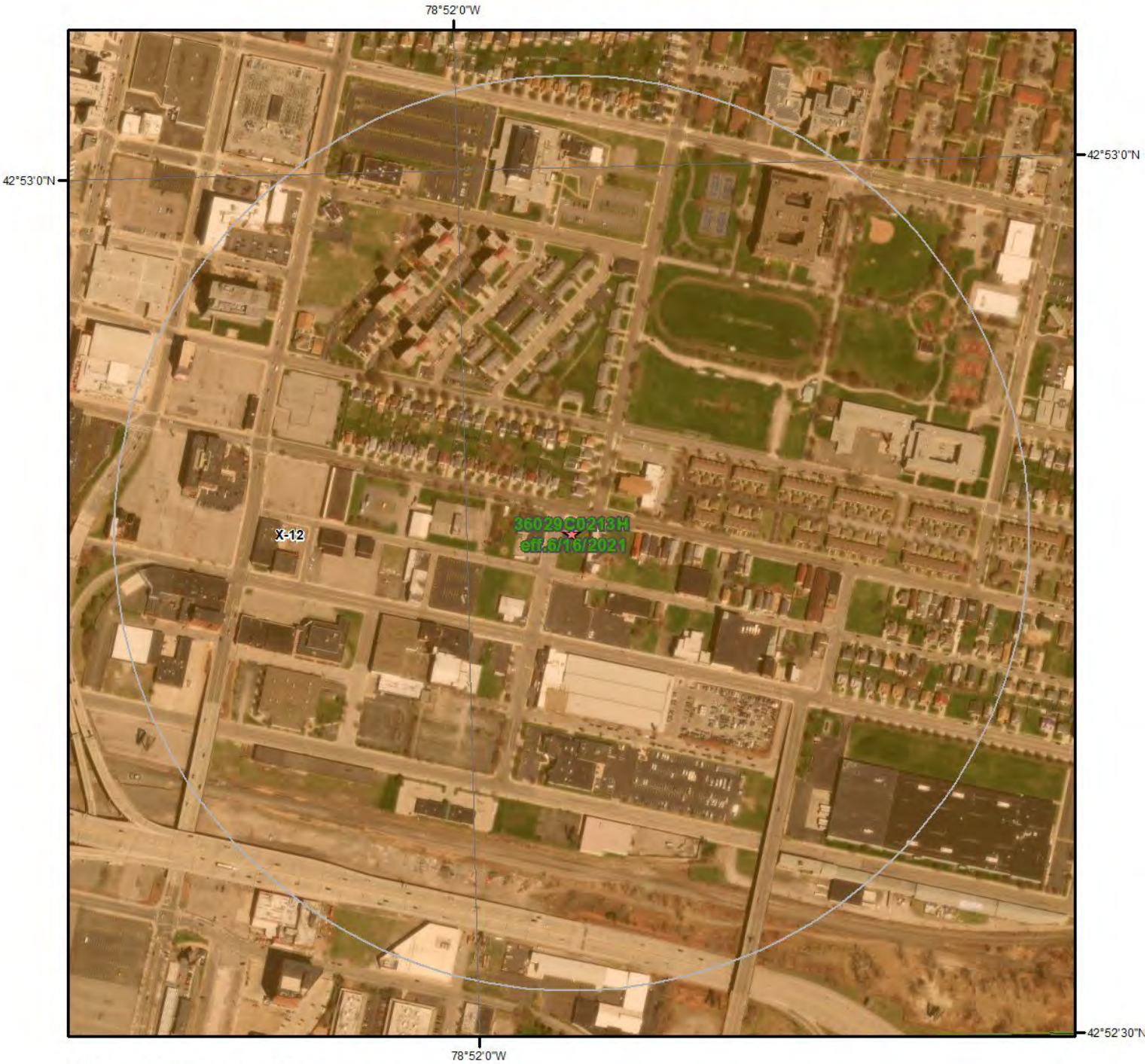
This data shows only those wetlands that are currently mapped or officially proposed for addition to the wetland maps and currently regulated under the New York State Freshwater Wetlands Act.

DEC
- Class I
- Class II
- Class III
- Class IV
- Check Zone

APA
- Aquatic Bed Rooted Vascular
- Emergent Non-persistent
- Emergent Persistent
- Forested Broad-leaf Deciduous
- Forested Dead
- Forested Needle-leaf Deciduous
- Forested Needle-leaf Evergreen
- Open Water
- Scrub Shrub Broad-leaf Deciduous
- Scrub Shrub Broad-leaf Evergreen
- Scrub Shrub Dead
- Scrub Shrub Needle-leaf Deciduous
- Scrub Shrub Needle-leaf Evergreen
- Streambed Cobble/Gravel
- Streambed Rubble
- Unconsolidated Bottom Cobble/Gravel
- Unconsolidated Bottom Mud
- Unconsolidated Bottom Sand
- Unconsolidated Shore Cobble/Gravel
- Unconsolidated Shore Sand

Source and Category Description:
DEC: New York State Department of Environmental COnservation; http://www.dec.ny.gov/gis/erm/wetlands.html
APA: Adirondack Park Agency; https://www.apa.ny.gov/gis/index.html

Hydrologic Information



Flood Hazard Zones

This map shows FEMA flood hazard zones based on FEMA's National Flood Hazard Layer. FIRM Panels are overlayed. An absent FIRM panel represents no data available.

Miles
0 0.05 0.1

N

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee
- Area with Risk Due to Levee
- Open Water

Quadrangle(s): Buffalo SE,NY; Buffalo SE OE W,NY; Buffalo NE,NY; Buffalo NW,NY

ERIS

Hydrologic Information

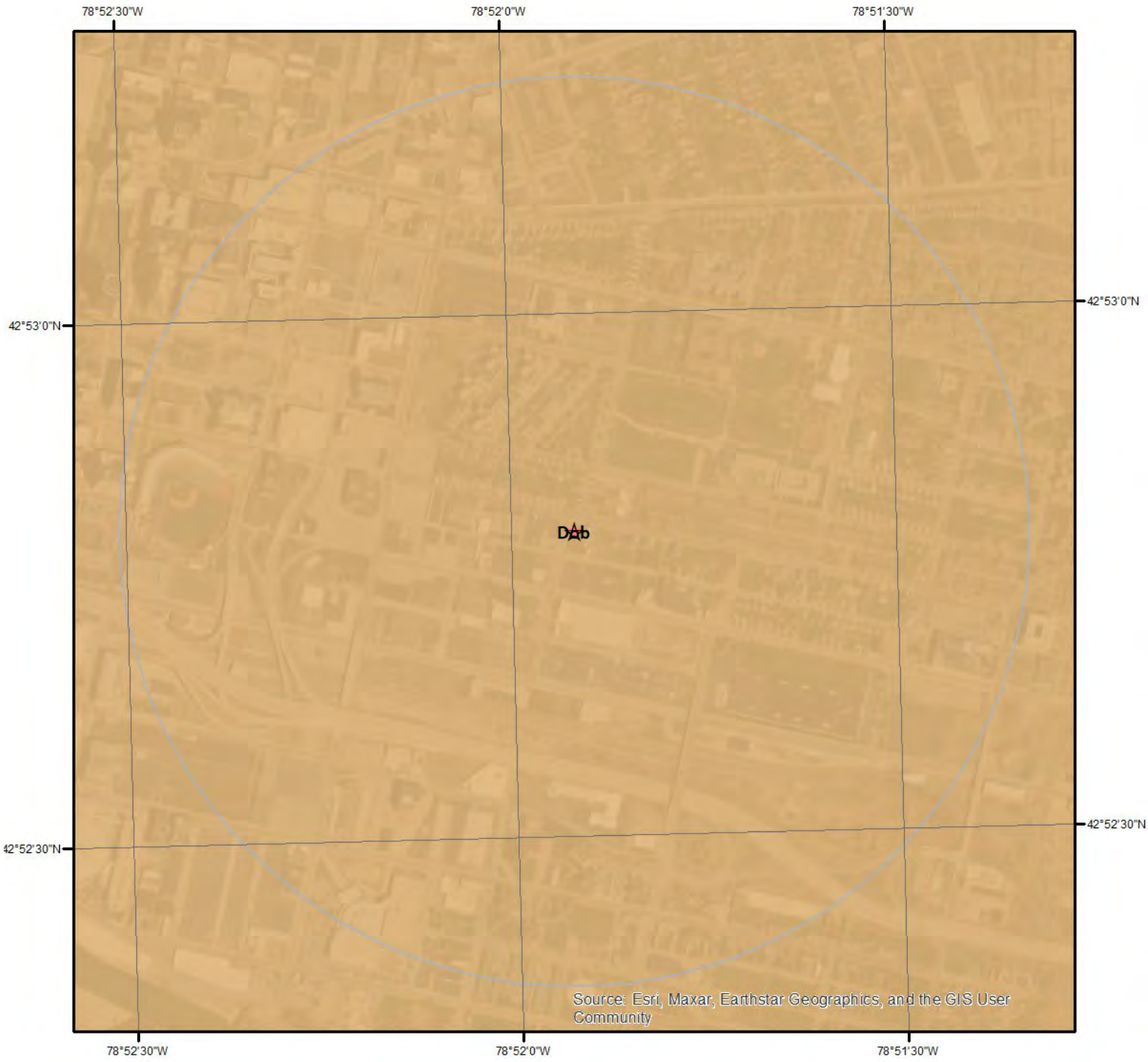
The Wetland Type map shows wetland existence overlaid on an aerial imagery. The Flood Hazard Zones map shows FEMA flood hazard zones overlaid on an aerial imagery. Relevant FIRM panels and detailed zone information is provided below.
For detailed Zone descriptions please click the link: https://floodadvocate.com/fema-zone-definitions

Available FIRM Panels in area:	36029C0213H(effective:2021-06-16)

Flood Zone X-12

Zone:	X
Zone subtype:	AREA OF MINIMAL FLOOD HAZARD

Geologic Information



Geologic Units

N

0 0.125 0.25 Miles

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.

Geologic Information

The previous page shows USGS geology information. Detailed information about each unit is provided below.

Geologic Unit Dob

Unit Name:	Onondaga and Bois Blanc Limestones
Unit Age:	Middle Devonian
Primary Rock Type:	Limestone
Secondary Rock Type:	
Unit Description:	In New York: Onondaga Limestone-Seneca, Morehouse (cherty), and Clarence Limestone Members, Edgecliff cherty Limestone Member, local coral bioherms; Bois Blanc Limestone-sandy, thin, discontinous.¿In Ontario: Dundee Limestone; Lucas Formation-dolostone, limestone (Anderdon); Amherstburg Formation-limestone, dolostone, sandstone (Sylvania); Bois Blanc Formation-dolostone, limestone, sandstone (Springvale).

Soil Information

SSURGO Soils

N

0 0.125 0.25 Miles

This maps shows SSURGO soil units around the target property. Please refer to the report for detailed soil descriptions.

Soil Information

The previous page shows a soil map using SSURGO data from USDA Natural Resources Conservation Service. Detailed information about each unit is provided below.

Map Unit Ud (81.96%)

Map Unit Name:	Urban land

No more attributes available for this map unit

Component Description:

Minor map unit components are excluded from this report.

Map Unit: Ud - Urban land

Component: Urban land (80%)
Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Odessa (5%)
Generated brief soil descriptions are created for major soil components. The Odessa soil is a minor component.

Component: Udorthents (5%)
Generated brief soil descriptions are created for major soil components. The Udorthents soil is a minor component.

Component: Mardin (5%)
Generated brief soil descriptions are created for major soil components. The Mardin soil is a minor component.

Component: Getzville (5%)
Generated brief soil descriptions are created for major soil components. The Getzville soil is a minor component.

Map Unit Uk (0.1%)

Map Unit Name:	Urban land-Claverack complex
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	54cm
Drainage Class - Dominant:	null
Hydrologic Group - Dominant:	null

Major components are printed below

Claverack(30%)

horizon H1(0cm to 25cm)	Loamy fine sand
horizon H2(25cm to 89cm)	Loamy fine sand
horizon H3(89cm to 152cm)	Clay

Component Description:

Minor map unit components are excluded from this report.

Map Unit: Uk - Urban land-Claverack complex

Component: Urban land (60%)
Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Claverack (30%)
The Claverack component makes up 30 percent of the map unit. Slopes are 0 to 3 percent. This component is on proglacial lake plains. The parent material consists of sandy glaciolacustrine deposits, derived primarily from non-calcareous sandstone or granite, that overlie clayey glaciolacustrine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water

saturation is at 21 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 1 percent.

Component: Varysburg (3%)
Generated brief soil descriptions are created for major soil components. The Varysburg soil is a minor component.

Component: Cosad (3%)
Generated brief soil descriptions are created for major soil components. The Cosad soil is a minor component.

Component: Udorthents (2%)
Generated brief soil descriptions are created for major soil components. The Udorthents soil is a minor component.

Component: Cheektowaga (2%)
Generated brief soil descriptions are created for major soil components. The Cheektowaga soil is a minor component.

Map Unit Uo (1.02%)

Map Unit Name:	Urban land-Cosad complex
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	31cm
Drainage Class - Dominant:	null
Hydrologic Group - Dominant:	null
Major components are printed below	
Cosad(25%)	
horizon H1(0cm to 23cm)	Loamy fine sand
horizon H2(23cm to 53cm)	Loamy fine sand
horizon H3(53cm to 61cm)	Fine sandy loam
horizon H4(61cm to 152cm)	Silty clay

Component Description:

Minor map unit components are excluded from this report.

Map Unit: Uo - Urban land-Cosad complex

Component: Urban land (60%)
Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Cosad (25%)
The Cosad component makes up 25 percent of the map unit. Slopes are 0 to 3 percent. This component is on proglacial lake plains. The parent material consists of sandy glaciofluvial or deltaic deposits over clayey glaciolacustrine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 1 percent.

Component: Rhinebeck (5%)
Generated brief soil descriptions are created for major soil components. The Rhinebeck soil is a minor component.

Component: Red Hook (5%)
Generated brief soil descriptions are created for major soil components. The Red Hook soil is a minor component.

Component: Udorthents (3%)
Generated brief soil descriptions are created for major soil components. The Udorthents soil is a minor component.

Component: Cheektowaga (2%)
Generated brief soil descriptions are created for major soil components. The Cheektowaga soil is a minor component.

Map Unit Ut (0.31%)

Map Unit Name:	Urban land-Odessa complex, 0 to 3 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	20cm
Drainage Class - Dominant:	null
Hydrologic Group - Dominant:	null

Major components are printed below

Odessa(25%)

horizon Ap(0cm to 20cm)	Silt loam
horizon Bt/E(20cm to 25cm)	Silty clay loam
horizon Bt1(25cm to 38cm)	Silty clay
horizon Bt2(38cm to 64cm)	Silty clay
horizon C(64cm to 200cm)	Silty clay

Component Description:

Minor map unit components are excluded from this report.

Map Unit: Ut - Urban land-Odessa complex, 0 to 3 percent slopes

Component: Urban (60%)
Generated brief soil descriptions are created for major soil components. The Urban is a miscellaneous area.

Component: Odessa (25%)
The Odessa component makes up 25 percent of the map unit. Slopes are 0 to 3 percent. This component is on lake plains, lake terraces. The parent material consists of red clayey glaciolacustrine deposits derived from calcareous shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 6 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent.

Component: Lakemont (5%)
Generated brief soil descriptions are created for major soil components. The Lakemont soil is a minor component.

Component: Schoharie (5%)
Generated brief soil descriptions are created for major soil components. The Schoharie soil is a minor component.

Component: Churchville (3%)
Generated brief soil descriptions are created for major soil components. The Churchville soil is a minor component.

Component: Rhinebeck (2%)
Generated brief soil descriptions are created for major soil components. The Rhinebeck soil is a minor component.

Map Unit Uu (16.61%)

Map Unit Name:	Urban land-Schoharie complex, 0 to 3 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	76cm
Drainage Class - Dominant:	null
Hydrologic Group - Dominant:	null

Major components are printed below

Schoharie(35%)

horizon Ap(0cm to 20cm)	Silty clay loam
horizon E(20cm to 28cm)	Silt loam
horizon Bt/E(28cm to 46cm)	Silty clay

horizon Bt(46cm to 84cm)	Clay
horizon C1(84cm to 132cm)	Silty clay
horizon C2(132cm to 200cm)	Silty clay

Component Description:

Minor map unit components are excluded from this report.

Map Unit: Uu - Urban land-Schoharie complex, 0 to 3 percent slopes

Component: Urban land (60%)
Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Schoharie (35%)
The Schoharie component makes up 35 percent of the map unit. Slopes are 0 to 3 percent. This component is on lake plains, lake terraces. The parent material consists of red clayey glaciolacustrine deposits derived from calcareous shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 30 inches during March, April, May. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent.

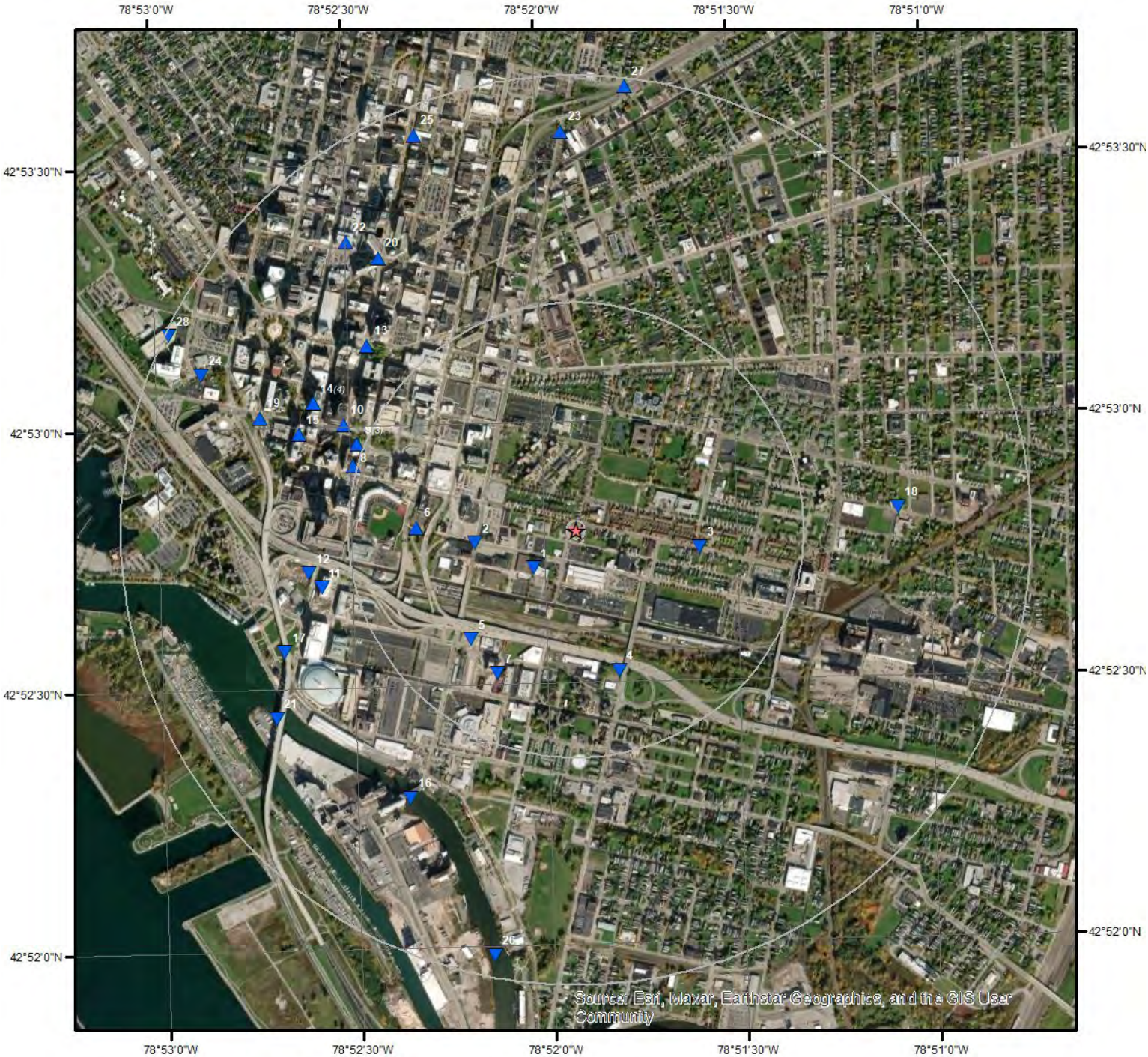
Component: Odessa (2%)
Generated brief soil descriptions are created for major soil components. The Odessa soil is a minor component.

Component: Cayuga (1%)
Generated brief soil descriptions are created for major soil components. The Cayuga soil is a minor component.

Component: Collamer (1%)
Generated brief soil descriptions are created for major soil components. The Collamer soil is a minor component.

Component: Cazenovia (1%)
Generated brief soil descriptions are created for major soil components. The Cazenovia soil is a minor component.

Wells and Additional Sources



Wells & Additional Sources

N

0 0.15 0.3 0.6 Miles

- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- OGW Sites with Higher Elevation
- OGW Sites with Same Elevation
- OGW Sites with Lower Elevation
- OGW Sites with Unknown Elevation

ERIS

Wells and Additional Sources Summary

Federal Sources

Public Water Systems Violations and Enforcement Data

Map Key	PWS ID	Distance (ft)	Direction
14	NY1443005	3381.07	WNW
14	NY1443018	3381.07	WNW

Safe Drinking Water Information System (SDWIS)

Map Key	PWS ID	Distance (ft)	Direction
8	NY1400444	2682.48	WNW
9	NY1422652	2718.29	WNW
9	NY1417854	2718.29	WNW
9	NY1420767	2718.29	WNW
11	NY1822792	3025.09	WSW
14	NY1443005	3381.07	WNW
14	NY1443018	3381.07	WNW

USGS National Water Information System

Map Key	Site No	Distance (ft)	Direction
1	USGS-425243078520301	663.17	SW
2	USGS-425246078521201	1178.83	W
3	USGS-425245078513701	1452.93	E
4	USGS-425231078515001	1713.50	SSE
5	USGS-425235078521301	1760.65	SW
6	USGS-425248078522101	1843.14	W
7	USGS-425231078520901	1902.02	SSW
10	USGS-425300078523201	2955.66	WNW
12	USGS-425243078523801	3137.68	W
13	USGS-425309078522801	3227.28	NW
15	USGS-425259078523901	3395.68	WNW
16	USGS-04215800	3655.71	SSW
17	USGS-425234078524201	3661.43	WSW
18	USGS-425249078510601	3746.56	E
19	USGS-425301078524501	3885.14	WNW
20	USGS-425319078522601	3899.93	NW
21	USGS-425226078524201	4106.32	WSW
23	USGS-425333078515701	4628.32	N
24	USGS-425306078525401	4697.63	WNW
25	USGS-425333078522001	4953.89	NNW
26	USGS-425159078521001	5032.18	S
27	USGS-425338078514701	5180.31	N

State Sources

Oil and Gas Wells

Map Key	ID	Distance (ft)	Direction
	No records found		

Wells and Additional Sources Summary

Underground Injection Control Wells

Map Key	ID	Distance (ft)	Direction
	No records found		

Water Wells Database

Map Key	DEC Well No	Distance (ft)	Direction
22	E2217	4272.23	NW
28	E2563	5224.40	WNW

Public Water Systems Violations and Enforcement Data

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
14	WNW	0.64	3,381.07	608.68	PWSV

PWS ID:	NY1443005
PWS Type Code:	TNCWS
PWS Type Description:	Transient non-community system
Primary Source Code:	GW
Primary Source Desc:	Ground water
PWS Activity Code:	A
PWS Activity Description:	Active
PWS Deactivation Date:	
Zip Code:	14202
Phone No:	
Phone Ext No:	
Admin Name:	ERIE COUNTY DEPARTMENT OF PARKS
Alt Phone No:	
Email Addr:	
Fax No:	
Cds ID:	
Population Served Count:	26
Epa Region Desc:	Region 2
Epa Region:	02
First Reported Date:	11/22/1997
Gw or Sw:	Groundwater
Gw Sw Code:	GW
Is Grant Eligible Ind:	Yes
Outstanding Performer:	
Is School or Daycare Ind:	No
Is Source Water Protection:	No
Is Wholesaler Ind:	No
Lt2 Schedule Cat:	
Lt2 Schedule Cat Code:	
Last Reported Date:	09/21/2023
Org Name:	ERIE COUNTY DEPARTMENT OF PARKS
Outstanding Perform Begin Date:	
Owner Type:	Private
Pop Cat 11:	<=100
Pop Cat 2:	<10,000
Pop Cat 3:	<=3300
Pop Cat 4:	<10K
Pop Cat 5:	<=500
Primacy Agency:	New York
Season Begin Date:	01-01

Season End Date:	12-31
Service Connections Count:	1
Submission Status Code:	Y
Submissionyearquarter:	2023Q3
Primacy Type:	State
Dbpr Schedule Category:	
Submission Status:	Reported and accepted
Reduced Monitoring Begin Date:	
Reduced Monitoring End Date:	
Reduced Rtcr Monitoring:	
Seasonal Startup System:	
Source Protection Begin Date:	
City Served:	SARDINIA (T)
County Served:	Erie

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
14	WNW	0.64	3,381.07	608.68	PWSV

PWS ID:	NY1443018
PWS Type Code:	TNCWS
PWS Type Description:	Transient non-community system
Primary Source Code:	GW
Primary Source Desc:	Ground water
PWS Activity Code:	I
PWS Activity Description:	Inactive
PWS Deactivation Date:	03/28/2007
Zip Code:	14202
Phone No:	
Phone Ext No:	
Admin Name:	ERIE COUNTY DEPARTMENT OF PARKS
Alt Phone No:	
Email Addr:	
Fax No:	
Cds ID:	
Population Served Count:	25
Epa Region Desc:	Region 2
Epa Region:	02
First Reported Date:	12/17/2000
Gw or Sw:	Groundwater
Gw Sw Code:	GW
Is Grant Eligible Ind:	No
Outstanding Performer:	
Is School or Daycare Ind:	No
Is Source Water Protection:	No

Is Wholesaler Ind:	No
Lt2 Schedule Cat:	
Lt2 Schedule Cat Code:	
Last Reported Date:	03/18/2020
Org Name:	ERIE COUNTY DEPARTMENT OF PARKS
Outstanding Perform Begin Date:	
Owner Type:	Local government
Pop Cat 11:	<=100
Pop Cat 2:	<10,000
Pop Cat 3:	<=3300
Pop Cat 4:	<10K
Pop Cat 5:	<=500
Primacy Agency:	New York
Season Begin Date:	01-01
Season End Date:	12-31
Service Connections Count:	13
Submission Status Code:	Y
Submissionyearquarter:	2023Q3
Primacy Type:	State
Dbpr Schedule Category:	
Submission Status:	Reported and accepted
Reduced Monitoring Begin Date:	
Reduced Monitoring End Date:	
Reduced Rtcr Monitoring:	
Seasonal Startup System:	
Source Protection Begin Date:	
City Served:	WALES (T)
County Served:	Erie

Safe Drinking Water Information System (SDWIS)

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
8	WNW	0.51	2,682.48	612.98	SDWIS

PWS ID:	NY1400444
PWS Type Code:	CWS
PSW Type:	Community water system
Primary Source Code:	SW
Primary Source:	Surface water
Pws Activity Code:	I
Activity:	Inactive
PWS Deactivation Dt:	03/01/1978
Phone No:	
Phone Ext No:	
Admin Name:	ECWA WOODLAWN PLANT

Alt Phone No:	
Email Addr:	
Fax No:	
Cds ID:	
Population Served Count:	150000
Epa Region Desc:	Region 2
Epa Region:	02
First Reported Date:	01/29/1981
Gw or Sw:	Surface water
Is Grant Eligible Ind:	No
Outstanding Performer:	
Is School or Daycare Ind:	No
Is Wholesaler Ind:	No
Lt2 Schedule Cat:	
Last Reported Date:	03/09/1999
Org Name:	
Outstanding Perform Begin Date:	
Owner Type:	Public/Private
Pop Cat 11:	100,001-250,000
Pop Cat 2:	10,000+
Pop Cat 3:	>50,000
Pop Cat 4:	100K+
Pop Cat 5:	>100,000
Primacy Agency:	New York
Primacy Agency Code:	NY
Season Begin Date:	01-01
Season End Date:	12-31
Service Connections Count:	50000
Submission Yr Qtr:	2023Q3
Primacy Type:	State
Dbpr Schedule Category:	
Submission Status:	Reported and accepted
Reduced Monitoring Begin:	
Reduced Monitoring End Date:	
Reduced Rtcr Monitoring:	
Seasonal Startup System:	
Source Protection Begin Date:	
City Served:	
County Served:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
9	WNW	0.51	2,718.29	616.36	SDWIS

PWS ID:	NY1422652

Wells and Additional Sources Detail Report

PWS Type Code:	CWS
PSW Type:	Community water system
Primary Source Code:	SWP
Primary Source:	Surface water purchased
Pws Activity Code:	I
Activity:	Inactive
PWS Deactivation Dt:	02/23/2009
Phone No:	716-849-8484
Phone Ext No:	
Admin Name:	ERIE COUNTY WATER AUTHORITY
Alt Phone No:	
Email Addr:	
Fax No:	
Cds ID:	
Population Served Count:	5319
Epa Region Desc:	Region 2
Epa Region:	02
First Reported Date:	12/13/1991
Gw or Sw:	Surface water
Is Grant Eligible Ind:	No
Outstanding Performer:	
Is School or Daycare Ind:	No
Is Wholesaler Ind:	No
Lt2 Schedule Cat:	
Last Reported Date:	03/18/2020
Org Name:	ERIE COUNTY WATER AUTHORITY
Outstanding Perform Begin Date:	
Owner Type:	Local government
Pop Cat 11:	3,301-10,000
Pop Cat 2:	<10,000
Pop Cat 3:	3,301-50,000
Pop Cat 4:	<10K
Pop Cat 5:	3,301-10,000
Primacy Agency:	New York
Primacy Agency Code:	NY
Season Begin Date:	
Season End Date:	
Service Connections Count:	2536
Submission Yr Qtr:	2023Q3
Primacy Type:	State
Dbpr Schedule Category:	
Submission Status:	Reported and accepted
Reduced Monitoring Begin:	
Reduced Monitoring End Date:	
Reduced Rtcr Monitoring:	
Seasonal Startup System:	

Source Protection Begin Date:	
City Served:	
County Served:	Erie

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
9	WNW	0.51	2,718.29	616.36	SDWIS

PWS ID:	NY1417854
PWS Type Code:	CWS
PSW Type:	Community water system
Primary Source Code:	SW
Primary Source:	Surface water
Pws Activity Code:	I
Activity:	Inactive
PWS Deactivation Dt:	07/01/1980
Phone No:	
Phone Ext No:	
Admin Name:	JEROME D VAN DE WATER WTP
Alt Phone No:	
Email Addr:	
Fax No:	
Cds ID:	
Population Served Count:	1
Epa Region Desc:	Region 2
Epa Region:	02
First Reported Date:	01/27/1982
Gw or Sw:	Surface water
Is Grant Eligible Ind:	No
Outstanding Performer:	
Is School or Daycare Ind:	No
Is Wholesaler Ind:	No
Lt2 Schedule Cat:	
Last Reported Date:	03/09/1999
Org Name:	
Outstanding Perform Begin Date:	
Owner Type:	Private
Pop Cat 11:	<=100
Pop Cat 2:	<10,000
Pop Cat 3:	<=3300
Pop Cat 4:	<10K
Pop Cat 5:	<=500
Primacy Agency:	New York
Primacy Agency Code:	NY
Season Begin Date:	01-01
Season End Date:	12-31
Service Connections	43209

Wells and Additional Sources Detail Report

Count:	
Submission Yr Qtr:	2023Q3
Primacy Type:	State
Dbpr Schedule Category:	
Submission Status:	Reported and accepted
Reduced Monitoring Begin:	
Reduced Monitoring End Date:	
Reduced Rtcr Monitoring:	
Seasonal Startup System:	
Source Protection Begin Date:	
City Served:	
County Served:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
9	WNW	0.51	2,718.29	616.36	SDWIS

PWS ID:	NY1420767
PWS Type Code:	CWS
PSW Type:	Community water system
Primary Source Code:	SWP
Primary Source:	Surface water purchased
Pws Activity Code:	I
Activity:	Inactive
PWS Deactivation Dt:	12/23/1999
Phone No:	716-849-8484
Phone Ext No:	
Admin Name:	ERIE COUNTY WATER AUTHORITY
Alt Phone No:	
Email Addr:	
Fax No:	
Cds ID:	
Population Served Count:	15000
Epa Region Desc:	Region 2
Epa Region:	02
First Reported Date:	12/22/1988
Gw or Sw:	Surface water
Is Grant Eligible Ind:	No
Outstanding Performer:	
Is School or Daycare Ind:	No
Is Wholesaler Ind:	No
Lt2 Schedule Cat:	
Last Reported Date:	03/18/2020
Org Name:	
Outstanding Perform Begin Date:	
Owner Type:	Local government

Pop Cat 11:	10,001-50,000
Pop Cat 2:	10,000+
Pop Cat 3:	3,301-50,000
Pop Cat 4:	10K-49,999
Pop Cat 5:	10,001-100,000
Primacy Agency:	New York
Primacy Agency Code:	NY
Season Begin Date:	
Season End Date:	
Service Connections Count:	4800
Submission Yr Qtr:	2023Q3
Primacy Type:	State
Dbpr Schedule Category:	
Submission Status:	Reported and accepted
Reduced Monitoring Begin:	
Reduced Monitoring End Date:	
Reduced Rtcr Monitoring:	
Seasonal Startup System:	
Source Protection Begin Date:	
City Served:	
County Served:	Erie

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
11	WSW	0.57	3,025.09	588.35	SDWIS

PWS ID:	NY1822792
PWS Type Code:	TNCWS
PSW Type:	Transient non-community system
Primary Source Code:	SWP
Primary Source:	Surface water purchased
Pws Activity Code:	N
Activity:	Changed from public to non-public
PWS Deactivation Dt:	12/01/2004
Phone No:	716-847-3123
Phone Ext No:	
Admin Name:	THOMAS, KIM
Alt Phone No:	
Email Addr:	
Fax No:	
Cds ID:	
Population Served Count:	25
Epa Region Desc:	Region 2
Epa Region:	02
First Reported Date:	06/19/1992
Gw or Sw:	Surface water

Is Grant Eligible Ind:	No
Outstanding Performer:	
Is School or Daycare Ind:	No
Is Wholesaler Ind:	No
Lt2 Schedule Cat:	
Last Reported Date:	09/21/2023
Org Name:	
Outstanding Perform Begin Date:	
Owner Type:	Private
Pop Cat 11:	<=100
Pop Cat 2:	<10,000
Pop Cat 3:	<=3300
Pop Cat 4:	<10K
Pop Cat 5:	<=500
Primacy Agency:	New York
Primacy Agency Code:	NY
Season Begin Date:	01-01
Season End Date:	12-31
Service Connections Count:	1
Submission Yr Qtr:	2023Q3
Primacy Type:	State
Dbpr Schedule Category:	
Submission Status:	Reported and accepted
Reduced Monitoring Begin:	
Reduced Monitoring End Date:	
Reduced Rtcr Monitoring:	
Seasonal Startup System:	
Source Protection Begin Date:	
City Served:	ALABAMA (T)
County Served:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
14	WNW	0.64	3,381.07	608.68	SDWIS

PWS ID:	NY1443005
PWS Type Code:	TNCWS
PSW Type:	Transient non-community system
Primary Source Code:	GW
Primary Source:	Ground water
Pws Activity Code:	A
Activity:	Active
PWS Deactivation Dt:	
Phone No:	
Phone Ext No:	

Wells and Additional Sources Detail Report

Admin Name:	ERIE COUNTY DEPARTMENT OF PARKS
Alt Phone No:	
Email Addr:	
Fax No:	
Cds ID:	
Population Served Count:	26
Epa Region Desc:	Region 2
Epa Region:	02
First Reported Date:	11/22/1997
Gw or Sw:	Groundwater
Is Grant Eligible Ind:	Yes
Outstanding Performer:	
Is School or Daycare Ind:	No
Is Wholesaler Ind:	No
Lt2 Schedule Cat:	
Last Reported Date:	09/21/2023
Org Name:	ERIE COUNTY DEPARTMENT OF PARKS
Outstanding Perform Begin Date:	
Owner Type:	Private
Pop Cat 11:	<=100
Pop Cat 2:	<10,000
Pop Cat 3:	<=3300
Pop Cat 4:	<10K
Pop Cat 5:	<=500
Primacy Agency:	New York
Primacy Agency Code:	NY
Season Begin Date:	01-01
Season End Date:	12-31
Service Connections Count:	1
Submission Yr Qtr:	2023Q3
Primacy Type:	State
Dbpr Schedule Category:	
Submission Status:	Reported and accepted
Reduced Monitoring Begin:	
Reduced Monitoring End Date:	
Reduced Rtcr Monitoring:	
Seasonal Startup System:	
Source Protection Begin Date:	
City Served:	SARDINIA (T)
County Served:	Erie

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
14	WNW	0.64	3,381.07	608.68	SDWIS

Wells and Additional Sources Detail Report

PWS ID:	NY1443018
PWS Type Code:	TNCWS
PSW Type:	Transient non-community system
Primary Source Code:	GW
Primary Source:	Ground water
Pws Activity Code:	I
Activity:	Inactive
PWS Deactivation Dt:	03/28/2007
Phone No:	
Phone Ext No:	
Admin Name:	ERIE COUNTY DEPARTMENT OF PARKS
Alt Phone No:	
Email Addr:	
Fax No:	
Cds ID:	
Population Served Count:	25
Epa Region Desc:	Region 2
Epa Region:	02
First Reported Date:	12/17/2000
Gw or Sw:	Groundwater
Is Grant Eligible Ind:	No
Outstanding Performer:	
Is School or Daycare Ind:	No
Is Wholesaler Ind:	No
Lt2 Schedule Cat:	
Last Reported Date:	03/18/2020
Org Name:	ERIE COUNTY DEPARTMENT OF PARKS
Outstanding Perform Begin Date:	
Owner Type:	Local government
Pop Cat 11:	<=100
Pop Cat 2:	<10,000
Pop Cat 3:	<=3300
Pop Cat 4:	<10K
Pop Cat 5:	<=500
Primacy Agency:	New York
Primacy Agency Code:	NY
Season Begin Date:	01-01
Season End Date:	12-31
Service Connections Count:	13
Submission Yr Qtr:	2023Q3
Primacy Type:	State
Dbpr Schedule Category:	
Submission Status:	Reported and accepted
Reduced Monitoring Begin:	
Reduced Monitoring End Date:	
Reduced Rtcr Monitoring:	

Seasonal Startup System:
Source Protection Begin Date:
City Served: WALES (T)
County Served: Erie

USGS National Water Information System

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
1	SW	0.13	663.17	587.29	FED USGS

Site No: USGS-425243078520301
Site Type: Well
Formation Type: Onondaga Limestone
Date Drilled: 19470101
Well Depth: 101
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: E 265
Latitude: 42.87866910000000
Longitude: -78.8672573000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
2	W	0.22	1,178.83	588.29	FED USGS

Site No: USGS-425246078521201
Site Type: Well: Test hole not completed as a well
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: E 268
Latitude: 42.87950240000000
Longitude: -78.8697574000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	E	0.28	1,452.93	589.45	FED USGS

Site No: USGS-425245078513701
Site Type: Well: Test hole not completed as a well
Formation Type:

Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: E 267
Latitude: 42.87922470000000
Longitude: -78.8600349000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
4	SSE	0.32	1,713.50	588.44	FED USGS

Site No: USGS-425231078515001
Site Type: Well: Test hole not completed as a well
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: E 244
Latitude: 42.87533580000000
Longitude: -78.8636460000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
5	SW	0.33	1,760.65	580.20	FED USGS

Site No: USGS-425235078521301
Site Type: Well: Test hole not completed as a well
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: E 255
Latitude: 42.87644690000000
Longitude: -78.8700351800000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
6	W	0.35	1,843.14	598.08	FED USGS

Site No:	USGS-425248078522101
Site Type:	Well: Test hole not completed as a well
Formation Type:	
Date Drilled:	
Well Depth:	
Well Depth Unit:	
Well Hole Depth:	
Well Hole Depth Unit:	
Reporting Agency:	USGS New York Water Science Center
Station Name:	E 269
Latitude:	42.88005798000000
Longitude:	-78.8722575000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
7	SSW	0.36	1,902.02	580.27	FED USGS

Site No:	USGS-425231078520901
Site Type:	Well
Formation Type:	Onondaga Limestone
Date Drilled:	19250101
Well Depth:	127
Well Depth Unit:	ft
Well Hole Depth:	
Well Hole Depth Unit:	
Reporting Agency:	USGS New York Water Science Center
Station Name:	E 245
Latitude:	42.87533580000000
Longitude:	-78.8689240000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
10	WNW	0.56	2,955.66	619.71	FED USGS

Site No:	USGS-425300078523201
Site Type:	Well: Test hole not completed as a well
Formation Type:	
Date Drilled:	
Well Depth:	
Well Depth Unit:	
Well Hole Depth:	
Well Hole Depth Unit:	
Reporting Agency:	USGS New York Water Science Center
Station Name:	E 272
Latitude:	42.88339128000000
Longitude:	-78.8753132000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB

12	W	0.59	3,137.68	589.34	FED USGS

Site No:	USGS-425243078523801
Site Type:	Well: Test hole not completed as a well
Formation Type:	
Date Drilled:	
Well Depth:	
Well Depth Unit:	
Well Hole Depth:	
Well Hole Depth Unit:	
Reporting Agency:	USGS New York Water Science Center
Station Name:	E 266
Latitude:	42.87866908000000
Longitude:	-78.8769798900000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
13	NW	0.61	3,227.28	619.23	FED USGS

Site No:	USGS-425309078522801
Site Type:	Well: Test hole not completed as a well
Formation Type:	
Date Drilled:	
Well Depth:	
Well Depth Unit:	
Well Hole Depth:	
Well Hole Depth Unit:	
Reporting Agency:	USGS New York Water Science Center
Station Name:	E 280
Latitude:	42.88589126000000
Longitude:	-78.8742020900000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
15	WNW	0.64	3,395.68	606.50	FED USGS

Site No:	USGS-425259078523901
Site Type:	Well
Formation Type:	Onondaga Limestone
Date Drilled:	19550101
Well Depth:	80.0
Well Depth Unit:	ft
Well Hole Depth:	
Well Hole Depth Unit:	
Reporting Agency:	USGS New York Water Science Center
Station Name:	E 271
Latitude:	42.88311349000000

Longitude: -78.8772577000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
16	SSW	0.69	3,655.71	570.22	FED USGS

Site No: USGS-04215800
Site Type: Stream
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: BUFFALO RIVER AT MICHIGAN AVENUE AT BUFFALO NY
Latitude: 42.87144690000000
Longitude: -78.8728130000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
17	WSW	0.69	3,661.43	581.72	FED USGS

Site No: USGS-425234078524201
Site Type: Well: Test hole not completed as a well
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: E 252
Latitude: 42.87616909000000
Longitude: -78.8780910000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	E	0.71	3,746.56	590.48	FED USGS

Site No: USGS-425249078510601
Site Type: Well: Test hole not completed as a well
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:

Reporting Agency:	USGS New York Water Science Center
Station Name:	E 270
Latitude:	42.88033586000000
Longitude:	-78.8514235000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
19	WNW	0.74	3,885.14	597.75	FED USGS

Site No:	USGS-425301078524501
Site Type:	Well: Test hole not completed as a well
Formation Type:	
Date Drilled:	
Well Depth:	
Well Depth Unit:	
Well Hole Depth:	
Well Hole Depth Unit:	
Reporting Agency:	USGS New York Water Science Center
Station Name:	E 274
Latitude:	42.88366900000000
Longitude:	-78.8789245000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
20	NW	0.74	3,899.93	614.12	FED USGS

Site No:	USGS-425319078522601
Site Type:	Well: Test hole not completed as a well
Formation Type:	
Date Drilled:	
Well Depth:	
Well Depth Unit:	
Well Hole Depth:	
Well Hole Depth Unit:	
Reporting Agency:	USGS New York Water Science Center
Station Name:	E 282
Latitude:	42.88866900000000
Longitude:	-78.8736465000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
21	WSW	0.78	4,106.32	569.94	FED USGS

Site No:	USGS-425226078524201
Site Type:	Stream
Formation Type:	
Date Drilled:	
Well Depth:	

Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: BUFF-1.0
Latitude: 42.87406944000000
Longitude: -78.8785278000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
23	N	0.88	4,628.32	615.66	FED USGS

Site No: USGS-425333078515701
Site Type: Well: Test hole not completed as a well
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: E 288
Latitude: 42.89255790000000
Longitude: -78.8655907000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
24	WNW	0.89	4,697.63	586.96	FED USGS

Site No: USGS-425306078525401
Site Type: Well: Test hole not completed as a well
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: E 278
Latitude: 42.88505790000000
Longitude: -78.8814246000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
25	NNW	0.94	4,953.89	623.79	FED USGS

Site No: USGS-425333078522001
Site Type: Well: Test hole not completed as a well

Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: E 289
Latitude: 42.89255789000000
Longitude: -78.8719799000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
26	S	0.95	5,032.18	570.01	FED USGS

Site No: USGS-425159078521001
Site Type: Stream
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: BUFFALO RIVER FISH COLLECTION ZONE B AT BUFFALO NY
Latitude: 42.86636110000000
Longitude: -78.8693333000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
27	N	0.98	5,180.31	617.91	FED USGS

Site No: USGS-425338078514701
Site Type: Well: Test hole not completed as a well
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS New York Water Science Center
Station Name: E 292
Latitude: 42.89394680000000
Longitude: -78.8628128900000

Water Wells Database

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB

22	NW	0.81	4,272.23	611.27	WATER WELLS

DEC Well No:	E2217	Well Type (REG):	
Well Purpose:	Commercial	Depth (REG):	
Report Date:	7/31/2003	Diameter (REG):	
Drilling Start Date:	7/10/2003	Casl (REG):	
Drill Completion Date:	7/12/2003	Screen Dia (REG):	
Well Depth:	345	Screen L (REG):	
Rock Depth:		Pump CAP (REG):	
GW Depth:		Reg No(REG):	
Cased Depth:	52	Driller Reg No:	NYRD10084
Casing 1 Diam Inch:	6	Latitude DMS:	42 53 21.1
Casing 1 Len Ft:	52	Longitude DMS:	78 52 30.1
Casing 2 Diam Inch:		DD Latitude:	42.8891944444444
Method:		DD Longitude:	-78.8750277777778
Casing 2 Len Ft:		Latitude(REG):	
Screen Len Ft:		Longitude(REG):	
Screened:	NO	DEC Region:	9
Yield Test Avg Dschg:	200	Georeference:	POINT (-78.87502778 42.88919444)
Owner:			
Mail Street:			
Mail Town Zip:			
Well Location:	341 DELAWARE AVE		
Street Name:	Delaware Ave		
Location:			
Town:	Buffalo		
County:	ERIE		
Well Street (REG):			
Well Town (REG):			
Well State (REG):			
Well Zip (REG):			
Report URL:			
More Info:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
28	WNW	0.99	5,224.40	585.07	WATER WELLS

DEC Well No:	E2563	Well Type (REG):	
Well Purpose:	Dewater	Depth (REG):	
Report Date:	7/6/2005	Diameter (REG):	
Drilling Start Date:	5/18/2005	Casl (REG):	
Drill Completion Date:	6/18/2005	Screen Dia (REG):	
Well Depth:	19	Screen L (REG):	
Rock Depth:	-999	Pump CAP (REG):	
GW Depth:	7	Reg No(REG):	
Cased Depth:	9	Driller Reg No:	NYRD10435

Wells and Additional Sources Detail Report

Casing 1 Diam Inch:	6	Latitude DMS:	42 53 10.8
Casing 1 Len Ft:	11.5	Longitude DMS:	78 52 58.0
Casing 2 Diam Inch:		DD Latitude:	42.8863333333333
Method:	MAP	DD Longitude:	-78.8827777777778
Casing 2 Len Ft:		Latitude(REG):	
Screen Len Ft:	10	Longitude(REG):	
Screened:	YES	DEC Region:	9
Yield Test Avg Dschg:		Georeference:	POINT (-78.88277778 42.88633333)

Owner:	
Mail Street:	
Mail Town Zip:	
Well Location:	FORMER BUFFALO SERVICE CENTER, 4TH ST, BUFFALO, DW-19
Street Name:	Fourth St
Location:	
Town:	Buffalo
County:	ERIE
Well Street (REG):	
Well Town (REG):	
Well State (REG):	
Well Zip (REG):	
Report URL:	
More Info:	

Radon Information

This section lists any relevant radon information found for the target property.

Federal EPA Radon Zone for *ERIE* County: **1**

Zone 1: Counties with predicted average indoor radon screening levels greater than 4 pCi/L
Zone 2: Counties with predicted average indoor radon screening levels from 2 to 4 pCi/L
Zone 3: Counties with predicted average indoor radon screening levels less than 2 pCi/L

Federal Area Radon Information for *ERIE* County

No Measures/Homes:	4671
Geometric Mean:	14.2
Arithmetic Mean:	4.4
Median:	1.1
Standard Deviation:	1.3
Maximum:	371.9
% >4 pCi/L:	18
% >20 pCi/L:	4
Notes on Data Table:	Table 1. Screening indoor radon data compiled by the New York State Department of Health. Data represent 1-7 day charcoal canister measurements from the lowest level of each home tested.

Federal Sources

FEMA National Flood Hazard Layer **FEMA FLOOD**

The National Flood Hazard Layer (NFHL) data incorporates Flood Insurance Rate Map (FIRM) databases published by the Federal Emergency Management Agency (FEMA), and any Letters Of Map Revision (LOMRs) that have been issued against those databases since their publication date. The FIRM Database is the digital, geospatial version of the flood hazard information shown on the published paper FIRMs. The FIRM Database depicts flood risk information and supporting data used to develop the risk data. The FIRM Database is derived from Flood Insurance Studies (FISs), previously published FIRMs, flood hazard analyses performed in support of the FISs and FIRMs, and new mapping data, where available.

Indoor Radon Data **INDOOR RADON**

Indoor radon measurements tracked by the Environmental Protection Agency(EPA) and the State Residential Radon Survey.

Public Water Systems Violations and Enforcement Data **PWSV**

This list of drinking water violations and enforcement actions is sourced from the U.S Environmental Protection Agency's (EPA) Enforcement and Compliance History Online (ECHO) system that incorporates Public Water Systems data from EPA's Safe Drinking Water Information System (SDWIS) database, as part of the national download of Safe Drinking Water Act (SDWA) data. SDWIS contains information on public water systems from the Public Water System Supervision (PWSS) Program, including monitoring, enforcement, and violation data related to requirements established by the SWDA. Address information provided in SWDIS may correspond either with the physical location of the water system, or with a contact address.

Radon Zone Level **RADON ZONE**

Areas showing the level of Radon Zones (level 1, 2 or 3) by county. This data is maintained by the Environmental Protection Agency (EPA).

Safe Drinking Water Information System (SDWIS) **SDWIS**

This national download of Safe Drinking Water Act (SDWA) data is sourced from the U.S Environmental Protection Agency's (EPA) Enforcement and Compliance History Online (ECHO) system that incorporates Public Water Systems data from EPA's Safe Drinking Water Information System (SDWIS) database. SDWIS contains information on public water systems from the Public Water System Supervision (PWSS) Program related to requirements established by the Safe Drinking Water Act (SDWA). Address information provided in SWDIS may correspond either with the physical location of the water system, or with a contact address.

Soil Survey Geographic database **SSURGO**

The Soil Survey Geographic database (SSURGO) contains information about soil as collected by the National Cooperative Soil Survey at the Natural Resources Conservation Service (NRCS). Soil maps outline areas called map units. The map units are linked to soil properties in a database. Each map unit may contain one to three major components and some minor components.

U.S. Fish & Wildlife Service Wetland Data **US WETLAND**

The U.S. Fish & Wildlife Service Wetland layer represents the approximate location and type of wetlands and deepwater habitats in the United States.

USGS Current Topo **US TOPO**

US Topo topographic maps are produced by the National Geospatial Program of the U.S. Geological Survey (USGS). The project was launched in late 2009, and the term "US Topo" refers specifically to quadrangle topographic maps published in 2009 and later.

USGS Geology **US GEOLOGY**

Seamless maps depicting geological information provided by the United States Geological Survey (USGS).

USGS National Water Information System **FED USGS**

The U.S. Geological Survey's (USGS) National Water Information System (NWIS) is the nation's principal repository of water resources data. The data includes comprehensive information of well-construction details, time-series data for gage height, streamflow, groundwater level, and precipitation and water use data. This NWIS database information is obtained through the Water Quality Data Portal (WQP). The WQP

is a cooperative service sponsored by the USGS, the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC).

State Sources

Oil and Gas Wells **OGW**

The New York State Department of Environmental Conservation (DEC) Division of Mineral Resources maintains a data management system on wells regulated under the Oil, Gas and Solution Mining Law (OGSML). To assist the Division in the regulation of wells subject to the OGSML, a database of the wells was created in the early 1980's and significantly upgraded in 1998 by the adoption of the Risk Based Data Management System. This system provides information on well ownership, well owners and operators, registered drillers, pluggers and companies that provide financial security instruments. This listing includes all wells in the DEC's oil and gas well database.

Regulatory Freshwater Wetlands **WETLAND**

The Regulatory Freshwater Wetlands data are a set of ARC/INFO coverages composed of polygonal and linear features. Coverages are based on official New York State Freshwater Wetlands Maps as described in Article 24-0301 of the Environmental Conservation Law. Coverages are not, however, a legal substitute for the official maps. Coverages are available on a county basis for all areas of New York State outside the Adirondack Park. This dataset is provided by New York State Department of Environmental Conservation.

Underground Injection Control Wells **UIC**

List of Brine Disposal Wells in the New York State Department of Environmental Conservation (NYSDEC) online Wells Data Search. Brine disposal wells are considered Underground Injection Control (UIC) Class II wells. Brine disposal wells deeper than 500 feet require a permit from the NYSDEC Division of Mineral Resources for any operation to drill, deepen, plug back, convert, or plug and abandon a well. Regardless of well depth, the NYSDEC Division of Water must be contacted for a determination of whether a State Pollution Discharge Elimination System (SPDES) permit is necessary to operate any brine disposal well.

Water Wells Database **WATER WELLS**

The New York State Department of Environmental Conservation (NYS DEC) Bureau of Water Resource Management maintains data on water wells within the state. This data is compiled from NYS DEC public record requests and related NYS well datasets. All counties are included in this list.

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FIRE INSURANCE MAPS

Project Property: Swan & Chicago Street
Swan & Chicago Street Buffalo NY 14204
Project No: e2413
Requested By: Environmental Advantage, Inc.
Order No: 25091500141
Date Completed: September 15, 2025

Environmental Risk Information Services
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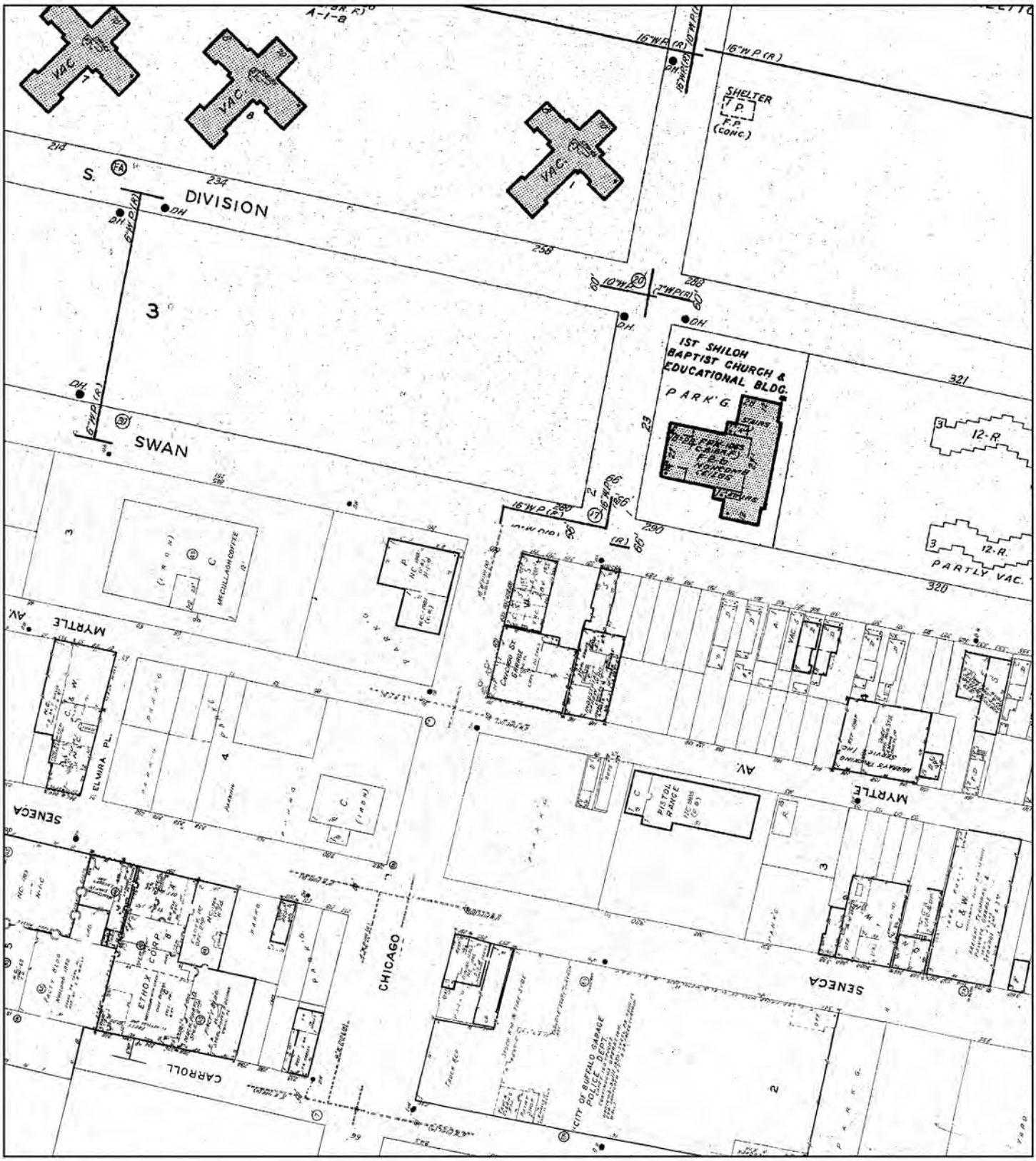
Listed below, please find the results of our search for historic fire insurance maps from our in-house collection, performed in conjuction with your ERIS report.

Date	City	State	Volume	Sheet Number(s)
1986	Buffalo	New York	2	157, 158, 163, 164
1981	Buffalo	New York	2	157, 158, 163, 164
1950	Buffalo	New York	2	159, 160, 163, 164
1926	Buffalo	New York	2	159, 160, 163, 164
1899	Buffalo	New York	2	175, 176, 177, 179
1889	Buffalo	New York	2	45, 46, 48, 49

Individual Fire Insurance Maps for the subject property and/or adjacent sites in the United States may have been included with the ERIS Environmental Database Report. Those Fire Insurance Maps are to be used for research purposes only and cannot be resold for any commercial uses other than for use in real property analyses projects that you are undertaking. Access to and the use and copying of any Fire Insurance Maps supplied by ERIS for United States locations are conditioned upon your agreement to, and strict compliance with, the **Fire Insurance Maps-Terms and Conditions.**

Fire Insurance Map



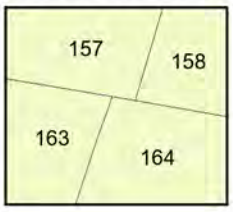
1986

Address: Swan & Chicago Street Buffalo NY 14204

N

0 155 310 620

Feet



Map sheet(s):
Volume 2: 157,158,163,164;

Order Number 25091500141

ERIS

Fire Insurance Map

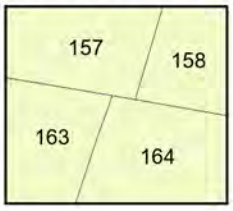
1981

Address: Swan & Chicago Street Buffalo NY 14204

N

0 155 310 620

Feet



Map sheet(s):
Volume 2: 157,158,163,164;

Order Number 25091500141

ERIS

Fire Insurance Map

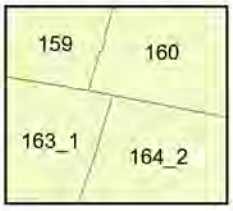
1950

Address: Swan & Chicago Street Buffalo NY 14204

N

0 155 310 620

Feet



Map sheet(s):
Volume 2: 159,160,163,164;

Order Number 25091500141

ERIS

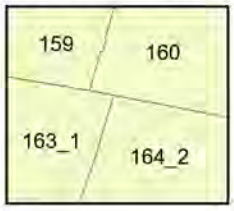
Fire Insurance Map

1926

Address: Swan & Chicago Street Buffalo NY 14204

N

Feet 0 155 310 620



Map sheet(s):
Volume 2: 159,160,163,164;

Order Number 25091500141

ERIS

Fire Insurance Map

1899

Address: Swan & Chicago Street Buffalo NY 14204

N

Feet 0 155 310 620

Map sheet(s):
Volume 2: 175,176,177,179;

Order Number 25091500141

ERIS

Fire Insurance Map

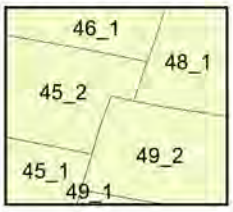
1889

Address: Swan & Chicago Street Buffalo NY 14204

N

0 155 310 620

Feet



Map sheet(s):
Volume 2: 45,46,48,49;

Order Number 25091500141

DATABASE REPORT

Project Property:	*Swan & Chicago Street* *Swan & Chicago Street* *Buffalo NY 14204*
Project No:	*e2413*
Report Type:	*Database Report*
Order No:	*25091500141*
Requested by:	*Environmental Advantage, Inc.*
Date Completed:	*September 17, 2025*

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Executive Summary

Property Information:

Project Property:	*Swan & Chicago Street* *Swan & Chicago Street Buffalo NY 14204*
Project No:	*e2413*

Coordinates:

Latitude:	*42.8798597*
Longitude:	*-78.8653863*
UTM Northing:	*4,749,683.85*
UTM Easting:	*674,330.50*
UTM Zone:	*UTM Zone 17T*

Elevation:	*592 FT*

Order Information:

Order No:	*25091500141*
Date Requested:	*September 15, 2025*
Requested by:	*Environmental Advantage, Inc.*
Report Type:	*Database Report*

Historicals/Products:

City Directory Search	*CD - 1 Street Search*
ERIS Xplorer	*ERIS Xplorer*
Excel Add-On	*Excel Add-On*
Fire Insurance Maps	*US Fire Insurance Maps*
Physical Setting Report (PSR)	*Physical Setting Report (PSR)*

Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Standard Environmental Records								
Federal								
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	0.5	0	0	0	0	-	0
SEMS	Y	0.5	0	0	0	**1**	-	**1**
SEMS ARCHIVE	Y	0.5	0	0	0	**2**	-	**2**
ODI	Y	0.5	0	0	0	0	-	0
IODI	Y	0.5	0	0	0	0	-	0
CERCLIS	Y	0.5	0	0	0	**2**	-	**2**
CERCLIS NFRAP	Y	0.5	0	0	0	**2**	-	**2**
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	**1**	0	0	**2**	**3**
RCRA TSD	Y	0.5	0	**1**	0	0	-	**1**
RCRA LQG	Y	0.25	0	0	0	-	-	0
RCRA SQG	Y	0.25	0	0	0	-	-	0
RCRA VSQG	Y	0.25	0	0	**1**	-	-	**1**
RCRA NON GEN	Y	0.25	**1**	**2**	**3**	-	-	**6**
RCRA CONTROLS	Y	0.5	0	0	0	0	-	0
FED ENG	Y	0.5	0	0	0	0	-	0
FED INST	Y	0.5	0	0	0	0	-	0
LUCIS	Y	0.5	0	0	0	0	-	0
NPL IC	Y	0.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	-	-	-	-	0
FED BROWNFIELDS	Y	0.5	0	0	0	**1**	-	**1**
FEMA UST	Y	0.25	0	0	0	-	-	0
FRP	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
DELISTED FRP	Y	0.25	0	0	0	-	-	0
HIST GAS STATIONS	Y	0.25	0	0	0	-	-	0
REFN	Y	0.25	0	0	0	-	-	0
BULK TERMINAL	Y	0.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0
State								
SHWS	Y	1	0	0	0	**1**	**2**	**3**
DELISTED SHWS	Y	1	0	0	0	**4**	**6**	**10**
HSWDS	Y	1	0	0	0	**1**	**3**	**4**
VAPOR	Y	1	0	0	0	0	0	0
SWF/LF	Y	0.5	0	0	0	**1**	-	**1**
LANDFILL INACTIVE	Y	0.5	0	0	0	0	-	0
WASTE TIRE	Y	0.5	0	0	0	0	-	0
OER CLEANUP	Y	0.25	0	0	0	-	-	0
RECYCLING	Y	0.5	0	0	0	0	-	0
LST	Y	0.5	0	**1**	**2**	**31**	-	**34**
DELISTED LST	Y	0.5	0	0	0	0	-	0
UST	Y	0.25	0	0	**4**	-	-	**4**
AST	Y	0.25	0	**1**	**1**	-	-	**2**
TANKS	Y	0.25	0	0	0	-	-	0
MOSF	Y	0.5	0	0	0	0	-	0
CBS	Y	0.25	0	0	0	-	-	0
DELISTED TANKS	Y	0.25	0	0	0	-	-	0
DELISTED COUNTY	Y	0.25	0	0	0	-	-	0
ENG	Y	0.5	0	0	0	**1**	-	**1**
INST	Y	0.5	0	0	0	**2**	-	**2**
VCP	Y	0.5	0	0	0	0	-	0
ERP	Y	0.5	0	**1**	0	0	-	**1**
BROWNFIELDS	Y	0.5	0	0	0	**2**	-	**2**
NYC FD TANKS	Y	0.25	0	0	0	-	-	0
NYC HIST SW	Y	0.5	0	0	0	0	-	0
Tribal								
INDIAN LUST	Y	0.5	0	0	0	0	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
INDIAN UST	Y	0.25	0	0	0	-	-	0
DELISTED INDIAN LST	Y	0.5	0	0	0	0	-	0
DELISTED INDIAN UST	Y	0.25	0	0	0	-	-	0

County ***No County databases were selected to be included in the search.***

Additional Environmental Records

Federal

PFAS GHG	Y	0.5	0	0	0	0	-	0
OSC RESPONSE	Y	0.125	0	0	-	-	-	0
FINDS/FRS	Y	PO	**1**	-	-	-	-	**1**
TRIS	Y	PO	0	-	-	-	-	0
PFAS NPL	Y	0.5	0	0	0	0	-	0
PFAS FED SITES	Y	0.5	0	0	0	0	-	0
PFAS SSEHRI	Y	0.5	0	0	0	0	-	0
PFAS ERNS	Y	0.5	0	0	0	0	-	0
PFAS NPDES	Y	0.5	0	0	0	0	-	0
PFAS TRI	Y	0.5	0	**1**	0	0	-	**1**
PFAS WATER	Y	0.5	0	0	0	0	-	0
PFAS TSCA	Y	0.5	0	0	0	0	-	0
PFAS E-MANIFEST	Y	0.5	0	0	0	0	-	0
PFAS IND	Y	0.5	0	**1**	0	**3**	-	**4**
HMIRS	Y	0.125	0	0	-	-	-	0
NCDL	Y	0.125	0	0	-	-	-	0
TSCA	Y	0.125	0	0	-	-	-	0
HIST TSCA	Y	0.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	0.5	0	0	0	0	-	0
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED FED DRY	Y	0.25	0	0	0	-	-	0
FUDS	Y	1	0	0	**1**	0	**1**	**2**
FUDS MRS	Y	1	0	0	0	0	0	0
FORMER NIKE	Y	1	0	0	0	0	0	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
PIPELINE INCIDENT	Y	PO	0	-	-	-	-	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	0.25	0	0	0	-	-	0
SMCRA	Y	1	0	0	0	0	0	0
MRDS	Y	1	0	0	0	0	**1**	**1**
LM SITES	Y	1	0	0	0	0	0	0
ALT FUELS	Y	0.25	0	0	0	-	-	0
CONSENT DECREES	Y	0.25	0	0	0	-	-	0
AFS	Y	PO	0	-	-	-	-	0
SSTS	Y	0.25	0	0	0	-	-	0
PCBT	Y	0.5	0	0	0	0	-	0
PCB	Y	0.5	0	0	0	0	-	0
POWER PLANTS	Y	0.125	0	0	-	-	-	0
HIST RISK	Y	0.125	0	**17**	-	-	-	**17**
State								
UIC	Y	PO	0	-	-	-	-	0
COOLING TOWERS NYC	Y	0.125	0	0	-	-	-	0
MGP	Y	1	0	0	0	0	**1**	**1**
NY SPILLS	Y	0.125	**1**	**8**	-	-	-	**9**
PFAS CONTAM	Y	0.5	0	0	0	0	-	0
PFAS	Y	0.5	0	0	0	**1**	-	**1**
PFAS LANDFILL	Y	0.5	0	0	0	0	-	0
DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
NY MANIFEST	Y	0.125	0	0	-	-	-	0
REC MANIFEST	Y	0.25	0	0	0	-	-	0
GEN MANIFEST	Y	0.125	**1**	**2**	-	-	-	**3**
E DESIGNATION	Y	0.125	0	0	-	-	-	0
COOLING TOWERS	Y	0.125	0	**2**	-	-	-	**2**
TIER 2	Y	0.125	0	0	-	-	-	0
PROJECTS	Y	0.25	0	0	0	-	-	0
AIR PERMITS	Y	0.25	0	**2**	0	-	-	**2**
LIEN	Y	PO	0	-	-	-	-	0
NYC HIST UTIL	Y	0.125	0	0	-	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Tribal	***No Tribal additional environmental record sources available for this State.***							
County	***No County additional environmental record sources available for this State.***							
	Total:		***4***	***40***	***12***	***55***	***16***	***127***

**** PO – Property Only***
**** 'Property and adjoining properties' database search radii are set at 0.25 miles.***

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
1	NY SPILLS	JOSE HERNANDEZ LOT	275 SWAN ST (425 CHICAGO) BUFFALO NY ***Spill No | Close Date:*** *9615008 | 01/23/1998 12:00:00 AM*	-	0.00 / 0.00	0	40
3	FINDS/FRS	HERNANDEZ JOSE	SWAN & CHICAGO ST CORNER BUFFALO NY 14203 ***Registry ID:*** *110008098209*	NNW	0.02 / 100.03	1	41
3	GEN MANIFEST	HERNANDEZ JOSE	SWAN & CHICAGO ST BUFFALO NY 14203	NNW	0.02 / 100.03	1	42
3	RCRA NON GEN	HERNANDEZ JOSE	SWAN & CHICAGO ST CORNER BUFFALO NY 14203 ***Handler ID | Recycler Activity?:*** *NYR000037994 | NO*	NNW	0.02 / 100.03	1	42

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
2	HIST RISK	Ciepiela Michl A	281 Swan Buffalo NY	ESE	0.01 / 64.24	0	45
4	HIST RISK	Thomas Sam A	429 Chicago Buffalo NY	SW	0.02 / 123.46	-1	45
5	HIST RISK	Kee Hong	287 Swan Buffalo NY	ENE	0.03 / 134.40	1	46
6	HIST RISK	Chicago Street Garage	420 Chicago Buffalo NY	SW	0.04 / 210.77	-2	48
7	HIST RISK	Brehm Andrew H	256 Swan Buffalo NY	WNW	0.04 / 223.52	2	48
8	HIST RISK	Traders Towel Supply Co	417-419 Chicago Buffalo NY	SSW	0.04 / 226.48	-3	48
9	HIST RISK	Kee Hong	298 Seneca Buffalo NY	S	0.07 / 380.83	-3	49
10	LST	BUFFALO POLICE-SENECA	SENECA/CHICAGO STREETS BUFFALO NY ***Spill No | Close Date:*** 8908800 | 12/01/2000 12:00:00 AM	SSW	0.07 / 392.16	-4	49
11	HIST RISK	Capozzi Michl A	287 Seneca Buffalo NY	SSW	0.08 / 397.22	-3	51
12	HIST RISK	Smart Cleaners	283 Seneca Buffalo NY	SW	0.08 / 407.57	-4	52
13	HIST RISK	Samuel David	274 Seneca Buffalo NY	SW	0.08 / 428.95	-4	52
14	NY SPILLS	NATIONAL FUEL-SWAN STREET	230 SWAN STREET BUFFALO NY ***Spill No | Close Date:*** 9103734 | 07/09/1991 12:00:00 AM	WNW	0.09 / 467.83	5	52

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
15	HIST RISK	Andrews Nicholas	322 Seneca Buffalo NY	SSE	0.09 / 472.14	-3	53
16	HIST RISK	Ruffin Bros Cleaners	41 Pine Buffalo NY	NNE	0.09 / 474.80	5	53
17	PFAS IND	ETHOX CORP	BUFFALO NY	WSW	0.09 / 481.44	-4	53
18	HIST RISK	Catano Anthony D	324 Seneca Buffalo NY	SSE	0.09 / 484.21	-4	54
19	HIST RISK	Baker Albert	225 Swan Buffalo NY	WNW	0.10 / 509.22	3	55
20	AIR PERMITS	S J MCCULLAGH INC	245 SWAN ST BUFFALO NY 14203	W	0.10 / 526.62	1	55
21	AIR PERMITS	ETHOX CORP	251 SENECA ST BUFFALO NY 14204	WSW	0.10 / 529.78	-4	55
21	AST	ETHOX CORP.	251 SENECA STREET Buffalo NY 14204 ***Site ID* | *Site Status:*** 55257 | Unregulated/Closed	WSW	0.10 / 529.78	-4	56
21	COOLING TOWERS		251 Seneca St Buffalo NY 14204	WSW	0.10 / 529.78	-4	58
21	COOLING TOWERS		251 Seneca St. Buffalo NY 14204	WSW	0.10 / 529.78	-4	59
21	ERP	W & F Mfg Co Inc	251 Seneca Street Buffalo NY 14204-2013	WSW	0.10 / 529.78	-4	59
21	GEN MANIFEST	MOOG INC (FORMALLY ETHOX CORP)	251 SENECA STREET BUFFALO NY 14204	WSW	0.10 / 529.78	-4	61
21	NY SPILLS	ETHOX CORP	251 SENECA STREET BUFFALO NY ***Spill No* | *Close Date:*** 9001483 | 05/21/1990 12:00:00 AM	WSW	0.10 / 529.78	-4	66
21	NY SPILLS	ETHOX CORPORATION	251 SENECA STREET BUFFALO NY	WSW	0.10 / 529.78	-4	67

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
			Spill No | Close Date: 0407788 | 01/13/2005 12:00:00 AM				
21	PFAS TRI	ETHOX CORP	251 SENECA ST BUFFALO NY 14204	WSW	0.10 / 529.78	-4	68
21	RCRA CORRACTS	W & F MFG CO INC	251 SENECA ST BUFFALO NY 14204-2013	WSW	0.10 / 529.78	-4	78
			Handler ID | Recycler Activity?: NYD002100121 | NO				
21	RCRA NON GEN	W & F MFG CO INC	251 SENECA ST BUFFALO NY 14204-2013	WSW	0.10 / 529.78	-4	83
			Handler ID | Recycler Activity?: NYD002100121 | NO				
21	RCRA NON GEN	ETHOX INTERNATIONAL	251 SENECA ST BUFFALO NY 14204	WSW	0.10 / 529.78	-4	88
			Handler ID | Recycler Activity?: NYD041042003 | NO				
21	RCRA TSD	W & F MFG CO INC	251 SENECA ST BUFFALO NY 14204-2013	WSW	0.10 / 529.78	-4	94
			Handler ID | Recycler Activity?: NYD002100121 | NO				
22	NY SPILLS	LAWN AT BRAGGS RESIDENCE	229 SOUTH DIVISION BUFFALO NY	NW	0.10 / 535.16	6	99
			Spill No | Close Date: 9804030 | 06/30/1998 12:00:00 AM				
23	HIST RISK	Castiglia Chas	346 Swan Buffalo NY	E	0.10 / 545.63	-1	101
24	HIST RISK	Pescara Vito	348 Swan Buffalo NY	E	0.11 / 563.04	-1	101
25	NY SPILLS	NATIONAL FUEL GAS	340 SENECA STREET BUFFALO NY	SE	0.11 / 574.36	-4	101
			Spill No | Close Date: 9306745 | 11/12/1993 12:00:00 AM				
26	NY SPILLS	OLD GASOLINE STATION	348 SWAN ST. BUFFALO NY	E	0.11 / 575.20	-1	102
			Spill No | Close Date: 0075570 | 12/17/2002 12:00:00 AM				
27	HIST RISK	Hill Jan	338 Seneca Buffalo NY	SE	0.11 / 578.89	-4	104
28	NY SPILLS	BELT MAINTENANCE SYSTEMS	240 SENECA STREET BUFFALO NY	W	0.11 / 600.88	-2	105
			Spill No | Close Date: 1103266 | 07/08/2011 12:00:00 AM				
29	NY SPILLS	BUSINESS	254 CARROLL ST BUFFALO NY	SSW	0.12 / 630.46	-5	106
			Spill No | Close Date: 1908608 | 11/29/2019 12:00:00 AM				

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
30	GEN MANIFEST	WEST SENECA SCHOOL	333O SENECA STREET WEST SENECA NY 14224	SSE	0.12 / 654.85	-6	107
31	AST	POLICE GARAGE	341 SENECA ST Buffalo NY 14204 ***Site ID* | *Site Status:*** 54129 | Active	SE	0.16 / 843.57	-6	108
31	LST	BUFFALO POLICE GARAGE	341 SENECA STREET BUFFALO NY ***Spill No* | *Close Date:*** 9911425 | 01/10/2000 12:00:00 AM	SE	0.16 / 843.57	-6	116
31	UST	POLICE GARAGE	341 SENECA ST Buffalo NY 14204 ***Site ID* | *Site Status:*** 54129 | Active	SE	0.16 / 843.57	-6	117
32	RCRA NON GEN	SENECA PLUMBING & HEATING CO INC	192-196 SENECA ST BUFFALO NY 14204 ***Handler ID* | *Recycler Activity?:*** NYN008010662 | NO	W	0.19 / 994.10	-4	124
33	RCRA NON GEN	LAMAR OUTDOOR ADVERTISING	289 EXCHANGE ST BUFFALO NY 14203 ***Handler ID* | *Recycler Activity?:*** NYN008017220 | NO	S	0.20 / 1,055.95	-12	127
34	LST	SANDORO VACANT BUILDING	263 MICHIGAN AVE BUFFALO NY ***Spill No* | *Close Date:*** 9911486 | 07/06/2000 12:00:00 AM	WSW	0.20 / 1,070.11	-6	130
35	RCRA NON GEN	BUFFALO CITY OF - L S VIADUCT	LOUISIANA ST BETW CARROLL ST & N4.13 OF THE NYS THRUWAY BUFFALO NY 14204 ***Handler ID* | *Recycler Activity?:*** NYR000004507 | NO	SE	0.21 / 1,114.26	-8	131
36	UST	BUFFALO SCHOOL OF TECHNOLOGY #6	414 S. DIVISION STREET BUFFALO NY 14204 ***Site ID* | *Site Status:*** 54105 | Active	E	0.22 / 1,178.26	0	134
37	RCRA VSQG	ELLICOTT GROUP	270 MICHIGAN AVE BUFFALO NY 14203 ***Handler ID* | *Recycler Activity?:*** NYD001816727 | NO	W	0.25 / 1,307.08	-5	138
37	UST	BUFFALO ENVELOPE CO	270 MICHIGAN AVE Buffalo NY 14203 ***Site ID* | *Site Status:*** 51927 | Unregulated/Closed	W	0.25 / 1,307.08	-5	142
37	UST	MICHIGAN SENECA GROUP INC.	270 MICHIGAN STREET Buffalo NY 14203 ***Site ID* | *Site Status:*** 54911 | Unregulated/Closed	W	0.25 / 1,307.08	-5	144
38	FUDS	BETHLEHEM SHIP BLDNG	BUFFALO NY ***FUDS Property No:*** C02NY1069	NNW	0.25 / 1,311.69	10	147

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
39	LST	ERIE COUNTY PUBLIC SAFETY	45 ELM BUFFALO BUFFALO NY	WNW	0.27 / 1,400.15	10	147
			Spill No | Close Date: 1001226 | 06/25/2010 12:00:00 AM				
40	LST	BUFFALO BOARD OF EDUCATIO	333 CLINTON STREET BUFFALO NY	NE	0.27 / 1,431.18	7	148
			Spill No | Close Date: 9313577 | 05/12/1994 12:00:00 AM				
40	LST	BUFFALO SCHOOL DISTRICT SCHOOL #187	333 CLINTON ST BUFFALO NY	NE	0.27 / 1,431.18	7	149
			Spill No | Close Date: 0809129 | 05/04/2009 12:00:00 AM				
41	LST	BUFFALO SCHOOL #6	HICKORY ST. @ S. DIVISION BUFFALO NY	E	0.28 / 1,464.06	-1	150
			Spill No | Close Date: 0550673 | 09/07/2005 12:00:00 AM				
42	LST	SCHOOL 187	333 CLINTON BUFFALO NY	NE	0.29 / 1,537.56	7	151
			Spill No | Close Date: 0375445 | 03/02/2004 12:00:00 AM				
43	PFAS IND	STETSON CHEMICAL	BUFFALO NY	SE	0.31 / 1,626.65	-10	152
44	LST	CITY OF BUFFALO HOUSING	444 SENECA STREET BUFFALO NY	ESE	0.31 / 1,632.10	-6	153
			Spill No | Close Date: 9975514 | 01/14/2000 12:00:00 AM				
45	CERCLIS	MOLLENBER-BETZ	300 SCOTT ST BUFFALO NY 14204	S	0.32 / 1,688.51	-4	154
			Site EPA ID: NYD002109981				
45	CERCLIS NFRAP	MOLLENBER-BETZ	300 SCOTT ST BUFFALO NY 14204	S	0.32 / 1,688.51	-4	156
			Site EPA ID: NYD002109981				
45	SEMS ARCHIVE	MOLLENBER-BETZ	300 SCOTT ST BUFFALO NY 14204	S	0.32 / 1,688.51	-4	157
			EPA ID: NYD002109981				
45	SHWS	Mollenberg-Betz	300 Scott Street Buffalo NY 14204	S	0.32 / 1,688.51	-4	157
46	PFAS	Amrex Chemical Co, Inc - Buffalo	391 Exchange St Buffalo NY	SE	0.32 / 1,709.70	-10	160
47	PFAS IND	GRAPHIC CONTROLS	BUFFALO NY	SE	0.32 / 1,713.95	-10	160

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
48	LST	BRINKS	259 CHICAGO ST. BUFFALO NY ***Spill No | Close Date:*** 8600418 | 06/10/1986 12:00:00 AM	SSW	0.33 / 1,743.52	-11	161
48	LST	BRINKS	259 CHICAGO STREET BUFFALO NY ***Spill No | Close Date:*** 8903707 | 02/20/1991 12:00:00 AM	SSW	0.33 / 1,743.52	-11	162
49	LST	TRAN STAR	WILLIAM & MICHIGAN BUFFALO NY ***Spill No | Close Date:*** 8801627 | 05/24/1988 12:00:00 AM	NNW	0.37 / 1,930.43	13	164
49	LST	BROAD-ELM TIRE	MICHIGAN AVE AND WILLIAM BUFFALO NY ***Spill No | Close Date:*** 9201968 | 10/27/1992 12:00:00 AM	NNW	0.37 / 1,930.43	13	165
50	LST	MONTANEZ TANK PULLS	490 SENECA STREET BUFFALO NY ***Spill No | Close Date:*** 9609364 | 09/29/1997 12:00:00 AM	ESE	0.39 / 2,057.79	-6	166
50	LST	FRANK RICHS SERVICE	490 SENECA STREET BUFFALO NY ***Spill No | Close Date:*** 8710277 | 05/16/1988 12:00:00 AM	ESE	0.39 / 2,057.79	-6	167
51	LST	MOBIL MINI MART 08-F84	108 WILLIAM STREET BUFFALO NY ***Spill No | Close Date:*** 9105184 | 11/15/1991 12:00:00 AM	NNW	0.39 / 2,060.05	13	168
51	LST	COMMERCIAL	108 WILLIAMS ST BUFFALO NY ***Spill No | Close Date:*** 1812147 | 12/20/2019 12:00:00 AM	NNW	0.39 / 2,060.05	13	169
52	SEMS	BUFFALO CREEK CASINO SITE	225 PERRY STREET BUFFALO NY 14204 ***EPA ID:*** NYN000206026	SW	0.39 / 2,081.74	-12	170
53	BROWNFIELDS	500 Seneca Street Site	500 Seneca Street Buffalo NY 14204	ESE	0.40 / 2,116.03	-5	171
53	ENG	500 Seneca Street Site	500 Seneca Street Buffalo NY 14204	ESE	0.40 / 2,116.03	-5	176
53	INST	500 Seneca Street Site	500 Seneca Street Buffalo NY 14204	ESE	0.40 / 2,116.03	-5	181
54	FED BROWNFIELDS	Graphic Controls	487-503 & 541-543 Seneca St and 479 & 489 Alabama St; 400, 450-5 Buffalo NY 14024 ***Property ID:*** 28102	ESE	0.40 / 2,130.35	-5	186

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
54	LST	FARGO ELECTRIC	493-503 SENECA ST BUFFALO NY	ESE	0.40 / 2,130.35	-5	192
			Spill No | Close Date: 0275500 | 05/01/2003 12:00:00 AM				
55	PFAS IND	DLGROUP BANITE INC	BUFFALO NY	SW	0.41 / 2,142.17	-12	193
56	BROWNFIELDS	201 Ellicott Street Site	201 & 225 Ellicott Street BUFFALO NY 14203	WNW	0.41 / 2,147.83	16	194
56	INST	201 Ellicott Street Site	201 & 225 Ellicott Street BUFFALO NY 14203	WNW	0.41 / 2,147.83	16	199
57	DELISTED SHWS	Central Autowrecking	503 Seneca St. Buffalo NY	ESE	0.41 / 2,177.72	-5	205
58	LST	ERIE COMMUNITY COLLEGE	121 ELLICOTT STREET BUFFALO NY	WNW	0.42 / 2,235.43	16	205
			Spill No | Close Date: 9104471 | 09/09/1996 12:00:00 AM				
59	DELISTED SHWS	Small Boat Harbor Containment Site	18 Ellicott St. Buffalo NY 14205	WNW	0.42 / 2,237.82	15	207
60	DELISTED SHWS	Westinghouse Electric Corp.	181 Ellicott Street Buffalo NY 14203	WNW	0.42 / 2,240.94	17	207
60	DELISTED SHWS	Niagara Frontier TA (Port site)	181 Ellicott St. Buffalo NY 14205	WNW	0.42 / 2,240.94	17	207
60	LST	NFTA TERMINAL	181 ELLICOTT AVENUE BUFFALO NY	WNW	0.42 / 2,240.94	17	207
			Spill No | Close Date: 0475166 | 06/30/2004 12:00:00 AM				
60	LST	GREYHOUND BUS	181 ELLICOTT STREET BUFFALO NY	WNW	0.42 / 2,240.94	17	208
			Spill No | Close Date: 9112690 | 04/07/1992 12:00:00 AM				
60	LST	NFTA 181 ELLICOTT	181 ELLICOTT STREET BUFFALO NY	WNW	0.42 / 2,240.94	17	210
			Spill No | Close Date: 9313823 | 06/26/1995 12:00:00 AM				
60	LST	GREYHOUND BUS	181 ELLICOTT STREET BUFFALO NY	WNW	0.42 / 2,240.94	17	211
			Spill No | Close Date: 9100619 | 06/10/1991 12:00:00 AM				
60	LST	GREYHOUND LINES INC	181 ELLICOTT STREET BUFFALO NY	WNW	0.42 / 2,240.94	17	212

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
			Spill No | Close Date: 8906662 | 11/04/1996 12:00:00 AM				
61	LST	NATIONAL FUEL GAS	161 ELM STREET BUFFALO NY ***Spill No | Close Date:*** 0475053 | 07/28/2004 12:00:00 AM	NNW	0.43 / 2,280.10	14	214
62	HSWDS	Cornell Lead Co.	Corner of Oak and Clinton Ave. Buffalo 14203 NY	NW	0.44 / 2,325.19	16	215
63	CERCLIS	CORNELL LEAD CO	COR CLINTON & OAK STS BUFFALO NY 14203 ***Site EPA ID:*** NYD980531594	NW	0.44 / 2,327.95	16	216
63	CERCLIS NFRAP	CORNELL LEAD CO	COR CLINTON & OAK STS BUFFALO NY 14203 ***Site EPA ID:*** NYD980531594	NW	0.44 / 2,327.95	16	217
63	SEMS ARCHIVE	CORNELL LEAD CO	COR CLINTON & OAK STS BUFFALO NY 14203 ***EPA ID:*** NYD980531594	NW	0.44 / 2,327.95	16	218
64	LST	MUNICIPAL HOUSING AUTHORI	386 PERRY ST BUFFALO NY ***Spill No | Close Date:*** 0805442 | 01/06/2009 12:00:00 AM	SSE	0.45 / 2,378.00	-8	219
64	LST	BUFFALO HOUSING AUTHORITY	386 PERRY STREET BUFFALO NY ***Spill No | Close Date:*** 8710146 | 06/09/1988 12:00:00 AM	SSE	0.45 / 2,378.00	-8	220
64	LST	BUFFALO HOUSING AUTHORITY	386 PERRY STREET BUFFALO NY ***Spill No | Close Date:*** 8800864 | 05/02/1988 12:00:00 AM	SSE	0.45 / 2,378.00	-8	221
65	LST	COMMODORE PERRY COMPLEX	392 PERRY STREET BUFFALO NY ***Spill No | Close Date:*** 9304172 | 06/29/1995 12:00:00 AM	SSE	0.46 / 2,406.37	-9	222
66	LST	LANIGAN FIELD HOUSE	FULTON AND CHICAGO STREET BUFFALO NY ***Spill No | Close Date:*** 0002513 | 11/29/2000 12:00:00 AM	SSW	0.47 / 2,471.88	-13	224
67	LST	ELLICOTT SQUARE BLDG	295 WASHINGTON ST BUFFALO NY ***Spill No | Close Date:*** 0011474 | 05/24/2001 12:00:00 AM	WNW	0.47 / 2,481.82	18	225
68	LST	BUFFALO STREETS GARAGE	197 BROADWAY BUFFALO NY ***Spill No | Close Date:*** 9109885 | 02/25/1992 12:00:00 AM	N	0.49 / 2,562.76	14	226
69	LST	PLEASENT GROVE BAPTIST CH	222 CEDAR STREET BUFFALO NY	NNE	0.49 / 2,570.21	10	227

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
			Spill No | Close Date: 9006857 | 09/27/1991 12:00:00 AM				
70	LST	GOETZ ENERGY	WASHINGTON & S. DIVISION BUFFALO NY	WNW	0.49 / 2,589.27	22	228
			Spill No | Close Date: 9207118 | 09/03/1993 12:00:00 AM				
71	SWF/LF	WNY Professional Flooring; Inc.	505 Hamburg Street Buffalo NY 14220	E	0.49 / 2,604.81	-3	229
72	RCRA CORRACTS	BUFFALO TIN PLATING	194 OAK ST BUFFALO NY 14203	NW	0.54 / 2,834.52	17	230
			Handler ID | Recycler Activity?: NYD002109452 | NO				
73	DELISTED SHWS	64th Street - North	Donavan Bld., 125 Main St. Buffalo NY	W	0.56 / 2,973.19	-3	234
74	DELISTED SHWS	Westinghouse Electric Corp.	424 Main Street, Suite 300 Buffalo NY 14202	WNW	0.63 / 3,325.32	25	234
75	DELISTED SHWS	Gutekunst	Rath Building, 95 Franklin St. Buffalo NY 14202	WNW	0.64 / 3,381.06	16	234
76	RCRA CORRACTS	189 TONAWANDA ST CORP	51 PERRY ST BUFFALO NY 14203	WSW	0.65 / 3,413.28	-8	234
			Handler ID | Recycler Activity?: NYD980526818 | NO				
77	SHWS	Buffalo River - GLNPO Dredging Project	Buffalo River and City Ship Canal Buffalo NY 14206	SW	0.66 / 3,491.96	-20	239
78	DELISTED SHWS	Vanadium Corporation of America	535 Washington St. Buffalo NY 14212	NW	0.70 / 3,711.96	21	242
79	FUDS	BUFFALO AAF DEPOT NO 1	BUFFALO NY	ESE	0.76 / 4,038.89	-2	242
			FUDS Property No: C02NY0591				
80	DELISTED SHWS	Buffalo Pumps Div-Buf. Forge Comp	490 Broadway Buffalo NY 14204	NE	0.85 / 4,486.72	16	243
81	SHWS	Bristol Street	204 & 208 Bristol Street Buffalo NY 14206	E	0.86 / 4,544.12	0	243
82	DELISTED SHWS	Bell Aerospace Textron-Airforce Plnt #38	111 West Huron St. Buffalo NY 14202	NW	0.92 / 4,843.41	13	246

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
83	MRDS	EASTERN LIMESTONE OPERATION	ERIE COUNTY BUFFALO NY 14203 ***Dep ID:*** 10150928	WSW	0.93 / 4,934.15	-7	247
84	HSWDS	Nat Fuel, Buffalo Servicenter	249 West Genesee Street Buffalo 14202 NY	WNW	1.00 / 5,274.73	-8	247
84	HSWDS	Nat Fuel, Buffalo Servicenter	249 West Genesee Street Buffalo 14202 NY	WNW	1.00 / 5,274.73	-8	248
84	HSWDS	Nat Fuel, Buffalo Servicenter	249 West Genesee Street Buffalo 14202 NY	WNW	1.00 / 5,274.73	-8	249
84	MGP	Former Buffalo Service Station	249 West Genesee Street Buffalo NY 14202	WNW	1.00 / 5,274.73	-8	250

Executive Summary: Summary by Data Source

Standard

Federal

SEMS - SEMS List 8R Active Site Inventory

A search of the SEMS database, dated Jun 26, 2025 has found that there are 1 SEMS site(s) within approximately 0.50miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
BUFFALO CREEK CASINO SITE	225 PERRY STREET BUFFALO NY 14204 ***EPA ID**: NYN000206026*	SW	0.39 / 2,081.74	52

SEMS ARCHIVE - SEMS List 8R Archive Sites

A search of the SEMS ARCHIVE database, dated Jun 26, 2025 has found that there are 2 SEMS ARCHIVE site(s) within approximately 0.50miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
CORNELL LEAD CO	COR CLINTON & OAK STS BUFFALO NY 14203 ***EPA ID**: NYD980531594*	NW	0.44 / 2,327.95	63

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
MOLLENBER-BETZ	300 SCOTT ST BUFFALO NY 14204 ***EPA ID**: NYD002109981*	S	0.32 / 1,688.51	45

CERCLIS - Comprehensive Environmental Response, Compensation and Liability Information System - CERCLIS

A search of the CERCLIS database, dated Oct 25, 2013 has found that there are 2 CERCLIS site(s) within approximately 0.50miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
CORNELL LEAD CO	COR CLINTON & OAK STS BUFFALO NY 14203 ***Site EPA ID**: NYD980531594*	NW	0.44 / 2,327.95	63

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
MOLLENBER-BETZ	300 SCOTT ST BUFFALO NY 14204 ***Site EPA ID**: NYD002109981*	S	0.32 / 1,688.51	45

CERCLIS NFRAP - CERCLIS - No Further Remedial Action Planned

A search of the CERCLIS NFRAP database, dated Oct 25, 2013 has found that there are 2 CERCLIS NFRAP site(s) within approximately 0.50miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
CORNELL LEAD CO	COR CLINTON & OAK STS BUFFALO NY 14203 ***Site EPA ID**: NYD980531594*	NW	0.44 / 2,327.95	63

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
MOLLENBER-BETZ	300 SCOTT ST BUFFALO NY 14204 ***Site EPA ID**: NYD002109981*	S	0.32 / 1,688.51	45

RCRA CORRACTS - RCRA CORRACTS-Corrective Action

A search of the RCRA CORRACTS database, dated Apr 14, 2025 has found that there are 3 RCRA CORRACTS site(s) within approximately 1.00miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
BUFFALO TIN PLATING	194 OAK ST BUFFALO NY 14203 ***Handler ID	Recycler Activity?**: NYD002109452 | NO*	NW	0.54 / 2,834.52	72

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
W & F MFG CO INC	251 SENECA ST BUFFALO NY 14204-2013 ***Handler ID | Recycler Activity?**: NYD002100121 | NO*	WSW	0.10 / 529.78	21
189 TONAWANDA ST CORP	51 PERRY ST BUFFALO NY 14203 ***Handler ID | Recycler Activity?**: NYD980526818 | NO*	WSW	0.65 / 3,413.28	76

RCRA TSD - RCRA non-CORRACTS TSD Facilities

A search of the RCRA TSD database, dated Apr 14, 2025 has found that there are 1 RCRA TSD site(s) within approximately 0.50miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
W & F MFG CO INC	251 SENECA ST BUFFALO NY 14204-2013 ***Handler ID | Recycler Activity?**: NYD002100121 | NO*	WSW	0.10 / 529.78	21

RCRA VSQG - RCRA Very Small Quantity Generators List

A search of the RCRA VSQG database, dated Apr 14, 2025 has found that there are 1 RCRA VSQG site(s) within approximately 0.25 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ELLICOTT GROUP	270 MICHIGAN AVE BUFFALO NY 14203	W	0.25 / 1,307.08	37
	***Handler ID | Recycler Activity?**: NYD001816727 | NO*			

RCRA NON GEN - RCRA Non-Generators

A search of the RCRA NON GEN database, dated Apr 14, 2025 has found that there are 6 RCRA NON GEN site(s) within approximately 0.25miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
HERNANDEZ JOSE	SWAN & CHICAGO ST CORNER BUFFALO NY 14203	NNW	0.02 / 100.03	3
	***Handler ID | Recycler Activity?**: NYR000037994 | NO*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ETHOX INTERNATIONAL	251 SENECA ST BUFFALO NY 14204	WSW	0.10 / 529.78	21
	***Handler ID | Recycler Activity?**: NYD041042003 | NO*			
W & F MFG CO INC	251 SENECA ST BUFFALO NY 14204-2013	WSW	0.10 / 529.78	21
	***Handler ID | Recycler Activity?**: NYD002100121 | NO*			
SENECA PLUMBING & HEATING CO INC	192-196 SENECA ST BUFFALO NY 14204	W	0.19 / 994.10	32
	***Handler ID | Recycler Activity?**: NYN008010662 | NO*			
LAMAR OUTDOOR ADVERTISING	289 EXCHANGE ST BUFFALO NY 14203	S	0.20 / 1,055.95	33
	***Handler ID | Recycler Activity?**: NYN008017220 | NO*			
BUFFALO CITY OF - L S VIADUCT	LOUISIANA ST BETW CARROLL ST & N4.13 OF THE NYS THRUWAY BUFFALO NY 14204	SE	0.21 / 1,114.26	35
	***Handler ID | Recycler Activity?**: NYR000004507 | NO*			

FED BROWNFIELDS - The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database

A search of the FED BROWNFIELDS database, dated Feb 19, 2025 has found that there are 1 FED BROWNFIELDS site(s) within approximately 0.50miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Graphic Controls	487-503 & 541-543 Seneca St and 479 & 489 Alabama St; 400, 450-5 Buffalo NY 14024 ***Property ID**: 28102*	ESE	0.40 / 2,130.35	54

State

SHWS - Registry of Inactive Hazardous Waste Disposal Sites in New York State

A search of the SHWS database, dated May 13, 2025 has found that there are 3 SHWS site(s) within approximately 1.00miles of the

project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Bristol Street	204 & 208 Bristol Street Buffalo NY 14206	E	0.86 / 4,544.12	81

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Mollenberg-Betz	300 Scott Street Buffalo NY 14204	S	0.32 / 1,688.51	45
Buffalo River - GLNPO Dredging Project	Buffalo River and City Ship Canal Buffalo NY 14206	SW	0.66 / 3,491.96	77

DELISTED SHWS - Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York

A search of the DELISTED SHWS database, dated May 13, 2025 has found that there are 10 DELISTED SHWS site(s) within approximately 1.00miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Small Boat Harbor Containment Site	18 Ellicott St. Buffalo NY 14205	WNW	0.42 / 2,237.82	59
Westinghouse Electric Corp.	181 Ellicott Street Buffalo NY 14203	WNW	0.42 / 2,240.94	60
Niagara Frontier TA (Port site)	181 Ellicott St. Buffalo NY 14205	WNW	0.42 / 2,240.94	60
Westinghouse Electric Corp.	424 Main Street, Suite 300 Buffalo NY 14202	WNW	0.63 / 3,325.32	74
Gutekunst	Rath Building, 95 Franklin St. Buffalo NY 14202	WNW	0.64 / 3,381.06	75
Vanadium Corporation of America	535 Washington St. Buffalo NY 14212	NW	0.70 / 3,711.96	78
Buffalo Pumps Div-Buf. Forge Comp	490 Broadway Buffalo NY 14204	NE	0.85 / 4,486.72	80
Bell Aerospace Textron-Airforce Plnt #38	111 West Huron St. Buffalo NY 14202	NW	0.92 / 4,843.41	82

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Central Autowrecking	503 Seneca St. Buffalo NY	ESE	0.41 / 2,177.72	57
64th Street - North	Donavan Bld., 125 Main St. Buffalo NY	W	0.56 / 2,973.19	73

HSWDS - Hazardous Substance Waste Disposal Sites

A search of the HSWDS database, dated Oct 24, 2003 has found that there are 4 HSWDS site(s) within approximately 1.00miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Cornell Lead Co.	Corner of Oak and Clinton Ave. Buffalo 14203 NY	NW	0.44 / 2,325.19	62

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Nat Fuel, Buffalo Servicenter	249 West Genesee Street Buffalo 14202 NY	WNW	1.00 / 5,274.73	84
Nat Fuel, Buffalo Servicenter	249 West Genesee Street Buffalo 14202 NY	WNW	1.00 / 5,274.73	84
Nat Fuel, Buffalo Servicenter	249 West Genesee Street Buffalo 14202 NY	WNW	1.00 / 5,274.73	84

SWF/LF - Solid Waste Facilities and Landfills

A search of the SWF/LF database, dated Jun 4, 2025 has found that there are 1 SWF/LF site(s) within approximately 0.50miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
WNY Professional Flooring; Inc.	505 Hamburg Street Buffalo NY 14220	E	0.49 / 2,604.81	71

LST - Leaking Storage Tanks

A search of the LST database, dated Aug 19, 2025 has found that there are 34 LST site(s) within approximately 0.50miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
ERIE COUNTY PUBLIC SAFETY	45 ELM BUFFALO BUFFALO NY	WNW	0.27 / 1,400.15	39
	***Spill No | Close Date**: 1001226 | 06/25/2010 12:00:00 AM*			
BUFFALO BOARD OF EDUCATIO	333 CLINTON STREET BUFFALO NY	NE	0.27 / 1,431.18	40
	***Spill No | Close Date**: 9313577 | 05/12/1994 12:00:00 AM*			
BUFFALO SCHOOL DISTRICT SCHOOL #187	333 CLINTON ST BUFFALO NY	NE	0.27 / 1,431.18	40
	***Spill No | Close Date**: 0809129 | 05/04/2009 12:00:00 AM*			
SCHOOL 187	333 CLINTON BUFFALO NY	NE	0.29 / 1,537.56	42
	***Spill No | Close Date**: 0375445 | 03/02/2004 12:00:00 AM*			
TRAN STAR	WILLIAM & MICHIGAN BUFFALO NY	NNW	0.37 / 1,930.43	49
	***Spill No | Close Date**: 8801627 | 05/24/1988 12:00:00 AM*			
BROAD-ELM TIRE	MICHIGAN AVE AND WILLIAM BUFFALO NY	NNW	0.37 / 1,930.43	49
	***Spill No | Close Date**: 9201968 | 10/27/1992 12:00:00 AM*			
MOBIL MINI MART 08-F84	108 WILLIAM STREET BUFFALO NY	NNW	0.39 / 2,060.05	51
	***Spill No | Close Date**: 9105184 | 11/15/1991 12:00:00 AM*			
COMMERCIAL	108 WILLIAMS ST BUFFALO NY	NNW	0.39 / 2,060.05	51
	***Spill No | Close Date**: 1812147 | 12/20/2019 12:00:00 AM*			
ERIE COMMUNITY COLLEGE	121 ELLICOTT STREET BUFFALO NY	WNW	0.42 / 2,235.43	58
	***Spill No | Close Date**: 9104471 | 09/09/1996 12:00:00 AM*			
NFTA TERMINAL	181 ELLICOTT AVENUE BUFFALO NY	WNW	0.42 / 2,240.94	60
	***Spill No | Close Date**: 0475166 | 06/30/2004 12:00:00 AM*			
GREYHOUND BUS	181 ELLICOTT STREET BUFFALO NY	WNW	0.42 / 2,240.94	60
	***Spill No | Close Date**: 9112690 | 04/07/1992 12:00:00 AM*			
NFTA 181 ELLICOTT	181 ELLICOTT STREET BUFFALO NY	WNW	0.42 / 2,240.94	60
	***Spill No | Close Date**: 9313823 | 06/26/1995 12:00:00 AM*			
GREYHOUND BUS	181 ELLICOTT STREET BUFFALO NY	WNW	0.42 / 2,240.94	60
	***Spill No | Close Date**: 9100619 | 06/10/1991 12:00:00 AM*			

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
GREYHOUND LINES INC	181 ELLICOTT STREET BUFFALO NY	WNW	0.42 / 2,240.94	60
	***Spill No | Close Date**: 8906662 | 11/04/1996 12:00:00 AM*			
NATIONAL FUEL GAS	161 ELM STREET BUFFALO NY	NNW	0.43 / 2,280.10	61
	***Spill No | Close Date**: 0475053 | 07/28/2004 12:00:00 AM*			
ELLICOTT SQUARE BLDG	295 WASHINGTON ST BUFFALO NY	WNW	0.47 / 2,481.82	67
	***Spill No | Close Date**: 0011474 | 05/24/2001 12:00:00 AM*			
BUFFALO STREETS GARAGE	197 BROADWAY BUFFALO NY	N	0.49 / 2,562.76	68
	***Spill No | Close Date**: 9109885 | 02/25/1992 12:00:00 AM*			
PLEASENT GROVE BAPTIST CH	222 CEDAR STREET BUFFALO NY	NNE	0.49 / 2,570.21	69
	***Spill No | Close Date**: 9006857 | 09/27/1991 12:00:00 AM*			
GOETZ ENERGY	WASHINGTON & S. DIVISION BUFFALO NY	WNW	0.49 / 2,589.27	70
	***Spill No | Close Date**: 9207118 | 09/03/1993 12:00:00 AM*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
BUFFALO POLICE-SENECA	SENECA/CHICAGO STREETS BUFFALO NY	SSW	0.07 / 392.16	10
	***Spill No | Close Date**: 8908800 | 12/01/2000 12:00:00 AM*			
BUFFALO POLICE GARAGE	341 SENECA STREET BUFFALO NY	SE	0.16 / 843.57	31
	***Spill No | Close Date**: 9911425 | 01/10/2000 12:00:00 AM*			
SANDORO VACANT BUILDING	263 MICHIGAN AVE BUFFALO NY	WSW	0.20 / 1,070.11	34
	***Spill No | Close Date**: 9911486 | 07/06/2000 12:00:00 AM*			
BUFFALO SCHOOL #6	HICKORY ST. @ S. DIVISION BUFFALO NY	E	0.28 / 1,464.06	41
	***Spill No | Close Date**: 0550673 | 09/07/2005 12:00:00 AM*			
CITY OF BUFFALO HOUSING	444 SENECA STREET BUFFALO NY	ESE	0.31 / 1,632.10	44
	***Spill No | Close Date**: 9975514 | 01/14/2000 12:00:00 AM*			
BRINKS	259 CHICAGO ST. BUFFALO NY	SSW	0.33 / 1,743.52	48
	***Spill No | Close Date**: 8600418 | 06/10/1986 12:00:00 AM*			
BRINKS	259 CHICAGO STREET BUFFALO NY	SSW	0.33 / 1,743.52	48

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
	***Spill No | Close Date**: 8903707 | 02/20/1991 12:00:00 AM*			
MONTANEZ TANK PULLS	490 SENECA STREET BUFFALO NY	ESE	0.39 / 2,057.79	50
	***Spill No | Close Date**: 9609364 | 09/29/1997 12:00:00 AM*			
FRANK RICHS SERVICE	490 SENECA STREET BUFFALO NY	ESE	0.39 / 2,057.79	50
	***Spill No | Close Date**: 8710277 | 05/16/1988 12:00:00 AM*			
FARGO ELECTRIC	493-503 SENECA ST BUFFALO NY	ESE	0.40 / 2,130.35	54
	***Spill No | Close Date**: 0275500 | 05/01/2003 12:00:00 AM*			
MUNICIPAL HOUSING AUTHORI	386 PERRY ST BUFFALO NY	SSE	0.45 / 2,378.00	64
	***Spill No | Close Date**: 0805442 | 01/06/2009 12:00:00 AM*			
BUFFALO HOUSING AUTHORITY	386 PERRY STREET BUFFALO NY	SSE	0.45 / 2,378.00	64
	***Spill No | Close Date**: 8710146 | 06/09/1988 12:00:00 AM*			
BUFFALO HOUSING AUTHORITY	386 PERRY STREET BUFFALO NY	SSE	0.45 / 2,378.00	64
	***Spill No | Close Date**: 8800864 | 05/02/1988 12:00:00 AM*			
COMMODORE PERRY COMPLEX	392 PERRY STREET BUFFALO NY	SSE	0.46 / 2,406.37	65
	***Spill No | Close Date**: 9304172 | 06/29/1995 12:00:00 AM*			
LANIGAN FIELD HOUSE	FULTON AND CHICAGO STREET BUFFALO NY	SSW	0.47 / 2,471.88	66
	***Spill No | Close Date**: 0002513 | 11/29/2000 12:00:00 AM*			

UST - Underground Storage Tanks- UST-Petroleum Bulk Storage (PBS)

A search of the UST database, dated Jul 30, 2025 has found that there are 4 UST site(s) within approximately 0.25miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
BUFFALO SCHOOL OF TECHNOLOGY #6	414 S. DIVISION STREET BUFFALO NY 14204	E	0.22 / 1,178.26	36
	***Site ID | Site Status**: 54105 | Active*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
POLICE GARAGE	341 SENECA ST Buffalo NY 14204	SE	0.16 / 843.57	31
	***Site ID | Site Status**: 54129 | Active*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
MICHIGAN SENECA GROUP INC.	270 MICHIGAN STREET Buffalo NY 14203	W	0.25 / 1,307.08	37
	Site ID* | *Site Status: *54911* | *Unregulated/Closed*			
BUFFALO ENVELOPE CO	270 MICHIGAN AVE Buffalo NY 14203	W	0.25 / 1,307.08	37
	Site ID* | *Site Status: *51927* | *Unregulated/Closed*			

AST - The Bulk Storage Program Database - AST

A search of the AST database, dated Jul 30, 2025 has found that there are 2 AST site(s) within approximately 0.25miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ETHOX CORP.	251 SENECA STREET Buffalo NY 14204	WSW	0.10 / 529.78	21
	Site ID* | *Site Status: *55257* | *Unregulated/Closed*			
POLICE GARAGE	341 SENECA ST Buffalo NY 14204	SE	0.16 / 843.57	31
	Site ID* | *Site Status: *54129* | *Active*			

ENG - Registry of Engineering Controls in New York State

A search of the ENG database, dated May 13, 2025 has found that there are 1 ENG site(s) within approximately 0.50miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
500 Seneca Street Site	500 Seneca Street Buffalo NY 14204	ESE	0.40 / 2,116.03	53

INST - Registry of Institutional Controls in New York State

A search of the INST database, dated May 13, 2025 has found that there are 2 INST site(s) within approximately 0.50miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
201 Ellicott Street Site	201 & 225 Ellicott Street BUFFALO NY 14203	WNW	0.41 / 2,147.83	56

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
500 Seneca Street Site	500 Seneca Street Buffalo NY 14204	ESE	0.40 / 2,116.03	53

ERP - Environmental Restoration Program Listing

A search of the ERP database, dated May 13, 2025 has found that there are 1 ERP site(s) within approximately 0.50miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
W & F Mfg Co Inc	251 Seneca Street Buffalo NY 14204-2013	WSW	0.10 / 529.78	21

BROWNFIELDS - Brownfields Site List (Subset of Site Remediation)

A search of the BROWNFIELDS database, dated May 13, 2025 has found that there are 2 BROWNFIELDS site(s) within approximately 0.50miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
201 Ellicott Street Site	201 & 225 Ellicott Street BUFFALO NY 14203	WNW	0.41 / 2,147.83	56

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
500 Seneca Street Site	500 Seneca Street Buffalo NY 14204	ESE	0.40 / 2,116.03	53

Non Standard

Federal

FINDS/FRS - Facility Registry Service/Facility Index

A search of the FINDS/FRS database, dated Jul 1, 2025 has found that there are 1 FINDS/FRS site(s) within approximately 0.02miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
HERNANDEZ JOSE	SWAN & CHICAGO ST CORNER BUFFALO NY 14203 ***Registry ID**: 110008098209*	NNW	0.02 / 100.03	3

PFAS TRI - Perfluorinated Alkyl Substances (PFAS) from Toxic Release Inventory

A search of the PFAS TRI database, dated Sep 20, 2023 has found that there are 1 PFAS TRI site(s) within approximately 0.50miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ETHOX CORP	251 SENECA ST BUFFALO NY 14204	WSW	0.10 / 529.78	21

PFAS IND - PFAS Industry Sectors

A search of the PFAS IND database, dated Sep 1, 2025 has found that there are 4 PFAS IND site(s) within approximately 0.50miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ETHOX CORP	BUFFALO NY	WSW	0.09 / 481.44	17
STETSON CHEMICAL	BUFFALO NY	SE	0.31 / 1,626.65	43
GRAPHIC CONTROLS	BUFFALO NY	SE	0.32 / 1,713.95	47
DLGROUP BANITE INC	BUFFALO NY	SW	0.41 / 2,142.17	55

FUDS - Formerly Used Defense Sites

A search of the FUDS database, dated May 15, 2023 has found that there are 2 FUDS site(s) within approximately 1.00miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
BETHLEHEM SHIP BLDNG	BUFFALO NY ***FUDS Property No**: C02NY1069*	NNW	0.25 / 1,311.69	38

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
BUFFALO AAF DEPOT NO 1	BUFFALO NY ***FUDS Property No**: C02NY0591*	ESE	0.76 / 4,038.89	79

MRDS - Mineral Resource Data System

A search of the MRDS database, dated Mar 15, 2016 has found that there are 1 MRDS site(s) within approximately 1.00miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
EASTERN LIMESTONE OPERATION	ERIE COUNTY BUFFALO NY 14203 ***Dep ID**: 10150928*	WSW	0.93 / 4,934.15	83

HIST RISK - Historical Business Activity Risk

A search of the HIST RISK database, dated Jan 1, 1960 has found that there are 17 HIST RISK site(s) within approximately 0.12miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Ciepiela Michl A	281 Swan Buffalo NY	ESE	0.01 / 64.24	2

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Kee Hong	287 Swan Buffalo NY	ENE	0.03 / 134.40	5
Brehm Andrew H	256 Swan Buffalo NY	WNW	0.04 / 223.52	7
Ruffin Bros Cleaners	41 Pine Buffalo NY	NNE	0.09 / 474.80	16
Baker Albert	225 Swan Buffalo NY	WNW	0.10 / 509.22	19

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Thomas Sam A	429 Chicago Buffalo NY	SW	0.02 / 123.46	4
Chicago Street Garage	420 Chicago Buffalo NY	SW	0.04 / 210.77	6
Traders Towel Supply Co	417-419 Chicago Buffalo NY	SSW	0.04 / 226.48	8
Kee Hong	298 Seneca Buffalo NY	S	0.07 / 380.83	9
Capozzi Michl A	287 Seneca Buffalo NY	SSW	0.08 / 397.22	11
Smart Cleaners	283 Seneca Buffalo NY	SW	0.08 / 407.57	12
Samuel David	274 Seneca Buffalo NY	SW	0.08 / 428.95	13
Andrews Nicholas	322 Seneca Buffalo NY	SSE	0.09 / 472.14	15

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Catano Anthony D	324 Seneca Buffalo NY	SSE	0.09 / 484.21	18
Castiglia Chas	346 Swan Buffalo NY	E	0.10 / 545.63	23
Pescara Vito	348 Swan Buffalo NY	E	0.11 / 563.04	24
Hill Jan	338 Seneca Buffalo NY	SE	0.11 / 578.89	27

State

MGP - Manufactured Gas Plants

A search of the MGP database, dated Sep 5, 2025 has found that there are 1 MGP site(s) within approximately 1.00miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Former Buffalo Service Station	249 West Genesee Street Buffalo NY 14202	WNW	1.00 / 5,274.73	84

NY SPILLS - Spill Incidents Database

A search of the NY SPILLS database, dated Aug 19, 2025 has found that there are 9 NY SPILLS site(s) within approximately 0.12miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
JOSE HERNANDEZ LOT	275 SWAN ST (425 CHICAGO) BUFFALO NY	-	0.00 / 0.00	1
	***Spill No | Close Date**: 9615008 | 01/23/1998 12:00:00 AM*			
NATIONAL FUEL-SWAN STREET	230 SWAN STREET BUFFALO NY	WNW	0.09 / 467.83	14
	***Spill No | Close Date**: 9103734 | 07/09/1991 12:00:00 AM*			
LAWN AT BRAGGS RESIDENCE	229 SOUTH DIVISION BUFFALO NY	NW	0.10 / 535.16	22
	***Spill No | Close Date**: 9804030 | 06/30/1998 12:00:00 AM*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ETHOX CORPORATION	251 SENECA STREET BUFFALO NY	WSW	0.10 / 529.78	21
	***Spill No | Close Date**: 0407788 | 01/13/2005 12:00:00 AM*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ETHOX CORP	251 SENECA STREET BUFFALO NY	WSW	0.10 / 529.78	21
	***Spill No | Close Date**: 9001483 | 05/21/1990 12:00:00 AM*			
NATIONAL FUEL GAS	340 SENECA STREET BUFFALO NY	SE	0.11 / 574.36	25
	***Spill No | Close Date**: 9306745 | 11/12/1993 12:00:00 AM*			
OLD GASOLINE STATION	348 SWAN ST. BUFFALO NY	E	0.11 / 575.20	26
	***Spill No | Close Date**: 0075570 | 12/17/2002 12:00:00 AM*			
BELT MAINTENANCE SYSTEMS	240 SENECA STREET BUFFALO NY	W	0.11 / 600.88	28
	***Spill No | Close Date**: 1103266 | 07/08/2011 12:00:00 AM*			
BUSINESS	254 CARROLL ST BUFFALO NY	SSW	0.12 / 630.46	29
	***Spill No | Close Date**: 1908608 | 11/29/2019 12:00:00 AM*			

PFAS - Per- and Polyfluoroalkyl Substances (PFAS)

A search of the PFAS database, dated Jan 16, 2019 has found that there are 1 PFAS site(s) within approximately 0.50miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Amrex Chemical Co, Inc - Buffalo	391 Exchange St Buffalo NY	SE	0.32 / 1,709.70	46

GEN MANIFEST - Generators from Hazardous Waste Manifests

A search of the GEN MANIFEST database, dated Mar 1, 2025 has found that there are 3 GEN MANIFEST site(s) within approximately 0.12miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
HERNANDEZ JOSE	SWAN & CHICAGO ST BUFFALO NY 14203	NNW	0.02 / 100.03	3

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
MOOG INC (FORMALLY ETHOX CORP)	251 SENECA STREET BUFFALO NY 14204	WSW	0.10 / 529.78	21
WEST SENECA SCHOOL	333O SENECA STREET WEST SENECA NY 14224	SSE	0.12 / 654.85	30

COOLING TOWERS - Registered Cooling Towers

A search of the COOLING TOWERS database, dated Aug 12, 2025 has found that there are 2 COOLING TOWERS site(s) within approximately 0.12miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
	251 Seneca St Buffalo NY 14204	WSW	0.10 / 529.78	21
	251 Seneca St. Buffalo NY 14204	WSW	0.10 / 529.78	21

AIR PERMITS - Air Permitted Facilities

A search of the AIR PERMITS database, dated Apr 15, 2025 has found that there are 2 AIR PERMITS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
S J MCCULLAGH INC	245 SWAN ST BUFFALO NY 14203	W	0.10 / 526.62	20

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ETHOX CORP	251 SENECA ST BUFFALO NY 14204	WSW	0.10 / 529.78	21

Map: 1.0 Mile Radius

Order Number: 25091500141

Address: Swan & Chicago Street, Buffalo, NY

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

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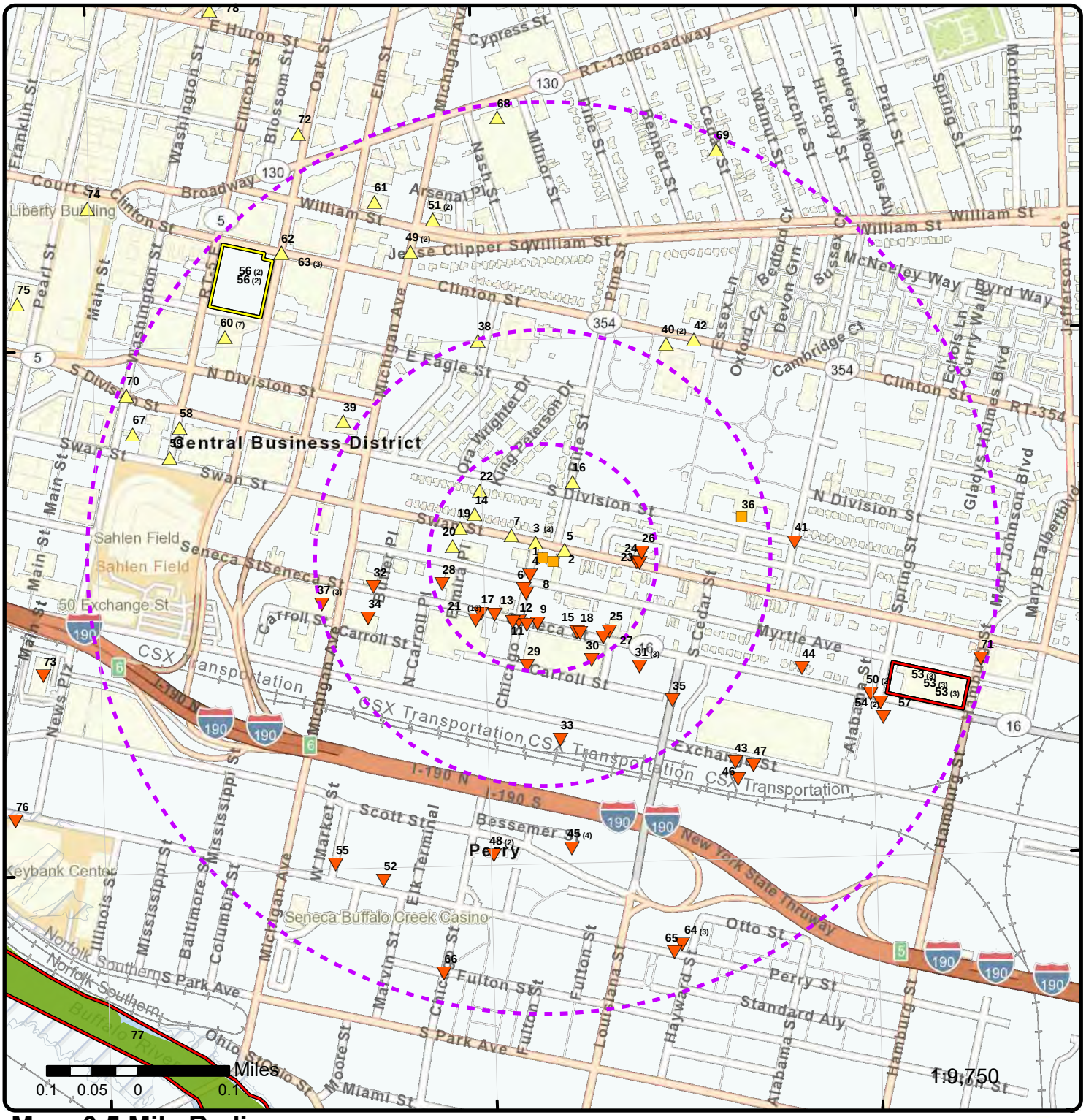

Map: 0.5 Mile Radius

Order Number: 25091500141

Address: Swan & Chicago Street, Buffalo, NY

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

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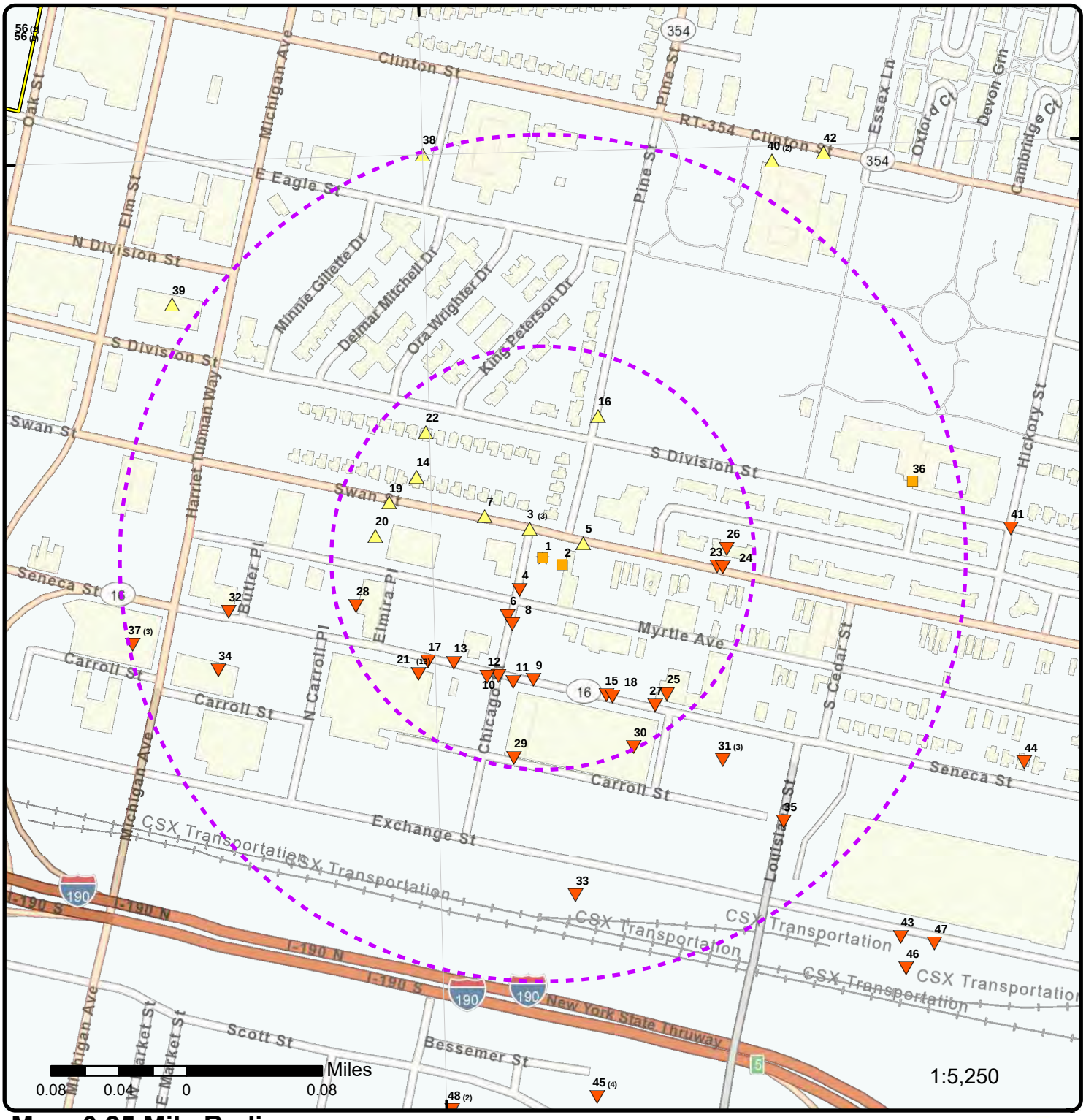

Map: 0.25 Mile Radius

Order Number: 25091500141

Address: Swan & Chicago Street, Buffalo, NY

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

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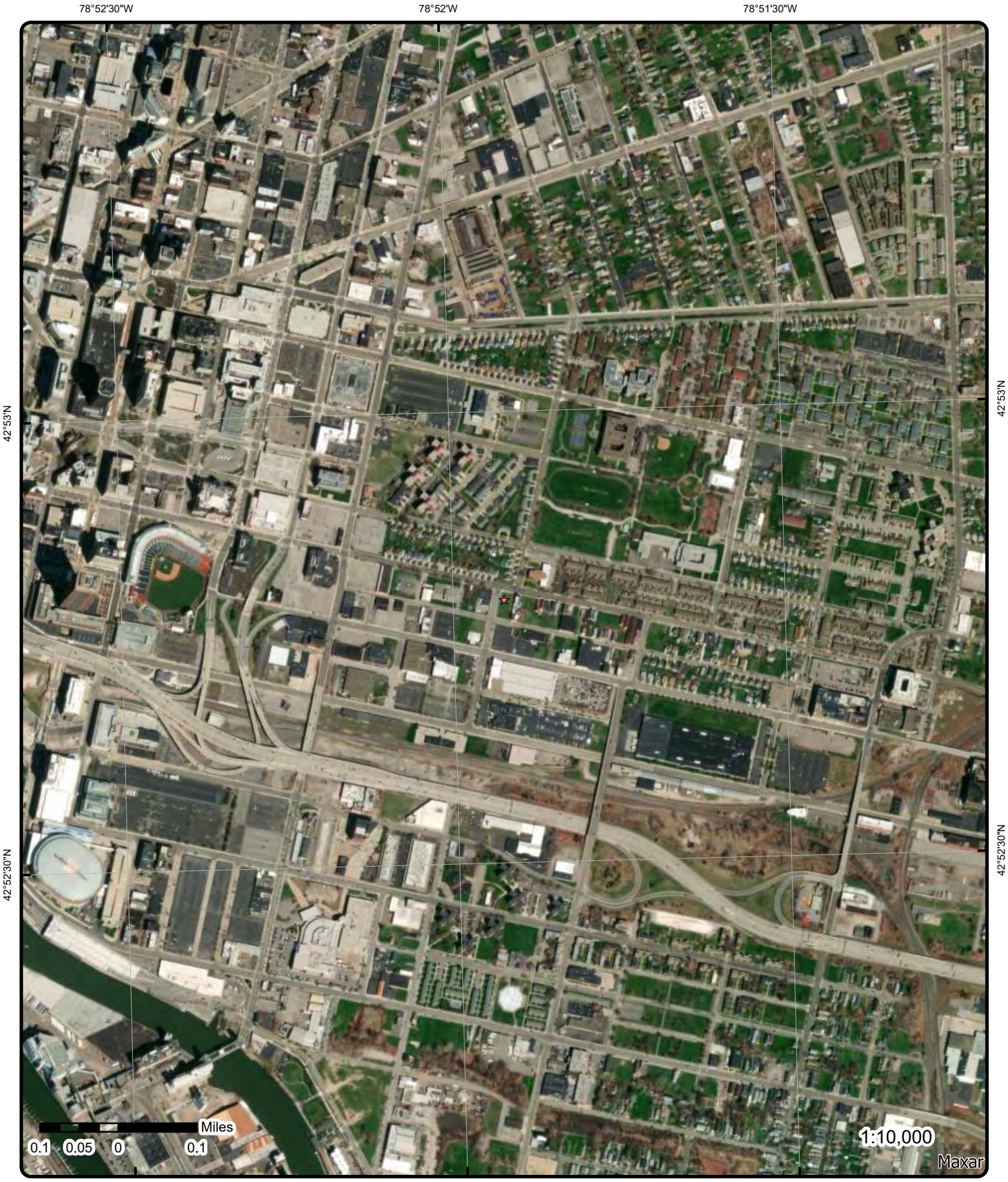

Aerial

Year: 2023

Order Number: 25091500141

Address: Swan & Chicago Street, Buffalo, NY

Source: ESRI World Imagery

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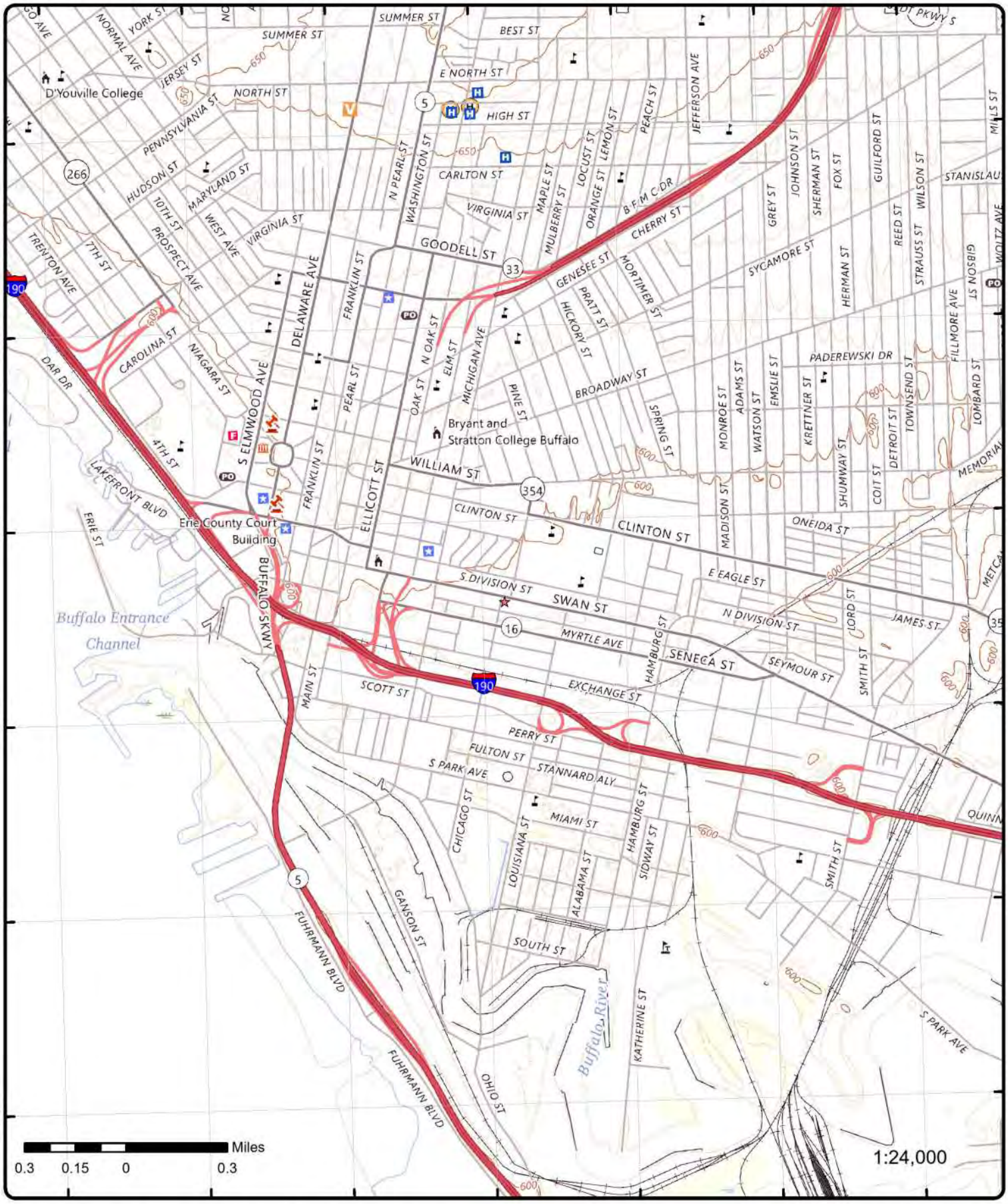

Topographic Map

Year: 2023

Order Number: 25091500141

Address: Swan & Chicago Street, NY

Quadrangle(s): Buffalo NE NY, Buffalo NW NY,ON, Buffalo SE OE W NY,ON, Buffalo SE NY

© ERIS Information Inc.

Source: USGS Topographic Map

Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
1	1 of 1	-	0.00 / 0.00	592.10 / 0	JOSE HERNANDEZ LOT 275 SWAN ST (425 CHICAGO) BUFFALO NY	NY SPILLS

Spill No:	9615008	**UST Trust:**	False
Site ID:	253996	**Spill Date:**	03/28/1997 03:00:00 PM
DER Facility ID:	208038	**Received Date:**	03/28/1997 03:10:00 PM
CID:	282	**CAC Date:**	
Program Type:	ER	**Insp Date:**	05/02/1997 12:00:00 AM
SWIS Code:	1502	**Close Date:**	01/23/1998 12:00:00 AM
Water Body:		**Create Date:**	03/28/1997 12:00:00 AM
Class:	B3	**Update Date:**	01/23/1998 12:00:00 AM
Meets Std:	True	**DEC Region:**	9
Penalty:	False	**Lead DEC:**	PRINGLE
REM Phase:	0	**After Hours:**	False

County: Erie
Contributing Factor: Abandoned Drums
Reported by: DEC
Referred to:
Source: Commercial/Industrial
Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Report Source: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"approx 9 abandoned drums+2 small a/g tanks approx 3 drums contain oil 3 empty marked aginene 1fuel tank leaking "

DEC Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MNP 03/28/97: MNP INSP. 12 DRUMS, SOME FULL, 3 EMPTY. ALSO, 2 275 GAL OIL TANKS, 1 PARTIALLY VRUSHED W/ HOLES ON VACANT LOT. RECENT BUILDING DEMOLITION EVIDENT. APPROX. 30 GALS. OIL SPILLAGE ON GROUND. PICTURES TAKEN. NO EMERNCY RESPONSE REQUIRED. UNABLE TO CONTACT CITY TO LOCATE OWNER BECAUSE OF GOOD FRIDAY HOLIDAY. TO CALL CITY TAX ASSESSOR NEXT WEEK. 03/31/97: MNP TELECON TO CITY PROPERTY TAX OFFICE. PROPERTY OWNER IS JOSE HERNANDEZ, 336 FILLMORE AVE, BUFFALO. PERMIT OFFICE HAS DEMOLITION INFORMATION. 03/31/97: MNP TELECON TO CITY PERMITS. DEMOLITION PERMIT OBTAINED 11/7/96. DEMOLITION CONTRACTOR IS BOB METZGER, 1711 UNION RD, (675-1711). 03/31/97: MNP TELECON W/ LARRY SCHIAVONNE - CITY DEMOLITON OFFICE. HE CONFIRMED BUILDING DEMOLITION BY BOB METZGER LAST FALL. DEMOLITION DONE BY PRIVATE OWNER, NOT CITY. 03/31/97: MNP CHECKED PHONE DIRECTORY, NO LISTING FOR JOSE HERNANDEZ AT 336 FILLMORE, BUFFALO. 03/31/97: MNP TELECON W/ BOB METZGER. HE DEMOLISHED BUILDING & CONFIRMED DRUMS & TANKS WERE FROM DEMOLISHED BUILDING, BUT OWNER HERNANDEZ WAS RESPONSIBLE FOR DRUM & TANK DISPOSAL. HE GAVE ME JOSE HERNANDEZ LOCATION AS NIAGARA LIQUOR STORE ON NIAGARA STREET. 03/31/97: MNP TELECON W/ JOSE HERNANDEZ - NIAGARA LIQUOR STORE. HE WAS AWARE OF DRUMS & TANKS COMING FROM HIS BUILDING, BUT SAID HE DID NOT KNOW ABOUT OIL SPILLAGE. HE THOUGHT METZGER WOULD HANDLE DRUM & TANK DISPOSAL WHEN IT WARMED UP. HERNANDEZ & I AGREED TO MEET ON SITE TODAY AT 11:30 AM TO DISCUSS CLEANUP REQUIREMENTS. 03/31/97: MNP INSP. & MEETING W/ JOSE HERNANDEZ. SHOWED HIM OIL SPILLAGE. HE AGREED TO HIRE A CONTRACTOR TO DO THE CLEANUP. 04/11/97: MNP INSP. SOME OIL STAINED GRASS & SOIL AREAS REMAIN. 04/14/97: MNP INSP. & MEETING W/ LINDA GRIMMER EP&S. SHOWED HER WHERE MORE CLEANUP IS NEEDED. 04/17/97: RECEIVED EP&S FAX SHOWING BREAKDOWN OF DRUMS & SAMPLING. 1 DRUM OVERPACKED, 5 DRUMS OIL, 4 DRUMS PARTS WASHER, 1 DRUM OF PAINT WASTE & 12 DRUMS OF SOIL TO BE PUT IN ROLLOFF W/ REMAINING CONTAMINATED SOIL. WORK TO BE DONE 4/18/97. 04/18/97: MNP INSP. MET W/ LIND GRIMMER - EP&S. CLEANUP NEARLY COMPLETE. SOME ADDITIONAL CONTAMINATED SOIL EXCAVATED WHILE ON SITE, COMPLETING CLEANUP. ROLLOFF TO DISPOSED BY 4/21/97. 04/24/97: RECEIVED EP&S FAX W/ DISPOSAL RECEIPT SHOWING 13.5 TONS OIL CONTAMINATED SOIL DISPOSED AT LAKE VIEW LANDFILL ON 4/21/97. HOWEVER, ONLY BILL OF LADING RECEIVED FOR WASTE OIL LIQUID & HAZ-WASTE MANIFEST FOR 4 DRUMS NOT SIGNED BY DISPOSAL FACILITY. 05/02/97: MNP INSP. ALL CONTAMINATED SOIL & DRUMS GONE FROM SITE. HOLD FOR OIL & HAZ-WASTE DISPOSAL RECEIPTS. 07/16/97: MNP FILE REVIEW. STILL NEED SIGNED HAZ-WASTE MANIFEST & WASTE OIL DISPOSAL RECEIPT. TO CALL LINDA GRIMMER - EP&S TO GET REMAINING DISPOSAL RECEIPTS. 07/18/97: MNP TELECON W/ LINDA GRIMMER - EP&S. SHE WILL TALK TO LINDA SCOTT & SEND MISSING DISPOSAL RECEIPTS MONDAY, 7/21/97."

Material Information

OP Unit ID:	1042556	***Med Ind Air:***	False
OU:	01	***Med GW:***	False
Material ID:	563876	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:	.00	***Med Surf:***	False
Units:	G	***Med Subway:***	False
Recovered:	.00	***Med Utility:***	False
Med Soil:	True	***Oxygenate:***	
Med Air:	False		
Material Code:	0022		
Material Name:	waste oil/used oil		

Spiller Information

Spiller Name:	JOSE HERNANDEZ
Spiller Company:	JOSE HERNANDEZ
Spiller Address:	351 NIAGARA STREET
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14201-
Spiller Country:	001
Contact Name:	JOSE HERNANDEZ
Contact Phone:	(716) 856-9708
Contact Ext:	
Latitude:	42.879965993
Longitude:	-78.865337023

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	1 of 3	NNW	0.02 / 100.03	593.48 / 1	HERNANDEZ JOSE SWAN & CHICAGO ST CORNER BUFFALO NY 14203	FINDS/FRS

Registry ID:	110008098209
FIPS Code:	36029
HUC Code:	04120103
Site Type Name:	STATIONARY
Location Description:	
Supplemental Location:	
Create Date:	01-MAR-00
Update Date:	09-AUG-10
Interest Types:	UNSPECIFIED UNIVERSE
SIC Codes:	
SIC Code Descriptions:	
NAICS Codes:	
NAICS Code Descriptions:	
Conveyor:	REGION02
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No:	27
Census Block Code:	360290164004007
EPA Region Code:	02
County Name:	ERIE
US/Mexico Border Ind:	
Latitude:	42.879899
Longitude:	-78.865599
Reference Point:	PLANT ENTRANCE (GENERAL)
Coord Collection Method:	ADDRESS MATCHING-NEAREST INTERSECTION
Accuracy Value:	1000
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110008098209
Program Acronyms:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

RCRAINFO:NYR000037994

3	2 of 3	NNW	0.02 / 100.03	593.48 / 1	HERNANDEZ JOSE SWAN & CHICAGO ST BUFFALO NY 14203	GEN MANIFEST

RCRA ID:	NYR000037994	**Mailing State:**	NY
District Name:	HERNANDEZ JOSE	**Mailing ZIP:**	14201
Contact Name:	JOSE HERNANDEZ	**Mailing ZIP Ext:**	
Business Phone No:	7168569708	**Mailing Country:**	USA
Mailing Street 1:	351 NIAGARA ST	**Location ZIP Ext:**	
Mailing Street 2:		**Location Country:**	USA
Mailing City:	BUFFALO	**Location County:**	ERIE

Manifest Information

Waste Code(s):

D001: IGNITABLE WASTE (Waste Code Description from EPA Hazardous Waste Identification)

Waste Amounts By Year:

1997: 220 Gallons

3	3 of 3	NNW	0.02 / 100.03	593.48 / 1	HERNANDEZ JOSE SWAN & CHICAGO ST CORNER BUFFALO NY 14203	RCRA NON GEN

Handler ID:	NYR000037994
Generator Status:	N
Recycler Activity?:	NO
Recycler Activity Note:	This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note:	NO RECORDS: As of Apr 2025, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer:	No	**Used Oil Transpor:**	No
Mixed Waste Gen:	No	**Used Oil Trans Fac:**	No
Transporter:	No	**Used Oil Processor:**	No
Transfer Facility:	No	**Used Oil Refiner:**	No
Recycler:	No	**Used Oil Burner:**	No
Onsite Burner Exem:	No	**Commercial TSD:**	No
Furnace Exemption:	No	**Recycl Nonstorage:**	No
Underground Injec:	No		
Used Oil Market Burner:	No		
Used Oil Spec Marketer:	No		

Additional Handler Summary Details

Source Type:	I	**NAIC 1:**	
Seq No:	3	**NAIC 2:**	
Non Notifier:		**NAIC 3:**	
Receive Date:	20070101	**NAIC 4:**	
Active Site:	-----	**State:**	NY
Land Type:	P	**Location Latitude:**	42.879899

In Handler Univ:	N	***Location Longitude:***	-78.865599
In A Universe:	N	***Loc GIS Primary:***	N
Gen Status:	N	***Loc GIS Origin:***	UC
Report Cycle:		***State District Owner:***	NY
Accessibility:		***State District:***	NYSDEC R9
Region:	02		

Fed Waste Gen Owner:	HQ
State Waste Generator Owner:	NY
State Waste Generator:	S
Short Term Generator:	N
Uni Waste:	N
Universal Waste Dest Facility:	N
Federal Universal Waste:	N
As Federally Regulated Tsdf:	------
As Converter Tsdf:	------
As State Regulated Tsdf:	------
As State Regulated Handler:	---
Federal Indicator:	---
Hsm:	N
Subpart K:	----
GPRA Permit:	N
GPRA Renewal:	N
Permit Renewal Wrkld:	------
Permwrk ID:	------
Perm Prog:	------
Pcwrkld:	------
Closwrkld:	------
GPRA Ca:	N
Cawrkld:	N
Subjca Tsd Discretion:	N
NCAPS:	N
EC Indicator:	N
Ca725 Indicator:	N
Ca750 Indicator:	N
Operating Tsdf:	------
Full Enforcement:	------
Snc:	N
Unaddressed Snc:	N
Addressed Snc:	N
Snc With Comp Sched:	N
Fa Required:	-----
Hhandler Last Change:	20150414
Recognized Trader Importer:	N
Recognized Trader Exporter:	N
Slab Importer:	N
Slab Exporter:	N
Manifest Broker:	N
Subpart P:	N
Contact Language:	
Handler Name:	HERNANDEZ JOSE
Location Street No:	
Location Street1:	SWAN & CHICAGO ST CORNER
Location Street2:	
Location City:	BUFFALO
Location State:	NY
Location Zip:	14203
Location County Code:	NY029
Location County Name:	ERIE
Location Country:	US
Contact Name:	
Contact Street No:	351
Contact Street1:	NIAGARA ST
Contact Street2:	
Contact City:	BUFFALO
Contact State:	NY
Contact Zip:	14201
Contact Country:	US
Contact Phone & Ext:	
Contact Fax:	

Contact Email Address:
Contact Title:
Owner Name: JOSE HERNANDEZ
Owner Type: P
Owner Seq: 1
Operator Name: JOSE HERNANDEZ
Operator Type: P
Operator Seq: 2
Public Notes:

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19970421
Handler Name: HERNANDEZ JOSE
Fed Waste Generator: 2
Generator Code Description: Small Quantity Generator
Source Type: Notification
TSD Activity: N

Waste Code Details

Waste Code: D001
Waste Code Desc: IGNITABLE WASTE

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19990708
Handler Name: HERNANDEZ JOSE
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Hazardous Waste Handler Details

Seq No: 2
Receive Date: 20060101
Handler Name: HERNANDEZ JOSE
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Hazardous Waste Handler Details

Seq No: 3
Receive Date: 20070101
Handler Name: HERNANDEZ JOSE
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Private
Name: JOSE HERNANDEZ
Dt Became Current:
Street No:
Street1: 351 NIAGARA ST
Street2:
City: BUFFALO

Dt Ended Current:		***State:***	NY
Phone:	716-856-9708	***Country:***	US
Source Type:	Implementer	***Zip:***	14201
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street1:***	351 NIAGARA ST
Name:	JOSE HERNANDEZ	***Street2:***	
Dt Became Current:		***City:***	BUFFALO
Dt Ended Current:		***State:***	NY
Phone:	716-856-9708	***Country:***	
Source Type:	Notification	***Zip:***	14201
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street1:***	351 NIAGARA ST
Name:	JOSE HERNANDEZ	***Street2:***	
Dt Became Current:		***City:***	BUFFALO
Dt Ended Current:		***State:***	NY
Phone:	716-856-9708	***Country:***	US
Source Type:	Implementer	***Zip:***	14201

Historical Handler Details

Receive Dt:	20060101
Generator Code Description:	Not a Generator, Verified
Handler Name:	HERNANDEZ JOSE
Receive Dt:	19990708
Generator Code Description:	Not a Generator, Verified
Handler Name:	HERNANDEZ JOSE
Receive Dt:	19970421
Generator Code Description:	Small Quantity Generator
Handler Name:	HERNANDEZ JOSE

2	*1 of1*	*ESE*	*0.01 / 64.24*	*592.15 / 0*	*Ciepiela Michl A* *281 Swan* *Buffalo NY*	*HIST RISK*

Historic Potential Business Activity Risk

Year:	1935
Directory Publisher:	POLKS
Broad Term:	Fuel and Automotive
Directory Heading:	GASOLINE AND OIL SERVICE STATIONS
Listing:	Ciepiela Michl A
Address:	281 Swan
Address2:	
City:	Buffalo
State:	NY
Zip:	

4	*1 of1*	*SW*	*0.02 / 123.46*	*590.74 / -1*	*Thomas Sam A* *429 Chicago* *Buffalo NY*	*HIST RISK*

Historic Potential Business Activity Risk

Year:	1920
Directory Publisher:	CLEMENTS
Broad Term:	Fuel and Automotive
Directory Heading:	AUTOMOBILE GARAGES
Listing:	Chicago Street Garage

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Address: 429 Chicago
Address2:
City: Buffalo
State: NY
Zip:

Historic Potential Business Activity Risk

Year: 1920
Directory Publisher: CLEMENTS
Broad Term: Fuel and Automotive
Directory Heading: AUTOMOBILE GARAGES
Listing: Power City Garage
Address: 429 Chicago
Address2:
City: Buffalo
State: NY
Zip:

Historic Potential Business Activity Risk

Year: 1925
Directory Publisher: POLKS
Broad Term: Fuel and Automotive
Directory Heading: GARAGES
Listing: Chicago Street Garage
Address: 429 Chicago
Address2:
City: Buffalo
State: NY
Zip:

Historic Potential Business Activity Risk

Year: 1930
Directory Publisher: POLKS
Broad Term: Fuel and Automotive
Directory Heading: AUTOMOBILE GARAGES
Listing: Weiglein Frank C
Address: 429 Chicago
Address2:
City: Buffalo
State: NY
Zip:

Historic Potential Business Activity Risk

Year: 1950
Directory Publisher: POLKS
Broad Term: Fuel and Automotive
Directory Heading: AUTOMOBILE REPAIRING
Listing: Thomas Sam A
Address: 429 Chicago
Address2:
City: Buffalo
State: NY
Zip:

5	***1 of1***	***ENE***	***0.03 / 134.40***	***592.81 / 1***	***Kee Hong 287 Swan Buffalo NY***	***HIST RISK***

Historic Potential Business Activity Risk

Year:	1920
Directory Publisher:	CLEMENTS
Broad Term:	Potential Hazardous Chemical User
Directory Heading:	LAUNDRIES
Listing:	Kee Hong
Address:	287 Swan
Address2:	
City:	Buffalo
State:	NY
Zip:	

Historic Potential Business Activity Risk

Year:	1925
Directory Publisher:	POLKS
Broad Term:	Fuel and Automotive
Directory Heading:	GARAGES
Listing:	Elsen Harry J
Address:	287 Swan
Address2:	
City:	Buffalo
State:	NY
Zip:	

Historic Potential Business Activity Risk

Year:	1930
Directory Publisher:	POLKS
Broad Term:	Fuel and Automotive
Directory Heading:	AUTOMOBILE REPAIRING
Listing:	Jarrett Alex
Address:	287 Swan
Address2:	
City:	Buffalo
State:	NY
Zip:	

Historic Potential Business Activity Risk

Year:	1939
Directory Publisher:	POLKS
Broad Term:	Fuel and Automotive
Directory Heading:	GASOLINE AND OIL SERVICE STATIONS
Listing:	Capozzi Carmen
Address:	287 Swan
Address2:	
City:	Buffalo
State:	NY
Zip:	

Historic Potential Business Activity Risk

Year:	1950
Directory Publisher:	POLKS
Broad Term:	Potential Hazardous Chemical User
Directory Heading:	CLEANERS AND DYERS
Listing:	De Carlo Louis
Address:	287 Swan
Address2:	
City:	Buffalo
State:	NY
Zip:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	1 of1	SW	0.04 / 210.77	589.72 / -2	Chicago Street Garage 420 Chicago Buffalo NY	HIST RISK

Historic Potential Business Activity Risk

Year:	1939
Directory Publisher:	POLKS
Broad Term:	Fuel and Automotive
Directory Heading:	AUTOMOBILE REPAIRING
Listing:	Chicago Street Garage
Address:	420 Chicago
Address2:	
City:	Buffalo
State:	NY
Zip:	

Historic Potential Business Activity Risk

Year:	1942
Directory Publisher:	POLKS
Broad Term:	Fuel and Automotive
Directory Heading:	AUTOMOBILE GARAGES
Listing:	Chicago Street Garage
Address:	420 Chicago
Address2:	
City:	Buffalo
State:	NY
Zip:	

7	1 of1	WNW	0.04 / 223.52	594.14 / 2	Brehm Andrew H 256 Swan Buffalo NY	HIST RISK

Historic Potential Business Activity Risk

Year:	1920
Directory Publisher:	CLEMENTS
Broad Term:	Potential Hazardous Chemical User
Directory Heading:	CLOTHES CLEANERS AND PRESSERS
Listing:	Brehm Andrew H
Address:	256 Swan
Address2:	
City:	Buffalo
State:	NY
Zip:	

8	1 of1	SSW	0.04 / 226.48	589.38 / -3	Traders Towel Supply Co 417-419 Chicago Buffalo NY	HIST RISK

Historic Potential Business Activity Risk

Year:	1920
Directory Publisher:	CLEMENTS
Broad Term:	Potential Hazardous Chemical User
Directory Heading:	LAUNDRIES
Listing:	Traders Towel Supply Co

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Address: 417-419 Chicago
Address2:
City: Buffalo
State: NY
Zip:

Historic Potential Business Activity Risk

Year: 1925
Directory Publisher: POLKS
Broad Term: Potential Hazardous Chemical User
Directory Heading: LAUNDRIES
Listing: Traders Towel Supply Co
Address: 417 Chicago
Address2:
City: Buffalo
State: NY
Zip:

Historic Potential Business Activity Risk

Year: 1935
Directory Publisher: POLKS
Broad Term: Potential Hazardous Chemical User
Directory Heading: LAUNDRIES STEAM
Listing: Buffalo General Laundry Coop
Address: 417 Chicago
Address2:
City: Buffalo
State: NY
Zip:

9	1 of1	S	0.07 / 380.83	589.31 / -3	Kee Hong 298 Seneca Buffalo NY	HIST RISK

Historic Potential Business Activity Risk

Year: 1925
Directory Publisher: POLKS
Broad Term: Potential Hazardous Chemical User
Directory Heading: LAUNDRIES
Listing: Kee Hong
Address: 298 Seneca
Address2:
City: Buffalo
State: NY
Zip:

10	1 of1	SSW	0.07 / 392.16	588.44 / -4	BUFFALO POLICE-SENECA SENECA/CHICAGO STREETS BUFFALO NY	LST

Spill No:	8908800	**REM Phase:**	0
Site ID:	321017	**UST Trust:**	True
DER Facility ID:	258625	**Spill Date:**	12/06/1989 10:33:00 AM
CID:		**Rcvd Date:**	12/06/1989 11:45:00 AM
Program Type:	ER	**CAC Date:**	12/01/2000 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	09/12/2000 12:00:00 AM
Contribute Factor:	Tank Test Failure	**Close Date:**	12/01/2000 12:00:00 AM
Water Body:		**Create Date:**	12/07/1989 12:00:00 AM
Class:	B3	**Update Date:**	03/09/2001 12:00:00 AM
Meets Std:	False	**Lead DEC:**	MXFRANKS

Penalty:	False	***After Hours:***	False
DEC Region:	9	***County:***	Erie

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.

Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Referred to:

Reported by: Tank Tester

Source: Institutional, Educational, Gov., Other

Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"SUSPECT PIPING,LIQUID LEVEL DROPPED IN STAND PIPE TO TOP OF TANK AND STABELIZED.COULD NOT MAINTAIN PRODUCT IN STAND PIPE,HELD TEST FOR 12 MINUTES."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MF 12/--/89: CAF TELECON WITH W. O'HARA, TANK TESTED OK, LINES AT FAULT, JOB GOING OUT FOR BID, WILL NOTIFY ME WHEN EXCAVATION TO BEGIN. 07/19/90: CAF SENT LETTER FOR UPDATE ON STATUS. 09/11/90: JDC SITE INSPECTION, FOUND OIL SEEPING FROM STAIR WELL. CONTACTED CITY ENGINEERS AND BSA TO INSPECT. OIL TO BE TESTED FOR TYPE, LINES TO BE RETESTED ON DIESEL. PADS APPLIED TO SPILLAGE BY BSA. 09/13/90: JDC TELECON WITH MR MCDOUGH, CITY OF BUFFALO ENGINEERING, DECIDED TO PLACE MONITORING WELLS TO IDENTIFY SOURCE. TESTING TO BE PUT ON HOLD. 09/19/90: JDC SITE MEETING WITH CITY AND SLC (CONTRACTOR), LOCATED WELLS (4) FOR DRILLING. WILL USE WELLS TO LOCATE FUEL SOURCE AND SECONDARY CONTAINMENT FOR TANKS ONCE OUR INVESTIGATION IS COMPLETED. 12/07/90: MJH SITE INSPECTION, WELLS NOT PROPERLY INSTALLED PRODUCT STILL SEEPING INTO STAIRWAY, GROUNDWATER CONTOURS TO BE DETERMINED. 12/11/90: MJH SENT LETTER REQUESTING STATUS UPDATE 12/10/90. 06/12/91: JDC TELECON MR. MCDONNELL AND REQUESTED STATUS. 06/13/91: JDC SITE INSPECTION, BAILED WELLS AND FOUND NO CONTAMINATION OR SHEEN. WAITING FOR STATUS REPORT FROM CITY. 09/10/91: JDC NOTE TO FILE, WAITING ON LETTER FROM CITY REGARDING REMEDIAL ACTION. 10/10/91: JDC TELECON TO MR. LINDSAY, CITY OF BUFFALO, HE WILL BE CONTRACTING WITH AN ENVIRONMETAL FIRM TO COMPLETE WELL WORK. 07/13/92: JDC TELECON TO MR. LINDSEY AND REQUESTED STATUS. HE SAID SLC HAS DONE SOME RECENT WORK IN REPLACING LEAKING FUEL LINES. 11/04/93: JDC SENT LETTER TO MR. LINDSAY REQUESTING THAT WELL SAMPLES BE TAKEN AND ANALYZED FOR 8021 AND SUBMISSION OF BORING LOGS. 05/13/94: JDC SENT LETTER REQUESTING SAMPLING. RESPONSE DATE 6/13/94. 06/15/94: JDC FAXED CLEANUP CORRESPONDANCE TO MR LINDSAY'S REPLACEMENT, BOB O'HARA, REQUESTING GW SAMPLING. 07/22/94: JDC TELECON MR. O'HARA, WORK BEING BID OUT, WAITING FOR RESPONSES. REQUESTED WRITTEN NOTIFICATION WHEN WORK WILL BEGIN. 08/11/94: JDC TELECON FROM PAUL MC DONALD, HE SAID WELLS WILL BE SAMPLED ON TUESDAY 8/16/94. 06/16/95: JDC NOTE TO FILE, HAVE NOT RECEIVED ANY SAMPLE RESULTS, WILL SEND LETTER REQUESTING STATUS. 03/02/95: JDC SENT LETTER TO MR. O'HARA AND REQUESTED RETEST OF TANK AND MW3 RESAMPLE UNDER 8021. 11/13/95: JDC SENT STATUS REQUEST LETTER WITH LEGAL ACTION. 11/27/95: JDC RECEIVED LETTER REQUESTING RESPONSE DATES BE EXTENDED. JDC SENT LETTER GIVING EXTENSION UNTIL 1/19/95. 12/20/95: JDC TELECON WITH MR. O'HARA, HE WILL BE SENDING OUT STATUS LETTER. RECENTLY LOST PAUL MCDONALD TO BOARD OF EDUCATION, WILL BE ASSIGNING NEW PERSON TO REVIEW AND ACT ON CASE. 01/03/96: JDC REVIEWED SITE INVESTIGATION PROPOSAL FROM MR. O'HARA, ANTICIPATES A CONTRACTOR TO BEGIN WORK IN 4/96 AFTER NEW ENGINEER IS ASSIGNED AND BID IS ACCEPTED. 07/22/99: MF ASSUMES SITE RESPONSIBILITY AS JDC NO LONGER WORKS FOR DEPARTMENT 07/22/99: MF TELECON TO BOB O'HARA, HE CLAIMED CITY HIRED TYREE AS CONTRACTOR, R & D HIRED AS CONSULTANT FOR TANK INSTALLATION. 10/20/99: MF TELECON BOB O'HARA, HE SAID R & D ON SITE DOING PRILIMARY WORK. MF TELECON TO PETER MERLOW, R & D 856-2142. HE WILL CALL WHEN DOING THE REMOVAL, SHOULD BE BEFORE DECEMBER. ED PORTER WILL BE MAIN FIELD CONTACT. 12/06/99: MF TELECON BOB O'HARA OR PETER MERLOW, BOTH NOT IN. TO RETURN CALL. 01/03/00: MF TELECON TO PETER MERLOW, NOT IN, TO RETURN CALL. 01/03/00: MF TELECON TO ROBERT O'HARA, HE SAID PETER KNOWS ABOUT REMOVAL. 01/05/00: MF TELECON PETER MERLOW, NOT IN, TO RETURN CALL. 01/10/00: MF TELECON PETER MERLOW, FOUR TANKS INCLUDING A 10K GASOLINE, 2K POSSIBLE GASOLINE, 8K DIESEL & 8K FUEL OIL. REMOVAL EXPECTED TO START 1/24/00. HE WILL NOTIFY ME WHEN DATE IS FIRMED. THE 10K GASOLINE FAILED TT, ALL TANKS TESTED PRIOR TO REMOVAL. 01/26/00: MF FOR FG, JIM BISHOP OF TYREE SAID UST'S WILL BE REMOVED 1/31/00. 01/31/00: MF SITE INSPECTION, NO ACTIVITY. 01/31/00: MF TELECON GARY ELLINGTON, CLAIMED PROBLEM WITH FUEL STILL IN THE TANK. EXPECTS WORK TO START THIS WEEK. WILL CALL ME. 02/09/00: MF SITE INSPECTION, NO ONE ON SITE. HUGE EXCAVATION, SHEEN ON GW AT APPX 12'. 02/10/00: MF SITE INSPECTION, MET GARY ELLINGTON OF TYREE, PETER MARLOW & ED, R&D ENGINEERING. SO FAR THEY REMOVED A 10K GASOLINE TANK, A 6 OR 8K DIESEL FULL OF SLURRY. TWO 500 GALLON ABANDONED AND A 300 GALLON ABANDONED TANK. THEY HAVE LEFT A 8K DIESEL & A 8K FUEL OIL TANK TO BE REMOVED. EXPLAINED SAMPLING TO GARY, 8021 & 8270 BN'S. ON SOIL & WATER. LOT OF CONTAMINATED SOIL. OLD GASOLINE ODOR. SOIL MOSTLY CLAY. CONTAMINATION AROUND BUILDING, IN THE AREA OF THE REMOVED ISLANDS. EXPLAINED SOIL REMOVAL ONLY REMEDIATION OPTION DUE TO CLAY SOILS. BED ROCK AT 12'. 03/27/00: MF SENT 1ST SAMPLING & DISPOSAL LETTER, DUE 4/15/00. 05/01/00: MF ELECON TO PETE MARLOW, TOLD HIM I HAVN'T RECEIVED ANYTHING AS YET. HE WILL HAVE INFO FOWARDED TO ME. 05/09/00: MF RECEIVED 4/00 REPORT. INCLUDED SOIL DISPOSAL RECEIPTS [>6000 TONS], & EXCAVATION SAMPLE RESULTS. SAMPLING AREAS PG-3, PG-4 VERY HIGH 8021 DIRECT & PG-5 VERY HIGH 8270 BN'S, DIRECT. AREAS PG-4 & PG-5 ARE AGAINST THE BUILDING, NO FURTHER EXCAVATION CAN BE DONE IN THIS AREA. PG-3 WAS TAKEN AT 4' IN THE BOTTOM OF THE EXCAVATION. A TOTAL OF 10 SAMPLES WERE TAKEN. TYREE RECOMMENDS A LIMITED SUBSURFACE INVESTIGATION TO DETERMINE THE IMPACT TO GW QUALITY. 05/10/00: MF SENT LETTER TO RP ADDITIONAL REMEDIATION NECESSARY. PLAN BY 7/15/00. 05/16/00: MF TELECON PETER MARLOW, THEY WILL RESAMPLE FOR TCLP IN PG-3, 4 & 5. HE WILL CALL WHEN HE HAS A FIRM DATE FOR RESAMPLING WITH GEORIG. 07/27/00: MF TELECON PETER MERLOW, SCHEDULE BEING FINALIZED TOMORROW. IT WILL CALL, ED PORTER WILL BE ON SITE FOR SAMPLING. 09/11/00: MF SITE INSPECTION, MET JEN MURREY, TYREE, MAXIM. DRILLING TWO BORINGS TO TAKE SAMPLES & ANALYZE DUE TO HIGH DIRECT ANALYSIS AFTER EXCAVATION. P-3 AT 4' WILL BE ANALYZED FOR 8021 TCLP. P-4 WILL BE ANALYZED FOR 8021 & 8270 BN'S TCLP. THERE IS HIGH PID AT P-4 & BLACK SMEERING. P-5 IS NEXT TO BUILDING WALL WHERE ALL THE SOIL HAS BEEN REMOVED. 09/12/00: MF SITE INSPECTION, MET JEN MURREY & PETE MARLOW. A 2 WELL IS INSTALLED AT LOCATION P-4. THEY WILL COME BACK 9/15/00 TO DO GEOPROBE TO DEFINE CONTAMINATION AROUND P-4. 12/01/00: MF RECEIVED 11/22/00 REPORT. SAMPLES ANALYZED TCLP, 8021 9/22/00. B1 - 4 TO 5' - ND B2 - 6

TO 8' - 29 PPB GP1[4-6'], 2[2-4'], 3[5-7'], 6[4-6'] - ND GP4 - [5-7'] - 9.6 MW#1 - 456 PPB 8021 1700 PPB MTBE GP2 CORRESPONDS TO SAMPLE 3 & 4 [2/17/00] SAMPLING. B2 5 MW1 IS BETWEEN LOCATIONS [3 & 4] & 5, 2/27/00 SAMPLING. SAMPLES B1 [4-5'], B2 [6-8' & 10-12'] ANALYZED FOR 8270 BN'S TCLP BDL. BASED ON THE TCLP & MW SAMPLING RESULTS, SITE CAN BE 'I'. NO FURTHER ACTION NECESSARY AT THIS TIME."

Material Information

OP Unit ID:	936068	***Med in Air:***	False
OU:	01	***Med GW:***	True
Material ID:	441989	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:	.00	***Med Surf:***	False
Units:	G	***Med Subway:***	False
Recovered:	.00	***Med Utility:***	False
Med Soil:	False	***Oxygenate:***	
Med Air:	False		
Material Code:	0001A		
Material Name:	#2 fuel oil		

Spiller Information

Spiller Name:	ROBERT O'HARA
Spiller Company:	BUFFALO POLICE DEPARTMENT
Spiller Address:	ROOM 616 CITY HALL
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14202-
Spiller Country:	001
Contact Name:	PETER MERLOW
Contact Phone:	(716) 856-2142
Contact Ext:	
Latitude:	
Longitude:	

Tank Test Information

Spill Tank ID:	1536526	***Source:***	
Tank No:		***Leak Rate:***	.00
Tank SIze:	0	***Gross Fail:***	
Material:	0001	***Modified by:***	Spills
EPA UST:		***Last Modified:***	2004-10-01 04:00:45.140000000
UST:		***Test Method:***	00
Cause:			
Alt Test Method:	Unknown		

11	***1 of1***	***SSW***	***0.08 / 397.22***	***588.68 / -3***	***Capozzi Michl A 287 Seneca Buffalo NY***	***HIST RISK***

Historic Potential Business Activity Risk

Year:	1930
Directory Publisher:	POLKS
Broad Term:	Fuel and Automotive
Directory Heading:	GASOLINE AND OIL SERVICE STATIONS
Listing:	Capozzi Michl A
Address:	287 Seneca
Address2:	
City:	Buffalo
State:	NY
Zip:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
12	1 of1	SW	0.08 / 407.57	588.36 / -4	Smart Cleaners 283 Seneca Buffalo NY	HIST RISK

Historic Potential Business Activity Risk

Year:	1942
Directory Publisher:	POLKS
Broad Term:	Potential Hazardous Chemical User
Directory Heading:	CLOTHES PRESSERS AND CLEANERS
Listing:	Smart Cleaners
Address:	283 Seneca
Address2:	
City:	Buffalo
State:	NY
Zip:	

13	1 of1	SW	0.08 / 428.95	588.33 / -4	Samuel David 274 Seneca Buffalo NY	HIST RISK

Historic Potential Business Activity Risk

Year:	1942
Directory Publisher:	POLKS
Broad Term:	Potential Hazardous Chemical User
Directory Heading:	CLOTHES PRESSERS AND CLEANERS
Listing:	Samuel David
Address:	274 Seneca
Address2:	
City:	Buffalo
State:	NY
Zip:	

14	1 of1	WNW	0.09 / 467.83	596.71 / 5	NATIONAL FUEL-SWAN STREET 230 SWAN STREET BUFFALO NY	NY SPILLS

Spill No:	9103734	**UST Trust:**	False
Site ID:	187076	**Spill Date:**	05/14/1991 12:00:00 PM
DER Facility ID:	156322	**Received Date:**	05/14/1991 02:10:00 PM
CID:		**CAC Date:**	07/09/1991 12:00:00 AM
Program Type:	ER	**Insp Date:**	
SWIS Code:	1502	**Close Date:**	07/09/1991 12:00:00 AM
Water Body:		**Create Date:**	07/08/1991 12:00:00 AM
Class:		**Update Date:**	07/23/1991 12:00:00 AM
Meets Std:	True	**DEC Region:**	9
Penalty:	False	**Lead DEC:**	MXFRANKS
REM Phase:	0	**After Hours:**	False

County:	Erie
Contributing Factor:	Unknown
Reported by:	Other
Referred to:	
Source:	Unknown
Category:	
Class Desc:	
Report Source:	NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"WORKERS COMPLAINED OF CONTAMINATED SOIL IN AN EXCAVATION. SOIL SAMPLED."

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

DEC Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MF 07/08/91: MF 6/25/91 SOIL FAILED TCLP LEAD. 7/8/91 SPILL REFERRED TO HAX WASTE. 07/09/91: MF 7/8/91 SPILL REFERRED TO HAZ WASTE, HAZARDOUS DUE TO EP TOX LEAD, NO FURTHER ACTION NECESSARY. 09/29/95: This is additional information about material spilled from the translation of the old spill file: EP TOX LEAD."

Spiller Information

Spiller Name:	
Spiller Company:	UNKNOWN
Spiller Address:	
Spiller City:	
Spiller State:	NY
Spiller Zip:	
Spiller Country:	999
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.880375190
Longitude:	-78.867053920

15	*1 of1*	*SSE*	*0.09 / 472.14*	*588.77 / -3*	***Andrews Nicholas*** ***322 Seneca*** ***Buffalo NY***	***HIST RISK***

Historic Potential Business Activity Risk

Year:	1925
Directory Publisher:	POLKS
Broad Term:	Fuel and Automotive
Directory Heading:	GARAGES
Listing:	Andrews Nicholas
Address:	322 Seneca
Address2:	
City:	Buffalo
State:	NY
Zip:	

16	*1 of1*	*NNE*	*0.09 / 474.80*	*596.85 / 5*	***Ruffin Bros Cleaners*** ***41 Pine*** ***Buffalo NY***	***HIST RISK***

Historic Potential Business Activity Risk

Year:	1950
Directory Publisher:	POLKS
Broad Term:	Potential Hazardous Chemical User
Directory Heading:	CLEANERS AND DYERS
Listing:	Ruffin Bros Cleaners
Address:	41 Pine
Address2:	
City:	Buffalo
State:	NY
Zip:	

17	*1 of1*	*WSW*	*0.09 / 481.44*	*588.61 / -4*	***ETHOX CORP*** ***BUFFALO NY***	***PFAS IND***

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Status:	Active	**Fac Fips Code:**	36029
Fac Indian Cntry Flg:	No	**Compliance Status:**	No Violation Identified
Fac Derived Huc:	04120103	**EPA Programs:**	CAA; CWA; RCRA
Fac Derived Wbd:	041201030306	**Federal Facility:**	No
Fac Derived Cd113:	26	**Federal Agency:**	-
Fac Derived Cb2010:	360290164004010	**Fac Snc Flg:**	No
Fac Informal Count:	0	**AIR Flag:**	Yes
Last Informal Action:	7/20/2006	**NPDES Flag:**	Yes
Formal Action Count:	0	**SDWIS Flag:**	No
Last Formal Action:	5/9/2003	**RCRAFlag:**	Yes
Fac Total Penalties:	0	**TRI Flag:**	No
Fac Penalty Count:	-	**GHG Flag:**	No
Date Last Penalty:	5/9/2003	**TRI IDs:**	14204THXCR251SE
Last Penalty Amt:	10031	**TRI Releases Trnsfrs:**	-
Fac Qtrs With Nc:	0	**TRI on Site Releases:**	-
Programs With Snc:	0	**TRI off Site Trnsfrs:**	-
Fac Percent Minority:	60.262	**TRI Reporter:**	-
Fac Pop Den:	5195.2	**Fac Imp Water Flg:**	Yes
Count:	1	**Fac Major Flag:**	-
Fac County:	ERIE	**Fac Active Flag:**	Yes
State Other :		**Fac Inspection Count:**	0
Region:	02	**Date Last Inspection:**	6/30/2008
Latitude:	42.879	**Days Last Inspection:**	6270
Longitude:	-78.86675		

Fac Derived Tribes:	Tuscarora Nation - 19 mile(s), Seneca Nation of Indians - 23 mile(s), Tonawanda Band of Seneca - 23 mile(s)
AIR IDs:	NY0000009140200244
CAA Permit Types:	Minor Emissions
CAA NAICS:	339112
CAA SICS:	3841
NPDES IDs:	NYR00E945
CWA Permit Types:	Non-M
CWA NAICS:	-
CWA SICS:	3841
RCRA IDs:	NYD041042003
RCRA Permit Types:	Other
RCRA NAICS:	339112
SDWA IDs:	-
SDWA System Types:	-
SDWA Compliance Status:	-
SDWA Snc Flag:	No
Fac Collection Meth:	ADDRESS MATCHING-HOUSE NUMBER
EJSCREEN Flag Us:	
EJSCREEN Report:	
ECHO Facility Report:	https://echo.epa.gov/detailed-facility-report?fid=110000326843
Industry:	Metal Machinery Mfg

18	*1 of1*	*SSE*	*0.09 / 484.21*	*588.62 / -4*	*Catano Anthony D* *324 Seneca* *Buffalo NY*	*HIST RISK*

Historic Potential Business Activity Risk

Year:	1935
Directory Publisher:	POLKS
Broad Term:	Fuel and Automotive
Directory Heading:	GASOLINE AND OIL SERVICE STATIONS
Listing:	Catano Anthony D
Address:	324 Seneca
Address2:	
City:	Buffalo
State:	NY
Zip:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
19	1 of1	WNW	0.10 / 509.22	595.07 / 3	Baker Albert 225 Swan Buffalo NY	HIST RISK

Historic Potential Business Activity Risk

Year:	1920
Directory Publisher:	CLEMENTS
Broad Term:	Potential Hazardous Chemical User
Directory Heading:	LAUNDRIES
Listing:	Majestic Laundry
Address:	225 Swan
Address2:	
City:	Buffalo
State:	NY
Zip:	

Historic Potential Business Activity Risk

Year:	1925
Directory Publisher:	POLKS
Broad Term:	Potential Hazardous Chemical User
Directory Heading:	LAUNDRIES
Listing:	Baker Albert
Address:	225 Swan
Address2:	
City:	Buffalo
State:	NY
Zip:	

20	1 of1	W	0.10 / 526.62	593.27 / 1	S J MCCULLAGH INC 245 SWAN ST BUFFALO NY 14203	AIR PERMITS

Dec ID:	9140200453
Data Source:	Air Permitted Facilities (as of 15 Apr 2025)

Facility Details

Facility:	S J MCCULLAGH INC
Permit Type:	Air State Facility
Permit Status:	SAPA Extended
Ren Order No:	0
Mod Order No:	0
Issue Date:	10/10/2013
Exp Date:	10/9/2023
Address:	245 SWAN ST
City:	BUFFALO
State:	NY
Zip:	14203
Website URL:	https://extapps.dec.ny.gov/data/dar/afs/issued_asf.html

21	1 of13	WSW	0.10 / 529.78	587.95 / -4	ETHOX CORP 251 SENECA ST BUFFALO NY 14204	AIR PERMITS

Dec ID:	9140200244
Data Source:	Air Permitted Facilities (as of 15 Apr 2025)

Facility Details

Facility:	ETHOX CORP

Permit Type: Air State Facility
Permit Status: Expired
Ren Order No: 0
Mod Order No: 0
Issue Date:
Exp Date: 12/16/2011
Address: 251 SENECA ST
City: BUFFALO
State: NY
Zip: 14204
Website URL:

Facility: ETHOX CORP
Permit Type: Air State Facility
Permit Status: Expired
Ren Order No: 0
Mod Order No: 2
Issue Date: 12/16/2011
Exp Date:
Address: 251 SENECA ST
City: BUFFALO
State: NY
Zip: 14204
Website URL:

21	2 of13	WSW	0.10 / 529.78	587.95 / -4	ETHOX CORP. 251 SENECA STREET Buffalo NY 14204	AST

Site ID: 55257
Site Status: Unregulated/Closed
Program No: 9-600409
Program Type Code: PBS
Program Type Desc: Petroleum Bulk Storage Program
Site Type: Manufacturing (Other than Chemical)/Processing
Report Source: Bulk Storage FOIL Data
Expiry: N/A
County: Erie
UTM X: 184151.23554
UTM Y: 4754598.82485

Tank Information

Prog No: 9-600409
Tank ID: 173250
Tank No: 1
Tank Status: 3
Tank Status Desc: Closed - Removed
Tank Type: 01
Tank Type Desc: Steel/Carbon Steel/Iron
Install Date:
Close Date: 01/01/1985
Tk Out of Serv Dt:
Capacity (Gal): 6000
Registered: True
Tank Model:
Pipe Model:
Tank Location: 3
Tank Location Desc: Aboveground on saddles, legs, stilts, rack or cradle
Category: 1
Category Desc: Category 1 means a tank which was installed before December 27, 1986
Subpart:
Subpart Desc:
Tank Owner Name:
Tank Owner Address:
UDC Ind: 1
Red Tag Start Date:
Red Tag End Date:
Tank Last Test:
Tank Next Test Due:
Test Method: NN
Line Last Test Due:
Next Line Test Due:
Line Test Method:
Class A Operator:
Class B Operator:
Modified by: MJGRIFFI
Last Modified: 05/09/2022

Material Information

Material Name: #6 fuel oil (on-site consumption)
Percent: 100.00

Equipment Information

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: F00
Code Name: None
Type: Pipe External Protection

Equipment: G99
Code Name: Other
Type: Tank Secondary Containment

Equipment: A00
Code Name: None
Type: Tank Internal Protection

Equipment: C01
Code Name: Aboveground
Type: Pipe Location

Equipment: G10
Code Name: Impervious Underlayment
Type: Tank Secondary Containment

Equipment: B01
Code Name: Painted/Asphalt Coating
Type: Tank External Protection

Equipment: D01
Code Name: Steel/Carbon Steel/Iron
Type: Pipe Type

Equipment: H00
Code Name: None
Type: Tank Leak Detection

Equipment: I00
Code Name: None
Type: Overfill

Equipment: L09
Code Name: Exempt Suction Piping
Type: Piping Leak Detection

Affiliation Information

Affiliation Type: 01
Affiliation Name: Facility Owner
Affiliation Sub Type: E
Company: ETHOX CORP
Contact Title: QUALITY SPECIALIST
Contact Name: PENNY MORGAN
Address1: 251 SENECA STREET
Address2:
City: BUFFALO
State: NY
Zip Code: 14204
Country Code: 001
Phone: (716) 842-4000
Phone Ext:
Email: PENNY.MORGAN@ETHOXINT.COM
Fax:

Affiliation Type: 07

Affiliation Name:	Mail Contact
Affiliation Sub Type:	NNN
Company:	ETHOX CORP
Contact Title:	QUALITY SPECIALIST
Contact Name:	PENNY MORGAN
Address1:	251 SENECA STREET
Address2:	
City:	BUFFALO
State:	NY
Zip Code:	14204
Country Code:	001
Phone:	(716) 842-4000
Phone Ext:	
Email:	PENNY.MORGAN@ETHOXINT.COM
Fax:	

Affiliation Type:	11
Affiliation Name:	Emergency Contact
Affiliation Sub Type:	NNN
Company:	ETHOX CORP
Contact Title:	
Contact Name:	JOHN WOHLFAHRT
Address1:	
Address2:	
City:	
State:	NN
Zip Code:	
Country Code:	001
Phone:	(716) 842-4000
Phone Ext:	
Email:	
Fax:	

Affiliation Type:	04
Affiliation Name:	Facility Operator
Affiliation Sub Type:	NNN
Company:	ETHOX CORP.
Contact Title:	
Contact Name:	JOHN WOHLFAHRT
Address1:	
Address2:	
City:	
State:	NN
Zip Code:	
Country Code:	001
Phone:	(716) 842-4000
Phone Ext:	
Email:	
Fax:	

21	***3 of13***	***WSW***	***0.10 / 529.78***	***587.95 / -4***	***251 Seneca St Buffalo NY 14204***	***COOLING TOWERS***

Equipment ID:	5879	***Reg Comp:***	Compliant
Equipment County:	Erie	***Commissioned Dt:***	
Equipment Borough:		***Inspection Dt:***	
CT Status:	Decommissioned	***Last Sampled Days:***	999
Intended Use:		***Last Update Days:***	2356
Cooling Capacity:		***Latitude:***	42.879021
Cool Capacity Unit:		***Longitude:***	-78.867203
Manufacturer:			
Model:			
Bacteriological Sample Dt:			
Legionella Sample Coll Dt:			
Last Legionella Sample Result:			
Equipmnt Last Legionella Test:	lt20		
Equipmnt Last Legionella Sam:	2015-12-18		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Equipmnt Tower Operatn Dura: Year-round
Street Address:
New Georeferenced Column:
Georeference: POINT (-78.867203 42.879021)

21	4 of13	WSW	0.10 / 529.78	587.95 / -4	251 Seneca St. Buffalo NY 14204	COOLING TOWERS

Equipment ID: 5873
Equipment County: Erie
Equipment Borough:
CT Status: Decommissioned
Intended Use:
Cooling Capacity:
Cool Capacity Unit:
Manufacturer:
Model:
Bacteriological Sample Dt:
Legionella Sample Coll Dt:
Last Legionella Sample Result:
Equipmnt Last Legionella Test: lt20
Equipmnt Last Legionella Sam: 2015-12-18
Equipmnt Tower Operatn Dura: Year-round
Street Address:
New Georeferenced Column:
Georeference: POINT (-78.867203 42.879021)

Reg Comp: Compliant
Commissioned Dt:
Inspection Dt:
Last Sampled Days: 999
Last Update Days: 2356
Latitude: 42.879021
Longitude: -78.867203

21	5 of13	WSW	0.10 / 529.78	587.95 / -4	W & F Mfg Co Inc 251 Seneca Street Buffalo NY 14204-2013	ERP

Site Code: 446956
HW Code: 915248
Program: RCRA
Site Class: PR
Site Name: W & F Mfg Co Inc
Site Address: 251 Seneca Street
City: Buffalo
Zip: 14204-2013
County: Erie
Region: 9
Town: Buffalo (c)
Latitude: 42.878653000
Longitude: -78.867298000
SWIS: 1502
Acres:
Record Added: 2011-03-22 11:11:00
Record Update: 2013-10-25 16:28:00
Updated by: DFLATES
Program Type (Web): RCRA
Site Name (Web): W & F Mfg Co Inc
Site Class (Web): N
Address1 (Web): 251 Seneca Street
Address2 (Web):
Locality (Web): Buffalo
Zip Code (Web): 14204-2013
County (Web): Erie
Longitude (Web): -78.867298000
Latitude (Web): 42.878653000
Site Name (GIS): W & F Mfg Co Inc
Program (GIS): RCRA
Site Class (GIS): PR
Address1 (GIS): 251 Seneca Street
Address2 (GIS):

Locality (GIS):	Buffalo
Town (GIS):	Buffalo (c)
Zip Code (GIS):	14204-2013
County (GIS):	Erie
Site Class Desc:	Potential RCRA Corrective Action: "Class PR" is a specialty classification code that is not related to the Registry. This classification code is used for sites that are, or have been, subject to the requirements of the Resource Conservation and Recovery Act (RCRA). RCRA sites are those that are managing or have actively managed hazardous waste (e.g., waste solvents from a manufacturing process). If spills occurred resulting in environmental contamination, remediation may be necessary under the RCRA corrective action program. Similar to a Class P site, Class PR sites are investigated and reviewed to determine if RCRA corrective action is necessary. If so, remediation is carried out under a RCRA permit, order, or other legal mechanism.
Site Class Desc (Web):	No Further Action at this Time: Sites are given a classification of "N" when: a. the investigation and evaluation of a Class P site results in a determination that contamination at the site does not warrant placing the site on the Registry or it is being addressed under a brownfield program; b. a site was in a brownfield program (BCP, ERP or VCP) or other non-Registry program, remediation was not completed, and the site did not otherwise qualify for listing on the Registry. As an example, this occurs when a volunteer begins a brownfield project and then for economic or other reasons, determines they cannot complete the work and the brownfield project is terminated. If the contamination at the brownfield site qualifies it for placement on the Registry, the Department acts to do so. If the site re-enters a brownfield program, it can be reclassified to Class A (active) to indicate that work has recommenced; c. a site was identified simply as the location(s) where a drum(s) or other discrete waste was at one time present and subsequently removed by DEC or others and, based on the resulting conditions, no need for additional work was apparent; or d. an application to the BCP, ERP or VCP was submitted, and was then withdrawn or terminated before any actions were taken to investigate or remediate the site.
Site Class Desc (Geo):	
Assess DOH:	As information for this site becomes available, it will be reviewed by the NYSDOH to determine if site contamination presents public health exposure concerns.
Data Source:	DEC Environmental Remediation Database Search - Remedial Site Search (Web); Environmental Remediation Sites; Remedial GIS (GIS)

Description:

Site Location: The W&F Manufacturing site is located at 251 Seneca Street in Buffalo, Erie County, New York. The facility occupies about 6 acres of land which consisted of a factory building connected to a warehouse to the south, across Carroll Street. It is in an old industrial area, less than a mile southeast of Niagara Square. The area is mainly commercial and industrial, with some residential properties nearby. Historical Uses: W&F Manufacturing produced various items, mostly confections, from wax. Ethyl alcohol was used to clean shellac for candle making (ceased as of 1974) and trichloroethene was used as a laboratory reagent. Wastes were drummed and stored in container storage areas till pick-up for off-site disposal. W&F had two SWMUs at the facility: a container storage area in the factory building and a container storage area in the warehouse. W&F closed this site under a consent order with EPA in 1984 and relocated to Kenmore Avenue in Tonawanda, New York. The Seneca Street site was sold in 1982 to Ethox Corporation, a small quantity generator, and has been inspected in this capacity. In 2009, Ethox Corporation was acquired by Moog Medical Devices Group. Facility is currently run by ETHOX Medical.

Assessment:

RCRA Correction Action

Projects Information

Project Code:	01
Project Desc:	Site Caracterization
Project Refer Name:	Facility Assessment (RFA)
End Date:	2014-07-31 00:00:00
End Status:	ANF
Operable Unit ID:	1198038
Operable Unit:	02
Operable Unit Desc:	RCRA Corrective Action
Code Name:	Site Characterization

Remedial Sites GIS

Program:	RCRA
Site Class:	PR
Region:	9

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

X Coord:	184145.10843
Y Coord:	4754592.47541
Method:	4.2
Accuracy:	Variable

Remedial GIS

County:	Erie	***Program:***	Resource Conservation and Recovery
Town:	Buffalo (c)	***Site Class:***	N
Region:	9	***Method:***	4.2
X Coord:	184145.10843	***Accuracy:***	
Y Coord:	4754592.47541	***Accuracy Unit:***	

Environmental Remediation

Operable Unit:	02
Contaminants:	
Operable Unit:	01
Contaminants:	

21	***6 of13***	***WSW***	***0.10 / 529.78***	***587.95 / -4***	***MOOG INC (FORMALLY ETHOX CORP)*** ***251 SENECA STREET*** ***BUFFALO NY 14204***	***GEN MANIFEST***

RCRA ID:	NYD041042003	***Mailing State:***	NY
District Name:	MOOG INC (FORMALLY ETHOX CORP)	***Mailing ZIP:***	14201
Contact Name:	MARK ZAK	***Mailing ZIP Ext:***	
Business Phone No:	7168424000	***Mailing Country:***	USA
Mailing Street 1:	251 SENECA STREET	***Location ZIP Ext:***	
Mailing Street 2:		***Location Country:***	USA
Mailing City:	BUFFALO	***Location County:***	ERIE

Manifest Information

Waste Code(s):

D002: CORROSIVE WASTE (Waste Code Description from EPA Hazardous Waste Identification)

Waste Amounts By Year:

1998: 18 Pounds; 90 Pounds; 95 Pounds
2003: 400 Pounds
2004: 400 Pounds; 400 Pounds; 400 Pounds; 400 Pounds; 1530 Gallons
2005: 400 Pounds; 450 Pounds; 400 Pounds
2006: 90 Gallons
2008: 56 Pounds; 8 Pounds; 8 Pounds
2012: 9 Pounds; 51 Pounds
2013: 43 Pounds; 8 Pounds

Manifest Information

Waste Code(s):

D009: MERCURY (Waste Code Description from EPA Hazardous Waste Identification)

Waste Amounts By Year:

2012: 6 Pounds

Manifest Information

Waste Code(s):

F001: (Generic) The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1, 1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004 and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures. (T)

Waste Amounts By Year:

1992: 1084 Pounds; 1090 Pounds; 890 Pounds
1993: 1084 Pounds
1994: 1086 Pounds
1996: 2875 Pounds
1999: 551 Pounds; 1500 Pounds
2000: 200 Pounds; 1500 Pounds; 1125 Pounds
2001: 400 Pounds; 1200 Pounds

Manifest Information

Waste Code(s):

F002: (Generic) The following spent halogenated solvents: tetrachloro-ethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2- trifluoroethane, orthodichlorobenzene, trichlorofluoromethane and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004 or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures. (T)

Waste Amounts By Year:

1988: 1650 Pounds
1989: 600 Pounds
1996: 1216 Pounds; 1277 Pounds; 1535 Pounds; 125 Pounds

Manifest Information

Waste Code(s):

F003: (Generic) The following spent nonhalogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent nonhalogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above nonhalogenated solvents, and a total of 10 percent or more (by volume) of one or more of those solvents listed in F001, F002, F004 and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures. (I)*

Waste Amounts By Year:

1987: 220 Gallons
1988: 2100 Pounds; 2100 Pounds
1990: 1843 Pounds; 1269 Pounds
1999: 225 Pounds
2001: 3300 Pounds
2002: 900 Pounds; 600 Pounds; 300 Pounds; 300 Pounds; 900 Pounds; 800 Pounds
2003: 800 Pounds; 1600 Pounds; 300 Pounds; 280 Pounds
2004: 400 Pounds; 400 Pounds; 400 Pounds; 700 Pounds; 360 Pounds; 800 Pounds; 200 Pounds; 800 Pounds
2005: 450 Pounds; 400 Pounds; 400 Pounds
2006: 120 Pounds

Manifest Information

Waste Code(s):

U077: (107-06-2) Ethane, 1,2-dichloro-

Waste Amounts By Year:

1998: 95 Pounds

Manifest Information

Waste Code(s):

U080: (75-09-2) Methane, dichloro-

Waste Amounts By Year:

2003: 70 Pounds
2016: 30 Pounds

Manifest Information

Waste Code(s):

U188: (108-95-2) Phenol

Waste Amounts By Year:

1998: 150 Pounds

Manifest Information

Waste Code(s):

U213: (109-99-9) Furan, tetrahydro-(I)

Waste Amounts By Year:

2004: 11 Gallons

Manifest Information

Waste Code(s):

B001: (Wastes containing polychlorinated biphenyls (PCBs)) PCB oil (concentrated) from transformers, capacitors, etc.

Waste Amounts By Year:

2007: 45 Pounds

Manifest Information

Waste Code(s):

D001: IGNITABLE WASTE (Waste Code Description from EPA Hazardous Waste Identification)

Waste Amounts By Year:

1996: 256 Pounds
1998: 5 Pounds
2003: 225 Pounds; 8 Pounds; 80 Pounds
2004: 40 Pounds
2007: 2100 Pounds
2008: 265 Pounds; 850 Pounds
2010: 150 Pounds; 1200 Pounds; 20 Pounds; 20 Pounds
2012: 764 Pounds; 1080 Pounds; 4 Pounds
2013: 500 Pounds; 42 Pounds; 212 Pounds

2016: 310 Pounds

Manifest Information

Waste Code(s):

D001: IGNITABLE WASTE (Waste Code Description from EPA Hazardous Waste Identification)
D002: CORROSIVE WASTE (Waste Code Description from EPA Hazardous Waste Identification)

Waste Amounts By Year:

2008: 72 Pounds

Manifest Information

Waste Code(s):

D001: IGNITABLE WASTE (Waste Code Description from EPA Hazardous Waste Identification)
D005: BARIUM (Waste Code Description from EPA Hazardous Waste Identification)
D007: CHROMIUM (Waste Code Description from EPA Hazardous Waste Identification)

Waste Amounts By Year:

2013: 206 Pounds

Manifest Information

Waste Code(s):

D001: IGNITABLE WASTE (Waste Code Description from EPA Hazardous Waste Identification)
D028: 1,2-DICHLOROETHANE (Waste Code Description from EPA Hazardous Waste Identification)

Waste Amounts By Year:

2013: 173 Pounds

Manifest Information

Waste Code(s):

D001: IGNITABLE WASTE (Waste Code Description from EPA Hazardous Waste Identification)
U003: (75-05-8) Acetonitrile (I,T)

Waste Amounts By Year:

2008: 80 Pounds

Manifest Information

Waste Code(s):

D001: IGNITABLE WASTE (Waste Code Description from EPA Hazardous Waste Identification)
U003: (75-05-8) Acetonitrile (I,T)
U057: (108-94-1) Cyclohexanone (I)
U077: (107-06-2) Ethane, 1,2-dichloro-
U213: (109-99-9) Furan, tetrahydro-(I)

Waste Amounts By Year:

2012: 85 Pounds

Manifest Information

Waste Code(s):

D001: IGNITABLE WASTE (Waste Code Description from EPA Hazardous Waste Identification)
U057: (108-94-1) Cyclohexanone (I)

Waste Amounts By Year:

2016: 100 Pounds

Manifest Information

Waste Code(s):

D001: IGNITABLE WASTE (Waste Code Description from EPA Hazardous Waste Identification)
U115: (75-21-8) Oxirane (I,T)

Waste Amounts By Year:

2012: 22 Pounds; 5 Pounds

Manifest Information

Waste Code(s):

D001: IGNITABLE WASTE (Waste Code Description from EPA Hazardous Waste Identification)
U154: (67-56-1) Methanol (I)

Waste Amounts By Year:

2008: 32 Pounds

Manifest Information

Waste Code(s):

D001: IGNITABLE WASTE (Waste Code Description from EPA Hazardous Waste Identification)
U404: (121-44-8) Ethanamine, N,N-diethyl-

Waste Amounts By Year:

2012: 8 Pounds

Manifest Information

Waste Code(s):

D002: CORROSIVE WASTE (Waste Code Description from EPA Hazardous Waste Identification)
U123: (64-18-6) Formic acid (C,T)

Waste Amounts By Year:

2012: 11 Pounds

Manifest Information

Waste Code(s):

D007: CHROMIUM (Waste Code Description from EPA Hazardous Waste Identification)

Waste Amounts By Year:

2013: 7 Pounds

Manifest Information

Waste Code(s):

F005: (Generic) The following spent nonhalogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, and pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above nonhalogenated solvents or those solvents listed in F001, F002 or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures. (I,T)

Waste Amounts By Year:

1989: 275 Gallons
1997: 367 Pounds; 400 Pounds
1998: 800 Pounds; 425 Pounds
1999: 400 Pounds; 325 Pounds; 700 Pounds; 800 Pounds; 400 Pounds
2000: 1000 Pounds

Manifest Information

Waste Code(s):

P042: (51-43-4) 1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino) ethyl]-, (R)-

Waste Amounts By Year:

2009: 5 Gallons

21	7 of13	WSW	0.10 / 529.78	587.95 / -4	ETHOX CORP 251 SENECA STREET BUFFALO NY	NY SPILLS

Spill No:	9001483	***UST Trust:***	False
Site ID:	222377	***Spill Date:***	05/01/1990 12:00:00 PM
DER Facility ID:	183870	***Received Date:***	05/08/1990 02:30:00 PM
CID:		***CAC Date:***	05/21/1990 12:00:00 AM
Program Type:	ER	***Insp Date:***	
SWIS Code:	1502	***Close Date:***	05/21/1990 12:00:00 AM
Water Body:		***Create Date:***	05/21/1990 12:00:00 AM
Class:		***Update Date:***	03/18/2002 12:00:00 AM
Meets Std:	True	***DEC Region:***	9
Penalty:	False	***Lead DEC:***	MJHINTON
REM Phase:	0	***After Hours:***	False
County:	Erie		
Contributing Factor:	Other		
Reported by:	Citizen		
Referred to:			
Source:	Commercial/Industrial		
Category:			
Class Desc:			
Report Source:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"EMPLOYEE REPORTS 8000 GAL ABOVEGROUND TANK LOCATED IN BASEMENT IS LEAKING INTO THE SEWER"

DEC Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MJH 05/21/90: BSA NOTIFIED SENT INSPECTOR TO SITE FOUND NO

EVIDENCE OF SPILL ABANDONED FUEL TANK IN BASEMENT IN PROCESS OF BEING REMOVED (NOT STARTED YET) NO FURTHER ACTION BY SPILL UNIT NECESSARY. "

Material Information

OP Unit ID:	941270	***Med Ind Air:***	False
OU:	01	***Med GW:***	False
Material ID:	439826	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	True
Quantity:	.00	***Med Surf:***	False
Units:	G	***Med Subway:***	False
Recovered:	.00	***Med Utility:***	False
Med Soil:	False	***Oxygenate:***	
Med Air:	False		
Material Code:	0001A		
Material Name:	#2 fuel oil		

Spiller Information

Spiller Name:	
Spiller Company:	ETHOX CORP
Spiller Address:	251 SENECA STREET
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.878961280
Longitude:	-78.867063430

21	8 of13	WSW	0.10 / 529.78	587.95 / -4	ETHOX CORPORATION 251 SENECA STREET BUFFALO NY	NY SPILLS

Spill No:	0407788	***UST Trust:***	False
Site ID:	332330	***Spill Date:***	10/13/2004 07:03:00 PM
DER Facility ID:	183870	***Received Date:***	10/13/2004 07:31:00 PM
CID:	27	***CAC Date:***	
Program Type:	ER	***Insp Date:***	
SWIS Code:	1502	***Close Date:***	01/13/2005 12:00:00 AM
Water Body:		***Create Date:***	10/13/2004 07:49:00 PM
Class:	C3	***Update Date:***	01/13/2005 01:25:22 PM
Meets Std:	True	***DEC Region:***	9
Penalty:	False	***Lead DEC:***	MXFRANKS
REM Phase:	0	***After Hours:***	True
County:	Erie		
Contributing Factor:	Unknown		
Reported by:	Other		
Referred to:			
Source:	Unknown		
Category:	Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.		
Class Desc:	Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency		
Report Source:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"Caller reports a mixture of methanol and acetonitrile spilled inside. Unknown further details. No cleanup company contacted as of yet. "

DEC Remark:

"11/26/04: MF JUST FOUND OUT I AM ASSIGNED THIS SPILL. T/C ETHOX, NO ANSWER. 01/11/05: MF T/C MARVIN TALIAFERRO, ETHOX, 842-

4000, APPX 1 LITER SPILLED, WANTS ME TO CALL RICK HEETDT IN THE AM. 01/13/05: MF T/C RICK HEETDT, APPX 1 LIQUID OF LAB WASTE SPILLED. BUILDING EVACUATED, FD CLEANED WITH SPEEDY DRY. SAFETY KLEEN PICKED UP. NO FURTHER ACTION POSSIBLE. **********COMPUTER FILE ONLY**********"

Spiller Information

Spiller Name:	MARVIN
Spiller Company:	ETHOX CORPORATION
Spiller Address:	251 SENECA STREET
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	
Spiller Country:	001
Contact Name:	MARVIN
Contact Phone:	(716) 578-7670
Contact Ext:	
Latitude:	42.878959000
Longitude:	-78.867062000

21	***9 of13***	***WSW***	***0.10 / 529.78***	***587.95 / -4***	***ETHOX CORP 251 SENECA ST BUFFALO NY 14204***	***PFAS TRI***

TRI FD:	14204THXCR251SE
FRS ID:	110000326843
BIA:	
Tribe:	
Facility Name:	ETHOX CORP
Street Address:	251 SENECA ST
City:	BUFFALO
County:	ERIE
State:	NY
Zip:	14204
Latitude:	42.879060
Longitude:	-78.867120

1991 Details

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0000075718	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	33284.000000	***RCRA Surface IM:***	0.000000
Stack Air:	49935.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000
Chemical:	Dichlorodifluoromethane (CFC-12)		
Industry Sector Code:	339		
Industry Sector:	Miscellaneous Manufacturing		
Parent Co Name:	NA		
On Site Release Total:	83219.000000		
Off Site Release Total:	0.000000		
Off Site Recycled Total:	0.000000		
Total Releases:	83219.000000		
One Time Release:			

Horizontal Datum:

NAD83

CAS No:

75-71-8

PFAS:

NO

PBT:

NO

1992 Details

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0000075718	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	29065.000000	***RCRA Surface IM:***	0.000000
Stack Air:	21833.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000
Chemical:	Dichlorodifluoromethane (CFC-12)		
Industry Sector Code:	339		
Industry Sector:	Miscellaneous Manufacturing		
Parent Co Name:	NA		
On Site Release Total:	50898.000000		
Off Site Release Total:	0.000000		
Off Site Recycled Total:	0.000000		
Total Releases:	50898.000000		

One Time Release:

0.000000

Horizontal Datum:

NAD83

CAS No:

75-71-8

PFAS:

NO

PBT:

NO

1993 Details

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0000075718	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	40458.000000	***RCRA Surface IM:***	0.000000
Stack Air:	248.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000
Chemical:	Dichlorodifluoromethane (CFC-12)		
Industry Sector Code:	339		

Industry Sector: Miscellaneous Manufacturing
Parent Co Name: NA
On Site Release Total: 40706.000000
Off Site Release Total: 0.000000
Off Site Recycled Total: 0.000000
Total Releases: 40706.000000
One Time Release:

0.000000

Horizontal Datum:

NAD83

CAS No:

75-71-8

PFAS:

NO

PBT:

NO

1994 Details

TRI FD: 14204THXCR251SE
Federal Facility: NO
Cas No Compound ID: 0000075718
Classification: TRI
Primary SIC: 3841
Primary NAICS: 339112
Metal: NO
Carcinogen: NO
Fugitive Air: 39325.000000
Stack Air: 240.000000
Water: 0.000000
Chemical: Dichlorodifluoromethane (CFC-12)
Industry Sector Code: 339
Industry Sector: Miscellaneous Manufacturing
Parent Co Name: NA
On Site Release Total: 39565.000000
Off Site Release Total: 0.000000
Off Site Recycled Total: 4476.000000
Total Releases: 39565.000000
One Time Release:

0.000000

Horizontal Datum:

NAD83

CAS No:

75-71-8

PFAS:

NO

PBT:

NO

Underground: 0.000000
Underground CL I: 0.000000
Underground C II-V: 0.000000
Landfills: 0.000000
RCRA C Landfill: 0.000000
Other Landfills: 0.000000
Land Treatment: 0.000000
Surface Impndmnt: 0.000000
RCRA Surface IM: 0.000000
Other Surface I: 0.000000
Other Disposal: 0.000000

1995 Details

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0000075718	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	237.000000	***RCRA Surface IM:***	0.000000
Stack Air:	17367.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000
Chemical:	Dichlorodifluoromethane (CFC-12)		
Industry Sector Code:	339		
Industry Sector:	Miscellaneous Manufacturing		
Parent Co Name:	NA		
On Site Release Total:	17604.000000		
Off Site Release Total:	0.000000		
Off Site Recycled Total:	2255.000000		
Total Releases:	17604.000000		
One Time Release:			

0.000000

Horizontal Datum:

NAD83

CAS No:

75-71-8

PFAS:

NO

PBT:

NO

1996 Details

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0000075718	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	33.000000	***RCRA Surface IM:***	0.000000
Stack Air:	16489.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000
Chemical:	Dichlorodifluoromethane (CFC-12)		
Industry Sector Code:	339		
Industry Sector:	Miscellaneous Manufacturing		
Parent Co Name:	NA		
On Site Release Total:	16522.000000		
Off Site Release Total:	0.000000		
Off Site Recycled Total:	314.000000		
Total Releases:	16522.000000		
One Time Release:			

0.000000

Horizontal Datum:

NAD83

CAS No:

75-71-8

PFAS:

NO

PBT:

NO

1997 Details

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0000075456	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	2.000000	***RCRA Surface IM:***	0.000000
Stack Air:	1.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000
Chemical:	Chlorodifluoromethane (HCFC-22)		
Industry Sector Code:	339		
Industry Sector:	Miscellaneous Manufacturing		
Parent Co Name:	NA		
On Site Release Total:	3.000000		
Off Site Release Total:	0.000000		
Off Site Recycled Total:	0.000000		
Total Releases:	3.000000		
One Time Release:			

0.000000

Horizontal Datum:

NAD83

CAS No:

75-45-6

PFAS:

NO

PBT:

NO

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0002837890	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	4.000000	***RCRA Surface IM:***	0.000000
Stack Air:	2.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000
Chemical:	2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)		
Industry Sector Code:	339		

Industry Sector: Miscellaneous Manufacturing
Parent Co Name: NA
On Site Release Total: 6.000000
Off Site Release Total: 0.000000
Off Site Recycled Total: 32.000000
Total Releases: 6.000000
One Time Release:

0.000000

Horizontal Datum:

NAD83

CAS No:

2837-89-0

PFAS:

NO

PBT:

NO

TRI FD: 14204THXCR251SE
Federal Facility: NO
Cas No Compound ID: 0000075718
Classification: TRI
Primary SIC: 3841
Primary NAICS: 339112
Metal: NO
Carcinogen: NO
Fugitive Air: 25.000000
Stack Air: 12.000000
Water: 0.000000
Underground: 0.000000
Underground CL I: 0.000000
Underground C II-V: 0.000000
Landfills: 0.000000
RCRA C Landfill: 0.000000
Other Landfills: 0.000000
Land Treatment: 0.000000
Surface Impndmnt: 0.000000
RCRA Surface IM: 0.000000
Other Surface I: 0.000000
Other Disposal: 0.000000
Chemical: Dichlorodifluoromethane (CFC-12)
Industry Sector Code: 339
Industry Sector: Miscellaneous Manufacturing
Parent Co Name: NA
On Site Release Total: 37.000000
Off Site Release Total: 0.000000
Off Site Recycled Total: 240.000000
Total Releases: 37.000000
One Time Release:

0.000000

Horizontal Datum:

NAD83

CAS No:

75-71-8

PFAS:

NO

PBT:

NO

1998 Details

TRI FD: 14204THXCR251SE
Underground: 0.000000

Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0000075456	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	0.000000	***RCRA Surface IM:***	0.000000
Stack Air:	4.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000
Chemical:	Chlorodifluoromethane (HCFC-22)		
Industry Sector Code:	339		
Industry Sector:	Miscellaneous Manufacturing		
Parent Co Name:	NA		
On Site Release Total:	4.000000		
Off Site Release Total:	0.000000		
Off Site Recycled Total:	0.000000		
Total Releases:	4.000000		

One Time Release:

0.000000

Horizontal Datum:

NAD83

CAS No:

75-45-6

PFAS:

NO

PBT:

NO

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0000075718	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	52.000000	***RCRA Surface IM:***	0.000000
Stack Air:	0.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000
Chemical:	Dichlorodifluoromethane (CFC-12)		
Industry Sector Code:	339		
Industry Sector:	Miscellaneous Manufacturing		
Parent Co Name:	NA		
On Site Release Total:	52.000000		
Off Site Release Total:	0.000000		
Off Site Recycled Total:	0.000000		
Total Releases:	52.000000		

One Time Release:

0.000000

Horizontal Datum:

NAD83

CAS No:

75-71-8

PFAS:

NO

PBT:

NO

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0002837890	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	0.000000	***RCRA Surface IM:***	0.000000
Stack Air:	10.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000
Chemical:	2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)		
Industry Sector Code:	339		
Industry Sector:	Miscellaneous Manufacturing		
Parent Co Name:	NA		
On Site Release Total:	10.000000		
Off Site Release Total:	0.000000		
Off Site Recycled Total:	0.000000		
Total Releases:	10.000000		
One Time Release:			

0.000000

Horizontal Datum:

NAD83

CAS No:

2837-89-0

PFAS:

NO

PBT:

NO

<u>1999 Details</u>

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0000075456	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	12.000000	***RCRA Surface IM:***	0.000000
Stack Air:	0.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000
Chemical:	Chlorodifluoromethane (HCFC-22)		
Industry Sector Code:	339		
Industry Sector:	Miscellaneous Manufacturing		
Parent Co Name:	NA		
On Site Release Total:	12.000000		
Off Site Release Total:	0.000000		
Off Site Recycled Total:	0.000000		
Total Releases:	12.000000		

One Time Release:

0.000000

Horizontal Datum:

NAD83

CAS No:

75-45-6

PFAS:

NO

PBT:

NO

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0002837890	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	28.000000	***RCRA Surface IM:***	0.000000
Stack Air:	0.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000
Chemical:	2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)		
Industry Sector Code:	339		
Industry Sector:	Miscellaneous Manufacturing		
Parent Co Name:	NA		
On Site Release Total:	28.000000		
Off Site Release Total:	0.000000		
Off Site Recycled Total:	0.000000		
Total Releases:	28.000000		

One Time Release:

0.000000

Horizontal Datum:

NAD83

CAS No:

2837-89-0

PFAS:

NO

PBT:

NO

2000 Details

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0000075456	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000

Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	25.000000	***RCRA Surface IM:***	0.000000
Stack Air:	0.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000

Chemical: Chlorodifluoromethane (HCFC-22)
Industry Sector Code: 339
Industry Sector: Miscellaneous Manufacturing
Parent Co Name: NA
On Site Release Total: 25.000000
Off Site Release Total: 0.000000
Off Site Recycled Total: 0.000000
Total Releases: 25.000000
One Time Release:

0.000000

Horizontal Datum:

NAD83

CAS No:

75-45-6

PFAS:

NO

PBT:

NO

TRI FD:	14204THXCR251SE	***Underground:***	0.000000
Federal Facility:	NO	***Underground CL I:***	0.000000
Cas No Compound ID:	0002837890	***Underground C II-V:***	0.000000
Classification:	TRI	***Landfills:***	0.000000
Primary SIC:	3841	***RCRA C Landfill:***	0.000000
Primary NAICS:	339112	***Other Landfills:***	0.000000
Metal:	NO	***Land Treatment:***	0.000000
Carcinogen:	NO	***Surface Impndmnt:***	0.000000
Fugitive Air:	25.000000	***RCRA Surface IM:***	0.000000
Stack Air:	0.000000	***Other Surface I:***	0.000000
Water:	0.000000	***Other Disposal:***	0.000000

Chemical: 2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)
Industry Sector Code: 339
Industry Sector: Miscellaneous Manufacturing
Parent Co Name: NA
On Site Release Total: 25.000000
Off Site Release Total: 0.000000
Off Site Recycled Total: 0.000000
Total Releases: 25.000000
One Time Release:

0.000000

Horizontal Datum:

NAD83

CAS No:

2837-89-0

PFAS:

NO

PBT:

NO

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
21	10 of13	WSW	0.10 / 529.78	587.95 / -4	W & F MFG CO INC 251 SENECA ST BUFFALO NY 14204-2013	RCRA CORRACTS

Handler ID: NYD002100121
Generator Status: N
Recycler Activity?: NO
Recycler Activity Note: This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note: VIOLATION or UNDETERMINED: There are VIOLATION or UNDETERMINED details or records associated with this facility (EPA ID) in the Compliance Monitoring and Enforcement table dated Apr 2025.

Violation Details

Viol Type: 262.A
Citation:
Determined Date: 19840626
Scheduled Compliance Date: 19840121
Eval Activity Location: NY
Viol Determined By Agency: EPA
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Found Violation: Yes
Rtc Qualifier: Observed

Enforcement Details

Enf Type: 310
Enf Type Desc: FINAL 3008(A) COMPLIANCE ORDER
Enf Action Date: 19831221
Disposition Status Desc:
Disposition Status Date:
Enf Agency: EPA
Proposed Amount:
Final Amount: 7500
Paid Amount:

Violation Details

Viol Type: 262.A
Citation:
Determined Date: 19830131
Scheduled Compliance Date: 19841206
Eval Activity Location: NY
Viol Determined By Agency: EPA
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Found Violation: Yes
Rtc Qualifier: Observed

Enforcement Details

Enf Type: 210
Enf Type Desc: INITIAL 3008(A) COMPLIANCE
Enf Action Date: 19841106
Disposition Status Desc:
Disposition Status Date:
Enf Agency: EPA
Proposed Amount:
Final Amount:
Paid Amount:

Violation Details

Viol Type: 262.A
Citation:
Determined Date: 19830131
Scheduled Compliance Date:
Eval Activity Location: NY
Viol Determined By Agency: EPA
Viol Short Desc: Generators - General

Actual Rtc Date: 19841208
Found Violation: Yes
Rtc Qualifier: Observed

Enforcement Details

Enf Type: 210
Enf Type Desc: INITIAL 3008(A) COMPLIANCE
Enf Action Date: 19831223
Disposition Status Desc:
Disposition Status Date:
Enf Agency: EPA
Proposed Amount: 7500
Final Amount:
Paid Amount:

Evaluation Details

Eval Start Date: 19950726
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19871117
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19860909
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19840626
Eval Type Desc: NON-FINANCIAL RECORD REVIEW
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Eval Agency: EPA

Eval Start Date: 19830131
Eval Type Desc: FINANCIAL RECORD REVIEW
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Eval Agency: EPA

Additional Handler Summary Details

Source Type: I
Seq No: 3
Non Notifier:
Receive Date: 20070101
Active Site: -----
Land Type:
In Handler Univ: N
In A Universe: Y
Gen Status: N

NAIC 1: 339999
NAIC 2:
NAIC 3:
NAIC 4:
State: NY
Location Latitude: 42.87906
Location Longitude: -78.867893
Loc GIS Primary: N
Loc GIS Origin: UC

Report Cycle:		***State District Owner:***	NY
Accessibility:		***State District:***	NYSDEC R9
Region:	02		
Fed Waste Gen Owner:	HQ		
State Waste Generator Owner:	NY		
State Waste Generator:	S		
Short Term Generator:	N		
Uni Waste:	N		
Universal Waste Dest Facility:	N		
Federal Universal Waste:	N		
As Federally Regulated Tsdf:	------		
As Converter Tsdf:	------		
As State Regulated Tsdf:	------		
As State Regulated Handler:	---		
Federal Indicator:	---		
Hsm:	N		
Subpart K:	----		
GPRA Permit:	N		
GPRA Renewal:	N		
Permit Renewal Wrkld:	------		
Permwrk ID:	------		
Perm Prog:	---S--		
Pcwrkld:	------		
Closwrkld:	------		
GPRA Ca:	N		
Cawrkld:	N		
Subjca Tsd Discretion:	Y		
NCAPS:	L		
EC Indicator:	N		
Ca725 Indicator:	+		
Ca750 Indicator:	+		
Operating Tsdf:	------		
Full Enforcement:	------		
Snc:	N		
Unaddressed Snc:	N		
Addressed Snc:	N		
Snc With Comp Sched:	N		
Fa Required:	-----		
Hhandler Last Change:	20150414		
Recognized Trader Importer:	N		
Recognized Trader Exporter:	N		
Slab Importer:	N		
Slab Exporter:	N		
Manifest Broker:	N		
Subpart P:	N		
Contact Language:			
Handler Name:	W & F MFG CO INC		
Location Street No:	251		
Location Street1:	SENECA ST		
Location Street2:			
Location City:	BUFFALO		
Location State:	NY		
Location Zip:	14204-2013		
Location County Code:	NY029		
Location County Name:	ERIE		
Location Country:	US		
Contact Name:			
Contact Street No:			
Contact Street1:	PO BOX 126		
Contact Street2:			
Contact City:	BUFFALO		
Contact State:	NY		
Contact Zip:	14240		
Contact Country:	US		
Contact Phone & Ext:			
Contact Fax:			
Contact Email Address:			
Contact Title:			
Owner Name:	W & F MFG CO INC		

Owner Type: P
Owner Seq: 1
Operator Name: W & F MFG CO INC
Operator Type: P
Operator Seq: 2
Public Notes:

Handler Summary

Importer:	No	**Used Oil Transpor:**	No
Mixed Waste Gen:	No	**Used Oil Trans Fac:**	No
Transporter:	No	**Used Oil Processor:**	No
Transfer Facility:	No	**Used Oil Refiner:**	No
Recycler:	No	**Used Oil Burner:**	No
Onsite Burner Exem:	No	**Commercial TSD:**	No
Furnace Exemption:	No	**Recycl Nonstorage:**	No
Underground Injec:	No		

Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19800818
Handler Name: W & F MFG CO INC
Fed Waste Generator: 1
Generator Code Description: Large Quantity Generator
Source Type: Notification
TSD Activity: N

Waste Code Details

Waste Code: D000
Waste Code Desc: DESCRIPTION

Waste Code: D001
Waste Code Desc: IGNITABLE WASTE

Waste Code: F017
Waste Code Desc: DESCRIPTION

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19801119
Handler Name: W & F MFG CO INC
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Part A
TSD Activity: Y

Waste Code Details

Waste Code: D001
Waste Code Desc: IGNITABLE WASTE

Waste Code: F017
Waste Code Desc: DESCRIPTION

Hazardous Waste Handler Details

Seq No:	1
Receive Date:	19990708
Handler Name:	W & F MFG CO INC
Fed Waste Generator:	N
Generator Code Description:	Not a Generator, Verified
Source Type:	Implementer
TSD Activity:	N

Hazardous Waste Handler Details

Seq No:	2
Receive Date:	20060101
Handler Name:	W & F MFG CO INC
Fed Waste Generator:	N
Generator Code Description:	Not a Generator, Verified
Source Type:	Implementer
TSD Activity:	N

Hazardous Waste Handler Details

Seq No:	3
Receive Date:	20070101
Handler Name:	W & F MFG CO INC
Fed Waste Generator:	N
Generator Code Description:	Not a Generator, Verified
Source Type:	Implementer
TSD Activity:	N

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street1:**	251 SENECA ST
Name:	W & F MFG CO INC	**Street2:**	
Dt Became Current:		**City:**	OPERCITY
Dt Ended Current:		**State:**	NY
Phone:	716-856-3600	**Country:**	
Source Type:	Part A	**Zip:**	99999

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Private	**Street1:**	251 SENECA ST
Name:	W & F MFG CO INC	**Street2:**	
Dt Became Current:		**City:**	BUFFALO
Dt Ended Current:		**State:**	NY
Phone:	716-856-3600	**Country:**	
Source Type:	Notification	**Zip:**	14204

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Private	**Street1:**	251 SENECA ST
Name:	W & F MFG CO INC	**Street2:**	
Dt Became Current:		**City:**	BUFFALO
Dt Ended Current:		**State:**	NY
Phone:	716-856-3600	**Country:**	US
Source Type:	Implementer	**Zip:**	14204

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street1:**	251 SENECA ST
Name:	W & F MFG CO INC	**Street2:**	
Dt Became Current:		**City:**	OPERCITY
Dt Ended Current:		**State:**	NY
Phone:	716-856-3600	**Country:**	US
Source Type:	Implementer	**Zip:**	99999

Historical Handler Details

Receive Dt: 20060101
Generator Code Description: Not a Generator, Verified
Handler Name: W & F MFG CO INC

Receive Dt: 19990708
Generator Code Description: Not a Generator, Verified
Handler Name: W & F MFG CO INC

Receive Dt: 19801119
Generator Code Description: Not a Generator, Verified
Handler Name: W & F MFG CO INC

Receive Dt: 19800818
Generator Code Description: Large Quantity Generator
Handler Name: W & F MFG CO INC

21	11 of13	WSW	0.10 / 529.78	587.95 / -4	W & F MFG CO INC 251 SENECA ST BUFFALO NY 14204-2013	RCRA NON GEN

Handler ID: NYD002100121
Generator Status: N
Recycler Activity?: NO
Recycler Activity Note: This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note: VIOLATION or UNDETERMINED: There are VIOLATION or UNDETERMINED details or records associated with this facility (EPA ID) in the Compliance Monitoring and Enforcement table dated Apr 2025.

Violation Details

Viol Type: 262.A
Citation:
Determined Date: 19840626
Scheduled Compliance Date: 19840121
Eval Activity Location: NY
Viol Determined By Agency: EPA
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Found Violation: Yes
Rtc Qualifier: Observed

Enforcement Details

Enf Type: 310
Enf Type Desc: FINAL 3008(A) COMPLIANCE ORDER
Enf Action Date: 19831221
Disposition Status Desc:
Disposition Status Date:
Enf Agency: EPA
Proposed Amount:
Final Amount: 7500
Paid Amount:

Violation Details

Viol Type: 262.A
Citation:
Determined Date: 19830131
Scheduled Compliance Date:
Eval Activity Location: NY
Viol Determined By Agency: EPA
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Found Violation: Yes
Rtc Qualifier: Observed

Enforcement Details

Enf Type: 210
Enf Type Desc: INITIAL 3008(A) COMPLIANCE
Enf Action Date: 19831223
Disposition Status Desc:
Disposition Status Date:
Enf Agency: EPA
Proposed Amount: 7500
Final Amount:
Paid Amount:

Violation Details

Viol Type: 262.A
Citation:
Determined Date: 19830131
Scheduled Compliance Date: 19841206
Eval Activity Location: NY
Viol Determined By Agency: EPA
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Found Violation: Yes
Rtc Qualifier: Observed

Enforcement Details

Enf Type: 210
Enf Type Desc: INITIAL 3008(A) COMPLIANCE
Enf Action Date: 19841106
Disposition Status Desc:
Disposition Status Date:
Enf Agency: EPA
Proposed Amount:
Final Amount:
Paid Amount:

Evaluation Details

Eval Start Date: 19950726
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19871117
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19860909
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19840626
Eval Type Desc: NON-FINANCIAL RECORD REVIEW
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Eval Agency: EPA

Eval Start Date: 19830131
Eval Type Desc: FINANCIAL RECORD REVIEW
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Eval Agency: EPA

Handler Summary

Importer:	No	***Used Oil Transpor:***	No
Mixed Waste Gen:	No	***Used Oil Trans Fac:***	No
Transporter:	No	***Used Oil Processor:***	No
Transfer Facility:	No	***Used Oil Refiner:***	No
Recycler:	No	***Used Oil Burner:***	No
Onsite Burner Exem:	No	***Commercial TSD:***	No
Furnace Exemption:	No	***Recycl Nonstorage:***	No
Underground Injec:	No		
Used Oil Market Burner:	No		
Used Oil Spec Marketer:	No		

Additional Handler Summary Details

Source Type:	I	***NAIC 1:***	339999
Seq No:	3	***NAIC 2:***	
Non Notifier:		***NAIC 3:***	
Receive Date:	20070101	***NAIC 4:***	
Active Site:	-----	***State:***	NY
Land Type:		***Location Latitude:***	42.87906
In Handler Univ:	N	***Location Longitude:***	-78.867893
In A Universe:	Y	***Loc GIS Primary:***	N
Gen Status:	N	***Loc GIS Origin:***	UC
Report Cycle:		***State District Owner:***	NY
Accessibility:		***State District:***	NYSDEC R9
Region:	02		
Fed Waste Gen Owner:	HQ		
State Waste Generator Owner:	NY		
State Waste Generator:	S		
Short Term Generator:	N		
Uni Waste:	N		
Universal Waste Dest Facility:	N		
Federal Universal Waste:	N		
As Federally Regulated Tsdf:	------		
As Converter Tsdf:	------		
As State Regulated Tsdf:	------		
As State Regulated Handler:	---		
Federal Indicator:	---		
Hsm:	N		
Subpart K:	----		
GPRA Permit:	N		
GPRA Renewal:	N		
Permit Renewal Wrkld:	------		
Permwrk ID:	------		
Perm Prog:	---S--		
Pcwrkld:	------		
Closwrkld:	------		
GPRA Ca:	N		
Cawrkld:	N		
Subjca Tsd Discretion:	Y		
NCAPS:	L		
EC Indicator:	N		
Ca725 Indicator:	+		
Ca750 Indicator:	+		
Operating Tsdf:	------		
Full Enforcement:	------		
Snc:	N		
Unaddressed Snc:	N		
Addressed Snc:	N		
Snc With Comp Sched:	N		
Fa Required:	-----		
Hhandler Last Change:	20150414		
Recognized Trader Importer:	N		
Recognized Trader Exporter:	N		
Slab Importer:	N		

Slab Exporter:	N
Manifest Broker:	N
Subpart P:	N
Contact Language:	
Handler Name:	W & F MFG CO INC
Location Street No:	251
Location Street1:	SENECA ST
Location Street2:	
Location City:	BUFFALO
Location State:	NY
Location Zip:	14204-2013
Location County Code:	NY029
Location County Name:	ERIE
Location Country:	US
Contact Name:	
Contact Street No:	
Contact Street1:	PO BOX 126
Contact Street2:	
Contact City:	BUFFALO
Contact State:	NY
Contact Zip:	14240
Contact Country:	US
Contact Phone & Ext:	
Contact Fax:	
Contact Email Address:	
Contact Title:	
Owner Name:	W & F MFG CO INC
Owner Type:	P
Owner Seq:	1
Operator Name:	W & F MFG CO INC
Operator Type:	P
Operator Seq:	2
Public Notes:	

Hazardous Waste Handler Details

Seq No:	1
Receive Date:	19800818
Handler Name:	W & F MFG CO INC
Fed Waste Generator:	1
Generator Code Description:	Large Quantity Generator
Source Type:	Notification
TSD Activity:	N

Waste Code Details

Waste Code:	D000
Waste Code Desc:	DESCRIPTION
Waste Code:	D001
Waste Code Desc:	IGNITABLE WASTE
Waste Code:	F017
Waste Code Desc:	DESCRIPTION

Hazardous Waste Handler Details

Seq No:	1
Receive Date:	19801119
Handler Name:	W & F MFG CO INC
Fed Waste Generator:	N
Generator Code Description:	Not a Generator, Verified
Source Type:	Part A
TSD Activity:	Y

Waste Code Details

Waste Code: D001
Waste Code Desc: IGNITABLE WASTE

Waste Code: F017
Waste Code Desc: DESCRIPTION

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19990708
Handler Name: W & F MFG CO INC
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Hazardous Waste Handler Details

Seq No: 2
Receive Date: 20060101
Handler Name: W & F MFG CO INC
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Hazardous Waste Handler Details

Seq No: 3
Receive Date: 20070101
Handler Name: W & F MFG CO INC
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Private
Name: W & F MFG CO INC
Dt Became Current:
Dt Ended Current:
Phone: 716-856-3600
Source Type: Implementer
Street No:
Street1: 251 SENECA ST
Street2:
City: OPERCITY
State: NY
Country: US
Zip: 99999

Owner/Operator Ind: Current Owner
Type: Private
Name: W & F MFG CO INC
Dt Became Current:
Dt Ended Current:
Phone: 716-856-3600
Source Type: Implementer
Street No:
Street1: 251 SENECA ST
Street2:
City: BUFFALO
State: NY
Country: US
Zip: 14204

Owner/Operator Ind: Current Owner
Type: Private
Name: W & F MFG CO INC
Dt Became Current:
Dt Ended Current:
Phone: 716-856-3600
Source Type: Notification
Street No:
Street1: 251 SENECA ST
Street2:
City: BUFFALO
State: NY
Country:
Zip: 14204

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street1:**	251 SENECA ST
Name:	W & F MFG CO INC	**Street2:**	
Dt Became Current:		**City:**	OPERCITY
Dt Ended Current:		**State:**	NY
Phone:	716-856-3600	**Country:**	
Source Type:	Part A	**Zip:**	99999

Historical Handler Details

Receive Dt: 20060101
Generator Code Description: Not a Generator, Verified
Handler Name: W & F MFG CO INC

Receive Dt: 19990708
Generator Code Description: Not a Generator, Verified
Handler Name: W & F MFG CO INC

Receive Dt: 19801119
Generator Code Description: Not a Generator, Verified
Handler Name: W & F MFG CO INC

Receive Dt: 19800818
Generator Code Description: Large Quantity Generator
Handler Name: W & F MFG CO INC

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Handler ID: NYD041042003
Generator Status: N
Recycler Activity?: NO
Recycler Activity Note: This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note: VIOLATION or UNDETERMINED: There are VIOLATION or UNDETERMINED details or records associated with this facility (EPA ID) in the Compliance Monitoring and Enforcement table dated Apr 2025.

Violation Details

Viol Type:	262.C	**Actual Rtc Date:**	20060802
Citation:		**Found Violation:**	Yes
Determined Date:	20060712	**Rtc Qualifier:**	Documented
Scheduled Compliance Date:			
Eval Activity Location:	NY		
Viol Determined By Agency:	State		
Viol Short Desc:	Generators - Pre-transport		

Enforcement Details

Enf Type: 120
Enf Type Desc: WRITTEN INFORMAL
Enf Action Date: 20060720
Disposition Status Desc:
Disposition Status Date:
Enf Agency: State
Proposed Amount:
Final Amount:
Paid Amount:

Violation Details

Viol Type: 273.B
Citation:
Determined Date: 20060712
Scheduled Compliance Date:
Eval Activity Location: NY
Viol Determined By Agency: State
Viol Short Desc: Universal Waste - Small Quantity Handlers
Actual Rtc Date: 20060802
Found Violation: Yes
Rtc Qualifier: Documented

Enforcement Details

Enf Type: 120
Enf Type Desc: WRITTEN INFORMAL
Enf Action Date: 20060720
Disposition Status Desc:
Disposition Status Date:
Enf Agency: State
Proposed Amount:
Final Amount:
Paid Amount:

Evaluation Details

Eval Start Date: 20080630
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 20060712
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc: Universal Waste - Small Quantity Handlers
Actual Rtc Date: 20060802
Eval Agency: State

Eval Start Date: 20060712
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc: Generators - Pre-transport
Actual Rtc Date: 20060802
Eval Agency: State

Eval Start Date: 20030306
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19980909
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19950726
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19860910
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Handler Summary

Importer:	No	***Used Oil Transpor:***	No
Mixed Waste Gen:	No	***Used Oil Trans Fac:***	No
Transporter:	No	***Used Oil Processor:***	No
Transfer Facility:	No	***Used Oil Refiner:***	No
Recycler:	No	***Used Oil Burner:***	No
Onsite Burner Exem:	No	***Commercial TSD:***	No
Furnace Exemption:	No	***Recycl Nonstorage:***	No
Underground Injec:	No		
Used Oil Market Burner:	No		
Used Oil Spec Marketer:	No		

Additional Handler Summary Details

Source Type:	I	***NAIC 1:***	339112
Seq No:	4	***NAIC 2:***	
Non Notifier:		***NAIC 3:***	
Receive Date:	20131210	***NAIC 4:***	
Active Site:	-----	***State:***	NY
Land Type:	P	***Location Latitude:***	42.878637
In Handler Univ:	N	***Location Longitude:***	-78.867282
In A Universe:	N	***Loc GIS Primary:***	N
Gen Status:	N	***Loc GIS Origin:***	UC
Report Cycle:		***State District Owner:***	NY
Accessibility:		***State District:***	NYSDEC R9
Region:	02		
Fed Waste Gen Owner:	HQ		
State Waste Generator Owner:	NY		
State Waste Generator:	S		
Short Term Generator:	N		
Uni Waste:	N		
Universal Waste Dest Facility:	N		
Federal Universal Waste:	N		
As Federally Regulated Tsdf:	------		
As Converter Tsdf:	------		
As State Regulated Tsdf:	------		
As State Regulated Handler:	---		
Federal Indicator:	---		
Hsm:	N		
Subpart K:	----		
GPRA Permit:	N		
GPRA Renewal:	N		
Permit Renewal Wrkld:	------		
Permwrk ID:	------		
Perm Prog:	------		
Pcwrkld:	------		
Closwrkld:	------		
GPRA Ca:	N		
Cawrkld:	N		
Subjca Tsd Discretion:	N		
NCAPS:	N		
EC Indicator:	N		
Ca725 Indicator:	N		
Ca750 Indicator:	N		
Operating Tsdf:	------		
Full Enforcement:	------		
Snc:	N		
Unaddressed Snc:	N		
Addressed Snc:	N		
Snc With Comp Sched:	N		
Fa Required:	-----		
Hhandler Last Change:	20150130		
Recognized Trader Importer:	N		
Recognized Trader Exporter:	N		
Slab Importer:	N		

Slab Exporter:	N
Manifest Broker:	N
Subpart P:	N
Contact Language:	EN
Handler Name:	ETHOX INTERNATIONAL
Location Street No:	251
Location Street1:	SENECA ST
Location Street2:	
Location City:	BUFFALO
Location State:	NY
Location Zip:	14204
Location County Code:	NY029
Location County Name:	ERIE
Location Country:	US
Contact Name:	MARK ZAK
Contact Street No:	
Contact Street1:	
Contact Street2:	
Contact City:	
Contact State:	
Contact Zip:	
Contact Country:	US
Contact Phone & Ext:	716-687-4416 x215
Contact Fax:	
Contact Email Address:	MZAK@MOOG.COM
Contact Title:	ENVIRON COMPL PROJ ENGR
Owner Name:	
Owner Type:	
Owner Seq:	
Operator Name:	
Operator Type:	
Operator Seq:	
Public Notes:	

Hazardous Waste Handler Details

Seq No:	1
Receive Date:	19861222
Handler Name:	ETHOX CORP
Fed Waste Generator:	2
Generator Code Description:	Small Quantity Generator
Source Type:	Notification
TSD Activity:	N

Waste Code Details

Waste Code:	F003
Waste Code Desc:	THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Waste Code:	F005
Waste Code Desc:	THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Waste Code:	U002
Waste Code Desc:	2-PROPANONE (I) (OR) ACETONE (I)

Waste Code: U057
Waste Code Desc: CYCLOHEXANONE (I)

Waste Code: U140
Waste Code Desc: 1-PROPANOL, 2-METHYL- (I,T) (OR) ISOBUTYL ALCOHOL (I,T)

Waste Code: U159
Waste Code Desc: 2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)

Waste Code: U213
Waste Code Desc: FURAN, TETRAHYDRO-(I) (OR) TETRAHYDROFURAN (I)

Waste Code: U220
Waste Code Desc: BENZENE, METHYL- (OR) TOLUENE

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19990714
Handler Name: ETHOX CORP
Fed Waste Generator: 2
Generator Code Description: Small Quantity Generator
Source Type: Implementer
TSD Activity: N

Waste Code Details

Waste Code: NONE
Waste Code Desc: DESCRIPTION

Hazardous Waste Handler Details

Seq No: 2
Receive Date: 20060101
Handler Name: ETHOX CORP
Fed Waste Generator: 2
Generator Code Description: Small Quantity Generator
Source Type: Implementer
TSD Activity: N

Hazardous Waste Handler Details

Seq No: 3
Receive Date: 20070101
Handler Name: ETHOX CORP
Fed Waste Generator: 2
Generator Code Description: Small Quantity Generator
Source Type: Implementer
TSD Activity: N

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 20100423
Handler Name: ETHOX INTERNATIONAL
Fed Waste Generator: 1
Generator Code Description: Large Quantity Generator
Source Type: Annual/Biennial Report update with Notification
TSD Activity: N

Waste Code Details

Waste Code: D001
Waste Code Desc: IGNITABLE WASTE

Waste Code: D002
Waste Code Desc: CORROSIVE WASTE

Waste Code: U003
Waste Code Desc: ACETONITRILE (I,T)

Waste Code: U154
Waste Code Desc: METHANOL (I) (OR) METHYL ALCOHOL (I)

Hazardous Waste Handler Details

Seq No: 4
Receive Date: 20131210
Handler Name: ETHOX INTERNATIONAL
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Waste Code Details

Waste Code: D001
Waste Code Desc: IGNITABLE WASTE

Waste Code: D002
Waste Code Desc: CORROSIVE WASTE

Waste Code: U003
Waste Code Desc: ACETONITRILE (I,T)

Waste Code: U154
Waste Code Desc: METHANOL (I) (OR) METHYL ALCOHOL (I)

Owner/Operator Details

Owner/Operator Ind:	Previous Owner	**Street No:**	251
Type:	Private	**Street1:**	SENECA ST
Name:	MOOG	**Street2:**	
Dt Became Current:	20090119	**City:**	BUFFALO
Dt Ended Current:	20131210	**State:**	NY
Phone:	716-687-4416	**Country:**	US
Source Type:	Implementer	**Zip:**	14204
Owner/Operator Ind:	Current Owner	**Street No:**	251
Type:	Private	**Street1:**	SENECA STREET
Name:	MOOG	**Street2:**	
Dt Became Current:	20090119	**City:**	BUFFALO
Dt Ended Current:		**State:**	NY
Phone:		**Country:**	US
Source Type:	Annual/Biennial Report update with Notification	**Zip:**	14204
Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Private	**Street1:**	NOT REQUIRED
Name:	ETHOX CORP	**Street2:**	
Dt Became Current:		**City:**	NOT REQUIRED
Dt Ended Current:		**State:**	WY
Phone:	212-555-1212	**Country:**	US
Source Type:	Implementer	**Zip:**	99999
Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street1:**	NOT REQUIRED

Name:	ETHOX CORP	**Street2:**	
Dt Became Current:		**City:**	NOT REQUIRED
Dt Ended Current:		**State:**	WY
Phone:	212-555-1212	**Country:**	US
Source Type:	Implementer	**Zip:**	99999
Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Private	**Street1:**	NOT REQUIRED
Name:	ETHOX CORP	**Street2:**	
Dt Became Current:		**City:**	NOT REQUIRED
Dt Ended Current:		**State:**	WY
Phone:	212-555-1212	**Country:**	
Source Type:	Notification	**Zip:**	99999
Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street1:**	
Name:	ETHOX INTERNATIONAL	**Street2:**	
Dt Became Current:	19640601	**City:**	
Dt Ended Current:		**State:**	
Phone:		**Country:**	
Source Type:	Annual/Biennial Report update with Notification	**Zip:**	
Owner/Operator Ind:	Previous Operator	**Street No:**	
Type:	Private	**Street1:**	
Name:	ETHOX INTERNATIONAL	**Street2:**	
Dt Became Current:	19640601	**City:**	
Dt Ended Current:	20131210	**State:**	
Phone:	716-687-4416	**Country:**	US
Source Type:	Implementer	**Zip:**	

Historical Handler Details

Receive Dt:	20100423
Generator Code Description:	Large Quantity Generator
Handler Name:	ETHOX INTERNATIONAL
Receive Dt:	20070101
Generator Code Description:	Small Quantity Generator
Handler Name:	ETHOX CORP
Receive Dt:	20060101
Generator Code Description:	Small Quantity Generator
Handler Name:	ETHOX CORP
Receive Dt:	19990714
Generator Code Description:	Small Quantity Generator
Handler Name:	ETHOX CORP
Receive Dt:	19861222
Generator Code Description:	Small Quantity Generator
Handler Name:	ETHOX CORP

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Handler ID:	NYD002100121
Generator Status:	N
Recycler Activity?:	NO
Recycler Activity Note:	This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note:	VIOLATION or UNDETERMINED: There are VIOLATION or UNDETERMINED details or records associated with this facility (EPA ID) in the Compliance Monitoring and Enforcement table dated Apr 2025.

Violation Details

Viol Type: 262.A
Citation:
Determined Date: 19840626
Scheduled Compliance Date: 19840121
Eval Activity Location: NY
Viol Determined By Agency: EPA
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Found Violation: Yes
Rtc Qualifier: Observed

Enforcement Details

Enf Type: 310
Enf Type Desc: FINAL 3008(A) COMPLIANCE ORDER
Enf Action Date: 19831221
Disposition Status Desc:
Disposition Status Date:
Enf Agency: EPA
Proposed Amount:
Final Amount: 7500
Paid Amount:

Violation Details

Viol Type: 262.A
Citation:
Determined Date: 19830131
Scheduled Compliance Date:
Eval Activity Location: NY
Viol Determined By Agency: EPA
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Found Violation: Yes
Rtc Qualifier: Observed

Enforcement Details

Enf Type: 210
Enf Type Desc: INITIAL 3008(A) COMPLIANCE
Enf Action Date: 19831223
Disposition Status Desc:
Disposition Status Date:
Enf Agency: EPA
Proposed Amount: 7500
Final Amount:
Paid Amount:

Violation Details

Viol Type: 262.A
Citation:
Determined Date: 19830131
Scheduled Compliance Date: 19841206
Eval Activity Location: NY
Viol Determined By Agency: EPA
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Found Violation: Yes
Rtc Qualifier: Observed

Enforcement Details

Enf Type: 210
Enf Type Desc: INITIAL 3008(A) COMPLIANCE
Enf Action Date: 19841106
Disposition Status Desc:
Disposition Status Date:

Enf Agency: EPA
Proposed Amount:
Final Amount:
Paid Amount:

Evaluation Details

Eval Start Date: 19950726
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19871117
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19860909
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19840626
Eval Type Desc: NON-FINANCIAL RECORD REVIEW
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Eval Agency: EPA

Eval Start Date: 19830131
Eval Type Desc: FINANCIAL RECORD REVIEW
Viol Short Desc: Generators - General
Actual Rtc Date: 19841208
Eval Agency: EPA

Handler Summary

Importer: No
Mixed Waste Gen: No
Transporter: No
Transfer Facility: No
Recycler: No
Onsite Burner Exem: No
Furnace Exemption: No
Underground Injec: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No
Used Oil Transpor: No
Used Oil Trans Fac: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Commercial TSD: No
Recycl Nonstorage: No

Additional Handler Summary Details

Source Type: I
Seq No: 3
Non Notifier:
Receive Date: 20070101
Active Site: -----
Land Type:
In Handler Univ: N
In A Universe: Y
Gen Status: N
Report Cycle:
Accessibility:
Region: 02
Fed Waste Gen Owner: HQ
NAIC 1: 339999
NAIC 2:
NAIC 3:
NAIC 4:
State: NY
Location Latitude: 42.87906
Location Longitude: -78.867893
Loc GIS Primary: N
Loc GIS Origin: UC
State District Owner: NY
State District: NYSDEC R9

State Waste Generator Owner:	NY
State Waste Generator:	S
Short Term Generator:	N
Uni Waste:	N
Universal Waste Dest Facility:	N
Federal Universal Waste:	N
As Federally Regulated Tsdf:	------
As Converter Tsdf:	------
As State Regulated Tsdf:	------
As State Regulated Handler:	---
Federal Indicator:	---
Hsm:	N
Subpart K:	----
GPRA Permit:	N
GPRA Renewal:	N
Permit Renewal Wrkld:	------
Permwrk ID:	------
Perm Prog:	---S--
Pcwrkld:	------
Closwrkld:	------
GPRA Ca:	N
Cawrkld:	N
Subjca Tsd Discretion:	Y
NCAPS:	L
EC Indicator:	N
Ca725 Indicator:	+
Ca750 Indicator:	+
Operating Tsdf:	------
Full Enforcement:	------
Snc:	N
Unaddressed Snc:	N
Addressed Snc:	N
Snc With Comp Sched:	N
Fa Required:	-----
Hhandler Last Change:	20150414
Recognized Trader Importer:	N
Recognized Trader Exporter:	N
Slab Importer:	N
Slab Exporter:	N
Manifest Broker:	N
Subpart P:	N
Contact Language:	
Handler Name:	W & F MFG CO INC
Location Street No:	251
Location Street1:	SENECA ST
Location Street2:	
Location City:	BUFFALO
Location State:	NY
Location Zip:	14204-2013
Location County Code:	NY029
Location County Name:	ERIE
Location Country:	US
Contact Name:	
Contact Street No:	
Contact Street1:	PO BOX 126
Contact Street2:	
Contact City:	BUFFALO
Contact State:	NY
Contact Zip:	14240
Contact Country:	US
Contact Phone & Ext:	
Contact Fax:	
Contact Email Address:	
Contact Title:	
Owner Name:	W & F MFG CO INC
Owner Type:	P
Owner Seq:	1
Operator Name:	W & F MFG CO INC
Operator Type:	P

Operator Seq: 2
Public Notes:

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19800818
Handler Name: W & F MFG CO INC
Fed Waste Generator: 1
Generator Code Description: Large Quantity Generator
Tsd Activity: N
Source Type: Notification

Waste Code Details

Waste Code: D000
Waste Code Desc: DESCRIPTION

Waste Code: D001
Waste Code Desc: IGNITABLE WASTE

Waste Code: F017
Waste Code Desc: DESCRIPTION

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19801119
Handler Name: W & F MFG CO INC
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Tsd Activity: Y
Source Type: Part A

Waste Code Details

Waste Code: D001
Waste Code Desc: IGNITABLE WASTE

Waste Code: F017
Waste Code Desc: DESCRIPTION

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19990708
Handler Name: W & F MFG CO INC
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Tsd Activity: N
Source Type: Implementer

Hazardous Waste Handler Details

Seq No: 2
Receive Date: 20060101
Handler Name: W & F MFG CO INC
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Tsd Activity: N
Source Type: Implementer

Hazardous Waste Handler Details

Seq No:	3
Receive Date:	20070101
Handler Name:	W & F MFG CO INC
Fed Waste Generator:	N
Generator Code Description:	Not a Generator, Verified
Tsd Activity:	N
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Private	***Street1:***	251 SENECA ST
Name:	W & F MFG CO INC	***Street2:***	
Dt Became Current:		***City:***	OPERCITY
Dt Ended Current:		***State:***	NY
Phone:	716-856-3600	***Country:***	US
Source Type:	Implementer	***Zip:***	99999
Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Private	***Street1:***	251 SENECA ST
Name:	W & F MFG CO INC	***Street2:***	
Dt Became Current:		***City:***	OPERCITY
Dt Ended Current:		***State:***	NY
Phone:	716-856-3600	***Country:***	
Source Type:	Part A	***Zip:***	99999
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street1:***	251 SENECA ST
Name:	W & F MFG CO INC	***Street2:***	
Dt Became Current:		***City:***	BUFFALO
Dt Ended Current:		***State:***	NY
Phone:	716-856-3600	***Country:***	
Source Type:	Notification	***Zip:***	14204
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street1:***	251 SENECA ST
Name:	W & F MFG CO INC	***Street2:***	
Dt Became Current:		***City:***	BUFFALO
Dt Ended Current:		***State:***	NY
Phone:	716-856-3600	***Country:***	US
Source Type:	Implementer	***Zip:***	14204

Historical Handler Details

Receive Dt:	20060101
Generator Code Description:	Not a Generator, Verified
Handler Name:	W & F MFG CO INC
Receive Dt:	19990708
Generator Code Description:	Not a Generator, Verified
Handler Name:	W & F MFG CO INC
Receive Dt:	19801119
Generator Code Description:	Not a Generator, Verified
Handler Name:	W & F MFG CO INC
Receive Dt:	19800818
Generator Code Description:	Large Quantity Generator
Handler Name:	W & F MFG CO INC

22	***1 of1***	***NW***	***0.10 /***	***598.03 /***	***LAWN AT BRAGGS RESIDENCE***	***NY SPILLS***

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
			535.16	6	229 SOUTH DIVISION BUFFALO NY	

Spill No:	9804030	**UST Trust:**	False
Site ID:	99236	**Spill Date:**	06/24/1998 12:00:00 PM
DER Facility ID:	88218	**Received Date:**	06/30/1998 09:00:00 AM
CID:	999	**CAC Date:**	
Program Type:	ER	**Insp Date:**	
SWIS Code:	1502	**Close Date:**	06/30/1998 12:00:00 AM
Water Body:		**Create Date:**	06/30/1998 12:00:00 AM
Class:	D5	**Update Date:**	07/09/1998 12:00:00 AM
Meets Std:	True	**DEC Region:**	9
Penalty:	False	**Lead DEC:**	BRENNAN
REM Phase:	0	**After Hours:**	False

County: Erie
Contributing Factor: Deliberate
Reported by: Affected Persons
Referred to:
Source: Commercial/Industrial
Category: Possible petroleum release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters, known releases with no potential for damage, or non-petroleum/non-hazardous spills.
Class Desc: Any Type of RP Including No RP - No DEC Field Response - Corrective Action by Spill Response Not Required
Report Source: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"APPLIED LAWN TREATMENT TO MS.BRAGGS HOME LAWN WHEN THEY SHOULD HAVE APPLIED IT TO ANOTHER LAWN. SHE WAS HOME AT THE TIME AND WAS EXPOSED. SHE BROKE OUT IN A RASH AND HASN'T FELT WELL SINCE THAT TIME."

DEC Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was KAB 6/30/98 - KAB RECEIVED COMPLAINT OF IRRITATION TO COMPLAINANT AS A RESULT OF LAWN CARE APPLICATION. REFERRED COMPLAINT TO GLENN REINHARDT, PESTICIDES AND NYSDOH FOR FOLLOW-UP. NO ACTION BY SPILLS NECESSARY."

Material Information

OP Unit ID:	1061695	**Med Ind Air:**	False
OU:	01	**Med GW:**	False
Material ID:	318761	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Other	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		

Material Code: 1189A
Material Name: lawn chemicals

Spiller Information

Spiller Name:
Spiller Company: FUNK LAWN CARE
Spiller Address: 330 FILLMORE AVENUE
Spiller City: TONAWANDA
Spiller State: NY
Spiller Zip: -
Spiller Country: 001
Contact Name:
Contact Phone:
Contact Ext:
Latitude: 42.881200440
Longitude: -78.867411610

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
23	1 of1	E	0.10 / 545.63	591.27 / -1	Castiglia Chas 346 Swan Buffalo NY	HIST RISK

Historic Potential Business Activity Risk

Year:	1950
Directory Publisher:	POLKS
Broad Term:	Fuel and Automotive
Directory Heading:	GASOLINE STATIONS
Listing:	Castiglia Chas
Address:	346 Swan
Address2:	
City:	Buffalo
State:	NY
Zip:	

24	1 of1	E	0.11 / 563.04	591.23 / -1	Pescara Vito 348 Swan Buffalo NY	HIST RISK

Historic Potential Business Activity Risk

Year:	1935
Directory Publisher:	POLKS
Broad Term:	Potential Hazardous Chemical User
Directory Heading:	CLOTHES PRESSERS AND CLEANERS
Listing:	Pescara Vito
Address:	348 Swan
Address2:	
City:	Buffalo
State:	NY
Zip:	

25	1 of1	SE	0.11 / 574.36	587.92 / -4	NATIONAL FUEL GAS 340 SENECA STREET BUFFALO NY	NY SPILLS

Spill No:	9306745	**UST Trust:**	False
Site ID:	74972	**Spill Date:**	08/31/1993 09:20:00 AM
DER Facility ID:	70255	**Received Date:**	08/31/1993 10:00:00 AM
CID:		**CAC Date:**	11/12/1993 12:00:00 AM
Program Type:	ER	**Insp Date:**	09/01/1993 12:00:00 AM
SWIS Code:	1502	**Close Date:**	11/12/1993 12:00:00 AM
Water Body:		**Create Date:**	09/02/1993 12:00:00 AM
Class:	C3	**Update Date:**	09/29/1999 12:00:00 AM
Meets Std:	True	**DEC Region:**	9
Penalty:	False	**Lead DEC:**	PRINGLE
REM Phase:	0	**After Hours:**	False

County:	Erie
Contributing Factor:	Equipment Failure
Reported by:	Responsible Party
Referred to:	
Source:	Commercial/Industrial
Category:	Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class Desc:	Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Report Source:	NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"FUEL LINE TO BACKHOE BROKE"

DEC Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MNP 08/31/93: MNP/SITE - APPROX. 15 GALS. FUEL OIL ON PAVEMENT ON SENECA ST. FUEL RAN OFF INTO SAME SOIL THAT WAS ALREADY TO BE EXCAVATED. NFG SAID CONTRACTOR WOULD BE OUT TODAY TO EXCAVATE. 09/01/93: MNP/SITE - OIL ON PAVEMENT CLEANED UP. SOME SOIL EXCAVATED AND COVERED W/PLASTIC. CONTAMINATED SOIL TO BE REMOVED 9/2/93. SOILS TO BE MOVED TO NFG'S MINERAL SPRINGS RD. FACILITY. 09/02/93: MNP/SITE - CONTAMINATED SOIL REMOVED TO APPROXIMATELY 4 FEET BELOW GRADE. SOIL TAKEN TO MINERAL SPRINGS ROAD. 2 DRUMS OF HAND-DUG SOIL REMAIN AT SITE. 09/02/93: MNP/SITE - CONTAMINATED SOIL REMOVED TO APPROXIMATELY 4 FEET BELOW GRADE. SOIL TAKEN TO MINERAL SPRINGS ROAD. WAITING FOR DISPOSAL RECEIPT. 11/02/93: MNP 10/29/93 1ST DISPOSAL RECEIPT LTR SENT REQ RESPONSE BY 11/15/93. 11/12/93: SOIL DISPOSAL RECEIPT RECEIVED. SITE CAN BE CLOSED. "

Material Information

OP Unit ID:	984903	***Med Ind Air:***	False
OU:	01	***Med GW:***	False
Material ID:	396593	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:	15.00	***Med Surf:***	False
Units:	G	***Med Subway:***	False
Recovered:	15.00	***Med Utility:***	False
Med Soil:	True	***Oxygenate:***	
Med Air:	False		
Material Code:	0008		
Material Name:	diesel		

Spiller Information

Spiller Name:	
Spiller Company:	NATIONAL FUEL GAS
Spiller Address:	10 LAFAYETTE SQUARE
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14203
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.878546230
Longitude:	-78.864160480

26	***1 of1***	***E***	***0.11 / 575.20***	***591.61 / -1***	***OLD GASOLINE STATION 348 SWAN ST. BUFFALO NY***	***NY SPILLS***

Spill No:	0075570	***UST Trust:***	False
Site ID:	63139	***Spill Date:***	01/18/2001 02:30:00 PM
DER Facility ID:	61067	***Received Date:***	01/18/2001 02:30:00 PM
CID:		***CAC Date:***	
Program Type:	ER	***Insp Date:***	
SWIS Code:	1500	***Close Date:***	12/17/2002 12:00:00 AM
Water Body:		***Create Date:***	01/18/2001 02:32:00 PM
Class:	B3	***Update Date:***	02/06/2003 12:00:00 AM
Meets Std:	True	***DEC Region:***	9
Penalty:	False	***Lead DEC:***	BFGRABER
REM Phase:	0	***After Hours:***	False
County:	Erie		
Contributing Factor:	Unknown		
Reported by:	Tank Tester		
Referred to:			
Source:	Gasoline Station or other PBS Facility		
Category:	Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.		
Class Desc:	Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency		

Report Source: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"CALLER SAID THAT THEY ENCOUNTED CONTAMINATED SOIL AND GROUNDWATER WHILE DOING A PHASE II INVESTIGATION."

DEC Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was BG 1/19/01 FG SPOKE TO DOUG REID WITH LCS WHO SAID HE WILL HAVE A REPORT IN WITHIN TWO WEEKS. 2/2/01 LEFT A MESSAGE TO HAVE DOUG REID CALL REGARDING SUBMISSION OF THE SITE ASSESSMENT. 2/27/01 DOUG REID WITH LCS CALLED. I TOLD HIM WE WILL NEED THE PHASE I. HE SAID THAT RESIDENTIAL HOUSING IS BEING PLANNED ON THE SITES AND THAT THERE ARE NO RECORDS IN THE CITY OF BUFFALO FIRE DEPT THAT UST'S WERE REMOVED FROM THE SITE. CONSIDERING THESE FACTS, ADDITIONAL REMEDIATION WILL PROBABLY BE REQUIRED. I TOLD HIM I WILL LOOK AT THE OWNERSHIP AND NOTIFY WHOEVER THAT IS. CALLED CITY OF BUFFALO, REAL PROPERTY. THEY SAID THAT THE OWNER IS ELLICOTT HOUSES, 421 S. DIVISION, BUFFALO C/O JOE CONNOR. 3/12/01 REC'D PHASE I FROM LCS. IT SHOWS THAT GAS STATIONS WERE LOCATED AT 346-348 SWAN AND 363 SOUTH DIVISION AND THAT NO RECORD OF TANKS HAVING BEEN REMOVED WAS FOUND. 3/16/01 MARY BINDER (518)486-3379 WITH NYS HOUSING CALLED. SHE IS AN ENVIRONMENTAL ANALYST. SHE WAS ASKING ABOUT THIS SPILL AND I GAVE HER AN UPDATE THAT REMEDIATION WOULD BE REQUIRED. SHE REQUESTED THAT SHE BE CC'D ON ALL CORRESPONDENCE. HER ADDRESS IS: MARY BINDER NYS DIV OF HOUSING & COMMUNITY RENEWAL 38-40 STATE ST HAMPTON PLAZA ALBANY, NY 12207 3/19/01 LCS SUBMITTED A WORK PLAN FOR THE SITE. THEY PLAN ON REMOVING THE CONTAMINATION AND WILL LET US KNOW WHEN THEY WILL START. 5/3/01 RECD REPORT OF FINDINGS FROM THE INVESTIGATION. CONTAMINATION REPORTED IN AREA ADJACENT TO BH9. CONTAMINATION TO BE EXCAVATED AND DISPOSED. REQUESTED AN APPROVAL LTR FROM NYSDEC. 10/29/01: MF T/C LCS BOB S, PROPERTY JUST CLOSED ON. HE WILL FOLLOW UP DEVELOPER. 10/30/01: MF T/C DOUG REID, LCS. FUTURE PROPERTY OWNER IS LOOKING FOR STATE FOUNDING. NO REMEDIAL DONE SO FAR. 11/01/01: FG SENT LETTER TO ELLICOTT HOUSES, INC. REQUESTING EXCAVATION SAMPLE RESULTS AND DISPOSAL RECEIPTS BY 11/23/01. 11/26/01: MF FOR FG KAREN KRAUTHEIM'S NEW ADDRESS: KLK DEVELOPMENT CONSULTANTS INC 46 INNINGWOOD RD OSSING, N.Y. 10562 914-923-9730 T/C BOB SZUSTAKOWSKI, LCS, PROJECT DELAYED DUE TO STATE FUNDING PROBLEM. MAY START IN THE SPRING IF FUNDING IS AVAILABLE. 9/30/02: JAA T/C DOUG REID, LCS. PLAN TO START EXCAVATING, PER PRIOR APPROVED WORKPLAN NEXT MONDAY. FRAC/BAKER TANK IS ON SITE IN CASE THEY RUN INTO WATER IN EXCAVATION, FENCE AROUND SITE. THEY HAVE TAKEN A COUPLE SAMPLES TO PRE-QUALIFY FOR LANDFILL. TOLD HIM IF AFTER EXCAVATION, CONTAMINATION EXTENDS INTO BEDROCK, WE MAY REQUIRE FURTHER INVESTIGATION. HE REQUESTED A CALL BACK WITH NAME OF CONTACT WHILE FRANCINE IS OUT. 10/02/02: JAA REASSIGNED SPILL TO BG. 10/03/02: BG T/C MARY BINDER (NYS HOUSING) AND INFORMED HER BG IS DEC LEAD AND THAT REMEDIATION WILL BEGIN ON 10/7/02. BG INFORMED DOUG REID (LCS - 583-3415) THAT BG WILL BE HANDLING SPILL. ALSO LEFT MESSAGE W/CAMERON O'CONNER (DOH - 847-4385) TO CALL BACK. 10/03/02: BG SITE VISIT. MET BOBBY ROBINSON AND WAS INFORMED THAT HOUSING DEVELOPMENT WILL BE 2-STORY W/BASEMENT. 10/04/02: CAMERON O'CONNOR RETURNED CALL TO BG AND WAS INFORMED SPILL REMEDIATION WILL BE AT LOCATION OF FUTURE HOUSING DEVELOPMENT. BG REQUESTED HIS ADVISE ON HEALTH IMPACTS. HE WILL TRY TO VISIT SITE WEDNESDAY (10/9/02). 10/08/02: BG SITE VISIT. LCS & CONTRACTOR BEGAN EXCAVATING AND STAGING (CLEAN - 0.0 PPM PID) SOIL ON SITE. 10/09/02: CAMERON & BG SITE VISIT. CAMERON INDICATED THAT HE WAS NOT CONCERNED OF HEALTH IMPACTS AFTER REMEDIATION EXCEPT THAT BACKFILL MAT'L MUST BE CLEAN. HE WILL CHECK WHERE BACKFILL WILL COME FROM. 10/15/02: BG SITE VISIT. CONTRACTOR COMPLETED EXCAV OF CONTAMINAT SOIL AND STAGING OF CLEAN SOIL (10/14/02). LCS PREVIOUSLY SAMPLED EXCAVATION SIDEWALLS AND STAGED SOIL FOR TESTING. LCS FAXED SIDEWALL AND STAGED SOIL SAMPLE TEST RESULTS TO DEC - ALL BELOW STARS. BG SENT LETTER TO LCS APPROVING USING STAGED SOIL FOR BACKFILL - CC'D MARY BINDER. 10/18/02: BG SITE VISIT. CONTRACTOR HIRED BY LCS COMPLETED BACKFILLING STAGED SOIL INTO EXCAVATION. SOME SOIL CONTAINING ASPHALT LEFT ON-SITE - NOT TO BE USED AS BACKFILL. 10/21/02: BG SENT LETTER TO LCS REQUESTING INFO ON ADDITIONAL BACKFILL TO BE PLACED IN EXCAVATION. 11/01/02: REC'D LCS LETTER REQUESTING APPROVAL TO USE SOIL FROM AREA ADJACENT TO SUBJECT PROPERTY - AREA OTHER THAN THE HISTORIC GAS STATIONS. 11/04/02: LETTER SENT TO LCS APPROVING USE OF SOIL FOR BACKFILL. (CC'D MARY BINDER) NYS DIVISION OF HOUSING COMMUNITY RENWAL 38-40 STATE STREET HAMPTON PLAZA ALBANY, NY 12207 PH # (518) 486-3379 12/10/02: BG SITE VISIT. ANASTASI TRUCKING BACKFILLING AND COMPACTING EXCAVATION WITH CLAYEY SOIL-W/BRICKS FROM ANASTASI SOIL STOCKPILE NEAR THE INTERSECTION OF BAILEY & BROADWAY. DOUG REID WAS INFORMED OF THIS. DEC AWAITING FINAL REPORT FROM LCS. 12/10/02: DOUG REID T/C BG AND SAID BACKFILL SOIL CAME FROM NEARBY HOUSING DEVELOPMENT EXCAVATIONS. 12/17/02: REC'D SPILL CLOSURE REPORT FROM LCS. 12/17/02: CLOSURE LETTER SENT TO KAREN KRAUTHEIM-KLK (LCS CC'D. AND MARY BINDER NOTIFIED). 12/20/02: A COPY OF CLOSURE REPORT WAS GIVEN TO CAMERON O'CONNOR. 12/31/02: CAMERON O'CONNOR T/C BG AND SAID THE CLOSURE REPORT SHOWED NOTHING TO INDICATE ANY HEALTH CONCERNES. HE WILL SEND SPILLS A LETTER AND ALSO T/C AND CC MARY BINDER. ******* SPILL CLOSED ---- NO FURTHER ACTION REQUIRED ******* "

Material Information

OP Unit ID:	836936	***Med Ind Air:***	False
OU:	01	***Med GW:***	True
Material ID:	539146	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:	.00	***Med Surf:***	False
Units:	G	***Med Subway:***	False
Recovered:	.00	***Med Utility:***	False
Med Soil:	False	***Oxygenate:***	True
Med Air:	False		
Material Code:	0008		
Material Name:	diesel		

OP Unit ID:	836936	**Med Ind Air:**	False
OU:	01	**Med GW:**	True
Material ID:	573970	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Oxygenates	**Med Sewer:**	False
Quantity:		**Med Surf:**	False
Units:		**Med Subway:**	False
Recovered:		**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	True
Med Air:	False		
Material Code:	2645A		
Material Name:	BTEX		

OP Unit ID:	836936	**Med Ind Air:**	False
OU:	01	**Med GW:**	True
Material ID:	571946	**Med SW:**	False
CAS No:	01634044	**Med DW:**	False
Material Family:	Hazardous Material	**Med Sewer:**	False
Quantity:		**Med Surf:**	False
Units:		**Med Subway:**	False
Recovered:		**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	True
Med Air:	False		
Material Code:	1213A		
Material Name:	MTBE (methyl-tert-butyl ether)		

OP Unit ID:	836936	**Med Ind Air:**	False
OU:	01	**Med GW:**	True
Material ID:	539147	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	True
Med Air:	False		
Material Code:	0009		
Material Name:	gasoline		

Spiller Information

Spiller Name:	KAREN KRAMTHEIM
Spiller Company:	KLK DEVELOPMENT CONTULTAN
Spiller Address:	46 INNINGWOOD RD
Spiller City:	OSSINING
Spiller State:	NY
Spiller Zip:	10562-
Spiller Country:	001
Contact Name:	DOUGLAS REID
Contact Phone:	(716) 845-6145
Contact Ext:	
Latitude:	40.737613220
Longitude:	-73.329740120

27	**1 of1**	**SE**	**0.11 / 578.89**	**587.82 / -4**	**Hill Jan 338 Seneca Buffalo NY**	**HIST RISK**

Historic Potential Business Activity Risk

Year:	1942
Directory Publisher:	POLKS
Broad Term:	Potential Hazardous Chemical User
Directory Heading:	CLOTHES PRESSERS AND CLEANERS

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Listing:	Hill Jan
Address:	338 Seneca
Address2:	
City:	Buffalo
State:	NY
Zip:	

28	1 of1	W	0.11 / 600.88	589.83 / -2	BELT MAINTENANCE SYSTEMS 240 SENECA STREET BUFFALO NY	NY SPILLS

Spill No:	1103266	**UST Trust:**	
Site ID:	450826	**Spill Date:**	06/01/2011 12:00:00 PM
DER Facility ID:	405379	**Received Date:**	06/23/2011 09:34:00 AM
CID:		**CAC Date:**	
Program Type:	ER	**Insp Date:**	
SWIS Code:	1502	**Close Date:**	07/08/2011 12:00:00 AM
Water Body:		**Create Date:**	06/23/2011 09:40:00 AM
Class:	D4	**Update Date:**	07/08/2011 02:51:15 PM
Meets Std:	False	**DEC Region:**	9
Penalty:	False	**Lead DEC:**	FXGALLEG
REM Phase:	0	**After Hours:**	False
County:	Erie		
Contributing Factor:	Unknown		
Reported by:	Other		
Referred to:			
Source:	Commercial/Industrial		
Category:	Possible petroleum release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters, known releases with no potential for damage, or non-petroleum/non-hazardous spills.		
Class Desc:	Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency		
Report Source:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"Phase II shows SVOC exceedances. Will send Phase I +II electronic and paper."

DEC Remark:

"6/23/11 FG SPOKE TO MICHELLE WITTMAN WITH MATRIX. SHE WILL PROVIDE A COPY OF THE PHASE I AND II TODAY. NO PHYSICAL EVIDENCE OF PETROLEUM WAS FOUND BUT THERE WAS EXCEEDANCES OF SVOC'S IN THE AREA THAT USED TO BE AN OIL PIT. THIS IS A PROPERTY TRANSACTION. 7/8/11 MATRIX SUBMITTED THE PHASE I AND II REPORTS. NO PETROLEUM IDENTIFIED BUT EXCEEDANCE OF SVOC'S ABOVE CP51 GUIDANCE LEVELS AT ONE BORING IN A FORMER OIL PIT WAS REPORTED. DUE TO THIS THE SITE IS INACTIVE. NO FURTHER WORK IS REQUIRED. "

Material Information

OP Unit ID:	1201025	**Med Ind Air:**	False
OU:	01	**Med GW:**	False
Material ID:	2197517	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Other	**Med Sewer:**	False
Quantity:		**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:		**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		
Material Code:	0064A		
Material Name:	unknown material		

Spiller Information

Spiller Name:	david paul
Spiller Company:	240 seneca street llc
Spiller Address:	240 seneca street

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Spiller City:	buffalo
Spiller State:	NY
Spiller Zip:	14204
Spiller Country:	999
Contact Name:	DAVID PAUL
Contact Phone:	(716) 445-8189
Contact Ext:	
Latitude:	42.879471501
Longitude:	-78.867556759

29	1 of1	SSW	0.12 / 630.46	587.52 / -5	BUSINESS 254 CARROLL ST BUFFALO NY	NY SPILLS

Spill No:	1908608	**UST Trust:**	False
Site ID:	598804	**Spill Date:**	11/27/2019 10:30:00 AM
DER Facility ID:	547541	**Received Date:**	11/27/2019 10:42:00 AM
CID:		**CAC Date:**	
Program Type:	ER	**Insp Date:**	
SWIS Code:	1502	**Close Date:**	11/29/2019 12:00:00 AM
Water Body:		**Create Date:**	11/27/2019 10:47:00 AM
Class:		**Update Date:**	11/29/2019 09:19:59 AM
Meets Std:	False	**DEC Region:**	9
Penalty:	False	**Lead DEC:**	TDJOHNSO
REM Phase:	0	**After Hours:**	False
County:	Erie		
Contributing Factor:	Equipment Failure		
Reported by:	Other		
Referred to:			
Source:	Commercial/Industrial		
Category:			
Class Desc:			
Report Source:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"2 quarts of mineral oil from a transformer, clean up pending"

DEC Remark:

"11/29/19 TDJ MINOR SPILL OF MINERAL OIL NO FURTHER ACTION FILE CLOSED TO ELECTRONIC ONLY"

Material Information

OP Unit ID:	1346297	**Med Ind Air:**	False
OU:	01	**Med GW:**	False
Material ID:	2356592	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:		**Med Surf:**	False
Units:		**Med Subway:**	False
Recovered:		**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		
Material Code:	2630		
Material Name:	mineral oil		

Spiller Information

Spiller Name:	LISA MONTESANO
Spiller Company:	LISA MONTESANO
Spiller Address:	254 CARROLL ST
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Spiller Country: 999
Contact Name: LISA MONTESANO
Contact Phone: (716) 479-5339
Contact Ext:
Latitude:
Longitude:

30	1 of1	SSE	0.12 / 654.85	586.45 / -6	WEST SENECA SCHOOL 333O SENECA STREET WEST SENECA NY 14224	GEN MANIFEST

RCRA ID:	NYD981567175	**Mailing State:**	NY
District Name:	WEST SENECA SCHOOL	**Mailing ZIP:**	14224
Contact Name:	WEST SENECA SCHOOL	**Mailing ZIP Ext:**	
Business Phone No:	7166745300	**Mailing Country:**	USA
Mailing Street 1:	3330 SENECA STREET	**Location ZIP Ext:**	
Mailing Street 2:		**Location Country:**	USA
Mailing City:	WEST SENECA	**Location County:**	SENECA

Manifest Information

Waste Code(s):

D002: CORROSIVE WASTE (Waste Code Description from EPA Hazardous Waste Identification)

Waste Amounts By Year:

1987: 400 Pounds; 20 Pounds

Manifest Information

Waste Code(s):

D003: REACTIVE WASTE (Waste Code Description from EPA Hazardous Waste Identification)

Waste Amounts By Year:

1987: 20 Pounds; 20 Pounds

Manifest Information

Waste Code(s):

P106: (143-33-9) Sodium cyanide

Waste Amounts By Year:

1987: 20 Pounds; 400 Pounds

Manifest Information

Waste Code(s):

B007: (Wastes containing polychlorinated biphenyls (PCBs)) Other PCB wastes, including contaminated soil, solids, sludges, clothing, rags and dredge material.

Waste Amounts By Year:

2008: 35 Kilograms

Manifest Information

Waste Code(s):

D001: IGNITABLE WASTE (Waste Code Description from EPA Hazardous Waste Identification)

Waste Amounts By Year:

1987: 400 Pounds; 20 Pounds; 400 Pounds; 20 Pounds

Manifest Information

Waste Code(s):

P012: (1327-53-3) Arsenic oxide As2 O3

Waste Amounts By Year:

1987: 20 Pounds

Manifest Information

Waste Code(s):

P022: (75-15-0) Carbon disulfide

Waste Amounts By Year:

1987: 400 Pounds

Manifest Information

Waste Code(s):

U122: (50-00-0) Formaldehyde

Waste Amounts By Year:

1987: 400 Pounds

31	***1 of3***	***SE***	***0.16 / 843.57***	***585.84 / -6***	***POLICE GARAGE 341 SENECA ST Buffalo NY 14204***	***AST***

Site ID:	54129	***Expiry:***	12/14/2027
Site Status:	Active	***County:***	Erie
Program No:	9-427241	***UTM X:***	184373.38654
Program Type Code:	PBS	***UTM Y:***	4754538.25795
Program Type Desc:	Petroleum Bulk Storage Program		
Site Type:	Municipality (Incl. Waste Water Treatment Plants, Utilities, Swimming Pools, etc.)		
Report Source:	Bulk Storage FOIL Data		

Tank Information

Prog No:	9-427241	***UDC Ind:***	0
Tank ID:	171700	***Red Tag Start Date:***	
Tank No:	007	***Red Tag End Date:***	
Tank Status:	1	***Tank Last Test:***	
Tank Status Desc:	In Service	***Tank Next Test Due:***	
Tank Type:	01	***Test Method:***	-
Tank Type Desc:	Steel/Carbon Steel/Iron	***Line Last Test Due:***	

Install Date:	01/01/2000	**Next Line Test Due:**	
Close Date:		**Line Test Method:**	-
Tk Out of Serv Dt:		**Class A Operator:**	
Capacity (Gal):	500	**Class B Operator:**	
Registered:	True	**Modified by:**	VMKREUTZ
Tank Model:		**Last Modified:**	09/20/2022
Pipe Model:			

Tank Location: 3
Tank Location Desc: Aboveground on saddles, legs, stilts, rack or cradle
Category: 2
Category Desc: Category 2 means a tank which was installed from December 27, 1986 through October 11, 2015
Subpart: 4
Subpart Desc: Subpart 4 contains requirements for ASTs (aboveground storage tanks).
Tank Owner Name: WILLIAM L SUNDERLIN
Tank Owner Address: 65 NIAGARA SQ RM 1901 BUFFALO, NY. 14202

Material Information

Material Name: waste oil/used oil
Percent: 100.00

Equipment Information

Equipment: B00
Code Name: None
Type: Tank External Protection

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: I04
Code Name: Product Level Gauge (A/G)
Type: Overfill

Equipment: K00
Code Name: None
Type: Spill Prevention

Equipment: C01
Code Name: Aboveground
Type: Pipe Location

Equipment: E00
Code Name: None
Type: Piping Secondary Containment

Equipment: D01
Code Name: Steel/Carbon Steel/Iron
Type: Pipe Type

Equipment: L09
Code Name: Exempt Suction Piping
Type: Piping Leak Detection

Equipment: F00
Code Name: None
Type: Pipe External Protection

Equipment: A00
Code Name: None
Type: Tank Internal Protection

Equipment: G00
Code Name: None
Type: Tank Secondary Containment

Equipment: H00
Code Name: None
Type: Tank Leak Detection

Tank Information

Prog No:	9-427241	**UDC Ind:**	1
Tank ID:	174635	**Red Tag Start Date:**	
Tank No:	009	**Red Tag End Date:**	
Tank Status:	3	**Tank Last Test:**	
Tank Status Desc:	Closed - Removed	**Tank Next Test Due:**	
Tank Type:	01	**Test Method:**	NN
Tank Type Desc:	Steel/Carbon Steel/Iron	**Line Last Test Due:**	
Install Date:	09/30/2002	**Next Line Test Due:**	
Close Date:	01/01/2010	**Line Test Method:**	
Tk Out of Serv Dt:		**Class A Operator:**	
Capacity (Gal):	200	**Class B Operator:**	
Registered:	True	**Modified by:**	MJGRIFFI
Tank Model:		**Last Modified:**	05/09/2022
Pipe Model:			

Tank Location: 3
Tank Location Desc: Aboveground on saddles, legs, stilts, rack or cradle
Category: 2
Category Desc: Category 2 means a tank which was installed from December 27, 1986 through October 11, 2015
Subpart:
Subpart Desc:
Tank Owner Name:
Tank Owner Address:

Material Information

Material Name: other
Percent: 100.00

Equipment Information

Equipment: I04
Code Name: Product Level Gauge (A/G)
Type: Overfill

Equipment: D01
Code Name: Steel/Carbon Steel/Iron
Type: Pipe Type

Equipment: C01
Code Name: Aboveground
Type: Pipe Location

Equipment: A00
Code Name: None
Type: Tank Internal Protection

Equipment: H00
Code Name: None
Type: Tank Leak Detection

Equipment: L09
Code Name: Exempt Suction Piping
Type: Piping Leak Detection

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: F00

Code Name: None
Type: Pipe External Protection

Equipment: G00
Code Name: None
Type: Tank Secondary Containment

Equipment: B00
Code Name: None
Type: Tank External Protection

Tank Information

Prog No:	9-427241	**UDC Ind:**	1
Tank ID:	171533	**Red Tag Start Date:**	
Tank No:	002	**Red Tag End Date:**	
Tank Status:	3	**Tank Last Test:**	
Tank Status Desc:	Closed - Removed	**Tank Next Test Due:**	
Tank Type:	01	**Test Method:**	NN
Tank Type Desc:	Steel/Carbon Steel/Iron	**Line Last Test Due:**	
Install Date:	01/01/2000	**Next Line Test Due:**	
Close Date:	01/01/2010	**Line Test Method:**	
Tk Out of Serv Dt:		**Class A Operator:**	
Capacity (Gal):	150	**Class B Operator:**	
Registered:	True	**Modified by:**	MJGRIFFI
Tank Model:		**Last Modified:**	05/09/2022
Pipe Model:			

Tank Location: 3
Tank Location Desc: Aboveground on saddles, legs, stilts, rack or cradle
Category: 2
Category Desc: Category 2 means a tank which was installed from December 27, 1986 through October 11, 2015
Subpart:
Subpart Desc:
Tank Owner Name:
Tank Owner Address:

Material Information

Material Name: lube oil
Percent: 100.00

Equipment Information

Equipment: G00
Code Name: None
Type: Tank Secondary Containment

Equipment: D01
Code Name: Steel/Carbon Steel/Iron
Type: Pipe Type

Equipment: C01
Code Name: Aboveground
Type: Pipe Location

Equipment: I01
Code Name: Float Vent Valve
Type: Overfill

Equipment: L09
Code Name: Exempt Suction Piping
Type: Piping Leak Detection

Equipment: J02
Code Name: Suction Dispenser

Type: Dispenser

Equipment: A00
Code Name: None
Type: Tank Internal Protection

Equipment: B00
Code Name: None
Type: Tank External Protection

Equipment: H00
Code Name: None
Type: Tank Leak Detection

Equipment: F00
Code Name: None
Type: Pipe External Protection

Tank Information

Prog No:	9-427241	**UDC Ind:**	1
Tank ID:	174634	**Red Tag Start Date:**	
Tank No:	008	**Red Tag End Date:**	
Tank Status:	3	**Tank Last Test:**	
Tank Status Desc:	Closed - Removed	**Tank Next Test Due:**	
Tank Type:	01	**Test Method:**	NN
Tank Type Desc:	Steel/Carbon Steel/Iron	**Line Last Test Due:**	
Install Date:	09/30/2002	**Next Line Test Due:**	
Close Date:	01/01/2010	**Line Test Method:**	
Tk Out of Serv Dt:		**Class A Operator:**	
Capacity (Gal):	200	**Class B Operator:**	
Registered:	True	**Modified by:**	MJGRIFFI
Tank Model:		**Last Modified:**	05/09/2022
Pipe Model:			

Tank Location: 3
Tank Location Desc: Aboveground on saddles, legs, stilts, rack or cradle
Category: 2
Category Desc: Category 2 means a tank which was installed from December 27, 1986 through October 11, 2015
Subpart:
Subpart Desc:
Tank Owner Name:
Tank Owner Address:

Material Information

Material Name: lube oil
Percent: 100.00

Equipment Information

Equipment: G00
Code Name: None
Type: Tank Secondary Containment

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: H00
Code Name: None
Type: Tank Leak Detection

Equipment: C01
Code Name: Aboveground
Type: Pipe Location

Equipment: I04
Code Name: Product Level Gauge (A/G)
Type: Overfill

Equipment: D01
Code Name: Steel/Carbon Steel/Iron
Type: Pipe Type

Equipment: F00
Code Name: None
Type: Pipe External Protection

Equipment: A00
Code Name: None
Type: Tank Internal Protection

Equipment: L09
Code Name: Exempt Suction Piping
Type: Piping Leak Detection

Equipment: B00
Code Name: None
Type: Tank External Protection

Tank Information

Prog No:	9-427241	**UDC Ind:**	1
Tank ID:	171532	**Red Tag Start Date:**	
Tank No:	001	**Red Tag End Date:**	
Tank Status:	3	**Tank Last Test:**	
Tank Status Desc:	Closed - Removed	**Tank Next Test Due:**	
Tank Type:	01	**Test Method:**	NN
Tank Type Desc:	Steel/Carbon Steel/Iron	**Line Last Test Due:**	
Install Date:	01/01/2000	**Next Line Test Due:**	
Close Date:	01/01/2010	**Line Test Method:**	
Tk Out of Serv Dt:		**Class A Operator:**	
Capacity (Gal):	150	**Class B Operator:**	
Registered:	True	**Modified by:**	MJGRIFFI
Tank Model:		**Last Modified:**	05/09/2022
Pipe Model:			

Tank Location: 3
Tank Location Desc: Aboveground on saddles, legs, stilts, rack or cradle
Category: 2
Category Desc: Category 2 means a tank which was installed from December 27, 1986 through October 11, 2015
Subpart:
Subpart Desc:
Tank Owner Name:
Tank Owner Address:

Material Information

Material Name: lube oil
Percent: 100.00

Equipment Information

Equipment: F00
Code Name: None
Type: Pipe External Protection

Equipment: I01
Code Name: Float Vent Valve
Type: Overfill

Equipment: A00
Code Name: None
Type: Tank Internal Protection

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: B00
Code Name: None
Type: Tank External Protection

Equipment: G00
Code Name: None
Type: Tank Secondary Containment

Equipment: D01
Code Name: Steel/Carbon Steel/Iron
Type: Pipe Type

Equipment: C01
Code Name: Aboveground
Type: Pipe Location

Equipment: L09
Code Name: Exempt Suction Piping
Type: Piping Leak Detection

Equipment: H00
Code Name: None
Type: Tank Leak Detection

Tank Information

Prog No:	9-427241	**UDC Ind:**	0
Tank ID:	171534	**Red Tag Start Date:**	
Tank No:	003	**Red Tag End Date:**	
Tank Status:	1	**Tank Last Test:**	
Tank Status Desc:	In Service	**Tank Next Test Due:**	
Tank Type:	01	**Test Method:**	-
Tank Type Desc:	Steel/Carbon Steel/Iron	**Line Last Test Due:**	
Install Date:	01/01/2000	**Next Line Test Due:**	
Close Date:		**Line Test Method:**	-
Tk Out of Serv Dt:		**Class A Operator:**	
Capacity (Gal):	500	**Class B Operator:**	
Registered:	True	**Modified by:**	VMKREUTZ
Tank Model:		**Last Modified:**	09/20/2022
Pipe Model:			

Tank Location: 3
Tank Location Desc: Aboveground on saddles, legs, stilts, rack or cradle
Category: 2
Category Desc: Category 2 means a tank which was installed from December 27, 1986 through October 11, 2015
Subpart: 4
Subpart Desc: Subpart 4 contains requirements for ASTs (aboveground storage tanks).
Tank Owner Name: WILLIAM L SUNDERLIN
Tank Owner Address: 65 NIAGARA SQ RM 1901 BUFFALO, NY. 14202

Material Information

Material Name: motor oil
Percent: 100.00

Equipment Information

Equipment: E00

Code Name: None
Type: Piping Secondary Containment

Equipment: B00
Code Name: None
Type: Tank External Protection

Equipment: H00
Code Name: None
Type: Tank Leak Detection

Equipment: F00
Code Name: None
Type: Pipe External Protection

Equipment: L09
Code Name: Exempt Suction Piping
Type: Piping Leak Detection

Equipment: C01
Code Name: Aboveground
Type: Pipe Location

Equipment: I04
Code Name: Product Level Gauge (A/G)
Type: Overfill

Equipment: A00
Code Name: None
Type: Tank Internal Protection

Equipment: D01
Code Name: Steel/Carbon Steel/Iron
Type: Pipe Type

Equipment: G00
Code Name: None
Type: Tank Secondary Containment

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: K00
Code Name: None
Type: Spill Prevention

Affiliation Information

Affiliation Type: 07
Affiliation Name: Mail Contact
Affiliation Sub Type: NNN
Company: DEPARTMENT OF INVENTORY AND STORES
Contact Title:
Contact Name: JOHN FIEGEL
Address1: 1901 CITY HALL
Address2:
City: BUFFALO
State: NY
Zip Code: 14202
Country Code: 001
Phone: (716) 851-5562
Phone Ext:
Email: JFIEGEL@CITY-BUFFALO.COM
Fax:

Affiliation Type: 11
Affiliation Name: Emergency Contact

Affiliation Sub Type:	NNN
Company:	CITY OF BUFFALO - DEPT. OF INVENTORY AND STORES
Contact Title:	
Contact Name:	PAUL DESIDERIO
Address1:	
Address2:	
City:	
State:	NN
Zip Code:	
Country Code:	999
Phone:	(716) 851-5562
Phone Ext:	
Email:	
Fax:	

Affiliation Type:	01
Affiliation Name:	Facility Owner
Affiliation Sub Type:	C01
Company:	CITY OF BUFFALO - DEPT. OF INVENTORY AND STORES
Contact Title:	DIRECTOR- PURCHASE/INVENTORY & STORES
Contact Name:	WILLIAM L SUNDERLIN
Address1:	65 NIAGARA SQ RM 1901
Address2:	
City:	BUFFALO
State:	NY
Zip Code:	14202
Country Code:	001
Phone:	(716) 851-5242
Phone Ext:	
Email:	
Fax:	

Affiliation Type:	04
Affiliation Name:	Facility Operator
Affiliation Sub Type:	NNN
Company:	POLICE GARAGE
Contact Title:	
Contact Name:	JOHN FIEGEL
Address1:	
Address2:	
City:	
State:	NN
Zip Code:	
Country Code:	001
Phone:	(716) 851-4144
Phone Ext:	
Email:	
Fax:	

31	2 of3	SE	0.16 / 843.57	585.84 / -6	BUFFALO POLICE GARAGE 341 SENECA STREET BUFFALO NY	LST

Spill No:	9911425	**REM Phase:**	0
Site ID:	218912	**UST Trust:**	True
DER Facility ID:	181073	**Spill Date:**	12/30/1999 01:00:00 PM
CID:	323	**Rcvd Date:**	12/30/1999 01:26:00 PM
Program Type:	ER	**CAC Date:**	01/10/2000 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	
Contribute Factor:	Tank Test Failure	**Close Date:**	01/10/2000 12:00:00 AM
Water Body:		**Create Date:**	12/30/1999 12:00:00 AM
Class:	C3	**Update Date:**	03/19/2002 12:00:00 AM
Meets Std:	True	**Lead DEC:**	MXFRANKS
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.

Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Referred to:
Reported by: Tank Tester
Source: Institutional, Educational, Gov., Other
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"NOTIFICATION MADE. VENT LINE WILL BE REPLACED AND RETEST IS SCHEDULED FOR MONDAY JAN 3RD."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MF 01/10/00: MF TELECON PETER MERLOW OF TYREE, 10,OOO GALLON GASOLINE UST TESTED PRIOR TO REMOVAL. FAILED TIGHTNESS TEST, VENT LINE LEAK. THEY WILL NOT RETEST. ALL TANKS AT THIS SITE ARE SCHEDULED FOR REMOVAL 1/24/00. SEE SPILL # 8908800, STILL ACTIVE. WILL KEEP SPILL # 8908800 ACTIVE. WILL CLOSE THIS SPILL SINCE A DUPLICATE. NO FURTHER ACTION NECESSARY ON THIS SPILL."

Material Information

OP Unit ID:	1090125	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	296884	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		
Material Code:	0009		
Material Name:	gasoline		

Spiller Information

Spiller Name:	ROBERT O'HARA CITY
Spiller Company:	BUFFALO POLICE GARAGE
Spiller Address:	ROOM 616 CITY HALL
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14202-
Spiller Country:	001
Contact Name:	PETER MERLOW TYREE
Contact Phone:	(716) 851-2142
Contact Ext:	
Latitude:	42.878415590
Longitude:	-78.864029890

Tank Test Information

Spill Tank ID:	1547966	**Source:**	
Tank No:		**Leak Rate:**	.00
Tank SIze:	10000	**Gross Fail:**	F
Material:	0009	**Modified by:**	Spills
EPA UST:		**Last Modified:**	2004-10-01 04:00:45.140000000
UST:		**Test Method:**	20
Cause:			
Alt Test Method:	USTest 2000/P/LL plus USTest 2000/U		

31	3 of3	SE	0.16 / 843.57	585.84 / -6	POLICE GARAGE 341 SENECA ST Buffalo NY 14204	UST

Site ID:	54129	**Expiry:**	12/14/2027
Site Status:	Active	**County:**	Erie
Program No:	9-427241	**UTM X:**	184373.38654

Program Type Code:	PBS	**UTM Y:**	4754538.25795
Program Type Desc:	Petroleum Bulk Storage Program		
Site Type:	Municipality (Incl. Waste Water Treatment Plants, Utilities, Swimming Pools, etc.)		
Report Source:	Bulk Storage FOIL Data		

Tank Information

Prog No:	9-427241	**UDC Ind:**	1
Tank ID:	167212	**Red Tag Start Date:**	
Tank No:	6	**Red Tag End Date:**	
Tank Status:	3	**Tank Last Test:**	12/01/1997
Tank Status Desc:	Closed - Removed	**Tank Next Test Due:**	
Tank Type:	01	**Test Method:**	03
Tank Type Desc:	Steel/Carbon Steel/Iron	**Date Tested:**	
Install Date:		**Next Test:**	
Close Date:	12/01/2000	**Line Last Test Due:**	
Tk Out of Serv Dt:		**Next Line Test Due:**	
Capacity (Gal):	8000	**Line Test Method:**	
Registered:	True	**Modified by:**	MJGRIFFI
Tank Model:		**Last Modified:**	05/09/2022
Pipe Model:			
Tank Location:	5		
Tank Location Desc:	Underground		
Category:	1		
Category Desc:	Category 1 means a tank which was installed before December 27, 1986		
Subpart:			
Subpart Desc:			
Class A Operator:			
Class B Operator:			
Tank Owner Name:			
Tank Owner Address:			

Material Information

Material Name:	#2 fuel oil (on-site consumption)
Percent:	100.00

Equipment Information

Equipment:	F00
Code Name:	None
Type:	Pipe External Protection
Equipment:	H99
Code Name:	Other
Type:	Tank Leak Detection
Equipment:	J02
Code Name:	Suction Dispenser
Type:	Dispenser
Equipment:	B00
Code Name:	None
Type:	Tank External Protection
Equipment:	I00
Code Name:	None
Type:	Overfill
Equipment:	A00
Code Name:	None
Type:	Tank Internal Protection
Equipment:	C00
Code Name:	No Piping

Type: Pipe Location

Equipment: G00
Code Name: None
Type: Tank Secondary Containment

Equipment: D01
Code Name: Steel/Carbon Steel/Iron
Type: Pipe Type

Tank Information

Prog No:	9-427241	**UDC Ind:**	1
Tank ID:	221628	**Red Tag Start Date:**	
Tank No:	11	**Red Tag End Date:**	
Tank Status:	1	**Tank Last Test:**	
Tank Status Desc:	In Service	**Tank Next Test Due:**	
Tank Type:	06	**Test Method:**	NN
Tank Type Desc:	Fiberglass Reinforced Plastic (FRP)	**Date Tested:**	
Install Date:	12/31/2000	**Next Test:**	
Close Date:		**Line Last Test Due:**	
Tk Out of Serv Dt:		**Next Line Test Due:**	
Capacity (Gal):	10000	**Line Test Method:**	
Registered:	True	**Modified by:**	VMKREUTZ
Tank Model:	104	**Last Modified:**	09/20/2022
Pipe Model:	D		

Tank Location: 5
Tank Location Desc: Underground
Category: 2
Category Desc: Category 2 means a tank which was installed from December 27, 1986 through October 11, 2015
Subpart: 2
Subpart Desc: Subpart 2 contains requirements for USTs (underground storage tanks) subject to EPA UST regulations and DEC requirements.
Class A Operator: JOHN FIEGEL
Class B Operator: JOHN FIEGEL
Tank Owner Name: WILLIAM L SUNDERLIN
Tank Owner Address: 65 NIAGARA SQ RM 1901 BUFFALO, NY. 14202

Material Information

Material Name: gasoline
Percent: 100.00

Equipment Information

Equipment: I03
Code Name: Automatic Shut-Off
Type: Overfill

Equipment: C02
Code Name: Underground/On-ground
Type: Pipe Location

Equipment: A03
Code Name: Fiberglass Liner (FRP)
Type: Tank Internal Protection

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: F04
Code Name: Fiberglass
Type: Pipe External Protection

Equipment: L09

Code Name: Exempt Suction Piping
Type: Piping Leak Detection

Equipment: E04
Code Name: Double walled UG
Type: Piping Secondary Containment

Equipment: D06
Code Name: Fiberglass Reinforced Plastic (FRP)
Type: Pipe Type

Equipment: G04
Code Name: Double-Walled (Underground)
Type: Tank Secondary Containment

Equipment: K01
Code Name: Catch Basin
Type: Spill Prevention

Equipment: L01
Code Name: Interstitial - Electronic Monitoring
Type: Piping Leak Detection

Equipment: B04
Code Name: Fiberglass
Type: Tank External Protection

Equipment: H01
Code Name: Interstitial - Electronic Monitoring
Type: Tank Leak Detection

Tank Information

Prog No:	9-427241	**UDC Ind:**	1
Tank ID:	167211	**Red Tag Start Date:**	
Tank No:	5	**Red Tag End Date:**	
Tank Status:	3	**Tank Last Test:**	11/01/1997
Tank Status Desc:	Closed - Removed	**Tank Next Test Due:**	
Tank Type:	01	**Test Method:**	03
Tank Type Desc:	Steel/Carbon Steel/Iron	**Date Tested:**	
Install Date:	05/01/1977	**Next Test:**	
Close Date:	12/01/2000	**Line Last Test Due:**	
Tk Out of Serv Dt:		**Next Line Test Due:**	
Capacity (Gal):	10000	**Line Test Method:**	
Registered:	True	**Modified by:**	MJGRIFFI
Tank Model:		**Last Modified:**	05/09/2022
Pipe Model:			

Tank Location: 5
Tank Location Desc: Underground
Category: 1
Category Desc: Category 1 means a tank which was installed before December 27, 1986
Subpart:
Subpart Desc:
Class A Operator:
Class B Operator:
Tank Owner Name:
Tank Owner Address:

Material Information

Material Name: gasoline
Percent: 100.00

Equipment Information

Equipment: G00
Code Name: None
Type: Tank Secondary Containment

Equipment: C00
Code Name: No Piping
Type: Pipe Location

Equipment: A00
Code Name: None
Type: Tank Internal Protection

Equipment: F00
Code Name: None
Type: Pipe External Protection

Equipment: B00
Code Name: None
Type: Tank External Protection

Equipment: I00
Code Name: None
Type: Overfill

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: D01
Code Name: Steel/Carbon Steel/Iron
Type: Pipe Type

Equipment: H99
Code Name: Other
Type: Tank Leak Detection

Tank Information

Prog No:	9-427241	**UDC Ind:**	1
Tank ID:	221627	**Red Tag Start Date:**	
Tank No:	10	**Red Tag End Date:**	
Tank Status:	1	**Tank Last Test:**	
Tank Status Desc:	In Service	**Tank Next Test Due:**	
Tank Type:	06	**Test Method:**	NN
Tank Type Desc:	Fiberglass Reinforced Plastic (FRP)	**Date Tested:**	
Install Date:	12/31/2000	**Next Test:**	
Close Date:		**Line Last Test Due:**	
Tk Out of Serv Dt:		**Next Line Test Due:**	
Capacity (Gal):	3000	**Line Test Method:**	
Registered:	True	**Modified by:**	VMKREUTZ
Tank Model:	104	**Last Modified:**	09/20/2022
Pipe Model:	D		

Tank Location: 5
Tank Location Desc: Underground
Category: 2
Category Desc: Category 2 means a tank which was installed from December 27, 1986 through October 11, 2015
Subpart: 2
Subpart Desc: Subpart 2 contains requirements for USTs (underground storage tanks) subject to EPA UST regulations and DEC requirements.
Class A Operator: JOHN FIEGEL
Class B Operator: JOHN FIEGEL
Tank Owner Name: WILLIAM L SUNDERLIN
Tank Owner Address: 65 NIAGARA SQ RM 1901 BUFFALO, NY. 14202

Material Information

Material Name: diesel

Percent: 100.00

Equipment Information

Equipment: L09
Code Name: Exempt Suction Piping
Type: Piping Leak Detection

Equipment: A03
Code Name: Fiberglass Liner (FRP)
Type: Tank Internal Protection

Equipment: C02
Code Name: Underground/On-ground
Type: Pipe Location

Equipment: G04
Code Name: Double-Walled (Underground)
Type: Tank Secondary Containment

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: F04
Code Name: Fiberglass
Type: Pipe External Protection

Equipment: K01
Code Name: Catch Basin
Type: Spill Prevention

Equipment: I03
Code Name: Automatic Shut-Off
Type: Overfill

Equipment: D06
Code Name: Fiberglass Reinforced Plastic (FRP)
Type: Pipe Type

Equipment: L01
Code Name: Interstitial - Electronic Monitoring
Type: Piping Leak Detection

Equipment: B04
Code Name: Fiberglass
Type: Tank External Protection

Equipment: E04
Code Name: Double walled UG
Type: Piping Secondary Containment

Equipment: H01
Code Name: Interstitial - Electronic Monitoring
Type: Tank Leak Detection

Tank Information

Prog No:	9-427241	**UDC Ind:**	1
Tank ID:	167210	**Red Tag Start Date:**	
Tank No:	4	**Red Tag End Date:**	
Tank Status:	3	**Tank Last Test:**	10/01/1995
Tank Status Desc:	Closed - Removed	**Tank Next Test Due:**	
Tank Type:	01	**Test Method:**	03
Tank Type Desc:	Steel/Carbon Steel/Iron	**Date Tested:**	
Install Date:	10/01/1976	**Next Test:**	
Close Date:	12/01/2000	**Line Last Test Due:**	

Tk Out of Serv Dt:		***Next Line Test Due:***	
Capacity (Gal):	8000	***Line Test Method:***	
Registered:	True	***Modified by:***	MJGRIFFI
Tank Model:		***Last Modified:***	05/09/2022
Pipe Model:			
Tank Location:	5		
Tank Location Desc:	Underground		
Category:	1		
Category Desc:	Category 1 means a tank which was installed before December 27, 1986		
Subpart:			
Subpart Desc:			
Class A Operator:			
Class B Operator:			
Tank Owner Name:			
Tank Owner Address:			

Material Information

Material Name:	diesel
Percent:	100.00

Equipment Information

Equipment:	G00
Code Name:	None
Type:	Tank Secondary Containment
Equipment:	H99
Code Name:	Other
Type:	Tank Leak Detection
Equipment:	F00
Code Name:	None
Type:	Pipe External Protection
Equipment:	D01
Code Name:	Steel/Carbon Steel/Iron
Type:	Pipe Type
Equipment:	B00
Code Name:	None
Type:	Tank External Protection
Equipment:	C00
Code Name:	No Piping
Type:	Pipe Location
Equipment:	A00
Code Name:	None
Type:	Tank Internal Protection
Equipment:	J02
Code Name:	Suction Dispenser
Type:	Dispenser
Equipment:	I00
Code Name:	None
Type:	Overfill

Affiliation Information

Affiliation Type:	01
Affiliation Name:	Facility Owner
Affiliation Sub Type:	C01
Company:	CITY OF BUFFALO - DEPT. OF INVENTORY AND STORES

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Contact Title:	DIRECTOR- PURCHASE/INVENTORY & STORES
Contact Name:	WILLIAM L SUNDERLIN
Address1:	65 NIAGARA SQ RM 1901
Address2:	
City:	BUFFALO
State:	NY
Zip Code:	14202
Country Code:	001
Phone:	(716) 851-5242
Phone Ext:	
Email:	
Fax:	

Affiliation Type:	11
Affiliation Name:	Emergency Contact
Affiliation Sub Type:	NNN
Company:	CITY OF BUFFALO - DEPT. OF INVENTORY AND STORES
Contact Title:	
Contact Name:	PAUL DESIDERIO
Address1:	
Address2:	
City:	
State:	NN
Zip Code:	
Country Code:	999
Phone:	(716) 851-5562
Phone Ext:	
Email:	
Fax:	

Affiliation Type:	04
Affiliation Name:	Facility Operator
Affiliation Sub Type:	NNN
Company:	POLICE GARAGE
Contact Title:	
Contact Name:	JOHN FIEGEL
Address1:	
Address2:	
City:	
State:	NN
Zip Code:	
Country Code:	001
Phone:	(716) 851-4144
Phone Ext:	
Email:	
Fax:	

Affiliation Type:	07
Affiliation Name:	Mail Contact
Affiliation Sub Type:	NNN
Company:	DEPARTMENT OF INVENTORY AND STORES
Contact Title:	
Contact Name:	JOHN FIEGEL
Address1:	1901 CITY HALL
Address2:	
City:	BUFFALO
State:	NY
Zip Code:	14202
Country Code:	001
Phone:	(716) 851-5562
Phone Ext:	
Email:	JFIEGEL@CITY-BUFFALO.COM
Fax:	

32	*1 of1*	*W*	*0.19 / 994.10*	*588.51 / -4*	***SENECA PLUMBING & HEATING CO INC*** ***192-196 SENECA ST*** ***BUFFALO NY 14204***	***RCRA NON GEN***

Handler ID: NYN008010662
Generator Status: N
Recycler Activity?: NO
Recycler Activity Note: This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note: NO VIOLATIONS: All of the compliance records associated with this facility (EPA ID) indicate NO VIOLATIONS; Compliance Monitoring and Enforcement table dated Apr 2025.

Evaluation Details

Eval Start Date: 20010925
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Handler Summary

Importer:	No	**Used Oil Transpor:**	No
Mixed Waste Gen:	No	**Used Oil Trans Fac:**	No
Transporter:	No	**Used Oil Processor:**	No
Transfer Facility:	No	**Used Oil Refiner:**	No
Recycler:	No	**Used Oil Burner:**	No
Onsite Burner Exem:	No	**Commercial TSD:**	No
Furnace Exemption:	No	**Recycl Nonstorage:**	No
Underground Injec:	No		

Used Oil Market Burner: No
Used Oil Spec Marketer: No

Additional Handler Summary Details

Source Type:	I	**NAIC 1:**	
Seq No:	3	**NAIC 2:**	
Non Notifier:		**NAIC 3:**	
Receive Date:	20070101	**NAIC 4:**	
Active Site:	-----	**State:**	NY
Land Type:	P	**Location Latitude:**	42.87963
In Handler Univ:	N	**Location Longitude:**	-78.869094
In A Universe:	N	**Loc GIS Primary:**	N
Gen Status:	N	**Loc GIS Origin:**	UC
Report Cycle:		**State District Owner:**	NY
Accessibility:		**State District:**	NYSDEC R9
Region:	02		

Fed Waste Gen Owner: HQ
State Waste Generator Owner: NY
State Waste Generator: S
Short Term Generator: N
Uni Waste: N
Universal Waste Dest Facility: N
Federal Universal Waste: N
As Federally Regulated Tsdf: ------
As Converter Tsdf: ------
As State Regulated Tsdf: ------
As State Regulated Handler: ---
Federal Indicator: ---
Hsm: N
Subpart K: ----
GPRA Permit: N
GPRA Renewal: N
Permit Renewal WrkId: ------
Permwrk ID: ------

Perm Prog:	------
Pcwrkld:	------
Closwrkld:	------
GPRA Ca:	N
Cawrkld:	N
Subjca Tsd Discretion:	N
NCAPS:	N
EC Indicator:	N
Ca725 Indicator:	N
Ca750 Indicator:	N
Operating Tsdf:	------
Full Enforcement:	------
Snc:	N
Unaddressed Snc:	N
Addressed Snc:	N
Snc With Comp Sched:	N
Fa Required:	-----
Hhandler Last Change:	20150414
Recognized Trader Importer:	N
Recognized Trader Exporter:	N
Slab Importer:	N
Slab Exporter:	N
Manifest Broker:	N
Subpart P:	N
Contact Language:	
Handler Name:	SENECA PLUMBING & HEATING CO INC
Location Street No:	192-196
Location Street1:	SENECA ST
Location Street2:	
Location City:	BUFFALO
Location State:	NY
Location Zip:	14204
Location County Code:	NY029
Location County Name:	ERIE
Location Country:	US
Contact Name:	
Contact Street No:	192-196
Contact Street1:	SENECA ST
Contact Street2:	
Contact City:	BUFFALO
Contact State:	NY
Contact Zip:	14204
Contact Country:	US
Contact Phone & Ext:	
Contact Fax:	
Contact Email Address:	
Contact Title:	
Owner Name:	SENECA PLUMBING & HEATING CO INC
Owner Type:	P
Owner Seq:	1
Operator Name:	SENECA PLUMBING & HEATING CO INC
Operator Type:	P
Operator Seq:	2
Public Notes:	

Hazardous Waste Handler Details

Seq No:	1
Receive Date:	20020708
Handler Name:	SENECA PLUMBING & HEATING CO INC
Fed Waste Generator:	N
Generator Code Description:	Not a Generator, Verified
Source Type:	Implementer
TSD Activity:	N

Hazardous Waste Handler Details

Seq No: 2
Receive Date: 20060101
Handler Name: SENECA PLUMBING & HEATING CO INC
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Hazardous Waste Handler Details

Seq No: 3
Receive Date: 20070101
Handler Name: SENECA PLUMBING & HEATING CO INC
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Owner/Operator Details

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Private	**Street1:**	192-196 SENECA ST
Name:	SENECA PLUMBING & HEATING CO INC	**Street2:**	
Dt Became Current:		**City:**	BUFFALO
Dt Ended Current:		**State:**	NY
Phone:	716-852-4744	**Country:**	
Source Type:	Implementer	**Zip:**	14204
Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Private	**Street1:**	192-196 SENECA ST
Name:	SENECA PLUMBING & HEATING CO INC	**Street2:**	
Dt Became Current:	20010101	**City:**	BUFFALO
Dt Ended Current:		**State:**	NY
Phone:	716-852-4744	**Country:**	US
Source Type:	Implementer	**Zip:**	14204
Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street1:**	192-196 SENECA ST
Name:	SENECA PLUMBING & HEATING CO INC	**Street2:**	
Dt Became Current:	20010101	**City:**	BUFFALO
Dt Ended Current:		**State:**	NY
Phone:	716-852-4744	**Country:**	US
Source Type:	Implementer	**Zip:**	14204

Historical Handler Details

Receive Dt: 20060101
Generator Code Description: Not a Generator, Verified
Handler Name: SENECA PLUMBING & HEATING CO INC

Receive Dt: 20020708
Generator Code Description: Not a Generator, Verified
Handler Name: SENECA PLUMBING & HEATING CO INC

33	1 of1	S	0.20 / 1,055.95	580.54 / -12	LAMAR OUTDOOR ADVERTISING 289 EXCHANGE ST BUFFALO NY 14203	RCRA NON GEN

Handler ID: NYN008017220
Generator Status: N
Recycler Activity?: NO
Recycler Activity Note: This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note: NO VIOLATIONS: All of the compliance records associated with this facility (EPA ID) indicate NO VIOLATIONS; Compliance Monitoring and Enforcement table dated Apr 2025.

Evaluation Details

Eval Start Date: 20070813
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Handler Summary

Importer: No
Mixed Waste Gen: No
Transporter: No
Transfer Facility: No
Recycler: No
Onsite Burner Exem: No
Furnace Exemption: No
Underground Injec: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No
Used Oil Transpor: No
Used Oil Trans Fac: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Commercial TSD: No
Recycl Nonstorage: No

Additional Handler Summary Details

Source Type: I
Seq No: 1
Non Notifier:
Receive Date: 20071002
Active Site: -----
Land Type: P
In Handler Univ: N
In A Universe: N
Gen Status: N
Report Cycle:
Accessibility:
Region: 02
Fed Waste Gen Owner: HQ
State Waste Generator Owner:
State Waste Generator:
Short Term Generator: N
Uni Waste: N
Universal Waste Dest Facility: N
Federal Universal Waste: N
As Federally Regulated Tsdf: ------
As Converter Tsdf: ------
As State Regulated Tsdf: ------
As State Regulated Handler: ---
Federal Indicator: ---
Hsm: N
Subpart K: ----
GPRA Permit: N
GPRA Renewal: N
Permit Renewal Wrkld: ------
Permwrk ID: ------
Perm Prog: ------
Pcwrkld: ------
Closwrkld: ------
GPRA Ca: N
Cawrkld: N
Subjca Tsd Discretion: N
NAIC 1:
NAIC 2:
NAIC 3:
NAIC 4:
State: NY
Location Latitude: 42.876953
Location Longitude: -78.865134
Loc GIS Primary: N
Loc GIS Origin: UC
State District Owner: NY
State District: NYSDEC R9

NCAPS:	N
EC Indicator:	N
Ca725 Indicator:	N
Ca750 Indicator:	N
Operating Tsdf:	-------
Full Enforcement:	-------
Snc:	N
Unaddressed Snc:	N
Addressed Snc:	N
Snc With Comp Sched:	N
Fa Required:	-----
Hhandler Last Change:	20071120
Recognized Trader Importer:	N
Recognized Trader Exporter:	N
Slab Importer:	N
Slab Exporter:	N
Manifest Broker:	N
Subpart P:	N
Contact Language:	EN
Handler Name:	LAMAR OUTDOOR ADVERTISING
Location Street No:	289
Location Street1:	EXCHANGE ST
Location Street2:	
Location City:	BUFFALO
Location State:	NY
Location Zip:	14203
Location County Code:	NY029
Location County Name:	ERIE
Location Country:	US
Contact Name:	KEVIN ENGLEKA
Contact Street No:	289
Contact Street1:	EXCHANGE ST
Contact Street2:	
Contact City:	BUFFALO
Contact State:	NY
Contact Zip:	14203
Contact Country:	US
Contact Phone & Ext:	716-852-5791
Contact Fax:	
Contact Email Address:	
Contact Title:	
Owner Name:	
Owner Type:	
Owner Seq:	
Operator Name:	
Operator Type:	
Operator Seq:	
Public Notes:	

Hazardous Waste Handler Details

Seq No:	2
Receive Date:	20071001
Handler Name:	LAMAR OUTDOOR ADVERTISING
Fed Waste Generator:	N
Generator Code Description:	Not a Generator, Verified
Source Type:	Implementer
TSD Activity:	N

Hazardous Waste Handler Details

Seq No:	1
Receive Date:	20071002
Handler Name:	LAMAR OUTDOOR ADVERTISING
Fed Waste Generator:	N
Generator Code Description:	Not a Generator, Verified

Source Type: Implementer
TSD Activity: N

Historical Handler Details

Receive Dt: 20071001
Generator Code Description: Not a Generator, Verified
Handler Name: LAMAR OUTDOOR ADVERTISING

34	1 of1	WSW	0.20 / 1,070.11	586.52 / -6	SANDORO VACANT BUILDING 263 MICHIGAN AVE BUFFALO NY	LST

Spill No:	9911486	**REM Phase:**	0
Site ID:	285202	**UST Trust:**	False
DER Facility ID:	231265	**Spill Date:**	12/28/1999 12:00:00 PM
CID:	382	**Rcvd Date:**	01/03/2000 09:37:00 AM
Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	05/02/2000 12:00:00 AM
Contribute Factor:	Tank Overfill	**Close Date:**	07/06/2000 12:00:00 AM
Water Body:		**Create Date:**	01/03/2000 12:00:00 AM
Class:	C3	**Update Date:**	08/16/2001 12:00:00 AM
Meets Std:	False	**Lead DEC:**	SORGI
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Referred to:
Reported by: Other
Source: Commercial/Industrial
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"soil borings around an underground tank showed signs of contamination."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MJS 01/05/00: MJS TELECON TO CALLER, GREG SENECAL AND LEFT MESSAGE FOR HIM TO CALL. NEED INVESTIGATION REPORT. 01/07/00: MJS TELECON WITH MR SENECAL, LABELLA ASSOCIATES. THEY ARE WORKING FOR CITY OF BUFFALO AND DOT REGARDING PROJECT TO WIDEN MICHIGAN STREET PHASE I STUDY IDENTIFIED POTENTIAL VENT LINE ON BLDG AT 263 MICHIGAN AT CARROLL STREET, BORINGS AND SOIL SAMPLING PERFORMED ALONG CARROLL STREET SAMPLING IDENTIFIED LOW-LEVEL SEMI-VOLATILE CONTAMINATION IN ONE SAMPLE ONLY. HE WILL FORWARD REPORT. 01/14/00: MJS RECEIVED REPORT FROM LABELLA ASSOC.. THEY IDENTIFIED POTENTIAL VENT LINE AND FILL PIPE. FOUR BORINGS PERFORMED, THREE SOIL SAMPLES SUBMITTED. ONE SAMPLE IDENTIFIED SEMI-VOLATILE CONTAMINATION. HIGHEST - 2150 PPB FLUORANTHENE. MJS DRAFTED LETTER TO RP (BLDG OWNER), TANK AND CONTAMINATION REMOVAL, CONFIRMATORY SAMPLING. 01/24/00: MJS TELECON FROM BOB KNOER, ATTORNEY FOR JAMES SANDORO. HE STATED THAT MR SANDORO IS OUT OF TOWN AT THIS TIME. HE IS TRYING TO CONFIRM THAT THERE USED TO BE AN ABOVEGROUND FUEL OIL TANK ON THAT SIDE OF BUILDING AND NO UNDERGROUND TANK EXISTS. HE WILL FORWARD DOCUMENTATION IF AVAILABLE. THEY WILL ALSO BE LOOKING INTO PERFORMING GEOPROBE WORK INSIDE BUILDING, BUILDING HAS GRAVEL FLOOR. 01/31/00: KJS RECEIVED LETTER FROM BOB KNOER WITH CITY OF BUFFALO, THEIR FIRE RECORDS INDICATING 45OO GALLON TANK ON CARROLL STREET SIDE OF BUILDING, UNKNOWN IF TANK EVER REMOVED. 05/02/00: MJS TELECON FROM GARY ELLINGTON, TYREE CORP.. HE IS ON SITE WITH BISON WASTE OIL PUMPING OUT REMAINING OIL IN TANK. 05/02/00: MJS SITE INSPECTION, MET WITH MR ELLINGTON. TANK LOCATED IMMEDIATELY BETWEEN BUILDING AND MAIN ELECTRICAL POWER DROP. ALSO, NATURAL GAS LINE DIRECTLY OVER TOP OF TANK. REMOVAL OF TANK IS IMPRUDENT DUE TO SAFETY CONCERNS AND PROXIMITY TO BUILDING FOUNDATION. MJS ALLOWED TANK TO BE CLOSED IN PLACE, BUT WILL REQUIRE ADDITIONAL SOIL ANALYSIS FOR 8021 AS THIS ANALYSIS NOT PERFORMED PREVIOUSLY. 07/06/00: MJS REVIEWED REPORT RECEIVED ON 7/3 FROM TYREE. TWO BORINGS INSTALLED, ONE ON EACH END OF TANK. THREE SAMPLES SUBMITTED FROM EACH BORING (4-8', 8-12', 12-16' INTERVALS) AND ANALYZED FOR 8021 AND 8270. MAJORITY OF RESULTS ARE NON-DETECT. LOW-LEVEL CONTAMINATION FOUND IN B-1 AT THE 8-12' INTERVAL AND IN B-2 AT THE 4-8' INTERVAL. 108 PPB OF CHRYSENE IS THE HIGHEST CONCENTRATION FOUND. NO FURTHER ACTION REQUIRED BASED ON THE SAMPLE RESULTS. MJS CLOSE FILE (INACTIVE). MJS SENT INACTIVE LETTER."

Material Information

OP Unit ID:	1090173	**Med in Air:**	False
OU:	01	**Med GW:**	False

Material ID:	296942	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		
Material Code:	0022		
Material Name:	waste oil/used oil		

Spiller Information

Spiller Name:	DANIEL KREUS
Spiller Company:	CITY OF BUFFALO/SANDARO
Spiller Address:	CITY HALL - ROOM 502
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14202-
Spiller Country:	001
Contact Name:	GREG SENECAL
Contact Phone:	(716) 454-6110
Contact Ext:	
Latitude:	42.878730600
Longitude:	-78.869889270

35	1 of1	SE	0.21 / 1,114.26	584.19 / -8	BUFFALO CITY OF - L S VIADUCT LOUISIANA ST BETW CARROLL ST & N4.13 OF THE NYS THRUWAY BUFFALO NY 14204	RCRA NON GEN

Handler ID:	NYR000004507
Generator Status:	N
Recycler Activity?:	NO
Recycler Activity Note:	This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note:	NO RECORDS: As of Apr 2025, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer:	No	**Used Oil Transpor:**	No
Mixed Waste Gen:	No	**Used Oil Trans Fac:**	No
Transporter:	No	**Used Oil Processor:**	No
Transfer Facility:	No	**Used Oil Refiner:**	No
Recycler:	No	**Used Oil Burner:**	No
Onsite Burner Exem:	No	**Commercial TSD:**	No
Furnace Exemption:	No	**Recycl Nonstorage:**	No
Underground Injec:	No		
Used Oil Market Burner:	No		
Used Oil Spec Marketer:	No		

Additional Handler Summary Details

Source Type:	I	**NAIC 1:**	
Seq No:	3	**NAIC 2:**	
Non Notifier:		**NAIC 3:**	
Receive Date:	20070101	**NAIC 4:**	
Active Site:	-----	**State:**	NY
Land Type:	M	**Location Latitude:**	

In Handler Univ:	N	***Location Longitude:***	
In A Universe:	N	***Loc GIS Primary:***	N
Gen Status:	N	***Loc GIS Origin:***	
Report Cycle:		***State District Owner:***	NY
Accessibility:		***State District:***	NYSDEC R9
Region:	02		

Fed Waste Gen Owner:	HQ
State Waste Generator Owner:	NY
State Waste Generator:	S
Short Term Generator:	N
Uni Waste:	N
Universal Waste Dest Facility:	N
Federal Universal Waste:	N
As Federally Regulated Tsdf:	------
As Converter Tsdf:	------
As State Regulated Tsdf:	------
As State Regulated Handler:	---
Federal Indicator:	---
Hsm:	N
Subpart K:	----
GPRA Permit:	N
GPRA Renewal:	N
Permit Renewal Wrkld:	------
Permwrk ID:	------
Perm Prog:	------
Pcwrkld:	------
Closwrkld:	------
GPRA Ca:	N
Cawrkld:	N
Subjca Tsd Discretion:	N
NCAPS:	N
EC Indicator:	N
Ca725 Indicator:	N
Ca750 Indicator:	N
Operating Tsdf:	------
Full Enforcement:	------
Snc:	N
Unaddressed Snc:	N
Addressed Snc:	N
Snc With Comp Sched:	N
Fa Required:	-----
Hhandler Last Change:	20150414
Recognized Trader Importer:	N
Recognized Trader Exporter:	N
Slab Importer:	N
Slab Exporter:	N
Manifest Broker:	N
Subpart P:	N
Contact Language:	EN
Handler Name:	BUFFALO CITY OF - L S VIADUCT
Location Street No:	
Location Street1:	LOUISIANA ST BETW CARROLL ST &
Location Street2:	N4.13 OF THE NYS THRUWAY
Location City:	BUFFALO
Location State:	NY
Location Zip:	14204
Location County Code:	NY029
Location County Name:	ERIE
Location Country:	US
Contact Name:	
Contact Street No:	
Contact Street1:	CITY HALL - ROOM 502
Contact Street2:	
Contact City:	BUFFALO
Contact State:	NY
Contact Zip:	14202
Contact Country:	US
Contact Phone & Ext:	
Contact Fax:	

Contact Email Address:
Contact Title:
Owner Name: CITY OF BUFFALO
Owner Type: M
Owner Seq: 1
Operator Name: CITY OF BUFFALO
Operator Type: M
Operator Seq: 2
Public Notes:

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19950505
Handler Name: BUFFALO CITY OF - L S VIADUCT
Fed Waste Generator: 2
Generator Code Description: Small Quantity Generator
Source Type: Notification
TSD Activity: N

Waste Code Details

Waste Code: D000
Waste Code Desc: DESCRIPTION

Waste Code: D008
Waste Code Desc: LEAD

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19990708
Handler Name: BUFFALO CITY OF - L S VIADUCT
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Hazardous Waste Handler Details

Seq No: 2
Receive Date: 20060101
Handler Name: BUFFALO CITY OF - L S VIADUCT
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Hazardous Waste Handler Details

Seq No: 3
Receive Date: 20070101
Handler Name: BUFFALO CITY OF - L S VIADUCT
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Owner/Operator Details

Owner/Operator Ind: Current Owner ***Street No:***

Type:	Municipal	**Street1:**	CITY HALL - ROOM 502
Name:	CITY OF BUFFALO	**Street2:**	
Dt Became Current:		**City:**	BUFFALO
Dt Ended Current:		**State:**	NY
Phone:	716-851-5617	**Country:**	
Source Type:	Notification	**Zip:**	14202
Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Municipal	**Street1:**	CITY HALL - ROOM 502
Name:	CITY OF BUFFALO	**Street2:**	
Dt Became Current:		**City:**	BUFFALO
Dt Ended Current:		**State:**	NY
Phone:	716-851-5617	**Country:**	US
Source Type:	Implementer	**Zip:**	14202
Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Municipal	**Street1:**	CITY HALL - ROOM 502
Name:	CITY OF BUFFALO	**Street2:**	
Dt Became Current:		**City:**	BUFFALO
Dt Ended Current:		**State:**	NY
Phone:	716-851-5617	**Country:**	US
Source Type:	Implementer	**Zip:**	14202

Historical Handler Details

Receive Dt:	20060101
Generator Code Description:	Not a Generator, Verified
Handler Name:	BUFFALO CITY OF - L S VIADUCT
Receive Dt:	19990708
Generator Code Description:	Not a Generator, Verified
Handler Name:	BUFFALO CITY OF - L S VIADUCT
Receive Dt:	19950505
Generator Code Description:	Small Quantity Generator
Handler Name:	BUFFALO CITY OF - L S VIADUCT

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
36	1 of1	E	0.22 / 1,178.26	591.78 / 0	BUFFALO SCHOOL OF TECHNOLOGY #6 414 S. DIVISION STREET BUFFALO NY 14204	UST

Site ID:	54105	**Expiry:**	12/14/2027
Site Status:	Active	**County:**	Erie
Program No:	9-425419	**UTM X:**	184673.48566
Program Type Code:	PBS	**UTM Y:**	4754759.94427
Program Type Desc:	Petroleum Bulk Storage Program		
Site Type:	School		
Report Source:	Bulk Storage FOIL Data		

Tank Information

Prog No:	9-425419	**UDC Ind:**	0
Tank ID:	222412	**Red Tag Start Date:**	
Tank No:	01	**Red Tag End Date:**	
Tank Status:	2	**Tank Last Test:**	
Tank Status Desc:	Temporarily Out of Service	**Tank Next Test Due:**	
Tank Type:	06	**Test Method:**	-
Tank Type Desc:	Fiberglass Reinforced Plastic (FRP)	**Date Tested:**	
Install Date:	09/01/2005	**Next Test:**	
Close Date:		**Line Last Test Due:**	
Tk Out of Serv Dt:	07/01/2019	**Next Line Test Due:**	
Capacity (Gal):	10000	**Line Test Method:**	-
Registered:	True	**Modified by:**	MJGRIFFI
Tank Model:		**Last Modified:**	05/09/2022
Pipe Model:			

Tank Location: 5
Tank Location Desc: Underground
Category: 2
Category Desc: Category 2 means a tank which was installed from December 27, 1986 through October 11, 2015
Subpart: 3
Subpart Desc: Subpart 3 contains requirements for USTs subject to just DEC requirements (primary example is tanks storing heating oil for on-premises consumption).
Class A Operator:
Class B Operator:
Tank Owner Name: JOSEPH P. GIUSIANA
Tank Owner Address: 65 NIAGARA SQUARE ROOM 901 BUFFALO, NY. 14202

Material Information

Material Name: #2 fuel oil (on-site consumption)
Percent: 100.00

Equipment Information

Equipment: L07
Code Name: Pressurized Piping Leak Detector
Type: Piping Leak Detection

Equipment: H05
Code Name: In-Tank System (ATG)
Type: Tank Leak Detection

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: E00
Code Name: None
Type: Piping Secondary Containment

Equipment: A03
Code Name: Fiberglass Liner (FRP)
Type: Tank Internal Protection

Equipment: F05
Code Name: Jacketed
Type: Pipe External Protection

Equipment: K01
Code Name: Catch Basin
Type: Spill Prevention

Equipment: H01
Code Name: Interstitial - Electronic Monitoring
Type: Tank Leak Detection

Equipment: D11
Code Name: Flexible Piping
Type: Pipe Type

Equipment: G04
Code Name: Double-Walled (Underground)
Type: Tank Secondary Containment

Equipment: B04
Code Name: Fiberglass
Type: Tank External Protection

Equipment: I03
Code Name: Automatic Shut-Off
Type: Overfill

Equipment: C02
Code Name: Underground/On-ground
Type: Pipe Location

Equipment: I02
Code Name: High Level Alarm
Type: Overfill

Tank Information

Prog No:	9-425419	**UDC Ind:**	1
Tank ID:	167281	**Red Tag Start Date:**	
Tank No:	1	**Red Tag End Date:**	
Tank Status:	3	**Tank Last Test:**	
Tank Status Desc:	Closed - Removed	**Tank Next Test Due:**	
Tank Type:	01	**Test Method:**	NN
Tank Type Desc:	Steel/Carbon Steel/Iron	**Date Tested:**	
Install Date:	01/01/1960	**Next Test:**	
Close Date:	07/20/2005	**Line Last Test Due:**	
Tk Out of Serv Dt:		**Next Line Test Due:**	
Capacity (Gal):	10000	**Line Test Method:**	
Registered:	True	**Modified by:**	MJGRIFFI
Tank Model:		**Last Modified:**	05/09/2022
Pipe Model:			

Tank Location: 5
Tank Location Desc: Underground
Category: 1
Category Desc: Category 1 means a tank which was installed before December 27, 1986
Subpart:
Subpart Desc:
Class A Operator:
Class B Operator:
Tank Owner Name:
Tank Owner Address:

Material Information

Material Name: #6 fuel oil (on-site consumption)
Percent: 100.00

Equipment Information

Equipment: C00
Code Name: No Piping
Type: Pipe Location

Equipment: F00
Code Name: None
Type: Pipe External Protection

Equipment: G00
Code Name: None
Type: Tank Secondary Containment

Equipment: I04
Code Name: Product Level Gauge (A/G)
Type: Overfill

Equipment: A00
Code Name: None
Type: Tank Internal Protection

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: D01
Code Name: Steel/Carbon Steel/Iron
Type: Pipe Type

Equipment: H00
Code Name: None
Type: Tank Leak Detection

Equipment: B00
Code Name: None
Type: Tank External Protection

Equipment: L09
Code Name: Exempt Suction Piping
Type: Piping Leak Detection

Affiliation Information

Affiliation Type: 01
Affiliation Name: Facility Owner
Affiliation Sub Type: C01
Company: CITY OF BUFFALO
Contact Title: ACTING EXECUTIVE DIRECTOR OF PLANT SERVICES
Contact Name: MEL ALSTON
Address1: 65 NIAGARA SQUARE ROOM 901
Address2:
City: BUFFALO
State: NY
Zip Code: 14202
Country Code: 001
Phone: (716) 816-3748
Phone Ext:
Email:
Fax:

Affiliation Type: 11
Affiliation Name: Emergency Contact
Affiliation Sub Type: NNN
Company: CITY OF BUFFALO
Contact Title:
Contact Name: KEN SAWYER
Address1:
Address2:
City:
State: NN
Zip Code:
Country Code: 999
Phone: (716) 880-4346
Phone Ext:
Email:
Fax:

Affiliation Type: 07
Affiliation Name: Mail Contact
Affiliation Sub Type: NNN
Company: CITY OF BUFFALO
Contact Title: ACTING EXEC. DIRECTOR OF PLANT SVCS
Contact Name: MEL ALSTON
Address1: 65 NIAGARA SQUARE
Address2: ROOM 406
City: BUFFALO
State: NY
Zip Code: 14202-3375
Country Code: 001
Phone: (716) 816-3748
Phone Ext:
Email: MALSTON@BUFFALOSCHOOLS.ORG

Fax:

Affiliation Type: 04
Affiliation Name: Facility Operator
Affiliation Sub Type: NNN
Company: BUFFALO SCHOOL OF TECHNOLOGY #6
Contact Title:
Contact Name: CHUCK BAILEY
Address1:
Address2:
City:
State: NN
Zip Code:
Country Code: 001
Phone: (716) 816-3765
Phone Ext:
Email:
Fax:

37	1 of3	W	0.25 / 1,307.08	587.18 / -5	ELLICOTT GROUP 270 MICHIGAN AVE BUFFALO NY 14203	RCRA VSQG

Handler ID: NYD001816727
Generator Status: VSG
Recycler Activity?: NO
Recycler Activity Note: This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note: NO VIOLATIONS: All of the compliance records associated with this facility (EPA ID) indicate NO VIOLATIONS; Compliance Monitoring and Enforcement table dated Apr 2025.

Evaluation Details

Eval Start Date: 19900813
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Eval Start Date: 19860606
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Handler Summary

Importer:	No	**Used Oil Transpor:**	No
Mixed Waste Gen:	No	**Used Oil Trans Fac:**	No
Transporter:	No	**Used Oil Processor:**	No
Transfer Facility:	No	**Used Oil Refiner:**	No
Recycler:	No	**Used Oil Burner:**	No
Onsite Burner Exem:	No	**Commercial TSD:**	No
Furnace Exemption:	No	**Recycl Nonstorage:**	No
Underground Injec:	No		

Used Oil Market Burner: No
Used Oil Spec Marketer: No

Additional Handler Summary Details

Source Type: I **NAIC 1:**

Seq No:	3	***NAIC 2:***	
Non Notifier:		***NAIC 3:***	
Receive Date:	20070101	***NAIC 4:***	
Active Site:	H----	***State:***	NY
Land Type:	P	***Location Latitude:***	42.87913
In Handler Univ:	Y	***Location Longitude:***	-78.870723
In A Universe:	Y	***Loc GIS Primary:***	N
Gen Status:	VSG	***Loc GIS Origin:***	UC
Report Cycle:		***State District Owner:***	NY
Accessibility:		***State District:***	NYSDEC R9
Region:	02		

Fed Waste Gen Owner:	HQ
State Waste Generator Owner:	NY
State Waste Generator:	S
Short Term Generator:	N
Uni Waste:	N
Universal Waste Dest Facility:	N
Federal Universal Waste:	N
As Federally Regulated Tsdf:	------
As Converter Tsdf:	------
As State Regulated Tsdf:	------
As State Regulated Handler:	---
Federal Indicator:	---
Hsm:	N
Subpart K:	----
GPRA Permit:	N
GPRA Renewal:	N
Permit Renewal WrkId:	------
Permwrk ID:	------
Perm Prog:	------
Pcwrkld:	------
Closwrkld:	------
GPRA Ca:	N
Cawrkld:	N
Subjca Tsd Discretion:	N
NCAPS:	N
EC Indicator:	N
Ca725 Indicator:	N
Ca750 Indicator:	N
Operating Tsdf:	------
Full Enforcement:	------
Snc:	N
Unaddressed Snc:	N
Addressed Snc:	N
Snc With Comp Sched:	N
Fa Required:	-----
Hhandler Last Change:	20150414
Recognized Trader Importer:	N
Recognized Trader Exporter:	N
Slab Importer:	N
Slab Exporter:	N
Manifest Broker:	N
Subpart P:	N
Contact Language:	EN
Handler Name:	ELLICOTT GROUP
Location Street No:	270
Location Street1:	MICHIGAN AVE
Location Street2:	
Location City:	BUFFALO
Location State:	NY
Location Zip:	14203
Location County Code:	NY029
Location County Name:	ERIE
Location Country:	US
Contact Name:	CHARLES FASO
Contact Street No:	210
Contact Street1:	ELLICOTT SQ BLDG
Contact Street2:	
Contact City:	BUFFALO

Contact State:	NY
Contact Zip:	14203
Contact Country:	US
Contact Phone & Ext:	716-854-0060
Contact Fax:	
Contact Email Address:	
Contact Title:	
Owner Name:	ELLICOTT GROUP
Owner Type:	P
Owner Seq:	1
Operator Name:	CHAMPION INTERNATIONAL CORP
Operator Type:	P
Operator Seq:	2
Public Notes:	

Hazardous Waste Handler Details

Seq No:	1
Receive Date:	19801119
Handler Name:	ELLICOTT GROUP
Fed Waste Generator:	N
Generator Code Description:	Not a Generator, Verified
Source Type:	Part A
TSD Activity:	N

Waste Code Details

Waste Code:	D001
Waste Code Desc:	IGNITABLE WASTE

Hazardous Waste Handler Details

Seq No:	1
Receive Date:	19990708
Handler Name:	ELLICOTT GROUP
Fed Waste Generator:	N
Generator Code Description:	Not a Generator, Verified
Source Type:	Implementer
TSD Activity:	N

Hazardous Waste Handler Details

Seq No:	1
Receive Date:	20000511
Handler Name:	ELLICOTT GROUP
Fed Waste Generator:	1
Generator Code Description:	Large Quantity Generator
Source Type:	Notification
TSD Activity:	N

Waste Code Details

Waste Code:	D000
Waste Code Desc:	DESCRIPTION
Waste Code:	D001
Waste Code Desc:	IGNITABLE WASTE
Waste Code:	D002
Waste Code Desc:	CORROSIVE WASTE
Waste Code:	D008

Waste Code Desc: LEAD

Waste Code: D035
Waste Code Desc: METHYL ETHYL KETONE

Waste Code: F002
Waste Code Desc: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Handler Details

Seq No: 2
Receive Date: 20060101
Handler Name: ELLICOTT GROUP
Fed Waste Generator: 3
Generator Code Description: Very Small Quantity Generator
Source Type: Implementer
TSD Activity: N

Hazardous Waste Handler Details

Seq No: 3
Receive Date: 20070101
Handler Name: ELLICOTT GROUP
Fed Waste Generator: 3
Generator Code Description: Very Small Quantity Generator
Source Type: Implementer
TSD Activity: N

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Private
Name: CHAMPION INTERNATIONAL CORP
Dt Became Current:
Dt Ended Current:
Phone: 203-358-7000
Source Type: Part A
Street No:
Street1: 1 CHAMPION PLZ
Street2:
City: OPERCITY
State: CT
Country:
Zip: 99999

Owner/Operator Ind: Current Operator
Type: Private
Name: CHAMPION INTERNATIONAL CORP
Dt Became Current:
Dt Ended Current:
Phone: 203-358-7000
Source Type: Implementer
Street No:
Street1: 1 CHAMPION PLZ
Street2:
City: OPERCITY
State: CT
Country: US
Zip: 99999

Owner/Operator Ind: Current Owner
Type: Private
Name: ELLICOTT GROUP
Dt Became Current:
Dt Ended Current:
Phone: 716-854-0060
Source Type: Notification
Street No:
Street1: 210 ELLICOTT SQ BLDG
Street2:
City: BUFFALO
State: NY
Country:
Zip: 14203

Owner/Operator Ind: Current Owner
Type: Private
Name: ELLICOTT GROUP
Dt Became Current:
Dt Ended Current:
Phone: 716-854-0060
Street No:
Street1: 210 ELLICOTT SQ BLDG
Street2:
City: BUFFALO
State: NY
Country: US

Source Type: Implementer **Zip:** 14203

Historical Handler Details

Receive Dt: 20060101
Generator Code Description: Very Small Quantity Generator
Handler Name: ELLICOTT GROUP

Receive Dt: 20000511
Generator Code Description: Large Quantity Generator
Handler Name: ELLICOTT GROUP

Receive Dt: 19990708
Generator Code Description: Not a Generator, Verified
Handler Name: ELLICOTT GROUP

Receive Dt: 19801119
Generator Code Description: Not a Generator, Verified
Handler Name: ELLICOTT GROUP

37	2 of3	W	0.25 / 1,307.08	587.18 / -5	BUFFALO ENVELOPE CO 270 MICHIGAN AVE Buffalo NY 14203	UST

Site ID: 51927 **Expiry:** N/A
Site Status: Unregulated/Closed **County:** Erie
Program No: 9-008648 **UTM X:** 183921.77677
Program Type Code: PBS **UTM Y:** 4754668.04830
Program Type Desc: Petroleum Bulk Storage Program
Site Type: Manufacturing (Other than Chemical)/Processing
Report Source: Bulk Storage FOIL Data

Tank Information

Prog No: 9-008648 **UDC Ind:** 1
Tank ID: 160224 **Red Tag Start Date:**
Tank No: 1 **Red Tag End Date:**
Tank Status: 3 **Tank Last Test:**
Tank Status Desc: Closed - Removed **Tank Next Test Due:**
Tank Type: 01 **Test Method:** NN
Tank Type Desc: Steel/Carbon Steel/Iron **Date Tested:**
Install Date: 11/01/1980 **Next Test:**
Close Date: 08/01/1991 **Line Last Test Due:**
Tk Out of Serv Dt: **Next Line Test Due:**
Capacity (Gal): 6000 **Line Test Method:**
Registered: True **Modified by:** MJGRIFFI
Tank Model: **Last Modified:** 05/09/2022
Pipe Model:
Tank Location: 5
Tank Location Desc: Underground
Category: 1
Category Desc: Category 1 means a tank which was installed before December 27, 1986
Subpart:
Subpart Desc:
Class A Operator:
Class B Operator:
Tank Owner Name:
Tank Owner Address:

Material Information

Material Name: #2 fuel oil (on-site consumption)
Percent: 100.00

Equipment Information

Equipment: B00
Code Name: None
Type: Tank External Protection

Equipment: C02
Code Name: Underground/On-ground
Type: Pipe Location

Equipment: G00
Code Name: None
Type: Tank Secondary Containment

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: I04
Code Name: Product Level Gauge (A/G)
Type: Overfill

Equipment: H00
Code Name: None
Type: Tank Leak Detection

Equipment: A00
Code Name: None
Type: Tank Internal Protection

Equipment: D02
Code Name: Galvanized Steel
Type: Pipe Type

Equipment: F00
Code Name: None
Type: Pipe External Protection

Affiliation Information

Affiliation Type: 01
Affiliation Name: Facility Owner
Affiliation Sub Type: E
Company: BUFFALO ENVELOPE CO
Contact Title:
Contact Name:
Address1: 270 MICHIGAN AVE
Address2:
City: BUFFALO
State: NY
Zip Code: 14203
Country Code: 001
Phone: (716) 852-1980
Phone Ext:
Email:
Fax:

Affiliation Type: 04
Affiliation Name: Facility Operator
Affiliation Sub Type: NNN
Company: BUFFALO ENVELOPE CO
Contact Title:
Contact Name: BUFFALO ENVELOPE CO
Address1:
Address2:
City:
State: NN

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Zip Code:
Country Code: 001
Phone: (716) 852-1980
Phone Ext:
Email:
Fax:

Affiliation Type: 11
Affiliation Name: Emergency Contact
Affiliation Sub Type: NNN
Company: BUFFALO ENVELOPE CO
Contact Title:
Contact Name: ERNEST J SMASZCZ
Address1:
Address2:
City:
State: NN
Zip Code:
Country Code: 001
Phone: (716) 632-1030
Phone Ext:
Email:
Fax:

Affiliation Type: 07
Affiliation Name: Mail Contact
Affiliation Sub Type: NNN
Company: BUFFALO ENVELOPE CO
Contact Title:
Contact Name:
Address1: 270 MICHIGAN AVE
Address2:
City: BUFFALO
State: NY
Zip Code: 14203
Country Code: 001
Phone: (716) 852-1980
Phone Ext:
Email:
Fax:

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Site ID: 54911
Site Status: Unregulated/Closed
Program No: 9-600043
Program Type Code: PBS
Program Type Desc: Petroleum Bulk Storage Program
Site Type: Other
Report Source: Bulk Storage FOIL Data

Expiry: N/A
County: Erie
UTM X: 183922.63890
UTM Y: 4754665.98992

Tank Information

Prog No: 9-600043
Tank ID: 170078
Tank No: 1
Tank Status: 3
Tank Status Desc: Closed - Removed
Tank Type: 01
Tank Type Desc: Steel/Carbon Steel/Iron
Install Date: 08/01/1991
Close Date: 03/25/2010
Tk Out of Serv Dt:
Capacity (Gal): 3000
Registered: True

UDC Ind: 1
Red Tag Start Date:
Red Tag End Date:
Tank Last Test:
Tank Next Test Due:
Test Method: NN
Date Tested:
Next Test:
Line Last Test Due:
Next Line Test Due:
Line Test Method:
Modified by: MJGRIFFI

Tank Model:
Last Modified: 05/09/2022
Pipe Model:
Tank Location: 5
Tank Location Desc: Underground
Category: 2
Category Desc: Category 2 means a tank which was installed from December 27, 1986 through October 11, 2015
Subpart:
Subpart Desc:
Class A Operator:
Class B Operator:
Tank Owner Name:
Tank Owner Address:

Material Information

Material Name: gasoline
Percent: 100.00

Equipment Information

Equipment: J02
Code Name: Suction Dispenser
Type: Dispenser

Equipment: D06
Code Name: Fiberglass Reinforced Plastic (FRP)
Type: Pipe Type

Equipment: H01
Code Name: Interstitial - Electronic Monitoring
Type: Tank Leak Detection

Equipment: B02
Code Name: Original Sacrificial Anode
Type: Tank External Protection

Equipment: F05
Code Name: Jacketed
Type: Pipe External Protection

Equipment: C02
Code Name: Underground/On-ground
Type: Pipe Location

Equipment: L09
Code Name: Exempt Suction Piping
Type: Piping Leak Detection

Equipment: G04
Code Name: Double-Walled (Underground)
Type: Tank Secondary Containment

Equipment: I03
Code Name: Automatic Shut-Off
Type: Overfill

Equipment: A01
Code Name: Epoxy Liner
Type: Tank Internal Protection

Equipment: K01
Code Name: Catch Basin
Type: Spill Prevention

Equipment: B01
Code Name: Painted/Asphalt Coating
Type: Tank External Protection

Affiliation Information

Affiliation Type: 04
Affiliation Name: Facility Operator
Affiliation Sub Type: NNN
Company: MICHIGAN SENECA GROUP INC.
Contact Title:
Contact Name: N Y S D E C
Address1:
Address2:
City:
State: NY
Zip Code:
Country Code: 001
Phone: (716) 847-4590
Phone Ext:
Email:
Fax:

Affiliation Type: 01
Affiliation Name: Facility Owner
Affiliation Sub Type: E
Company: MICHIGAN SENECA GROUP INC
Contact Title: PRESIDENT
Contact Name: CARL PALLADINO
Address1: 210 ELLICOTT SQUARE BUILDING
Address2:
City: BUFFALO
State: NY
Zip Code: 14203
Country Code: 001
Phone: (716) 854-0060
Phone Ext:
Email:
Fax:

Affiliation Type: 07
Affiliation Name: Mail Contact
Affiliation Sub Type: NNN
Company: ELLICOTT DEVELOPMENT COMPANY
Contact Title:
Contact Name: PAUL V MORETTA
Address1: 210 ELLICOTT SQUARE BUILDING
Address2:
City: BUFFALO
State: NY
Zip Code: 14203
Country Code: 001
Phone: (716) 854-0060
Phone Ext:
Email:
Fax:

Affiliation Type: 11
Affiliation Name: Emergency Contact
Affiliation Sub Type: NNN
Company: MICHIGAN SENECA GROUP INC
Contact Title:
Contact Name: JOSEPH HANNON
Address1:
Address2:
City:
State: NN
Zip Code:
Country Code: 999
Phone: (716) 854-0060
Phone Ext:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
Email:						
Fax:						

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FUDS Property No:	C02NY1069
EMS Map Link:	https://fudsportal.usace.army.mil/ems/inventory/map?id=54913
FUDS INST ID:	NY29799F953000
Status:	Properties without projects
SDS ID:	
NPL Status Code:	
Eligibility:	Ineligible
Site Eligib:	
Current Owner:	
Has Project:	No
DOD FUDS Pro:	C02NY1069
Project Required:	No
No Further Action:	
Congressional District:	26
Congressional Dist 117:	26
Media ID:	
Metadata ID:	
Feature Desc:	
EPA Region:	02
County:	ERIE
Latitude:	42.88333333
Longitude:	-78.86666667
Fiscal year:	2021
USACE Division:	NAD
USACE District:	New England District (NAE)
Centroid Lat:	
Centroid Long:	
Se Anno Cad Data:	
Shape Length:	
Shape Area:	
Shape Len:	
X:	-78.866577148
Y:	42.8834228520001
Data Source:	U.S. Army Corps of Engineers Geospatial Open Data
Property History:	

Feature Description:

The site was utilized under a contract by the Department of the Navy during WWII for ship rehabilitation and repair.

39	1 of1	WNW	0.27 / 1,400.15	602.19 / 10	ERIE COUNTY PUBLIC SAFETY 45 ELM BUFFALO BUFFALO NY	LST

Spill No:	1001226	**REM Phase:**	0
Site ID:	434258	**UST Trust:**	
DER Facility ID:	389141	**Spill Date:**	05/03/2010 10:30:00 AM
CID:		**Rcvd Date:**	05/03/2010 10:35:00 AM
Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	
Contribute Factor:	Tank Test Failure	**Close Date:**	06/25/2010 12:00:00 AM
Water Body:		**Create Date:**	05/03/2010 10:47:00 AM
Class:	E6	**Update Date:**	06/25/2010 11:15:33 AM
Meets Std:	True	**Lead DEC:**	JFOTTO
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category:	Investigation indicates there was no spill.
Class Desc:	Any Type of RP, Including No RP - DEC Field Response - Corrective Action Not Required or Not Possible
Referred to:	

Reported by: Tank Tester
Source: Institutional, Educational, Gov., Other
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"QUICK VACUUM LOSS ON DOUBLE WALL UST. WORKING WITH PUMP DOCTOR TO EVALUATE WHERE PROBLEM IS IMMEDIATELY. PBS 9600968. 8000 GALLON DIESEL TANK 2531"

Dec Remark:

"05/07/10 JFO CALL TO THE PUMP DOCTOR BEN APPLETON 941-6321. THE AIR LEAK IS ON THE TOP OF THE TANK. MONDAY THEY WILL UNCOVER THE TANK TOP AND CHECK THE FITTINGS AND LINES AND RETEST. 06/24/10 JFO CALL TO BEN APPLETON FOR THE TANK TEST RESULTS. HE WILL FAX. 06/25/10 JFO RECEIVED THE TANK TEST. THE TANK IS TIGHT. NO FURTHER ACTION REQUIRED. CLOSED"

Material Information

OP Unit ID:	1185101	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	2179390	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		
Material Code:	0008		
Material Name:	diesel		

Spiller Information

Spiller Name:	RICK RUTKOWSKI
Spiller Company:	ERIE COUNTY
Spiller Address:	95 FRANKLIN
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	
Spiller Country:	999
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.882215866
Longitude:	-78.870257981

40	1 of2	NE	0.27 / 1,431.18	598.83 / 7	BUFFALO BOARD OF EDUCATIO 333 CLINTON STREET BUFFALO NY	LST

Spill No:	9313577	**REM Phase:**	0
Site ID:	325806	**UST Trust:**	True
DER Facility ID:	262442	**Spill Date:**	11/03/1993 12:00:00 PM
CID:		**Rcvd Date:**	02/18/1994 12:00:00 PM
Program Type:	ER	**CAC Date:**	05/12/1994 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	
Contribute Factor:	Tank Test Failure	**Close Date:**	05/12/1994 12:00:00 AM
Water Body:		**Create Date:**	02/22/1994 12:00:00 AM
Class:	D4	**Update Date:**	05/27/1994 12:00:00 AM
Meets Std:	True	**Lead DEC:**	RMCROSSE
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Possible petroleum release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters, known releases with no potential for damage, or non-petroleum/non-hazardous spills.

Class Desc: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Referred to:
Reported by: Other
Source: Institutional, Educational, Gov., Other
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"TANK TEST FAILURE."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was RMC / / : RMC/FILE TANK TEST FAILURE, LETTER, RESPONSE DUE. 02/22/94: RMC/FILE TANK TEST FAILURE, LETTER, RESPONSE DUE 4/15/94. 05/09/94: RMC/FILE NO RESPONSE LETTER, RESPONSE DUE 6/1/94. 05/12/94: RMC/RECEIVED PASSING TANK TEST, ALL LINES ISOLATED WERE ABOVE GROUND, CLOSE OUT. "

Material Information

OP Unit ID:	995607	**Med in Air:**	False
OU:	01	**Med GW:**	True
Material ID:	388953	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:		**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	
Med Air:	False		
Material Code:	0002A		
Material Name:	#4 fuel oil		

Spiller Information

Spiller Name:	
Spiller Company:	BOARD OF EDUCATION
Spiller Address:	406 CITY HALL
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14220
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.883125000
Longitude:	-78.861618430

Tank Test Information

Spill Tank ID:	1542437	**Source:**	
Tank No:		**Leak Rate:**	.00
Tank SIze:	0	**Gross Fail:**	
Material:	0002	**Modified by:**	Spills
EPA UST:		**Last Modified:**	2004-10-01 04:00:45.140000000
UST:		**Test Method:**	00
Cause:			
Alt Test Method:	Unknown		

40	2 of2	NE	0.27 / 1,431.18	598.83 / 7	BUFFALO SCHOOL DISTRICT SCHOOL #187 333 CLINTON ST BUFFALO NY	LST

Spill No:	0809129	**REM Phase:**	0
Site ID:	406565	**UST Trust:**	False
DER Facility ID:	355826	**Spill Date:**	11/12/2008 06:30:00 PM

CID:		**Rcvd Date:**	11/12/2008 06:55:00 PM
Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	
Contribute Factor:	Tank Test Failure	**Close Date:**	05/04/2009 12:00:00 AM
Water Body:		**Create Date:**	11/12/2008 06:59:00 PM
Class:	E6	**Update Date:**	05/04/2009 12:47:11 PM
Meets Std:	False	**Lead DEC:**	TDJOHNSO
Penalty:	False	**After Hours:**	True
DEC Region:	9	**County:**	Erie

Category: Investigation indicates there was no spill.
Class Desc: Any Type of RP, Including No RP - DEC Field Response - Corrective Action Not Required or Not Possible
Referred to:
Reported by: Local Agency
Source: Commercial/Industrial
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"Spill occurred on dry portion of test. There was no spill. Tank test failure."

Dec Remark:

"11/14/08 TDJ LETTER SENT OUT TO BUFFALO SCHOOL BOARD REGARDING RETEST OR REMOVAL OPTIONS AND DEADLINES. 05/04/09 TDJ ESG SUBMITTED REPORT SUMMARIZING WORK COMPLETED ON DAMAGED VENT LINE AND SEVERAL CORRODED FITTINGS. WORK WAS COMPLETED AND A SECOND CERTIFIED TANL TEST SHOWED A PASSING TEST. NO PETROLEUM CONTAMINATION WAS OBSERVED DURING THE RECONNECTION WORK. NO FURTHER ACTION FILE CLOSED"

Material Information

OP Unit ID:	1163152	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	2154459	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:		**Med Surf:**	False
Units:		**Med Subway:**	False
Recovered:		**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	
Med Air:	False		

Material Code: 0001A
Material Name: #2 fuel oil

Spiller Information

Spiller Name: BILL MOSS
Spiller Company: BUFFALO SCHOOL DISTRICT
Spiller Address: 333 CLINTON ST
Spiller City: BUFFALO
Spiller State: NY
Spiller Zip:
Spiller Country: 999
Contact Name: BILL MOSS
Contact Phone: (716) 816-3028
Contact Ext:
Latitude: 42.883135704
Longitude: -78.861577162

41	1 of1	E	0.28 / 1,464.06	591.18 / -1	BUFFALO SCHOOL #6 HICKORY ST. @ S. DIVISION BUFFALO NY	LST

Spill No:	0550673	**REM Phase:**	0
Site ID:	349570	**UST Trust:**	False
DER Facility ID:	296007	**Spill Date:**	07/20/2005 11:00:00 AM
CID:		**Rcvd Date:**	07/20/2005 11:05:00 AM

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	
Contribute Factor:	Tank Test Failure	**Close Date:**	09/07/2005 12:00:00 AM
Water Body:		**Create Date:**	07/20/2005 11:07:00 AM
Class:		**Update Date:**	09/07/2005 01:55:18 PM
Meets Std:	False	**Lead DEC:**	FXGALLEG
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie
Category:			
Class Desc:			
Referred to:			
Reported by:	Tank Tester		
Source:	Institutional, Educational, Gov., Other		
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"CALLER SAID THAT WHILE REMOVING A 10000 GAL UST(#6 FUEL OIL),THEY ENCOUNTERED CONTAMINATED SOIL."

Dec Remark:

"7/20/05 FG SITE INSPECTION. CONTAMINATION FOUND ONLY AROUND THE LINES. OP TECH WOULD REMOVE AND STAGE ON PLASTIC. 7/21/05 FG SITE INSPECTION. UST REMOVED AND EXCAVATION HAD REMNANTS OF THE TAR THAT IS ON THE OUTSIDE OF OLDER UST'S BUT NO CONTAMINATION NOTED. PETROLEUM CONTAMINATED SOIL STAGED ON PLASTIC ON SITE. 7/29/05 RECD THE EXCAVATION ANALYTICAL RESULTS AND ALL BDL. 9/7/05 RECD DISPOSAL RECPT. SITE IS CLOSED."

Material Information

OP Unit ID:	1107159	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	2097054	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:		**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:		**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	False
Med Air:	True		
Material Code:	0003A		
Material Name:	#6 fuel oil		

Spiller Information

Spiller Name:	
Spiller Company:	
Spiller Address:	
Spiller City:	
Spiller State:	
Spiller Zip:	
Spiller Country:	
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.879983939
Longitude:	-78.859942943

42	**1 of1**	**NE**	**0.29 / 1,537.56**	**599.23 / 7**	**SCHOOL 187 333 CLINTON BUFFALO NY**	**LST**

Spill No:	0375445	**REM Phase:**	0
Site ID:	272044	**UST Trust:**	False
DER Facility ID:	221415	**Spill Date:**	01/08/2004 02:51:00 PM
CID:		**Rcvd Date:**	01/08/2004 02:51:00 PM
Program Type:	ER	**CAC Date:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

SWIS Code:	1502	**Insp Date:**	
Contribute Factor:	Tank Test Failure	**Close Date:**	03/02/2004 12:00:00 AM
Water Body:		**Create Date:**	01/08/2004 02:52:00 PM
Class:	B3	**Update Date:**	03/02/2004 12:00:00 AM
Meets Std:	True	**Lead DEC:**	JFOTTO
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.

Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Referred to:

Reported by: Other

Source: Institutional, Educational, Gov., Other

Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"tank test failure"

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was JFO 01/08/04 JFO TELCON WITH BILL MOSS. THE TANK FAILED THE TIGHTNESS. IT WAS TAKEN OUT OF SERVICE AND REPAIRS WILL BE MADE AND THE TANK WILL BE RETESTED. 03/01/04 JFO RECEIVED A COPY OF THE RETEST. THE TANK PASSED. NO FURTHER ACTION REQUIRED. CLOSED"

Material Information

OP Unit ID:	884423	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	494631	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		
Material Code:	0001A		
Material Name:	#2 fuel oil		

Spiller Information

Spiller Name:	WILLIAM MOSS
Spiller Company:	BUFFALO BOARD OF EDUCATIO
Spiller Address:	N
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14202-
Spiller Country:	001
Contact Name:	TOM BREEN
Contact Phone:	(716) 851-3868
Contact Ext:	
Latitude:	42.883125000
Longitude:	-78.861618430

43	***1 of1***	***SE***	***0.31 / 1,626.65***	***582.33 / -10***	***STETSON CHEMICAL BUFFALO NY***	***PFAS IND***

Status:	Active	**Fac Fips Code:**	36029
Fac Indian Cntry Flg:	No	**Compliance Status:**	No Violation Identified
Fac Derived Huc:	04120103	**EPA Programs:**	CAA; RCRA
Fac Derived Wbd:	041201030306	**Federal Facility:**	No
Fac Derived Cd113:	26	**Federal Agency:**	-
Fac Derived Cb2010:	360290164004023	**Fac Snc Flg:**	No

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Fac Informal Count:	0	**AIR Flag:**	Yes
Last Informal Action:	5/16/2011	**NPDES Flag:**	No
Formal Action Count:	0	**SDWIS Flag:**	No
Last Formal Action:	11/8/1989	**RCRAFlag:**	Yes
Fac Total Penalties:	0	**TRI Flag:**	Yes
Fac Penalty Count:	-	**GHG Flag:**	No
Date Last Penalty:	11/8/1989	**TRI IDs:**	14204STTSN391EX
Last Penalty Amt:	1500	**TRI Releases Trnsfrs:**	-
Fac Qtrs With Nc:	0	**TRI on Site Releases:**	-
Programs With Snc:	0	**TRI off Site Trnsfrs:**	-
Fac Percent Minority:	55.623	**TRI Reporter:**	Yes
Fac Pop Den:	5123.15	**Fac Imp Water Flg:**	-
Count:	1	**Fac Major Flag:**	-
Fac County:	ERIE	**Fac Active Flag:**	Yes
State Other :		**Fac Inspection Count:**	0
Region:	02	**Date Last Inspection:**	8/31/2017
Latitude:	42.87654	**Days Last Inspection:**	2921
Longitude:	-78.86133		

Fac Derived Tribes: Tuscarora Nation - 19 mile(s), Seneca Nation of Indians - 23 mile(s), Tonawanda Band of Seneca - 23 mile(s)
AIR IDs: NY0000009140200483
CAA Permit Types: Minor Emissions
CAA NAICS: 325188
CAA SICS: 5161
NPDES IDs: -
CWA Permit Types: -
CWA NAICS: -
CWA SICS: -
RCRA IDs: NYD071484596
RCRA Permit Types: VSQG
RCRA NAICS: -
SDWA IDs: -
SDWA System Types: -
SDWA Compliance Status: -
SDWA Snc Flag: No
Fac Collection Meth: ADDRESS MATCHING-HOUSE NUMBER
EJSCREEN Flag Us:
EJSCREEN Report:
ECHO Facility Report: https://echo.epa.gov/detailed-facility-report?fid=110000326834

Industry: Chemical Mfg

44	1 of1	ESE	0.31 / 1,632.10	585.84 / -6	CITY OF BUFFALO HOUSING 444 SENECA STREET BUFFALO NY	LST

Spill No:	9975514	**REM Phase:**	0
Site ID:	216705	**UST Trust:**	True
DER Facility ID:	179427	**Spill Date:**	11/12/1999 09:00:00 AM
CID:		**Rcvd Date:**	11/12/1999 10:00:00 AM
Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	11/17/1999 12:00:00 AM
Contribute Factor:	Tank Failure	**Close Date:**	01/14/2000 12:00:00 AM
Water Body:		**Create Date:**	11/12/1999 09:57:00 AM
Class:	C3	**Update Date:**	01/26/2000 12:00:00 AM
Meets Std:	True	**Lead DEC:**	SORGI
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Referred to:
Reported by: Other
Source: Commercial/Industrial
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"TANK REMOVAL. CONTAMINATED SOIL FOUND. "

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MJS 11/12/99: MJS TELECON WITH MIKE MUGAS AND TOOK INFORMATION. THE SITE OF THE NEW HOUSING IS FORMER INDUSTRIAL PROPERTY. CITY OF BUFFALO NOW BUILDING NEW HOUSES AND FOUND A 1500 GALLON TANK. CONTAMINATED SOIL REMOVED AND SAMPLES TAKEN. SAMPLES INDICATE CONTAMINATION REMAINS. THEY WILL EXCAVATE ADDITIONAL SOILS NEXT WEEK. 11/12/99: MJS RECEIVED FAX OF SAMPLE RESULTS, HIGHEST IS 3080 PPB 1,2,4-TRIMETHYLBENZENE. APPROX 14 PPM TOTAL VOC'S (DIRECT METHOD). 11/17/99: MJS SITE INSPECTION, MET WITH MIKE MUGAS AND MIKE STEFFAN. THEY HAVE REMOVED THREE ADDITIONAL TRUCKLOADS OF SOIL AND WILL NEED TO REMOVE ONE ADDITIONAL LOAD OF SOIL FROM WALL CLOSEST TO SENECA STREET. MJS ADVISED THEM TO OBTAIN SEPARATE COMPOSITE SAMPLES FROM BOTTOM AND FROM SIDEWALLS AND ANALYZE VIA TCLP. 11/17/99: MJS SECOND SITE INSPECTION, MET WITH MIKE MUGAS. ADDITIONAL LOAD REMOVED FROM WALL BY SENECA ST AND HE HAS OBTAINED CONFIRMATORY SAMPLES. RESULTS WILL BE DUE ON MONDAY 11/22. 11/ /99: MJS TELECON WITH MIKE STEFFAN. SECOND ROUND OF SAMPLES STILL INDICATE LOW-LEVEL CONTAMINATION. THEY WILL REMOVE ADDITIONAL SOIL AGAIN AND SAMPLE FOR THIRD TIME. CITY OF BUFFALO NEEDS CLEAN CLOSURE (HOUSING DEVELOPMENT). 11/22/99: MJS RECEIVED FAX OF SECOND ROUND OF SAMPLING. BOTTOM SAMPLE HAS LOW-LEVEL HITS - HIGHEST IS 5.6 PPB (TCLP) N-BUTLYLBENZENE. SIDEWALLS - ONLY HIT IS 7.3 PPB (TCLP) 1,2,4-TRIMETHYLBENZENE 12/01/99: MJS TELECON FROM MIKE STEFFAN. ADDITIONAL SOIL REMOVED AND HE HAS RECEIVED RESULTS FROM THIRD ROUND SAMPLE AND THEY MEET STARS #1 STANDARDS. MJS ADVISED HIM WE NEED FINAL RESULTS AND DISPOSAL DOCUMENTATION TO ISSUE CLOSURE LETTER. 12/01/99: MJS RECEIVED FAX OF SAMPLE RESULTS AND CONFIRMED THAT TCLP RESULTS ARE BELOW GROUNDWATER STANDARDS. 12/21/99: MJS TELECON WITH MIKE STEFFAN. HE IS PREPARING REPORT AND WILL FORWARD WHEN COMPLETE. 01/03/00: MJS TELECON WITH MIKE STEFFAN. REPORT FORTHCOMING. 01/14/00: MJS RECEIVED CLOSURE REPORT FROM ECOLOGY & ENVIRONMENT ON 1/13. MJS REVIEWED REPORT, THIRD ROUND OF CONFIRMATORY SAMPLES ARE BELOW STARS #1 GUIDELINES, CLEAN CLOSURE. TOTAL OF 165.89 TONS SOIL DISPOSED AT MODERN LANDFILL, MODEL CITY. 700 GALLONS WATER DISPOSED BY BISON WASTE OIL. REPORT COMPLETE. MJS DRAFTED CLEAN CLOSURE LETTER TO CITY OF BUFFALO (RP)."

Material Information

OP Unit ID:	1093876	***Med in Air:***	False
OU:	01	***Med GW:***	True
Material ID:	292079	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:	.00	***Med Surf:***	False
Units:	G	***Med Subway:***	False
Recovered:	.00	***Med Utility:***	False
Med Soil:	False	***Oxygenate:***	
Med Air:	False		
Material Code:	0009		
Material Name:	gasoline		

Spiller Information

Spiller Name:	FRED HEINLE
Spiller Company:	CITY OF BFLO, COMM DEVPMT
Spiller Address:	CITY HALL - ROOM 313
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14202-
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.877845610
Longitude:	-78.860113440

45	*1 of4*	*S*	*0.32 / 1,688.51*	*588.60 / -4*	***MOLLENBER-BETZ 300 SCOTT ST BUFFALO NY 14204***	***CERCLIS***

Site ID:	0201392	***RNPL Status Code:***	N
Site EPA ID:	NYD002109981	***NPL Status:***	Not on the NPL
Site Street Address 2:		***RFED Facility Code:***	N
Site County Name:	ERIE	***RFED Facility Desc:***	Not a Federal Facility
Site FIPS Code:	36029	***USGS Hydro Unit No.:***	04120103
Region Code:	02	***Site Cong. Dist. Code:***	37
Site SMSA No.:	1280	***ROT Desc:***	Other

Site Prim. Latitude: +42.940291
Site Prim. Longitude: -077.95
Lat Long Source:
RNON NPL Status Desc: NFRAP-Site does not qualify for the NPL based on existing information
FR NPL Update No.:
RFRA Code:

CERCLIS Assess History

OU ID: 00
Act Code ID: 001
RAT Code: DS
RAT Short Name: DISCVRY
RAT Name: DISCOVERY
RAT Hist. Only Flag:
RAT NSI Indicator: B
RAT Level: 1
RAT DEF OU: 00
RFBS Code:
SPA Code: 13
RAT Def: The process by which a potential hazardous waste site is brought to the attention of the EPA. The process can occur through the use of several mechanisms such as a phone call or referral by another government agency.
Site Desc:
Site Alias:
RALT Short Name: EPA Fund
Act Start Date:
Act Complete Date: 4/15/1980 00:00:00
AGT Order No.: 10
SH OU:
SH Code:
SH Seq:
SH Start Date:
SH Complete Date:
SH Lead:

CERCLIS Assess History

OU ID: 00
Act Code ID: 001
RAT Code: PA
RAT Short Name: PA
RAT Name: PRELIMINARY ASSESSMENT
RAT Hist. Only Flag:
RAT NSI Indicator: B
RAT Level: 1
RAT DEF OU: 00
RFBS Code: P
SPA Code: 13
RAT Def: Collection of diverse existing information about the source and nature of the site hazard. It is EPA policy to complete the preliminary assessment within one year of site discovery.
Site Desc:
Site Alias:
RALT Short Name: State (Fund)
Act Start Date: 3/1/1986 00:00:00
Act Complete Date: 3/7/1986 00:00:00
AGT Order No.: 130
SH OU:
SH Code:
SH Seq:
SH Start Date:
SH Complete Date:
SH Lead:

CERCLIS Assess History

OU ID: 00
Act Code ID: 001
RAT Code: VS
RAT Short Name: ARCH SITE
RAT Name: ARCHIVE SITE
RAT Hist. Only Flag:
RAT NSI Indicator: B
RAT Level: 1
RAT DEF OU: 00
RFBS Code:
SPA Code: 13
RAT Def: The decision is made that no further activity is planned at the site.
Site Desc:
Site Alias:
RALT Short Name: EPA In-House
Act Start Date:
Act Complete Date: 3/7/1986 00:00:00
AGT Order No.: 1500
SH OU:
SH Code:
SH Seq:
SH Start Date:
SH Complete Date:
SH Lead:

CERCLIS Assess History

OU ID: 00
Act Code ID:
RAT Code:
RAT Short Name:
RALT Short Name:
Act Start Date:
Act Complete Date:
AGT Order No.: 0

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

RAT Name:
RAT Hist. Only Flag:
RAT NSI Indicator:
RAT Level:
RAT DEF OU:
RFBS Code:
SPA Code:
RAT Def:
Site Desc: POSSIBLY A SMALL AMOUNT OF WASTE OILS.
.
Site Alias: No alias data available

SH OU:
SH Code:
SH Seq:
SH Start Date:
SH Complete Date:
SH Lead:

45	2 of4	S	0.32 / 1,688.51	588.60 / -4	MOLLENBER-BETZ 300 SCOTT ST BUFFALO NY 14204	CERCLIS NFRAP

Site ID: 201392
Site EPA ID: NYD002109981
Site Parent ID:
Site County Name: ERIE
Parent Site Name:

Site FIPS Code: 36029
Region Code: 2
Site Cong. Dist. Code: 37
Federal Facility:

CERCLIS-NFRAP Assess History

OU ID: 0
Act Code ID: 1
RAT Code: DS
RAT Short Name: DISCVRY
RAT Name: DISCOVERY
RAT Hist. Only Flag:
RAT NSI Indicator: B
RAT Level: 1
RAT DEF OU: 00
RFBS Code:
SPA Code: 13
RALT Short Name: EPA Fund
RAT Def: The process by which a potential hazardous waste site is brought to the attention of the EPA. The process can occur through the use of several mechanisms such as a phone call or referral by another government agency.
RNON NPL Status Desc: NFRAP-Site does not qualify for the NPL based on existing information

Act Start Date:
Act Complete Date: 4/15/1980
AGT Order No.: 10
SH OU:
SH Code:
SH Seq:
SH Start Date:
SH Complete Date:
SH Lead:
SH Qual:
RAQ Act. Qual Short:
RNPL Status Code: N

CERCLIS-NFRAP Assess History

OU ID: 0
Act Code ID: 1
RAT Code: PA
RAT Short Name: PA
RAT Name: PRELIMINARY ASSESSMENT
RAT Hist. Only Flag:
RAT NSI Indicator: B
RAT Level: 1
RAT DEF OU: 00
RFBS Code: P
SPA Code: 13
RALT Short Name: State (Fund)
RAT Def: Collection of diverse existing information about the source and nature of the site hazard. It is EPA policy to complete the preliminary assessment within one year of site discovery.
RNON NPL Status Desc: NFRAP-Site does not qualify for the NPL based on existing information

Act Start Date: 3/1/1986
Act Complete Date: 3/7/1986
AGT Order No.: 130
SH OU:
SH Code:
SH Seq:
SH Start Date:
SH Complete Date:
SH Lead:
SH Qual:
RAQ Act. Qual Short: NFRAP
RNPL Status Code: N

CERCLIS-NFRAP Assess History

OU ID: 0
Act Code ID: 1
RAT Code: VS
RAT Short Name: ARCH SITE
RAT Name: ARCHIVE SITE

Act Start Date:
Act Complete Date: 3/7/1986
AGT Order No.: 1500
SH OU:
SH Code:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

RAT Hist. Only Flag:		**SH Seq:**	
RAT NSI Indicator:	B	**SH Start Date:**	
RAT Level:	1	**SH Complete Date:**	
RAT DEF OU:	00	**SH Lead:**	
RFBS Code:		**SH Qual:**	
SPA Code:	13	**RAQ Act. Qual Short:**	
RALT Short Name:	EPA In-House	**RNPL Status Code:**	N
RAT Def:	The decision is made that no further activity is planned at the site.		
RNON NPL Status Desc:	NFRAP-Site does not qualify for the NPL based on existing information		

45	3 of4	S	0.32 / 1,688.51	588.60 / -4	MOLLENBER-BETZ 300 SCOTT ST BUFFALO NY 14204	SEMS ARCHIVE

Site ID:	0201392	**FIPS Code:**	36029
EPA ID:	NYD002109981	**Cong District:**	37
Superfund Alte Agr:	No	**Region:**	02
Federal Facility:	No	**County:**	ERIE
FF Docket:	No		
NPL:	Not on the NPL		
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information		

Action Information

Operable Units:	00	**Qual:**	
Action Code:	VS	**SEQ:**	1
Action Name:	ARCH SITE	**FF:**	No
Start Actual:		**FF Docket:**	No
Finish Actual:	3/7/1986 5:00:00 AM	**Region:**	02
Curr Action Lead:	EPA Perf In-Hse		
NPL:	N		

Operable Units:	00	**Qual:**	N
Action Code:	PA	**SEQ:**	1
Action Name:	PA	**FF:**	No
Start Actual:	3/1/1986 5:00:00 AM	**FF Docket:**	No
Finish Actual:	3/7/1986 5:00:00 AM	**Region:**	02
Curr Action Lead:	St Perf		
NPL:	N		

Operable Units:	00	**Qual:**	
Action Code:	DS	**SEQ:**	1
Action Name:	DISCVRY	**FF:**	No
Start Actual:	4/15/1980 5:00:00 AM	**FF Docket:**	No
Finish Actual:	4/15/1980 5:00:00 AM	**Region:**	02
Curr Action Lead:	EPA Perf		
NPL:	N		

45	4 of4	S	0.32 / 1,688.51	588.60 / -4	Mollenberg-Betz 300 Scott Street Buffalo NY 14204	SHWS

Site Code:	56563
HW Code:	915041
Program:	HW
Site Class:	N
Site Name:	Mollenberg-Betz
Site Address:	300 Scott Street
City:	Buffalo
Zip:	14204
County:	Erie
Region:	9
Town:	Buffalo (c)
Latitude:	42.875199510
Longitude:	-78.864997050
SWIS:	1502

Acres:	
Record Added:	1999-11-18 12:00:00
Record Update:	2013-02-15 14:21:00
Updated by:	MLDOSTER
Program Type (Web):	HW
Site Name (Web):	Mollenberg-Betz
Site Class (Web):	N
Address1 (Web):	300 Scott Street
Address2 (Web):	
Locality (Web):	Buffalo
Zip Code (Web):	14204
County (Web):	Erie
Longitude (Web):	-78.864997050
Latitude (Web):	42.875199510
Site Name (GIS):	Mollenberg-Betz
Program (GIS):	HW
Site Class (GIS):	N
Address1 (GIS):	300 Scott Street
Address2 (GIS):	
Locality (GIS):	Buffalo
Zip Code (GIS):	14204
Town (GIS):	Buffalo (c)
County (GIS):	Erie
Site Class Desc:	No Further Action at this Time: Sites are given a classification of "N" when: a. the investigation and evaluation of a Class P site results in a determination that contamination at the site does not warrant placing the site on the Registry or it is being addressed under a brownfield program; b. a site was in a brownfield program (BCP, ERP or VCP) or other non-Registry program, remediation was not completed, and the site did not otherwise qualify for listing on the Registry. As an example, this occurs when a volunteer begins a brownfield project and then for economic or other reasons, determines they cannot complete the work and the brownfield project is terminated. If the contamination at the brownfield site qualifies it for placement on the Registry, the Department acts to do so. If the site re-enters a brownfield program, it can be reclassified to Class A (active) to indicate that work has recommenced; c. a site was identified simply as the location(s) where a drum(s) or other discrete waste was at one time present and subsequently removed by DEC or others and, based on the resulting conditions, no need for additional work was apparent; or d. an application to the BCP, ERP or VCP was submitted, and was then withdrawn or terminated before any actions were taken to investigate or remediate the site.
Site Class Desc (Web):	No Further Action at this Time: Sites are given a classification of "N" when: a. the investigation and evaluation of a Class P site results in a determination that contamination at the site does not warrant placing the site on the Registry or it is being addressed under a brownfield program; b. a site was in a brownfield program (BCP, ERP or VCP) or other non-Registry program, remediation was not completed, and the site did not otherwise qualify for listing on the Registry. As an example, this occurs when a volunteer begins a brownfield project and then for economic or other reasons, determines they cannot complete the work and the brownfield project is terminated. If the contamination at the brownfield site qualifies it for placement on the Registry, the Department acts to do so. If the site re-enters a brownfield program, it can be reclassified to Class A (active) to indicate that work has recommenced; c. a site was identified simply as the location(s) where a drum(s) or other discrete waste was at one time present and subsequently removed by DEC or others and, based on the resulting conditions, no need for additional work was apparent; or d. an application to the BCP, ERP or VCP was submitted, and was then withdrawn or terminated before any actions were taken to investigate or remediate the site.
Site Class Desc (Geo):	
Assess DOH:	The site is located in a mixed residential and industrial area along Scott Street in South Buffalo. Washings from a steam cleaning operation were formerly disposed of by direct discharge to the ground outside of the plant building. Waste oils were also spread over a gravel parking lot for dust control. This area is now paved with asphalt. No environmental monitoring data is available for this site. It is likely that any contamination which may exist in the soils is directly under the disposal area. Contamination of the underlying groundwater is possible. No wells in the area are used for drinking water. Public water supply services the area. No significant pathways for human exposure have been identified at the site.
Data Source:	DEC Environmental Remediation Database Search - Remedial Site Search (Web); Environmental Remediation Sites; Remedial GIS (GIS)
Description:	

Mollenberg-Betz used this site to steam clean commercial refrigeration equipment. The washings, consisting of oil, grease and dirt, were permitted to flow directly into the ground. Waste oil was also spread on a parking lot for dust control. The company abandoned the steam cleaning operation in 1978. Erie County prepared a site profile report in 1982. A Phase I Investigation has been completed. Soil sampling taken by NYSDEC in 1989 did not find contaminants at levels of concern. The disposal of hazardous waste can not be documented at this site.

Assessment:

No environmental problems have been noted at this site.

Owner Information

Owner Op:	01
Sub Type:	E
Owner Name:	
Owner Company:	MOLLENBERG-BETZ
Owner Street:	300 SCOTT ST.
Owner Street 2:	
Owner City:	BUFFALO
Owner State:	NY
Owner Zip:	14204
Country:	United States of America

Owner Op:	04
Sub Type:	E
Owner Name:	
Owner Company:	MOLLENBERG-BETZ
Owner Street:	300 SCOTT ST.
Owner Street 2:	
Owner City:	BUFFALO
Owner State:	NY
Owner Zip:	14204
Country:	United States of America

Owner Op:	03
Sub Type:	NNN
Owner Name:	
Owner Company:	MOLLENBERG-BETZ
Owner Street:	
Owner Street 2:	
Owner City:	
Owner State:	ZZ
Owner Zip:	
Country:	United States of America

Owner Op:	01
Sub Type:	NNN
Owner Name:	
Owner Company:	Mollenberg-Betz
Owner Street:	300 Scott Street
Owner Street 2:	
Owner City:	Buffalo
Owner State:	NY
Owner Zip:	14204
Country:	United States of America

Owner Op:	04
Sub Type:	NNN
Owner Name:	
Owner Company:	Mollenberg-Betz
Owner Street:	300 Scott Street
Owner Street 2:	
Owner City:	Buffalo
Owner State:	NY
Owner Zip:	14204
Country:	United States of America

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Remedial Sites GIS

Program: HW
Site Class: N
Region: 9
X Coord: 184315.57950
Y Coord: 4754206.43796
Method: 4.3
Accuracy: 0 to 10 meters

Remedial GIS

Program: State Superfund Program
Site Class: N
County: Erie
Town: Buffalo (c)
Region: 9
X Coord: 184315.57950
Y Coord: 4754206.43796
Method: 4.3
Accuracy: variable
Accuracy Unit:

Environmental Remediation

Operable Unit: 01
Contaminants:

46	1 of1	SE	0.32 / 1,709.70	582.18 / -10	**Amrex Chemical Co, Inc - Buffalo** **391 Exchange St** **Buffalo NY**	PFAS

Facility ID: BSF0458 ***County:*** Erie
Survey Complete: YES
Survey: Class B Fire Suppression Foam Usage Survey - New York State Bulk Storage Facilities
Q. 6: YES
Q. 7: YES
Q. 8: NO
Q. 9: NO
Q. 10: NO
Q. 11: NO
Q. 12:
Q. 13:
Reference: If a respondent indicated that the facility used/stored/disposed PFOA/PFOS substances, it does not necessarily mean that there is an environmental/public health concern associated with that facility. Also, if a respondent indicated that they currently/formerly used, stored, disposed of, or released Class B firefighting foam it does not necessarily mean that the foam contains/contained PFOA/PFOS since many Class B foams do not contain these substances. DEC is in the process of reviewing/evaluating the returned surveys to determine if additional follow-up or study is needed.
Return rate: 91 surveys were sent to facilities; 90 were returned completed as of June 1, 2017.
Questions 1 & 2 relate to name and address; questions 3-5 relate to facility ownership.
Q. 6: Is any Class B fire suppression foam currently stored and/or used at the facility?
Q. 7: Has any Class B fire suppression foam ever been stored and/or used at the facility?
Q. 8: Has Class B fire suppression foam ever been used for training purposes at the facility?
Q. 9: Has Class B fire suppression foam ever been used for firefighting or other emergency response purposes at the facility?
Q. 10: Has the facility ever experienced a spill or leak of Class B fire suppression foam?
Q. 11: Has your facility ever been responsible for the use of Class B fire suppression foam at a location other than the facility (i.e. offsite training, emergency response, or spill)?

47	1 of1	SE	0.32 / 1,713.95	582.64 / -10	**GRAPHIC CONTROLS** **BUFFALO NY**	PFAS IND

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Status:	Active	**Fac Fips Code:**	36029
Fac Indian Cntry Flg:	No	**Compliance Status:**	No Violation Identified
Fac Derived Huc:	04120103	**EPA Programs:**	RCRA
Fac Derived Wbd:	041201030306	**Federal Facility:**	No
Fac Derived Cd113:	26	**Federal Agency:**	-
Fac Derived Cb2010:	360290164004023	**Fac Snc Flg:**	No
Fac Informal Count:	0	**AIR Flag:**	No
Last Informal Action:	-	**NPDES Flag:**	No
Formal Action Count:	0	**SDWIS Flag:**	No
Last Formal Action:	-	**RCRAFlag:**	Yes
Fac Total Penalties:	0	**TRI Flag:**	No
Fac Penalty Count:	-	**GHG Flag:**	No
Date Last Penalty:	-	**TRI IDs:**	14204GRPHC4EXCH
Last Penalty Amt:	0	**TRI Releases Trnsfrs:**	-
Fac Qtrs With Nc:	0	**TRI on Site Releases:**	-
Programs With Snc:	0	**TRI off Site Trnsfrs:**	-
Fac Percent Minority:	55.369	**TRI Reporter:**	-
Fac Pop Den:	5132.69	**Fac Imp Water Flg:**	-
Count:	1	**Fac Major Flag:**	-
Fac County:	ERIE	**Fac Active Flag:**	Yes
State Other :		**Fac Inspection Count:**	1
Region:	02	**Date Last Inspection:**	9/5/2023
Latitude:	42.87648	**Days Last Inspection:**	725
Longitude:	-78.86094		

Fac Derived Tribes:	Tuscarora Nation - 19 mile(s), Tonawanda Band of Seneca - 23 mile(s), Seneca Nation of Indians - 23 mile(s)
AIR IDs:	-
CAA Permit Types:	-
CAA NAICS:	-
CAA SICS:	-
NPDES IDs:	-
CWA Permit Types:	-
CWA NAICS:	-
CWA SICS:	-
RCRA IDs:	NYR000092882
RCRA Permit Types:	SQG
RCRA NAICS:	323111
SDWA IDs:	-
SDWA System Types:	-
SDWA Compliance Status:	-
SDWA Snc Flag:	No
Fac Collection Meth:	ADDRESS MATCHING-HOUSE NUMBER
EJSCREEN Flag Us:	
EJSCREEN Report:	
ECHO Facility Report:	https://echo.epa.gov/detailed-facility-report?fid=110020515469
Industry:	Printing

48	1 of2	SSW	0.33 / 1,743.52	581.52 / -11	BRINKS 259 CHICAGO ST. BUFFALO NY	LST

Spill No:	8600418	**REM Phase:**	0
Site ID:	297179	**UST Trust:**	True
DER Facility ID:	240461	**Spill Date:**	04/16/1986 05:30:00 PM
CID:		**Rcvd Date:**	04/16/1986 07:52:00 PM
Program Type:	ER	**CAC Date:**	06/10/1986 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	
Contribute Factor:	Tank Test Failure	**Close Date:**	06/10/1986 12:00:00 AM
Water Body:		**Create Date:**	05/07/1986 12:00:00 AM
Class:		**Update Date:**	09/03/1986 12:00:00 AM
Meets Std:	True	**Lead DEC:**	LEARY
Penalty:	False	**After Hours:**	True
DEC Region:	9	**County:**	Erie
Category:			
Class Desc:			
Referred to:			
Reported by:	Tank Tester		

Source: Gasoline Station or other PBS Facility
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"NOTIFIED THE OWNERS-ACTUAL AMOUNT SPILLED-(.2289 GAL./HR.)"

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was RNL "

Material Information

OP Unit ID:	896669	**Med in Air:**	False
OU:	01	**Med GW:**	True
Material ID:	480583	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	
Med Air:	False		
Material Code:	0008		
Material Name:	diesel		

Spiller Information

Spiller Name:	
Spiller Company:	BRINK CO.
Spiller Address:	
Spiller City:	
Spiller State:	ZZ
Spiller Zip:	
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.875070370
Longitude:	-78.867101670

Tank Test Information

Spill Tank ID:	1529858	**Source:**	
Tank No:		**Leak Rate:**	.00
Tank SIze:	0	**Gross Fail:**	
Material:	0008	**Modified by:**	Spills
EPA UST:		**Last Modified:**	2004-10-01 04:00:45.140000000
UST:		**Test Method:**	00
Cause:			
Alt Test Method:	Unknown		

48	2 of2	SSW	0.33 / 1,743.52	581.52 / -11	BRINKS 259 CHICAGO STREET BUFFALO NY	LST

Spill No:	8903707	**REM Phase:**	0
Site ID:	84867	**UST Trust:**	True
DER Facility ID:	78018	**Spill Date:**	07/12/1989 04:00:00 PM
CID:		**Rcvd Date:**	07/13/1989 08:30:00 AM
Program Type:	ER	**CAC Date:**	01/14/1991 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	02/01/1991 12:00:00 AM
Contribute Factor:	Tank Test Failure	**Close Date:**	02/20/1991 12:00:00 AM
Water Body:		**Create Date:**	07/17/1989 12:00:00 AM

Class:		**Update Date:**	02/20/1991 12:00:00 AM
Meets Std:	True	**Lead DEC:**	LYONS
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie
Category:			
Class Desc:			
Referred to:			
Reported by:	Tank Tester		
Source:	Commercial/Industrial		
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"TANK FAILURE AT BRINKS, INC."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MEL 07/14/89: MEL. SENT OPTION LETTER TO JOHN DONAHER. 05/04/90: RNL SITE INSP. 05/04/90, SUBSURFACE SOILS SAMPLED AGAIN BY CONESTOGA ROVERS, FOUR SAMPLES TAKEN, TO BE ANALYZED FOR EP TOX FOR LEAD AND BARIUM. 02/20/91: MEL RECIEVED DISPOSAL DOCUMENTATION. NO FURTHER ACTION NECSEEARY, RECOMMEND FILE BE CLOSED. "

Material Information

OP Unit ID:	929119	**Med in Air:**	False
OU:	01	**Med GW:**	True
Material ID:	447785	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:		**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	
Med Air:	False		
Material Code:	0008		
Material Name:	diesel		

OP Unit ID:	929119	**Med in Air:**	False
OU:	01	**Med GW:**	True
Material ID:	447786	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:		**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	
Med Air:	False		
Material Code:	0022		
Material Name:	waste oil/used oil		

Spiller Information

Spiller Name:	
Spiller Company:	BRINKS
Spiller Address:	259 CHICAGO STREET
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14202
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.875070370
Longitude:	-78.867101670

Tank Test Information

Spill Tank ID:	1535712	***Source:***	
Tank No:	1	***Leak Rate:***	.00
Tank SIze:	0	***Gross Fail:***	
Material:	0022	***Modified by:***	Spills
EPA UST:		***Last Modified:***	2004-10-01 04:00:45.140000000
UST:		***Test Method:***	00
Cause:			
Alt Test Method:	Unknown		

49	***1 of2***	***NNW***	***0.37 / 1,930.43***	***605.15 / 13***	***TRAN STAR WILLIAM & MICHIGAN BUFFALO NY***	***LST***

Spill No:	8801627	***REM Phase:***	0
Site ID:	149488	***UST Trust:***	False
DER Facility ID:	193539	***Spill Date:***	05/23/1988 09:49:00 AM
CID:		***Rcvd Date:***	05/23/1988 10:10:00 AM
Program Type:	ER	***CAC Date:***	05/23/1988 12:00:00 AM
SWIS Code:	1502	***Insp Date:***	05/24/1988 12:00:00 AM
Contribute Factor:	Tank Overfill	***Close Date:***	05/24/1988 12:00:00 AM
Water Body:		***Create Date:***	05/23/1988 12:00:00 AM
Class:		***Update Date:***	06/06/1988 12:00:00 AM
Meets Std:	True	***Lead DEC:***	ROSS
Penalty:	False	***After Hours:***	False
DEC Region:	9	***County:***	Erie
Category:			
Class Desc:			
Referred to:			
Reported by:	Fire Department		
Source:	Commercial Vehicle		
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"TANK OVERFILL"

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was LQR 05/23/88: MNP ON SITE FD CONTAINED STREET DEPT TO CLEAN UP. 05/24/88: LQR ON SITE CLEAN UP COMPLETE. "

Material Information

OP Unit ID:	918770	***Med in Air:***	False
OU:	01	***Med GW:***	False
Material ID:	460759	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:	90.00	***Med Surf:***	False
Units:	G	***Med Subway:***	False
Recovered:	90.00	***Med Utility:***	False
Med Soil:	True	***Oxygenate:***	
Med Air:	False		
Material Code:	0008		
Material Name:	diesel		

Spiller Information

Spiller Name:	
Spiller Company:	TRAN STAR
Spiller Address:	
Spiller City:	WAAPACA
Spiller State:	WI

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Spiller Zip:
Spiller Country: 001
Contact Name:
Contact Phone:
Contact Ext:
Latitude: 42.884751968
Longitude: -78.868076003

49	2 of 2	NNW	0.37 / 1,930.43	605.15 / 13	BROAD-ELM TIRE MICHIGAN AVE AND WILLIAM BUFFALO NY	LST

Spill No:	9201968	**REM Phase:**	0
Site ID:	207978	**UST Trust:**	False
DER Facility ID:	172579	**Spill Date:**	05/18/1992 09:30:00 AM
CID:		**Rcvd Date:**	05/18/1992 10:00:00 AM
Program Type:	ER	**CAC Date:**	07/07/1992 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	05/18/1992 12:00:00 AM
Contribute Factor:	Tank Failure	**Close Date:**	10/27/1992 12:00:00 AM
Water Body:		**Create Date:**	05/18/1992 12:00:00 AM
Class:	C3	**Update Date:**	10/28/1992 12:00:00 AM
Meets Std:	True	**Lead DEC:**	SORGI
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Referred to:
Reported by: Other
Source: Commercial/Industrial
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"EPS REMOVING WASTE OIL TANK AND FOUND CONTAMINATED SOIL. SOIL TO BE STOCKPILED ON PLASTIC."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MJS 05/18/92: MJS SITE INSPECT. MET WITH PAUL GALLAGHER AND BUTCH EAGAN. CONT SOIL BEING STOCKPILED ONSITE ON PLASTIC. TANK REMOVED - CUT/CLEANED. NUMEROUS HOLES FOUND IN TANK. EXPLAINED SAMPLING REQUIREMENTS. 07/05/92: MJS TELECON FROM PAUL GALLAGHER. SOIL DISPOSED. WILL SEND ANALYTICAL AND RECEIPTS. 09/21/92: 9/21/92 - MJS/TELECON W/PAUL GALLAGHER OF ENVIRONMENTAL MITIGATION GROUP; WILL FORWARD ANALYTICAL RESULTS. 10/19/92: MJS/TELECON FROM PAUL GALLAGHER OF ENVIRONMENTAL MITIGATION GROUP; INFORMED HIM THAT DISPOSAL RECEIPTS ARE NECESSARY FOR CLOSURE OF FILE. 10/21/92: RECEIVED DISPOSAL RECEIPTS FOR SOIL AND UST CONTENTS. NO FURTHER ACTION NECESSARY. MJS TO CLOSE FILE. 10/21/92: LETTER OF SATISFACTORY CLEANUP TO RP. "

Material Information

OP Unit ID:	966063	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	557153	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:		**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		

Material Code: 0022
Material Name: waste oil/used oil

Spiller Information

Spiller Name:
Spiller Company: GENERAL TIRE INC

Spiller Address:	1 GENERAL STREET
Spiller City:	AKRON
Spiller State:	OH
Spiller Zip:	44329
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.901655993
Longitude:	-78.862680023

50	1 of2	ESE	0.39 / 2,057.79	586.42 / -6	MONTANEZ TANK PULLS 490 SENECA STREET BUFFALO NY	LST

Spill No:	9609364	**REM Phase:**	0
Site ID:	200032	**UST Trust:**	True
DER Facility ID:	166470	**Spill Date:**	10/26/1996 09:45:00 AM
CID:	322	**Rcvd Date:**	10/26/1996 10:06:00 AM
Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	09/25/1997 12:00:00 AM
Contribute Factor:	Tank Failure	**Close Date:**	09/29/1997 12:00:00 AM
Water Body:		**Create Date:**	10/26/1996 12:00:00 AM
Class:	B3	**Update Date:**	11/13/1997 12:00:00 AM
Meets Std:	True	**Lead DEC:**	RMCROSSE
Penalty:	False	**After Hours:**	True
DEC Region:	9	**County:**	Erie

Category:	Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class Desc:	Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Referred to:	
Reported by:	Other
Source:	Gasoline Station or other PBS Facility
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"during tank pull contaminated soil found "

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was RMC 10/28/96 RMC/SITE THREE OF SIX TANKS PULLED, DIGGING OUT CONTAMINAITON, TO REINSPECT, 10/30/96 RMC/NATURE'S WAY INC. CONTRACTOR (NWI)/SITE ALL KNOWN TANKS REMOVED, SAMPLES TAKEN, 100 YARDS SOIL STOCKPILED, DISPOSAL AND SAMPLING DUE 11/30/96 11/22/96 RMC/FILE RECEIVED EXCAVATION SAMPLE RESULTS, NO EXCEEDANCES, PLAN TO BIO TREAT SOIL ON SITE, HAZARDOUS DETERMINATION SAMPLING DUE 12/15/96 12/31/96 RMC/NWI/PHONE REQUESTED LETTER ON SITE, DUE 1/15/97 01/29/97 RMC/NWI/PHONE AGAIN REQUESTED SAMPLING AND LETTER ON SITE, DUE 2/15/97 01/29/97 RMC/FILE RECIEVED ANALYSIS REQUIRED, FIRST BIO ROUND DUE 5/30/97 06/03/97 RMC/WEBER/PHONE NWI ARE ACTIVELY BIOTREATING SOIL, RESULTS DUE 8/30/97 07/14/97 RMC/SITE BIO PILES HAVE WEEDS GROWING ON THEM, RMC ADVISED NWI TO TILL, REINSPECT 7/30 08/27/97 RMC/FILE NO RESULTS ON FILE FOR SOIL UNDER TREATMENT, LETTER, RESPONSE DUE 9/26 09/29/97 RMC/FILE RECEIVED FOUR STARS GASOLINE SAMPLES FOR THE SOIL UNDER TREATMENT, NO EXCEEDANCES, RMC QUESTIONED WHY JUST STARS GASOLINE WAS RUN, ACCORDING TO RUSS SAVAGE, OF NWI, NO CONTAMINATION WAS FOUND AROUND THE WASTE OIL OR DIESEL TANKS, RMC REVIEWED FILE, NO EXCEEDANCES IN ANY EXCAVATION SAMPLES, NO FURTHER ACTION REQUIRED, CLOSE OUT 05/07/98 RMC/RUSS SAVAGE/PHONE OWNER NEEDS TO HAVE BIOTREATED SOIL REMOVED FROM PROPERTY, SAVAGE CAN USE AS FILL ON HIS SITE ON BROADWAY IN ALDEN. RMC/RNL/MEETING OK PER RNL"

Material Information

OP Unit ID:	1037453	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	345088	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		

Material Code: 0009
Material Name: gasoline

Spiller Information

Spiller Name: RAYMOND MONTANEZ
Spiller Company: RAMON MONTANEZ
Spiller Address: 490 SENECA STREET
Spiller City: BUFFALO
Spiller State: NY
Spiller Zip:
Spiller Country: 001
Contact Name:
Contact Phone:
Contact Ext:
Latitude: 42.877534970
Longitude: -78.858380130

50	2 of2	ESE	0.39 / 2,057.79	586.42 / -6	FRANK RICHS SERVICE 490 SENECA STREET BUFFALO NY	LST

Spill No: 8710277
Site ID: 200031
DER Facility ID: 166470
CID:
Program Type: ER
SWIS Code: 1502
Contribute Factor: Tank Test Failure
Water Body:
Class:
Meets Std: True
Penalty: False
DEC Region: 9
Category:
Class Desc:
Referred to:
Reported by: Responsible Party
Source: Gasoline Station or other PBS Facility
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

REM Phase: 0
UST Trust: True
Spill Date: 03/08/1988 01:45:00 PM
Rcvd Date: 03/08/1988 01:45:00 PM
CAC Date: 05/16/1988 12:00:00 AM
Insp Date:
Close Date: 05/16/1988 12:00:00 AM
Create Date: 03/09/1988 12:00:00 AM
Update Date: 06/06/1988 12:00:00 AM
Lead DEC: COOKE
After Hours: False
County: Erie

Caller Remark:

"3000 GAL STORAGE TANK FAILED PETRO TITE TESTING. RETEST SCHEDUALED FOR 3/15/88 BY FLEISCHMANS."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was JDC 03/09/88: JDC TELCON W/ MR RICH, FACILITY OWNER - TANK TO BE RETESTED 3/15/88 OR PRODUCT MUST BE REMOVED. 03/28/88: JDC TELCON W/ MR RICH 3/28/88 - RETEST COMPLETED (NO FAILURE) RETEST RESULTS BEING FORWARDED. WILL CLOSE FILE UPON RECIEPT OF RETEST RESULTS. 05/16/88: JDC RECIEVED TEST RESULTES AS REQUESTED NO FURTHER ACTION WILL BE REQUIRED. "

Material Information

OP Unit ID: 915979
OU: 01
Material ID: 462050
CAS No:
Material Family: Petroleum
Quantity: .00
Units: G
Recovered: .00
Med Soil: False
Med Air: False
Material Code: 0008

Med in Air: False
Med GW: True
Med SW: False
Med DW: False
Med Sewer: False
Med Surf: False
Med Subway: False
Med Utility: False
Oxygenate:

Material Name: diesel

Spiller Information

Spiller Name:
Spiller Company: FRANK RICH SERVICE
Spiller Address: 490 SENECA STREET
Spiller City: BUFFALO
Spiller State: NY
Spiller Zip:
Spiller Country: 001
Contact Name:
Contact Phone:
Contact Ext:
Latitude: 42.877534970
Longitude: -78.858380130

Tank Test Information

Spill Tank ID:	1533398	**Source:**	
Tank No:		**Leak Rate:**	.00
Tank SIze:	0	**Gross Fail:**	
Material:	0008	**Modified by:**	Spills
EPA UST:		**Last Modified:**	2004-10-01 04:00:45.140000000
UST:		**Test Method:**	00
Cause:			
Alt Test Method:	Unknown		

51	1 of2	NNW	0.39 / 2,060.05	604.97 / 13	MOBIL MINI MART 08-F84 108 WILLIAM STREET BUFFALO NY	LST

Spill No:	9105184	**REM Phase:**	0
Site ID:	240326	**UST Trust:**	True
DER Facility ID:	197630	**Spill Date:**	08/13/1991 10:00:00 AM
CID:		**Rcvd Date:**	08/13/1991 10:45:00 AM
Program Type:	ER	**CAC Date:**	11/15/1991 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	11/15/1991 12:00:00 AM
Contribute Factor:	Tank Test Failure	**Close Date:**	11/15/1991 12:00:00 AM
Water Body:		**Create Date:**	08/14/1991 12:00:00 AM
Class:		**Update Date:**	01/08/2002 12:00:00 AM
Meets Std:	True	**Lead DEC:**	COOKE
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie
Category:			
Class Desc:			
Referred to:			
Reported by:	Tank Tester		
Source:	Gasoline Station or other PBS Facility		
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"CONTAMINATED SOILS WERE FOUND ASSOCIATED W/ STAND PIPE BEING EXCAVATED FOR TESTING."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was JDC 08/13/91: JDC INSPECTED SITE AND FOUND ASSOCIATED FILL MATERIALS TO BE HEAVILY CONTAMINATED W/ GASOLINE. 11/15/91: JDC RECIEVED FINAL DISPOSAL INFORMATION AND INSPCETDE SITE. NO FURTHER ACTION WILL BE REQUIRED. "

Material Information

OP Unit ID:	955811	**Med in Air:**	False

OU:	01	**Med GW:**	True
Material ID:	420999	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	
Med Air:	False		
Material Code:	0009		
Material Name:	gasoline		

Spiller Information

Spiller Name:	
Spiller Company:	MOBIL OIL
Spiller Address:	
Spiller City:	
Spiller State:	NY
Spiller Zip:	
Spiller Country:	999
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.885116950
Longitude:	-78.867681110

Tank Test Information

Spill Tank ID:	1538889	**Source:**	
Tank No:		**Leak Rate:**	.00
Tank SIze:	0	**Gross Fail:**	
Material:	0009	**Modified by:**	Spills
EPA UST:		**Last Modified:**	2004-10-01 04:00:45.140000000
UST:		**Test Method:**	00
Cause:			
Alt Test Method:	Unknown		

51	2 of2	NNW	0.39 / 2,060.05	604.97 / 13	COMMERCIAL 108 WILLIAMS ST BUFFALO NY	LST

Spill No:	1812147	**REM Phase:**	0
Site ID:	584107	**UST Trust:**	False
DER Facility ID:	536534	**Spill Date:**	03/11/2019 12:46:00 PM
CID:		**Rcvd Date:**	03/11/2019 01:45:00 PM
Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	
Contribute Factor:	Tank Test Failure	**Close Date:**	12/20/2019 12:00:00 AM
Water Body:		**Create Date:**	03/11/2019 01:48:00 PM
Class:		**Update Date:**	12/20/2019 09:42:34 AM
Meets Std:	False	**Lead DEC:**	FXGALLEG
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie
Category:			
Class Desc:			
Referred to:			
Reported by:	Other		
Source:	Gasoline Station or other PBS Facility		
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"super spill bucket did not pass the test"

Dec Remark:

"3/11/19 FG spoke to Mr. Hassan. He understood that PrimeTime was on site and the super spill bucket failed. They agreed to have prime time repair and retest. Prime time will complete the work within the next few weeks and provide the passing test. 12/16/19 FG requested a copy of the retest result from Mr. Hassan. 12/20/19 Primetime provided the passed spill bucket tests. No further work is required. The site is closed."

Material Information

OP Unit ID:	1331774	***Med in Air:***	False
OU:	01	***Med GW:***	False
Material ID:	2340999	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:		***Med Surf:***	False
Units:		***Med Subway:***	False
Recovered:		***Med Utility:***	False
Med Soil:	False	***Oxygenate:***	
Med Air:	False		
Material Code:	0009		
Material Name:	gasoline		

Spiller Information

Spiller Name:	
Spiller Company:	SUNRISE MARKET
Spiller Address:	
Spiller City:	
Spiller State:	NY
Spiller Zip:	
Spiller Country:	999
Contact Name:	HATEM A HASSAN
Contact Phone:	(716) 464-3054
Contact Ext:	
Latitude:	
Longitude:	

52	1 of1	SW	0.39 / 2,081.74	580.42 / -12	BUFFALO CREEK CASINO SITE 225 PERRY STREET BUFFALO NY 14204	SEMS

EPA ID:	NYN000206026	***Latitude:***	42.874485
Pgm Sys ID (Map):	NYN000206026	***Longitude:***	-78.868875
Latitude83 (Map):		***Latitude83 (OD):***	
Longitude83 (Map):		***Longitude83 (OD):***	
Primary Nm (Map):	BUFFALO CREEK CASINO SITE		
Loc Addr (Map):	225 PERRY STREET		
Site Name:	BUFFALO CREEK CASINO SITE		
Street Address:	225 PERRY STREET		
Street Address 2:			
City:	BUFFALO		
County:	ERIE		
PGM SYS ID (OD):	NYN000206026		
Name (OD):	BUFFALO CREEK CASINO SITE		
Loc Addr (OD):	225 PERRY STREET		
City (OD):	BUFFALO		
County (OD):	ERIE		
Postal (OD):	14204		
County Name (Map):	ERIE		
City Name (Map):	BUFFALO		
Postal Code (Map):	14204		
State:	NY		
Zip:	14204		
Data Source:	EPA Superfund Data and Reports Active Site Inventory (List 8R Active) (as of 26 Jun 2025); EPA FRS Interests Map - SEMS (as of 25 Aug 2024); CalOES EPA RCRA TSDF Map - SEMS (as of 25 Aug 2024)		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site Level Information

Site ID:	0206026	**Superfund Alt Agmt:**	No
NPL:	Not on the NPL	**FIPS Code:**	36029
Federal Facility:	No	**Cong District:**	
FF Docket:	No	**Region:**	02
Non NPL Status:	Status Not Specified		

GIS Information

Registry ID:	110067349587	**Pgm Sys Acrnm:**	SEMS
Active Status:	NOT ON THE NPL	**Accuracy Value:**	30
Key Field:	SEMSNYN000206026	**HUC8 Code:**	04120103
Interest Type:	SUPERFUND (NON-NPL)	**HUC 12:**	
Fed Agency Name:		**Public Ind:**	Yes
Fed Facility Code:		**Pgm Report:**	no data yet
Federal Land Ind:		**Point X:**	-78.86887999999999
EPA Region Code:	02	**Point Y:**	42.87457000100005
Fips Code:	36029		

Collect Mth Desc: ADDRESS MATCHING-HOUSE NUMBER
Ref Point Desc: CENTER OF A FACILITY OR STATION
Latitude83: 42.87457
Longitude83: -78.86887999999999
Fac Url: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110067349587
Program Url:
Pgm Report Url: no data yet
Create Dt: 2024-02-05 00:00:00 UTC
Update Dt: 2024-03-14 10:51:51 UTC
Last Reported Dt:

CalOES EPA RCRA TSDF Map - SEMS Details

Registry ID:	110067349587	**HUC 12:**	
Interest Type:	SUPERFUND (NON-NPL)	**Collect Mth Desc:**	ADDRESS MATCHING-HOUSE NUMBER
Active Status:	NOT ON THE NPL	**Accuracy Value:**	30
Pgm Sys Acrnm:	SEMS	**Ref Point Desc:**	CENTER OF A FACILITY OR STATION
Federal Agency Nm:		**EPA Region Code:**	02
Federal Land Ind:		**Key Field:**	SEMSNYN000206026
Fed Facility Cd:		**Create Dt:**	02/05/2024
Public Ind:	Yes	**Update Dt:**	03/14/2024
FIPS Code:	36029	**Last Reported Dt:**	
HUC8 Code:	04120103		

Longitude83: -78.86888
Latitude83: 42.87457
Pgm Report Url: no data yet
Program URL:
Fac Url: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110067349587

53	1 of3	ESE	0.40 / 2,116.03	587.20 / -5	500 Seneca Street Site 500 Seneca Street Buffalo NY 14204	BROWNFIELDS

Site Code: 478623
HW Code: C915273
Program: BCP
Site Class: C
Site Name: 500 Seneca Street Site
Site Address: 500 Seneca Street
City: Buffalo
Zip: 14204
County: Erie
Region: 9
Town: Buffalo (c)
Latitude: 42.877500000
Longitude: -78.856944444

SWIS:	1502
Acres:	1.874
Record Added:	2013-02-05 14:05:00
Record Update:	2024-08-08 15:24:00
Updated by:	AECAPRIO
Program Type (Web):	BCP
Site Name (Web):	500 Seneca Street Site
Site Class (Web):	C
Address1 (Web):	500 Seneca Street
Address2 (Web):	
Locality (Web):	Buffalo
Zip Code (Web):	14204
County (Web):	Erie
Longitude (Web):	-78.856944444
Latitude (Web):	42.877500000
Site Name (GIS):	500 Seneca Street Site
Program (GIS):	BCP
Site Class (GIS):	C
Address1 (GIS):	500 Seneca Street
Address2 (GIS):	
Locality (GIS):	Buffalo
Town (GIS):	Buffalo (c)
Zip Code (GIS):	14204
County (GIS):	Erie
Site Class Desc:	Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).
Site Class Desc (Web):	
Site Class Desc (Geo):	Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).
Assess DOH:	Measures are in place to prevent contact with remaining site contaminants.
Data Source:	DEC Environmental Remediation Database Search - Remedial Site Search (Web); Environmental Remediation Sites; Remedial GIS (GIS); DEC Remediation Sites Boundaries (Geo)

Description:

Location: The 500 Seneca Street Site is an approximately 1.874-acre site, located in an urban area, at 500 Seneca Street in the City of Buffalo, Erie County. The site encompasses an entire block bordered by Seneca Street to the south, Myrtle Street to the north, Hamburg Street to the east, and Spring Street to the west. Site Features: There is a 328,000-square-foot, multi-story building on most of the site with a small open lot on the western side of the parcel. The building was constructed in 1901 and there have been numerous additions. An open-air courtyard exists in the eastern portion of the building. Current Zoning and Land Use: The site building has been refurbished and is currently occupied by several commercial tenants, including restaurants, retail, and apartments. The site is zoned M-1, light industrial district. The building is listed in the National Registry of Historic Places. The nearest residential parcel is less than 500 feet to the north. Past Use of the Site: The F.N. Burt Company used the property for box manufacturing from 1901 until 1959. Between approximately 1968 and 1980 the site was occupied by a clothing rental company. Between 1986 and 2004, the site was used for manufacturing, warehousing, and shipping operations. The site was mostly vacant and underutilized after manufacturing operations ceased in 2004. Two underground storage tanks were removed from the open lot area in December 2007 (spill number 0751217). In addition to the tanks, approximately 45 tons of petroleum contaminated soil and 1,650 gallons of petroleum/water mixture was removed and disposed. Inaccessible petroleum impacted soil remained under a single-story garage. The remaining impacts resulted in a closed-inactive status for the petroleum spill. Site Geology and Hydrology: The majority of the site is characterized by 6 inches of asphalt or concrete above 6 inches of gravel, with underlying fill soils comprised mostly of sand and brick from 4 to 4.5 feet below ground surface (fbgs). Native soils are encountered about 4.5 fbgs and generally consist of clayey silt with intermittent layers of silty sand and gravel. Bedrock consisting of Middle Devonian, Onondaga Shale was encountered about 13 fbgs. Groundwater is encountered from 5 to 9 fbgs. However, when excavated to bedrock, little infiltration was noted, indicative of a perched condition. The site is located approximately 0.8 miles northeast of the Buffalo River and local site groundwater flows west-northwest with the upper horizon influenced by urban infrastructure.

Assessment:

Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were arsenic, semi-volatile organic compounds (SVOCs) from residual petroleum products, and trichloroethene in soil. Remedial actions have successfully achieved soil cleanup objectives for restricted residential use. Residual contamination in the soil is being managed under a Site Management Plan.

Materials Information

Waste Name: PCB aroclor 1016
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: barium
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: TETRACHLOROETHYLENE (PCE)
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: tetrachloroethene (PCE)
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: arsenic
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: Petroleum Products
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: TRICHLOROETHENE (TCE)
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: CARBON TETRACHLORIDE
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: lead
Waste Quantity: UNKNOWN
Waste Code:

Owner Information

Owner Op: 01
Sub Type: 07
Owner Name: David P. Franjoine
Owner Company: 500 Seneca Street, LLC
Owner Street: 26 Mississippi Street
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14204
Country: United States of America

Owner Op: 19
Sub Type: NNN
Owner Name: Maurice Moore
Owner Company: New York State Department OF Environmental Conservation
Owner Street: 270 Michigan Avenue
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14203
Country: United States of America

Owner Op: 06
Sub Type: P03
Owner Name: Sam Savarino
Owner Company: 500 Seneca Street, LLC

Owner Street: 500 Seneca Street, Suite 504
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14204
Country: United States of America

Owner Op: 04
Sub Type: NNN
Owner Name: Luke Cusack
Owner Company: Savarino Properties, LLC
Owner Street: 500 Seneca Street
Owner Street 2: Suite 630
Owner City: Buffalo
Owner State: NY
Owner Zip: 14204
Country: United States of America

Owner Op: 04
Sub Type: 07
Owner Name: David P. Franjoine
Owner Company: 500 Seneca Street, LLC
Owner Street: 26 Mississippi Street
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14204
Country: United States of America

Owner Op: 19
Sub Type: NNN
Owner Name: Ms. Mary Jean Jakubowski
Owner Company: Buffalo & Erie County Public Library
Owner Street: 1 Lafayette Square
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14203
Country: United States of America

HW Extra Information

Dump: True
Structure: False
Lagoon: False
Landfill: False
Pond: False
Dell:
Updated By: mfmoore

Record Added: 2013-02-13 11:23:00
Record Updated: 2015-12-01 13:23:00
Disposal Start:
Disposal Terminate:
Latitude:
Longitude:

Projects Information

Project Code: 05
Project Desc: Remedial Action
Project Refer Name:
End Date: 2014-11-25 00:00:00
End Status: ACT
Operable Unit ID: 1250662
Operable Unit: 01A
Operable Unit Desc: IRM - Soil Removal
Code Name: Remedial Action

Project Code: 05
Project Desc: Remedial Action
Project Refer Name: IRM
End Date: 2015-02-20 00:00:00
End Status: ACT

Operable Unit ID: 1251945
Operable Unit: 01B
Operable Unit Desc: Chlorinated Solvent Soil Removal
Code Name: Remedial Action

Project Code: 05
Project Desc: Remedial Action
Project Refer Name:
End Date: 2015-12-14 00:00:00
End Status: ACT
Operable Unit ID: 1228391
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Action

Project Code: 25
Project Desc:
Project Refer Name:
End Date: 2015-12-14 00:00:00
End Status: ACT
Operable Unit ID: 1266404
Operable Unit: 00
Operable Unit Desc: Site Management
Code Name: Certificate of Completion

Project Code: 04
Project Desc: Remedial Design
Project Refer Name:
End Date: 2015-10-07 00:00:00
End Status: ACT
Operable Unit ID: 1228391
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Design

Project Code: 02
Project Desc: Remedial Investigation
Project Refer Name: 500 Seneca Street - RI
End Date: 2015-10-07 00:00:00
End Status: ACT
Operable Unit ID: 1228391
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Investigation

Remedial Sites GIS

Program: BCP
Site Class: C
Region: 9
X Coord: 184984.93978
Y Coord: 4754425.63431
Method: 4.2
Accuracy: Variable

Remedial GIS

County: Erie
Town: Buffalo (c)
Region: 9
Site Class: C
Method: 4.2
Accuracy:
Accuracy Unit:
X Coord: 184984.93978
Y Coord: 4754425.63431
Program: Brownfield Cleanup Program

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Environmental Remediation

Operable Unit: 01B
Contaminants: PCB aroclor 1016; arsenic; barium; lead; petroleum products; tetrachloroethene (PCE); trichloroethene (TCE)

Operable Unit: 01
Contaminants: PCB aroclor 1016; arsenic; barium; lead; petroleum products; tetrachloroethene (PCE); trichloroethene (TCE)

Operable Unit: 01A
Contaminants: PCB aroclor 1016; arsenic; barium; lead; petroleum products; tetrachloroethene (PCE); trichloroethene (TCE)

Operable Unit: 00
Contaminants: PCB aroclor 1016; arsenic; barium; lead; petroleum products; tetrachloroethene (PCE); trichloroethene (TCE)

Environmental Remediation Site Borders

Program: Brownfield Cleanup Program
Site Class: C
Method: 4.2
GIS Flag: 1
UTM X: 184984.93978
UTM Y: 4754425.63431
Sitename: 500 Seneca Street Site
Address1: 500 Seneca Street
Address2:
Locality: Buffalo
Zipcode: 14204
County: Erie
Town: Buffalo (c)
Region: 9
Detail URL: https://appfactory.dec.ny.gov/DERExternalSearch/ERDDetails?SiteCode=C915273

53	2 of3	ESE	0.40 / 2,116.03	587.20 / -5	500 Seneca Street Site 500 Seneca Street Buffalo NY 14204	ENG

Sitecode (Geo): C915273
Site Code: 478623
HW Code: C915273
Control Type: ENG
Program: BCP
Site Class: C
Site Name: 500 Seneca Street Site
Site Address: 500 Seneca Street
City: Buffalo
Zip: 14204
County: Erie
Region: 9
Town: Buffalo (c)
Latitude: 42.877500000
Longitude: -78.856944444
SWIS: 1502
Acres: 1.874
Record Added: 2013-02-05 14:05:00
Record Updated: 2024-08-08 15:24:00
Updated By: AECAPRIO
Program Type (Web):
Site Class (Web):
Site Name (Web):
Address1 (Web):
Address2 (Web):
Locality (Web):
Zip Code (Web):
County (Web):
Longitude (Web):
Latitude (Web):
Program (GIS): BCP
Site Class (GIS): C
Site Name (GIS): 500 Seneca Street Site
Address 1 (GIS): 500 Seneca Street

Address 2 (GIS):
Locality (GIS): Buffalo
Town (GIS): Buffalo (c)
Zip Code (GIS): 14204
County (GIS): Erie
Site Class Desc: Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).
Site Class Desc (Web):
Site Class Desc (Geo): Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).
Assess DOH: Measures are in place to prevent contact with remaining site contaminants.
Data Source: DEC Environmental Remediation Database Search - Remedial Site Search (Web); Remedial GIS (GIS); DEC Remediation Sites Boundaries (Geo)

Description:

Location: The 500 Seneca Street Site is an approximately 1.874-acre site, located in an urban area, at 500 Seneca Street in the City of Buffalo, Erie County. The site encompasses an entire block bordered by Seneca Street to the south, Myrtle Street to the north, Hamburg Street to the east, and Spring Street to the west. Site Features: There is a 328,000-square-foot, multi-story building on most of the site with a small open lot on the western side of the parcel. The building was constructed in 1901 and there have been numerous additions. An open-air courtyard exists in the eastern portion of the building. Current Zoning and Land Use: The site building has been refurbished and is currently occupied by several commercial tenants, including restaurants, retail, and apartments. The site is zoned M-1, light industrial district. The building is listed in the National Registry of Historic Places. The nearest residential parcel is less than 500 feet to the north. Past Use of the Site: The F.N. Burt Company used the property for box manufacturing from 1901 until 1959. Between approximately 1968 and 1980 the site was occupied by a clothing rental company. Between 1986 and 2004, the site was used for manufacturing, warehousing, and shipping operations. The site was mostly vacant and underutilized after manufacturing operations ceased in 2004. Two underground storage tanks were removed from the open lot area in December 2007 (spill number 0751217). In addition to the tanks, approximately 45 tons of petroleum contaminated soil and 1,650 gallons of petroleum/water mixture was removed and disposed. Inaccessible petroleum impacted soil remained under a single-story garage. The remaining impacts resulted in a closed-inactive status for the petroleum spill. Site Geology and Hydrology: The majority of the site is characterized by 6 inches of asphalt or concrete above 6 inches of gravel, with underlying fill soils comprised mostly of sand and brick from 4 to 4.5 feet below ground surface (fbgs). Native soils are encountered about 4.5 fbgs and generally consist of clayey silt with intermittent layers of silty sand and gravel. Bedrock consisting of Middle Devonian, Onondaga Shale was encountered about 13 fbgs. Groundwater is encountered from 5 to 9 fbgs. However, when excavated to bedrock, little infiltration was noted, indicative of a perched condition. The site is located approximately 0.8 miles northeast of the Buffalo River and local site groundwater flows west-northwest with the upper horizon influenced by urban infrastructure.

Assessment:

Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were arsenic, semi-volatile organic compounds (SVOCs) from residual petroleum products, and trichloroethene in soil. Remedial actions have successfully achieved soil cleanup objectives for restricted residential use. Residual contamination in the soil is being managed under a Site Management Plan.

Controls Information

Control Code: 15
Control Name: Cover System
Control Type: ENG
Updated By: MEKUCZKA
Record Added Date: 2015-06-22 15:47:43.447000000
Record Updated Dt: 2020-04-10 10:01:26.127000000
In Place Date: 2015-06-04 00:00:00

Materials Information

Waste Name: tetrachloroethene (PCE)
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: TRICHLOROETHENE (TCE)
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: TETRACHLOROETHYLENE (PCE)
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: arsenic
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: barium
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: PCB aroclor 1016
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: lead
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: CARBON TETRACHLORIDE
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: Petroleum Products
Waste Quantity: UNKNOWN
Waste Code:

Owner Information

Owner Op: 19
Sub Type: NNN
Owner Name: Ms. Mary Jean Jakubowski
Owner Company: Buffalo & Erie County Public Library
Owner Street: 1 Lafayette Square
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14203
Country: United States of America

Owner Op: 01
Sub Type: 07
Owner Name: David P. Franjoine
Owner Company: 500 Seneca Street, LLC
Owner Street: 26 Mississippi Street
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14204
Country: United States of America

Owner Op: 04
Sub Type: NNN
Owner Name: Luke Cusack
Owner Company: Savarino Properties, LLC
Owner Street: 500 Seneca Street
Owner Street 2: Suite 630
Owner City: Buffalo
Owner State: NY
Owner Zip: 14204
Country: United States of America

Owner Op: 04
Sub Type: 07
Owner Name: David P. Franjoine
Owner Company: 500 Seneca Street, LLC

Owner Street:	26 Mississippi Street
Owner Street 2:	
Owner City:	Buffalo
Owner State:	NY
Owner Zip:	14204
Country:	United States of America
Owner Op:	06
Sub Type:	P03
Owner Name:	Sam Savarino
Owner Company:	500 Seneca Street, LLC
Owner Street:	500 Seneca Street, Suite 504
Owner Street 2:	
Owner City:	Buffalo
Owner State:	NY
Owner Zip:	14204
Country:	United States of America
Owner Op:	19
Sub Type:	NNN
Owner Name:	Maurice Moore
Owner Company:	New York State Department OF Environmental Conservation
Owner Street:	270 Michigan Avenue
Owner Street 2:	
Owner City:	Buffalo
Owner State:	NY
Owner Zip:	14203
Country:	United States of America

HW Extra Information

Dump:	True	**Dell:**	
Structure:	False	**Updated By:**	mfmoore
Lagoon:	False	**Record Added:**	2013-02-13 11:23:00
Landfill:	False	**Record Updated:**	2015-12-01 13:23:00
Pond:	False	**Latitude:**	
Disposal Start:		**Longitude:**	
Disposal Terminate:			

Projects Information

Project Code:	02
Project Desc:	Remedial Investigation
Project Refer Name:	500 Seneca Street - RI
End Date:	2015-10-07 00:00:00
End Status:	ACT
Operable Unit ID:	1228391
Operable Unit:	01
Operable Unit Desc:	Remedial Program
Code Name:	Remedial Investigation

Remedial Sites GIS

Program:	BCP
Site Class:	C
Region:	9
X Coord:	184984.93978
Y Coord:	4754425.63431
Method:	4.2
Accuracy:	Variable

Projects Information

Project Code:	05

Project Desc: Remedial Action
Project Refer Name:
End Date: 2014-11-25 00:00:00
End Status: ACT
Operable Unit ID: 1250662
Operable Unit: 01A
Operable Unit Desc: IRM - Soil Removal
Code Name: Remedial Action

Project Code: 25
Project Desc:
Project Refer Name:
End Date: 2015-12-14 00:00:00
End Status: ACT
Operable Unit ID: 1266404
Operable Unit: 00
Operable Unit Desc: Site Management
Code Name: Certificate of Completion

Project Code: 05
Project Desc: Remedial Action
Project Refer Name: IRM
End Date: 2015-02-20 00:00:00
End Status: ACT
Operable Unit ID: 1251945
Operable Unit: 01B
Operable Unit Desc: Chlorinated Solvent Soil Removal
Code Name: Remedial Action

Project Code: 04
Project Desc: Remedial Design
Project Refer Name:
End Date: 2015-10-07 00:00:00
End Status: ACT
Operable Unit ID: 1228391
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Design

Project Code: 05
Project Desc: Remedial Action
Project Refer Name:
End Date: 2015-12-14 00:00:00
End Status: ACT
Operable Unit ID: 1228391
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Action

Remedial GIS

Program: Brownfield Cleanup Program
Site Class: C
County: Erie
Town: Buffalo (c)
Region: 9
X Coord: 184984.93978
Y Coord: 4754425.63431
Method: 4.2
Accuracy:
Accuracy Unit:

Environmental Remediation Site Borders

Program:	Brownfield Cleanup Program	***GIS Flag:***	1
Site Class:	C	***UTM X:***	184984.93978
Method:	4.2	***UTM Y:***	4754425.63431

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site Code:	C915273
Site Name:	500 Seneca Street Site
Address1:	500 Seneca Street
Address2:	
Locality:	Buffalo
Zipcode:	14204
County:	Erie
Town:	Buffalo (c)
Region:	9
Detail URL:	https://appfactory.dec.ny.gov/DERExternalSearch/ERDDetails?SiteCode=C915273

53	3 of3	ESE	0.40 / 2,116.03	587.20 / -5	500 Seneca Street Site 500 Seneca Street Buffalo NY 14204	INST

Site Code:	478623
HW Code:	C915273
Control Type:	INST
Program:	BCP
Site Class:	C
Site Name:	500 Seneca Street Site
Site Address:	500 Seneca Street
City:	Buffalo
Zip:	14204
County:	Erie
Region:	9
Town:	Buffalo (c)
Latitude:	42.877500000
Longitude:	-78.856944444
SWIS:	1502
Acres:	1.874
Record Added:	2013-02-05 14:05:00
Record Updated:	2024-08-08 15:24:00
Updated By:	AECAPRIO
Site Code (Web):	C915273
Program Type (Web):	BCP
Site Class (Web):	C
Site Name (Web):	500 Seneca Street Site
Address1 (Web):	500 Seneca Street
Address2 (Web):	
Locality (Web):	Buffalo
Zip Code (Web):	14204
County (Web):	Erie
Longitude (Web):	-78.856944444
Latitude (Web):	42.877500000
Site Code (GIS):	C915273
Program (GIS):	BCP
Site Class (GIS):	C
Site Name (GIS):	500 Seneca Street Site
Address 1 (GIS):	500 Seneca Street
Address 2 (GIS):	
Locality (GIS):	Buffalo
Town (GIS):	Buffalo (c)
Zip Code (GIS):	14204
County (GIS):	Erie
Site Class Desc:	Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).
Site Class Desc (Web):	
Site Class Desc (Geo):	Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements

before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).

Assess DOH: Measures are in place to prevent contact with remaining site contaminants.

Data Source(s): DEC Environmental Remediation Database Search - Remedial Site Search (Web); Environmental Remediation Sites; Remedial GIS (GIS); DEC Remediation Sites Boundaries (Geo)

Description:

Location: The 500 Seneca Street Site is an approximately 1.874-acre site, located in an urban area, at 500 Seneca Street in the City of Buffalo, Erie County. The site encompasses an entire block bordered by Seneca Street to the south, Myrtle Street to the north, Hamburg Street to the east, and Spring Street to the west. Site Features: There is a 328,000-square-foot, multi-story building on most of the site with a small open lot on the western side of the parcel. The building was constructed in 1901 and there have been numerous additions. An open-air courtyard exists in the eastern portion of the building. Current Zoning and Land Use: The site building has been refurbished and is currently occupied by several commercial tenants, including restaurants, retail, and apartments. The site is zoned M-1, light industrial district. The building is listed in the National Registry of Historic Places. The nearest residential parcel is less than 500 feet to the north. Past Use of the Site: The F.N. Burt Company used the property for box manufacturing from 1901 until 1959. Between approximately 1968 and 1980 the site was occupied by a clothing rental company. Between 1986 and 2004, the site was used for manufacturing, warehousing, and shipping operations. The site was mostly vacant and underutilized after manufacturing operations ceased in 2004. Two underground storage tanks were removed from the open lot area in December 2007 (spill number 0751217). In addition to the tanks, approximately 45 tons of petroleum contaminated soil and 1,650 gallons of petroleum/water mixture was removed and disposed. Inaccessible petroleum impacted soil remained under a single-story garage. The remaining impacts resulted in a closed-inactive status for the petroleum spill. Site Geology and Hydrology: The majority of the site is characterized by 6 inches of asphalt or concrete above 6 inches of gravel, with underlying fill soils comprised mostly of sand and brick from 4 to 4.5 feet below ground surface (fbgs). Native soils are encountered about 4.5 fbgs and generally consist of clayey silt with intermittent layers of silty sand and gravel. Bedrock consisting of Middle Devonian, Onondaga Shale was encountered about 13 fbgs. Groundwater is encountered from 5 to 9 fbgs. However, when excavated to bedrock, little infiltration was noted, indicative of a perched condition. The site is located approximately 0.8 miles northeast of the Buffalo River and local site groundwater flows west-northwest with the upper horizon influenced by urban infrastructure.

Assessment:

Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were arsenic, semi-volatile organic compounds (SVOCs) from residual petroleum products, and trichloroethene in soil. Remedial actions have successfully achieved soil cleanup objectives for restricted residential use. Residual contamination in the soil is being managed under a Site Management Plan.

Controls Information

Control Code:	32	***Record Added Date:***	2015-06-22 15:47:43.447000000
Control Name:	Site Management Plan	***Record Updated Dt:***	2020-04-10 10:01:26.127000000
Control Type:	INST	***In Place Date:***	2015-06-04 00:00:00
Updated By:	MEKUCZKA		
Control Code:	33	***Record Added Date:***	2015-06-22 15:47:43.447000000
Control Name:	O&M Plan	***Record Updated Dt:***	2020-04-10 10:01:26.127000000
Control Type:	INST	***In Place Date:***	2015-06-04 00:00:00
Updated By:	MEKUCZKA		
Control Code:	34	***Record Added Date:***	2015-06-22 15:47:43.447000000
Control Name:	IC/EC Plan	***Record Updated Dt:***	2020-04-10 10:01:26.127000000
Control Type:	INST	***In Place Date:***	2015-06-04 00:00:00
Updated By:	MEKUCZKA		
Control Code:	08	***Record Added Date:***	2015-06-22 15:47:43.447000000
Control Name:	Ground Water Use Restriction	***Record Updated Dt:***	2020-04-10 10:01:26.127000000
Control Type:	INST	***In Place Date:***	2015-06-04 00:00:00
Updated By:	MEKUCZKA		
Control Code:	J	***Record Added Date:***	2015-06-22 15:47:43.447000000
Control Name:	Environmental Easement	***Record Updated Dt:***	2020-04-10 10:01:26.127000000
Control Type:	INST	***In Place Date:***	2015-06-04 00:00:00
Updated By:	MEKUCZKA		
Control Code:	26	***Record Added Date:***	2015-06-22 15:47:43.447000000
Control Name:	Building Use Restriction	***Record Updated Dt:***	2020-04-10 10:01:26.127000000
Control Type:	INST	***In Place Date:***	2015-06-04 00:00:00
Updated By:	MEKUCZKA		
Control Code:	14	***Record Added Date:***	2015-06-22 15:47:43.447000000
Control Name:	Soil Management Plan	***Record Updated Dt:***	2020-04-10 10:01:26.127000000
Control Type:	INST	***In Place Date:***	2015-06-04 00:00:00

Updated By: MEKUCZKA

Materials Information

Waste Name: tetrachloroethene (PCE)
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: PCB aroclor 1016
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: lead
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: arsenic
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: barium
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: TRICHLOROETHENE (TCE)
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: CARBON TETRACHLORIDE
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: TETRACHLOROETHYLENE (PCE)
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: Petroleum Products
Waste Quantity: UNKNOWN
Waste Code:

Owner Information

Owner Op: 01
Sub Type: 07
Owner Name: David P. Franjoine
Owner Company: 500 Seneca Street, LLC
Owner Street: 26 Mississippi Street
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14204
Country: United States of America

Owner Op: 19
Sub Type: NNN
Owner Name: Ms. Mary Jean Jakubowski
Owner Company: Buffalo & Erie County Public Library
Owner Street: 1 Lafayette Square
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14203
Country: United States of America

Owner Op: 19
Sub Type: NNN
Owner Name: Maurice Moore

Owner Company: New York State Department OF Environmental Conservation
Owner Street: 270 Michigan Avenue
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14203
Country: United States of America

Owner Op: 06
Sub Type: P03
Owner Name: Sam Savarino
Owner Company: 500 Seneca Street, LLC
Owner Street: 500 Seneca Street, Suite 504
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14204
Country: United States of America

Owner Op: 04
Sub Type: NNN
Owner Name: Luke Cusack
Owner Company: Savarino Properties, LLC
Owner Street: 500 Seneca Street
Owner Street 2: Suite 630
Owner City: Buffalo
Owner State: NY
Owner Zip: 14204
Country: United States of America

Owner Op: 04
Sub Type: 07
Owner Name: David P. Franjoine
Owner Company: 500 Seneca Street, LLC
Owner Street: 26 Mississippi Street
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14204
Country: United States of America

HW Extra Information

Dump:	True	**Dell:**	
Structure:	False	**Updated By:**	mfmoore
Lagoon:	False	**Record Added:**	2013-02-13 11:23:00
Landfill:	False	**Record Updated:**	2015-12-01 13:23:00
Pond:	False	**Latitude:**	
Disposal Start:		**Longitude:**	
Disposal Terminate:			

Projects Information

Project Code: 02
Project Desc: Remedial Investigation
Project Refer Name: 500 Seneca Street - RI
End Date: 2015-10-07 00:00:00
End Status: ACT
Operable Unit ID: 1228391
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Investigation

Project Code: 04
Project Desc: Remedial Design
Project Refer Name:
End Date: 2015-10-07 00:00:00

End Status: ACT
Operable Unit ID: 1228391
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Design

Project Code: 05
Project Desc: Remedial Action
Project Refer Name: IRM
End Date: 2015-02-20 00:00:00
End Status: ACT
Operable Unit ID: 1251945
Operable Unit: 01B
Operable Unit Desc: Chlorinated Solvent Soil Removal
Code Name: Remedial Action

Remedial Sites GIS

Program: BCP
Site Class: C
Region: 9
X Coord: 184984.93978
Y Coord: 4754425.63431
Method: 4.2
Accuracy: Variable

Projects Information

Project Code: 05
Project Desc: Remedial Action
Project Refer Name:
End Date: 2015-12-14 00:00:00
End Status: ACT
Operable Unit ID: 1228391
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Action

Project Code: 05
Project Desc: Remedial Action
Project Refer Name:
End Date: 2014-11-25 00:00:00
End Status: ACT
Operable Unit ID: 1250662
Operable Unit: 01A
Operable Unit Desc: IRM - Soil Removal
Code Name: Remedial Action

Project Code: 25
Project Desc:
Project Refer Name:
End Date: 2015-12-14 00:00:00
End Status: ACT
Operable Unit ID: 1266404
Operable Unit: 00
Operable Unit Desc: Site Management
Code Name: Certificate of Completion

Remedial GIS

Program: Brownfield Cleanup Program
Site Class: C
County: Erie
Town: Buffalo (c)
Region: 9

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

X Coord: 184984.93978
Y Coord: 4754425.63431
Method: 4.2
Accuracy:
Accuracy Unit:

Environmental Remediation

Operable Unit: 01B
Contaminants: PCB aroclor 1016; arsenic; barium; lead; petroleum products; tetrachloroethene (PCE); trichloroethene (TCE)

Operable Unit: 01A
Contaminants: PCB aroclor 1016; arsenic; barium; lead; petroleum products; tetrachloroethene (PCE); trichloroethene (TCE)

Operable Unit: 00
Contaminants: PCB aroclor 1016; arsenic; barium; lead; petroleum products; tetrachloroethene (PCE); trichloroethene (TCE)

Operable Unit: 01
Contaminants: PCB aroclor 1016; arsenic; barium; lead; petroleum products; tetrachloroethene (PCE); trichloroethene (TCE)

Environmental Remediation Site Borders

Program: Brownfield Cleanup Program
Site Class: C
Method: 4.2
GIS Flag: 1
UTM Y: 4754425.63431
UTM X: 184984.93978
Site Name: 500 Seneca Street Site
Address1: 500 Seneca Street
Address2:
Locality: Buffalo
Zipcode: 14204
County: Erie
Town: Buffalo (c)
Region: 9
Detail URL: https://appfactory.dec.ny.gov/DERExternalSearch/ERDDetails?SiteCode=C915273

54	1 of2	ESE	0.40 / 2,130.35	586.75 / -5	**Graphic Controls** **487-503 & 541-543 Seneca St and 479 & 489 Alabama St; 400, 450-5** **Buffalo NY 14024**	**FED BROWNFIELDS**

Property ID: 28102
County: ERIE
Lat Measure: 42.877186
Latitude (Map): 42.877186
Long Measure: -78.858107
Longitude (Map): -78.858107
Property Name: Graphic Controls
Address: 487-503 & 541-543 Seneca St and 479 & 489 Alabama St; 400, 450-5
City: Buffalo
State: NY
Zip Code: 14024
Primary Name (Map): GRAPHIC CONTROLS
Location Address (Map): 487-503 & 541-543 SENECA ST
City Name (Map): BUFFALO
County Name (Map): ERIE
State Code (Map): NY
Postal Code (Map): 14201
Data Source: Cleanups in My Community (CIMC) Cleanups and Grants Listing Export - Brownfield Properties (as of 19 Feb 2025); Cleanups in My Community (CIMC) Web Application - Brownfield Properties (Map) (as of 4 Feb 2024)

Property Details (Cleanups in My Community)

ID No:
Size Acres: 0.
NFA Letter Date:
Parcel No:
Media Affected: Soil
Property Enrolled:
Media Cleaned Up: Soil
Radius: .5
Contaminants REC:
Census Tract: 36029016400
Contams Actionable: Asbestos Other Contaminants PCBs
2010 # Below Poverty: 1391.

Contams < Actionble:		***2010 Below Poverty:***	43.55
Contamnts Cleanup:	Asbestos Other Contaminants PCBs	***2010 Median Income:***	6631.
Tanks Removal:		***2010 No Low Income:***	2258.
Cleanup Needed:	Y	***2010 Low Income:***	70.7
Cleanup Treatment:		***2010 No Vacant Hous:***	302.
Excavation Disposl:		***2010 Vacant Housing:***	15.08
Contams Extractn:		***2010 # Unemployed:***	214.
Reduc Contams:		***2010 Unemployed:***	6.7
Additional Clnup:		***Tech Capping:***	
Institutional Cleanup:		***Secur Guard Fence:***	
Institutional Cleanup:	U	***Immobilization:***	
Engineering Needed:		***Eng Barriers:***	
Eng Control:		***Proprietary Cntrl:***	
Additnl Inst Control:		***Info Device:***	
Additnl Eng Control:		***Govt Cntrl:***	
Inst Control Date:		***Enf Permit Tool:***	
Eng Control Date:		***Clnup Struct Remov:***	
Property Alias:			
Property Owner:	Private		
Address Source URL:			
Address Source URL:			
Address Source URL:			
Other:			

Activity Details(Cleanups in My Community)

Coop Agmt No:	99242201	***Redev Actvy Funded:***	
Program Name:	BP	***Redev Start Dt:***	
Activity Funded:		***Redev Compl date:***	
Type CA Fund:		***Redev Fund Entity:***	
Funding Entity:	EPA	***Redev Residential:***	
Assessmnt Start Dt:	10/26/2001	***Redev Greenspace:***	
Assessmnt Compl Dt:	01/25/2002	***Redev Industrial:***	
Clnup Actvy Start Dt:		***Redev Commercial:***	5.
Clnup Actvy Comp Dt:		***# of Redev Jobs:***	
Acres Cleaned Up:		***RLF Signed Dt:***	
Clnup Funding Src:		***RLF Intest Rate:***	
Clnup Entity Provid:		***RLF EPA Fund:***	
Signed Rpt Dt:		***RLF Cost Share:***	
Direct Clnup Tot Fnd:		***RLF Prog Income:***	
Direct Clnup Fnd Src:		***RLF Lvg Fund Src:***	RLF Leveraged
Fund Amt Expnded:		***RLF Lvg Fund Entity:***	Buffalo
Source of Funding:		***RLF Lvg Fund Amt:***	80000.
Past Use Resiential:		***RLF Subgrant Signed:***	
Past Use Greenspace:		***Subgrant EPA Fund:***	
Past Use Industrial:		***Subgrant Cost Shr:***	
Past Use Commercial:			
Coop Agmt Recipnt:	Buffalo, City of		
Clnup Compet Doc2:			
Climate Adapt Mitg1:			
Climate Adapt Mitg2:			
Climate Adaptation And Mitigat:			

Activity Details(Cleanups in My Community)

Coop Agmt No:	99242201	***Redev Actvy Funded:***	
Program Name:	BP	***Redev Start Dt:***	
Activity Funded:		***Redev Compl date:***	
Type CA Fund:		***Redev Fund Entity:***	
Funding Entity:		***Redev Residential:***	
Assessmnt Start Dt:		***Redev Greenspace:***	
Assessmnt Compl Dt:		***Redev Industrial:***	
Clnup Actvy Start Dt:		***Redev Commercial:***	5.
Clnup Actvy Comp Dt:		***# of Redev Jobs:***	
Acres Cleaned Up:		***RLF Signed Dt:***	
Clnup Funding Src:		***RLF Intest Rate:***	

Clnup Entity Provid:		***RLF EPA Fund:***	
Signed Rpt Dt:		***RLF Cost Share:***	
Direct Clnup Tot Fnd:		***RLF Prog Income:***	
Direct Clnup Fnd Src:		***RLF Lvg Fund Src:***	RLF Leveraged
Fund Amt Expnded:		***RLF Lvg Fund Entity:***	Buffalo
Source of Funding:		***RLF Lvg Fund Amt:***	80000.
Past Use Resiential:		***RLF Subgrant Signed:***	
Past Use Greenspace:		***Subgrant EPA Fund:***	
Past Use Industrial:		***Subgrant Cost Shr:***	
Past Use Commercial:			
Coop Agmt Recipnt:	Buffalo, City of		
Clnup Compet Doc2:			
Climate Adapt Mitg1:			
Climate Adapt Mitg2:			
Climate Adaptation And Mitigat:			

Activity Details(Cleanups in My Community)

Coop Agmt No:	99242201	***Redev Actvy Funded:***	
Program Name:	BP	***Redev Start Dt:***	
Activity Funded:		***Redev Compl date:***	
Type CA Fund:		***Redev Fund Entity:***	
Funding Entity:		***Redev Residential:***	
Assessmnt Start Dt:		***Redev Greenspace:***	
Assessmnt Compl Dt:		***Redev Industrial:***	
Clnup Actvy Start Dt:	12/15/1998	***Redev Commercial:***	5.
Clnup Actvy Comp Dt:	09/26/2003	***# of Redev Jobs:***	
Acres Cleaned Up:		***RLF Signed Dt:***	
Clnup Funding Src:	Buffalo	***RLF Intest Rate:***	
Clnup Entity Provid:	Local Funding	***RLF EPA Fund:***	
Signed Rpt Dt:		***RLF Cost Share:***	
Direct Clnup Tot Fnd:		***RLF Prog Income:***	
Direct Clnup Fnd Src:		***RLF Lvg Fund Src:***	RLF Leveraged
Fund Amt Expnded:		***RLF Lvg Fund Entity:***	Buffalo
Source of Funding:		***RLF Lvg Fund Amt:***	80000.
Past Use Resiential:		***RLF Subgrant Signed:***	
Past Use Greenspace:		***Subgrant EPA Fund:***	
Past Use Industrial:		***Subgrant Cost Shr:***	
Past Use Commercial:			
Coop Agmt Recipnt:	Buffalo, City of		
Clnup Compet Doc2:			
Climate Adapt Mitg1:			
Climate Adapt Mitg2:			
Climate Adaptation And Mitigat:			

Activity Details(Cleanups in My Community)

Coop Agmt No:	99242201	***Redev Actvy Funded:***	
Program Name:	BP	***Redev Start Dt:***	
Activity Funded:		***Redev Compl date:***	
Type CA Fund:		***Redev Fund Entity:***	
Funding Entity:	EPA	***Redev Residential:***	
Assessmnt Start Dt:	11/05/1997	***Redev Greenspace:***	
Assessmnt Compl Dt:	03/28/2008	***Redev Industrial:***	
Clnup Actvy Start Dt:		***Redev Commercial:***	5.
Clnup Actvy Comp Dt:		***# of Redev Jobs:***	
Acres Cleaned Up:		***RLF Signed Dt:***	
Clnup Funding Src:		***RLF Intest Rate:***	
Clnup Entity Provid:		***RLF EPA Fund:***	
Signed Rpt Dt:		***RLF Cost Share:***	
Direct Clnup Tot Fnd:		***RLF Prog Income:***	
Direct Clnup Fnd Src:		***RLF Lvg Fund Src:***	RLF Leveraged
Fund Amt Expnded:		***RLF Lvg Fund Entity:***	Buffalo
Source of Funding:	Local Funding	***RLF Lvg Fund Amt:***	80000.
Past Use Resiential:		***RLF Subgrant Signed:***	

Past Use Greenspace:		***Subgrant EPA Fund:***	
Past Use Industrial:		***Subgrant Cost Shr:***	
Past Use Commercial:			
Coop Agmt Recipnt:	Buffalo, City of		
Clnup Compet Doc2:			
Climate Adapt Mitg1:			
Climate Adapt Mitg2:			
Climate Adaptation And Mitigat:			

Activity Details(Cleanups in My Community)

Coop Agmt No:	99242201	***Redev Actvy Funded:***	
Program Name:	BP	***Redev Start Dt:***	
Activity Funded:		***Redev Compl date:***	
Type CA Fund:		***Redev Fund Entity:***	
Funding Entity:	Buffalo	***Redev Residential:***	
Assessmnt Start Dt:	11/05/1997	***Redev Greenspace:***	
Assessmnt Compl Dt:	03/28/2008	***Redev Industrial:***	
Clnup Actvy Start Dt:		***Redev Commercial:***	5.
Clnup Actvy Comp Dt:		***# of Redev Jobs:***	
Acres Cleaned Up:		***RLF Signed Dt:***	
Clnup Funding Src:		***RLF Intest Rate:***	
Clnup Entity Provid:		***RLF EPA Fund:***	
Signed Rpt Dt:		***RLF Cost Share:***	
Direct Clnup Tot Fnd:		***RLF Prog Income:***	
Direct Clnup Fnd Src:		***RLF Lvg Fund Src:***	RLF Leveraged
Fund Amt Expnded:		***RLF Lvg Fund Entity:***	Buffalo
Source of Funding:	Local Funding	***RLF Lvg Fund Amt:***	80000.
Past Use Resiential:		***RLF Subgrant Signed:***	
Past Use Greenspace:		***Subgrant EPA Fund:***	
Past Use Industrial:		***Subgrant Cost Shr:***	
Past Use Commercial:			
Coop Agmt Recipnt:	Buffalo, City of		
Clnup Compet Doc2:			
Climate Adapt Mitg1:			
Climate Adapt Mitg2:			
Climate Adaptation And Mitigat:			

Activity Details(Cleanups in My Community)

Coop Agmt No:	99242201	***Redev Actvy Funded:***	
Program Name:	BP	***Redev Start Dt:***	
Activity Funded:		***Redev Compl date:***	
Type CA Fund:		***Redev Fund Entity:***	
Funding Entity:	EPA	***Redev Residential:***	
Assessmnt Start Dt:	04/01/1999	***Redev Greenspace:***	
Assessmnt Compl Dt:	09/14/2001	***Redev Industrial:***	
Clnup Actvy Start Dt:		***Redev Commercial:***	5.
Clnup Actvy Comp Dt:		***# of Redev Jobs:***	
Acres Cleaned Up:		***RLF Signed Dt:***	
Clnup Funding Src:		***RLF Intest Rate:***	
Clnup Entity Provid:		***RLF EPA Fund:***	
Signed Rpt Dt:		***RLF Cost Share:***	
Direct Clnup Tot Fnd:		***RLF Prog Income:***	
Direct Clnup Fnd Src:		***RLF Lvg Fund Src:***	RLF Leveraged
Fund Amt Expnded:		***RLF Lvg Fund Entity:***	Buffalo
Source of Funding:	Local Funding	***RLF Lvg Fund Amt:***	80000.
Past Use Resiential:		***RLF Subgrant Signed:***	
Past Use Greenspace:		***Subgrant EPA Fund:***	
Past Use Industrial:		***Subgrant Cost Shr:***	
Past Use Commercial:			
Coop Agmt Recipnt:	Buffalo, City of		
Clnup Compet Doc2:			
Climate Adapt Mitg1:			
Climate Adapt Mitg2:			

Climate Adaptation And Mitigat:

Activity Details(Cleanups in My Community)

Coop Agmt No:	99242201	***Redev Actvy Funded:***	
Program Name:	BP	***Redev Start Dt:***	05/05/1999
Activity Funded:		***Redev Compl date:***	
Type CA Fund:		***Redev Fund Entity:***	Graphic Controls Corp
Funding Entity:		***Redev Residential:***	
Assessmnt Start Dt:		***Redev Greenspace:***	
Assessmnt Compl Dt:		***Redev Industrial:***	
Clnup Actvy Start Dt:		***Redev Commercial:***	5.
Clnup Actvy Comp Dt:		***# of Redev Jobs:***	413.
Acres Cleaned Up:		***RLF Signed Dt:***	
Clnup Funding Src:		***RLF Intest Rate:***	
Clnup Entity Provid:		***RLF EPA Fund:***	
Signed Rpt Dt:		***RLF Cost Share:***	
Direct Clnup Tot Fnd:		***RLF Prog Income:***	
Direct Clnup Fnd Src:		***RLF Lvg Fund Src:***	RLF Leveraged
Fund Amt Expnded:	16000000.	***RLF Lvg Fund Entity:***	Buffalo
Source of Funding:		***RLF Lvg Fund Amt:***	80000.
Past Use Resiential:		***RLF Subgrant Signed:***	
Past Use Greenspace:		***Subgrant EPA Fund:***	
Past Use Industrial:		***Subgrant Cost Shr:***	
Past Use Commercial:			
Coop Agmt Recipnt:	Buffalo, City of		
Clnup Compet Doc2:			
Climate Adapt Mitg1:			
Climate Adapt Mitg2:			
Climate Adaptation And Mitigat:			

Activity Details(Cleanups in My Community)

Coop Agmt No:	99242201	***Redev Actvy Funded:***	
Program Name:	BP	***Redev Start Dt:***	05/05/1999
Activity Funded:		***Redev Compl date:***	
Type CA Fund:		***Redev Fund Entity:***	NY tax break
Funding Entity:		***Redev Residential:***	
Assessmnt Start Dt:		***Redev Greenspace:***	
Assessmnt Compl Dt:		***Redev Industrial:***	
Clnup Actvy Start Dt:		***Redev Commercial:***	5.
Clnup Actvy Comp Dt:		***# of Redev Jobs:***	413.
Acres Cleaned Up:		***RLF Signed Dt:***	
Clnup Funding Src:		***RLF Intest Rate:***	
Clnup Entity Provid:		***RLF EPA Fund:***	
Signed Rpt Dt:		***RLF Cost Share:***	
Direct Clnup Tot Fnd:		***RLF Prog Income:***	
Direct Clnup Fnd Src:		***RLF Lvg Fund Src:***	RLF Leveraged
Fund Amt Expnded:	10.	***RLF Lvg Fund Entity:***	Buffalo
Source of Funding:		***RLF Lvg Fund Amt:***	80000.
Past Use Resiential:		***RLF Subgrant Signed:***	
Past Use Greenspace:		***Subgrant EPA Fund:***	
Past Use Industrial:		***Subgrant Cost Shr:***	
Past Use Commercial:			
Coop Agmt Recipnt:	Buffalo, City of		
Clnup Compet Doc2:			
Climate Adapt Mitg1:			
Climate Adapt Mitg2:			
Climate Adaptation And Mitigat:			

Activity Details(Cleanups in My Community)

Coop Agmt No:	99242201	**Redev Actvy Funded:**	
Program Name:	BP	**Redev Start Dt:**	
Activity Funded:		**Redev Compl date:**	
Type CA Fund:		**Redev Fund Entity:**	
Funding Entity:	Buffalo	**Redev Residential:**	
Assessmnt Start Dt:	04/01/1999	**Redev Greenspace:**	
Assessmnt Compl Dt:	09/14/2001	**Redev Industrial:**	
Clnup Actvy Start Dt:		**Redev Commercial:**	5.
Clnup Actvy Comp Dt:		**# of Redev Jobs:**	
Acres Cleaned Up:		**RLF Signed Dt:**	
Clnup Funding Src:		**RLF Intest Rate:**	
Clnup Entity Provid:		**RLF EPA Fund:**	
Signed Rpt Dt:		**RLF Cost Share:**	
Direct Clnup Tot Fnd:		**RLF Prog Income:**	
Direct Clnup Fnd Src:		**RLF Lvg Fund Src:**	RLF Leveraged
Fund Amt Expnded:		**RLF Lvg Fund Entity:**	Buffalo
Source of Funding:	Local Funding	**RLF Lvg Fund Amt:**	80000.
Past Use Resiential:		**RLF Subgrant Signed:**	
Past Use Greenspace:		**Subgrant EPA Fund:**	
Past Use Industrial:		**Subgrant Cost Shr:**	
Past Use Commercial:			
Coop Agmt Recipnt:	Buffalo, City of		
Clnup Compet Doc2:			
Climate Adapt Mitg1:			
Climate Adapt Mitg2:			
Climate Adaptation And Mitigat:			

Brownfields Details

Registry I:	110038765627	**SF EI He C:**	
EPA ID:		**SF IC Ind:**	
EPA Region:	02	**SF NPL Cod:**	
Cat No:	4120103	**SF NPL C 1:**	
RCRA Handl:		**FF SF Ind:**	
RCRA Curre:		**Map Symbol:**	B
RCRA Remed:		**Data Refre:**	04-Feb-2024
RCRA Const:		**New Site:**	
RCRA EI He:		**BF RLF Gra:**	
RCRA EI Gm:		**BF RLF Pil:**	
RCRA Rem 1:		**BF Assess :**	Y
RCRA Ec Gw:		**BF Cleanup:**	
RCRA Ec Ng:		**BF Tba Ind:**	
RCRA IC Ep:		**BF 128a In:**	
RCRA IC Gc:		**BF IC Code:**	U
RCRA IC ID:		**BF IC Gc I:**	U
RCRA IC Pr:		**BF IC Ep I:**	U
FF RCRA In:		**BF IC ID I:**	U
RCRA Ec Co:		**BF IC Pr I:**	U
RCRA IC Co:		**BF Assess1:**	
RCRA Gpra :		**BF Multipu:**	
RCRA Rem 2:		**BF Awp Ind:**	
RCRA Dru 1:		**BF Showcas:**	
SF Site ID:		**BF 128a P :**	
SF Ec Ind:		**Congressio:**	NY-26
SF EI Gm C:		**Stimulus B:**	
Ind Name:			
Cat Name:	Buffalo-Eighteenmile		
Sub Name:	Buffalo-Eighteenmile		
Primary Name:	GRAPHIC CONTROLS		
RCRA Drupa:			
Repow Ref :	https://cimc.epa.gov/ords/cimc/f?p=CIMC:REPOWER:::::P33_REF:18558		
Url:	https://obipublic11.epa.gov/analytics/saw.dll?PortalPages&Action=Navigate&col1=ACRES_GRANT_EXPORT.PROPERTY_ID&val1=%2228102.0%22&PortalPath=/shared/CIMC/_portal/CIMC&Page=Profile+Page		
Census Url:	https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?report=census2010sf1&coords=-78.858107%2C42.877186&feattype=point&radius=1.0		
ACS Url:	https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?report=acs2017&coords=-78.858107%2C42.877186&feattype=point&radius=1.0		

SAA Site:	
Sf Brac Ty:	
Sf Archive:	
Sf Ffdocke:	
Sf Npl C 3:	
Sf Npl C 2:	
Sf Npl C 1:	
SF Site Na:	
SF Non N 1:	
SF Non N 2:	
SF Non N 3:	
SF Non Npl:	
BF Prope 1:	Graphic Controls
RCRA Han 1:	
RCRA Rau I:	
REPOW BF:	SGW
REPOW Re 1:	RE-Powering Site Profile
REPOW Ref1:	18558

54	2 of2	ESE	0.40 / 2,130.35	586.75 / -5	FARGO ELECTRIC 493-503 SENECA ST BUFFALO NY	LST

Spill No:	0275500	**REM Phase:**	0
Site ID:	209278	**UST Trust:**	False
DER Facility ID:	173550	**Spill Date:**	12/01/2002 12:00:00 PM
CID:		**Rcvd Date:**	12/23/2002 12:00:00 PM
Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	
Contribute Factor:	Tank Failure	**Close Date:**	05/01/2003 12:00:00 AM
Water Body:		**Create Date:**	01/29/2003 11:41:00 AM
Class:	C3	**Update Date:**	05/14/2003 12:00:00 AM
Meets Std:	False	**Lead DEC:**	JFOTTO
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category:	Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class Desc:	Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Referred to:	
Reported by:	Affected Persons
Source:	Commercial/Industrial
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"JFO REC'D ANALYTICAL RESULTS FOR A TANK PULL."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was JFO 12/23/02 JFO RECEIVED THE RESULTS OF A BOTTOM SAMPLE FROM A TANK PIT EXCAVATION. THE SEMI VOLATILES ARE SLIGHTLY ABOVE TAGMS. JFO CALLED ANDY MCLELLAN AND REQUESTED SIDEWALL ANALYTICAL RESULTS. EXCAVATION IS STILL OPEN. HE WILL SAMPLE. 01/08/03 JFO REC'D THE SIDEWALL RESULTS. NORTH AND WEST SIDEWALL ARE ALSO SLIGHTLY ABOVE TAGMS. NEED DISPOSAL RECEIPTS. THIS SITE WILL BE INACTIVE. SEE SPILL #0275134 FOR FURTHER INFORMATION. 05/01/03 JFO RECEIVED THE DISPOSAL RECEIPTS FOR 142.38 TONS ON CONTAMINATED SOIL. NO FURTHER ACTION REQUIRED AT THIS TIME THIS SITE IS INACTIVE. CLOSED"

Material Information

OP Unit ID:	865886	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	507866	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Recovered:	.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		
Material Code:	0001A		
Material Name:	#2 fuel oil		

Spiller Information

Spiller Name:	
Spiller Company:	city of buffalo
Spiller Address:	
Spiller City:	
Spiller State:	NY
Spiller Zip:	
Spiller Country:	999
Contact Name:	LARRY SCHIAVONE
Contact Phone:	(716) 851-4914
Contact Ext:	
Latitude:	42.877417750
Longitude:	-78.858385050

55	1 of1	SW	0.41 / 2,142.17	580.61 / -12	DLGROUP BANITE INC BUFFALO NY	PFAS IND

Status:	Inactive	**Fac Fips Code:**	36029
Fac Indian Cntry Flg:	No	**Compliance Status:**	No Violation Identified
Fac Derived Huc:	04120103	**EPA Programs:**	RCRA
Fac Derived Wbd:	041201030306	**Federal Facility:**	No
Fac Derived Cd113:	26	**Federal Agency:**	-
Fac Derived Cb2010:	360290164001004	**Fac Snc Flg:**	No
Fac Informal Count:	0	**AIR Flag:**	No
Last Informal Action:	-	**NPDES Flag:**	No
Formal Action Count:	0	**SDWIS Flag:**	No
Last Formal Action:	-	**RCRAFlag:**	Yes
Fac Total Penalties:	0	**TRI Flag:**	No
Fac Penalty Count:	-	**GHG Flag:**	No
Date Last Penalty:	-	**TRI IDs:**	-
Last Penalty Amt:	0	**TRI Releases Trnsfrs:**	-
Fac Qtrs With Nc:	0	**TRI on Site Releases:**	-
Programs With Snc:	0	**TRI off Site Trnsfrs:**	-
Fac Percent Minority:	59.917	**TRI Reporter:**	-
Fac Pop Den:	4781.32	**Fac Imp Water Flg:**	-
Count:	1	**Fac Major Flag:**	-
Fac County:	ERIE	**Fac Active Flag:**	-
State Other :		**Fac Inspection Count:**	0
Region:	02	**Date Last Inspection:**	2/10/1995
Latitude:	42.875074	**Days Last Inspection:**	11159
Longitude:	-78.870026		

Fac Derived Tribes:	Tuscarora Nation - 19 mile(s), Seneca Nation of Indians - 22 mile(s), Tonawanda Band of Seneca - 24 mile(s)
AIR IDs:	-
CAA Permit Types:	-
CAA NAICS:	-
CAA SICS:	-
NPDES IDs:	-
CWA Permit Types:	-
CWA NAICS:	-
CWA SICS:	-
RCRA IDs:	NYD982741134
RCRA Permit Types:	Other
RCRA NAICS:	325611
SDWA IDs:	-
SDWA System Types:	-
SDWA Compliance Status:	-
SDWA Snc Flag:	No
Fac Collection Meth:	ADDRESS MATCHING-HOUSE NUMBER
EJSCREEN Flag Us:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

EJSCREEN Report:
ECHO Facility Report: https://echo.epa.gov/detailed-facility-report?fid=110004431810

Industry: Cleaning Product Mfg

56	1 of2	WNW	0.41 / 2,147.83	608.18 / 16	201 Ellicott Street Site 201 & 225 Ellicott Street BUFFALO NY 14203	BROWNFIELDS

Site Code: 568786
HW Code: C915331
Program: BCP
Site Class: C
Site Name: 201 Ellicott Street Site
Site Address: 201 & 225 Ellicott Street
City: BUFFALO
Zip: 14203
County: Erie
Region: 9
Town: Buffalo (c)
Latitude: 42.884385000
Longitude: -78.871738889
SWIS: 1502
Acres: 2.477
Record Added: 2018-04-09 16:27:00
Record Update: 2024-06-11 13:52:00
Updated by: AECAPRIO
Program Type (Web): BCP
Site Name (Web): 201 Ellicott Street Site
Site Class (Web): C
Address1 (Web): 201 & 225 Ellicott Street
Address2 (Web):
Locality (Web): BUFFALO
Zip Code (Web): 14203
County (Web): Erie
Longitude (Web): -78.871738889
Latitude (Web): 42.884385000
Site Name (GIS): 201 Ellicott Street Site
Program (GIS): BCP
Site Class (GIS): C
Address1 (GIS): 201 & 225 Ellicott Street
Address2 (GIS):
Locality (GIS): BUFFALO
Town (GIS): Buffalo (c)
Zip Code (GIS): 14203
County (GIS): Erie
Site Class Desc: Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).
Site Class Desc (Web):
Site Class Desc (Geo): Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).
Assess DOH: Remedial actions taken have eliminated the potential for contact with site-related contaminants in soil. People are not drinking the contaminated groundwater because the area is served by a public water supply that obtains water from a different source.
Data Source: DEC Environmental Remediation Database Search - Remedial Site Search (Web); Environmental Remediation Sites; Remedial GIS (GIS); DEC Remediation Sites Boundaries (Geo)
Description:

Location: The 201 Ellicott Street site is a 2.477-acre site located in a highly developed residential and commercial area in the City of Buffalo. The site encompasses an entire city block and is bounded by Clinton Street to the north, East Eagle Street to the south, Oak Street to the east, and Ellicott Street to the west. Site Features: The site has been redeveloped with two buildings. One building houses apartments, including affordable apartments, and the other is a retail food market. Current Zoning and Land Use: The current zoning for the site and the adjacent properties is N-1C, mixed-use. The redevelopment is consistent with the City of Buffalo zoning for the area. Past Use of the Site: Portions of the site were used for commercial purposes from the late 1800s to the early 1980s. Past commercial uses included a blacksmith shop, the National Lead Company, Buffalo Kay Chemical Company, Inc., a salvage shop, auto repair shops, a laundromat, several commercial retail shops, a hotel and various restaurants. The property was acquired by the City of Buffalo in the early 1960s and was converted to a surface parking lot. The site was used as a surface parking lot until 2019. Site Geology and Hydrogeology: The overburden geology below the surface of the site consists of urban fill (brick, ash, concrete, etc.) ranging in thickness from 2 to 11 feet below ground surface (fbgs) underlain by native soils consisting of brown silt and silty clay. Bedrock was encountered at 54 fbgs. A total of four monitoring wells were installed on-site. Three separate groundwater zones were identified during the construction of the monitoring wells. Groundwater was encountered in a shallow perched zone at an approximate depth of 7 fbgs, in the deep native soil zone at approximately 14 fbgs, and within the bedrock zone at 34 fbgs. Groundwater flow in urban areas is influenced by preferential pathways, such as, sewers. Regional groundwater flow in the Buffalo urban area is northwest toward Lake Erie and the Niagara River.

Assessment:

Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were volatile organic compounds (VOCs), semi-volatile organic compounds (SVOSs), and metals in soil. SVOs and trichloroethene exceedances were identified in groundwater. Remedial actions have successfully achieved soil cleanup objectives for unrestricted use.

Materials Information

Waste Name: phenanthrene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: chrysene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: arsenic
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: 1,2,4-trimethylbenzene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: mercury
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: indeno(1,2,3-CD)pyrene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: benzo(k)fluoranthene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: benzo(a)pyrene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: lead
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: xylene (mixed)
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: zinc
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: dibenzofuran
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: dibenz[a,h]anthracene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: benzo(b)fluoranthene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: acetone
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: fluoranthene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: naphthalene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: phenol
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: nickel
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: benzo(a)anthracene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: copper
Waste Quantity: UNKNOWN
Waste Code:

Owner Information

Owner Op: 06
Sub Type: P03
Owner Name: PAul F. Ciminelli
Owner Company: 201 Ellicott Housing Development Fund Corp.
Owner Street: 50 Fountain Plaza, Suite 500
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14202
Country: United States of America

Owner Op: 19
Sub Type: P03
Owner Name: https://gisservices.dec.ny.gov/gis/dil/index.html?
Owner Company: DECInfo Locator - Web Application
Owner Street:
Owner Street 2:
Owner City:
Owner State: NY
Owner Zip:
Country: United States of America

Owner Op: 06
Sub Type: P03
Owner Name: Paul F. Ciminelli
Owner Company: 201 Ellicott Residential, LLC

Owner Street: 50 Fountain Plaza, Suite 500
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14202
Country: United States of America

Owner Op: 01
Sub Type: P03
Owner Name: Paul Ciminelli
Owner Company: Ellicott Commercial Owner, LLC
Owner Street: 50 Fountain Plaza, Suite 500
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14202
Country: United States of America

Owner Op: 06
Sub Type: P03
Owner Name: PAul F. Ciminelli
Owner Company: 201 Ellicott, LLC
Owner Street: 50 Fountain Plaza, Suite 500
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14202
Country: United States of America

Owner Op: 01
Sub Type: P03
Owner Name: Paul Ciminelli
Owner Company: 201 Ellicott Housing Development Fund Corp.
Owner Street: 50 Fountain Plaza, Suite 500
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14202
Country: United States of America

Owner Op: 19
Sub Type: NNN
Owner Name:
Owner Company: Buffalo & Erie County Public Library
Owner Street: 1 Lafayette Square
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14203
Country: United States of America

Owner Op: 06
Sub Type: P03
Owner Name: Paul F. Ciminelli
Owner Company: 201 Ellicott Commercial, LLC
Owner Street: 50 Fountain Plaza, Suite 500
Owner Street 2:
Owner City: buffalo
Owner State: NY
Owner Zip: 14202
Country: United States of America

HW Extra Information

Dump:	False	***Record Added:***	2020-06-03 09:51:00
Structure:	False	***Record Updated:***	2020-09-24 12:09:00
Lagoon:	False	***Disposal Start:***	
Landfill:	False	***Disposal Terminate:***	

Pond: False
Dell:
Updated By: JMVACCAR
Latitude:
Longitude:

Projects Information

Project Code: 25
Project Desc:
Project Refer Name: COC
End Date: 2020-12-11 00:00:00
End Status: ACT
Operable Unit ID: 1357650
Operable Unit: 00
Operable Unit Desc: Site Management
Code Name: Certificate of Completion

Project Code: 05
Project Desc: Remedial Action
Project Refer Name: Remedial Action
End Date: 2020-12-11 00:00:00
End Status: ACT
Operable Unit ID: 1316657
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Action

Project Code: 02
Project Desc: Remedial Investigation
Project Refer Name: RI
End Date: 2020-08-04 00:00:00
End Status: ACT
Operable Unit ID: 1316657
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Investigation

Project Code: 02
Project Desc: Remedial Investigation
Project Refer Name: IRM Soil Removal
End Date: 2020-08-04 00:00:00
End Status: ACT
Operable Unit ID: 1351344
Operable Unit: 01A
Operable Unit Desc: Excavation of Contaminated Soil Materials
Code Name: Remedial Investigation

Remedial Sites GIS

Program: BCP
Site Class: C
Region: 9
X Coord: 183811.68367
Y Coord: 4755245.76811
Method: 1.1
Accuracy: None

Remedial GIS

County: Erie
Town: Buffalo (c)
Region: 9
Site Class: C
Method: 1.1
Accuracy: None
Accuracy Unit:
X Coord: 183811.68367
Y Coord: 4755245.76811
Program: Brownfield Cleanup Program

Environmental Remediation

Operable Unit: 01A
Contaminants: 1,2,4-trimethylbenzene; acetone; arsenic; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k) fluoranthene; chrysene; copper; dibenz[a,h]anthracene; dibenzofuran; fluoranthene; indeno(1,2,3-cd)pyrene; lead; mercury; naphthalene; nickel; phenanthrene; phenol; xylene (mixed)

Operable Unit: 00
Contaminants: 1,2,4-trimethylbenzene; acetone; arsenic; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k) fluoranthene; chrysene; copper; dibenz[a,h]anthracene; dibenzofuran; fluoranthene; indeno(1,2,3-cd)pyrene; lead; mercury; naphthalene; nickel; phenanthrene; phenol; xylene (mixed)

Operable Unit: 01
Contaminants: 1,2,4-trimethylbenzene; acetone; arsenic; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k) fluoranthene; chrysene; copper; dibenz[a,h]anthracene; dibenzofuran; fluoranthene; indeno(1,2,3-cd)pyrene; lead; mercury; naphthalene; nickel; phenanthrene; phenol; xylene (mixed)

Environmental Remediation Site Borders

Program:	Brownfield Cleanup Program	***GIS Flag:***	1
Site Class:	C	***UTM X:***	183811.68367
Method:	1.1	***UTM Y:***	4755245.76811

Sitename: 201 Ellicott Street Site
Address1: 201 & 225 Ellicott Street
Address2:
Locality: BUFFALO
Zipcode: 14203
County: Erie
Town: Buffalo (c)
Region: 9
Detail URL: https://appfactory.dec.ny.gov/DERExternalSearch/ERDDetails?SiteCode=C915331

56	2 of2	WNW	0.41 / 2,147.83	608.18 / 16	201 Ellicott Street Site 201 & 225 Ellicott Street BUFFALO NY 14203	INST

Site Code: 568786
HW Code: C915331
Control Type: INST
Program: BCP
Site Class: C
Site Name: 201 Ellicott Street Site
Site Address: 201 & 225 Ellicott Street
City: BUFFALO
Zip: 14203
County: Erie
Region: 9
Town: Buffalo (c)
Latitude: 42.884385000
Longitude: -78.871738889
SWIS: 1502
Acres: 2.477
Record Added: 2018-04-09 16:27:00
Record Updated: 2024-06-11 13:52:00
Updated By: AECAPRIO
Site Code (Web): C915331
Program Type (Web): BCP
Site Class (Web): C
Site Name (Web): 201 Ellicott Street Site
Address1 (Web): 201 & 225 Ellicott Street
Address2 (Web):
Locality (Web): BUFFALO
Zip Code (Web): 14203
County (Web): Erie
Longitude (Web): -78.871738889

Latitude (Web):	42.884385000
Site Code (GIS):	C915331
Program (GIS):	BCP
Site Class (GIS):	C
Site Name (GIS):	201 Ellicott Street Site
Address 1 (GIS):	201 & 225 Ellicott Street
Address 2 (GIS):	
Locality (GIS):	BUFFALO
Town (GIS):	Buffalo (c)
Zip Code (GIS):	14203
County (GIS):	Erie
Site Class Desc:	Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).
Site Class Desc (Web):	
Site Class Desc (Geo):	Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).
Assess DOH:	Remedial actions taken have eliminated the potential for contact with site-related contaminants in soil. People are not drinking the contaminated groundwater because the area is served by a public water supply that obtains water from a different source.
Data Source(s):	DEC Environmental Remediation Database Search - Remedial Site Search (Web); Environmental Remediation Sites; Remedial GIS (GIS); DEC Remediation Sites Boundaries (Geo)

Description:

Location: The 201 Ellicott Street site is a 2.477-acre site located in a highly developed residential and commercial area in the City of Buffalo. The site encompasses an entire city block and is bounded by Clinton Street to the north, East Eagle Street to the south, Oak Street to the east, and Ellicott Street to the west. Site Features: The site has been redeveloped with two buildings. One building houses apartments, including affordable apartments, and the other is a retail food market. Current Zoning and Land Use: The current zoning for the site and the adjacent properties is N-1C, mixed-use. The redevelopment is consistent with the City of Buffalo zoning for the area. Past Use of the Site: Portions of the site were used for commercial purposes from the late 1800s to the early 1980s. Past commercial uses included a blacksmith shop, the National Lead Company, Buffalo Kay Chemical Company, Inc., a salvage shop, auto repair shops, a laundromat, several commercial retail shops, a hotel and various restaurants. The property was acquired by the City of Buffalo in the early 1960s and was converted to a surface parking lot. The site was used as a surface parking lot until 2019. Site Geology and Hydrogeology: The overburden geology below the surface of the site consists of urban fill (brick, ash, concrete, etc.) ranging in thickness from 2 to 11 feet below ground surface (fbgs) underlain by native soils consisting of brown silt and silty clay. Bedrock was encountered at 54 fbgs. A total of four monitoring wells were installed on-site. Three separate groundwater zones were identified during the construction of the monitoring wells. Groundwater was encountered in a shallow perched zone at an approximate depth of 7 fbgs, in the deep native soil zone at approximately 14 fbgs, and within the bedrock zone at 34 fbgs. Groundwater flow in urban areas is influenced by preferential pathways, such as, sewers. Regional groundwater flow in the Buffalo urban area is northwest toward Lake Erie and the Niagara River.

Assessment:

Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were volatile organic compounds (VOCs), semi-volatile organic compounds (SVOSs), and metals in soil. SVOs and trichloroethene exceedances were identified in groundwater. Remedial actions have successfully achieved soil cleanup objectives for unrestricted use.

Controls Information

Control Code:	25	***Record Added Date:***	2020-11-17 09:52:32.657000000
Control Name:	Landuse Restriction	***Record Updated Dt:***	2021-01-05 07:31:48.067000000
Control Type:	INST	***In Place Date:***	2020-11-02 00:00:00
Updated By:	JMVACCAR		

Control Code:	08	***Record Added Date:***	2020-11-17 09:52:32.657000000
Control Name:	Ground Water Use Restriction	***Record Updated Dt:***	2021-01-05 07:31:48.067000000
Control Type:	INST	***In Place Date:***	2020-11-02 00:00:00
Updated By:	JMVACCAR		

Control Code: J
Control Name: Environmental Easement
Control Type: INST
Updated By: JMVACCAR
Record Added Date: 2020-11-17 09:52:32.657000000
Record Updated Dt: 2021-01-05 07:31:48.067000000
In Place Date: 2020-11-02 00:00:00

Control Code: 34
Control Name: IC/EC Plan
Control Type: INST
Updated By: JMVACCAR
Record Added Date: 2020-11-17 09:52:32.657000000
Record Updated Dt: 2021-01-05 07:31:48.067000000
In Place Date: 2020-11-02 00:00:00

Control Code: 32
Control Name: Site Management Plan
Control Type: INST
Updated By: JMVACCAR
Record Added Date: 2020-11-17 09:52:32.657000000
Record Updated Dt: 2021-01-05 07:31:48.067000000
In Place Date: 2020-11-02 00:00:00

Materials Information

Waste Name: dibenzofuran
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: 1,2,4-trimethylbenzene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: mercury
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: chrysene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: phenol
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: benzo(k)fluoranthene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: naphthalene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: nickel
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: benzo(b)fluoranthene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: zinc
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: phenanthrene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: lead
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: dibenz[a,h]anthracene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: benzo(a)anthracene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: benzo(a)pyrene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: indeno(1,2,3-CD)pyrene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: arsenic
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: fluoranthene
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: xylene (mixed)
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: acetone
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: copper
Waste Quantity: UNKNOWN
Waste Code:

Owner Information

Owner Op: 19
Sub Type: P03
Owner Name: https://gisservices.dec.ny.gov/gis/dil/index.html?
Owner Company: DECInfo Locator - Web Application
Owner Street:
Owner Street 2:
Owner City:
Owner State: NY
Owner Zip:
Country: United States of America

Owner Op: 06
Sub Type: P03
Owner Name: PAul F. Ciminelli
Owner Company: 201 Ellicott Housing Development Fund Corp.
Owner Street: 50 Fountain Plaza, Suite 500
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14202
Country: United States of America

Owner Op: 01
Sub Type: P03
Owner Name: Paul Ciminelli
Owner Company: 201 Ellicott Housing Development Fund Corp.
Owner Street: 50 Fountain Plaza, Suite 500
Owner Street 2:
Owner City: Buffalo
Owner State: NY
Owner Zip: 14202
Country: United States of America

Owner Op:	06
Sub Type:	P03
Owner Name:	Paul F. Ciminelli
Owner Company:	201 Ellicott Residential, LLC
Owner Street:	50 Fountain Plaza, Suite 500
Owner Street 2:	
Owner City:	Buffalo
Owner State:	NY
Owner Zip:	14202
Country:	United States of America

Owner Op:	01
Sub Type:	P03
Owner Name:	Paul Ciminelli
Owner Company:	Ellicott Commercial Owner, LLC
Owner Street:	50 Fountain Plaza, Suite 500
Owner Street 2:	
Owner City:	Buffalo
Owner State:	NY
Owner Zip:	14202
Country:	United States of America

Owner Op:	06
Sub Type:	P03
Owner Name:	Paul F. Ciminelli
Owner Company:	201 Ellicott Commercial, LLC
Owner Street:	50 Fountain Plaza, Suite 500
Owner Street 2:	
Owner City:	buffalo
Owner State:	NY
Owner Zip:	14202
Country:	United States of America

Owner Op:	06
Sub Type:	P03
Owner Name:	PAul F. Ciminelli
Owner Company:	201 Ellicott, LLC
Owner Street:	50 Fountain Plaza, Suite 500
Owner Street 2:	
Owner City:	Buffalo
Owner State:	NY
Owner Zip:	14202
Country:	United States of America

Owner Op:	19
Sub Type:	NNN
Owner Name:	
Owner Company:	Buffalo & Erie County Public Library
Owner Street:	1 Lafayette Square
Owner Street 2:	
Owner City:	Buffalo
Owner State:	NY
Owner Zip:	14203
Country:	United States of America

HW Extra Information

Dump:	False	***Dell:***	
Structure:	False	***Updated By:***	JMVACCAR
Lagoon:	False	***Record Added:***	2020-06-03 09:51:00
Landfill:	False	***Record Updated:***	2020-09-24 12:09:00
Pond:	False	***Latitude:***	
Disposal Start:		***Longitude:***	
Disposal Terminate:			

Projects Information

Project Code: 02
Project Desc: Remedial Investigation
Project Refer Name: IRM Soil Removal
End Date: 2020-08-04 00:00:00
End Status: ACT
Operable Unit ID: 1351344
Operable Unit: 01A
Operable Unit Desc: Excavation of Contaminated Soil Materials
Code Name: Remedial Investigation

Remedial Sites GIS

Program: BCP
Site Class: C
Region: 9
X Coord: 183811.68367
Y Coord: 4755245.76811
Method: 1.1
Accuracy: None

Projects Information

Project Code: 02
Project Desc: Remedial Investigation
Project Refer Name: RI
End Date: 2020-08-04 00:00:00
End Status: ACT
Operable Unit ID: 1316657
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Investigation

Project Code: 05
Project Desc: Remedial Action
Project Refer Name: Remedial Action
End Date: 2020-12-11 00:00:00
End Status: ACT
Operable Unit ID: 1316657
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Action

Project Code: 25
Project Desc:
Project Refer Name: COC
End Date: 2020-12-11 00:00:00
End Status: ACT
Operable Unit ID: 1357650
Operable Unit: 00
Operable Unit Desc: Site Management
Code Name: Certificate of Completion

Remedial GIS

Program: Brownfield Cleanup Program
Site Class: C
County: Erie
Town: Buffalo (c)
Region: 9
X Coord: 183811.68367
Y Coord: 4755245.76811
Method: 1.1
Accuracy: None
Accuracy Unit:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Environmental Remediation

Operable Unit: 01A
Contaminants: 1,2,4-trimethylbenzene; acetone; arsenic; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k) fluoranthene; chrysene; copper; dibenz[a,h]anthracene; dibenzofuran; fluoranthene; indeno(1,2,3-cd)pyrene; lead; mercury; naphthalene; nickel; phenanthrene; phenol; xylene (mixed)

Operable Unit: 01
Contaminants: 1,2,4-trimethylbenzene; acetone; arsenic; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k) fluoranthene; chrysene; copper; dibenz[a,h]anthracene; dibenzofuran; fluoranthene; indeno(1,2,3-cd)pyrene; lead; mercury; naphthalene; nickel; phenanthrene; phenol; xylene (mixed)

Operable Unit: 00
Contaminants: 1,2,4-trimethylbenzene; acetone; arsenic; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k) fluoranthene; chrysene; copper; dibenz[a,h]anthracene; dibenzofuran; fluoranthene; indeno(1,2,3-cd)pyrene; lead; mercury; naphthalene; nickel; phenanthrene; phenol; xylene (mixed)

Environmental Remediation Site Borders

Program: Brownfield Cleanup Program
Site Class: C
Method: 1.1
GIS Flag: 1
UTM Y: 4755245.76811
UTM X: 183811.68367
Site Name: 201 Ellicott Street Site
Address1: 201 & 225 Ellicott Street
Address2:
Locality: BUFFALO
Zipcode: 14203
County: Erie
Town: Buffalo (c)
Region: 9
Detail URL: https://appfactory.dec.ny.gov/DERExternalSearch/ERDDetails?SiteCode=C915331

57	1 of1	ESE	0.41 / 2,177.72	586.73 / -5	Central Autowrecking 503 Seneca St. Buffalo NY	DELISTED SHWS

Description:

Assessment:

Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York

SC Nam1:
SC Nam2:
Owner: Central Auto Wrecking - R. Scherrer
Type: OP
Type P: 001

58	1 of1	WNW	0.42 / 2,235.43	608.19 / 16	ERIE COMMUNITY COLLEGE 121 ELLICOTT STREET BUFFALO NY	LST

Spill No: 9104471
Site ID: 247424
DER Facility ID: 203162
CID:
Program Type: ER
SWIS Code: 1502
Contribute Factor: Tank Failure
Water Body:
Class: C3
Meets Std: False
Penalty: False
DEC Region: 9
REM Phase: 0
UST Trust: False
Spill Date: 07/26/1991 08:00:00 AM
Rcvd Date: 07/26/1991 08:30:00 AM
CAC Date: 08/03/1996 12:00:00 AM
Insp Date: 07/26/1991 12:00:00 AM
Close Date: 09/09/1996 12:00:00 AM
Create Date: 08/06/1991 12:00:00 AM
Update Date: 10/09/1996 12:00:00 AM
Lead DEC: COOKE
After Hours: False
County: Erie

Category:	Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class Desc:	Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Referred to:	
Reported by:	Tank Tester
Source:	Institutional, Educational, Gov., Other
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"LEAKING FILL PIPE"

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was JDC 07/26/91: JDC INSPECTED SITE AND FOUND PRODUCT DRIPPING FROM FEED LINE EXPOSED IN STAIRWELL. ENVIRONMENTAL SERVICE GROUP WILL BE WORKING THE SITE. FORM LETTER SENT TO MR GEORGE WAGNER. 03/05/92: JDC TECON W/ G WAGNER ON STATUS. CONTRACT FOR REMEDIAL WORK APPROVEDWORK SHOWD BEGIN NEXT WEEK. 10/13/92: JDC LEFT MESSAGE FOR MR WAGNER TO RETURN MY CALL. 10/20/92: JDC TELCON W/ MR BACCHETTI WHO STATED TANK WILL BE REMOVED BY NEXT MONTH, WILL ADVISEE WHEN WORK WILL BEGIN. 11/25/92: JDC TELCON W/ MR RUTKOWSKI AND ADVISED HIM ON TANK FAILURE OPTIONS. FOLLOWED UP W/ FORM LETTER. 06/10/93: JDC DRAFTED LETTER TO MR. RUTKOWSKI REQUESTING STATUS. 09/13/93: JDC RECEIVED LETTER FROM MR. LUPP, ECC, STATING THAT BIDS ARE OUT FOR TANK REMOVAL. EXPECT WORK TO BEGIN IN FALL OF THIS YEAR. 05/17/94: JDC TELCON W/ MR LUPP, DPW BIDS NOT INITIATED, TANK EMPTY OUT OF SERVICE. REQUESTED STATUS LETTER. 07/22/94: SENT LETTER TO MR LUPP REQUESTING SITE STATUS FOR TANK REMOVAL. CK BK 8/8/94. 03/01/95: JDC CONTACTED MR LUPPS OFFICE AND LEFT MESSAGE FOR A RETURN CALL REGARDING CURRENT STATUS. CK BK 3/22/95. 03/21/95: JDC CONTACTED MR LUPPS OFFICE AND LEFT MESSAGE FOR A RETURN CALL REGARDING CURRENT STATUS AND SENT LETTER. CK BK 3/12/95. 04/13/95: LEFT MESSAGE W/ MR LUPP TO RETURN MY CALL REGARDING REMEDIATION PROPOSAL. 04/17/95: JDC TELCON W/ FRED LUPP, WILL SCHEDUAL MEETING FOR ON SITE INSPECTION AND DISCUSS TANK ABANDONMENT OPTIONS. 10/05/95: JDC TELCON W/ FRED LUBB WILL BE SENDING TANK PROPOSAL FOR ABANDONMENT. 11/2/95: JDC TELCON W/ MR LUPP, HE WILL BE WORKING W/ AN ENVIRONMENTAL CONSULTANT TO DEVELOP A WORK PLAN ON TANK ABANDONMENT. SITE MEETING WILL BE ARRANGED. 11/13/95: JDC MET W/ FRED LUPP, COUNTY ENGINEER AND TIM O'CONNER, CONSULTANT AND REVIEWD FILE REGARDING TANK ABANDONMENT REQUIREMENTS. RP WILL BE COORDINATING TANK ABANDONMENT PROCEDURES WITH A LOCAL CONTRACTOR. 7/26/96: EPS ON SITE AND CLOSED TANK IN PLACE. SOIL SAMPLES COLLECTED, TANK FILLED W/ CONCRETE SLURRY. 8/2/96: EP&S HIRED BY COUNTY TO DO TANK CLOSURE. WORK WILL BEGIN THIS MONTH. 8/13/96: RECEIVED POST TESTING FOR TANK CLOSED IN PLACE, RESULTS INDICATE MINOR CONTAMINATION LEVELS. NEED DISPOSAL DOCUMENTATION. 9/3/96: RECEIVED DISPOSAL CERT. NO FURTHER ACTION REQUIRED, SITE IS INACTIVE. "

Material Information

OP Unit ID:	958379	***Med in Air:***	False
OU:	01	***Med GW:***	True
Material ID:	423536	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:	.00	***Med Surf:***	False
Units:	G	***Med Subway:***	False
Recovered:	.00	***Med Utility:***	False
Med Soil:	False	***Oxygenate:***	
Med Air:	False		
Material Code:	0001A		
Material Name:	#2 fuel oil		

Spiller Information

Spiller Name:	FREDERICK LUPP
Spiller Company:	ERIE COUNTY DPW
Spiller Address:	95 FRANKLIN STREET
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14202-
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.882077280
Longitude:	-78.873159550

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
59	1 of1	WNW	0.42 / 2,237.82	606.95 / 15	Small Boat Harbor Containment Site 18 Ellicott St. Buffalo NY 14205	DELISTED SHWS

Description:

Assessment:

Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York

SC Nam1:
SC Nam2:
Owner: Niagara Frontier Trans. Auth.
Type: OW
Type P:

60	1 of7	WNW	0.42 / 2,240.94	609.37 / 17	Westinghouse Electric Corp. 181 Ellicott Street Buffalo NY 14203	DELISTED SHWS

Description:

Assessment:

Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York

SC Nam1:
SC Nam2:
Owner: Niagara Frontier Trans. Authority
Type: OW
Type P: 003

60	2 of7	WNW	0.42 / 2,240.94	609.37 / 17	Niagara Frontier TA (Port site) 181 Ellicott St. Buffalo NY 14205	DELISTED SHWS

Description:

Assessment:

Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York

SC Nam1:
SC Nam2:
Owner: Niagara Frontier Trans. Authority
Type: OW
Type P:

60	3 of7	WNW	0.42 / 2,240.94	609.37 / 17	NFTA TERMINAL 181 ELLICOTT AVENUE BUFFALO NY	LST

Spill No:	0475166	**REM Phase:**	0
Site ID:	280708	**UST Trust:**	False
DER Facility ID:	227938	**Spill Date:**	06/30/2004 10:00:00 AM
CID:		**Rcvd Date:**	06/30/2004 12:02:00 PM
Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	06/30/2004 12:00:00 AM
Contribute Factor:	Tank Overfill	**Close Date:**	06/30/2004 12:00:00 AM
Water Body:		**Create Date:**	06/30/2004 12:08:00 PM

Class:	D3	**Update Date:**	07/01/2004 12:00:00 AM
Meets Std:	True	**Lead DEC:**	JFOTTO
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Possible petroleum release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters, known releases with no potential for damage, or non-petroleum/non-hazardous spills.

Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Referred to:

Reported by: Other

Source: Commercial/Industrial

Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"WHILE FUELING BUS, THE DRIVER OVERFILLED THE TANK. SPILL WENT TO THE PAVEMENT. IT WAS CLEANED UP BY THE BUFFALO FIRE DEPARTMENT. TWO HALF GARBAGE CANS FULL OF SPEEDI-DRY WERE GENERATED WHICH WILL PROBABLY FIT INTO ONE 55 GALLON DRUM. SAFETY KLEEN HAS BEEN CONTACTED FOR THE DISPOSAL OF THE CONTMINATED SPEEDI-DRY."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was JFO 06/30/04 JFO ON SITE WITH EMMA GARRETT OF THE NFTA TERMINAL. THE AREA IS CLEANED UP. SAFETY WILL PICK UP THE SPEEDY DRY. NO FURTHER ACTION REQUIRED. CLOSED THERE IS NO PAPER FILE FOR THIS SPILL"

Material Information

OP Unit ID:	891403	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	486143	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	3.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	3.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		

Material Code: 0008

Material Name: diesel

Spiller Information

Spiller Name: EMMA GARRETT

Spiller Company: GREYHOUND BUSLINES

Spiller Address: 181 ELLICOTT AVENUE

Spiller City: BUFFALO

Spiller State: NY

Spiller Zip: 14203-

Spiller Country: 001

Contact Name:

Contact Phone:

Contact Ext:

Latitude: 42.905079000

Longitude: -78.744949000

60	4 of7	WNW	0.42 / 2,240.94	609.37 / 17	GREYHOUND BUS 181 ELLICOTT STREET BUFFALO NY	LST

Spill No:	9112690	**REM Phase:**	0
Site ID:	73057	**UST Trust:**	True
DER Facility ID:	68833	**Spill Date:**	03/11/1992 04:00:00 PM
CID:		**Rcvd Date:**	03/12/1992 03:55:00 PM
Program Type:	ER	**CAC Date:**	04/07/1992 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	

Contribute Factor:	Tank Test Failure	**Close Date:**	04/07/1992 12:00:00 AM
Water Body:		**Create Date:**	03/17/1992 12:00:00 AM
Class:	C3	**Update Date:**	03/18/2002 12:00:00 AM
Meets Std:	True	**Lead DEC:**	TEDIEFFE
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Referred to:
Reported by: Other
Source: Commercial/Industrial
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"LINE TIGHTNESS TEST (TRACER) FAILER."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was TED 03/13/92: TED TELECON W/ DAVE NICKERSON FUEL SERVICE LINE SHUT DOWN. DIESEL TANK PUMPED OUT. 04/07/92: REVIEWED ES REPORT STATES NO DISCREPANCY IN FUEL INVENTORY, NO INCREASED ACCUMULATIOM OF FREE PPRODUCT IN MW'S. REFER TO SPILL # 8906662 FOR FUTURE SITE REPORTS. SPILL CLOSED 4/7/92. "

Material Information

OP Unit ID:	966284	**Med in Air:**	False
OU:	01	**Med GW:**	True
Material ID:	414252	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	L	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	
Med Air:	False		

Material Code: 0008
Material Name: diesel

Spiller Information

Spiller Name:
Spiller Company: GREYHOUND BUS
Spiller Address: 901 MAIN ST.-SUITE 2525
Spiller City: DALLAS
Spiller State: TX
Spiller Zip: 75202
Spiller Country: 001
Contact Name:
Contact Phone:
Contact Ext:
Latitude: 42.883489360
Longitude: -78.872672570

Tank Test Information

Spill Tank ID:	1539738	**Source:**	
Tank No:		**Leak Rate:**	.00
Tank SIze:	0	**Gross Fail:**	
Material:	0008	**Modified by:**	Spills
EPA UST:		**Last Modified:**	2004-10-01 04:00:45.140000000
UST:		**Test Method:**	00
Cause:			

Alt Test Method: Unknown

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
60	5 of7	WNW	0.42 / 2,240.94	609.37 / 17	NFTA 181 ELLICOTT 181 ELLICOTT STREET BUFFALO NY	LST

Spill No:	9313823	**REM Phase:**	0
Site ID:	73058	**UST Trust:**	True
DER Facility ID:	68833	**Spill Date:**	02/18/1994 12:00:00 PM
CID:		**Rcvd Date:**	02/18/1994 12:45:00 PM
Program Type:	ER	**CAC Date:**	06/26/1995 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	06/01/1995 12:00:00 AM
Contribute Factor:	Tank Test Failure	**Close Date:**	06/26/1995 12:00:00 AM
Water Body:		**Create Date:**	02/24/1994 12:00:00 AM
Class:	B3	**Update Date:**	03/18/2002 12:00:00 AM
Meets Std:	True	**Lead DEC:**	RMCROSSE
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Referred to:
Reported by: Other
Source: Institutional, Educational, Gov., Other
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"BENT FUEL PIPE ON TANK, NOTIFIED BY CONTRACTOR"

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was RMC 02/28/94: RMC/FEDCHEK/PHONE TO RETEST, LETTER, RESPONSE DUE 4/30/94. 03/14/94: RMC/FEDCHEK/PHONE TO RETEST, LETTER, RESPONSE DUE 4/30/94. SAC/FEDCHECK/PHONE,REQUESTED 90 DAY EXT TO PULL OR RETEST,SAC SAID OK AS LONG AS TANK WAS EMPTIED,LETTER SENT CONFIRMING. 03/14/94: RMC/FEDCHEK/PHONE TO RETEST,LETTER,RESPONSE DUE 4/30/94. SAC/ FEDCHECK/PHONE,REQUESTED 90 DAY EXT TO PULL OR RETEST,SAC SAID OK AS LONG AS TANK WAS EMPTIED,LETTER SENT CONFIRMING.RESPONSE DUE 5/1/94. 05/09/94: RMC/DALE MOEHLER/PHONE CONTRACT RELEASED TO THE ENVIRONMENTAL SERVICE GROUP. WORK TO BEGIN BY 6/1/94. 07/20/94: RMC/SITE SEVERAL TIMES, TANK ULTIMATELY REMOVED, CONTAMINATED MATERIAL TO GBIA BIO, HAZ DET AND SAMPLING DUE 8/30/94. 08/05/94: RMC/RECEIVED NON HAZARDOUS SAMPLE RESULTS FOR COMTAMINATED SOIL TO MOVE TO GBIA, CLEAN HOLE TEST RESULTS DUE 9/15/94. 10/13/94: RMC/BILL GALLOWAY/ENV SER GROUP/PHONE TANK PIT WELL SAMPLE NOT YET TAKEN, TO TAKE, DUE 11/30/94. 12/12/94: RMC/SCONEY/PHONE DOCUMENTS TO BE SUBMITTED BY 1/1/95. 12/21/94: RMC/FEDCHECK/PHONE WELL SAMPLE NOT YET TAKEN, TO BE DONE BY 3/1/94. 03/01/95: RMC/FEDCHECK/PHONE WELL SAMPLE EXCEEDANCES, TO REMEDIATE, LETTER, RESPONSE DUE 3/30/95. 04/03/95: RMC/FEDCHECK/PHONE WELL SAMPLE EXCEEDANCES, TO REMEDIATE, LETTER, RESPONSE DUE 3/30/95REVISED TO 4/30/95. 06/09/95: RMC/RECEIVED LETTER, RESULTS DUE 7/1/95. 06/26/95: RMC/RECEIVED REPORT, NO EXCEEDANCES, CLOSE OUT. "

Material Information

OP Unit ID:	992286	**Med in Air:**	False
OU:	01	**Med GW:**	True
Material ID:	389185	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	L	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	
Med Air:	False		

Material Code: 0008
Material Name: diesel

Spiller Information

Spiller Name:
Spiller Company: NFTA NIAGARA FRONTIER TRA
Spiller Address: 181 ELLICOTT STREET
Spiller City: BUFFALO
Spiller State: NY

Spiller Zip:	14203
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.883489360
Longitude:	-78.872672570

Tank Test Information

Spill Tank ID:	1542448	**Source:**	
Tank No:		**Leak Rate:**	.00
Tank SIze:	0	**Gross Fail:**	
Material:	0008	**Modified by:**	Spills
EPA UST:		**Last Modified:**	2004-10-01 04:00:45.140000000
UST:		**Test Method:**	00
Cause:			
Alt Test Method:	Unknown		

60	6 of7	WNW	0.42 / 2,240.94	609.37 / 17	GREYHOUND BUS 181 ELLICOTT STREET BUFFALO NY	LST

Spill No:	9100619	**REM Phase:**	0
Site ID:	73056	**UST Trust:**	True
DER Facility ID:	68833	**Spill Date:**	04/11/1991 12:00:00 PM
CID:		**Rcvd Date:**	04/16/1991 02:32:00 PM
Program Type:	ER	**CAC Date:**	06/10/1991 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	
Contribute Factor:	Tank Test Failure	**Close Date:**	06/10/1991 12:00:00 AM
Water Body:		**Create Date:**	04/16/1991 12:00:00 AM
Class:		**Update Date:**	03/18/2002 12:00:00 AM
Meets Std:	True	**Lead DEC:**	TEDIEFFE
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie
Category:			
Class Desc:			
Referred to:			
Reported by:	Tank Tester		
Source:	Commercial/Industrial		
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"LINE TEST FAILURE OF SERVICE LINE. LINE TO BE RETESTED TO ISOLATE LEAK"

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was TED 06/10/91: DEC RECEIVED PETROTITE LINE TEST RESULTS (-0.001 GAL. /HR. LEAK RATE)INDICATING LINE IS TIGHT. FAILURE BY TRACER TIGHT LEAK TEST ATTRIBUTED TO SPILLS FROM THE USE OF MOBIL DISPENSING UNIT. "

Material Information

OP Unit ID:	954147	**Med in Air:**	False
OU:	01	**Med GW:**	True
Material ID:	426810	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	L	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	
Med Air:	False		
Material Code:	0008		

Material Name: diesel

Spiller Information

Spiller Name:
Spiller Company: GREYHOUND BUS
Spiller Address: 901 MAIN ST.-SUITE 2525
Spiller City: DALLAS
Spiller State: TX
Spiller Zip: 75202
Spiller Country: 001
Contact Name:
Contact Phone:
Contact Ext:
Latitude: 42.883489360
Longitude: -78.872672570

Tank Test Information

Spill Tank ID:	1538460	**Source:**	
Tank No:		**Leak Rate:**	.00
Tank SIze:	0	**Gross Fail:**	
Material:	0008	**Modified by:**	Spills
EPA UST:		**Last Modified:**	2004-10-01 04:00:45.140000000
UST:		**Test Method:**	00
Cause:			
Alt Test Method:	Unknown		

60	7 of7	WNW	0.42 / 2,240.94	609.37 / 17	GREYHOUND LINES INC 181 ELLICOTT STREET BUFFALO NY	LST

Spill No:	8906662	**REM Phase:**	0
Site ID:	73055	**UST Trust:**	True
DER Facility ID:	68833	**Spill Date:**	10/05/1989 09:30:00 AM
CID:		**Rcvd Date:**	10/05/1989 10:30:00 AM
Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	09/24/1996 12:00:00 AM
Contribute Factor:	Tank Test Failure	**Close Date:**	11/04/1996 12:00:00 AM
Water Body:		**Create Date:**	10/17/1989 12:00:00 AM
Class:	B3	**Update Date:**	09/25/2002 12:00:00 AM
Meets Std:	False	**Lead DEC:**	TEDIEFFE
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Referred to:
Reported by: Responsible Party
Source: Commercial/Industrial
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"REPORTED INVENTORY LOSS OVER A SEVERAL MONTH PERIOD, ESTIMATED LOSS OF 8000 GALLONS."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was TED 10/06/89: SPILLER HIRED ENGINEERING SCIENCE TO INVESTIGATE EXTENT OF CONTAMINATION. 10/11/89: JDC RECIEVED CALL FROM MR SORGI, SITE MGR FOR GREYHOUND. INITIAL BORINGS SHOW PRODUCT AND SOIL CONTAMINATION TO BEFOCUSED AT THE END DISPENSER LINE. TANK AND LINES CHECKED GOOD TO THAT POINT. 10/12/89: MET MR BAKER, ENGINEERING SCIENCE. A 27 INCH RECOVERY WELL WAS PUT IN PLACE. MINOR FLOW OFPERCHED GROUND WATER PRODUCTED SLIGHT DIESEL FUEL ODOR. WILL MONITOR WELL BEFORE STARTING UP ACTIVE RECOVERY. 10/16/89: MEL ON SITE AND FOUND 5 INCHES OF DIESEL IN RECOVERY WELL. PRODUCT RECOVERY WILL BEGIN TODAY. MAY RECOMMEND ADDITIONAL WELLS BE PLACED. HAND BORINGS SHOW DIESEL VAPOR MOVING TO THE WEST. 10/26/89: RECD STATUS LETTER FROM MR SORGEE, GRAYHOUND. RECOVERY WELL HAS TO DATE COLLECTED 200 GALLONS. 02/27/90: JDC CONTACT MR BYRD, GREYHOUND AND

REQUESTED STATUS REGARDING FIELD REPORTS FOR RECOVERY SYSTEM. MR BYRD WILL BE FORWARDING THOSE REPORTS. 03/07/90: CONTACTED MR BYRD W/ GREYHOUND AND INFORMED HIM OF REQUIREMENTS FOR ADDITIONAL MONITORING WELLS TO IDENTIFY GROUNDWATER AND MOVEMENT. INFORMED ENGINEERING SCIENCE OF SAME. 04/13/90: JDC INSPECTED SITEAND FOUND OIL IN MONITORING WELL AT I INCH, WATER AT 7 INCHES. 07/13/90: JDC INSPECTED SITE AND FOUND OIL IN WELL. FORWARDED AUTHORIZATION LETTER TO ENGINEERING SCIENCE FOR CONTINUED CLEANUP WORK. 07/31/90: WAITING ON SECOND REPORT FROM E&S. FIELD WORK HAS BEEN COMPLETED. FLEISCHMANNS HIRED TO REPAIR FAILED RECOVERY SYSTEM. 01/31/91: TED INSPECT. RECOVERY SYSTEM NOT OPERATING, SYSTEM NEEDS TO BE WINTERIZED. PRODUCT VISIBLE IN BOTTOM OF RW. 02/01/91: TED INSPECT. MET LARRY JACOBS (ES TECH.) LOCATED MW'S. RECOVERY SYSYSTEM NOT OPERATING. 02/01/91: DEC SENT LETTER TO GREYHOUND REQUESTING RECOVERY SYSTEM UPGRADE & WINTERIZATION AND SUBMITTAL OF MONTHLY MONITORING REPORTS. 02/11/91: TED INSPECT. NEW RECOVERY SYSTEM BEING INSTALLED MW-4 TO BE TIED IN WITH RW. 02/13/91: RECEIVED OCT.'90 & FEB.'91 MONITORING REPORTS. 04/22/91: RECEIVED LETTER FROM ES RECOVERY SYSTEM PLACED INTO FULL OPERATIONON 4/15/91. 05/10/91: RECIEVED APRIL MONTHLY MONITORING REPORTS & AS BUILT CONST. DETAILS OF RECOVERY SYSTEM. 07/15/91: RECEIVED MONITORING REPORTS FOR MAY/JUNE, <.01 - .05' PRODUCT IN RW, .08 - .33' PRODUCT IN MW-4. 08/14/91: RECEIVED 7/91 MONITORING REPORT, .01' & .25' PRODUCT FOUND IN RW &MW-4 RESPECTIVELY. TOTAL 8 GAL. PRODUCT RECOVERED SINCE MARCH '91.PRIOR PRODUCT RECOVERY NEGLIGIBLE. 09/05/91: RECIEVED AUG. MONITORING REPORT, .01', FILM, & .01' PRODUCT FOUND IN RW, MW-3 & MW-4 RESPECTIVELY. 10/04/91: RECEIVED SEPT. MONITORING REPORT, .01' & .05' PRODUCT FOUND IN RW & MW-4 RESPECTIVELY. NO ADDITIONAL PRODUCT RECOVERY REPORTED SINCEJULY REPORT. 10/17/91: RECEIVED SUPPLEMENTAL SITE ASSESSMENT REPORT PREPARED BY ENGINEERING-SCIENCE, INC.. 11/01/91: RECEIVED OCT. MONITORING REPORT, .01' PRODUCT FOUND IN RW & MW-4. REPORTED 1/2 GAL. ADDITIONAL PRODUCT RECOVERED SINCE JULY '91. 12/16/91: RECEIVED NOV. MONITORING REPORT, .01', FILM, .01' PRODUCT IN RW, MW-3 & MW-4 RESPECTIVELY. REPORT 4.6 GAL. FREE PRODUCT RECOVERED SINCE 10/22/91. THIS WOULD BRING TOTAL OF 13.1 GAL. RECOV. SINCE 3/91. 09/28/93: RNL - MEETING 9/20/93. FURTHER WORK NEEDED. 09/28/93: MEETING 9/20/93. FURTHER WORK NEEDED. 04/01/94: RECOVERY SYSTEM OFF, SHEENS IN RECOVERY SUMP,MW-2,MW-3 & MW-4. 01/09/95: SHEENS IN WELLS; RNL TO RECHECK WITH ALBANY. POSSIBLE I . 8021 & 8270 <1.0 PPM. 03/13/95: TED TELECON. W/ DAVID NICKERSON, APPROVED CHANGE FROM MONTHLY TO QUARTERLY SITE INSPECT. & SMR SUBMITALS. 04/07/95: RECEIVED 3/95 SMR, SLIGHT SHEEN REPORTED IN RECOERY SUMP & MW-4. 05/09/95: DEC SENT LETTER REQUESTING ADDITIONAL REMED. 06/02/95: RECEIVED PROPOSAL FOR USE OF ORC SOCKS IN MW-3, MW-4 & RECOVERY SUMP. 06/05/95: DEC SENT LETTER APPROVING USE OF ORC SOCKS. 07/24/95: RECEIVED FROM GREYHOUND, SHEEN IN RECOVERY SUMP AND MW4, OXYGEN RELEASE COMPOUND INSTALLED, NEXT CHECK 09/07/95. 10/26/95: RECEIVED REPORT FROM PARSONS, SHEEN IN RECOVERY SUMP AND MW4, ORC SOCKS BIENG USED, NEXT CHECK 12/11/95 02/08/96: RECEIVED 12/95 QUARTERLY SMR. SHEEN REPORTED IN MW-3, MW-4 & RECOVERY SUMP. 04/29/96: RECEIVED 3/96 QUARTERLY SMR. SHEENS REPORTED IN MW-3, MW-4 & RECOVERY SUMP. 07/19/96: RECEIVED 6/96 QUARTERLY SMR. SLIGHT SHEENS REPORTED IN MW-3, MW-4 & RECOVERY SUMP. 09/11/96: TED TELECON W/ DAVE NICKERSON, PARSONS ENGINEERS 6/27/96 SITE INSPECT. FOUND SHEENLESS CONDITIONS IN MW-3, MW-4 & RECOVERY SUMP. AGREED TO MEET ON SITE 9/24/96 FOR MW SAMPLING (METHOD 8021 & 8270) AND INSPECT. 09/24/96: TED SITE INSPECT., MW-2, MW-3, MW-4 & RECOVERY SUMP SHEENLESS. MW'S SAMPLED FOR 8021 & 8270 ANALYSIS. 10/31/96: RECEIVED 9/24/96 SAMPLE RESULTS, ALL MW'S & RECOVERY SUMP < 1ppm FOR TOTAL 8021 & 8270 ANALYTES. 11/04/96: SITE RECLASSIFIED INACTIVE . LETTER TO BE SENT REGARDING SITE STATUS RECLASSIFICATION PENDING APPROVAL BY RNL. "

Material Information

OP Unit ID:	931645	***Med in Air:***	False
OU:	01	***Med GW:***	True
Material ID:	447076	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:	8000.00	***Med Surf:***	False
Units:	G	***Med Subway:***	False
Recovered:	7000.00	***Med Utility:***	False
Med Soil:	False	***Oxygenate:***	
Med Air:	False		
Material Code:	0008		
Material Name:	diesel		

Spiller Information

Spiller Name:	THOMAS PORTELE
Spiller Company:	GREYHOUND LINES INC
Spiller Address:	MAIL 1050 PO BOX 660362
Spiller City:	DALLAS
Spiller State:	TX
Spiller Zip:	75202-
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.883489360
Longitude:	-78.872672570

Tank Test Information

Spill Tank ID:	1536181	***Source:***	
Tank No:		***Leak Rate:***	.00
Tank SIze:	0	***Gross Fail:***	
Material:	0008	***Modified by:***	Spills
EPA UST:		***Last Modified:***	2004-10-01 04:00:45.140000000
UST:		***Test Method:***	00
Cause:			
Alt Test Method:	Unknown		

61	1 of1	NNW	0.43 / 2,280.10	606.30 / 14	NATIONAL FUEL GAS 161 ELM STREET BUFFALO NY	LST

Spill No:	0475053	***REM Phase:***	0
Site ID:	73576	***UST Trust:***	True
DER Facility ID:	69240	***Spill Date:***	04/27/2004 12:07:00 PM
CID:		***Rcvd Date:***	04/27/2004 12:07:00 PM
Program Type:	ER	***CAC Date:***	
SWIS Code:	1502	***Insp Date:***	
Contribute Factor:	Tank Failure	***Close Date:***	07/28/2004 12:00:00 AM
Water Body:		***Create Date:***	04/27/2004 12:09:00 PM
Class:	B3	***Update Date:***	07/28/2004 12:00:00 AM
Meets Std:	False	***Lead DEC:***	FXGALLEG
Penalty:	False	***After Hours:***	False
DEC Region:	9	***County:***	Erie

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.

Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Referred to:

Reported by: Responsible Party

Source: Institutional, Educational, Gov., Other

Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"contamination found while removing a 4k ust. planning on digging to clean"

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was FG 4/27/04 FG SITE INSPECTION. MET CHARLIE BURKE ON SITE. CONTAMINATED SOIL EXCAVATED AND STAGED ON SITE. UST WAS FIBERGLASS AND HAD NO HOLES. CONTAMINATION CAME FROM THE PUMP ISLAND. EXCAVATION SAMPLES WERE COLLECTED AND THE EXCAVATION WAS TO BE BACKFILLED. MR. BURKE WILL SUBMIT A CLOSURE REPORT WITH ANALYSIS AND DISPOSAL RECPTS. 5/3/04 NATIONAL FUEL SUBMITTED EXCAVATION SAMPLING RESULTS. SIDEWALLS BELOW STARS. WATER SAMPLE EXCEEDS GROUNDWATER STANDARDS SO FG TOLD NATIONAL FUEL THE SITE WILL BE MADE INACTIVE ONCE SOIL DISPOSAL RECEIPTS ARE RECEIVED. 7/7/04 FG SPOKE TO CHARLIE BURKE WITH NATIONAL FUEL. HE SAID THE SOIL WAS DISPOSED OF LAST WEEK AND HE WILL PROVIDE THE DISPOSAL RECEIPT ONCE HE RECEIVES IT. 7/28/04 RECD DISPOSAL RECEIPTS. NO FURTHER WORK IS REQUIRED. THE SITE IS INACTIVE DUE TO THE EXCEEDANCE OF GROUNDWATER STANDARDS."

Material Information

OP Unit ID:	891298	***Med in Air:***	False
OU:	01	***Med GW:***	False
Material ID:	486027	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:	.00	***Med Surf:***	False
Units:	G	***Med Subway:***	False
Recovered:	.00	***Med Utility:***	False
Med Soil:	True	***Oxygenate:***	
Med Air:	False		
Material Code:	0009		
Material Name:	gasoline		

Spiller Information

Spiller Name:	CHARLIE BURKE
Spiller Company:	NATIONAL FUEL GAS
Spiller Address:	6363 MAIN STREET
Spiller City:	WILLIAMSVILLE
Spiller State:	NY
Spiller Zip:	
Spiller Country:	001
Contact Name:	CHARLIE BURKE
Contact Phone:	(716) 827-2359
Contact Ext:	
Latitude:	42.885455993
Longitude:	-78.869225023

62	***1 of1***	***NW***	***0.44 / 2,325.19***	***607.99 / 16***	***Cornell Lead Co.*** ***Corner of Oak and Clinton Ave.*** ***Buffalo 14203*** ***NY***	***HSWDS***

Reg Site ID:	U	***VOCs:***	No
Site No:		***Semi VOCs:***	No
EPA ID:	NYD980531594	***PCBs:***	No
Is Site Active?:	No	***Pesticides:***	No
Registry:	N	***Metals:***	Yes
Years of Operation:	1891 to 1927	***Asbestos:***	No
RCRA:	Unknown	***County:***	Erie
HRS Score:	U	***Region:***	9
HRS Date:	U	***Latitude:***	42 51 45 N
Acres:	0.00	***Longitude:***	78 52 15 W
Site Code:	1	***Quadrangle:***	Buffalo Northeast
Site Code Desc:	Industrial Site		
Owner:	P		
Owner Name:	U		
Owner Address:	U		
Owner Telephone:	U		
Operator:	P		
Operator Name:	U		
Operator Address:	U		
Operator Telephone:	U		
Completed Investigation:	PA		
Samples Collected:	None		
Threat to Env/Public Health?:	U		
Surface Water Contamination?:	No		
Groundwater Contamination?:	No		
Drinking Water Contam?:	No		
Surface Water Class:	U		
Groundwater Class:	U		
Active Drinking Water Supply?:	Unknown		
Hazard Substance Exposed?:	No		
Controlled Site Access?:	No		
Ambient Air Contamination?:	N		
Threat of Direct Contact?:	No		
Doc Fish/Wildlife Mortality?:	No		
Impact on Special Status?:	No		
TCLP:			
Surface Water:			
Groundwater:			
Drinking Water:			
Fish or Wildlife Mortality:			
Fish or Wildlife Resource:			
Building:			
Hazard Substance Disposed:	white lead or lead carbonate-7758976		
Air:			
Surface Water:			
Surface Soil:			

Waste:
EP Toxicity:
Groundwater:
Sediment:
Subsurface Soil:
Leachate:
Regulatory Agencies Involved: USEPA
Preparer: Julia Slack
Engineering Aide
NYSDEC
May 19, 1994
Nominated by:
Describe the Site: The site was the former "home" of Cornell Lead, which was a manufacturer of white lead. Presently located on this corner are a library, Allentown
Industries, and two parking lots.
Describe the Threat:

63	1 of3	NW	0.44 / 2,327.95	608.00 / 16	CORNELL LEAD CO COR CLINTON & OAK STS BUFFALO NY 14203	CERCLIS

Site ID:	0201939	**RNPL Status Code:**	N
Site EPA ID:	NYD980531594	**NPL Status:**	Not on the NPL
Site Street Address 2:		**RFED Facility Code:**	N
Site County Name:	ERIE	**RFED Facility Desc:**	Not a Federal Facility
Site FIPS Code:	36029	**USGS Hydro Unit No.:**	04120103
Region Code:	02	**Site Cong. Dist. Code:**	37
Site SMSA No.:	1280	**ROT Desc:**	Other
Site Prim. Latitude:	+42.884390	**FR NPL Update No.:**	
Site Prim. Longitude:	-078.869630	**RFRA Code:**	
Lat Long Source:			

RNON NPL Status Desc: NFRAP-Site does not qualify for the NPL based on existing information

CERCLIS Assess History

OU ID:	00	**RALT Short Name:**	
Act Code ID:		**Act Start Date:**	
RAT Code:		**Act Complete Date:**	
RAT Short Name:		**AGT Order No.:**	0
RAT Name:		**SH OU:**	
RAT Hist. Only Flag:		**SH Code:**	
RAT NSI Indicator:		**SH Seq:**	
RAT Level:		**SH Start Date:**	
RAT DEF OU:		**SH Complete Date:**	
RFBS Code:		**SH Lead:**	
SPA Code:			
RAT Def:			

Site Desc: WHITE LEAD WAS MANUFACTURED ON-SITE. WHITE LEAD IS TOXIC AND PERSISTANT CHEMICAL THAT COULD CONTAMINATE THE SOIL AND GROUNDWATER.

.

Site Alias: No alias data available

CERCLIS Assess History

OU ID:	00	**RALT Short Name:**	EPA In-House
Act Code ID:	001	**Act Start Date:**	
RAT Code:	VS	**Act Complete Date:**	3/24/1986 00:00:00
RAT Short Name:	ARCH SITE	**AGT Order No.:**	1500
RAT Name:	ARCHIVE SITE	**SH OU:**	
RAT Hist. Only Flag:		**SH Code:**	
RAT NSI Indicator:	B	**SH Seq:**	
RAT Level:	1	**SH Start Date:**	
RAT DEF OU:	00	**SH Complete Date:**	

RFBS Code:
SH Lead:
SPA Code: 13
RAT Def: The decision is made that no further activity is planned at the site.
Site Desc:
Site Alias:

CERCLIS Assess History

OU ID:	00	**RALT Short Name:**	EPA Fund
Act Code ID:	001	**Act Start Date:**	
RAT Code:	DS	**Act Complete Date:**	6/1/1981 00:00:00
RAT Short Name:	DISCVRY	**AGT Order No.:**	10
RAT Name:	DISCOVERY	**SH OU:**	
RAT Hist. Only Flag:		**SH Code:**	
RAT NSI Indicator:	B	**SH Seq:**	
RAT Level:	1	**SH Start Date:**	
RAT DEF OU:	00	**SH Complete Date:**	
RFBS Code:		**SH Lead:**	
SPA Code:	13		

RAT Def: The process by which a potential hazardous waste site is brought to the attention of the EPA. The process can occur through the use of several mechanisms such as a phone call or referral by another government agency.
Site Desc:
Site Alias:

CERCLIS Assess History

OU ID:	00	**RALT Short Name:**	EPA Fund
Act Code ID:	001	**Act Start Date:**	
RAT Code:	PA	**Act Complete Date:**	3/24/1986 00:00:00
RAT Short Name:	PA	**AGT Order No.:**	130
RAT Name:	PRELIMINARY ASSESSMENT	**SH OU:**	
RAT Hist. Only Flag:		**SH Code:**	
RAT NSI Indicator:	B	**SH Seq:**	
RAT Level:	1	**SH Start Date:**	
RAT DEF OU:	00	**SH Complete Date:**	
RFBS Code:	P	**SH Lead:**	
SPA Code:	13		

RAT Def: Collection of diverse existing information about the source and nature of the site hazard. It is EPA policy to complete the preliminary assessment within one year of site discovery.
Site Desc:
Site Alias:

63	*2 of3*	*NW*	*0.44 / 2,327.95*	*608.00 / 16*	***CORNELL LEAD CO*** ***COR CLINTON & OAK STS*** ***BUFFALO NY 14203***	***CERCLIS NFRAP***

Site ID:	201939	**Site FIPS Code:**	36029
Site EPA ID:	NYD980531594	**Region Code:**	2
Site Parent ID:		**Site Cong. Dist. Code:**	37
Site County Name:	ERIE	**Federal Facility:**	
Parent Site Name:			

CERCLIS-NFRAP Assess History

OU ID:	0	**Act Start Date:**	
Act Code ID:	1	**Act Complete Date:**	3/24/1986
RAT Code:	PA	**AGT Order No.:**	130
RAT Short Name:	PA	**SH OU:**	
RAT Name:	PRELIMINARY ASSESSMENT	**SH Code:**	
RAT Hist. Only Flag:		**SH Seq:**	
RAT NSI Indicator:	B	**SH Start Date:**	
RAT Level:	1	**SH Complete Date:**	
RAT DEF OU:	00	**SH Lead:**	
RFBS Code:	P	**SH Qual:**	
SPA Code:	13	**RAQ Act. Qual Short:**	NFRAP

RALT Short Name:	EPA Fund	***RNPL Status Code:***	N
RAT Def:	Collection of diverse existing information about the source and nature of the site hazard. It is EPA policy to complete the preliminary assessment within one year of site discovery.		
RNON NPL Status Desc:	NFRAP-Site does not qualify for the NPL based on existing information		

CERCLIS-NFRAP Assess History

OU ID:	0	***Act Start Date:***	
Act Code ID:	1	***Act Complete Date:***	3/24/1986
RAT Code:	VS	***AGT Order No.:***	1500
RAT Short Name:	ARCH SITE	***SH OU:***	
RAT Name:	ARCHIVE SITE	***SH Code:***	
RAT Hist. Only Flag:		***SH Seq:***	
RAT NSI Indicator:	B	***SH Start Date:***	
RAT Level:	1	***SH Complete Date:***	
RAT DEF OU:	00	***SH Lead:***	
RFBS Code:		***SH Qual:***	
SPA Code:	13	***RAQ Act. Qual Short:***	
RALT Short Name:	EPA In-House	***RNPL Status Code:***	N
RAT Def:	The decision is made that no further activity is planned at the site.		
RNON NPL Status Desc:	NFRAP-Site does not qualify for the NPL based on existing information		

CERCLIS-NFRAP Assess History

OU ID:	0	***Act Start Date:***	
Act Code ID:	1	***Act Complete Date:***	6/1/1981
RAT Code:	DS	***AGT Order No.:***	10
RAT Short Name:	DISCVRY	***SH OU:***	
RAT Name:	DISCOVERY	***SH Code:***	
RAT Hist. Only Flag:		***SH Seq:***	
RAT NSI Indicator:	B	***SH Start Date:***	
RAT Level:	1	***SH Complete Date:***	
RAT DEF OU:	00	***SH Lead:***	
RFBS Code:		***SH Qual:***	
SPA Code:	13	***RAQ Act. Qual Short:***	
RALT Short Name:	EPA Fund	***RNPL Status Code:***	N
RAT Def:	The process by which a potential hazardous waste site is brought to the attention of the EPA. The process can occur through the use of several mechanisms such as a phone call or referral by another government agency.		
RNON NPL Status Desc:	NFRAP-Site does not qualify for the NPL based on existing information		

63	*3 of3*	*NW*	*0.44 / 2,327.95*	*608.00 / 16*	***CORNELL LEAD CO*** ***COR CLINTON & OAK STS*** ***BUFFALO NY 14203***	***SEMS ARCHIVE***

Site ID:	0201939	***FIPS Code:***	36029
EPA ID:	NYD980531594	***Cong District:***	37
Superfund Alte Agr:	No	***Region:***	02
Federal Facility:	No	***County:***	ERIE
FF Docket:	No		
NPL:	Not on the NPL		
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information		

Action Information

Operable Units:	00	***Qual:***	
Action Code:	VS	***SEQ:***	1
Action Name:	ARCH SITE	***FF:***	No
Start Actual:		***FF Docket:***	No
Finish Actual:	3/24/1986 5:00:00 AM	***Region:***	02
Curr Action Lead:	EPA Perf In-Hse		
NPL:	N		

Operable Units:	00	***Qual:***	N
Action Code:	PA	***SEQ:***	1
Action Name:	PA	***FF:***	No

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Start Actual:		**FF Docket:**	No
Finish Actual:	3/24/1986 5:00:00 AM	**Region:**	02
Curr Action Lead:	EPA Perf		
NPL:	N		

Operable Units:	00	**Qual:**	
Action Code:	DS	**SEQ:**	1
Action Name:	DISCVRY	**FF:**	No
Start Actual:	6/1/1981 4:00:00 AM	**FF Docket:**	No
Finish Actual:	6/1/1981 4:00:00 AM	**Region:**	02
Curr Action Lead:	EPA Perf		
NPL:	N		

64	1 of3	SSE	0.45 / 2,378.00	583.86 / -8	MUNICIPAL HOUSING AUTHORI 386 PERRY ST BUFFALO NY	LST

Spill No:	0805442	**REM Phase:**	0
Site ID:	402540	**UST Trust:**	
DER Facility ID:	68564	**Spill Date:**	08/11/2008 02:58:00 PM
CID:	408	**Rcvd Date:**	08/11/2008 02:58:00 PM
Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	
Contribute Factor:	Tank Test Failure	**Close Date:**	01/06/2009 12:00:00 AM
Water Body:		**Create Date:**	08/11/2008 03:23:00 PM
Class:	E5	**Update Date:**	09/25/2009 09:10:55 AM
Meets Std:	True	**Lead DEC:**	TDJOHNSO
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Investigation indicates there was no spill.
Class Desc: Any Type of RP Including No RP - No DEC Field Response - Corrective Action by Spill Response Not Required
Referred to:
Reported by: Tank Tester
Source: Institutional, Educational, Gov., Other
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"PBS No: 9-067164 DRY PORTION LEAK;"

Dec Remark:

"08/11/08 TJ, SPOKE WITH MIKE LYONS OF MUNICIPAL HOUSING AUTHORITY, TANK TEST ON ABOVE GROUND 25,00 GALL #2 FUEL OIL TANK HAD A LINE FAILURE DURING TANK TEST, NOT LEAKING AND FUEL OIL NOT USED, WILL MAKE DECISION ON PROBLEM. 08/13/08 TJ, SPOKE WITH MIKE LYONS, HE STATED THAT THEY WILL HAVE CONSULTANT DO LINE TEST TO DETERMINE PROBLEM AREA AND FIX OR MAKE CHANGES TO HOLDING TANKS. 01/06/09 TDJ MIKE LYONS IS HAVING ALL LINES TIGHTENED AND RETESTED. THE TANK IS JUST HOLDING OIL TO MAKE USE OF OTHER ENERGY SOURCES CHEAPER. NO SPILL AREAS OF CONCERN. 09/08/09 TDJ RECEIVED TANK TIGHT TEST AFTER LINES WERE RE-FITTED, TANK PASSED TEST, NO FURTHER ACTION FILE CLOSED ELECTRONIC ONLY"

Material Information

OP Unit ID:	1159292	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	2150411	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		
Material Code:	0001A		
Material Name:	#2 fuel oil		

Spiller Information

Spiller Name:	MICHAEL LYONS
Spiller Company:	MUNICIPAL HOUSING AUTHORI
Spiller Address:	386 TERRY ST
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	
Spiller Country:	001
Contact Name:	MICHAEL LYONS
Contact Phone:	(716) 836-4994
Contact Ext:	210
Latitude:	42.873605443
Longitude:	-78.862997421

Tank Test Information

Spill Tank ID:	2486639	**Source:**	
Tank No:		**Leak Rate:**	.00
Tank SIze:	25000	**Gross Fail:**	
Material:	0001	**Modified by:**	Watchdog
EPA UST:		**Last Modified:**	2008-08-11 15:23:12
UST:	True	**Test Method:**	03
Cause:	99		
Alt Test Method:	Horner EZ Check I or II		

64	2 of3	SSE	0.45 / 2,378.00	583.86 / -8	BUFFALO HOUSING AUTHORITY 386 PERRY STREET BUFFALO NY	LST

Spill No:	8710146	**REM Phase:**	0
Site ID:	71409	**UST Trust:**	False
DER Facility ID:	67571	**Spill Date:**	03/03/1988 01:00:00 PM
CID:		**Rcvd Date:**	03/03/1988 01:45:00 PM
Program Type:	ER	**CAC Date:**	06/09/1988 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	
Contribute Factor:	Tank Test Failure	**Close Date:**	06/09/1988 12:00:00 AM
Water Body:		**Create Date:**	03/04/1988 12:00:00 AM
Class:		**Update Date:**	06/14/1988 12:00:00 AM
Meets Std:	True	**Lead DEC:**	MXFRANKS
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie
Category:			
Class Desc:			
Referred to:			
Reported by:	Tank Tester		
Source:	Institutional, Educational, Gov., Other		
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"2-25K TANKS LEAKED FROM MAN HOLE GASKET WHILE SETTING UP FOR TANK TEST. GASKETS WILL BE REPLACED & RETEST PLANED."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MF 03/04/88: MF TO INVESTIGATE. 03/08/88: MF TELECON GARY COUGHLIN, THE HOUSING AUTHORITY IS TAKING BIDS TO REPLACE GASKETS ON THE TANKS. WHEN THE GASKETS ARE REPLACED THE TANKS WILL BE RETESTED. 05/02/88: MF TELECON GARY, GASKETS REPLACED & BOTH TANKS RETESTED, BOTH FAILED. MF MR. LYNE (LAKEVIEW HOUSING 852-1486). BOTH TANKS WILL BE ISOLATED & RETESTED WEDNESDAY 5-4-88. 05/05/88: MF (MJH) JOHN KUDLA TELECON. TANK #1 FAILED ISOLATION RETEST (5/4/88). 5/5/88 JOHN TELECON, TANK #2 FAILED ISOLATION RETEST. LETTER SENT TO GARY COUGHLIN TO REMOVE PRODUCT & TANKS. 05/26/88: MF TELECON MR. LYNE, NOT IN, TO RETURN CALL. 05/31/88: MF TELECON STAN KLOCEK, TANKS ARE NOT EMPTIED, HE WANTS TO RETEST THEM BECAUSE OF COST TO REMOVE THEM & PRODUCT HAS BEEN MONITORED WITH NO LOSS. I GAVE UNTIL THE END OF THE WEEK TO RETEST. 06/06/88: MF TELECON STAN KLUCEK, ENVIRONMENTAL OIL RETESTED BOTH TANKS 6/3/88 (PASSED). PROBLEM WITH REMOTE FILLS (NOT BLED). REPORTS TO BE SENT TO ME. 06/09/88: MF RECEIVED RETEST RESULTS, TANKS PASSED RETEST. "

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Material Information

OP Unit ID:	915078	***Med in Air:***	False
OU:	01	***Med GW:***	True
Material ID:	461928	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:	5.00	***Med Surf:***	False
Units:	G	***Med Subway:***	False
Recovered:	.00	***Med Utility:***	False
Med Soil:	False	***Oxygenate:***	
Med Air:	False		
Material Code:	0002A		
Material Name:	#4 fuel oil		

Spiller Information

Spiller Name:	
Spiller Company:	BUFFALO HOUSING AUTHORITY
Spiller Address:	386 PERRY STREET
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14204
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.873604070
Longitude:	-78.863068210

Tank Test Information

Spill Tank ID:	1533367	***Source:***	
Tank No:	002	***Leak Rate:***	.00
Tank SIze:	0	***Gross Fail:***	
Material:		***Modified by:***	Spills
EPA UST:		***Last Modified:***	2004-10-01 04:00:45.140000000
UST:		***Test Method:***	00
Cause:			
Alt Test Method:	Unknown		

Spill Tank ID:	1533366	***Source:***	
Tank No:	001	***Leak Rate:***	.00
Tank SIze:	0	***Gross Fail:***	
Material:		***Modified by:***	Spills
EPA UST:		***Last Modified:***	2004-10-01 04:00:45.140000000
UST:		***Test Method:***	00
Cause:			
Alt Test Method:	Unknown		

64	***3 of3***	***SSE***	***0.45 / 2,378.00***	***583.86 / -8***	***BUFFALO HOUSING AUTHORITY 386 PERRY STREET BUFFALO NY***	***LST***

Spill No:	8800864	***REM Phase:***	0
Site ID:	71410	***UST Trust:***	False
DER Facility ID:	67571	***Spill Date:***	04/27/1988 12:00:00 PM
CID:		***Rcvd Date:***	04/28/1988 09:00:00 AM
Program Type:	ER	***CAC Date:***	05/02/1988 12:00:00 AM
SWIS Code:	1502	***Insp Date:***	
Contribute Factor:	Tank Test Failure	***Close Date:***	05/02/1988 12:00:00 AM
Water Body:		***Create Date:***	04/28/1988 12:00:00 AM
Class:		***Update Date:***	05/02/1988 12:00:00 AM
Meets Std:	True	***Lead DEC:***	MXFRANKS
Penalty:	False	***After Hours:***	False

DEC Region:	9	**County:**	Erie
Category:			
Class Desc:			
Referred to:			
Reported by:	Tank Tester		
Source:	Institutional, Educational, Gov., Other		
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"TANK LEAKING AT NIPPLE ON TOP. NIPPLE TO BE REPLACED & TANK RETESTED."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MF 04/28/88: MF TO INVESTIGATE. 05/02/88: MF SEE SPILL 8710146 THIS IS ORIGINAL SPILL. THIS SPILL (8800864) IS A RETEST 0F 8710146. "

Material Information

OP Unit ID:	916355	**Med in Air:**	False
OU:	01	**Med GW:**	True
Material ID:	460034	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	
Med Air:	False		
Material Code:	0003A		
Material Name:	#6 fuel oil		

Spiller Information

Spiller Name:	
Spiller Company:	BUFFALO HOUSING AUTHORITY
Spiller Address:	386 PERRY STREET
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14201
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.873604070
Longitude:	-78.863068210

Tank Test Information

Spill Tank ID:	1533779	**Source:**	
Tank No:		**Leak Rate:**	.00
Tank SIze:	0	**Gross Fail:**	
Material:	0003	**Modified by:**	Spills
EPA UST:		**Last Modified:**	2004-10-01 04:00:45.140000000
UST:		**Test Method:**	00
Cause:			
Alt Test Method:	Unknown		

65	1 of1	SSE	0.46 / 2,406.37	582.91 / -9	COMMODORE PERRY COMPLEX 392 PERRY STREET BUFFALO NY	LST

Spill No:	9304172	**REM Phase:**	0
Site ID:	98592	**UST Trust:**	False

DER Facility ID:	87699	**Spill Date:**	07/01/1993 09:20:00 AM
CID:		**Rcvd Date:**	07/01/1993 09:40:00 AM
Program Type:	ER	**CAC Date:**	06/29/1995 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	07/02/1993 12:00:00 AM
Contribute Factor:	Tank Overfill	**Close Date:**	06/29/1995 12:00:00 AM
Water Body:		**Create Date:**	07/02/1993 12:00:00 AM
Class:	C3	**Update Date:**	07/03/1995 12:00:00 AM
Meets Std:	True	**Lead DEC:**	SORGI
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Referred to:
Reported by: Responsible Party
Source: Institutional, Educational, Gov., Other
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"#6 FUEL OIL CAME OUT VENT PIPE WHILE DRIVER WAS FILLING TANK FROM OTHER END."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MJS 07/01/93: MJS/SITE - MET W/DRIVER OF TRUCK AND REP. OF BMHA. 20' X 30' AREA AFFECTED. SAND APPLIED. INFORMED THEM THAT SAND MUST BE PICKED UP AND PLACED IN CONTAINERS, STAGED, AND DISPOSED. 07/01/93: MJS/SITE -SAND PICKED UP. DRUMS STAGED INSIDE GARAGE. AFFECTED AREA STAINED. CLEANUP IS SATISFACTORY. 07/12/93: MJS SENT LETTER TO R.P. (KIRK FUEL). 07/16/93: RECEIVED LETTER FROM KURK FUEL. BMHA IS SOLITICITING BIDS FOR WORK. 07/23/93: RECEIVED LETTER FROM KURK FUEL STATING THEY ARE NOT RESPONSIBLE FOR SPILL. 07/26/93: MJS TELECON TO GREG KURK. HE STATES VENT SYSTEM ON TANK DOES NOT WORK PROPERLY. ONLY 70 GAL DELIVERED BEFORE SPILL OCCURRED. BMHA KNEW TANK VENT DID NOT WORK AND OPENED A CAP AT END OF TANK FOR VENT. 03/10/95: MJS REVIEW FILE. NEED DISPOSAL RECEIPTS AND ANALYTICAL RESULTS FOR CLOSURE OF FILE. LETTER TO BMHA. RESPONSE DUE 4/1/95. 03/16/95: MJS TELECON FROM MIKE DRUMSTA(BMHA). DRUMS OF SAND STILL ON SITE. NO SAMPLING DONE. HE WILL INITIATE SAMPLING AND DISPOSAL WITH BIDS. 06/27/95: MJS TELECON FROM MIKE DRUMSTA. DRUMS DISPOSED. HE WILL FORWARD DOCUMENTATION. 06/29/95: RECEIVED DISPOSAL DOCUMENTATION FROM RP. NO FURTHER ACTION REQUIRED. MJS CLOSE FILE. "

Material Information

OP Unit ID:	985869	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	554115	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	15.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	15.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		

Material Code: 0002A
Material Name: #4 fuel oil

Spiller Information

Spiller Name:
Spiller Company: BUFFALO MUNICIPAL HOUSING
Spiller Address: 300 PERRY STREET
Spiller City: BUFFALO
Spiller State: NY
Spiller Zip: 14204
Spiller Country: 001
Contact Name:
Contact Phone:
Contact Ext:
Latitude: 42.873574320
Longitude: -78.862882730

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
66	1 of1	SSW	0.47 / 2,471.88	579.22 / -13	LANIGAN FIELD HOUSE FULTON AND CHICAGO STREET BUFFALO NY	LST

Spill No:	0002513	**REM Phase:**	0
Site ID:	182104	**UST Trust:**	False
DER Facility ID:	152682	**Spill Date:**	05/30/2000 12:00:00 PM
CID:	282	**Rcvd Date:**	05/30/2000 03:53:00 PM
Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	09/14/2000 12:00:00 AM
Contribute Factor:	Tank Overfill	**Close Date:**	11/29/2000 12:00:00 AM
Water Body:		**Create Date:**	05/30/2000 12:00:00 AM
Class:	C3	**Update Date:**	12/11/2000 12:00:00 AM
Meets Std:	True	**Lead DEC:**	SACALAND
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Referred to:
Reported by: Other
Source: Commercial/Industrial
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"THE SUSPECT THE TANK HAS A LEAK OR THE TANK WAS OVERFILLED. CONTACT OUT IN REGION 9 IS MR CALANDRA. "

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was SAC 05/30/00: SAC TELECON JENNIFER MURRAY OF TYREE ORGANIZATION, MS. MURRAY SAID THE SITE WAS THE SAME ONE THAT SHE HAD CALLED IN A COUPLE OF WEEKS AGO WHERE THEY CLOSED THE TANK IN PLACE, THEY RECEIVED THE CONFIRMATORY SAMPLE RESULTS AND THEY EXCEED THE STARS GUIDANCE VALUES SO SHE REPORTED THE SPILL, MS. MURRAY FAXED THE RESULTS TO SAC, THE RESULTS EXCEED THE GUIDANCE VALUES FOR EPA METHOD 8270 PARAMETERS THE FLOOR SAMPLE AND THE NORTH WALL SAMPLES, FURTHER WORK WILL BE REQUIRED. 50/31/00: SAC TELECON JENNIFER MURRAY, SHE SAID TANK WAS CLOSED IN PLACE ON 5/9/00, THE SAME DAY SHE TOOK CONFIRMATORY SAMPLES AROUND TANK, SHE WILL BEGIN TO WRITE REPORT AND SAC SHOULD HAVE IT BY THE MIDDLE OF NEXT WEEK, MS. MURRAY SAID THE REASON WHY THEY COULD NOT REMOVE THE TANK WAS BECAUSE IT WAS EMBEDDED INTO CONCRETE, THE SAMPLE THAT WAS TAKEN WAS THREE FEET AWAY FROM THE TANK AND TEN FEET AWAY FROM BUILDING FOUNDATION, NO ODORS OR AND NO DEFLECTION ON PID METER DURING FIELD SCREENING OF THE TEST PIT, NO STAINING OBSERVED BUT FILL DID NOT APPEAR NATIVE SINCE CINDERS WERE OBSERVED WHEN PIT WAS EXCAVATED, THE TEST PIT WAS EXCAVATED TO A FOUR FOOT DEPTH BECAUSE TANK WAS NEAR THE SURFACE. 06/01/00: SAC SITE INSPECTION, OBSERVED DISTURBED AREA NEXT TO THE OLD BUILDING WHICH APPEARS TO WHERE THE TANK IS. 06/05/00: SAC TELECON JENNIFER MURRAY, TANK THAT WAS CLOSED IN PLACE WAS 1000 GALLONS AND THE TANK SITE WAS CLOSER TO THE FRONT OF THE BUILDING. 09/14/00: SAC SITE INSPECTION, MET JENNIFER MURRAY AND PETE MERLO, BUTCH EAGAN FROM ZEBRA TECHNOLOGIES ON-SITE AND SAMPLING TWO AREAS WITH GEOPROBE, THE TOP LAYERS OF SOIL APPEARED TO BE FILL, NATIVE CLAY FOUND AT THE 8 FEET DEPTH. 11/29/00: SAC RECEIVED ADDITIONAL SUBSURFACE INVESTIGATION FROM TYREE ORGANIZATION, TWO SAMPLES ANALYZED USING EPA METHOD 8021 & 8270 FOR TCLP, ALL PARAMETERS BELOW DETECTIBLE LIMITS, NO FURTHER ACTION REQUIRED."

Material Information

OP Unit ID:	824451	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	550872	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		
Material Code:	0001A		
Material Name:	#2 fuel oil		

Spiller Information

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Spiller Name:	ROBERT O"HARA
Spiller Company:	CITY OF BUFFALO
Spiller Address:	616 CITY HALL
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14202-
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.873335996
Longitude:	-78.867691887

67	1 of1	WNW	0.47 / 2,481.82	610.49 / 18	ELLICOTT SQUARE BLDG 295 WASHINGTON ST BUFFALO NY	LST

Spill No:	0011474	**REM Phase:**	0
Site ID:	160757	**UST Trust:**	False
DER Facility ID:	135734	**Spill Date:**	01/23/2001 02:00:00 AM
CID:	252	**Rcvd Date:**	01/23/2001 05:00:00 PM
Program Type:	ER	**CAC Date:**	
SWIS Code:	1502	**Insp Date:**	05/04/2001 12:00:00 AM
Contribute Factor:	Tank Overfill	**Close Date:**	05/24/2001 12:00:00 AM
Water Body:		**Create Date:**	01/23/2001 12:00:00 AM
Class:	B3	**Update Date:**	05/24/2001 12:00:00 AM
Meets Std:	True	**Lead DEC:**	FXGALLEG
Penalty:	False	**After Hours:**	True
DEC Region:	9	**County:**	Erie

Category:	Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class Desc:	Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency
Referred to:	
Reported by:	Other
Source:	Commercial/Industrial
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"SPILL HAS BEEN CONTAINED AND IS BEING CLEANED UP IN THE AM."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was FG 1/23/01 DUTY OFFICER NOTIFIED ME OF SPILL AND REQUESTED THAT I RESPOND IN THE MORNING AS THE SPILL WAS CONTAINED. 1/24/01 FG SITE INSPECTION. SPILL WAS THE RESULT OF AN OVERFILL OF #6 FUEL OIL. THE SITE IS A REGISTERED PBS FACILITY. THE TANK IS IN THE BASEMENT AND IS CONTAINED. THERE IS A SUMP IN THE ROOM WHERE THE TANK IS. THIS SUMP DISCHARGED TO A SUMP IN THE BASEMENT BUT OUTSIDE THE TANK ROOM. THE SUMP WAS TURNED OFF IMMEDIATELY AND THERE WAS NO DISCHARGE TO THE STORM DISCHARGE, THERE WAS NO EVIDENCE IN THE DISCHARGE PIPE OF PETROLEUM. THE OVERFILL CAME OUT THE VENT PIPE AS WELL, OUTSIDE THE BUILDING ON THE SIDEWALK AND A MINOR AMOUNT MADE ITS WAY TO THE TRANSFORMERS, WHICH ARE UNDERGROUND AND COVERED WITH A GRATE. HMHTTC WAS ON SITE AND SAID THEY CLEANED OUT SOME OF THE CONTAMINATION AT THE TRANSFORMER BUT CAN'T DO ANYTHING FURTHER BECAUSE NIMO MUST DO THE WORK. HMHTTC WILL BE ON SITE FOR THE REST OF THE WEEK COMPLETING THE CLEANUP. THE SPILL HAPPENED YESTERDAY 1/23/01 EARLY MORNING BUT WAS NOT REPORTED UNTIL 17:00 ON 1/23/01. 1/24/01 JERRY WHITE WITH CROSSETT 814-723-2200 EXT 180 CALLED. HE WANTED TO MAKE SURE WE WERE INFORMED OF THE CLEANUP AND I TOLD HIM WE WERE. I TOLD HIM WE WILL NEED DISPOSAL RECEIPTS FROM ALL MATERIAL THAT GETS DISPOSED. 1/30/01 FG SITE INSPECTION. CONTAMINATION AT TANK CLEANED UP AND APPROXIMATELY 20 DRUMS OF DEBRIS GENERATED. HMHTTC WAS ON SITE CLEANING UP THE ELEVATOR SHAFT ADJACENT TO THE SUMP OUTSIDE THE TANK VAULT. FUEL OIL LEAKED INTO THE ELEVATOR SHAFT. THEY WILL PROBABLY GENERATE ANOTHER 10 DRUMS OF WASTE. 1/31/01 FG SITE INSPECTION. MET CHARLEY FASO AND ROGER SCHINTZIUS ON SITE. CLEANUP STILL ONGOING. WORK WILL STOP TODAY AND THEY WILL CONTINUE TO PAD UP THE RESIDUAL OIL IN THE SUMP NEAR THE ELEVATOR SHAFT ON AN ONGOING BASIS. THEY WILL DISPOSE OF THE DEBRIS GENERATED. 2/2/01 FG SITE INSPECTION. MET CHARLEY FASO ON SITE. HE WAS NOT HAPPY WITH THE WORK THE CONTRACTOR DID. HE INDICATED THAT THEY USED NON DOT SHIPPABLE DRUMS - 4 OF THEM - AND THEY WERE COVERED WITH OIL. SOME OF THE DRUMS WERE ALSO LEAKING. HE WAS CONCERNED ABOUT THE DISPOSAL OF THE SUMP PUMP ALSO. HE SAID THEY TOOK IT AND ARE NOT SURE WHERE IT WAS DISPOSED. HE SAID CROSSETT CAME ON SITE AND HAD HMHTTC LEAVE. WE CHECKED THE SUMP AND THE ELEVATOR SHAFT, BOTH HAD PADS AND BOOMS AND ONLY A MINOR AMOUNT OF FUEL OIL WAS PRESENT. 4/3/01 FG SPOKE TO JERRY WHITE WITH CROSSETT. HE SAID ALL OF THE CONTAMINATED MATERIAL HAS BEEN DISPOSED OF. HE WILL BE INSPECTING THE SPILL AREA AGAIN NEXT WEEK. HMHTTC WILL PROVIDE DISPOSAL RECEIPTS TO THIS OFFICE. 4/17/01 RICK COOMER WITH HMHTTC FAXED THE DISPOSAL RECEIPTS FOR THE CONTAMINATED MATERIAL. HE SAID THESE ARE THE DISPOSAL RECEIPTS GENERATED FROM THE WORK THEY COMPLETED. CROSSETT IS STILL CHECKING THE SUMP PERIODICALLY. 4/20/01 FG MET REESE BLOSS WITH CROSSETT ON SITE. CROSSET WILL TRY

TO POWERWASH THE AREA AROUND THE FILL. THEY WILL NOTIFY ME WHEN THEY PLAN ON DOING THE WORK. 5/4/01 FG SITE INSPECTION. GROUND AROUND FILL HAD BEEN COMPLETELY CLEANED UP. NO FURTHER WORK WILL BE REQUIRED. JERRY WHITE SAID HE GENERATED TWO DRUMS OF DEBRIS AND WILL PROVIDE THE DISPOSAL RECEIPT. 5/24/01 FINAL DISPOSAL RECEIPT PROVIDED. NO FURTHER WORK WILL BE REQUIRED. THE SITE CAN BE CLOSED."

Material Information

OP Unit ID:	833535	***Med in Air:***	False
OU:	01	***Med GW:***	False
Material ID:	541783	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:	150.00	***Med Surf:***	False
Units:	G	***Med Subway:***	False
Recovered:	.00	***Med Utility:***	False
Med Soil:	True	***Oxygenate:***	
Med Air:	False		
Material Code:	0003A		
Material Name:	#6 fuel oil		

Spiller Information

Spiller Name:	JERRY WHITE814-723-2200
Spiller Company:	CROSSETT INC
Spiller Address:	PO BOX 946
Spiller City:	WARREN
Spiller State:	PA
Spiller Zip:	16365-
Spiller Country:	001
Contact Name:	RICK COOMER
Contact Phone:	(716) 583-1530
Contact Ext:	
Latitude:	42.882061180
Longitude:	-78.874431830

68	***1 of1***	***N***	***0.49 / 2,562.76***	***605.85 / 14***	***BUFFALO STREETS GARAGE 197 BROADWAY BUFFALO NY***	***LST***

Spill No:	9109885	***REM Phase:***	0
Site ID:	236619	***UST Trust:***	True
DER Facility ID:	194934	***Spill Date:***	12/16/1991 04:00:00 PM
CID:		***Rcvd Date:***	12/16/1991 05:07:00 PM
Program Type:	ER	***CAC Date:***	02/25/1992 12:00:00 AM
SWIS Code:	1502	***Insp Date:***	
Contribute Factor:	Tank Test Failure	***Close Date:***	02/25/1992 12:00:00 AM
Water Body:		***Create Date:***	12/23/1991 12:00:00 AM
Class:		***Update Date:***	02/25/1992 12:00:00 AM
Meets Std:	True	***Lead DEC:***	SACALAND
Penalty:	False	***After Hours:***	True
DEC Region:	9	***County:***	Erie
Category:			
Class Desc:			
Referred to:			
Reported by:	Tank Tester		
Source:	Institutional, Educational, Gov., Other		
Source File:	NYSDEC - Environmental Remediation Data Files - Spill Data		

Caller Remark:

"SAC TELECON W/FRANK FABER INFORMED LINES WILL BE REPLACED."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was SAC 12/17/91: LEAK SUSPECTED FROM LINES DUE TO LACK OF DEPTH

UNDERGROUND. LINES TOBE REPLACED AND RE-TESTED. 02/25/92: VENT AND SUPPLY LINES REPLACED AFTER 2 FAILED TANK TIGHTNESS TESTS. THIRD TEST PASSED,RESULTS WERE SUBMITTED.NO FURTHER ACTION REQUIRED AT PRESENT TIME. "

Material Information

OP Unit ID:	959908	***Med in Air:***	False
OU:	01	***Med GW:***	True
Material ID:	418464	***Med SW:***	False
CAS No:		***Med DW:***	False
Material Family:	Petroleum	***Med Sewer:***	False
Quantity:	.00	***Med Surf:***	False
Units:		***Med Subway:***	False
Recovered:	.00	***Med Utility:***	False
Med Soil:	False	***Oxygenate:***	
Med Air:	False		
Material Code:	0009		
Material Name:	gasoline		

Spiller Information

Spiller Name:	
Spiller Company:	CITY OF BUFFALO GARAGE
Spiller Address:	197 BROADWAY
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14204
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.887088560
Longitude:	-78.866090280

Tank Test Information

Spill Tank ID:	1539428	***Source:***	
Tank No:		***Leak Rate:***	.00
Tank SIze:	0	***Gross Fail:***	
Material:	0009	***Modified by:***	Spills
EPA UST:		***Last Modified:***	2004-10-01 04:00:45.140000000
UST:		***Test Method:***	00
Cause:			
Alt Test Method:	Unknown		

69	1 of1	NNE	0.49 / 2,570.21	602.23 / 10	PLEASENT GROVE BAPTIST CH 222 CEDAR STREET BUFFALO NY	LST

Spill No:	9006857	***REM Phase:***	0
Site ID:	150205	***UST Trust:***	False
DER Facility ID:	127733	***Spill Date:***	09/20/1990 09:00:00 PM
CID:		***Rcvd Date:***	09/21/1990 03:20:00 PM
Program Type:	ER	***CAC Date:***	09/27/1991 12:00:00 AM
SWIS Code:	1502	***Insp Date:***	09/10/1991 12:00:00 AM
Contribute Factor:	Tank Failure	***Close Date:***	09/27/1991 12:00:00 AM
Water Body:		***Create Date:***	09/26/1990 12:00:00 AM
Class:		***Update Date:***	09/27/1991 12:00:00 AM
Meets Std:	True	***Lead DEC:***	COOKE
Penalty:	False	***After Hours:***	False
DEC Region:	9	***County:***	Erie
Category:			
Class Desc:			
Referred to:			
Reported by:	Citizen		

Source: Institutional, Educational, Gov., Other
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"UNDERGROUND STOAGE TANK LEAKING INTO SEWER."

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was JDC 09/26/90: INSPECTED SITE AND FOUND TANK TOP PARTIALY EXPOSED. COULD NOT LOCATEREV. JOE L FISHER. WILL CONTACT BUFFALO AUTHORITIES TO DISCUSS ACTION. 12/11/90: MJH SENT LETTER REQUESTING INFORMATION ON CLEANUP EFFORTS. 09/10/91: JDC INSPECETED SITE AND FOUND TANK REMOVED. WAITING ON DISPOSITION LETTER FROM SPILLER. 09/27/91: TANK HAS BEEN REMOVED AND NO CONTAMINATION WAS FOUND. NO FRUTHER ACTION WILL BE REQUIRED. "

Material Information

OP Unit ID:	944368	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	434303	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	True
Quantity:	200.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	.00	**Med Utility:**	False
Med Soil:	False	**Oxygenate:**	
Med Air:	False		
Material Code:	0001A		
Material Name:	#2 fuel oil		

Spiller Information

Spiller Name:	
Spiller Company:	PLEASANT GROVE BAPTIST CH
Spiller Address:	222 CEDAR STREET
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.885506980
Longitude:	-78.861204000

70	1 of1	WNW	0.49 / 2,589.27	613.88 / 22	GOETZ ENERGY WASHINGTON & S. DIVISION BUFFALO NY	LST

Spill No:	9207118	**REM Phase:**	0
Site ID:	94608	**UST Trust:**	False
DER Facility ID:	84697	**Spill Date:**	09/21/1992 05:45:00 AM
CID:		**Rcvd Date:**	09/21/1992 09:13:00 AM
Program Type:	ER	**CAC Date:**	08/31/1993 12:00:00 AM
SWIS Code:	1502	**Insp Date:**	09/21/1992 12:00:00 AM
Contribute Factor:	Tank Overfill	**Close Date:**	09/03/1993 12:00:00 AM
Water Body:		**Create Date:**	09/22/1992 12:00:00 AM
Class:	D3	**Update Date:**	09/07/1993 12:00:00 AM
Meets Std:	True	**Lead DEC:**	RMCROSSE
Penalty:	False	**After Hours:**	False
DEC Region:	9	**County:**	Erie

Category: Possible petroleum release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters, known releases with no potential for damage, or non-petroleum/non-hazardous spills.

Class Desc: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Referred to:
Reported by: Affected Persons
Source: Commercial/Industrial
Source File: NYSDEC - Environmental Remediation Data Files - Spill Data

Caller Remark:

"OIL LEAKED TO SIDEWALK AND UNDERGROUND TRANSFORMER VAULT FROM TANK OVERFILL"

Dec Remark:

"Prior to Sept, 2004 data translation this spill Lead_DEC Field was RMC 09/21/92: 9/21/92 - RMC/BILL DUVAL/SITE - WILL SCRAP WALL AND BAIL OUT SUMP. LESS THAN 5 GALLONS IN PIT. 09/24/92: RMC/ED CHANDLER/DAVID WALSH/DENNIS HANNON/ ALL OK W/ GEOTZ PROGRESS. GOETZ WANTS TO DISPOSE OF TWO DRUMS BY CURRENT BIO CELL. WILL CONTACT SAVAGE FOR STATUS OF TREATMENT. 10/21/92: RMC/DAVID WALSH/PHONE 3 DRUMS TOTAL TO DISPOSE OF, WILL CONTACT NATURES WAY FOR DISPOSAL. DUE 12/30/92. 12/28/92: RMC - DISPOSAL LETTER SENT; DUE 1/11/93. 01/08/93: RMC - RECEIVED LETTER; GOETZ HIRED NATURE'S WAY. RECEIPT DUE 2/28/93. 01/11/93: RMC/SAVAGE/PHONE NATURES WAY IS TAKING CARE OF DISPOSAL. RECEIPTS DUE 2/28/93. 06/03/93: RMC - RECEIVED LETTER; GOETZ HIRED NATURE'S WAY. RECEIPT DUE 2/28/93 DISPOSAL LETTER, RESPONSE DUE 7/1/93. 07/09/93: RMC - RECEIVED LETTER; GOETZ HIRED NATURE'S WAY. RECEIPT DUE 2/28/93 DISPOSAL LETTER, RESPONSE DUE 7/1/93 REVISED TO 8/15/93. 07/09/93: RMC/RECEIVED DISPOSAL RECEIPT, CLOSE OUT. "

Material Information

OP Unit ID:	974097	**Med in Air:**	False
OU:	01	**Med GW:**	False
Material ID:	407783	**Med SW:**	False
CAS No:		**Med DW:**	False
Material Family:	Petroleum	**Med Sewer:**	False
Quantity:	5.00	**Med Surf:**	False
Units:	G	**Med Subway:**	False
Recovered:	5.00	**Med Utility:**	False
Med Soil:	True	**Oxygenate:**	
Med Air:	False		
Material Code:	0003A		
Material Name:	#6 fuel oil		

Spiller Information

Spiller Name:	
Spiller Company:	GOETZ ENERGY
Spiller Address:	PO BOX A
Spiller City:	BUFFALO
Spiller State:	NY
Spiller Zip:	14217
Spiller Country:	001
Contact Name:	
Contact Phone:	
Contact Ext:	
Latitude:	42.882589951
Longitude:	-78.874276959

71	1 of1	E	0.49 / 2,604.81	589.58 / -3	**WNY Professional Flooring; Inc.** **505 Hamburg Street** **Buffalo NY 14220**	SWF/LF

Activity No:		**Facility Name (InAct):**	WNY Professional Flooring; Inc.
Facility Name (Act):		**Location Addr (InAct):**	505 Hamburg Street
Location Addr (Act):		**Loc Addr2(InAct):**	
Location Addr2 (Act):		**City (InAct):**	Buffalo
City (Act):		**State (InAct):**	NY
State (Act):		**Zip Code (InAct):**	
Zip Code (Act):		**County (InAct):**	Erie
County (Act):		**East Coord (InAct):**	
East Coord (Act):		**North Coord (InAct):**	
North Coord (Act):			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Name:
Location Addr:
Location Addr2:
City:
State:
Zip Code:
County:
East Coord:
North Coord:
Data Source: SWMF - Inactive Facility Lists (as of 4 Jun 2025)

SWMF - Inactive Facility Lists Details (InAct)

Accuracy Code:	4.2 - Utilization of GIS and existing spatial data	**Authorization No:**	15M19
Activity Desc:	RHRF - registration	**Authrzation Issue Dt:**	3/15/2007
Regulatory Status:	Registration	**Operator Type:**	Private
Active:	No	**Operator Name:**	Jeremy Krasny
Dt of Last Inspection:		**Phone No:**	7168643875
Expiration Dt:		**Region:**	9
Owner Type:	Private	**Contact Name:**	
Owner Name:	Karol Kellner	**Contact Address:**	
Owner Address:	505 Hamburg Street	**Contact Address2:**	
Owner Address2:		**Contact City:**	
Owner City:	Buffalo	**Contact State:**	
Owner State:	NY	**Contact Zip:**	
Owner Zip:	14220	**Contact Phone:**	
Owner Phone:	7168520262	**Contact Email:**	
Owner Email:		**Activity No:**	[15M19]
East Coords:	184985		
North Coords:	4754382		
Waste Types:			

72	1 of1	NW	0.54 / 2,834.52	609.12 / 17	BUFFALO TIN PLATING 194 OAK ST BUFFALO NY 14203	RCRA CORRACTS

Handler ID: NYD002109452
Generator Status: N
Recycler Activity?: NO
Recycler Activity Note: This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note: NO VIOLATIONS: All of the compliance records associated with this facility (EPA ID) indicate NO VIOLATIONS; Compliance Monitoring and Enforcement table dated Apr 2025.

Evaluation Details

Eval Start Date: 19870511
Eval Type Desc: COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:
Actual Rtc Date:
Eval Agency: State

Additional Handler Summary Details

Source Type:	I	**NAIC 1:**	332813
Seq No:	3	**NAIC 2:**	33991
Non Notifier:		**NAIC 3:**	
Receive Date:	20070101	**NAIC 4:**	
Active Site:	-----	**State:**	NY
Land Type:		**Location Latitude:**	42.886692
In Handler Univ:	N	**Location Longitude:**	-78.870439

In A Universe:	Y	***Loc GIS Primary:***	N
Gen Status:	N	***Loc GIS Origin:***	UC
Report Cycle:		***State District Owner:***	NY
Accessibility:	C	***State District:***	NYSDEC R9
Region:	02		

Fed Waste Gen Owner:	HQ
State Waste Generator Owner:	NY
State Waste Generator:	S
Short Term Generator:	N
Uni Waste:	N
Universal Waste Dest Facility:	N
Federal Universal Waste:	N
As Federally Regulated Tsdf:	------
As Converter Tsdf:	------
As State Regulated Tsdf:	------
As State Regulated Handler:	---
Federal Indicator:	---
Hsm:	N
Subpart K:	----
GPRA Permit:	N
GPRA Renewal:	N
Permit Renewal Wrkld:	------
Permwrk ID:	------
Perm Prog:	---ST-
Pcwrkld:	------
Closwrkld:	------
GPRA Ca:	N
Cawrkld:	N
Subjca Tsd Discretion:	N
NCAPS:	L
EC Indicator:	N
Ca725 Indicator:	+
Ca750 Indicator:	+
Operating Tsdf:	------
Full Enforcement:	------
Snc:	N
Unaddressed Snc:	N
Addressed Snc:	N
Snc With Comp Sched:	N
Fa Required:	-----
Hhandler Last Change:	20150414
Recognized Trader Importer:	N
Recognized Trader Exporter:	N
Slab Importer:	N
Slab Exporter:	N
Manifest Broker:	N
Subpart P:	N
Contact Language:	EN
Handler Name:	BUFFALO TIN PLATING
Location Street No:	194
Location Street1:	OAK ST
Location Street2:	
Location City:	BUFFALO
Location State:	NY
Location Zip:	14203
Location County Code:	NY029
Location County Name:	ERIE
Location Country:	US
Contact Name:	ALBERT NUSE
Contact Street No:	194
Contact Street1:	OA ST
Contact Street2:	
Contact City:	BUFFALO
Contact State:	NY
Contact Zip:	14203
Contact Country:	US
Contact Phone & Ext:	716-853-1087
Contact Fax:	
Contact Email Address:	

Contact Title:
Owner Name: NUSE ALBERT H
Owner Type: P
Owner Seq: 1
Operator Name: NUSE ALBERT H
Operator Type: P
Operator Seq: 2
Public Notes:

Handler Summary

Importer:	No	**Used Oil Transpor:**	No
Mixed Waste Gen:	No	**Used Oil Trans Fac:**	No
Transporter:	No	**Used Oil Processor:**	No
Transfer Facility:	No	**Used Oil Refiner:**	No
Recycler:	No	**Used Oil Burner:**	No
Onsite Burner Exem:	No	**Commercial TSD:**	No
Furnace Exemption:	No	**Recycl Nonstorage:**	No
Underground Injec:	No		

Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19791231
Handler Name: BUFFALO TIN PLATING
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19800807
Handler Name: BUFFALO TIN PLATING
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Notification
TSD Activity: N

Waste Code Details

Waste Code: D002
Waste Code Desc: CORROSIVE WASTE

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19801119
Handler Name: BUFFALO TIN PLATING
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Part A
TSD Activity: Y

Waste Code Details

Waste Code: D002
Waste Code Desc: CORROSIVE WASTE

Hazardous Waste Handler Details

Seq No:	2
Receive Date:	20060101
Handler Name:	BUFFALO TIN PLATING
Fed Waste Generator:	N
Generator Code Description:	Not a Generator, Verified
Source Type:	Implementer
TSD Activity:	Y

Hazardous Waste Handler Details

Seq No:	3
Receive Date:	20070101
Handler Name:	BUFFALO TIN PLATING
Fed Waste Generator:	N
Generator Code Description:	Not a Generator, Verified
Source Type:	Implementer
TSD Activity:	Y

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Private	***Street1:***	194 OAK ST
Name:	NUSE ALBERT H	***Street2:***	
Dt Became Current:		***City:***	OPERCITY
Dt Ended Current:		***State:***	NY
Phone:	716-853-1087	***Country:***	
Source Type:	Part A	***Zip:***	99999
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street1:***	194 OAK ST
Name:	NUSE ALBERT H	***Street2:***	
Dt Became Current:		***City:***	BUFFALO
Dt Ended Current:		***State:***	NY
Phone:	716-853-1087	***Country:***	US
Source Type:	Implementer	***Zip:***	14203
Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Private	***Street1:***	194 OAK ST
Name:	NUSE ALBERT H	***Street2:***	
Dt Became Current:		***City:***	OPERCITY
Dt Ended Current:		***State:***	NY
Phone:	716-853-1087	***Country:***	US
Source Type:	Implementer	***Zip:***	99999
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street1:***	194 OAK ST
Name:	NUSE ALBERT H	***Street2:***	
Dt Became Current:		***City:***	BUFFALO
Dt Ended Current:		***State:***	NY
Phone:	716-853-1087	***Country:***	
Source Type:	Notification	***Zip:***	14203

Historical Handler Details

Receive Dt:	20060101
Generator Code Description:	Not a Generator, Verified
Handler Name:	BUFFALO TIN PLATING
Receive Dt:	19801119
Generator Code Description:	Not a Generator, Verified
Handler Name:	BUFFALO TIN PLATING

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Receive Dt: 19800807
Generator Code Description: Not a Generator, Verified
Handler Name: BUFFALO TIN PLATING

Receive Dt: 19791231
Generator Code Description: Not a Generator, Verified
Handler Name: BUFFALO TIN PLATING

73	1 of1	W	0.56 / 2,973.19	588.69 / -3	64th Street - North Donavan Bld., 125 Main St. Buffalo NY	DELISTED SHWS

Description:

Assessment:

Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York

SC Nam1: Lee
SC Nam2: Calkins
Owner: NYSDOT
Type: OW
Type P:

74	1 of1	WNW	0.63 / 3,325.32	617.25 / 25	Westinghouse Electric Corp. 424 Main Street, Suite 300 Buffalo NY 14202	DELISTED SHWS

Description:

Assessment:

Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York

SC Nam1:
SC Nam2:
Owner: Erie County Industrial Dev. Agency
Type: OW
Type P: 002

75	1 of1	WNW	0.64 / 3,381.06	608.37 / 16	Gutekunst Rath Building, 95 Franklin St. Buffalo NY 14202	DELISTED SHWS

Description:

Assessment:

Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York

SC Nam1:
SC Nam2:
Owner: Erie County
Type: OW
Type P:

76	1 of1	WSW	0.65 / 3,413.28	584.50 / -8	189 TONAWANDA ST CORP 51 PERRY ST BUFFALO NY 14203	RCRA CORRACTS

Handler ID:	NYD980526818
Generator Status:	N
Recycler Activity?:	NO
Recycler Activity Note:	This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note:	NO VIOLATIONS: All of the compliance records associated with this facility (EPA ID) indicate NO VIOLATIONS; Compliance Monitoring and Enforcement table dated Apr 2025.

Evaluation Details

Eval Start Date:	19980917
Eval Type Desc:	COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:	
Actual Rtc Date:	
Eval Agency:	EPA

Eval Start Date:	19870219
Eval Type Desc:	COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:	
Actual Rtc Date:	
Eval Agency:	State

Eval Start Date:	19860325
Eval Type Desc:	COMPLIANCE EVALUATION INSPECTION
Viol Short Desc:	
Actual Rtc Date:	
Eval Agency:	State

Additional Handler Summary Details

Source Type:	I	***NAIC 1:***	331513
Seq No:	3	***NAIC 2:***	332111
Non Notifier:		***NAIC 3:***	212319
Receive Date:	20070101	***NAIC 4:***	
Active Site:	-----	***State:***	NY
Land Type:		***Location Latitude:***	42.875686
In Handler Univ:	N	***Location Longitude:***	-78.875187
In A Universe:	Y	***Loc GIS Primary:***	N
Gen Status:	N	***Loc GIS Origin:***	UC
Report Cycle:		***State District Owner:***	NY
Accessibility:		***State District:***	NYSDEC R9
Region:	02		

Fed Waste Gen Owner:	HQ
State Waste Generator Owner:	NY
State Waste Generator:	S
Short Term Generator:	N
Uni Waste:	N
Universal Waste Dest Facility:	N
Federal Universal Waste:	N
As Federally Regulated Tsdf:	------
As Converter Tsdf:	------
As State Regulated Tsdf:	------
As State Regulated Handler:	---
Federal Indicator:	---
Hsm:	N
Subpart K:	----
GPRA Permit:	N
GPRA Renewal:	N
Permit Renewal Wrkld:	------
Permwrk ID:	------
Perm Prog:	----T-
Pcwrkld:	------

Closwrkld:	------
GPRA Ca:	Y
Cawrkld:	N
Subjca Tsd Discretion:	Y
NCAPS:	L
EC Indicator:	N
Ca725 Indicator:	+
Ca750 Indicator:	+
Operating Tsdf:	------
Full Enforcement:	------
Snc:	N
Unaddressed Snc:	N
Addressed Snc:	N
Snc With Comp Sched:	N
Fa Required:	-----
Hhandler Last Change:	20150414
Recognized Trader Importer:	N
Recognized Trader Exporter:	N
Slab Importer:	N
Slab Exporter:	N
Manifest Broker:	N
Subpart P:	N
Contact Language:	
Handler Name:	189 TONAWANDA ST CORP
Location Street No:	51
Location Street1:	PERRY ST
Location Street2:	
Location City:	BUFFALO
Location State:	NY
Location Zip:	14203
Location County Code:	NY029
Location County Name:	ERIE
Location Country:	US
Contact Name:	
Contact Street No:	51
Contact Street1:	PERRY ST
Contact Street2:	
Contact City:	BUFFALO
Contact State:	NY
Contact Zip:	14203
Contact Country:	US
Contact Phone & Ext:	
Contact Fax:	
Contact Email Address:	
Contact Title:	
Owner Name:	189 TANAWANDA ST CORP
Owner Type:	P
Owner Seq:	1
Operator Name:	DAYTON MALLEABLE INC.
Operator Type:	P
Operator Seq:	2
Public Notes:	

Handler Summary

Importer:	No	***Used Oil Transpor:***	No
Mixed Waste Gen:	No	***Used Oil Trans Fac:***	No
Transporter:	No	***Used Oil Processor:***	No
Transfer Facility:	No	***Used Oil Refiner:***	No
Recycler:	No	***Used Oil Burner:***	No
Onsite Burner Exem:	No	***Commercial TSD:***	No
Furnace Exemption:	No	***Recycl Nonstorage:***	No
Underground Injec:	No		
Used Oil Market Burner:	No		
Used Oil Spec Marketer:	No		

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19810930
Handler Name: 189 TONAWANDA ST CORP
Fed Waste Generator: 1
Generator Code Description: Large Quantity Generator
Source Type: Notification
TSD Activity: Y

Waste Code Details

Waste Code: D000
Waste Code Desc: DESCRIPTION

Waste Code: D006
Waste Code Desc: CADMIUM

Waste Code: X002
Waste Code Desc: DESCRIPTION

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19821228
Handler Name: 189 TONAWANDA ST CORP
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Part A
TSD Activity: Y

Waste Code Details

Waste Code: D000
Waste Code Desc: DESCRIPTION

Waste Code: D006
Waste Code Desc: CADMIUM

Hazardous Waste Handler Details

Seq No: 1
Receive Date: 19990208
Handler Name: 189 TONAWANDA ST CORP
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Waste Code Details

Waste Code: NONE
Waste Code Desc: DESCRIPTION

Hazardous Waste Handler Details

Seq No: 2
Receive Date: 20060101
Handler Name: 189 TONAWANDA ST CORP
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer

TSD Activity: N

Hazardous Waste Handler Details

Seq No: 3
Receive Date: 20070101
Handler Name: 189 TONAWANDA ST CORP
Fed Waste Generator: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer
TSD Activity: N

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Private
Name: 189 TANAWANDA ST CORP
Dt Became Current:
Dt Ended Current:
Phone: 513-298-5251
Source Type: Implementer
Street No:
Street1: PO BOX 98
Street2:
City: DAYTON
State: OH
Country: US
Zip: 45401

Owner/Operator Ind: Current Owner
Type: Private
Name: 189 TANAWANDA ST CORP
Dt Became Current:
Dt Ended Current:
Phone: 513-298-5251
Source Type: Notification
Street No:
Street1: PO BOX 98
Street2:
City: DAYTON
State: OH
Country:
Zip: 45401

Owner/Operator Ind: Current Operator
Type: Private
Name: DAYTON MALLEABLE INC.
Dt Became Current:
Dt Ended Current:
Phone: 513-298-5251
Source Type: Implementer
Street No:
Street1: P.O. BOX 98
Street2:
City: OPERCITY
State: OH
Country: US
Zip: 99999

Owner/Operator Ind: Current Operator
Type: Private
Name: DAYTON MALLEABLE INC.
Dt Became Current:
Dt Ended Current:
Phone: 513-298-5251
Source Type: Part A
Street No:
Street1: P.O. BOX 98
Street2:
City: OPERCITY
State: OH
Country:
Zip: 99999

Historical Handler Details

Receive Dt: 20060101
Generator Code Description: Not a Generator, Verified
Handler Name: 189 TONAWANDA ST CORP

Receive Dt: 19990208
Generator Code Description: Not a Generator, Verified
Handler Name: 189 TONAWANDA ST CORP

Receive Dt: 19821228
Generator Code Description: Not a Generator, Verified
Handler Name: 189 TONAWANDA ST CORP

Receive Dt: 19810930
Generator Code Description: Large Quantity Generator
Handler Name: 189 TONAWANDA ST CORP

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
77	1 of1	SW	0.66 / 3,491.96	571.99 / -20	Buffalo River - GLNPO Dredging Project Buffalo River and City Ship Canal Buffalo NY 14206	SHWS

Site Code:	555354
HW Code:	915324
Program:	HW
Site Class:	A
Site Name:	Buffalo River - GLNPO Dredging Project
Site Address:	Buffalo River and City Ship Canal
City:	Buffalo
Zip:	14206
County:	Erie
Region:	9
Town:	Buffalo (c)
Latitude:	42.862627000
Longitude:	-78.860836000
SWIS:	1502
Acres:	
Record Added:	2017-07-27 09:33:00
Record Update:	2022-12-16 13:24:00
Updated by:	AECAPRIO
Program Type (Web):	HW
Site Name (Web):	Buffalo River - GLNPO Dredging Project
Site Class (Web):	A
Address1 (Web):	Buffalo River and City Ship Canal
Address2 (Web):	
Locality (Web):	Buffalo
Zip Code (Web):	14206
County (Web):	Erie
Longitude (Web):	-78.860836000
Latitude (Web):	42.862627000
Site Name (GIS):	Buffalo River - GLNPO Dredging Project
Program (GIS):	HW
Site Class (GIS):	A
Address1 (GIS):	Buffalo River and City Ship Canal
Address2 (GIS):	
Locality (GIS):	Buffalo
Zip Code (GIS):	14206
Town (GIS):	Buffalo (c)
County (GIS):	Erie
Site Class Desc:	Active: The classification assigned to a non-registry site in any remedial program where work is underway and not yet complete (i. e., Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program and RCRA Corrective action Program sites). This may be used for Manufactured Gas Plant sites or those being remediated under an EPA Cooperative Agreement.
Site Class Desc (Web):	Active: The classification assigned to a non-registry site in any remedial program where work is underway and not yet complete (i. e., Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program and RCRA Corrective action Program sites). This may be used for Manufactured Gas Plant sites or those being remediated under an EPA Cooperative Agreement.
Site Class Desc (Geo):	Active: The classification assigned to a non-registry site in any remedial program where work is underway and not yet complete (i. e., Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program and RCRA Corrective action Program sites). This may be used for Manufactured Gas Plant sites or those being remediated under an EPA Cooperative Agreement.
Assess DOH:	
Data Source:	DEC Environmental Remediation Database Search - Remedial Site Search (Web); Environmental Remediation Sites; Remedial GIS (GIS); DEC Remediation Sites Boundaries (Geo)

Description:

Location: The International Joint Commission (IJC) has designated the Buffalo River as an "Area of Concern" (AOC). This designation indicates that the area exhibits a significant amount of environmental degradation, and that some beneficial uses of the water or biota are impaired. The Buffalo River AOC site is approximately 6.2 river miles in length, located in a highly developed urban area, extending from the mouth of the Buffalo River to NY-RT 62 (Bailey Avenue) and also includes the 1.4 miles of the City Ship Canal, all within the City of Buffalo, Erie County. Site Features: The site features include a variety of industrial, commercial, and recreational uses positioned along the banks of the Buffalo River. Current Zoning and Land Use: The site is used for industrial/commercial transport, navigation, and recreational purposes. The surrounding areas have been highly developed for commercial, industrial, and residential purposes. Past Use of the Site: The area surrounding the Buffalo River has historically been associated with heavy industrial loadings throughout the City of Buffalo's growth and development. Since the early 1800s, wastes have been discharged into the Buffalo River system, resulting in concentrations of various contaminants throughout the AOC. The area surrounding the Buffalo River at present remains highly industrialized and urban in nature. The main issues currently affecting the Buffalo River include reduced water quality, contaminated subsurface sediments, nearby inactive hazardous waste sites, municipal and industrial wastewater facilities, combined sewer overflows, and degradation of fish and wildlife habitat. Though

water quality problems still remain, abatement efforts and reductions in industrial and municipal discharges have been implemented in order to help improve the overall condition of the river system and minimize further contamination. Site Geology and Hydrology: The site is a Federal navigation channel maintained by the U.S. Army Corps of Engineers at a depth of 22 feet below low lake level datum. The river is classified as a Class D waterway and contains a gradient of less than one foot per mile. It is fed by three main tributaries consisting of Cazenovia Creek, Buffalo Creek, and Cayuga Creek.

Assessment:

Nature of Contamination: Sediment: Several investigations were conducted to delineate the nature and extent of the contamination (mainly total PAHs, total PCBs, lead, and mercury which served as indicator contaminants) within the Buffalo River AOC. Site investigations conducted in 2005, 2007 and 2008 identified the following: Total PAH surface concentrations ranged from nondetection up to 300 milligrams per kilogram (mg/kg), averaging 10 mg/kg. The maximum surface concentration was located in the City Ship Canal. The total PAH subsurface concentrations ranged from non-detection up to 1,800 mg/kg, averaging 29 mg/kg, with the maximum subsurface concentration located between RM 4.5 and 5.0. Total PCB surface concentrations ranged from nondetection up to 10 mg/kg, averaging 0.15 mg/kg, with the maximum surface concentration located between RM 4.0 and 4.5. Total PCB subsurface concentrations ranged from non-detection up to 160 mg/kg, averaging 0.7 mg/kg, with the maximum subsurface concentrations located between RM 5.0 and 5.5. Lead concentrations in the sediment surface ranged from 1.9 mg/kg to 2,700 mg/kg, averaging 161 mg/kg, with the maximum surface concentration located in the City Ship Canal between RM 0.0 and 0.5. The lead concentrations in the subsurface sediments ranged from 7.5 mg/kg to 8,500 mg/kg, averaging 136 mg/kg, with the maximum subsurface concentration located between RM 4.5 and 5.0. Mercury surface concentrations ranged from nondetection to 9.5 mg/kg, averaging 0.28 mg/kg, with the maximum surface concentration located between RM 3.5 and 4.0. The subsurface sediment mercury concentrations ranged from nondetection to 44 mg/kg, averaging 1.5 mg/kg, with the maximum subsurface concentrations located between RM 5.0 and 5.5. Petroleum contaminated sediment within several DMU locations were suspected and included in the remedial targets. Post Remediation: All remedial dredging and capping efforts have been completed. Environmental habitat restoration/enhancement projects have been implemented at 5 locations throughout the project area. Site management requires post remedial monitoring at year-2 and year-5 post remedial dredging with the objective of evaluating sediment quality to determine if the project's remedial goals were achieved, establishment success of the habitat enhancement projects, environmental cap integrity, and overall project success.

Materials Information

Waste Name: mercury
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: polychlorinated biphenyls (PCB)
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: polycyclic aromatic hydrocarbons (PAHS), total
Waste Quantity: UNKNOWN
Waste Code:

Waste Name: lead
Waste Quantity: UNKNOWN
Waste Code:

Projects Information

Project Code: 04
Project Desc: Remedial Design
Project Refer Name:
End Date: 2010-03-01 00:00:00
End Status: ACT
Operable Unit ID: 1303395
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Design

Project Code: 02
Project Desc: Remedial Investigation
Project Refer Name: Buffalo River GLNPO - RI
End Date: 2009-03-01 00:00:00
End Status: ACT
Operable Unit ID: 1303395
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Investigation

Project Code: 04

Project Desc: Remedial Design
Project Refer Name:
End Date: 2013-03-01 00:00:00
End Status: ACT
Operable Unit ID: 1303395
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Design

Project Code: 05
Project Desc: Remedial Action
Project Refer Name:
End Date: 2014-03-01 00:00:00
End Status: ACT
Operable Unit ID: 1303395
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Action

Project Code: 02
Project Desc: Remedial Investigation
Project Refer Name:
End Date: 2009-03-01 00:00:00
End Status: ACT
Operable Unit ID: 1303395
Operable Unit: 01
Operable Unit Desc: Remedial Program
Code Name: Remedial Investigation

Remedial Sites GIS

Program: HW
Site Class: A
Region: 9
X Coord: 184591.21756
Y Coord: 4752788.32981
Method: 4.2
Accuracy: Variable

Remedial GIS

Program: State Superfund Program
Site Class: A
County: Erie
Town: Buffalo (c)
Region: 9
X Coord: 184591.21756
Y Coord: 4752788.32981
Method: 4.2
Accuracy:
Accuracy Unit:

Environmental Remediation

Operable Unit: 01
Contaminants: lead; mercury; polychlorinated biphenyls (PCB); polycyclic aromatic hydrocarbons (PAHS), total

Environmental Remediation Site Borders

Program: State Superfund Program
Site Class: A
Method: 4.2
GIS Flag: 1
UTM X: 184591.21756
UTM Y: 4752788.32981
Site Name: Buffalo River - GLNPO Dredging Project
Address1: Buffalo River and City Ship Canal

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Address2:
Locality: Buffalo
Zipcode: 14206
County: Erie
Town: Buffalo (c)
Region: 9
Detail URL: https://appfactory.dec.ny.gov/DERExternalSearch/ERDDetails?SiteCode=915324

78	1 of1	NW	0.70 / 3,711.96	613.64 / 21	Vanadium Corporation of America 535 Washington St. Buffalo NY 14212	DELISTED SHWS

Description:

Assessment:

Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York

SC Nam1:
SC Nam2:
Owner: Niagara Mohawk Power Corp.
Type: OW
Type P: 003

79	1 of1	ESE	0.76 / 4,038.89	590.59 / -2	BUFFALO AAF DEPOT NO 1 BUFFALO NY	FUDS

FUDS Property No: C02NY0591
EMS Map Link: https://fudsportal.usace.army.mil/ems/inventory/map?id=57207
FUDS INST ID: NY29799F113300
Status: Properties without projects
SDS ID:
NPL Status Code:
Eligibility: Eligible
Site Eligib:
Current Owner: PRIV: PRIVATE SEVERAL COMMERCIAL ENTERPRISES
Has Project: No
DOD FUDS Pro: C02NY0591
Project Required: No
No Further Action:
Congressional District: 26
Congressional Dist 117: 26
Media ID:
Metadata ID:
Feature Desc:
EPA Region: 02
County: ERIE
Latitude: 42.87527778
Longitude: -78.85166667
Fiscal year: 2021
USACE Division: NAD
USACE District: New England District (NAE)
Centroid Lat:
Centroid Long:
Se Anno Cad Data:
Shape Length:
Shape Area:
Shape Len:
X: -78.85168457
Y: 42.8754272460001
Data Source: U.S. Army Corps of Engineers Geospatial Open Data
Property History:

Feature Description:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Several buildings on the property were used for storage. The easements were used for road access, a rail landing, construction of a boiler house and coal bin, and access for and construction of a water line. Based on the 1989 FDE, part of the leased area was reportedly used as a prisoner-of-war camp.

80	1 of1	NE	0.85 / 4,486.72	607.78 / 16	Buffalo Pumps Div-Buf. Forge Comp 490 Broadway Buffalo NY 14204	DELISTED SHWS

Description:

Assessment:

Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York

SC Nam1:
SC Nam2:
Owner: Buffalo Pumps Div.- Buffalo Forge
Type: OW
Type P:

Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York

SC Nam1:
SC Nam2:
Owner: Buffalo Pumps Div. Buffalo Forge Co.
Type: OP
Type P: 001

81	1 of1	E	0.86 / 4,544.12	592.43 / 0	Bristol Street 204 & 208 Bristol Street Buffalo NY 14206	SHWS

Site Code: 58396
HW Code: 915170
Program: HW
Site Class: C
Site Name: Bristol Street
Site Address: 204 & 208 Bristol Street
City: Buffalo
Zip: 14206
County: Erie
Region: 9
Town: Buffalo (c)
Latitude: 42.882052755
Longitude: -78.848145679
SWIS: 1502
Acres: 0.100
Record Added: 1999-11-18 12:00:00
Record Update: 2013-06-05 11:11:00
Updated by: GPSUTTON
Program Type (Web): HW
Site Name (Web): Bristol Street
Site Class (Web): C
Address1 (Web): 204 & 208 Bristol Street
Address2 (Web):
Locality (Web): Buffalo
Zip Code (Web): 14206
County (Web): Erie
Longitude (Web): -78.848145679
Latitude (Web): 42.882052755
Site Name (GIS): Bristol Street

Program (GIS):	HW
Site Class (GIS):	C
Address1 (GIS):	204 & 208 Bristol Street
Address2 (GIS):	
Locality (GIS):	Buffalo
Zip Code (GIS):	14206
Town (GIS):	Buffalo (c)
County (GIS):	Erie
Site Class Desc:	Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).
Site Class Desc (Web):	Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).
Site Class Desc (Geo):	Complete: The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program (i. e., State Superfund, Brownfield Cleanup Program, Environmental Restoration Program, Voluntary Cleanup Program, and RCRA Corrective Action Program). State Superfund (Registry) sites must have completed all active operation, maintenance, or monitoring requirements before they can be delisted and made class C. Non-registry sites may be made a class C after successful completion of all required construction or after a no further action remedy has been selected by the Department. These sites will be issued a Certificate of Completion (COC), but may still require ongoing maintenance and periodic certification of institutional/engineering controls (IC/ECs).
Assess DOH:	The site no longer poses a significant threat to public health since the USEPA removed the contaminated soils and cleaned and/or replaced PCB-contaminated surfaces within the adjacent residence.
Data Source:	DEC Environmental Remediation Database Search - Remedial Site Search (Web); Environmental Remediation Sites; Remedial GIS (GIS); DEC Remediation Sites Boundaries (Geo)

Description:

Location: The 0.30 acre Bristol Street Site is located at the corner of Emslie and Bristol Street at 208 Bristol Street in the City of Buffalo. This site is located in an urban area. Site Features: The site is located on the north side of Bristol Street and consists of a two-story single family residence at 204 Bristol Street and an adjacent vacant lot at 208 Bristol Street. The neighborhood is a residential area with a church located to the west, a playground to the south and residential properties to the north and east. Current Zoning/Use(s): The site is currently zoned as residential and residential vacant land. Historical Use(s): The property at 204 Bristol Street was the location of a residential home which reportedly had a long term history of reclaiming electrical transformers at the rear of the property. The adjacent empty lot, owned by the City of Buffalo, was also used as part of the reclaiming operation as a location for crude burning activities. The exact method of reclaiming is not known but it is deduced that copper taken from the transformers was cleaned by burning it in an open drum on-site. The operation reportedly ended in 1996. The City of Buffalo conducted a preliminary sampling program and initiated removal of approximately 80 cubic yards of soil on adjacent property at 208 Bristol Street in September 1997. In January 1998 the New York State Department of Environmental Conservation (NYSDEC) referred the site to the United States Environmental Protection Agency (USEPA) to perform an Emergency Removal Action (ERA) at the site due to the exposure of the contaminants to the public. The Environmental Protection Agency (EPA) remediated the site during the summer of 1998. A Record of Decision was signed in March 1999 that documented the removal action and concluded that no further action was necessary at the site. Site Geology and Hydrogeology: the geology of the area consists of approximately 6 to 24 inches of silty sand topsoil over an undetermined thickness of silty clay lake sediments. The Onondaga Limestone bedrock, which is 5 to 25 feet below the surface, is overlaid by clayey silt with some sand and traces of gravel. Storm water drainage from the site consists of overland flow toward Bristol Street and eventually into a local storm water receiver which discharges to the City's sewer system. There are no water bodies in the general vicinity of the site.

Assessment:

Nature and Extent of Contamination: Prior to Remediation: Samples of on-site soils showed Polychlorinated Biphenyls (PCB) levels of 650 ppm to 941 ppm. Off-site sampling results varied from 255 ppm to non-detect. All contaminated soil and debris was removed from the site and properly disposed of. The home at 204 Bristol Street was also cleaned, and contaminated material removed and properly disposed of. Post-Remediation: Confirmatory samples documented the removal of all waste. There are no remaining environmental problems associated with the disposal of hazardous waste at this site.

Materials Information

Waste Name:	PCBS (AROCLOR 1232,1248,1254,1260)
Waste Quantity:	UNKNOWN
Waste Code:	

Owner Information

Owner Op:	04
Sub Type:	E
Owner Name:	
Owner Company:	Louise May Ross
Owner Street:	204 BRISTOL STREET
Owner Street 2:	
Owner City:	BUFFALO
Owner State:	NY
Owner Zip:	14206
Country:	United States of America

Owner Op:	03
Sub Type:	NNN
Owner Name:	
Owner Company:	MS. LOUISE MAY ROSS
Owner Street:	
Owner Street 2:	
Owner City:	
Owner State:	ZZ
Owner Zip:	
Country:	United States of America

Owner Op:	01
Sub Type:	E
Owner Name:	
Owner Company:	Louise May Ross
Owner Street:	204 BRISTOL STREET
Owner Street 2:	
Owner City:	BUFFALO
Owner State:	NY
Owner Zip:	14206
Country:	United States of America

Owner Op:	01
Sub Type:	NNN
Owner Name:	
Owner Company:	City of Buffalo
Owner Street:	City Hall - Room 201
Owner Street 2:	
Owner City:	Buffalo
Owner State:	NY
Owner Zip:	14202
Country:	United States of America

Owner Op:	01
Sub Type:	E
Owner Name:	
Owner Company:	MS. LOUISE MAY ROSS
Owner Street:	1308 CITY HALL
Owner Street 2:	
Owner City:	BUFFALO
Owner State:	NY
Owner Zip:	14202
Country:	United States of America

HW Extra Information

Dump:	False	***Record Added:***	1999-11-18 12:00:00
Structure:	True	***Record Updated:***	1999-11-18 12:00:00
Lagoon:	False	***Disposal Start:***	unknown
Landfill:	True	***Disposal Terminate:***	1997
Pond:	False	***Latitude:***	42:52:09:0
Dell:	False	***Longitude:***	78:50:09:0
Updated By:	INITIAL		

Projects Information

Project Code:	02
Project Desc:	Remedial Investigation
Project Refer Name:	
End Date:	1999-03-01 00:00:00
End Status:	ACT
Operable Unit ID:	3189
Operable Unit:	01
Operable Unit Desc:	REMEDIAL PROGRAM
Code Name:	Remedial Investigation

Remedial Sites GIS

Program:	HW
Site Class:	C
Region:	9
X Coord:	185726.95745
Y Coord:	4754904.45397
Method:	4.3
Accuracy:	0 to 10 meters

Remedial GIS

Program:	State Superfund Program
Site Class:	C
County:	Erie
Town:	Buffalo (c)
Region:	9
X Coord:	185726.95745
Y Coord:	4754904.45397
Method:	4.3
Accuracy:	variable
Accuracy Unit:	

Environmental Remediation

Operable Unit:	01
Contaminants:	

Environmental Remediation Site Borders

Program:	State Superfund Program	***GIS Flag:***	1
Site Class:	C	***UTM X:***	185726.95745
Method:	4.3	***UTM Y:***	4754904.45397
Site Name:	Bristol Street		
Address1:	204 & 208 Bristol Street		
Address2:			
Locality:	Buffalo		
Zipcode:	14206		
County:	Erie		
Town:	Buffalo (c)		
Region:	9		
Detail URL:	https://appfactory.dec.ny.gov/DERExternalSearch/ERDDetails?SiteCode=915170		

82	***1 of1***	***NW***	***0.92 / 4,843.41***	***605.09 / 13***	***Bell Aerospace Textron-Airforce Plnt #38 111 West Huron St. Buffalo NY 14202***	***DELISTED SHWS***

Description:

Assessment:

Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York

SC Nam1:
SC Nam2:
Owner: U.S. General Services Administration
Type: OW
Type P:

83	1 of1	WSW	0.93 / 4,934.15	584.96 / -7	EASTERN LIMESTONE OPERATION ERIE COUNTY BUFFALO NY 14203	MRDS

Dep ID:	10150928	***I1:***	22
Dev Status:	PAST PRODUCER	***Latitude:***	42.875916
Code List:	STN_C	***Longitude:***	-78.882996
Url:	http://mrdata.usgs.gov/mrds/show-mrds.php?dep_id=10150928		

Commodity

I1:	48	***Line:***	1
Code:	STN_C	***Inserted By:***	MAS migration
Commodity:	Stone, Crushed/Broken	***Insert Date:***	29-OCT-02
Commodity Type:	Non-metallic	***Updated By:***	USGS
Commodity Group:	Stone, Crushed	***Update Date:***	29-OCT-02
Importance:	Primary		

Names

I1:	16	***Inserted By:***	MAS migration
Status:	Current	***Insert Date:***	29-OCT-02
Site Name:	Eastern Limestone Operation	***Updated By:***	USGS
Line:	1	***Update Date:***	29-OCT-02

84	1 of4	WNW	1.00 / 5,274.73	584.05 / -8	Nat Fuel, Buffalo Servicenter 249 West Genesee Street Buffalo 14202 NY	HSWDS

Reg Site ID:	U	***VOCs:***	
Site No:	HS9046	***Semi VOCs:***	
EPA ID:	None	***PCBs:***	
Is Site Active?:		***Pesticides:***	
Registry:	U	***Metals:***	
Years of Operation:		***Asbestos:***	
RCRA:		***County:***	Erie
HRS Score:		***Region:***	9
HRS Date:		***Latitude:***	
Acres:		***Longitude:***	
Site Code:	2A	***Quadrangle:***	
Site Code Desc:	Coal Gasification Plant		
Owner:	National Fuel		
Owner Name:			
Owner Address:			
Owner Telephone:			
Operator:	U		
Operator Name:			
Operator Address:			
Operator Telephone:			
Completed Investigation:			

Samples Collected:
Threat to Env/Public Health?:
Surface Water Contamination?:
Groundwater Contamination?:
Drinking Water Contam?:
Surface Water Class:
Groundwater Class:
Active Drinking Water Supply?:
Hazard Substance Exposed?:
Controlled Site Access?:
Ambient Air Contamination?:
Threat of Direct Contact?:
Doc Fish/Wildlife Mortality?:
Impact on Special Status?:
TCLP:
Surface Water:
Groundwater:
Drinking Water:
Fish or Wildlife Mortality:
Fish or Wildlife Resource:
Building:
Hazard Substance Disposed: coal gas by-products, complexed cyanide, semi-VOCs, VOCs
Air:
Surface Water:
Surface Soil:
Waste:
EP Toxicity:
Groundwater:
Sediment:
Subsurface Soil:
Leachate:
Regulatory Agencies Involved:
Preparer:
Nominated by:
Describe the Site: This is a former coal gas production site. Waste from the production facility was buried onslte. Based on investigations by the EPA (1992) and National Fuel, National Fuel developed a remedial plan, which was submitted to EPA. Upon approval by the EPA, National Fuel plans to implement the plan.
Describe the Threat:

The groundwater and soil are contaminated. The location of wells and water supply intakes is unknown.

84	2 of4	WNW	1.00 / 5,274.73	584.05 / -8	Nat Fuel, Buffalo Servicenter 249 West Genesee Street Buffalo 14202 NY	HSWDS

Reg Site ID:	U	***VOCs:***	Yes
Site No:	HS9046	***Semi VOCs:***	Yes
EPA ID:	None	***PCBs:***	No
Is Site Active?:	No	***Pesticides:***	No
Registry:	U	***Metals:***	Yes
Years of Operation:	1900 to 1946	***Asbestos:***	No
RCRA:	Unknown	***County:***	Erie
HRS Score:	U	***Region:***	9
HRS Date:	U	***Latitude:***	U
Acres:	0.00	***Longitude:***	U
Site Code:	2A	***Quadrangle:***	U
Site Code Desc:	Coal Gasification Plant		
Owner:	U		
Owner Name:	National Fuel		
Owner Address:	U		
Owner Telephone:	U		
Operator:	U		
Operator Name:	U		
Operator Address:	U		
Operator Telephone:	U		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Completed Investigation:	SOPSHA
Samples Collected:	Groundwater Surface Soil Subsurface Soil
Threat to Env/Public Health?:	E/P
Surface Water Contamination?:	Unknown
Groundwater Contamination?:	Unknown
Drinking Water Contam?:	Unknown
Surface Water Class:	U
Groundwater Class:	U
Active Drinking Water Supply?:	Unknown
Hazard Substance Exposed?:	Unknown
Controlled Site Access?:	Unknown
Ambient Air Contamination?:	U
Threat of Direct Contact?:	Unknown
Doc Fish/Wildlife Mortality?:	Unknown
Impact on Special Status?:	Unknown
TCLP:	
Surface Water:	
Groundwater:	
Drinking Water:	
Fish or Wildlife Mortality:	
Fish or Wildlife Resource:	
Building:	
Hazard Substance Disposed:	coal gas by-products, complexed cyanide, semi-VOCs, VOCs.
Air:	
Surface Water:	
Surface Soil:	Total cyanide 1300 mg/kg, lead 2750 mg/kg.
Waste:	
EP Toxicity:	
Groundwater:	Cyanides, phenols, benzene, toluene, xylenes all found above STD levels.
Sediment:	
Subsurface Soil:	Cyanide 31 mg/kg, ethyl benzene 82 mg/kg, xylene 130 mg/kg, coal tar compounds 600 mg/kg, lead 4090 mg/kg.
Leachate:	
Regulatory Agencies Involved:	NYSDEC USEPA
Preparer:	Julie Welch (jjs) Environmental Engineering Tech NYSDEC June 13, 1994
Nominated by:	
Describe the Site:	This is a former coal gas production site. Waste from the production facility was buried onsite. Based on investigations by the EPA (1992) and National Fuel, National Fuel developed a remedial plan, which was submitted to EPA. Upon approval by the EPA, National Fuel plans to implement the plan.
Describe the Threat:	

The groundwater and soil are contaminated. The location of wells and water supply intakes is unknown.

84	3 of4	WNW	1.00 / 5,274.73	584.05 / -8	Nat Fuel, Buffalo Servicenter 249 West Genesee Street Buffalo 14202 NY	HSWDS

Reg Site ID:	U	**VOCs:**	Yes
Site No:		**Semi VOCs:**	Yes
EPA ID:	None	**PCBs:**	No
Is Site Active?:	No	**Pesticides:**	No
Registry:	U	**Metals:**	Yes
Years of Operation:	1900 to 1946	**Asbestos:**	No
RCRA:	Unknown	**County:**	Erie
HRS Score:	U	**Region:**	9
HRS Date:	U	**Latitude:**	U
Acres:	0.00	**Longitude:**	U
Site Code:	2A	**Quadrangle:**	U
Site Code Desc:	Coal Gasification Plant		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Owner:	U
Owner Name:	National Fuel
Owner Address:	U
Owner Telephone:	U
Operator:	U
Operator Name:	U
Operator Address:	U
Operator Telephone:	U
Completed Investigation:	SOPSHA
Samples Collected:	Groundwater Surface Soil Subsurface Soil
Threat to Env/Public Health?:	E/P
Surface Water Contamination?:	Unknown
Groundwater Contamination?:	Unknown
Drinking Water Contam?:	Unknown
Surface Water Class:	U
Groundwater Class:	U
Active Drinking Water Supply?:	Unknown
Hazard Substance Exposed?:	Unknown
Controlled Site Access?:	Unknown
Ambient Air Contamination?:	U
Threat of Direct Contact?:	Unknown
Doc Fish/Wildlife Mortality?:	Unknown
Impact on Special Status?:	Unknown
TCLP:	
Surface Water:	
Groundwater:	
Drinking Water:	
Fish or Wildlife Mortality:	
Fish or Wildlife Resource:	
Building:	
Hazard Substance Disposed:	coal gas by-products, complexed cyanide, semi-VOCs, VOCs.
Air:	
Surface Water:	
Surface Soil:	Total cyanide 1300 mg/kg, lead 2750 mg/kg.
Waste:	
EP Toxicity:	
Groundwater:	Cyanides, phenols, benzene, toluene, xylenes all found above STD levels.
Sediment:	
Subsurface Soil:	Cyanide 31 mg/kg, ethyl benzene 82 mg/kg, xylene 130 mg/kg, coal tar compounds 600 mg/kg, lead 4090 mg/kg.
Leachate:	
Regulatory Agencies Involved:	NYSDEC USEPA
Preparer:	Julie Welch (jjs) Environmental Engineering Tech NYSDEC June 13, 1994
Nominated by:	
Describe the Site:	This is a former coal gas production site. Waste from the production facility was buried onsite.
Describe the Threat:	

The groundwater and soil are contaminated. The location of wells and water supply intakes is unknown.

84	4 of4	WNW	1.00 / 5,274.73	584.05 / -8	**Former Buffalo Service Station** **249 West Genesee Street** **Buffalo NY 14202**	MGP

Site Code:	C915194	**Acres:**	4.9
SWIS Code:	1502	**Region:**	9
Class:	C	**Town:**	Buffalo (c)
Disp Start:		**County:**	Erie
Disp Term:		**Latitude:**	42.885716804
Allowable Uses:	Commercial	**Longitude:**	-78.883029337

Detail(s)

Description:

Location: The Former Buffalo Service Station site is an approximately 4.9-acre site, located in an urban area, at 249 West Genesee Street in the City of Buffalo, Erie County. The site is about 1200 feet east of Lake Erie. Site Features: The site is comprised of two large office buildings surrounded by paved parking and small grassy areas. Current Zoning and Land Use: The site is zoned for commercial use and is currently used as an office building. Past Use of the Site: The site was the location of a former Manufactured Gas Plant (MGP) which was operated by various companies between 1848 and 1948. The site was initially investigated by the owner, National Fuel Gas, under the Voluntary Cleanup Program (VCP) (Site No. V00362) during the period 1989 to 2004. The investigation confirmed the presence of MGP wastes including benzene, toluene, ethylbenzene, xylenes, polycyclic aromatic hydrocarbons, and total cyanides in soil and groundwater at the site. Site Geology and Hydrogeology: Site investigations performed prior to remedial action indicated that the site was underlain by fill, soil, and bedrock. Groundwater was contained within the overburden materials at depths ranging from 2 to 8 feet below ground surface (fbgs), as well as within fractures in the bedrock. Underlying the fill was a low-permeability alluvium unit comprised predominantly of fine sand to clayey silt throughout the majority of the site. Bedrock was encountered below the alluvium at depths from 18 to 25 fbgs. The first bedrock unit is dark gray fractured limestone. Groundwater was previously found between 2 to 8 fbgs in the overburden materials. Groundwater elevation data from site monitoring wells have suggested radial flow, away from the center of the site, with major flow components to the south, east, and north. The nature of the flow is most likely the result of deep sewer lines to the north, south and east, immediately adjacent to the property line, and the buried Wilkeson slip to the north. Materials within the former slip were removed during the remedial activities conducted at the adjacent school site and low permeability fill was placed in the sewer and under the school. As a result, current and future groundwater movement across this area is expected to vary from previous conditions.

Assess ENV:

Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were benzene, toluene, ethylbenzene, and polycyclic aromatic hydrocarbons (PAHs) in soil and groundwater. Remedial actions have successfully achieved soil cleanup objectives for commercial use. Residual contamination in the groundwater is being managed under a Site Management Plan.

Assess DOH:

All contaminated soil and waste have been removed from the site. Groundwater beneath the site is contaminated, however, the area is served by public water so exposures via drinking water are not expected. Air samples taken within the Waterfront School in 1996 and 2002 did not detect site-related contaminants. A vapor intrusion mitigation system was installed in the Waterfront School.

Unplottable Summary

Total: 5 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID
FED BROWNFIELDS	Myrtle Avenue Former Railway	0 Myrtle Avenue ***Property ID:*** 254410	BUFFALO NY	14218	921834470
FINDS/FRS	MYRTLE AVENUE FORMER RAILWAY	0 MYRTLE AVENUE ***Registry ID:*** 110071982536	BUFFALO NY	14218	927510580
HIST RISK	Gallagher Harry P	2231 Chicago	Buffalo NY		926516682
RCRA LQG	NIAGARA MOHAWK POWER CORP MH91 & MH79	SWAN ST MH91 & MH79 ***Handler ID | Recycler Activity?:*** NYP000267914 | NO	BUFFALO NY	14220	927288612
RCRA LQG	NIAGARA MOHAWK POWER CORP MH93 & MH127	SWAN ST MH93 & MH127 ***Handler ID | Recycler Activity?:*** NYP000267898 | NO	BUFFALO NY	14210	927288611

Unplottable Report

Site: ***Myrtle Avenue Former Railway***
0 Myrtle Avenue BUFFALO NY 14218

FED BROWNFIELDS

Property ID:	254410	***County:***	ERIE
Lat Measure:	42.80954487516309	***Latitude (Map):***	42.8095448752
Long Measure:	-78.83184671641655	***Longitude (Map):***	-78.8318467164
Property Name:	Myrtle Avenue Former Railway		
Address:	0 Myrtle Avenue		
City:	BUFFALO		
State:	NY		
Zip Code:	14218		
Primary Name (Map):	MYRTLE AVENUE FORMER RAILWAY		
Location Address (Map):	0 MYRTLE AVENUE		
City Name (Map):	BUFFALO		
County Name (Map):	ERIE		
State Code (Map):	NY		
Postal Code (Map):	14218		
Data Source:	Cleanups in My Community (CIMC) Cleanups and Grants Listing Export - Brownfield Properties (as of 19 Feb 2025); Cleanups in My Community (CIMC) Web Application - Brownfield Properties (Map) (as of 4 Feb 2024)		

Property Details (Cleanups in My Community)

ID No:		***Size Acres:***	.64
NFA Letter Date:		***Parcel No:***	151.05-4-6.122
Media Affected:		***Property Enrolled:***	Y
Media Cleaned Up:		***Radius:***	.5
Contaminants REC:		***Census Tract:***	36029012400
Contams Actionable:		***2010 # Below Poverty:***	442.
Contams < Actionble:		***2010 Below Poverty:***	22.16
Contamnts Cleanup:		***2010 Median Income:***	2360.
Tanks Removal:		***2010 No Low Income:***	1005.
Cleanup Needed:	U	***2010 Low Income:***	50.38
Cleanup Treatment:		***2010 No Vacant Hous:***	239.
Excavation Disposl:		***2010 Vacant Housing:***	18.07
Contams Extractn:		***2010 # Unemployed:***	86.
Reduc Contams:		***2010 Unemployed:***	4.31
Additional Clnup:		***Tech Capping:***	
Institutional Cleanup:		***Secur Guard Fence:***	
Institutional Cleanup:		***Immobilization:***	
Engineering Needed:		***Eng Barriers:***	
Eng Control:		***Proprietary Cntrl:***	
Additnl Inst Control:		***Info Device:***	
Additnl Eng Control:		***Govt Cntrl:***	
Inst Control Date:		***Enf Permit Tool:***	
Eng Control Date:		***Clnup Struct Remov:***	
Property Alias:			
Property Owner:	Private		
Address Source URL:			
Address Source URL:			
Address Source URL:			
Other:			

Activity Details(Cleanups in My Community)

Coop Agmt No:	96242700	***Redev Actvy Funded:***	Phase I Environmental Assessment
Program Name:	BF	***Redev Start Dt:***	
Activity Funded:	Phase I Environmental Assessment	***Redev Compl date:***	
Type CA Fund:		***Redev Fund Entity:***	
Funding Entity:	EPA	***Redev Residential:***	
Assessmnt Start Dt:	06/01/2022	***Redev Greenspace:***	

Assessmnt Compl Dt: 12/22/2022
Clnup Actvy Start Dt:
Clnup Actvy Comp Dt:
Acres Cleaned Up:
Clnup Funding Src:
Clnup Entity Provid:
Signed Rpt Dt:
Direct Clnup Tot Fnd:
Direct Clnup Fnd Src:
Fund Amt Expnded:
Source of Funding:
Past Use Resiential:
Past Use Greenspace: .64
Past Use Industrial:
Past Use Commercial:
Coop Agmt Recipnt: Cty Lackawanna - City of Lackawanna
Clnup Compet Doc2:
Climate Adapt Mitg1:
Climate Adapt Mitg2:
Climate Adaptation And Mitigat:

Redev Industrial:
Redev Commercial:
# of Redev Jobs:
RLF Signed Dt:
RLF Intest Rate:
RLF EPA Fund:
RLF Cost Share:
RLF Prog Income:
RLF Lvg Fund Src:
RLF Lvg Fund Entity:
RLF Lvg Fund Amt:
RLF Subgrant Signed:
Subgrant EPA Fund:
Subgrant Cost Shr:

Activity Details(Cleanups in My Community)

Coop Agmt No: 96242700
Program Name: BF
Activity Funded:
Type CA Fund:
Funding Entity:
Assessmnt Start Dt:
Assessmnt Compl Dt:
Clnup Actvy Start Dt:
Clnup Actvy Comp Dt:
Acres Cleaned Up:
Clnup Funding Src:
Clnup Entity Provid:
Signed Rpt Dt:
Direct Clnup Tot Fnd:
Direct Clnup Fnd Src:
Fund Amt Expnded:
Source of Funding:
Past Use Resiential:
Past Use Greenspace: .64
Past Use Industrial:
Past Use Commercial:
Coop Agmt Recipnt: Cty Lackawanna - City of Lackawanna
Clnup Compet Doc2:
Climate Adapt Mitg1:
Climate Adapt Mitg2:
Climate Adaptation And Mitigat:

Redev Actvy Funded: Phase I Environmental Assessment
Redev Start Dt:
Redev Compl date:
Redev Fund Entity:
Redev Residential:
Redev Greenspace:
Redev Industrial:
Redev Commercial:
# of Redev Jobs:
RLF Signed Dt:
RLF Intest Rate:
RLF EPA Fund:
RLF Cost Share:
RLF Prog Income:
RLF Lvg Fund Src:
RLF Lvg Fund Entity:
RLF Lvg Fund Amt:
RLF Subgrant Signed:
Subgrant EPA Fund:
Subgrant Cost Shr:

Activity Details(Cleanups in My Community)

Coop Agmt No: 96242700
Program Name: BF
Activity Funded:
Type CA Fund:
Funding Entity:
Assessmnt Start Dt:
Assessmnt Compl Dt:
Clnup Actvy Start Dt:
Clnup Actvy Comp Dt:
Acres Cleaned Up:
Clnup Funding Src:
Clnup Entity Provid:
Signed Rpt Dt:
Direct Clnup Tot Fnd:
Direct Clnup Fnd Src:

Redev Actvy Funded: Phase I Environmental Assessment
Redev Start Dt:
Redev Compl date:
Redev Fund Entity:
Redev Residential:
Redev Greenspace:
Redev Industrial:
Redev Commercial:
# of Redev Jobs:
RLF Signed Dt:
RLF Intest Rate:
RLF EPA Fund:
RLF Cost Share:
RLF Prog Income:
RLF Lvg Fund Src:

Fund Amt Expnded:		***RLF Lvg Fund Entity:***	
Source of Funding:		***RLF Lvg Fund Amt:***	
Past Use Resiential:		***RLF Subgrant Signed:***	
Past Use Greenspace:	.64	***Subgrant EPA Fund:***	
Past Use Industrial:		***Subgrant Cost Shr:***	
Past Use Commercial:			
Coop Agmt Recipnt:	Cty Lackawanna - City of Lackawanna		
Clnup Compet Doc2:			
Climate Adapt Mitg1:			
Climate Adapt Mitg2:			
Climate Adaptation And Mitigat:			

Brownfields Details

Registry I:	110071398204	***SF El He C:***	
EPA ID:		***SF IC Ind:***	
EPA Region:	02	***SF NPL Cod:***	
Cat No:		***SF NPL C 1:***	
RCRA Handl:		***FF SF Ind:***	
RCRA Curre:		***Map Symbol:***	B
RCRA Remed:		***Data Refre:***	04-Feb-2024
RCRA Const:		***New Site:***	
RCRA El He:		***BF RLF Gra:***	
RCRA El Gm:		***BF RLF Pil:***	
RCRA Rem 1:		***BF Assess :***	
RCRA Ec Gw:		***BF Cleanup:***	
RCRA Ec Ng:		***BF Tba Ind:***	
RCRA IC Ep:		***BF 128a In:***	
RCRA IC Gc:		***BF IC Code:***	U
RCRA IC ID:		***BF IC Gc I:***	U
RCRA IC Pr:		***BF IC Ep I:***	U
FF RCRA In:		***BF IC ID I:***	U
RCRA Ec Co:		***BF IC Pr I:***	U
RCRA IC Co:		***BF Assess1:***	Y
RCRA Gpra :		***BF Multipu:***	
RCRA Rem 2:		***BF Awp Ind:***	
RCRA Dru 1:		***BF Showcas:***	
SF Site ID:		***BF 128a P :***	
SF Ec Ind:		***Congressio:***	
SF El Gm C:		***Stimulus B:***	
Ind Name:			
Cat Name:			
Sub Name:			
Primary Name:	MYRTLE AVENUE FORMER RAILWAY		
RCRA Drupa:			
Repow Ref :			
Url:	https://obipublic11.epa.gov/analytics/saw.dll?PortalPages&Action=Navigate&col1=ACRES_GRANT_EXPORT.PROPERTY_ID&val1=%22254410.0%22&PortalPath=/shared/CIMC/_portal/CIMC&Page=Profile+Page		
Census Url:	https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?report=census2010sf1&coords=-78.8318467164165%2C42.8095448751631&feattype=point&radius=1.0		
ACS Url:	https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?report=acs2017&coords=-78.8318467164165%2C42.8095448751631&feattype=point&radius=1.0		

SAA Site:	
Sf Brac Ty:	
Sf Archive:	
Sf Ffdocke:	
Sf Npl C 3:	
Sf Npl C 2:	
Sf Npl C 1:	
SF Site Na:	
SF Non N 1:	
SF Non N 2:	
SF Non N 3:	
SF Non Npl:	
BF Prope 1:	Myrtle Avenue Former Railway
RCRA Han 1:	
RCRA Rau I:	
REPOW BF:	

REPOW Re 1:
REPOW Ref1:

Site: ***MYRTLE AVENUE FORMER RAILWAY***
0 MYRTLE AVENUE BUFFALO NY 14218

FINDS/FRS

Registry ID:	110071982536
FIPS Code:	
HUC Code:	04120103
Site Type Name:	BROWNFIELDS SITE
Location Description:	
Supplemental Location:	
Create Date:	15-JUL-25
Update Date:	
Interest Types:	BROWNFIELDS PROPERTY
SIC Codes:	
SIC Code Descriptions:	
NAICS Codes:	
NAICS Code Descriptions:	
Conveyor:	FRS-GEOCODE
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No:	27
Census Block Code:	360290124002009
EPA Region Code:	02
County Name:	ERIE
US/Mexico Border Ind:	
Latitude:	42.80921
Longitude:	-78.83184
Reference Point:	ENTRANCE POINT OF A FACILITY OR STATION
Coord Collection Method:	ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value:	50
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110071982536
Program Acronyms:	

ACRES:254410

Site: ***Gallagher Harry P***
2231 Chicago Buffalo NY

HIST RISK

Historic Potential Business Activity Risk

Year:	1950
Directory Publisher:	POLKS
Broad Term:	Fuel and Automotive
Directory Heading:	GASOLINE STATIONS
Listing:	Gallagher Harry P
Address:	2231 Chicago
Address2:	
City:	Buffalo
State:	NY
Zip:	

Site: ***NIAGARA MOHAWK POWER CORP MH91 & MH79***
SWAN ST MH91 & MH79 BUFFALO NY 14220

RCRA LQG

Handler ID:	NYP000267914
Generator Status:	LQG
Recycler Activity?:	NO
Recycler Activity Note:	This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note: NO RECORDS: As of Apr 2025, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer:	No	***Used Oil Transpor:***	No
Mixed Waste Gen:	No	***Used Oil Trans Fac:***	No
Transporter:	No	***Used Oil Processor:***	No
Transfer Facility:	No	***Used Oil Refiner:***	No
Recycler:	No	***Used Oil Burner:***	No
Onsite Burner Exem:	No	***Commercial TSD:***	No
Furnace Exemption:	No	***Recycl Nonstorage:***	No
Underground Injec:	No		
Used Oil Market Burner:	No		
Used Oil Spec Marketer:	No		

Additional Handler Summary Details

Source Type:	T	***NAIC 1:***	221122
Seq No:	1	***NAIC 2:***	
Non Notifier:		***NAIC 3:***	
Receive Date:	20250117	***NAIC 4:***	
Active Site:	H----	***State:***	NY
Land Type:	P	***Location Latitude:***	
In Handler Univ:	Y	***Location Longitude:***	
In A Universe:	Y	***Loc GIS Primary:***	N
Gen Status:	LQG	***Loc GIS Origin:***	
Report Cycle:		***State District Owner:***	NY
Accessibility:		***State District:***	NYSDEC R9
Region:	02		
Fed Waste Gen Owner:	HQ		
State Waste Generator Owner:	NY		
State Waste Generator:	1		
Short Term Generator:	Y		
Uni Waste:	N		
Universal Waste Dest Facility:	N		
Federal Universal Waste:	N		
As Federally Regulated Tsdf:	------		
As Converter Tsdf:	------		
As State Regulated Tsdf:	------		
As State Regulated Handler:	---		
Federal Indicator:	---		
Hsm:	N		
Subpart K:	----		
GPRA Permit:	N		
GPRA Renewal:	N		
Permit Renewal WrkId:	------		
Permwrk ID:	------		
Perm Prog:	------		
Pcwrkld:	------		
Closwrkld:	------		
GPRA Ca:	N		
Cawrkld:	N		
Subjca Tsd Discretion:	N		
NCAPS:	N		
EC Indicator:	N		
Ca725 Indicator:	N		
Ca750 Indicator:	N		
Operating Tsdf:	------		
Full Enforcement:	------		
Snc:	N		
Unaddressed Snc:	N		
Addressed Snc:	N		
Snc With Comp Sched:	N		
Fa Required:	-----		

Hhandler Last Change:	20250317
Recognized Trader Importer:	N
Recognized Trader Exporter:	N
Slab Importer:	N
Slab Exporter:	N
Manifest Broker:	N
Subpart P:	N
Contact Language:	EN
Handler Name:	NIAGARA MOHAWK POWER CORP MH91 & MH79
Location Street No:	
Location Street1:	SWAN ST MH91 & MH79
Location Street2:	
Location City:	BUFFALO
Location State:	NY
Location Zip:	14220
Location County Code:	NY029
Location County Name:	ERIE
Location Country:	US
Contact Name:	PAIGE PARSONS
Contact Street No:	144
Contact Street1:	KENSINGTON AVE
Contact Street2:	
Contact City:	BUFFALO
Contact State:	NY
Contact Zip:	14214
Contact Country:	US
Contact Phone & Ext:	315-640-0593
Contact Fax:	
Contact Email Address:	PAIGE.PARSONS@NATIONALGRID.COM
Contact Title:	DIVISIONAL ENGINEER
Owner Name:	NIAGARA MOHAWK POWER CORP A NATIONAL GRID CO
Owner Type:	P
Owner Seq:	1
Operator Name:	NIAGARA MOHAWK POWER CORP A NATIONAL GRID CO
Operator Type:	P
Operator Seq:	2
Public Notes:	

DATE OF INCIDENT 1/14/2025 (UNKNOWN QUANTITY OF WATER, SLUDGE, DIRT & OTHER FINE DEBRIS CONTAMINATED W/ PCB) CLEAN-UP CONTRACTOR SUN ENVIRONMENTAL CORP TRANSPORTER SUN ENVIRONMENTAL CORP NYR000176958 TSDF CLEAN HARBORS DEER PARK TXD055141378 DATE OF EXPECTED CLEAN-UP 1/14/2025 PAIGE PARSONS 315-640-0593 PAIGE.PARSONS@NATIONALGRID.COM NATHAN BUTERA 315-474-1511 NATHAN.BUTERA@NATIONALGRID.COM

Hazardous Waste Handler Details

Seq No:	1
Receive Date:	20250117
Handler Name:	NIAGARA MOHAWK POWER CORP MH91 & MH79
Fed Waste Generator:	1
Generator Code Description:	Large Quantity Generator
Source Type:	Temporary
TSD Activity:	N

Waste Code Details

Waste Code:	B002
Waste Code Desc:	Petroleum oil or other liquid containing 50 ppm or greater of PCBs, but less than 500 ppm PCBs. This includes oil from electrical equipment whose PCB concentration is unknown, except for circuit breakers, reclosers, rectifiers and cable.
Waste Code:	B007
Waste Code Desc:	Other PCB wastes, including contaminated soil, solids, sludges, clothing, rags and dredge material.

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	300
Type:	Private	***Street1:***	ERIE BLVD WEST
Name:	NIAGARA MOHAWK POWER CORP A	***Street2:***	

	NATIONAL GRID CO		
Dt Became Current:	20000905	***City:***	SYRACUSE
Dt Ended Current:		***State:***	NY
Phone:	315-474-1511	***Country:***	US
Source Type:	Temporary	***Zip:***	13202
Owner/Operator Ind:	Current Owner	***Street No:***	300
Type:	Private	***Street1:***	ERIE BLVD WEST
Name:	NIAGARA MOHAWK POWER CORP A NATIONAL GRID CO	***Street2:***	
Dt Became Current:	20000905	***City:***	SYRACUSE
Dt Ended Current:		***State:***	NY
Phone:	315-474-1511	***Country:***	US
Source Type:	Temporary	***Zip:***	13202

Site: ***NIAGARA MOHAWK POWER CORP MH93 & MH127***
SWAN ST MH93 & MH127 BUFFALO NY 14210

RCRA LQG

Handler ID:	NYP000267898
Generator Status:	LQG
Recycler Activity?:	NO
Recycler Activity Note:	This facility has not been identified as a Recycler Facility from both the RCRA Handler and Biennial Report Modules.

Violation/Evaluation Summary

Note:	NO RECORDS: As of Apr 2025, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer:	No	***Used Oil Transpor:***	No
Mixed Waste Gen:	No	***Used Oil Trans Fac:***	No
Transporter:	No	***Used Oil Processor:***	No
Transfer Facility:	No	***Used Oil Refiner:***	No
Recycler:	No	***Used Oil Burner:***	No
Onsite Burner Exem:	No	***Commercial TSD:***	No
Furnace Exemption:	No	***Recycl Nonstorage:***	No
Underground Injec:	No		
Used Oil Market Burner:	No		
Used Oil Spec Marketer:	No		

Additional Handler Summary Details

Source Type:	T	***NAIC 1:***	221122
Seq No:	1	***NAIC 2:***	
Non Notifier:		***NAIC 3:***	
Receive Date:	20250117	***NAIC 4:***	
Active Site:	H----	***State:***	NY
Land Type:	P	***Location Latitude:***	
In Handler Univ:	Y	***Location Longitude:***	
In A Universe:	Y	***Loc GIS Primary:***	N
Gen Status:	LQG	***Loc GIS Origin:***	
Report Cycle:		***State District Owner:***	NY
Accessibility:		***State District:***	NYSDEC R9
Region:	02		
Fed Waste Gen Owner:	HQ		
State Waste Generator Owner:	NY		
State Waste Generator:	1		
Short Term Generator:	Y		
Uni Waste:	N		
Universal Waste Dest Facility:	N		
Federal Universal Waste:	N		
As Federally Regulated Tsdf:	------		
As Converter Tsdf:	------		
As State Regulated Tsdf:	------		
As State Regulated Handler:	---		
Federal Indicator:	---		

Hsm:	N
Subpart K:	----
GPRA Permit:	N
GPRA Renewal:	N
Permit Renewal Wrkld:	------
Permwrk ID:	------
Perm Prog:	------
Pcwrkld:	------
Closwrkld:	------
GPRA Ca:	N
Cawrkld:	N
Subjca Tsd Discretion:	N
NCAPS:	N
EC Indicator:	N
Ca725 Indicator:	N
Ca750 Indicator:	N
Operating Tsdf:	------
Full Enforcement:	------
Snc:	N
Unaddressed Snc:	N
Addressed Snc:	N
Snc With Comp Sched:	N
Fa Required:	-----
Hhandler Last Change:	20250317
Recognized Trader Importer:	N
Recognized Trader Exporter:	N
Slab Importer:	N
Slab Exporter:	N
Manifest Broker:	N
Subpart P:	N
Contact Language:	EN
Handler Name:	NIAGARA MOHAWK POWER CORP MH93 & MH127
Location Street No:	
Location Street1:	SWAN ST MH93 & MH127
Location Street2:	
Location City:	BUFFALO
Location State:	NY
Location Zip:	14210
Location County Code:	NY029
Location County Name:	ERIE
Location Country:	US
Contact Name:	PAIGE PARSONS
Contact Street No:	144
Contact Street1:	KENSINGTON AVE
Contact Street2:	
Contact City:	BUFFALO
Contact State:	NY
Contact Zip:	14214
Contact Country:	US
Contact Phone & Ext:	315-640-0593
Contact Fax:	
Contact Email Address:	PAIGE.PARSONS@NATIONALGRID.COM
Contact Title:	DIVISIONAL ENGINEER
Owner Name:	NIAGARA MOHAWK POWER CORP A NATIONAL GRID CO
Owner Type:	P
Owner Seq:	1
Operator Name:	NIAGARA MOHAWK POWER CORP A NATIONAL GRID CO
Operator Type:	P
Operator Seq:	2
Public Notes:	

DATE OF INCIDENT 1/15/2025 (UNKNOWN QUANTITY OF WATER, SLUDGE, DIRT & FINE DEBRIS CONTAMINATED W/ PCB) CLEAN-UP CONTRACTOR SUN ENVIRONMENTAL CORP TRANSPORTER SUN ENVIRONMENTAL CORP NYR000176958 TSDF CLEAN HARBORS DEER PARK TXD055141378 DATE OF EXPECTED CLEANUP 1/15/2025 PAIGE PARSONS 315-640-0593 PAIGE.PARSONS@NATIONALGRID.COM NATHAN BUTERA 315-474-1511 NATHAN.BUTERA@NATIONALGRID.COM

Hazardous Waste Handler Details

Seq No: 1

Receive Date:	20250117
Handler Name:	NIAGARA MOHAWK POWER CORP MH93 & MH127
Fed Waste Generator:	1
Generator Code Description:	Large Quantity Generator
Source Type:	Temporary
TSD Activity:	N

Waste Code Details

Waste Code:	B002
Waste Code Desc:	Petroleum oil or other liquid containing 50 ppm or greater of PCBs, but less than 500 ppm PCBs. This includes oil from electrical equipment whose PCB concentration is unknown, except for circuit breakers, reclosers, rectifiers and cable.
Waste Code:	B007
Waste Code Desc:	Other PCB wastes, including contaminated soil, solids, sludges, clothing, rags and dredge material.

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	300
Type:	Private	***Street1:***	ERIE BLVD WEST
Name:	NIAGARA MOHAWK POWER CORP A NATIONAL GRID CO	***Street2:***	
Dt Became Current:	20000905	***City:***	SYRACUSE
Dt Ended Current:		***State:***	NY
Phone:	315-474-1511	***Country:***	US
Source Type:	Temporary	***Zip:***	13202
Owner/Operator Ind:	Current Operator	***Street No:***	300
Type:	Private	***Street1:***	ERIE BLVD WEST
Name:	NIAGARA MOHAWK POWER CORP A NATIONAL GRID CO	***Street2:***	
Dt Became Current:	20000905	***City:***	SYRACUSE
Dt Ended Current:		***State:***	NY
Phone:	315-474-1511	***Country:***	US
Source Type:	Temporary	***Zip:***	13202

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13 and E1527-21, Section 8.1.8 Sources of Standard Source Information:

"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."

Standard Environmental Record Sources

Federal

National Priority List: NPL

The U.S. Environmental Protection Agency (EPA)'s National Priorities List (NPL) includes the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program, based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action. This data includes NPL sites represented as polygons, where available, that can be sourced from the EPA NPL Superfund Site Boundaries dataset, refreshed by the Shared Enterprise Geodata and Services (SEGS), and is limited to those sites where the NPL Status reflects the site is 'Currently on the Final NPL (F)' and/or the 'Site is Part of NPL Site (A)'. These site boundaries represent the footprint of a whole site, the sum of all the Operable Units (OUs) and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. As site investigation and remediation progress, OUs may be added, modified or refined. Data provided by external parties is not independently verified by EPA. This boundary data is made available to the public strictly for informational purposes. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Jun 19, 2025

National Priority List - Proposed: PROPOSED NPL

Sites proposed by the U.S. Environmental Protection Agency (EPA), the state agency, or concerned citizens for addition to the National Priorities List (NPL) due to contamination by hazardous waste and identified by the EPA as a candidate for cleanup because it poses a risk to human health and/or the environment. Sites represented as polygons, where available, can be sourced from the EPA NPL Superfund Site Boundaries dataset, refreshed by the Shared Enterprise Geodata and Services (SEGS). These site boundaries represent the footprint of a whole site, the sum of all the Operable Units (OUs) and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Data provided by external parties is not independently verified by EPA. This boundary data is made available to the public strictly for informational purposes. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Jun 19, 2025

Deleted NPL: DELETED NPL

Sites deleted from the U.S. Environmental Protection Agency (EPA)'s National Priorities List (NPL). The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate. Sites represented as polygons, where available, can be sourced from the EPA NPL Superfund Site Boundaries dataset, refreshed by the Shared Enterprise Geodata and Services (SEGS). These site boundaries represent the footprint of a whole site, the sum of all the Operable Units (OUs) and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Data provided by external parties is not independently verified by EPA. This boundary data is made available to the public strictly for informational purposes. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Jun 19, 2025

SEMS List 8R Active Site Inventory: SEMS

The U.S. Environmental Protection Agency's (EPA) Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted. This data includes SEMS sites from the List 8R Active file as well as applicable sites from the EPA's Facility Registry Service map tool.

Government Publication Date: Jun 26, 2025

SEMS List 8R Archive Sites: SEMS ARCHIVE

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. This data includes sites from the List 8R Archived site file.

Government Publication Date: Jun 26, 2025

Inventory of Open Dumps, June 1985: ODI

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

Government Publication Date: Jun 1985

EPA Report on the Status of Open Dumps on Indian Lands: IODI

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

Government Publication Date: Dec 31, 1998

Comprehensive Environmental Response, Compensation and Liability Information System - CERCLIS: CERCLIS

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

Government Publication Date: Oct 25, 2013

CERCLIS - No Further Remedial Action Planned: CERCLIS NFRAP

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Government Publication Date: Oct 25, 2013

CERCLIS Liens: CERCLIS LIENS

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA). This database was provided by the United States Environmental Protection Agency (EPA). Refer to SEMS LIEN as the current data source for Superfund Liens.

Government Publication Date: Jan 30, 2014

RCRA CORRACTS-Corrective Action: RCRA CORRACTS

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

Government Publication Date: Apr 14, 2025

RCRA non-CORRACTS TSD Facilities: RCRA TSD

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites that have indicated engagement in the treatment, storage, or disposal of hazardous waste which requires a RCRA hazardous waste permit.

Government Publication Date: Apr 14, 2025

RCRA Generator List: RCRA LQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste. This list also includes RCRAInfo sites that have notified as LQGs that do not have a registered Site Manager or Certifier in RCRAInfo.

Government Publication Date: Apr 14, 2025

RCRA Small Quantity Generators List: RCRA SQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month. This list also includes RCRAInfo sites that have notified as SQGs that do not have a registered Site Manager or Certifier in RCRAInfo.

Government Publication Date: Apr 14, 2025

RCRA Very Small Quantity Generators List: RCRA VSQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Very Small Quantity Generators (VSQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

Government Publication Date: Apr 14, 2025

RCRA Non-Generators: RCRA NON GEN

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

Government Publication Date: Apr 14, 2025

RCRA Sites with Controls: RCRA CONTROLS

List of Resource Conservation and Recovery Act (RCRA) facilities with institutional controls in place. RCRA gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

Government Publication Date: Apr 14, 2025

Federal Engineering Controls-ECs: FED ENG

List of Engineering controls (ECs) made availabe by the United States Environmental Protection Agency (EPA). ECs encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. The EC listing includes remedy component data from Superfund decision documents for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Jul 29, 2025

Federal Institutional Controls- ICs: FED INST

List of Institutional controls (ICs) made available by the United States Environmental Protection Agency (EPA). ICs are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site. The IC listing includes remedy component data from Superfund decision documents for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Jul 29, 2025

Land Use Controls Information System: LUCIS

The Land Use Controls Information System (LUCIS) database is sourced from the U.S. Department of the Navy (DON). This data contains information for former Base Realignment and Closure (BRAC) properties across the United States. DON's BRAC office was tasked with tracking certain base closures while requiring the prevention of risks to human health and the environment of those properties with LUCs in place. Regarding currently available LUC Sites data, the sites listing is limited to centroid point locations for the overall installation property boundaries. Formerly obtained LUC Sites data may reflect site details that applied previously for a BRAC property.

Government Publication Date: Jun 13, 2024

Institutional Control Boundaries at NPL sites: NPL IC

These boundaries of Institutional Control areas at sites on the U.S. Environmental Protection Agency's (EPA) National Priorities List (NPL), or as Proposed or Deleted, are sourced from the EPA NPL Superfund Site Boundaries dataset, refreshed by the Shared Enterprise Geodata and Services (SEGS). The EPA's NPL includes the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. Institutional controls are non-engineered instruments such as administrative and legal controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Data provided by external parties is not independently verified by EPA. This boundary data is made available to the public strictly for informational purposes.

Government Publication Date: Jun 19, 2025

Emergency Response Notification System: ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1982-1986

Emergency Response Notification System: ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1987-1989

Emergency Response Notification System: ERNS

Database of oil and hazardous substances spill reports made available by the United States Coast Guard National Response Center (NRC). The NRC fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. These data contain initial incident data that has not been validated or investigated by a federal/state response agency.

Government Publication Date: Jun 22, 2025

The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database: FED BROWNFIELDS

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This data is provided by the United States Environmental Protection Agency (EPA) and includes Brownfield sites from the Cleanups in My Community (CIMC) web application.

Government Publication Date: Feb 19, 2025

FEMA Underground Storage Tank Listing: FEMA UST

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

Government Publication Date: Dec 31, 2017

Facility Response Plan: FRP

This listing contains facilities that have submitted Facility Response Plans (FRPs) to the U.S. Environmental Protection Agency (EPA). Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit FRPs. Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments. This listing includes FRP facilities from an applicable EPA FOIA file and Homeland Infrastructure Foundation-Level Data (HIFLD) data file.

Government Publication Date: Jan 9, 2024

Delisted Facility Response Plans: DELISTED FRP

Facilities that once appeared in - and have since been removed from - the list of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

Government Publication Date: Jan 9, 2024

Historical Gas Stations: HIST GAS STATIONS

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

Government Publication Date: Jul 1, 1930

Petroleum Refineries: REFN

This list of petroleum refineries is sourced from the U.S. Energy Information Administration (EIA), Refinery Capacity Report. The listing includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year. The geographic area the report covers is the 50 States, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, Guam, and other U.S. possessions. Per the EIA, the facility location data represents the approximate location based on research of publicly available information from sources such as Federal agencies, company websites, and satellite images on public websites.

Government Publication Date: Oct 31, 2024

Petroleum Product and Crude Oil Rail Terminals: BULK TERMINAL

A list of petroleum product and crude oil rail terminals from the U.S. Energy Information Administration (EIA), as well as petroleum terminals sourced from Oak Ridge National Laboratory hosted by the Homeland Infrastructure Foundation-Level Database. Data includes operable bulk petroleum product terminals with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil with activity between 2017 and 2018. EIA petroleum product terminal data comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings.

Government Publication Date: Jun 5, 2025

LIEN on Property: SEMS LIEN

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) provides Lien details on applicable properties, such as the Superfund lien on property activity, the lien property information, and the parties associated with the lien.

Government Publication Date: Jun 26, 2025

Superfund Decision Documents: SUPERFUND ROD

This database contains a list of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include completed Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD) for active and archived sites stored in the Superfund Enterprise Management System (SEMS), along with other associated memos and files. This information is maintained and made available by the U.S. Environmental Protection Agency.

Government Publication Date: Jul 29, 2025

State

Registry of Inactive Hazardous Waste Disposal Sites in New York State: SHWS

State-and tribal- equivalent CERCLIS. State Superfund Program (Inactive Hazardous Waste Disposal Site Remedial Program) (IHWDS) - Oversees the identification, investigation and cleanup of sites where consequential amounts of hazardous waste exist. These sites go through a process of investigation, evaluation, cleanup and monitoring that has several distinct stages. This list is made available by New York State Department of Environmental Conservation's State Superfund Program.

Government Publication Date: May 13, 2025

Delisted Registry of Inactive Hazardous Waste Disposal Sites in New York: DELISTED SHWS

This database contains a Registry of Inactive Hazardous Waste Disposal sites which have been removed from New York Department of Environmental Conservation's Environmental Site Remediation database.

Government Publication Date: May 13, 2025

Hazardous Substance Waste Disposal Sites: HSWDS

A list of sites included in Hazardous Substance Waste Disposal Site Study reports made available by the New York Department of Environmental Conservation Division of Hazardous Waste Remediation. Provides information regarding the evolving status of hazardous substance waste disposal sites in New York.

Government Publication Date: Oct 24, 2003

Vapor Intrusion Legacy Site List: VAPOR

This information is sourced from the New York State Department of Environmental Conservation's (DEC) Vapor Intrusion Legacy Site List, which includes Remedial Sites evaluated for vapor intrusion as of January 2022. New York is currently re-evaluating previous assumptions and decisions regarding the potential for soil vapor intrusion exposures at sites. As a result, all past, current, and future contaminated sites will be evaluated to determine whether these sites have the potential for exposures related to soil vapor intrusion. This database serves a purpose similar to that of the federal Superfund Enterprise Management System (SEMS), functioning as a state-level counterpart for tracking potential hazardous substance release sites.

Government Publication Date: Jan 1, 2022

Solid Waste Facilities and Landfills: SWF/LF

The New York State Department of Environmental Conservation (DEC), Division of Materials Management (DMM), Bureau of Permitting and Planning regulates solid waste management facilities in accordance with 6 NYCRR Part 360. Information pertaining to those facilities is maintained with the Division's Solid Waste Information Management System (SWIMS) database. This listing includes active and inactive solid waste facilities.

Government Publication Date: Jun 4, 2025

Inactive Landfill Facilities: LANDFILL INACTIVE

List of inactive landfills in the State of New York. This data is made available by the New York State Department of Environmental Conservation (DEC). DEC notes that these are preliminary data and should not be regarded as a complete inventory of all landfills in the State, and also that site locations and attributes are preliminary and should not be relied upon without independent verification.

Government Publication Date: Dec 31, 2024

Waste Tire Facilities: WASTE TIRE

This list of active Waste Tire Facilities is maintained by the New York State Department of Environmental Conservation. Waste tire storage facilities (WTSF) store waste tires or portions of waste tires. Most of these facilities require Part 360 permits, but under certain conditions a registration maybe available.

Government Publication Date: Dec 9, 2024

NYC OER Cleanup Sites: OER CLEANUP

Properties remediated under oversight of the New York City (NYC) Mayor's Office of Environmental Remediation (OER), both in the E-Designation program and the NYC Voluntary Cleanup Program. Includes sites completed and in progress.

Government Publication Date: Aug 6, 2025

Recycling Facilities: RECYCLING

The Department of Environmental Conservation (DEC), Division of Materials Management (DMM), Bureau of Permitting and Planning regulates solid waste management facilities in accordance with 6 NYCRR Part 360. Information pertaining to those facilities is maintained with the Division's Solid Waste Information Management System (SWIMS) database. The Facility List is a dataset related to solid waste management facilities operating in the state, and includes such information as facility location, contact names and associated information, waste types managed, and regulatory information.

Government Publication Date: Dec 13, 2024

Leaking Storage Tanks: LST

This database contains records of chemical and petroleum spill incidents. They include leaking aboveground storage tanks or leaking underground storage tanks, with incidents of tank test failures, tank failures and tank overfill. This list is made available by New York State Department of Environmental Conservation's Spill Response Program.

Government Publication Date: Aug 19, 2025

Delisted Leaking Storage Tanks: DELISTED LST

List of Leaking Storage Tank sites which has been removed from New York Department of Environmental Conservation's Spill Response Program

Government Publication Date: Aug 19, 2025

Underground Storage Tanks- UST-Petroleum Bulk Storage (PBS): UST

This list of facilities within the Petroleum Bulk Storage (PBS) Program that have underground storage tanks onsite is made available by the New York State Department of Environmental Conservation's Environmental Site Database Search. The listing includes underground petroleum storage facilities with a combined storage capacity of over eleven hundred (1,100) gallons.

Government Publication Date: Jul 30, 2025

The Bulk Storage Program Database - AST: AST

Facilities within the Petroleum Bulk Storage (PBS) that have aboveground storage tanks. Aboveground petroleum storage facilities with a combined storage capacity over eleven hundred (1,100) gallons. This list is made available by New York State Department of Environmental conservation's Petroleum Bulk Storage (PBS) program.

Government Publication Date: Jul 30, 2025

Petroleum Bulk Storage: TANKS

The Bulk Storage Program Database maintains the registrations of active and inactive bulk storage sites statewide. This database includes Petroleum Bulk Storage (PBS) tanks where no information is available on whether they are ASTs or USTs. This list is made available by the New York State Department of Environmental Conservation's PBS Program.

Government Publication Date: Jul 30, 2025

Major Oil Storage Facilities (MOSF): MOSF

In 1977, the New York State Legislature passed the "Oil Spill Prevention, Control and Compensation Act" (Article 12 of the Navigation Law). This law regulates all oil terminals and transport vessels operating in the waters of the State which have a storage capacity of 400,000 gallons or more. (Terminals and vessels with a capacity of 400,000 gallons or more are commonly referred to as major oil storage facilities or MOSFs). This list is made available by the New York State Department of Environmental Conservation's Major Oil Storage Facility (MOSF) Program.

Government Publication Date: Jul 30, 2025

Chemical Bulk Storage (CBS): CBS

This list of facilities that store regulated hazardous substances in aboveground or underground tanks is made available by the New York State Department of Environmental Conservation's Chemical Bulk Storage (CBS) Program. "Hazardous substance" means any substance listed as hazardous or acutely hazardous in 6 NYCRR Part 597 or a mixture thereof.

Government Publication Date: Jul 30, 2025

Delisted Storage Tanks: DELISTED TANKS

List of Storage Tank sites which has been removed from New York Department of Environmental Conservation's Environmental Site Database.

Government Publication Date: Jul 30, 2025

Delisted County Records: DELISTED COUNTY

Records removed from county databases. Records may be removed from the county lists made available by the respective county departments because they are inactive, or because they have been deemed to be below reportable thresholds.

Government Publication Date: Jul 7, 2025

Registry of Engineering Controls in New York State: ENG

Registry of Engineering Controls in New York State taken from the New York State Department of Conservation Environmental Site Remediation Database.

Government Publication Date: May 13, 2025

Registry of Institutional Controls in New York State: INST

Registry of Institutional Controls in New York State taken from the New York State Department of Conservation Environmental Site Remediation Database.

Government Publication Date: May 13, 2025

Voluntary Cleanup Agreements: VCP

New York established its Voluntary Cleanup Program (VCP) to address the environmental, legal and financial barriers that often hinder the redevelopment and reuse of contaminated properties. The VCP was developed to enhance private sector cleanup of brownfields by enabling parties to remediate sites using private rather than public funds and to reduce the development pressures on "greenfield" sites. This VCP list is made available by the New York State Department of Environmental Conservation.

Government Publication Date: May 13, 2025

Environmental Restoration Program Listing: ERP

The Environmental Restoration Program (ERP) provides municipalities with financial assistance for site investigation and remediation at eligible brownfield sites. To spur the cleanup and redevelopment of brownfields, New Yorkers approved a $200 million Environmental Restoration Fund as part of the $1.75 billion Clean Water/Clean Air Bond Act of 1996 (Bond Act). Under the ERP, the State provides grants to municipalities to reimburse up to 90 percent of on-site eligible costs and 100% of off-site eligible costs for site investigation and remediation activities. This ERP list is made available by the New York State Department of Environmental Conservation.

Government Publication Date: May 13, 2025

Brownfields Site List (Subset of Site Remediation): BROWNFIELDS

The Brownfield Cleanup Program (BCP) was developed to enhance private-sector cleanups of brownfields and to reduce development pressure on "Greenfields". A Brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant. Contaminants include hazardous waste and/or petroleum. This BCP list is made available by the New York State Department of Environmental Conservation.

Government Publication Date: May 13, 2025

NYC Petroleum Bulk Storage Sites: NYC FD TANKS

This historical list of petroleum bulk storage sites was sourced from the New York City Fire Department.

Government Publication Date: Feb 13, 1997

NYC Historic Solid Waste Disposal Sites: NYC HIST SW

This historical list of solid waste disposal sites, which includes sites operated by municipal authorities circa 1934, is sourced from the New York City Department of Sanitation's (DSNY) 1984 The Waste Disposal Problem in New York City: A Proposal for Action.

Government Publication Date: Dec 31, 1934

Tribal

Leaking Underground Storage Tanks (LUSTs) on Tribal/Indian Lands: INDIAN LUST

This list of leaking underground storage tanks (LUSTs) on Tribal/Indian Lands in Region 2, which includes New York, is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Jan 28, 2016

Underground Storage Tanks (USTs) on Indian Lands: INDIAN UST

This list of underground storage tanks (USTs) on Tribal/Indian Lands in Region 2, which includes New York, is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Apr 04, 2016

Delisted Tribal Leaking Storage Tanks: DELISTED INDIAN LST

Leaking Underground Storage Tank (LUST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian LUST lists made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: May 22, 2025

Delisted Tribal Underground Storage Tanks: DELISTED INDIAN UST

Underground Storage Tank (UST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian UST lists made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: May 22, 2025

County

No County databases were selected to be included in the search.

Additional Environmental Record Sources

Federal

PFAS Greenhouse Gas Emissions Data: PFAS GHG

The U.S. Environmental Protection Agency's (EPA) Greenhouse Gas Reporting Program (GHGRP) collects Greenhouse Gas (GHG) data from large emitting facilities (25,000 metric tons of carbon dioxide equivalent (CO2e) per year), and suppliers of fossil fuels and industrial gases that results in GHG emissions when used. This dataset is sourced from the EPA's PFAS Analytic Tools, and it includes GHG emissions data for facilities that emit or have emitted since 2010 chemicals identified as PFAS based on EPA's CompTox Chemicals Dashboard lists of PFAS with defined and undefined structures. PFAS emissions data has been identified for facilities engaged in the following industrial processes: Aluminum Production (GHGRP Subpart F), HCFC-22 Production and HFC-23 Destruction (Subpart O), Electronics Manufacturing (Subpart I), Fluorinated Gas Production (Subpart L), Magnesium Production (Subpart T), Electrical Transmission and Distribution Equipment Use (Subpart DD), and Manufacture of Electric Transmission and Distribution Equipment (Subpart SS). Over time, other industrial processes with required GHGRP reporting may include PFAS emissions data and the list of reportable gases may change over time. Note that some regulatory programs have specified chemical structure requirements that define PFAS differently than the lists in EPA's CompTox Chemicals Dashboard.

Government Publication Date: Jul 25, 2025

On-Scene Coordinator Response Sites: OSC RESPONSE

This list of On-Scene Coordinator (OSC) Response Sites is provided by the U.S. Environmental Protection Agency (EPA). OSCs are the federal officials responsible for monitoring or directing responses to all oil spills and hazardous substance releases reported to the federal government. OSCs coordinate all federal efforts with, and provide support and information to local, state, and regional response communities. An OSC is an agent of either EPA or the U.S. Coast Guard (USCG), depending on where the incident occurs. EPA's OSCs have primary responsibility for spills and releases to inland areas and waters. USCG OSCs have responsibility for coastal waters and the Great Lakes. In general, an OSC has the following key responsibilities during and after a response: Assessment, Monitoring, Response Assistance, and Evaluation.

Government Publication Date: May 6, 2025

Facility Registry Service/Facility Index: FINDS/FRS

The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, and data collected from EPA's Central Data Exchange registrations and data management personnel. This list is made available by the U.S. Environmental Protection Agency (EPA).

Government Publication Date: Jul 1, 2025

Toxics Release Inventory (TRI) Program: TRIS

The U.S. Environmental Protection Agency's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of toxic chemicals from U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. There are currently 770 individually listed chemicals and 33 chemical categories covered by the TRI Program. Facilities that manufacture, process or otherwise use these chemicals in amounts above established levels must submit annual reporting forms for each chemical. Note that the TRI chemical list does not include all toxic chemicals used in the U.S. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment. This database includes TRI Reporting Data for calendar years 1987 through 2021 and Preliminary Data for 2022.

Government Publication Date: Sep 20, 2023

PFOA/PFOS Contaminated Sites: PFAS NPL

This list of Superfund Sites with Per- and Polyfluoroalkyl Substances (PFAS) detections is made available by the U.S. Environmental Protection Agency (EPA) in their PFAS Analytic Tools data, previously the list was obtained by EPA FOIA requests. EPA's Office of Land and Emergency Management and EPA Regional Offices maintain what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment. Limitations: Detections of PFAS at National Priorities List (NPL) sites do not mean that people are at risk from PFAS, are exposed to PFAS, or that the site is the source of the PFAS. The information in the Superfund NPL and Superfund Alternative Agreement (SAA) PFAS detection site list is years old and may not be accurate today. Site information such as site name, site ID, and location has been confirmed for accuracy; however, PFAS-related information such as media sampled, drinking water being above the health advisory, or mitigation efforts has not been verified. For Federal Facilities data, the other Federal agencies (OFA) are the lead agency for their data and provided them to EPA.

Government Publication Date: Jun 30, 2025

Federal Agency Locations with Known or Suspected PFAS Detections: PFAS FED SITES

This list of federal agency locations with known or suspected detections of Per- and Polyfluoroalkyl Substances (PFAS) is made available by the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools data. The EPA outlines that these data are gathered from several federal entities, such as the federal Superfund program, Department of Defense (DOD), National Aeronautics and Space Administration (NASA), Department of Transportation (DOT), and Department of Energy (DOE). The dates this data was extracted for the PFAS Analytic Tools range from 2022 to 2025 per agency entity dataset. Sites on this list do not necessarily reflect the source/s of PFAS contamination and detections do not indicate level of risk or human exposure at the site. Agricultural notifications in this data are limited to DOD sites only. At this time, the EPA is aware that this list is not comprehensive of all Federal agencies.

Government Publication Date: May 30, 2025

SSEHRI PFAS Contamination Sites: PFAS SSEHRI

This PFAS Contamination Site Tracker database is compiled by the PFAS Project Lab, part of the Social Science Environmental Health Research Institute (SSEHRI) at Northeastern University. According to the SSEHRI, the database records qualitative and quantitative data from each known site of PFAS contamination, including timeline of discovery, sources, levels, health impacts, community response, and government response. The goal of this database is to compile information and support public understanding of the rapidly unfolding issue of PFAS contamination. All data presented was extracted from government websites, news articles, or publicly available documents. Locations for the Known PFAS Contamination Sites are sourced from the PFAS Sites and Community Resources Map by the PFAS-REACH team, credited to PFAS Project Lab, Silent Spring Institute, and PFAS Exchange. Disclaimer: The source conveys the data undergoes regular updates as new information becomes available, some sites may be missing and/or contain information that is incorrect or outdated, as well as their information represents all contamination sites SSEHRI is aware of, not all possible contamination sites. This data is not intended to be used for legal purposes. Access the following source link for the most current information: https://pfasproject.com/pfas-sites-and-community-resources/

Government Publication Date: Jun 27, 2024

National Response Center PFAS Spills: PFAS ERNS

This Per- and Poly-Fluoroalkyl Substances (PFAS) Spills dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The National Response Center (NRC), operated by the U.S. Coast Guard, is the designated federal point of contact for reporting all oil, chemical, and other discharges into the environment, for the United States and its territories. This dataset contains NRC spill information from 1990 to the present that is restricted to records associated with PFAS and PFAS-containing materials. Incidents are filtered to include only records with a "Material Involved" or "Incident Description" related to Aqueous Film Forming Foam (AFFF). The keywords used to filter the data included "AFFF," "Fire Fighting Foam," "Aqueous Film Forming Foam," "Fire Suppressant Foam, "PFAS," "PERFL," "PFOA," "PFOS," and "Genx." Limitations: The data from the NRC website contains initial incident data that has not been validated or investigated by a federal/state response agency. Keyword searches may misidentify some incident reports that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS spills/release incidents.

Government Publication Date: Sep 1, 2025

PFAS NPDES Discharge Monitoring: PFAS NPDES

This list of National Pollutant Discharge Elimination System (NPDES) permitted facilities with required monitoring for Per- and Polyfluoroalkyl (PFAS) Substances is made available via the U.S. Environmental Protection Agency (EPA)'s PFAS Analytic Tools. Any point-source wastewater discharger to waters of the United States must have a NPDES permit, which defines a set of parameters for pollutants and monitoring to ensure that the discharge does not degrade water quality or impair human health. This list includes NPDES permitted facilities associated with permits that monitor for Per- and Polyfluoroalkyl Substances (PFAS), limited to the years 2007 - present. EPA further advises the following regarding these data: currently, fewer than half of states have required PFAS monitoring for at least one of their permittees, and fewer states have established PFAS effluent limits for permittees. For states that may have required monitoring, some reporting and data transfer issues may exist on a state-by-state basis.

Government Publication Date: Dec 16, 2024

Perfluorinated Alkyl Substances (PFAS) from Toxic Release Inventory: PFAS TRI

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a per- or polyfluoroalkyl (PFAS) substance included in the U.S. Environmental Protection Agency's (EPA) consolidated PFAS Master List of PFAS Substances. Encompasses Toxics Release Inventory records included in the EPA PFAS Analytic Tools. The EPA's TRI database currently tracks information on disposal or releases of 770 individually listed toxic chemicals and 33 chemical categories from thousands of U.S. facilities and details about how facilities manage those chemicals through recycling, energy recovery, and treatment. This listing includes TRI Reporting Data for calendar years 1987 through 2021 and Preliminary Data for 2022.

Government Publication Date: Sep 20, 2023

PFAS Water Quality Portal Sampling Data: PFAS WATER

This Per- and Poly-Fluoroalkyl Substances (PFAS) Environmental Media Sampling Data is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The Water Quality Portal (WQP), as a cooperative service sponsored by the United States Geological Survey, the EPA, and the National Water Quality Monitoring Council, is part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations, and individuals submit project details and sampling results to this public repository. Limitations: EPA did not carry out the sampling or testing of a majority of the data in the WQP PFAS dataset. EPA can only speak to the accuracy and completeness of the data from projects like the National Aquatic Resource Surveys for which EPA is the data owner/organization. Data may exist within the file on Quality Assurance Project Plans (QAPPs) and the approving agency of the QAPP, if a QAPP is entered.

Government Publication Date: Jan 13, 2025

PFAS TSCA Manufacture and Import Facilities: PFAS TSCA

The U.S. Environmental Protection Agency (EPA) issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. This list is specific only to TSCA Manufacture and Import Facilities with reported per- and poly-fluoroalkyl (PFAS) substances. Data file is sourced from EPA's PFAS Analytic Tools TSCA dataset which includes CDR/Inventory Update Reporting data from 1998 up to 2020. Disclaimer: This data file includes production and importation data for chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures in DSSTox. Note that some regulations have specific chemical structure requirements that define PFAS differently than the lists in EPA's CompTox Chemicals Dashboard. Reporting information on manufactured or imported chemical substance amounts should not be compared between facilities, as some companies claim Chemical Data Reporting Rule data fields for PFAS information as Confidential Business Information.

Government Publication Date: Jan 5, 2023

PFAS Waste Transfers from RCRA e-Manifest: PFAS E-MANIFEST

This Per- and Poly-Fluoroalkyl Substances (PFAS) Waste Transfers dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. Every shipment of hazardous waste in the U.S. must be accompanied by a shipment manifest, which is a critical component of the cradle-to-grave tracking of wastes mandated by the Resource Conservation and Recovery Act (RCRA). According to the EPA, currently no Federal Waste Code exists for any PFAS compounds. To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: • PFAS • PFOA • PFOS • PERFL • AFFF • GENX • GEN-X (plus the Vermont state-specific waste codes). Limitations: Amount or concentration of PFAS being transferred cannot be determined from the manifest information. Keyword searches may misidentify some manifest records that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS waste transfers.

Government Publication Date: Jul 26, 2025

PFAS Industry Sectors: PFAS IND

This Per- and Poly-Fluoroalkyl Substances (PFAS) Industry Sectors dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The EPA developed the dataset from various sources that show which industries may be handling PFAS including: EPA's Enforcement and Compliance History Online (ECHO) records restricted to potential PFAS-handling industry sectors; ECHO records for Fire Training Sites identified where fire-fighting foam may have been used in training exercises; and 14 CFR Part 139 Airports compiled from historic and current records from the FAA Airport Data and Information Portal. Since July 2006, all certificated Part 139 Airports are required to have fire-fighting foam onsite that meet certain military specifications, which to date have been fluorinated (Aqueous Film Forming Foam). Limitations: Inclusion in this dataset does not indicate that PFAS are being manufactured, processed, used, or released by the facility. Listed facilities potentially handle PFAS based on their industrial profile, but are unconfirmed by the EPA. Keyword searches in ECHO for Fire Training sites may misidentify some facilities and should not be considered to be an exhaustive list of fire training facilities in the U.S.

Government Publication Date: Sep 1, 2025

Hazardous Materials Information Reporting System: HMIRS

The Hazardous Materials Incident Reporting System (HMIRS) database contains unintentional hazardous materials release information reported to the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.

Government Publication Date: May 29, 2024

National Clandestine Drug Labs: NCDL

The U.S. Department of Justice ("the Department"), Drug Enforcement Administration (DEA), provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

Government Publication Date: Nov 30, 2023

Toxic Substances Control Act: TSCA

The U.S. Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule. The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI). EPA CDR collections occur approximately every four years and reporting requirements change per collection.

Government Publication Date: May 12, 2022

Hist TSCA: HIST TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.
Government Publication Date: Dec 31, 2006

FTTS Administrative Case Listing: FTTS ADMIN

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.
Government Publication Date: Jan 19, 2007

FTTS Inspection Case Listing: FTTS INSP

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.
Government Publication Date: Jan 19, 2007

Potentially Responsible Parties List: PRP

Early in the site cleanup process, the U.S. Environmental Protection Agency (EPA) conducts a search to find the Potentially Responsible Parties (PRPs). The EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site. This listing contains PRPs, Noticed Parties, at sites in the EPA's Superfund Enterprise Management System (SEMS).
Government Publication Date: Apr 25, 2025

State Coalition for Remediation of Drycleaners Listing: SCRD DRYCLEANER

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin. Since 2017, the SCRD no longer maintains this data, refer to applicable state source data where available.
Government Publication Date: Nov 08, 2017

Integrated Compliance Information System (ICIS): ICIS

The Integrated Compliance Information System (ICIS) database contains integrated enforcement and compliance information across most of U.S. Environmental Protection Agency's (EPA) programs. The vision for ICIS is to replace EPA's independent databases that contain enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions and a subset of the Permit Compliance System (PCS), which supports the National Pollutant Discharge Elimination System (NPDES). This information is maintained by the EPA Headquarters and at the Regional offices. A future release of ICIS will completely replace PCS and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities that support compliance and enforcement programs, including incident tracking, compliance assistance, and compliance monitoring.
Government Publication Date: May 3, 2025

Drycleaner Facilities: FED DRYCLEANERS

A list of drycleaner facilities from Enforcement and Compliance History Online (ECHO) data as made available by the U.S. Environmental Protection Agency (EPA), sourced from the ECHO Exporter file. This EPA source file tracks facilities that possess NAICS and SIC codes that classify businesses as drycleaner establishments.
Government Publication Date: Apr 19, 2025

Delisted Drycleaner Facilities: DELISTED FED DRY

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).
Government Publication Date: Apr 19, 2025

Formerly Used Defense Sites: FUDS

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DOD) is responsible for an environmental restoration. The FUDS Annual Report to Congress (ARC) is published by the U.S. Army Corps of Engineers (USACE). This data is compiled from the USACE's Geospatial FUDS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) FUDS dataset which applies to the Fiscal Year 2021 FUDS Inventory.

Government Publication Date: May 15, 2023

FUDS Munitions Response Sites: FUDS MRS

Boundaries of Munitions Response Sites (MRS), published with the Formerly Used Defense Sites (FUDS) Annual Report to Congress (ARC) by the U.S. Army Corps of Engineers (USACE). An MRS is a discrete location within a Munitions response area (MRA) that is known to require a munitions response. An MRA means any area on a defense site that is known or suspected to contain unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC). This data is compiled from the USACE's Geospatial MRS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) MRS dataset.

Government Publication Date: May 15, 2023

Former Military Nike Missile Sites: FORMER NIKE

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites. During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.

Government Publication Date: Dec 2, 1984

PHMSA Pipeline Safety Flagged Incidents: PIPELINE INCIDENT

This list of flagged pipeline incidents is made available by the U.S. Department of Transportation (US DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA regulations require incident and accident reports for five different pipeline system types. Accidents reported on hazardous liquid gravity lines (§195.13) and reporting-regulated-only hazardous liquid gathering lines (§195.15) and incidents reported on Type R gas gathering (§192.8(c)) are not included in the flagged incident file data.

Government Publication Date: May 6, 2024

Material Licensing Tracking System (MLTS): MLTS

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

Government Publication Date: May 11, 2021

Historic Material Licensing Tracking System (MLTS) sites: HIST MLTS

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

Government Publication Date: Jan 31, 2010

Mines Master Index File: MINES

The Master Index File (MIF) is provided by the United States Department of Labor, Mine Safety and Health Administration (MSHA). This file, which was originally created in the 1970's, contained many Mine-IDs that were invalid. MSHA removes invalid IDs from the MIF upon discovery. MSHA applicable data includes the following: all Coal and Metal/Non-Metal mines under MSHA's jurisdiction since 1/1/1970; mine addresses for all mines in the database except for Abandoned mines prior to 1998 from MSHA's legacy system (addresses may or may not correspond with the physical location of the mine itself); violations that have been assessed penalties as a result of MSHA inspections beginning on 1/1/2000; and violations issued as a result of MSHA inspections conducted beginning on 1/1/2000.

Government Publication Date: Feb 5, 2024

Surface Mining Control and Reclamation Act Sites: SMCRA

This inventory of land and water impacted by past mining (primarily legacy coal mining operations) is maintained by the U.S. Department of the Interior's Office of Surface Mining Reclamation and Enforcement (OSMRE), as it provides information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). This inventory contains information on the type and extent of Abandoned Mine Land (AML) Problems, as well as information on the cost associated with the reclamation of those problems. The data is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed. Disclaimer: Per the OSMRE, States and tribes who enter their data into e-AMLIS (AML Inventory System) may truncate their latitude and longitude so the precise location of usually dangerous AMLs is not revealed in an effort to protect the public from searching for these AMLs, most of which are on private property. If more precise location information is needed, please contact the applicable state/tribe of interest.

Government Publication Date: May 20, 2024

Mineral Resource Data System: MRDS

The Mineral Resource Data System (MRDS) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS. The USGS has ceased systematic updates of the MRDS database with their focus more recently on deposits of critical minerals while providing a well-documented baseline of historical mine locations from USGS topographic maps.

Government Publication Date: Mar 15, 2016

DOE Legacy Management Sites: LM SITES

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) currently manages radioactive and chemical waste, environmental contamination, and hazardous material at over 100 sites across the U.S. The LM manages sites with diverse regulatory drivers (statutes or programs that direct cleanup and management requirements at DOE sites) or as part of internal DOE or congressionally-recognized programs, such as but not limited to: Formerly Utilized Sites Remedial Action Program (FUSRAP), Uranium Mill Tailings Radiation Control Act (UMTRCA Title I, Tile II), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Decontamination and Decommissioning (D&D), Nuclear Waste Policy Act (NWPA). This site listing includes data exported from the DOE Office of LM's Geospatial Environmental Mapping System (GEMS). GEMS Data disclaimer: The DOE Office of LM makes no representation or warranty, expressed or implied, regarding the use, accuracy, availability, or completeness of the data presented herein.

Government Publication Date: Dec 12, 2023

Alternative Fueling Stations: ALT FUELS

This list of alternative fueling stations is sourced from the Alternative Fuels Data Center (AFDC). The U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy launched the AFDC in 1991 as a repository for alternative fuel vehicle performance data, which provides a wealth of information and data on alternative and renewable fuels, advanced vehicles, fuel-saving strategies, and emerging transportation technologies. The data includes Biodiesel (B20 and above), Compressed Natural Gas (CNG), Electric, Ethanol (E85), Hydrogen, Liquefied Natural Gas (LNG), Propane (LPG), and Renewable Diesel (R20 and above) fuel type locations.

Government Publication Date: Aug 1, 2025

Superfunds Consent Decrees: CONSENT DECREES

This list of Superfund consent decrees is provided by the Department of Justice, Environment & Natural Resources Division (ENRD) through a Freedom of Information Act (FOIA) applicable file. This listing includes Cases filed since 2010 limited to the following: Consent Decrees for CERCLA or Superfund Sites filed and/or as proposed within the ENRD's Case Management System (CMS); and applicable ENRD's Environmental Defense Section (EDS) CERCLA Cases with "Consent" in History Note. CMS may not reflect the latest developments in a case, nor can the agency guarantee the accuracy of the data. ENRD Disclaimer: Congress excluded three discrete categories of law enforcement and national security records from the requirements of the FOIA; response is limited to those records that are subject to the requirements of the FOIA; however, this should not be taken as an indication that excluded records do, or do not, exist.

Government Publication Date: Jun 26, 2024

Air Facility System: AFS

This EPA retired Air Facility System (AFS) dataset contains emissions, compliance, and enforcement data on stationary sources of air pollution. Regulated sources cover a wide spectrum; from large industrial facilities to relatively small operations such as dry cleaners. AFS does not contain data on facilities that are solely asbestos demolition and/or renovation contractors, or landfills. ECHO Clean Air Act data from AFS are frozen and reflect data as of October 17, 2014; the EPA retired this system for Clean Air Act stationary sources and transitioned to ICIS-Air.

Government Publication Date: Oct 17, 2014

Registered Pesticide Establishments: SSTS

This national list of active EPA-registered foreign and domestic pesticide and/or device-producing establishments is based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that each producing establishment must place its EPA establishment number on the label or immediate container of each pesticide, active ingredient or device produced. An EPA establishment number on a pesticide product label identifies the EPA registered location where the product was produced. The list of establishments is made available by the U.S. Environmental Protection Agency (EPA).

Government Publication Date: Feb 29, 2024

Polychlorinated Biphenyl (PCB) Transformers: PCBT

Locations of Transformers Containing Polychlorinated Biphenyls (PCBs) registered with the United States Environmental Protection Agency. PCB transformer owners must register their transformer(s) with EPA. Although not required, PCB transformer owners who have removed and properly disposed of a registered PCB transformer may notify EPA to have their PCB transformer de-registered. Data made available by EPA.

Government Publication Date: Oct 15, 2019

Polychlorinated Biphenyl (PCB) Notifiers: PCB

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

Government Publication Date: May 23, 2024

Power Plants: POWER PLANTS

This list of power plants is provided by the U.S. Energy Information Administration (EIA). The listing includes operable electric generating plants in the United States by energy source, originating from the EIA-860, Annual Electric Generator Report; EIA-860M, Monthly Update to the Annual Electric Generator Report; and EIA-923, Power Plant Operations Report. It includes all operable plants by energy source with a combined nameplate capacity of 1 megawatt or more that are operating, are on standby, or out of service for short- or long-term.

Government Publication Date: Jun 5, 2025

Historical Business Activity Risk: HIST RISK

Proprietary list of sites identified as potentially having engaged in business activity that poses a higher-than-normal risk of contamination. Records originate from historical city directories, and are included in this list based on broad business categories Potentially Hazardous Chemical Users and Fuel and Automotive, including but not limited to Dry Cleaners and Fuel Stations, Garages, etc. Inclusion in this listing does not indicate that there is or ever has been contamination; rather, sites are included in this list due to their potential for having engaged in a business activity presenting an elevated risk of contamination. The list was compiled from various city directories including Polks, Millers, Mullin Kille, Interstate Directory, and State Directory Co; spanning roughly 1920s through 1960 depending on information available by city.

Government Publication Date: Jan 1, 1960

State

Underground Injection Control Wells: UIC

List of Brine Disposal Wells in the New York State Department of Environmental Conservation (NYSDEC) online Wells Data Search. Brine disposal wells are considered Underground Injection Control (UIC) Class II wells. Brine disposal wells deeper than 500 feet require a permit from the NYSDEC Division of Mineral Resources for any operation to drill, deepen, plug back, convert, or plug and abandon a well. Regardless of well depth, the NYSDEC Division of Water must be contacted for a determination of whether a State Pollution Discharge Elimination System (SPDES) permit is necessary to operate any brine disposal well.

Government Publication Date: Sep 16, 2024

New York City Cooling Tower Registrations: COOLING TOWERS NYC

This dataset contains cooling tower systems currently registered in the New York City Cooling Tower Registration Portal and Legionella water test dates as reported by a building's qualified person. Data is provided by the New York City Department of Health and Mental Hygiene. Decommissioned cooling tower systems are excluded from the dataset.

Government Publication Date: Aug 8, 2025

Manufactured Gas Plants: MGP

A list of former Manufactured Gas Plants (MGP) made available by the New York Department of Environmental Conservation (NYSDEC). From the late 1800's to the mid 1900's, hundreds of manufactured gas plants across New York State supplied homes and industry with fuel. Former MGP structures such as gas holders, tar separators, wells, and tanks were often susceptible to spills and leaks. As a result, these structures were a significant source of contamination from the release of tar and other toxic by-products.

Government Publication Date: Sep 5, 2025

Spill Incidents Database: NY SPILLS

This Spill Incident Database is made available by the New York State Department of Environmental Conservation (DEC). The DEC's Spill Response Program receives, and compiles reports of hazardous material spills occurring anywhere in New York State. These reports are submitted through the spill hotline and other mechanisms, and then DEC spill response staff enters the reported spill incidents into the state's official database. The database contains records of chemical and petroleum spill incidents dating back to 1978.

Government Publication Date: Aug 19, 2025

PFAS Remedial Sites: PFAS CONTAM

List of sites being addressed under one of the New York State Department of Environmental Conservation (DEC) Division of Environmental Remediation (DER)'s remedial programs, where the waste or contaminant of concern is a Per- or polyfluorinated alkyl substance (PFAS) included in the PFAS Structure List and/or PFAS Chemicals Without Explicit Structure List made available by the United States Environmental Protection Agency (US EPA).

Government Publication Date: May 13, 2025

Per- and Polyfluoroalkyl Substances (PFAS): PFAS

A list of sites surveyed by the New York Department of Environmental Conservation to determine locations that manufacture, use, store, or release into the environment materials containing Per- and Polyfluoroalkyl Substances (PFAS). Per- and Polyfluoroalkyl Substances (PFAS) are a group of chemicals used to make fluoropolymer coatings and products that resist heat, oil, stains, grease, and water. Some PFAS are difficult to break down and persist in the environment that may cause harm to the public. This list is made available by the Department of Environmental Conservation of New York State.

Government Publication Date: Jan 16, 2019

Landfill Investigations PFAS Sampling Results: PFAS LANDFILL

A list of inactive landfill sites that have been investigated for Per- and Polyfluoroalkyl Substances (PFAS) in the state of New York made available by the New York State Department of Environmental Conservation.

Government Publication Date: Dec 31, 2024

Registed Dry Cleaner Facilities: DRYCLEANERS

The Division of Air Resources of the New York State Department of Environmental Conservation (DEC) tracks all registered dry cleaner facilities. Drycleaning drop off locations (i.e., drop off locations not performing drycleaning on-site) do not require registration and are not included in DEC listings of registered drycleaners.

Government Publication Date: May 28, 2025

Delisted Dry Cleaner Facilities: DELISTED DRYCLEANERS

Sites removed from the list of dry cleaner facilities registered with the Department of Environmental Conservation (DEC)'s Division of Air Resources.

Government Publication Date: May 28, 2025

Hazardous Waste Manifest - Facilities: NY MANIFEST

This list of facilities, not classified as either a generator or a receiver type facility, is sourced from the Hazardous Waste Manifest Data Location Address file that is made available by the New York State Department of Environmental Conservation (DEC). The Hazardous Waste Manifest Data is compiled from hazardous waste manifest shipments to, from, or within New York State. The DEC's Bureau of Hazardous Waste and Radiation Management, in the Division of Materials Management (DMM), is responsible for maintaining hazardous waste manifest records. Hazardous Waste Code Descriptions are from 6 NYCRR PART 371 Identification and Listing of Hazardous Wastes.

Government Publication Date: Mar 1, 2025

Receivers from Hazardous Waste Manifests: REC MANIFEST

A list of facilities identified as receivers in associated Hazardous Waste Manifest Data that is made available by the New York State Department of Environmental Conservation (DEC). The Hazardous Waste Manifest Data is compiled from hazardous waste manifest shipments to, from, or within New York State. The DEC's Bureau of Hazardous Waste and Radiation Management, in the Division of Materials Management (DMM), is responsible for maintaining hazardous waste manifest records. Hazardous Waste Code Descriptions are from 6 NYCRR PART 371 Identification and Listing of Hazardous Wastes, unless otherwise noted.

Government Publication Date: Mar 1, 2025

Generators from Hazardous Waste Manifests: GEN MANIFEST

A list of facilities identified as generators in associated Hazardous Waste Manifest Data that is made available by the New York State Department of Environmental Conservation (DEC). The Hazardous Waste Manifest Data is compiled from hazardous waste manifest shipments to, from, or within New York State. The DEC's Bureau of Hazardous Waste and Radiation Management, in the Division of Materials Management (DMM), is responsible for maintaining hazardous waste manifest records. Hazardous Waste Code Descriptions are from 6 NYCRR PART 371 Identification and Listing of Hazardous Wastes, unless otherwise noted.

Government Publication Date: Mar 1, 2025

New York City E-Designated Sites: E DESIGNATION

A list of sites with an (E) Designation, described as a New York City (NYC) zoning map designation that indicates the presence of an environmental requirement pertaining to potential hazardous materials contamination, window/wall noise attenuation, or air quality impacts on a particular tax lot. The NYC Office of Environmental Remediation administers the E-Designation Environmental Review Program to avoid significant adverse impacts to human health or the environment through exposure to these hazards. The data is provided by the NYC Department of City Planning (DCP).

Government Publication Date: Feb 21, 2025

Registered Cooling Towers: COOLING TOWERS

This dataset contains location, legionella sampling results and operational status information for currently operating cooling towers, as well as information on towers that previously operated, in New York State and New York City. The data is self-reported by the cooling tower operator according to Public Health Law, Section 225(5)(a) Subpart 4-1 – Cooling Towers. Data provided by New York State Department of Health.

Government Publication Date: Aug 12, 2025

Tier 2 Report: TIER 2

A list of Tier 2 facilities in the state of New York. This is a list of facilities which have reported hazardous substances provided by Homeland Security and Emergency Services.

Government Publication Date: Sep 28, 2022

NY DEC Projects of Interest: PROJECTS

A list of permits for notable projects - permit applications that have received a lot of public attention - made available by the New York Department of Environmental Conservation (DEC).

Government Publication Date: Mar 21, 2025

Air Permitted Facilities: AIR PERMITS

This list of issued state facility air permits is maintained by the New York State Department of Environmental Conservation (NYDEC). The listing includes Air State Facility Permits (ASF) and Air Title V Facility Permits (ATV). ASF permits may be required by medium-sized commercial or industrial facilities or larger facilities that have agreed to limit emissions. ATV permits may be required at the largest facilities statewide, or at facilities located in those areas where state implementation plans are in place to improve air quality. Please note: An Issued permit is valid for a stated period of time. Modifications may be made to an issued permit for the remainder of the active permit.

Government Publication Date: Apr 15, 2025

Liens Listing: LIEN

The New York Environmental Protection and Spill Compensation Fund (Oil Spill Fund) places liens on properties that are sites of oil spills when the owners are responsible parties and fail to pay for cleanup. The Office of the New York State Comptroller provides this listing of liens information from the Oil Spill Fund.

Government Publication Date: May 7, 2025

NYC Historic Utility Facilities: NYC HIST UTIL

This historical inventory includes select power generating stations, manufactured gas plants, gas storage facilities, maintenance yards and other gas and electric utility sites that were identified at one time within various historic documents, maps and/or annual reports of New York City utility companies (1898-1950).

Government Publication Date: Dec 31, 1950

Tribal

No Tribal additional environmental record sources available for this State.

County

No County additional environmental record sources available for this State.

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

APPENDIX F

HISTORICAL INFORMATION &
FREEDOM OF INFORMATION LETTERS

Tax Dist.	Part	Map	Block	Lot	Code

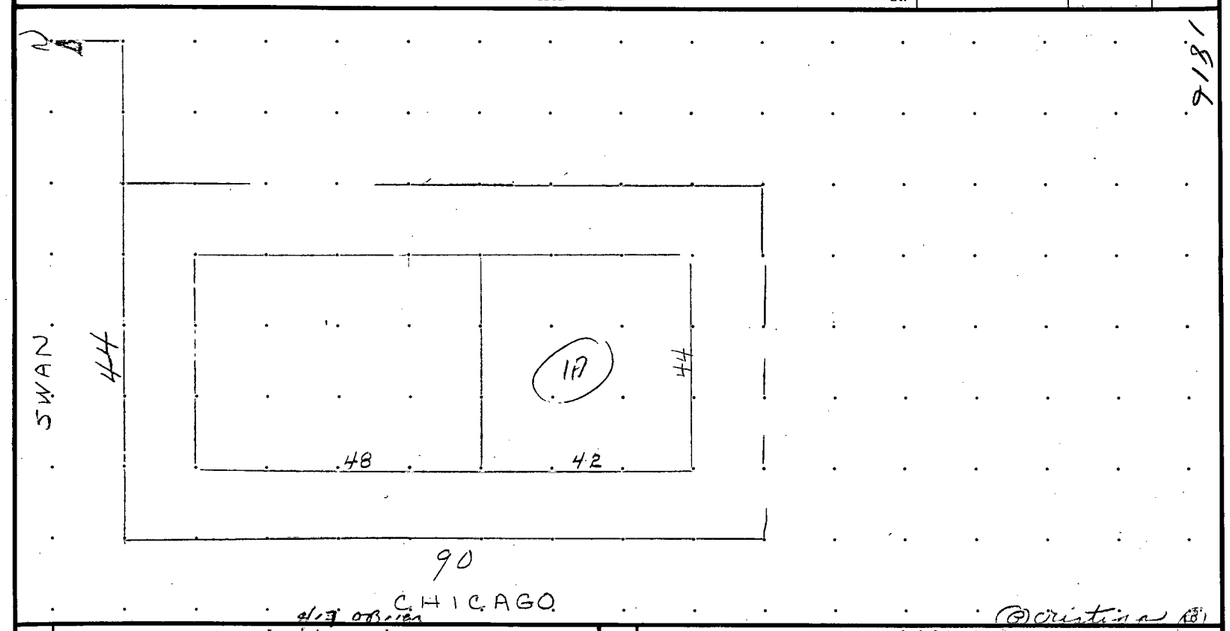
Grantee's name & mailing address

Purchase price $			Recorded		
Cash	Mortgage	Total	Date	Book	Page

	Year 19 60	19	19	19	19	19	19	19	19	19
ASSESSMENT SUMMARY										
401 Appraised full value — Land 351	1140									
402 Impvts. 352	38770									
403 Total 353	39910									
404 Assessment-ratio %	65									
405 Assessed valuation — Land 402 × 405	740									
406 Impvts. 403 × 405	25200									
407 Total 406 + 407	25940									
408 Exemption										
409 Net assessment 408-409										
410 Record of assessment										
411 Record of appeals — Appeal No.										
412 Owner's claim — Full value										
413 Assessable value										
414 Revision by — Land										
415 Impvts.										
416 Total 414 + 415										
417 Exemption										
418 Final Net Assmt. 416-417										
419 Change 418-410 = + / 410-418 = −										

No. 275-7 Swan St. Side (N E S W) Cor. from Chicago St. ft. N E S W

Tax District	Part	Map
1	A	17



101 Inspection record — Items	Inspector	Ext.	Int.	Refusal
102 1, 1A	County	6/17/58	6/17/58	
103				
104				
105				
106				

124 Land deficiencies — Description	Unit	Quant.	Unit pr.	Amount
125				
126 2740				
127 9960				
128 12720				
129				

107 No.	Miscellaneous improvements — Description	Dimensions	Quantity	Unit price	Reprod. cost	Deprec. value %	Deprec. value $
108							
109							
110							
111							

112 RENTALS	Building No.				Building No.			
113 Item	Ground floor	2nd story	Other stories	Total	Ground floor	2nd story	Other stories	Total
114 Claimed rent incl. utilities								
115 Deduction for utilities								
116 Line 114 — line 115								
117 Shelter rent — Claimed								
118 Shelter rent — Inspector's estimate	70-30-30	100	40	270				
119 Adopted shelter rent								
120 Adopted rent, other bldgs.								
121 Total adopted rent 119 + 120								
122 Capitalization factor								
123 Capitalized value								

City of Buffalo. Assessment Dept. Form V.2 - 56

201	BUILDING No.	1	1A				
202	Present use	SA	ADD				
203	Dimensions	44 x 48	44 x 42				
204	Dimensions						
205	H top of fdn. to top of wall						
206	Number of walls						
207	Constr. type						
208	Wall material	BR	BR				
209	Quality-grade	2	2				
210	No. of stories	3	2				
211	Size of basement	100%	100%				
212	Roof material	FR/RR	FR/RR				
213	Floor material	SW	SW				
214	Floor material						
215	Partitions						
216	Partitions						
217	Lighting						
218	Heating	1-5	1-4				
219	Sprinklers						
220	Plumbing fixtures — BASEM	1-1PC-2 1 SINK L	2-1PC-2 2 SINKS				
221	Plumbing fixtures	2-2PC-2 1-2PC-2	2-2PC-2 1-2PC-2				
222	Elevators						
223	~~Misc.~~ K.	3-2	3-2				
224	Misc.						
225	Designed as	SA	ADD				
226	Built — Year	1900	1900				
227	Built — Cost						
228	Reconditioned — Year						
229	Reconditioned — Nature						
230	Reconditioned — Cost						
231	Physical condition	G	G-				
232	Comparative age	50	50				
233	Story No.						
234	No. units or % of floor area — Apt.						
235	Office						
236	Sales, display						
237	Production						
238	Storage						
239	Misc.						

301	BUILDING No.	1		1A											
302	Price table no.	312-SA (11)		75											
303	Basic S.F. price	18.60													
304	S.F. price adjustment — Roof														
305	Floor			3.40											
306	Height														
307	Heating			1.85											
308	Lighting														
309	Total S.F. price	18.60		13.58											
310	Area S.F.	2112		1848											
311	Area cost 309 × 310	39283		26616											
312	Wall	l.f.	pr.	l.f. -128	pr. 44.70	l.f.	pr.	l.f.	pr.	l.f.	pr.	l.f.	pr.		
313	Wall cost			-5722											
314	Lump sum adjustment — Partitions														
315	Basement														
316	Plumbing			1780											
317	Sprinklers														
318	Elevators														
319				-450											
320	Reprod. cost 311 + 313 : 319	39283		14568											
321	R.C. less ord. deprec.	% 72	28287	% 72	10488	%		%		%		%			
322	Spec. deprec. — Dist. Rating P	%		%		%		%		%		%			
323	Spec. deprec.														
324	Spec. deprec.														
325	Deprec. value 321 — 322 : 324	28287		10488											

326	LAND — Shape		1		2		3	340	SUMMARY	Yr. 19	Yr. 19	Yr. 19
327	Zoned as							341	Land 339	1160		
328	Depth	90						342	Buildings 325	38770		
329	Width	44						343	Misc. impvts. 107	—		
330	Depth value factor / Shape factor	.866 / 1.0						344	Summation 341 : 343	39910		
331	Equiv. feet 330 × 329	38.1						345	Special depreciation			
332	Base price	30						346				
333	332 × 331	1142						347	Summation value 344 : 346	39910		
334	Adj. for							348	Capitalized value 123			
335	Adj. for							349	Comparable-sale value			
336	333 ± 334 : 335							350				
337	Total of line 336					1142		351	Appraised Value of Land	1160		
338	Easement and/or Deficiency					±		352	Appraised Value of Impvts.	38770		
339	Total land 337 ± 338							353	Appraised Value of Whole	39910		

① 111.72-1-1 330

THE CITY of BUFFALO, N.Y., REAL PROPERTY ASSESSMENT

Assessors Maps and Survey Section-Plate	ASSESSED TO	FRONT FEET	DEPTH	Street No.	ASSESSED ON	SIDE	DISTANCE FROM Feet	Course	Street	TYPE
1 6 A	~~MARY~~ CUSIMANO Salvatore J.	44	90	275-7	SWAN	S	EAST	COR	CHICAGO	481

Address

Unit Full Value of Land | F.F. | S.F.

Constructed or Moved on Lot in

Remodeled or Repaired in

WIDTH	DEPTH	DPTH. FACTOR	EFF. F.F.	AREA	UNIT VALUE	FULL VALUE
44	90	.86602	38.10	—	39	1480
					FULL LAND VALUE	1480
					ASSESSED LAND VALUE	740

SALES RECORD

YEAR	AMOUNT	REMARKS
1978	0	Q.C.

RENTS:

BUILDING DESCRIPTION

BUILDING CLASS: Cheap, Average, Good, Expensive

TYPE	CONSTRUCTION	O. S. TRIM	MISCELLANEOUS	EXTRAS
Ranch Dwelling	Frame	Wood ✓	Incinerator	
Single Dwelling	Brick ✓	Metal	Kitchen Cabinets	
Double Dwelling	Tile	Stone	Pass. Elevator	
Duplex Dwelling	Blocks	Terra Cotta	Frt. Elevator	
Bungalow	Re-Conc.	Concrete	Fire Escape	
Gas Station	Mill		Sprinklers	
Apartment House	Steel Frame	**HEATING**	Air Conditioners	
Store Building ✓		Unit ✓	Vault	
Office Building	**EXTERIOR**	Hot Air		
Hotel Building	Siding	Hot Water	**CONDITION**	
Shop Building	Shingles	Steam	Good	
Factory Building	Stucco	Cen. Sta.	Normal ✓	
Church Building	Com. Brick ✓	Fireplace	Poor	
Garage Building	Face Brick			
Warehouse	Compos.			

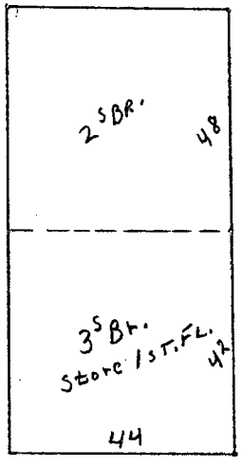
+ 4 Apts NOT IN USE As of 11-30-73

FOUNDATION: Stone ✓, Concrete, Brick, Piers

BASEMENT: Full ✓, Half, Quarter, Cement Floor, Laundry, Water Heater

ROOF: Wood Shingle, Compos. Shingle, Slate, Tile, Gravel, Prepared ✓, Metal, Asbestos, Flat ✓, Hip, Gable, Gambrel, Dormers

ROOMS	STORIES B	1	2	3	INTERIOR FINISH Floors	Trim	Walls
Living			11	5			
Dining							
Kitchen							
Bedroom			8	6			
Bathroom		1	2	2			
Lavatory							
Family							
Utility							
Recreation							
Office							
Storage							
Stores		1					



FRONT

Complaint No. _____ Filed: _____, 19____

IMPROVEMENT COMPUTATION													ASSESSED VALUE			
ITEM	DIMENSIONS	HEIGHT	AREA OR CONTENT	BASE RATE	PAGE	COST AT INDEX 100	LOCAL INDEX	REPL. COST	% COND.	SOUND VALUE	%	ASSESSED VALUE	YEAR	LAND	IMPROVE-MENTS	TOTAL
Bldg.	44x42	3ST.	1848#	2.50								4620	1959	2740	9980	12720
"	44x48	2ST	2112#	1.47								3110	1960	740	12720	13460
												7730	1965	740	19.720	10460
													1975	740	7720	8460

-2000 IMP.

7-30-74 per. 64829 chg. # 1558 -2000 imp.
Reason: chg. of use + condition

1915 TAXING DISTRICT No. 1 PART 1 PAGE 75

DESCRIPTION OF PROPERTY

HOUSE NO.	Assessors' Maps and Survey: District	Part	Page	NAME OF STREET	Side of Street	DISTANCE FROM WHAT STREET: Feet	Course	STREET	Feet Front	DEPTH: Feet	Course	Line
275/77	1	1	6	SWAN	S	E		Chicago	44	90		

OWNER Michigan Pioneer

ADDRESS Fairo Ave.

Constructed or Moved on Lot in

Remodeled or Repaired in

Occupied Vacant Rent

Permit No.

ASSESSED

Unit value of Land per foot		1916	Unit	Land 2050	Improvements 5000
Value of Land	2050	1917		2050	7500
Value of Improvements	5000	1918		2050	7500
Total Valuation		1919		2660	✓

✓ 8240

BUILDING IN CLASS

CLASS	CONSTRUCTION	O. S. TRIM	PLUMBING	MISCELLANEOUS
Single Dwlg.	Frame	Wood ✓	Open	Sideboard
Double "	Brick	Galv. Iron	Old Style	Refrigerator
Duplex "	Tile	Stone	City Water	Power Elevator
Bungalow	Block	Terra Cotta	Well "	Hand "
Flat Building	Rock	Concrete	Sewer	Sprinklers
Apartment	Metal	HEATING	Cesspool	Fire Escapes
Apartment Ho.	Stucco	Stove	LIGHT	Skylight
Store Bldg. ✓	EXTERIOR	Furnace	Gas ✓	Glass: Com. ✓ / Plate / Lead
Office "	Siding	Hot Water	Electric ✓	
Hotel "	Shingles	Steam	REPAIR	
Shop "	Stucco	Cen. Sta.	Good	
Factory "	Com. Brick ✓	Fireplace	Fair ✓	
Church "	Press "		Bad	
Barn "	Paper			
Garage "				
Warehouse				

FOUNDATION	ROOF	BASEMENT
Stone ✓	Shingle	Full ✓
Concrete	Slate	Half
Brick	Tile	Quarter
Posts	Gravel ✓	Cement fl.
	Prepared	Laundry
	Board	
	Iron	
	Asbestos	
	Flat ✓	
	Hip	
	Gable	
	Gambrel	
	Dormers	

ROOMS	Bs't	STORIES 1	2	3	to	Attic
Living Rooms			11	5		
Bed "			8	6		
Bath "						
Toilet "		1	2	2		
Office "						
Storage "						
Stores		5				
Unfinished						
Hardwood Fin.						
Paint "						
Hardwood Fl.						
Tile						

BUILDING RECAP.

BODY OF BLDG	
BASEMENT	
FOUNDATION	
ROOF	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
TOTAL	
% Depreciation	
PRESENT VALUE	

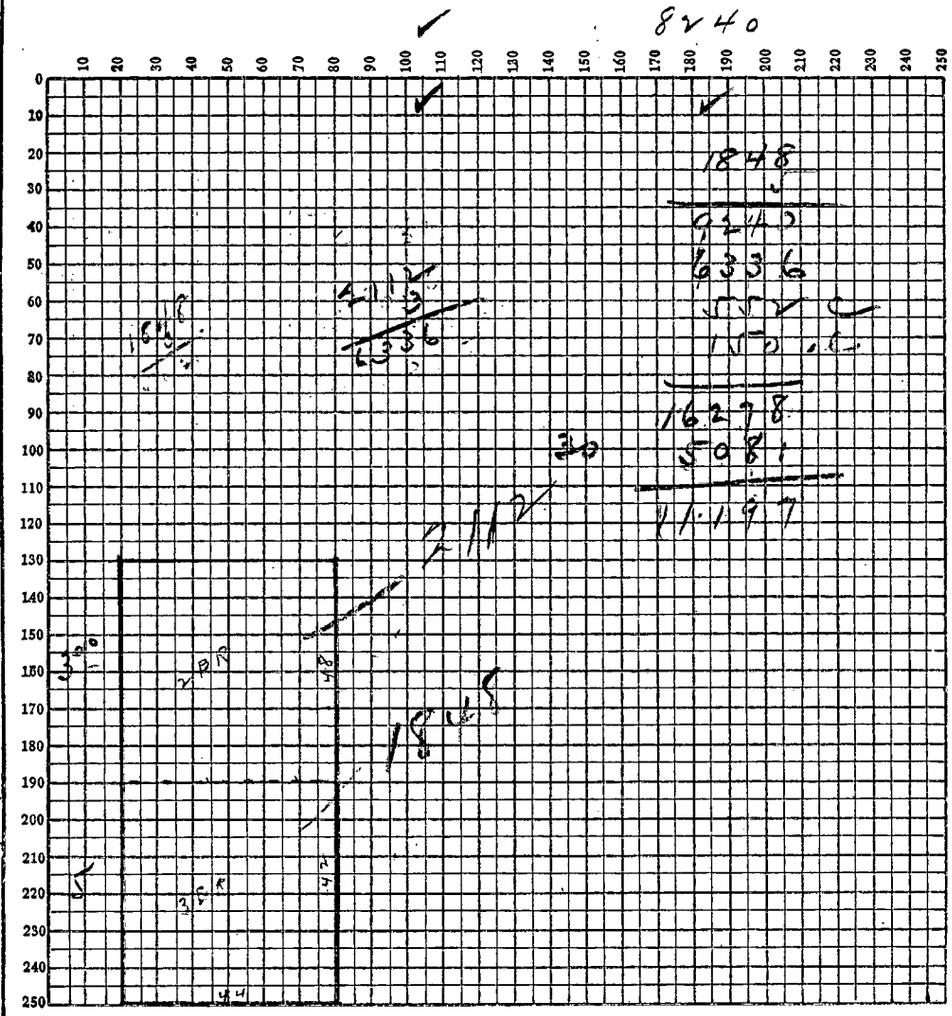
Examined by District Assessor 3/18/36 7/25/30 6/25/35 7/17/31 6/14/41 191

Complaint No. 22 Filed 191

Reviewed 191 Adjusted 191

Approved by the Board of Assrs. 191

REMARKS ON REVERSE SIDE OF SHEET



$56 \times (90') \; 95/3 = 53.20 \text{ E.F.} \times \left(\frac{55}{48}\right) 58.50 = 2740$

Chicago

O.P.A. RENTALS	O.P.A. RENTALS #435-9-441	
12	10	16
12	15	20
	Stores	

275/7

64 80 / 56 70	3230	9070	
	3230	9070	
51 50	2740	9070	
	2740	9070	
	2740	9070	
	2740	9980	+10
	2740	9980	
	2740	9980	
	2740	9980	
	2740	9980	

6/1947 fire damage

75
56
42750
3 56 75
399000

YEAR	UNIT	LAND	IMP.
1922		2660	8240
1923		2660	8240
1924		2660	8240
1925		2660	8240
1926	80-70 / 75	3990	10990
1927		3990	10990
1928		3990	10990
1929		3990	10990
1930		3990	10990
1931		3990	10990

275

YEAR	UNIT	LAND	IMP.
1932		3990	11200
1933		3990	10080
1934	-10	3590	9070
1935		3590	9070
1936	75 / 63	3590	9070
1937		3590	9070
1938		3590	9070
1939		3590	9070
1940	64 80 / 56 70	3230	9070
1941		3230	9070

Rd-
-10 11200 / 1120 / 10080
-10 1008 / 101 / 9070

1952			
1953		2740	9980
1954		2740	9980
1955		2740	9980
1956		2740	9980
1957			
1958			
1959			
1960		740	12,720
1961			
1962			
1963			
1964		740	12720
1965		740	9980
1975 ~~1966~~		740	7720
~~1967~~			
~~1968~~			

35
#6
x2

~~3x6 11~~
~~3x6 8~~
x2

Check m.F.S.
1974

SBL # 111.72-1-11 312 Dup.

THE CITY of BUFFALO, N.Y., REAL PROPERTY ASSESSMENT

Assessors Maps and Survey Section-Plate	ASSESSED TO	FRONT FEET	DEPTH	Street No.	ASSESSED ON	SIDE	DISTANCE FROM Feet	Course	Street	TYPE
1	P. Marconi	44	105	305-307	Swan	S	300	E.	Chicago	

Address

Unit Full Value of Land | F.F. | S.F.

Constructed or Moved on Lot in

Remodeled or Repaired in

WIDTH	DEPTH	DPTH. FACTOR	EFF. F.F.	AREA	UNIT VALUE	FULL VALUE
44	105				$30	
					FULL LAND VALUE	1230
					ASSESSED LAND VALUE	

SALES RECORD

YEAR	AMOUNT	REMARKS

RENTS:

BUILDING DESCRIPTION

BUILDING CLASS: Cheap, Average, Good, Expensive

TYPE
Ranch Dwelling
Single Dwelling
Double Dwelling
Duplex Dwelling
Bungalow
Gas Station
Apartment House
Store Building
Office Building
Hotel Building
Shop Building
Factory Building
Church Building
Garage Building
Warehouse

FOUNDATION
Stone
Concrete
Brick
Piers

BASEMENT
Full
Half
Quarter
Cement Floor
Laundry
Water Heater

CONSTRUCTION
Frame
Brick
Tile
Blocks
Re-Conc.
Mill
Steel Frame

EXTERIOR
Siding
Shingles
Stucco
Cam. Brick
Face Brick
Compos.

ROOF
Wood Shingle
Compos. Shingle
Slate
Tile
Gravel
Prepared
Metal
Asbestos
Flat
Hip
Gable
Gambrel
Dormers

O. S. TRIM
Wood
Metal
Stone
Terra Cotta
Concrete

HEATING
Unit
Hot Air
Hot Water
Steam
Cen. Sta.
Fireplace

MISCELLANEOUS
Incinerator
Kitchen Cabinets
Pass. Elevator
Frt. Elevator
Fire Escape
Sprinklers
Air Conditioners
Vault

CONDITION
Good
Normal
Poor

EXTRAS

ROOMS	STORIES B	1	2	3	INTERIOR FINISH Floors	Trim	Walls
Living							
Dining							
Kitchen							
Bedroom							
Bathroom							
Lavatory							
Family							
Utility							
Recreation							
Office							
Storage							
Stores							

Complaint No. _____ Filed: _____ , 19____

FRONT

IMPROVEMENT COMPUTATION													ASSESSED VALUE			
ITEM	DIMENSIONS	HEIGHT	AREA OR CONTENT	BASE RATE	PAGE	COST AT INDEX 100	LOCAL INDEX	REPL. COST	% COND.	SOUND VALUE	%	ASSESSED VALUE	YEAR	LAND	IMPROVE-MENTS	TOTAL
													1987	1230	2260	3490

Full Value

10/30/86 - Property inspect. includes 1 sty old cleaners no Basement.
garage 22x64 Newer constrnt. asphalt Shingles, wood Frame, Flat Roof,
Mim. Value to old cleaners $500 - garage on for $1.25/#

1915 TAXING DISTRICT No. ① 111.72-1-11 PART 312 PAGE 2

DESCRIPTION OF PROPERTY

HOUSE NO.	Assessors' Maps and Survey: District	Part	Page	NAME OF STREET	Side of Street	DISTANCE FROM WHAT STREET: Feet	Course	STREET	Feet Front	DEPTH: Feet	Course	Line	
305½	1	1	6	00124200 SWAN	S	300	E	Chicago	44	105			Store owner 210 (~~220~~) 70

OWNER ~~Ausabino Corporation~~ Constructed or Moved on Lot in Occupied Vacant Rent

ADDRESS ~~PETER A. STEREDUTO~~ 305 Remodeled or Repaired in Permit No.

~~DOMINIC J. CORTO WIFE #93 Lockwood~~ 4-13-48

ASSESSED

Unit value of Land per foot Front footage Corto		1916 Unit	Land ~~2025~~	Improvements	1,400
Value of Land	2025	1917	2,025		2,200
Value of Improvements	1400	1918	2,025		2,200
Total Valuation		1919	✓		✓

BUILDING IN CLASS

BUILDING RECAP.	
BODY OF BLDG.	
BASEMENT	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
TILE-FLOOR	
" TRIM	
" VENTILATOR	
BUT-IN SIDBOARD	
" CABINET	
TOTAL	
% Depreciation	
PRESENT VALUE	

CLASS 307	CONSTRUCTION	O. S. TRIM	PLUMBING	MISCELLANEOUS
Single Dwlg.	Frame ✓	Wood ✓	Open ✓	Sideboard
Double ✓ "	Brick	Galv. Iron	Old Style	Refrigerator
Duplex "	Tile	Stone	City Water	Power Elevator
Bungalow	Blocks	Terra Cotta	Well "	Hand "
Flat Building	Re-Conc.	Concrete	Sewer	Sprinklers
Apartment	Mill		Cesspool	Fire Escapes
Apartment Ho. ✓	Steel Frame	HEATING	LIGHT	Skylight
Store Bldg. ✓	EXTERIOR	Stove ✓	Gas ✓	Glass { Com. ✓ Plate Lead
Office "	Siding ✓	Furnace	Electric ✓	
Hotel "	Shingles	Hot Water	REPAIR	
Shop "	Stucco	Steam	Good ✓	
Factory "	Com. Brick	Cen. Sta.	Fair ✓	
Church "	Press "	Fireplace	Bad	307
Barn "	Paper			
Garage "				
Warehouse				

FOUNDATION	ROOF	BASEMENT
Stone ✓	Shingle ✓	Full 21 x 30
Concrete	Slate	Half
Brick	Tile	Quarter
Posts	Gravel ✓	Cement fl.
	Prepared	Laundry
	Board	
	Iron	
	Asbestos	
	Flat	
	Hip	
	Gable ✓	
	Gambrel	
	Dormers	

ROOMS	Bs't	STORIES 1	2	3	to	Attic
Living Rooms		3	3			
Bed "		3	3			
Bath "		1	1			
Toilet "		1	1		1	
Office "						
Storage "						
Stores					1	
Unfinished						
Hardwood Fin.						
Paint "						
Hardwood Fl.						
Tile						

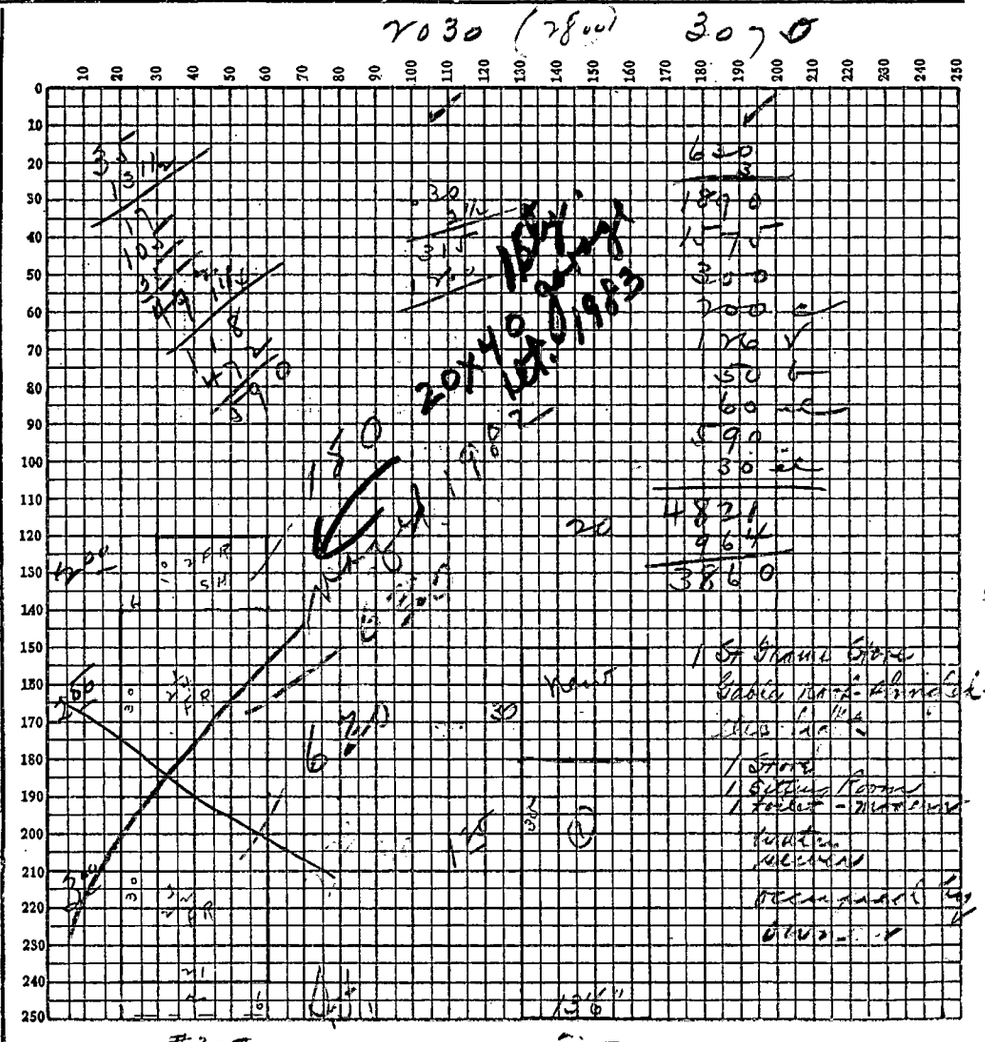
Examined by District Assessor 7/18/36 6/5/35 7/25/33 6/14/34 7/13 191

Complaint No. Filed 191

Reviewed 191 Adjusted 191

Approved by the Board of Assrs. } 191

REMARKS ON REVERSE SIDE OF SHEET



1988 E.F. x48 = 2150

To F. Sporidea
6-29-44
I.R.S. - 3.00
Consid. #3140
Mtg. #1860
Exc. D.

July 1 - 1925 R 7.00
Mtg. x.000
9000

6-21-49
Permit
47404 (150)
To Rebuild fr. open porch
for ② fmly bldg.

#305/7 S2 R2

56 70	2550	3620	
	2550	3620	
48	2150	3620	
	2150	3620	
	2150	3620	
	2150	3980	+10
	2150	3980	
	2150	3980	
	2150	3980	OK
	2150	3980	

7160
44
28560
28560
31160

9-23-82 Per # B33071
PARTIAL DEMO.
REMAINING 1 fam. Dwelling assessed as
per comparables. 5330
-3330
2000 impt. assess.
for 1983

11-83 20x40 gar.
1 sty. 10' O.H.D.
800 #
X1.50
+1200

305/7 S2 R2

YEAR	UNIT	LAND	IMP.
1922		2030	3070
1923		2030	3070
1924		2030	3070
1925		2030	3070
1926	70	3140	3990
1927		3140	3990
1928		3140	3990
1929		3140	3990
1930		3140	3990
1931		3140	3990

YEAR	UNIT	LAND	IMP.	
1932		3140	3860	Reb
1933		3140	3470	-10
1934	-10	2830	3120	-10
1935		2830	3120	
1936	63	2830	3120	
1937		2830	3620	add ①
1938		2830	3620	
1939		2830	3620	
1940	56 70 -10	2550	3620	
1941		2550	3620	

O.P.A. RENTALS
#305
23
23

1952				
1953		2150	3980	
1954		2150	3980	
1955		2150	3980	
1956		2150	3980	
1957				
1958				
1959				
1960		800	5330	
1983		800	2000	-3330 impt. razed per # B33071
1984		800	3200	+1200 impt.
1984		800	200	-3000 ? complaint

remaining bldg razed - replaced with gar.; total new assess. now closely reflects actual value.

DEPT. OF INSPECTIONS & LIC.
301 CITY HALL
BUFFALO, N.Y.

BUILDING PERMIT

636-2191

LOCATION 400 Smith
OWNER Jordan Supply Co., Inc.
ADDRESS same
DATE April 27, 1983

CONTRACTOR Macaluso Bldg. Copp
DESCRIPTION OF WORK repair, retrofit 1sty.masy bldg. office, sales, warehouse (exist)-Repl of 13 units w/1" insulated glass & thermal break sash-no str/cghs
CONDITIONS ℞ Second floor-celerstory, add 4" thick Fiberglass insulation, 26 ga "Z"furring, 26 gal Starmark I wall panel w/trim -1st fl masry bldg.-inst trench poured fdt to support masry veneer, inst. split rib masry conc. veneer -inst new entr. doors/frames panic hardware - plans filed $95,000. fee $485.00
VALUE FEE
APPLICATION # PLAN FILE #

BUILDING PERMIT # B 36409

app. #174160

DESCRIPTION OF WORK Repair, retrofit 1 story masonry building -office, sales, warehousing (existing). A. Replacement of thirteen (13) units with 1" insulated glass and thermal break sash - no structural changes B. Second floor -Celerstory, add 4" thick fiberglass insulation, 26 ga. "Z" furring, 26 ga. Starmark I Wall Panel with Trim C. First floor Masonry building- Install trench poured foundation to support masonry veneer. Install split-rib masonry concrete veneer. Install new entrance doors/frames, panic hardware Plans filed

CONDITIONS

and as shown on application numbered above, which application is made a part of this permit.

THIS PERMIT IS VOID IF FOUND TO BE ISSUED IN VIOLATION OF ANY LAW OR ORDINANCES AND CONDITIONS STATED ABOVE.

Matthew M Bauds
COMMISSIONER OR DEPUTY COMM. OF INSPECTIONS & LICENSES

tz

NEW BUILDING PERMIT

This permit is granted subject to all conditions of the Ordinances of the City of Buffalo that are applicable and further qualified that upon violation of any of the provisions of these ordinances, this permit may be revoked.

This permit is not effective until the period of review of three (3) working days after the above date, has expired.

Before said premises can be occupied, this permit must be returned to the Dep't. of Inspection & Licenses to have endorsed thereon a Certificate of Occupancy. Such certificate will be issued within ten (10) days after the completion of the building, as provided in the Zoning Ordinance.

If this work is not started within six months of the date of the permit, the permit is void.

REPAIR–ALTERATIONS, ETC.–EXISTING BUILDINGS

This permit is granted on the express condition that said alterations, shall, in all respects, conform to the ordinances of the City of Buffolo, regarding the construction of buildings, and may be revoked at any time upon the violation of any of the provisions of said ordinances or of the specifications under which this permit is granted. It is understood that the permission granted herein applies only to the work of repairing or rebuilding and has no application whatsoever to the use for which the building may be intended.

ELECTRICAL PERMIT

This permit is granted on the express condition that all work in connection herewith shall conform to the rules of the National Electric Code and to the ordinances of the City of Buffalo.

No electrical work or equipment shall be installed, changed or added to upon these premises, except that described in this permit.

PLUMBING PERMIT

This permit is granted on the express condition that the work will be done in accordance with the rules and regulations of the Buffalo Plumbing and Drainage Code and the Ordinances of the City of Buffalo.

GENERAL

This building or any part thereof shall not be used for any purpose other than that for which it is certified.

Any change of use or occupancy of a Multiple Dwelling voids this certificate.

Any change of ownership of a Multiple Dwelling voids this certificate.

00124200

DEPT. OF INSPECTIONS & LIC.
301 CITY HALL
BUFFALO, N.Y.

BUILDING PERMIT

LOCATION 305-307 Swan
OWNER Pat A Marconi
ADDRESS 309 Swan St.

(1)

DATE Feb. 9, 1983

CONTRACTOR Owner
DESCRIPTION OF WORK Erect & use 1 sty. fr. pvt. garage (Construct pvt garage on existing foundations of demolished residence- plans filed)
CONDITIONS Apvd by ZBA 11/3/82 on condition that the proposed garage is not used for buxsiness purposes

VALUE $2000.00 FEE $73.00

APPLICATION # 174227 PLAN FILE #

BUILDING PERMIT # B 35740

DESCRIPTION OF WORK Erect and use 1story frame private garage (Construct private garage on existing foundations of demolished residence- plans filed)- Address located on South side of street 306' East of Chicago St. on lot 44' x 105' area 4620sq.ft. Size of proposed garage 21' x 65' area 1365 sq.ft. Garage approved by Zoning Board of Appeals

CONDITIONS 11/3/82 on condition that the proposed garage is not used for business purposes/

and as shown on application numbered above, which application is made a part of this permit.

THIS PERMIT IS VOID IF FOUND TO BE ISSUED IN VIOLATION OF ANY LAW OR ORDINANCES AND CONDITIONS STATED ABOVE.

Matthew M Bauds

COMMISSIONER OR DEPUTY COMM. OF INSPECTIONS & LICENSES

recheck demo. items

recheck in 1984
F. Wooth

DEPT. OF INSPECTIONS & LIC.
301 CITY HALL
BUFFALO, N.Y.

BUILDING PERMIT

LOCATION P 305 Swan
OWNER Pat Marconi
ADDRESS 309 Swan

DATE June 9, 1982

CONTRACTOR Owner
DESCRIPTION OF WORK Dem. to grade a 2 sty. fr. 2 fam. dwlg.
Fut. land use- vacant, Owner to work as individual without outside assistance. pvt. demo.
CONDITIONS

VALUE $2000.00 FEE $30.00

APPLICATION # 172398 PLAN FILE #

BUILDING PERMIT # B 33071

DESCRIPTION OF WORK Demolish to grade a 2 story frame 2family dwelling.

Future land use- vacant,

Owner to work as individual without outside assistance.

Private demolition

CONDITIONS

307 still up
305 razed

Signature

and as shown on application numbered above, which application is made a part of this permit.

THIS PERMIT IS VOID IF FOUND TO BE ISSUED IN VIOLATION OF ANY LAW OR ORDINANCES AND CONDITIONS STATED ABOVE.

Matthew M Bando

COMMISSIONER OR DEPUTY COMM. OF INSPECTIONS & LICENSES

NEW BUILDING PERMIT

This permit is granted subject to all conditions of the Ordinances of the City of Buffalo that are applicable and further qualified that upon violation of any of the provisions of these ordinances, this permit may be revoked.

This permit is not effective until the period of review of three (3) working days after the above date, has expired.

Before said premises con be occupied, this permit must be returned to the Dep't. of Inspection & Licenses to hove endorsed thereon a Certificate of Occupancy. Such certificate will be issued within ten (10) days after the completion of the building, as provided in the Zoning Ordinance.

If this work is not started within six months of the date of the permit, the permit is void.

REPAIR–ALTERATIONS, ETC.–EXISTING BUILDINGS

This permit is granted on the express condition that said olterations, shall, in all respects, conform to the ordinances of the City of Buffalo, regarding the construction of buildings, and may be revoked at any time upon the violation of any of the provisions of said ordinances or of the specifications under which this permit is granted. It is understood that the permission granted herein applies only to the work of repairing or rebuilding and has no opplication whatsoever to the use for which the building may be intended.

ELECTRICAL PERMIT

This permit is granted on the express condition that all work in connection herewith shall conform to the rules of the Natianal Electric Code and to the ordinances of the City of Buffalo.

No electrical work or equipment shall be instolled, changed or added to upon these premises, except thot described in this permit.

PLUMBING PERMIT

This permit is granted on the express condition that the work will be done in accordance with the rules and regulations of the Buffalo Plumbing and Drainage Code and the Ordinonces of the City of Buffalo.

GENERAL

This building or any part thereof shall not be used for any purpose other than that for which it is certified.

Any change of use or occupancy of a Multiple Dwelling voids this certificate.

Any change of ownership of a Multiple Dwelling voids this certificate.

I&L 421

DEPT. OF INSPECTIONS & LICENSES
DIVISION OF NEW CONSTRUCTION
A
301 CITY HALL
BUFFALO, N. Y.

TOTAL FEE	$ 10.00
PAID WITH APPLICATION	$ 10.00
PAID ON PERMIT	$

ADDRESS 277 Swan Street

OWNER Nicholas Cusimano

ADDRESS 353 Burroughs Drive

CONTRACTOR Owner

ADDRESS Same

DATE Nov. 30, 1973 19 APPLICATION NO. 134912

PERMISSION IS HEREBY GRANTED TO to comp w/Buffalo Housing & Property Code. Alt.&reduce 3 sty. brick dwelling.- store only

PLAN FILE NO. $550.00

DESCRIPTION OF WORK: PERMIT No. 64829

Alter and reduce existing 3 story brick, to be used for store only. To be arranged as follows' Apartments on 3rd and 2nd floor to be used for storage only. All kitchen facilities to be removed from 2nd and 3rd floors. First floor to be used for store. Building to comply with the Buffalo Housing & Property Code. NO S/CHGS.

AND AS SHOWN ON APPLICATION NUMBERED ABOVE, WHICH APPLICATION IS MADE A PART OF THIS PERMIT.

$550.00 VALUE

NOTE CONDITIONS ON BACK OF PERMIT

DIRECTOR OF NEW CONSTRUCTION

PER PL

THIS PERMIT MUST BE POSTED ON THE BUILDING WHERE WORK IS BEING PERFORMED.

	MO. DAY YR.	MO. DAY YR.	MO. DAY YR.	MO. DAY YR.	MO. DAY YR.	MO. DAY YR.	MO. DAY YR.
DATES CALLED	7-30-74						
TIME	3:15	:	:	:	:	:	:
SPOKE TO	the attendant						
PERCENT OF COMPLETION	complying						

DETAIL OF INSPECTION: former 4 apts discontinued upper floors bldg. some areas utilized for storage ~~[illegible]~~ space for going growing ctrl rel 1st floor.

COMPUTATION: reduce $ 2000 on imp. based on cly. of use + condition ~~[illegible]~~

YR.	LAND	IMP.	TOTAL	
95	7,900	20,600	28,500	DR
96	7,900	17,100	25,000	Av-3500
97	7,900	—	7,900	Av-17,100 demo 11/96 RH
97	7900		7900	B/R NC

Swan Importing Co. 233

111.720-01-001.000 481
1-1119 0010011190 140201

CUSIMANO MARY

S 5-277 SWAN

~~353 BURROUGHS DR~~
~~BUFFALO N Y~~ 14226

AC- 0.0

LABEL CORRECTION

001 SWIS CODE	01	
002 SECTION NUMBER	05	
003 BLOCK NUMBER	11	
004 LOT NUMBER	13	
005 SUB-LOT NUMBER	16	
006 SUFFIX NUMBER	19	
007 VALUATION UNIT	21	01
008 TRANSACTION CODE	23	1
*** CARD CODE	24	01
009 PROPERTY CLASSIFICATION	26	482
010 PROPERTY ADDRESS	29 / 45 / 61	
011 PROPERTY OWNER		

SALES VERIFICATION

*** CARD CODE	24	03
101 VALID SALE 0 = No 1 = Yes	26	
102 SALE PRICE	27	
103 SOURCE 1 = Buyer 2 = Seller 3 = Fee 4 = Agent	34	
104 SALE TYPE 1 = Land 2 = Building 3 = Land & Building	35	
105 SALE YEAR	36	
106 SALE MONTH	38	

SITE CHARACTERISTICS

107 NEIGHBORHOOD TYPE 1 = Rural 2 = Crossroads 3 = Suburb 4 = Urban 5 = Subdivision 6 = Commercial	40	6
108 NEIGHBORHOOD CODE	41	
109 ROAD TYPE 0 = None 1 = Dirt 2 = Gravel 3 = Paved 4 = State	46	3
110 TRAFFIC 1 = Light 2 = Medium 3 = Heavy	47	2
111 ZONING	48	R13
112 WATER 0 = None 1 = Private 2 = Comm'l 3 = Public	52	3
113 SEWER 0 = None 1 = Private 2 = Comm'l 3 = Public	53	3
114 OTHER UTILITIES 0 = None 1 = Gas 2 = Elec 3 = Gas & Elec	54	3
115 SITE COMPARABILITY 1 = Inferior 2 = Typical 3 = Superior	55	2

INCOME INFORMATION

*** CARD CODE	24	04
201 ECONOMIC RENT	26	
202 ACTUAL RENT	32	
203 ADDITIONAL INCOME	38	
204 TOTAL EXPENSES	44	
205 VACANCY RATE	50	
206 TOTAL PROPERTY TAXES	52	
207 MORTGAGE-PERCENT FINANCED	58	
208 MORTGAGE TERM IN YEARS	60	
209 MORTGAGE INTEREST RATE	62	
210 EQUITY YIELD	66	
211 INVESTMENT PERIOD	68	
212 APPRECIATION	70	
213 DEPRECIATION	72	
214 REMAINING LIFE IN YEARS	74	

HOUSING UNITS DATA

*** CARD CODE	401 APT TYPE	402 NO. OF BEDROOMS	403 NO. OF BATHROOMS	404 TOTAL ROOMS	405 TOTAL NO. OF UNITS
24 05	26	27	28	30	31
1-2 Fix		34	35	37	38
		41	42	44	45
		48	49	51	52
		55	56	58	59
		62	63	65	66
		69	70	72	73

APT. TYPES 1 = Garden 2 = Townhouse 3 = Other

AUDIT CONTROL

*** CARD CODE	24	00
501 FORM NUMBER	26	1
502 TOTAL FORMS	27	1
503 DATE LISTED	28	08 18 78
504 LISTED BY	34	931
505 DATE MEASURED	37	
506 MEASURED BY	43	65
507 NUMBER OF VISITS 1 2 3	46	1
508 SOURCE 1 = Owner 2 = Spouse 3 = Tenant 4 = Other 5 = Estimate 6 = Refusal	47	3

MEMORANDA

OWNER NEW ADDRESS BOX 3 SHERIDAIN, N.Y. 14135

Signature by Owner or Agent below indicates data on this form was collected in your presence. It does not mean that you have verified the information hereon.

SIGNATURE DATE

COMMERCIAL/INDUSTRIAL
DATA COLLECTION FORM
ERIE COUNTY, NEW YORK
P.R.C. JACOBS CO., INC. 1976

LAND DESCRIPTION

*** CARD TYPE 24-25	301 MS-CD 26	302 SITE CODE 27-28	303 ADJ FRONT 29-31	304 ADJ DEPTH 32-34	305 AREA (Decimal if acres) 35-40	306 UNIT PRICE (Always Decimal) 41-46	307 DEPTH FACTOR 47-49	308 INFLUENCE CODE 50	O/O 51-52	+/- 53	309 LAND VALUE (Manual) 54-60
06	S	01			39.60						

PROPERTY IDENTIFICATION

001 SWIS CODE	01	0201
002 SECTION NUMBER	05	1117210
003 BLOCK NUMBER	11	01
004 LOT NUMBER	13	001
005 SUB-LOT NUMBER	16	000
006 SUFFIX NUMBER	19	
007 VALUATION UNIT	21	01
008 TRANSACTION CODE	23	1
009 BUILDING NUMBER	24	11
010 BUILDING SECTION NUMBER	26	1

YARD IMPROVEMENTS

*** CARD CODE	601 STRUCTURE CODE	602 MEASURE ONE	603 MEASURE TWO	604 NO. OF UNITS	605 CON DTN	606 FNC UTL	607 YR. BLT/ INSTL'D	608 INT EXT	609 COST NEW	610 PERCENT GOOD	611 DEPRECIATED VALUE
24-25	26-30	31-36	37-41	42-44	45	46	47-49	50	51-55	56-58	59-63
91	SN15	210		1	3	3	959	D			
92											
93											
94											
95											
96											

BUILDING-SECTION GENERAL DESCRIPTION

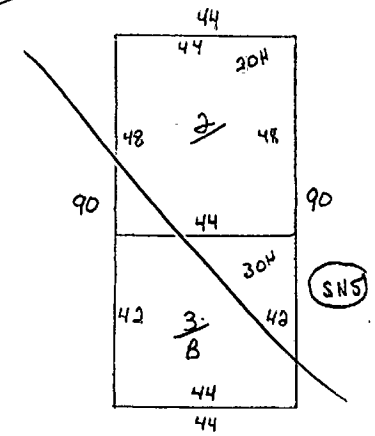
*** CARD CODE	27	10
701 YEAR BUILT	29	9010
702 BUILT AS (Property Classification)	32	482
703 EXTERIOR CONDITION 1 = Poor 2 = Fair 3 = Normal 4 = Good 5 = Renovated	35	3
704 FUNCTIONAL UTILITY 0 = None 1 = Poor 2 = Fair 3 = Normal 4 = Good	36	3
705 ROOF TYPE 00 = No Roof 01 = Flat 02 = Irregular 03 = Gable 04 = Industrial 05 = Shed 06 = Arch 07 = A-Frame	37	01
706 ROOF MATERIAL 00 = Undetermined 01 = Built-Up 02 = Shingles 03 = Rolled Compos 04 = Metal 05 = Fibreglass/Plastic 06 = Slate/Tile	39	01
707 FRAME TYPE 00 = None 01 = Fireprf Steel 02 = Reinforced Concrete 03 = Non-Fireproof Steel 04 = Masonry 05 = Wood 06 = Light Metal	41	04
708 SECTION PERIMETER	43	2618
709 BASEMENT PERIMETER	47	172

EXTERIOR WALL DESCRIPTION

*** CARD CODE	801 BASIC EXTERIOR WALLS MAT'L	LINEAL FT.	HEIGHT	802 EXTERIOR WALL FACING MAT'L	LINEAL FT.	HEIGHT
27-28	29-30	31-34	35-37	38-39	40-43	44-46
11	05	14	10			
12	03	1214	10			
13	03	1618	10			
14	03	1712	10			
15						
16						

NOTES: 901 2/4 - 2/5 HAS NOT BEEN USED FOR OVER 20 YRS ALSO WAS NOT ABLE TO SEE (CLOSED UP)

3960 ⌀



1sq = 4'

C- LOW RET.

BUILDING - SECTION INTERIOR DESCRIPTION

*** CARD CODE	901 SIMILAR STORIES FROM	TO	902 USED AS CODE	903 HGHT OF STOR	904 SHAPE	905 WIDTH	906 LENGTH	907 AREA (Square Feet)	908 INTERIOR CONDIT ION	909 FUNCTNL UTILITY	910 PERCENT INTERIOR FINISHED	911 EXTENT OF PARTIT IONS	912 FLOOR CONST.	913 PERCENT LIGHTED	914 PLUMBING	915 HEATING SYSTEM PERCENT	TYPE	916 AIR CONDITIONING PERCENT	TYPE	917 SPRINKLER SYSTEM PERCENT	TYPE
27-28	29-30	31-32	33-34	35-36	37	38-40	41-43	44-49	50	51	52-54	55	56	57-59	60	61-63	64	65-67	68	69-71	72
21	B1	B1	84	18	1	42	44		3	3	0	3	3	100	3	0	0	0	0	0	0
22	01	01	83	10	1	42	44	1848	3	3 C	100 P	3	H 2	M 100	3	00	3	0	0	0	0
23	01	01	84	10	1	44	48	2112	3	3 C	100 P	3	H 2	M 100	3	0	0	0	0	0	0
24	02	02	84	10	1	44	910	3960	1	1 E	100 P	3	H 2	D 100	0	0	0	0	0	0	0
25	03	03	84	10	1	42	49	1848	1	1 E	100 P	3	H 2	D 100	0	0	0	0	0	0	0
26																					
27																					
28																					
29																					

1915 TAXING DISTRICT No. 1 PART 1 PAGE 20

(1) 111.72-1-2 311

DESCRIPTION OF PROPERTY

HOUSE NO.	Assessors' Maps and Survey: District	Part	Page	NAME OF STREET	Side of Street	DISTANCE FROM WHAT STREET: Feet	Course	STREET	Feet Front	DEPTH: Feet	Course	Line	
279	1	1	6 ~~20~~	SWAN	S	44	S	Chicago	35	90			(~~220~~) ~~210~~ 311

OWNER ~~Antonio Mancini~~ ~~Wife~~ Constructed or Moved on Lot in Occupied Vacant 1947 Rent 22 OWN - 15 13

ADDRESS ~~Erie Co. Savings Bank~~ Remodeled or Repaired in Permit No. 3500131

ROSE AUDACE 384-

ASSESSED

Unit value of Land per foot		1916 Unit	Land	Improvements	
Value of Land	1025	1917	1325	4200	
Value of Improvements	2400	1918	1025	4200	
Total Valuation		1919	✓	✓	

BUILDING IN CLASS

CLASS	CONSTRUCTION	O. S. TRIM	PLUMBING	MISCELLANEOUS
Single Dwlg.	✓ Frame ✓	✓ Wood ✓	Open ✓	Sideboard
Double ✓ "	Brick	Galv. Iron	Old Style	Refrigerator
Duplex "	Tile	Stone	City Water	Power Elevator
Bungalow	Blocks	Terra Cotta	Well "	Hand "
Flat Building	Re-Conc.	Concrete	Sewer	Sprinklers
Apartment	Mill		Cesspool	Fire Escapes
Apartment Ho.	Steel Frame	HEATING	LIGHT	Skylight ✓
Store Bldg.	EXTERIOR	✓ Stove ✓	✓ Gas ✓ ✓	Glass { Com. ✓ Plate Lead
Office "	✓ Siding ✓	Furnace	✓ Electric	
Hotel "	Shingles	Hot Water	REPAIR	
Shop "	Stucco	Steam	Good ✓	
Factory "	Com. Brick	Cen. Sta.	Fair	
Church "	Press "	Fireplace	Bad	
Barn "	Paper			
Garage "				
Warehouse				

FOUNDATION	ROOF
Stone	✓ Shingle ✓
Concrete ✓	Slate
Brick	Tile
Post	Gravel
B	
Full	
Half	
Quar	
Cem	
Laundry	Dormers

ROOMS	Bs't	STORIES 1	2	3	to	Attic
Living Rooms		3	3		22	
Bed "		3	3		22	
Bath "		1	1		—	
Toilet "		1	1			
Tile						

1030 4620

inspected 5-28-76

281 front Hlfg - heavily damaged vacant
rear " - not damaged - vacant

1976

Examined by District Assessor 7/18/36 4/23/35 4/5/35 1/17/31 6/14/24 191

Complaint No. 1147 Filed 191

Reviewed 191 Adjusted 191

Approved by the Board of Assrs. 191

REMARKS ON REVERSE SIDE OF SHEET

1-23-40

21 x 44 = 924 x 5 = 4620
Cell 20 x 21 = 420 x 60¢ = 250
Poch. 5 x 21 = 105 x 25¢ = 260
5130 x 55% = 2820

Rear
20 x 30 = 600 x 4 = 2400 x 50% = 1200
4020

Note - These figures are high but used acc. rents.

June 2, 1958 Porch Repaired.
Front Building.
Brick foundation sports. $100 depreciation

20.50 E.F. x 48 = 980

To Erie Co. Sav. Bk.
2-11-42
Ref's. Deed
I.R.S. 485
Consid. 3500

To R. Audace
3-23-42
I.R.S. - 275

279 R.

YEAR	UNIT	LAND	IMP.
1922		1030	4620
1923		1030	4620
1924		1030	4620
1925		1030	4620
1926	70	1440	5540
1927		1440	5540
1928		1440	5540
1929		1440	5540
1930		1440	5540
1931		1440	5540

O.P.A. RENTALS
920 — 15
20 23.13

56 70	1170	3620	
	1170	3620	
48	980	3620	
	980	3620	
	980	3620	
	980	3980	+10
	980	3980	
	980	3980	
	980	3980	
	980	3980	

57.60
20
1435

YEAR	UNIT	LAND	IMP.	
1932		1440	5520	
1933		1440	4970	-10
1934	-10	1300	4970	Low
1935		1300	4970	
1936	63	1300	4970	
1937		1300	4970	
1938		1300	4970	
1939		1300	4970	
1940	56 70 -10	1170	4020	Roofing
1941		1170	3620	-10

1952				
1953		980	3980	
1954		980	3980	
1955		980	3980	
1956		980	3980	
1957		980	3980	
1958		980	3980	
1959		980	4080	
1960		420	5200	
1977		420	1500	-3700 imp. fire damage 2 bldg. V+V cly. 1759 2-14-77
1978		420	500	-1000 imp. front house razed cly. 1794 10-19-74
1979		420	—	-500 imp. razed cly 1890 11-21-78 per. # B13281

1/21/38 - No
see rents

THE CITY of BUFFALO, N.Y., REAL PROPERTY ASSESSMENT

Assessors Maps and Survey Section-Plate	ASSESSED TO	FRONT FEET	DEPTH	Street No.	ASSESSED ON	SIDE	DISTANCE FROM Feet	Course	Street	TYPE
1 6 A	ROSE AUDACE 384	25	90	279	SWAN	S	44	E	CHICAGO	

Address

Constructed or Moved on Lot in

Unit Full Value of Land | F.F. | S.F.

Remodeled or Repaired in

WIDTH	DEPTH	DPTH. FACTOR	EFF. F.F.	AREA	UNIT VALUE	FULL VALUE
					FULL LAND VALUE	
					ASSESSED LAND VALUE	

SALES RECORD

YEAR	AMOUNT	REMARKS

RENTS:

BUILDING DESCRIPTION

BUILDING CLASS: Cheap, Average, Good, Expensive

TYPE
Ranch Dwelling
Single Dwelling
Double Dwelling
Duplex Dwelling
Bungalow
Gas Station
Apartment House
Store Building
Office Building
Hotel Building
Shop Building
Factory Building
Church Building
Garage Building
Warehouse

FOUNDATION
Stone
Concrete
Brick
Piers

BASEMENT
Full
Half
Quarter
Cement Floor
Laundry
Water Heater

CONSTRUCTION
Frame
Brick
Tile
Blocks
Re-Conc.
Mill
Steel Frame

EXTERIOR
Siding
Shingles
Stucco
Com. Brick
Face Brick
Compos.

ROOF
Wood Shingle
Compos. Shingle
Slate
Tile
Gravel
Prepared
Metal
Asbestos
Flat
Hip
Gable
Gambrel
Dormers

O. S. TRIM
Wood
Metal
Stone
Terra Cotta
Concrete

HEATING
Unit
Hot Air
Hot Water
Steam
Cen. Sta.
Fireplace

MISCELLANEOUS
Incinerator
Kitchen Cabinets
Pass. Elevator
Frt. Elevator
Fire Escape
Sprinklers
Air Conditioners
Vault

CONDITION
Good
Normal
Poor

EXTRAS

ROOMS	STORIES B	1	2	3	INTERIOR FINISH Floors	Trim	Walls
Living							
Dining							
Kitchen							
Bedroom							
Bathroom							
Lavatory							
Family							
Utility							
Recreation							
Office							
Storage							
Stores							

Complaint No. _____ Filed: _____ , 19____

FRONT

IMPROVEMENT COMPUTATION													ASSESSED VALUE			
ITEM	DIMENSIONS	HEIGHT	AREA OR CONTENT	BASE RATE	PAGE	COST AT INDEX 100	LOCAL INDEX	REPL. COST	% COND.	SOUND VALUE	%	ASSESSED VALUE	YEAR	LAND	IMPROVE-MENTS	TOTAL

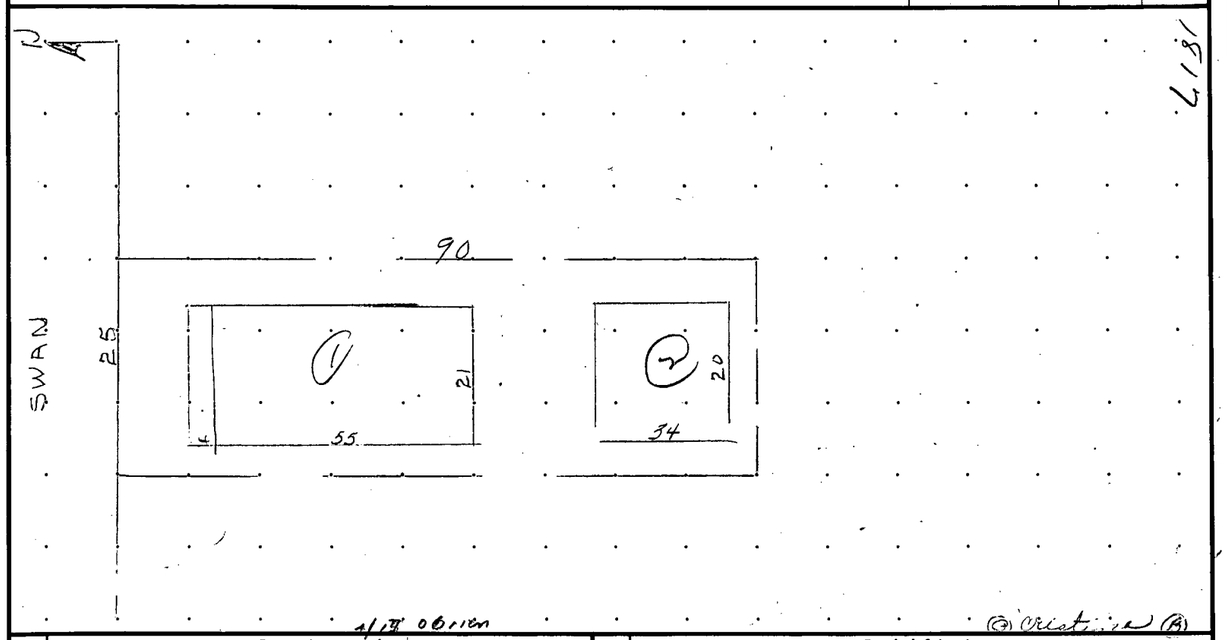
Tax Dist.	Part	Map	Block	Lot	Code

Grantee's name & mailing address

Purchase price $			Recorded		
Cash	Mortgage	Total	Date	Book	Page

	Year 19 60	19	19	19	19	19	19	19	19	19
ASSESSMENT SUMMARY										
401										
402 Appraised full value — Land 351	650									
403 Appraised full value — Impvts. 352	1480									
404 Appraised full value — Total 353	1130									
405 Assessment-ratio %	65									
406 Assessed valuation — Land 402 × 405	420									
407 Assessed valuation — Impvts. 403 × 405	960									
408 Assessed valuation — Total 406 + 407	1480									
409 Assessed valuation — Exemption										
410 Net assessment 408-409										
Record of assessment										
411 Owner's claim — Appeal No.										
412 Owner's claim — Full value										
413 Owner's claim — Assessable value										
414 Revision by — Land										
415 Revision by — Impvts.										
416 Revision by — Total 414 + 415										
417 Revision by — Exemption										
418 Final Net Assmt. 416-417										
419 Change 418-410 = + / 410-418 = −										
Record of appeals										

No.			Side	Cor.	from		ft.			St.	Tax District	Part	Map
279	Swan	St.	N E S W		Chicago	44		N E S W			1	A	6



101	Inspection record: Items	Inspector	Ext.	Int.	Refusal
102	i. r	Cassidy	6/17/58	6/17/58	
103					
104					
105					
106					

124	Land deficiencies: Description	Unit	Quant.	Unit pr.	Amount
125					
126					
127					
128					
129					

107	No.	Miscellaneous improvements — Description	Dimensions	Quantity	Unit price	Reprod. cost	Deprec. value %	Deprec. value $
108								
109		0						
110								
111								

112	RENTALS	Building No. 1				Building No. 2			
113	Item	Ground floor	2nd story	Other stories	Total	Ground floor	2nd story	Other stories	Total
114	Claimed rent incl. utilities								
115	Deduction for utilities								
116	Line 114 — line 115								
117	Shelter rent — Claimed	00				20	17		37
118	Shelter rent — Inspector's estimate	35	30		65	20	15		35
119	Adopted shelter rent								
120	Adopted rent, other bldgs.								
121	Total adopted rent 119 + 120	65		35					
122	Capitalization factor	85		85					
123	Capitalized value	5525		2975					

City of Buffalo. Assessment Dept. Form V.1 - 56

201	BUILDING No.	1			2												
202	Built, year	19W			17W												
203	Recond. year	0			0												
204	Recond. cost	0			0												
205	Recond. nature	0			0												
206	Recond. nature	0			0												
207	Designed as	R✓V			R✓V												
208	Present use	R✓V			R✓V												
209	No. of stories	2½✓			2½✓												
210	Basement	100%			0												
211	Quality grade, structure	2			2												
212	Wall Material	WS			CW												
213																	
214	Roof type / cover	GA	RR		GA	RR											
215	Flooring																
216		SW			SW												
217	Dimensions	21 x 55			20 x 34												
218																	
219	Equipment	Type	No.	Q. G.	Type	No.	Q. G.	Type	No.	Q. G.	Type	No.	Q. G.	Type	No.	Q. G.	
220	Heating	1	✓		1	✓											
221																	
222	Kitchens		✓	✓	= 550	✓	✓	= 300									
223																	
224	Toilet rooms	3PC	✓	✓	1PC	1	✓										
225				1320	1PC	1	✓	280									
226																	
227	PT/4/6	21x4 = 84 x 3.70 =						311									
228																	
229																	
230																	
231	Summarized rating	QG	C	M	QG	C	M	QG	C	M	QG	C	M	QG	C	M	
232	Exterior	2✓	G	G	2	G	G										
233	Interior	2	G	G	2	G	G										
234	Basement	2	G	G		0											
235	Heating plant		0			0											
236	Kitchens		G			G											
237	Toilet rooms		G			G											
238	Composite	2	G	G	2	G	G										
239	Comparative age	50			50												

301	BUILDING No.	1		2													
302	Price table no.	44		44													
303	Basic S.F. price	9.83		11.76													
304	S.F. price adjustment: Roof																
305	Floor																
306	Height																
307	Heating	.68		.88													
308	Lighting																
309	Total S.F. price	10.51		12.64													
310	Area S.F.	1155		680													
311	Area cost 309 × 310	12139		8595													
312	Wall	l.f.	pr.	l.f.	pr.	l.f.	pr.	l.f.	pr.	l.f.	pr.	l.f.	pr.				
313	Wall cost																
314	Lump sum adjustment: Partitions																
315	Basement			~~-~~ 408													
316	Plumbing	1320		480													
317	Sprinklers																
318	Elevators																
319		861		3													
320	Reprod. cost 311 + 313 : 319	14320		8767													
321	R.C. less ord. deprec.	% 72	10310	% 72	6312	%		%		%		%					
322	Spec. deprec.: Dist. Rating P	% 95	9795	%		%		%		%		%					
323	Rd Vin Pen			-1070													
324																	
325	Deprec. value 321 − 322 : 324	9795		5681													

326	LAND Shape		1		2		3	340	SUMMARY	Yr. 19		Yr. 19		Yr. 19
327	Zoned as							341	Land 339	650			
328	Depth	90						342	Buildings 325	15476			
329	Width	25						343	Misc. impvts. 107	—			
330	Depth value factor / Shape factor	.866 / 1.0						344	Summation 341 : 343	16126			
331	Equiv. feet 330 × 329	21.7						345	Special depreciation				
332	Base price	30						346					
333	332 × 331	651						347	Summation value 344 : 346	16130			
334	Adj. for							348	Capitalized value 123	8500	x		
335								349	Comparable-sale value				
336	333 ± 334 : 335							350					
337	Total of line 336					651		351	Appraised Value of Land	650			
338	Easement and/or Deficiency					+ −		352	Appraised Value of Impvts.	15480			
339	Total land 337 ± 338							353	Appraised Value of Whole	16130			

DEPT. OF INSPECTIONS & LIC.
301 CITY HALL
BUFFALO, N.Y.

BUILDING PERMIT

C

LOCATION 279 Swan (rear) DATE 8/7/78

OWNER Rose Ardaco

ADDRESS 22 Littell

CONTRACTOR R. A. Metzger, Inc.

DESCRIPTION OF WORK Dem. to gr. 2½ sty. fr. 2 fam. dwlg. Fut. land use- vacant City Emergency- Block Grant Project #88-141

CONDITIONS

VALUE $1400.00 FEE $30.00

APPLICATION # 154455 PLAN FILE #

BUILDING PERMIT # B 13231

DESCRIPTION OF WORK Demolish to grade 2½ story frame 2 family dwelling.

Future land use- vacant- City Emergency- Block Grant Project #88-141

DATE OF COMPLETION

CONDITIONS

Comp'd 1890 11-21-78

and as shown on application numbered above, which application is made a part of this permit.

THIS PERMIT IS VOID IF FOUND TO BE ISSUED IN VIOLATION OF ANY LAW OR ORDINANCES AND CONDITIONS STATED ABOVE.

Matthew M Bando

COMMISSIONER OR DEPUTY COMM. OF INSPECTIONS & LICENSES

tz

C

LOCATION 279 Swan St (front) DATE 7/19/77

OWNER Rose Audace

ADDRESS 384 Swan Street

DEPT. OF INSPECTIONS & LIC.
301 CITY HALL
BUFFALO, N.Y.

BUILDING PERMIT

CONTRACTOR Walt;s Tree Service 69 Cemetary Rd 14086

DESCRIPTION OF WORK Demo 2½ sty. fr & brick dwlg.
2 fam. City orders L 7600237

CONDITIONS

VALUE 1,821.00 FEE 30.00

APPLICATION # 150378 PLAN FILE #

BUILDING PERMIT # B 09177

DESCRIPTION OF WORK Demolition to grade ~~1~~ 2½ story frame dwelling. Future land use-
vacant. City order L 7600237.

CONDITIONS #281 Swan sty. fr. bldg. 1+V To not pay. 1+V must be demolished front & bldg. rear bldg. rear bldg. 1+V. fr.

DATE OF COMPLETION 8-12-77 not started

and as shown on application numbered above, which application is made a part of this permit.

THIS PERMIT IS VOID IF FOUND TO BE ISSUED IN VIOLATION OF ANY LAW OR ORDINANCES AND CONDITIONS STATED ABOVE.

ko

Joseph A. Parisi
COMMISSIONER OR DEPUTY COMM. OF INSPECTIONS & LICENSES

8-12-77 10-14-77

2:45 4 P.M.

[illegible] front house [illegible]

not [illegible]

#1552 2 of 3

BUREAU OF FIRE PREVENTION - FIRE RECORD

F 33
REV. 3-1-70

Batt. Dist	Time	Day of Week	Month	Day	Year
1st	0446	MON	MARCH	22	76

Address	Room or Apt. No.	Occupant
279 SWON		UP. ANNA GEORGIANNA

Owner	Address of Owner
ROSE AUDAIE	SAME MR. MRS F. AURICHIO

Transmission of Alarm	Type of Situation Found
	FIRE

Type of Action Taken	Eng. Co. (1st-In Dist.)	Platoon	No. Alarms	Mutual Aid YES ___ NO ___
EXT				

Property Classification	Complex	Area of Origin	Const.	Size
		Folly INV.	FRAME	2½ 25X40

Height or Floor	If Mobile	Make	Model	License N
	Year			

Number Injured	Number Killed
Civilians / Fire Service	Civilians Fire Service

NAME AND ADDRESS OF INJURED	NAME AND ADDRESS OF KILLED
FF BRANIE CARDINES - NAIL LEFT FOOT ENG 3 F.F. DONALD BRADNY FELL ON ICE	→ EMERGENCY HOSPITAL REMOVED

STATEMENT OF INJURY Example: Smoking in bed, playing with matches, traffic accident, unknown cause

1659

Number Fire Service Personnel at Scene Officers Men	Number Eng. Cos.	Number Truck Cos.	Number Other Vehicles

Equipment Involved in Ignition	Form of Heat Ignition
Material Ignited	Form of Material Ignited
Act or Omission (cause of fire)	Extent of Flame Damage
Extent of Other Damage	Estimated Property Loss: 15,000 / Bldg: 10,000 / Contents: 500
Method of Extinguishment	Number Streams ¾-1" 1½" 2½" / Feet of Ladders
Ins. Carried Bldg. / Ins. Carried Contents	Officer in Charge (Name, Position)
Ins. Paid Bldg. / Ins. Paid Contents	Member Making Report (If Different from Above)

Additional Information

X Posure

SWIS	TAX MAP NUMBER	SEQ	CD			OWNER NAME	DATE / SITE
147001	111.72-1-2	00	JB	COUNTY OF ERIE COUNTY TOWN OF CITY OF BUFFALO VILLAGE OF BUFFALO TD 1		JOHNSON WILLIAM A.	DATE 11/07/86 SITE 01 OF 1

PARCEL IDENTIFICATION SECTION

LOCATION	279 SWAN
CLASSIFICATION	311 RESIDENTIAL VACANT LAND
SCHOOL	21
ROLL SECT.	1
ACRES	
FRONTAGE	25
DEPTH	90
ROUTE	00042
REVIEWER	
DATE	

SALES INFORMATION SECTION

SALDTE	
SALPRC	
SALTYP	
VALID	
VERIFY	

BUILDING INFORMATION SECTION

010041

DATA ITEM	DESCRIPTION	MNEMONIC	CODE

SITE INFORMATION SECTION

000031

DATA ITEM	DESCRIPTION	MNEMONIC	CODE
PROPERTY CLS	RES/VAC LAND	PRCLAS	311
NBHD CODE	42	NBHD	42
TYPE DRIVE		DRVWAY	
SEWER AVAIL	COMM/PUBLIC	SEWER	3
WATER AVAIL	COMM/PUBLIC	WATER	3
UTILITIES	GAS/ELEC	UTIL	4
FLD REVU CDE	COST	FRVU	C
PHYSICAL CHG		PHYCHG	

BUILDING AREA SECTION

010041

DATA ITEM	AREA	MNEMONIC

VALUATION SECTION

VALUE YEAR = 86

SITE LNDVAL	$700
SITE MODEST	
SITE CMPEST	
RES RCN	
RES RCNLD	
IMPR RCN	
IMPR RCNLD	
PRCL LNDVAL	
PRCL TOTVAL	

NOTES SECTION

10/10 FS dmt 10/22/90

LAND BREAKDOWN SECTION

LND TYP	DESC	STRCID	EFF CD	FRNFT	DEPTH	ACRES	SQFT	RATING	WTRFTG	WTRFNT	INFLCD	INFLPC	DEPFCT	YR	UNTPRC	LNDVLU
01	PRIME SITE	000145		25	90								.87	86	$30,000	$653

ADDITIONAL IMPROVEMENTS SECTION

SKETCH	STRCID	RECCD	STRCD	MODCD	DESC	MEASCD	DIM 1	DIM 2	QUAN	GRADE	COND	BUILT	AGEXMP	PRCTGD	FNCOBS	YR	RCN	RCNLD

OFFICE USE ONLY

EA 3102 (4/84)

NEW YORK STATE DIVISION OF EQUALIZATION AND ASSESSMENT
BUREAU OF LOCAL ASSESSMENT SERVICES
RESIDENTIAL, FARM, AND VACANT LAND PROPERTY RECORD CARD

SITE INFORMATION SECTION

ZONING	ZONING CODE	UTIL	UTILITIES
01	NO ZONING	1	NONE
02	SINGLE RES	2	GAS
03	MULTI RES	3	ELECTRIC
04	FARM	4	GAS/ELEC
05	COMMERCIAL		
06	INDUSTRIAL	ELEV	ELEVATION
07	MIXED		
08	GOVERNMENT	1	BELOW GRADE
		2	LEVEL
NBHTYP	NBHD TYPE	3	ABOVE GRADE
1	RURAL	SITDSR	SIT DSRABLTY
2	SUBURBAN		
3	URBAN	1	INFERIOR
4	COMMERCIAL	2	TYPICAL
		3	SUPERIOR
ROAD	FRONTING ROAD		
		FARMTR	FARM TREND
1	NONE		
2	UNIMPROVED	1	DECLINING
3	IMPROVED	2	TRANSITION
		3	STABLE
TRAF	TRAFFIC FLOW		
		FRMTOP	FARM TOPO
1	HEAVY		
2	MEDIUM	1	LEV-GENTLE
3	LIGHT	2	GENTLE-HILL
4	LANDLOCK	3	HILLY-STEEP
		4	LEVEL-HILLY
DRVWAY	TYPE DRIVE	5	LEVEL-STEEP
1	NONE	PHYCHG	PHYSICAL CHG
2	UNIMPROVED		
3	IMPROVED	1	RES CONST
		2	IMP CONST
SEWER	SEWER AVAIL	3	RES DEMO
		4	IMP DEMO
1	NONE		
2	PRIVATE	DOMFPD	DOM FARM PD
3	COMM/PUBLIC		
		1	NON-FARM AR
WATER	WATER AVAIL	2	DAIRY
		3	CASH CROP
1	NONE	4	FRUIT
2	PRIVATE	5	POULTRY
3	COMM/PUBLIC	6	MIXED
LAYOUT	FARM LAYOUT		
1	POOR		
2	AVERAGE	AGDPCM	AG DIST COM
3	GOOD		
		1	NONE
FARMQL	FARM QUALITY	2	AGRIC DIST
		3	PRIV COMIT
1	MARGINAL		
2	AVERAGE		
3	ABOVE AVE		

SALES INFORMATION SECTION

SALTYP	SALE TYPE
1	LAND ONLY
2	BLDG ONLY
3	LAND & BLDG
VALID	VALID SALE
1	YES
2	NO
VERIFY	VERIFIED SALE
1	UNCONFIRMED
2	BUYER
3	SELLER
4	STAMPS
5	AGENT
6	OTHER

LAND BREAKDOWN SECTION

LNDTYP	LAND TYPES
01	PRIMARY
02	SECONDARY
03	UNDEVELOPED
04	RESIDUAL
05	TILLABLE
06	PASTURE
07	WOODLAND
08	WASTELAND
09	MUCK
10	WATERFRONT
11	ORCHARD
12	REAR
13	VINEYARD
14	WETLAND
15	LEASED LAND

RESIDENTIAL BUILDING AREA SECTION

BLDSTY	BLDG STYLE	HEATYP	HEATING SYS
01	RANCH	1	NO CENTRAL
02	RAISED RANCH	2	HOT AIR
03	SPLIT LEVEL	3	HOTWTR/STM
04	CAPE COD	4	ELECTRIC
05	COLONIAL		
06	CONTEMPORARY	FUEL	FUEL TYPE
07	MANSION		
08	OLD STYLE	1	NONE
09	COTTAGE	2	GAS
10	ROW	3	ELECTRIC
11	LOG CABIN	4	OIL
12	DUPLEX	5	WOOD
13	BUNGALOW	6	SOLAR
14	OTHER STYLE	7	COAL
15	TOWNHOUSE		
		AIRCON	AIRCONDITION
EXTWAL	WALL MATERIAL	1	YES
01	WOOD		
02	BRICK	INSUL	INSULATION
03	AL/VINYL		
04	COMPOSITION	1	NONE
05	CONCRETE	2	ATTIC
06	STUCCO	3	WALLS
07	STONE	4	ATT&WALLS
STNBRK	WALL STN/BRK	INCOND	INTER COND
1	YES	1	POOR
		2	FAIR
KITQL	KIT QUALITY	3	NORMAL
		4	GOOD
1	POOR	5	EXCELLENT
2	AVERAGE		
3	GOOD	EXCOND	EXTER COND
BTHQL	BATH QUAL	1	POOR
		2	FAIR
1	POOR	3	NORMAL
2	AVERAGE	4	GOOD
3	GOOD	5	EXCELLENT
PLUMB	PLUMBING	BASMT	BASMT TYPE
1	YES	1	SLAB/PIER
		2	CRAWL
GRADE	GRADE	3	PARTIAL
		4	FULL
A	EXPENSIVE		
B	GOOD		
C	AVERAGE		
D	ECONOMY		
E	MINIMUM		

REVIEWER AND NOTES SECTION

REVIEWED BY _____

DATE _____

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N.Y. STATE DIVISION OF
EQUALIZATION AND ASSESSMENT

COMMONLY USED CODES

PROPERTY CLASS CODES

AGRICULTURE (100)

105 AGRICULTURE VACANT LAND
110 LIVESTOCK & PRODUCTS
111 POULTRY & PRODUCTS
112 DAIRY & PRODUCTS
113 CATTLE, HOGS & PRODUCTS
114 SHEEP & WOOL
115 HONEY & BEESWAX
116 OTHER LIVESTOCK
120 FIELD CROPS
130 TRUCK CROPS/MUCKLAND
140 TRUCK CROPS
150 ORCHARD CROPS
151 TREE FRUITS
152 VINEYARDS
160 OTHER FRUITS
170 NURSERY GREENHOUSE
181 FUR PRODUCTS
182 PHEASANT
183 AQUATIC
190 FISH/GAME WILDLIFE

RESIDENTIAL (200)

210 ONE FAMILY YEAR ROUND
220 TWO FAMILY YEAR ROUND
230 THREE FAMILY YEAR ROUND
240 RURAL RESIDENCE WITH ACREAGE
250 ESTATE
260 SEASONAL RESIDENCE
270 MOBIL HOME
271 MULTIPLE MOBILE HOME
280 MULTIPLE RESIDENCE

VACANT LAND (300)

311 RESIDENTIAL VACANT
312 RESIDENTIAL VACANT, IMPROVED
313 WATERFRONT VACANT
314 RURAL, 10 ACRES OR LESS
321 ABANDONED AGRICULTURAL
322 RURAL RESIDENTIAL, 10 ACRES OR MORE
323 OTHER RURAL VACANT
330 COMMERCIAL VACANT
340 INDUSTRIAL VACANT
350 URBAN RENEWAL

WILD AND FORESTED (900)

910 PRIVATE (EXCEPT 920)
920 PRIVATE HUNTING & FISHING
930 STATE OWNED
940 COUNTY OWNED

STRUCTURE AND ASSOCIATED MODIFICATION CODES

PORCHES	
RP1 - OPEN PORCH	SF/DIM
RP2 - COVERED PORCH	SF/DIM
RP3 - SCREENED PORCH	SF/DIM
RP4 - ENCLOSED PORCH	SF/DIM
RP5 - UPPER OPEN PORCH	SF/DIM
RP6 - UPPER COVERED PORCH	SF/DIM
RP7 - UPPER SCREENED PORCH	SF/DIM
RP8 - UPPER ENCLOSED PORCH	SF/DIM
PORCH MODIFICATIONS	
B03 - EARTH FLOOR	SF
B09 - BASEMENT	SF
H06 - CENTRAL HEAT	SF
I02 - FINISHED ROOM	SF
P01 - SINGLE PLUMBING FIXTURE	QUAN
W01 - BRICK/STONE WALLS	QUAN
GARAGES	
RG1 - ATTACHED, 1 STORY	SF/DIM
RG2 - ATTACHED, 1½ STORY	SF/DIM
RG3 - ATTACHED, 2 STORY	SF/DIM
RG4 - DETACHED, 1 STORY	SF/DIM
RG5 - DETACHED, 1½ STORY	SF/DIM
RG6 - DETACHED, 2 STORY	SF/DIM
GARAGE MODIFICATIONS	
B03 - EARTH FLOOR	SF
B09 - BASEMENT	SF
E06 - CENTRAL HEAT	SF
I02 - FINISHED ROOM	SF
P01 - SINGLE PLUMBING FIXTURE	QUAN
W01 - BRICK/STONE WALLS	QUAN
CANOPIES	
CP5 - ROOF ONLY	SF/DIM
CP6 - CANOPY OVER SLAB	SF/DIM
CP7 - CANOPY WITH SLAB & SCREEN	SF/DIM
PATIOS	
LP6 - ASPHALT PATIO	SF
LP7 - FLAGSTONE/SAND BASE	SF
LP8 - FLAGSTONE/CONCRETE	SF
LP9 - BRICK PATIO	SF
SWIMMING POOLS	
LS1 - STEEL VINYL POOL	SF/DIM
LS2 - FIBERGLASS POOL	SF/DIM
LS3 - POURED CONCRETE POOL	SF/DIM
LS4 - GUNITE POOL	SF/DIM
LS5 - ABOVE GROUND POOL	SF/DIM
SWIMMING POOL MODIFICATIONS	
H03 - ELECTRIC HEATER	QUAN
H08 - GAS OR PROPANE HEATER	QUAN
CARPORT	
RC1 - CARPORT	SF/DIM
CARPORT MODIFICATION	
B03 - EARTH FLOOR	SF
MOBILE HOME	
RM5 - MOBILE HOME	LENGTH/WIDTH
MOBILE HOME MODIFICATIONS	
B07 - SKIRTING	LENGTH
B08 - FOUNDATION BLOCK	LENGTH
H04 - CENTRAL AIR CONDITIONING	TONS
I06 - 7x12 ADDITION	QUAN
I07 - 7x24 ADDITION	QUAN
I08 - TIP OUT ROOM	QUAN
MISCELLANEOUS STRUCTURES	
FM1 - MILKHOUSE (SEPARATE)	SF/DIM
GH2 - GREENHOUSE	SF/DIM
GL1 - GRAIN LOADING EQUIPMENT	HGT-CAPAC
MP1 - MANURE PIT	SF/DIM
MS1 - MISCELLANEOUS	DOLLARS

BARNS	
FB1 - ONE STORY DAIRY	SF/DIM
FB2 - 1.5 STORY DAIRY	SF/DIM
FB3 - TWO STORY DAIRY	SF/DIM
FB4 - ONE STORY GENERAL PURPOSE	SF/DIM
FB5 - 1.5 STORY GENERAL PURPOSE	SF/DIM
FB6 - TWO STORY GENERAL PURPOSE	SF/DIM
FB7 - POLE BARN	SF/DIM
FB8 - ONE STORY HORSE BARN	SF/DIM
BARN MODIFICATIONS	
B03 - EARTH FLOOR	SF
E01 - MILKING PARLOR STALLS	QUAN
M01 - MILK HOUSE	SF
M02 - MILKING PARLOR	SF
S03 - MULTIPLE SECTION	QUAN
SHEDS	
FC1 - SHED, MACHINERY (WOOD)	SF/DIM
FC2 - SHED, ALUMINUM	SF/DIM
FC3 - SHED, GALVANIZED	SF/DIM
FC4 - SHED, BAKED-ENAMEL	SF/DIM
SHED MODIFICATIONS	
B06 - CONCRETE FLOOR	SF
H06 - CENTRAL HEAT	SF
L01 - ELECTRICITY	SF
P01 - SINGLE PLUMBING FIXTURE	QUAN
MILKING PARLOR	
FM2 - MILKING PARLOR (SEPARATE)	SF/DIM
MILKING PARLOR MODIFICATIONS	
E01 - STALLS	QUAN
POULTRY HOUSES	
FP1 - ONE STORY POULTRY HOUSE	SF/DIM
FP2 - TWO STORY POULTRY HOUSE	SF/DIM
FP3 - ADDNL. STORY POULTRY HOUSE	SF/DIM
POULTRY HOUSE MODIFICATIONS	
H07 - NO WALL INSULATION	SF
H09 - VENTILATION	SF
H11 - NO CEILING INSULATION	SF
W07 - MASONRY	QUAN
QUONSET HUT	
FQ5 - QUONSET HUT	SF/DIM
QUONSET HUT MODIFICATIONS	
B03 - EARTH FLOOR	SF
H06 - CENTRAL HEAT	SF
L02 - NO ELECTRICITY	SF
P01 - SINGLE PLUMBING FIXTURE	QUAN
SILOS	
FS1 - CONCRETE STAVE SILO	HGT-DIAM
FS2 - HARVESTORE SILO	HGT-DIAM
FS3 - WOOD STAVE SILO	HGT-DIAM
FS4 - TILE OR CONCRETE BLOCK	HGT-DIAM
FS5 - METAL SILO	HGT-DIAM
SILO MODIFICATIONS	
E04 - UNLOADER < 20'	QUAN
E05 - UNLOADER > 20'	QUAN
R03 - NO ROOF	QUAN
BUNKER SILOS	
FT1 - CONCRETE BUNKER SILO	LENGTH
FT2 - WOOD BUNKER SILO	LENGTH
BUNKER SILO MODIFICATIONS	
B06 - CONCRETE FLOOR	SF
STEEL STORAGE BIN	
SB1 - STEEL STORAGE BIN	HGT-DIAM
STEEL STORAGE BIN MODIFICATIONS	
E06 - AUGER AND LEVELER	QUAN
F01 - DRYING FLOOR	QUAN
H13 - FAN AND HEATER	QUAN

RESIDENCE DESCRIPTION

*** CARD CODE	24	2 1
601 RESIDENCE STYLE 1 = Ranch 2 = Raised Ranch 3 = Split 4 = Cape Cod 5 = Colonial 6 = Contemporary 7 = Mansion 8 = Old Style 9 = Cottage 10 = Row House 11 = Mobile Home 12 = Duplex 13 = Other	26	
602 EXTERIOR WALLS 1 = Frame 2 = Brick 3 = Brick/Frame 4 = Composition 5 = Concrete 6 = Stucco 7 = Stone 8 = Aluminum Siding 9 = Vinyl Siding	28	
603 BRICK/STONE VENEER - Number of Partial Sides	29	
604 BRICK/STONE VENEER - Number of Full Sides	30	
605 BASEMENT TYPE 1 = None (Pier/Slab) 2 = None (crawl) 3 = Partial 4 = Full	31	
606 BASEMENT EARTH FLOOR 0 = No 1 = Yes	32	
607 NUMBER OF BASEMENT GARAGE OPENINGS	33	
608 PARTIAL BASEMENT AREA	34	
609 FINISHED BASEMENT AREA	38	
610 HEAT TYPE 0 = None 1 = Central 2 = Central w/A.C. 3 = Hot Water/Steam 4 = Electric	42	
611 NUMBER OF KITCHENS	43	
612 KITCHEN STYLE 0=None 1=Old 2=Semi-Mod 3=Modern	44	
613 PLUMBING 0 = No 1 = Yes	45	
614 NUMBER OF FULL BATHROOMS	46	
615 NUMBER OF HALF BATHROOMS	47	
616 BATH STYLE 0=None 1=Old 2=Semi-Mod 3=Modern	48	
617 NUMBER OF BEDROOMS	49	
618 TOTAL NUMBER OF ROOMS	50	
619 NUMBER OF STORIES	52	
620 NUMBER OF FIREPLACES	54	
621 NUMBER OF FIREPLACES ON SAME CHIMNEY	55	
622 NUMBER OF SINGLE PLUMBING FIXTURES	56	
623 NUMBER OF BAY WINDOWS	57	
624 LINEAL FEET OF FINISHED DORMERS	58	
625 LINEAL FEET OF UNFINISHED DORMERS	61	
626 EXTERIOR CONDITION 1 = Poor 2 = Fair 3 = Normal 4 = Good	64	
627 INTERIOR CONDITION 0 = Uninhabitable 1 = Poor 2 = Fair 3 = Normal 4 = Good	65	
628 GRADE A = Expensive B = Good C = Average D = Economy E = Minimum	66	
629 RESIDENCE YEAR BUILT	67	
630 RESIDENCE YEAR REMODELED	70	

NOTES:

RESIDENCE MEASUREMENT

*** CARD CODE	24	2 2
701 FIRST FLOOR LIVING AREA	26	
702 SECOND FLOOR LIVING AREA	30	
703 ADDITIONAL FLOOR LIVING AREA	34	
704 FINISHED ATTIC AREA	38	
705 HALF STORY FINISHED AREA	42	
706 HALF STORY UNFINISHED AREA	46	
707 MAIN RESIDENCE UNFINISHED AREA	50	
708 TOTAL LIVING AREA	54	

GARAGE/PORCH DESCRIPTION

709 GARAGE TYPE 0 = None 1 = Attached 2 = Detached 3 = Carport	59	
710 GARAGE GRADE A = Expensive B = Good C = Average D = Economy E = Minimum	60	
711 GARAGE YEAR BUILT	61	
712 GARAGE NUMBER OF STORIES	64	
713 GARAGE DEPTH	66	
714 GARAGE WIDTH	68	
715 MAIN PORCH TYPE 1 = Open 2 = Covered 3 = Screened 4 = Enclosed UPPER DECK 5 = Open 6 = Covered 7 = Screened 8 = Enclosed 0 = None	70	
716 MAIN PORCH WIDTH	71	
717 MAIN PORCH LENGTH	73	

ADDITIONAL IMPROVEMENTS

*** CARD TYPE	801 STRUC. CODE	802 MODIF. CODE	UN 803	804 MEASURE ONE	805 MEASURE TWO	CN 806	GR 807	CN 808	809 YR. BUILT
24-25	26-28	29-31	32	33-37	38-41	42	43	44	45-46
4 1									
4 2									
4 3									
4 4									
4 5									
4 6									
4 7									
4 8									
4 9									
5 0									

NOTES:

RESIDENTIAL/MOBILE HOME MODIFICATIONS

*** CARD TYPE	901 STRUC. CODE	902 MODIF. CODE	UN 903	904 MEASURE ONE	905 MEASURE TWO	CN 906
24-25	26-28	29-31	32	33-37	38-41	42
3 1						
3 2						
3 3						
3 4						
3 5						
3 6						

MOORE BUSINESS FORMS, INC. - 82

LABEL CORRECTION

001 SWIS CODE	01	
002 SECTION NUMBER	05	
003 BLOCK NUMBER	11	
004 LOT NUMBER	13	
005 SUB-LOT NUMBER	16	
006 SUFFIX NUMBER	19	
007 VALUATION UNIT	21	01
008 TRANSACTION CODE	23	1
*** CARD CODE	24	01
009 PROPERTY CLASSIFICATION	26	311
010	29	
PROPERTY	45	
ADDRESS	61	
011 PROPERTY		
OWNER		

111.720-01-002.000 220
1-1120 0010011200 140201

AUDACE ROSE

S 279 SWAN

279 SWAN ST
BUFFALO N Y 14204

AC- 0.0

SALES VERIFICATION

*** CARD CODE	24	03
101 VALID SALE 0 = No 1 = Yes	26	
102 SALE PRICE	27	
103 SOURCE 1 = Buyer 2 = Seller 3 = Fee 4 = Agent	34	
104 SALE TYPE 1 = Land 2 = Building 3 = Land & Building	35	
105 SALE YEAR	36	
106 SALE MONTH	38	

AUDIT CONTROL

*** CARD CODE	24	00
501 FORM NUMBER	26	1
502 TOTAL FORMS	27	1
503 DATE LISTED	28	051019
504 LISTED BY	34	314
505 DATE MEASURED	37	
506 MEASURED BY	43	10
507 NUMBER OF VISITS 1 2 3	46	1
508 SOURCE 1 = Owner 2 = Spouse 3 = Tenent 4 = Other 5 = Estimate 6 = Refusal	47	5

SITE CHARACTERISTICS

107 NEIGHBORHOOD TYPE 1 = Rural 2 = Cross-Roads 3 = Suburb 4 = Urban 5 = Subdivision 6 = Commercial	40	4
108 NEIGHBORHOOD CODE	41	
109 RD TYPE 0=None 1=Dirt 2=Gravel 3=Paved 4=State	46	3
110 TRAFFIC 1 = Light 2 = Medium 3 = Heavy	47	2
111 ZONING	48	R3
112 WATER 0=None 1=Private 2=Comm'l 3=Public	52	3
113 SEWER 0=None 1=Private 2=Comm'l 3=Public	53	3
114 OTHER UTL'S 0=None 1=Gas 2=Elec 3=Gas & Elec	54	3
115 SITE COMP'BLTY 1=Inferior 2=Typical 3=Superior	55	2
116 VIEW INFL 0=None 1=Detrimental 2=Enhancing	56	0
117 SITE DESIR'BLTY 1=Inferior 2=Typical 3=Superior	57	2
118 ELEVATION 1=Below Street 2=Level 3=Above Street	58	
119 SETBACK (Nearest 10 Feet)	59	
120 DRIVEWAY TYPE 0=Unpaved 1=Concrete 4=Asphalt	62	
121 DRIVEWAY WIDTH	63	
122 DRIVEWAY LENGTH	65	
123 PATIO TYPE 0=None 3=Concrete 6=Asphalt 7=Flagstone/Sand 8=Flagstone/Concrete 9=Brick	68	
124 PATIO WIDTH	69	
125 PATIO LENGTH	71	
126 FENCE TYPE 0=None 1=Chain 2=Picket 3=Stockade 4=Rail 5=Basketweave 6=Iron 7=Stone/Brick	74	
127 FENCE HEIGHT	75	
128 FENCE LENGTH	77	

MEMORANDA

3rd Demolition Verified 3:35PM

Signature by Owner or Agent below indicates data on this form was collected in your presence. It does not mean that you have verified the information hereon.

SIGNATURE DATE

RESIDENTIAL/FARM/VACANT

DATA COLLECTION FORM
ERIE COUNTY, NEW YORK
P.R.C. JACOBS CO, INC. 1976

LAND DESCRIPTION

*** CARD TYPE (24-25)	301 MS. CD. (26)	302 SITE CODE (27-28)	303 ADJ FRONT (29-31)	304 ADJ DEPTH (32-34)	305 AREA (Decimal if acres) (35-40)	306 UNIT PRICE (Always Decimal) (41-46)	307 DEPTH FACTOR (47-49)	308 INFLUENCE CODE (50)	0/0 (51-52)	+/- (53)	309 LAND VALUE (Manual) (54-60)
11	L	03	25	90							
12											
13											
14											
15											
16											

(1) 111.72-1-3 311

1915 TAXING DISTRICT No. 1 PART 1 PAGE 26

S, R 2

DESCRIPTION OF PROPERTY

HOUSE NO.	Assessors' Maps and Survey: District	Part	Page	NAME OF STREET	Side of Street	DISTANCE FROM WHAT STREET: Feet	Course	STREET	Feet Front	DEPTH: Feet	Course	Line
281	1	1	6	SWAN	S	69	E.	Chicago.	25	100		

(481) 311

OWNER ~~Buffalo Series B. Corp.~~ Marie Bernales

ADDRESS ~~Giuliano Celli & W.~~

Constructed or Moved on Lot in

Remodeled or Repaired in

Occupied Vacant Rent

Permit No.

ASSESSED

Unit value of Land per foot		1916 Unit	Land 1100	Improvements 3800	
Value of Land	1100	1917	1100	5000	
Val	3500	1918	1100	5000	

computed 5-28-76

Swan 279 fire damaged bldg.
front bldg - heavily damaged vacant
rear " not damaged - ~~[illegible]~~ appears occupied

5500

BUILDING RECAP.

Single Dwg.	Brick	Galv. Iron	Old Style	Refrigerator
Double "	Tile	Stone	City Water	Power Elevator
Duplex "	Blocks	Terra Cotta	Well "	Hand "
Bungalow	Re-Conc.	Concrete	Sewer	Sprinklers
Flat Building	Mill		Cesspool	Fire Escapes
Apartment	Steel Frame			Skylight
Apartment Ho.				Glass: Com. ✓ / Plate / Lead
Store Bldg. ✓				
Office "				
Hotel "				
Shop "				
Factory "				
Church "				
Barn "				
Garage "				
Warehouse				

EXTERIOR: ✓ Siding / Shingles / Stucco / Com. Brick / Press " / Paper

HEATING: ✓ Stove / Furnace / Hot Water ✓ / Steam / Cen. Sta. / Fireplace

LIGHT: ✓ Gas / Electric ✓

REPAIR: ✓ Good ✓ / Fair / Bad

FOUNDATION: ✓ Stone / Concrete ✓ / Brick / Posts

ROOF: ✓ Shingle ✓ / Slate / Tile / Gravel / Prepared / Board / Iron / Asbestos / Flat / Hip / Gable ✓ / Gambrel / Dormers

BASEMENT: Full 30 x 40 / Half / Quarter / Cement fl. / Laundry

ROOMS	Bs't	STORIES 1	2	3	to	Attic
Living Rooms		2	2		2 2	
Bed "			3		2 2	
Bath "		1			1 1	
Toilet "			1		1 1	
Office "			1			
Storage "						
Stores		1	Drug			
Unfinished						
Hardwood Fin.						
Paint "						
Hardwood Fl.						
Tile						

TOTAL
% Depreciation
PRESENT VALUE

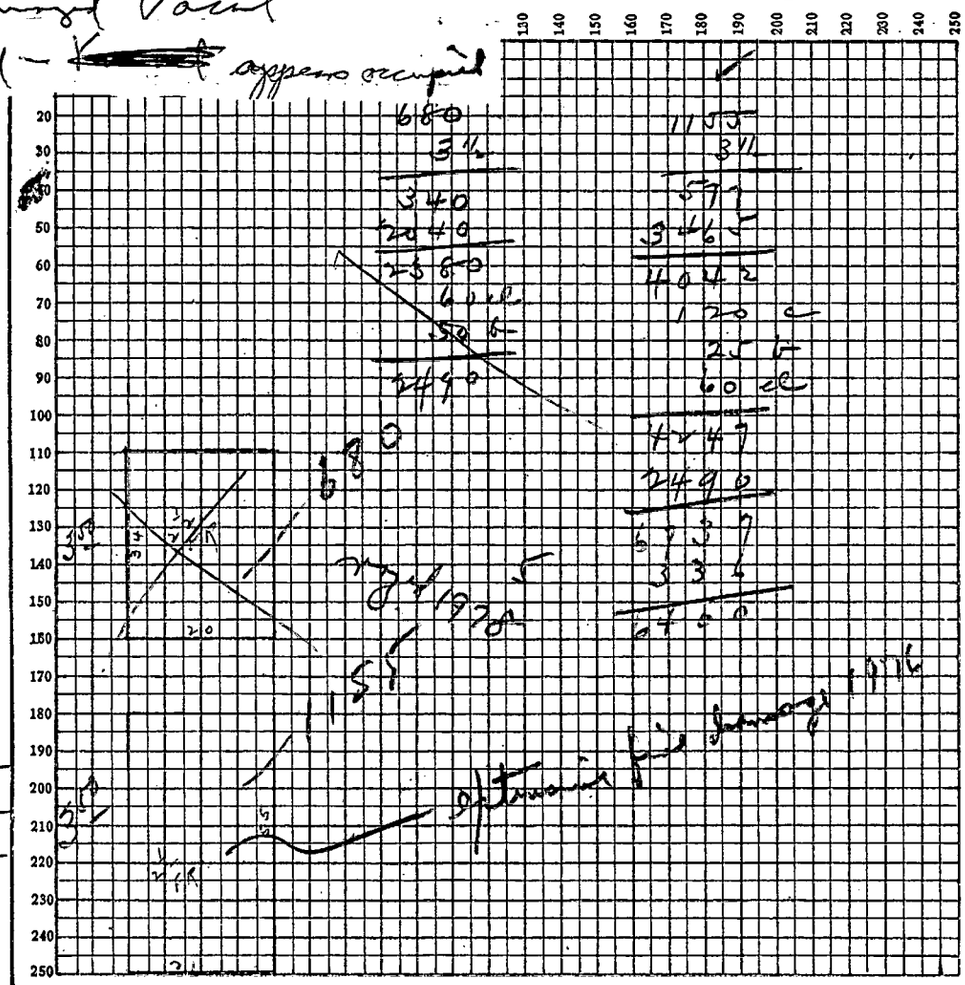
Examined by District Assessor 7/18/36 7/25/35 6/15/34 6/17/31 6/14/34 191

Complaint No. Filed 191

Reviewed 191 Adjusted 191

Approved by the Board of Assrs. 191

REMARKS ON REVERSE SIDE OF SHEET


680
3½
340
2040
2380
600
50
2490
1100
3½
550
1155
1100
3½
550
1155
1100
3½
550
1155
1916
1100
3½
550
1155
1100
3½
550
1155
1916
1100
3½
550
1155
1916
1100
3½
550
1155
1916

Sale 9506 2-21-62 25E.F. x 48 =

Apr 6 - 1922 - 7930

Referees deed. 1-6-38 $5500

281 S. R.

YEAR	UNIT	LAND	IMP.
1922		1750	5500
1923		1750	5500
1924		1750	5500
1925		1750	5500
1926	70	1750	6600
1927		1750	6600
1928		1750	6600
1929		1750	6600
1930		1750	6600
1931		1750	6600

O.P.A. RENTALS
17
16

56 70	1420	5180		
	1420	5180		
48	1200	5180		
	1200	5180		
	1200	5180		25
	1200	5700	+10	70
	1200	5700		1750
	1200	5700		
	1200	5700		
	1200	5700		

YEAR	UNIT	LAND	IMP.	
1932		1750	6400	Ref
1933		1750	5760	-10
1934	-10	1580	5180	-10
1935		1580	5180	
1936	63	1580	5180	
1937		1580	5180	
1938		1580	5180	
1939		1580	5180	
1940	56 70 -10	1420	5180	
1941		1420	5180	

1952				
1953		1200	5700	
1954		1200	5700	
1955		1200	5700	
1956		1200	5700	
1957				
1958				
1959				
1960		440	7270	-5270 imp. fire damage
1977		440	2000	2 bldg. V+V cby 1759 2-14-77
1978		440	1000	-1000 imp. V+V. cby 1826 1-29-78
1979		440	—	-1000 imp. royal cby 1890 11-21-78 per. # B11035

THE CITY of BUFFALO, N.Y., REAL PROPERTY ASSESSMENT

Assessors Maps and Survey Section-Plate	ASSESSED TO	FRONT FEET	DEPTH	Street No.	ASSESSED ON	SIDE	DISTANCE FROM Feet	Course	Street	TYPE
1 6 A	MARIA PERALES	25	100	281	SWAN	S	69	E	CHICAGO	

Address

Unit Full Value of Land | F.F. | S.F.

Constructed or Moved on Lot in

Remodeled or Repaired in

WIDTH	DEPTH	DPTH. FACTOR	EFF. F.F.	AREA	UNIT VALUE	FULL VALUE
					FULL LAND VALUE	
					ASSESSED LAND VALUE	

SALES RECORD

YEAR	AMOUNT	REMARKS

RENTS:

BUILDING DESCRIPTION

BUILDING CLASS: Cheap, Average, Good, Expensive

TYPE
Ranch Dwelling
Single Dwelling
Double Dwelling
Duplex Dwelling
Bungalow
Gas Station
Apartment House
Store Building
Office Building
Hotel Building
Shop Building
Factory Building
Church Building
Garage Building
Warehouse

FOUNDATION
Stone
Concrete
Brick
Piers

BASEMENT
Full
Half
Quarter
Cement Floor
Laundry
Water Heater

CONSTRUCTION
Frame
Brick
Tile
Blocks
Re-Conc.
Mill
Steel Frame

EXTERIOR
Siding
Shingles
Stucco
Com. Brick
Face Brick
Compos.

ROOF
Wood Shingle
Compos. Shingle
Slate
Tile
Gravel
Prepared
Metal
Asbestos
Flat
Hip
Gable
Gambrel
Dormers

O. S. TRIM
Wood
Metal
Stone
Terra Cotta
Concrete

HEATING
Unit
Hot Air
Hot Water
Steam
Cen. Sta.
Fireplace

MISCELLANEOUS
Incinerator
Kitchen Cabinets
Pass. Elevator
Frt. Elevator
Fire Escape
Sprinklers
Air Conditioners
Vault

CONDITION
Good
Normal
Poor

EXTRAS

ROOMS	STORIES B	1	2	3	INTERIOR FINISH Floors	Trim	Walls
Living							
Dining							
Kitchen							
Bedroom							
Bathroom							
Lavatory							
Family							
Utility							
Recreation							
Office							
Storage							
Stores							

Complaint No. _____ Filed: _____ , 19____

FRONT

IMPROVEMENT COMPUTATION													ASSESSED VALUE			
ITEM	DIMENSIONS	HEIGHT	AREA OR CONTENT	BASE RATE	PAGE	COST AT INDEX 100	LOCAL INDEX	REPL. COST	% COND.	SOUND VALUE	%	ASSESSED VALUE	YEAR	LAND	IMPROVE-MENTS	TOTAL

Tax Dist.	Part	Map	Block	Lot	Code

Grantee's name & mailing address

Recorded Date	Recorded Book	Recorded Page	Purchase price $ Cash	Purchase price $ Mortgage	Purchase price $ Total

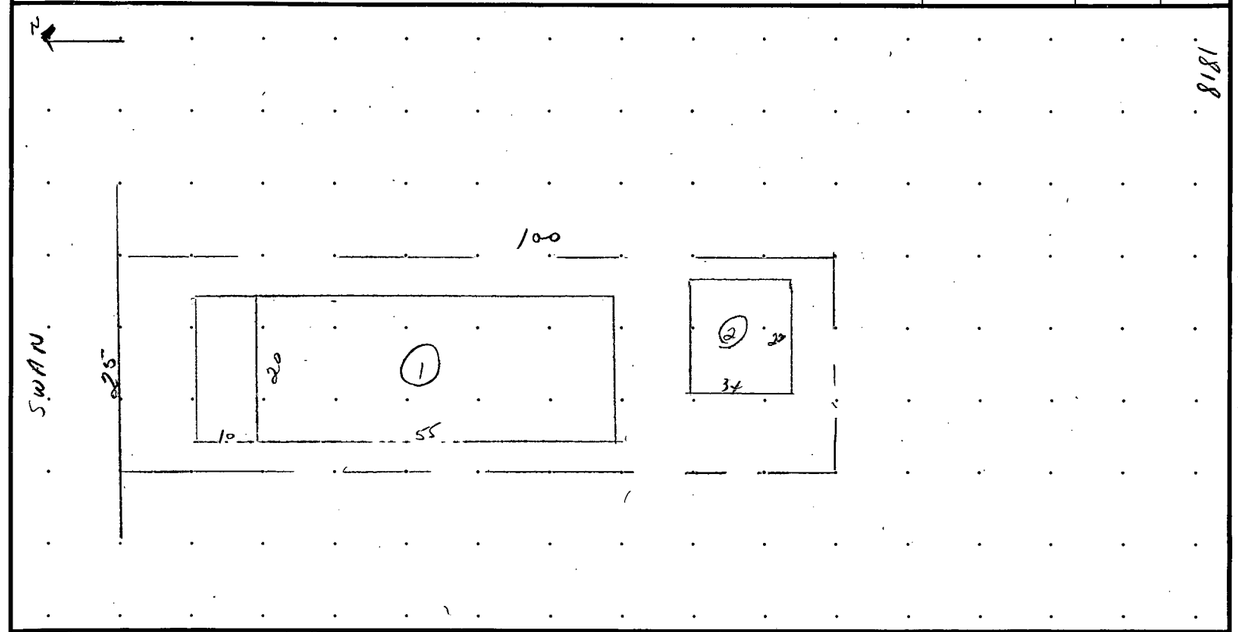
	19	19	19	19	19	19	19	19	19	19

		19 60
ASSESSMENT SUMMARY		Year
Appraised full value	Land 351	680
	Impvts. 352	15 390
	Total 353	16 070
Assessment-ratio %		65
Assessed valuation	Land 402 × 405	440
	Impvts. 403 × 405	10 000
	Total 406 + 407	10 440
	Exemption	
Net assessment 408-409		
Record of assessment		
Appeal No.		
Owner's claim	Full value	
	Assessable value	
Revision by	Land	
	Impvts.	
	Total 414 + 415	
	Exemption	
Final Net Assmt. 416-417		
Record of appeals		
Change	418-410 = + 410-418 = −	

401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419

No. 281 Swan St. N E S W Side Cor. from Chicago St. ft. N E S W

Tax District	Part	Map
1	A	6



101	Inspection record: Items	Inspector	Ext.	Int.	Refusal
102	1-2	COONLY	6-17-58	6-17-58	
103					
104					
105					
106					

124	Land deficiencies: Description	Unit	Quant.	Unit pr.	Amount
125					
126					
127					
128					
129					

107	No.	Miscellaneous improvements — Description	Dimensions	Quantity	Unit price	Reprod. cost	Deprec. value %	Deprec. value $
108								
109								
110								
111								

112	RENTALS		Building No.				Building No.			
113	Item		Ground floor	2nd story	Other stories	Total	Ground floor	2nd story	Other stories	Total
114	Claimed rent incl. utilities									
115	Deduction for utilities									
116	Line 114 — line 115									
117	Shelter rent	Claimed								
118		Inspector's estimate	40	30		70	25	20		45
119	Adopted shelter rent									
120	Adopted rent, other bldgs.									
121	Total adopted rent 119 + 120		70		45					
122	Capitalization factor		85		85					
123	Capitalized value		59 50		38 25					

City of Buffalo. Assessment Dept. Form V.1 - 56

201	BUILDING No.	1			2											
202	Built, year	1900			1900											
203	Recond. year	0			0											
204	Recond. cost	0			0											
205	Recond. nature	0			0											
206	Recond. nature	0			0											
207	Designed as	R2V			R2V											
208	Present use	CHURCH + APT.			R2V											
209	No. of stories	2½			2½											
210	Basement	100%			0											
211	Quality grade, structure	2			2											
212	Wall Material	CW			CW											
213																
214	Roof type	GA			GA											
	Roof cover	RR			RR											
215	Flooring															
216		SW			SW											
217	Dimensions	20 x 65			20 x 34											
218																
219	Equipment	Type	No.	Q. G.	Type	No.	Q. G.	Type	No.	Q. G.	Type	No.	Q. G.	Type	No.	Q. G.
220	Heating	3	1		1	2										
221		1	2													
222	Kitchens G		1	2	300	2	2	= 300								
223	U		1	2												
224	Toilet rooms G	1pc.	1	2	1pc.	2	2	= 280								
225	U	3pc.	1	2												
226				800												
227	gd. flor	Church														
228	2nd "	APT.														
229																
230																
231	Summarized rating	QG	C	M	QG	C	M	QG	C	M	QG	C	M	QG	C	M
232	Exterior	2	G	G	2	G	G									
233	Interior	2	G	G	2	G	G									
234	Basement	2	G	G		0										
235	Heating plant		G			0										
236	Kitchens		G			G										
237	Toilet rooms		G			G										
238	Composite	2	G	G	2	G	G									
239	Comparative age	40			50											

301	BUILDING No.	1		2												
302	Price table no.	46		46												
303	Basic S.F. price	9.50		11.76												
304	S.F. price adjustment: Roof															
305	Floor															
306	Height															
307	Heating	-0-		.88												
308	Lighting															
309	Total S.F. price	9.50		12.64												
310	Area S.F.	1300		680												
311	Area cost 309 × 310	12 350		8595												
312	Wall	l.f.	pr.	l.f.	pr.	l.f.	pr.	l.f.	pr.	l.f.	pr.	l.f.	pr.			
313	Wall cost															
314	Lump sum adjustment: Partitions															
315	Basement			No 408												
316	Plumbing	800		280												
317	Sprinklers															
318	Elevators															
319		300		300												
320	Reprod. cost 311 + 313 : 319	13450		8767												
321	R.C. less ord. deprec.	% 76	10222	% 72	6312	%		%		%		%				
322	Spec. deprec.: Dist. Rating P	% 95	9711	%		%		%		%		%				
323	R2V in Rear			-10%												
324																
325	Deprec. value 321 − 322 : 324	9711		5681												

326	LAND Shape	1	2	3	340	SUMMARY	Yr. 19	Yr. 19	Yr. 19
327	Zoned as				341	Land 339	680		
328	Depth	100			342	Buildings 325	15392		
329	Width	25			343	Misc. impvts. 107	–		
330	Depth value factor / Shape factor	.913 / 1.0			344	Summation 341 : 343	16072		
331	Equiv. feet 330 × 329	22.8			345	Special depreciation			
332	Base price	30			346				
333	332 × 331	684			347	Summation value 344 : 346	16070		
334	Adj. for				348	Capitalized value 123	9775	x	
335					349	Comparable-sale value			
336	333 ± 334 : 335				350				
337	Total of line 336			684	351	Appraised Value of Land	680		
338	Easement and or Deficiency			±	352	Appraised Value of Impvts.	15390	/	
339	Total land 337 ± 338				353	Appraised Value of Whole	16070		

DEPT. OF INSPECTIONS & LIC.
301 CITY HALL
BUFFALO, N.Y.

BUILDING PERMIT

C

LOCATION 281 Swan /-/ DATE Jan 20, 1978

OWNER Maria Perales

ADDRESS 281 Swan

CONTRACTOR R.A. Metzger Const.

DESCRIPTION OF WORK Demolish to grade 2 - 2½ story 3 family and store. future use vacant apartment.

CONDITIONS

VALUE $3520.00 FEE $50.00

APPLICATION # 152176 PLAN FILE #

BUILDING PERMIT # B 11035

DESCRIPTION OF WORK Demolish to grade 2 - each 2½ story 3 family and store. apartment. rodent control, water, sewer, insurance approvals attached to application. City Contract #16268 - Spec. Ass. Funds 902

DATE OF COMPLETION

CONDITIONS

Complete 0 1890 11-21-78

and as shown on application numbered above, which application is made a part of this permit.

THIS PERMIT IS VOID IF FOUND TO BE ISSUED IN VIOLATION OF ANY LAW OR ORDINANCES AND CONDITIONS STATED ABOVE.

vjc

Clarence J. Jones

COMMISSIONER OR DEPUTY COMM. OF INSPECTIONS & LICENSES

1/

#1552 1st @ 0446 2nd @ 0453 1 of 3

2nd Alarm

BUREAU OF FIRE PREVENTION - FIRE RECORD

F 33
REV. 3-1-70

Batt. Dist	Time	Day of Week	Month	Day	Year
1	0446	MON	March	22	76

Address	Room or Apt. No.	Occupant
281 SWDM		?

Owner	Address of Owner
MARIA PERALES	UNK BIRD AVE.

Transmission of Alarm	Type of Situation Found
1-325	FIRE

Type of Action Taken	Eng. Co. (1st-in Dist.)	Platoon	No. Alarms	Mutual Aid YES / NO
B & T	1	3RD	2+	YES / NO ✓

Property Classification	Complex	Area of Origin	Const.	Size
DWL STORE		Fully	FRAME	2½ 25X40

Height or Floor	If Mobile	Make	Model	License N
	Year			

Number Injured		Number Killed	
Civilians	Fire Service	Civilians	Fire Service

NAME AND ADDRESS OF INJURED	NAME AND ADDRESS OF KILLED

STATEMENT OF INJURY Example: Smoking in bed, playing with matches, traffic accident, unknown cause

chg 9759

#1826 1-29-76

Number Fire Service Personnel at Scene	Number Eng. Cos.	Number Truck Cos.	Number Other Vehicles
Officers 17 Men 41	7	4	B-53 B-48 F-72 F81 B-49 F15 F-30 B-54 F-57 F-75

Equipment Involved in Ignition	Form of Heat Ignition
FLAM - LIQUID	—

Material Ignited	Form of Material Ignited
BLDG. MAT. & FURNISHINGS	SOLID

Act or Omission (cause of fire)	Extent of Flame Damage
~~UNDER INVESTIGATION~~ ARSON	

Extent of Other Damage	Estimated Property Loss	Bldg.	Contents
EXP TO 279-283	7000	5000	2000

Method of Extinguishment	Number Streams ¾-1"	1½"	2½"	Feet of Ladders
WATER		4	6	300

Ins. Carried Bldg.	Ins. Carried Contents	Officer in Charge (Name, Position)
		B-53 B-41 CAPT. M. Tobell B-54 B-55 FUNK

Ins. Paid Bldg.	Ins. Paid Contents	Member Making Report (If Different from Above)
		Black

Additional Information

SWIS	TAX MAP NUMBER	SEQ	CD			OWNER NAME	DATE / SITE
147001	111172-1-3	00	JU	COUNTY OF ERIE COUNTY TOWN OF CITY OF BUFFALO VILLAGE OF BUFFALO TD 1		JOHNSON WILLIAM A	DATE 11/07/86 SITE 01 OF 1

PARCEL IDENTIFICATION SECTION

LOCATION	281 SWAN
CLASSIFICATION	311 RESIDENTIAL VACANT LAND
SCHOOL	21
ROLL SECT.	1
ACRES	
FRONTAGE	25
DEPTH	100
ROUTE	00042
REVIEWER	
DATE	

SALES INFORMATION SECTION

SALDTE	
SALPRC	
SALTYP	
VALID	
VERIFY	

BUILDING INFORMATION SECTION

010041

DATA ITEM	DESCRIPTION	MNEMONIC	CODE

SITE INFORMATION SECTION

000031

DATA ITEM	DESCRIPTION	MNEMONIC	CODE
PROPERTY CLS	RES VAC LAND	PRCLAS	311
NBHD CODE	42	NBHD	42
TYPE DRIVE		DRVWAY	
SEWER AVAIL	COMM/PUBLIC	SEWER	3
WATER AVAIL	COMM/PUBLIC	WATER	3
UTILITIES	GAS/ELEC	UTIL	4
FLD REVU CDE	COST	FRVU	C
PHYSICAL CHG		PHYCHG	

BUILDING AREA SECTION

010041

DATA ITEM	AREA	MNEMONIC

VALUATION SECTION

VALUE YEAR = 86

SITE	LNDVAL	$700
SITE	MODEST	
SITE	CMPEST	
RES	RCN	
RES	RCNLD	
IMPR	RCN	
IMPR	RCNLD	
PRCL	LNDVAL	
PRCL	TOTVAL	

NOTES SECTION

10/10 FB dmt 10/22/86

LAND BREAKDOWN SECTION

LND TYP	DESC	STRCID	EFFCD	FRNFT	DEPTH	ACRES	SQFT	RATING	WTRFTG	WTRFNT	INFLCD	INFLPC	DEPFCT	YR	UNTPRC	LNDVLU
01	PRIME SITE	000145		25	100								.91	86	$30,000	$683

ADDITIONAL IMPROVEMENTS SECTION

SKETCH	STRCID	RECCD	STRCD	MODCD	DESC	MEASCD	DIM 1	DIM 2	QUAN	GRADE	CDND	BUILT	AGEXMP	PRCTGD	FNCOBS	YR	RCN	RCNLD

OFFICE USE ONLY

EA 3102 (4/84)

NEW YORK STATE DIVISION OF EQUALIZATION AND ASSESSMENT
BUREAU OF LOCAL ASSESSMENT SERVICES
RESIDENTIAL, FARM, AND VACANT LAND PROPERTY RECORD CARD

SITE INFORMATION SECTION

ZONING	ZONING CODE	UTIL	UTILITIES
01	NO ZONING	1	NONE
02	SINGLE RES	2	GAS
03	MULTI RES	3	ELECTRIC
04	FARM	4	GAS/ELEC
05	COMMERCIAL		
06	INDUSTRIAL	ELEV	ELEVATION
07	MIXED		
08	GOVERNMENT	1	BELOW GRADE
		2	LEVEL
NBHTYP	NBHD TYPE	3	ABOVE GRADE
1	RURAL	SITDSR	SIT DSRABLTY
2	SUBURBAN		
3	URBAN	1	INFERIOR
4	COMMERCIAL	2	TYPICAL
		3	SUPERIOR
ROAD	FRONTING ROAD		
		FARMTR	FARM TREND
1	NONE		
2	UNIMPROVED	1	DECLINING
3	IMPROVED	2	TRANSITION
		3	STABLE
TRAF	TRAFFIC FLOW		
		FRMTOP	FARM TOPO
1	HEAVY		
2	MEDIUM	1	LEV-GENTLE
3	LIGHT	2	GENTLE-HILL
4	LANDLOCK	3	HILLY-STEEP
		4	LEVEL-HILLY
DRVWAY	TYPE DRIVE	5	LEVEL-STEEP
1	NONE	PHYCHG	PHYSICAL CHG
2	UNIMPROVED		
3	IMPROVED	1	RES CONST
		2	IMP CONST
SEWER	SEWER AVAIL	3	RES DEMO
		4	IMP DEMO
1	NONE		
2	PRIVATE	DOMFPD	DOM FARM PD
3	COMM/PUBLIC		
		1	NON-FARM AR
WATER	WATER AVAIL	2	DAIRY
		3	CASH CROP
1	NONE	4	FRUIT
2	PRIVATE	5	POULTRY
3	COMM/PUBLIC	6	MIXED
LAYOUT	FARM LAYOUT		
1	POOR		
2	AVERAGE	AGDPCM	AG DIST COM
3	GOOD		
		1	NONE
FARMQL	FARM QUALITY	2	AGRIC DIST
		3	PRIV COMIT
1	MARGINAL		
2	AVERAGE		
3	ABOVE AVE		

SALES INFORMATION SECTION

SALTYP	SALE TYPE
1	LAND ONLY
2	BLDG ONLY
3	LAND & BLDG
VALID	VALID SALE
1	YES
2	NO
VERIFY	VERIFIED SALE
1	UNCONFIRMED
2	BUYER
3	SELLER
4	STAMPS
5	AGENT
6	OTHER

LAND BREAKDOWN SECTION

LNDTYP	LAND TYPES
01	PRIMARY
02	SECONDARY
03	UNDEVELOPED
04	RESIDUAL
05	TILLABLE
06	PASTURE
07	WOODLAND
08	WASTELAND
09	MUCK
10	WATERFRONT
11	ORCHARD
12	REAR
13	VINEYARD
14	WETLAND
15	LEASED LAND

RESIDENTIAL BUILDING AREA SECTION

BLDSTY	BLDG STYLE	HEATYP	HEATING SYS
01	RANCH	1	NO CENTRAL
02	RAISED RANCH	2	HOT AIR
03	SPLIT LEVEL	3	HOTWTR/STM
04	CAPE COD	4	ELECTRIC
05	COLONIAL		
06	CONTEMPORARY	FUEL	FUEL TYPE
07	MANSION		
08	OLD STYLE	1	NONE
09	COTTAGE	2	GAS
10	ROW	3	ELECTRIC
11	LOG CABIN	4	OIL
12	DUPLEX	5	WOOD
13	BUNGALOW	6	SOLAR
14	OTHER STYLE	7	COAL
15	TOWNHOUSE		
		AIRCON	AIRCONDITION
EXTWAL	WALL MATERIAL		
		1	YES
01	WOOD		
02	BRICK	INSUL	INSULATION
03	AL/VINYL		
04	COMPOSITION	1	NONE
05	CONCRETE	2	ATTIC
06	STUCCO	3	WALLS
07	STONE	4	ATT&WALLS
STNBRK	WALL STN/BRK	INCOND	INTER COND
1	YES	1	POOR
		2	FAIR
KITQL	KIT QUALITY	3	NORMAL
		4	GOOD
1	POOR	5	EXCELLENT
2	AVERAGE		
3	GOOD	EXCOND	EXTER COND
BTHQL	BATH QUAL	1	POOR
		2	FAIR
1	POOR	3	NORMAL
2	AVERAGE	4	GOOD
3	GOOD	5	EXCELLENT
PLUMB	PLUMBING	BASMT	BASMT TYPE
1	YES	1	SLAB/PIER
		2	CRAWL
GRADE	GRADE	3	PARTIAL
		4	FULL
A	EXPENSIVE		
B	GOOD		
C	AVERAGE		
D	ECONOMY		
E	MINIMUM		

REVIEWER AND NOTES SECTION

REVIEWED BY _____

DATE _____

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N.Y. STATE DIVISION OF
EQUALIZATION AND ASSESSMENT

COMMONLY USED CODES

PROPERTY CLASS CODES

AGRICULTURE (100)

105 AGRICULTURE VACANT LAND
110 LIVESTOCK & PRODUCTS
111 POULTRY & PRODUCTS
112 DAIRY & PRODUCTS
113 CATTLE, HOGS & PRODUCTS
114 SHEEP & WOOL
115 HONEY & BEESWAX
116 OTHER LIVESTOCK
120 FIELD CROPS
130 TRUCK CROPS/MUCKLAND
140 TRUCK CROPS
150 ORCHARD CROPS
151 TREE FRUITS
152 VINEYARDS
160 OTHER FRUITS
170 NURSERY GREENHOUSE
181 FUR PRODUCTS
182 PHEASANT
183 AQUATIC
190 FISH/GAME WILDLIFE

RESIDENTIAL (200)

210 ONE FAMILY YEAR ROUND
220 TWO FAMILY YEAR ROUND
230 THREE FAMILY YEAR ROUND
240 RURAL RESIDENCE WITH ACREAGE
250 ESTATE
260 SEASONAL RESIDENCE
270 MOBIL HOME
271 MULTIPLE MOBILE HOME
280 MULTIPLE RESIDENCE

VACANT LAND (300)

311 RESIDENTIAL VACANT
312 RESIDENTIAL VACANT, IMPROVED
313 WATERFRONT VACANT
314 RURAL, 10 ACRES OR LESS
321 ABANDONED AGRICULTURAL
322 RURAL RESIDENTIAL, 10 ACRES OR MORE
323 OTHER RURAL VACANT
330 COMMERCIAL VACANT
340 INDUSTRIAL VACANT
350 URBAN RENEWAL

WILD AND FORESTED (900)

910 PRIVATE (EXCEPT 920)
920 PRIVATE HUNTING & FISHING
930 STATE OWNED
940 COUNTY OWNED

STRUCTURE AND ASSOCIATED MODIFICATION CODES

PORCHES	
RP1 - OPEN PORCH	SF/DIM
RP2 - COVERED PORCH	SF/DIM
RP3 - SCREENED PORCH	SF/DIM
RP4 - ENCLOSED PORCH	SF/DIM
RP5 - UPPER OPEN PORCH	SF/DIM
RP6 - UPPER COVERED PORCH	SF/DIM
RP7 - UPPER SCREENED PORCH	SF/DIM
RP8 - UPPER ENCLOSED PORCH	SF/DIM
PORCH MODIFICATIONS	
B03 - EARTH FLOOR	SF
B09 - BASEMENT	SF
H06 - CENTRAL HEAT	SF
I02 - FINISHED ROOM	SF
P01 - SINGLE PLUMBING FIXTURE	QUAN
W01 - BRICK/STONE WALLS	QUAN
GARAGES	
RG1 - ATTACHED, 1 STORY	SF/DIM
RG2 - ATTACHED, 1½ STORY	SF/DIM
RG3 - ATTACHED, 2 STORY	SF/DIM
RG4 - DETACHED, 1 STORY	SF/DIM
RG5 - DETACHED, 1½ STORY	SF/DIM
RG6 - DETACHED, 2 STORY	SF/DIM
GARAGE MODIFICATIONS	
B03 - EARTH FLOOR	SF
B09 - BASEMENT	SF
E06 - CENTRAL HEAT	SF
I02 - FINISHED ROOM	SF
P01 - SINGLE PLUMBING FIXTURE	QUAN
W01 - BRICK/STONE WALLS	QUAN
CANOPIES	
CP5 - ROOF ONLY	SF/DIM
CP6 - CANOPY OVER SLAB	SF/DIM
CP7 - CANOPY WITH SLAB & SCREEN	SF/DIM
PATIOS	
LP6 - ASPHALT PATIO	SF
LP7 - FLAGSTONE/SAND BASE	SF
LP8 - FLAGSTONE/CONCRETE	SF
LP9 - BRICK PATIO	SF
SWIMMING POOLS	
LS1 - STEEL VINYL POOL	SF/DIM
LS2 - FIBERGLASS POOL	SF/DIM
LS3 - POURED CONCRETE POOL	SF/DIM
LS4 - GUNITE POOL	SF/DIM
LS5 - ABOVE GROUND POOL	SF/DIM
SWIMMING POOL MODIFICATIONS	
H03 - ELECTRIC HEATER	QUAN
H08 - GAS OR PROPANE HEATER	QUAN
CARPORT	
RC1 - CARPORT	SF/DIM
CARPORT MODIFICATION	
B03 - EARTH FLOOR	SF
MOBILE HOME	
RM5 - MOBILE HOME	LENGTH/WIDTH
MOBILE HOME MODIFICATIONS	
B07 - SKIRTING	LENGTH
B08 - FOUNDATION BLOCK	LENGTH
H04 - CENTRAL AIR CONDITIONING	TONS
I06 - 7x12 ADDITION	QUAN
I07 - 7x24 ADDITION	QUAN
I08 - TIP OUT ROOM	QUAN
MISCELLANEOUS STRUCTURES	
FM1 - MILKHOUSE (SEPARATE)	SF/DIM
GH2 - GREENHOUSE	SF/DIM
GL1 - GRAIN LOADING EQUIPMENT	HGT-CAPAC
MP1 - MANURE PIT	SF/DIM
MS1 - MISCELLANEOUS	DOLLARS

BARNS	
FB1 - ONE STORY DAIRY	SF/DIM
FB2 - 1.5 STORY DAIRY	SF/DIM
FB3 - TWO STORY DAIRY	SF/DIM
FB4 - ONE STORY GENERAL PURPOSE	SF/DIM
FB5 - 1.5 STORY GENERAL PURPOSE	SF/DIM
FB6 - TWO STORY GENERAL PURPOSE	SF/DIM
FB7 - POLE BARN	SF/DIM
FB8 - ONE STORY HORSE BARN	SF/DIM
BARN MODIFICATIONS	
B03 - EARTH FLOOR	SF
E01 - MILKING PARLOR STALLS	QUAN
M01 - MILK HOUSE	SF
M02 - MILKING PARLOR	SF
S03 - MULTIPLE SECTION	QUAN
SHEDS	
FC1 - SHED, MACHINERY (WOOD)	SF/DIM
FC2 - SHED, ALUMINUM	SF/DIM
FC3 - SHED, GALVANIZED	SF/DIM
FC4 - SHED, BAKED-ENAMEL	SF/DIM
SHED MODIFICATIONS	
B06 - CONCRETE FLOOR	SF
H06 - CENTRAL HEAT	SF
L01 - ELECTRICITY	SF
P01 - SINGLE PLUMBING FIXTURE	QUAN
MILKING PARLOR	
FM2 - MILKING PARLOR (SEPARATE)	SF/DIM
MILKING PARLOR MODIFICATIONS	
E01 - STALLS	QUAN
POULTRY HOUSES	
FP1 - ONE STORY POULTRY HOUSE	SF/DIM
FP2 - TWO STORY POULTRY HOUSE	SF/DIM
FP3 - ADDNL. STORY POULTRY HOUSE	SF/DIM
POULTRY HOUSE MODIFICATIONS	
H07 - NO WALL INSULATION	SF
H09 - VENTILATION	SF
H11 - NO CEILING INSULATION	SF
W07 - MASONRY	QUAN
QUONSET HUT	
FQ5 - QUONSET HUT	SF/DIM
QUONSET HUT MODIFICATIONS	
B03 - EARTH FLOOR	SF
H06 - CENTRAL HEAT	SF
L02 - NO ELECTRICITY	SF
P01 - SINGLE PLUMBING FIXTURE	QUAN
SILOS	
FS1 - CONCRETE STAVE SILO	HGT-DIAM
FS2 - HARVESTORE SILO	HGT-DIAM
FS3 - WOOD STAVE SILO	HGT-DIAM
FS4 - TILE OR CONCRETE BLOCK	HGT-DIAM
FS5 - METAL SILO	HGT-DIAM
SILO MODIFICATIONS	
E04 - UNLOADER < 20'	QUAN
E05 - UNLOADER > 20'	QUAN
R03 - NO ROOF	QUAN
BUNKER SILOS	
FT1 - CONCRETE BUNKER SILO	LENGTH
FT2 - WOOD BUNKER SILO	LENGTH
BUNKER SILO MODIFICATIONS	
B06 - CONCRETE FLOOR	SF
STEEL STORAGE BIN	
SB1 - STEEL STORAGE BIN	HGT-DIAM
STEEL STORAGE BIN MODIFICATIONS	
E06 - AUGER AND LEVELER	QUAN
F01 - DRYING FLOOR	QUAN
H13 - FAN AND HEATER	QUAN

RESIDENCE DESCRIPTION

*** CARD CODE	24	2 1
601 RESIDENCE STYLE 1 = Ranch 2 = Raised Ranch 3 = Split 4 = Cape Cod 5 = Colonial 6 = Contemporary 7 = Mansion 8 = Old Style 9 = Cottage 10 = Row House 11 = Mobile Home 12 = Duplex 13 = Other	26	
602 EXTERIOR WALLS 1 = Frame 2 = Brick 3 = Brick/Frame 4 = Composition 5 = Concrete 6 = Stucco 7 = Stone 8 = Aluminum Siding 9 = Vinyl Siding	28	
603 BRICK/STONE VENEER - Number of Partial Sides	29	
604 BRICK/STONE VENEER - Number of Full Sides	30	
605 BASEMENT TYPE 1 = None (Pier/Slab) 2 = None (crawl) 3 = Partial 4 = Full	31	
606 BASEMENT EARTH FLOOR 0 = No 1 = Yes	32	
607 NUMBER OF BASEMENT GARAGE OPENINGS	33	
608 PARTIAL BASEMENT AREA	34	
609 FINISHED BASEMENT AREA	38	
610 HEAT TYPE 0 = None 1 = Central 2 = Central w/A.C. 3 = Hot Water/Steam 4 = Electric	42	
611 NUMBER OF KITCHENS	43	
612 KITCHEN STYLE 0=None 1=Old 2=Semi-Mod 3=Modern	44	
613 PLUMBING 0 = No 1 = Yes	45	
614 NUMBER OF FULL BATHROOMS	46	
615 NUMBER OF HALF BATHROOMS	47	
616 BATH STYLE 0=None 1=Old 2=Semi-Mod 3=Modern	48	
617 NUMBER OF BEDROOMS	49	
618 TOTAL NUMBER OF ROOMS	50	
619 NUMBER OF STORIES	52	
620 NUMBER OF FIREPLACES	54	
621 NUMBER OF FIREPLACES ON SAME CHIMNEY	55	
622 NUMBER OF SINGLE PLUMBING FIXTURES	56	
623 NUMBER OF BAY WINDOWS	57	
624 LINEAL FEET OF FINISHED DORMERS	58	
625 LINEAL FEET OF UNFINISHED DORMERS	61	
626 EXTERIOR CONDITION 1 = Poor 2 = Fair 3 = Normal 4 = Good	64	
627 INTERIOR CONDITION 0 = Uninhabitable 1 = Poor 2 = Fair 3 = Normal 4 = Good	65	
628 GRADE A = Expensive B = Good C = Average D = Economy E = Minimum	66	
629 RESIDENCE YEAR BUILT	67	
630 RESIDENCE YEAR REMODELED	70	
NOTES:		

RESIDENCE MEASUREMENT

*** CARD CODE	24	2 2
701 FIRST FLOOR LIVING AREA	26	
702 SECOND FLOOR LIVING AREA	30	
703 ADDITIONAL FLOOR LIVING AREA	34	
704 FINISHED ATTIC AREA	38	
705 HALF STORY FINISHED AREA	42	
706 HALF STORY UNFINISHED AREA	46	
707 MAIN RESIDENCE UNFINISHED AREA	50	
708 TOTAL LIVING AREA	54	

GARAGE/PORCH DESCRIPTION

709 GARAGE TYPE 0 = None 1 = Attached 2 = Detached 3 = Carport	59	
710 GARAGE GRADE A = Expensive B = Good C = Average D = Economy E = Minimum	60	
711 GARAGE YEAR BUILT	61	
712 GARAGE NUMBER OF STORIES	64	
713 GARAGE DEPTH	66	
714 GARAGE WIDTH	68	
715 MAIN PORCH TYPE 1 = Open 2 = Covered 3 = Screened 4 = Enclosed UPPER DECK 5 = Open 6 = Covered 7 = Screened 8 = Enclosed 0 = None	70	
716 MAIN PORCH WIDTH	71	
717 MAIN PORCH LENGTH	73	

ADDITIONAL IMPROVEMENTS

*** CARD TYPE	801 STRUC. CODE	802 MODIF. CODE	UN 803	804 MEASURE ONE	805 MEASURE TWO	CN 806	GR 807	CN 808	809 YR. BUILT
24-25	26-28	29-31	32	33-37	38-41	42	43	44	45-46
4 1									
4 2									
4 3									
4 4									
4 5									
4 6									
4 7									
4 8									
4 9									
5 0									

NOTES:

RESIDENTIAL/MOBILE HOME MODIFICATIONS

*** CARD TYPE	901 STRUC. CODE	902 MODIF. CODE	UN 903	904 MEASURE ONE	905 MEASURE TWO	CN 906
24-25	26-28	29-31	32	33-37	38-41	42
3 1						
3 2						
3 3						
3 4						
3 5						
3 6						

MOORE BUSINESS FORMS, INC. - 92

233

LABEL CORRECTION

001 SWIS CODE	01	
002 SECTION NUMBER	05	
003 BLOCK NUMBER	11	
004 LOT NUMBER	13	
005 SUB-LOT NUMBER	16	
006 SUFFIX NUMBER	19	
007 VALUATION UNIT	21	01
008 TRANSACTION CODE	23	1
*** CARD CODE	24	01
009 PROPERTY CLASSIFICATION	26	311
010 PROPERTY ADDRESS	29 / 45 / 61	
011 PROPERTY OWNER		

111.720-01-003.000 481
1-1121 0010011210 140201

PERALES MARIA

S 281 SWAN

360 HOYT
BUFFALO N Y 14213

AC- 0.0

SALES VERIFICATION

*** CARD CODE	24	03
101 VALID SALE 0 = No 1 = Yes	26	
102 SALE PRICE	27	
103 SOURCE 1 = Buyer 2 = Seller 3 = Fee 4 = Agent	34	
104 SALE TYPE 1 = Land 2 = Building 3 = Land & Building	35	
105 SALE YEAR	36	
106 SALE MONTH	38	

AUDIT CONTROL

*** CARD CODE	24	00
501 FORM NUMBER	26	1
502 TOTAL FORMS	27	1
503 DATE LISTED	28	04 25 78
504 LISTED BY	34	828
505 DATE MEASURED	37	
506 MEASURED BY	43	
507 NUMBER OF VISITS 1 2 3	46	1
508 SOURCE 1 = Owner 2 = Spouse 3 = Tenent 4 = Other 5 = Estimate 6 = Refusal	47	5

SITE CHARACTERISTICS

107 NEIGHBORHOOD TYPE 1 = Rural 2 = Cross-Roads 3 = Suburb 4 = Urban 5 = Subdivision 6 = Commercial	40	4
108 NEIGHBORHOOD CODE	41	
109 RD TYPE 0=None 1=Dirt 2=Gravel 3=Paved 4=State	46	3
110 TRAFFIC 1 = Light 2 = Medium 3 = Heavy	47	2
111 ZONING	48	R2
112 WATER 0=None 1=Private 2=Comm'l 3=Public	52	3
113 SEWER 0=None 1=Private 2=Comm'l 3=Public	53	3
114 OTHER UTL'S 0=None 1=Gas 2=Elec 3=Gas & Elec	54	3
115 SITE COMP'BLTY 1=Inferior 2=Typical 3=Superior	55	2
116 VIEW INFL 0=None 1=Detrimental 2=Enhancing	56	0
117 SITE DESIR'BLTY 1=Inferior 2=Typical 3=Superior	57	2
118 ELEVATION 1=Below Street 2=Level 3=Above Street	58	
119 SETBACK (Nearest 10 Feet)	59	
120 DRIVEWAY TYPE 0=Unpaved 1=Concrete 4=Asphalt	62	
121 DRIVEWAY WIDTH	63	
122 DRIVEWAY LENGTH	65	
123 PATIO TYPE 0=None 3=Concrete 6=Asphalt 7=Flagstone/Sand 8=Flagstone/Concrete 9=Brick	68	
124 PATIO WIDTH	69	
125 PATIO LENGTH	71	
126 FENCE TYPE 0=None 1=Chain 2=Picket 3=Stockade 4=Rail 5=Basketweave 6=Iron 7=Stone/Brick	74	
127 FENCE HEIGHT	75	
128 FENCE LENGTH	77	

MEMORANDA

9/25 Vacant Lot

Signature by Owner or Agent below indicates data on this form was collected in your presence. It does not mean that you have verified the information hereon.

SIGNATURE DATE

RESIDENTIAL/FARM/VACANT

DATA COLLECTION FORM
ERIE COUNTY, NEW YORK
P.R.C. JACOBS CO, INC. 1976

LAND DESCRIPTION

*** CARD TYPE (24-25)	301 MS. CD. (26)	302 SITE CODE (27-28)	303 ADJ FRONT (29-31)	304 ADJ DEPTH (32-34)	305 AREA (Decimal if acres) (35-40)	306 UNIT PRICE (Always Decimal) (41-46)	307 DEPTH FACTOR (47-49)	308 INFLUENCE CODE (50)	0/0 (51-52)	+/− (53)	309 LAND VALUE (Manual) (54-60)
11	L	03	125	100							
12											
13											
14											
15											
16											

[redacted] ① ~~433~~ 330111.72-1-53

THE CITY of BUFFALO, N.Y., REAL PROPERTY ASSESSMENT

Assessors Maps and Survey Section-Plate	ASSESSED TO	FRONT FEET	DEPTH	Street No.	ASSESSED ON	SIDE	DISTANCE FROM Feet	Course	Street	TYPE
1 6 A	~~SAMUEL~~ THOMAS ERNEST J.	88	70 WITH 78X 25 IN REAR	425	CHICAGO	E	NORTH COR		MYRTLE	433 ~~400~~

Address

Constructed or Moved on Lot in

Unit Full Value of Land F.F. S.F.

Remodeled or Repaired in

WIDTH	DEPTH	DPTH. FACTOR	EFF. F.F.	AREA	UNIT VALUE	FULL VALUE
78	95	88.97%	69.4		52.	3600
C.1. 50	50	45	22.5		32.5	730
10	69	75.829	7.58		52.	390
					FULL LAND VALUE	4720
					ASSESSED LAND VALUE	2460

SBL.-111.72-1-53

SALES RECORD

YEAR	AMOUNT	REMARKS
1976	50000	55% USR W

RENTS:

BUILDING DESCRIPTION

BUILDING CLASS: Cheap, Average, Good, Expensive

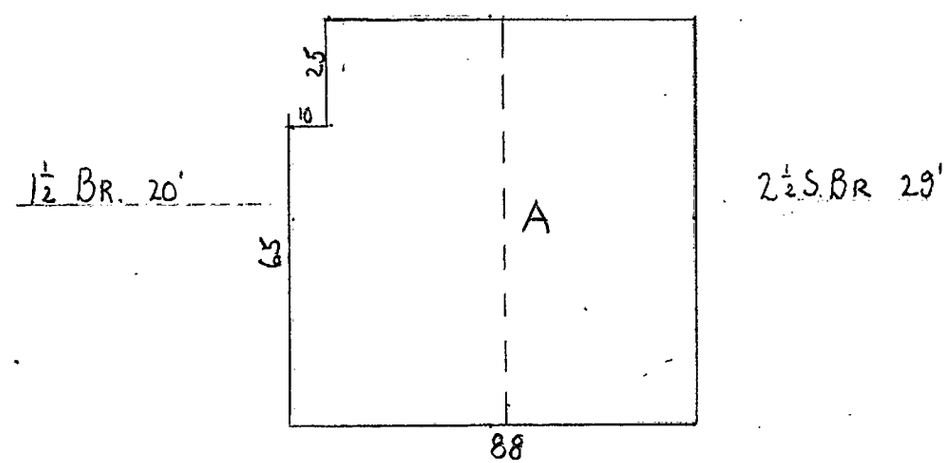
TYPE	CONSTRUCTION	O. S. TRIM	MISCELLANEOUS	EXTRAS
Ranch Dwelling	Frame	Wood	Incinerator	
Single Dwelling	Brick	Metal	Kitchen Cabinets	
Double Dwelling	Tile	Stone	Pass. Elevator	
Duplex Dwelling	Blocks	Terra Cotta	Frt. Elevator	
Bungalow	Re-Conc.	Concrete	Fire Escape	
Gas Station	Mill		Sprinklers	
Apartment House	Steel Frame	**HEATING**	Air Conditioners	
Store Building		Unit	Vault	
Office Building	**EXTERIOR**	Hot Air		
Hotel Building	Siding	Hot Water	**CONDITION**	
Shop Building	Shingles	Steam	Good	
Factory Building	Stucco	Cen. Sta.	Normal	
Church Building	Cam. Brick	Fireplace	Poor	
Garage Building	Face Brick			
Warehouse	Compos.			

FOUNDATION: Stone, Concrete, Brick, Piers

BASEMENT: Full, Half, Quarter, Cement Floor, Laundry, Water Heater

ROOF: Wood Shingle, Compos. Shingle, Slate, Tile, Gravel, Prepared, Metal, Asbestos, Flat, Hip, Gable, Gambrel, Dormers

ROOMS	STORIES B	1	2	3	INTERIOR FINISH Floors	Trim	Walls
Living							
Dining							
Kitchen							
Bedroom							
Bathroom							
Lavatory							
Family							
Utility							
Recreation							
Office							
Storage							
Stores							



FRONT

Complaint No. _____ Filed: _____, 19____

426 [redacted]

IMPROVEMENT COMPUTATION													ASSESSED VALUE			
ITEM	DIMENSIONS	HEIGHT	AREA OR CONTENT	BASE RATE	PAGE	COST AT INDEX 100	LOCAL INDEX	REPL. COST	% COND.	SOUND VALUE	%	ASSESSED VALUE	YEAR	LAND	IMPROVE-MENTS	TOTAL
A	88 X 65		5720										1959	4630	8040	
	- 10 X 25		250										1960	2160	10500	
			5470	9.32		51000			40	20400	50	10200	1967	2160	10500	
													1968	2170	10500	12670
													1969	2170	10500	12670
													1987	12,300	3000	15,300 Full Value

10/22/86 - Inspect Bldg. roof caved in
Bldg. should be Demo.

425 CHICAGO

APPLIC # 218153 PERMIT # 20476 DATE 930611 SBL 1117200001053000 PROPCL 433 SWIS 147001

OWNER HERNANDEZ,JOSE R CONTRACTOR JAMES MAURICE HOME IMPROVEMENT

LOT WIDTH 00088 LENGTH 00070 AREA PROP DESC NORTH COR MYRTLE

BLDG WIDTH 0 LENGTH 0.00 AREA 0 TYPE OF WORK REPAIR

COST OF WORK 1,800.00 COST OF ADDITION 0.00

DESC OF WORK GUTTERS, ROOF REPAIR, SOFFIT

(2 STY. BR. GARAGE)

NO STR./CHGS.

(1) working 8/15/93

comp 4/8/94

JA 32

DEPT. OF PUBLIC WORKS
301 CITY HALL
BUFFALO, N.Y.

BUILDING PERMIT

LOCATION 429 Chicago St.
OWNER Ernest Thomas
ADDRESS same

DATE Jan. 8, 1987

CONTRACTOR Hill Home Improve.
DESCRIPTION OF WORK Rep. brick 1 1/2 story garage. RE--roof & repl. rafters where needed. No struc/chg.
CONDITIONS

111.72-1-53

VALUE $5,000 FEE $40

May be #425 Chicago
433
00005800
111.72-1-53

APPLICATION # 190881 PLAN FILE #

BUILDING PERMIT # B 4310

DESCRIPTION OF WORK Repair brick 1 1/2 story garage. Re-roof and replace rafters where needed. No structural changes.

CONDITIONS

and as shown on application numbered above, which application is made a part of this permit.

THIS PERMIT IS VOID IF FOUND TO BE ISSUED IN VIOLATION OF ANY LAW OR ORDINANCES AND CONDITIONS STATED ABOVE.

COMMISSIONER OF PUBLIC WORKS

CG

FORM A

ICR-105D
Rev. 7/1985

JOB NO. _____

WORK ORDER NO. _____

CITY OF BUFFALO - DEPARTMENT OF NEIGHBORHOODS, HOUSING & INSPECTIONS

DIVISION OF HOUSING AND INSPECTIONS

FINAL INSPECTION REPORT

DATE: 12-5-96

TO: R. A. Metzger (Name of Contractor)

1711 Union Road West Seneca, New York 14224

RE: 275 SWAN + 425 CHICAGO (Property Address)

The demolition of the subject property, performed by your company ~~pursuant to contract awarded by this department~~, was inspected on 12-4-96 (Date)

The undersigned certifies that said work performed by your firm at the location cited above is ACCEPTED (Accepted ~~or Rejected~~)

A representative from the Department of Audit and Control was present during the above-stated on-site inspection: NO (~~Yes~~ or No)

If "Yes", the name and title of that individual is _____

_____, and he _____ (Agrees or Disagrees)

with the above-stated determination.

In accepting, it is certified that, to the best of our knowledge, all specifications or conditions ~~outlined in the demolition contract~~ have been met.

In rejecting, it is certified that the following conditions or specifications have NOT been met _____

_____

_____ and, accordingly, payment will not be made pursuant to this contract until said demolition work is properly completed, with the further understanding that you must contact the undersigned or arrange for an additional inspection of the site by no later than _____
(Failure to do so may result in your firm being disqualified from doing further business with the City of Buffalo.)

BUILDING INSPECTOR
N.Y.S. Asbestos Inspector

Signed: Larry J. Schorno #AH-91-02123
Building Inspector

Reviewed by: _____
Name and Title

CC: Honorable Joel A. Giambra, Comptroller, Attn: Division of Audit
Master File

BUILDING PERMIT

Department of Community Development
Division of Inspections, Licenses, and Permits

..... *BUILDING A BETTER BUFFALO.*

Rec'd 11-26

LOCATION 00275 00000 SWAN

DATE 11-25-96

OWNER HERNANDEZ, JOSE R

111.72-1-53

ADDRESS

CONTRACTOR R.A. METZGER

LICENSE No. 6630

APPLICATION No. 00234268

FEE $ 1400.00

PERMIT No. 0036320

VALUE 38400.00

PLANS FILED NO

SBL No. 1117200001001000

PROPERTY CLASS 482

DESCRIPTION OF WORK

DEMOLISH TO GRADE A 3 STORY BRICK/FRAME STORE / STORAGE BLDG.
LOCATED AT 275 SWAN & 425 CHICAGO. FUTURE LAND USE VACANT.
RODENT CONTROL-OK 11/7/96 (CITY)
PRIVATE

CONDITIONS

AND AS shown on application numbered above, which application is made a part of this permit.

*** ALL GENERAL CONTRACTORS AND SUB-CONTRACTORS MUST CARRY A CITY LICENSE. ***

THIS PERMIT IS VOID IF FOUND TO BE ISSUED IN VIOLATION OF ANY LAW OR ORDINANCE AND CONDITIONS STATED ABOVE.

Commissioner of Community Development

INSPECTOR	DATE	DESCRIPTION OF INSPECTION

111.72-1-53

North on Myrtle 4/25/91 [illegible]

YR.	LAND	IMP.	TOTAL
94	12,300	62,300	74,600
95	12,300	62,300	74,600
96	12,300	—	70,000
97	12,300		12,300
97	12,300		12,300

Permit # 20476 N/C repair only.
-$4,600 Bal of Permit 20476
-57,700 Demo - 20476
C/R N/C

Chicago St. GARAGE 233

LABEL CORRECTION

001 SWIS CODE	01	
002 SECTION NUMBER	05	0
003 BLOCK NUMBER	11	
004 LOT NUMBER	13	
005 SUB-LOT NUMBER	16	
006 SUFFIX NUMBER	19	
007 VALUATION UNIT	21	01
008 TRANSACTION CODE	23	1
*** CARD CODE	24	01
009 PROPERTY CLASSIFICATION	26	433
010 PROPERTY ADDRESS	29	429 CHICAGO
	45	
	61	
011 PROPERTY OWNER		

111.720-01-053.000 400
1-0047 001000470 140201

THOMAS ERNEST J

E 425 CHICAGO

425 CHICAGO
BUFFALO N Y 14204

AC- 0.0 X

DATE- 04-76 PRICE- 50,000

SALES VERIFICATION

*** CARD CODE	24	03
101 VALID SALE 0 = No 1 = Yes	26	1
102 SALE PRICE	27	
103 SOURCE 1 = Buyer 2 = Seller 3 = Fee 4 = Agent	34	1
104 SALE TYPE 1 = Land 2 = Building 3 = Land & Building	35	3
105 SALE YEAR	36	
106 SALE MONTH	38	

HOUSING UNITS DATA

*** CARD CODE	401 APT TYPE	402 NO. OF BEDROOMS	403 NO. OF BATHROOMS	404 TOTAL ROOMS	405 TOTAL NO. OF UNITS
24 05	26	27	28 0	30	31
1 WC		34	35 0	37	38
1-LAU		41	42 0	44	45
		48	49 0	51	52
		55	56 0	58	59
		62	63 0	65	66
		69	70 0	72	73

APT. TYPES 1 = Garden 2 = Townhouse 3 = Other

SITE CHARACTERISTICS

107 NEIGHBORHOOD TYPE 1 = Rural 2 = Crossroads 3 = Suburb 4 = Urban 5 = Subdivision 6 = Commercial	40	6
108 NEIGHBORHOOD CODE	41	
109 ROAD TYPE 0 = None 1 = Dirt 2 = Gravel 3 = Paved 4 = State	46	3
110 TRAFFIC 1 = Light 2 = Medium 3 = Heavy	47	2
111 ZONING	48	R3
112 WATER 0 = None 1 = Private 2 = Comm'l 3 = Public	52	3
113 SEWER 0 = None 1 = Private 2 = Comm'l 3 = Public	53	3
114 OTHER UTILITIES 0 = None 1 = Gas 2 = Elec 3 = Gas & Elec	54	3
115 SITE COMPARABILITY 1 = Inferior 2 = Typical 3 = Superior	55	2

AUDIT CONTROL

*** CARD CODE	24	00
501 FORM NUMBER	26	1
502 TOTAL FORMS	27	1
503 DATE LISTED	28	08 18
504 LISTED BY	34	381
505 DATE MEASURED	37	
506 MEASURED BY	43	35
507 NUMBER OF VISITS 1 2 3	46	1
508 SOURCE 1 = Owner 2 = Spouse 3 = Tenant 4 = Other 5 = Estimate 6 = Refusal	47	1

INCOME INFORMATION

*** CARD CODE	24	04
201 ECONOMIC RENT	26	
202 ACTUAL RENT	32	
203 ADDITIONAL INCOME	38	
204 TOTAL EXPENSES	44	
205 VACANCY RATE	50	
206 TOTAL PROPERTY TAXES	52	
207 MORTGAGE-PERCENT FINANCED	58	
208 MORTGAGE TERM IN YEARS	60	
209 MORTGAGE INTEREST RATE	62	0
210 EQUITY YIELD	66	
211 INVESTMENT PERIOD	68	
212 APPRECIATION	70	
213 DEPRECIATION	72	
214 REMAINING LIFE IN YEARS	74	

MEMORANDA

LOCATED AT CORNER OF CHICAGO AND MYRTLE

Signature by Owner or Agent below indicates data on this form was collected in your presence. It does not mean that you have verified the information hereon.

Diane R. Torzko — SIGNATURE

8/17/78 — DATE

COMMERCIAL/INDUSTRIAL

DATA COLLECTION FORM
ERIE COUNTY, NEW YORK
P.R.C. JACOBS CO., INC. 1976

LAND DESCRIPTION

*** CARD TYPE 24-25	301 MS-CD 26	302 SITE CODE 27-28	303 ADJ FRONT 29-31	304 ADJ DEPTH 32-34	305 AREA (Decimal if acres) 35-40	306 UNIT PRICE (Always Decimal) 41-46	307 DEPTH FACTOR 47-49	308 INFLUENCE CODE 50	O/O 51-52	+/− 53	309 LAND VALUE (Manual) 54-60
06	S	01			81.00						

PROPERTY IDENTIFICATION

001 SWIS CODE	01	0201
002 SECTION NUMBER	05	1117210
003 BLOCK NUMBER	11	01
004 LOT NUMBER	13	053
005 SUB-LOT NUMBER	16	000
006 SUFFIX NUMBER	19	
007 VALUATION UNIT	21	01
008 TRANSACTION CODE	23	1
009 BUILDING NUMBER	24	11
010 BUILDING SECTION NUMBER	26	1

YARD IMPROVEMENTS

*** CARD CODE	601 STRUCTURE CODE	602 MEASURE ONE	603 MEASURE TWO	604 NO. OF UNITS	605 CON DTN	606 FNC UTL	607 YR. BLT/ INSTL'D	608 INT EXT	609 COST NEW	610 PERCENT GOOD	611 DEPRECIATED VALUE
24-25	26-30	31-36	37-41	42-44	45	46	47-49	50	51-55	56-58	59-63
91	011	120		4	3	3	950	1			
92											
93											
94											
95											
96											

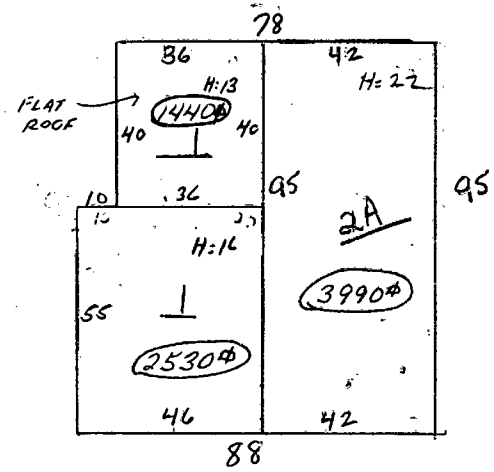
BUILDING-SECTION GENERAL DESCRIPTION

*** CARD CODE	27	10
701 YEAR BUILT	29	900
702 BUILT AS (Property Classification)	32	480
703 EXTERIOR CONDITION 1 = Poor 2 = Fair 3 = Normal 4 = Good 5 = Renovated	35	3
704 FUNCTIONAL UTILITY 0 = None 1 = Poor 2 = Fair 3 = Normal 4 = Good	36	2
705 ROOF TYPE 00 = No Roof 01 = Flat 02 = Irregular 03 = Gable 04 = Industrial 05 = Shed 06 = Arch 07 = A-Frame	37	03
706 ROOF MATERIAL 00 = Undetermined 01 = Built-Up 02 = Shingles 03 = Rolled Compos 04 = Metal 05 = Fibreglass/Plastic 06 = Slate/Tile	39	03
707 FRAME TYPE 00 = None 01 = Fireprf Steel 02 = Reinforced Concrete 03 = Non-Fireproof Steel 04 = Masonry 05 = Wood 06 = Light Metal	41	04
708 SECTION PERIMETER	43	3616
709 BASEMENT PERIMETER CONC	47	

EXTERIOR WALL DESCRIPTION

*** CARD CODE	801 BASIC EXTERIOR WALLS MAT'L	LINEAL FT.	HEIGHT	802 EXTERIOR WALL FACING MAT'L	LINEAL FT.	HEIGHT
27-28	29-30	31-34	35-37	38-39	40-43	44-46
11	03	3616	13			
12	03	3616	3			
13	03	2714	6			
14						
15						
16						

NOTES:



C-AJ SERV. GAR.

BUILDING - SECTION INTERIOR DESCRIPTION

*** CARD CODE	901 SIMILAR STORIES FROM	TO	902 USED AS CODE	903 HGHT OF STOR	904 SHAPE	905 WIDTH	906 LENGTH	907 AREA (Square Feet)	908 INTERIOR CONDIT ION	909 FUNCTNL UTILITY	910 PERCENT INTERIOR FINISHED	911 EXTENT OF PARTIT IONS	912 FLOOR CONST.	913 PERCENT LIGHTED	914 PLUMBING	915 HEATING SYSTEM PERCENT	TYPE	916 AIR CONDITIONING PERCENT	TYPE	917 SPRINKLER SYSTEM PERCENT	TYPE
27-28	29-30	31-32	33-34	35-36	37	38-40	41-43	44-49	50	51	52-54	55	56	57-59	60	61-63	64	65-67	68	69-71	72
21	01	01	41	11	1	142	95		3	3	C 10	N 3	A 3	S 100	2	100	3	10	0	10	0
22	01	01	41	16	1	146	55		3	3	0	3	3	100	2	100	3	10	0	10	0
23	01	01	41	13	1	136	40		3	3	0	3	3	100	2	100	3	10	0	10	0
24	02	02	84	11	1	142	95		3	3	0	3	2	100	0	10	0	10	0	10	0
25	A1	A1	84	6	1	121	95		3	1	0	3	2	100	0	10	0	10	0	10	0
26																					
27																					
28																					
29																					

LOCATION 429 Chicago

PERMIT No. R032390 DATE December 7, 1939

OWNER T. Driscoll & Son

DESCRIPTION alter brick garage.

"Y AND E" 1008

LOCATION 429 Chicago DATE 4/24/79

OWNER Ernest S. Thomas

ADDRESS same

CONTRACTOR Gerald Toczko

DESCRIPTION OF WORK Rep. 2 sty. br. & fr. garage. rep. roof damage by winds- nostr/chgs.

CONDITIONS

VALUE $2400.00 FEE $20.00

APPLICATION # 157106 PLAN FILE #

BUILDING PERMIT # B 18140

LOCATION 429 Chicago St.

PERMIT No. 34133 DATE December 23, 1941

OWNER T. Driscoll

DESCRIPTION Install gasoline tank. 1000 gallons.

"Y AND E" 7098

LOCATION 429 Chicago St. DATE Jan. 8, 1987

OWNER Ernest Thomas

ADDRESS same

CONTRACTOR Hill Home Improve.

DESCRIPTION OF WORK Rep. brick 1 1/2 story garage. RE—roof & repl. rafters where needed. No struc/chg.

CONDITIONS

VALUE $5,000 FEE $40

APPLICATION # 190831 PLAN FILE #

BUILDING PERMIT # B 4310

LOCATION 429 Chicago

PERMIT NO. R054905 DATE 4-5-55

OWNER Ernest J. Thomas

DESCRIPTION Gen. reprs. & alter br.gar. (no struct'l chgs.)

$250.

PWB-308

LOCATION 431 Chicago St.

PERMIT No. R035837 DATE 7/16/41

OWNER Texas Oil Co.

DESCRIPTION repair frame store

"Y AND E" 7098

LOCATION 435 Chicago St.

PERMIT NO. RO 43457 DATE 10/2/46

OWNER Nick Ruggiera

DESCRIPTION Repair fire damage on brick store and one family dwelling. $750.00

"Y AND E" 3M-6-56-F12341

LOCATION 90 MYRTLE AVE

PERMIT NO. 38500 DATE MAR 1 8 1913

OWNER CARMINE PAULILLO

DESCRIPTION 1 S. BR. ADD. 2 FAM. DWLG

YAWMAN & ERBE MFG. CO., ROCHESTER AND BUFFALO 4286 5M 10-12

LOCATION 90 Myrtle Ave.

PERMIT NO. 83245 DATE 4/9/24

OWNER Carmine Paulillo

DESCRIPTION 2d. story frame add. rear brick

2 family dwelling

LOCATION 90 Myrtle

PERMIT NO. 44944 DATE May 3 1915

OWNER Carmen Polilla

DESCRIPTION enl. 2 sty. br. 2 fam. dwlg

YAWMAN & ERBE MFG. CO., ROCHESTER AND BUFFALO ~1565~ 5039 10M. 3-13

LOCATION II6 Myrtle Ave.

PERMIT NO. 20I02 R.O. DATE 5/I/28

OWNER Pepe Bros.

DESCRIPTION Cut door in rear of public garage.

LOCATION 275-277 Swan St. DATE Dec.14,1987
OWNER Salvator Cusimano
ADDRESS 275 Swan St.

CONTRACTOR Nicholas Rivera
DESCRIPTION OF WORK Rep.brick 3 story store.
Soffit repair, brick pointing, rep.wall.
No struc/chg.
CONDITIONS

VALUE $1678 FEE $75

APPLICATION # 193456 PLAN FILE #

BUILDING PERMIT # B 6911

LOCATION 279 Swan

PERMIT No. R032498 DATE January 10 1940

OWNER Mildred Ruggiero

DESCRIPTION alter and convert for a tenement.

ADDRESS 277 Swan Street

OWNER Nicholas Cusimano

ADDRESS 353 Burroughs Drive

CONTRACTOR Owner

ADDRESS Same

DATE Nov. 30, 1973 19 APPLICATION NO. 134912

to comp w/Buffalo Housing & Property Code.
Alt.&reduced 3 sty. brick dwelling.- store only

PLAN FILE NO. $550.00

No. 64829

ADDRESS 279 Swan St.

OWNER R. Audace

ADDRESS 279 Swan St.

CONTRACTOR Same

ADDRESS Same

DATE July 13, 19 56 APPLICATION NO. 69828

Demolish old porch & replace with new patio.

$150.00 PLAN FILE NO.

PERMIT No. A 202

LOCATION 279 E. SWAN ST

PERMIT NO. 40393 DATE OCT 9 - 1913

OWNER VINCENT PRIVATERA

DESCRIPTION 2 S. FR. 2 FAM. DWLG. ALSO
MOVE PRESENT 2 FAM. DWLG TO REAR

C

LOCATION 279 Swan St (front) DATE 7/19/77
OWNER Rose Audace
ADDRESS 304 Swan Street

CONTRACTOR Walt;s Tree Service 69 Cenetary Rd 14086
DESCRIPTION OF WORK Demo 2½ sty. fr & brick dwlg.
2 fam. City orders L 7600237

CONDITIONS

VALUE 1,821.00 FEE 30.00

APPLICATION # 150378 PLAN FILE #

BUILDING PERMIT # B 09177

C 279 Swan (rear) 8/7/78
Loc
pwmer Rose Ardace
adr 22 Littell
contr. R. A. Metzger, Inc.
des. of work Dem. to gr. 2½ sty. fr. 2 fam.
dwlg. Fut. land use vacant City Emergnecy
Block Grant Project 88-141

value $1400.00 fee $30.00

appl #154455 BUILDNG PERMIT # 13281

LOCATION 283 Swan St. DATE 5/9/88
OWNER Jose R. Hernandez
ADDRESS 336 Fillmore Ave.

CONTRACTOR L & L Electric Co.
DESCRIPTION OF WORK Installed third channel for upper front apt. Installed circuit breaker panel for front upper apt. Balanced loads of
CONDITIONS front apt. Office/2 upper apts.

VALUE FEE $21.00
PLAN FILE#

ELECTRICAL PERMIT # E 07924

LOCATION 281 E. SWAN ST.
PERMIT NO. 42502 DATE JUN 27 1914
OWNER JAMES PRIVITERA
DESCRIPTION 2 S. FR. STORE & DWLG ON FRONT
2 S. FR. 1 FAM. DWLG ON REAR

YAWMAN & ERBE MFG. CO., ROCHESTER AND BUFFALO ~1565~ 5030 10M. 8-19

LOCATION 285 E Swan St
PERMIT NO. 53637 DATE FEB 27 1919
OWNER A Pepe & Sons
DESCRIPTION 2 S.B. addition
Store dwlg & office
2000-—

YAWMAN & ERBE MFG. CO., ROCHESTER AND BUFFALO ~1565~

C
LOCATION 281 Swan DATE Jan 20, 1978
OWNER Maria Perales
ADDRESS 281 Swan

CONTRACTOR R.A. Metzger Const.
DESCRIPTION OF WORK Demolish to grade 2 - 2½ story 3 family and store. future use vacant apartment.
CONDITIONS

VALUE $3520.00 FEE $50.00

APPLICATION # 152176 PLAN FILE #

BUILDING PERMIT # B 11035

---

285 + 287
Rear LOCATION 385 + 387 East Swan St.
PERMIT NO. 53867 DATE April. 6-1918.
OWNER A. Pepe & Sons.
DESCRIPTION Alter & Enlarge 2 story brick & tile public garage.
Resolution 98- Oct. 18-1917
Myrtle Ave entrance not to be used for automobiles.

YAWMAN & ERBE MFG. CO., ROCHESTER AND BUFFALO ~1565~

LOCATION— 285 Swan St

PERMIT No. 12295 DATE June 25 190 0. PLAN FILE

OWNER Harry Zipp

DESCRIPTION— 2 STORY Brick USE private Barn

PERMIT No. DATE 190 . PLAN FILE

OWNER

DESCRIPTION— STORY . USE

LOCKWOOD, STATIONER, BUFFALO.

LOCATION 285 Swan St.

PERMIT NO. 3940 DATE 11/22/67

OWNER Bernbeck Electric Co.Inc.

DESCRIPTION

PWB-308

ELECTRICAL PERMIT # E 01715

LOCATION 285 Swan St. DATE Jan. 22, 1976

OWNER Bill Johnson ADDRESS 285 Swan St.

CONTRACTOR Bernbeck Electric

DESCRIPTION OF WORK Warehouse- Install conduit & wiring for 10 ceiling outlets controlled leg 3 wall switches, 5 wall plug receptacles.

CONDITIONS

FEE $5.00 check

APPLICATION #

LOCATION— 287 E. Swan St

PERMIT No. 12485 DATE Sept 28 190 PLAN FILE

OWNER Harry Zipp

DESCRIPTION— 1 STORY Brick USE Office

PERMIT No. DATE 190 . PLAN FILE

OWNER

DESCRIPTION— STORY . USE

LOCKWOOD, STATIONER, BUFFALO.

LOCATION 285 Swan St.

OWNER William Johnson

ADDRESS same

DATE 4/13/76

CONTRACTOR Bernbeck Electric

DESCRIPTION OF WORK 799 Genesee St.

Residence - 2 lights & plugs

CONDITIONS

VALUE

FEE $5.00

PLAN FILE #

ELECTRICAL PERMIT # E 02244

ADDRESS 283-287 Swan

OWNER Marie A Pope

ADDRESS 111 Richmond Ave.

CONTRACTOR Sahlen Sudden Service

ADDRESS 10 Shirley Ave.

DATE 7/29/68 19 APPLICATION NO. 111330

Den.so gr.lsty.nsry.comm'l.bldg. Pub.use-vac. Sewer & water conn.to remain for service to other bldgs.on same premises.Ins.exp.Comp.4/3/69 Lic. & CPL 4/3/69

PLAN FILE NO. 8950.00

No. A 42201

DEPARTMENT OF FIRE

Headquarters of 1st Battalion Chief Schnorr

Buffalo, N. Y., Dec. 3rd 1941

To Commissioner of Fire: Wm. R. Castimore

Dear Sir:

I have made an inspection of the proposed installation of an additional 1000 gallon gasoline storage tank at 429 Chicago the applicant Carl Hitchcock of the Elmwood Elec. & Lump Corp. will comply with all laws & Ordinances and as no additional fire hazard will be created I would respectfully recommend your approval.

This is a public garage & service station present storage 2-550 gal. tanks

429 Chicago

Very Respectfully,

Raymond F. Schnorr Battalion Chief.

DEPARTMENT OF FIRE

Headquarters of Staff Battalion Chief

Buffalo, N. Y., Sept 27th 1930

To Commissioner of Fire: William R Gardiner

Not — use

Dear Sir:

I have made an inspection of a replacement 550 gall gasoline tank located on City Property No 287 Swan St. for Mr Michael A Caposzzi owner. The applicant has a permit No. 30 F. The tank is buried 2 feet 7 inches below the side walk. With your approval I would recommend the replacement be granted

12-1-29 Bond Released - Res. #156 - May 13-1947 - Eng. Dept. T. Yorkshire

Very respectfully,

Captain William A Stroman 1st acting Battalion Chief.

May 16, 1974

Mr. Sam Thomas
429 Chicago Street
Buffalo, New York 14204

Re: 429 Chicago Street

429 CHICAGO

Dear Sir:

A recent inspection of the above noted premises by a member of this Bureau disclosed several deficiencies that need correcting.

Attached is an excerpt of the Flammable Liquid Ordinance of the City of Buffalo. The section concerning your place of business is encircled in Red. As was pointed out to you the heating unit in the repair area is not approved; it has to be installed a minimum of eight (8) feet above the floor.

There is still room for improvement in your housekeeping, especially in your office area. Dispose of all combustible material that is not being used.

And finally have your soda and acid extinguisher checked and recharged.

If you have any questions regarding this matter, please contact Lt. Earl J. Wickett at 856-4200, Ext. 498 between 8:30 and 10:00 A. M. any weekday.

Very truly yours

Paul J. Zalewski, Chief
BUREAU OF FIRE PREVENTION

Earl J. Wickett, Lt.

EJW:RC
Enc. 1

GU-87

CITY OF BUFFALO
INTER DEPARTMENTAL CORRESPONDENCE

To Director/Fuel Devices

Date December 4, 1992

Subject 275 Swan

From John V. Fabian, Lt.
BUREAU OF FIRE PREVENTION

The above address requested an inspection for a second hand store in a three story brick building.

The heating device is hung from the ceiling and natural gas fed. It's in the center of the room in the store on the first floor. The vent pipe goes through the ceiling. Where it penetrates the building is unknown.

Please investigate.

Thank You,

John V. Fabian

275 Swan St.

Environmental Advantage

Environmental Advantage, Inc. 3636 N. Buffalo Road Orchard Park, New York 14127
Industrial Compliance, Hazardous Materials Management, Site Assessment/Remediation

September 4, 2025

City of Buffalo
Attn: Assessor's Office
65 Niagara Square
Room 101
Buffalo, NY 14202

Re: FOIL Request
Vacant Properties, Swan and Chicago Street
Buffalo, New York
Project No. e2413

- 275 Swan Street (SBL #111.72-1-1)
- 279 Swan Street (SBL #111.72-1-2)
- 281 Swan Street (SBL #111.72-1-3)
- 425 Chicago Street (SBL #111.72.1.53)

Email: COBAssessor@City-Buffalo.com

Dear Assessor:

Under the Freedom of Information Law (FOIL), Environmental Advantage, Inc. is inquiring as to the existence of any files or records concerning any environmental violations or legal actions, permits, septic system documents, spills, hazardous or solid waste disposal/storage, underground and/or above ground storage tanks, etc. relating to the four parcels above.

A location plan identifying the Site is enclosed. If such files or records exist, please forward any information you may have or notify our office so that we may make arrangements to review these files. The requested information will be used in the preparation of an environmental site assessment of the property. If any cost will be incurred concerning this request, please notify us.

Should you have any questions regarding this matter, please contact the undersigned at (716) 667-3130 or mbehlmaier@envadvantage.com. Your prompt attention to this matter would be greatly appreciated.

Very truly yours,
ENVIRONMENTAL ADVANTAGE, INC.

Mallory Behlmaier

Mallory Behlmaier
Project Manager

Attachment

CITY OF BUFFALO
FREEDOM OF INFORMATION LAW
RECORD REQUEST FORM

MAYOR
BYRON W. BROWN

Date: 9/4/2025

Under the provisions of the New York FREEDOM OF INFORMATION LAW (F.O.I.L.), Article 6 of the Public Officers Law, I hereby request the records or portions thereof that I have reasonably described in Part "B" of this form.

PART A - APPLICANT INFORMATION

1. Name of Applicant: Mallory Behlmaier
2. Company Name: Environmental Advantage, Inc.
3. Address: 3636 N. Buffalo Street State: NY Zip Code: 14127
4. Type of Business: Environmental Consulting
5. Telephone Number: (716) 667-3130 Fax Number: (716) 667-3156
6. E-Mail: mbehlmaier@envadvantage.com ☐ I do not want to receive any information via e-mail.

PART B – INFORMATION REQUESTED

Please reasonably describe the records that you are requesting in the space provided below. Please include as much detail as possible such as the respective department having possession of the records, dates, titles, or any other information that may assist us in locating the record(s) you are seeking. Please be mindful that the record that you are requesting may not exist.

Please include any and all building inspection records 1984 through Jan 1, 2007 including but not limited to any permits, certificates of occupancy, plans, or any other information pertaining to past occupancy, ownership, or environmental concerns related to the following four parcels: 275 Swan Street (SBL #111.72-1-1), 279 Swan Street (SBL #111.72-1-2), 281 Swan Street (SBL #111.72-1-3), and 425 Chicago Street (SBL #111.72-1-53).
The Location Plan is attached below.

The requested information will be used in the preparation of an environmental site assessment of the property. If any cost will be incurred concerning this request, please notify us.

PART C – METHODS OF REVIEW

☐ I would like an appointment to review the records that I am requesting. If I desire copies, I understand that I will be charged a fee in accordance with the schedule listed below in the section entitled "Fees." I also understand that copies may not be immediately available.

☐ I would like the requested documents mailed to me. I understand that I will be billed for copying charges and will not receive the documents until I have remitted payment to the address listed in the section entitled "Submission of Request." I understand that I will be charged a fee in accordance with the schedule listed below in the section entitled "Fees."

☒ I would like the requested information provided via an electronic format. I understand that I may be charged a fee in accordance with the schedule listed below in the section entitled "Fees."

PART D – FEES

Should you desire copies of records, fees shall apply in accordance with Public Officers Law §87 and City of Buffalo Charter and Code §175-1 Enumeration of Fees. Advance payment is required before records will be released. Please make check or money orders payable to the **City of Buffalo**.

FEES FOR PHOTOCOPIES: *Pages up to 9" x 14" are $.25 per page or the actual cost of reproducing any other record.*

The fee for reproducing a record may include the actual cost of the storage device or media; actual cost for engaging outside professional service to reproduce record; hourly salary for employee time used in reproducing the record.

PART E – SUBMISSION OF REQUEST

After you have reasonably described the records you wish to inspect or obtain, please sign this form and return it to the appropriate City department. Requests may be sent via electronic mail, postal mail, or hand delivery. Please note that you do not have to complete this form in order to request records from this Department, however, it will facilitate access to the records.

I hereby affirm that the information I have provided on this request form is correct.

Signature: Mallory Behlmaier **Print Name:** Mallory Behlmaier **Date:** 9/4/2025

PART F – SOLICITATION OR FUNDRAISING PURPOSES CERTIFICATION & AFFIRMATION

THIS SECTION MUST ONLY BE COMPLETED IF YOU ARE REQUESTING A LIST OF NAMES AND ADDRESSES. In accordance with Public Officers Law §87(2)(b), §89(2)(b)(iii) and §89(3)(a), the City of Buffalo requires a certification from any applicant seeking disclosure of a list of names and addresses that such person will not use such lists of names and addresses for solicitation or fund-raising purposes and will not sell, give or otherwise make available such lists of names and addresses to any other person for the purpose of allowing that person to use such lists of names and addresses for solicitation or fund-raising purposes. By signing below, you certify that such list(s) will not be used for solicitation or fund-raising purpose.

Signature: _____ **Print Name:** _____ **Date:** _____

PART G – DISPOSITION OF REQUEST----------*DO NOT WRITE BELOW THIS LINE*----------

- ☐ REQUEST RECEIVED – The Department of _____ is reviewing your request. The Department will notify you as to whether your request will be granted or denied on or about the following date: _____.
- ☐ APPROVED – The approximate date the records will be available: _____. To arrange for access to the records, contact: _____
- ☐ DENIED – For the reason(s) checked: References are to Section 87 of the NYS Public Officers Law
  - ☐ Records are specifically exempted from disclosure by state or federal statute 2(a)
  - ☐ Disclosure would constitute an unwarranted invasion of personal privacy 2(b)
  - ☐ Disclosure would impair present or imminent contract awards or collective bargaining negotiations 2(c)
  - ☐ Records are exempt from disclosure under the Law Enforcement Exemption 2(e)
  - ☐ Disclosure could endanger the life or safety of any person 2(f)
  - ☐ Records are exempt from disclosure under the Inter/Intra – Agency Materials Exemption 2(g)
  - ☐ Other: _____
- ☐ MATERIAL REDACTED _____
- ☐ UNAVAILABLE – For the reason(s) indicated:
  - ☐ Records requested were not described in sufficient detail
  - ☐ The records you have requested are not maintained by this department
  - ☐ Records could not be located after a diligent search.
  - ☐ Other: _____

SIGNED: _____ **TITLE:** _____ **DATE:** _____

PART H – APPEALS

Any person denied access to a record or portion thereof may within thirty (30) days appeal in writing such denial to the Corporation Counsel, City of Buffalo Law Dept. 1101 City Hall, Buffalo, New York 14202. Please attach a copy of this completed form and the denial letter when filing your appeal. The Appeals Officer will evaluate the appeal and respond to you in writing within ten (10) business days after receipt of the appeal.

Environmental
Advantage

Environmental Advantage, Inc. 3636 N. Buffalo Road Orchard Park, New York 14127
Industrial Compliance, Hazardous Materials Management, Site Assessment/Remediation

September 4, 2025

Lindsey Lauren Visser, City of Buffalo Historian
Erie County Historical Commission
95 Franklin Street
Buffalo, New York 14202

Re: FOIL Request
Vacant Properties, Swan and Chicago Street
Buffalo, New York
Project No. e2413

- 275 Swan Street (SBL #111.72-1-1)
- 279 Swan Street (SBL #111.72-1-2)
- 281 Swan Street (SBL #111.72-1-3)
- 425 Chicago Street (SBL #111.72-1-53)

Email: history@erie.gov

Dear Ms. Visser:

Under the Freedom of Information Law (FOIL), Environmental Advantage, Inc. is inquiring as to the existence of any files or records including, but not limited to, Site use/ownership history, surveys, maps, diagrams, plans, drawings, and/or photos relating to the four parcels above.

A location plan identifying the Site is enclosed. If such files or records exist, please forward any information you may have or notify our office so that we may make arrangements to review these files. The requested information will be used in the preparation of an environmental site assessment of the property. If any cost will be incurred concerning this request, please notify us.

Should you have any questions regarding this matter, please contact the undersigned at (716) 667-3130 or mbehlmaier@envadvantage.com. Your prompt attention to this matter would be greatly appreciated.

Very truly yours,
ENVIRONMENTAL ADVANTAGE, INC.

Mallory Behlmaier

Mallory Behlmaier
Project Manager

Attachment

Environmental
Advantage

Environmental Advantage, Inc. 3636 N. Buffalo Road Orchard Park, New York 14127
Industrial Compliance, Hazardous Materials Management, Site Assessment/Remediation

September 4, 2025

Erie County Department of Health
FOIL Access Officer
503 Kensington Avenue
Buffalo, New York 14214

Re: FOIL Request
Vacant Properties, Swan and Chicago Street
Buffalo, New York
Project No. e2413

- 275 Swan Street (SBL #111.72-1-1)
- 279 Swan Street (SBL #111.72-1-2)
- 281 Swan Street (SBL #111.72-1-3)
- 425 Chicago Street (SBL #111.72-1-53)

Email: healthPHLFOIL@erie.gov

Dear FOIL Access Officer:

Under the Freedom of Information Law (FOIL), Environmental Advantage, Inc. is inquiring as to the existence of any files or records concerning any environmental violations or legal actions, permits, septic system documents, spills, hazardous or solid waste disposal/storage, underground and/or above ground storage tanks, etc. relating to the four parcels above.

A location plan identifying the Site is enclosed. If such files or records exist, please forward any information you may have or notify our office so that we may make arrangements to review these files. The requested information will be used in the preparation of an environmental site assessment of the property. If any cost will be incurred concerning this request, please notify us.

Should you have any questions regarding this matter, please contact the undersigned at (716) 667-3130 or mbehlmaier@envadvantage.com. Your prompt attention to this matter would be greatly appreciated.

Very truly yours,
ENVIRONMENTAL ADVANTAGE, INC.

Mallory Behlmaier

Mallory Behlmaier
Project Manager

Attachment

Environmental
Advantage

Environmental Advantage, Inc. 3636 N. Buffalo Road Orchard Park, New York 14127
Industrial Compliance, Hazardous Materials Management, Site Assessment/Remediation

September 4, 2025

FOIL Coordinator
New York State Department of Environmental Conservation
Division of Public Affairs and Education
270 Michigan Avenue
Buffalo, New York 14203-2999

Re: FOIL Request
Vacant Properties, Swan and Chicago Streets
Buffalo, New York
Project No. e2413

- 275 Swan Street (SBL #111.72-1-1)
- 279 Swan Street (SBL #111.72-1-2)
- 281 Swan Street (SBL #111.72-1-3)
- 425 Chicago Street (SBL #111.72-1-53)

Dear FOIL Coordinator:

Under the Freedom of Information Law (FOIL), Environmental Advantage, Inc. is inquiring as to the existence of any files or records concerning any environmental violations or legal actions, permits, spills, hazardous or solid waste disposal/storage, underground and/or above ground storage tanks, etc., relating to the four parcels above. Please also include any information on the following listings:

- **RCRA ID: NYR000037994**
- **NY Spill #9615008**

A location plan identifying the site is enclosed. If such files or records exist, please forward any information you may have or notify our office so that we may make arrangements to review these files. The requested information will be used in the preparation of an environmental site assessment of the property. If any cost will be incurred concerning this request, please notify us.

Should you have any questions regarding this matter, please contact the undersigned at (716) 667-3130 or mbehlmaier@envadvantage.com. Your prompt attention to this matter would be greatly appreciated.

Very truly yours,
ENVIRONMENTAL ADVANTAGE, INC.

Mallory Behlmaier

Mallory Behlmaier
Project Manager
Attachment

Environmental
Advantage

Environmental Advantage, Inc. 3636 N. Buffalo Road Orchard Park, New York 14127
Industrial Compliance, Hazardous Materials Management, Site Assessment/Remediation

September 4, 2025

U.S. Environmental Protection Agency
290 Broadway
New York, New York 10007-1866

Re: FOIL Request
Vacant Properties, Swan and Chicago Street
Buffalo, New York
Project No. e2413

- 275 Swan Street (SBL #111.72-1-1)
- 279 Swan Street (SBL #111.72-1-2)
- 281 Swan Street (SBL #111.72-1-3)
- 425 Chicago Street (SBL #111.72-1-53)

Dear FOIL Coordinator:

Under the Freedom of Information Law (FOIL), Environmental Advantage, Inc. is inquiring as to the existence of any files or records concerning any environmental violations or legal actions, permits, spills, wells, hazardous or solid waste disposal/storage, underground and/or above ground storage tanks, oil/water separator or septic system records, etc. relating to the four parcels above. Please also include any information on the following listings:

- **US EPA ID: 110008098209 (HERNANDEZ JOSE)**
- **RCRA ID: NYR000037994**

A location plan identifying the Site is enclosed. If such files or records exist, please forward any information you may have or notify our office so that we may make arrangements to review these files. The requested information will be used in the preparation of an environmental site assessment of the property. If any cost will be incurred concerning this request, please notify us.

Should you have any questions regarding this matter, please contact the undersigned at (716) 667-3130 or mbehlmaier@envadvantage.com. Your prompt attention to this matter would be greatly appreciated.

Very truly yours,
ENVIRONMENTAL ADVANTAGE, INC.

Mallory Behlmaier

Mallory Behlmaier
Project Manager

Attachment

APPENDIX G

OBJECTIVES AND LIMITATIONS

OBJECTIVES AND LIMITATIONS

Environmental Advantage, Inc. (EA) has endeavored to meet what it believes is the applicable standard of care for the services completed and, in doing so, is obliged to advise our Client of the Phase I Environmental Site Assessment (ESA) limitations. EA believes that providing information about limitations is essential to help our Client identify and thereby manage risks. These risks can be mitigated, and possibly eliminated, through additional research. EA will, upon request, advise our Client of the additional research opportunities available and their associated costs.

This ESA did not require any inquiry with respect to Radon, Methane, Asbestos, Lead-based paint, Lead in drinking water, Formaldehyde, endangered species, wetlands, test borings/monitoring wells, analytical testing or other services or potential conditions or features not specifically identified and discussed herein. In those instances where additional services or service enhancements are included in the report as requested or authorized by the Client, specific limitations attendant to those services are presented in the text of the report.

The findings and opinions conveyed via this ESA report are based upon information obtained at a particular date from a variety of sources enumerated herein, and which EA believes are reliable. EA cannot, and does not warrant, the authenticity or reliability of the information sources it has relied upon.

The final report represents EA's service to our Client as of the report date. In that regard, the report constitutes EA's final document, and the text of the report may not be altered in any manner after final issuance of same. Opinions relative to environmental conditions presented in this report are based upon information derived from the most recent site reconnaissance date and from other activities described herein. The Client is herewith advised that the conditions observed by EA are subject to change. Certain indicators of the presence of hazardous materials may have been latent or not present at the time of the most recent site reconnaissance and may have subsequently become observable. In similar manner, the research effort conducted for a Phase I ESA is limited. Accordingly, it is possible that EA's research, while fully appropriate for a Phase I ESA and in compliance with the scope of service, may not include other important information sources. Assuming such sources exist, their information could not have been considered in the formulation of our findings and conclusions.

The final report is not a comprehensive site characterization or regulatory compliance audit and should not be construed as such. The opinions presented in this report are based upon findings derived from a site reconnaissance, a review of specified records and sources and comments made by interviewees. Specifically, EA does not, and cannot, represent that the site contains no hazardous or toxic materials, products, or other latent conditions beyond that observed by EA during its site assessment. Further, the services herein shall in no way be construed, designed or intended to be relied upon as legal interpretation or advice.

APPENDIX H

PROFESSIONAL QUALIFICATIONS

Environmental Advantage

C. Mark Hanna, CHMM
President, Principal

Mr. Hanna has over 40 years of experience in environmental pollution control and industrial compliance services. As principal for Environmental Advantage, Inc., Mr. Hanna is responsible for all technical services. He specializes in hazardous materials/wastes management, site assessment and remediation, industrial compliance auditing and implementation, chemical exposure assessment, safety program development and implementation, and client advocacy/agency negotiation related to OOCs and NOVs.

Mr. Hanna's career has included over 40 federal/state Superfund projects and over 1,500 due diligence projects. His industrial experience focuses on air, water, waste and chemical management compliance aspects at metal working and manufacturing, wood working, foundry, electroplating, printing, mining, graphite and food production facilities.

Education

B.A., 1975, Biology, S.U.C. at Oswego, N.Y.

M.S., 1977, Natural Sciences (Toxicology Concentration), S.U.N.Y. at Buffalo, N.Y.

MEPC, 1982, Pollution Control, Pennsylvania State University

M.S., 1983 Forest Hydrology (Hydrogeology Minor), Pennsylvania State University

Professional Registrations

1985-1997, Certified Hazardous Materials Manager, Senior Level

1989-1998, Registered Environmental Professional

1997-Present, Certified Hazardous Materials Manager, Master Level

Key Skills

- Industrial Emission Permits and Controls
- Hazardous/Solid Waste Management
- Industrial Wastewater Pretreatment and Discharge Permits and Reports
- Waste Reduction and Pollution Prevention Programs
- Petroleum and Chemical Bulk Storage
- Industrial Stormwater Management
- Chemical Exposure Characterization
- Environmental Site Assessments
- Environmental Compliance Assessment
- Industrial Risk Management Program and Audit
- Remedial Investigations
- Brownfield Cleanup Program
- Sustainability
- Budgeting & Cost Controls

Affiliations and Certifications

Academy of Hazardous Materials Management, Member
Erie County Local Emergency Planning Committee, Member
New York Water Environment Association, Member
Air, Water, Waste Association, Member
Western New York Sustainable Business Roundtable, Member
OSHA 40 Hour 29 CFR 1910. (HAZWOPER) Certification

Environmental Advantage

Mallory M. Behlmaier

Project Manager & Due Diligence Team Lead

Ms. Behlmaier has over seven years of professional experience in conducting a variety of environmental and remediation investigations at various types of properties. As Project Manager and Due Diligence Team Lead, Ms. Behlmaier oversees various projects including due diligence, petroleum spill and other site remediation tasks, and stormwater management. Ms. Behlmaier has performed over 150 Desk Top Reviews, Transaction Screens, and Phase I Environmental Site Assessments (ESAs) to include historical review, site reconnaissance, and report preparation, and has assisted in conducting and managing Phase II Environmental Site investigations, Brownfield Cleanup Program Project investigations and post-remedial site management, underground storage tank closures, and remediation projects to include soil borings and sampling, test pits, groundwater monitoring well installation and sampling, and analytical data and report preparation.

In addition to her duties in the site assessment and investigation field, Ms. Behlmaier oversees monitoring, sampling, and reporting requirements under NYSDEC's State Pollutant Discharge Monitoring System (SPDES) programs and plays a key role in inspections and report preparation under a multitude of other environmental compliance requirements. Ms. Behlmaier has completed annual USEPA Spill Prevention, Control and Countermeasure (SPCC) inspections and Plan updates and prepares various required environmental compliance reports including annual NYSDEC hazardous waste reports, annual cooling tower certification reports, and annual Emergency Planning and Community Right-to-Know Act (EPCRA) reports.

Education

B.S., Environmental Studies, 2017, State University of New York at Buffalo – Concentrations in Environmental Policy and Education and Environmental Resources and Management

Minor, Geography, 2017, State University of New York at Buffalo – Concentration in Earth Systems Science

Key Skills

- Environmental Site Assessments
- NYSDEC Brownfield Cleanup Program
- NYSDEC MSGP Compliance
- Multi-media sampling and assessment (soil, groundwater, air, vapor, radon, legionella)
- UST Closures
- Spill Cleanup and Remediation
- Solid and Hazardous Waste Characterization, Profiling, and Management
- Bidding/Estimating/Proposals
- Subcontractor/Crew Management

Affiliations and Certifications

OSHA 40 Hour 29 CFR 1910. (HAZWOPER) Certification
OSHA 8 Hour (HAZWOPER) Refresher Training (Annually)
NYSDEC Certificate of Erosion and Sediment Control Training

APPENDIX I

ENVIRONMENTAL PROFESSIONAL(S) STATEMENT

ENVIRONMENTAL PROFESSIONAL(S) STATEMENT

"I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR Part 312.10 and I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject site. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."

C. Mark Hanna, CHMM
Name

President
Title

Signature

9/26/2025
Date

APPENDIX J

LIST OF REFERENCES

LIST OF REFERENCES

1. Local Government Records:
   City of Buffalo Assessor's Office records
   City of Buffalo Building Department records
   City of Buffalo Fire Department records
   City of Buffalo and Erie County Public Library
   Erie County Geographic Information Systems
   http://gis2.erie.gov/GC/ErieCountyNY/
   NYSDEC Environmental Remediation Databases;
   https://www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=1

2. USGS Website; https://store.usgs.gov/map-locator
   Quadrangle Map; US Geological Survey; Buffalo NE, NY (2023)

3. Custom Soil Resource Report; United States Department of Agriculture, National Resources Conservation Service; http://websoilsurvey.nrcs.usda.gov/

4. DEC Wetlands Maps, National Wetlands Inventory Maps
   FEMA Floodplains; https://msc.fema.gov/portal/advanceSearch

5. New York State Museum and Science Service – Geologic Map of New York State, 1970

6. Aerial Photographs and Topographic Maps:
   Google Earth – 2002, 2006, 2008, 2009, 2011, 2013, 2015, 2017, 2019, and 2021
   Historic Aerials; www.historicaerials.com – 1959, 1963, 1966, 1974, 1983, 1985, 1995, 2002, 2005, 2006, 2008, 2009, 2011, 2013, 2015, 2017, 2019, 2021, and 2022
   Historic Aerials Topographic Maps; www.historicaerials.com – 1894, 1899, 1901, 1903, 1909, 1913, 1925, 1931, 1940, 1947, 1950, 1958, 1959, 1967, 2013, 2016, 2019, 2023

7. Environmental Risk Information Services, Inc. (ERIS) Database Report, Sanborn Maps, City Directories, and Physical Setting Report dated September 15th, 17th, and 24th, 2025.

8. NYS Department of Health – Measured basement Screening Radon Levels – November 2024;
   https://health.data.ny.gov/Health/Radon-Test-Results-By-Town-Beginning-1987/hbu9-xsrx/about_data

November 21, 2025

Mr. Alexander Burgos
Draghi Burgos Construction
681 Michigan Avenue
Buffalo, New York 14203

Re: Phase II Environmental Investigation
Swan and Chicago Streets
Buffalo, New York

Dear Mr. Burgos:

Roux Environmental Engineering and Geology, D.P.C. (Roux) has prepared this report to present the results of a Phase II Environmental Investigation completed at the following vacant underutilized urban lots, totaling 0.4-acres, herein referred to collectively as the Site:

- Parcel 1 – 275 Swan Street, 0.09-acres.
- Parcel 2 – 279 Swan Street, 0.05-acres.
- Parcel 3 - 281 Swan Street, 0.06-acres.
- Parcel 4 – 425 Chicago Street, 0.19-acres.

A Site Location and Vicinity Map is provided as Figure 1. A Site Plan is provided as Figure 2.

The purpose of this investigation was to assess environmental conditions and to determine whether the Site is a potential candidate for redevelopment under the New York State Brownfield Cleanup Program (BCP).

BACKGROUND AND PURPOSE

The following summarizes the history and recognized environmental conditions (RECs) identified for the Site in a Phase I Environmental Site Assessment completed by Environmental Advantage (EA) and documented in a report, dated September 26, 2025:

- The Site has had a history of several commercial occupants and was originally developed by 1881 with residences, commercial store fronts, and a stable ("U.S. Express Stables"). Parcel 2 appears to have been always utilized residentially. The storefronts along Swan Street on Parcels 1 and 3 were occupied by several occupants including a dentistry, dry goods, meat, and grocery store, Swam Importing Co., drug store, physician's office, and church. The storefronts along Chicago Street in the southern portion of Parcel 1 were also occupied by several occupants including Salerno Printer, barber, and record shop. All of these former buildings (Buildings 1-3) were demolished between 1978 and 2002. These former buildings had basements, which presumably were backfilled with material from unknown sources.
- Parcel 4 was originally developed by at least 1889 with a stable ("U.S. Express Stables"). This building existed as a stable until approximately 1926, when it was re-developed as a public automobile garage ("Chicago St. Garage"). In the 1926 Sanborn map, one gasoline underground storage tank (UST) was located along the western parcel boundary. Buffalo Fire Department records indicated one 1,000-gallon gasoline UST was installed for a public garage in 1941 with two pre-existing 550-gallon gasoline USTs. In the 1950 Sanborn map, two gasoline USTs were located along the western parcel boundary. This parcel existed as a public garage until the building was demolished in 1997, after which the parcel existed as vacant land until

present day. No records of removal associated with these gasoline tanks were identified by EA. Although the locations of the reported 550-gallon gasoline USTs and 1,000-gallon gasoline UST were not confirmed by EA, it is probable the two 550-gallon gasoline USTs may correspond with the two gasoline USTs mapped within the Chicago Street roadway/sidewalk on the Sanborn Maps. Additionally, a suspect fill port labeled "OPW" was identified by EA on-site within the western portion of Parcel 4, near the two gasoline USTs depicted on the Sanborn Maps.

- In addition, New York State Department of Environmental Conservation (NYSDEC) Spill #9615008 was identified for the Site (275 Swan Street/425 Chicago Street) associated with the "Hernandez Lot" on March 28, 1997. According to the regulatory database listing, the NYSDEC reported 12 drums (some full and three empty) and two 275-gallon oil tanks with one tank partially crushed with holes in it, were abandoned on the vacant lot. The drums and tanks were reportedly removed from the building ("Building 4") prior to demolition, placed on the vacant lot, and were never removed from the Site following demolition activities. It was estimated that approximately 30 gallons of oil were spilled to the ground. Minimal cleanup was initially completed by a subcontractor, in which the NYSDEC inspected and requested further cleanup for the oil-stained grass and soil. Reportedly, one overpacked drum, five drums of oil, four drums of parts washer fluid (hazardous waste), one drum of paint waste, and 12 drums of contaminated soil were initially removed from the property and placed into a roll off with additional contaminated soil. Additional soil was excavated and a disposal receipt showing 13.5 tons of oil-contaminated soil was disposed of at Lakeview Landfill. However, the only bill of lading provided to NYSDEC for the waste oil liquid and hazardous waste was for four drums not signed by the disposal facility. The contractor was scheduled to provide the remaining disposal receipts the following week (07/21/1997). However, no further indication regarding this matter was noted and the NYSDEC considered the spill as "closed" on January 1, 1998. Roux notes that there is no indication that this spill resulted in significant remedial activities at the Site.

Due to the RECs discussed above, EA recommended completion of a Phase II subsurface investigation to assess environmental conditions.

Additional information relative to Roux's Phase II scope of work is provided below.

PHASE II INVESTIGATION ACTIVITIES

On October 21, 2025, Roux completed 15 test pits (TP-1 through TP-15) using an excavator to depths ranging between 4 feet below ground surface (fbgs) and 8 fbgs. Investigation locations are shown on Figure 3.

The removed soils were observed for field characterization of the subsurface lithology and collection of soil samples. The soils from each test pit were screened for total volatile organics using a MiniRae 3000 photoionization detector (PID); visual characteristics were classified; and olfactory observations, if any, were noted.

Ten soil/fill samples were analyzed by Eurofins Buffalo (Eurofins) for New York State Department of Environmental Conservation (NYSDEC) Target Compound List (TCL) plus Commissioner Policy 51 (CP-51) volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs) and/or Resource Conservation and Recovery Act (RCRA) metals. Samples were collected in laboratory provided sample bottles and placed on ice prior to transport.

FIELD OBSERVATIONS

Lithology was described as non-native fill materials consisting of cinders, black fines, and fragments of brick to depths ranging between 4 feet below ground surface (fbgs) and greater than 8 fbgs (maximum reach of the excavator). Fill materials were identified as being intermingled with ash, coal, glass, metal,

wood, asphalt/millings, and/or mortar at certain test pit locations. Fill materials were underlain by native sandy lean clay.

No evidence of overburden groundwater was observed during the fieldwork.

As further detailed below, two orphan USTs were encountered during the work.

Investigation locations are shown on Figure 2. Roux's field observations are further detailed in the table below. :

Investigation Location	Highest PID reading in parts per million (ppm) and depth	Observations of Note
TP-1	200 ppm at 6-7 ft	Petroleum-like odors, orphan UST encountered.
TP-2	2,000 ppm at 4-5 ft	Petroleum-like odors, additional orphan UST encountered.
TP-3	0.0 ppm	Reworked sandy lean clay.
TP-4	0.0 ppm	Fill to at least 4 fbgs.
TP-5	0.0 ppm	Fill in upper 6 inches.
TP-6	0.0 ppm	Asphalt millings underlain by reworked sandy lean clay to 4 fbgs.
TP-7	0.0 ppm	Fill to 1 fbgs.
TP-8	0.0 ppm	Fill in upper 6 inches.
TP-9	0.0 ppm	Fill to at least 8 fbgs.
TP-10	0.0 ppm	Fill to at least 8 fbgs.
TP-11	0.0 ppm	Fill to at least 7 fbgs, concrete refusal noted at bottom of test pit at 7 fbgs.
TP-12	0.0 ppm	Fill to at least 4 fbgs.
TP-13	0.0 ppm	Asphalt millings underlain by fill to 4 fbgs.
TP-14	0.0 ppm	Fill to at least 6 fbgs.
TP-15	0.0 ppm	Fill to 5 fbgs.

Additional information relating to lithology and field observations is provided on the test pit logs in Attachment 1 and photographs taken during the work are provided in Attachment 2.

NYSDEC Reporting Obligation

Based on the presence of two orphan USTs and field evidence of petroleum impacts noted during Roux's Phase II fieldwork on the 425 Chicago Street parcel, as required bv law, the NYSDEC was notified, and Spill No. 2506517 was assigned to the 425 Chicago Street parcel. Ms. Francine Gallego is the NYSDEC's Project Manager assigned to the Spill.

LABORATORY ANALYTICAL RESULTS

Laboratory analytical results were provided by Eurofins Buffalo in a report dated November 3, 2025. This laboratory analytical report is provided in Attachment 3.

Soil Analytical Results

Table 1 presents a summary of the analytical results from the soil samples that were analyzed. For comparative purposes, Table 1 includes NYSDEC CP-51 Soil Cleanup Levels (SCLs), which are the most applicable comparison criteria for petroleum sites. However, in the context of BCP eligibility, Table 1 also includes 6NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives (USCOs), Restricted-Residential Use SCOs (RRSCOs), Commercial Use SCOs (CSCOs), and Industrial Use SCOs (ISCOs).

As summarized on Table 1, no petroleum VOCs were detected at concentrations above CP-51 SCLs in the two soil samples (TP-1 and TP-2) collected proximate to each orphan UST; the lack of petroleum VOCs in these soil samples is indicative of weathered petroleum. Acetone was identified above its USCO, but not its RRSCO, at TP-2; however, we note that acetone is a common laboratory contaminant.

PAHs were identified at concentrations exceeding their respective CP-51 SCLs and their Part 375 USCOs, RRSCOs, CSCOs, and/or ISCOs in fill samples collected across the Site in one or more fill samples collected from each parcel. The highest total PAH concentrations, identified as 338 mg/kg (TP-12 on the 281 Swan Street parcel), and 538 milligrams per kilogram (mg/kg, at TP-10 on the 279 Swan Street parcel), would constitute “hot spots” requiring remediation if the Site were in the New York Brownfield Cleanup Program (NY BCP).

Regarding metals, one or more fill samples from each parcel yielded concentrations above their respective CSCOs and/or ISCOs. Of note, concentrations of mercury exceed its respective ISCO at TP-1 (6.5 mg/kg), TP-10 (159 mg/kg), and TP-15 (8.1 mg/kg). Concentrations of arsenic exceeds its ISCO at TP-10 (22 mg/kg), and TP-12 (83.6 mg/kg) and concentrations of barium exceeds its CSCO at TP-8 (942 mg/kg), TP-10 (406 mg/kg), and TP-12 (920 mg/kg). In addition, lead exceedances were identified with a significant concentration of 20,000 mg/kg exceeding its ISCO at TP-8, and additional lead concentrations exceeding its respective CSCO at TP-10 (3,800 mg/kg), TP-11 (1,050 mg/kg), and TP-12 (1,900 mg/kg). These elevated metal concentrations would constitute “hot spots” requiring remediation if the Site were in a regulatory program.

CONCLUSIONS

Roux offers the following conclusions and recommendations based on the findings discussed above:

- Based on the history of the Site, the presence of orphan USTs, and findings of this Phase II investigation indicating the presence of impacted soil/fill materials with significantly elevated concentrations of PAHs and RCRA metals, the Site appears to be a potential candidate for the BCP. If the BCP is pursued for the Site, upon successful formal acceptance into the BCP, spill No. 2506517 would be administratively closed.
- Even if BCP is not pursued, spill No. 2506517 will be required to be properly addressed to the satisfaction of the NYSDEC.
- A copy of this report should be provided to the NYSDEC for their review and comment.

Please contact us if you have any questions or require additional information.

Sincerely,
Roux Environmental Engineering and Geology, D.P.C.

Michael A. Lesakowski
Vice President , Principal Scientist,
Co-Operations Manager

Bryan W. Mayback
Technical Director

Attachments

Table 1 – Soil Analytical Results
Figure 1 – Site & Vicinity Map
Figure 2 – Site Plan
Figure 3- Investigation Locations
Attachment 1 – Test Pit Logs
Attachment 2 – Photographic Log
Attachment 3 - Laboratory Analytical Report

TABLE 1 – Soil Analytical Results

ROUX

TABLE 1

SUMMARY OF SOIL/FILL ANALYTICAL RESULTS

SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

PARAMETER [1]	CP-51 SCLs[2]	Unrestricted Use SCOs[2]	Restricted Residential Use SCOs[2]	Commercial Use SCOs[2]	Industrial Use SCOs[2]	SAMPLE LOCATION (DEPTH)									
						TP-1 0-1 ft	TP-1 6-8 ft	TP-2 0-1 ft	TP-2 4-6 ft	TP-8 0-2.5 ft	TP-9 0-2 ft	TP-10 0-2 ft	TP-11 2-4 ft	TP-12 1-3 ft	TP-15 0-3 ft
Sample Date						10/21/2025									
Volatile Organic Compounds (VOCs) - mg/kg [3]															
Chloroform	--	0.37	49	350	350	--	0.0012 JBvs	--	0.011 JBvs	--	--	--	--	--	--
1,2-Dichloroethane	--	0.02	3.1	30	30	--	0.0012 Jvs	--	ND	--	--	--	--	--	--
Ethylbenzene	1	1	41	390	390	--	0.0083 vs	--	ND	--	--	--	--	--	--
p/m-Xylene	0.26	--	--	--	--	--	0.001 Jvs	--	0.025 Jvs	--	--	--	--	--	--
Acetone	--	0.05	100	500	--	--	0.034 vs	--	0.097	--	--	--	--	--	--
tert-Butylbenzene	--	--	--	--	--	--	0.00082 Jvs	--	ND	--	--	--	--	--	--
Isopropylbenzene	2.3	--	--	--	--	--	0.0059 Jvs	--	ND	--	--	--	--	--	--
p-Isopropyltoluene	10	--	--	--	--	--	0.0035 Jvs	--	0.017	--	--	--	--	--	--
n-Propylbenzene	3.9	3.9	100	500	500	--	0.018 vs	--	ND	--	--	--	--	--	--
1,3,5-Trimethylbenzene	8.4	8.4	52	190	190	--	ND	--	0.22	--	--	--	--	--	--
1,2,4-Trimethylbenzene	3.6	3.6	52	190	190	--	0.0026 Jvs	--	0.7	--	--	--	--	--	--
Polyaromatic Hydrocarbons (PAHs) [3]															
Acenaphthene	20	20	100	500	1000	ND	ND	ND	ND	--	2.3	3.4 J	ND	ND	3.8
Acenaphthylene	100	100	100	500	1000	ND	ND	ND	ND	--	0.59 J	7.4	ND	8.8	0.71 J
Anthracene	100	100	100	500	1000	ND	ND	ND	ND	--	4.8	16 J	0.076 J	7.2	7.6
Benzo(a)anthracene	1	1	1	5.6	11	ND	ND	ND	ND	--	14	45	0.28	42	12
Benzo(a)pyrene	1	1	1	1	1.1	0.78 J	ND	0.038 J	ND	--	12	42	0.32	32	9.5
Benzo(b)fluoranthene	1	1	1	5.6	11	1.1 J	ND	ND	ND	--	14	51	0.44	41	12
Benzo(ghi)perylene	100	100	100	500	1000	0.83 J	ND	0.05 J	ND	--	8.9	34	0.26	20	6
Benzo(k)fluoranthene	0.8	0.8	3.9	56	110	ND	ND	ND	ND	--	7.7	26 J	0.16 J	19	5.2
Chrysene	1	1	3.9	56	110	ND	ND	ND	ND	--	13	46	0.42	37	12
Dibenzo(a,h)anthracene	0.33	0.33	0.33	0.56	1.1	ND	ND	ND	ND	--	ND	8.5	ND	9.4	2.2 J
Fluoranthene	100	100	100	500	1000	1.7 J	ND	0.06 J	ND	--	26	93	1.54	57	31
Fluorene	30	30	100	500	1000	ND	ND	ND	ND	--	2	3.7 J	ND	0.64 J	3.8
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.5	5.6	11	0.59 J	ND	ND	ND	--	7.5	28 J	0.18 J	19	5.1
Naphthalene	12	12	100	500	1000	ND	0.1 J	ND	0.55	--	0.79 J	ND	ND	ND	ND
Phenanthrene	100	100	100	500	1000	ND	ND	ND	ND	--	18	57	0.5	7.6	28
Pyrene	100	100	100	500	1000	1.1 J	ND	0.054 J	ND	--	21	77	0.53	38	20
Metals - mg/Kg															
Arsenic	--	13	16	16	16	7.3	--	3.2	--	12.7	9.1	22	13.7	83.6	8.7
Barium	--	350	400	400	10,000	88.8 ^5+	--	155 ^5+	--	942	240	406 ^5+	186 ^5+	920	333
Cadmium	--	2.5	4.3	9.3	60	0.48	--	0.2 J	--	7.8	1.1	1.2	1.2	1.6	1.4
Chromium	--	31	180	1500	6800	21.6	--	13.7	--	52.2	22	40.7	17.5	41.1	17.8
Lead	--	64	400	1000	3900	502 ^5+	--	58.3 ^5+	--	20000	820	3800	1050	1900	543
Mercury	--	0.18	0.81	2.8	5.7	6.5	--	0.065	--	0.5	0.37 F1	159 J	0.23	0.61	8.1
Selenium	--	3.9	180	1500	6800	ND	--	ND	--	1.4 J	ND	2.3	ND	2.4 J	3 J
Silver	--	2	180	1500	6800	0.48 J^5-	--	0.48 J^5-	--	0.47 J^5-	0.48 J^5-	0.67 J^5-	0.51 J^5-	1.5 ^5-	1.4 ^5-

Notes:

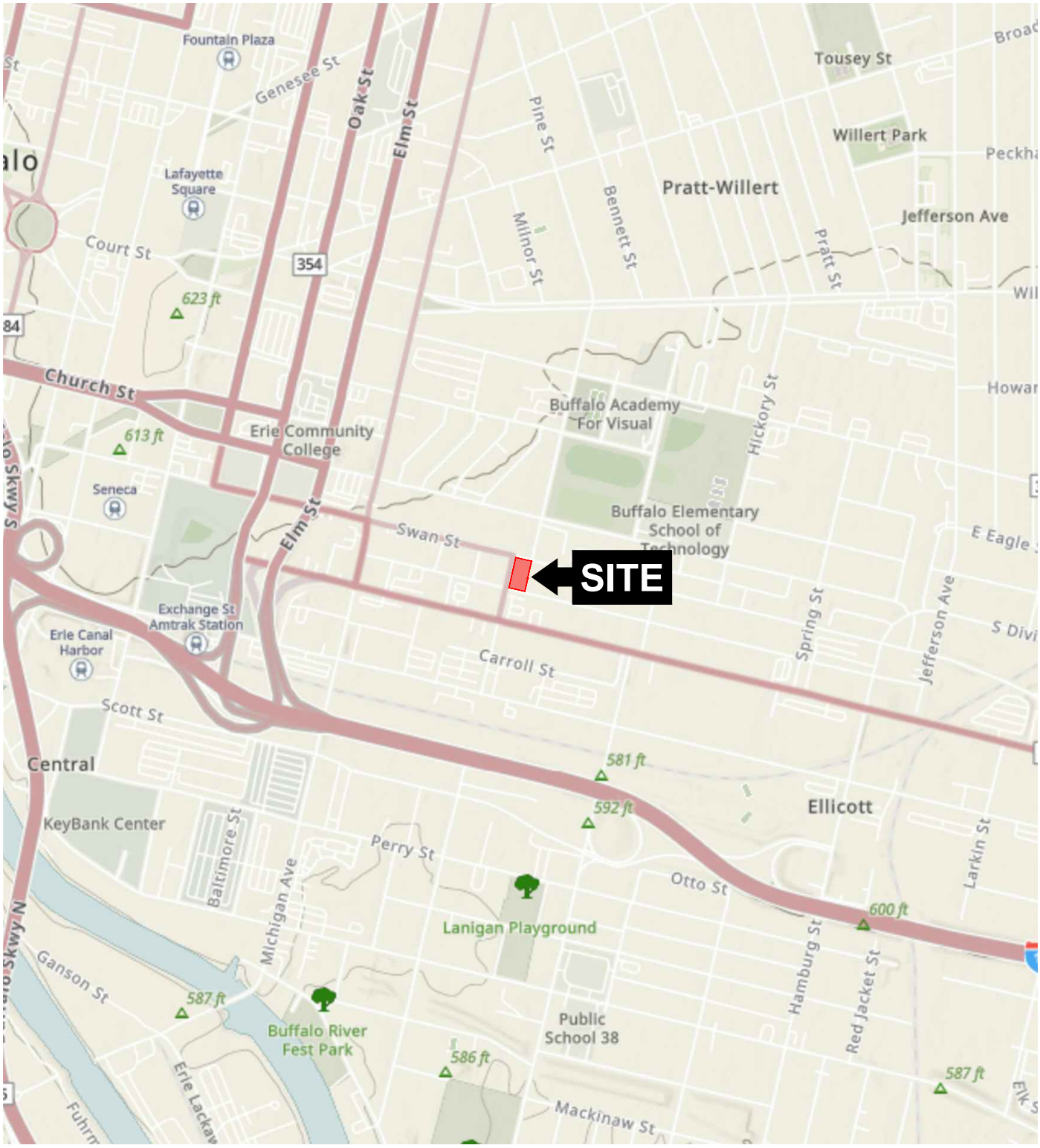
1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per 6NYCRR Part 375 Soil Cleanup Objectives (SCOs).
3. Sample results were reported by the laboratory in ug/kg and converted to mg/kg for comparisons to SCLs

Definitions:

ND = Parameter not detected above laboratory detection limit.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
^5-= Linear Range Check (LRC) is outside acceptance limits, low biased.
^5+= Linear Range Check (LRC) is outside acceptance limits, high biased.
F1= MS and/or MSD recovery exceeds control limits.

Bold	= Results Exceed Part 375 Unrestricted Use SCOs and/or CP-51 SCLs
Bold	= Results Exceed Part 375 Restrcited Residential Use SCOs
Bold	= Results Exceed Part 375 Commercial Use SCOs
Bold	= Results Exceed Part 375 Industrial Use SCOs

FIGURES



1000' 0 1000'

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Tonawanda West
2 Tonawanda East
3 Clarence Center
4 Buffalo NW
5 Lancaster
6 Buffalo SE OE W
7 Buffalo SE
8 Orchard Park

ADJOINING QUADRANGLES

BUFFALO NE QUADRANGLE
NEW YORK - ERIE COUNTY
7.5-MINUTE SERIES

BUFFALO NE, NY
2023

N

Title:

Site Location and Vicinity Map

Phase II Environmental Site Investigation

Swan & Chicago Street Site
Buffalo, NY

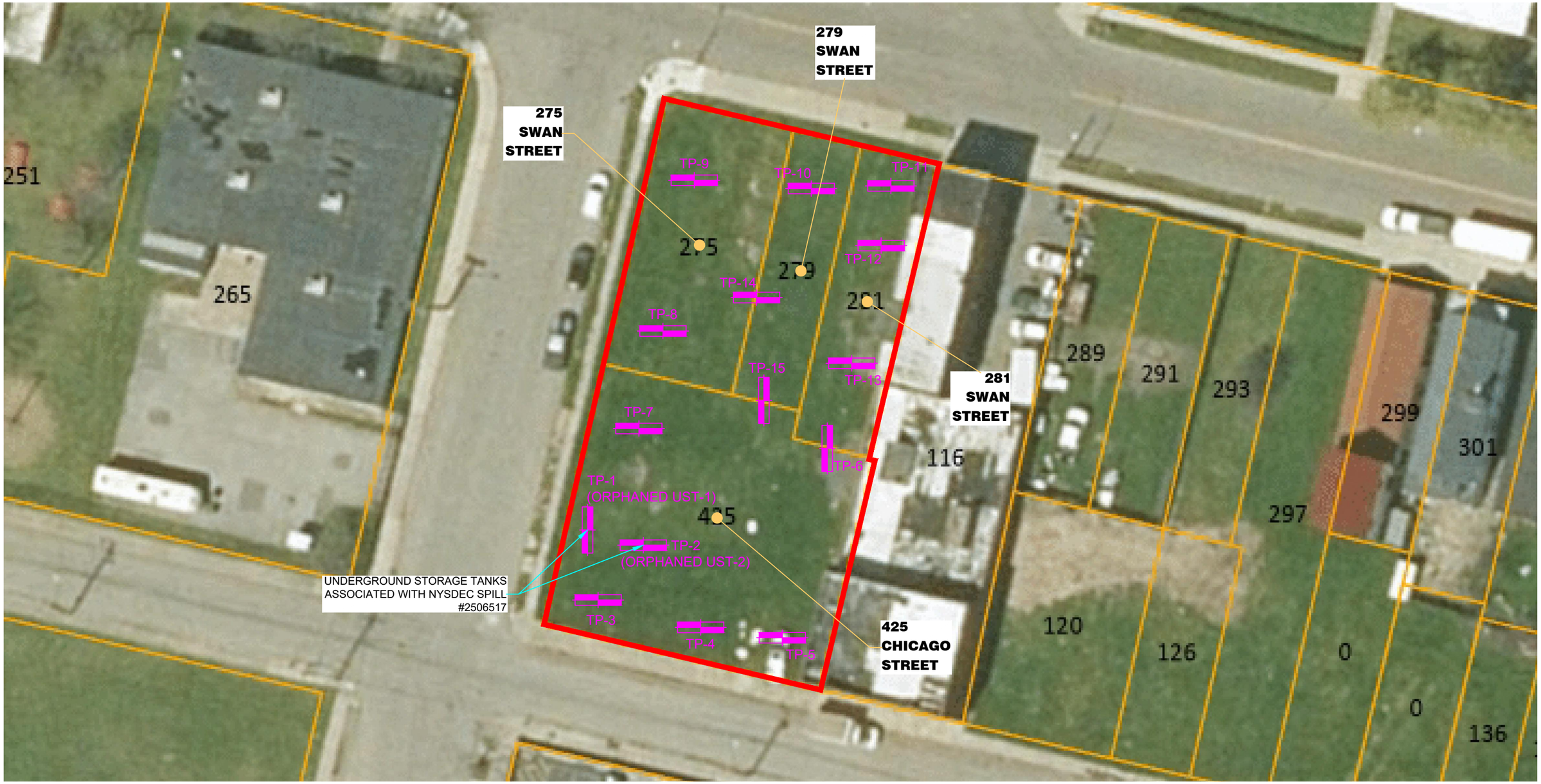
Prepared for:

Draghi Burgos Construction

ROUX

Compiled by: JJY	Date: OCTOBER 2025	FIGURE
Prepared by: JJY	Scale: AS SHOWN	1
Project Mgr: BWM	Project: 5143.0001B000	
File: FIGURE 1; SITE LOCATION AND VICINITY MAP.DWG		

F:\CAD\0-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\FIGURE 1; SITE LOCATION AND VICINITY MAP.DWG JYAEGER



LEGEND

SUBJECT PROPERTY BOUNDARY

PARCEL BOUNDARY LINES

TP-15 TEST PIT LOCATIONS (APPROXIMATE) ×15

N

50' 0 50'

Title:

Site Plan (Aerial) with Investigation Locations

Phase II Environmental Site Investigation

Swan & Chicago Street Site
Buffalo, NY

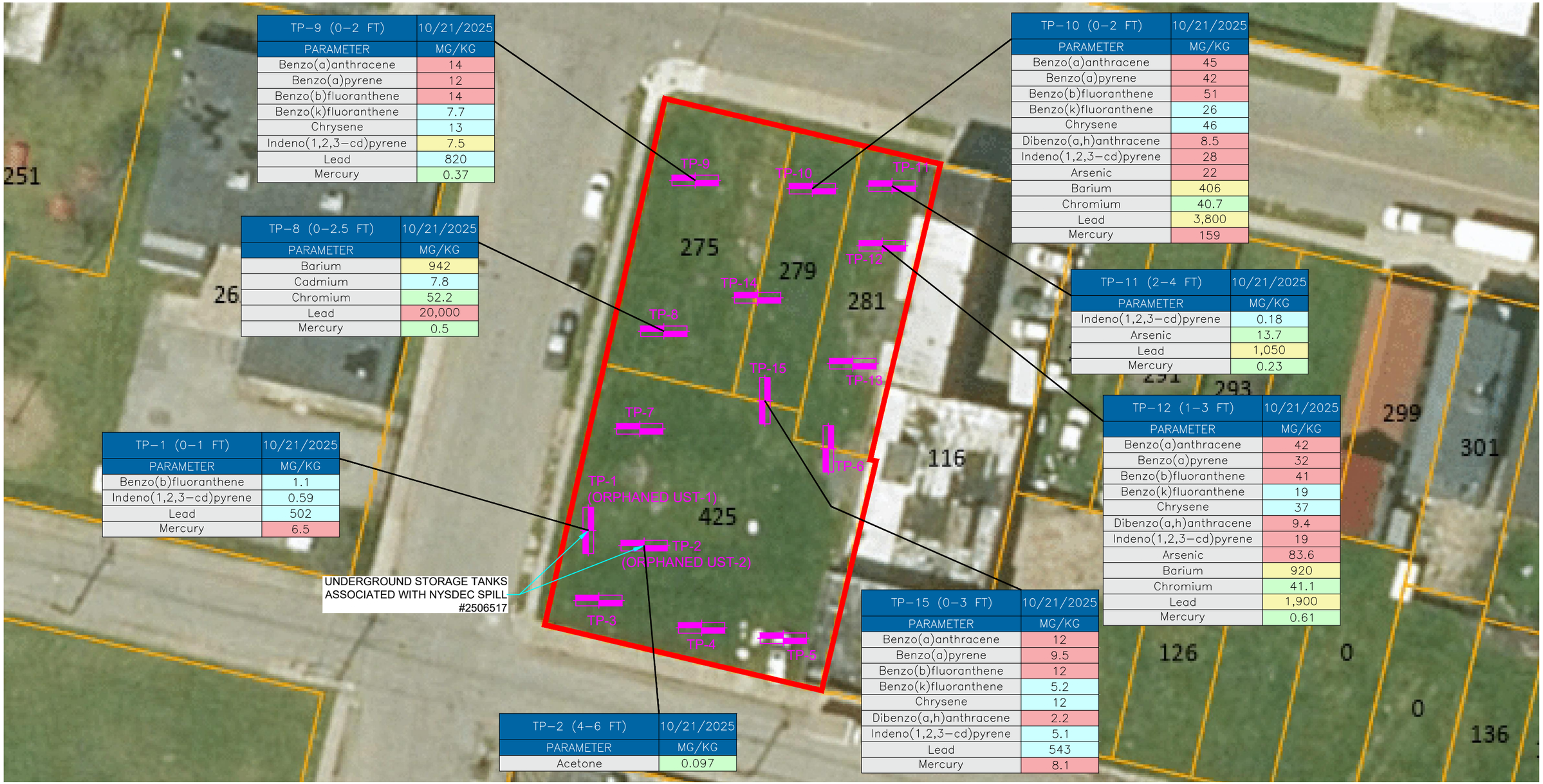
Prepared for:

Draghi Burgos Construction

ROUX

Compiled by: JJY	Date: OCTOBER 2025	FIGURE
Prepared by: JJY	Scale: AS SHOWN	2
Project Mgr: BWM	Project: 5143.0001B000	
File: FIGURE 2; SITE PLAN (AERIAL) WITH INVESTIGATION LOCATIONS_R1.DWG		

F:\CAD\0-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\FIGURE 2; SITE PLAN (AERIAL) WITH INVESTIGATION LOCATIONS_R1.DWG JYAEGER



TP–9 (0–2 FT)	10/21/2025
PARAMETER	MG/KG
Benzo(a)anthracene	14
Benzo(a)pyrene	12
Benzo(b)fluoranthene	14
Benzo(k)fluoranthene	7.7
Chrysene	13
Indeno(1,2,3–cd)pyrene	7.5
Lead	820
Mercury	0.37

TP–10 (0–2 FT)	10/21/2025
PARAMETER	MG/KG
Benzo(a)anthracene	45
Benzo(a)pyrene	42
Benzo(b)fluoranthene	51
Benzo(k)fluoranthene	26
Chrysene	46
Dibenzo(a,h)anthracene	8.5
Indeno(1,2,3–cd)pyrene	28
Arsenic	22
Barium	406
Chromium	40.7
Lead	3,800
Mercury	159

TP–8 (0–2.5 FT)	10/21/2025
PARAMETER	MG/KG
Barium	942
Cadmium	7.8
Chromium	52.2
Lead	20,000
Mercury	0.5

TP–11 (2–4 FT)	10/21/2025
PARAMETER	MG/KG
Indeno(1,2,3–cd)pyrene	0.18
Arsenic	13.7
Lead	1,050
Mercury	0.23

TP–12 (1–3 FT)	10/21/2025
PARAMETER	MG/KG
Benzo(a)anthracene	42
Benzo(a)pyrene	32
Benzo(b)fluoranthene	41
Benzo(k)fluoranthene	19
Chrysene	37
Dibenzo(a,h)anthracene	9.4
Indeno(1,2,3–cd)pyrene	19
Arsenic	83.6
Barium	920
Chromium	41.1
Lead	1,900
Mercury	0.61

TP–1 (0–1 FT)	10/21/2025
PARAMETER	MG/KG
Benzo(b)fluoranthene	1.1
Indeno(1,2,3–cd)pyrene	0.59
Lead	502
Mercury	6.5

TP–15 (0–3 FT)	10/21/2025
PARAMETER	MG/KG
Benzo(a)anthracene	12
Benzo(a)pyrene	9.5
Benzo(b)fluoranthene	12
Benzo(k)fluoranthene	5.2
Chrysene	12
Dibenzo(a,h)anthracene	2.2
Indeno(1,2,3–cd)pyrene	5.1
Lead	543
Mercury	8.1

TP–2 (4–6 FT)	10/21/2025
PARAMETER	MG/KG
Acetone	0.097

LEGEND

- SUBJECT PROPERTY BOUNDARY
- PARCEL BOUNDARY LINES
- TEST PIT LOCATIONS (APPROXIMATE) ×15
- 0.0 Results Exceed Part 375 Unrestricted Use SCOs and/or CP-51 SCLs
- 0.0 Results Exceed Part 375 Restricted Residential Use SCOs
- 0.0 Results Exceed Part 375 Commercial Use SCOs
- 0.0 Results Exceed Part 375 Industrial Use SCOs

N

50' 0 50'

Title:

Investigation Locations and Soil/Fill Exceedances

Phase II Environmental Site Investigation

Swan & Chicago Street Site
Buffalo, NY

Prepared for:

Draghi Burgos Construction

ROUX

Compiled by: JJY	Date: OCTOBER 2025	FIGURE
Prepared by: JJY	Scale: AS SHOWN	3
Project Mgr: BWM	Project: 5143.0001B000	
File: FIGURE 3: INVESTIGATION LOCATIONS AND SOIL-FILL EXCEEDANCES.DWG		

F:\CAD\0-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\FIGURE 3: INVESTIGATION LOCATIONS AND SOIL-FILL EXCEEDANCES.DWG JYAEGER

ATTACHMENT 1 – Test Pit Logs

TP-1

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 8 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Fill- Black/grey, moist, mostly fill (cinders, brick, black fines, subrounded gravel), some fine sand, no odors		1	0	
	CL-ML		Reworked Sandy Lean Clay- Reddish brown, moist, mostly lean clay, some fine sand, loose when disturbed, no odors, UST encountered at 3 ft		1	0	
					1	0	
	CL		Sandy Lean Clay- Reddish brown/grey, moist, mostly lean clay, some fine sand, stiff, petroleum-like odors		1	0	
					1	150	
5					1	150	
					1	200	
					1	200	
					1		

Bottom of test pit at 8 feet

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-2

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 6 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Fill- Black/grey, moist, mostly fill (cinders, brick, black fines, ash), some fine sand, no odors		1	0	
	CL-ML		Reworked Sandy Lean Clay- Reddish brown, moist, mostly lean clay, some fine sand, loose when disturbed, no odors, UST encountered at 4 ft		1	0	
					1	0	
					1	0	
					1	2000	
5	CL		Sandy Lean Clay- Reddish brown/grey, moist, mostly lean clay, some fine sand, stiff, petroleum-like odors		1	2000	
					1		

Bottom of test pit at 6 feet

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\G\NT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-3

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 8 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	TOPS		Topsoil			0	
	CL-ML		Reworked Sandy Lean Clay- Reddish brown, moist, mostly lean clay, some fine sand, loose when disturbed, no odors,		1	0	
					1	0	
					1	0	
					1	0	
					1	0	
5					1	0	
					1	0	
					1	0	
			Bottom of test pit at 8 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-4

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 4 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Fill- Black/grey, moist, mostl silty sand, some fill (cinders, brick, black fines), no odors		1	0	
1	CL-ML		Reworked Sandy Lean Clay with fill- Reddish brown, moist, mostly lean clay, some fine sand, little fill (ash, cinders, glass, brick, metal), loose when disturbed, no odors		1	0	
2					1	0	
3					1	0	
4			Bottom of test pit at 4 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-5

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 5 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Fill- Black/grey, moist, mostly silty sand, some fill (cinders, black fines, coal), loose when disturbed, no odors			0	
	CL-ML		Sandy Lean Clay- Reddish brown, moist, mostly lean clay, some fine sand, stiff, no odors		1		
1						0	
					1		
2						0	
					1		
3						0	
					1		
4						0	
					1		
5			Bottom of test pit at 5 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-6

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 5 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	ASPH		Asphalt millings			0	
	CL-ML		Reworked Sandy Lean Clay- Reddish brown, moist, mostly lean clay, some fine sand, loose when disturbed, no odors		1		
1						0	
					1		
2						0	
					1		
3						0	
					1		
4	CL		Sandy Lean Clay- Reddish brown/grey, moist, mostly lean clay, some fine sand, stiff		1	0	
5			Bottom of test pit at 5 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-7

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 5 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Fill- Black/grey, moist, mostly fill (brick, cinders, black fines), loose when disturbed, no odors		1	0	
1	CL-ML		Sandy Lean Clay- Reddish brown, moist, mostly lean clay, some fine sand, stiff, no odors		1	0	
2					1	0	
3					1	0	
4					1	0	
5			Bottom of test pit at 5 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-8

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 8 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Fill- White/grey/brown, moist, mostly fill (brick, ash, cinders, glass, metal, gravel), loose when disturbed, no odors Sandy Lean Clay- Reddish brown, moist, mostly lean clay, some fine sand, stiff, no odors		1	0	
					1	0	
					1	0	
	CL-ML				1	0	
5					1	0	
					1	0	
					1	0	
					1	0	
					1	0	
			Bottom of test pit at 8 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-9

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 8 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Fill- White/black/grey/brown, moist, mostly fill (concrete, brick, ash, cinders, glass, wood, black fines, metal), some fine sand, no odors		1	0	
					1	0	
					1	0	
					1	0	
					1	0	
					1	0	
5					1	0	
					1	0	
					1	0	
					1		
	CONC		Concrete Bottom of test pit at 8 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-10

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 8 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Fill- White/black/grey/brown, moist, mostly fill (concrete, brick, ash, cinders, glass, wood, black fines, metal), some fine sand, no odors		1	0	
					1	0	
					1	0	
					1	0	
					1	0	
5					1	0	
					1	0	
					1	0	
					1	0	
	CONC		Concrete Bottom of test pit at 8 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-11

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 7 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Fill- White/black/grey/brown, moist, mostly fill (concrete, brick, ash, cinders, glass, wood, black fines, metal), some fine sand, no odors		1	0	
						0	
					1		
						0	
					1		
						0	
					1		
						0	
					1		
5						0	
					1		
						0	
					1		
	CONC		Concrete Bottom of test pit at 7 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-12

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 4 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	TOPS		Topsoil			0	
	MIXD		Fill- White/black/grey/brown, moist, mostly fill (concrete, brick, ash, cinders, glass, wood, black fines, metal), some fine sand, no odors		1		
1						0	
					1		
2						0	
					1		
3						0	
					1		
4			Bottom of test pit at 4 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-13

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 8 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	ASPH		Asphalt millings			0	
	CL-ML		Reworked Sandy Lean Clay with fill- Reddish brown, moist, mostly lean clay, some fine sand, little fill brick, concrete, metal), loose when disturbed, no odors		1		
						0	
					1		
						0	
					1		
						0	
					1		
						0	
	CL		Sandy Lean Clay- Reddish brown/grey, moist, mostly lean clay, some fine sand, stiff		1		
5						0	
					1		
						0	
					1		
						0	
					1		
			Bottom of test pit at 8 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-14

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 6 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Fill- White/black/grey/brown, moist, mostly fill (brick, asphalt, concrete, metal, plastic), some fine sand, no odors		1	0	
						0	
					1		
						0	
					1		
						0	
					1		
						0	
					1		
5						0	
					1		
			Bottom of test pit at 6 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

TP-15

Client: Draghi Burgos Construction	Site: Swan & Chicago Street Site	Project Number: 5143.0001B000
Address:	City/State: Buffalo, NY	Logged By: NAS

Start to Finish Date: 10/21/2025 - 10/21/2025	Contractor: Roux Inc.	Drill Type:	Sampler Type/Method:
Borehole Depth: 8 feet	Backfill:	Borehole Diameter:	DTW: N/A feet
Area: NM	Elevation: NM	Northing: NM	Easting: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Fill- Black/grey, moist, mostly fill (brick, ash, metal, glass, wood, asphalt, mortar, cinders), some fine sand, no odors		1	0	
					1	0	
					1	0	
					1	0	
					1	0	
					1	0	
5	CL		Sandy Lean Clay- Reddish brown/grey, moist, mostly lean clay, some fine sand, stiff		1	0	
					1	0	
					1	0	
			Bottom of test pit at 8 feet				

ROUX STANDARD LOG_ - 10/22/25 14:54 - F:\GINT\PROJECTS\SWAN & CHICAGO STREET SITE\SWAN & CHICAGO STREET SITE TEST PIT LOGS.GPJ

ATTACHMENT 2 – Photographic Log

SITE PHOTOGRAPHS

Photo 1:

Photo 2:

Photo 3:

Photo 4:

Photos 1 through 4: View of the two orphan USTs encountered during the work on the 425 Chicago Street parcel.

Swan and Chicago Streets Parcels **Buffalo, NY** Photo Date: October 21, 2025	ROUX

SITE PHOTOGRAPHS

Photo 5:

Photo 6:

Photo 7:

Photo 8:

Photo 5: View of typical fill material, with intermingled brick, noted during the investigation.

Photo 6: Another view of typical fill materials.

Photo 7: View of fill materials.

Photo 8: View of fill materials.

Swan and Chicago Streets Parcels **Buffalo, NY** Photo Date: October 21, 2025	ROUX

ATTACHMENT 3 – Laboratory Analytical Report

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Bryan Mayback
Roux Environmental Engineering and Geology DPC
2558 Hamburg Turnpike
Lackawanna, New York 14218

Generated 11/3/2025 6:12:38 PM

JOB DESCRIPTION

145-149 Swan St. Site

JOB NUMBER

480-233885-1

Eurofins Buffalo
10 Hazelwood Drive
Amherst NY 14228-2298

See page two for job notes and contact information.

my EOL

Eurofins Buffalo

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization

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Authorized for release by
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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
vs	Reported analyte concentrations are below 200 ug/kg and may be biased low due to the sample not being collected according to 5035A- L low-level specifications.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^5-	Linear Range Check (LRC) is outside acceptance limits, low biased.
^5+	Linear Range Check (LRC) is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
480-233885-1

The analytical test results presented in this report meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page, unless otherwise noted. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable. Regulated compliance samples (e.g. SDWA, NPDES) must comply with associated agency requirements/permits.

- Matrix-specific batch QC (e.g., MS, MSD, SD) may not be reported when insufficient sample volume is available or when site-specific QC samples are not submitted. In such cases, a Laboratory Control Sample Duplicate (LCSD) may be analyzed to provide precision data for the batch.
- For samples analyzed using surrogate and/or isotope dilution analytes, any recoveries falling outside of established acceptance criteria are re-prepared and/or re-analyzed to confirm results, unless the deviation is due to sample dilution or otherwise explained in the case narrative.

Receipt
The samples were received on 10/23/2025 10:50 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.0°C.

GC/MS VOA
Method 8260C: The following sample was analyzed at a reduced weight to bring the concentration of target analytes within the calibration range: TP-2 4-6 Ft (480-233885-4). Elevated reporting limits (RLs) are provided.

Method 8260C: The continuing calibration verification (CCV) associated with batch 480-760907 recovered above the upper control limit for 1,1,1-Trichloroethane, 1,1-Dichloroethene, 2-Butanone (MEK), Carbon tetrachloride, Cyclohexane, Isopropylbenzene, Methylcyclohexane, sec-Butylbenzene, Trichlorofluoromethane and Vinyl chloride. The sample(s) associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is:TP-2 4-6 Ft (480-233885-4).

Method 8260C: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 480-760906 and analytical batch 480-760907 recovered outside control limits for the following analyte: Methylcyclohexane. The associated sample is: TP-2 4-6 Ft (480-233885-4)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
Method 8270D: Due to the matrix, the initial volume(s) used for the following samples deviated from the standard procedure: TP-1 0-1Ft (480-233885-1) and TP-10 0-2 Ft (480-233885-7). The reporting limits (RLs) have been adjusted proportionately.

Method 8270D: The following samples were diluted due to color, appearance, and viscosity: TP-1 0-1Ft (480-233885-1), TP-9 0-2 Ft (480-233885-6), TP-10 0-2 Ft (480-233885-7), TP-12 1-3 Ft (480-233885-9) and TP-15 0-3 Ft (480-233885-10). Elevated reporting limits (RL) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D: The laboratory control sample (LCS) for preparation batch 480-760812 and analytical batch 480-761045 recovered outside control limits for the following analytes: Silver, Barium, Lead. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 6010D: The laboratory control sample (LCS) for preparation batch 480-760812 and analytical batch 480-761045 recovered outside control limits for the following analytes: Silver. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 6010D: The laboratory control sample (LCS) for preparation batch 480-760812 and analytical batch 480-761045 recovered outside control limits for the following analytes: Silver, Barium. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 6010D: The linear range check (LRC) standard recovery associated with 480-761045 is outside the acceptance criteria for

the following analytes: Silver and Barium. The concentration of these analyte(s) in the sample(s) are below the highest standard of the calibration curve; therefore, the data have been reported.

Method 6010D: The linear range check (LRC) standard recovery associated with 480-761045 is outside the acceptance criteria for the following analytes: Silver, Barium and Lead. The concentration of these analyte(s) in the sample(s) are below the highest standard of the calibration curve; therefore, the data have been reported.

Method 6010D: The linear range check (LRC) standard recovery associated with 480-761396 is outside the acceptance criteria for the following analytes: Lead. The concentration of these analyte(s) in the sample(s) are below the highest standard of the calibration curve; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Roux Environmental Engineering and Geology DPC
Job ID: 480-233885-1
Project/Site: 145-149 Swan St. Site

Client Sample ID: TP-1 0-1Ft — Lab Sample ID: 480-233885-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]pyrene	780	J	2800	480	ug/Kg	5	☼	8270D	Total/NA
Benzo[b]fluoranthene	1100	J	2800	380	ug/Kg	5	☼	8270D	Total/NA
Benzo[g,h,i]perylene	830	J	2800	490	ug/Kg	5	☼	8270D	Total/NA
Fluoranthene	1700	J	2800	510	ug/Kg	5	☼	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	590	J	2800	420	ug/Kg	5	☼	8270D	Total/NA
Pyrene	1100	J	2800	540	ug/Kg	5	☼	8270D	Total/NA
Arsenic	7.3		2.5	1.1	mg/Kg	1	☼	6010D	Total/NA
Barium	88.8	^5+	0.62	0.17	mg/Kg	1	☼	6010D	Total/NA
Cadmium	0.48		0.25	0.087	mg/Kg	1	☼	6010D	Total/NA
Chromium	21.6		0.62	0.45	mg/Kg	1	☼	6010D	Total/NA
Lead	502	^5+	6.2	2.9	mg/Kg	5	☼	6010D	Total/NA
Silver	0.48	J ^5-	0.74	0.25	mg/Kg	1	☼	6010D	Total/NA
Mercury	6.5		0.24	0.055	mg/Kg	10	☼	7471B	Total/NA

Client Sample ID: TP-1 6-8 Ft — Lab Sample ID: 480-233885-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	2.6	J vs	6.2	1.2	ug/Kg	1	☼	8260C	Total/NA
1,2-Dichloroethane	1.2	J vs	6.2	0.31	ug/Kg	1	☼	8260C	Total/NA
4-Isopropyltoluene	3.5	J vs	6.2	0.50	ug/Kg	1	☼	8260C	Total/NA
Acetone	34	vs	31	5.3	ug/Kg	1	☼	8260C	Total/NA
Chloroform	1.2	J B vs	6.2	0.39	ug/Kg	1	☼	8260C	Total/NA
Ethylbenzene	8.3	vs	6.2	0.43	ug/Kg	1	☼	8260C	Total/NA
Isopropylbenzene	5.9	J vs	6.2	0.94	ug/Kg	1	☼	8260C	Total/NA
m,p-Xylene	1.0	J vs	12	1.0	ug/Kg	1	☼	8260C	Total/NA
N-Propylbenzene	18	vs	6.2	0.50	ug/Kg	1	☼	8260C	Total/NA
tert-Butylbenzene	0.82	J vs	6.2	0.65	ug/Kg	1	☼	8260C	Total/NA
Xylenes, Total	1.0	J vs	12	1.0	ug/Kg	1	☼	8260C	Total/NA
Naphthalene	100	J	210	35	ug/Kg	1	☼	8270D	Total/NA

Client Sample ID: TP-2 0-1Ft — Lab Sample ID: 480-233885-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]pyrene	38	J	210	35	ug/Kg	1	☼	8270D	Total/NA
Benzo[g,h,i]perylene	50	J	210	36	ug/Kg	1	☼	8270D	Total/NA
Fluoranthene	60	J	210	37	ug/Kg	1	☼	8270D	Total/NA
Pyrene	54	J	210	39	ug/Kg	1	☼	8270D	Total/NA
Arsenic	3.2		2.5	1.1	mg/Kg	1	☼	6010D	Total/NA
Barium	155	^5+	0.63	0.18	mg/Kg	1	☼	6010D	Total/NA
Cadmium	0.20	J	0.25	0.089	mg/Kg	1	☼	6010D	Total/NA
Chromium	13.7		0.63	0.46	mg/Kg	1	☼	6010D	Total/NA
Lead	58.3	^5+	1.3	0.58	mg/Kg	1	☼	6010D	Total/NA
Silver	0.48	J ^5-	0.76	0.25	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.065		0.025	0.0058	mg/Kg	1	☼	7471B	Total/NA

Client Sample ID: TP-2 4-6 Ft — Lab Sample ID: 480-233885-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	700	vs	56	11	ug/Kg	1	☼	8260C	Total/NA
1,3,5-Trimethylbenzene	220	vs	56	3.6	ug/Kg	1	☼	8260C	Total/NA
4-Isopropyltoluene	17	J vs	56	4.5	ug/Kg	1	☼	8260C	Total/NA
Acetone	97	J vs	280	47	ug/Kg	1	☼	8260C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Buffalo

Client Sample ID: TP-2 4-6 Ft (Continued) — Lab Sample ID: 480-233885-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	11	J B vs	56	3.4	ug/Kg	1	☼	8260C	Total/NA
m,p-Xylene	25	J vs	110	9.3	ug/Kg	1	☼	8260C	Total/NA
Xylenes, Total	25	J vs	110	9.3	ug/Kg	1	☼	8260C	Total/NA
Naphthalene	550		200	33	ug/Kg	1	☼	8270D	Total/NA

Client Sample ID: TP-8 0-2.5 Ft — Lab Sample ID: 480-233885-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	12.7		2.1	0.93	mg/Kg	1	☼	6010D	Total/NA
Barium	942		5.3	1.5	mg/Kg	10	☼	6010D	Total/NA
Cadmium	7.8		0.21	0.074	mg/Kg	1	☼	6010D	Total/NA
Chromium	52.2		0.53	0.38	mg/Kg	1	☼	6010D	Total/NA
Lead	20000		10.5	4.8	mg/Kg	10	☼	6010D	Total/NA
Selenium	1.4	J	4.2	0.84	mg/Kg	1	☼	6010D	Total/NA
Silver	0.47	J ^5-	0.63	0.21	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.50		0.022	0.0050	mg/Kg	1	☼	7471B	Total/NA

Client Sample ID: TP-9 0-2 Ft — Lab Sample ID: 480-233885-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	2300		2000	360	ug/Kg	10	☼	8270D	Total/NA
Acenaphthylene	590	J	2000	380	ug/Kg	10	☼	8270D	Total/NA
Anthracene	4800		2000	360	ug/Kg	10	☼	8270D	Total/NA
Benzo[a]anthracene	14000		2000	270	ug/Kg	10	☼	8270D	Total/NA
Benzo[a]pyrene	12000		2000	330	ug/Kg	10	☼	8270D	Total/NA
Benzo[b]fluoranthene	14000		2000	260	ug/Kg	10	☼	8270D	Total/NA
Benzo[g,h,i]perylene	8900		2000	340	ug/Kg	10	☼	8270D	Total/NA
Benzo[k]fluoranthene	7700		2000	440	ug/Kg	10	☼	8270D	Total/NA
Chrysene	13000		2000	470	ug/Kg	10	☼	8270D	Total/NA
Fluoranthene	26000		2000	360	ug/Kg	10	☼	8270D	Total/NA
Fluorene	2000		2000	360	ug/Kg	10	☼	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	7500		2000	290	ug/Kg	10	☼	8270D	Total/NA
Naphthalene	790	J	2000	320	ug/Kg	10	☼	8270D	Total/NA
Phenanthrene	18000		2000	370	ug/Kg	10	☼	8270D	Total/NA
Pyrene	21000		2000	370	ug/Kg	10	☼	8270D	Total/NA
Arsenic	9.1		2.4	1.0	mg/Kg	1	☼	6010D	Total/NA
Barium	240		0.59	0.17	mg/Kg	1	☼	6010D	Total/NA
Cadmium	1.1		0.24	0.083	mg/Kg	1	☼	6010D	Total/NA
Chromium	22.0		0.59	0.42	mg/Kg	1	☼	6010D	Total/NA
Lead	820		1.2	0.54	mg/Kg	1	☼	6010D	Total/NA
Silver	0.48	J ^5-	0.71	0.24	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.37	F1	0.024	0.0056	mg/Kg	1	☼	7471B	Total/NA

Client Sample ID: TP-10 0-2 Ft — Lab Sample ID: 480-233885-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	3400	J	5900	1100	ug/Kg	10	☼	8270D	Total/NA
Acenaphthylene	7400		5900	1100	ug/Kg	10	☼	8270D	Total/NA
Anthracene	16000		5900	1100	ug/Kg	10	☼	8270D	Total/NA
Benzo[a]anthracene	45000		5900	810	ug/Kg	10	☼	8270D	Total/NA
Benzo[a]pyrene	42000		5900	1000	ug/Kg	10	☼	8270D	Total/NA
Benzo[b]fluoranthene	51000		5900	790	ug/Kg	10	☼	8270D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: TP-10 0-2 Ft (Continued) — Lab Sample ID: 480-233885-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[g,h,i]perylene	34000		5900	1000	ug/Kg	10	☼	8270D	Total/NA
Benzo[k]fluoranthene	26000		5900	1300	ug/Kg	10	☼	8270D	Total/NA
Chrysene	46000		5900	1400	ug/Kg	10	☼	8270D	Total/NA
Dibenz(a,h)anthracene	8500		5900	1200	ug/Kg	10	☼	8270D	Total/NA
Fluoranthene	93000		5900	1100	ug/Kg	10	☼	8270D	Total/NA
Fluorene	3700	J	5900	1100	ug/Kg	10	☼	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	28000		5900	880	ug/Kg	10	☼	8270D	Total/NA
Phenanthrene	57000		5900	1100	ug/Kg	10	☼	8270D	Total/NA
Pyrene	77000		5900	1100	ug/Kg	10	☼	8270D	Total/NA
Arsenic	22.0		2.5	1.1	mg/Kg	1	☼	6010D	Total/NA
Barium	406		0.62	0.17	mg/Kg	1	☼	6010D	Total/NA
Cadmium	1.2		0.25	0.087	mg/Kg	1	☼	6010D	Total/NA
Chromium	40.7		0.62	0.45	mg/Kg	1	☼	6010D	Total/NA
Lead	3800		1.2	0.57	mg/Kg	1	☼	6010D	Total/NA
Selenium	2.3	J	5.0	1.0	mg/Kg	1	☼	6010D	Total/NA
Silver	0.67	J ^5-	0.75	0.25	mg/Kg	1	☼	6010D	Total/NA
Mercury	159		2.4	0.56	mg/Kg	100	☼	7471B	Total/NA

Client Sample ID: TP-11 2-4 Ft — Lab Sample ID: 480-233885-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Anthracene	76	J	190	35	ug/Kg	1	☼	8270D	Total/NA
Benzo[a]anthracene	280		190	26	ug/Kg	1	☼	8270D	Total/NA
Benzo[a]pyrene	320		190	33	ug/Kg	1	☼	8270D	Total/NA
Benzo[b]fluoranthene	440		190	26	ug/Kg	1	☼	8270D	Total/NA
Benzo[g,h,i]perylene	260		190	34	ug/Kg	1	☼	8270D	Total/NA
Benzo[k]fluoranthene	160	J	190	43	ug/Kg	1	☼	8270D	Total/NA
Chrysene	420		190	46	ug/Kg	1	☼	8270D	Total/NA
Fluoranthene	540		190	35	ug/Kg	1	☼	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	180	J	190	29	ug/Kg	1	☼	8270D	Total/NA
Phenanthrene	500		190	36	ug/Kg	1	☼	8270D	Total/NA
Pyrene	530		190	36	ug/Kg	1	☼	8270D	Total/NA
Arsenic	13.7		2.3	1.0	mg/Kg	1	☼	6010D	Total/NA
Barium	186	^5+	0.59	0.16	mg/Kg	1	☼	6010D	Total/NA
Cadmium	1.2		0.23	0.082	mg/Kg	1	☼	6010D	Total/NA
Chromium	17.5		0.59	0.42	mg/Kg	1	☼	6010D	Total/NA
Lead	1050		1.2	0.54	mg/Kg	1	☼	6010D	Total/NA
Silver	0.51	J ^5-	0.70	0.23	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.23		0.023	0.0053	mg/Kg	1	☼	7471B	Total/NA

Client Sample ID: TP-12 1-3 Ft — Lab Sample ID: 480-233885-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthylene	8800		2000	380	ug/Kg	10	☼	8270D	Total/NA
Anthracene	7200		2000	370	ug/Kg	10	☼	8270D	Total/NA
Benzo[a]anthracene	42000		2000	270	ug/Kg	10	☼	8270D	Total/NA
Benzo[a]pyrene	32000		2000	340	ug/Kg	10	☼	8270D	Total/NA
Benzo[b]fluoranthene	41000		2000	270	ug/Kg	10	☼	8270D	Total/NA
Benzo[g,h,i]perylene	20000		2000	350	ug/Kg	10	☼	8270D	Total/NA
Benzo[k]fluoranthene	19000		2000	440	ug/Kg	10	☼	8270D	Total/NA
Chrysene	37000		2000	480	ug/Kg	10	☼	8270D	Total/NA
Dibenz(a,h)anthracene	9400		2000	400	ug/Kg	10	☼	8270D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: TP-12 1-3 Ft (Continued) — Lab Sample ID: 480-233885-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoranthene	57000		2000	360	ug/Kg	10	☼	8270D	Total/NA
Fluorene	640	J	2000	360	ug/Kg	10	☼	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	19000		2000	300	ug/Kg	10	☼	8270D	Total/NA
Phenanthrene	7600		2000	370	ug/Kg	10	☼	8270D	Total/NA
Pyrene	38000		2000	380	ug/Kg	10	☼	8270D	Total/NA
Arsenic	83.6		2.5	1.1	mg/Kg	1	☼	6010D	Total/NA
Barium	920		0.61	0.17	mg/Kg	1	☼	6010D	Total/NA
Cadmium	1.6		0.25	0.086	mg/Kg	1	☼	6010D	Total/NA
Chromium	41.1		0.61	0.44	mg/Kg	1	☼	6010D	Total/NA
Lead	1900		1.2	0.56	mg/Kg	1	☼	6010D	Total/NA
Selenium	2.4	J	4.9	0.98	mg/Kg	1	☼	6010D	Total/NA
Silver	1.5	^5-	0.74	0.25	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.61		0.023	0.0052	mg/Kg	1	☼	7471B	Total/NA

Client Sample ID: TP-15 0-3 Ft — Lab Sample ID: 480-233885-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	3800		2800	510	ug/Kg	10	☼	8270D	Total/NA
Acenaphthylene	710	J	2800	530	ug/Kg	10	☼	8270D	Total/NA
Anthracene	7600		2800	510	ug/Kg	10	☼	8270D	Total/NA
Benzo[a]anthracene	12000		2800	380	ug/Kg	10	☼	8270D	Total/NA
Benzo[a]pyrene	9500		2800	470	ug/Kg	10	☼	8270D	Total/NA
Benzo[b]fluoranthene	12000		2800	370	ug/Kg	10	☼	8270D	Total/NA
Benzo[g,h,i]perylene	6000		2800	480	ug/Kg	10	☼	8270D	Total/NA
Benzo[k]fluoranthene	5200		2800	610	ug/Kg	10	☼	8270D	Total/NA
Chrysene	12000		2800	660	ug/Kg	10	☼	8270D	Total/NA
Dibenz(a,h)anthracene	2200	J	2800	550	ug/Kg	10	☼	8270D	Total/NA
Fluoranthene	31000		2800	500	ug/Kg	10	☼	8270D	Total/NA
Fluorene	3800		2800	500	ug/Kg	10	☼	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	5100		2800	410	ug/Kg	10	☼	8270D	Total/NA
Phenanthrene	28000		2800	510	ug/Kg	10	☼	8270D	Total/NA
Pyrene	20000		2800	520	ug/Kg	10	☼	8270D	Total/NA
Arsenic	8.7		3.4	1.5	mg/Kg	1	☼	6010D	Total/NA
Barium	333		0.84	0.24	mg/Kg	1	☼	6010D	Total/NA
Cadmium	1.4		0.34	0.12	mg/Kg	1	☼	6010D	Total/NA
Chromium	17.8		0.84	0.61	mg/Kg	1	☼	6010D	Total/NA
Lead	543		1.7	0.78	mg/Kg	1	☼	6010D	Total/NA
Selenium	3.0	J	6.7	1.3	mg/Kg	1	☼	6010D	Total/NA
Silver	1.4	^5-	1.0	0.34	mg/Kg	1	☼	6010D	Total/NA
Mercury	8.1		0.33	0.075	mg/Kg	10	☼	7471B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-1 0-1Ft

Date Collected: 10/21/25 10:00
Date Received: 10/23/25 10:50

Lab Sample ID: 480-233885-1

Matrix: Solid
Percent Solids: 84.4

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2800	520	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Acenaphthylene	ND		2800	540	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Anthracene	ND		2800	520	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Benzo[a]anthracene	ND		2800	390	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Benzo[a]pyrene	**780**	**J**	2800	480	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Benzo[b]fluoranthene	**1100**	**J**	2800	380	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Benzo[g,h,i]perylene	**830**	**J**	2800	490	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Benzo[k]fluoranthene	ND		2800	630	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Chrysene	ND		2800	680	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Dibenz(a,h)anthracene	ND		2800	570	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Fluoranthene	**1700**	**J**	2800	510	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Fluorene	ND		2800	520	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Indeno[1,2,3-cd]pyrene	**590**	**J**	2800	420	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Naphthalene	ND		2800	470	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Phenanthrene	ND		2800	530	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5
Pyrene	**1100**	**J**	2800	540	ug/Kg	☼	10/27/25 13:23	10/28/25 18:18	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*91*		*29 - 120*	*10/27/25 13:23*	*10/28/25 18:18*	*5*
Nitrobenzene-d5 (Surr)	*76*		*22 - 120*	*10/27/25 13:23*	*10/28/25 18:18*	*5*
p-Terphenyl-d14 (Surr)	*101*		*28 - 124*	*10/27/25 13:23*	*10/28/25 18:18*	*5*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**7.3**		2.5	1.1	mg/Kg	☼	10/27/25 09:48	10/28/25 19:03	1
Barium	**88.8**	**^5+**	0.62	0.17	mg/Kg	☼	10/27/25 09:48	10/28/25 19:03	1
Cadmium	**0.48**		0.25	0.087	mg/Kg	☼	10/27/25 09:48	10/28/25 19:03	1
Chromium	**21.6**		0.62	0.45	mg/Kg	☼	10/27/25 09:48	10/28/25 19:03	1
Lead	**502**	**^5+**	6.2	2.9	mg/Kg	☼	10/27/25 09:48	10/31/25 15:13	5
Selenium	ND		5.0	0.99	mg/Kg	☼	10/27/25 09:48	10/28/25 19:03	1
Silver	**0.48**	**J ^5-**	0.74	0.25	mg/Kg	☼	10/27/25 09:48	10/28/25 19:03	1

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**6.5**		0.24	0.055	mg/Kg	☼	10/30/25 06:53	10/30/25 16:19	10

Client Sample Results

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-1 6-8 Ft

Date Collected: 10/21/25 10:20
Date Received: 10/23/25 10:50

Lab Sample ID: 480-233885-2

Matrix: Solid
Percent Solids: 79.1

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	vs	6.2	0.45	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,1,2,2-Tetrachloroethane	ND	vs	6.2	1.0	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	vs	6.2	1.4	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,1,2-Trichloroethane	ND	vs	6.2	0.81	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,1-Dichloroethane	ND	vs	6.2	0.76	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,1-Dichloroethene	ND	vs	6.2	0.76	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,2,4-Trichlorobenzene	ND	vs	6.2	0.38	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,2,4-Trimethylbenzene	**2.6**	**J vs**	6.2	1.2	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,2-Dibromo-3-Chloropropane	ND	vs	6.2	3.1	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,2-Dibromoethane	ND	vs	6.2	0.80	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,2-Dichlorobenzene	ND	vs	6.2	0.49	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,2-Dichloroethane	**1.2**	**J vs**	6.2	0.31	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,2-Dichloropropane	ND	vs	6.2	3.1	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,3,5-Trimethylbenzene	ND	vs	6.2	0.40	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,3-Dichlorobenzene	ND	vs	6.2	0.32	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
1,4-Dichlorobenzene	ND	vs	6.2	0.87	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
2-Butanone (MEK)	ND	vs	31	2.3	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
2-Hexanone	ND	vs	31	3.1	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
4-Isopropyltoluene	**3.5**	**J vs**	6.2	0.50	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
4-Methyl-2-pentanone (MIBK)	ND	vs	31	2.0	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Acetone	**34**	**vs**	31	5.3	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Benzene	ND	vs	6.2	0.31	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Bromodichloromethane	ND	vs	6.2	0.84	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Bromoform	ND	vs	6.2	3.1	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Bromomethane	ND	vs	6.2	0.56	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Carbon disulfide	ND	vs	6.2	3.1	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Carbon tetrachloride	ND	vs	6.2	0.60	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Chlorobenzene	ND	vs	6.2	0.82	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Chloroethane	ND	vs	6.2	1.4	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Chloroform	**1.2**	**J B vs**	6.2	0.39	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Chloromethane	ND	vs	6.2	0.38	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
cis-1,2-Dichloroethene	ND	vs	6.2	0.80	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
cis-1,3-Dichloropropene	ND	vs	6.2	0.90	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Cyclohexane	ND	vs	6.2	0.87	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Dibromochloromethane	ND	vs	6.2	0.80	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Dichlorodifluoromethane	ND	vs	6.2	0.52	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Ethylbenzene	**8.3**	**vs**	6.2	0.43	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Isopropylbenzene	**5.9**	**J vs**	6.2	0.94	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
m,p-Xylene	**1.0**	**J vs**	12	1.0	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Methyl acetate	ND	vs	31	3.8	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Methyl tert-butyl ether	ND	vs	6.2	0.61	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Methylcyclohexane	ND	vs	6.2	0.95	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Methylene Chloride	ND	vs	6.2	2.9	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
n-Butylbenzene	ND	vs	6.2	0.54	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
N-Propylbenzene	**18**	**vs**	6.2	0.50	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
o-Xylene	ND	vs	6.2	0.81	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
sec-Butylbenzene	ND	vs	6.2	0.54	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Styrene	ND	vs	6.2	0.31	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
tert-Butylbenzene	**0.82**	**J vs**	6.2	0.65	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1

Client Sample ID: TP-1 6-8 Ft
Lab Sample ID: 480-233885-2

Date Collected: 10/21/25 10:20
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 79.1

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND	vs	6.2	0.84	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Toluene	ND	vs	6.2	0.47	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
trans-1,2-Dichloroethene	ND	vs	6.2	0.64	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
trans-1,3-Dichloropropene	ND	vs	6.2	2.7	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Trichloroethene	ND	vs	6.2	1.4	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Trichlorofluoromethane	ND	vs	6.2	0.59	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Vinyl chloride	ND	vs	6.2	0.76	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1
Xylenes, Total	**1.0**	**J vs**	12	1.0	ug/Kg	☼	10/26/25 18:42	10/27/25 00:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*64 - 126*	*10/26/25 18:42*	*10/27/25 00:13*	*1*
4-Bromofluorobenzene (Surr)	*92*		*72 - 126*	*10/26/25 18:42*	*10/27/25 00:13*	*1*
Dibromofluoromethane (Surr)	*100*		*60 - 140*	*10/26/25 18:42*	*10/27/25 00:13*	*1*
Toluene-d8 (Surr)	*90*		*71 - 125*	*10/26/25 18:42*	*10/27/25 00:13*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		210	39	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Acenaphthylene	ND		210	40	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Anthracene	ND		210	39	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Benzo[a]anthracene	ND		210	29	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Benzo[a]pyrene	ND		210	36	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Benzo[b]fluoranthene	ND		210	28	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Benzo[g,h,i]perylene	ND		210	37	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Benzo[k]fluoranthene	ND		210	47	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Chrysene	ND		210	51	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Dibenz(a,h)anthracene	ND		210	43	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Fluoranthene	ND		210	38	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Fluorene	ND		210	39	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Indeno[1,2,3-cd]pyrene	ND		210	31	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Naphthalene	**100**	**J**	210	35	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Phenanthrene	ND		210	39	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1
Pyrene	ND		210	40	ug/Kg	☼	10/27/25 13:23	10/28/25 18:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*96*		*29 - 120*	*10/27/25 13:23*	*10/28/25 18:42*	*1*
Nitrobenzene-d5 (Surr)	*88*		*22 - 120*	*10/27/25 13:23*	*10/28/25 18:42*	*1*
p-Terphenyl-d14 (Surr)	*101*		*28 - 124*	*10/27/25 13:23*	*10/28/25 18:42*	*1*

Client Sample Results

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-2 0-1Ft

Date Collected: 10/21/25 11:00
Date Received: 10/23/25 10:50

Lab Sample ID: 480-233885-3

Matrix: Solid
Percent Solids: 81.3

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		210	38	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Acenaphthylene	ND		210	39	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Anthracene	ND		210	38	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Benzo[a]anthracene	ND		210	28	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Benzo[a]pyrene	**38**	**J**	210	35	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Benzo[b]fluoranthene	ND		210	28	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Benzo[g,h,i]perylene	**50**	**J**	210	36	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Benzo[k]fluoranthene	ND		210	46	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Chrysene	ND		210	49	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Dibenz(a,h)anthracene	ND		210	42	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Fluoranthene	**60**	**J**	210	37	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Fluorene	ND		210	38	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Indeno[1,2,3-cd]pyrene	ND		210	31	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Naphthalene	ND		210	34	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Phenanthrene	ND		210	39	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1
Pyrene	**54**	**J**	210	39	ug/Kg	☼	10/27/25 13:23	10/28/25 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*98*		*29 - 120*	*10/27/25 13:23*	*10/28/25 19:05*	*1*
Nitrobenzene-d5 (Surr)	*79*		*22 - 120*	*10/27/25 13:23*	*10/28/25 19:05*	*1*
p-Terphenyl-d14 (Surr)	*91*		*28 - 124*	*10/27/25 13:23*	*10/28/25 19:05*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**3.2**		2.5	1.1	mg/Kg	☼	10/27/25 09:48	10/28/25 19:05	1
Barium	**155**	**^5+**	0.63	0.18	mg/Kg	☼	10/27/25 09:48	10/28/25 19:05	1
Cadmium	**0.20**	**J**	0.25	0.089	mg/Kg	☼	10/27/25 09:48	10/28/25 19:05	1
Chromium	**13.7**		0.63	0.46	mg/Kg	☼	10/27/25 09:48	10/28/25 19:05	1
Lead	**58.3**	**^5+**	1.3	0.58	mg/Kg	☼	10/27/25 09:48	10/28/25 19:05	1
Selenium	ND		5.1	1.0	mg/Kg	☼	10/27/25 09:48	10/28/25 19:05	1
Silver	**0.48**	**J ^5-**	0.76	0.25	mg/Kg	☼	10/27/25 09:48	10/28/25 19:05	1

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.065**		0.025	0.0058	mg/Kg	☼	10/30/25 06:53	10/30/25 15:49	1

Client Sample Results

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-2 4-6 Ft

Date Collected: 10/21/25 11:20
Date Received: 10/23/25 10:50

Lab Sample ID: 480-233885-4

Matrix: Solid
Percent Solids: 84.8

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	vs	56	4.0	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,1,2,2-Tetrachloroethane	ND	vs	56	9.0	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	vs	56	13	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,1,2-Trichloroethane	ND	vs	56	7.2	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,1-Dichloroethane	ND	vs	56	6.8	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,1-Dichloroethene	ND	vs	56	6.8	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,2,4-Trichlorobenzene	ND	vs	56	3.4	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,2,4-Trimethylbenzene	**700**	**vs**	56	11	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,2-Dibromo-3-Chloropropane	ND	vs	56	28	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,2-Dibromoethane	ND	vs	56	7.1	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,2-Dichlorobenzene	ND	vs	56	4.4	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,2-Dichloroethane	ND	vs	56	2.8	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,2-Dichloropropane	ND	vs	56	28	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,3,5-Trimethylbenzene	**220**	**vs**	56	3.6	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,3-Dichlorobenzene	ND	vs	56	2.9	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
1,4-Dichlorobenzene	ND	vs	56	7.8	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
2-Butanone (MEK)	ND	vs	280	20	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
2-Hexanone	ND	vs	280	28	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
4-Isopropyltoluene	**17**	**J vs**	56	4.5	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
4-Methyl-2-pentanone (MIBK)	ND	vs	280	18	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Acetone	**97**	**J vs**	280	47	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Benzene	ND	vs	56	2.7	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Bromodichloromethane	ND	vs	56	7.5	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Bromoform	ND	vs	56	28	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Bromomethane	ND	vs	56	5.0	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Carbon disulfide	ND	vs	56	28	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Carbon tetrachloride	ND	vs	56	5.4	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Chlorobenzene	ND	vs	56	7.3	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Chloroethane	ND	vs	56	13	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Chloroform	**11**	**J B vs**	56	3.4	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Chloromethane	ND	vs	56	3.4	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
cis-1,2-Dichloroethene	ND	vs	56	7.1	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
cis-1,3-Dichloropropene	ND	vs	56	8.0	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Cyclohexane	ND	vs	56	7.8	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Dibromochloromethane	ND	vs	56	7.1	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Dichlorodifluoromethane	ND	vs	56	4.6	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Ethylbenzene	ND	vs	56	3.8	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Isopropylbenzene	ND	vs	56	8.4	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
m,p-Xylene	**25**	**J vs**	110	9.3	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Methyl acetate	ND	vs	280	34	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Methyl tert-butyl ether	ND	vs	56	5.5	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Methylcyclohexane	ND	*1 vs	56	8.5	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Methylene Chloride	ND	vs	56	26	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
n-Butylbenzene	ND	vs	56	4.8	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
N-Propylbenzene	ND	vs	56	4.5	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
o-Xylene	ND	vs	56	7.3	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
sec-Butylbenzene	ND	vs	56	4.8	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Styrene	ND	vs	56	2.8	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
tert-Butylbenzene	ND	vs	56	5.8	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1

Client Sample ID: TP-2 4-6 Ft
Lab Sample ID: 480-233885-4

Date Collected: 10/21/25 11:20
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 84.8

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND	vs	56	7.5	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Toluene	ND	vs	56	4.2	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
trans-1,2-Dichloroethene	ND	vs	56	5.7	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
trans-1,3-Dichloropropene	ND	vs	56	24	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Trichloroethene	ND	vs	56	12	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Trichlorofluoromethane	ND	vs	56	5.3	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Vinyl chloride	ND	vs	56	6.8	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1
Xylenes, Total	**25**	**J vs**	110	9.3	ug/Kg	☼	10/27/25 18:13	10/27/25 22:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*64 - 126*	*10/27/25 18:13*	*10/27/25 22:00*	*1*
4-Bromofluorobenzene (Surr)	*101*		*72 - 126*	*10/27/25 18:13*	*10/27/25 22:00*	*1*
Dibromofluoromethane (Surr)	*98*		*60 - 140*	*10/27/25 18:13*	*10/27/25 22:00*	*1*
Toluene-d8 (Surr)	*96*		*71 - 125*	*10/27/25 18:13*	*10/27/25 22:00*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		200	36	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Acenaphthylene	ND		200	38	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Anthracene	ND		200	36	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Benzo[a]anthracene	ND		200	27	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Benzo[a]pyrene	ND		200	33	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Benzo[b]fluoranthene	ND		200	26	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Benzo[g,h,i]perylene	ND		200	34	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Benzo[k]fluoranthene	ND		200	44	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Chrysene	ND		200	47	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Dibenz(a,h)anthracene	ND		200	40	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Fluoranthene	ND		200	36	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Fluorene	ND		200	36	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Indeno[1,2,3-cd]pyrene	ND		200	29	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Naphthalene	**550**		200	33	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Phenanthrene	ND		200	37	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1
Pyrene	ND		200	37	ug/Kg	☼	10/27/25 13:23	10/28/25 19:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*99*		*29 - 120*	*10/27/25 13:23*	*10/28/25 19:29*	*1*
Nitrobenzene-d5 (Surr)	*83*		*22 - 120*	*10/27/25 13:23*	*10/28/25 19:29*	*1*
p-Terphenyl-d14 (Surr)	*103*		*28 - 124*	*10/27/25 13:23*	*10/28/25 19:29*	*1*

Client Sample Results

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-8 0-2.5 Ft

Lab Sample ID: 480-233885-5

Date Collected: 10/21/25 13:00
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 89.9

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12.7		2.1	0.93	mg/Kg	☼	10/27/25 09:48	10/28/25 19:14	1
Barium	942		5.3	1.5	mg/Kg	☼	10/27/25 09:48	10/29/25 14:03	10
Cadmium	7.8		0.21	0.074	mg/Kg	☼	10/27/25 09:48	10/28/25 19:14	1
Chromium	52.2		0.53	0.38	mg/Kg	☼	10/27/25 09:48	10/28/25 19:14	1
Lead	20000		10.5	4.8	mg/Kg	☼	10/27/25 09:48	10/29/25 14:03	10
Selenium	1.4	J	4.2	0.84	mg/Kg	☼	10/27/25 09:48	10/28/25 19:14	1
Silver	0.47	J ^5-	0.63	0.21	mg/Kg	☼	10/27/25 09:48	10/28/25 19:14	1

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.50		0.022	0.0050	mg/Kg	☼	10/30/25 06:53	10/30/25 15:50	1

Client Sample Results

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-9 0-2 Ft

Date Collected: 10/21/25 13:30
Date Received: 10/23/25 10:50

Lab Sample ID: 480-233885-6

Matrix: Solid
Percent Solids: 86.1

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	2300		2000	360	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Acenaphthylene	590	J	2000	380	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Anthracene	4800		2000	360	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Benzo[a]anthracene	14000		2000	270	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Benzo[a]pyrene	12000		2000	330	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Benzo[b]fluoranthene	14000		2000	260	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Benzo[g,h,i]perylene	8900		2000	340	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Benzo[k]fluoranthene	7700		2000	440	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Chrysene	13000		2000	470	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Dibenz(a,h)anthracene	ND		2000	400	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Fluoranthene	26000		2000	360	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Fluorene	2000		2000	360	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Indeno[1,2,3-cd]pyrene	7500		2000	290	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Naphthalene	790	J	2000	320	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Phenanthrene	18000		2000	370	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10
Pyrene	21000		2000	370	ug/Kg	☼	10/27/25 13:23	10/28/25 19:53	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*74*		*29 - 120*	*10/27/25 13:23*	*10/28/25 19:53*	*10*
Nitrobenzene-d5 (Surr)	*81*		*22 - 120*	*10/27/25 13:23*	*10/28/25 19:53*	*10*
p-Terphenyl-d14 (Surr)	*93*		*28 - 124*	*10/27/25 13:23*	*10/28/25 19:53*	*10*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.1		2.4	1.0	mg/Kg	☼	10/27/25 09:48	10/28/25 19:16	1
Barium	240		0.59	0.17	mg/Kg	☼	10/27/25 09:48	10/29/25 14:13	1
Cadmium	1.1		0.24	0.083	mg/Kg	☼	10/27/25 09:48	10/28/25 19:16	1
Chromium	22.0		0.59	0.42	mg/Kg	☼	10/27/25 09:48	10/28/25 19:16	1
Lead	820		1.2	0.54	mg/Kg	☼	10/27/25 09:48	10/29/25 14:13	1
Selenium	ND		4.7	0.94	mg/Kg	☼	10/27/25 09:48	10/28/25 19:16	1
Silver	0.48	J ^5-	0.71	0.24	mg/Kg	☼	10/27/25 09:48	10/28/25 19:16	1

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.37	F1	0.024	0.0056	mg/Kg	☼	10/30/25 06:53	10/30/25 15:51	1

Client Sample Results

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-10 0-2 Ft

Date Collected: 10/21/25 15:00
Date Received: 10/23/25 10:50

Lab Sample ID: 480-233885-7

Matrix: Solid
Percent Solids: 83.1

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	3400	J	5900	1100	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Acenaphthylene	7400		5900	1100	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Anthracene	16000		5900	1100	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Benzo[a]anthracene	45000		5900	810	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Benzo[a]pyrene	42000		5900	1000	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Benzo[b]fluoranthene	51000		5900	790	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Benzo[g,h,i]perylene	34000		5900	1000	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Benzo[k]fluoranthene	26000		5900	1300	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Chrysene	46000		5900	1400	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Dibenz(a,h)anthracene	8500		5900	1200	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Fluoranthene	93000		5900	1100	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Fluorene	3700	J	5900	1100	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Indeno[1,2,3-cd]pyrene	28000		5900	880	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Naphthalene	ND		5900	980	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Phenanthrene	57000		5900	1100	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10
Pyrene	77000		5900	1100	ug/Kg	☼	10/27/25 13:23	10/28/25 20:17	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*83*		*29 - 120*	*10/27/25 13:23*	*10/28/25 20:17*	*10*
Nitrobenzene-d5 (Surr)	*85*		*22 - 120*	*10/27/25 13:23*	*10/28/25 20:17*	*10*
p-Terphenyl-d14 (Surr)	*101*		*28 - 124*	*10/27/25 13:23*	*10/28/25 20:17*	*10*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	22.0		2.5	1.1	mg/Kg	☼	10/27/25 09:48	10/28/25 19:18	1
Barium	406		0.62	0.17	mg/Kg	☼	10/27/25 09:48	10/29/25 14:15	1
Cadmium	1.2		0.25	0.087	mg/Kg	☼	10/27/25 09:48	10/28/25 19:18	1
Chromium	40.7		0.62	0.45	mg/Kg	☼	10/27/25 09:48	10/28/25 19:18	1
Lead	3800		1.2	0.57	mg/Kg	☼	10/27/25 09:48	10/29/25 14:15	1
Selenium	2.3	J	5.0	1.0	mg/Kg	☼	10/27/25 09:48	10/28/25 19:18	1
Silver	0.67	J ^5-	0.75	0.25	mg/Kg	☼	10/27/25 09:48	10/28/25 19:18	1

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	159		2.4	0.56	mg/Kg	☼	11/03/25 08:37	11/03/25 12:14	100

Client Sample Results

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-11 2-4 Ft

Date Collected: 10/21/25 15:30
Date Received: 10/23/25 10:50

Lab Sample ID: 480-233885-8

Matrix: Solid
Percent Solids: 87.4

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		190	36	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Acenaphthylene	ND		190	37	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Anthracene	**76**	**J**	190	35	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Benzo[a]anthracene	**280**		190	26	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Benzo[a]pyrene	**320**		190	33	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Benzo[b]fluoranthene	**440**		190	26	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Benzo[g,h,i]perylene	**260**		190	34	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Benzo[k]fluoranthene	**160**	**J**	190	43	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Chrysene	**420**		190	46	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Dibenz(a,h)anthracene	ND		190	39	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Fluoranthene	**540**		190	35	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Fluorene	ND		190	35	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Indeno[1,2,3-cd]pyrene	**180**	**J**	190	29	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Naphthalene	ND		190	32	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Phenanthrene	**500**		190	36	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1
Pyrene	**530**		190	36	ug/Kg	☼	10/27/25 13:23	10/28/25 20:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*96*		*29 - 120*	*10/27/25 13:23*	*10/28/25 20:41*	*1*
Nitrobenzene-d5 (Surr)	*75*		*22 - 120*	*10/27/25 13:23*	*10/28/25 20:41*	*1*
p-Terphenyl-d14 (Surr)	*91*		*28 - 124*	*10/27/25 13:23*	*10/28/25 20:41*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**13.7**		2.3	1.0	mg/Kg	☼	10/27/25 09:48	10/28/25 19:20	1
Barium	**186**	**^5+**	0.59	0.16	mg/Kg	☼	10/27/25 09:48	10/28/25 19:20	1
Cadmium	**1.2**		0.23	0.082	mg/Kg	☼	10/27/25 09:48	10/28/25 19:20	1
Chromium	**17.5**		0.59	0.42	mg/Kg	☼	10/27/25 09:48	10/28/25 19:20	1
Lead	**1050**		1.2	0.54	mg/Kg	☼	10/27/25 09:48	10/29/25 14:17	1
Selenium	ND		4.7	0.94	mg/Kg	☼	10/27/25 09:48	10/28/25 19:20	1
Silver	**0.51**	**J ^5-**	0.70	0.23	mg/Kg	☼	10/27/25 09:48	10/28/25 19:20	1

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.23**		0.023	0.0053	mg/Kg	☼	10/30/25 06:53	10/30/25 16:09	1

Client Sample Results

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-12 1-3 Ft

Date Collected: 10/21/25 15:45
Date Received: 10/23/25 10:50

Lab Sample ID: 480-233885-9

Matrix: Solid
Percent Solids: 84.4

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2000	370	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Acenaphthylene	8800		2000	380	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Anthracene	7200		2000	370	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Benzo[a]anthracene	42000		2000	270	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Benzo[a]pyrene	32000		2000	340	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Benzo[b]fluoranthene	41000		2000	270	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Benzo[g,h,i]perylene	20000		2000	350	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Benzo[k]fluoranthene	19000		2000	440	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Chrysene	37000		2000	480	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Dibenz(a,h)anthracene	9400		2000	400	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Fluoranthene	57000		2000	360	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Fluorene	640	J	2000	360	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Indeno[1,2,3-cd]pyrene	19000		2000	300	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Naphthalene	ND		2000	330	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Phenanthrene	7600		2000	370	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10
Pyrene	38000		2000	380	ug/Kg	☼	10/27/25 13:23	10/28/25 21:04	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*80*		*29 - 120*	*10/27/25 13:23*	*10/28/25 21:04*	*10*
Nitrobenzene-d5 (Surr)	*66*		*22 - 120*	*10/27/25 13:23*	*10/28/25 21:04*	*10*
p-Terphenyl-d14 (Surr)	*96*		*28 - 124*	*10/27/25 13:23*	*10/28/25 21:04*	*10*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	83.6		2.5	1.1	mg/Kg	☼	10/27/25 09:48	10/28/25 19:22	1
Barium	920		0.61	0.17	mg/Kg	☼	10/27/25 09:48	10/29/25 14:19	1
Cadmium	1.6		0.25	0.086	mg/Kg	☼	10/27/25 09:48	10/28/25 19:22	1
Chromium	41.1		0.61	0.44	mg/Kg	☼	10/27/25 09:48	10/28/25 19:22	1
Lead	1900		1.2	0.56	mg/Kg	☼	10/27/25 09:48	10/29/25 14:19	1
Selenium	2.4	J	4.9	0.98	mg/Kg	☼	10/27/25 09:48	10/28/25 19:22	1
Silver	1.5	^5-	0.74	0.25	mg/Kg	☼	10/27/25 09:48	10/28/25 19:22	1

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.61		0.023	0.0052	mg/Kg	☼	10/30/25 06:53	10/30/25 16:11	1

Client Sample Results

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-15 0-3 Ft

Date Collected: 10/21/25 16:00
Date Received: 10/23/25 10:50

Lab Sample ID: 480-233885-10

Matrix: Solid
Percent Solids: 61.3

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	3800		2800	510	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Acenaphthylene	710	J	2800	530	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Anthracene	7600		2800	510	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Benzo[a]anthracene	12000		2800	380	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Benzo[a]pyrene	9500		2800	470	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Benzo[b]fluoranthene	12000		2800	370	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Benzo[g,h,i]perylene	6000		2800	480	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Benzo[k]fluoranthene	5200		2800	610	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Chrysene	12000		2800	660	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Dibenz(a,h)anthracene	2200	J	2800	550	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Fluoranthene	31000		2800	500	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Fluorene	3800		2800	500	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Indeno[1,2,3-cd]pyrene	5100		2800	410	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Naphthalene	ND		2800	460	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Phenanthrene	28000		2800	510	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10
Pyrene	20000		2800	520	ug/Kg	☼	10/27/25 13:23	10/28/25 21:28	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*80*		*29 - 120*	*10/27/25 13:23*	*10/28/25 21:28*	*10*
Nitrobenzene-d5 (Surr)	*71*		*22 - 120*	*10/27/25 13:23*	*10/28/25 21:28*	*10*
p-Terphenyl-d14 (Surr)	*94*		*28 - 124*	*10/27/25 13:23*	*10/28/25 21:28*	*10*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	8.7		3.4	1.5	mg/Kg	☼	10/27/25 09:48	10/28/25 19:24	1
Barium	333		0.84	0.24	mg/Kg	☼	10/27/25 09:48	10/29/25 14:21	1
Cadmium	1.4		0.34	0.12	mg/Kg	☼	10/27/25 09:48	10/28/25 19:24	1
Chromium	17.8		0.84	0.61	mg/Kg	☼	10/27/25 09:48	10/28/25 19:24	1
Lead	543		1.7	0.78	mg/Kg	☼	10/27/25 09:48	10/29/25 14:21	1
Selenium	3.0	J	6.7	1.3	mg/Kg	☼	10/27/25 09:48	10/28/25 19:24	1
Silver	1.4	^5-	1.0	0.34	mg/Kg	☼	10/27/25 09:48	10/28/25 19:24	1

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	8.1		0.33	0.075	mg/Kg	☼	10/30/25 06:53	10/30/25 16:26	10

Surrogate Summary

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(64-126)	(72-126)	(60-140)	(71-125)
480-233885-2	TP-1 6-8 Ft	107	92	100	90
480-233885-4	TP-2 4-6 Ft	102	101	98	96
LCS 480-760777/1-A	Lab Control Sample	100	96	96	98
LCS 480-760906/1-A	Lab Control Sample	100	99	98	98
LCSD 480-760906/7-A	Lab Control Sample Dup	101	97	97	96
MB 480-760777/2-A	Method Blank	98	100	95	99
MB 480-760906/2-A	Method Blank	102	98	98	97

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPHd14
Lab Sample ID	Client Sample ID	(29-120)	(22-120)	(28-124)
480-233885-1	TP-1 0-1Ft	91	76	101
480-233885-2	TP-1 6-8 Ft	96	88	101
480-233885-3	TP-2 0-1Ft	98	79	91
480-233885-4	TP-2 4-6 Ft	99	83	103
480-233885-6	TP-9 0-2 Ft	74	81	93
480-233885-7	TP-10 0-2 Ft	83	85	101
480-233885-8	TP-11 2-4 Ft	96	75	91
480-233885-9	TP-12 1-3 Ft	80	66	96
480-233885-10	TP-15 0-3 Ft	80	71	94
LCS 480-760898/2-A	Lab Control Sample	112	86	118
MB 480-760898/1-A	Method Blank	109	79	116

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-760777/2-A
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 760778
Prep Batch: 760777

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.36	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.81	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	1.1	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,1,2-Trichloroethane	ND		5.0	0.65	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,1-Dichloroethane	ND		5.0	0.61	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,1-Dichloroethene	ND		5.0	0.61	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,2,4-Trichlorobenzene	ND		5.0	0.30	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,2,4-Trimethylbenzene	ND		5.0	0.96	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.5	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,2-Dibromoethane	ND		5.0	0.64	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,2-Dichlorobenzene	ND		5.0	0.39	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,2-Dichloroethane	ND		5.0	0.25	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,2-Dichloropropane	ND		5.0	2.5	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,3,5-Trimethylbenzene	ND		5.0	0.32	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,3-Dichlorobenzene	ND		5.0	0.26	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
1,4-Dichlorobenzene	ND		5.0	0.70	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
2-Butanone (MEK)	ND		25	1.8	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
2-Hexanone	ND		25	2.5	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
4-Isopropyltoluene	ND		5.0	0.40	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
4-Methyl-2-pentanone (MIBK)	ND		25	1.6	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Acetone	ND		25	4.2	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Benzene	ND		5.0	0.25	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Bromodichloromethane	ND		5.0	0.67	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Bromoform	ND		5.0	2.5	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Bromomethane	ND		5.0	0.45	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Carbon disulfide	ND		5.0	2.5	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Carbon tetrachloride	ND		5.0	0.48	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Chlorobenzene	ND		5.0	0.66	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Chloroethane	ND		5.0	1.1	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Chloroform	0.943	J	5.0	0.31	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Chloromethane	ND		5.0	0.30	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
cis-1,2-Dichloroethene	ND		5.0	0.64	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
cis-1,3-Dichloropropene	ND		5.0	0.72	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Cyclohexane	ND		5.0	0.70	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Dibromochloromethane	ND		5.0	0.64	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Dichlorodifluoromethane	ND		5.0	0.41	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Ethylbenzene	ND		5.0	0.35	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Isopropylbenzene	ND		5.0	0.75	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
m,p-Xylene	ND		10	0.84	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Methyl acetate	ND		25	3.0	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Methyl tert-butyl ether	ND		5.0	0.49	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Methylcyclohexane	ND		5.0	0.76	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Methylene Chloride	ND		5.0	2.3	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
n-Butylbenzene	ND		5.0	0.44	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
N-Propylbenzene	ND		5.0	0.40	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
o-Xylene	ND		5.0	0.65	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
sec-Butylbenzene	ND		5.0	0.44	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Styrene	ND		5.0	0.25	ug/Kg		10/26/25 18:42	10/26/25 22:15	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-760777/2-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 760778 — **Prep Batch: 760777**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
tert-Butylbenzene	ND		5.0	0.52	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Tetrachloroethene	ND		5.0	0.67	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Toluene	ND		5.0	0.38	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
trans-1,2-Dichloroethene	ND		5.0	0.52	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
trans-1,3-Dichloropropene	ND		5.0	2.2	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Trichloroethene	ND		5.0	1.1	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Trichlorofluoromethane	ND		5.0	0.47	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Vinyl chloride	ND		5.0	0.61	ug/Kg		10/26/25 18:42	10/26/25 22:15	1
Xylenes, Total	ND		10	0.84	ug/Kg		10/26/25 18:42	10/26/25 22:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*64 - 126*	*10/26/25 18:42*	*10/26/25 22:15*	*1*
4-Bromofluorobenzene (Surr)	*100*		*72 - 126*	*10/26/25 18:42*	*10/26/25 22:15*	*1*
Dibromofluoromethane (Surr)	*95*		*60 - 140*	*10/26/25 18:42*	*10/26/25 22:15*	*1*
Toluene-d8 (Surr)	*99*		*71 - 125*	*10/26/25 18:42*	*10/26/25 22:15*	*1*

Lab Sample ID: LCS 480-760777/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 760778 — **Prep Batch: 760777**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	50.0	50.4		ug/Kg		101	77 - 121
1,1,2,2-Tetrachloroethane	50.0	53.0		ug/Kg		106	80 - 120
1,1,2-Trichloro-1,2,2-trifluoroetha ne	50.0	50.3		ug/Kg		101	60 - 140
1,1,2-Trichloroethane	50.0	49.4		ug/Kg		99	78 - 122
1,1-Dichloroethane	50.0	49.7		ug/Kg		99	73 - 126
1,1-Dichloroethene	50.0	49.4		ug/Kg		99	59 - 125
1,2,4-Trichlorobenzene	50.0	51.1		ug/Kg		102	64 - 120
1,2,4-Trimethylbenzene	50.0	52.5		ug/Kg		105	74 - 120
1,2-Dibromo-3-Chloropropane	50.0	53.9		ug/Kg		108	63 - 124
1,2-Dibromoethane	50.0	50.0		ug/Kg		100	78 - 120
1,2-Dichlorobenzene	50.0	49.8		ug/Kg		100	75 - 120
1,2-Dichloroethane	50.0	48.3		ug/Kg		97	77 - 122
1,2-Dichloropropane	50.0	51.5		ug/Kg		103	75 - 124
1,3,5-Trimethylbenzene	50.0	54.0		ug/Kg		108	74 - 120
1,3-Dichlorobenzene	50.0	50.0		ug/Kg		100	74 - 120
1,4-Dichlorobenzene	50.0	49.4		ug/Kg		99	73 - 120
2-Butanone (MEK)	250	281		ug/Kg		112	70 - 134
2-Hexanone	250	266		ug/Kg		106	59 - 130
4-Isopropyltoluene	50.0	53.3		ug/Kg		107	74 - 120
4-Methyl-2-pentanone (MIBK)	250	257		ug/Kg		103	65 - 133
Acetone	250	257		ug/Kg		103	61 - 137
Benzene	50.0	49.4		ug/Kg		99	79 - 127
Bromodichloromethane	50.0	49.1		ug/Kg		98	80 - 122
Bromoform	50.0	51.7		ug/Kg		103	68 - 126
Bromomethane	50.0	49.2		ug/Kg		98	37 - 149
Carbon disulfide	50.0	50.0		ug/Kg		100	64 - 131
Carbon tetrachloride	50.0	52.5		ug/Kg		105	75 - 135

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-760777/1-A
Matrix: Solid
Analysis Batch: 760778

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 760777

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chlorobenzene	50.0	48.5		ug/Kg		97	76 - 124
Chloroethane	50.0	51.8		ug/Kg		104	69 - 135
Chloroform	50.0	46.4		ug/Kg		93	80 - 120
Chloromethane	50.0	49.2		ug/Kg		98	63 - 127
cis-1,2-Dichloroethene	50.0	49.8		ug/Kg		100	81 - 120
cis-1,3-Dichloropropene	50.0	51.1		ug/Kg		102	80 - 120
Cyclohexane	50.0	53.0		ug/Kg		106	65 - 120
Dibromochloromethane	50.0	50.2		ug/Kg		100	76 - 125
Dichlorodifluoromethane	50.0	51.9		ug/Kg		104	57 - 142
Ethylbenzene	50.0	50.1		ug/Kg		100	80 - 120
Isopropylbenzene	50.0	53.8		ug/Kg		108	72 - 120
m,p-Xylene	50.0	49.4		ug/Kg		99	70 - 130
Methyl acetate	100	107		ug/Kg		107	55 - 136
Methyl tert-butyl ether	50.0	49.2		ug/Kg		98	63 - 125
Methylcyclohexane	50.0	51.1		ug/Kg		102	60 - 140
Methylene Chloride	50.0	50.4		ug/Kg		101	61 - 127
n-Butylbenzene	50.0	53.1		ug/Kg		106	70 - 120
N-Propylbenzene	50.0	53.8		ug/Kg		108	70 - 130
o-Xylene	50.0	48.8		ug/Kg		98	70 - 130
sec-Butylbenzene	50.0	53.3		ug/Kg		107	74 - 120
Styrene	50.0	49.4		ug/Kg		99	80 - 120
tert-Butylbenzene	50.0	54.4		ug/Kg		109	73 - 120
Tetrachloroethene	50.0	49.9		ug/Kg		100	74 - 122
Toluene	50.0	49.0		ug/Kg		98	74 - 128
trans-1,2-Dichloroethene	50.0	49.3		ug/Kg		99	78 - 126
trans-1,3-Dichloropropene	50.0	53.2		ug/Kg		106	73 - 123
Trichloroethene	50.0	50.1		ug/Kg		100	77 - 129
Trichlorofluoromethane	50.0	52.3		ug/Kg		105	65 - 146
Vinyl chloride	50.0	51.9		ug/Kg		104	61 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*64 - 126*
4-Bromofluorobenzene (Surr)	*96*		*72 - 126*
Dibromofluoromethane (Surr)	*96*		*60 - 140*
Toluene-d8 (Surr)	*98*		*71 - 125*

Lab Sample ID: MB 480-760906/2-A
Matrix: Solid
Analysis Batch: 760907

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 760906

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.36	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.81	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	1.1	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,1,2-Trichloroethane	ND		5.0	0.65	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,1-Dichloroethane	ND		5.0	0.61	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,1-Dichloroethene	ND		5.0	0.61	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,2,4-Trichlorobenzene	ND		5.0	0.30	ug/Kg		10/27/25 18:13	10/27/25 21:36	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-760906/2-A
Matrix: Solid
Analysis Batch: 760907

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 760906

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		5.0	0.96	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,2-Dibromo-3-Chloropropane	ND		5.0	2.5	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,2-Dibromoethane	ND		5.0	0.64	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,2-Dichlorobenzene	ND		5.0	0.39	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,2-Dichloroethane	ND		5.0	0.25	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,2-Dichloropropane	ND		5.0	2.5	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,3,5-Trimethylbenzene	ND		5.0	0.32	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,3-Dichlorobenzene	ND		5.0	0.26	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
1,4-Dichlorobenzene	ND		5.0	0.70	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
2-Butanone (MEK)	ND		25	1.8	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
2-Hexanone	ND		25	2.5	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
4-Isopropyltoluene	ND		5.0	0.40	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
4-Methyl-2-pentanone (MIBK)	ND		25	1.6	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Acetone	ND		25	4.2	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Benzene	ND		5.0	0.25	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Bromodichloromethane	ND		5.0	0.67	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Bromoform	ND		5.0	2.5	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Bromomethane	ND		5.0	0.45	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Carbon disulfide	ND		5.0	2.5	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Carbon tetrachloride	ND		5.0	0.48	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Chlorobenzene	ND		5.0	0.66	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Chloroethane	ND		5.0	1.1	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Chloroform	0.946	J	5.0	0.31	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Chloromethane	ND		5.0	0.30	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
cis-1,2-Dichloroethene	ND		5.0	0.64	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
cis-1,3-Dichloropropene	ND		5.0	0.72	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Cyclohexane	ND		5.0	0.70	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Dibromochloromethane	ND		5.0	0.64	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Dichlorodifluoromethane	ND		5.0	0.41	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Ethylbenzene	ND		5.0	0.35	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Isopropylbenzene	ND		5.0	0.75	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
m,p-Xylene	ND		10	0.84	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Methyl acetate	ND		25	3.0	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Methyl tert-butyl ether	ND		5.0	0.49	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Methylcyclohexane	ND		5.0	0.76	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Methylene Chloride	ND		5.0	2.3	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
n-Butylbenzene	ND		5.0	0.44	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
N-Propylbenzene	ND		5.0	0.40	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
o-Xylene	ND		5.0	0.65	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
sec-Butylbenzene	ND		5.0	0.44	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Styrene	ND		5.0	0.25	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
tert-Butylbenzene	ND		5.0	0.52	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Tetrachloroethene	ND		5.0	0.67	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Toluene	ND		5.0	0.38	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
trans-1,2-Dichloroethene	ND		5.0	0.52	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
trans-1,3-Dichloropropene	ND		5.0	2.2	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Trichloroethene	ND		5.0	1.1	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Trichlorofluoromethane	ND		5.0	0.47	ug/Kg		10/27/25 18:13	10/27/25 21:36	1
Vinyl chloride	ND		5.0	0.61	ug/Kg		10/27/25 18:13	10/27/25 21:36	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-760906/2-A
Matrix: Solid
Analysis Batch: 760907

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 760906

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		10	0.84	ug/Kg		10/27/25 18:13	10/27/25 21:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*64 - 126*	*10/27/25 18:13*	*10/27/25 21:36*	*1*
4-Bromofluorobenzene (Surr)	*98*		*72 - 126*	*10/27/25 18:13*	*10/27/25 21:36*	*1*
Dibromofluoromethane (Surr)	*98*		*60 - 140*	*10/27/25 18:13*	*10/27/25 21:36*	*1*
Toluene-d8 (Surr)	*97*		*71 - 125*	*10/27/25 18:13*	*10/27/25 21:36*	*1*

Lab Sample ID: LCS 480-760906/1-A
Matrix: Solid
Analysis Batch: 760907

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 760906

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	50.0	52.2		ug/Kg		104	77 - 121
1,1,2,2-Tetrachloroethane	50.0	52.6		ug/Kg		105	80 - 120
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	51.7		ug/Kg		103	60 - 140
1,1,2-Trichloroethane	50.0	50.8		ug/Kg		102	78 - 122
1,1-Dichloroethane	50.0	52.2		ug/Kg		104	73 - 126
1,1-Dichloroethene	50.0	52.6		ug/Kg		105	59 - 125
1,2,4-Trichlorobenzene	50.0	51.0		ug/Kg		102	64 - 120
1,2,4-Trimethylbenzene	50.0	52.7		ug/Kg		105	74 - 120
1,2-Dibromo-3-Chloropropane	50.0	53.5		ug/Kg		107	63 - 124
1,2-Dibromoethane	50.0	52.3		ug/Kg		105	78 - 120
1,2-Dichlorobenzene	50.0	50.5		ug/Kg		101	75 - 120
1,2-Dichloroethane	50.0	51.8		ug/Kg		104	77 - 122
1,2-Dichloropropane	50.0	52.8		ug/Kg		106	75 - 124
1,3,5-Trimethylbenzene	50.0	54.1		ug/Kg		108	74 - 120
1,3-Dichlorobenzene	50.0	50.6		ug/Kg		101	74 - 120
1,4-Dichlorobenzene	50.0	50.0		ug/Kg		100	73 - 120
2-Butanone (MEK)	250	297		ug/Kg		119	70 - 134
2-Hexanone	250	274		ug/Kg		110	59 - 130
4-Isopropyltoluene	50.0	53.2		ug/Kg		106	74 - 120
4-Methyl-2-pentanone (MIBK)	250	261		ug/Kg		104	65 - 133
Acetone	250	271		ug/Kg		109	61 - 137
Benzene	50.0	50.5		ug/Kg		101	79 - 127
Bromodichloromethane	50.0	50.6		ug/Kg		101	80 - 122
Bromoform	50.0	53.6		ug/Kg		107	68 - 126
Bromomethane	50.0	49.1		ug/Kg		98	37 - 149
Carbon disulfide	50.0	51.6		ug/Kg		103	64 - 131
Carbon tetrachloride	50.0	54.1		ug/Kg		108	75 - 135
Chlorobenzene	50.0	50.1		ug/Kg		100	76 - 124
Chloroethane	50.0	50.7		ug/Kg		101	69 - 135
Chloroform	50.0	47.8		ug/Kg		96	80 - 120
Chloromethane	50.0	51.5		ug/Kg		103	63 - 127
cis-1,2-Dichloroethene	50.0	50.7		ug/Kg		101	81 - 120
cis-1,3-Dichloropropene	50.0	53.1		ug/Kg		106	80 - 120
Cyclohexane	50.0	55.2		ug/Kg		110	65 - 120
Dibromochloromethane	50.0	52.1		ug/Kg		104	76 - 125

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-760906/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 760907 — **Prep Batch: 760906**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Dichlorodifluoromethane	50.0	52.6		ug/Kg		105	57 - 142
Ethylbenzene	50.0	51.1		ug/Kg		102	80 - 120
Isopropylbenzene	50.0	54.3		ug/Kg		109	72 - 120
m,p-Xylene	50.0	50.5		ug/Kg		101	70 - 130
Methyl acetate	100	111		ug/Kg		111	55 - 136
Methyl tert-butyl ether	50.0	51.1		ug/Kg		102	63 - 125
Methylcyclohexane	50.0	54.0		ug/Kg		108	60 - 140
Methylene Chloride	50.0	51.6		ug/Kg		103	61 - 127
n-Butylbenzene	50.0	52.7		ug/Kg		105	70 - 120
N-Propylbenzene	50.0	53.7		ug/Kg		107	70 - 130
o-Xylene	50.0	50.9		ug/Kg		102	70 - 130
sec-Butylbenzene	50.0	53.3		ug/Kg		107	74 - 120
Styrene	50.0	51.3		ug/Kg		103	80 - 120
tert-Butylbenzene	50.0	53.0		ug/Kg		106	73 - 120
Tetrachloroethene	50.0	50.5		ug/Kg		101	74 - 122
Toluene	50.0	51.0		ug/Kg		102	74 - 128
trans-1,2-Dichloroethene	50.0	50.3		ug/Kg		101	78 - 126
trans-1,3-Dichloropropene	50.0	55.5		ug/Kg		111	73 - 123
Trichloroethene	50.0	51.8		ug/Kg		104	77 - 129
Trichlorofluoromethane	50.0	51.6		ug/Kg		103	65 - 146
Vinyl chloride	50.0	52.8		ug/Kg		106	61 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*64 - 126*
4-Bromofluorobenzene (Surr)	*99*		*72 - 126*
Dibromofluoromethane (Surr)	*98*		*60 - 140*
Toluene-d8 (Surr)	*98*		*71 - 125*

Lab Sample ID: LCSD 480-760906/7-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 760907 — **Prep Batch: 760906**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	50.0	46.2		ug/Kg		92	77 - 121	12	20
1,1,2,2-Tetrachloroethane	50.0	53.4		ug/Kg		107	80 - 120	1	20
1,1,2-Trichloro-1,2,2-trifluoroetha ne	50.0	43.1		ug/Kg		86	60 - 140	18	20
1,1,2-Trichloroethane	50.0	50.0		ug/Kg		100	78 - 122	1	20
1,1-Dichloroethane	50.0	48.6		ug/Kg		97	73 - 126	7	20
1,1-Dichloroethene	50.0	45.4		ug/Kg		91	59 - 125	15	20
1,2,4-Trichlorobenzene	50.0	48.1		ug/Kg		96	64 - 120	6	20
1,2,4-Trimethylbenzene	50.0	49.0		ug/Kg		98	74 - 120	7	20
1,2-Dibromo-3-Chloropropane	50.0	54.1		ug/Kg		108	63 - 124	1	20
1,2-Dibromoethane	50.0	53.1		ug/Kg		106	78 - 120	1	20
1,2-Dichlorobenzene	50.0	50.1		ug/Kg		100	75 - 120	1	20
1,2-Dichloroethane	50.0	52.6		ug/Kg		105	77 - 122	2	20
1,2-Dichloropropane	50.0	49.6		ug/Kg		99	75 - 124	6	20
1,3,5-Trimethylbenzene	50.0	48.9		ug/Kg		98	74 - 120	10	20
1,3-Dichlorobenzene	50.0	47.3		ug/Kg		95	74 - 120	7	20

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 480-760906/7-A
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 760907
Prep Batch: 760906

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dichlorobenzene	50.0	48.0		ug/Kg		96	73 - 120	4	20
2-Butanone (MEK)	250	300		ug/Kg		120	70 - 134	1	20
2-Hexanone	250	279		ug/Kg		112	59 - 130	2	20
4-Isopropyltoluene	50.0	47.4		ug/Kg		95	74 - 120	11	20
4-Methyl-2-pentanone (MIBK)	250	270		ug/Kg		108	65 - 133	3	20
Acetone	250	323		ug/Kg		129	61 - 137	17	20
Benzene	50.0	46.6		ug/Kg		93	79 - 127	8	20
Bromodichloromethane	50.0	48.9		ug/Kg		98	80 - 122	3	20
Bromoform	50.0	53.4		ug/Kg		107	68 - 126	0	20
Bromomethane	50.0	47.3		ug/Kg		95	37 - 149	4	20
Carbon disulfide	50.0	45.3		ug/Kg		91	64 - 131	13	20
Carbon tetrachloride	50.0	45.9		ug/Kg		92	75 - 135	16	20
Chlorobenzene	50.0	47.5		ug/Kg		95	76 - 124	5	20
Chloroethane	50.0	45.7		ug/Kg		91	69 - 135	10	20
Chloroform	50.0	46.4		ug/Kg		93	80 - 120	3	20
Chloromethane	50.0	46.4		ug/Kg		93	63 - 127	10	20
cis-1,2-Dichloroethene	50.0	48.2		ug/Kg		96	81 - 120	5	20
cis-1,3-Dichloropropene	50.0	50.0		ug/Kg		100	80 - 120	6	20
Cyclohexane	50.0	44.9		ug/Kg		90	65 - 120	20	20
Dibromochloromethane	50.0	50.8		ug/Kg		102	76 - 125	2	20
Dichlorodifluoromethane	50.0	43.9		ug/Kg		88	57 - 142	18	20
Ethylbenzene	50.0	46.6		ug/Kg		93	80 - 120	9	20
Isopropylbenzene	50.0	48.4		ug/Kg		97	72 - 120	12	20
m,p-Xylene	50.0	45.4		ug/Kg		91	70 - 130	11	20
Methyl acetate	100	118		ug/Kg		118	55 - 136	6	20
Methyl tert-butyl ether	50.0	51.8		ug/Kg		104	63 - 125	1	20
Methylcyclohexane	50.0	43.9	*1	ug/Kg		88	60 - 140	21	20
Methylene Chloride	50.0	51.5		ug/Kg		103	61 - 127	0	20
n-Butylbenzene	50.0	46.6		ug/Kg		93	70 - 120	12	20
N-Propylbenzene	50.0	48.5		ug/Kg		97	70 - 130	10	20
o-Xylene	50.0	47.2		ug/Kg		94	70 - 130	8	20
sec-Butylbenzene	50.0	46.7		ug/Kg		93	74 - 120	13	20
Styrene	50.0	48.6		ug/Kg		97	80 - 120	5	20
tert-Butylbenzene	50.0	48.1		ug/Kg		96	73 - 120	10	20
Tetrachloroethene	50.0	43.5		ug/Kg		87	74 - 122	15	20
Toluene	50.0	46.5		ug/Kg		93	74 - 128	9	20
trans-1,2-Dichloroethene	50.0	46.2		ug/Kg		92	78 - 126	8	20
trans-1,3-Dichloropropene	50.0	53.2		ug/Kg		106	73 - 123	4	20
Trichloroethene	50.0	48.2		ug/Kg		96	77 - 129	7	20
Trichlorofluoromethane	50.0	45.5		ug/Kg		91	65 - 146	13	20
Vinyl chloride	50.0	46.1		ug/Kg		92	61 - 133	14	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*64 - 126*
4-Bromofluorobenzene (Surr)	*97*		*72 - 126*
Dibromofluoromethane (Surr)	*97*		*60 - 140*
Toluene-d8 (Surr)	*96*		*71 - 125*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-760898/1-A
Matrix: Solid
Analysis Batch: 760936

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 760898

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		170	31	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Acenaphthylene	ND		170	33	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Anthracene	ND		170	31	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Benzo[a]anthracene	ND		170	23	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Benzo[a]pyrene	ND		170	29	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Benzo[b]fluoranthene	ND		170	23	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Benzo[g,h,i]perylene	ND		170	30	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Benzo[k]fluoranthene	ND		170	38	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Chrysene	ND		170	41	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Dibenz(a,h)anthracene	ND		170	34	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Fluoranthene	ND		170	31	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Fluorene	ND		170	31	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Indeno[1,2,3-cd]pyrene	ND		170	25	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Naphthalene	ND		170	28	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Phenanthrene	ND		170	32	ug/Kg		10/27/25 13:23	10/28/25 14:20	1
Pyrene	ND		170	32	ug/Kg		10/27/25 13:23	10/28/25 14:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*109*		*29 - 120*	*10/27/25 13:23*	*10/28/25 14:20*	*1*
Nitrobenzene-d5 (Surr)	*79*		*22 - 120*	*10/27/25 13:23*	*10/28/25 14:20*	*1*
p-Terphenyl-d14 (Surr)	*116*		*28 - 124*	*10/27/25 13:23*	*10/28/25 14:20*	*1*

Lab Sample ID: LCS 480-760898/2-A
Matrix: Solid
Analysis Batch: 760936

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 760898

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	2670	2520		ug/Kg		94	49 - 121
Acenaphthylene	2670	2850		ug/Kg		107	49 - 120
Anthracene	2670	2750		ug/Kg		103	57 - 120
Benzo[a]anthracene	2670	2590		ug/Kg		97	58 - 120
Benzo[a]pyrene	2670	2750		ug/Kg		103	59 - 122
Benzo[b]fluoranthene	2670	2820		ug/Kg		106	56 - 120
Benzo[g,h,i]perylene	2670	2680		ug/Kg		101	56 - 132
Benzo[k]fluoranthene	2670	2630		ug/Kg		99	59 - 127
Chrysene	2670	2790		ug/Kg		105	57 - 120
Dibenz(a,h)anthracene	2670	2900		ug/Kg		109	53 - 124
Fluoranthene	2670	2460		ug/Kg		92	57 - 121
Fluorene	2670	2750		ug/Kg		103	55 - 121
Indeno[1,2,3-cd]pyrene	2670	2860		ug/Kg		107	53 - 125
Naphthalene	2670	2480		ug/Kg		93	43 - 120
Phenanthrene	2670	2650		ug/Kg		100	57 - 120
Pyrene	2670	2760		ug/Kg		103	59 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*112*		*29 - 120*
Nitrobenzene-d5 (Surr)	*86*		*22 - 120*
p-Terphenyl-d14 (Surr)	*118*		*28 - 124*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 480-760812/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 761045 — **Prep Batch: 760812**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.9	0.83	mg/Kg		10/27/25 09:48	10/28/25 18:49	1
Barium	ND	^5+	0.47	0.13	mg/Kg		10/27/25 09:48	10/28/25 18:49	1
Cadmium	ND		0.19	0.066	mg/Kg		10/27/25 09:48	10/28/25 18:49	1
Chromium	ND		0.47	0.34	mg/Kg		10/27/25 09:48	10/28/25 18:49	1
Lead	ND	^5+	0.95	0.44	mg/Kg		10/27/25 09:48	10/28/25 18:49	1
Selenium	ND		3.8	0.76	mg/Kg		10/27/25 09:48	10/28/25 18:49	1
Silver	ND	^5-	0.57	0.19	mg/Kg		10/27/25 09:48	10/28/25 18:49	1

Lab Sample ID: LCSSRM 480-760812/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 761045 — **Prep Batch: 760812**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	229	214.8		mg/Kg		93.8	59.0 - 110.0
Barium	244	260.5		mg/Kg		106.8	67.2 - 112.3
Cadmium	134	129.1		mg/Kg		96.3	66.0 - 109.7
Chromium	172	191.4		mg/Kg		111.3	62.2 - 115.7
Lead	153	167.0		mg/Kg		109.2	66.7 - 117.6
Selenium	107	103.7		mg/Kg		97.0	57.2 - 119.6
Silver	83.9	84.66		mg/Kg		100.9	65.1 - 118.5

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 480-761149/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 761266 — **Prep Batch: 761149**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.020	0.0047	mg/Kg		10/30/25 06:53	10/30/25 15:45	1

Lab Sample ID: LCSSRM 480-761149/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 761266 — **Prep Batch: 761149**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	15.9	13.88		mg/Kg		87.3	53.1 - 123.9

Lab Sample ID: 480-233885-6 MS — **Client Sample ID: TP-9 0-2 Ft**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 761266 — **Prep Batch: 761149**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.37	F1	0.397	42.50	F1	mg/Kg	☼	10605	80 - 120

Method: 7471B - Mercury (CVAA) (Continued)

Lab Sample ID: 480-233885-6 MSD — **Client Sample ID: TP-9 0-2 Ft**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 761266 — **Prep Batch: 761149**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.37	F1	0.381	41.34	F1	mg/Kg	☼	10743	80 - 120	3	20

Lab Sample ID: MB 480-761481/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 761515 — **Prep Batch: 761481**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.021	0.0048	mg/Kg		11/03/25 08:37	11/03/25 11:49	1

Lab Sample ID: LCSSRM 480-761481/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 761515 — **Prep Batch: 761481**

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			15.9	14.20		mg/Kg		89.3	53.1 - 123.9		

QC Association Summary

Client: Roux Environmental Engineering and Geology DPC
Job ID: 480-233885-1
Project/Site: 145-149 Swan St. Site

GC/MS VOA

Prep Batch: 760777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-2	TP-1 6-8 Ft	Total/NA	Solid	5035A_L	
MB 480-760777/2-A	Method Blank	Total/NA	Solid	5035A_L	
LCS 480-760777/1-A	Lab Control Sample	Total/NA	Solid	5035A_L	

Analysis Batch: 760778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-2	TP-1 6-8 Ft	Total/NA	Solid	8260C	760777
MB 480-760777/2-A	Method Blank	Total/NA	Solid	8260C	760777
LCS 480-760777/1-A	Lab Control Sample	Total/NA	Solid	8260C	760777

Prep Batch: 760906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-4	TP-2 4-6 Ft	Total/NA	Solid	5035A_L	
MB 480-760906/2-A	Method Blank	Total/NA	Solid	5035A_L	
LCS 480-760906/1-A	Lab Control Sample	Total/NA	Solid	5035A_L	
LCSD 480-760906/7-A	Lab Control Sample Dup	Total/NA	Solid	5035A_L	

Analysis Batch: 760907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-4	TP-2 4-6 Ft	Total/NA	Solid	8260C	760906
MB 480-760906/2-A	Method Blank	Total/NA	Solid	8260C	760906
LCS 480-760906/1-A	Lab Control Sample	Total/NA	Solid	8260C	760906
LCSD 480-760906/7-A	Lab Control Sample Dup	Total/NA	Solid	8260C	760906

GC/MS Semi VOA

Prep Batch: 760898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-1	TP-1 0-1Ft	Total/NA	Solid	3546	
480-233885-2	TP-1 6-8 Ft	Total/NA	Solid	3546	
480-233885-3	TP-2 0-1Ft	Total/NA	Solid	3546	
480-233885-4	TP-2 4-6 Ft	Total/NA	Solid	3546	
480-233885-6	TP-9 0-2 Ft	Total/NA	Solid	3546	
480-233885-7	TP-10 0-2 Ft	Total/NA	Solid	3546	
480-233885-8	TP-11 2-4 Ft	Total/NA	Solid	3546	
480-233885-9	TP-12 1-3 Ft	Total/NA	Solid	3546	
480-233885-10	TP-15 0-3 Ft	Total/NA	Solid	3546	
MB 480-760898/1-A	Method Blank	Total/NA	Solid	3546	
LCS 480-760898/2-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 760936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-1	TP-1 0-1Ft	Total/NA	Solid	8270D	760898
480-233885-2	TP-1 6-8 Ft	Total/NA	Solid	8270D	760898
480-233885-3	TP-2 0-1Ft	Total/NA	Solid	8270D	760898
480-233885-4	TP-2 4-6 Ft	Total/NA	Solid	8270D	760898
480-233885-6	TP-9 0-2 Ft	Total/NA	Solid	8270D	760898
480-233885-7	TP-10 0-2 Ft	Total/NA	Solid	8270D	760898
480-233885-8	TP-11 2-4 Ft	Total/NA	Solid	8270D	760898
480-233885-9	TP-12 1-3 Ft	Total/NA	Solid	8270D	760898
480-233885-10	TP-15 0-3 Ft	Total/NA	Solid	8270D	760898

GC/MS Semi VOA (Continued)

Analysis Batch: 760936 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-760898/1-A	Method Blank	Total/NA	Solid	8270D	760898
LCS 480-760898/2-A	Lab Control Sample	Total/NA	Solid	8270D	760898

Metals

Prep Batch: 760812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-1	TP-1 0-1Ft	Total/NA	Solid	3050B	
480-233885-3	TP-2 0-1Ft	Total/NA	Solid	3050B	
480-233885-5	TP-8 0-2.5 Ft	Total/NA	Solid	3050B	
480-233885-6	TP-9 0-2 Ft	Total/NA	Solid	3050B	
480-233885-7	TP-10 0-2 Ft	Total/NA	Solid	3050B	
480-233885-8	TP-11 2-4 Ft	Total/NA	Solid	3050B	
480-233885-9	TP-12 1-3 Ft	Total/NA	Solid	3050B	
480-233885-10	TP-15 0-3 Ft	Total/NA	Solid	3050B	
MB 480-760812/1-A	Method Blank	Total/NA	Solid	3050B	
LCSSRM 480-760812/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Analysis Batch: 761045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-1	TP-1 0-1Ft	Total/NA	Solid	6010D	760812
480-233885-3	TP-2 0-1Ft	Total/NA	Solid	6010D	760812
480-233885-5	TP-8 0-2.5 Ft	Total/NA	Solid	6010D	760812
480-233885-6	TP-9 0-2 Ft	Total/NA	Solid	6010D	760812
480-233885-7	TP-10 0-2 Ft	Total/NA	Solid	6010D	760812
480-233885-8	TP-11 2-4 Ft	Total/NA	Solid	6010D	760812
480-233885-9	TP-12 1-3 Ft	Total/NA	Solid	6010D	760812
480-233885-10	TP-15 0-3 Ft	Total/NA	Solid	6010D	760812
MB 480-760812/1-A	Method Blank	Total/NA	Solid	6010D	760812
LCSSRM 480-760812/2-A	Lab Control Sample	Total/NA	Solid	6010D	760812

Analysis Batch: 761120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-5	TP-8 0-2.5 Ft	Total/NA	Solid	6010D	760812
480-233885-6	TP-9 0-2 Ft	Total/NA	Solid	6010D	760812
480-233885-7	TP-10 0-2 Ft	Total/NA	Solid	6010D	760812
480-233885-8	TP-11 2-4 Ft	Total/NA	Solid	6010D	760812
480-233885-9	TP-12 1-3 Ft	Total/NA	Solid	6010D	760812
480-233885-10	TP-15 0-3 Ft	Total/NA	Solid	6010D	760812

Prep Batch: 761149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-1	TP-1 0-1Ft	Total/NA	Solid	7471B	
480-233885-3	TP-2 0-1Ft	Total/NA	Solid	7471B	
480-233885-5	TP-8 0-2.5 Ft	Total/NA	Solid	7471B	
480-233885-6	TP-9 0-2 Ft	Total/NA	Solid	7471B	
480-233885-8	TP-11 2-4 Ft	Total/NA	Solid	7471B	
480-233885-9	TP-12 1-3 Ft	Total/NA	Solid	7471B	
480-233885-10	TP-15 0-3 Ft	Total/NA	Solid	7471B	
MB 480-761149/1-A	Method Blank	Total/NA	Solid	7471B	
LCSSRM 480-761149/2-A	Lab Control Sample	Total/NA	Solid	7471B	

Metals (Continued)

Prep Batch: 761149 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-6 MS	TP-9 0-2 Ft	Total/NA	Solid	7471B	
480-233885-6 MSD	TP-9 0-2 Ft	Total/NA	Solid	7471B	

Analysis Batch: 761266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-1	TP-1 0-1Ft	Total/NA	Solid	7471B	761149
480-233885-3	TP-2 0-1Ft	Total/NA	Solid	7471B	761149
480-233885-5	TP-8 0-2.5 Ft	Total/NA	Solid	7471B	761149
480-233885-6	TP-9 0-2 Ft	Total/NA	Solid	7471B	761149
480-233885-8	TP-11 2-4 Ft	Total/NA	Solid	7471B	761149
480-233885-9	TP-12 1-3 Ft	Total/NA	Solid	7471B	761149
480-233885-10	TP-15 0-3 Ft	Total/NA	Solid	7471B	761149
MB 480-761149/1-A	Method Blank	Total/NA	Solid	7471B	761149
LCSSRM 480-761149/2-A	Lab Control Sample	Total/NA	Solid	7471B	761149
480-233885-6 MS	TP-9 0-2 Ft	Total/NA	Solid	7471B	761149
480-233885-6 MSD	TP-9 0-2 Ft	Total/NA	Solid	7471B	761149

Analysis Batch: 761396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-1	TP-1 0-1Ft	Total/NA	Solid	6010D	760812

Prep Batch: 761481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-7	TP-10 0-2 Ft	Total/NA	Solid	7471B	
MB 480-761481/1-A	Method Blank	Total/NA	Solid	7471B	
LCSSRM 480-761481/2-A	Lab Control Sample	Total/NA	Solid	7471B	

Analysis Batch: 761515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-7	TP-10 0-2 Ft	Total/NA	Solid	7471B	761481
MB 480-761481/1-A	Method Blank	Total/NA	Solid	7471B	761481
LCSSRM 480-761481/2-A	Lab Control Sample	Total/NA	Solid	7471B	761481

General Chemistry

Analysis Batch: 760691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-233885-1	TP-1 0-1Ft	Total/NA	Solid	Moisture	
480-233885-2	TP-1 6-8 Ft	Total/NA	Solid	Moisture	
480-233885-3	TP-2 0-1Ft	Total/NA	Solid	Moisture	
480-233885-4	TP-2 4-6 Ft	Total/NA	Solid	Moisture	
480-233885-5	TP-8 0-2.5 Ft	Total/NA	Solid	Moisture	
480-233885-6	TP-9 0-2 Ft	Total/NA	Solid	Moisture	
480-233885-7	TP-10 0-2 Ft	Total/NA	Solid	Moisture	
480-233885-8	TP-11 2-4 Ft	Total/NA	Solid	Moisture	
480-233885-9	TP-12 1-3 Ft	Total/NA	Solid	Moisture	
480-233885-10	TP-15 0-3 Ft	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-1 0-1Ft

Lab Sample ID: 480-233885-1
Date Collected: 10/21/25 10:00
Matrix: Solid
Date Received: 10/23/25 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	760691	AF	EET BUF	10/24/25 15:07

Client Sample ID: TP-1 0-1Ft

Lab Sample ID: 480-233885-1
Date Collected: 10/21/25 10:00
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 84.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3546			760898	LSC	EET BUF	10/27/25 13:23
Total/NA	Analysis	8270D		5	760936	JMM	EET BUF	10/28/25 18:18
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761045	MP	EET BUF	10/28/25 19:03
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		5	761396	MP	EET BUF	10/31/25 15:13
Total/NA	Prep	7471B			761149	ESB	EET BUF	10/30/25 06:53
Total/NA	Analysis	7471B		10	761266	ESB	EET BUF	10/30/25 16:19

Client Sample ID: TP-1 6-8 Ft

Lab Sample ID: 480-233885-2
Date Collected: 10/21/25 10:20
Matrix: Solid
Date Received: 10/23/25 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	760691	AF	EET BUF	10/24/25 15:07

Client Sample ID: TP-1 6-8 Ft

Lab Sample ID: 480-233885-2
Date Collected: 10/21/25 10:20
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 79.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035A_L			760777	CDC	EET BUF	10/26/25 18:42
Total/NA	Analysis	8260C		1	760778	CDC	EET BUF	10/27/25 00:13
Total/NA	Prep	3546			760898	LSC	EET BUF	10/27/25 13:23
Total/NA	Analysis	8270D		1	760936	JMM	EET BUF	10/28/25 18:42

Client Sample ID: TP-2 0-1Ft

Lab Sample ID: 480-233885-3
Date Collected: 10/21/25 11:00
Matrix: Solid
Date Received: 10/23/25 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	760691	AF	EET BUF	10/24/25 15:07

Lab Chronicle

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-2 0-1Ft

Lab Sample ID: 480-233885-3
Date Collected: 10/21/25 11:00
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 81.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3546			760898	LSC	EET BUF	10/27/25 13:23
Total/NA	Analysis	8270D		1	760936	JMM	EET BUF	10/28/25 19:05
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761045	MP	EET BUF	10/28/25 19:05
Total/NA	Prep	7471B			761149	ESB	EET BUF	10/30/25 06:53
Total/NA	Analysis	7471B		1	761266	ESB	EET BUF	10/30/25 15:49

Client Sample ID: TP-2 4-6 Ft

Lab Sample ID: 480-233885-4
Date Collected: 10/21/25 11:20
Matrix: Solid
Date Received: 10/23/25 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	760691	AF	EET BUF	10/24/25 15:07

Client Sample ID: TP-2 4-6 Ft

Lab Sample ID: 480-233885-4
Date Collected: 10/21/25 11:20
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 84.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035A_L			760906	CDC	EET BUF	10/27/25 18:13
Total/NA	Analysis	8260C		1	760907	CDC	EET BUF	10/27/25 22:00
Total/NA	Prep	3546			760898	LSC	EET BUF	10/27/25 13:23
Total/NA	Analysis	8270D		1	760936	JMM	EET BUF	10/28/25 19:29

Client Sample ID: TP-8 0-2.5 Ft

Lab Sample ID: 480-233885-5
Date Collected: 10/21/25 13:00
Matrix: Solid
Date Received: 10/23/25 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	760691	AF	EET BUF	10/24/25 15:07

Client Sample ID: TP-8 0-2.5 Ft

Lab Sample ID: 480-233885-5
Date Collected: 10/21/25 13:00
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 89.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761045	MP	EET BUF	10/28/25 19:14
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		10	761120	MP	EET BUF	10/29/25 14:03
Total/NA	Prep	7471B			761149	ESB	EET BUF	10/30/25 06:53
Total/NA	Analysis	7471B		1	761266	ESB	EET BUF	10/30/25 15:50

Lab Chronicle

Client: Roux Environmental Engineering and Geology DPC
Job ID: 480-233885-1
Project/Site: 145-149 Swan St. Site

Client Sample ID: TP-9 0-2 Ft
Lab Sample ID: 480-233885-6
Date Collected: 10/21/25 13:30
Matrix: Solid
Date Received: 10/23/25 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	760691	AF	EET BUF	10/24/25 15:07

Client Sample ID: TP-9 0-2 Ft
Lab Sample ID: 480-233885-6
Date Collected: 10/21/25 13:30
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 86.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3546			760898	LSC	EET BUF	10/27/25 13:23
Total/NA	Analysis	8270D		10	760936	JMM	EET BUF	10/28/25 19:53
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761045	MP	EET BUF	10/28/25 19:16
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761120	MP	EET BUF	10/29/25 14:13
Total/NA	Prep	7471B			761149	ESB	EET BUF	10/30/25 06:53
Total/NA	Analysis	7471B		1	761266	ESB	EET BUF	10/30/25 15:51

Client Sample ID: TP-10 0-2 Ft
Lab Sample ID: 480-233885-7
Date Collected: 10/21/25 15:00
Matrix: Solid
Date Received: 10/23/25 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	760691	AF	EET BUF	10/24/25 15:07

Client Sample ID: TP-10 0-2 Ft
Lab Sample ID: 480-233885-7
Date Collected: 10/21/25 15:00
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 83.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3546			760898	LSC	EET BUF	10/27/25 13:23
Total/NA	Analysis	8270D		10	760936	JMM	EET BUF	10/28/25 20:17
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761045	MP	EET BUF	10/28/25 19:18
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761120	MP	EET BUF	10/29/25 14:15
Total/NA	Prep	7471B			761481	ESB	EET BUF	11/03/25 08:37
Total/NA	Analysis	7471B		100	761515	ESB	EET BUF	11/03/25 12:14

Client Sample ID: TP-11 2-4 Ft
Lab Sample ID: 480-233885-8
Date Collected: 10/21/25 15:30
Matrix: Solid
Date Received: 10/23/25 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	760691	AF	EET BUF	10/24/25 15:07

Lab Chronicle

Client: Roux Environmental Engineering and Geology DPC
Job ID: 480-233885-1
Project/Site: 145-149 Swan St. Site

Client Sample ID: TP-11 2-4 Ft
Lab Sample ID: 480-233885-8

Date Collected: 10/21/25 15:30
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 87.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3546			760898	LSC	EET BUF	10/27/25 13:23
Total/NA	Analysis	8270D		1	760936	JMM	EET BUF	10/28/25 20:41
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761045	MP	EET BUF	10/28/25 19:20
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761120	MP	EET BUF	10/29/25 14:17
Total/NA	Prep	7471B			761149	ESB	EET BUF	10/30/25 06:53
Total/NA	Analysis	7471B		1	761266	ESB	EET BUF	10/30/25 16:09

Client Sample ID: TP-12 1-3 Ft
Lab Sample ID: 480-233885-9

Date Collected: 10/21/25 15:45
Matrix: Solid
Date Received: 10/23/25 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	760691	AF	EET BUF	10/24/25 15:07

Client Sample ID: TP-12 1-3 Ft
Lab Sample ID: 480-233885-9

Date Collected: 10/21/25 15:45
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 84.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3546			760898	LSC	EET BUF	10/27/25 13:23
Total/NA	Analysis	8270D		10	760936	JMM	EET BUF	10/28/25 21:04
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761045	MP	EET BUF	10/28/25 19:22
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761120	MP	EET BUF	10/29/25 14:19
Total/NA	Prep	7471B			761149	ESB	EET BUF	10/30/25 06:53
Total/NA	Analysis	7471B		1	761266	ESB	EET BUF	10/30/25 16:11

Client Sample ID: TP-15 0-3 Ft
Lab Sample ID: 480-233885-10

Date Collected: 10/21/25 16:00
Matrix: Solid
Date Received: 10/23/25 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	760691	AF	EET BUF	10/24/25 15:07

Client Sample ID: TP-15 0-3 Ft
Lab Sample ID: 480-233885-10

Date Collected: 10/21/25 16:00
Matrix: Solid
Date Received: 10/23/25 10:50
Percent Solids: 61.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3546			760898	LSC	EET BUF	10/27/25 13:23
Total/NA	Analysis	8270D		10	760936	JMM	EET BUF	10/28/25 21:28
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761045	MP	EET BUF	10/28/25 19:24

Lab Chronicle

Client: Roux Environmental Engineering and Geology DPC
Project/Site: 145-149 Swan St. Site

Job ID: 480-233885-1

Client Sample ID: TP-15 0-3 Ft

Date Collected: 10/21/25 16:00
Date Received: 10/23/25 10:50

Lab Sample ID: 480-233885-10

Matrix: Solid
Percent Solids: 61.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			760812	EMO	EET BUF	10/27/25 09:48
Total/NA	Analysis	6010D		1	761120	MP	EET BUF	10/29/25 14:21
Total/NA	Prep	7471B			761149	ESB	EET BUF	10/30/25 06:53
Total/NA	Analysis	7471B		10	761266	ESB	EET BUF	10/30/25 16:26

Laboratory References:

EET BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Accreditation/Certification Summary

Client: Roux Environmental Engineering and Geology DPC
Job ID: 480-233885-1
Project/Site: 145-149 Swan St. Site

Laboratory: Eurofins Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10026	03-31-26

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260C	5035A_L	Solid	1,2-Dibromoethane
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Method Summary

Client: Roux Environmental Engineering and Geology DPC
Job ID: 480-233885-1
Project/Site: 145-149 Swan St. Site

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	EET BUF
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	EET BUF
6010D	Metals (ICP)	SW846	EET BUF
7471B	Mercury (CVAA)	SW846	EET BUF
Moisture	Percent Moisture	EPA	EET BUF
3050B	Preparation, Metals	SW846	EET BUF
3546	Microwave Extraction	SW846	EET BUF
5035A_L	Closed System Purge and Trap	SW846	EET BUF
7471B	Preparation, Mercury	SW846	EET BUF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Roux Environmental Engineering and Geology DPC
Job ID: 480-233885-1
Project/Site: 145-149 Swan St. Site

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
480-233885-1	TP-1 0-1Ft	Solid	10/21/25 10:00	10/23/25 10:50	New York
480-233885-2	TP-1 6-8 Ft	Solid	10/21/25 10:20	10/23/25 10:50	New York
480-233885-3	TP-2 0-1Ft	Solid	10/21/25 11:00	10/23/25 10:50	New York
480-233885-4	TP-2 4-6 Ft	Solid	10/21/25 11:20	10/23/25 10:50	New York
480-233885-5	TP-8 0-2.5 Ft	Solid	10/21/25 13:00	10/23/25 10:50	New York
480-233885-6	TP-9 0-2 Ft	Solid	10/21/25 13:30	10/23/25 10:50	New York
480-233885-7	TP-10 0-2 Ft	Solid	10/21/25 15:00	10/23/25 10:50	New York
480-233885-8	TP-11 2-4 Ft	Solid	10/21/25 15:30	10/23/25 10:50	New York
480-233885-9	TP-12 1-3 Ft	Solid	10/21/25 15:45	10/23/25 10:50	New York
480-233885-10	TP-15 0-3 Ft	Solid	10/21/25 16:00	10/23/25 10:50	New York

10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Nick Suraci	Lab PM: Schove, John R	Carrier: Rochester #484	COC No: 480-208837-42232.1
Client Contact: Mr. Nick Suraci	Phone: 716-713-3937	E-Mail: John.Schove@et.eurofinsus.com	State of Origin:	Page: Page 1 of 2
Company: Roux Environmental Engineering and Geology DPC	PWSID:			Job #:
Address: 2558 Hamburg Turnpike Suite 300	Due Date Requested:			Preservation Codes: N - None
City: Lackawanna	TAT Requested (days): Standard			
State, Zip: NY, 14218	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 4375.0004 B000			
Email: nsuraci@rouxinc.com	WO #:			
Project Name: 145-149 Swan St. site	Project #: 48027725			Other:
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air, DW=Drinking Water)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8010B, TVPH, 8270D	8260C - VOCs - TCL + CP-51 List	PAH's	RCRA metals + mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N				
TP-1 0-1 Ft	10/21/25	1000	6	Solid					/	X		
TP-1 6-8 Ft		1020		Solid				X	X			
TP-2 0-1 Ft		1100		Solid					X	X		
TP-2 4-6 Ft		1120		Solid				X	X			
TP-8 0-2.5 Ft		1300		Solid						X		
TP-9 0-2 Ft		1330		Solid					X	X		
TP-10 0-2 Ft		1500		Solid					X	X		
TP-11 2-4 Ft		1530		Solid					X	X		
TP-12 1-3 Ft		1545		Solid					X	X		
TP-15 0-3 Ft		1600		Solid					X	X		
				Solid								

480-233885 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by:	10/22/25		Received by:	10/22/25 1300	EET
Relinquished by:	10/23/25 1050	EET	Received by:	10/23/25 1050	EET
Relinquished by:			Received by:		

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 2.0 IR #SC1 ICE

Ver: 10/10/2024

10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins | Environment Testing

Rochester #484

Client Information	Sampler: Nick Suraci	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-208837-42232.2
Client Contact: Mr. Nick Suraci	Phone: 716-713-3937	E-Mail: John.Schove@et.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: Roux Environmental Engineering and Geology DPC	PWSID:			Job #:
Address: 2558 Hamburg Turnpike Suite 300	Due Date Requested:			Preservation Codes: N - None
City: Lackawanna	TAT Requested (days):			
State, Zip: NY, 14218	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 4375.0004 B000			
Email: nsuraci@rouxinc.com	WO #:			
Project Name: 145-149 Swan St. site	Project #: 48027725			Other:
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air, DW=Drinking Water)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010D, 7471B, 8270D	8260C - VOCs - TCL + CP-51 List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
TP-3 0.5-2 Ft	10/21/25	1130	G	Solid						on hold
TP-4 0-1 Ft		1200								
TP-5 0-3 in		12:15								
TP-6 0.25-1 Ft		12:30								
TP-7 0.5-1 Ft		12:45								
TP-9 6-8 Ft		1345								
TP-1 4-6 Ft		1010								
TP-10 6-8 Ft		15:10								
TP-13 0.5-2 Ft		16:15								
TP-14 0-2 Ft		1630								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/22/25			10/22/25 1300	EET
	10/23/25 1050			10/23/25 1050	EET

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 10/10/2024

Login Sample Receipt Checklist

Client: Roux Environmental Engineering and Geology DPC

Job Number: 480-233885-1

Login Number: 233885

List Source: Eurofins Buffalo

List Number: 1

Creator: Stapleton, Kaitlyn

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.0 IR#SC ice
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	Roux Environmental Engineering and Geology
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

LIST OF FOOTNOTES

Electronic copies of the documents referenced in footnotes within this report, and listed below, are available for review at EA in Orchard Park, New York and can be provided upon request.

APPENDIX C

Fish and Wildlife Resources Impact Analysis Decision Key

Appendix 3C **Fish and Wildlife Resources Impact Analysis Decision Key**	If YES Go to:	If NO Go to:
1. Is the site or area of concern a discharge or spill event?	13	2
2. Is the site or area of concern a point source of contamination to the groundwater which will be prevented from discharging to surface water? Soil contamination is not widespread, or if widespread, is confined under buildings and paved areas.	13	3
3. Is the site and all adjacent property a developed area with buildings, paved surfaces and little or no vegetation?	4	9
4. Does the site contain habitat of an endangered, threatened or special concern species?	Section 3.10.1	5
5. Has the contamination gone off-site?	6	14
6. Is there any discharge or erosion of contamination to surface water or the potential for discharge or erosion of contamination?	7	14
7. Are the site contaminants PCBs, pesticides or other persistent, bioaccumulable substances?	Section 3.10.1	8
8. Does contamination exist at concentrations that could exceed ecological impact SCGs or be toxic to aquatic life if discharged to surface water?	Section 3.10.1	14
9. Does the site or any adjacent or downgradient property contain any of the following resources? i. Any endangered, threatened or special concern species or rare plants or their habitat ii. Any DEC designated significant habitats or rare NYS Ecological Communities iii. Tidal or freshwater wetlands iv. Stream, creek or river v. Pond, lake, lagoon vi. Drainage ditch or channel vii. Other surface water feature viii. Other marine or freshwater habitat ix. Forest x. Grassland or grassy field xi. Parkland or woodland xii. Shrubby area xiii. Urban wildlife habitat xiv. Other terrestrial habitat	11	10
10. Is the lack of resources due to the contamination?	3.10.1	14
11. Is the contamination a localized source which has not migrated and will not migrate from the source to impact any on-site or off-site resources?	14	12
12. Does the site have widespread surface soil contamination that is not confined under and around buildings or paved areas?	Section 3.10.1	12
13. Does the contamination at the site or area of concern have the potential to migrate to, erode into or otherwise impact any on-site or off-site habitat of endangered, threatened or special concern species or other fish and wildlife resource? (See #9 for list of potential resources. Contact DEC for information regarding endangered species.)	Section 3.10.1	14
14. No Fish and Wildlife Resources Impact Analysis needed.		

APPENDIX D

Field Operating Procedures

ROUX

FIELD OPERATING PROCEDURES

Abandonment of Borehole Procedures

FOP 001.1

ABANDONMENT OF BOREHOLE PROCEDURE

PURPOSE

Soil borings that are not completed as monitoring wells will be plugged by filling the holes with a cement/bentonite grout. Field staff will calculate the borehole volume and compare it to the final installed volume of grout to evaluate whether bridging or loss to the formation has occurred. These calculations and the actual volume placed will be noted on the Boring Log.

PROCEDURE

1. Determine most suitable seal materials. Grout specifications generally have mixture ratios as follows:

   Grout Slurry Composition (% Weight)

1.5 to 3.0%	-	Bentonite (Quick Gel)
40 to 60 %	-	Cement (Portland Type I)
40 to 60 %	-	Potable Water

2. Calculate the volume of the borehole base on the bit or auger head diameter plus 10% and determine the volume of grout to be emplaced. Generally, the total mixed volume is the borehole volume plus 20%.

3. Identify the equipment to be used for the preparation and mixing of the grout. Ensure the volume of the tanks to be used for mixing has been measured adequately. Document these volumes on the Well Abandonment/Decommissioning Log (sample attached).

4. Identify the source of the water to be used for the grout and determine its suitability for use. In particular, water with high sulfate, or chloride levels or heated water should not be used. These types of waters can cause operational difficulties or modify the set-up for the grout.

5. Identify the equipment to be used for emplacing the grout. Ensure that the pump to be used has adequate pressure to enable complete return to surface.

6. Identify the volumes to be pumped at each stage or in total if only one stage is to be used.

7. Prepare the borehole abandonment plan and discuss the plan and activities with the drilling contractor prior to beginning any mixing activities.

8. Begin mixing the grout to be emplaced.

9. Record the type and amount of materials used during the mixing operation. Ensure the ratios are within specifications tolerance.

10. Begin pumping the grout through the return line bypass system to confirm all pump and surface fittings are secure.

11. Initiate downhole pumping from the bottom of the borehole. Record the times and volumes emplaced on the Well Abandonment/Decommissioning Log (sample attached).

12. Document the return circulation of grout. This may be facilitated by using a colored dye or other tagging method if a mudded borehole condition exists prior to grout injection.

13. Identify what procedures will be used for grouting in the upper 3 feet. When casing exists in the borehole, decisions are required as to the timing for removal and final disposition of the casing. Generally, it will not be removed prior to grouting because of the potential for difficult access and loss of circulation in the upper soil or rock layers. Accordingly, when cement return is achieved at surface, the casing is commonly removed and the borehole is topped off with grout or soils. If casing removal is not possible or not desired, the casing left in place should be cut off at a depth of 5 feet or greater below ground surface. If casing is not present during grouting, the grout level in the borehole is topped off after the rods or tremie pipe is removed.

14. Clear and clean the surface near the borehole.

15. The uppermost five feet of the borehole at the land surface should be filled with material physically similar to the natural soils. The surface of the borehole should be restored to the condition of the area surrounding the borehole. For example, concrete or asphalt will be patched with concrete or asphalt of the same type and thickness, grassed areas will be seeded, and topsoil will be used in other areas. All solid waste materials generated during the decommissioning process must be disposed of properly.

16. A follow-up check at each site should be made within one week to 10 days of completion. It should be noted that on occasion, the grout and/or surface material may settle over several days. If settling occurs, additional material physically similar to surrounding materials (i.e., asphalt, concrete, or soil) must be used to match the existing grade.

17. Document borehole and/or well/piezometer decommissioning activities on a Well Abandonment/Decommissioning Log (sample attached).

ATTACHMENTS

Well Abandonment/Decommissioning Log (sample)

REFERENCES

ASTM D 5299: *Guide for Decommissioning of Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities*.

NYSDEC, July 1988, *Drilling and Monitoring Well Installation Guidance Manual.*

NYSDEC, November 2009, *CP-43: Groundwater Monitoring Well Decommissioning Policy.*

Driscoll, F.G., 1987, *Groundwater and Wells*, Johnson Division, St. Paul, Minnesota, 1089 p.

ROUX

WELL ABANDONMENT/ DECOMMISSIONING LOG

PROJECT INFORMATION	WELL INFORMATION
Project Name:	WELL I.D.:
Client:	Stick-up (fags):
Project Job Number:	Total Depth (fbgs):
Date:	Screen Interval (fbgs):
Weather:	Well Material:
	Diameter (inches):
Roux Personnel:	
Drilling Company:	Drilling Company Personnel:
Drill Rig Type:	

DECOMMISSIONING PROCEDURES

Time	Description of Field Activities

PREPARED BY: DATE:

SAMPLE

FIELD OPERATING PROCEDURES

Abandonment of Monitoring Wells Procedure

FOP 002.0

ABANDONMENT OF MONITORING WELLS PROCEDURE

PURPOSE

This guideline presents a method for the abandonment and decommissioning of wells that are no longer reliable as competent monitors of formation groundwater. Well abandonment and decommissioning is required in order to remove a potential pathway for the vertical migration of impacted groundwater and/or surface water.

PROCEDURE

1. Examine the existing well to be abandoned/decommissioned and review well construction detail information (if applicable) to determine well depth,, screened interval, diameter, material of composition and other construction details. Establish appropriate equipment requirements for removal of the well.

2. Determine the most suitable seal materials as discussed in the next section.

3. Attempt to remove the well using a drilling rig, by using the following procedures:
    - Attaching the winch line to the well to see if it can be removed by pulling;
    - Using the rig's hydraulics to advance casing incrementally;
    - If a cable tool rig is available, bump back the casing using the cathead and drive block.

3. Upon removal of the well, ream the borehole by advancing the augers approximately one foot beyond the total depth of the well. Rotate the augers at a speed sufficient to remove the construction materials (i.e., filter pack, bentonite seal, etc.) from the borehole annulus (if possible). Backfill the resulting borehole with cement/bentonite grout, by tremie method, to approximately one foot below ground surface. Fill the remaining borehole to match the existing grade elevation and material of construction (i.e., clean native soil, concrete or asphalt, as necessary). Go to Step 10.

4. If the well cannot be removed from the borehole over-drill the borehole and well to approximately two (2) feet below the well depth. Upon reaching the desired depth, remove the well from within the augers and go back to Step 3.

5. If the borehole cannot be reamed out using conventional drilling techniques (i.e., over-drilled), remove or puncture the base plate of the well screen using the drill rig and associated equipment by pounding with the drill rods. Upon filling the well with grout by tremie method, slowly pull the well from the ground surface to allow the grout to evacuate through the bottom of the well to fill the void space created by removal of the well casing. Continue adding grout mix to the well casing, as necessary, to fill the void space to approximately one foot below ground surface. Fill the remaining borehole to match the existing grade elevation and material of construction (i.e., clean native soil, concrete or asphalt, as necessary). Go to Step 10.

   If the driller is unsuccessful at removing or puncturing the base plate of the well due, in part, to well construction materials (i.e., stainless steel or black iron), go to Step 6.

6. Insert a tremie pipe down the well to the bottom and pump a cement/bentonite grout mixture to a depth one to two feet above the top of the screen.

7. Perform a hydraulic pressure test on the portion of the well casing above the grouted screen section. Allow the grout to set up for a period not less than 72 hours before pressure testing of the grouted interval. Place a pneumatic packer a maximum of 4.5 feet above the top of the slotted screen section of the well. The infiltration pressure applied to the packer shall not exceed the pressure rating of the well casing material. If the interval between the top of the grout and the bottom of the packer is not saturated, potable water will be used to fill the interval. A gauge pressure of 5 psig at the well head shall be applied to the interval for a period of 5 minutes to allow for temperature stabilization. After 5 minutes, the pressure will be maintained at 5 psig for 30 minutes. The grout seal shall be considered acceptable if the total loss of water to the seal does not exceed 0.5 gallons over a 30-minute period.

8. If the grout seal is determined to be unacceptable, tremie grout an additional 5 feet of well riser above the failing interval and retest as specified above (see Step 7).

9. If the grout seal is determined to be acceptable, tremie grout the remainder of the well until grout displaces all formation water and a grout return is visible in the well at the surface. Cut off well casing at a depth of five feet or greater below ground surface and backfill the remaining borehole to match the existing grade elevation and material of construction (i.e., clean native soil, concrete or asphalt, as necessary).

10. Record all well construction details and abandonment procedures on the **Well Abandonment/Decommissioning Log** (sample attached).

CEMENT/BENTONITE GROUT MIXTURE

The cement/bentonite grout mixture identified below is generally considered the most suitable seal material for monitoring well advancement and abandonment. Grout specifications generally have mixture ratios as follows:

Grout Slurry Composition (% Weight)

1.5 to 3.0%	-	Bentonite (Quick Gel)
40 to 60%	-	Cement (Portland Type I)
40 to 60%	-	Potable Water

MISCELLANEOUS

All removed well materials (PVC, stainless steel, steel pipe) should be decontaminated (if necessary) as per the project specific **Drilling and Excavation Equipment Decontamination FOP** and removed from the site. The project manager will determine the destination of final disposal for all well materials. All drill cuttings (depending on site protocol) should be placed in DOT-approved 55-gallon drums, labeled and sampled in

accordance with Roux's field operating procedure **Management of Investigation-Derived Waste** in order to determine proper removal and disposal procedures. The drilling subcontractor will provide any potable water utilized during this field activity from a known and reliable source (see Notes section).

ATTACHMENTS

Well Abandonment/Decommissioning Log (sample)

REFERENCES

New York State Department of Environmental Conservation, July 1988, *Drilling and Monitoring Well Installation Guidance Manual.*

Driscoll, F.G., 1987, *Groundwater and Wells*, Johnson Division, St. Paul, Minnesota, p. 1089.

Roux FOPs:
018 Drilling/Excavation Equipment Decontamination Protocols
032 Management of Investigation-Derived Waste

NOTES

Tap water may be used from any municipal water treatment system. The use of an untreated potable water supply is not an acceptable substitute.

ROUX

WELL ABANDONMENT / DECOMMISSIONING LOG

PROJECT INFORMATION	WELL INFORMATION
Project Name:	WELL I.D.:
Client:	Stick-up (fags):
Project Job Number:	Total Depth (fbgs):
Date:	Screen Interval (fbgs):
Weather:	Well Material:
	Diameter (inches):
Roux Personnel:	
Drilling Company:	Drilling Company Personnel:
Drill Rig Type:	

DECOMMISSIONING PROCEDURES

Time	Description of Field Activities

SAMPLE

FIELD OPERATING PROCEDURES

Soil Vapor Sample Collection Procedures

FOP 004.7

SOIL VAPOR SAMPLE COLLECTION PROCEDURE

BACKGROUND

In October 2006, the New York State Department of Health (NYSDOH) finalized their vapor intrusion guidance document entitled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York." (www.health.state.ny.us/nysdoh/gas/svi_guidance/), which has been guiding NYSDOH and New York State Department of Environmental Conservation (NYSDEC) decisions concerning the need for subslab vapor mitigation at sites undergoing investigation, cleanup and monitoring under formal NY Sate remedial programs (e.g., Brownfield Cleanup Program sites, Inactive Hazardous Waste Site Remediation Program sites, etc.). Per the most recent update, February 2024, guidance presents six (6) soil vapor/indoor air matrices to assist in interpreting the comparison of subslab and ambient air data. As of February 2024, 20 compounds have been assigned to these six (6) current matrices (i.e., "Matrix A", "Matrix B", "Matrix C", "Matrix D", "Matrix E", and "Matrix F") as follows:

Soil Vapor / Indoor Air Matrix	Volatile Chemical
Matrix A	Carbon tetrachloride
	1,1-Dichloroethene
	cis-1,2-Dichloroethene
	Trichloroethene
Matrix B	Methylene Chloride
	Tetrachlorethene
	1,1,1-Trichloroethane
Matrix C	Vinyl chloride
Matrix D	Benzene
	Ethylbenzene
	Naphthalene

	Cyclohexane
	Isooctane (2,2,4-Trimethylpentane)
	1,2,4-Trimethylbenzene
	1,3,5-Trimethylbenzene
	o-Xylene
Matrix E	m,p-Xylene
	Heptane
	Hexane
Matrix F	Toluene

The matrices are attached as Figures 1 through 6.

PURPOSE

The procedures presented herein delineate the scope of additional investigation at a building on the project site to determine if volatile organic compounds (VOCs) detected in groundwater and/or soil near the building are intruding into the building airspace or have the potential, in sufficient concentrations, to adversely impact indoor air quality. The soil vapor, subslab vapor, and ambient air monitoring procedures follow the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006) as well as USEPA Methods TO-14 and TO-15, for volatile organic compounds (VOCs) using Summa passive canisters.

SURVEYS AND PRE-SAMPLING BUILDING PREPARATION (IF REQUIRED)

If required, a pre-sampling inspection should be performed prior to each sampling event to identify and minimize conditions that may interfere with the proposed testing. The

inspection should evaluate the type of structure, floor layout, airflows, and physical conditions of the building(s) being studied. This information, along with information on sources of potential indoor air contamination, should be identified on a building inventory form. An example of the building inventory form is attached. Items to be included in the building inventory include the following:

- Construction characteristics, including foundation cracks and utility penetrations or other openings that may serve as preferential pathways for vapor intrusion;
- Presence of an attached garage;
- Recent renovations or maintenance to the building (e.g., fresh paint, new carpet or furniture);
- Mechanical equipment that can affect pressure gradients (e.g., heating systems, clothes dryers or exhaust fans);
- Use or storage of petroleum products (e.g., fuel containers, gasoline operated equipment and unvented kerosene heaters); and
- Recent use of petroleum-based finishes or products containing volatile chemicals.

Each room on the floor of the building being tested and on lower floors, if possible, should be inspected. This is important because even products stored in another area of a building can affect the air of the room being tested.

The presence and description of odors (e.g., solvent, moldy) and portable vapor monitoring equipment readings (e.g., PIDs, ppb RAE, Jerome Mercury Vapor Analyzer, etc.) should be noted and used to help evaluate potential sources. This includes taking readings near products stored or used in the building.

Potential interference from products or activities releasing volatile chemicals may need to be controlled. Removing the source from the indoor environment prior to testing is the most effective means of reducing interference. Ensuring that containers are tightly sealed may be acceptable. When testing for volatile organic compounds, containers should be tested with portable vapor monitoring equipment to determine whether compounds are leaking. The inability to eliminate potential interference may be justification for not testing, especially when testing for similar compounds at low levels. The investigator should consider the possibility that chemicals may adsorb onto porous materials and may take time to dissipate.

In some cases, the goal of the testing is to evaluate the impact from products used or stored in the building (e.g., pesticide misapplications, school renovation projects). If the goal of the testing is to determine whether products are an indoor volatile chemical contaminant source, the removing these sources does not apply.

Once interfering conditions are corrected (if applicable), ventilation may be needed prior to sampling to eliminate residual contamination in the indoor air. If ventilation is appropriate, it should be completed 24 hours or more prior to the scheduled sampling time. Where applicable, ventilation can be accomplished by operating the building's HVAC system to maximize outside air intake. Opening windows and doors, and operating exhaust fans may also help or may be needed if the building has no HVAC system.

Air samples are sometimes designed to represent typical exposure in a mechanically ventilated building and the operation of HVAC systems during sampling should be noted on the building inventory form (see attached sample). In general, the building's HVAC system should be operating under normal conditions. Unnecessary building ventilation should be avoided within 24 hours prior to and during sampling. During colder months, heating systems should be operating to maintain normal indoor air temperatures (i.e., 65 – 75 °F) for at least 24 hours prior to and during the scheduled sampling time.

Depending upon the goal of the indoor air sampling, some situations may warrant deviation from the above protocol regarding building ventilation. In such cases, building conditions and sampling efforts should be understood and noted within the framework and scope of the investigation.

To avoid potential interferences and dilution effects, every effort should be made to avoid the following for 24 hours prior to sampling:

- Opening any windows, fireplace dampers, openings or vents;
- Operating ventilation fans unless special arrangements are made;
- Smoking in the building;
- Painting;
- Using a wood stove, fireplace or other auxiliary heating equipment (e.g., kerosene heater);
- Operating or storing automobile in an attached garage;
- Allowing containers of gasoline or oil to remain within the house or garage area, except for fuel oil tanks;
- Cleaning, waxing or polishing furniture, floors or other woodwork with petroleum- or oil-based products;
- Using air fresheners, scented candles or odor eliminators;
- Engaging in any hobbies that use materials containing volatile chemicals;
- Using cosmetics including hairspray, nail polish, nail polish removers, perfume/cologne, etc.;
- Lawn mowing, paving with asphalt, or snow blowing;
- Applying pesticides; and
- Using building repair or maintenance products, such as caulk or roofing tar.

PRODUCT INVENTORY (IF REQUIRED)

If required, the primary objective of the product inventory is to identify potential air sampling interference by characterizing the occurrence and use of chemicals and products throughout the building, keeping in mind the goal of the investigation and site-specific

contaminants of concern. For example, it is not necessary to provide detailed information for each individual container of like items. However, it is necessary to indicate that "20 bottles of perfume" or "12 cans of latex paint" were present with containers in good condition. This information is used to help formulate an indoor environment profile.

An inventory should be provided for each room on the floor of the building being tested and on lower floors, if possible. This is important because even products stored in another area of a building can affect the air of the room being tested.

The presence and description of odors (e.g., solvent, moldy) and portable vapor monitoring equipment readings (e.g., PIDs, ppb RAE, Jerome Mercury Vapor Analyzer, etc.) should be noted and used to help evaluate potential sources. This includes taking readings near products stored or used in the building. Products in buildings should be inventoried every time air is tested to provide an accurate assessment of the potential contribution of volatile chemicals. If available, chemical ingredients of interest (e.g., analyte list) should be recorded for each product. If the ingredients are not listed on the label, record the product's exact and full name, and the manufacturer's name, address and telephone number, if available. In some cases, Material Safety Data Sheets (MSDS) may be useful for identifying confounding sources of volatile chemicals in air. Adequately documented photographs of the products and their labeled ingredients can supplement the inventory and facilitate recording the information.

SAMPLE LOCATIONS

The following are types of samples that are collected to investigate the soil vapor intrusion pathway:

- Subsurface vapor samples:

- *Soil vapor* samples (i.e., soil vapor samples not beneath the foundation or slab of a building) and
- *Sub-slab vapor* samples (i.e., soil vapor samples immediately beneath the foundation or slab of a building);

- Indoor air samples; and
- Outdoor air samples.

The types of samples that should be collected depend upon the specific objective(s) of the sampling, as described below.

- <u>Soil vapor</u>
  Soil vapor samples are collected to determine whether this environmental medium is contaminated, characterize the nature and extent of contamination, and identify possible sources of the contamination. Soil vapor sampling results are used when evaluating the following:
  - The potential for *current* human exposures;
  - The potential for *future* human exposures (e.g., should a building be constructed); and
  - The effectiveness of measures implemented to remediate contaminated subsurface vapors.

- <u>Sub-slab vapor</u>
  Sub-slab vapor samples are collected to characterize the nature and extent of soil vapor contamination immediately beneath a building with a basement foundation and/or a slab-on-grade. Sub-slab vapor sampling results are used when evaluating the following:
  - *Current* human exposures;
  - The potential for *future* human exposures (e.g., if the structural integrity of the building changes or the use of the building changes); and
  - Site-specific attenuation factors (i.e., the ratio of indoor air to sub-slab vapor concentrations).

  Sub-slab vapor samples are collected after soil vapor characterization and/or other environmental sampling (e.g., soil and groundwater characterization) indicate a need. Subslab samples are typically collected concurrently with indoor and outdoor air samples. However, outside of the heating season, sub-slab vapor samples may be collected independently depending on the sampling objective

(e.g., characterize the extent of subsurface vapor contamination outside of the heating season to develop a more comprehensive, focused investigation plan for the heating season).

- Indoor air

  Indoor air samples are collected to characterize exposures to air within a building, including those with earthen floors and crawlspaces. Indoor air sampling results are used when evaluating the following:
  - *Current* human exposures;
  - The potential for *future* exposures (e.g., if a currently vacant building should become occupied); and
  - Site-specific attenuation factors (e.g., the ratio of indoor air to sub-slab vapor concentrations).

  Indoor air samples are collected after subsurface vapor characterization and other environmental sampling (e.g., soil and groundwater characterization) indicate a need. When indoor air samples are collected, concurrent sub-slab vapor and outdoor air samples are collected to evaluate the indoor air results appropriately. However, indoor air and outdoor air samples, without sub-slab vapor samples, may be collected when confirming the effectiveness of a mitigation system.

  In addition, site-specific situations may warrant collecting indoor air samples prior to characterizing subsurface vapors and/or without concurrent sub-slab sampling due to a need to examine immediate inhalation hazards. Examples of such situations may include, but are not limited to, the following:
  - In response to a spill event when there is a need to qualitatively and/or quantitatively characterize the contamination;
  - If high readings are obtained in a building when screening with field equipment (e.g., a photoionization detector (PID), an organic vapor analyzer, or an explosimeter) and the source is unknown;
  - If significant odors are present and the source needs to be characterized; or
  - If groundwater beneath the building is contaminated, the building is prone to groundwater intrusion or flooding (e.g., sump pit overflows), and subsurface vapor sampling is not feasible.

- Outdoor air

  Outdoor air samples are collected to characterize site-specific background outdoor air conditions. These samples must be collected simultaneously with indoor air samples. They may also be collected concurrently with soil vapor samples. Outdoor air sampling results are primarily used when evaluating the extent to which outdoor sources may be influencing indoor air quality. They may also be used in the evaluation of soil vapor results (i.e., to identify potential outdoor air interferences associated with the infiltration of outdoor air into the sampling apparatus while the soil vapor sample was collected).

SOIL VAPOR SAMPLE COLLECTION PROCEDURES

Soil vapor probe installations (see Figure 4 attached) may be permanent, semi-permanent, or temporary. In general, permanent installations are preferred for data consistency reasons. Soil implants or probes should be constructed in the same manner at all sampling locations to minimize possible discrepancies. The following procedures should be included in any construction protocol:

- Soil vapor probes should be installed using direct push technology or, if necessary to attain the desired depth, using an auger;

- Porous backfill material (e.g., glass beads or coarse sand) should be used to create a sampling zone 1 to 2 feet in length;

- Soil vapor probes should be fitted with inert tubing (e.g., polyethylene, stainless steel, or Teflon®) of the appropriate size (typically 1/8 inch to 1/4 inch diameter) and of laboratory or food grade quality to the surface;

- Soil vapor probes should be sealed above the sampling zone with a bentonite slurry for a minimum distance of 3 feet to prevent outdoor air infiltration and the remainder of the borehole backfilled with clean material;

- For multiple probe depths, the borehole should be grouted with bentonite between probes to create discrete sampling zones; and

- For permanent installations, a protective casing should be set around the top of the probe tubing and grouted in place to the top of bentonite to minimize infiltration of water or outdoor air, as well as to prevent accidental damage.

Soil vapor samples should be collected in the same manner at all locations to minimize possible discrepancies. The following procedures should be included in any sampling protocol:

- At least 24 hours after the installation of permanent probes and shortly after the installation of temporary probes, one to three implant volumes (i.e., the volume of the sample probe and tube) must be purged prior to collecting the samples to ensure samples collected are representative;

- Flow rates for both purging and collecting must not exceed 0.2 liters per minute to minimize outdoor air infiltration during sampling;

- The target final field vacuum after 24 hours will be approximately -5 inches of mercury. Samples with a final field vacuum of greater than -10 inches of mercury, or equal to zero, will be flagged (usability of data will depend on sample volume and reporting limits that can be achieved).

- Samples must be collected, using conventional sampling methods, in an appropriate container — one which meets the objectives of the sampling (e.g., investigation of areas where low or high concentrations of volatile chemicals are expected; to minimize losses of volatile chemicals that are susceptible to photodegradation), meets the requirements of the sampling and analytical methods (e.g., low flow rate; Summa® canisters if analyzing by using EPA Method TO-15), and is certified clean by the laboratory;

- Sample size depends upon the volume of sample required to achieve minimum reporting limit requirements; and

- A tracer gas (e.g., helium, butane, or sulfur hexafluoride) must be used when collecting soil vapor samples to verify that adequate sampling techniques are being implemented (i.e., to verify infiltration of outdoor air is not occurring) (discussed later in this procedure). Once verified, continued use of the tracer gas may be reconsidered.

When soil vapor samples are collected, the following actions should be taken to document local conditions during sampling that may influence interpretation of the results:

- If sampling near a commercial or industrial building, uses of volatile chemicals during normal operations of the facility should be identified;

- Outdoor plot sketches should be drawn that include the site, area streets, neighboring commercial or industrial facilities (with estimated distance to the site), outdoor ambient air sample locations (if applicable), and compass orientation (north);

- Weather conditions (e.g., precipitation, outdoor temperature, barometric pressure, wind speed and direction) should be noted for the past 24 to 48 hours; and

- Any pertinent observations should be recorded, such as odors and readings from field instrumentation.

The field sampling team must maintain a sample log sheet summarizing the following:

- Sample identification,
- Date and time of sample collection,
- Sampling depth,
- Identity of samplers,
- Sampling methods and devices,
- Purge volumes,
- Volume of soil vapor extracted,
- If canisters used, the vacuum before and after samples collected,
- Apparent moisture content (dry, moist, saturated, etc.) of the sampling zone, and
- Chain of custody protocols and records used to track samples from sampling point to analysis.

SUB-SLAB VAPOR SAMPLE COLLECTION PROCEDURES

During colder months, heating systems should be operating to maintain normal indoor air temperatures (i.e., 65 – 75 °F) for at least 24 hours prior to and during the scheduled sampling time. Prior to installation of the sub-slab vapor probe, the building floor should be inspected and any penetrations (cracks, floor drains, utility perforations, sumps, etc.) should be noted and recorded. Probes should be installed at locations where the potential for ambient air infiltration via floor penetrations is minimal.

Sub-slab vapor probe installations (see Figure 5 attached) may be permanent, semi-permanent, or temporary. Sub-slab implants or probes should be constructed in the same manner at all sampling locations to minimize possible discrepancies. The following procedures should be included in any construction protocol:

- Permanent recessed probes must be constructed with brass or stainless steel tubing and fittings;
- Temporary probes must be constructed with polyethylene or Teflon® tubing of laboratory or food grade quality;
- Tubing should not extend further than 2 inches into the sub-slab material;
- Coarse sand or glass beads should be added to cover about 1 inch of the probe tip for permanent installations; and
- The soil vapor probe should be sealed to the surface with permagum grout, melted beeswax, putty or other non-VOC-containing and non-shrinking products for temporary installations or cement for permanent installations.

Sub-slab vapor samples should be collected in the following manner:

- After installation of the probes, one to three volumes (i.e., the volume of the sample probe and tube) must be purged prior to collecting the samples to ensure samples collected are representative;
- Flow rates for both purging and collecting must not exceed 0.2 liters per minute to minimize outdoor air infiltration during sampling;
- The target final field vacuum after 24 hours will be approximately -5 inches of mercury. Samples with a final field vacuum of greater than -10 inches of mercury,

or equal to zero, will be flagged (usability of data will depend on sample volume and reporting limits that can be achieved).

- Samples must be collected, using conventional sampling methods, in an appropriate container — one which meets the objectives of the sampling (e.g., investigation of areas where low or high concentrations of volatile chemicals are expected; to minimize losses of volatile chemicals that are susceptible to photodegradation), meets the requirements of the sampling and analytical methods (e.g., low flow rate; Summa® canisters if analyzing by using EPA Method TO-15), and is certified clean by the laboratory;
- Sample size depends upon the volume of sample required to achieve minimum reporting limit requirements [Section 2.9 of the Guidance], the flow rate, and the sampling duration; and
- Ideally, samples should be collected over the same period of time as concurrent indoor and outdoor air samples.

When sub-slab vapor samples are collected, the following actions should be taken to document conditions during sampling and ultimately to aid in the interpretation of the sampling results:

- If sampling within a commercial or industrial building, uses of volatile chemicals in commercial or industrial processes and/or during building maintenance, should be identified;
- The use of heating or air conditioning systems during sampling should be noted;
- Floor plan sketches should be drawn that include the floor layout with sample locations, chemical storage areas, garages, doorways, stairways, location of basement sumps or subsurface drains and utility perforations through building foundations, HVAC system air supply and return registers, compass orientation (north), and any other pertinent information should be completed;
- If possible, photographs should accompany floor plan sketches;
- Outdoor plot sketches should be drawn that include the building site, area streets, outdoor air sample locations (if applicable), compass orientation (north), footings that create separate foundation sections, and paved areas;
- Weather conditions (e.g., precipitation, indoor and outdoor temperature, and barometric pressure) and ventilation conditions (e.g., heating system active and windows closed) should be reported;

- Smoke tubes or other devices should be used to confirm pressure relationships and air flow patterns, especially between floor levels and between suspected contaminant sources and other areas; and
- Any pertinent observations, such as spills, floor stains, smoke tube results, odors and readings from field instrumentation (e.g., vapors via PID, ppb RAE, Jerome Mercury Vapor Analyzer, etc.), should be recorded.

The field sampling team must maintain a sample log sheet summarizing the following:

- Sample identification,
- Date and time of sample collection,
- Sampling depth,
- Identity of samplers,
- Sampling methods and devices,
- Soil vapor purge volumes,
- Volume of soil vapor extracted,
- If canisters used, the vacuum before and after samples collected,
- Apparent moisture content (dry, moist, saturated, etc.) of the sampling zone, and
- Chain of custody protocols and records used to track samples from sampling point to analysis.

The following describes the subslab air sampling procedure:

1. Canisters will be supplied by the laboratory that will be conducting the analysis.

2. Sampling will take place in accordance with the project work plan sufficiently spaced to allow locations to be modified, if necessary.

3. The number of Summa canisters required as well as the flow rate of the constant differential low volume flow controllers will be supplied by the laboratory in accordance with the project work plan.

4. The sampling program will consist of concurrently collecting and analyzing one sub-slab vapor sample and one indoor ambient air sample (discussed in

the next section). Sample locations should be selected based on the likelihood for potential continuous human occupancy during the workday (i.e., due to the size of the areas and available infrastructure), and to account for the possibility of varying foundation depths in different areas of the building. In addition, sample locations typically are based upon the results of a subsurface investigation (i.e., soil gas survey or boring advancement) conducted prior to air sample collection activities. Canisters are typically placed in areas where the highest concentrations of soil gas were observed. Indoor air sample locations preferably should be selected near the middle of the sampled room, well away from the edges where dilution is more likely to occur.

5. Collect at least one outdoor ambient air sample from a location on the building roof or designated background area of the site positioned away from building ventilation system equipment on the highest portion of the building roof or site. See the Outdoor Ambient Air Sampling Procedure section in this procedure.

6. Field personnel should assure conservative sampling conditions prior to and throughout the sampling event. The building should be closed (windows and doors shut) and existing building ventilation systems should be turned off 12 to 24 hours before the air sampling is scheduled to begin as well as during sample collection. Any air-handling units that may induce large pressure gradients (i.e., exhaust fans, HVAC units etc.) should also be turned off.

7. Any activity being conducted by current building tenants involving volatile organic compounds, such as the use of lacquer thinner and cleaning solvents, prior to and/or during air sampling activities should be noted in the Project Field Book. These activities have the potential to bias the analytical results.

8. At each location, drill an approximately ¾-inch diameter hole through the concrete slab (typically 6-8 inches thick) using a hand-held hammer drill.

9. Measure and record the concrete thickness in the Project Field Book.

10. Insert polyethylene or Teflon® tubing of laboratory or food grade quality into the drilled hole and <u>no further than 2 inches</u> into the subslab material.

11. Seal the tubing with an appropriately sized volatile organic compound-free stopper (i.e., permagum grout, melted beeswax, putty, or other non-VOC-containing and non-shrinking product) into the concrete core hole and secure in-place making sure the fit is very snug. Supplement any visible gaps between the stopper and concrete slab with a VOC-free sealant, such as beeswax or bentonite slurry.

12. Run the tubing assembly through a shroud (plastic pail, cardboard box, or garbage bag) creating a tight seal with the surface making sure not to disturb the seal around the tubing penetration.

13. Enrich the atmosphere of the shroud with helium. Measure and record the helium concentration within the shroud.

14. Purge approximately 1 to 3 tubing volumes (i.e., the volume of the sample probe and tube) using a hand pump (or similar approved device) to ensure the collection of a representative sample.

15. Flow rates for both purging and sample collection must not exceed 0.2 liters per minute to minimize outdoor air infiltration during sampling.

16. Use a portable monitoring device to analyze a sample of soil vapor for the tracer **prior to and after** sampling for the compounds of concern. Note that the tracer gas samples can be collected via syringe, Tedlar bag etc. They need not be collected in Summa® canisters or minicans.

17. If concentrations greater than 10% of tracer gas are observed either prior to and/or after sampling, the probe seal should be enhanced to reduce the infiltration of outdoor air. Following enhancement of the seal, repeat steps 14 through 17 above until purged concentrations are less than 10% of the tracer gas within the shroud.

18. Following tubing purge and adequate seal integrity testing via helium tracer gas, immediately attach a 6-liter Summa Canister fitted with a 24-hour regulator (or approved other duration) to the opposite end of the tubing.

Concurrent with each subslab sample location, prepare an indoor ambient air sample by staging a second Summa Canister on a ladder (approximately 2 to 5-feet above the floor) adjacent to the sub-slab sample location.

19. All Summa Canister valves should remain closed until all subslab borings are complete and all of the canisters in their respective positions.

20. Open the valves to all of the canisters for the required collection period (i.e., 24-hours). Record initial canister pressure on the Air Canister Field Record form.

21. Following sample collection and prior to closing canister valve, record final canister pressure on the Air Canister Field Record form. Close canister valve.

22. Collect all Summa Canisters and ship, under chain-of-custody command to an approved analytical laboratory for VOC analysis in accordance with USEPA Method TO-14 or TO-15.

23. Repair all concrete openings with a cement patch.

24. Analytical results submitted by the laboratory should be reported as concentrations of each VOC at each location, typically in parts per billion by volume (ppbv).

INDOOR AIR SAMPLE COLLECTION PROCEDURES

During colder months, heating systems should be operating to maintain normal indoor air temperatures (i.e., 65 – 75 °F) for at least 24 hours prior to and during the scheduled sampling time. If possible, prior to collecting indoor samples, a pre-sampling inspection, discussed earlier in this procedure, should be performed to evaluate the physical layout and conditions of the building being investigated, to identify conditions that may affect or interfere with the proposed sampling, and to prepare the building for sampling.

In general, indoor air samples should be collected in the following manner:

- Sampling duration should reflect the exposure scenario being evaluated without compromising the detection limit or sample collection flow rate (e.g., an 8 hour sample from a workplace with a single shift versus a 24 hour sample from a workplace with multiple shifts). To ensure that air is representative of the locations sampled and to avoid undue influence from sampling personnel, samples should be collected for at least 1 hour. If the goal of the sampling is to represent average concentrations over longer periods, then longer duration sampling periods may be appropriate. Typically, 24 hour samples are collected from residential settings;

- Personnel should avoid lingering in the immediate area of the sampling device while samples are being collected;

- Sample flow rates must conform to the specifications in the sample collection method and, if possible, should be consistent with the flow rates for concurrent outdoor air and sub-slab samples;

- The target final field vacuum after 24 hours will be approximately -5 inches of mercury. Samples with a final field vacuum of greater than -10 inches of mercury, or equal to zero, will be flagged (usability of data will depend on sample volume and reporting limits that can be achieved); and

- Samples must be collected, using conventional sampling methods, in an appropriate container — one which meets the objectives of the sampling (e.g., investigation of areas where low or high concentrations of volatile chemicals are expected; to minimize losses of volatile chemicals that are susceptible to photodegradation), meets the requirements of the sampling and analytical methods (e.g., low flow rate; Summa® canisters if analyzing by using EPA Method TO-15), and is certified clean by the laboratory.

At sites with tetrachloroethene contamination, passive air monitors that are specifically analyzed for tetrachloroethene (i.e., "perc badges") are commonly used to collect indoor and outdoor air samples. If site characterization activities indicate that degradation products of

tetrachloroethene also represent a vapor intrusion concern, perc badges may be used to indicate the likelihood of vapor intrusion (i.e., by using tetrachloroethene as a surrogate) followed, as needed, by more comprehensive sampling and laboratory analyses to quantify both tetrachloroethene and its degradation products. Perc badge samples ideally should be collected over a twenty-four hour period, but for no less than eight hours.

The following actions should be taken to document conditions during indoor air sampling and ultimately to aid in the interpretation of the sampling results:

- A product inventory survey must be completed (discussed earlier);
- The use of heating or air conditioning systems during sampling should be noted;
- Floor plan sketches should be drawn that include the floor layout with sample locations, chemical storage areas, garages, doorways, stairways, location of basement sumps or subsurface drains and utility perforations through building foundations, HVAC system supply and return registers, compass orientation (north), and any other pertinent information should be completed;
- If possible, photographs should accompany floor plan sketches;
- Outdoor plot sketches should be drawn that include the building site, area streets, outdoor air sample locations (if applicable), compass orientation (north), footings that create separate foundation sections, and paved areas;
- Weather conditions (e.g., precipitation, indoor and outdoor temperature, and barometric pressure) and ventilation conditions (e.g., heating system active and windows closed) should be reported;
- Smoke tubes or other devices should be used to confirm pressure relationships and air flow patterns, especially between floor levels and between suspected contaminant sources and other areas; and

- Any pertinent observations, such as spills, floor stains, smoke tube results, odors and readings from field instrumentation (e.g., vapors via PID, ppb RAE, Jerome Mercury Vapor Analyzer, etc.), should be recorded.

The field sampling team must maintain a sample log sheet summarizing the following:

- Sample identification,
- Date and time of sample collection,
- Sampling height,
- Identity of samplers,
- Sampling methods and devices,
- Depending upon the method, volume of air sampled,
- If canisters used, the vacuum before and after samples collected,
- Chain of custody protocols and records used to track samples from sampling point to analysis.

The following describes the indoor air sampling procedure:

1. Canisters will be supplied by the laboratory that will be conducting the analysis.

2. Sampling will take place in accordance with the project work plan sufficiently spaced to allow locations to be modified, if necessary.

3. The number of Summa canisters required as well as the flow rate of the constant differential low volume flow controllers will be supplied by the laboratory in accordance with the project work plan. Indoor air sampling typically requires the continuous collection of samples over a 24-hour period.

4. The sampling program will consist of concurrently collecting and analyzing one sub-slab vapor sample and one indoor ambient air sample. Sample locations should be selected based on the likelihood for potential continuous human occupancy during the workday (i.e., due to the size of the areas and available infrastructure), and to account for the possibility of varying foundation depths in different areas of the building. In addition, sample locations typically are based upon the results of a subsurface investigation (i.e.,

soil gas survey or boring advancement) conducted prior to air sample collection activities. Canisters are typically placed in areas where the highest concentrations of soil gas were observed. Indoor air sample locations preferably should be selected near the middle of the sampled room, well away from the edges where dilution is more likely to occur.

5. Collect at least one outdoor ambient air sample from a location on the building roof or designated background area of the site positioned away from building ventilation system equipment on the highest portion of the building roof or site. See the Outdoor Ambient Air Sampling Procedure presented in this procedure.

6. Field personnel should assure conservative sampling conditions prior to and throughout the sampling event. The building should be closed (windows and doors shut) and existing building ventilation systems should be turned off 12 to 24 hours before the air sampling is scheduled to begin as well as during sample collection. Any air-handling units that may induce large pressure gradients (i.e., exhaust fans, HVAC units etc.) should also be turned off.

7. Any activity being conducted by current building tenants involving volatile organic compounds, such as the use of lacquer thinner and cleaning solvents, prior to and/or during air sampling activities should be noted in the Project Field Book. These activities have the potential to bias the analytical results.

8. Concurrent with each subslab sample location, prepare an indoor ambient air sample by staging a second Summa Canister on a ladder (approximately 2 to 5-feet above the floor) adjacent to the sub-slab sample location.

9. All Summa Canister valves should remain closed until all subslab borings are complete and all of the canisters in their respective positions.

10. Open the valves to all of the canisters for the required collection period (i.e., 24-hours). Record initial canister pressure on the Air Canister Field Record form.

11. Following sample collection and prior to closing canister valve, record final canister pressure on the Air Canister Field Record form. Close canister valve.

12. Collect all Summa Canisters and ship, under chain-of-custody command to an approved analytical laboratory for VOC analysis in accordance with USEPA Method TO-14 or TO-15.

13. Analytical results submitted by the laboratory should be reported as concentrations of each VOC at each location, typically in parts per billion by volume (ppbv).

OUTDOOR AIR SAMPLE COLLECTION PROCEDURES

Outdoor air samples must be collected simultaneously with indoor air samples and may be collected concurrently with subsurface vapor samples. Outdoor air samples must be collected in the same manner as indoor samples.

The following actions should be taken to document conditions during outdoor air sampling and ultimately to aid in the interpretation of the sampling results:

- Outdoor plot sketches should be drawn that include the building site, area streets, outdoor air sample locations (if applicable), the location of potential interferences (e.g., gasoline stations, factories, lawn movers, etc.), compass orientation (north), footings that create separate foundation sections, and paved areas;

- Weather conditions (e.g., precipitation, indoor and outdoor temperature, and barometric pressure) and ventilation conditions (e.g., heating system active and windows closed) should be reported; and

- Any pertinent observations, such as odors, readings from field instrumentation, and significant activities in the vicinity (e.g., operation of heavy equipment or dry cleaners) should be recorded.

The following describes the outdoor air sampling procedure:

SOIL VAPOR SAMPLE COLLECTION PROCEDURE

1. Canisters will be supplied by the laboratory that will be conducting the analysis.

2. Sampling will take place in accordance with the project work plan sufficiently spaced to allow locations to be modified, if necessary.

3. The number of Summa canisters required as well as the flow rate of the constant differential low volume flow controllers will be supplied by the laboratory in accordance with the project work plan.

4. Sample locations typically are collected upwind of the facility.

5. Collect at least one outdoor ambient air sample from a location on the building roof or designated background area of the site positioned away from building ventilation system equipment on the highest portion of the building roof or site. Place canisters on the ground or step ladder, with a clear plastic sheet beneath to prevent contamination. Locate the sampling inlet approximately 18-inches above the ground surface.

6. Sample collection should take place on warm, dry days. If rain or high humidity conditions develop during sampling, the sampling event should be suspended. Temperature, barometric pressure, and wind speed should be monitored during the sampling event, for use in analysis of the results.

7. The combination of sampling location, height, and meteorological conditions will assure that sampling will measure VOCs at their highest concentrations.

8. All Summa Canister valves should remain closed until all subslab borings are complete and all of the indoor and outdoor canisters in their respective positions.

9. Open the valves to all of the canisters for the required collection period (i.e., 24-hours). Record initial canister pressure on the Air Canister Field Record form.

10. Following sample collection and prior to closing canister valve, record final canister pressure on the Air Canister Field Record form. Close canister valve.

11. Collect all Summa Canisters and ship, under chain-of-custody command to an approved analytical laboratory for VOC analysis in accordance with USEPA Method TO-14 or TO-15.

12. Air samples will be analyzed by Gas Chromatography/Mass Spectroscopy (GC/MS) in accordance with EPA Method TO-14 or TO-15.

13. Analytical results will be reported as concentrations of each VOC at each location during each sampling event, typically in parts per billion by volume (ppbv).

TRACER GAS

When collecting soil vapor samples as part of a vapor intrusion evaluation, a tracer gas serves as a quality assurance/quality control device to verify the integrity of the soil vapor probe seal. Without the use of a tracer, there is no way to verify that a soil vapor sample has not been diluted by surface air.

Depending on the nature of the contaminants of concern, a number of different compounds can be used as a tracer. Typically, sulfur hexafluoride (SF6) or helium are used as tracers because they are readily available, have low toxicity, and can be monitored with portable measurement devices. Butane and propane (or other gases) could also be used as a tracer in some situations. The protocol for using a tracer gas is straightforward: simply enrich the atmosphere in the immediate vicinity of the area where the probe intersects the ground surface with the tracer gas, and measure a vapor sample from the probe for the presence of high concentrations (> 10%) of the tracer. A cardboard box, a plastic pail, or even a garbage bag can serve to keep the tracer gas in contact with the probe during the testing.

There are two basic approaches to testing for the tracer gas:

- Include the tracer gas in the list of target analytes reported by the laboratory; or

- Use a portable monitoring device to analyze a sample of soil vapor for the tracer prior to and after sampling for the compounds of concern. (Note that the tracer gas samples can be collected via syringe, Tedlar bag etc. They need not be collected in Summa® canisters or minicans.)

The advantage of the second approach is that the real time tracer sampling results can be used to confirm the integrity of the probe seals prior to formal sample collection. Figure 6 (attached) depicts common methods for using tracer gas. In each of the examples, a, b and c, the tracer gas is released in the enclosure prior to initially purging the sample point. Care should be taken to avoid excessive purging prior to sample collection. Care should also be taken to prevent pressure build-up in the enclosure during introduction of the tracer gas. Inspection of the installed sample probe, specifically noting the integrity of the surface seal and the porosity of the soil in which the probe is installed, will help to determine the tracer gas setup. Figure 6(a) may be most effective at preventing tracer gas infiltration; however, it may not be required in some situations depending on site-specific conditions. Figures 6(b) and 6(c) may be sufficient for probes installed in tight soils with well-constructed surface seals. In all cases, the same tracer gas application should be used for all probes at any given site.

Because minor leakage around the probe seal should not materially affect the usability of the soil vapor sampling results, the mere presence of the tracer gas in the sample should not be a cause for alarm. Consequently, portable field monitoring devices with detection limits in the low ppm range are more than adequate for screening samples for the tracer. If high concentrations (> 10%) of tracer gas are observed in a sample, the probe seal should be enhanced to reduce the infiltration of ambient air.

During the initial stages of a soil vapor sampling program, tracer gas samples should be collected at each of the sampling probes. If the results of the initial samples indicate that the probe seals are adequate, the project manager can consider reducing the number of locations at which tracer gas samples are employed. At a minimum, at least 10% of the subsequent samples should be supported with tracer gas analyses. When using permanent soil vapor probes as part of a long-term monitoring program, annual testing of the probe integrity is recommended.

QUALITY ASSURANCE / QUALITY CONTROL (QA/QC)

Extreme care should be taken during all aspects of sample collection to ensure that sampling error is minimized and high quality data are obtained. The sampling team members should avoid actions (e.g., fueling vehicles, using permanent marking pens, and wearing freshly dry-cleaned clothing or personal fragrances), which can cause sample interference in the field. Appropriate QA/QC protocols must be followed for sample collection and laboratory analysis, such as use of certified clean sample devices, meeting sample holding times and temperatures, sample accession, chain of custody, etc. Samples should be delivered to the analytical laboratory as soon as possible after collection. In addition, laboratory accession procedures must be followed including field documentation (sample collection information and locations), chain of custody, field blanks, field sample duplicates, and laboratory duplicates, as appropriate.

Some methods require collecting samples in duplicate (e.g., indoor air sampling using passive sampling devices for tetrachloroethene) to assess errors. Duplicate and/or split samples should be collected in accordance with the requirements of the sampling and analytical methods being implemented.

For certain regulatory programs, a Data Usability Summary Report (DUSR) may be required to determine whether or not the data, as presented, meets the site or project specific criteria for data quality and data use. This requirement may dictate the level of QC and the category of data deliverable to request from the laboratory. Guidance on preparing a DUSR is available by contacting the NYSDEC's Division of Environmental Remediation.

New York State Public Health Law requires laboratories analyzing environmental samples collected from within New York State to have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. If ELAP certification is not currently required for an analyte (e.g., trichloroethene), the analysis should be performed by a laboratory that has ELAP certification for similar compounds in air and uses analytical methods with detection limits similar to background (e.g., tetrachloroethene via EPA Method TO-15).

The work plan must state that all samples that will be used to make decisions on appropriate actions to address exposures and environmental contamination will be analyzed by an ELAP-certified laboratory. If known, the name of the laboratory should also be provided. Similarly, the name of the laboratory that was used must be included in the report of the sampling results. For samples collected and tested in the field for screening purposes by using field testing technology, the qualifications of the field technician must be documented in the work plan.

The target final field vacuum of any sample canister after 24 hours will be approximately -5 inches of mercury. Samples with a final field vacuum of greater than -10 inches of mercury, or equal to zero, will be flagged (usability of data will depend on sample volume and reporting limits that can be achieved).

DECISION MATRICES (FIGURES 1 THROUGH 6)

The considerations in assigning a chemical to a matrix include the following:

- Human health risks, including such factors as a chemical's ability to cause cancer, reproductive, developmental, liver, kidney, nervous system, immune system or other effects, in animals and humans and the doses that may cause those effects;
- The data gaps in its toxicological database;
- Background concentrations of volatile chemicals in indoor air [Section 3.2.4]; and
- Analytical capabilities currently available.

To use the matrices accurately as a tool in the decision-making process, the following must be noted:

- The matrices are generic. As such, it may be necessary to modify recommended actions to accommodate building-specific conditions (e.g., dirt floor in basement, crawl spaces, etc.) and/or site-specific conditions (e.g., proximity of building to identified subsurface contamination) for the protection of public health. Additionally, actions more conservative than those specified within the matrix may be implemented at any time. For example, the decision to implement more conservative actions may be based on a comparison of the costs associated with resampling or monitoring to the costs associated with installation and monitoring of a mitigation system.
- Indoor air concentrations detected in samples collected from the building's basement or, if the building has a slab-on-grade foundation, from the building's lowest occupied living space should be used.
- Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude the need to investigate possible sources of vapor contamination, nor does it preclude the need to remediate contaminated soil vapors or the source of soil vapor contamination.

- When current exposures are attributed to sources other than vapor intrusion, the agencies must be provided documentation (e.g., applicable environmental data, completed indoor air sampling questionnaire, digital photographs, etc.) to support a proposed action other than that provided in the matrix and to support assessment and follow-up by the agencies.

RECOMMENDED ACTIONS

Actions recommended in the matrix are based on the relationship between sub-slab vapor concentrations and corresponding indoor air concentrations. They are intended to address both potential and current human exposures and include the following:

- *No further action*
  When the volatile chemical is not detected in the indoor air sample and the concentration detected in the corresponding sub-slab vapor sample is not expected to substantially affect indoor air quality.

- *Identify source(s) and resample or mitigate*
  Reasonable and practical actions are recommended to identify the source(s) affecting indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. The concentration detected in the indoor air sample is likely due to indoor and/or outdoor sources rather than soil vapor intrusion given the concentration detected in the sub-slab vapor sample. Resampling may be required in the event indoor and/or outdoor sources are not readily identified or confirmed to demonstrate SVI mitigation actions are not needed. Steps should be taken to identify potential source(s) and to reduce exposures accordingly (e.g., by keeping containers tightly capped or by storing volatile chemical-containing products in places where people do not spend much time, such as a garage or shed). Mitigation may be required if soil vapor intrusion cannot be ruled out.

- *Monitor*
  Monitoring, including sub-slab vapor, basement air, lowest occupied living space air, and outdoor air sampling, is needed to determine whether concentrations in

the indoor air or sub-slab vapor have changed. Monitoring may also be needed to determine whether existing building conditions (e.g., positive pressure HVAC systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined on a site-specific and building specific basis, taking into account applicable environmental data and building operating conditions.

- *Mitigate*
  Mitigation is needed to minimize current or potential exposures associated with soil vapor intrusion. Methods to mitigate exposures related to soil vapor intrusion are described in Section 4 of the Guidance.

TIME OF YEAR

Sub-slab vapor samples and, unless there is an immediate need for sampling, indoor air samples are typically collected during the heating season because soil vapor intrusion is more likely to occur when a building's heating system is in operation and air is being drawn into the building. In general, heating systems are expected to be operating routinely from November 15th to March 31st throughout the state. However, this timeframe may vary depending on factors, such as the location of the site (e.g., upstate versus downstate) and the weather conditions for a particular year.

A vapor intrusion investigation may also be conducted outside of the heating season. However, the results may not be used to rule out exposures. For example, results indicating "no further action" or "monitoring required" must be verified during the heating season to ensure these actions are protective during the heating season as well.

SAMPLING ROUNDS

Investigating a soil vapor intrusion pathway usually requires more than one round of subsurface vapor, indoor air, and/or outdoor air sampling, for reasons such as the following:

- To characterize the nature and extent of subsurface vapor contamination (similar to the delineation of groundwater contamination) and to address corresponding exposure concerns;

- To evaluate fluctuations in concentrations due to
  - Different weather conditions (e.g., seasonal effects),
  - Changes in building conditions (e.g., various operating conditions of a building's HVAC system),
  - Changes in source strength, or
  - Vapor migration or contaminant biodegradation processes (particularly when degradation products may be more toxic than the parent compounds); or
- To confirm sampling results or the effectiveness of mitigation or remedial systems.

Overall, successive rounds of sampling are conducted until the following questions can be answered:

- Are subsurface vapors contaminated? If so, what are the nature and extent of contamination? What is/are the source(s) of the contamination?
- What are the current and potential exposures to contaminated subsurface vapors?
- What actions, if any, are needed to prevent or mitigate exposures and to remediate subsurface vapor contamination?

Toward this end, multiple rounds of sampling may be required to characterize the nature and extent of subsurface vapor contamination such that

- Both potential and current exposures are adequately addressed;
- Measures can be designed to remediate subsurface vapor contamination, either directly (e.g., SVE system) or indirectly (e.g., soil excavation or groundwater remediation), given that monitoring and mitigation are considered temporary measures implemented to address exposures related to vapor intrusion until contaminated environmental media are remediated; and
- The effectiveness of remedial measures can be monitored and confirmed (e.g., endpoint sampling).

ATTACHMENTS

Figure 1 *Soil Vapor/Indoor Air Matrix A*
Figure 2 *Soil Vapor/Indoor Air Matrix B*
Figure 3 *Soil Vapor/Indoor Air Matrix C*
Figure 4 *Soil Vapor/Indoor Air Matrix D*
Figure 5 *Soil Vapor/Indoor Air Matrix E*
Figure 6 *Soil Vapor/Indoor Air Matrix F*
Figure 7 *Schematics of a permanent soil vapor probe and permanent nested soil vapor probes*
Figure 8 *Schematic of a sub-slab vapor probe*
Figure 9 *Schematics of tracer gas applications*

Air Canister Field Record

Indoor Air Quality Questionnaire and Building Inventory

REFERENCES

New York State Department of Health, *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, October 2006.

New York State Department of Health, *Indoor Air Sampling & Analysis Guidance.* (February 1, 2005).

Office of Solid Waste and Emergency Response (OSWER). *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)*. November 2002.

United States Environmental Protection Agency. *EPA Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*. 1988

- Method TO-15, Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS). Pp. 15-1 through 15-62.
- Method TO-17, Determination of Volatile Organic Compounds in Ambient Air using Active Sampling on Sorbent Tubes. Pp. 17-1 through 17-49.
- Compendium of Methods for the Determination of Air Pollutants in Indoor Air, EPA/600/4-90-010.

FIGURE 1

Soil Vapor/Indoor Air Matrix A

May 2017

Analytes Assigned:
Trichloroethene (TCE), *cis*-1,2-Dichloroethene (*c*12-DCE), 1,1-Dichloroethene (11-DCE), Carbon Tetrachloride

	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m^3)		
SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m^3)	< 0.2	0.2 to < 1	1 and above
< 6	1. No further action	2. No Further Action	3. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
6 to < 60	4. No further action	5. MONITOR	6. MITIGATE
60 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) and Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

MATRIX A Page 1 of 2

ADDITIONAL NOTES FOR MATRIX A

This matrix summarizes actions recommended to address current and potential exposures related to soil vapor intrusion. To use the matrix appropriately as a tool in the decision-making process, the following should be noted:

[1] The matrix is generic. As such, it may be appropriate to modify a recommended action to accommodate analyte-specific, building-specific conditions (e.g., dirt floor in basement, crawl spaces, thick slabs, current occupancy, etc.), and/or factors provided in Section 3.2 of the guidance (e.g., current land use, environmental conditions, etc.). For example, collection of additional samples may be recommended when the matrix indicates "no further action" for a particular building, but the results of adjacent buildings (especially sub-slab vapor results) indicate a need to take actions to address exposures related to soil vapor intrusion. Mitigation might be recommended when the results of multiple contaminants indicate monitoring is recommended. Proactive actions may be proposed at any time. For example, the party implementing the actions may decide to install sub-slab depressurization systems on buildings where the matrix indicates "no further action" or "monitoring." Such an action might be undertaken for reasons other than public health (e.g., seeking community acceptance, reducing costs, etc.). However, actions implemented *in lieu* of sampling will typically be expected to be captured in the final engineering report and site management plan, and might not rule out the need for post-implementation sampling (e.g., to document effectiveness or to support terminating the action).

[2] Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude investigating possible sources of soil vapor contamination, nor does it preclude remediating contaminated soil vapor or the source of soil vapor contamination.

[3] Appropriate care should be taken during all aspects of sample collection to ensure that high quality data are obtained. Since the data are being used in the decision-making process, the laboratory analyzing the environmental samples must have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. Furthermore, samples should be analyzed by methods that can achieve a minimum reporting limit of 0.20 microgram per cubic meter for indoor and outdoor air samples. For sub-slab vapor samples and dirt floor soil vapor samples, a minimum reporting limit of 1 microgram per cubic meter is recommended.

[4] Sub-slab vapor and indoor air samples are typically collected when the likelihood of soil vapor intrusion is considered to be the greatest (i.e., worst-case conditions). If samples are collected at other times (typically, samples collected outside of the heating season), then resampling during worst-case conditions might be appropriate to verify that actions taken to address exposures related to soil vapor intrusion are protective of human health.

[5] When current exposures are attributed to sources other than soil vapor intrusion, the agencies should be given documentation (e.g., applicable environmental data, completed indoor air sampling questionnaire, digital photographs, etc.) to support a proposed action other than that provided in the matrix box and to support agency assessment and follow-up.

[6] The party responsible for implementing the recommended actions will differ depending upon several factors, including but not limited to the following: the identified source of the volatile chemicals, the environmental remediation program, and analyte-specific, site-specific and building-specific factors.

FIGURE 2

Soil Vapor/Indoor Air Matrix B

May 2017

Analytes Assigned:
Tetrachloroethene (PCE), 1,1,1-Trichloroethane (111-TCA), Methylene Chloride

	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m^3)		
SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m^3)	< 3	3 to < 10	10 and above
< 100	1. No further action	2. No Further Action	3. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
100 to < 1,000	4. No further action	5. MONITOR	6. MITIGATE
1,000 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) and Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

MATRIX B Page 1 of 2

ADDITIONAL NOTES FOR MATRIX B

This matrix summarizes actions recommended to address current and potential exposures related to soil vapor intrusion. To use the matrix appropriately as a tool in the decision-making process, the following should be noted:

[1] The matrix is generic. As such, it may be appropriate to modify a recommended action to accommodate analyte-specific, building-specific conditions (e.g., dirt floor in basement, crawl spaces, thick slabs, current occupancy, etc.), and/or factors provided in Section 3.2 of the guidance (e.g., current land use, environmental conditions, etc.). For example, collection of additional samples may be recommended when the matrix indicates "no further action" for a particular building, but the results of adjacent buildings (especially sub-slab vapor results) indicate a need to take actions to address exposures related to soil vapor intrusion. Mitigation might be recommended when the results of multiple contaminants indicate monitoring is recommended. Proactive actions may be proposed at any time. For example, the party implementing the actions may decide to install sub-slab depressurization systems on buildings where the matrix indicates "no further action" or "monitoring." Such an action might be undertaken for reasons other than public health (e.g., seeking community acceptance, reducing costs, etc.). However, actions implemented *in lieu* of sampling will typically be expected to be captured in the final engineering report and site management plan, and might not rule out the need for post-implementation sampling (e.g., to document effectiveness or to support terminating the action).

[2] Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude investigating possible sources of soil vapor contamination, nor does it preclude remediating contaminated soil vapor or the source of soil vapor contamination.

[3] Appropriate care should be taken during all aspects of sample collection to ensure that high quality data are obtained. Since the data are being used in the decision-making process, the laboratory analyzing the environmental samples must have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. Furthermore, samples should be analyzed by methods that can achieve a minimum reporting limit of 1 microgram per cubic meter for indoor and outdoor air samples. For sub-slab vapor samples and dirt floor soil vapor samples, a minimum reporting limit of 1 microgram per cubic meter is recommended.

[4] Sub-slab vapor and indoor air samples are typically collected when the likelihood of soil vapor intrusion is considered to be the greatest (i.e., worst-case conditions). If samples are collected at other times (typically, samples collected outside of the heating season), then resampling during worst-case conditions might be appropriate to verify that actions taken to address exposures related to soil vapor intrusion are protective of human health.

[5] When current exposures are attributed to sources other than soil vapor intrusion, the agencies should be given documentation (e.g., applicable environmental data, completed indoor air sampling questionnaire, digital photographs, etc.) to support a proposed action other than that provided in the matrix box and to support agency assessment and follow-up.

[6] The party responsible for implementing the recommended actions will differ depending upon several factors, including but not limited to the following: the identified source of the volatile chemicals, the environmental remediation program, and analyte-specific, site-specific and building-specific factors.

FIGURE 3

Soil Vapor/Indoor Air Matrix C

May 2017

Analytes Assigned:
Vinyl Chloride

	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m³)	
SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m³)	< 0.2	0.2 and above
< 6	1. No further action	2. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
6 to < 60	3. MONITOR	4. MITIGATE
60 and above	5. MITIGATE	6. MITIGATE

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) and Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

MATRIX C Page 1 of 2

ADDITIONAL NOTES FOR MATRIX C

This matrix summarizes actions recommended to address current and potential exposures related to soil vapor intrusion. To use the matrix appropriately as a tool in the decision-making process, the following should be noted:

[1] The matrix is generic. As such, it may be appropriate to modify a recommended action to accommodate analyte-specific, building-specific conditions (e.g., dirt floor in basement, crawl spaces, thick slabs, current occupancy, etc.), and/or factors provided in Section 3.2 of the guidance (e.g., current land use, environmental conditions, etc.). For example, collection of additional samples may be recommended when the matrix indicates "no further action" for a particular building, but the results of adjacent buildings (especially sub-slab vapor results) indicate a need to take actions to address exposures related to soil vapor intrusion. Mitigation might be recommended when the results of multiple contaminants indicate monitoring is recommended. Proactive actions may be proposed at any time. For example, the party implementing the actions may decide to install sub-slab depressurization systems on buildings where the matrix indicates "no further action" or "monitoring." Such an action might be undertaken for reasons other than public health (e.g., seeking community acceptance, reducing costs, etc.). However, actions implemented *in lieu* of sampling will typically be expected to be captured in the final engineering report and site management plan, and might not rule out the need for post-implementation sampling (e.g., to document effectiveness or to support terminating the action).

[2] Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude investigating possible sources of soil vapor contamination, nor does it preclude remediating contaminated soil vapor or the source of soil vapor contamination.

[3] Appropriate care should be taken during all aspects of sample collection to ensure that high quality data are obtained. Since the data are being used in the decision-making process, the laboratory analyzing the environmental samples must have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. Furthermore, samples should be analyzed by methods that can achieve a minimum reporting limit of 0.20 microgram per cubic meter for indoor and outdoor air samples. For sub-slab vapor samples and dirt floor soil vapor samples, a minimum reporting limit of 1 microgram per cubic meter is recommended.

[4] Sub-slab vapor and indoor air samples are typically collected when the likelihood of soil vapor intrusion is considered to be the greatest (i.e., worst-case conditions). If samples are collected at other times (typically, samples collected outside of the heating season), then resampling during worst-case conditions might be appropriate to verify that actions taken to address exposures related to soil vapor intrusion are protective of human health.

[5] When current exposures are attributed to sources other than soil vapor intrusion, the agencies should be given documentation (e.g., applicable environmental data, completed indoor air sampling questionnaire, digital photographs, etc.) to support a proposed action other than that provided in the matrix box and to support agency assessment and follow-up.

[6] The party responsible for implementing the recommended actions will differ depending upon several factors, including but not limited to the following: the identified source of the volatile chemicals, the environmental remediation program, and analyte-specific, site-specific and building-specific factors.

FIGURE 4

Soil Vapor/Indoor Air Matrix D

February 2024

Analytes Assigned:
Benzene, ethylbenzene, naphthalene, cyclohexane, isooctane (2,2,4-trimethylpentane), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, *o*-xylene

	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m³)		
SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m³)	< 2	2 to < 10	10 and above
< 60	1. No further action	2. No Further Action	3. IDENTIFY SOURCE(S) or RESAMPLE or MITIGATE
60 to < 600	4. No further action	5. MONITOR	6. MITIGATE
600 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

mcg/m³ = micrograms per cubic meter

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) or Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation, and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building -specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2. **MATRIX D Page 1 of 2**

ADDITIONAL NOTES FOR MATRIX D

This matrix summarizes actions recommended to address current and potential exposures related to soil vapor intrusion. To use the matrix appropriately as a tool in the decision-making process, the following should be noted:

[1] The matrix is generic. As such, it may be appropriate to modify a recommended action to accommodate analyte-specific, building-specific conditions (e.g., dirt floor in basement, crawl spaces, thick slabs, current occupancy, etc.), and/or factors provided in Section 3.2 of the guidance (e.g., current land use, environmental conditions, etc.). For example, collection of additional samples may be recommended when the matrix indicates "no further action" for a particular building, but the results of adjacent buildings (especially sub-slab vapor results) indicate a need to take actions to address exposures related to soil vapor intrusion. Mitigation might be recommended when the results of multiple contaminants indicate monitoring is recommended. Proactive actions may be proposed at any time. For example, the party implementing the actions may decide to install sub-slab depressurization systems on buildings where the matrix indicates "no further action" or "monitoring." Such an action might be undertaken for reasons other than public health (e.g., seeking community acceptance, reducing costs, etc.). However, actions implemented ***in lieu*** of sampling will typically be expected to be captured in the final engineering report and site management plan, and might not rule out the need for post-implementation sampling (e.g., to document effectiveness or to support terminating the action).

[2] Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude investigating possible sources of soil vapor contamination, nor does it preclude remediating contaminated soil vapor or the source of soil vapor contamination.

[3] Appropriate care should be taken during all aspects of sample collection to ensure that high quality data are obtained. Since the data are being used in the decision-making process, the laboratory analyzing the environmental samples must have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. Furthermore, samples should be analyzed by methods that can achieve a minimum reporting limit of 1 microgram per cubic meter for indoor and outdoor air samples. For sub-slab vapor samples and dirt floor soil vapor samples, a minimum reporting limit of 1 microgram per cubic meter is recommended.

[4] Sub-slab vapor and indoor air samples are typically collected when the likelihood of soil vapor intrusion to occur is considered to be the greatest (i.e., worst-case conditions). If samples are collected at other times (typically, samples collected outside of the heating season), then resampling during worst-case conditions might be appropriate to verify that actions taken to address exposures related to soil vapor intrusion are protective of human health.

[5] When current exposures are attributed to sources other than soil vapor intrusion, the agencies should be given documentation (e.g., applicable environmental data, completed indoor air sampling questionnaire, digital photographs, etc.) to support a proposed action other than that provided in the matrix box and to support agency assessment and follow-up.

[6] The party responsible for implementing the recommended actions will differ depending upon several factors, including but not limited to the following: the identified source of the volatile chemicals, the environmental remediation program, and analyte-specific, site-specific and building-specific factors.

MATRIX D Page 2 of 2

FIGURE 5

Soil Vapor/Indoor Air Matrix E

February 2024

Analytes Assigned:
m,p-xylene, heptane, hexane

	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m³)		
SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m³)	< 6	6 to < 20	20 and above
< 200	1. No further action	2. No Further Action	3. IDENTIFY SOURCE(S) or RESAMPLE or MITIGATE
200 to < 2,000	4. No further action	5. MONITOR	6. MITIGATE
2,000 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

mcg/m³ = micrograms per cubic meter

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) or Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation, and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building -specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

MATRIX E Page 1 of 2

ADDITIONAL NOTES FOR MATRIX E

This matrix summarizes actions recommended to address current and potential exposures related to soil vapor intrusion. To use the matrix appropriately as a tool in the decision-making process, the following should be noted:

[1] The matrix is generic. As such, it may be appropriate to modify a recommended action to accommodate analyte-specific, building-specific conditions (e.g., dirt floor in basement, crawl spaces, thick slabs, current occupancy, etc.), and/or factors provided in Section 3.2 of the guidance (e.g., current land use, environmental conditions, etc.). For example, collection of additional samples may be recommended when the matrix indicates "no further action" for a particular building, but the results of adjacent buildings (especially sub-slab vapor results) indicate a need to take actions to address exposures related to soil vapor intrusion. Mitigation might be recommended when the results of multiple contaminants indicate monitoring is recommended. Proactive actions may be proposed at any time. For example, the party implementing the actions may decide to install sub-slab depressurization systems on buildings where the matrix indicates "no further action" or "monitoring." Such an action might be undertaken for reasons other than public health (e.g., seeking community acceptance, reducing costs, etc.). However, actions implemented ***in lieu*** of sampling will typically be expected to be captured in the final engineering report and site management plan, and might not rule out the need for post-implementation sampling (e.g., to document effectiveness or to support terminating the action).

[2] Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude investigating possible sources of soil vapor contamination, nor does it preclude remediating contaminated soil vapor or the source of soil vapor contamination.

[3] Appropriate care should be taken during all aspects of sample collection to ensure that high quality data are obtained. Since the data are being used in the decision-making process, the laboratory analyzing the environmental samples must have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. Furthermore, samples should be analyzed by methods that can achieve a minimum reporting limit of 1 microgram per cubic meter for indoor and outdoor air samples. For sub-slab vapor samples and dirt floor soil vapor samples, a minimum reporting limit of 1 microgram per cubic meter is recommended.

[4] Sub-slab vapor and indoor air samples are typically collected when the likelihood of soil vapor intrusion to occur is considered to be the greatest (i.e., worst-case conditions). If samples are collected at other times (typically, samples collected outside of the heating season), then resampling during worst-case conditions might be appropriate to verify that actions taken to address exposures related to soil vapor intrusion are protective of human health.

[5] When current exposures are attributed to sources other than soil vapor intrusion, the agencies should be given documentation (e.g., applicable environmental data, completed indoor air sampling questionnaire, digital photographs, etc.) to support a proposed action other than that provided in the matrix box and to support agency assessment and follow-up.

[6] The party responsible for implementing the recommended actions will differ depending upon several factors, including but not limited to the following: the identified source of the volatile chemicals, the environmental remediation program, and analyte-specific, site-specific and building-specific factors.

MATRIX E Page 2 of 2

FIGURE 6

Soil Vapor/Indoor Air Matrix F

February 2024

Analytes Assigned:
Toluene

	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m³)		
SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m³)	< 10	10 to < 50	50 and above
< 300	1. No Further Action	2. No Further Action	3. IDENTIFY SOURCE(S) or RESAMPLE or MITIGATE
300 to < 3,000	4. No Further Action	5. MONITOR	6. MITIGATE
3,000 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

mcg/m³ = micrograms per cubic meter

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) or Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation, and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building -specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

MATRIX F Page 1 of 2

ADDITIONAL NOTES FOR MATRIX F

This matrix summarizes actions recommended to address current and potential exposures related to soil vapor intrusion. To use the matrix appropriately as a tool in the decision-making process, the following should be noted:

[1] The matrix is generic. As such, it may be appropriate to modify a recommended action to accommodate analyte-specific, building-specific conditions (e.g., dirt floor in basement, crawl spaces, thick slabs, current occupancy, etc.), and/or factors provided in Section 3.2 of the guidance (e.g., current land use, environmental conditions, etc.). For example, collection of additional samples may be recommended when the matrix indicates "no further action" for a particular building, but the results of adjacent buildings (especially sub-slab vapor results) indicate a need to take actions to address exposures related to soil vapor intrusion. Mitigation might be recommended when the results of multiple contaminants indicate monitoring is recommended. Proactive actions may be proposed at any time. For example, the party implementing the actions may decide to install sub-slab depressurization systems on buildings where the matrix indicates "no further action" or "monitoring." Such an action might be undertaken for reasons other than public health (e.g., seeking community acceptance, reducing costs, etc.). However, actions implemented ***in lieu*** of sampling will typically be expected to be captured in the final engineering report and site management plan, and might not rule out the need for post-implementation sampling (e.g., to document effectiveness or to support terminating the action).

[2] Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude investigating possible sources of soil vapor contamination, nor does it preclude remediating contaminated soil vapor or the source of soil vapor contamination.

[3] Appropriate care should be taken during all aspects of sample collection to ensure that high quality data are obtained. Since the data are being used in the decision-making process, the laboratory analyzing the environmental samples must have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. Furthermore, samples should be analyzed by methods that can achieve a minimum reporting limit of 1 microgram per cubic meter for indoor and outdoor air samples. For sub-slab vapor samples and dirt floor soil vapor samples, a minimum reporting limit of 1 microgram per cubic meter is recommended.

[4] Sub-slab vapor and indoor air samples are typically collected when the likelihood of soil vapor intrusion to occur is considered to be the greatest (i.e., worst-case conditions). If samples are collected at other times (typically, samples collected outside of the heating season), then resampling during worst-case conditions might be appropriate to verify that actions taken to address exposures related to soil vapor intrusion are protective of human health.

[5] When current exposures are attributed to sources other than soil vapor intrusion, the agencies should be given documentation (e.g., applicable environmental data, completed indoor air sampling questionnaire, digital photographs, etc.) to support a proposed action other than that provided in the matrix box and to support agency assessment and follow-up.

[6] The party responsible for implementing the recommended actions will differ depending upon several factors, including but not limited to the following: the identified source of the volatile chemicals, the environmental remediation program, and analyte-specific, site-specific and building-specific factors.

MATRIX F Page 2 of 2

FIGURE 7

Schematics of a permanent soil vapor probe and permanent nested soil vapor probes

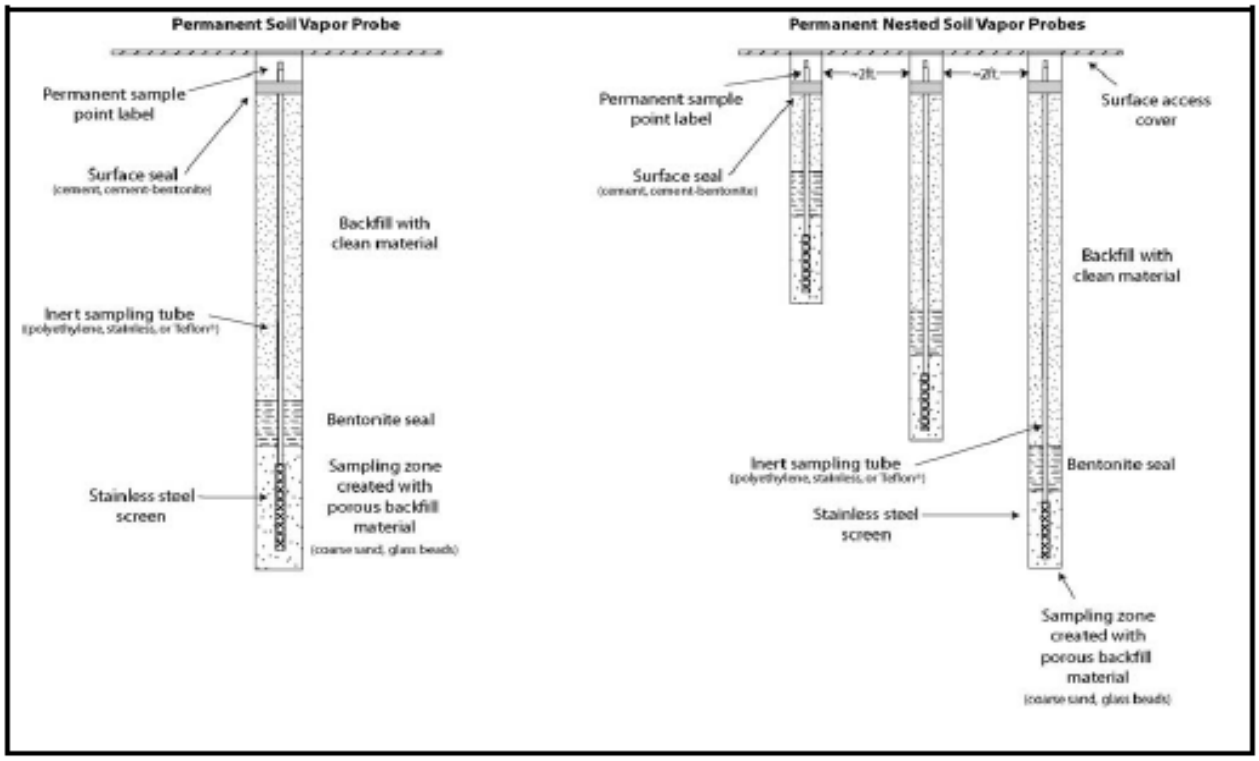
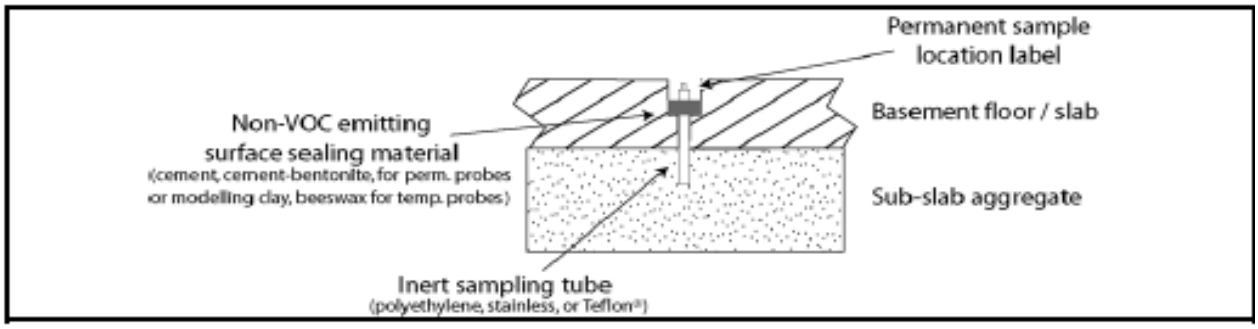


FIGURE 8

Schematic of a sub-slab vapor probe



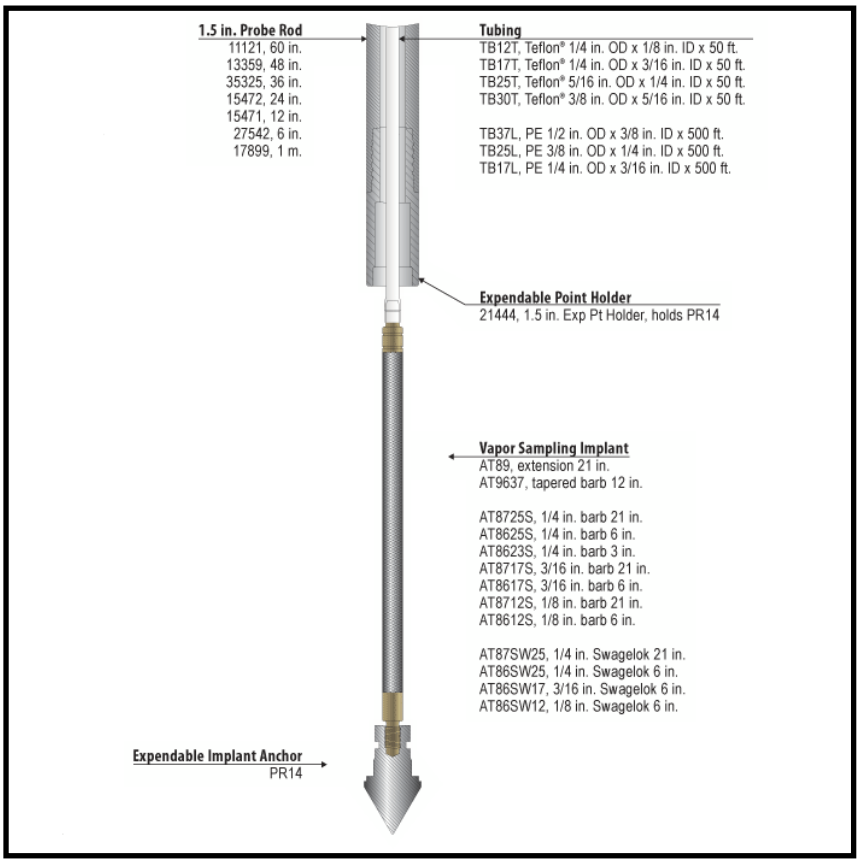
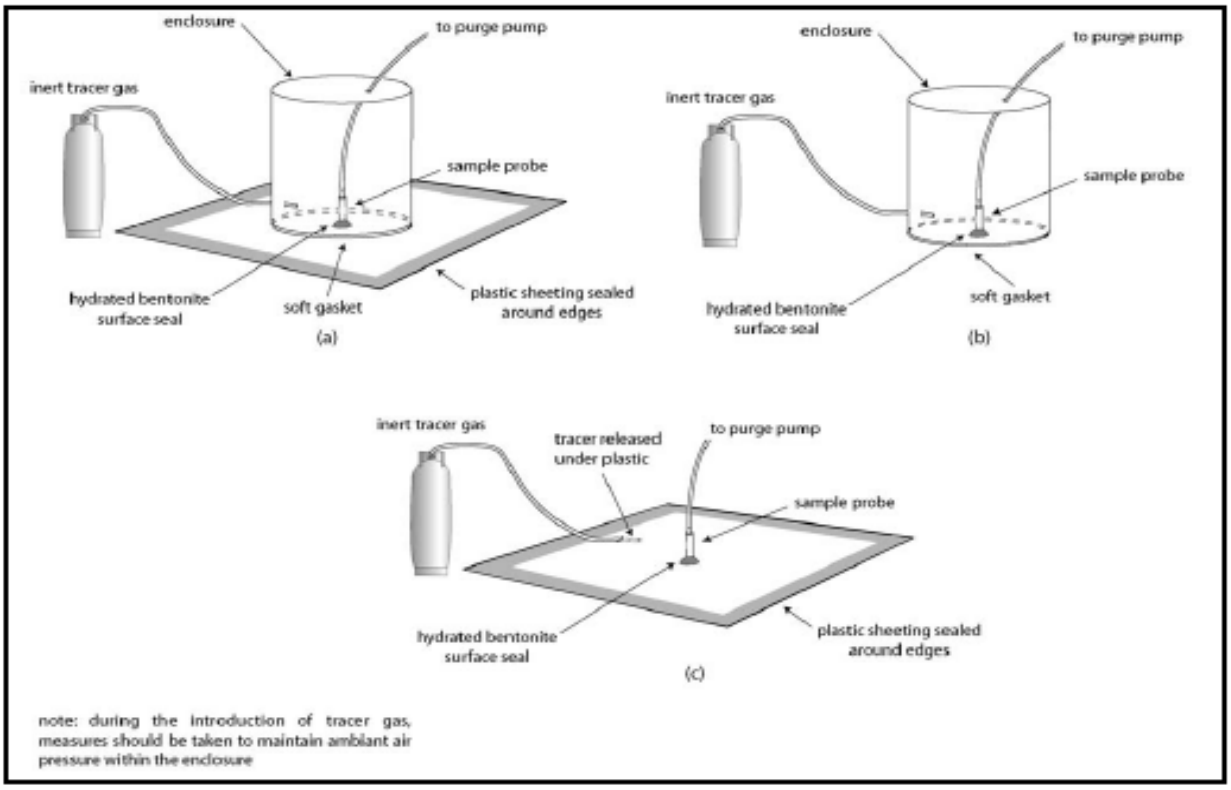


FIGURE 9

Schematics of tracer gas applications



ROUX

AIR CANISTER FIELD RECORD

PROJECT INFORMATION:

Project:
Job No:
Location:
Field Staff:
Client:

SAMPLE I.D.:

Size of Canister:
Canister Serial No.:
Flow Controller No.:
Sample Date(s):
Shipping Date:
Sample Type: ☐ ☐
☐ ☐
Soil Gas Probe Depth:

WEATHER CONDITIONS:

Ambient Air Temp. - A.M.:
Ambient Air Temp. - P.M.:
Wind Direction:
Wind Speed:
Precipitation:

FIELD SAMPLING INFORMATION:

READING	TIME	VACUUM (inches Hg) or PRESSURE (psig)	DATE	INITIALS
Lab Vacuum (on tag)				
Field Vacuum Check [1]				
Initial Field Vacuum [2]				
Final Field Vacuum [3]				
Duration of Sample Collection				

LABORATORY CANISTER PRESSURIZATION:

Initial Vacuum (inches Hg and psia)		
Final Pressure (psia)		
Pressurization Gas		

SUBSLAB SHROUD:

Shroud Helium Concentration:
Calculated tubing volume: x 3 =
Purged Tubing Volume Concentration:
Is the purged volume concentration less than or equal to 10% in shroud?
☐
☐

COMPOSITE TIME (hours)	FLOW RATE RANGE (ml/min)
15 Min.	316 - 333
0.5 Hours	158 - 166.7
1	79.2 - 83.3
2	39.6 - 41.7
4	19.8 - 20.8
6	13.2 - 13.9
8	9.9 - 10.4
10	7.92 - 8.3
12	6.6 - 6.9
24	3.5 - 4.0

NOTES:

1 Vacuum measured using portable vacuum gauge (provided by Lab)
2 Vacuum measured by canister gauge upon opening valve
3 Vacuum measured by canister gauge prior to closing valve

Signed:

SAMPLE

SOIL VAPOR SAMPLE COLLECTION PROCEDURE

ROUX

INDOOR AIR QUALITY QUESTIONNAIRE & BUILDING INVENTORY

Project Name: Project No.
Project Location: Client:
Preparer's Name: Date/Time:
Preparer's Affiliation: Phone No:
Purpose of Investigation:

1. OCCUPANT:
Interviewed: yes no
Last Name: First Name:
Address:
County:
Home Phone: Office Phone:
Number of Occupants/persons at this location: Age of Occupants:

2. OWNER OR LANDLORD: (check if same as occupant ☐)
Interviewed: yes no
Last Name: First Name:
Address:
County:
Home Phone: Office Phone:

3. BUILDING CHARACTERISTICS
Type of Building: check appropriate response
☐ Residential ☐ School ☐ Commercial/Multi-use
☐ Industrial ☐ Church ☐ Other:
If the property is residential type (check appropriate response)
☐ Ranch ☐ 2-Family ☐ 3-Family
☐ Raised Ranch ☐ Split Level ☐ Colonial
☐ Cape Cod ☐ Contemporary ☐ Mobile Home
☐ Duplex ☐ Apartment House ☐ Townhouse/Condo
☐ Modular ☐ Log Home ☐ Other:
If multiple units, how many?
If the property is commercial, type?
Business Type(s):
Does it include residences (i.e., multi-use)? yes no If yes, how many?
Other Characteristics:
Number of floors Builing age
Is the building insulated? yes no How air tight? tight average not tight

Indoor Air Quality Questionnaire and Building Inventory Page 1 of 8

ROUX

INDOOR AIR QUALITY QUESTIONNAIRE & BUILDING INVENTORY

4. AIR FLOW
Use air current tubes or tracer smoke to evaluate air flow patterns and qualitatively describe:
Airflow between floors
Airflow near source
Outdoor air infiltration
Infiltration into air ducts

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (check all that apply)
a. Above grade construction: ☐ wood frame ☐ concrete ☐ stone
b. Basement type: ☐ full ☐ crawlspace ☐ slab
c. Basement floor: ☐ concrete ☐ dirt ☐ stone
d. Basement floor: ☐ unsealed ☐ covered ☐ covered with
e. Concreter floor: ☐ unsealed ☐ sealed ☐ sealed with
f. Foundation walls: ☐ poured ☐ block ☐ stone
g. Foundation walls: ☐ unsealed ☐ sealed ☐ sealed with
h. The basement is: ☐ wet ☐ damp ☐ dry
i. The basement is: ☐ finished ☐ unfinished ☐ partially finished
j. Sump present? ☐ yes ☐ no
k. Water in Sump? ☐ yes ☐ no ☐ not applicable
Basement/Lowest level depth below grade:
Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

Indoor Air Quality Questionnaire and Building Inventory Page 2 of 8

ROUX

INDOOR AIR QUALITY QUESTIONNAIRE & BUILDING INVENTORY

6. HEATING, VENTING, and AIR CONDITIONING (check all that apply)
Type of heating system(s) used in this building: (check all that apply - note primary)
☐ Hot air circulation ☐ Heat pump ☐ Hot water baseboard
☐ Space Heaters ☐ Steam radiation ☐ Radiant floor
☐ Electric baseboard ☐ Wood stove ☐ Outdoor wood boiler
☐ Other
The primary type of fuel used is:
☐ Natural Gas ☐ Fuel oil ☐ Kerosene
☐ Electric ☐ Propane ☐ Solar
☐ Wood ☐ Coal ☐ Other
Domestic hot water tank fueled by:
Boiler/furnace located in:
☐ Basement ☐ Outdoors ☐ Main Floor ☐ Other
Air Conditioning:
☐ Central Air ☐ Window units ☐ Open windows ☐ None
Are there air distribution ducts present? ☐ yes ☐ no
Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

7. OCCUPANCY
Is basement/lowest level occupied? ☐ Full-time ☐ Occaisionally ☐ Seldom ☐ Almost Never
Level **General Use of Each Floor** (e.g., family room, bedroom, laundry, workshop, storage)
Basement
First Floor
Second Floor
Third Floor
Fourth Floor

Indoor Air Quality Questionnaire and Building Inventory Page 3 of 8

ROUX

INDOOR AIR QUALITY QUESTIONNAIRE & BUILDING INVENTORY

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY
a. Is there an attached garage? ☐ yes ☐ no
b. Does the garage have a separate heating unit ☐ yes ☐ no ☐ NA
c. Are petroleum-powered machines or vehicles stored in the garage? ☐ yes ☐ no ☐ NA
(e.g., lawnmower, atv, car) If yes, please specify:
d. Has the building ever had a fire? ☐ yes ☐ no
If yes, when?
e. Is a kerosene or unvented gas space heater present? ☐ yes ☐ no
If yes, where?
f. Is there a workshop or hobby/craft area? ☐ yes ☐ no
If yes, where & what type?
g. Is there smoking in the building? ☐ yes ☐ no
If yes, how & where?
h. Have cleaning products been used recently? ☐ yes ☐ no
If yes, when & type?
i. Have cosmetic products been used recently? ☐ yes ☐ no
If yes, when & type?
j. Has painting/staining been done in the last 6 months? ☐ yes ☐ no
If yes, where & when?
k. Is there new carpet, drapes, or other textiles? ☐ yes ☐ no
If yes, where & when?
l. Have air fresheners been used recently? ☐ yes ☐ no
If yes, when & type?
m. Is there a kitchen exhaust fan? ☐ yes ☐ no
If yes, where vented?
n. Is there a bathroom exhaust fan? ☐ yes ☐ no
If yes, where vented?

Indoor Air Quality Questionnaire and Building Inventory Page 4 of 8

SAMPLE

ROUX

INDOOR AIR QUALITY QUESTIONNAIRE
& BUILDING INVENTORY

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY (continued)

o. Is there a clothes dryer? ☐ yes ☐ no
If yes, is it vented outside? yes no

p. Has there been a pesticide application ☐ yes ☐ no
If yes, when & type?

q. Are there odors in the building? ☐ yes ☐ no
If yes, please describe?

r. Do any of the building occupants use solvents at work? ☐ yes ☐ no
(e.g., chemical manufacturing or laboratory, auto mechanic, auto body shop, painting, fuel delivery, boat mechanic, pesticide application, cosmetologist)
If yes, what types of solvents are used?
If yes, are their clothes washed at work? ☐ yes ☐ no

s. Do any of the building occupants regularly work at a dry-cleaning service?
(check appropriate response)
☐ yes, use dry-cleaning services frequently ☐ no
☐ yes, dry-cleaning materials brought home (workshop, clothes) ☐ unknown
☐ yes, work at a dry-cleaning service

t. Is there a radon mitigation system for the building/structure? ☐ yes ☐ no
If yes, date of installation?
Is the system active or passive?

9. WATER AND SEWAGE

Water Supply: ☐ Public Water ☐ Drilled Well ☐ Driven Well ☐ Dug Well
☐ Other:

Sewage Disposal: ☐ Public Sewer ☐ Septic Tank ☐ Leach Field ☐ Dry Well
☐ Other:

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended:
b. Residents choose to: ☐ remain in home ☐ relocate to friends/family ☐ relocate to hotel/motel
c. Responsibility for costs associated with reimbursement explained? ☐ yes ☐ no
d. Relocation package provided and explained to residents? ☐ yes ☐ no

Indoor Air Quality Questionnaire and Building Inventory Page 5 of 8

ROUX

INDOOR AIR QUALITY QUESTIONNAIRE
& BUILDING INVENTORY

11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

First Floor:

Indoor Air Quality Questionnaire and Building Inventory Page 6 of 8

ROUX

INDOOR AIR QUALITY QUESTIONNAIRE
& BUILDING INVENTORY

12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s), and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.

Indoor Air Quality Questionnaire and Building Inventory Page 7 of 8

ROUX

INDOOR AIR QUALITY QUESTIONNAIRE
& BUILDING INVENTORY

13. PRODUCT INVENTORY FORM

Make & Model of field instrument used:

List specific products found in the structure that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition [1]	Chemical Ingredients	Field Instrument Reading (units)	Photo (Y/N)

Notes:
1. Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D).**
2. Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Indoor Air Quality Questionnaire and Building Inventory Page 8 of 8

FIELD OPERATING PROCEDURES

Calibration and Maintenance of Portable Dissolved Oxygen Meter

FOP 007.0

CALIBRATION AND MAINTENANCE OF PORTABLE DISSOLVED OXYGEN METER

PURPOSE

This guideline describes a method for calibration of a portable dissolved oxygen meter. This meter measures the concentration of dissolved oxygen within a water sample. This parameter is of interest both as a general indicator of water quality, and because of its pertinence to fate and transport of organics and inorganics. This guideline presents a method for calibration of this meter, which is performed to verify instrument accuracy and function. All field instruments will be calibrated, verified and recalibrated at frequencies required by their respective operating manuals or manufacturer's specifications, but not less than once each day that the instrument is in use. Field personnel should have access to all operating manuals for the instruments used for the field measurements. This procedure also documents critical maintenance activities for this meter.

ACCURACY

The calibrated accuracy of the dissolved oxygen meter will be within ± 1% of full-scale over the temperature range of 23° to 113° F (-5° to +45° C).

PROCEDURE

1. Calibrate the dissolved oxygen meter to ambient air based on probe temperature and true local atmospheric pressure conditions (or feet above sea level). Because procedures vary with different brands and models of meters, refer to the manufacturer's recommended calibration procedures.

2. In the event of a failure to adequately calibrate, follow the corrective action directed by the manufacturer.
3. If calibration cannot be achieved or maintained, obtain a replacement instrument (rental instruments) and/or order necessary repairs/adjustment.

4. Document the calibration results and related information in the Project Field Book and on an **Equipment Calibration Log** (see attached sample). Information will include, at a minimum:
    - Time, date, and initials of the field team member performing the calibration
    - The unique identifier for the meter, including manufacturer, model, and serial number
    - The brand and expiration dates of calibration solutions
    - The calibration readings
    - The instrument settings (if applicable)
    - The approximate response time
    - The overall adequacy of calibration including the Pass or fail designation in accordance with the accuracy specifications presented above
    - Corrective action taken (see Step 5 above) in the event of failure to adequately calibrate

MAINTENANCE

- When not in use or between measurements, the dissolved oxygen probe will be kept immersed in or moist with deionized water.

- The meter batteries will be checked prior to each meter's use and will be replaced when the meter cannot be redline adjusted.

- The meter response time and stability will be tracked to determine the need for instrument maintenance. When response time becomes greater than two minutes, probe service is indicated.

ATTACHMENTS

Equipment Calibration Log (sample)

ROUX

EQUIPMENT CALIBRATION

PROJECT INFORMATION:

Project Name: _____ Date: _____

Project No.: _____

Client: _____ Instrument Source: ☐ Roux ☐ Rental

METER TYPE	UNITS	TIME	MAKE/MODEL	SERIAL NUMBER	CAL. BY	STANDARD	READING	SETTI
☐ pH meter	units		Myron L Company Ultra Meter 6P	606987		4.00		
						7.00		
						10.01		
☐ Turbidity meter	NTU		Hach 2100P Turbidimeter	970600014560		< 0.4		
						20		
						100		
						800		
☐ Sp. conductance meter	uS/mS		Myron L Company Ultra Meter 6P	606987		µS @ 25 °C		
☐ PID	ppm		Photovac 2020 PID			open air zero		MIBK re
						_____ ppm Iso. Gas		factor =
☐ Particulate meter	mg/m^3					zero air		
☐ Oxygen	%					open air		
☐ Hydrogen sulfide	ppm					open air		
☐ Carbon monoxide	ppm					open air		
☐ LEL	%					open air		
☐ Radiation Meter	uR/h					background area		
☐								

ADDITIONAL REMARKS: _____

PREPARED BY: _____ **DATE:** _____

SAMPLE

FIELD OPERATING PROCEDURES

Calibration and Maintenance of Portable Field pH/Eh Meter

FOP 008.0

CALIBRATION AND MAINTENANCE OF PORTABLE FIELD pH/Eh METER

PURPOSE

This guideline describes a method for calibration of a portable pH/Eh meter. The pH/Eh meter measures the hydrogen ion concentration or acidity of a water sample (pH function), and the oxidation/reduction potential of a water sample (Eh function). Calibration is performed to verify instrument accuracy and function. All field instruments will be calibrated, verified and recalibrated at frequencies required by their respective operating manuals or manufacturer's specifications, but not less than once each day that the instrument is in use. Field personnel should have access to all operating manuals for the instruments used for the field measurements. This procedure also documents critical maintenance activities for this meter.

ACCURACY

The calibrated accuracy of the pH/Eh meter will be:

pH ± 0.2 pH unit, over the temperature range of ± 0.2 C.

Eh ± 0.2 millivolts (mV) over the range of ± 399.9 mV, otherwise ± 2 mV.

PROCEDURE

Note: Meters produced by different manufacturers may have different calibration procedures. These instructions will take precedence over the procedure provided herein. This procedure is intended to be used as a general guideline, or in the absence of available manufacturer's instructions.

1. Obtain and active the meter to be used. As stated above, initial calibrations will be performed at the beginning of each sampling day.

2. Immerse the sensing probe in a container of certified pH 7.0 buffer solution traceable to the National Bureau of Standards.

3. Measure the temperature of the buffer solution, and adjust the temperature setting accordingly.

4. Compare the meter reading to the known value of the buffer solution while stirring. If the reading obtained by the meter does not agree with the known value of the buffer solution, recalibrate the meter according to the manufacturer's instructions until the desired reading is obtained. This typically involves accessing and turning a dial or adjustment screw while measuring the pH of the buffer solution. The meter is adjusted until the output agrees with the known solution pH.

5. Repeat Steps 2 through 5 with a pH 4.0 and 10.0 buffer solution to provide a three-point calibration. Standards used to calibrate the pH meter will be of concentrations that bracket the expected values of the samples to be analyzed, especially for two-point calibrations (see note below).

Note: Some pH meters only allow two-point calibrations. Two-point calibrations should be within the suspected range of the groundwater to be analyzed. For example, if the groundwater pH is expected to be approximately 8, the two-point calibration should bracket that value. Buffer solutions of 7 and 10 should then be used for the two-point calibration.

6. Document the calibration results and related information in the Project Field Book and on an **Equipment Calibration Log** (see attached sample). Information will include, at a minimum:

   - Time, date, and initials of the field team member performing the calibration
   - The unique identifier for the meter, including manufacturer, model, and serial number
   - The brand and expiration dates of buffer solutions
   - The instrument readings
   - The instrument settings (if applicable)

- Pass or fail designation in accordance with the accuracy specifications presented above
- Corrective action taken (see Maintenance below) in the event of failure to adequately calibrate

MAINTENANCE

- When not in use, or between measurements, keep the pH/Eh probe immersed in or moist with buffer solutions.

- Check the meter batteries at the end of each day and recharge or replace as needed.

- Replace the pH/Eh probe any time that the meter response time becomes greater than two minutes or the meeting system consistently fails to retain its calibrated accuracy for a minimum of ten sample measurements.

- If a replacement of the pH/Eh probe fails to resolve instrument response time and stability problems, obtain a replacement instrument (rental instruments) and/or order necessary repairs/adjustment.

ATTACHMENTS

Equipment Calibration Log (sample)

EQUIPMENT CALIBRATION

PROJECT INFORMATION:

Project Name: _____ Date: _____

Project No.: _____

Client: _____ Instrument Source: ☐ Roux ☐ Rental

METER TYPE	UNITS	TIME	MAKE/MODEL	SERIAL NUMBER	CAL. BY	STANDARD	READING	SETTI
☐ pH meter	units		Myron L Company Ultra Meter 6P	606987		4.00		
						7.00		
						10.01		
☐ Turbidity meter	NTU		Hach 2100P Turbidimeter	970600014560		< 0.4		
						20		
						100		
						800		
☐ Sp. conductance meter	uS/mS		Myron L Company Ultra Meter 6P	606987		µS @ 25 °C		
☐ PID	ppm		Photovac 2020 PID			open air zero		MIBK re
						_____ ppm Iso. Gas		factor =
☐ Particulate meter	mg/m^3					zero air		
☐ Oxygen	%					open air		
☐ Hydrogen sulfide	ppm					open air		
☐ Carbon monoxide	ppm					open air		
☐ LEL	%					open air		
☐ Radiation Meter	uR/h					background area		
☐								

ADDITIONAL REMARKS: _____

PREPARED BY: _____ **DATE:** _____

SAMPLE

FIELD OPERATING PROCEDURES

Calibration and Maintenance of Portable Field Turbidity Meter

FOP 009.0

CALIBRATION AND MAINTENANCE OF PORTABLE FIELD TURBIDITY METER

PURPOSE

This guideline describes the method for calibration of the HACH 2100P portable field turbidity meter. Turbidity is one water quality parameter measured during purging and development of wells. Turbidity is measured as a function of the samples ability to transmit light, expressed as Nephelometric Turbidity Units (NTUs). The turbidity meter is factory calibrated and must be checked daily prior to using the meter in the field. Calibration is performed to verify instrument accuracy and function. This procedure also documents critical maintenance activities for this meter.

ACCURACY

Accuracy shall be ± 2% of reading below 499 NTU or ± 3% of reading above 500 NTU with resolution to 0.01 NTU in the lowest range. The range key provides for automatic or manual range selection for ranges of 0.00 to 9.99, 0.0 to 99.9 and 0 to 1000 NTU. Another key provides for selecting automatic signal averaging. Pressing the key shall toggle signal averaging on or off.

PROCEDURE

Calibration of the 2100P Turbidimeter is based on formazin, the primary standard for turbidity. The instrument's electronic and optical design provides long-term stability and minimizes the need for frequent calibration. The two-detector ratioing system compensates for most fluctuations in lamp output. **A formazin recalibration should be performed at least once every three months,** more often if experience indicates the need. During calibration, use a primary standard such as StablCal™ Stabilized Standards or formazin standards.

Note: Meters produced by different manufacturers may have different calibration check procedures. These manufacturers' instructions will take precedence over the procedure provided here. This procedure is intended to be used as a general guideline, or in the absence of available manufacturer's instructions.

Note: Because the turbidity meter measures light transmission, it is critical that the meter and standards be cared for as precision optical instruments. Scratches, dirt, dust, etc. can all temporarily or permanently affect the accuracy of meter readings.

Preparing StablCal Stabilized Standards in Sealed Vials

Sealed vials that have been sitting undisturbed for longer than a month must be shaken to break the condensed suspension into its original particle size. Start at *step 1* for these standards. If the standards are used on at least a weekly interval, start at *step 3*.

Note: These instructions do not apply to < 0.1 NTU StablCal Standards; < 0.1 NTU StablCal Standards should not be shaken or inverted.

1. Shake the standard vigorously for 2-3 minutes to re-suspend any particles.
2. Allow the standard to stand undisturbed for 5 minutes.
3. Gently invert the vial of StablCal 5 to 7 times.
4. Prepare the vial for measurement using traditional preparation techniques. This usually consists of oiling the vial (see *Section 2.3.2 on page 11 of the manual*)

and marking the vial to maintain the same orientation in the sample cell compartment (see *Section 2.3.3 on page 12 of the manual*). This step will eliminate any optical variations in the sample vial.

5. Let the vial stand for one minute. The standard is now ready for use in the calibration procedure.

Calibration Procedure

1. Turn the meter on.

2. Shake pre-mixed formazin primary standards in accordance with the above procedure.

3. Wipe the outside of the < 0.1 NTU standard and insert the sample cell in the cell compartment by aligning the orientation mark on the cell with the mark on the front of the cell compartment.

4. Close the lid and press **I/O**.

5. Press the **CAL** button. The **CAL** and **S0** icons will be displayed and the 0 will flash. The four-digit display will show the value of the **S0** standard for the previous calibration. If the blank value was forced to 0.0, the display will be blank. Press the right arrow key (→) to get a numerical display.

6. Press **READ**. The instrument will count from 60 to 0, read the blank and use it to calculate a correction factor for the 20 NTU standard measurement. If the dilution water is ≥ 0.5 NTU, E 1 will appear when the calibration is calculated (*see Section 3.6.2.3 on page 31 of the manual*). The display will automatically increment to the next standard. Remove the sample cell from the cell compartment

Note: The turbidity of the dilution water can be "forced" to zero by pressing → rather than reading the dilution water. The display will show "S0 NTU" and the ↑ key must be pressed to continue with the next standard.

7. Repeat steps 1 through 7 for the 20, 100 and 800 standards.

8. Following the 800 NTU standard calibration, the display will increment back to the **S0** display. Remove the sample cell from the cell compartment.

9. Press **CAL** to accept the calibration. The instrument will return to measurement mode automatically.

10. Document the calibration results and related information in the Project Field Book and on an **Equipment Calibration Log** (see attached sample). Information will include, at a minimum:
    - Time, date, and initials of the field team member performing the calibration
    - The unique identifier for the meter, including manufacturer, model, and serial number
    - The brand of calibration standards
    - The instrument readings
    - The instrument settings (if applicable)
    - Pass or fail designation in accordance with the accuracy specifications presented above
    - Corrective action taken (see Maintenance below) in the event of failure to adequately calibrate.

Note: Pressing CAL completes the calculation of the calibration coefficients. If calibration errors occurred during calibration, error messages will appear after CAL is pressed. If E 1 or E 2 appear, check the standard preparation and review the calibration; repeat the calibration if necessary. If "CAL?" appears, an error may have

occurred during calibration. If "CAL?" is flashing, the instrument is using the default calibration.

NOTES

- If the **I/O** key is pressed during calibration, the new calibration data is lost and the old calibration will be used for measurements. Once in calibration mode, only the **READ, I/O,** ↑ , and →keys function. Signal averaging and range mode must be selected before entering the calibration mode.

- If **E 1** or **E 2** are displayed, an error occurred during calibration. Check the standard preparation and review the calibration; repeat the calibration if necessary. Press **DIAG** to cancel the error message (**E 1** or **E 2)**. To continue without repeating the calibration, press **I/O** twice to restore the previous calibration. If "**CAL?"** is displayed, an error may have occurred during calibration. The previous calibration may not be restored. Either recalibrate or use the calibration as is.

- To review a calibration, press **CAL** and then ↑ to view the calibration standard values. As long as **READ** is never pressed and **CAL** is not flashing, the calibration will not be updated. Press **CAL** again to return to the measurement mode.

MAINTENANCE

- **Cleaning**: Keep the turbidimeter and accessories as clean as possible and store the instrument in the carrying case when not in use. Avoid prolonged exposure to sunlight and ultraviolet light. Wipe spills up promptly. Wash sample cells with non-abrasive laboratory detergent, rinse with distilled or demineralized water, and air dry. Avoid scratching the cells and wipe all moisture and fingerprints off the cells before inserting them into the instrument. Failure to do so can give inaccurate readings. See *Section 2.3.1 on page 11of the manual* for more information about sample cell care.

- **Battery Replacement**: AA alkaline cells typically last for about 300 tests with the signal-averaging mode off, about 180 tests if signal averaging is used. The "battery" icon flashes when battery replacement is needed. Refer to *Section 1.4.2 on page 5 of the manual* for battery installation instructions. If the batteries are changed within 30

seconds, the instrument retains the latest range and signal average selections. If it takes more than 30 seconds, the instrument uses the default settings. If, after changing batteries, the instrument will not turn off or on and the batteries are good, remove the batteries and reinstall them. If the instrument still won't function, contact Hach Service or the nearest authorized dealer.

- **Lamp Replacement**: The procedure in *Section 4.0 on page 49 of the manual* explains lamp installation and electrical connections. Use a small screwdriver to remove and install the lamp leads in the terminal block. The instrument requires calibration after lamp replacement.

ATTACHMENTS

Equipment Calibration Log (sample)

ROUX

EQUIPMENT CALIBRATION

PROJECT INFORMATION:

Project Name: Date:

Project No.:

Client: Instrument Source: ☐ Roux ☐ Rental

METER TYPE	UNITS	TIME	MAKE/MODEL	SERIAL NUMBER	CAL. BY	STANDARD	READING	SETTI
☐ pH meter	units		Myron L Company Ultra Meter 6P	606987		4.00		
						7.00		
						10.01		
☐ Turbidity meter	NTU		Hach 2100P Turbidimeter	970600014560		< 0.4		
						20		
						100		
						800		
☐ Sp. conductance meter	uS/mS		Myron L Company Ultra Meter 6P	606987		µS @ 25 °C		
☐ PID	ppm		Photovac 2020 PID			open air zero		MIBK re
						_____ ppm Iso. Gas		factor =
☐ Particulate meter	mg/m^3					zero air		
☐ Oxygen	%					open air		
☐ Hydrogen sulfide	ppm					open air		
☐ Carbon monoxide	ppm					open air		
☐ LEL	%					open air		
☐ Radiation Meter	uR/h					background area		
☐								

ADDITIONAL REMARKS:

PREPARED BY: **DATE:**

SAMPLE

Field Operating Procedures

Calibration and Maintenance of Portable Photoionization Detector (PID)

FOP 011.1

CALIBRATION AND MAINTENANCE OF PORTABLE PHOTOIONIZATION DETECTOR

PURPOSE

This procedure describes a general method for the calibration and maintenance of a portable photoionization detector (PID). The PID detects and initially quantifies a reading of the volatile organic compound (VOC) concentration in air. The PID is used as a field-screening tool for initial evaluation of soil samples and for ambient air monitoring of compounds with ionization potentials (IP) less than the PID lamp electron voltage (eV) rating. The IP is the amount of energy required to move an electron to an infinite distance from the nucleus thus creating a positive ion plus an electron. It should be noted that all of the major components of air (i.e., carbon dioxide, methane, nitrogen, oxygen etc.) have IP's above 12 eV. As a result, they will not be ionized by the 9.8, 10.6, or 11.7 eV lamps typically utilized in field PIDs. The response of the PID will then be the sum of the organic and inorganic compounds in air that are ionized by the appropriate lamp (i.e., 9.8, 10.6 or 11.7 eV). Attached to this FOP is a table summarizing common organic compounds and their respective IPs.

Calibration is performed to verify instrument accuracy and function. All field instruments will be calibrated, verified and recalibrated at frequencies required by their respective operating manuals or manufacturer's specifications, but not less than once each day that the instrument is in use. Compound-specific calibration methods should be selected on a project-by-project basis to increase the accuracy of the instrument. The best way to calibrate a PID to different compounds is to use a standard of the gas of interest. However, correction factors have been determined that enable the user to quantify a large number of chemicals using only a single calibration gas, typically isobutylene. Field personnel should have access to all operating manuals for the instruments used for the field measurements. This procedure also documents critical maintenance activities for this meter.

CALIBRATION AND MAINTENANCE OF PORTABLE PHOTOIONIZATION DETECTOR

Note: The information included below is equipment manufacturer- and model-specific, however, accuracy, calibration, and maintenance procedures for this type of portable equipment are typically similar. The information below pertains to the MiniRAE 2000 Portable VOC Monitor equipped with a 10.6 eV lamp. The actual equipment to be used in the field will be equivalent or similar. The following information is provided for general reference; the equipment-specific manufacturer's manual should be followed with precedence over this FOP.

Note: The PID indicates total VOC concentration readings that are normalized to a calibration standard, so actual quantification of individual compounds is not provided. In addition, the PID response to compounds is highly variable, dependent on ionization potential of the compound, and the presence or absence of other compounds.

ACCURACY

The MiniRAE 2000 is accurate to ± 2 ppm or 10% of the reading for concentrations ranging from 0-2,000 ppm and ± 20% of the reading at concentrations greater than 2,000 ppm. Response time is less than two seconds to 90 percent of full-scale. The operating temperature range is 0 to 45° C and the operating humidity range is 0 to 95 % relative humidity (non-condensing).

CALIBRATION PROCEDURE

The calibration method and correction factor, if applicable, will be selected on a project-by-project basis and confirmed with the Project Manager prior to the start of field work.

1. Calibrate all field test equipment at the beginning of each sampling day. Check and recalibrate the PID according to the manufacture's specifications.

2. Calibrate the PID using a compressed gas cylinder or equivalent containing the calibration standard, a flow regulator, and a tubing assembly. In addition, a compressed gas cylinder containing zero air ("clean" air) may be required if ambient air conditions do not permit calibration to "clean air".

3. Fill two Tedlar® bags equipped with a one-way valve with zero-air (if applicable) and the calibration standard gas.

4. Assemble the calibration equipment and actuate the PID in its calibration mode.

5. Select the appropriate calibration method. Calibration may be completed with two methods: 1) where the calibration standard gas is the same as the measurement gas (no correction factor is applied) or 2) where the calibration standard gas is not the same as the measurement gas and a correction factor will be applied. An isobutylene standard gas must be used as the calibration standard gas for the use of correction factors with the MiniRAE 2000. See below for additional instructions for calibration specific to use with or without correction factors.

   Calibrating Without a Correction Factor

   Navigate within the menu to select the "cal memory" for the specific calibration standard gas prior to calibration. The default gas selections for the MiniRAE 2000 are as follows:

Cal Memory #0	Isobutylene
Cal Memory #1	Hexane
Cal Memory #2	Xylene
Cal Memory #3	Benzene
Cal Memory #4	Styrene
Cal Memory #5	Toluene
Cal Memory #6	Vinyl Chloride
Cal Memory #7	Custom

The calibration standard gas for Cal Memory #1-7 may be toggled for selection of any of the approximately 100 preprogrammed calibration standard gases for use without an applied correction factor (i.e., the calibration gas must be the same as the measurement gas).

Calibrating With a Correction Factor

Navigate within the menu to select the "Cal Memory".

Select "Cal Memory #0" and toggle for selection of any of the approximately 100 preprogrammed chemicals. During calibration, the unit requests isobutylene gas and displays the isobutylene concentration immediately following calibration, but when the unit is returned to the normal reading mode, it displays the selected chemical and applies the correction factor.

If the pre-programmed list does not include the desired chemical or a user-defined measurement gas and correction factor is desired, toggle Cal Memory #0 to "user defined custom gas". A list of approximately 300 correction factors is attached in Technical Note 106 generated by MiniRAE.

6. Once the PID settings have been verified, connect the PID probe to the zero air calibration bag (or calibrate to ambient air if conditions permit) and wait for a stable indication.

7. Connect the PID probe to the calibration standard bag. Measure an initial reading of the standard and wait for a stable indication.

8. Keep the PID probe connected to the calibration standard bag, calibrate to applicable concentration (typically 100 ppm with isobutylene) with the standard and wait for a stable indication.

9. Document the calibration results and related information in the Project Field Book and on an **Equipment Calibration Log** (see attached sample), indicating the meter readings before and after the instrument has been adjusted. This is important, not only for data validation, but also to establish

maintenance schedules and component replacement. Information will include, at a minimum:

- Time, date and initials of the field team member performing the calibration
- The unique identifier for the meter, including manufacturer, model, and serial number
- The calibration standard and concentration
- Correction factors used, if any
- The brand and expiration date of the calibration standard gas
- The instrument readings: before and after calibration
- The instrument settings (if applicable)
- Pass or fail designation in accordance with the accuracy specifications presented above
- Corrective action taken (see Maintenance below) in the event of failure to adequately calibrate.

MAINTENANCE

- The probe and dust filter of the PID should be checked before and after every use for cleanliness. Should instrument response become unstable, recalibration should be performed. If this does not resolve the problem, access the photoionization bulb and clean with the manufacturer-supplied abrasive compound, then recalibrate.

- The PID battery must be recharged after each use. Store the PID in its carrying case when not in use. Additional maintenance details related to individual components of the PID are provided in the equipment manufacturer's instruction manual. If calibration or instrument performance is not in accordance with specifications, send the instrument to the equipment manufacturer for repair.

- Maintain a log for each monitoring instrument. Record all maintenance performed on the instrument on this log with date and name of the organization performing the maintenance.

ATTACHMENTS

Table 1; Summary of Ionization Potentials
Equipment Calibration Log (sample)
Technical Note TN-106

TABLE 1

SUMMARY OF IONIZATION POTENTIALS

Chemical Name	Ionization Potential (eV)	Cannot be Read by 10.6 eV PID
A		
2-Amino pyridine	8	
Acetaldehyde	10.21	
Acetamide	9.77	
Acetic acid	10.69	X
Acetic anhydride	10	
Acetone	9.69	
Acetonitrile	12.2	X
Acetophenone	9.27	
Acetyl bromide	10.55	
Acetyl chloride	11.02	X
Acetylene	11.41	X
Acrolein	10.1	
Acrylamide	9.5	
Acrylonitrile	10.91	X
Allyl alcohol	9.67	
Allyl chloride	9.9	
Ammonia	10.2	
Aniline	7.7	
Anisidine	7.44	
Anisole	8.22	
Arsine	9.89	
B		
1,3-Butadiene (butadiene)	9.07	
1-Bromo-2-chloroethane	10.63	X
1-Bromo-2-methylpropane	10.09	
1-Bromo-4-fluorobenzene	8.99	
1-Bromobutane	10.13	
1-Bromopentane	10.1	
1-Bromopropane	10.18	
1-Bromopropene	9.3	
1-Butanethiol	9.14	
1-Butene	9.58	
1-Butyne	10.18	
2,3-Butadione	9.23	
2-Bromo-2-methylpropane	9.89	
2-Bromobutane	9.98	
2-Bromopropane	10.08	

TABLE 1

SUMMARY OF IONIZATION POTENTIALS

Chemical Name	Ionization Potential (eV)	Cannot be Read by 10.6 eV PID
2-Bromothiophene	8.63	
2-Butanone (MEK)	9.54	
3-Bromopropene	9.7	
3-Butene nitrile	10.39	
Benzaldehyde	9.53	
Benzene	9.25	
Benzenethiol	8.33	
Benzonitrile	9.71	
Benzotrifluoride	9.68	
Biphenyl	8.27	
Boron oxide	13.5	X
Boron trifluoride	15.56	X
Bromine	10.54	
Bromobenzene	8.98	
Bromochloromethane	10.77	X
Bromoform	10.48	
Butane	10.63	X
Butyl mercaptan	9.15	
cis-2-Butene	9.13	
m-Bromotoluene	8.81	
n-Butyl acetate	10.01	
n-Butyl alcohol	10.04	
n-Butyl amine	8.71	
n-Butyl benzene	8.69	
n-Butyl formate	10.5	
n-Butyraldehyde	9.86	
n-Butyric acid	10.16	
n-Butyronitrile	11.67	X
o-Bromotoluene	8.79	
p-Bromotoluene	8.67	
p-tert-Butyltoluene	8.28	
s-Butyl amine	8.7	
s-Butyl benzene	8.68	
sec-Butyl acetate	9.91	
t-Butyl amine	8.64	
t-Butyl benzene	8.68	
trans-2-Butene	9.13	
C		

TABLE 1

SUMMARY OF IONIZATION POTENTIALS

Chemical Name	Ionization Potential (eV)	Cannot be Read by 10.6 eV PID
1-Chloro-2-methylpropane	10.66	X
1-Chloro-3-fluorobenzene	9.21	
1-Chlorobutane	10.67	X
1-Chloropropane	10.82	X
2-Chloro-2-methylpropane	10.61	X
2-Chlorobutane	10.65	X
2-Chloropropane	10.78	X
2-Chlorothiophene	8.68	
3-Chloropropene	10.04	
Camphor	8.76	
Carbon dioxide	13.79	X
Carbon disulfide	10.07	
Carbon monoxide	14.01	X
Carbon tetrachloride	11.47	X
Chlorine	11.48	X
Chlorine dioxide	10.36	
Chlorine trifluoride	12.65	X
Chloroacetaldehyde	10.61	X
α -Chloroacetophenone	9.44	
Chlorobenzene	9.07	
Chlorobromomethane	10.77	X
Chlorofluoromethane (Freon 22)	12.45	X
Chloroform	11.37	X
Chlorotrifluoromethane (Freon 13)	12.91	X
Chrysene	7.59	
Cresol	8.14	
Crotonaldehyde	9.73	
Cumene (isopropyl benzene)	8.75	
Cyanogen	13.8	X
Cyclohexane	9.8	
Cyclohexanol	9.75	
Cyclohexanone	9.14	
Cyclohexene	8.95	
Cyclo-octatetraene	7.99	
Cyclopentadiene	8.56	
Cyclopentane	10.53	
Cyclopentanone	9.26	
Cyclopentene	9.01	

TABLE 1

SUMMARY OF IONIZATION POTENTIALS

Chemical Name	Ionization Potential (eV)	Cannot be Read by 10.6 eV PID
Cyclopropane	10.06	
m-Chlorotoluene	8.83	
o-Chlorotoluene	8.83	
p-Chlorotoluene	8.7	
D		
1,1-Dibromoethane	10.19	
1,1-Dichloroethane	11.12	X
1,1-Dimethoxyethane	9.65	
1,1-Dimethylhydrazine	7.28	
1,2-Dibromoethene	9.45	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	12.2	X
1,2-Dichloroethane	11.12	X
1,2-Dichloropropane	10.87	X
1,3-Dibromopropane	10.07	
1,3-Dichloropropane	10.85	X
2,2-Dimethyl butane	10.06	
2,2-Dimethyl propane	10.35	
2,3-Dichloropropene	9.82	
2,3-Dimethyl butane	10.02	
3,3-Dimethyl butanone	9.17	
cis-Dichloroethene	9.65	
Decaborane	9.88	
Diazomethane	9	
Diborane	12	X
Dibromochloromethane	10.59	
Dibromodifluoromethane	11.07	X
Dibromomethane	10.49	
Dibutylamine	7.69	
Dichlorodifluoromethane (Freon 12)	12.31	X
Dichlorofluoromethane	12.39	X
Dichloromethane	11.35	X
Diethoxymethane	9.7	
Diethyl amine	8.01	
Diethyl ether	9.53	
Diethyl ketone	9.32	
Diethyl sulfide	8.43	
Diethyl sulfite	9.68	
Difluorodibromomethane	11.07	X

TABLE 1

SUMMARY OF IONIZATION POTENTIALS

Chemical Name	Ionization Potential (eV)	Cannot be Read by 10.6 eV PID
Dihydropyran	8.34	
Diiodomethane	9.34	
Diisopropylamine	7.73	
Dimethoxymethane (methylal)	10	
Dimethyl amine	8.24	
Dimethyl ether	10	
Dimethyl sulfide	8.69	
Dimethylaniline	7.13	
Dimethylformamide	9.18	
Dimethylphthalate	9.64	
Dinitrobenzene	10.71	X
Dioxane	9.19	
Diphenyl	7.95	
Dipropyl amine	7.84	
Dipropyl sulfide	8.3	
Durene	8.03	
m-Dichlorobenzene	9.12	
N,N-Diethyl acetamide	8.6	
N,N-Diethyl formamide	8.89	
N,N-Dimethyl acetamide	8.81	
N,N-Dimethyl formamide	9.12	
o-Dichlorobenzene	9.06	
p-Dichlorobenzene	8.95	
p-Dioxane	9.13	
trans-Dichloroethene	9.66	
E		
Epichlorohydrin	10.2	
Ethane	11.65	X
Ethanethiol (ethyl mercaptan)	9.29	
Ethanolamine	8.96	
Ethene	10.52	
Ethyl acetate	10.11	
Ethyl alcohol	10.48	
Ethyl amine	8.86	
Ethyl benzene	8.76	
Ethyl bromide	10.29	
Ethyl chloride (chloroethane)	10.98	X
Ethyl disulfide	8.27	

TABLE 1

SUMMARY OF IONIZATION POTENTIALS

Chemical Name	Ionization Potential (eV)	Cannot be Read by 10.6 eV PID
Ethyl ether	9.51	
Ethyl formate	10.61	X
Ethyl iodide	9.33	
Ethyl isothiocyanate	9.14	
Ethyl mercaptan	9.29	
Ethyl methyl sulfide	8.55	
Ethyl nitrate	11.22	X
Ethyl propionate	10	
Ethyl thiocyanate	9.89	
Ethylene chlorohydrin	10.52	
Ethylene diamine	8.6	
Ethylene dibromide	10.37	
Ethylene dichloride	11.05	X
Ethylene oxide	10.57	
Ethylenelmine	9.2	
Ethynylbenzene	8.82	
F		
2-Furaldehyde	9.21	
Fluorine	15.7	X
Fluorobenzene	9.2	
Formaldehyde	10.87	X
Formamide	10.25	
Formic acid	11.05	X
Freon 11 (trichlorofluoromethane)	11.77	X
Freon 112 (1,1,2,2-tetrachloro-1,2-difluoroethane)	11.3	X
Freon 113 (1,1,2-trichloro-1,2,2-trifluororethane)	11.78	X
Freon 114 (1,2-dichloro-1,1,2,2-tetrafluoroethane)	12.2	X
Freon 12 (dichlorodifluoromethane)	12.31	X
Freon 13 (chlorotrifluoromethane)	12.91	X
Freon 22 (chlorofluoromethane)	12.45	X
Furan	8.89	
Furfural	9.21	
m-Fluorotoluene	8.92	
o-Fluorophenol	8.66	
o-Fluorotoluene	8.92	
p-Fluorotoluene	8.79	
H		
1-Hexene	9.46	

TABLE 1

SUMMARY OF IONIZATION POTENTIALS

Chemical Name	Ionization Potential (eV)	Cannot be Read by 10.6 eV PID
2-Heptanone	9.33	
2-Hexanone	9.35	
Heptane	10.08	
Hexachloroethane	11.1	X
Hexane	10.18	
Hydrazine	8.1	
Hydrogen	15.43	X
Hydrogen bromide	11.62	X
Hydrogen chloride	12.74	X
Hydrogen cyanide	13.91	X
Hydrogen fluoride	15.77	X
Hydrogen iodide	10.38	
Hydrogen selenide	9.88	
Hydrogen sulfide	10.46	
Hydrogen telluride	9.14	
Hydroquinone	7.95	
I		
1-Iodo-2-methylpropane	9.18	
1-Iodobutane	9.21	
1-Iodopentane	9.19	
1-Iodopropane	9.26	
2-Iodobutane	9.09	
2-Iodopropane	9.17	
Iodine	9.28	
Iodobenzene	8.73	
Isobutane	10.57	
Isobutyl acetate	9.97	
Isobutyl alcohol	10.12	
Isobutyl amine	8.7	
Isobutyl formate	10.46	
Isobutyraldehyde	9.74	
Isobutyric acid	10.02	
Isopentane	10.32	
Isophorone	9.07	
Isoprene	8.85	
Isopropyl acetate	9.99	
Isopropyl alcohol	10.16	
Isopropyl amine	8.72	

TABLE 1

SUMMARY OF IONIZATION POTENTIALS

Chemical Name	Ionization Potential (eV)	Cannot be Read by 10.6 eV PID
Isopropyl benzene	8.69	
Isopropyl ether	9.2	
Isovaleraldehyde	9.71	
m-Iodotoluene	8.61	
o-Iodotoluene	8.62	
p-Iodotoluene	8.5	
K		
Ketene	9.61	
L		
2,3-Lutidine	8.85	
2,4-Lutidine	8.85	
2,6-Lutidine	8.85	
M		
2-Methyl furan	8.39	
2-Methyl napthalene	7.96	
1-Methyl napthalene	7.96	
2-Methyl propene	9.23	
2-Methyl-1-butene	9.12	
2-Methylpentane	10.12	
3-Methyl-1-butene	9.51	
3-Methyl-2-butene	8.67	
3-Methylpentane	10.08	
4-Methylcyclohexene	8.91	
Maleic anhydride	10.8	X
Mesityl oxide	9.08	
Mesitylene	8.4	
Methane	12.98	X
Methanethiol (methyl mercaptan)	9.44	
Methyl acetate	10.27	
Methyl acetylene	10.37	
Methyl acrylate	9.9	
Methyl alcohol	10.85	X
Methyl amine	8.97	
Methyl bromide	10.54	
Methyl butyl ketone	9.34	
Methyl butyrate	10.07	
Methyl cellosolve	9.6	
Methyl chloride	11.28	X

TABLE 1

SUMMARY OF IONIZATION POTENTIALS

Chemical Name	Ionization Potential (eV)	Cannot be Read by 10.6 eV PID
Methyl chloroform (1,1,1-trichloroethane)	11	X
Methyl disulfide	8.46	
Methyl ethyl ketone	9.53	
Methyl formate	10.82	X
Methyl iodide	9.54	
Methyl isobutyl ketone	9.3	
Methyl isobutyrate	9.98	
Methyl isocyanate	10.67	X
Methyl isopropyl ketone	9.32	
Methyl isothiocyanate	9.25	
Methyl mercaptan	9.44	
Methyl methacrylate	9.7	
Methyl propionate	10.15	
Methyl propyl ketone	9.39	
α -Methyl styrene	8.35	
Methyl thiocyanate	10.07	
Methylal (dimethoxymethane)	10	
Methylcyclohexane	9.85	
Methylene chloride	11.32	X
Methyl-n-amyl ketone	9.3	
Monomethyl aniline	7.32	
Monomethyl hydrazine	7.67	
Morpholine	8.2	
n-Methyl acetamide	8.9	
N		
1-Nitropropane	10.88	X
2-Nitropropane	10.71	X
Naphthalene	8.12	
Nickel carbonyl	8.27	
Nitric oxide, (NO)	9.25	
Nitrobenzene	9.92	
Nitroethane	10.88	X
Nitrogen	15.58	X
Nitrogen dioxide	9.78	
Nitrogen trifluoride	12.97	X
Nitromethane	11.08	X
Nitrotoluene	9.45	
p-Nitrochloro benzene	9.96	

TABLE 1

SUMMARY OF IONIZATION POTENTIALS

Chemical Name	Ionization Potential (eV)	Cannot be Read by 10.6 eV PID
O		
Octane	9.82	
Oxygen	12.08	X
Ozone	12.08	X
P		
1-Pentene	9.5	
1-Propanethiol	9.2	
2,4-Pentanedione	8.87	
2-Pentanone	9.38	
2-Picoline	9.02	
3-Picoline	9.02	
4-Picoline	9.04	
n-Propyl nitrate	11.07	X
Pentaborane	10.4	
Pentane	10.35	
Perchloroethylene	9.32	
Pheneloic	8.18	
Phenol	8.5	
Phenyl ether (diphenyl oxide)	8.82	
Phenyl hydrazine	7.64	
Phenyl isocyanate	8.77	
Phenyl isothiocyanate	8.52	
Phenylene diamine	6.89	
Phosgene	11.77	X
Phosphine	9.87	
Phosphorus trichloride	9.91	
Phthalic anhydride	10	
Propane	11.07	X
Propargyl alcohol	10.51	
Propiolactone	9.7	
Propionaldehyde	9.98	
Propionic acid	10.24	
Propionitrile	11.84	X
Propyl acetate	10.04	
Propyl alcohol	10.2	
Propyl amine	8.78	
Propyl benzene	8.72	
Propyl ether	9.27	

TABLE 1

SUMMARY OF IONIZATION POTENTIALS

Chemical Name	Ionization Potential (eV)	Cannot be Read by 10.6 eV PID
Propyl formate	10.54	
Propylene	9.73	
Propylene dichloride	10.87	X
Propylene imine	9	
Propylene oxide	10.22	
Propyne	10.36	
Pyridine	9.32	
Pyrrole	8.2	
Q		
Quinone	10.04	
S		
Stibine	9.51	
Styrene	8.47	
Sulfur dioxide	12.3	X
Sulfur hexafluoride	15.33	X
Sulfur monochloride	9.66	
Sulfuryl fluoride	13	X
T		
o-Terphenyls	7.78	
1,1,2,2-Tetrachloro-1,2-difluoroethane (Freon 112)	11.3	X
1,1,1-Trichloroethane	11	X
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	11.78	X
2,2,4-Trimethyl pentane	9.86	
o-Toluidine	7.44	
Tetrachloroethane	11.62	X
Tetrachloroethene	9.32	
Tetrachloromethane	11.47	X
Tetrahydrofuran	9.54	
Tetrahydropyran	9.25	
Thiolacetic acid	10	
Thiophene	8.86	
Toluene	8.82	
Tribromoethene	9.27	
Tribromofluoromethane	10.67	X
Tribromomethane	10.51	
Trichloroethene	9.45	
Trichloroethylene	9.47	
Trichlorofluoromethane (Freon 11)	11.77	X

TABLE 1

SUMMARY OF IONIZATION POTENTIALS

Chemical Name	Ionization Potential (eV)	Cannot be Read by 10.6 eV PID
Trichloromethane	11.42	X
Triethylamine	7.5	
Trifluoromonobromo-methane	11.4	X
Trimethyl amine	7.82	
Tripropyl amine	7.23	
V		
o-Vinyl toluene	8.2	
Valeraldehyde	9.82	
Valeric acid	10.12	
Vinyl acetate	9.19	
Vinyl bromide	9.8	
Vinyl chloride	10	
Vinyl methyl ether	8.93	
W		
Water	12.59	X
X		
2,4-Xylidine	7.65	
m-Xylene	8.56	
o-Xylene	8.56	
p-Xylene	8.45	

ROUX

EQUIPMENT CALIBRATION LOG

PROJECT INFORMATION:

Project Name: Date:

Project No.:

Client: Instrument Source: ☐ Roux ☐ Rental

METER TYPE	UNITS	TIME	MAKE/MODEL	SERIAL NUMBER	CAL. BY	STANDARD	POST CAL. READING	SETTINGS
☐ pH meter	units		Myron L Company Ultra Meter 6P	606987		4.00 7.00 10.01		
☐ Turbidity meter	NTU		Hach 2100P Turbidimeter	9706000145		< 0.4 00 800		
☐ Sp. Cond. meter	uS mS		Myron L Company Ultra Meter 6P			_____ mS @ 25 °C		
☐ PID	ppm		MinRAE 20			open air zero _____ ppm Iso. Gas		MIBK response factor = 1.0
☐ Dissolved Oxygen	ppm		YSI Model 5					
☐ Particulate meter	mg/m^3					zero air		
☐ Oxygen	%					open air		
☐ Hydrogen sulfide	ppm					open air		
☐ Carbon monoxide	ppm					open air		
☐ LEL	%					open air		
☐ Radiation Meter	uR/H					background area		
☐								

SAMPLE

ADDITIONAL REMARKS:

PREPARED BY: **DATE:**

FIELD OPERATING PROCEDURES

Calibration and Maintenance of Portable Specific Conductance Meter

FOP 012.0

CALIBRATION AND MAINTENANCE OF PORTABLE SPECIFIC CONDUCTANCE METER

PURPOSE

This guideline describes a method for calibration of a portable specific conductance meter. This meter measures the ability of a water sample to conduct electricity, which is largely a function of the dissolved solids within the water. The instrument has been calibrated by the manufacturer according to factory specifications. This guideline presents a method for checking the factory calibration of a portable specific conductance meter. A calibration check is performed to verify instrument accuracy and function. All field test equipment will be checked at the beginning of each sampling day. This procedure also documents critical maintenance activities for this meter.

ACCURACY

The calibrated accuracy of the specific conductance meter will be within ± 1 percent of full-scale, with repeatability of ± 1 percent. The built-in cell will be automatically temperature compensated from at least 32° to 160° F (0° to 71°C).

PROCEDURE

Note: The information included below is equipment manufacturer- and model-specific, however, accuracy, calibration, and maintenance procedures for this type of portable equipment are typically similar. The information below pertains to the Myron L Company Ultrameter Model 6P. The actual equipment to be used in the field will be equivalent or similar.

1. Calibrate all field test equipment at the beginning of each sampling day. Check and recalibrate the specific conductance meter according to the manufacture's specifications.

2. Use a calibration solution of known specific conductivity and salinity. For maximum accuracy, use a Standard Solution Value closest to the samples to be tested.

3. Rinse conductivity cell three times with proper standard.

4. Re-fill conductivity cell with same standard.

5. Press **COND** or **TDS**, then press **CAL/MCLR**. The "CAL" icon will appear on the display.

6. Press the **↑/MS** or **MR/↓** key to step the displayed value toward the standard's value or hold a key down to cause rapid scrolling of the reading.

7. Press CAL/MCLR once to confirm new value and end the calibration sequence for this particular solution type.

8. Repeat steps 1 through 7 with additional new solutions, as necessary.

9. Document the calibration results and related information in the Project Field Book and on an **Equipment Calibration Log** (see attached sample), indicating the meter readings before and after the instrument has been adjusted. This is important, not only for data validation, but also to establish maintenance schedules and component replacement. Information will include, at a minimum:
    - Time, date and initials of the field team member performing the calibration
    - The unique identifier for the meter, including manufacturer, model, and serial number
    - The brand and expiration date of the calibration standards
    - The instrument readings: before and after calibration

- The instrument settings (if applicable)
- The overall adequacy of calibration including the Pass or fail designation in accordance with the accuracy specifications presented above.
- Corrective action taken (see Maintenance below) in the event of failure to adequately calibrate.

MAINTENANCE

NOTE: Ultrameters should be rinsed with clean water after use. Solvents should be avoided. Shock damage from a fall may cause instrument failure.

Temperature Extremes

Solutions in excess of 160°F/71°C should not be placed in the cell cup area; this may cause damage. Care should be exercised not to exceed rated operating temperature. Leaving the Ultrameter in a vehicle or storage shed on a hot day can easily subject the instrument to over 150°F voiding the warranty.

Battery Replacement

Dry Instrument THOROUGHLY. Remove the four bottom screws. Open instrument carefully; it may be necessary to rock the bottom slightly side to side to release it from the RS-232 connector. Carefully detach battery from circuit board. Replace with 9-volt alkaline battery. Replace bottom, ensuring the sealing gasket is installed in the groove of the top half of case. Re-install screws, tighten evenly and securely.

NOTE: Because of nonvolatile EEPROM circuitry, all data stored in memory and all calibration settings are protected even during power loss or battery replacement.

Cleaning Sensors

The conductivity cell cup should be kept as clean as possible. Flushing with clean water following use will prevent buildup on electrodes. However, if very dirty samples — particularly scaling types — are allowed to dry in the cell cup, a film will form. This film reduces accuracy. When there are visible films of oil, dirt, or scale in the cell cup or on the electrodes, use a foaming non-abrasive household cleaner. Rinse out the cleaner and your Ultrameter is ready for accurate measurements.

NOTE: Maintain a log for each monitoring instrument. Record all maintenance performed on the instrument on this log with date and name of the organization performing the maintenance.

ATTACHMENTS

Equipment Calibration Log (sample)

ROUX

EQUIPMENT CALIBRATION

PROJECT INFORMATION:

Project Name: Date:

Project No.:

Client: Instrument Source: ☐ Roux ☐ Rental

METER TYPE	UNITS	TIME	MAKE/MODEL	SERIAL NUMBER	CAL. BY	STANDARD	READING	SETTI
☐ pH meter	units		Myron L Company Ultra Meter 6P	606987		4.00		
						7.00		
						10.01		
☐ Turbidity meter	NTU		Hach 2100P Turbidimeter	970600014560		< 0.4		
						20		
						100		
						800		
☐ Sp. conductance meter	uS/mS		Myron L Company Ultra Meter 6P	606987		µS @ 25 °C		
☐ PID	ppm		Photovac 2020 PID			open air zero		MIBK re
						_____ ppm Iso. Gas		factor =
☐ Particulate meter	mg/m^3					zero air		
☐ Oxygen	%					open air		
☐ Hydrogen sulfide	ppm					open air		
☐ Carbon monoxide	ppm					open air		
☐ LEL	%					open air		
☐ Radiation Meter	uR/h					background area		
☐								

ADDITIONAL REMARKS:

PREPARED BY: **DATE:**

SAMPLE

FIELD OPERATING PROCEDURES

Composite Sample Collection Procedure for Non-VOC Analysis

FOP 013.1

COMPOSITE SAMPLE COLLECTION PROCEDURE FOR NON-VOLATILE ORGANIC ANALYSIS

PURPOSE

This guideline addresses the procedure to be used when soil samples are to be composited in the field.

PROCEDURE

1. Transfer equal weighted aliquots of soil from individual split-spoon samples, excavator bucket, hand auger or surface soil sample location to a large precleaned stainless steel (or Pyrex glass) mixing bowl.

2. Thoroughly mix (homogenize) and break up the soil using a stainless steel scoop or trowel.

3. Spread the composite sample evenly on a stainless steel tray and quarter the sample.

4. Discard alternate (i.e., diagonal) quarters and, using a small stainless steel scoop or spatula, collect equal portions of subsample from the remaining two quarters until the amount required for the composite sample is acquired. Transfer these subsamples to a precleaned stainless steel (or Pyrex glass) mixing bowl and re-mix.

5. Transfer the composite sample to the laboratory provided, precleaned sample jars. Store any excess sample from the stainless steel tray in a separate, precleaned, wide-mouth sample jar and refrigerate for future use, if applicable.

6. Decontaminate all stainless steel (or Pyrex glass) equipment in accordance with Roux's Non-disposable and Non-dedicated Sampling Equipment Decontamination procedures.

7. Prepare samples in accordance with Roux's Sample Labeling, Storage and Shipment FOP.

8. Record all sampling details in the Project Field Book and on the Soil/Sediment Sample Collection Summary Log (sample attached).

ATTACHMENTS

Soil/Sediment Sample Collection Summary Log (sample)

REFERENCES

Roux FOPs:

040 Non-disposable and Non-dedicated Sampling Equipment Decontamination

046 Sample Labeling, Storage and Shipment

ROUX

SOIL/SEDIMENT
SAMPLE COLLECTION SUMMARY LOG

Field ID	Location	QC Type	Depth (feet)		Analytical Parameters	Containers	Date	Time	Sampler Initials	Comments (e.g. problems encountered, ref. to variance, location changes, depth changes, important matrix observations or description, gravel thickness, etc.)
			from	to						

Equipment Rinsate Blanks *- Pour clean de[illegible]yer or th[illegible] equipment into sample containers. Collect at a frequency of 1 per 20 samples of each matrix when non-dedicated equipment is utilized in accordan[illegible]*

MS/MSD *- Collect at a frequency of 1 per 20[illegible] in ac[illegible] with DER-10.*

Field Blank *- Pour clean deionized water (used [illegible] containers while at the sampling site. Collect field blanks at a frequency of 1 per 20 samples of each matrix.*

Investigation Derived Waste (IDW) Characterization samples *- C[illegible]mposite samples from all drums of decon fluids and soil at the frequency required by the disposal facility. Please note number of drums and labels on collection log.*

Notes:
1. See QAPP for sampling frequency and actual number of QC sa[illegible]
2. MS/MSD - Matrix Spike, Matrix Spike Duplicate, Matrix Spike Blank.
3. BD - Blind Duplicate - indicate location of duplicate.

Sample Summary Collection Logs - soil and sediment-REV.xlsx Page ____ of ____ Prepared By: _____

SAMPLE

FIELD OPERATING PROCEDURES

Drill Site Selection Procedure

FOP 017.0

DRILL SITE SELECTION PROCEDURE

PURPOSE

This procedure presents a method for selecting a site location for drilling. Drill site selection should be based on the project objectives, ease of site access, freedom from obstructions and buried metallic objects (drums) and site safety (appropriate set backs from overhead and buried services).

PROCEDURE

The following procedure outlines procedures prior to drilling activities:

1. Review project objectives and tentatively select drilling locations that provide necessary information for achieving objectives (i.e., Work Plan).

2. Clear locations with property owner/operator to ensure that drilling activities will not interfere with site operations and select appropriate access routes.

3. Stake locations in the field, measure distance from locations to recognizable landmarks, such as building or fence lines and plot locations on site plan. Ensure location is relatively flat, free of overhead wires and readily accessible. Survey location if property ownership is in doubt.

4. Obtain clearances from appropriate utilities and if buried waste/metallic objects are suspected, screen location with appropriate geophysical method.

5. Establish a secure central staging area for storage of drilling supplies and for equipment decontamination. Locate a secure storage area for drilling samples, as necessary.

ATTACHMENTS

none

FIELD OPERATING PROCEDURES

Drilling and Excavation Equipment Decontamination Procedures

FOP 018.0

DRILLING AND EXCAVATION EQUIPMENT DECONTAMINATION PROCEDURES

PURPOSE

This procedure is to be used for the decontamination of drilling and excavation equipment (i.e., drill rigs, backhoes, augers, drill bits, drill rods, buckets, and associated equipment) used during a subsurface investigation. The purpose of this procedure is to remove chemical constituents associated with a particular drilling or excavation location from this equipment. This prevents these constituents from being transferred between drilling or excavation locations, or being transported out of controlled areas.

PROCEDURE

The following procedure will be utilized prior to the use of drilling or excavation equipment at each location, and prior to the demobilization of such equipment from the site:

1. Remove all loose soil and other particulate materials from the equipment at the survey site.

2. Wrap augers, tools, plywood, and other reusable items with a plastic cover prior to transport from the site of use to the decontamination facility.

3. Transport equipment to the decontamination facility. All equipment must be decontaminated at an established decontamination facility. This facility will be placed within a controlled area, and will be equipped with necessary features to contain and collect wash water and entrained materials.

4. Wash equipment thoroughly with pressurized low-volume water or steam, supplied by a pressure washer or steam cleaner.

5. If necessary, use a brush or scraper to remove visible soils adhering to the equipment, and a non-phosphate detergent to remove any oils, grease, and/or hydraulic fluids adhering to the equipment. Continue pressure washing until all visible contaminants are removed.

6. Allow equipment to air dry.

7. Store equipment in a clean area or wrap the equipment in new plastic sheeting as necessary to ensure cleanliness until ready for use.

8. Manage all wash waters and entrained solids as described in the Roux Field Operating Procedure for Management of Investigation-Derived Waste.

ATTACHMENTS

none

Field Operating Procedures

Establishing Horizontal and Vertical Control

FOP 021.0

ESTABLISHING HORIZONTAL AND VERTICAL CONTROL

PURPOSE

This guideline presents a method for establishing horizontal and vertical controls at a project site. It is imperative that this procedure be performed accurately, as all topographic and site maps, monitoring well locations and test pit locations will be based on these controls.

PROCEDURE

A. Establishing Horizontal Primary and Project Control

1. Research the State Plan Coordinate, USGS or project site applicable horizontal control monuments.
2. At the project site, recover the above-mentioned monuments, two markers minimum being recovered.
3. Establish control points on the project site by bringing in the primary control points recovered in the field.
4. All control points will be tied into a closed traverse to assure the error of closure.
5. Compute closures for obtaining degree of accuracy to adjust traverse points.

B. Establishing Vertical Primary and Project Control

1. Research project or USGS datum for recovering monument(s) for vertical control if different than those previously found.
2. Recover the monuments in the field, two markers minimum being found.
3. Set the projects benchmarks.
4. Run a level line from the monuments to the set project benchmarks and back, setting turning points on all benchmarks set on site.

5. Reduce field notes and compute error of closure to adjust benchmarks set on site.

6. Prepare the recovery sketches and tabulate a list for horizontal and vertical control throughout project site.

FIELD OPERATING PROCEDURES

Groundwater Level Measurement

FOP 022.0

GROUNDWATER LEVEL MEASUREMENT

PURPOSE

This procedure describes the methods used to obtain accurate and consistent water level measurements in monitoring wells, piezometers and well points. Water levels will be measured at monitoring wells and, if practicable, in supply wells to estimate purge volumes associated with sampling, and to develop a potentiometric surface of the groundwater in order to estimate the direction and velocity of flow in the aquifer. Water levels in monitoring wells will be measured using an electronic water level indicator (e-line) that has been checked for operation prior to mobilization.

PROCEDURE

1. Decontaminate the e-line probe and a lower portion of cable following the procedures referenced in the Roux Field Operating Procedure for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination. Store the e-line in a protected area until use. This may include wrapping the e-line in clean plastic until the time of use.

2. Unlock and remove the well protective cap or cover and place on clean plastic.

3. Lower the probe slowly into the monitoring well until the audible alarm sounds. This indicates the depth to water has been reached.

4. Move the cable up and down slowly to identify the depth at which the alarm just begins to sound. Measure this depth against the mark on the lip of the well riser used as a surveyed reference point (typically the north side of the riser).

5. Read depth from the graduated cable to the nearest 0.01 foot. Do not use inches. If the e-line is not graduated, use a rule or tape measure graduated in 0.01-foot increments to measure from the nearest reference mark on the e-line cable.

6. Record the water level on a Water Level Monitoring Record (sample attached).

7. Remove the probe from the well slowly, drying the cable and probe with a clean paper wipe. Be sure to repeat decontamination before use in another well.

8. Replace well plug and protective cap or cover. Lock in place as appropriate.

ATTACHMENTS

Water Level Monitoring Record (sample)

REFERENCES

Roux FOPs:
040 Non-Disposable and Non-Dedicated Sampling Equipment Decontamination

WATER LEVEL MONITORING RECORD

Project Name:	Client:
Project No.:	Location:
Field Personnel:	Date:
Weather:	

Well No.	Time	Top of Riser Elevation (fmsl)	Static Depth to Water (fbTOR)	Groundwater Elevation (fmsl)	Total Depth (fbTOR)	Last Total Depth Measurement (fbTOR)

FIELD OPERATING PROCEDURES

Groundwater Purging Procedures Prior to Sample Collection

FOP 023.1

GROUNDWATER PURGING PROCEDURES PRIOR TO SAMPLE COLLECTION

PURPOSE

This procedure describes the methods for monitoring well/piezometer purging prior to groundwater sample collection in order to collect representative groundwater samples. The goal of purging is to remove stagnant, non-representative groundwater from the well and/or prevent stagnant water from entering collected samples. Purging involves the removal of at least three to five volumes of water in wells with moderate yields and at least one well volume from wells with low yields (slow water level recovery).

Purge and sample wells in order of least-to-most contaminated (this is not necessary if dedicated or disposable equipment is used). If you do not know this order, sample the upgradient wells first, then the furthest down-gradient or side-gradient wells, and finally the wells closest to, but down-gradient of the most contaminated area. Sampling should commence immediately following purging or as soon as the well has adequately recharged and not more than 24-hours following end time of evacuation.

PROCEDURE

1. Prepare the electronic water level indicator (e-line) in accordance with the procedures referenced in the Roux Field Operating Procedure for Groundwater Level Measurement and decontaminate the e-line probe and a lower portion of cable following the procedures referenced in the Roux Field Operating Procedure for Non-disposable and Non-dedicated Sampling Equipment Decontamination. Store the e-line in a protected area until use. This may include wrapping the e-line in clean plastic until the time of use.

2. Inspect the interior and exterior of the well/piezometer for signs of vandalism or damage and record condition on the Groundwater Field Form and/or Groundwater Well Inspection Form (samples attached). Specifically, inspect

the integrity of the following: concrete surface seal, lock, protective casing and well cover, well riser and J-plug/cap. Report any irregular findings to the Project Manager.

3. Unlock and remove the well protective cap or cover and place on clean plastic to avoid introducing foreign material into the well.

4. Calibrate the photoionization detector (PID) in accordance with the Roux Field Operating Procedure for Calibration and Maintenance of Portable Photoionization Detector.

5. Monitor the well for organic vapors using a PID, as per the Work Plan. If a reading of greater than 5 ppm is recorded, the well should be allowed to vent until levels drop below 5 ppm before proceeding with purging.

6. Lower the e-line probe slowly into the monitoring well and record the initial water level in accordance with the procedures referenced in the Roux Field Operating Procedure for Groundwater Level Measurement.

7. Following static water level determinations, slowly lower the e-line to the bottom of the well/piezometer. Record the total depth to the nearest 0.01-foot and compare to the previous total depth measurement. If a significant discrepancy exists, re-measure the total depth. Continue with purging activities observing purge water to determine whether the well/piezometer had become silted due to inactivity or damaged (i.e., well sand within purge water). Upon confirmation of the new total depth and determination of the cause (i.e., siltation or damage), notify the Project Manager following field activities.

8. Calculate the volume of water in the well based on the water level below the top of riser and the total depth of the well using the following equation:

$$V = 0.0408[(B)^2 \times \{(A) - (C)\}]$$

Where,

A = Total Depth of Well (feet below measuring point)
B = Casing diameter (inches)
C = Static Water Level (feet below measuring point)

9. **For wells where the water level is 20 feet or less below the top of riser**, a peristaltic pump may be used to purge the well. Measure the purged volume using a calibrated container (i.e., graduated 5-gallon bucket) and record measurements on the attached Groundwater Well Development and Purge Log. Use new and dedicated tubing for each well. During the evacuation of shallow wells, the intake opening of the pump tubing should be positioned just below the surface of the water. As the water level drops, lower the tubing as needed to maintain flow. For higher yielding wells, the intake level should not be lowered past the top of the screen. Pumping from the top of the water column will ensure proper flushing of the well. Continue pumping until the required volumes are removed (typically three well volumes). For higher yielding wells, adjust the purging rate to maintain the water level above the screen. For lower yielding wells or wells where the screen straddles the water table, maintain purging at a rate that matches the rate of recovery of the well (well yield). If the well purges to dryness and is slow to recharge (greater than 15 minutes), terminate evacuation. **A peristaltic pump and dedicated tubing cannot be used to collect VOC or SVOC project-required samples; only non-organic compounds may be collected using this type of pump.**

10. **For wells where the water level is initially below 20 feet,** or drawn down to this level because of slow recharge rate, conduct purging using one of three devices listed below:

- Bailer – A bottom filling dedicated polyethylene bailer attached to a length of dedicated hollow-braid polypropylene rope. Purging a well utilizing a bailer should be conducted smoothly and slowly as not to agitate the groundwater or damage the well.

- Well Wizard Purge Pump (or similar) – This pneumatic bladder pump uses compressed air to push water to the surface. Groundwater is not in contact

with the drive air during the pumping process, therefore the pump may be used for sample collection.

- Submersible Pump (12 or 24 volt, or similar) – These submersible pumps are constructed of PVC or stainless steel and are capable of pumping up to 70 feet from ground surface using a 12 volt battery (standard pump) and standard low flow controller. For depths up to 200 feet from ground surface, a high performance power booster controller is used with a 12 volt battery. Unless these pumps are dedicated to the monitoring well location, decontamination between locations is necessary and an equipment blank may be required.

- Waterra™ Pump – This manually operated pump uses dedicated polyethylene tubing and a check valve that can be used as an optional method for purging deeper wells. The pump utilizes positive pressure to evacuate the well, therefore the pump may be used for sample collection, and however over-agitation groundwater should be avoided.

Prior to use in a well, non-dedicated bailers, exterior pump bodies and pump tubing should be cleaned in accordance with the Roux Field Operating Procedure for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination. Dedicated and/or disposable equipment should be contained within the sealed original manufacturers packaging and certified pre-cleaned by the manufacturer with a non-phosphate laboratory detergent and rinsed using de-ionized water.

8. Purging will continue until a predetermined volume of water has been removed (typically three well volumes) or to dryness. Measurements for pH, temperature, specific conductance, dissolved oxygen (optional), Eh (optional), and turbidity will be recorded following removal of each well volume. Purge the well to dryness or until the readings for indicator parameters listed above (or well-specific indicator parameters) stabilize within the following limits for each parameter measured:

Field Parameter	Stabilization Criteria
Dissolved Oxygen	± 0.3 mg/L
Turbidity	± 10 %
Specific Conductance	± 3 %
Eh	± 10 mV
PH	± 0.1 unit

Stabilization criteria presented within the project Work Plan will take precedence.

DOCUMENTATION AND SAMPLE COLLECTION

This section pertains to the documentation of collected field data during and following purging activities and sample collection.

1. Record all data including the final three stable readings for each indicator parameter on the attached Groundwater Well Purge & Sample Log.

2. Record, at a minimum, the "volume purged," "purging stop-time," "purged dry (Y/N)," "purged below sand pack (Y/N)," and any problems purging on the attached Groundwater Well Purge & Sample Log.

3. Collect groundwater samples in accordance with the Roux Field Operating Procedure for Groundwater Sample Collection. Record "sample flow rate" as an average, "time sample collected," and any other pertinent information related to the sampling event on the attached Groundwater Well Purge & Sample Log.

4. Restore the well to its capped/covered and locked condition.

ALTERNATIVE METHODS

Alternative purging and sampling methods and equipment, other than those described herein are acceptable if they provide representative groundwater samples. The purging and sampling method and equipment must not adversely affect sample integrity, chemistry, temperature, and turbidity. In addition, alternative equipment must have minimal or no effect on groundwater geochemistry, aquifer permeability and well materials. Equipment materials must also minimize sorption and leaching. The field team is responsible for documenting and describing any alternative equipment and procedures used to purge a well and collect samples.

ATTACHMENTS

Groundwater Field Form
Groundwater Well Inspection Form

REFERENCES

<u>Roux FOPs:</u>

011 Calibration and Maintenance of Portable Photoionization Detector
022 Groundwater Level Measurement
024 Groundwater Sample Collection Procedures
040 Non-disposable and Non-dedicated Sampling Equipment Decontamination

GROUNDWATER PURGING PROCEDURES PRIOR TO SAMPLE COLLECTION

ROUX

GROUNDWATER FIELD FORM

Project Name: Date:

Location: Project No.: Field Team:

Well No.			Diameter (inches):			Sample Time:			
Product Depth (fbTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (fbTOR):			Casing Volume:			Purpose: ☐ Development ☐ Sample			
Total Depth (fbTOR):			Purge Volume (gal):			Purge Method:			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:			Date: (if different from above)						
	S1								
	S2								

Well No.			Diameter (inches):			Sample Time:			
Product Depth (fbTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (fbTOR):			Casing Volume:			Purpose: ☐ Development ☐ Sample			
Total Depth (fbTOR):			Purge Volume (gal):			Purge Method:			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:			Date: (if different from above)						
	S1								
	S2								

SAMPLE

REMARKS:

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY:

ROUX

GROUNDWATER WELL INSPECTION FORM

Project:	**WELL I.D.:**
Client:	
Job No.:	
Date:	
Time:	

EXTERIOR INSPECTION

Protective Casing:
Lock:
Hinge/Lid:
Concrete Surface Seal:
Bollards:
Label/I.D.:
Other:

INTERIOR INSPECTION

Well Riser:
Annular Space:
Well Cap:
Water Level (fbTOR):
Total Depth (fbTOR):
Other:

Comments/Corrective Actions:

PREPARED BY: DATE:

SAMPLE

FOP 024.1

GROUNDWATER SAMPLE COLLECTION PROCEDURES

PURPOSE

This procedure describes the methods for collecting groundwater samples from monitoring wells and domestic supply wells following purging and sufficient recovery. This procedure also includes the preferred collection order in which water samples are collected based on the volatilization sensitivity or suite of analytical parameters required.

PROCEDURE

Allow approximately 3 to 10 days following well development before performing purge and sample activities at any well location. Conversely, perform sampling as soon as practical after sample purging at any time after the well has recovered sufficiently to sample, or within 24 hours after evacuation, if the well recharges slowly. If the well does not yield sufficient volume for all required laboratory analytical testing (including quality control), a decision should be made to prioritize analyses based on contaminants of concern at the site. If the well takes longer than 24 hours to recharge, the Project Manager should be consulted. The following two procedures outline sample collection activities for monitoring and domestic type wells.

Monitoring Wells

1. Purge the monitoring well in accordance with the Roux FOPs for Groundwater Purging Procedures Prior to Sample Collection or Low Flow (Minimal Drawdown) Groundwater Purging & Sampling Procedures. Perform sampling as soon as practical after purging at any time after the well has recovered sufficiently to sample, or within 24 hours after evacuation, if the well recharges slowly. If the well does not yield sufficient volume for all required laboratory analytical testing (including quality control), a decision should be made to prioritize analyses based on contaminants of concern at the site. Analyses will be prioritized in the order of the parameters volatilization sensitivity. After volatile organics have been collected, field parameters

must be measured from the next sample collected. If a well takes longer than 24 hours to recharge, the Project Manager should be consulted.

2. Sampling equipment that is not disposable or dedicated to the well will be decontaminated in accordance with the Roux Field Operating Procedure for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination.

3. Calibrate all field meters (i.e., pH/Eh, turbidity, specific conductance, dissolved oxygen, PID etc.) in accordance with the Roux Field Operating Procedure for Calibration and Maintenance of the specific field meter.

4. Prepare the electronic water level indicator (e-line) in accordance with the procedures referenced in the Roux Field Operating Procedure for Groundwater Level Measurement and decontaminate the e-line probe and a lower portion of cable following the procedures referenced in the Roux Field Operating Procedure for Non-disposable and Non-dedicated Sampling Equipment Decontamination. Store the e-line in a protected area until use. This may include wrapping the e-line in clean plastic until the time of use.

5. Inspect the well/piezometer for signs of vandalism or damage and record condition on the Groundwater Field Form (sample attached). Specifically, inspect the integrity of the following: concrete surface seal, lock, protective casing and well cover, well casing and J-plug/cap. Report any irregular findings to the Project Manager.

6. Unlock and remove the well protective cap or cover and place on clean plastic to avoid introducing foreign material into the well.

7. Calibrate the photoionization detector (PID) in accordance with the Roux Field Operating Procedure for Calibration and Maintenance of Portable Photoionization Detector.

8. Monitor the well for organic vapors using a PID, as per the Work Plan. If a reading of greater than 5 ppm is recorded, the well should be allowed to vent until levels drop below 5 ppm before proceeding with purging. Record PID measurements on a well-specific Groundwater Field Form (sample attached).

9. Lower the e-line probe slowly into the monitoring well and record the measurement on a well-specific Groundwater Field Form (sample attached).

10. Groundwater samples will be collected directly from the sampling valve on the flow through cell (low-flow), discharge port of a standard pump assembly (peristaltic, pneumatic, submersible, or Waterra™ pump) or bailer (stainless steel, PVC or polyethylene) into appropriate laboratory provided containers. In low-yielding wells at which the flow through cell is not used, the samples may be collected using a disposable bailer. **A peristaltic pump and dedicated tubing cannot be used to collect VOC or SVOC project-required samples; only non-organic compounds may be collected using this type of pump.**

11. If disposable polyethylene bailers are used, the bailer should be lowered *slowly* below the surface of the water to minimize agitation and volatilization. For wells that are known to produce turbid samples (values greater than 50 NTU), the bailer should be lowered and retrieved at a rate that limits surging of the well.

12. Sampling data will be recorded on a Groundwater Field Form (sample attached).

13. Pre-label all sample bottles in the field using a waterproof permanent marker in accordance with the Roux Sample Labeling, Storage, and Shipment FOP. The following information, at a minimum, should be included on the label:

    - Project Number;
    - Sample identification code (as per project specifications);
    - Date of sample collection (mm, dd, yy);
    - Time of sample collection (military time only) (hh:mm);
    - Specify "grab" or "composite" sample type;
    - Sampler initials;
    - Preservative(s) (if applicable); and
    - Analytes for analysis (if practicable).

14. Collect a separate sample of approximately 200 ml into an appropriate container prior to collecting the first and following the last groundwater sample collected to measure the following field parameters:

Parameter	Units
Dissolved Oxygen	parts per million (ppm)
Specific Conductance	μmhos/cm or μS or mS
pH	pH units
Temperature	^{o}C or ^{o}F
Turbidity	NTU
Eh (*optional*)	mV
PID VOCs (*optional*)	ppm

Record all field measurements on a Groundwater Field Form (sample attached).

15. Collect samples into pre-cleaned bottles provided by the analytical laboratory with the appropriate preservative(s) added based on the volatilization sensitivity or suite of analytical parameters required, as designated in the **Sample Collection Order** section below.

16. Lower the e-line probe slowly into the monitoring well and record the measurement on a well-specific Groundwater Field Form (sample attached).

17. The samples will be labeled, stored, and shipped in accordance with the Roux Field Operating Procedure for Sample Labeling, Storage, and Shipment Procedures.

Domestic Supply Wells

1. Calculate or estimate the volume of water in the well. It is desirable to purge at least one casing volume before sampling. This is controlled, to some extent, by the depth of the well, well yield and the rate of the existing pump. If the volume of water in the well cannot be calculated, the well should be purged continuously for no less than 15 minutes.

2. Connect a sampling tap to an accessible fitting between the well and the pressure tank where practicable. A hose will be connected to the device and the hose discharge located 25 to 50 feet away. The well will be allowed to pump until the lines and one

well volume is removed. Flow rate will be measured with a container of known volume and a stopwatch.

3. Place a clean piece of polyethylene or Teflon™ tubing on the sampling port and collect the samples in the order designated below and in the sample containers supplied by the laboratory for the specified analytes. ***DO NOT*** use standard garden hose to collect samples.

4. Sampling results and measurements will be recorded on a Groundwater Field Form (sample attached) as described in the previous section.

5. Collect samples into pre-cleaned bottles provided by the analytical laboratory with the appropriate preservative(s) added based on the volatilization sensitivity or suite of analytical parameters required, as designated in the **Sample Collection Order** section below.

6. The samples will be labeled, stored, and shipped in accordance with the Roux Field Operating Procedure for Sample Labeling, Storage, and Shipment Procedures.

SAMPLE COLLECTION ORDER

All groundwater samples, from monitoring wells and domestic supply wells, will be collected in accordance with the following.

1. Samples will be collected preferentially in recognition of volatilization sensitivity. The preferred order of sampling if no free product is present is:

    - Field parameters
    - Volatile Organic Compounds (VOCs)
    - Purgeable organic carbons (POC)
    - Purgeable organic halogens (POH)
    - Total Organic Halogens (TOX)
    - Total Organic Carbon (TOC)
    - Extractable Organic Compounds (i.e., BNAs, SVOCs, etc.)
    - Total petroleum hydrocarbons (TPH) and oil and grease

- PCBs and pesticides
- Total metals (Dissolved Metals)
- Total Phenolic Compounds
- Cyanide
- Sulfate and Chloride
- Turbidity
- Nitrate (as Nitrogen) and Ammonia
- Preserved inorganics
- Radionuclides
- Unpreserved inorganics
- Bacteria
- Field parameters

2. Document the sampling procedures and related information in the Project Field Book and on a Groundwater Field Form (sample attached).
3. 1,4-dioxane will be analyzed via the 8270 SIM method.

DOCUMENTATION

The three words used to ensure adequate documentation for groundwater sampling are accountability, controllability, and traceability. Accountability is undertaken in the sampling plan and answers the questions who, what, where, when, and why to assure that the sampling effort meets its goals. Controllability refers to checks (including QA/QC) used to ensure that the procedures used are those specified in the sampling plan. Traceability is documentation of what was done, when it was done, how it was done, and by whom it was done, and is found in the field forms, Project Field Book, and chain-of-custody forms. At a minimum, adequate documentation of the sampling conducted in the field consists of an entry in the Project Field Book (with sewn binding), field data sheets for each well, and a chain-of-custody form.

As a general rule, if one is not sure whether the information is necessary, it should nevertheless be recorded, as it is impossible to over-document one's fieldwork. Years may go by before the documentation comes under close scrutiny, so the documentation must be capable of defending the sampling effort without the assistance or translation of the sampling crew.

The minimum information to be recorded daily with an indelible pen in the Project Field Book and/or field data sheets includes date and time(s), name of the facility, name(s) of the sampling crew, site conditions, the wells sampled, a description of how the sample shipment was handled, and a QA/QC summary. After the last entry for the day in the Project Field Book, the Field Team Leader should sign the bottom of the page under the last entry and then draw a line across the page directly under the signature.

PRECAUTIONS/RECOMMENDATIONS

The following precautions should be adhered to prior to and during sample collection activities:

- Field vehicles should be parked downwind (to avoid potential sample contamination concerns) at a minimum of 15 feet from the well and the engine turned off prior to PID vapor analysis and VOC sample collection.

- Ambient odors, vehicle exhaust, precipitation, or windy/dusty conditions can potentially interfere with obtaining representative samples. These conditions should be minimized and should be recorded in the field notes. Shield sample bottles from strong winds, rain, and dust when being filled.

- The outlet from the sampling device should discharge below the top of the sample's air/water interface, when possible. The sampling plan should specify

how the samples will be transferred from the sample collection device to the sample container to minimize sample alterations.

- The order of sampling should be from the least contaminated to the most contaminated well to reduce the potential for cross contamination of sampling equipment (see the Sampling Plan or Work Plan).

- Samples should not be transferred from one sampling container to another.

- Sampling equipment must not be placed on the ground, because the ground may be contaminated and soil contains trace metals. Equipment and supplies should be removed from the field vehicle only when needed.

- Smoking and eating should not be allowed until the well is sampled and hands are washed with soap and water, due to safety and possibly sample contamination concerns. These activities should be conducted beyond a 15-foot radius of the well.

- No heat-producing or electrical instruments should be within 15 feet of the well, unless they are intrinsically safe, prior to PID vapor analysis.

- Minimize the amount of time that the sample containers remain open.

- Do not touch the inside of sample bottles or the groundwater sample as it enters the bottle. Disposable gloves may be a source of phthalates, which could be introduced into groundwater samples if the gloves contact the sample.

- Sampling personnel should use a new pair of disposable gloves for each well sampled to reduce the potential for exposure of the sampling personnel to contaminants and to reduce sample cross contamination. In addition, sampling personnel should change disposable gloves between purging and sampling operations at the same well.

- Sampling personnel should not use perfume, insect repellent, hand lotion, etc., when taking groundwater samples. If insect repellent must be used, then sampling personnel should not allow samples or sampling equipment to contact the

repellent, and it should be noted in the documentation that insect repellent was used.

- Complete the documentation of the well. A completed assemblage of paperwork for a sampling event includes the completed field forms, entries in the Project Field Book (with a sewn binding), transportation documentation (if required), and possibly chain-of-custody forms.

ATTACHMENTS

Groundwater Field Form (sample)

REFERENCES

1. Wilson, Neal. *Soil Water and Ground Water Sampling*, 1995

Roux FOPs:

007 Calibration and Maintenance of Portable Dissolved Oxygen Meter
008 Calibration and Maintenance of Portable Field pH/Eh Meter
009 Calibration and Maintenance of Portable Field Turbidity Meter
011 Calibration and Maintenance of Portable Photoionization Detector
012 Calibration and Maintenance of Portable Specific Conductance Meter
022 Groundwater Level Measurement
023 Groundwater Purging Procedures Prior to Sample Collection (optional)
031 Low Flow (Minimal Drawdown) Groundwater Purging & Sampling Procedures (optional)
040 Non-Disposable and Non-Dedicated Sampling Equipment Decontamination
046 Sample Labeling, Storage and Shipment Procedures

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

GROUNDWATER FIELD FORM

Project Name: Date:

Location: Project No.: Field Team:

Well No.	Diameter (inches):	Sample Time:
Product Depth (fbTOR):	Water Column (ft):	DTW when sampled:
DTW (static) (fbTOR):	Casing Volume:	Purpose: ☐ Development ☐ Sample
Total Depth (fbTOR):	Purge Volume (gal):	Purge Method:

Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:		Date: (if different from above)							
	S1								
	S2								

Well No.	Diameter (inches):	Sample Time:
Product Depth (fbTOR):	Water Column (ft):	DTW when sampled:
DTW (static) (fbTOR):	Casing Volume:	Purpose: ☐ Development ☐ Sample
Total Depth (fbTOR):	Purge Volume (gal):	Purge Method:

Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:		Date: (if different from above)							
	S1								
	S2								

SAMPLE

REMARKS:

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY:

FOP 024.3

PFAS GROUNDWATER/ SURFACE WATER SAMPLE COLLECTION PROCEDURES

PURPOSE

This procedure describes the methods for collecting per-and polyfluoroalkyl substances (PFAS) groundwater samples from monitoring wells, following purging and sufficient recovery, and surface water locations. This procedure is specific to sites where PFAS sample analysis is required, and analysis specific collection and handling procedures are needed. PFAS sample analysis will be completed when Site analysis requires sampling of the full TAL/TCL analyte list. This field operating procedure (FOP) describes the personal protective equipment (PPE) and sampling equipment/materials appropriate for PFAS sample collection. PFAS laboratory analysis is performed using extremely low detection limits (parts per trillion). Therefore, cross contamination from potential sources (i.e., field equipment, consumer products) must be minimized to the extent possible.

PROCEDURE

Prior to sampling, discuss with the Site's Project Manager whether the monitoring wells that are to be sampled for the PFAS analytical parameters are new monitoring wells or existing monitoring wells. The specific handing and collection procedures for PFAS sampling are solely based on job preparation and sampling equipment used for the job. The standard practice of a 10 volume surge and purge of a newly installed monitoring well for development as discussed in Roux's FOP 036.0 – Monitoring Well Development Procedures and three volume well purge and/or low flow sampling that are discussed in Roux's FOP 023.1 – Groundwater Procedures Prior to Sample Collection remain the same. FOP 064.0 – Surface Water Sampling Procedures remains the same with the exceptions made in this FOP for PFAS sampling. The field sampling personnel must be prepared with appropriate clothing, equipment, and sampling containers for PFAS sampling as discussed below.

FIELD CLOTHING

Unacceptable Field Clothing

- No Gore-Tex®, this includes but not limited to boots, gloves, coveralls, hats, and coats.
- No Tyvex®, this includes but not limited to coveralls, boots, hoods and head coverings. Tyvex® is also found in everyday items such as envelopes, receipts, and adhesives.
- No clothes, jackets, boots, or gloves that have been pretreated with Teflon® water proofing. Teflon® can be found in everyday items such as scissors, plumbers' tape, adhesive tapes, Teflon ® paper for crafting and cookware utensils.
- No clothing that has been waterproofed with PFAS materials
- No brand-new unwashed cotton clothing.
- Clothing that has been washed with fabric softeners prior to sampling.

Acceptable Field Clothing

- Well-worn, washed clothes, jackets, hats, and coveralls without fabric softener usage.
- Rain Gear made from PVC, polyurethane, or rubber only (it cannot contain any of the products listed above).
- Disposable powder free nitrile gloves.

FIELD EQUIPMENT

Unacceptable Field Equipment

- Sampling Equipment containing Teflon® or Low-Density Polyethylene (LDPE). Sampling equipment that may contain these materials include submersible pumps, bailers, tubing, braided poly rope or cord, fishing line.

- No LDPE or glass lined sampling containers, or Teflon®-lined caps.
- Waterproof field books, binders, plastic clip boards, spiral hard cover notebooks.
- No adhesives or permanent markers can be used (i.e., Post-It® notes and Sharpies).
- No Aluminum foil or sampling tins.
- No blue ice packs
- Avoid using paper towels

Acceptable Field Equipment

- Sampling Equipment made from High Density Polyethylene (HDPE), stainless steel, acetate, silicon, or polypropylene.
- Sampling Containers made from HDPE polypropylene

Acceptable Field Equipment (continued)

- Sampling Equipment (i.e. bailers) made from Poly Vinyl Chloride (PVC)
- Nylon rope/twine
- Ice
- Alconox

ADDITIONAL PROCEDURES

- Keep all bottle ware in a dedicated cooler containing only PFAS sample containers.
- Avoid consumption of food or drink prior to and during the sampling event.
- Do not apply cosmetics or moisturizers prior to sampling.

- Do not use standard commercial sunscreen or insect repellents. Use only all natural or organic products.
- Collect PFAS sample from each location prior to collecting other samples for analysis to avoid contact with other sample containers and packing materials.
- New disposable nitrile gloves will be donned at each sampling location.
- Don new disposable nitrile gloves while handling empty sample containers, filling sampling containers, sealing sample containers, and placing containers into sampling coolers.
- Single use (dedicated) or disposable sampling equipment is preferred when multiple locations are sampled.
- Perform a standard two-step decontamination using Alconox detergent and laboratory provided PFAS-free water for all non-dedicated sampling equipment.
- Equipment blanks should be comprised of laboratory provided PFAS-free water. The water should be poured over and/or brought into direct contact with all sampling equipment (bailer, rope, tubing, gloves, water level meter, etc.). The equipment blank will then be sealed and returned to the sample cooler. One equipment blank will be collected each day PFAS samples are collected, or once every 20 samples, whichever is more frequent. Additional equipment blanks may be collected as needed.
- One field duplicate and one matrix spike/matrix spike duplicate (MS/MSD) will be collected for every 20 samples.
- Field blanks should be comprised of laboratory provided PFAS-free water. The field blank should be uncapped and placed near the field crew while purging/sampling preparations take place (i.e. prepare bottle set, calibrate groundwater quality meters, prepare bailers for sampling, etc.). The intent of the uncapped blank is to capture any ambient PFAS compounds that may emanate from the field crew or equipment during typical preparations associated with groundwater/surface water sampling. The field blank will then be capped and returned to the sample cooler.

ATTACHMENTS

Groundwater Field Form (sample)
Surface Water Quality Field Collection Log (Sample)

REFERENCES

Roux FOPs:
036.0 Monitoring Well Development Procedures
023.1 Groundwater Purging Procedures Prior to Sample Collection
064.0 Surface Water Sampling Procedures

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

GROUNDWATER FIELD FORM

Project Name: Date:

Location: Project No.: Field Team:

Well No.	Diameter (inches):	Sample Time:
Product Depth (fbTOR):	Water Column (ft):	DTW when sampled:
DTW (static) (fbTOR):	Casing Volume:	Purpose: ☐ Development ☐ Sample
Total Depth (fbTOR):	Purge Volume (gal):	Purge Method:

Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:			Date: (if different from above)						
	S1								
	S2								

Well No.	Diameter (inches):	Sample Time:
Product Depth (fbTOR):	Water Column (ft):	DTW when sampled:
DTW (static) (fbTOR):	Casing Volume:	Purpose: ☐ Development ☐ Sample
Total Depth (fbTOR):	Purge Volume (gal):	Purge Method:

Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:			Date: (if different from above)						
	S1								
	S2								

SAMPLE

REMARKS:

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

ROUX

PREPARED BY:

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

SURFACE WATER QUALITY FIELD COLLECTION LOG

PROJECT INFORMATION

Project Name:

Project No.:

Client:

SAMPLE DESCRIPTION

I.D.:

Matrix:

Location:

SAMPLE INFORMATION

Date Collected:

Time Collected:

Date Shipped to Lab:

Collected By:

Sample Collection Method:

LABORATORY ANALYSIS

SAMPLING INFORMATION

Weather:

Air Temperature:

Depth of Sample:

Parameter	First	Last	Units
pH			units
Temp.			°C
Cond.			mS
Turbidity			NTU
Eh			mV
D.O.			ppm
Odor			olfactory
Appearance			visual

LOCATION SKETCH

(not to scale, dimensions are approximate)

EXACT LOCATION (if applicable)

Northing (ft)	Easting (ft)	Surface Elevation (fmsl)

ADDITIONAL LABORATORY ANALYSIS:

ADDITIONAL REMARKS:

PREPARED BY: **DATE:**

SAMPLE

FIELD OPERATING PROCEDURES

Hand Augering Procedures

FOP 025.0

HAND AUGERING PROCEDURES

PURPOSE

This guideline presents a method for hand augering, which enables the recovery of representative surface and shallow subsurface samples for classification and sample collection (ASTM D1452).

PROCEDURE

1. Review project objectives and the Project Health and Safety Plan (HASP).

2. Follow Roux's FOP: Drill Site Selection Procedure prior to implementing any hand augering activity.

3. Establish a central staging area for storage of augering supplies and for equipment decontamination (include plastic-covered work bench/table as necessary). Locate a secure storage area for augered samples.

4. Assemble auger and decontaminate in accordance with Roux's FOP: Non-Disposable and Non-Dedicated Sampling Equipment Decontamination.

5. Cover the area to be sampled with plastic sheeting, as determined by the Project Work Plan.

6. Make the auger boring through the plastic sheeting by rotating and advancing the auger to the desired depth below ground surface.

7. Withdraw the auger from the hole and remove soil for examination, soil classification, on-site testing (if applicable) and laboratory physical/chemical sample collection (if applicable) in accordance with specific Roux FOPs (Soil Description Procedures Using the Unified Soil Classification System; Composite Sample Collection Procedure for Non-Volatile Organic Analysis; and/or Soil Sample Handling for VOC Analysis) and as directed by the Project Work Plan.

8. Document all properties and sample locations in the Project Field Book and Hand Auger Borehole Log (sample attached). Specifically, total depth, borehole diameter, depth of sample collection, personnel, etc. should be recorded.

9. Place sample in appropriate container(s), label and store for future reference or ship to laboratory for analysis in accordance with Roux's Field Operating Procedure for Sample Labeling, Storage and Shipment.

10. Decontaminate auger in accordance with Roux's Field Operating Procedure for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination.

11. Advance auger to next sample interval and repeat steps 7 through 12 as necessary.

12. Backfill auger holes in accordance with approved procedures outlined in the Project Work Plan.

ATTACHMENTS

Hand Auger Borehole Log (sample)

REFERENCES

<u>Roux FOPs:</u>

013 Composite Sample Collection Procedure for Non-Volatile Organic Analysis
017 Drill Site Selection Procedure
040 Non-Disposable and Non-Dedicated Sampling Equipment Decontamination
046 Sample Labeling, Storage and Shipment
054 Soil Description Procedures Using the Unified Soil Classification System
057 Soil Sample Handling for Volatile Organic Compound Analysis – Encore Sampling

ROUX

HAND AUGER BOREHOLE LOG

Project:	BOREHOLE I.D.:
Project No.:	Excavation Date:
Client:	Excavation Method:
Location:	Logged / Checked By:

Hand Auger Location: *NOT TO SCALE*

Hand Auger Cross Section:

Grade - 0'
2'
4'
6'
8'
10'

TIME	BOREHOLE DIMENSIONS	
Start:	Diameter:	(approx.)
End:	Depth:	(approx.)

Depth (fbgs)	SAMPLE DESCRIPTION USCS Classification: Color, Moisture Condition, % of Soil Type, Texture, Plasticity, Fabric, Bedding, Weathering/Fracturing, Odor, Other	PID Scan (ppm)	Photos Y / N	Samples Collected (fbgs)

COMMENTS:			
GROUNDWATER ENCOUNTERED:	yes	no	If yes, depth to GW:
VISUAL IMPACTS:	yes	no	Describe:
OLFACTORY OBSERVATIONS:	yes	no	Describe:
NON-NATIVE FILL ENCOUNTERED:	yes	no	
OTHER OBSERVATIONS:	yes	no	Describe:
SAMPLES COLLECTED:	yes	no	Sample I.D.:
			Sample I.D.:
			Sample I.D.:

SAMPLE

FOP 026.1

HOLLOW STEM AUGER (HSA) DRILLING PROCEDURES

PURPOSE

This guideline presents a method for drilling a borehole through unconsolidated materials, including soils or overburden, and consolidated materials, including bedrock.

PROCEDURE

The following procedure will be used to drill a borehole for sampling and/or well installation, using hollow-stem auger methods and equipment.

1. Follow Roux's Field Operating Procedure for Drill Site Selection Procedure prior to implementing any drilling activity.

2. Perform drill rig safety checks with the driller by completing the Drilling Safety Checklist form (sample attached).

3. Conduct tailgate health and safety meeting with project team and drillers by completing the Tailgate Safety Meeting Form.

4. Calibrate air-monitoring equipment in accordance with the appropriate Roux's Field Operating Procedures (i.e., PID, FID, combustible gas meter) or manufacturer's recommendations for calibration of field meters (i.e., DataRAM 4 Particulate Meter).

5. Ensure all drilling equipment (i.e., augers, rods, split-spoons) appear clean and free of soil prior to initiating any subsurface intrusion. Decontamination of drilling equipment should be in accordance with Roux's FOP: Drilling and Excavation Equipment Decontamination Procedures.

6. Mobilize the auger rig to the site and position over the borehole.

7. Level and stabilize the rig using the rig jacks, and recheck the rig location against the planned drilling location. If necessary, raise the jacks and adjust the rig position.

8. Place a metal or plywood auger pan over the borehole location to collect the auger cuttings. This auger pan will be equipped with a 12-inch nominal diameter hole for auger passage. As an alternative, a piece of polyethylene tarp may be used as a substitute.

9. Advance augers into the subsurface. For sampling or pilot-hole drilling, nominal 8-inch outside diameter (OD) augers should be used. The boring diameter will be approved by the Roux field supervisor.

10. Collect soil samples via split spoon sampler in accordance with Roux's Field Operating Procedure for Split Spoon Sampling.

11. Check augers periodically during drilling to ensure the boring is plumb. Adjust rig position as necessary to maintain plumb.

12. Continue drilling until reaching the assigned total depth, or until auger refusal occurs. Auger refusal is when the drilling penetration drops below 0.1 feet per 10 minutes, with the full weight of the rig on the auger bit, and a center bit (not center plug) in place.

13. Plug and abandon boreholes not used for well installation in accordance with Roux's Field Operating Procedure for Abandonment of Borehole.

OTHER PROCEDURAL ISSUES

- Slip rings may be used for lifting a sampling or bit string. The string will not be permitted to extend more than 15 feet above the mast crown.

- Borings will not be over drilled (rat holed) without the express permission of the Roux field supervisor. All depth measurements should be accurate to the nearest 0.1 foot, to the extent practicable.

- Potable water may be placed in the auger stem if critically necessary for borehole control or to accomplish sampling objectives and must be approved by the Roux Project Manager and/or NYSDEC Project Manager. Upon approval, the potable

water source and quantity used will be documented in the Project Field Book and subsequent report submittal.

ATTACHMENTS

Drilling Safety Checklist (sample)
Tailgate Safety Meeting Form (sample)

REFERENCES

Roux FOPs:

001 Abandonment of Borehole Procedures
010 Calibration and Maintenance of Portable Flame Ionization Detector
011 Calibration and Maintenance of Portable Photoionization Detector
017 Drill Site Selection Procedure
018 Drilling and Excavation Equipment Decontamination Procedures
058 Split Spoon Sampling Procedures

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

DRILLING SAFETY CHECKLIST

Project: **Supplemental Phase II RFI/ICMs**	Date:
Project No.: **0041-009-500**	Drilling Company:
Client: **RealCo., Inc.**	Drill Rig Type:

ITEMS TO CHECK	OK	ACTION NEEDED
"Kill switches" installed by the manufacturer are in operable condition and all workers at the drill site are familiar with their location and how to activate them?		
"Kill switches" are accessible to workers on both sides of the rotating stem? NOTE: Optional based on location and number of switches provided by the manufacturer.		
Cables on drill rig are free of kinks, frayed wires, "bird cages" and worn or missing sections?		
Cables are terminated at the working end with a proper eye splice, either swaged Coupling or using cable clamps?		
Cable clamps are installed with the saddle on the live or load side? Clamps should not be alternated and should be of the correct size and number for the cable size to which it is installed. Clamps are complete with no missing parts?		
Hooks installed on hoist cables are the safety type with a functional latch to prevent accidental separation?		
Safety latches are functional and completely span the entire throat of the hook and have positive action to close the throat except when manually displaced for connecting or disconnecting a load?		
Drive shafts, belts, chain drives and universal joints shall be guarded to prevent accidental insertion of hands and fingers or tools?		
Outriggers shall be extended prior to and whenever the boom is raised off its cradle. Hydraulic outriggers must maintain pressure to continuously support and stabilize the drill rig even while unattended.		
Outriggers shall be properly supported on the ground surface to prevent settling into the soil.		
Controls are properly labeled and have freedom of movement. Controls should not be blocked or locked in an action position.		
Safeties on any device shall not be bypassed or neutralized.		
Controls shall be operated smoothly and cables and lifting devices shall not be jerked or operated erratically to overcome resistance.		
Slings, chokers and lifting devices are inspected before using and are in proper working order? Damaged units are removed from service and are properly tagged?		
Shackles and clevises are in proper working order and pins and screws are fully inserted before placing under a load?		
High-pressure hoses have a safety (chain, cable or strap) at each end of the hose section to prevent whipping in the event of a failure?		
Rotating parts of the drill string shall be free of sharp projections or hooks, which could entrap clothing or foreign objects?		
Wire ropes should not be allowed to bend around sharp edges without cushion material.		
The exclusion zone is centered over the borehole and the radius is equal or greater than the boom height?		

ITEMS TO CHECK	OK	ACTION NEEDED

SAMPLE

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

DRILLING SAFETY CHECKLIST

Project: **Supplemental Phase II RFI/ICMs** Date:

Project No.: **0041-009-500** Drilling Company:

Client: **RealCo., Inc.** Drill Rig Type:

ITEMS TO CHECK	OK	ACTION NEEDED
The work area around the borehole shall be kept clear of trip hazards and walking surfaces should be free of slippery material.		
Workers shall not proceed higher than the drilling deck without a fall restraining device and must attach the device in a manner to restrict fall to less than 6 feet.		
A fire extinguisher of appropriate size shall be immediately available to the drill crew. The drill crew shall have received annual training on proper use of the fire extinguisher.		
29 CFR 1910.333 © (3) Except where electrical distribution and transmission lines have been de-energized and visibly grounded, drill rigs will be operated proximate to, under, by, or near power lines only in accordance with the following: .333 © (3) (ii) 50 kV or less -minimum clearance is 10 ft. For 50 kV or over - 10ft. Plus ½ in. For each additional kV **Benchmark Policy: Maintain 20 feet clearance**		
29 CFR 1910.333 © (3) (iii) While the rig is in transit with the boom in the down position, clearance from energized power lines will be maintained as follows: Less than 50 kV - 4 feet 50 to 365 kV - 10 feet 365 to 720 kV - 16 feet		

Name: _____ (printed)

Signed: _____ Date: _____

SAMPLE

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TAILGATE SAFETY MEETING FORM

Project Name: Date: Time:
Project Number: Client:
Work Activities:

HOSPITAL INFORMATION:

Name:
Address: *City:* *State:* *Zip:*
Phone No.: *Ambulance Phone No.*

SAFETY TOPICS PRESENTED:

Chemical Hazards:

Physical Hazards: Slips, Trips, Falls

PERSONAL PROTECTIVE EQUIPMENT:

Activity:	*PPE Level:* A	B	C	D
Activity:	*PPE Level:* A	B	C	D
Activity:	*PPE Level:* A	B	C	D
Activity:	*PPE Level:* A	B	C	D
Activity:	*PPE Level:* A	B	C	D

New Equipment:

Other Safety Topic (s): Environmental Hazards (aggressive fauna)
Eating, drinking, use of tobacco products is prohibited in the Exclusion Zone (EZ)

ATTENDEES

Name Printed	Signatures

Meeting conducted by:

SAMPLE

FOP 031.2

LOW FLOW (MINIMAL DRAWDOWN) GROUNDWATER PURGING & SAMPLING PROCEDURES

PURPOSE

This procedure describes the methods used for performing low flow (minimal drawdown) purging, also referred to as micro-purging, at a well prior to groundwater sampling to obtain a representative sample from the water-bearing zone. This method of purging is used to minimize the turbidity of the produced water. This may increase the representativeness of the groundwater samples by avoiding the necessity of filtering suspended solids in the field prior to preservation of the sample.

Well purging is typically performed immediately preceding groundwater sampling. The sample should be collected as soon as the parameters measured in the field (i.e., pH, specific conductance, dissolved oxygen, Eh, temperature, and turbidity) have stabilized.

PROCEDURE

Allow approximately 3 to 10 days following well development for groundwater to return to static conditions before performing low-flow purge and sample activities at any well location. Conversely, perform low-flow sampling as soon as purged groundwater has stabilized. If the well does not yield sufficient volume (i.e., cannot maintain a constant water level during purging) for low-flow purge and sampling, then an alternative method must be performed in accordance with Roux's Groundwater Purging Procedures Prior to Sample Collection FOP.

1. Water samples should not be taken immediately following well development. Sufficient time should be allowed to stabilize the groundwater flow regime in the vicinity of the monitoring well. This lag time will depend on site conditions and methods of installation but may exceed one week.

2. Prepare the electronic water level indicator (e-line) in accordance with the procedures referenced in the Roux's Groundwater Level Measurement FOP and decontaminate the e-line probe and a lower portion of cable following the procedures referenced in the Roux's Non-disposable and Non-dedicated Sampling Equipment Decontamination FOP. Store the e-line in a protected area until use. This may include wrapping the e-line in clean plastic until the time of use.

3. Calibrate all sampling devices and monitoring equipment in accordance with manufacturer's recommendations, the site Quality Assurance Project Plan (QAPP) and/or Field Sampling Plan (FSP). Calibration of field instrumentation should be followed as specified in Roux's Calibration and Maintenance FOP for each individual meter.

4. Inspect the well/piezometer for signs of vandalism or damage and record condition on the Groundwater Field Form (sample attached). Specifically, inspect the integrity of the following: concrete surface seal, lock, protective casing and well cover, well casing and J-plug/cap. Report any irregular findings to the Project Manager.

5. Unlock and remove the well protective cap or cover and place on clean plastic to avoid introducing foreign material into the well.

6. Monitor the well for organic vapors using a PID, as per the Work Plan. If a reading of greater than 5 ppm is recorded, the well should be allowed to vent until levels drop below 5 ppm before proceeding with purging.

7. Lower the e-line probe slowly into the monitoring well and record the initial water level in accordance with the procedures referenced in Roux's Groundwater Level Measurement FOP. Refer to the construction diagram for the well to identify the screened depth.

8. Decontaminate all non-dedicated pump and tubing equipment following the procedures referenced in the Roux's Non-disposable and Non-dedicated Sampling Equipment Decontamination FOP.

9. Lower the purge pump or tubing (i.e., low-flow electrical submersible, peristaltic, etc.) slowly into the well until the pump/tubing intake is approximately in the middle of the screened interval. Rapid insertion of the pump will increase the turbidity of well water, and can increase the required purge time. This step can be eliminated if dedicated tubing is already within the well.

   Placement of the pump close to the bottom of the well will cause increased entrainment of solids, which may have settled in the well over time. Low-flow purging has the advantage of minimizing mixing between the overlying stagnant casing water and water within the screened interval. The objective of low-flow purging is to maintain a purging rate, which minimizes stress (drawdown) of the water level in the well. Low-flow refers to the velocity with which water enters the pump intake and that is imparted to the formation pore water in the immediate vicinity of the well screen.

10. Lower the e-line back down the well as water levels will be frequently monitored during purge and sample activities.

11. Begin pumping to purge the well. The pumping rate should be between 100 and 500 milliliters (ml) per minute (0.03 to 0.13 gallons per minute) depending on site hydrogeology. Periodically check the well water level with the e-line adjusting the flow rate as necessary to stabilize drawdown within the well. If possible, a steady flow rate should be maintained that results in a stabilized water level (drawdown of 0.3 feet or less). If the water level exceeds 2 feet below static and declining, slow the purge rate until the water level generally stabilizes. Record each pumping rate and water level during the event. If the water level continues to drop and will not stabilize, the monitoring location is not conducive to low-flow sampling and conventional purge and sample methods should be performed.

    The low flow rate determined during purging will be maintained during the collection of analytical samples. At some sites where geologic heterogeneities

are sufficiently different within the screened interval, high conductivity zones may be preferentially sampled.

12. Measure and record field parameters (pH, specific conductance, Eh, dissolved oxygen (DO), temperature, and turbidity) during purging activities. In lieu of measuring all of the parameters, a minimum subset could be limited to pH, specific conductance, and turbidity or DO. A reduction in the field parameter list must be approved by the Project Manager and/or the NYSDEC Project Manager.

    Water quality indicator parameters should be used to determine purging needs prior to sample collection in each well. Stabilization of indicator parameters should be used to determine when formation water is first encountered during purging. In general, the order of stabilization is pH, temperature, and specific conductance, followed by Eh, DO and turbidity. Performance criteria for determination of stabilization should be based on water-level drawdown, pumping rate and equipment specifications for measuring indicator parameters. An in-line flow through cell to continuously measure the above parameters may be used. The in-line device should be disconnected or bypassed during sample collection.

13. Purging will continue until parameters of water quality have stabilized or at least a minimum of three (3) well volumes have been removed. Record measurements for field indicator parameters (including water levels) at regular intervals during purging. The stability of these parameters with time can be used to guide the decision to discontinue purging. Proper adjustments must be made to stabilize the flow rate as soon as possible.

14. Record well purging and sampling data in the Project Field Book or on the Groundwater Field Form (sample attached). Measurements should be taken approximately every three to five minutes, or as merited given the rapidity of change.

15. Purging is complete when field indicator parameters stabilize. Stabilization is achieved after all field parameters have stabilized for three successive readings.

Three successive readings should be within ± 0.1 units for pH, ± 3% for specific conductance, ± 10 mV for Eh, and ± 10% for turbidity and dissolved oxygen. These stabilization guidelines are provided for rough estimates only, actual site-specific knowledge may be used to adjust these requirements higher or lower.

An in-line water quality measurement device (e.g., flow-through cell) should be used to establish the stabilization time for several field parameters on a well-specific basis. Data on pumping rate, drawdown, and volume required for parameter stabilization can be used as a guide for conducting subsequent sampling activities.

16. Collect all project-required samples from the discharge tubing at the flow rate established during purging in accordance with Roux's Groundwater Sample Collection Procedures FOP. **A peristaltic pump and dedicated tubing cannot be used to collect VOC or SVOC project-required samples; only non-organic compounds may be collected using this type of pump.** Continue to maintain a constant flow rate such that the water level is not drawn down as described above. Fill sample containers with minimal turbulence by allowing the ground water to flow from the tubing along the inside walls of the container.

17. If field filtration is recommended as a result of increased turbidity greater than 50 NTU, an in-line filter equipped with a 0.45-micron filter should be utilized. Collection of a filtered sample must be accompanied by an unfiltered sample.

18. Replace the dedicated tubing down the well taking care to avoid contact with the ground surface.

19. Restore the well to its capped/covered and locked condition.

20. Upon purge and sample collection completion, slowly lower the e-line to the bottom of the well/piezometer. Record the total depth to the nearest 0.01-foot and compare to the previous total depth measurement. If a significant discrepancy exists, re-measure the total depth. Record observations of purge

water to determine whether the well/piezometer had become silted due to inactivity or damaged (i.e., well sand within purge water). Upon confirmation of the new total depth and determination of the cause (i.e., siltation or damage), notify the Project Manager following project field activities.

ATTACHMENTS

Groundwater Field Form (sample)

REFERENCES

United States Environmental Protection Agency, 540/S-95/504, 1995. *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures.*

Roux FOPs:

007 Calibration and Maintenance of Portable Dissolved Oxygen Meter
008 Calibration and Maintenance of Portable Field pH/Eh Meter
009 Calibration and Maintenance of Portable Field Turbidity Meter
011 Calibration and Maintenance of Portable Photoionization Detector
012 Calibration and Maintenance of Portable Specific Conductance Meter
022 Groundwater Level Measurement
024 Groundwater Sample Collection Procedures
040 Non-Disposable and Non-Dedicated Sampling Equipment Decontamination
046 Sample Labeling, Storage and Shipment Procedures

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

GROUNDWATER FIELD FORM

Project Name: Date:

Location: Project No.: Field Team:

Well No.			Diameter (inches):			Sample Time:			
Product Depth (fbTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (fbTOR):			Casing Volume:			Purpose: ☐ Development ☐ Sample			
Total Depth (fbTOR):			Purge Volume (gal):			Purge Method:			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:			Date: (if different from above)						
	S1								
	S2								

Well No.			Diameter (inches):			Sample Time:			
Product Depth (fbTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (fbTOR):			Casing Volume:			Purpose: ☐ Development ☐ Sample			
Total Depth (fbTOR):			Purge Volume (gal):			Purge Method:			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:			Date: (if different from above)						
	S1								
	S2								

SAMPLE

REMARKS:

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY:

FOP 032.2

MANAGEMENT OF INVESTIGATION-DERIVED WASTE (IDW)

PURPOSE

The purpose of these guidelines is to ensure the proper holding, storage, transportation, and disposal of materials generated from field investigation activities that may contain hazardous wastes. Investigation-derived waste (IDW) includes the following:

- Drill cuttings, discarded soil samples, drilling mud solids, and used sample containers.
- Well development and purge waters and discarded groundwater samples.
- Decontamination waters and associated solids.
- Soiled disposable personal protective equipment (PPE).
- Used disposable sampling equipment.
- Used plastic sheeting and aluminum foil.
- Other equipment or materials that either contain or have been in contact with potentially impacted environmental media.

Because these materials may contain regulated chemical constituents, they must be managed as a solid waste. This management may be terminated if characterization analytical results indicate the absence of these constituents.

PROCEDURE

1. Contain all investigation-derived wastes in Department of Transportation (DOT)-approved 55-gallon drums, roll-off boxes, or other containers suitable for the wastes.

2. Contain wastes from separate borings or wells in separate containers (i.e. do not combine wastes from several borings/wells in a single container, unless it is a container used specifically for transfer purposes, or unless specific permission to do so has been provided by the Roux Field Team Leader. Unused samples from surface sample locations within a given area may be combined.

3. To the extent practicable, separate solids from drilling muds, decontamination waters, and similar liquids. Place solids within separate containers.

4. Transfer all waste containers to a staging area. Access to this area will be controlled. Waste containers must be transferred to the staging area as soon as practicable after the generating activity is complete.

5. Pending transfer, all containers will be covered and secured when not immediately attended.

6. Label all containers with regard to contents, origin, date of generation, using Roux's IDW container label (sample attached). Use indelible ink for all labeling.

7. Complete the Investigative Derived Waste Container Log (sample attached) as waste containers are labeled in order to track and inventory project waste. Leave a copy of the log with the site manager or fax copy to the owner/operator as necessary.

8. Collect samples for waste characterization purposes, or use boring/well sample analytical data for characterization.

9. For wastes determined to be hazardous in character, **be aware of accumulation time limitations**. Coordinate the disposal of these wastes with the plant manager/owner/operator, if applicable.

10. Upon NYSDEC Project Manager approval, dispose of investigation-derived wastes as follows:

- Soil, water, and other environmental media for which analysis does not detect organic constituents, and for which inorganic constituents are at levels that meet the Site's cleanup objectives, may be spread on the Property or otherwise treated as a non-waste material. Disposal quantity and on-site location will be documented on Project Field Books and in the project report submittal.

- Soil, water, and other environmental media in which organic compounds are detected or metals are present above the Site's cleanup objectives will be disposed off-site in accordance with applicable state and federal regulations. Disposal quantity and off-site location will be documented on Project Field Books and in the project report submittal.

- Personal protective equipment, disposable bailers, and similar equipment may be disposed as municipal waste, unless waste characterization results mandate otherwise.

WASTE STORAGE MANAGEMENT

Hazardous materials generated on site should be temporarily stored in a secure location that is under the control of the owner/operator or does not allow for vandalism (i.e., within a locked building structure or within a locked fenced in area). A waste-staging area should be designated on-site by the Project Manager in conjunction with the owner/operator.

ATTACHMENTS

Investigation Derived Waste Container Log (sample)
Investigation Derived Waste Container Label (sample)

REFERENCES

None

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

INVESTIGATION DERIVED WASTE CO

Project Name: Location:

Project Number: Personnel:

Container		Contents	Date		Staging Location	Date Sampled	Co
Number	Description		Started	Ended			

SAMPLE

Prepared By:

Signed:

IDW Container Label (sample):

BENCHMARK
ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

Project Name:
Project Number:

Container I.D.:
Contents/Matrix:
Estimated Quantity:
Date of Generation:
Date of Sample Collection:

Contact Name:
Contact Phone Number:

FOP 033.0

MONITORING WELL CONSTRUCTION FOR HOLLOW STEM AUGER BOREHOLES

PURPOSE

Wells will be installed within selected boreholes for the purpose of evaluating groundwater characteristics. Well installation procedures depend upon the drilling method. This procedure describes well construction and installation for boreholes drilled using the hollow stem auger method. Refer to the Roux's Hollow Stem Auger Drilling Procedures FOP. Nominal dimensions and materials for the well are shown in the attached well construction diagram.

PROCEDURE

1. Advance borehole in accordance with the Roux's Hollow Stem Auger Drilling Procedure FOP to the required depth. The nominal inside diameter (ID) of the auger stem used should be at least 2 inches larger than the outside diameter (OD) of the riser and screen selected for the well installation. Record the monitoring well construction on the Field Borehole/Monitoring Well Installation Log (sample attached) (see Documentation Requirements for Drilling and Well Installation FOP).

2. Remove the drill rods and center bit/plug from the auger stem and verify borehole depth using weighted measuring tape.

3. In the event of an over drill (i.e. borehole depth is more than one foot greater than desired base of screen depth), use bentonite chips poured through the auger stem to seal the over drilled portion of the borehole. Be sure to note bentonite chip thickness on Field Borehole/Monitoring Well Installation Log.

4. Add a maximum of 6 inches of filter pack material through the auger stem to the base of the borehole. (Note: This step may be avoided if dense non-aqueous phase liquids are suspected to be present and it is desirable to have the screen and/or sump at the base of the borehole.)

5. Measure the length of the well string (i.e. riser and screen), and lower the well string into the well assembly to the desired depth. All measurements during the well installation process will be accurate to 0.1 foot.

6. Surface pour filter pack material into the annulus between the well and the auger stem as the augers are gradually withdrawn from the borehole. Use a weighted tape to confirm that the level of sand is maintained within the augers at all times. Record material volumes used.

7. After filter pack materials are brought to the required level, surface pour bentonite chips or pellets into the annulus between the well and the auger stem to form the filter pack seal. If necessary to avoid bridging, delayed hydration (coated) pellets may be used. Record the volume of material used.

8. Allow the bentonite chips/pellets to adequately hydrate for approximately 30 to 45-minutes. Cap or cover the well top of riser.

9. Mix cement/bentonite grout to a smooth consistency using a centrifugal or reciprocating pump. Do not hand mix. All water used must be potable quality. Record the volume of water used.

10. Fill the remaining annulus between the well and the auger stem with grout by surface pouring or pumping, and begin withdrawal of the auger string. Periodically top the auger string off with additional grout. If groundwater is present within the annulus above the bentonite chip/pellet seal, cement/bentonite grout will be pressure tremie grouted from bottom to top in order to displace groundwater from the borehole.

11. When the auger string is withdrawn, center the upper portion of the well riser within the borehole, and place drums or barricades around the well for protection while the grout cures. Place and lock a security cap (i.e., J-plug) in the opening of the well riser.

12. Leave the well undisturbed for at least 24 hours to allow the grout to cure. If excessive grout fallback occurs, top off as necessary with bentonite chips or additional grout.

13. Construct the surface completion as shown in the attached Typical Monitoring Well Detail (Figure 1). Select flush completions for all locations in active operational or high traffic areas, or in other areas where an above grade completion would be undesirable. Use aboveground completions in all other areas.

14. Place a dedicated lock on the well or protective casing, and keep well locked when not actively attended.

15. Permanently label the well with the appropriate well identifier as determined by the Project Manager or specified in the Work Plan.

16. Permanently mark a survey location on the north side at the top of the casing with a saw cut. Survey all wells for horizontal location and elevation, using a surveyor licensed by the State of New York. Coordinates and elevations will be provided in a coordinate system consistent with previous well surveys at the Site. Information obtained will include location (x and y) of the well, and elevation (z) of the ground surface, the pad, and the top of riser.

17. Develop the well as described in the Roux Field Operating Procedure for Monitoring Well Development.

18. Manage all waste materials generated during well installation and development as described in the Roux Field Operating Procedure for Management of Investigation Derived Waste.

ATTACHMENTS

Field Borehole/Monitoring Well Installation Log (sample)
Typical Monitoring Well Detail (Figure 1)

REFERENCES

Roux FOPs:

015 Documentation Requirements for Drilling and Well Installation
026 Hollow Stem Auger Drilling Procedures
032 Management of Investigation Derived Waste
036 Monitoring Well Development Procedures

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

FIELD BOREHOLE/MONITORING WELL INSTALLATION LOG

PROJECT:		**Log of Well No.:**	
BORING LOCATION:		ELEVATION AND DATUM:	
DRILLING CONTRACTOR:		DATE STARTED:	DATE FINISHED:
DRILLING METHOD:		TOTAL DEPTH:	SCREEN INTERVAL:
DRILLING EQUIPMENT:		DEPTH TO WATER: FIRST: COMPL.:	CASING:
SAMPLING METHOD:		LOGGED BY:	
HAMMER WEIGHT:	DROP:	RESPONSIBLE PROFESSIONAL:	REG. NO.

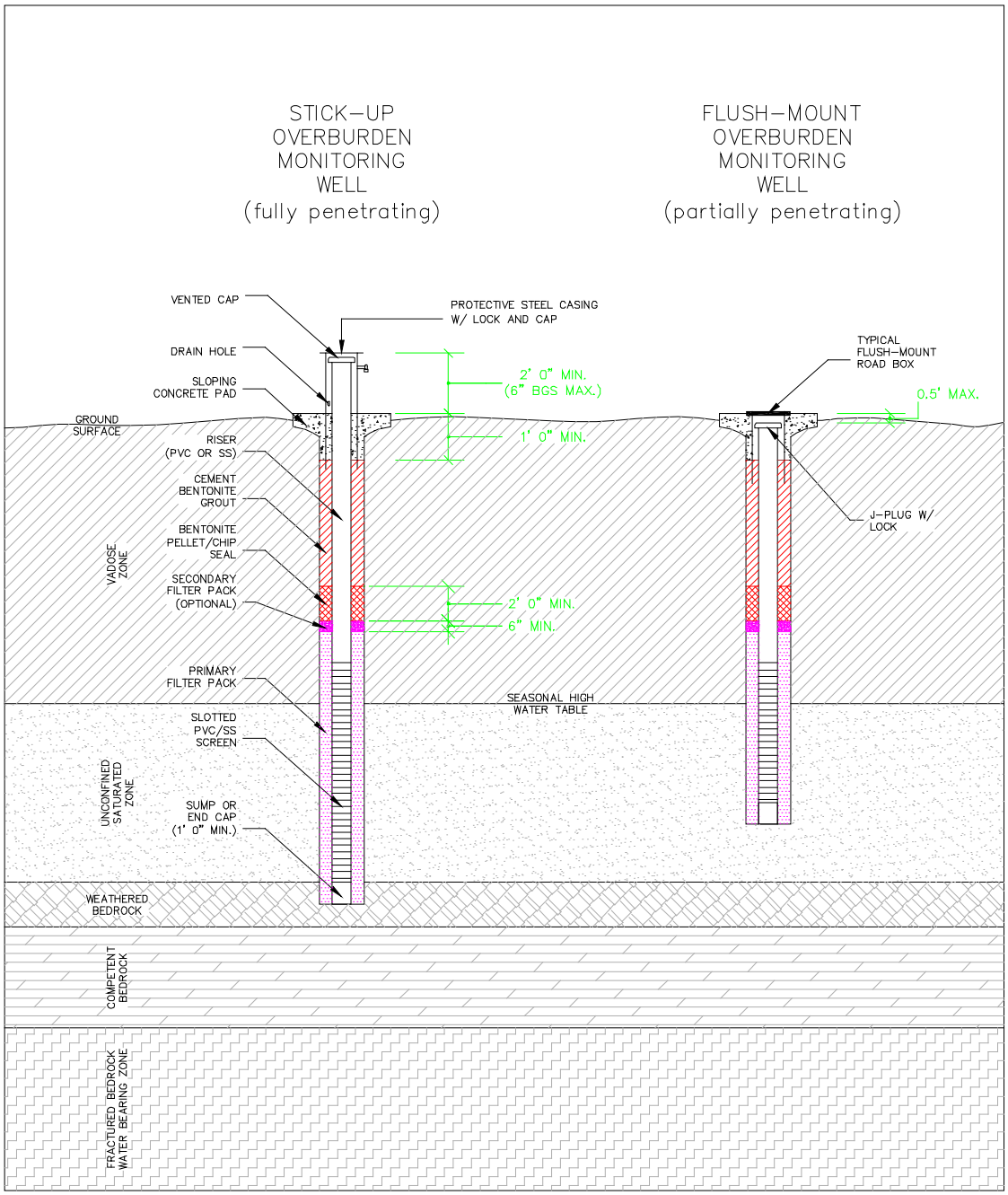
Depth (fbgs)	SAMPLES: Sample No.	Sample	Blows (per 6")	SPT N-Value	Recovery	PID Scan (ppm)	SAMPLE DESCRIPTION USCS Classification: Color, Moisture Condition, % of Soil Type, Texture, Plasticity, Fabric, Bedding, Weathering/Fracturing, Odor, Other SURFACE ELEVATION (FMSL):	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS

SAMPLE

Project No:	**Benchmark Environmental Engineering & Science, PLLC**	Figure

MONITORING WELL CONSTRUCTION FOR HOLLOW STEM AUGER BOREHOLES

FIGURE 1



FIELD OPERATING PROCEDURES

Monitoring Well Development Procedures

FOP 036.0

MONITORING WELL DEVELOPMENT PROCEDURES

PURPOSE

This procedure describes the methods for the development of newly installed monitoring wells and re-development of existing monitoring wells that have been inactive for an extended period of time (i.e., one year or more). Monitoring wells are developed after installation in order to remove introduced water and drilling fluids, reduce the turbidity of the water, and improve the hydraulic communication between the well and the water-bearing formation. Well development will not commence until the annular grout seal has cured, but will be performed within ten calendar days of well installation.

PROCEDURE

1. All well development will include surge blocking or false bailing with one or more of the following fluid removal methods. Well development activities may include:

    - Bailing
    - Air Lifting
    - Submersible Pumping
    - Other methods as approved by the Roux Field Team Leader.
    - The appropriate water removal method will be selected based on water level depth and anticipated well productivity.

2. Assemble and decontaminate equipment (if necessary), and place in the well. Reference the Roux Field Operating Procedure for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination.

3. Alternate the use of agitation methods with water removal methods, using the former to suspend solids in the well water, and the latter to remove the turbid water. For example, use a vented surge block to agitate the well, moving up and down within the screened interval and then use a pump to clear the well. A bailer may be used for both purposes, by surging with the bailer (false

bailing) for a period within the screened interval, then bailing a volume of water from the well.

4. When using surging methods, initiate this activity gradually, with short (2 to 3 feet) strokes. After several passes across the screened interval, increase the speed and length of the surge strokes.

5. Continue development until the following objectives are achieved:

   - Field parameters stabilize to the following criteria:
     - Dissolved Oxygen: ± 0.3 mg/L
     - Turbidity: ± 10%
     - Specific Conductance: ± 3%
     - ORP: ± 10 mV
     - pH: ± 0.1 units
   - The well will generate non-turbid water during continued pumping typically less than 50 NTU.
   - A minimum of 10 well volumes has been evacuated from the well.
   - In the case of lost water during drilling activities, the volume of water removed exceeds twice the volume of water lost to the formation during the drilling process, as indicated by the water balance.

6. Document the development methods, volumes, field parameter measurements, and other observations on the attached Roux Groundwater Well Development Log (sample attached).

ATTACHMENTS

Groundwater Well Development Log (sample)

REFERENCES

<u>Roux FOPs:</u>
040 Non-Disposable and Non-Dedicated Sampling Equipment Decontamination

ROUX

GROUNDWATER WELL DEVELOPMENT LOG

Project Name:	WELL NUMBER:
Project Number:	Sample Matrix:
Client:	Weather:

WELL DATA: DATE: TIME:

Casing Diameter (inches):	Casing Material:
Screened interval (fbTOR):	Screen Material:
Static Water Level (fbTOR):	Bottom Depth (fbTOR):
Elevation Top of Well Riser (fmsl):	Datum Ground Surface: Mean Sea Level
Elevation Top of Screen (fmsl):	Stick-up (feet):

PURGING DATA: DATE: START TIME: END TIME:

VOLUME CALCULATION:

(A) Total Depth of Well (fbTOR):	
(B) Casing Diameter (inches):	
(C) Static Water Level (fbTOR):	
One Well Volume (V, gallons): $V = 0.0408 [(B)^2 \times \{ (A) - (C) \}]$	

*Use the table to the right to calculate one well volume.

Field Personnel:

Volume Calculation

Well Diameter	Volume gal/ft
1"	0.041
2"	0.163
3"	0.367
4"	0.653
5"	1.020
6"	1.469
8"	2.611

Stabilization Criteria

Parameter	Criteria
DO	+/- 0.3 mg/L
Turbidity	+/- 10%
SC	+/- 3%
ORP	+/- 10 mV
pH	+/- 0.1 unit

EVACUATION STABILIZATION TEST DATA:

Time	Water Level (fbTOR)	Accumulated Volume (gallons)	pH (units)	Temperature (degrees C)	Specific Conductance (uS/cm)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor

REMARKS:

PREPARED BY:

SAMPLE

FIELD OPERATING PROCEDURES

Non-Aqueous Phase Liquid (NAPL) Detection and Sample Collection Procedure

FOP 039.1

NON-AQUEOUS PHASE LIQUID DETECTION AND SAMPLE COLLECTION PROCEDURE

PURPOSE

This procedure describes the methods to detect the presence and sample collection of Non-Aqueous Phase Liquid (NAPL) in groundwater monitoring wells prior to purging activities. If NAPL is suspected, all activities should be performed with proper personnel protective equipment (PPE).

DETECTION PROCEDURE

Groundwater monitoring wells suspected of containing NAPL will be sounded with an interface probe, or similar device, in accordance with the following.

1. Inspect the well/piezometer for signs of vandalism or damage and record condition on the Groundwater Field Form (sample attached). Specifically, inspect the integrity of the following: concrete surface seal, lock, protective casing and well cover, well casing and J-plug/cap. Report any irregular findings to the Project Manager.

2. Unlock and remove the well protective cap or cover and place on clean plastic to avoid introducing foreign material into the well.

3. Calibrate the photoionization detector (PID) in accordance with the Roux Field Operating Procedure for Calibration and Maintenance of Portable Photoionization Detector.

4. Monitor the well for organic vapors using a PID, as per the Work Plan. If a reading of greater than 5 ppm is recorded, the well should be allowed to vent until levels drop below 5 ppm before proceeding with purging. Record PID measurements on the Groundwater Field Form (sample attached).

5. Slowly lower the interface probe down the well, avoiding contact with the well casing. Upon contact with the static liquid level in the well, the interface

probe will signal contact with an audible tone and/or a visible light mounted inside the reel.

Note:

- If the signal is constant, the probe is in contact with groundwater; and
- If the signal oscillates, the probe is in contact with NAPL.

6. Record the depth, type of liquid encountered (if applicable) and any other related information in the Project Field Book and on a Groundwater Field Form (sample attached).

7. Slowly lower the interface probe to the well bottom. Record the depth(s) and type(s) of any additional phases encountered.

8. Slowly raise the interface probe to the surface, avoiding contact with the well casing.

9. Place the interface probe and storage reel in a plastic bag for subsequent decontamination in accordance with the Roux's Field Operating Procedure for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination.

SAMPLE COLLECTION PROCEDURE

All NAPL samples collected from groundwater monitoring wells will be collected in accordance with the following.

1. Place plastic sheeting on the ground around the well to prevent equipment from coming in contact with soil and also to prevent the surface transmission of NAPL.

2. All sampling personnel will don the appropriate PPE in accordance with the site health and safety plan.

3. Measure the static water level and NAPL level(s) using an interface probe as described in the previous section.

4. Determine depth to NAPL layer and thickness. Record appropriate data in the Project Field Book and on a Groundwater Sample Collection Log form (sample attached).

DNAPL SAMPLE COLLECTION

The following procedure should be used in sampling dense, heavier than water NAPL (i.e., with a high specific gravity) (DNAPL).

1. Collect samples using a translucent double check valve bailer (i.e., a bailer with a ball valve on both the top and bottom) constructed of Teflon, polyethylene or PVC which is connected to polypropylene rope for lowering into the well. All non-dedicated equipment shall be decontaminated in accordance with the Roux Field Operating Procedure for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination.

2. Remove wrapping (i.e., aluminum foil, manufacturers packaging etc.), attach bailer to new polypropylene rope and slowly lower the bailer until it contacts the well bottom.

3. Slowly raise and lower the bailer to create a gentle surging action thereby inducing DNAPL into the bailer past the bottom ball valve.

4. Slowly raise the bailer to the surface. Avoid contact of the bailer line with the well casing and/or ground surface.

5. Observe the DNAPL through the translucent wall of the bailer and check if the immiscible phases have separated. If not, allow the bailer to stand upright until the phases have separated.

6. Carefully attach a bottom-emptying device with stopcock to the bottom of the bailer and discharge the DNAPL gently down the side of the sample bottle to minimize turbulence.

7. Repeat steps 2 through 6 until a sufficient sample volume is obtained.

8. Cap the sample bottle and label, preserve and ship samples in accordance with the Roux Field Operating Procedure for Sample Labeling, Storage and Shipment Procedures.

9. Place the used plastic sheeting, bailer and polyethylene rope in a plastic bag for subsequent decontamination or disposal.

10. Document the sampling procedures and related information in the Project Field Book and on a Groundwater Sample Collection Log form (sample attached).

LNAPL SAMPLE COLLECTION

The following procedure should be used in sampling lighter than water NAPL (i.e., with a low specific gravity) (LNAPL).

1. Collect samples using a translucent double check valve bailer (i.e., a bailer with a ball valve on both the top and bottom) constructed of Teflon, polyethylene or PVC which is connected to polypropylene rope for lowering into the well. All non-dedicated equipment shall be decontaminated in accordance with the Roux Field Operating Procedure for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination.

2. Remove wrapping (i.e., aluminum foil, manufacturers packaging etc.), attach bailer to new polypropylene rope and slowly lower the bailer down the well into the immiscible phase of LNAPL. Care should be taken to lower the bailer just through the LNAPL layer, but not significantly down into the underlying groundwater.

3. Slowly raise the bailer to the surface. Avoid contact of the bailer line with the well casing and/or ground surface.

4. Observe the LNAPL through the translucent wall of the bailer and check if the immiscible phases have separated. If not, allow the bailer to stand upright until the phases have separated.

5. Carefully attach a bottom-emptying device with stopcock to the bottom of the bailer and decant the denser groundwater portion of the bailer contents into a DOT-approved 55-gallon drum for proper disposal.

6. Discharge the LNAPL gently down the side of the sample bottle to minimize turbulence.

7. Repeat steps 2 through 6 until a sufficient sample volume is obtained.

8. Cap the sample bottle and label, preserve and ship samples in accordance with the Roux Field Operating Procedure for Sample Labeling, Storage and Shipment Procedures.

9. Place the used plastic sheeting, bailer and polyethylene rope in a plastic bag for subsequent decontamination or disposal.

10. Document the sampling procedures and related information in the Project Field Book and on a Groundwater Sample Collection Log form (sample attached).

ATTACHMENTS

Groundwater Well Purge & Sample Collection Log (sample)

REFERENCES

Roux FOPs:

010 Calibration and Maintenance of Portable Flame Ionization Detector
011 Calibration and Maintenance of Portable Photoionization Detector
040 Non-Disposable and Non-Dedicated Sampling Equipment Decontamination
046 Sample Labeling, Storage and Shipment Procedures

ROUX

GROUNDWATER WE
PURGE & SAMPLE COLLECTION L

Project Name:	WELL NUMBER:
Project Number:	Sample Matrix:
Client:	Weather:

WELL DATA: DATE: TIME:

Casing Diameter (inches):	Casing Material:
Screened interval (fbTOR):	Screen Material:
Static Water Level (fbTOR):	Bottom Depth (fbTOR):
Elevation Top of Well Riser (fmsl):	Ground Surface Elevation (fmsl):
Elevation Top of Screen (fmsl):	Stick-up (feet):

PURGING DATA: DATE: START TIME: END TIME:

Method:	Is purge equipement dedicated to sample location?	yes
No. of Well Volumes Purged:	Was well purged to dryness?	yes
Standing Volume (gallons):	Was well purged below top of sand pack?	yes
Volume Purged (gallons):	Condition of Well:	
Purge Rate (gal/min):	Field Personnel:	

VOLUME CALCULATION:

(A) Total Depth of Well (fbTOR):	
(B) Casing Diameter (inches):	
(C) Static Water Level (fbTOR):	
One Well Volume (V, gallons): $V = 0.0408 [(B)^2 \times \{ (A) - (C) \}]$	

* Use the table to the right to calculate one well volume by subtracting C from A, then multiplying by the volume calculation in the table per well diamter

Volume Calculation

Well Diameter	Volume gal/ft
1"	0.041
2"	0.163
3"	0.367
4"	0.653
5"	1.020
6"	1.46

Stabilization Criteria

Parameter	Criteria
pH	+/- 0.1 un
SC	+/- 3%
Turbidity	+/- 10%
DO	+/- 0.3 m
ORP	+/- 10 mV

EVACUATION STABILIZATION TEST DATA:

Time	Water Level (fbTOR)	Accumulated Volume (gallons)	pH (units)	Temperature (degrees C)	Specific Conductance (µS/cm)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance Odor
		initial							

SAMPLING DATA: DATE: START TIME: END TIME:

Method:	Is sampling equipement dedicated to sample location?	yes
Initial Water Level (fbTOR):	Was well sampled to dryness?	yes
Final Water Level (fbTOR):	Was well sampled below top of sand pack?	yes
Air Temperature (°F):	Field Personnel:	
Source and type of water used in the field for QC purposes:		

PHYSICAL & CHEMICAL DATA:

DESCRIPTION OF WATER SAMPLE	
Odor	
Color	
NAPL	
Contains Sediment?	yes no

WATER QUALITY MEASUREMENTS							
Sample	Time	pH (units)	TEMP. (°C)	SC (uS)	TURB. (NTU)	DO (ppm)	ORP (mV)
initial							
final							

REMARKS:

PREPARED BY:

SAMPLE

FOP 040.1

NON-DISPOSABLE AND NON-DEDICATED SAMPLING EQUIPMENT DECONTAMINATION

PURPOSE

This procedure is to be used for the decontamination of non-disposable and non-dedicated equipment used in the collection of environmental samples. The purpose of this procedure is to remove chemical constituents from previous samples from the sampling equipment. This prevents these constituents from being transferred to later samples, or being transported out of controlled areas.

HEALTH AND SAFETY

Nitric acid is a strong oxidizing agent as well as being extremely corrosive to the skin and eyes. Solvents such as acetone, methanol, hexane and isopropanol are flammable liquids. Limited contact with skin can cause irritation, while prolonged contact may result in dermatitis. Eye contact with the solvents may cause irritation or temporary corneal damage. Safety glasses with protective side shields, neoprene or nitrile gloves and long-sleeve protective clothing must be worn whenever acids and solvents are being used.

PROCEDURE – GENERAL EQUIPMENT

Bailers, split-spoons, steel or brass split-spoon liners, Shelby tubes, submersible pumps, soil sampling knives, and similar equipment will be decontaminated as described below.

1. Wash equipment thoroughly with non-phosphate detergent and potable-quality water, using a brush where possible to remove any particulate matter or surface film. If the sampler is visibly coated with tars or other phase-separated hydrocarbons, pre-wash with acetone or isopropanol, or by steam cleaning. Decontamination will adhere to the following procedure:

a. Rinse with potable-quality water; if the sampling equipment is very oily and use of a solvent is necessary, rinse with pesticide-grade isopropanol.

b. Rinse with potable-quality water;

c. Rinse with deionized water demonstrated analyte-free, such as distilled water;

d. Air dry; and

e. Store in a clean area or wrap in aluminum foil (shiny side out) or new plastic sheeting as necessary to ensure cleanliness.

2. All non-dedicated well evacuation equipment, such as submersible pumps and bailers, which are put into the well, must be decontaminated following the procedures listed above. All evacuation tubing must be dedicated to individual wells (i.e., tubing cannot be reused). However, if submersible pump discharge tubing must be reused, the tubing and associated sample valves or flow-through cells used in well purging or pumping tests will be decontaminated as described below:

a. Pump a mixture of potable water and a non-phosphate detergent through the tubing, sample valves and flow cells, using the submersible pump.

b. Steam clean or detergent wash the exterior of the tubing, sample valves, flow cells and pump.

c. Pump potable water through the tubing, sample valve, and flow cell until no indications of detergent (e.g. foaming) are observed.

d. Double rinse the exterior of the tubing with potable water.

e. Rinse the exterior of the tubing with distilled water.

f. Store in a clean area or wrap the pump and tubing assembly in new plastic sheeting as necessary to ensure cleanliness until ready for use.

3. All unused sample bottles and sampling equipment must be maintained in such a manner that there is no possibility of casual contamination.

4. Manage all waste materials generated during decontamination procedures as described in the Roux Field Operating Procedure for Management of Investigation Derived Waste.

PROCEDURE – SUBMERSIBLE PUMPS

Submersible pumps used in well purging or purging tests will be decontaminated thoroughly each day before use as well as between well locations as described below:

Daily Decontamination Procedure:

1. Pre-rinse: Operate the pump in a basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

2. Wash: Operate the pump in 8 to 10 gallons of non-phosphate detergent solution (i.e., Alconox) for 5 minutes and flush other equipment with fresh detergent solution for 5 minutes.

3. Rinse: Operate the pump in a basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

4. Disassemble pump.

5. Wash pump parts with a non-phosphate detergent solution (i.e., Alconox). Scrub all pump parts with a test tube brush or similar device.

6. Rinse pump with potable water.

7. Rinse the inlet screen, the shaft, the suction interconnection, the motor lead assembly, and the stator housing with distilled/deionized water.

8. Rinse the impeller assembly with 1% nitric acid (HNO_3).

9. Rinse the impeller assembly with isopropanol.

10. Rinse the impeller assembly with distilled/deionized water.

Between Wells Decontamination Procedure:

1. Pre-rinse: Operate the pump in a basin containing 8 to 10 gallons of potable water for 5 minutes.

2. Wash: Operate the pump in 8 to 10 gallons of non-phosphate detergent solution (i.e., Alconox) for 5 minutes.

3. Rinse: Operate the pump in a basin of potable water for 5 minutes.

4. Final rinse the pump in distilled/deionized water.

ATTACHMENTS

None

REFERENCES

Roux FOPs:
032 Management of Investigation-Derived Waste

FIELD OPERATING PROCEDURES

Sample Labeling, Storage, and Shipment Procedures

FOP 046.1

SAMPLE LABELING, STORAGE & SHIPMENT PROCEDURES

PURPOSE

The collection and analysis of samples of environmental media, including soils, groundwater, surface water, and sediment, are the central activities of the field investigation. These samples must be properly labeled to preserve its identity, and properly stored and shipped in a manner that preserves its integrity and chain of custody. This procedure presents methods for these activities.

SAMPLE LABELING PROCEDURE

1. Assign each sample retained for analysis a unique 9-digit alphanumeric identification code or as indicated in the Project Work Plan. Typically, this code will be formatted as follows:

Sample I.D. Example: GW051402047	
GW	**Sample matrix** GW = groundwater; SW = surface water; SUB = subsurface soil; SS = surface soil; SED = sediment; L = leachate; A = air
05	Month of sample collection
14	Day of sample collection
02	Year of sample collection
047	Consecutive sample number

2. Consecutive sample numbers will indicate the individual sample's sequence in the total set of samples collected during the investigation/sampling event. The sample number above, for example, would indicate the 47th sample retained for analysis during the field investigation, collected on May 14, 2002.

3. Affix a non-removable (when wet) label to each sample container. The following information will be written on the label with black or blue ink that will not smudge when wet:

   - Project number
   - Sample ID (see Step 1 above)
   - Date of sample collection
   - Time of sample collection (military time only)
   - Specify "grab" or "composite" sample with an "X"
   - Sampler initials
   - Preservative(s) (if applicable)
   - Analytes for analysis (if practicable)

4. Record all sample label information in the Project Field Book and on a Sample Summary Collection Log (see attached samples), keyed to the sample identification number. In addition, add information regarding the matrix, sample location, depth, etc. to provide a complete description of the sample.

SAMPLE STORAGE PROCEDURE

1. Immediately after collection, placement in the proper container, and labeling, place samples to be retained for chemical analysis into resealable plastic bags.

2. Place bagged samples into an ice chest filled approximately half-full of double bagged ice. Blue ice is not an acceptable substitute for ice.

3. Maintain samples in an ice chest or in an alternative location (e.g. sample refrigerator) as approved by the Roux Field Team Leader until time of shipment. Periodically drain melt-water off coolers and replenish ice as necessary.

4. Ship samples on a daily basis, unless otherwise directed by the Roux Field Team Leader.

5. Maintain appropriate custody procedures on coolers and other sample storage containers at all times. These procedures are discussed in detail in the Project Quality Assurance Project Plan, Monitoring Plan or Work Plan.

6. Samples shall be kept in a secure location locked and controlled (i.e., locked building or fenced area) so that only the Project Field Team Leader has access to the location or under the constant visual surveillance of the same.

SAMPLE SHIPPING PROCEDURE

1. Fill out the chain-of-custody form completely (see attached sample) with all relevant information. The white original goes with the samples and should be placed in a resealable plastic bag and taped inside the sample cooler lid; the sampler should retain the copy.

2. Place a layer of inert cushioning material such as bubble pack in the bottom of cooler.

3. Place each bottle in a bubble wrap sleeve or other protective wrap. To the extent practicable, then place each bottle in a resealable plastic bag.

4. Open a garbage bag (or similar) into a cooler and place sample bottles into the garbage bag (or similar) with volatile organic analysis (VOA) vials near the center of the cooler.

5. Pack bottles with ice in plastic bags. At packing completion, cooler should be at least 50 percent ice, by volume. Coolers should be completely filled, so that samples do not move excessively during shipping.

6. Duct tape (or similar) cooler drain closed and wrap cooler completely in two or more locations to secure lid, specifically covering the hinges of the cooler.

7. Place laboratory label address identifying cooler number (i.e., 1 of 4, 2 of 4 etc.) and overnight delivery waybill sleeves on cooler lid or handle sleeve (Federal Express).

8. Sign the custody seal tape with an indelible soft-tip marker and place over the duct tape across the front and back seam between the lid and cooler body.

9. Cover the signed custody seal tape with an additional wrap of transparent strapping tape.

10. Place "Fragile" and "This Side Up" labels on all four sides of the cooler. "This Side Up" labels are yellow labels with a black arrow with the arrowhead pointing toward the cooler lid.

11. For coolers shipped by overnight delivery, retain a copy of the shipping waybill, and attach to the chain-of-custody documentation.

ATTACHMENTS

Soil/Sediment Sample Summary Collection Log (sample)
Groundwater/Surface Water Sample Summary Collection Log (sample)
Wipe Sample Summary Collection Log (sample)
Air Sample Summary Collection Log (sample)
Chain-Of-Custody Form (sample)

REFERENCES

None

ROUX

SOIL/SEDIMENT
SAMPLE COLLECTION SUMMARY LOG

Field ID	Location	QC Type	Depth (feet)		Analytical Parameters	Containers	Date	Time	Sampler Initials	Comments (e.g. problems encountered, ref. to variance, location changes, depth changes, important matrix observations or description, gravel thickness, etc.)
			from	to						

Equipment Rinsate Blanks *- Pour clean deionized water over or through decontaminated sampling equipment into sample containers. Collect at a frequency of 1 per 20 samples of each matrix when non-dedicated equipment is utilized in accordance with DER-10.*

MS/MSD *- Collect at a frequency of 1 per 20 samples of each matrix in accordance with DER-10.*

Field Blank *- Pour clean deionized water (used as final decon rinse water) into sample containers while at the sampling site. Collect field blanks at a frequency of 1 per 20 samples of each matrix.*

Investigation Derived Waste (IDW) Characterization samples *- Collect composite samples from all drums of decon fluids and soil at the frequency required by the disposal facility. Please note number of drums and labels on collection log.*

Notes:
1. See QAPP for sampling frequency and actual number of QC samples.
2. MS/MSD - Matrix Spike, Matrix Spike Duplicate, Matrix Spike Blank.
3. BD - Blind Duplicate - indicate location of duplicate.

Sample Summary Collection Logs - soil and sediment-REV.xlsx Page ____ of ____ Prepared By: _____

SAMPLE

ROUX

GROUNDWATER/SURFACE WATER
SAMPLE COLLECTION SUMMARY LOG

Field ID	Location	QC Type	Depth (feet)		Analytical Parameters	Containers	Date	Time	Sampler Initials	Comments (e.g. problems encountered, ref. to variance, location changes, depth changes, important matrix observations or description, gravel thickness, etc.)
			from	to						

Equipment Rinsate Blanks *- Pour clean deionized water over or through decontaminated sampling equipment into sample containers. Collect at a frequency of 1 per 20 samples of each matrix when non-dedicated equipment is utilized in accordance with DER-10.*

MS/MSD *- Collect at a frequency of 1 per 20 samples of each matrix in accordance with DER-10.*

Field Blank *- Pour clean deionized water (used as final decon rinse water) into sample containers while at the sampling site. Collect field blanks at a frequency of 1 per 20 samples of each matrix.*

Investigation Derived Waste (IDW) Characterization samples *- Collect composite samples from all drums of decon fluids and soil at the frequency required by the disposal facility. Please note number of drums and labels on collection log.*

Notes:
1. See QAPP for sampling frequency and actual number of QC samples.
2. MS/MSD - Matrix Spike, Matrix Spike Duplicate, Matrix Spike Blank
3. BD - Blind Duplicate - indicate location of duplicate.

SAMPLE

Sample Summary Collection Logs - GW and SW-REV 2025.xls Page ____ of ____ Prepared By: _____

ROUX

WIPE SAMPLE COLLECTION SUMMARY LOG

Field ID	Location	QC Type	Analytical Parameters	Containers	Date	Time	Sampler Initials	Comments (e.g. problems encountered, ref. to variance, location changes, important observations or descriptions, etc.)

Notes:

1. See QAPP for sampling frequency and actual number of QC samples.
2. No Matrix Spike or Matrix Spike Duplicate for wipe samples.
3. Equipment Blanks should be taken at a rate of 1 per 20 samples when non-dedicated equipment is utilized in accordance with DER-10.
4. Wipe sample field blanks collected by wiping unused glove (and any other sampling equipment coming into contact with sampled surface) with prepared gauze pad and place in sample jar. Take at a rate of 1 FB per 20 samples.
5. Wipe sample field duplicates taken adjacent to original sample at a rate of 1 field duplicate per 20 samples.

SAMPLE

Copy of Sample Summary Collection Logs - wipe-REV 2025.xls Page ____ of ____ Prepared By: _____

ROUX

AIR SAMPLE COLLECTION SUMMARY LOG

Field ID	Location	QC Type	Analytical Parameters	Containers	Date	Time	Sampler Initials	Comments (e.g. problems encountered, ref. to variance, location changes, important observations or descriptions, etc.)

Notes:

1. See QAPP for sampling frequency and actual number of QC samples.
2. No Matrix Spike, Matrix Spike Duplicate, Field Duplicates, Field Blanks or Rinsates collected for air samples.

SAMPLE

Sample Summary Collection Logs - air-REV 2025.xls Page ____ of ____ Prepared By: _____

CHAIN OF CUSTODY RECORD

Project No.					Project Name	Number of Containers	VOCs	SVOCs	Metals					REMARKS
Samplers (Signature)														
No.	Date	Time	comp	grab	Sample Identification									

Possible Hazard Identification:
☐ Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal:
Return to Client ☐ Disposal by Lab ☐ Archive _____(mos.)

Turnaround Time Required:
Normal ☐ Rush ☐

QC Level:
I. ☐ II. ☐ III. ☐ Project Specific (specify):_____

Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	REMARKS:
Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	

SAMPLE

FIELD OPERATING PROCEDURES

Screening of Soil Samples for Organic Vapors During Drilling Activities

FOP 047.0

SCREENING OF SOIL SAMPLES FOR ORGANIC VAPORS DURING DRILLING ACTIVITIES

PURPOSE

This procedure is used to screen soil samples for the presence of volatile organic constituents (VOCs) using a field organic vapor meter. These meters will be either photoionization detector (PID) or flame-ionization detector (FID) type. This screening is performed at the drilling and sampling location as a procedure for ensuring the health and safety of personnel at the site and to identify potentially contaminated soil samples for laboratory analysis. All soil samples will be field screened to provide a vertical profile of soil contamination by volatile organic substances.

PROCEDURE

1. Calibrate air-monitoring equipment in accordance with the appropriate Roux's Field Operating Procedures or manufacturers recommendations for calibration of field meters.

2. Collect split-spoon (or other sampler) samples in accordance with Roux's Split Spoon Sampling Procedure FOP.

3. When the split-spoon or other sampler is opened or accessed, shave a thin layer of material from the entire length of the core.

4. Scan the core visually and with the PID or FID noting stratification, visible staining, or other evidence of contamination.

5. Based on this initial scan of the sample, collect approximately 100 milliliters (ml) of soil using a decontaminated or dedicated stainless steel spatula, scoop, or equivalent. Place this soil into a labeled wide-mouth glass jar approximately ½ to ¾ full and seal with aluminum foil and a screw top cap. Alternatively, the soil may be placed into a clean, re-sealable plastic bag and sealed. Be sure to leave some headspace above the soil sample within the sealed container.

6. Place field screening sample (i.e., jar or bag) in a location where the ambient temperature is at least 70° Fahrenheit.

7. Leave the field screening sample bag for at least 30 minutes, but no more than 60 minutes.

8. Carefully remove the screw top cap from the jar and slowly insert the tip of the organic vapor meter (PID or FID) through the aluminum foil seal making the smallest hole possible. Alternatively, unseal a portion of the plastic bag just big enough to insert the probe of a calibrated PID.

9. Record the maximum reading in parts per million by volume (ppmv) on the Field Borehole Log or Field Borehole/Monitoring Well Installation Log form (see attached samples) (see Documentation Requirements for Drilling and Well Installation FOP), at the depth interval corresponding to the depth of sample collection.

ATTACHMENTS

Field Borehole Log (sample)
Field Borehole/Monitoring Well Installation Log (sample)

REFERENCES

<u>Roux FOPs:</u>
010 Calibration and Maintenance of Portable Flame Ionization Detector
011 Calibration and Maintenance of Portable Photoionization Detector
015 Documentation Requirements for Drilling and Well Installation
058 Split Spoon Sampling Procedures

ROUX

FIELD BOREHOLE LOG

PROJECT:		**Log of Boring No.:**	
BORING LOCATION:		ELEVATION AND DATUM:	
DRILLING CONTRACTOR:		DATE STARTED:	DATE FINISHED:
DRILLING METHOD:		TOTAL DEPTH:	SCREEN INTERVAL:
DRILLING EQUIPMENT:		DEPTH TO WATER: FIRST: COMPL.:	CASING:
SAMPLING METHOD:		LOGGED BY:	
HAMMER WEIGHT:	DROP:	RESPONSIBLE PROFESSIONAL:	REG. NO.

Depth (fbgs)	SAMPLES					PID Scan (ppm)	SAMPLE DESCRIPTION USCS Classification: Color, Moisture Condition, % of Soil Type, Texture, Plasticity, Fabric, Bedding, Weathering/Fracturing, Odor, Other SURFACE ELEVATION (FMSL):	REMARKS
	Sample No.	Sample	Blows (per 6")	SPT N-Value	Recovery			

SAMPLE

ABANDONMENT:

Volume of cement/bentonite grout required:	$V = \pi r^2 \times 7.48 =$	gallons	borehole depth =	ft.
Volume of cement/bentonite grout installed:		gallons	borehole diameter =	ft.
Has bridging of grout occurred?	☐ yes ☐ no		borehole radius =	ft.
If yes, explain resolution:				
Method of installation:				
Project No:	Roux Environmental Engineering and Geology, D.P.C.		Figure	

ROUX

FIELD BOREHOLE/MONITORING WELL INSTALLATION LOG

PROJECT:		**Log of Well No.:**		
BORING LOCATION:		ELEVATION AND DATUM:		
DRILLING CONTRACTOR:		DATE STARTED:		DATE FINISHED:
DRILLING METHOD:		TOTAL DEPTH:		SCREEN INTERVAL:
DRILLING EQUIPMENT:		DEPTH TO WATER:	FIRST: / COMPL.:	CASING:
SAMPLING METHOD:		LOGGED BY:		
HAMMER WEIGHT:	DROP:	RESPONSIBLE PROFESSIONAL:		REG. NO.

Depth (fbgs)	SAMPLES					PID Scan (ppm)	SAMPLE DESCRIPTION USCS Classification: Color, Moisture Condition, % of Soil Type, Texture, Plasticity, Fabric, Bedding, Weathering/Fracturing, Odor, Other SURFACE ELEVATION (FMSL):	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
	Sample No.	Sample	Blows (per 6")	SPT N-Value	Recovery			

SAMPLE

Project No:	Roux Environmental Engineering and Geology, D.P.C.	Figure

FOP 054.2

SOIL DESCRIPTION PROCEDURES USING THE VISUAL-MANUAL METHOD

PURPOSE

This guideline presents a means for insuring consistent and proper field identification and description of collected soils during a project (via, split-spoon (barrel) sampler, hand auger, test pit etc.). The lithology and moisture content of each soil sample will be physically characterized by visual-manual observation in accordance with ASTM Method D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). When precise classification of soils for engineering purposes is required, the procedures prescribed in ASTM Method D2487 (Standard Practice for Classification of Soils for Engineering Purposes [Unified Soil Classification System, USCS]) will be used. The method of soil characterization presented herein describes soil types based on grain size, liquid and plastic limits, and moisture content based on visual examination and manual tests. When using this FOP to classify soil, the detail of description provided for a particular material should be dictated by the complexity and objectives of the project. However, more often than not, "after the fact" field information is required later in the project, therefore, every attempt to describe the soil as completely as possibly should be made.

Intensely weathered or decomposed rock that is friable and can be reduced to gravel size or smaller by normal hand pressure should be classified as a soil. The soil classification would be followed by the parent rock name in parenthesis. Projects requiring depth to bedrock determinations should always classify weathered or decomposed bedrock as bedrock (i.e., landfill siting). The project manager should always be consulted prior to making this determination.

PROCEDURE

Assemble necessary equipment and discuss program requirements with drilling contractor.

1. Calibrate air-monitoring equipment in accordance with the appropriate Roux's Field Operating Procedures or manufacturers recommendations for calibration of field meters.

2. Collect desired soil sample in accordance with appropriate Roux FOP (i.e., split-spoon sampling, hand augering, test pitting etc.).

3. Shave a thin layer off the entire length of the sample to expose fresh sample.

4. Photograph and scan the sample with a photoionization detector (PID) at this time, if applicable, in accordance with Roux's Screening of Soil Samples for Organic Vapors During Drilling Activities FOP.

5. Describe the sample using terminology presented in the Descriptive Terms section below.

6. Record all pertinent information in the Project Field Book and Field Borehole Log (sample attached) or Field Borehole/Monitoring Well Installation Log (sample attached).

7. After the sample has been described, place a representative portion of the sample in new, precleaned jars or self-sealing plastic bags for archival purposes (if required). Label the jar or bag with the sample identification number, sample interval, date, project number and store in a secure location.

8. If the soil is to be submitted to a laboratory for analysis, collect the soil sample with a dedicated stainless steel sampling tool, place the sample into the appropriate laboratory-supplied containers, and store in an ice-chilled cooler staged in a secure location in accordance with Roux's Sample Labeling, Storage and Shipment Procedures FOP.

9. All remaining soil from soil sample collection activities shall be containerized in accordance with Roux's Management of Investigative-Derived Waste (IDW) FOP and/or the Project Work Plan.

DESCRIPTIVE TERMS

All field soil samples will be described using the Unified Soil Classification System (USCS) presented in Figures 1 and 2 (attached). In addition to ASTM Method D2488, Method D1586, Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils (a.k.a., Standard Penetration Test, STP), when implemented, can also be used to classify the resistance of soils. In certain instances, it is desirable to supplement the USCS classification with a geologic interpretation of the soil sample that is supported by the soil descriptive terms presented in this section. The project manager should be consulted when making any geologic interpretation. Field test methods are provided to assist field personnel in classifying soil and are identified by a bold blue **FTM** and shaded. Classification of sampled soils will use the following ASTM descriptive terms and criteria:

- **Group Name** (USCS, see Figure 2)
- **Group Symbol** (USCS, see Figure 2) – only use if physical laboratory testing has been performed to substantiate. The USCS can be applied to most unconsolidated materials, and is represented by a two-letter symbol, except Peat (Pt).
  - The first letter includes: G (gravel), S (sand), M (silt), C (clay), and O (organic).
  - The second letter includes: P (poorly graded or uniform particle sizes), W (well graded or diversified particle sizes), H (high plasticity), and L (low plasticity).
  - Examples:
    - GW = well graded gravels and gravel-sand mixtures, little or no fines
    - GP = poorly graded gravels and gravel-sand mixtures, little or no fines
    - GM = silty gravels, gravel-sand-silt mixtures

- GC = clayey gravels, gravel-sand-clay mixtures
- SW = well graded sands and gravelly sands, little or no fines
- SP = poorly graded sands and gravelly sands, little or no fines
- SM = silty sand, sand-silt mixtures
- SC = clayey sand sand-clay mixtures
- ML = inorganic silts, very fine sands, rock flour, silty or clayey fine sands
- CL = inorganic clays of low to medium plasticity, gravelly/sandy/silty/lean clays
- OL = organic silts and organic silty clays of low plasticity
- MH = inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts (very rare)
- CH = inorganic clays of high plasticity, fat clays
- OH = organic clays of medium to high plasticity
- Pt = peat, muck, and other highly organic soils

- **Angularity** (ASTM D2488; Table 1)
  - Angular – particles have sharp edges and relatively planar sides with unpolished surfaces
  - Subangular – particles are similar to angular description but have rounded edges
  - Subrounded – particles have nearly planar sides but have well-rounded corners and edges
  - Rounded – particles have smoothly curved sides and no edges
- **Particle Shape** (ASTM D2488; Table 2)
  - Flat – particles with width/thickness > 3
  - Elongated – particles with length/width > 3
  - Flat and Elongated – particles meet criteria for both flat and elongated
- **Moisture Condition** (ASTM D2488; Table 3)
  - Dry – absence of moisture, dusty, dry to the touch
  - Moist – damp, but no visible water
  - Wet – visible free water, usually soil is below water table
- **Reaction with Hydrochloric Acid (HCL)** (ASTM D2488; Table 4)
  - None – no visible reaction

  - Weak – some reaction, with bubbles forming slowly
  - Strong – violent reaction, with bubbles forming immediately
- **Consistency of Cohesive Soils** (ASTM D2488; Table 5)
  - Very soft – squeezes between fingers when fist is closed; easily penetrated several inches by fist (SPT = 2 or less)
  - Soft – easily molded by fingers; easily penetrated several inches by thumb (SPT = 2 to 4)
  - Firm – molded by strong pressure of fingers; can be penetrated several inches by thumb with moderate effort (SPT = 4 to 8)
  - Stiff – dented by strong pressure of fingers; readily indented by thumb but can be penetrated only with great effort (SPT = 8 to 15)
  - Very stiff – readily indented by thumbnail (SPT = 15 to 30)
  - Hard – indented with difficultly by thumbnail (SPT >30)
- **Cementation** (ASTM D2488; Table 6)
  - Weak – crumbles or breaks with handling or slight finger pressure
  - Moderate – crumbles or breaks with considerable finger pressure
  - Strong – will not crumble or break with finger pressure
- **Structure (Fabric)** (ASTM D2488; Table 7)
  - Varved – alternating 1 mm to 12 mm (0.04 – 0.5 inch) layers of sand, silt and clay
  - Stratified – alternating layers of varying material or color with the layers less than 6 mm (0.23 inches) thick; note thickness
  - Laminated – alternating layers of varying material or color with the layers less than 6 mm (0.23 inches) thick; note thickness
  - Fissured – contains shears or separations along planes of weakness
  - Slickensided – shear planes appear polished or glossy, sometimes striated

- Blocky – cohesive soil that can be broken down into small angular lumps which resist further breakdown
- Lensed – inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness
- Homogeneous or Massive – same color and appearance throughout

- **Inorganic Fine-Grained Soil Characteristics** (ASTM D2488; Table 12)

  Several field tests can be performed to determine the characteristics of fine-grained soils (material passing the No. 40 sieve), such as dry strength, dilatency, and toughness. These field testing methods are described below.

  - **Dry Strength** (ASTM D2488; Table 8)

    FTM (Dry Strength): Select enough material and moisten with water until it can be molded or shaped without sticking to your fingers (slightly below the sticky limit) into a ball about 1 inch in diameter. From this ball, form three balls about ½ inch in diameter and allow to dry in air, or sun, or by artificial means (temperature not to exceed 60° C (140° F). Soil containing natural dry lumps about ½ inch in diameter may be used in place of molded balls, however the dry strengths are usually lower. Test the strength by crushing the dry balls or lumps between your fingers using the descriptions below.

    - None – the dry specimen crumbles with the slightest pressure of handling
    - Low – the dry specimen crumbles with some finger pressure
    - Medium – the dry specimen breaks into pieces or crumbles with considerable finger pressure
    - High – the dry specimen cannot be broken with finger pressure. The specimen will break into pieces between the thumb and a hard surface.
    - Very High – the dry specimen cannot be broken between the thumb and a hard surface

  - **Dilatency** (ASTM D2488; Table 9)

    FTM (Dilatency): Place enough material in your hand to form a ball approximately ½ inch in diameter and moisten with water until it can be

molded or shaped without sticking to your fingers (slightly below the sticky limit). Smooth the ball in the palm of one hand with the blade of a knife or small spatula. Shake horizontally, striking the side of the hand vigorously against the other several times. Note the reaction of water appearing on the surface of the soil. The soil is said to have given a reaction to this test if, when it is shaken, water comes to the surface of the sample producing a smooth, shiny appearance. Squeeze the sample between the thumb and forefinger and note the reaction as follows:

- None – no visible change in the specimen
- Slow – water slowly appears on the surface of the specimen during shaking and does not disappear or disappears slowly upon squeezing
- Rapid – water quickly appears on the surface of the specimen during shaking and disappears upon squeezing

- **Toughness** (ASTM D2488; Table 10)

FTM (Toughness): Following the dilatency test above, shape the test specimen into an elongated pat and roll by hand on a smooth surface or between palms into a thread about 1/8 inch in diameter. Fold the sample threads and re-roll repeatedly until the thread crumbles at a diameter of about 1/8 inch (e.g., near the plastic limit). Note the pressure required to roll the thread near the plastic limit as well as the strength of the thread. After the thread crumbles, lump the pieces together and knead the lump until it crumbles. Describe the toughness as follows:

- Low – only slight pressure is required to roll the thread near the plastic limit. The thread and the lump are weak and very soft.
- Medium – medium pressure is required to roll the thread to near the plastic limit. The thread and the lump are soft.
- High – considerable pressure is required to roll the thread to near the plastic limit. The thread and the lump are firm.

Using the results of the dry strength, dilatency, and toughness test described above, classify the soil according to the following:

Soil Symbol	Dry Strength	Dilatency	Toughness
Silt (ML)	None to low	Slow to rapid	Low or thread cannot be formed
Lean clay (CL)	Medium to high	None to slow	Medium
Elastic Silt (MH)	Low to medium	None to slow	Low to medium
Fat Clay (CH)	High to very high	None	Low to medium high

- **Plasticity** (ASTM D2488; Table 11)

  Two field test methods can be used to determine plasticity of fine-grained soils (material passing the No. 40 sieve): the roll or thread test and the ribbon test. Each test is described below.

  FTM (Roll or Thread Test): As with the toughness test above, mix a representative portion of the soil sample with water until it can be molded or shaped without sticking to your fingers (slightly below the sticky limit). Place an elongated cylindrical sample on a nonabsorbent rolling surface (e.g., glass or was paper on a flat surface) and attempt to roll it into a thread approximately 1/8 inch in diameter. The results of this test are defined below (non-plastic to high plasticity).

  FTM (Ribbon Test): Form a roll from a handful of moist soil (slightly below the sticky limit) about ½ to ¾ inches in diameter and about 3 to 5 inches long. Place the material in the palm of your hand and, starting at one end, flatten the roll between your thumb and forefinger to form the longest and thinnest ribbon possible that can be supported by the cohesive properties of the material before breaking. If the soil sample holds together for a length of 6 to 10 inches without breaking, the material is considered to be both highly plastic and highly compressive (Fat Clay, CH). If the soil cannot be ribboned, it is non-plastic (Silt, ML or MH). If it can be ribboned only with difficulty into short lengths, it has low plasticity (Lean Clay, CL). Use the following terms to describe the plasticity of soil:

- Nonplastic (ML or MH) – a 3 mm (0.12 inches) thread cannot be rolled at any water content
- Low Plasticity (CL, ML, or MH) – the thread can barely be rolled, and crumbles easily
- Medium Plasticity (CL) – the thread is easy to roll and not much time is required to reach the plastic limit before crumbling
- High Plasticity (CH) – it takes considerable time rolling and kneading to reach the plastic limit; the thread can be rolled several times before crumbling

Note: A soil with as little as 20% clay will behave as a clayey soil. A soil needs 45% to over 60% medium to coarse sand to behave as a sandy soil. In a soil with 20% clay and 80% sand, the soil will behave as a clayey soil.

- **Relative Density of Cohesionless (Granular) Soils**
  - Very loose – easily penetrated 30 cm (1.2 inches) with 13 mm (0.5 inch) rebar pushed by hand (SPT = 0 to 4)
  - Loose – easily penetrated several cm with 13 mm (0.5 inch) rebar pushed by hand (SPT = 4 to 10)
  - Medium dense – easily to moderately penetrated with 13 mm (0.5 inch) rebar driven by 2.3 kg (6 pound) hammer (SPT = 10 to 30)
  - Dense – penetrated 0.3 m (1 foot) with difficulty using 13 mm (0.5 inch) rebar driven by 2.3 kg (6 pound) hammer (SPT = 30 to 50)
  - Very dense – penetrated only a few cm with 13 mm (0.5 inch) rebar driven by 2.3 kg (6 pound) hammer (SPT = >50)
- **Color** (use Munsel® Color System, as necessary)
- **Particle Size** (see Figure 3)
  - Boulder – larger than a basketball
  - Cobble – grapefruit, orange, volleyball
  - Coarse Gravel – tennis ball, grape

- Fine Gravel – pea
- Coarse Sand – rock salt
- Medium Sand – opening in window screen
- Fine Sand – sugar, table salt
- Fines (silt and clay) – cannot visually determine size (unaided)

- **Gradation**
  - Well Graded (GW, SW) – full range and even distribution of grain sizes present
  - Poorly-graded (GP, SP) – narrow range of grain sizes present
  - Uniformly-graded (GP, SP) – consists predominantly of one grain size
  - Gap-graded (GP-SP) – within the range of grain sizes present, one or more sizes are missing

- **Organic Material** – Organic soils usually have a dark brown to black color and may have an organic odor. Often, organic soils will change color, for example, black to brown, when exposed to the air. Some organic soils will lighten in color significantly when air-dried. Organic soils normally will not have a high toughness or plasticity. The thread of the toughness test will be spongy.
  - PEAT – 50 to 100 percent organics by volume, primary constituent
  - Organic (soil name) – 15 to 50 percent organics by volume, secondary organic constituent
  - (Soil name) with some organics – 5 to 15 percent organics by volume, additional organic constituents

- **Fill Materials** – All soils should be examined to see if they contain materials indicative of man-made fills. Man-made fill items should be listed in each of the soil descriptions. Common fill indicators include glass, brick, dimensioned lumber, concrete, pavement sections, asphalt, metal, plastics, plaster etc. Other items that could suggest fill include buried vegetation mats, tree limbs, stumps etc. The soil description for a fill material should be followed by the term "FILL", i.e., for a sandy silt with some brick fragments the description would be "SANDY

SILT (ML), with brick fragments (Fill)". The size and distribution of fill indicators should be noted. The limits (depth range) of fill material should be determined and identified at each exploration location.

- **Other Constituents/Characteristics**
  - Additional constituents and/or pertinent soil characteristics not included in the previous categories should be described depending on the scope and objectives of the project. Observations that may be discussed include:
    - Oxide staining
    - Odor
    - Origin
    - Presence of root cast
    - Presence of mica
    - Presence of gypsum
    - Presence of calcium carbonate
    - Percent by volume of cobbles & boulders with size description and appropriate rock classification
  - Other pertinent information from the exploratory program should be recorded, if it would be useful from a biddability/constructability perspective. The conditions that should be listed include caving or sloughing, difficulty in drilling and groundwater infiltration.

SOIL DESCRIPTIONS

Generally, soil descriptions collected during most investigations are not intended for civil engineering (construction) purposes, but rather for hydrogeologic and contaminant transport purposes. As such, the ASTM visual-manual assessments are somewhat limited in that they are only performed in order to indicate important information about potential hydraulic properties of a soil. Soil descriptions should be concise, stressing major constituents and

characteristics, and should be given in a consistent order and format. The following order is recommended:

- Soil name. The basic name of the predominant grain size and a single-word modifier indicating the major subordinate grain size (i.e., mostly clay with some silt). The feel test can be used to determine the texture of the soil by rubbing some moist soil between your fingers; sand feels gritty, silt feels smooth, and clays feel sticky. The terms representing percentages of grain size to be used include:
    - Trace – particles are present, but estimated to be less than 5%
    - Few – 5 to 10%
    - Little – 15 to 25%
    - Some – 30 to 45%
    - Mostly – 50 to 100%
- Color (using Munsell® charts, as necessary). Color is an important property in identifying organic soils, and within a given locality it may also be useful in identifying materials of similar geologic origin. It the sample contains layers or patches of varying colors (e.g., mottled), this shall be noted and all representative colors shall be described. The color shall be described for moist samples, however if the color represents a dry condition, it must be stated as such in the log. Generally, colors become darker as the moisture content increases and lighter as the soil dries. Examples include:
    - Some fine-grained soils (OL, OH) with dark drab shades of brown or gray, including almost black, contain organic colloidal matter.
    - In contrast, clean, bright looking shades of gray, olive green, brown, red, yellow, and white are associated with inorganic soils.
    - Gray-blue or gray- and yellow-mottled colors frequently result from poor drainage.
    - Red, yellow, and yellowish brown result from the presence of iron oxides.

  - White to pink may indicate considerable silica, calcium carbonate, or aluminum compounds.

- Field moisture condition as dry, moist, or wet;
- Gradation or Plasticity. Granular soils (i.e., sands or gravels) should be described as well-graded, poorly graded, uniform, or gap-graded, depending on the gradation of the minus 3-inch fraction. Cohesive soils (i.e., silts and clays) should be described as non-plastic, low, medium, or high, depending on the results of the manual evaluation for dry strength, dilatency, toughness, and plasticity discussed previously.
- Consistency/Density. An estimate of consistency of a cohesive soil or density of a granular soil, usually based on the SPT results (see Descriptive Terms section of this FOP);
- Soil Structure or Mineralogy. Description of discontinuities, inclusions, and structures, including joints, fissures, and slickensides.
- Odor. Describe the odor if organic or unusual. Soils containing a significant amount of organic material usually have a distinctive odor of decaying vegetation. This is especially apparent in fresh samples, but if the samples are dried, the odor may often be revived by heating a moistened sample. If the odor is unusual (petroleum, chemical, etc.), it should be noted in the log.
- Other important geologic information such as consolidation, gravel size and shape, visible internal structure, root holes, mica, odors, etc.

The first step when describing soil is to determine if the sample is predominantly fine-grained or coarse-grained (see Figures 3 and 4). Coarse-grained soils are relatively easy to identify, however descriptions of fine-grained soils can be more difficult, requiring additional field tests to assist the field geologist arrive at the proper soils classification (see **FTMs** under Descriptive Terms above). These tests are explained in detail in the ASTM Standard D2488 and briefly herein. Generally, the differentiation between silt and clay is based on plasticity and "texture". However, tests for dry strength and dilatency, along with plasticity,

can be very helpful and are recommended in the ASTM Standard. If additional tests are performed, in addition to plasticity, to classify the fines, record them with the soil description on the logs. Doing this will assist the reader (i.e., Project Manager) to follow the logic used to describe a soil (e.g., medium plasticity, low dry strength = elastic silt [MH]; not a lean clay [CL]).

Fines described in the classification should be modified by their plasticity (e.g., non-plastic fines, low plasticity fines, etc.) reserving the words "silt" and "clay" for the soil name.

In summary, adhering to the ASTM Standard and the guidelines outlined in this FOP will provide uniformity in soil descriptions provided by all field personnel. Prior to mobilization to the field, field staff should make sure to have laminated copies of the ASTM Standard flow charts and tables as well as this FOP (as necessary). Some examples of complete soil descriptions are as follows:

Coarse-grained Soil

POORLY GRADED FINE SAND w/ SILT: Dark grey, wet, mostly fine sand with some non-plastic fines, some iron-stained mottling, laminated, medium dense

Fine-grained Soil

LEAN CLAY: Dark reddish/brown, moist, mostly fines, medium plasticity, firm, no dilatency, medium dry strength, root holes.

Soil/Fill (option 1) – visual evidence of fill

FILL: Black, moist, mostly fines with some fine sand, slag, cinders, metal, brick, non-plastic, loose when disturbed, strong odor

Soil/Fill (option 2) – no visual evidence of fill, suspected reworked material

FILL (reworked): Black, moist, mostly fines with some fine sand and few coarse angular gravel, non-plastic, hard, loose when disturbed, mild odor

BORING AND MONITORING WELL INSTALLATION LOGS

Currently, Roux utilizes WinLoG software to construct subsurface logs and a template of the log is included in this FOP as an example. One of the most important functions of a boring/monitoring well installation log, besides transmitting the soil description, is to indicate where the "data" (soil samples) were collected, giving the reader an idea of how reliable or representative the description is. On each sample log, depths of attempted and recovered or non-recovered interval are shown. Odor, if noted, should be considered subjective and not necessarily indicative of specific compounds or concentrations.

Remember: all field logs should be NEAT, ACCURATE, and LEGIBLE. Don't forget that the well completion diagram completed for each well requires details of the surface completion (i.e., flush-mount, stick-up etc.). It is the responsibility of the field staff to double-check each log (i.e., soil names, classifications, well construction details etc.) prior to implementing into a final report. A registered professional (i.e., professional engineer, PE or professional geologist, PG) must review each log and will be ultimately responsible for its content and accuracy.

REQUIRED EQUIPMENT

- Knife
- Engineer's rule/measuring tape

- Permanent marker
- Pre-cleaned wide-mouth sample jars (typically provided by the driller)
- Pre-cleaned wide-mouth laboratory sample jars (provided by the laboratory)
- Stainless steel sampling equipment (i.e., spoons, spatulas, bowls etc.)
- 10x hand lens
- Hydrochloric acid
- ASTM D2488 flow charts (preferably laminated)
- ASTM D2488 test procedures (Tables 1 through 12) (preferably laminated)
- Camera (disposable, 35 mm or digital)
- Munsell soil color chart (as necessary)
- Project Field Book/field forms

ATTACHMENTS

Figure 1; Field Guide for Soil and Stratigraphic Analysis
Figure 2; USCS Soil Classification Flow Chart (modified from ASTM D2488)
Figure 3; Illustration of Particle Sizes
Figure 4; Grain-Size Scale (Modified Wentworth Scale)

Field Borehole Log (sample)

REFERENCES

American Society for Testing and Materials, 2008a. *ASTM D1586: Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils.*

American Society for Testing and Materials, 2010. *ASTM D2487: Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).*

American Society for Testing and Materials, 2009a. *ASTM D2488: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).*

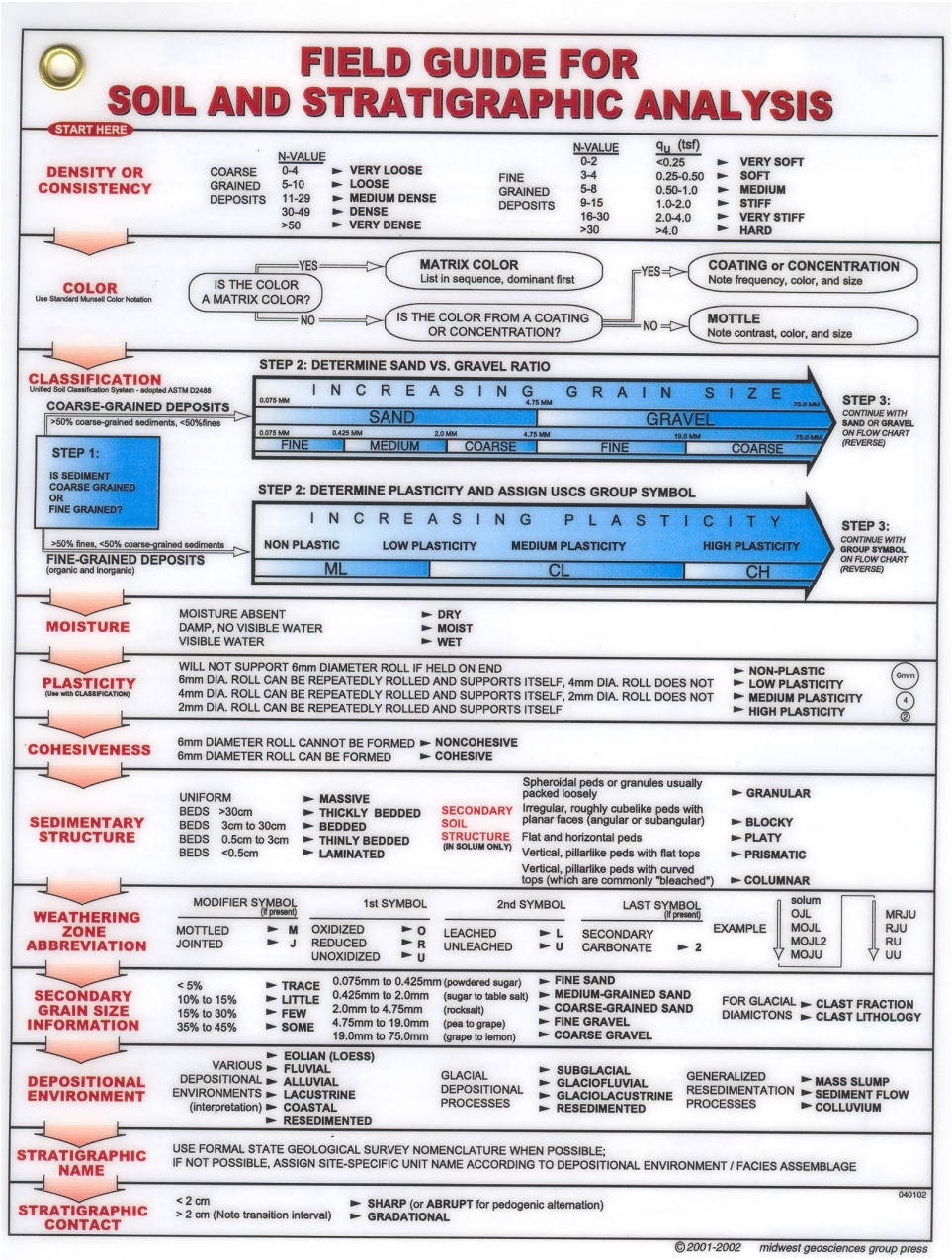
State of California, Department of Transportation, Engineering Service Center, Office of Structural Foundations, August 1996. *Soil & Rock Logging Classification Manual (Field Guide), by Joseph C. de Larios.*

Roux FOPs:

010 Calibration and Maintenance of Portable Flame Ionization Detector
011 Calibration and Maintenance of Portable Photoionization Detector
015 Documentation Requirements for Drilling and Well Installation
025 Hand Augering Procedures
032 Management of Investigation-Derived Waste
046 Sample Labeling, Storage and Shipment Procedures
047 Screening of Soil Samples for Organic Vapors During Drilling Activities
058 Split-Spoon Sampling Procedures
065 Test Pit Excavation and Logging Procedures

FIGURE 1

FIELD GUIDE FOR SOIL AND STRATIGRAPHIC ANALYSIS



SOIL DESCRIPTION PROCEDURES USING THE VISUAL-MANUAL METHOD

FIGURE 2

USCS SOIL CLASSIFICATION FLOW CHART (MODIFIED FROM ASTM D2488)

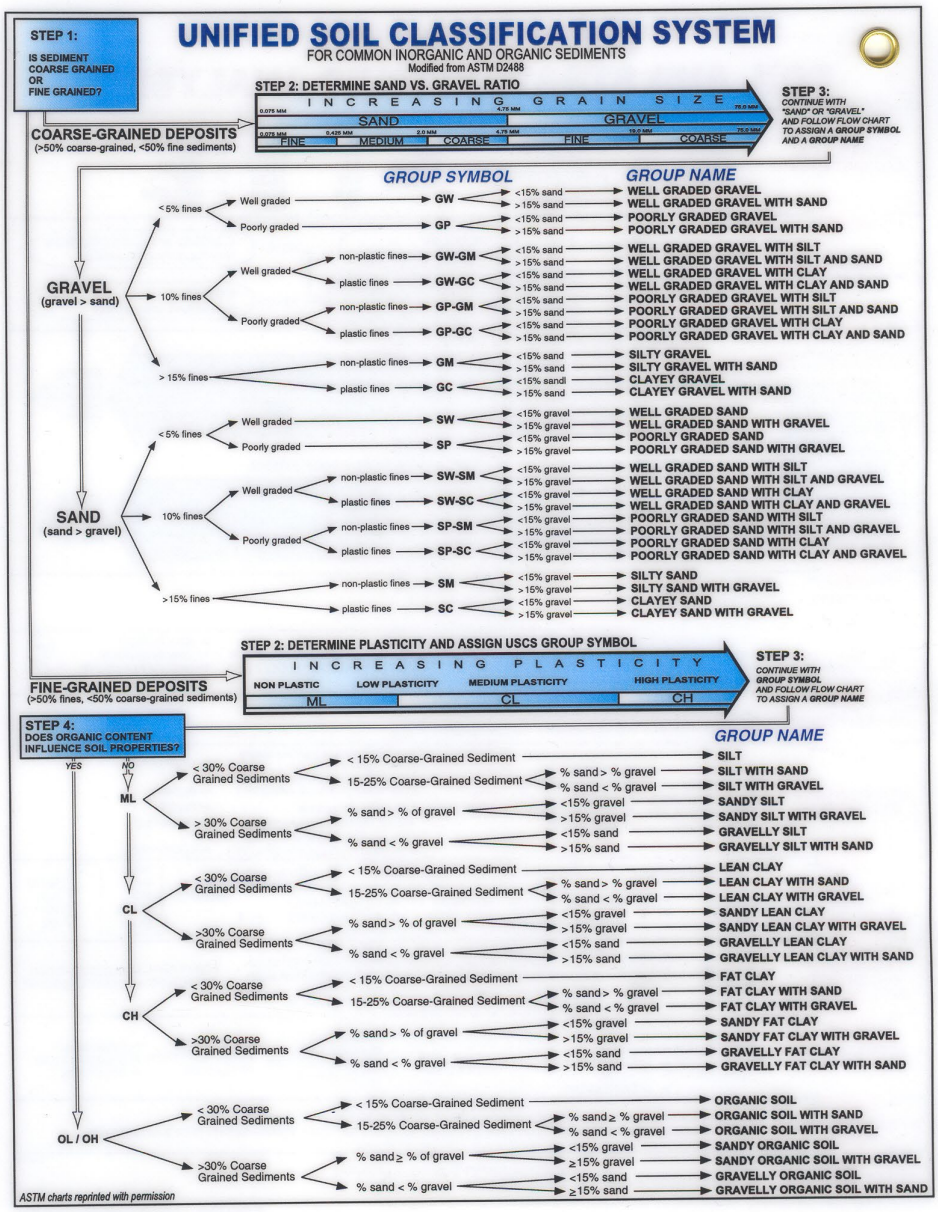


FIGURE 3

ILLUSTRATION OF PARTICLE SIZES

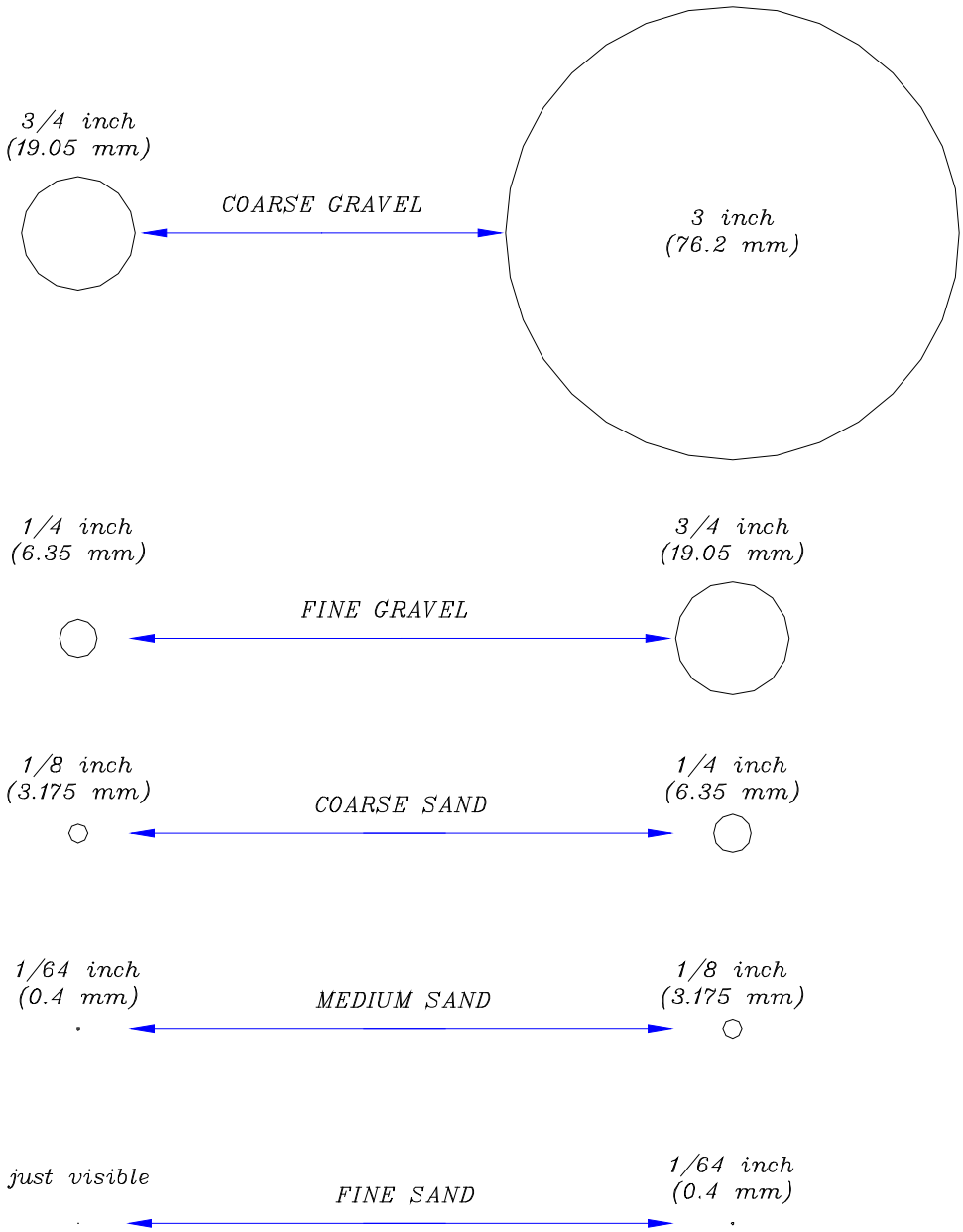


FIGURE 4

GRAIN-SIZE SCALE (MODIFIED WENTWORTH SCALE)

Grain size refers to the physical dimensions of particles of rock or other solid. This is different from the crystallite size, which is the size of a single crystal inside the solid (a grain can be made of several single crystals). Grain sizes can range from very small colloidal particles, through clay, silt, sand, and gravel, to boulders. Size ranges define limits of classes that are given names in the Wentworth scale used in the United States. The Krumbein *phi* (φ) scale, a modification of the Wentworth scale created by W. C. Krumbein, is a logarithmic scale computed by the equation: $\varphi = -\log_2(\text{grain size in mm})$.

φ scale	Size range (metric)	Size range (approx. inches)	Aggregate name (Wentworth Class)
< −8	> 256 mm	> 10.1 in	Boulder
−6 to −8	64–256 mm	2.5–10.1 in	Cobble
−5 to −6	32–64 mm	1.26–2.5 in	Very coarse gravel
−4 to −5	16–32 mm	0.63–1.26 in	Coarse gravel
−3 to −4	8–16 mm	0.31–0.63 in	Medium gravel
−2 to −3	4–8 mm	0.157–0.31 in	Fine gravel
−1 to −2	2–4 mm	0.079–0.157 in	Very fine gravel
0 to −1	1–2 mm	0.039–0.079 in	Very coarse sand
1 to 0	½–1 mm	0.020–0.039 in	Coarse sand
2 to 1	¼–½ mm	0.010–0.020 in	Medium sand
3 to 2	125–250 μm	0.0049–0.010 in	Fine sand
4 to 3	62.5–125 μm	0.0025–0.0049 in	Very fine sand
8 to 4	3.90625–62.5 μm	0.00015–0.0025 in	Silt
> 8	< 3.90625 μm	< 0.00015 in	Clay
<10	< 1 μm	< 0.000039 in	Colloid

In some schemes "gravel" is anything larger than sand (>2.0 mm), and includes "granule", "pebble", "cobble", and "boulder" in the above table. In this scheme, "pebble" covers the size range 4 to 64 mm (−2 to −6 φ).

Project No: **Borehole Number:**

Project:

Client: *Logged By:*

Site Location: *Checked By:*

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

Benchmark Environmental Engineering & Science, PLLC
726 Exchange Street, Suite 624
Buffalo, NY
(716) 856-0599

SUBSURFACE PROFILE			SAMPLE				PID VOCs ppm 0 25 50	Lab Sample	Well Completion Details or Remarks
Elev. /Depth	Symbol	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol			
0.0 / 0.0		Ground Surface							

SAMPLE

Drilled By: *Hole Size:*
Drill Rig Type: *Stick-up:*
Drill Method: *Datum:*

Drill Date(s): *Sheet: 1 of 1*

ROUX

FIELD OPERATING PROCEDURES

Soil Sample Collection for VOC Analysis (EnCore Sampling)

FOP 057.0

SOIL SAMPLE COLLECTION FOR VOC ANALYSIS – ENCORE SAMPLING

BACKGROUND AND PURPOSE

This procedure describes the methods for collecting soil samples for VOC analysis to ensure that the sample adequately represents the VOC concentrations in the soil in accordance with SW-846 Method 5035A (effective July 1, 2002). These compounds tend to volatilize from the soil after disturbance or introduction to the atmosphere. Therefore, care must be exercised to ensure that the sample collected is not altered during the collection and storage procedures. A variety of sampling options are allowed and Appendix A of Method 5035A provides details regarding the many options available for sample collection. The collection and preservation procedures are intended to prevent loss of VOCs during sample transport, handling and analysis.

Method 5035A is a method designed for volatile sample collection and analysis of soils and solid wastes for volatile organic compounds. This method is described in Update III to the Third Edition of SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, and is required for all analytical methods using purge and trap techniques (8021, 8015B, and 8260B). Alternative protocols may be used in some states (including New York), however this method is strongly recommended.

The volatile analysis is performed over two ranges:

	GC/MS (µg/kg)	GC (µg/kg)
Low Level	5 – 300	Not Available
High Level	>250	>20

The different levels require different sampling techniques. The low level method can only handle samples within a specific concentration range (these samples CANNOT be diluted), therefore a high level sample MUST be collected to ensure that all the target analytes can be quantified.

Naturally occurring carbonates in some soils may cause effervescence (foaming) on contact with the sodium bisulfate (NaHSO4) solution used as preservative for the low-level preparation. This interference makes it necessary for the laboratory to use the high-level prep or an alternative technique for low level. Check with the NYSDEC to discuss acceptable options.

Typically, analytical laboratories will support the following options for the two levels:

Option	No. of Containers	Sample Size (g)	Holding Time (days)
A – Low Level EnCore™ Samplers	3*	5	14**
B – High Level EnCore™ Sampler	1*	5	14**
C – High Level Methanol vial w/syringe	1	10	14

* Additional EnCore™ Samplers are required for MS/MSD.
** The sample MUST be extracted and preserved in sodium bisulfate or methanol within 48 hours of collection.

NOTE: The EnCore™ Sampler is disposable – it can only be used ONCE. It CANNOT be cleaned and/or reused. The samplers MUST be used in conjunction with an EnCore™ T-handle.

PROCEDURE

The preferred method for collecting and storing a soil sample for VOC analysis is using the EnCore™ method. This field procedure is described in this FOP.

1. The sampling team should reference the manufacturers' directions prior to sample collection (attached).

    a. Ensure that the EnCore™ Sampler is present at the sampling location before collecting the sample from the borehole or surface sample location. The necessary parts of the EnCore™ Sampler will consist of three disposable coring bodies, three disposable caps, and a reusable stainless steel T-handle.

    b. Retrieve the sampling tool from the borehole or sample location.

    c. Expose a surface of the soil sample. For Shelby tube samples, this would require the extrusion of the sample. For split spoon samples, this would require the spoon be disassembled and opened. If liners are being used in conjunction with a split spoon or solid barrel sampler, this would require the removal of the liners from the sampler, so that the soil at the liner's end is exposed.

    d. Following the manufacturer's directions for the use of the EnCore™ Sampler (attached), collect three aliquots of soil from the exposed soil surface, using the three coring bodies. After the collection of each aliquot, cap and label each aliquot. The manufacturer's direction for use of the EnCore™ Sampler are attached

2. If the use of the EnCore™ Sampler is not possible due to soil texture (e.g. gravels) the sample must be field preserved with acid and methanol in accordance with SW-846 Method 5035A.

3. If the soil material is too coarse for sampling with the EnCore™ Sampler and contains excessive calcium carbonate material that reacts with the acid preservative, the sample will be retained in the brass or stainless steel liner of the split-spoon sampler or similar device. The ends of these liners will be covered with Teflon™ rounds, capped and sealed with tape.

4. Record all information associated with sample collection in the Project Field Book.

5. The samples will be labeled, stored and shipped in accordance with the Roux Field Operating Procedure for Sample Labeling, Storage and Shipment Procedures.

ATTACHMENTS

EnCore™ Sampling Procedure (manufacturers instructions)

REFERENCES

Roux FOPs:
046 Sample Labeling, Storage and Shipment Procedures

ATTACHMENT

EnCore™ Sampling Procedure (manufacturers instructions)

Disposable En Core® Sampler

Sampling Procedures

Using The En Core® T-Handle

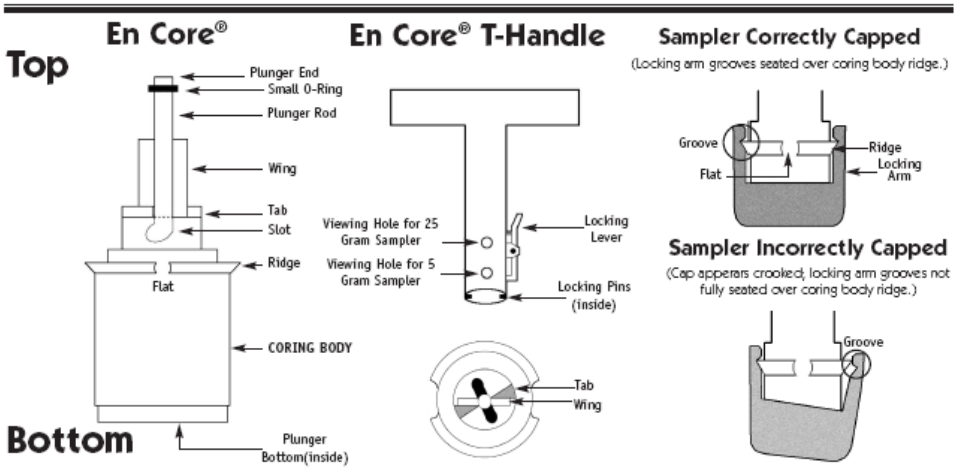
En Novative Technologies, Inc.
1241 Bellevue Street
Green Bay, WI 54302
Phone: 920-465-3960 • Fax: 920-465-3963
Toll Free: 888-411-0757
www.ennovativetech.com

NOTE:

1. En Core® Sampler is a SINGLE USE device. It cannot be cleaned and/or reused.

2. En Core® Sampler is designed to store soil. Do not use En Core Sampler to store solvent or free product!

3. En Core® Sampler must be used with En Core® T-Handle and/or En Core® Extrusion Tool exclusively. (These items are sold separately.)



BEFORE TAKING SAMPLE:

1. Hold **coring body** and push **plunger rod** down until **small o-ring** rests against **tabs**. This will assure that plunger moves freely.

2. Depress **locking lever** on En Core T-Handle. Place coring body, **plunger end first**, into open end of T-Handle, *aligning the (2) **slots** on the coring body with the (2) **locking pins** in the T-Handle*. Twist coring body clockwise to lock pins in slots. Check to ensure Sampler is locked in place. Sampler is ready for use.

TAKING SAMPLE:

3. Turn T-Handle with T-up and coring body down. This positions plunger bottom flush with bottom of coring body (ensure that plunger bottom is in position). Using T-Handle, push Sampler into soil until coring body is completely full. When full, small o-ring will be centered in T-Handle **viewing hole**. Remove Sampler from soil. Wipe excess soil from coring body exterior.

4. Cap coring body while it is still on T-handle. *Push* **cap** over **flat** area of **ridge** *and twist* to lock **cap** in place. **CAP MUST BE SEATED TO SEAL SAMPLER (see diagram).**

PREPARING SAMPLER FOR SHIPMENT:

5. Remove the capped Sampler by depressing locking lever on T-Handle while twisting and pulling Sampler from T-Handle.

6. Lock plunger by rotating extended plunger rod fully counter-clockwise until **wings** rest firmly against tabs (see plunger diagram).

7. Attach completed tear-off label (from En Core Sampler bag) to cap on coring body.

8. Return full En Core Sampler to zipper bag. Seal bag and put on ice.

Disposable En Core® Sampler

EXTRUSION PROCEDURES

USING THE En Core® EXTRUSION TOOL

CAUTION! Always use the Extrusion Tool to extrude soil from the En Core Sampler. If the Extrusion Tool is not used, the Sampler may fragment, causing injury.

1. Use a pliers to break locking arms on cap of En Core Sampler. Do not remove cap at this time. **(CAUTION: Broken edges will be sharp.)**

2. To attach En Core Sampler to En Core Extrusion Tool: Depress locking lever on Extrusion Tool and place Sampler, plunger end first, into open end of Extrusion Tool, aligning slots on coring body with pins in Extrusion Tool. Turn coring body clockwise until it locks into place. Release locking lever.

3. Rotate and gently push Extrusion Tool plunger knob clockwise until plunger slides over wings of coring body. (When properly positioned plunger will not rotate further.)

4. Hold Extrusion Tool with capped Sampler pointed upward so soil does not fall out when cap is removed. To release soil core, remove cap from Sampler and push down on plunger knob of En Core Extrusion Tool. Remove and properly dispose of En Core Sampler.

Warranty and Disclaimers

IMPORTANT: FAILURE TO USE THE EN CORE* SAMPLER IN COMPLIANCE WITH THE WRITTEN INSTRUCTIONS PROVIDED HEREIN VOIDS ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

PRINCIPLE OF USE. The En Core Sampler Cartridge System is a volumetric sampling system designed to collect, store and deliver a soil sample. The En Core Sampler comes in two sizes for sample volumes of approximately 25 or 5 grams. There are four components: the cartridge with a movable plunger; a cap with two locking arms; a T-handle (purchased separately); and an extrusion handle (purchased separately). NOTE: The En Core Sampler is designed to store soil. It is not designed to store solvent or free product.

The soil is stored in a sealed headspace-free state. The seals are achieved by three special Viton® * o-rings, two located on the plunger and one on the cap of the Sampler. At no time and under no condition should these o-rings be removed or disturbed.

QUALITY CONTROL. The cartridge is sealed in an airtight package to prevent contamination prior to use. Due to the stringent quality control requirements associated with the use of this system, the disposable cartridge is designed to be used only once.

WARRANTY. En Novative Technologies, Inc. ("En Novative Technologies") warrants that the En Core Sampler shall perform consistent with the research conducted under En Novative Technologies' approval, within thirty (30) days from the date of delivery, provided that the Customer gives En Novative Technologies prompt notice of any defect or failure to perform and satisfactory proof thereof. THIS WARRANTY DOES NOT APPLY TO THE FOLLOWING, AS SOLELY DETERMINED BY EN NOVATIVE TECHNOLOGIES: (a) Damage caused by accident, abuse, mishandling or dropping; (b)Samplers that have been opened, taken apart or mishandled; (c)Samplers not used in accordance with the directions; and (d)Damages exceeding the cost of the sampler. Seller warrants that all En Core Samplers shall be free from defects in title. THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, WHETHER ORAL, WRITTEN, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING ANY INFORMATION PROVIDED BY SALES REPRESENTATIVES OR IN MARKETING LITERATURE. IMPLIED WARRANTIES OF FITNESS AND MERCHANTABILITY SHALL NOT APPLY. En Novative Technologies' warranty obligations and Customer's remedies, except as to title, are solely and exclusively as stated herein.

LIMITATION OF LIABILITY. IN NO EVENT SHALL EN NOVATIVE TECHNOLOGIES BE LIABLE FOR ANTICIPATED PROFITS, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF REVENUE, DOWN TIME, REMEDIATION ACTIVITIES, REMOBILIZATION OR RESAMPLING, COST OF CAPITAL, SERVICE INTERRUPTION OR FAILURE OF SUPPLY, LIABILITY OF CUSTOMER TO A THIRD PARTY, OR FOR LABOR, OVERHEAD, TRANSPORTATION, SUBSTITUTE SUPPLY SOURCES OR ANY OTHER EXPENSE, DAMAGE OR LOSS, INCLUDING PERSONAL INJURY OR PROPERTY DAMAGE. En Novative Technologies' liability on any claim of any kind shall be replacement of the En Core Sampler or refund of the purchase price. En Novative Technologies shall not be liable for penalties of any description whatsoever. In the event the En Core Sampler will be utilized by Customer on behalf of a third party, such third party shall not occupy the position of a third-party beneficiary of the obligation or warranty provided by En Novative Technologies, and no such third party shall have the right to enforce same. All claims must be brought within one (1) year of shipment, regardless of their nature.

En Novative Technologies, Inc.
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www.ennovativetech.com

The En Core™ Sampler is covered by One or More of the Following U.S. Patents: 5,343,771; 5,505,098; 5,517,868; 5,522,271. Other U.S. and Foreign Patents Pending.

* Viton® is a registered trademark of DuPont Dow Elastomers.

FIELD OPERATING PROCEDURES

Split-Spoon Sampling Procedures

FOP 058.0

SPLIT-SPOON SAMPLING PROCEDURES

PURPOSE

This guideline presents the methods for using a split-spoon sampler for collecting soil samples from a boring and for estimating the relative in-situ compressive strength of subsurface materials (ASTM D 1586). Representative samples for lithologic description, geochemical analysis, and geotechnical testing will be collected from the subsurface materials using the split-spoon sampler.

PROCEDURE

1. Place plastic sheeting on a sturdy surface to prevent the split-spoon and its contents from coming in contact with the surface (several layers of sheeting may be placed on the surface so that they may be removed between each sample or as needed).

2. Lower the sampling string to the base of the borehole. Measure the portion of the sampling string that extends above surrounding grade (i.e. the stickup). The depth of sampling will equal the total length of the string (sampler plus rods) minus the stickup length.

3. Measure sampling depths to an accuracy of 0.1 feet. If field measurements indicate the presence of more than 0.3 feet of disturbed materials in the base of the borehole (i.e. slough), the sampler will be used to remove this material, after which a second sampling trip will be made.

4. Select additional sampler components as required (i.e., leaf spring core retainer for clays or a sand trap for non-cohesive sands). If a retainer or trap is not used, a spacer ring will be used to hold the liners in position inside the sampler.

5. For driving samples, attach the drive head sub and hammer to the drill rods without the weight resting on the rods. For pushing samples using the rig hydraulics, skip to Step 9.

6. Mark four 6-inch intervals on the drill rods relative to a reference point on the drill rig. With the sampler resting on the bottom of the hole, drive the sampler with the 140 lb. hammer falling freely over a 30-inch fall until 24 inches have been penetrated or 50 blows applied.

7. Record the number of blows per 6 inches. Determine the "N" value by adding the blows for the 6 to 12-inch and 12 to 18-inch intervals of each sample drive.

8. After penetration is complete, remove the sampling string. Avoid removing sampling string by hitting up on the string with the hammer as this can cause the sample to fall from the bottom of the split-spoon sampler. The sampling string should be removed via cable lifting or rig hydraulics. If sample retention has been poor, let the sampling string rest in place for at least 3 minutes, then rotate clockwise at least 3 times before removing from the borehole.

9. For pushed samples (i.e., using rig hydraulics), mark four 6-inch intervals on the drill rods relative to a reference point on the rig. Use the rig pull-down to press the sampler downward until 24 inches have been penetrated or no further progress can be made with the full weight of the rig on the sampler.

10. Remove the split-spoon sampler from the sampling string and place on the plastic-covered surface.

11. Open the split-spoon sampler only when the Roux field geologist is prepared to describe and manage the sample.

12. Describe the sample in accordance with the Unified Soil Classification System in accordance with the Roux FOP: Soil Description Procedures Using the Unified Soil Classification System (USCS).

13. Record all information in accordance with Roux's FOP: Documentation Requirements for Drilling and Well Installation.

14. Collect a portion of the sample for field screening as described in the Roux FOP: Screening of Soil Samples for Organic Vapors During Drilling Activities.

15. If applicable, collect soil samples for volatile organic constituents (VOCs). If applicable, collect sample for semi-volatile, metals, geotechnical, or other off-site analysis.

16. The samples will be labeled, stored and shipped in accordance with the Roux's FOP: Sample Labeling, Storage and Shipment Procedures.

ATTACHMENTS

none

REFERENCES

<u>Roux FOPs:</u>

015 Documentation Requirements for Drilling and Well Installation
046 Sample Labeling, Storage and Shipment Procedures
047 Screening of Soil Samples for Organic Vapors During Drilling Activities
054 Soil Description Procedures Using the Unified Soil Classification System (USCS)

FIELD OPERATING PROCEDURES

Surface and Subsurface Soil Sampling Procedures

FOP 063.4

SURFACE AND SUBSURFACE SOIL SAMPLING PROCEDURES

PURPOSE

This procedure describes the methods for sampling surface soil and subsurface soil samples for physical and chemical laboratory analysis during intrusive activities such as test pitting, hand augering, drilling, surface soil sampling etc. Typical health and safety related issues should be addressed in the Project Health and Safety Plan.

PRE-SAMPLING PROCEDURES

1. Review project objectives and the Project Health and Safety Plan (HASP).

2. Conduct tailgate health and safety meeting with project team and/or subcontractor(s) by completing the Tailgate Safety Meeting Form (sample attached).

3. Calibrate air-monitoring equipment in accordance with the appropriate Roux's Field Operating Procedures or manufacturers recommendations for calibration of field meters.

4. Commence intrusive activities in accordance with specific Roux FOPs (test pitting, hand augering, drilling etc.) or as directed by the Project Work Plan.

5. Conduct air monitoring as required by the HASP, Project Work Plan, or Roux's FOP Real-Time Air Monitoring During Intrusive Activities. Record all results on the Real Time Air Monitoring Log (sample attached).

6. Decontaminate all <u>non-dedicated</u> stainless steel (or Pyrex glass) equipment in accordance with Roux's Non-disposable and Non-dedicated Sampling Equipment Decontamination procedures.

7. Collect soil samples in accordance with the following sections.

SURFACE SOIL/FILL SAMPLING PROCEDURES

Collection of surface soil/fill samples facilitates the evaluation of potential health risks to current site receptors that may be exposed to soil/fill via direct contact, incidental ingestion, or inhalation of airborne particulates. The following procedure is in accordance with NYSDEC sampling protocol of surface soil/fill material.

1. Collect all soil/fill samples using dedicated (or decontaminated non-dedicated) sampling tools (i.e., spoons, trowels, bowls etc.), preferably constructed of stainless steel.

2. If the sample area is vegetated, then collect the surface soil/fill sample from 0 to 2 inches below ground surface (bgs) following removal of the sod.

3. If there is no soil present within the sample area (i.e., only slag, concrete, mixed with fines), excavate an area 12 inches by 12 inches by 6 inches deep, screen the material to less than 1/8 inch (No. 4 sieve), and submit the screened material for analysis. If there is not enough material to completely fill the sample jar, then expand the excavation 3 inches in all four directions screening the additional material. Expand the excavation in this manner until sufficient sample volume is obtained. Volatile organic analysis of surface soil/fill utilizing this method will yield negatively biased results and should not be performed.

SURFACE/NEAR-SURFACE/SUBSURFACE SOIL SAMPLING PROCEDURES

1. Collect all soil samples using dedicated (or decontaminated non-dedicated) sampling tools (i.e., spoons, trowels, bowls, EnCore™ Samplers, etc.), preferably constructed of stainless steel.

   Surface soil samples are typically collected from 0 to 6 inches below ground surface (bgs). Near-surface samples are typically sampled from 0 to 2 feet below ground surface (fbgs). Subsurface soils are typically sampled from

varying depths greater than 6-inches bgs based on field observations and as directed by the Project Work Plan.

2. Transfer samples for chemical (VOC, SVOC, Metals etc.) and physical (i.e., Atterberg Limits, Grain Size, Permeability etc.) analytical testing by direct grab (i.e., directly from the bucket of the excavation equipment, split-spoon sampler, hand auger etc.) using the dedicated (or decontaminated non-dedicated) sampling tools into appropriate laboratory-supplied containers and seal. The chemical or physical laboratory selected to perform the analysis should determine minimum sample volume for analysis.

3. Prepare collected samples in accordance with Roux's FOP: Sample Labeling, Storage, and Shipment Procedures. Do not allow the chemical soil samples to freeze during storage and shipping. It should be noted, ice is not required for physical soil samples and all physical soil samples should be kept at the collected soil moisture by securing with a tight sealing lid. Do not allow physical soil samples to gain or lose moisture from the collected soil moisture prior to analysis.

4. Record all sampling details (i.e., depth and location) in the Project Field Book; appropriate Roux log sheets depending on method of intrusion (i.e., drilling, test pitting, hand augering etc.); and on the Soil/Sediment Sample Collection Summary Log (sample attached).

PARAMETER-SPECIFIC PROCEDURES

1. Volatile Organic Compound (VOCs): After a fresh surface of the solid cohesive material is exposed to the atmosphere, sample collection should be completed in the least amount of time in order to minimize the loss of VOCs due to volatilization. Depending on soil cohesiveness and grain size(s), two different methods should be utilized as described below.

   a. **Cohesive soils** collected for VOC analysis should be sampled via USEPA Method 5035 using an EnCore™ Sampler (or equivalent) in a "closed-system-

purge-and-trap" process for the collection, preparation, and analysis of VOCs in soils, sediments, and solid waste.

The EnCore™ sampler is a sampling device that can be used as both a simultaneous coring tool for cohesive soils and a transport device to a support laboratory (field or off-site). The EnCore™ sampler is intended to be a combined sampler-storage device for soils until a receiving laboratory can initiate either immediate VOC analysis, or preserve extruded soil aliquots for later VOC analysis. It is meant to be disposed after use. The commercially available device is constructed of an inert composite polymer. It uses a coring/storage chamber to collect either a 5 g or 25 g sample of cohesive soils. It has a press-on cap with hermetically vapor tight seal and locking arm mechanism. It also has a vapor tight plunger for the nondisruptive extrusion of the sample into an appropriate container for VOC analysis of soil. An individual disposable EnCore™ sampler (or equivalent) is needed for each soil aliquot collected for vapor partitioning or methanol sample preparation. Upon soil sample collection, the EnCore™ sampler is stored at 4 ± 2EC until laboratory receipt within 48 hours. Upon laboratory receipt, soil aliquots are extruded to appropriate tared and prepared VOA vials.

Sample collection using EnCoreTM samplers will require:
2 EnCoreTM 5g samplers for low level analysis
1 EnCoreTM 5g sampler for medium level analysis
1 four ounce jar for percent total solids determination
T-handle for sampling

b. Transfer sufficient soil volume to fill the laboratory-supplied container (typically 4 ounces) by packing the soil sample with the sampling tool to the top of the container leaving no headspace. At no time should a gloved hand (i.e., latex, nitrile etc.) be used to pack the sample into the sample container as the sample may be compromised via cross-contamination.

2. All Other Parameters: All other parameters include, but are not limited to, Semi-VOCs (SVOCs), polychlorinated biphenyls (PCBs), herbicides, pesticides, total metals etc. Transfer sufficient soil volume to fill the laboratory-supplied container by packing the soil sample with the sampling tool to the top of the container. Unless otherwise indicated by the laboratory or the Project Work Plan, the sample jar for all other parameters does not have to be packed completely leaving no headspace as with the VOC containers.

ATTACHMENTS

Tailgate Safety Meeting Form (sample)
Soil/Sediment Sample Collection Summary Log (sample)
Real Time Air Monitoring Log (sample)

REFERENCES

Roux FOPs:

006 Calibration and Maintenance of Combustible Gas/Oxygen Meter
010 Calibration and Maintenance of Portable Flame Ionization Detector
011 Calibration and Maintenance of Portable Photoionization Detector
040 Non-disposable and Non-dedicated Sampling Equipment Decontamination
046 Sample Labeling, Storage and Shipment Procedures
073 Real-Time Air Monitoring During Intrusive Activities

ROUX **DAILY TAILGATE HEALTH & SAFETY CHECKLIST**

Job Name: _____ Date(s): _____

Location: _____ Project Number: _____

Weather: M- T- W- TH- F-

- Tailgate meeting conducted at least once per day
- Involves everyone working at the Site
- Should familiarize everyone with work area & vicinity
- Work permit procedures
  Emergency access/exits & "muster" point
- Emergency contacts/phone #s, hospital/urgent care route
- Every worker on-site has Stop Work Authority
- Provide details of work planned for the day
- Review the Job Safety Analysis (JSA) and work hazards
- Required PPE for the planned work
- HASP is reviewed
- Ensure safety equipment is on Site
- Test required safety equipment (such as emergency stop controls)
- Can also include inspection of tools and equipment to be used

Instructions: Please only use form for Monday through Friday of one calendar week.

#	CHECKLIST ITEM	DATE				
		M-	T-	W-	TH-	F-
1	The HASP (including emergency phone #s) has been reviewed & signed by Roux staff & subcontractors.					
2	Personnel are OSHA-40 hour HAZWOPER trained (if applicable).					
3	Emergency muster points known, urgent care and ER identified.					
4	Applicable JSAs have reviewed by subcontractors					
5	Roux personnel & subcontractors have discussed hazards associated with Site-specific work.					
6	Any potential slips, trips or fall hazards have been identified.					
7	All workers have appropriate PPE., and have signed in for the day (2nd Page).					
8	Fit for duty: No worker is under the influence of any drugs, alcohol or any other substance that can alter your ability to work safely.					
9	Critical equipment on-Site is noted and is in safe working order.					
10	Site control has been established and exclusion zone is identified (using safety cones or barricades to mark out work area).					
11	Appropriate permits have been obtained (if applicable).					
13	Lock Out / Tag Out procedures have been followed where applicable, for electric and water.					
14	Electrical power operated tools shall be properly grounded and used with a GFCI.					
15	Traffic Safety Control measures have been put in place where applicable.					
16	All vessels containing flammable/corrosive material are labeled and SDSs are available for all chemicals.					
17	Subsurface work : Drilling, trenching, etc. conducted according to required Protocol, including pre-field preparations, utility mark-out and "hand" clearing.					
18	Excavated soils are properly stored; excavations are properly shored/sloped and barricaded.					
19	Good housekeeping procedures are meet; food and beverages are consumed outside of the work area.					
20	A first aid kit, eye wash bottle/station, and fire extinguishers are available for use.					
21	No smoking signs are visibly posted in areas of potential flammable vapors.					
	Initial on right to verify that these actions have taken place. If the action does not apply, use N/A.					

Comments and Exceptions _____

NOTE: THIS IS A TWO-SIDED FORM; PLEASE COMPLETE BOTH SIDES

ROUX **DAILY TAILGATE HEALTH & SAFETY MEETING LOG**

Job Name _____ Date(s) _____

Location: _____ Project Number: _____

SUBCONTRACTORS: _____

Activities Planned _____

Name	Company	Mon.	Tue.	Wed.	Thur.	Fri.

SAMPLE

ROUX

SOIL/SEDIMENT
SAMPLE COLLECTION SUMMARY LOG

Field ID	Location	QC Type	Depth (feet)		Analytical Parameters	Containers	Date	Time	Sampler Initials	Comments (e.g. problems encountered, ref. to variance, location changes, depth changes, important matrix observations or description, gravel thickness, etc.)
			from	to						

Equipment Rinsate Blanks *- Pour clean deionized water over or through decontaminated sampling equipment into sample containers. Collect at a frequency of 1 per 20 samples of each matrix when non-dedicated equipment is utilized in accordance with DER-10.*

MS/MSD *- Collect at a frequency of 1 per 20 samples of each matrix in accordance with DER-10.*

Field Blank *- Pour clean deionized water (used as final decon rinse water) into sample containers while at the sampling site. Collect field blanks at a frequency of 1 per 20 samples of each matrix.*

Investigation Derived Waste (IDW) Characterization samples *- Collect composite samples from all drums of decon fluids and soil at the frequency required by the disposal facility. Please note number of drums and labels on collection log.*

Notes:
1. See QAPP for sampling frequency and actual number of QC samples.
2. MS/MSD - Matrix Spike, Matrix Spike Duplicate, Matrix Spike Blank.
3. BD - Blind Duplicate - indicate location of duplicate.

Sample Summary Collection Logs - soil and sediment-REV.xlsx Page ____ of ____ Prepared By: _____

SAMPLE

ROUX

REAL TIME AIR MONITORING LOG

Date:
Project Name:
Project Number:
Project Location:
Client:
Purpose of Air Monitoring:

WEATHER CONDITIONS:

Time of Day:	A.M.	P.M.
Ambient Air Temp.:		
Wind Direction:		
Wind Speed:		
Precipitation:		

Date	Personnel	Time	Air Monitoring Meter Measurement (Units)							Location/Activity/Comments
			PID (ppm)	LEL (%)	H2S (ppm)	O2 (%)	CO (ppm)	Particulates (mg/m³)	Other	

SAMPLE

NOTE: SEE EQUIPMENT CALIBRATION LOG FOR DESCRIPTION OF EQUIPMENT TYPE.

Prepared By: Date:

Copy of AIR - Real Time Air Monitoring Log.xls

Page _____ of _____

FIELD OPERATING PROCEDURES

Test Pit Excavation and Logging Procedures

FOP 065.1

TEST PIT EXCAVATION & LOGGING PROCEDURES

PURPOSE

This procedure describes the methods for completing test pits, trenches, and other excavations that may be performed to expose subsurface soils or materials. In most cases, these pits will be mechanically excavated, using a backhoe, trackhoe, or other equipment. Because pits and other excavations can represent a substantial physical hazard, it requires a particular focus on safety procedures. The Project Health and Safety Plan identifies practices related to excavation permits, entry, and control that must be incorporated into excavation activities.

EXCAVATION PROCEDURE

1. Review project objectives and the Project Health and Safety Plan (HASP).

2. Perform excavation equipment safety checks with the operator. Specific concerns should include, but not limited to, no leaking hydraulic lines, fire extinguisher on board of the excavation equipment, operator experience etc.

3. Conduct tailgate health and safety meeting with project team and excavation operator(s) by completing the Tailgate Safety Meeting Form (sample attached).

4. Calibrate air-monitoring equipment in accordance with the appropriate Roux's Field Operating Procedures or manufacturers recommendations for calibration of field meters.

5. Conduct air monitoring as required by the HASP and/or Project Work Plan. Record all results on the Real Time Air Monitoring Log (sample attached).

6. Mobilize the excavation equipment to the site and position over the required location.

7. Select excavation locations, which provide necessary information for achieving objectives. Check locations with owner/operator to ensure excavation

operations will not interfere with site operations, and select appropriate access routes.

8. Stake locations in the field and measure distance from locations to nearest landmarks. Survey location, if required.

9. Obtain clearances from appropriate utilities and, if buried waste/metallic objects are suspected, screen location with appropriate geophysical methods, as necessary.

10. Decontaminate excavation equipment in accordance with Roux's Drilling and Excavation Equipment Decontamination procedures.

11. Excavate pits. In uncontrolled areas, excavate only as many test pits as can be backfilled during the same day. Generally, allow equal time for excavation and backfilling. To the extent practicable, no pits should be left open overnight in an uncontrolled area. If sudden weather changes or other unforeseen events necessitate this, pits will be covered and/or barricaded and flagged with caution/hazard tape. These pits should be backfilled as soon as possible.

12. The Roux field geologist or experienced professional should determine the depth of excavation. The depth is generally limited by the safe reach of the selected equipment, but may also be limited by the stability of the excavated materials (i.e. wall stability).

13. Excavate the test pits in compliance with applicable safety regulations. In no case should a pit deeper than 4 feet be entered without first stabilizing the sidewalls by using forms, or by terracing or sloping (2:1 slope maximum) the sidewalls.

14. Excavated spoils must be placed no closer than 2 feet from the open excavation.

15. Collect soil samples from pit sidewalls in accordance with Roux's Surface and Subsurface Soil Sampling Procedures. If the test pit is greater than 4 feet in depth, it will not be entered for sampling. In this event, collect samples using

the backhoe bucket, then fill sample containers from the center of the bucket using the stainless steel sampling equipment (i.e., spoon, spade, trowel etc.) or drive a Shelby tube or EnCore™ sampler for VOCs.

16. Record excavation observations in the Project Field Book or Test Pit Excavation Log form (sample attached). Information recorded should include:

    - Physical dimension of the pit;
    - A scaled sketch of one side of the pit showing any lithologic contacts, zones of groundwater seepage, other special features (jointing, boulders, cobbles, zones of contamination, color abnormalities, etc.)
    - General information such as project number, pit designation number, depth, date, name of responsible professional (i.e., geologist), type of excavating equipment utilized, time of excavation and backfilling, method of collecting samples and amount of sample collected (if applicable);
    - Rate of groundwater inflow, depth to groundwater and time of measurement; and
    - Unified Soil Classification System (USCS) designation of each distinctive unit.

17. Photograph each excavation, highlighting unique or important features. Use a ruler or other suitable item for scale. Include a label with the pit designation so the developed picture will be labeled.

18. Backfill pit to match the existing grade compacting in 2 to 3 foot lifts. Since the excavated material should be cover soil, the excess soil will be placed back into the hole. The Roux Field Team Leader will provide direction on whether excavated soils may be used as fill, or these materials are to be containerized as investigation derived waste.

ATTACHMENTS

Tailgate Safety Meeting Form (sample)
Real Time Air Monitoring Log (sample)
Test Pit Excavation Log (sample)

REFERENCES

Roux FOPs:

006 Calibration and Maintenance of Combustible Gas/Oxygen Meter
010 Calibration and Maintenance of Portable Flame Ionization Detector
011 Calibration and Maintenance of Portable Photoionization Detector
018 Drilling and Excavation Equipment Decontamination
063 Surface and Subsurface Soil Sampling Procedures

ROUX

TAILGATE SAFETY MEETING FORM

Project Name: Date: Time:
Project Number: Client:
Work Activities:

HOSPITAL INFORMATION:

Name:
Address: *City:* *State:* *Zip:*
Phone No.: *Ambulance Phone No.*

SAFETY TOPICS PRESENTED:

Chemical Hazards:

Physical Hazards: Slips, Trips, Falls

PERSONAL PROTECTIVE EQUIPMENT:

Activity:	*PPE Level:*	A	B	C	D
Activity:	*PPE Level:*	A	B	C	D
Activity:	*PPE Level:*	A	B	C	D
Activity:	*PPE Level:*	A	B	C	D
Activity:	*PPE Level:*	A	B	C	D

New Equipment:

Other Safety Topic(s): Environmental Hazards (aggressive fauna)
Eating, drinking, use of tobacco products is prohibited in the Exclusion Zone (EZ)

ATTENDEES

Name Printed	Signatures

Meeting conducted by:

SAMPLE

ROUX

REAL TIME AIR MONITORING LOG

Date:
Project Name:
Project Number:
Project Location:
Client:
Purpose of Air Monitoring:

WEATHER CONDITIONS:

Time of Day:	A.M.	P.M.
Ambient Air Temp.:		
Wind Direction:		
Wind Speed:		
Precipitation:		

Date	Personnel	Time	Air Monitoring Meter Measurement (Units)							Location/Activity/Comments
			PID (ppm)	LEL (%)	H_2S (ppm)	O_2 (%)	CO (ppm)	Particulates (mg/m^3)	Other	

SAMPLE

NOTE: SEE EQUIPMENT CALIBRATION LOG FOR DESCRIPTION OF EQUIPMENT TYPE.

Prepared By: Date:

ROUX

TEST PIT EXCAVATION LOG

Project:	TEST PIT I.D.:
Project No.	Excavation Date:
Client:	Excavation Method:
Location:	Logged / Checked By:

Test Pit Location: *NOT TO SCALE*

Test Pit Cross Section:

Grade - 0'
2'
4'
6'
8'
0'

TIME		
Start:	Length:	(approx.)
	Width:	(approx.)
End:	Depth:	(approx.)

Depth (fbgs)	USCS Symbol & Soil Description	PID Scan (ppm)	Photos Y / N	Samples Collected (fbgs)

COMMENTS:

GROUNDWATER ENCOUNTERED:	yes	no	If yes, depth to GW:
VISUAL IMPACTS:	yes	no	Describe:
OLFACTORY OBSERVATIONS:	yes	no	Describe:
NON-NATIVE FILL ENCOUNTERED:	yes	no	
OTHER OBSERVATIONS:	yes	no	Describe:
SAMPLES COLLECTED:	yes	no	Sample I.D.:
			Sample I.D.:
			Sample I.D.:

SAMPLE

ROUX

FIELD OPERATING PROCEDURES

Well/Piezometer Construction Materials and Design

FOP 070.0

WELL/PIEZOMETER CONSTRUCTION MATERIALS AND DESIGN

PURPOSE

This guideline presents construction materials and design requirements for monitoring well/piezometer installations in accordance with NYSDEC recommended specifications (6NYCRR Part 360).

CONSTRUCTION MATERIALS

1. Well Screen and Riser – Only new flush threaded screen and riser materials will be used. Screen and riser materials, well dimensions, screen slot opening size and length to be determined based on formation characteristics and suspect water quality or as specified by the project geologist/hydrogeologist. A vented cap or J-plug should be placed over the riser. A V-slot cut in the riser or permanent marking, both placed on the north side of the riser, will act as a monitoring reference point.

2. Bentonite Well Seal – The bentonite should be from a commercial source free of chemical additives (granular or powdered for grout and pelletized for seal).

3. Concrete – Low heat of hydration concrete should be used for grout and cementing protective casing if well construction materials are composed of PVC (ASTM Type II or Type IV Portland Cement).

4. Water – Water should be from a potable source of known chemistry and free of chemical constituents which may compromise integrity of installation.

5. Grout – Mixture of bentonite, cement and water in accordance with the following specifications. Premix bentonite and water prior to adding cement.

<u>Grout Slurry Composition (% Weight)</u>

1.5 to 3.0%	-	Bentonite (Quick Gel)
40 to 60 %	-	Cement (Portland Type I)
40 to 60 %	-	Potable Water

6. Filter Pack – The filter pack should consist of clean, inert, siliceous, rounded to subrounded particles. Filter pack particle size is dependent on the formation and the slot size of the screen.

   A secondary filter about 6-inches thick may be placed between filter pack and the bentonite seal and potentially between the bentonite seal and the grout backfill, to minimize grout penetration of the seal. A uniformly graded fine sand (100% passing No. 30 sieve) should be used as a secondary filter.

7. Protective Casing, Locking Cap and Lock – Protective casing with a lockable cap should be cemented in place around the riser. The inside diameter of the protective casing should be a minimum of 2-inches larger than the outside diameter of the well riser. The annular space between the casing and the riser should be filled with pea gravel or coarse sand. A weep hole should be drilled near the base of the casing to facilitate drainage of standing water. If more than one well is installed, all locks should be keyed alike.

8. A sample of all cement, bentonite and sand used in well construction should be saved in a labeled, Teflon-sealed, precleaned glass jar.

REFERENCES

New York State Department of Environmental Conservation, July 1988, *Drilling and Monitoring Well Installation Guidance Manual.*

Driscoll, F.G., 1987, *Groundwater and Wells*, Johnson Division, St. Paul, Minnesota, p. 1089.

Sara, M. N., *Proposed Recommended Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers: ASTM Subcommittee D18.21.*

FOP 073.2

REAL-TIME AIR MONITORING DURING INTRUSIVE ACTIVITIES PROCEDURE

PURPOSE

This guideline presents requirements for real-time community air monitoring and required responses during all project required intrusive activities, such as drilling, test pitting, earthwork construction etc. This procedure is consistent with the requirements for community air monitoring for all intrusive projects, including projects conducted at remediation sites, as established by the New York State Department of Health (NYSDOH) and the New York State Department of Environmental Conservation (NYSDEC). Accordingly, it follows procedures and practices outlined under NYSDEC's DER-10 (May 2010) Appendix 1A (NYSDOH's Generic Community Air Monitoring Plan) and Appendix 1B (Fugitive Dust and Particulate Monitoring).

This FOP requires real-time monitoring for constituents of concern (COC) (i.e., volatile organic compounds (VOCs), lower explosive limit (% LEL), particulates (i.e., dust) etc.) at the upwind and downwind perimeter as well as the exclusion zone of a project site during all intrusive activities. This FOP is not intended for use in establishing action levels for worker respiratory protection (see Project Health and Safety Plan (HASP) for worker protection action levels). Rather, its intent is to provide a measure of protection for the surrounding community from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The community, as referenced in this document, includes any off-site residences, public buildings/grounds and commercial or industrial establishments adjacent to the project site. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, this FOP helps to confirm that work activities did not spread contamination off-site through via air transport mechanisms. Community air monitoring shall be integrated with the construction

worker personal exposure-monitoring program contained in the project and site-specific HASP.

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

MONITORING & MITIGATION PROCEDURE

Real-time air monitoring perimeter locations for monitoring stations will be established based on the location of the exclusion zone (i.e., immediate work area) and wind direction. Where wind direction is shifting or winds are calm, the downwind monitoring location will default to the perimeter location nearest the most sensitive receptor (i.e., residential property). All downwind receptors being equal, the downwind monitoring location will default to the perimeter location downwind of the prevailing winds at the site. Although additional site specific COCs may be monitored during real-time air monitoring activities, the most common COCs are discussed in this FOP, including organic vapors (i.e., VOCs), airborne particulates (i.e., fugitive dust) and combustible gases (i.e., methane) and oxygen.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence

ORGANIC VAPORS

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be

capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

- All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

- **Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures**

    - When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and

particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure (s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m3 or less at the monitoring point.

- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen SUlfide, carbon monoxide) may also need to be monitored Response levels and actions should be pre-determined, as necessary, for each site.

Additionally, if following the cessation of work and efforts to abate the emission source are unsuccessful, and if sustained organic vapor levels exceed 25 ppm above background within the 20-foot zone for more than 30 minutes, then the **Major Vapor Emission Response Plan** (see below) will automatically be placed into effect.

Major Vapor Emission Response Plan

Upon activation of Major Vapor Emission Response Plan, the following activities will be undertaken:

1. All Emergency Response Contacts as listed below and in the Site-Specific Health and Safety Plan will be contacted.

2. The local police authorities will immediately be contacted by the Site Safety and Health Officer and advised of the situation.

3. The Site Safety and Health Officer will determine if site workers can safely undertake source abatement measures. Abatement measures may include covering the source area with clean fill or plastic sheeting, or consolidating contaminated materials to minimize surface area. The Site Safety and Health Officer will adjust worker personal protective equipment as necessary to protect workers from over-exposure to organic vapors.

The following personnel are to be notified by the Site Safety and Health Officer in the listed sequence if the Major Vapor Emission Response Plan is activated:

Contact	Phone
Police/Fire Department	911
New York State DOH	(518) 402-7860
New York State DEC Region 8	(585) 226-2466, switchboard

New York State DEC Region 9	(716) 851-7220
State Emergency Response Hotline	(800) 457-7362

In addition, the Site Safety and Health Officer will provide these authorities with a description of the apparent source of the contamination and abatement measures being taken by the contractor, if any.

AIRBORNE PARTICULATES

Fugitive dust suppression and airborne particulate monitoring shall be performed during any intrusive activities involving disturbance or handling of site soil/fill materials. Fugitive dust suppression techniques will include the following minimum measures:

- Spraying potable water on all excessively dry work areas and roads.
- All fill materials leaving the site will be hauled in properly covered containers or haul trailers.
- Additional dust suppression efforts may be required as discussed below.

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance

of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter ($\mu g/m^3$) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 $\mu g/m^3$ above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

- All readings must be recorded and be available for State (DEC and DOH) personnel to review.

Visual Assessment

In conjunction with the real-time monitoring program, Roux personnel and any subcontractors thereof will be responsible for visually assessing fugitive dust migration from the site. If airborne dust is observed leaving the site, the work will be stopped until supplemental dust suppression techniques are employed in those areas.

Supplemental Dust Suppression

Supplemental dust suppression techniques may include but are not necessarily limited to the

following measures:

- Reducing the excavation size, number of excavations or volume of material handled.
- Restricting vehicle speeds.
- Applying water on buckets during excavation and dumping.
- Wetting equipment and excavation faces.
- Wetting haul roads.
- Restricting work during extreme wind conditions.
- Use of a street sweeper on paved haul roads, where feasible.

Work can resume using supplemental dust suppression techniques provided that the measures are successful in reducing the sustained downwind particulate concentration to below 150 ug/m^3 of the upwind level, and in preventing visible dust migration off-site.

COMBUSTIBLE GASES & OXYGEN

Ambient combustible gas and oxygen concentrations should be measured prior to commencing intrusive activities each workday and a minimum of every 30-minutes thereafter. Air monitoring activities should be performed using equipment appropriate to measure combustible gases in percent lower explosive limit (LEL) and percent oxygen and calibrated daily. All combustible gas and oxygen readings must be recorded in the Project Field Book and/or Real-Time Air Monitoring Logs (sample attached) and, if applicable, be made available for State (DEC and DOH) personnel to review.

Mitigation upon the detection of various action levels of organic vapors are presented below:

Combustible Gas:

- If the sustained ambient air concentration of combustible gas at the downwind perimeter of the site exceeds a reading of 10 to 25% LEL, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 10% LEL, work activities can resume with continued monitoring.

- If sustained combustible gas levels at the downwind perimeter of the site persist at levels in excess of 25% LEL, work activities must be halted, the source of explosion hazards identified, corrective actions taken to abate emissions and monitoring continued. Following combustible gas mitigation, work activities can resume provided that the sustained total organic vapor level 200 feet downwind of the exclusions zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less, (but in no case less than 20 feet) is below a sustained value of 10% LEL.

Oxygen:

- If the sustained ambient oxygen concentration at the downwind perimeter of the site measures a reading between 19.5% - 21% oxygen, work activities can continue with extreme caution, however attempts to determine the potential source of oxygen displacement must be conducted.

- If the sustained oxygen level readily decreases below 19.5% LEL, work activities should be discontinued and all personnel must leave the area immediately.

- If the sustained oxygen level at the downwind perimeter of the site persists at levels between 21-25%, work activities can resume with caution.

- If the sustained oxygen level at the downwind perimeter of the site persists at levels exceeding 25% (fire hazard potential), work activities should be discontinued and all personnel must leave the area immediately.

ATTACHMENTS

Real-Time Air Monitoring Log (sample)

REFERENCES

Roux FOPs:

006 Calibration and Maintenance of Combustible Gas/Oxygen Meter
010 Calibration and Maintenance of Flame Ionization Detector
011 Calibration and Maintenance of Portable Photoionization Detector
084 Calibration and Maintenance of Portable Particulate Meter

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, P.C.

REAL TIME AIR MONITORING LOG

Date:
Project Name:
Project Number:
Project Location:
Client:
Purpose of Air Monitoring:

WEATHER CONDITIONS:

Time of Day:	A.M.	P.M.
Ambient Air Temp.:		
Wind Direction:		
Wind Speed:		
Precipitation:		

Date	Personnel	Time	Air Monitoring Meter Measurement (Units)							Location/Activity/Comments
			PID (ppm)	LEL (%)	H_2S (ppm)	O_2 (%)	CO (ppm)	Particulates (mg/m^3)	Other	

SAMPLE

NOTE: SEE EQUIPMENT CALIBRATION LOG FOR DESCRIPTION OF EQUIPMENT TYPE.

Prepared By: Date:

Field Operating Procedures

"Before Going Into The Field" Procedure

FOP 076.0

"BEFORE & AFTER" PROJECT PROCEDURES FOR FIELD PERSONNEL

PURPOSE

This procedure describes the required field and office activities to be preformed "before and after" project assignments by field personnel. Field activities may include, but are not limited to, drilling oversight, excavation contractor oversight, matrix sample collection (e.g., soil, sediment, groundwater, surface water, wipe, and/or air), third party oversight, and site reconnaissance to name a few. Office activities may include, but are not limited to, photocopying field book entries, completing all field forms, tabulating collected field and laboratory data, and preparation of report text.

The primary goal of this procedure is to eliminate delays and unnecessary budgetary "strain" due to a lack of preparedness and knowledge of the site by the field team members. This procedure also seeks to streamline the preparation and transfer of field information/data from field personnel to the Project Manager upon field work completion.

PROJECT ASSIGNMENT

During the initial meeting with the Project Manager, several questions should be raised by the field team member and answered by the Project Manager. A pad of paper and pen should be in hand to record all pertinent job information. At a minimum, the following questions should be answered:

1. *What is the job number?*
2. *Who is the client and the on-site representative (if applicable)?*
3. *What is the name of the project?*
4. *What are the job responsibilities and how should they be accomplished?*
5. *How much time do I have to complete the assigned tasks?*
6. *Are there any project required documents? What are they?*

Any deviation from the above questions should be approved by the Project Manager prior to contravention, not at the end of the day or following the project completion.

"BEFORE" CHECKLISTS

Checklists should be developed and used so that all of the required steps prior to going into the field are undertaken. A good checklist will include:

- Adequate review of the documents listed in this FOP
- Any documents, equipment, and supplies presented in this FOP
- Providing adequate notification to the laboratory (so that holding times are not exceeded) and to the owner of the site and the primary regulatory agency (usually in writing) that a round of sampling is to commence in order to facilitate sampling and allow for a sampling audit or split sampling.
- Specifying and documenting the equipment maintenance and calibration undertaken prior to going into the field relative to the sampling event.
- Checking and calibrating the equipment.
- Listing the documents, equipment, and supplies required to collect samples at the site as presented in this FOP.

Prior to going into the field, sampling personnel should reacquaint themselves with the sampling plan. The review is undertaken so that the required specific protocol such as sampling from the least to the most contaminated wells, knowing where quality control samples are to be taken, knowing the disposition of purge water, etc., is understood and followed.

The amount of equipment maintenance and calibration required prior to going into the field should be clearly specified in the presampling equipment maintenance and calibration checklists, which are based on the manufacturer's recommendations, sampling objectives, and prior experience. Maintenance and calibration performed before sampling must be

documented to provide evidence that the equipment was adequately maintained and calibrated and to keep a permanent record of equipment servicing and performance.

A list of all the documents, equipment, and supplies required for the sampling event should be prepared and used. It can be frustrating and time consuming to forget equipment and supplies, so some up-front preparation is warranted. The following sections provide a list of the documentation, equipment, and supplies, which should assist in preparing a site-specific equipment and supply checklist. Once prepared, the checklist and project requirements should be reviewed with the Project Manager.

"BEFORE" DOCUMENTATION SUMMARY

Prior to going into the field, the field team should review and understand all of the project documents including, but not limited to:

- The Health and Safety Plan (HASP)
- The Site Analytical Plan (SAP), Sampling Plan, or similar document
- The Quality Assurance Project Plan (QAPP)
- The Work Plan
- Project specific Field Operating Procedures and field forms
- Site Maps
- Equipment operation manuals
- Chain-of-Custody forms
- Shipping labels and custody seals
- Any reference materials (i.e., conversion tables, volume calculation, etc.). The Pocket Ref, Third Edition by Thomas Glover is a great source for the field.

If at any time, the field team does not understand the project required protocol, procedures, sample locations, etc.; the Project Manager should be consulted for clarification.

"BEFORE" EQUIPMENT SUMMARY

Prior to going into the field, the field team should review the following equipment checklist, noting that project specific equipment may not be included in this list:

- Water level indicator
- Pumps, sample tubing, flow controllers, power cord(s), batteries, compressors, generators, etc.
- Bailers (disposable, PVC, stainless steel, glass), rope
- Flow-through cell
- Field meters with adequate calibration solutions (pH/Eh meter, conductivity meter, dissolved oxygen meter, turbidity meter, batteries, etc.)
- Garden hose
- Explosive gas meter and/or photoionization detector (PID) with calibration supplies
- Complete set of hand tools including a sharp knife, screw drivers, pliers, hacksaw, flashlight, large pipe wrench, hammer, bolt cutters, and replacement locks
- Fish hook with weight and string
- Field filtering equipment and supplies
- Decontamination supplies, such as scrub brushes, Alconox®, distilled water, potable water, 5-gallon bucket, paper towels, aluminum foil
- 5-gallon bucket(s)
- Measuring cup
- Sample bottles/containers (with extras) and preservatives
- Stainless steel spoons, trowels, shovels
- Shipping containers (i.e., coolers)
- Clipboard
- Calculator
- Water resistant clock or watch with second hand
- First aid kit

"BEFORE" SUPPLIES SUMMARY

Prior to going into the field, the field team should review the following supplies checklist, noting that project specific supplies may not be included in this list:

- Laboratory grade non-phosphate detergent (Alconox®)
- Appropriate personal protective equipment appropriate to the contaminants of concern, such as nitrile gloves, Tyvek, boots, hardhat, safety glasses, hearing protection, etc.
- Bags of ice
- Plastic garbage bags
- Plastic sheeting
- Sufficient quantities of potable and laboratory grade deionized water for cleaning and equipment blanks
- Methanol
- Isopropyl alcohol
- Clean rags and paper towels
- Electrical tape, duct tape, and wide transparent tape
- Hand soap
- Regular, ballpoint, and indelible pens
- Hollow braid polyethylene rope

After providing adequate notification (lab, state and/or federal agencies), performing the presampling maintenance and calibration, obtaining the site and well keys, and packing the supplies and equipment, the field activities are ready to be performed.

"AFTER" – PROJECT FILE REVIEW & CREATION

It is the responsibility of each field crew member to review his/her own field notes and time sheet for accuracy and completeness. All errors to the field notes should be corrected, dated, and initialed for Project Manager review. Once reviewed by the field team member, the Project Field Book, all field forms, photographs, chain-of-custodies etc. must be

photocopied, scanned (if required), downloaded, etc. and then given to the Project Manager in an organized file folder in a timely manner. Avoiding delay during this step is critical, especially when there are severe time constraints for the project.

REFERENCES

1. Wilson, Neal. *Soil Water and Ground Water Sampling*, 1995

FIELD OPERATING PROCEDURES

Geoprobe Drilling Procedures

FOP 078.0

GEOPROBE DRILLING PROCEDURES

PURPOSE

This guideline presents a method for direct-push drilling a borehole through unconsolidated materials, including soils or overburden.

PROCEDURE

The following procedure will be used to drill a borehole for sampling and/or well installation, using direct-push methods and equipment.

1. Follow Roux's Field Operating Procedure (FOP) for Drill Site Selection Procedure prior to implementing any drilling activity.

2. Perform drill rig safety checks with the driller by completing the Drilling Safety Checklist form (sample attached).

3. Conduct tailgate health and safety meeting with project team and drillers by completing the Tailgate Safety Meeting Form (sample attached).

4. Calibrate air-monitoring equipment in accordance with the appropriate Roux's FOPs or manufacturers recommendations.

5. Ensure all drilling equipment (i.e., rods, 4-foot sampler, dedicated PVC sleeves) appear clean and free of soil prior to initiating any subsurface intrusion. Decontamination of drilling equipment should be in accordance with Roux's Drilling and Excavation Equipment Decontamination Procedures FOP.

6. Mobilize the Geoprobe™ rig to the site and position over the borehole.

7. Level and stabilize the rig and recheck the rig location against the planned drilling location.

8. Fully advance the sampler into the subsurface using an ATV-mounted direct-push Geoprobe™ drill rig and 1.5-inch diameter sampler, typically 4-feet in length and fitted with a dedicated PVC sleeve, for each four-foot core of soil.

9. Retrieve the 4-foot sample core from the driller, place on a piece of polyethylene tarp, and cut open using a sharp utility knife.

10. Visually characterize each 4-foot soil core using the Unified Soil Classification System (USCS) in accordance with Roux's Soil Description Procedures Using the USCS FOP.

11. Scan each 4-foot core for total volatile organic vapors with a calibrated Photovac 2020 PID equipped with a 10.6 eV lamp, and report any visual and/or olfactory observations. Record PID scan measurements in the Project Field Book and appropriate field forms.

12. If required, collect a representative soil sample for headspace determinations. In general, soil samples representative of each 4-foot core interval are collected, placed in a sealable plastic bag, and kept at or near room temperature (approximately 65-70° F) for a minimum of 15 minutes prior to measurement. Record PID headspace determination measurements in the Project Field Book and appropriate field forms.

13. Check sampler and rods periodically during drilling to ensure the boring is plumb. Adjust rig position as necessary to maintain plumb.

14. Continue drilling until reaching the assigned total depth, or until sampler refusal occurs. Sampler refusal is when the drilling penetration drops below 0.1 feet per 2 minutes, with the full weight of the rig on the sampler.

15. Plug and abandon boreholes not used for temporary well installation in accordance with Roux's Field Operating Procedure for Abandonment of Borehole. Boreholes to be used as temporary wells should be completed in accordance with Roux's Temporary Well (Piezometer) Construction Procedures FOP.

16. Decontaminate all non-dedicated drilling tools between boring locations using potable tap water and a phosphate-free detergent (i.e., Alconox™) in accordance with Roux's Drilling and Excavation Equipment Decontamination Procedures FOP.

OTHER PROCEDURAL ISSUES

- Borings will not be over drilled (rat holed) without the express permission of the Roux field supervisor. All depth measurements should be accurate to the nearest 0.1 foot, to the extent practicable.

- Potable water may be placed in the sampler stem if critically necessary for borehole control or to accomplish sampling objectives. This will be performed only with the express permission of the Roux field supervisor.

ATTACHMENTS

Drilling Safety Checklist (sample)
Tailgate Safety Meeting Form (sample)

REFERENCES

<u>Roux FOPs:</u>
001 Abandonment of Borehole Procedures
017 Drill Site Selection Procedure
018 Drilling and Excavation Equipment Decontamination Procedures
054 Soil Description Procedures Using the USCS
077 Temporary Well (Piezometer) Construction Procedures

DRILLING SAFETY CHECKLIST

Project: **Supplemental Phase II RFI/ICMs**	Date:
Project No.: **0041-009-500**	Drilling Company:
Client: **RealCo., Inc.**	Drill Rig Type:

ITEMS TO CHECK	OK	ACTION NEEDED
"Kill switches" installed by the manufacturer are in operable condition and all workers at the drill site are familiar with their location and how to activate them?		
"Kill switches" are accessible to workers on both sides of the rotating stem? NOTE: Optional based on location and number of switches provided by the manufacturer.		
Cables on drill rig are free of kinks, frayed wires, "bird cages" and worn or missing sections?		
Cables are terminated at the working end with a proper eye splice, either swaged Coupling or using cable clamps?		
Cable clamps are installed with the saddle on the live or load side? Clamps should not be alternated and should be of the correct size and number for the cable size to which it is installed. Clamps are complete with no missing parts?		
Hooks installed on hoist cables are the safety type with a functional latch to prevent accidental separation?		
Safety latches are functional and completely span the entire throat of the hook and have positive action to close the throat except when manually displaced for connecting or disconnecting a load?		
Drive shafts, belts, chain drives and universal joints shall be guarded to prevent accidental insertion of hands and fingers or tools?		
Outriggers shall be extended prior to and whenever the boom is raised off its cradle. Hydraulic outriggers must maintain pressure to continuously support and stabilize the drill rig even while unattended.		
Outriggers shall be properly supported on the ground surface to prevent settling into the soil.		
Controls are properly labeled and have freedom of movement. Controls should not be blocked or locked in an action position.		
Safeties on any device shall not be bypassed or neutralized.		
Controls shall be operated smoothly and cables and lifting devices shall not be jerked or operated erratically to overcome resistance.		
Slings, chokers and lifting devices are inspected before using and are in proper working order? Damaged units are removed from service and are properly tagged?		
Shackles and clevises are in proper working order and pins and screws are fully inserted before placing under a load?		
High-pressure hoses have a safety (chain, cable or strap) at each end of the hose section to prevent whipping in the event of a failure?		
Rotating parts of the drill string shall be free of sharp projections or hooks, which could entrap clothing or foreign objects?		
Wire ropes should not be allowed to bend around sharp edges without cushion material.		
The exclusion zone is centered over the borehole and the radius is equal or greater than the boom height?		

ITEMS TO CHECK	OK	ACTION NEEDED

SAMPLE

ROUX

DRILLING SAFETY CHECKLIST

Project: **Supplemental Phase II RFI/ICMs** Date:

Project No.: **0041-009-500** Drilling Company:

Client: **RealCo., Inc.** Drill Rig Type:

ITEMS TO CHECK	OK	ACTION NEEDED
The work area around the borehole shall be kept clear of trip hazards and walking surfaces should be free of slippery material.		
Workers shall not proceed higher than the drilling deck without a fall restraining device and must attach the device in a manner to restrict fall to less than 6 feet.		
A fire extinguisher of appropriate size shall be immediately available to the drill crew. The drill crew shall have received annual training on proper use of the fire extinguisher.		
29 CFR 1910.333 © (3) Except where electrical distribution and transmission lines have been de-energized and visibly grounded, drill rigs will be operated proximate to, under, by, or near power lines only in accordance with the following: .333 © (3) (ii) 50 kV or less -minimum clearance is 10 ft. For 50 kV or over - 10ft. Plus ½ in. For each additional kV **Benchmark Policy: Maintain 20 feet clearance**		
29 CFR 1910.333 © (3) (iii) While the rig is in transit with the boom in the down position, clearance from energized power lines will be maintained as follows: Less than 50 kV - 4 feet 50 to 365 kV - 10 feet 365 to 720 kV - 16 feet		

Name: _____ (printed)

Signed: _____ Date: _____

SAMPLE

TAILGATE SAFETY MEETING FORM

Project Name: Date: Time:

Project Number: Client:

Work Activities:

HOSPITAL INFORMATION:

Name:

Address: *City:* *State:* *Zip:*

Phone No.: *Ambulance Phone No.*

SAFETY TOPICS PRESENTED:

Chemical Hazards:

Physical Hazards: Slips, Trips, Falls

PERSONAL PROTECTIVE EQUIPMENT:

Activity:	*PPE Level:*	A	B	C	D
Activity:	*PPE Level:*	A	B	C	D
Activity:	*PPE Level:*	A	B	C	D
Activity:	*PPE Level:*	A	B	C	D
Activity:	*PPE Level:*	A	B	C	D

New Equipment:

Other Safety Topic (s): Environmental Hazards (aggressive fauna)
Eating, drinking, use of tobacco products is prohibited in the Exclusion Zone (EZ)

ATTENDEES

Name Printed	Signatures

Meeting conducted by:

SAMPLE

FIELD OPERATING PROCEDURES

Field Quality Control Procedures

FOP 085.0

FIELD QUALITY CONTROL PROCEDURES

PURPOSE

In addition to traditional environmental samples (e.g., soil, groundwater, wipe, vapor etc.) described in each project work plan, site-specific field quality assurance/quality control (QA/QC) samples are typically collected and analyzed to support the required third-party data usability assessment effort of a project. Site-specific QA/QC samples generally include matrix spikes, matrix spike duplicates, blind duplicates (where appropriate), and trip blanks which accompany aqueous volatile organic compound (VOC) samples only.

The number of QA/QC field samples (blind duplicate, matrix spike/matrix spike duplicate, trip blank, field blank, or equipment blank) will be designated prior to field mobilization, but final QC sample locations will be contingent upon field conditions. This procedure outlines and discusses each QA/QC sample that may be required during a project.

PROCEDURE

A brief summary of each QA/QC sample identified above is presented below. Where appropriate, the procedure to be used to collect these samples is also presented.

- **Trip Blanks** – A sufficient number of trip blanks for VOC analysis must be prepared by the laboratory and delivered to the sampling team prior to a sampling event, typically two or three 40-ml VOA vials with organic free reagent water. One sealed blank will be carried into the field per day along with the sample containers for each day that water matrix volatile organic samples are collected. Trip blanks will be transported and handled in the same manner as the actual samples. The results of the trip blank analysis will be reviewed to evaluate if the potential for sample contamination during transportation and handling exists. The trip blanks will be analyzed for the same VOCs (and method) as the project groundwater samples.

- **Blind Duplicate** – One blind duplicate must be collected and analyzed per 20 samples collected per matrix (i.e., soil, groundwater, soil vapor, etc.). The location

of the sample collection point will not be disclosed to the analytical laboratory, therefore the field sample containers will be returned to the laboratory identified only as the "blind duplicate." The well or sample location will be recorded in the Project Field Book or handheld RuggedReader® Pocket PC and on the field data sheets, and the results will be compared to review analytical precision. Sample analysis will be identical to the original sample per the project work plan. The Blind Duplicate sample must be collected simultaneously from the same source under identical conditions as the original sample.

- **Matrix Spike/Matrix Spike Duplicate (MS/MSD)** – A sufficient volume of sample will be collected at one sampling location per sampling event for MS/MSD analysis per matrix (i.e., soil and groundwater only). The laboratory will report the results of the MS/MSD analysis, which will be reviewed for sampling and analysis precision and accuracy. Sample analysis will be identical to the original sample per the project work plan. The MS/MSD sample must be collected simultaneously from the same source under identical conditions as the original sample.

- **Equipment (Rinsate) Blank** – In general, dedicated sampling equipment is used to minimize field decontamination time and avoid the need for equipment blanks; however there may be instances where the use of non-dedicated equipment cannot be avoided. An equipment blank will be collected for each day of sampling activity when non-dedicated sampling equipment is used. These equipment blank samples will be used as a QC check of the decontamination procedures for sampling equipment. Sample analysis for the equipment blank will consist of the most comprehensive parameter list used for risk assessment in which the non-dedicated equipment was used for environmental sample collection. During most projects, every effort to use dedicated sampling equipment should be made in order to minimize field decontamination time and avoid the need for equipment blanks. Equipment Blank sampling procedure is as follows:
    - Non-dedicated equipment are to be decontaminated in accordance with Roux's Non-disposable and Non-dedicated Sampling Equipment Decontamination procedures prior to use in the field. If organic-free

deionized water (generally provided by the laboratory) is not available for decontamination, equipment will be allowed to thoroughly air dry.
  - Once properly rinsed or allowed to air dry, analyte-free water (provided by the laboratory) is poured appropriately over or through the decontaminated sample collection device, collected in a sample container, and returned to the laboratory as a sample.

- **Field Blank** – A field blank is a sample of the unused final decontamination rinse water that is collected at the sampling site and returned to the laboratory as a sample. Sample analysis for the field blank will consist of the most comprehensive parameter list used during the investigation.

- **Split Sample** – A split sample is a sample that has been portioned into two or more containers from a single sample container or sample mixing container. Samples for VOC analysis should never be mixed prior to splitting.

- **Blank Wipe Samples** – There are two types of blank wipe samples, an equipment blank and a field blank that may be required per the project work plan, both are described below:
  - Equipment Blank – Required only if reusable templates are used for wipe sample collection. The decontaminated template is wiped with a hexane saturated swab. The swab is placed in the appropriate sample container and returned to the laboratory as a sample.
  - Field Blank – Clean disposable gloves are wiped with a hexane saturated swab. The swab is placed in the appropriate sample container and returned to the laboratory as a sample.

REFERENCES

Roux FOPs:

040 Non-disposable and Non-dedicated Sampling Equipment Decontamination

ROUX

FIELD OPERATING PROCEDURES

Outdoor Ambient Air VOC Sample Collection Procedure

FOP 090.0

OUTDOOR AMBIENT AIR VOC SAMPLE COLLECTION PROCEDURE

PURPOSE

This procedure describes the methods for collecting outdoor ambient air samples for volatile organic compound (VOC) analysis via USEPA Method TO-15 using Summa® canisters (or approved other). Typically, outdoor air samples are collected to characterize and document site-specific VOCs that may be present in outdoor ambient air. For sample collection associated with intrusive activities that may potentially release VOCs to the ambient air, sample location(s) typically are collected downwind of the intrusive activity at the perimeter of the work area and/or exclusion zone for the Site. Upwind sample location(s) may be utilized if regional facilities (e.g. gasoline service station, factories) are located proximate to the Site to assess off-site ambient VOC contributions (background).

SAMPLE COLLECTION PROCEDURES

The following actions should be taken to document conditions during outdoor air sampling and ultimately to aid in the interpretation of the analytical results:

- A site map should be prepared to indicate the outdoor ambient air sample locations including all site improvements (e.g., buildings, access roads, etc.), public roads/streets (if applicable), the location of potential VOC contributors (e.g., gasoline stations, factories, lawn movers, etc.), compass orientation (north), and scale.

- Weather conditions (e.g., precipitation, wind speed, outdoor temperature, and barometric pressure) should be reported on the Air Canister Field Record (sample attached); and

- Any pertinent observations, such as odors, readings from field instrumentation, and significant activities in the vicinity (e.g., operation of heavy equipment or dry cleaners) should be recorded.

The following describes the outdoor air sampling procedure:

1. Typically, a 6-liter, passivated (inert), stainless steel, evacuated sampling sphere (e.g., Summa canister) (or approved other) will be supplied by the laboratory that will be conducting the analysis. The canister should be received from the laboratory, certified clean, evacuated, and prepared for sampling.

2. Sampling will take place in accordance with the project work plan. Selected sample locations will be sufficiently spaced to allow location(s) to be field modified, if necessary.

3. The number of Summa canisters required as well as the flow rate of the constant differential low volume flow controllers will be supplied by the laboratory in accordance with the project work plan.

4. Prior to placement, complete an Air Canister Field Record (sample attached) of each canister, which includes: project information, field staff, weather conditions, canister serial number, flow controller number, sample date(s)/time(s), shipping date(s), canister lab vacuum, field vacuum check, initial field vacuum, final field vacuum, and duration of sample collection.

5. The pressure in the canisters must be monitored with the laboratory provided pressure gauge at the beginning and the end of the sampling period as well as before and after shipment of the canisters at the laboratory. The **target final field vacuum must be approximately 5 inches of mercury. Samples with a final field vacuum of greater than 10 inches of mercury, or equal to zero, will be flagged** and usability of the data will depend on the sample volume and reporting limits that can be achieved.

6. Canisters may be placed on the ground provided there is a clear plastic sheet beneath it to prevent cross contamination. The intake tubing, however, must be positioned at a height of approximately 3 to 5-feet above grade to collect air at an elevation representative of ambient air within the breathing zone. Typically, the canister is chained and locked to a secure step ladder with the intake tubing tethered to the ladder.

7. Ship the canisters to the laboratory under chain-of-custody command within three days of sample collection so that no sample will exceed the 30-day holding time (since receipt from the lab) per USEPA TO-15.

8. Air samples will be analyzed by Gas Chromatography/Mass Spectroscopy (GC/MS) in accordance with EPA Method TO-15, or as specified. Analytical results will be reported as concentrations of each VOC at each location during each sampling event, typically in parts per billion by volume (ppbv).

9. Sample collection should take place on warm, dry days. If rain or high humidity conditions develop during sampling, the sampling event should be suspended. Temperature, barometric pressure, and wind speed should be monitored during the sampling event, for use in analysis of the results. The combination of sampling location, height, and meteorological conditions will assure that sampling will measure VOCs at their highest concentrations.

QUALITY ASSURANCE / QUALITY CONTROL (QA/QC)

Extreme care should be taken during all aspects of sample collection to ensure that sampling error is minimized and high quality data are obtained. The sampling team members should avoid actions (e.g., fueling vehicles, using permanent marking pens, and wearing freshly dry-cleaned clothing or personal fragrances), which can cause sample interference in the field. Appropriate QA/QC protocols must be followed for sample collection and laboratory analysis, such as use of certified clean sample devices, meeting sample holding times and temperatures, sample accession, chain of custody, etc. Samples should be delivered to the analytical laboratory as soon as possible after collection. In addition, laboratory accession procedures must be followed including field documentation (sample collection information and locations), chain of custody, field blanks, field sample duplicates, and laboratory duplicates, as appropriate.

Some methods require collecting samples in duplicate to assess errors. Duplicate and/or split samples should be collected in accordance with the requirements of the sampling and analytical methods being implemented.

For certain regulatory programs, a Data Usability Summary Report (DUSR) may be required to determine whether or not the data, as presented, meets the site or project specific criteria for data quality and data use. This requirement may dictate the level of QC and the category of data deliverable to request from the laboratory. Guidance on preparing a DUSR is available by contacting the NYSDEC's Division of Environmental Remediation.

New York State Public Health Law requires laboratories analyzing environmental samples collected from within New York State to have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. If ELAP certification is not currently required for an analyte (e.g., trichloroethene); then the analysis should be performed by a laboratory that has ELAP certification for similar compounds in air and uses analytical methods with detection limits similar to background (e.g., tetrachloroethene via EPA Method TO-15).

ATTACHMENTS

Air Canister Field Record (sample)

REFERENCES

United States Environmental Protection Agency. *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*. Second Addition (EPA/625/R-96/010b). January 1999.

ROUX

AIR CANISTER FIELD RECORD

PROJECT INFORMATION:

Project:
Job No:
Location:
Field Staff:
Client:

SAMPLE I.D.:

Size of Canister:
Canister Serial No.:
Flow Controller No.:
Sample Date(s):
Shipping Date:
Sample Type: ☐ ☐
☐ ☐
Soil Gas Probe Depth:

WEATHER CONDITIONS:

Ambient Air Temp. - A.M.:
Ambient Air Temp. - P.M.:
Wind Direction:
Wind Speed:
Precipitation:

FIELD SAMPLING INFORMATION:

READING	TIME	VACUUM (inches Hg) or PRESSURE (psig)	DATE	INITIALS
Lab Vacuum (on tag)				
Field Vacuum Check [1]				
Initial Field Vacuum [2]				
Final Field Vacuum [3]				
Duration of Sample Collection				

LABORATORY CANISTER PRESSURIZATION:

Initial Vacuum (inches Hg and psia)		
Final Pressure (psia)		
Pressurization Gas		

SUBSLAB SHROUD:

Shroud Helium Concentration:
Calculated tubing volume: x 3 =
Purged Tubing Volume Concentration:
Is the purged volume concentration less than or equal to 10% in shroud?
☐
☐

COMPOSITE TIME (hours)	FLOW RATE RANGE (ml/min)
15 Min.	316 - 333
0.5 Hours	158 - 166.7
1	79.2 - 83.3
2	39.6 - 41.7
4	19.8 - 20.8
6	13.2 - 13.9
8	9.9 - 10.4
10	7.92 - 8.3
12	6.6 - 6.9
24	3.5 - 4.0

NOTES:

1 Vacuum measured using portable vacuum gauge (provided by Lab)
2 Vacuum measured by canister gauge upon opening valve
3 Vacuum measured by canister gauge prior to closing valve

Signed:

APPENDIX E

Project Documentation Forms

DAILY TAILGATE HEALTH & SAFETY CHECKLIST

Job Name: _____ **Date(s):** _____

Location: _____ **Project Number:** _____

Weather: **M-** **T-** **W-** **TH-** **F-**

- Tailgate meeting conducted at least once per day
- Involves everyone working at the Site
- Should familiarize everyone with work area & vicinity
- Work permit procedures
  Emergency access/exits & "muster" point
- Emergency contacts/phone #s, hospital/urgent care route
- Every worker on-site has Stop Work Authority

- Provide details of work planned for the day
- Review the Job Safety Analysis (JSA) and work hazards
- Required PPE for the planned work
- HASP is reviewed
- Ensure safety equipment is on Site
- Test required safety equipment (such as emergency stop controls)
- Can also include inspection of tools and equipment to be used

Instructions: Please only use form for Monday through Friday of one calendar week.

#	CHECKLIST ITEM	DATE				
		M-	T-	W-	TH-	F-
1	The HASP (including emergency phone #s) has been reviewed & signed by Roux staff & subcontractors.					
2	Personnel are OSHA-40 hour HAZWOPER trained (if applicable).					
3	Emergency muster points known, urgent care and ER identified.					
4	Applicable JSAs have reviewed by subcontractors					
5	Roux personnel & subcontractors have discussed hazards associated with Site-specific work.					
6	Any potential slips, trips or fall hazards have been identified.					
7	All workers have appropriate PPE., and have signed in for the day (2nd Page).					
8	Fit for duty: No worker is under the influence of any drugs, alcohol or any other substance that can alter your ability to work safely.					
9	Critical equipment on-Site is noted and is in safe working order.					
10	Site control has been established and exclusion zone is identified (using safety cones or barricades to mark out work area).					
11	Appropriate permits have been obtained (if applicable).					
13	Lock Out / Tag Out procedures have been followed where applicable, for electric and water.					
14	Electrical power operated tools shall be properly grounded and used with a GFCI.					
15	Traffic Safety Control measures have been put in place where applicable.					
16	All vessels containing flammable/corrosive material are labeled and SDSs are available for all chemicals.					
17	Subsurface work : Drilling, trenching, etc. conducted according to required Protocol, including pre-field preparations, utility mark-out and "hand" clearing.					
18	Excavated soils are properly stored; excavations are properly shored/sloped and barricaded.					
19	Good housekeeping procedures are meet; food and beverages are consumed outside of the work area.					
20	A first aid kit, eye wash bottle/station, and fire extinguishers are available for use.					
21	No smoking signs are visibly posted in areas of potential flammable vapors.					
Initial on right to verify that these actions have taken place. If the action does not apply, use N/A.						

Comments and Exceptions _____

NOTE: THIS IS A TWO-SIDED FORM; PLEASE COMPLETE BOTH SIDES

DAILY TAILGATE HEALTH & SAFETY MEETING LOG

Job Name _____ Date(s) _____

Location: _____ Project Number: _____

SUBCONTRACTORS: _____

Activities Planned _____

_____

_____

Name	Company	Mon.	Tue.	Wed.	Thur.	Fri.

ROUX

DAILY LOG	DATE			
	NO.			
	SHEET		OF	

FIELD ACTIVITY DAILY LOG

PROJECT NAME:	PROJECT NO.
PROJECT LOCATION:	CLIENT:
FIELD ACTIVITY:	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

TIME	DESCRIPTION

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:

WEATHER CONDITIONS:	IMPORTANT TELEPHONE CALLS:
A.M.:	
P.M.:	

PERSONNEL ON SITE:

SIGNATURE DATE:

FIELD BOREHOLE LOG

PROJECT:		**Log of Boring No.:**	
BORING LOCATION:		ELEVATION AND DATUM:	
DRILLING CONTRACTOR:		DATE STARTED:	DATE FINISHED:
DRILLING METHOD:		TOTAL DEPTH:	SCREEN INTERVAL:
DRILLING EQUIPMENT:		DEPTH TO WATER: FIRST: COMPL.:	CASING:
SAMPLING METHOD:		LOGGED BY:	
HAMMER WEIGHT:	DROP:	RESPONSIBLE PROFESSIONAL:	REG. NO.

Depth (fbgs)	SAMPLES: Sample No.	Sample	Blows (per 6")	SPT N-Value	Recovery	PID Scan (ppm)	**SAMPLE DESCRIPTION (ASTM D 2488)** USCS Classification: Color, Moisture Condition, Primary Soil Type, Secondary Soil Type (<5% Trace, 5-10% Few, 15-25% Little, 30-45% Some), Structure (varved, stratified, thinly bedded, bedded, thickly bedded, laminated, fissured, blocky, lensed, massive), Consistency/Density (Standard Penetration Test, SPT), Weathering/Fracturing, Odor, Fill Materials (if present), Other SURFACE ELEVATION (FMSL):	REMARKS

ABANDONMENT:

Volume of cement/bentonite grout required:	$V = \pi r^2 \times 7.48 =$	gallons	borehole depth =	ft.
Volume of cement/bentonite grout installed:		gallons	borehole diameter =	ft.
Has bridging of grout occurred?	☐ yes ☐ no		borehole radius =	ft.
If yes, explain resolution:				
Method of installation:				
Project No:			Figure	

TEST PIT EXCAVATION LOG

Project:	TEST PIT I.D.:
Project No.:	Excavation Date:
Client:	Excavation Method:
Location:	Logged / Checked By:

Test Pit Location: *NOT TO SCALE*

TIME		
Start:	Length:	(approx.)
End:	Width:	(approx.)
	Depth:	(approx.)

Test Pit Cross Section:

Grade - 0'
2'
4'
6'
8'
10'

Depth (fbgs)	USCS Symbol & Soil Description	PID Scan (ppm)	Photos Y / N	Samples Collected (fbgs)

COMMENTS:

GROUNDWATER ENCOUNTERED:	☐ YES	☐ NO	If yes, depth to GW:
VISUAL IMPACTS:	☐ YES	☐ NO	Describe:
OLFACTORY OBSERVATIONS:	☐ YES	☐ NO	Describe:
NON-NATIVE FILL ENCOUNTERED:	☐ YES	☐ NO	
OTHER OBSERVATIONS:	☐ YES	☐ NO	Describe:
SAMPLES COLLECTED:			Sample I.D.:
			Sample I.D.:
			Sample I.D.:

GROUNDWATER FIELD FORM

Project Name: Date:

Location: Project No.: Field Team:

Well No.			Diameter (inches):			Sample Date / Time:			
Product Depth (fbTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (fbTOR):			One Well Volume (gal):			Purpose: ☐ Development ☐ Sample ☐ Purge & Sample			
Total Depth (fbTOR):			Total Volume Purged (gal):			Purge Method:			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

Well No.			Diameter (inches):			Sample Date / Time:			
Product Depth (fbTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (fbTOR):			One Well Volume (gal):			Purpose: ☐ Development ☐ Sample ☐ Purge & Sample			
Total Depth (fbTOR):			Total Volume Purged (gal):			Purge Method:			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

REMARKS:

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY:

ROUX

EQUIPMENT CALIBRATION LOG

PROJECT INFORMATION:

Project Name: _____ Date: _____

Project No.: _____

Client: _____ Instrument Source: ☐ Roux ☐ Rental

METER TYPE	UNITS	TIME	MAKE/MODEL	SERIAL NUMBER	CAL. BY	STANDARD	POST CAL. READING	SETTINGS
☐ pH meter	units		Myron L Company Ultra Meter 6P	6213516 ☐ 6243084 ☐ 6212375 ☐ 6243003 ☐ 6223973 ☐		4.00		
						7.00		
						10.01		
☐ Turbidity meter	NTU		Hach 2100P or 2100Q Turbidimeter	06120C020523 (P) ☐ 13120C030432 (Q) ☐ 17110C062619 (Q) ☐		10 NTU verification		
						<0.4		
						20		
						100		
						800		
☐ Sp. Cond. meter	uS mS		Myron L Company Ultra Meter 6P	6213516 ☐ 6243084 ☐ 6212375 ☐ 6243003 ☐ 6223973 ☐		_____ mS @ 25 °C		
☐ PID	ppm		MinRAE 2000			open air zero		MIBK response factor = 1.0
						_____ ppm Iso. Gas		
☐ Dissolved Oxygen	ppm		HACH Model HQ30d	171932597009 ☐ 100500041867 ☐ 22293299821 ☐		100% Satuartion		
☐ Particulate meter	mg/m^3					zero air		
☐ Radiation Meter	uR/H					background area		

ADDITIONAL REMARKS:

PREPARED BY: **DATE:**

AIR CANISTER FIELD RECORD

PROJECT INFORMATION:

Project:
Job No:
Location:
Field Staff:
Client:

SAMPLE I.D.:

WEATHER CONDITIONS:

Ambient Air Temp. - A.M.:
Ambient Air Temp. - P.M.:
Wind Direction:
Wind Speed:
Precipitation:

Size of Canister:
Canister Serial No.:
Flow Controller No.:
Sample Date(s):
Shipping Date:
Sample Type: ☐ Indoor Air ☐ Outdoor Air
☐ Subslab, complete section below ☐ Soil Gas
Soil Gas Probe Depth:

FIELD SAMPLING INFORMATION:

READING	TIME	VACUUM (inches Hg) or PRESSURE (psig)	DATE	INITIALS
Lab Vacuum (on tag)				
Field Vacuum Check [1]				
Initial Field Vacuum [2]				
Final Field Vacuum [3]				
Duration of Sample Collection				

LABORATORY CANISTER PRESSURIZATION:

Initial Vacuum (inches Hg and psia)		
Final Pressure (psia)		
Pressurization Gas		

SUBSLAB SHROUD:

Shroud Helium Concentration:
Calculated tubing volume: x 3 =
Purged Tubing Volume Concentration:
Is the purged volume concentration less than or equal to 10% in shroud?
☐ YES, continue sampling
☐ NO, improve surface seal and retest

COMPOSITE TIME (hours)	FLOW RATE RANGE (ml/min)
15 Min.	316 - 333
0.5 Hours	158 - 166.7
1	79.2 - 83.3
2	39.6 - 41.7
4	19.8 - 20.8
6	13.2 - 13.9
8	9.9 - 10.4
10	7.92 - 8.3
12	6.6 - 6.9
24	3.5 - 4.0

NOTES:

1 Vacuum measured using portable vacuum gauge (provided by Lab)
2 Vacuum measured by canister gauge upon opening valve
3 Vacuum measured by canister gauge prior to closing valve

Signed:

DAILY LOG	DATE			
	REPORT NO.			
	PAGE	OF		

PROBLEM IDENTIFICATION REPORT

Date:

Project:

Job No:

Location:

CQA Monitor(s):

Client:

Contractor:

Contractor's Supervisor:

WEATHER CONDITIONS:

Ambient Air Temp. - A.M.:

Ambient Air Temp. - P.M.:

Wind Direction:

Wind Speed:

Precipitation:

Problem Description:

Problem Location (reference test location, sketch on back of form as appropriate):

Problem Causes:

Suggested Corrective Measures or Variances:

Linked to Corrective Measures Report No. *or Variance Log No.*

Approvals (initial):

CQA Engineer:

Project Manager:

Signed:

CQA Representative

DAILY LOG	DATE			
	REPORT NO.			
	PAGE	OF		

CORRECTIVE MEASURES REPORT

Date:

Project:

Job No:

Location:

CQA Monitor(s):

Client:

Contractor:

Contractor's Supervisor:

WEATHER CONDITIONS:

Ambient Air Temp. - A.M.:

Ambient Air Temp. - P.M.:

Wind Direction:

Wind Speed:

Precipitation:

Corrective Measures Undertaken (reference Problem Identification Report No.)

Retesing Location:

Suggested Method of Minimizing Re-Occurrence:

Approvals (initial):

CQA Engineer:

Project Manager:

Signed:

CQA Representative

APPENDIX F

Health and Safety Plan

Health and Safety Plan

Swan and Chicago Streets Site
Buffalo, New York

August 2026

Prepared for:

Swan Chicago LLC

Prepared by:

Roux Environmental Engineering and Geology, D.P.C.
2558 Hamburg Turnpike
Suite 300
Buffalo, New York 14218

5286.0001B000

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& Management
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rouxinc.com

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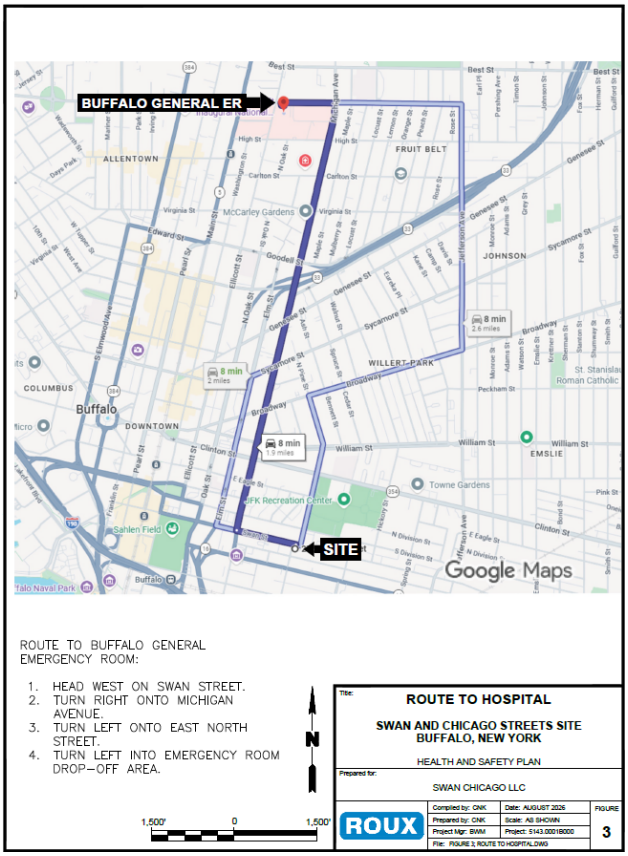
Site-Specific Emergency Information

Emergency Phone Numbers

Most emergency services can be obtained by calling 911. Where 911 service is not available, use the telephone numbers provided in the below table. The following is a master emergency phone list for use by the project management personnel. A more condensed version of the emergency numbers listed below will be posted throughout project work areas. Emergencies encountered on the site will be responded to by a combination of off-site emergency services and on-site personnel.

Emergency Contact Information			
Site Personnel			
Title	**Contact**		**Telephone**
Operations Manager (OM)	Thomas Forbes		(716) 856-0599
Project Principal (PP)	Michael Lesakowski		(716) 856-0599
Project Manager (PM)	Bryan Mayback		(716) 856-0599
Site Supervisor (SS)	TBD		TBD
Site Health and Site Safety Officer (SHSO)	TBD		TBD
Office Health and Safety Manager (OHSM)	Paul Werthman		(716) 856-0599
Corporate Health and Safety Director (CHSD)	Brian Hobbs, CIH, CSP		631-807-0193
WorkCare, Inc.	Occupational Health Care Management Provider		888-449-7787
Client Emergency Contact	Alexander Burgos		(716)949-6127
Outside Assistance			
Agency	**Contact**	**Telephone**	**Address/Location**
Ambulance/emergency medical services (EMS)	Buffalo General Hospital Emergency Room	(716) 859-5600	100 High Street Buffalo, NY 14203
Police	Buffalo Police Department	911/ (716) 851-4403	695 Main Street Buffalo, NY 14203
Fire	Buffalo Fire Department	911	132 Ellicott Street Buffalo, NY 14203
Site Address	275, 279, and 281 Swan Street and 425 Chicago Street Buffalo, New York 14204		

275 SWAN STREET
SBL NO. 111.72-1-1
0.09-ACRE
279 SWAN STREET
SBL NO. 111.72-1-2
0.05-ACRE
SWAN STREET
EMERGENCY
MUSTER
AREA
CHICAGO STREET
281 SWAN STREET
SBL NO. 111.72-1-3
0.06-ACRE
425 CHICAGO STREET
SBL NO. 111.72-1-53
0.19-ACRE
MYRTLE AVENUE
MAP PER GOOGLE EARTH, JUNE 2024.
LEGEND:
BCP SITE BOUNDARY
PARCEL BOUNDARY
30'
0
30'
Title:
SITE PLAN WITH EMERGENCY MUSTER AREA
SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK
HEALTH AND SAFETY PLAN
Prepared for:
SWAN CHICAGO LLC
ROUX
Compiled by: CNK
Date: AUGUST 2026
Prepared by: CNK
Scale: AS SHOWN
Project Mgr: BWM
Project: 5143.0001B000
FIGURE
2


BUFFALO GENERAL ER
ALLENTOWN
FRUIT BELT
JOHNSON
WILLERT PARK
COLUMBUS
DOWNTOWN
EMSLIE
SITE
8 min
2 miles
8 min
1.9 miles
8 min
2.6 miles
Google Maps
ROUTE TO BUFFALO GENERAL
EMERGENCY ROOM:
1. HEAD WEST ON SWAN STREET.
2. TURN RIGHT ONTO MICHIGAN AVENUE.
3. TURN LEFT ONTO EAST NORTH STREET.
4. TURN LEFT INTO EMERGENCY ROOM DROP–OFF AREA.
1,500'
0
1,500'
Title:
ROUTE TO HOSPITAL
SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK
HEALTH AND SAFETY PLAN
Prepared for:
SWAN CHICAGO LLC
ROUX
Compiled by: CNK
Date: AUGUST 2026
Prepared by: CNK
Scale: AS SHOWN
Project Mgr: BWM
Project: 5143.0001B000
FIGURE
3

1. Introduction

This Site-specific Health and Safety Plan (HASP) has been prepared by Roux Environmental Engineering and Geology, D.P.C. (Roux) for use during the Remedial Investigation (RI) activities at the Swan and Chicago Streets Site located at 275 Swan Street, 279 Swan Street, 281 Swan Street, and 425 Chicago Street (Site; **Figure 1**). This HASP was prepared in general accordance with the requirements of the Occupational Safety and Health Administration (OSHA) standards promulgated at 29 CFR 1910.120 and 29 CFR 1926.65, both commonly referred to as the Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard. In accordance with the HAZWOPER Standard, this Site-specific HASP was prepared to address the safety and health hazards associated with the RI sampling activities being performed at the Site by Roux and to provide requirements and procedures for the protection of Roux employees, subcontractor personnel, government oversight personnel, Site personnel, and the general public. It also addresses client- and Site-specific requirements for health and safety. Additionally, subcontractors may be required to submit their own HASP as it relates to their specific work activities and will be kept onsite during such work.

Implementation of this HASP is the joint responsibility of the Project Manager (PM), the Site Health and Safety Officer (SHSO), and all field staff, with assistance from the Project Principal (PP), Office Health and Safety Manager (OHSM), and Corporate Health and Safety Director (CHSD). The PM for this project is Bryan Mayback. The Site Supervisor (SS) is to be determined and Site Health and Safety Officer (SHSO) is to be determined.

This HASP will be introduced to, reviewed, and signed off on by all Roux personnel through a formal training session prior to commencing work. A copy of the HASP will be kept at the Site at all times. The Roux SHSO or PM will be responsible for posting any changes, amendments, memos, etc. to the HASP. Any revisions to this HASP will be signed by appropriate personnel, which can include Roux's PP, CHSD, and SS. Any changes will be announced to all workers at the next safety meeting.

1.1 Roles and Responsibilities

Overall Roles and Responsibilities (R&Rs) of Roux personnel are provided in Roux's Policies and Procedures Manual. Only those R&Rs specific to HASP requirements are listed below.

Project Manager (PM)

The PM has responsibility and authority to direct all work operations. The PM coordinates safety and health functions with the Site Health and Safety Officer (SHSO), has the authority to oversee and monitor the performance of the SHSO, and bears ultimate responsibility for the proper implementation of this HASP. The specific duties of the PM are:

- Preparing and coordinating the Site work plan;
- Providing Site supervisor(s) with work assignments and overseeing their performance; Coordinating safety and health efforts with the SSHO;
- Ensuring effective emergency response through coordination with the Emergency Response Coordinator (ERC); and
- Serving as primary Site liaison with public agencies and officials and Site contractors.

Site Health and Safety Officer (SHSO)

The SHSO has the full responsibility and authority to develop and implement this HASP and to verify compliance. The SHSO reports to the Project Manager. The SHSO is on Site or readily accessible to the Site during all work operations and has the authority to halt Site work if unsafe conditions are detected. The specific responsibilities of the SHSO include:

- Managing the safety and health functions on this Site;
- Serving as the Site's point of contact for safety and health matters;
- Ensuring Site monitoring, worker training, and effective selection and use of PPE;
- Assessing Site conditions for unsafe acts and conditions and providing corrective action;
- Assisting the preparation and review of this HASP;
- Maintaining effective safety and health records as described in this HASP; and
- Coordinating with the SS and others as necessary for safety and health efforts.

Site Supervisor (SS)

The Site Supervisor (SS) is responsible for field operations and reports to the Project Manager (PM). The SS ensures the implementation of the HASP requirements and procedures in the field. The specific responsibilities of the Site Supervisor include:

- Executing the work plan and schedule as detailed by the PM;
- Coordination with the SHSO on safety and health; and
- Ensuring Site work compliance with the requirements of this HASP.

Employees

All Roux employees are responsible for reading and following all provisions of the Corporate Health and Safety Manual, including this HASP. Employees report to the SS at the project Site. Each employee is also responsible for the following:

- Wearing all appropriate PPE as outlined within this HASP;
- Attending all safety meetings;
- Inspecting tools and equipment prior to use, and taking any defective tools or equipment out of service;
- Appropriately documenting field events as they occur within a logbook or equivalent;
- Properly operating machinery and/or equipment only if trained to do so;
- Stopping work operations if unsafe conditions exist;
- Identifying and mitigating hazards when observed;
- Reporting all incidents and near misses to the Roux SHSO and SS immediately; and
- Knowing where emergency equipment is located (e.g., first aid kit, fire extinguisher).

Subcontractors and Visitors

Subcontractors and visitors are responsible for complying with the same health and safety requirements. It is the responsibility of all to make sure subcontractors and visitors comply and uphold the HASP. Subcontractors and visitors have the following additional responsibilities:

- Designating a qualified safety representative for the project that can make the necessary changes in work practices, as necessary;
- Attending all safety meetings while participating in Roux Site work activities;
- Reporting all incidents and near misses to Roux SHSO and SS immediately;
- Conducting initial and periodic equipment inspections in accordance with manufacturer and regulatory guidelines; and
- Providing copies of all Safety Data Sheets (SDS) to Roux SHSO for materials brought to the Site.

2. Background

Relevant background information is provided below, including a general description of the Site; a brief review of the Site's history with respect to hazardous material use, handling, and/or storage; and a review of known and potential releases of hazardous substances at the Site.

2.1 Site Description

The Site is located in a commercial and residential area in the City of Buffalo, New York. The Site is bordered by Swan Street, residential properties, and a church to the north, Myrtle Avenue and a commercial parking lot to the south, an auto sales and service property to the east, and Chicago Street and a community center to the west. The Site is currently vacant with vegetative grass cover.

The Site was originally developed before 1881 and has been used for residential and commercial purposes. The 279 Swan Street parcel appears to have always been used residentially. Historic commercial uses on the 275 and 281 Swan Street parcels included dentistry, a dry goods, meat, and grocery store, Swan Importing Co., a drug store, a physician's office, a church, Salerno Printer, a barber, and a record shop. The 425 Chicago Street parcel was originally developed by at least 1889 with a stable. The building was redeveloped as a public automobile garage, presumably including automotive repair, until it was demolished in 1997. Previously existing Site buildings were demolished between 1978 and 2002, many of which had basements, which were backfilled with material from unknown sources.

The 425 Chicago Street parcel has a history of underground storage tanks (USTs). One gasoline UST was present along the western parcel boundary in at least 1926, and two gasoline USTs were present along the western parcel boundary in at least 1950. Additionally, according to City of Buffalo Fire Department records, one 1,000-gallon UST was installed in 1941 with reference to two pre-existing 550-gallon gasoline USTs. Sufficient closure documentation for the USTs does not exist and as discussed below, orphan USTs remain on-site.

The previous Phase II Investigation at the Site identified two existing orphaned USTs and petroleum-impacted soil with odors and elevated photoionization detector (PID) readings within the southwestern portion of the Site (425 Chicago Street Parcel). Fill material of unknown origin was observed across the Site at 15 test pit locations with fill material noted greater than 4 feet below ground surface (fbgs) at 6 test pit locations within the northern portion of the Site (concrete refusal observed at three locations between 7-8 fbgs, presumably indicating former basement areas). Roux notes that fill material was greater than the maximum depth of sampling (approximately eight fbgs) at certain investigation locations. Analytical results indicated elevated concentrations of polycyclic aromatic hydrocarbons (PAHs) and/or metals at seven of the ten total soil/fill sample locations.

3. Scope of Work

The scope of work for this Site includes RI activities to further assess Site contamination identified during previous investigations. RI activities planned for the Site are summarized below:

- Excavation of exploratory test pits
- Soil boring advancement using a hollow stem auger (HSA)
- Collection of soil samples for characterization and analytical analysis
- Installation of monitoring wells
- Development and sampling of newly installed groundwater monitoring wells
- Collection of perimeter soil vapor samples
- Waste characterization sampling
- Management (including characterization and disposal, if needed) of investigation-derived waste

If there are any changes with the scope a revision of the HASP will be required to address any new hazards.

4. Site Control

This Site control program is designed to reduce the spread of hazardous substances from contaminated areas to clean areas, to identify and isolate contaminated areas of the Site, to facilitate emergency evacuation and medical care, to prevent unauthorized entry to the Site, and to deter vandalism and theft.

4.1 Site Map

A map of this Site, showing Site boundaries, designated work zones, and points of entry and exit is provided in Figure 2.

4.2 Site Access

Access to the work areas at the Site is restricted to reduce the potential for exposure to its safety and health hazards.

4.3 Buddy System

This section is not applicable for all components of the SOW described in Section 3. Some RI activities are completed by a single Roux employee. However, when completing these tasks, the single Roux employee is accompanied either by Roux subcontractors or the Site caretaker/other representatives. Any time Roux is on-site, Swan Chicago LLC is made aware and communications with Swan Chicago LLC and the Roux PM is maintained via cellular phone.

While working in the Exclusion Zone, Site workers use the buddy system. The buddy system means that personnel work in pairs and stay in close visual contact to be able to observe one another and summon rapid assistance in case of an emergency. The responsibilities of workers using the buddy system include:

- Remaining in close visual contact with partner;
- Providing partner with assistance as needed or requested;
- Observing partner for signs of heat stress, chemical overexposure or other difficulties;
- Periodically checking the integrity of partner's PPE; and
- Notifying the SS or other Site personnel if emergency assistance is needed.

4.4 Site Communications

The following communication equipment is used to support on-site communication: cell phones, visual hand signals.

As applicable, hand signals will be used according to the following:

Hand Signals

SIGNAL	MEANING
Hand gripping throat	Out of air; I cannot breathe
Grip partner's wrist	Leave area immediately

Hand Signals

SIGNAL	MEANING
Hands on top of head	Need assistance
Thumbs up	I am all right; okay
Thumbs down	No; negative

A current list of emergency contact numbers is included in the Site-Specific Emergency Information at the beginning of this HASP.

4.5 Site Work Zones

The SOW does not require the implementation of work zones; however, should the need arise, this section provides details for the proper execution of work zones at this Site.

Work areas at the Site will be divided into three (3) major zones, described below. These zones are characterized by the likely presence or absence of biological, chemical, or physical hazards and the activities performed within them. Zone boundaries are clearly marked at all times and the flow of personnel among the zones is controlled. The Site is monitored for changing conditions that may warrant adjustment of zone boundaries. Zone boundaries are adjusted as necessary to protect personnel and clean areas. Whenever boundaries are adjusted, zone markings are also changed and workers are immediately notified of the change.

Exclusion Zone

The area where contamination exists is the Exclusion Zone (EZ). All areas where excavation and handling of contaminated materials take place are considered part of the EZ. This zone will be clearly delineated by chain link fencing, caution tape, cones or other effective barriers, as necessary. Safety tape may be used as a secondary delineation within the EZ. The zone delineation markings may be opened in areas for varying lengths of time to accommodate equipment operation or specific construction activities. The SHSO may establish more than one EZ where different levels of protection may be employed or where different hazards exist. Personnel are not allowed in the EZ without:

- A buddy (co-worker);
- Required minimum level PPE;
- Medical authorization;
- Training certification; and
- Requirement to be in the zone.

Contamination Reduction Zone

A Contamination Reduction Zone (CRZ) is established between the exclusion zone and the support zone. The CRZ contains the Contamination Reduction Corridor (CRC) and provides an area for decontamination of personnel and equipment. The CRZ will be used for general Site entry and egress in addition to access for heavy equipment and emergency support services. Personnel are not allowed in the CRZ without:

- A buddy (co-worker);

- Appropriate PPE;
- Medical authorization;
- Training certification; and
- Requirement to be in the zone.

Support Zone

The Support Zone (SZ) is an uncontaminated area that will be the field support area for the Site operations. Appropriate sanitary facilities and safety equipment will be located in this zone. Potentially contaminated personnel or materials are not allowed in this zone. The only exception will be appropriately packaged/decontaminated and labeled samples.

5. Job Hazard Evaluation

Roux's work at the Site is expected to entail a variety of physical, chemical, and biological hazards, all of which must be sufficiently managed to allow the work to be performed safely. Some of the hazards are Site-specific (i.e., they are associated with the nature, physical characteristics, and/or routine operation of the Site itself), while others are activity-specific (i.e., they are associated with [or arise from] the particular activity being performed). The various hazards can be grouped into the following categories:

- **Caught/Crushed** – the potential to become caught in, under, between, or by an object or parts of an object, such as equipment with parts that open and close or move up and down ("pinch points") or equipment that rotates, and the accompanying potential to have body parts cut, mangled, or crushed thereby.
- **Contact** – the potential to be struck by or against moving or stationary objects that can cause physical injury, such as heavy machinery, overhead piping, moving vehicles, falling objects, and equipment (including tools and hand-held equipment) or infrastructure with the ability to cut or impale.
- **Energy Sources** – the potential for bodily harm associated with energy sources, most notably electricity, but also including latent energy sources such as compressed air and equipment under tension (which when released could cause injurious contact or a fall).
- **Ergonomics** – the potential for musculoskeletal injury associated with lifting/carrying, pushing/pulling, bending, reaching, and other physical activity attributable to poor body position/mechanics, repetitive motion, and/or vibration.
- **Exposure** – the potential for injury/illness due to physical, chemical, or biological exposures in the work environment, including, but not limited to, temperature extremes, solar radiation, and noise (physical), chemical splashes and hazardous atmospheres (chemical), and animal/insect bites and poisonous plants (biological).
- **Falls** – the potential to slip or trip and thus fall or drop a load, resulting in bodily injury to oneself or others.

The foregoing is intended to provide Roux employees with a general awareness of the hazards involved with Site work. A more detailed review of the potential hazards associated with each specific activity planned for the Site (or on-going activity, as the case may be) is provided in the activity-specific Job Safety Analysis (JSA) forms in **Appendix A**. As can be seen in the JSA forms, the hazards are identified by category per the above, and specific measures designed to mitigate/manage those hazards are also identified. In preparing the JSA forms, all categories of hazards were considered, and all anticipated potential hazards were identified to the extent possible based on the experience of the personnel preparing and reviewing the JSA forms. However, there is always the possibility for an unanticipated hazard to arise, potentially as condition change over the course of the workday. Roux personnel must maintain a continual awareness of potential hazards in the work zone, regardless of whether the hazard is identified in the JSA form. Particular attention should be paid to hazards associated with exposure to hazardous substances (see **Table 1** for a listing of the hazardous substances most likely to be encountered in environmental media at the Site) and to Site personnel being located "in the line of fire" with respect to moving equipment, pinch points, and latent energy (e.g., being located or having body parts located within the swing radius of an excavator, between two sections of pipe being connected, below a piece of suspended equipment, or adjacent to a compressed air line).

5.1 Hazard Communication and Overall Site Information Program

The information in the JSAs and SDSs is made available to all employees and subcontractors who could be affected by it prior to the time they begin their work activities.

Modifications to JSAs are communicated during routine pre-work briefings, and periodically updated as needed in the HASP. SDSs will be maintained by the SHSO/SS for new chemicals brought on-site as needed. Copies of SDSs can be found in **Appendix B**.

5.2 Noise

Noise is associated with the operation of heavy equipment, power tools, pumps, and generators. Noise is also a potential hazard when working near operating equipment such as excavators, drill rigs or pole drivers. High noise (i.e., < 85 dBA) operations may be evaluated by the SHSO utilizing a type 2 handheld sound level meter (SLM) operating on the "A"-weighted scale with slow response because this scale most closely resembles human response to noise and complies with OSHA 29 CFR 1910.95. Hearing protection is required in areas with noise exposure greater than 85 dBA. Double hearing protection (ear plugs and earmuffs) should be donned in areas where the noise exposure is more than 95 dBA. Noise exposure will be controlled by hearing protection as described above or by maintaining set-backs from high-noise equipment, as warranted. Personnel handling heavy equipment and using power tools that produce noise levels exceeding those described levels above are required by OSHA 29 CFR 1910.95 to wear the appropriate Noise Reduction Rating (NRR) level of hearing protection. Appropriate hearing protection will be evaluated by the SHSO as necessary in consultation with the OHSM and CHSD.

5.3 Slip, Trip, and Fall Hazards

Slip, trip, and fall hazards may include, but are not limited to, general slip and trip hazards associated with uneven ground, possible debris, wet grass, and equipment. Prior to work, walking paths will be assessed for solid footings, any ground penetrations that may cause a tripping hazard will be appropriately marked, and other areas will be noted and discussed with the field team.

Personnel shall be aware of their surroundings and footings at all time, and all accommodations should be made for proper housekeeping and organized equipment placement at the Site, where possible, to help prevent any slip, trip, and fall-related incidents. All tools and materials should be appropriately stored when not in use and placed in appropriate storage containers.

5.4 Biological Hazards

Biological hazards that may potentially be present at a Site, include poisonous plants, insects (ticks, spiders, bees), animals (snakes, dogs), etc. Information on biological hazards can be found within Roux's Biological Hazard Awareness Management Program located within Roux's Corporate Health and Safety Manual. There is also potential for transmission and/or exposure to SARS-CoV-2, the virus that causes COVID-19. Prior to beginning work, on-Site protocols shall be established by the project team, including subcontractors, in accordance with federal, state, county, city, and/or other guidance, as applicable.

6. Emergency Response Plan

This emergency response plan details actions to be taken in the event of Site emergencies. The PM and SHSO is responsible for the implementation of emergency response procedures onsite. The SHSO/PM provides specific direction for emergency action based upon information available regarding the incident and response capabilities and initiates emergency procedures and notification of appropriate authorities. In the event of an emergency, Site personnel are evacuated and do not participate in emergency response activities, response is facilitated through external emergency services.

6.1 Emergency Response

The SHSO, after investigating the incident and relevant information, shall determine the level of response required for containment, rescue and medical care. Limited on-site emergency response activities could occur therefore the SHSO is responsible for notifying external emergency response agencies. The SHSO provides relevant information to the responding organizations, including, but not limited to, the hazards associated with the emergency incident, potential containment problems, and missing Site personnel.

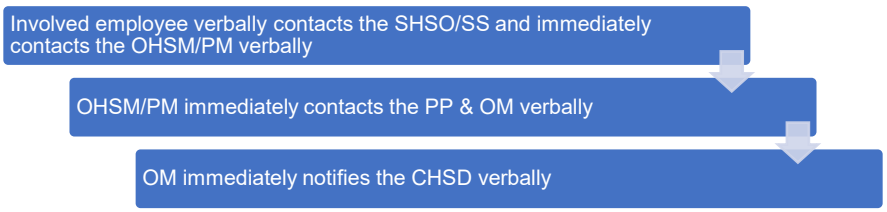
6.2 Emergency Alerting and Evacuation

If evacuation notice is given, Site workers leave the worksite, if possible, by way of the nearest exit. Appropriate primary and alternate evacuation routes and assembly areas have been identified and are shown on the Site Plan with Emergency Muster Area (**Figure 2**). The routes and assembly area will be determined by conditions at the time of the evacuation based on wind direction, the location of the hazard source, and other factors as determined by SHSO/PM.

Personnel exiting the Site gather at a designated assembly point. To determine that everyone has successfully exited the Site, personnel will be accounted for at the assembly point. If any worker cannot be accounted for, notification is given to the SHSO, PM, and any arriving response authorities so that appropriate action can be initiated. Subcontractors on this Site have coordinated their emergency response plans to ensure that these plans are compatible and potential emergencies are recognized, alarm systems are clearly understood, and evacuation routes are accessible to all personnel relying upon them.

6.3 Emergency Medical Treatment and First Aid

In the event of a work-related injury or illness, employees are required to follow the procedures outlined below. All work-place injury and illness situations require Roux's Project and Corporate Management Team to be notified when an injury/illness incident occurs, and communication with the contracted Occupational Health Care Management Provider, WorkCare, Inc., is initiated, as necessary. The Injury/Illness Notification Flowchart is provided below and within Roux's Incident Investigation and Reporting program included within Roux's Corporate Health and Safety Manual.



If on-Site personnel require any medical treatment, the following steps will be taken:

a. Notify Roux's Project and Corporate Management Team for any work-related injury and/or illness occurrence, and communicate with the contracted Occupational Health Care Management Provider, WorkCare, immediately following the notifications provided above.

b. Based on discussions with the Project Team, Corporate Management and the WorkCare evaluation, if medical attention beyond onsite first aid is warranted, transport the injured / ill person (IP) to the Urgent Care Center, or notify the Fire Department or Ambulance Emergency service and request an ambulance or transport the victim to the hospital, and continue communications with Corporate Management Team. An Urgent Care/Hospital Route map with location to Buffalo General Hospital is included as **Figure 3**.

c. Decontaminate to the extent possible prior to administration of first aid or movement to medical or emergency facilities.

d. First aid medical support will be provided by onsite personnel trained and certified in First Aid, Cardio Pulmonary Resuscitation (CPR), Automatic External Defibrillation (AED), and Blood-Borne Pathogens (BBP) Awareness, until relieved by emergency medical services (EMS).

e. The SHSO and PM will perform a Loss Investigation (LI) and the Project Team will complete the final Loss Report. If a Roux employee is involved in a vehicular incident, the employee must also complete the Acord Automobile Loss Notice.

7. Environmental Conditions and Response

7.1 Adverse Weather Conditions

In the event of adverse weather conditions, the SHSO or project principal will determine if work can continue without jeopardizing the health and safety of field workers. Some of the items related to adverse weather conditions to be considered prior to determining if work should continue include:

- Potential for heat stress and heat-related injuries;
- Potential for cold stress and cold-related injuries;
- Treacherous weather-related conditions. If wind speed is greater than 15 mph averaged over a 15-minute period or wind gusts over 25 mph, earthmoving operations will be ceased
- Limited visibility; and
- Electrical storm potential.

Site activities will be limited to daylight hours and acceptable weather conditions. Inclement working conditions may include heavy rain, fog, high winds, and lightning. The SHSO and/or PM shall observe daily weather reports and evacuate, if necessary, in case of inclement weather conditions.

7.2 Electrical Storm Guidelines

In the event that lightning and/or thunder are observed while working onsite, all onsite activities shall stop and personnel shall seek proper shelter (e.g., substantial building, enclosed vehicle, etc.). Work shall not resume until the threat of lighting has subsided and no lightning or thunder has been observed for 30 minutes. If the possibility of lightning is forecast for the day, advise the onsite personnel on the risks and proper procedure at the pre-work safety briefing. Continuously monitor for changing weather conditions and allow enough time to properly stop work if lightning is forecast.

7.3 Environmental Stressors, Heat Stress, Heat Exhaustion, and Heat Stroke

It is the employer's responsibility to monitor weather forecasts and ambient air temperatures, both prior to the work shift and during the shift. The National Oceanic and Atmospheric Administration records average minimum/maximum temperatures of 26/72 degrees Fahrenheit during the year in Buffalo, New York.

To prevent potential heat illness, the following strategies will be implemented:

- Adjusting personnel work/rest intervals;
- Monitoring for symptoms of heat illness;
- Providing shaded rest areas;
- Providing cool potable water so that each employee has access to at least one quart per hour for the entire shift, free of charge;
- Allowing for employees to acclimatize to the weather conditions and work demands;
- Observe workers during a heat wave (i.e., when the temperature is at least 80oF, and 10 degrees hotter than the average temperature of the five preceding days); and
- Implementing high heat procedures when the temperature reaches 95oF.

Roux's Heat Illness Prevention Plan is implemented when the when ambient temperatures exceed 80oF. Roux's Heat Illness Prevention Program can be found within **Appendix C**. Additional information regarding heat illnesses is provided below. This can include, but is not limited to, access to shade that is sufficient in size to fit all workers who are on break; a car with air conditioning is acceptable, too. Preventative cool-down breaks shall be allowed at any time, and anyone taking such a break will be monitored for heat illness symptoms and not required to return to work until all symptoms (if present) of heat illness have disappeared. If necessary, first aid will be offered, but if symptoms are severe, emergency response procedures will be implemented per Section 6.3. Anyone who has shown symptoms of severe heat illness will not be sent home without being offered first aid or medical treatment.

High heat procedures must be implemented when temperatures reach 95oF. These procedures include:

- Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor when necessary. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if the reception in the area is reliable.
- Observing employees for alertness and signs or symptoms of heat illness. The employer shall ensure effective employee observation/monitoring by implementing one or more of the following:
  - Supervisor or designee observation of 20 or fewer employees;
  - Mandatory buddy system; and
  - Regular communication with sole employee such as by radio or cellular phone, or other effective means of observation.
- Designating one or more employees on each worksite as authorized to call for emergency medical services and allowing other employees to call for emergency services when no designated employee is available.
- Encouraging employees throughout the work shift to drink plenty of water.
- A review of the high heat procedures during the daily tailgate meeting and remind employees of their right to take a cool-down rest when necessary.

7.3.1 Heat Stress

Heat stress is the body's response to excessive heat and can be a significant potential hazard. The risk of heat stress can be increased with heavy physical activity and/or the use of personal protective equipment in hot, humid weather environments. There are also personal risk factors that can contribute to the risk of suffering from heat stress, such as obesity, water intake, alcohol and caffeine consumption, pregnancy, age, medication, etc. Heat illness includes heat cramps, heat exhaustion, heat syncope, and heat stroke.

7.3.2 Heat Cramps

Heat cramps may be brought on by prolonged exposure to heat. As an individual sweats, water and salts are lost by the body resulting in painful muscle cramps, typically in the legs.

First aid treatment includes, but is not limited to, shade, rest, and fluid replacement. Typically, the individual should recover within one-half hour while being monitored constantly. If the individual has not improved substantially within 30 minutes and the body temperature has not decreased, the individual should be transported to a hospital for medical attention.

Per Roux's Heat Illness Prevention Plan, employees shall have access to potable drinking water that is fresh, pure, suitably cool, free of charge and in sufficient quantities. Access to shade shall be present when temperatures exceed 80 degrees Fahrenheit and shall be available when temperatures do not exceed 80 degrees Fahrenheit.

7.3.3 Heat Exhaustion

Heat exhaustion may occur in an individual who has been exposed to excessive heat while working or exercising. The circulatory system of the individual fails as blood collects near the skin to rid the body of excess heat through transference. The signs and symptoms of heat exhaustion are as follows:

- Rapid and shallow breathing;
- Weak pulse;
- Cold and clammy skin with heavy perspiration;
- Skin appears pale;
- Fatigue and weakness;
- Dizziness; and
- Elevated body temperature.

First aid treatment includes, but is not limited to, cooling the victim, elevating the feet, and replacing fluids.

If the individual is not substantially improved within 30 minutes and the body temperature has not decreased, the individual should be transported to the hospital for medical attention.

7.3.4 Heat Stroke

Heat stroke occurs when an individual is exposed to excessive heat and stops sweating. This condition is classified as a MEDICAL EMERGENCY requiring immediate cooling of the victim and transport to a medical facility. The signs and symptoms of heat stroke are as follows:

- Dry, hot, red skin;
- Body temperature approaching or above 105oF;
- Confusion, altered mental state, slurred speech;
- Seizures;
- Large (dilated) pupils; and
- Loss of consciousness – the individual may go into a coma.

First aid treatment requires immediate cooling and transportation to a medical facility. Heat stress is a significant hazard if any type of protective equipment (semi-permeable or impermeable) that prevents evaporative cooling when worn in hot weather environments.

7.4 Cold Stress

Cold stress is a danger at low temperatures and when the wind-chill factor is low. Prevention of cold-related illnesses is a function of whole-body protection. Adequate insulating clothing must be used when the air temperature is below 60°F. A work/rest regimen will be initiated when ambient temperatures and protective

clothing cause a stressful situation. In addition, reduced work periods followed by rest in a warm area may be necessary in extreme conditions. The signs and symptoms of cold stress include the following:

- Severe shivering;
- Abnormal behavior;
- Slowing;
- Weakness;
- Stumbling or repeated falling;
- Inability to walk;
- Collapse; and/or
- Unconsciousness.

First aid requires removing the victim from the cold environment and seeking medical attention immediately. Also, prevent further body heat loss by covering the victim lightly with blankets. Do not cover the victim's face. If the victim is still conscious, administer hot drinks and encourage activity such as walking, wrapped in a blanket.

7.5 Adverse Air Quality

The air quality at the Site may be impacted by wildfires in the region or beyond. The wildfire season usually occurs from spring through late autumn (depending on the region), when hot, dry winds are most frequent. During wildfire season, there is a risk of inhaling fine particles associated with wildfire smoke. This particulate matter can result in irritation to the lungs and potentially lead to serious complications, such as reduced lung function, bronchitis, worsening asthma, etc. Roux has developed the following protocol based on the Air Quality Index (AQI) for particulate matter (PM) 2.5, which is the smallest and usually most harmful particulate matter (2.5. micrometers or smaller). An AQI over 100 is unhealthy for sensitive people, and an AQI over 150 is unhealthy for everyone.

Air Quality Index (AQI), Conversion for PM 2.5, and Level of Health Concern

PM 2.5 Concentration	AQI	Levels of Health Concern
0 to 12	0 to 50	Good
12.1 to 35.4	51 to 100	Moderate
35.5 to 55.4	101 to 150	Unhealthy for Sensitive Groups
55.5 to 150.4	151 to 200	Unhealthy
150.5 to 250.4	201 to 300	Very Unhealthy
250.5 to 500.4	301 to 500	Hazardous

7.5.1 Adverse AQI Procedures

PMs and Field Personnel shall obtain the current AQI for the Site area by going online to https://www.airnow.gov/ and entering the zip code of the location where you will be working. AQI can also be found at the U.S. Forest Service online at https://tools.airfire.org/ or at a local air district online at AirNow Fire and Smoke Map. AQI shall be monitored daily to ensure field teams are protected from potentially harmful exposures to particulates. The OHSM and PM shall communicate worsening AQI conditions and protective measures available to employees to reduce their exposures to wildfire smoke.

It is important to remember that not everyone will respond the same to varying AQI levels. Should field staff notice the air quality getting worse, or if they are suffering from any symptoms due to the air quality, the SSHO will notify the PM, PP, and OHSM immediately.

Roux shall control harmful exposures to employees through the use of the hierarchy of controls. The following multidisciplinary approach shall be implemented:

- Engineering Controls
  - Roux shall reduce exposures to PM 2.5 to less than the current AQI of 151 through the use of engineering controls. This will be done using enclosed buildings, structures, or vehicles with appropriately filtered air. If engineering controls are insufficient to reduce PM 2.5 exposures to less than a current AQI of 151, Roux shall implement additional controls to the extent feasible.

- Administrative Controls
  - Whenever engineering controls are not feasible or not reduce exposures to PM 2.5 to less than the current AQI of 151, Roux shall implement administrative controls, which may include relocation of work to an area where the current AQI for PM 2.5 is lower (if able), rotating/changing work schedules, reducing work intensity, or providing additional rest periods which are preferred to be taken within an enclosed building/structure or vehicle where the air is filtered.
- Personal Protective Equipment
  - If the current or forecasted AQI for PM 2.5 is equal to or greater than 151 but does not exceed 500, the project team should evaluate whether fieldwork should be postponed. In the event fieldwork cannot be postponed, sufficient respiratory protection shall be provided to all employees for voluntary use. Roux shall provide National Institute for Occupational Safety and Health (NIOSH) approved devices that effectively protect the wearers from inhalation of PM 2.5, such as N-95 filtering facepiece respirators. Respirators shall be cleaned or replaced as appropriate, stored, and maintained so that they do not present a health hazard to users. Training regarding voluntary use of respirators shall be in accordance with OSHA Standard 29 CFR 1910.134, Appendix D.

If the current or forecasted AQI for PM 2.5 is greater than 500, then the fieldwork shall be postponed until the AQI is within acceptable parameters and appropriate controls are implemented which are outlined above. If work cannot be postponed and where the current AQI for PM2.5 exceeds 500, respirator use is required. Respirators shall be used in accordance with the OSHA Respiratory Standard (29 CFR 1910.134). Roux shall provide respirators with an assigned protection factor, such that the PM2.5 levels inside the respirator correspond to an AQI less than 151. Employees required to wear respiratory protection shall be medically cleared, fit-tested, trained and authorized to wear a respirator in compliance with the OSHA Respiratory Standard (29 CFR 1910.134).

8. Safety Procedures

This section of the HASP presents the specific safety procedures to be implemented during Roux's activities at the Site in order to protect the health and safety of various on-site personnel. Minimum OSHA-mandated procedures are presented first, followed by client- and Site-specific procedures. Lastly, activity-specific procedures are discussed. These Site and activity-specific procedures supplement the general safety procedures included in Roux's Corporate Health and Safety Manual, which also must be followed in their entirely.

8.1 Training

At a minimum, Site personnel who will perform work in areas where there exists the potential for toxic exposure will be health and safety-trained prior to performing work onsite per OSHA 29 CFR 1910.120(e) and 29 CFR 1926.65(e). More specifically, all Roux, subcontractor, and other personnel engaged in sampling and remedial activities at the Site and who are exposed or potentially exposed to hazardous substances, health hazards, or safety hazards must have received at a minimum the 40 hour initial HAZWOPER training consistent with the requirements of 29CFR 1910.120(e)(3)(i) training and a minimum of 3 days' actual field experience under the direct supervision of a trained experienced supervisor, plus 8 hours of refresher training on an annual basis. Depending on tasks performed, less training may be permitted. Evidence of such training must be maintained at the Site at all times. Furthermore, all on-Site management and supervisory personnel directly responsible for or who supervise the employees engaged in Site remedial operations, must have received an additional 8 hours of specialized training at the time of job assignment on topics including, but not limited to, the employer's safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazard monitoring procedure and techniques, plus 8 hours of refresher training on an annual basis. Additionally, all workers who will be required to don a respirator will be properly trained on their employer's Respiratory Protection Program, which also includes being medically cleared to wear a respirator and passed a fit test, at least initially prior to use, and then annually thereafter in accordance with 29 CFR 1910.134, Respiratory Protection.

Roux personnel training records are maintained in a corporate database with records available upon request from either the OHSM/SHSO/CHSD or Human Resources Department.

8.2 Site-Specific Safety Briefings for Visitors

A site-specific briefing is provided to all site visitors who enter this site beyond the site entry point. For visitors, the site-specific briefing provides information about site hazards, the site lay-out including work zones and places of refuge, the emergency alarm system and emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

8.3 HASP Information and Site-Specific Briefings for Workers

Site personnel review this HASP and are provided a Site-specific tailgate briefing prior to the commencement of work to ensure employees are familiar with this HASP and the information and requirements it contains, as well as the relevant JSAs included in **Appendix A**. Additional briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during on-going Site characterization and analysis of changing conditions. Conditions for which we

schedule additional briefings include, but are not limited to: changes in site conditions, changes in the work schedule/plan, newly discovered hazards, and incidents occurring during Site work.

8.4 Medical Surveillance

The medical surveillance section of the Health and Safety Plan describes how worker health status is monitored at this site. Medical surveillance is used when there is the potential for worker exposure to hazardous substance at levels above OSHA Permissible Exposure Limits (PEL) or other published limits. The purpose of a medical surveillance program is to medically monitor worker health to ensure that personnel are not adversely affected by site hazards. The provisions for medical surveillance at this site are based on the site characterization and job hazard analysis found in Section 4 of this HASP and are consistent with OSHA requirements in 29 CFR 1910.120(f) as applicable.

8.4.1 Site Medical Surveillance Program

Medical surveillance requirements are based on a worker's potential for exposure as determined by the site characterization and job hazard analysis documented in Section 4 and JSAs within **Appendix A** of this HASP and in compliance with the requirements of 29 CFR 1910.120(f)(2). Based on site information and use of direct reading instruments, limited use of respirators (less than 30 days per year), and the absence of an employee-staffed HAZMAT team, a limited medical surveillance program is required and implemented at this site. The medical surveillance program provides that:

1. Workers assigned to tasks requiring the use of respirators receive medical examinations in accordance with 29 CFR 1910.134(e) to ensure they are physically capable to perform the work and use the equipment, and
2. If a worker is injured, becomes ill, or develops signs or symptoms of possible over-exposure to hazardous substance or health hazards, medical examinations are provided to that worker as soon as possible after the occurrence and as required by the attending physician.
3. These medical examinations and procedures are performed by or under the supervision of a licensed physician and are provided to workers free of cost, without loss of pay, and at a reasonable time and place. In addition, the need to implement a more comprehensive medical surveillance program will be re-evaluated after any apparent over-exposure.

8.4.2 Medical Recordkeeping Procedures

Medical recordkeeping procedures are consistent with the requirements of 29 CFR 1910.1020 and are described in the company's overall safety and health program. A copy of that program is available at our Islandia, New York office.

The following items are maintained in worker medical records:

- Respirator fit test and selection;
- Physician's medical opinion of fitness for duty (pre-placement, periodic, termination);
- Physician's medical opinion of fitness for respirator protection (pre-placement, periodic); and
- Exposure monitoring results.

8.4.3 Program Review

The medical program is reviewed to ensure its effectiveness. The Corporate Health and Safety Manager, in coordination with the Human Resources Director, is responsible for this review. At minimum, this review consists of:

- Review of accident and injury records and medical records to determine whether the causes of accidents and illness were promptly investigated and whether corrective measures were taken wherever possible;
- Evaluation of the appropriateness of required medical tests based on site exposures; and
- Review of emergency treatment procedures and emergency contacts list to ensure they were site specific, effective, and current.

8.5 Personnel Protection

Site safety and health hazards are eliminated or reduced to the greatest extent possible through engineering controls and work practices. Where hazards are still present, a combination of engineering controls, work practices and PPE are used to protect employees. Appropriate personal protective equipment (PPE) shall be worn by Site personnel when there is a potential exposure to chemical, biological or physical hazards (e.g., falling objects, flying particles, sharp edges, electricity, and noise), as determined by the SHSO. The level of personal protection, type and kind of equipment selected will depend on the hazardous conditions and in some cases cost, availability, compatibility with other equipment, and performance. An accurate assessment of all these factors will be made before work can be safely executed.

Roux maintains a comprehensive written PPE program that addresses proper PPE selection, use, maintenance, storage, fit and inspection. Roux's PPE program can be found within **Appendix D**. PPE to be used at the Site will meet the appropriate American National Standards Institute (ANSI) standards and the following OSHA (General/Construction Industry) standards for minimum PPE requirements.

The minimum level of PPE for entry onto the Site is Level D. The following equipment shall be worn:

- Work uniform (long pants, sleeved shirt);
- Hard hat;
- Steel or composite toe work boots (must comply with American Society for Testing and Materials [ASTM]) F 2412-05, Standard Test Methods for Foot Protection and ASTM F 2413-05, Standard Specification for Performance Requirements for Foot Protection);
- Safety Glasses (must comply with one of the following ANSI/ISEA Z87.1-2010, ANSI Z87.1-2003, ANSI Z87.1-2003);
- Boot Covers (as needed);
- Hearing protection (as needed);
- High visibility clothing (shirt/vest); and
- Hand protection (e.g., minimum cut resistance meeting ANSI 105-2000 Level 2).

Note that jewelry shall be removed or appropriately secured to prevent it from becoming caught in rotating equipment or unexpectedly snagged on a fixed object (e.g., wrist watches, bracelets, rings, chains and necklaces, open earrings). Do not wear loose clothing and all shoulder-length hair should be tied back.

Site specific PPE ensembles and materials are identified within task specific JSAs located within **Appendix A**, and any upgrades or downgrades of the level of protection (i.e., not specified in the JSA) must be approved by the PP and immediately communicated to all Roux personnel and subcontractors as applicable. PPE is used in accordance with manufacturer's recommendations.

8.5.1 Hearing Conservation

Hearing protection is made available when noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 dBA. Hearing protection is required when the 8-hour time weighted average sound level > 85 dBA, or when noise levels exceed 140 dBA at any point or exceeds 115 dBA for at least 15 minutes. Where noise exposure meets or exceeds this level, noise is listed as a physical hazard in the JSA for the tasks/operation, and hearing protection is included as one of the control measures (PPE).

8.6 Monitoring

An air monitoring program is important to the safety of on- and off-Site personnel, and the surrounding area. A preliminary survey, to establish background conditions in the immediate sampling area, may be made prior to the initiation of Site work including, but not limited to, monitoring wind direction (e.g., wind socks) and approximate temperature during all invasive Site activities. This survey will be conducted with the appropriate pre-calibrated air monitoring instrument(s), as warranted by the field activity. Once this survey has been complete, any changes in the type of PPE will be determined and relayed to those working on Site.

Work zone air monitoring will be performed to verify that the proper level of PPE is used, and to determine if increased protection or work stoppage is required. The following equipment shall be used to monitor conditions:

- A Photoionization Detector (PID) with a lamp energy of 10.6 eV will be used to provide direct readings of organic vapor concentrations during intrusive activities to determine that personnel protection is adequate. Concentrations shall be recorded during intrusive activities with the potential to encounter contaminant vapors.

Personal exposure monitoring utilizing activated charcoal tubes may be considered based on whether or not the area sample results are at or above half of the PEL. The decision to perform the monitoring will be made by, and under the control of, the CHSD.

Below are monitoring action levels for Site-specific chemicals of concern. In the event PID readings above the thresholds identified below are sustained for 5 minutes in the breathing zone, worker protection will require upgrading following notification to the OHSM and applicable parties.

8.6.1 Action Levels for Air Monitoring

PPE can remain at Level D if breathing zone VOC concentrations are less than 5 ppm and benzene is non detect. Personnel are required to evacuate the Site when breathing zone VOC readings exceed 25 ppm.

The following tables include summaries of the air monitoring, work practices, and action levels for the expected contaminants. The action levels to initiate testing with colorimetric tubes for airborne volatiles is 1 ppm (PID reading) and is based on the Permissible Exposure Limit (PEL) for benzene (1 ppm). The colorimetric tubes are used to confirm the presence or absence of specific constituents, and they do not provide a measured concentration.

PPE can remain at Level D if breathing zone VOC concentrations are less than 5 ppm. Personnel are required to evacuate the Site when breathing zone VOC readings exceed 25 ppm.

The following tables include summaries of the air monitoring, work practices, and action levels for the expected contaminants.

Air Monitoring Summary and Action Levels Organic Vapors	
PID Reading in Breathing Zone (ppm)	**Action**
0-1 ppm	Continue monitoring
>1-5 ppm sustained 60 seconds	Continue monitoring
<5 ppm	Continue Monitoring, ventilate space
≥ 5 ppm - ≤ 25 ppm	Ventilate space until PID reads < 5 ppm. If < 5 ppm cannot be achieved, upgrade to Level C[1].
≥ 25 ppm	Ventilate space and evacuate area. Consult with CHSD.

Background concentrations should be established at the beginning of each work day. It may be necessary to re-establish background concentrations and ambient conditions vary through the day.

1 Measured air concentrations of known organic vapors will be reduced by the respirator to one half of the PEL or lower, and the individual and combined compound concentrations shall be within the service limit of the respirator cartridge.

Air Monitoring Summary and Action Levels Oxygen	
O_2 Reading in Breathing Zone (%)[1]	**Action**
20.9% O_2	Oxygen level normal
< 19.5% O_2	Oxygen deficient Interrupt task/Evacuate area
>23.5% O_2	Oxygen enriched Interrupt task/Evacuate area

1. Action levels based on USEPA Standard Operating Safety Guides; Table 5-1

Air Monitoring Summary and Action Levels Carbon Monoxide	
CO Reading in Breathing Zone (ppm)[1]	**Action**
<12.5 ppm	Inspect exhaust system for leaks or other sources of CO. Monitor initially and every 15 minutes during use of CO-generating equipment.
12.5-25 ppm	Ventilate area. Monitor continuously and record measurements. Contact PM.
>25 ppm	Cease Field Operations. Ventilate area.

1. Based upon the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) of 25 ppm as an 8-hour time weighted average (TWA) and OSHA's Permissible Exposure Limit (PEL) of 50 ppm as an 8-hour TWA concentration.

Air Monitoring Summary and Action Levels Combustible Gases	
Lower Explosive Limit (LEL) Reading	**Action**
< 4% LEL	Site activities will continue with normal monitoring
4% – 20% LEL	Stop work until levels dissipate to <4% LEL
> 20% LEL	Potential explosion hazard. Halt all site activities, research source of release, aerate work area, suppress source.
Air Monitoring Summary and Action Levels Hydrogen Sulfide	
Hydrogen Sulfide (H_2S) Reading	**Action**
<10 ppm	Site activities will continue with normal monitoring
≥10 ppm	Stop work until levels dissipate to <10 ppm; use mechanical ventilation if possible. Consult with CHSD if unable to reduce concentrations below 10 ppm.

8.6.2 Air Monitoring Equipment and Calibration

A PID calibrated to an appropriate calibration mixture will be used to detect organic vapors in and around the work areas. Monitoring will be conducted in and around all work areas and at the workers breathing zone before activities commence to establish a background level, then at 15-minute intervals throughout the day. All equipment will be calibrated according to the manufacturer's recommendation. A calibration log will be maintained and will include the name of the person who performed the calibration, the date and time calibrated, and the instrument reading at the time of calibration. A manual bellows pump or equivalent with colorimetric tubes for specific compounds will be utilized to determine the course of action related to upgrading or downgrading the level of respiratory protection, as applicable.

If air monitoring data indicate safe levels of potentially harmful constituents at consistent intervals (5-minute intervals), then monitoring can be conducted less frequently (every 30 minutes). This determination will be made by the onsite SHSO. Monitoring data, including background readings and calibration records, will be documented. Work to be performed on-Site will conform to Roux's Standard Operating Procedures (SOPs). Conformance with these guidelines as well as the guidelines described in this HASP will aid in mitigating the physical and chemical hazards mentioned throughout this HASP.

8.7 Tailgate Safety Meetings

A designated Site worker will provide daily safety briefings (e.g., tailgate meetings) including, but not limited to, the following scenarios:

- When new operations are to be conducted;
- Whenever changes in work practices must be implemented; and
- When new conditions are identified and/or information becomes available.

Daily safety briefings shall be recorded on the Roux Daily Tailgate Health and Safety Meeting Log/Daily Site Safety Checklist, and all completed forms will become a part of the project file.

8.8 Spill Containment

Spill containment equipment and procedures should, at a minimum, meet the requirements of the facility's Spill Prevention, Control and Countermeasure Plan, if applicable. Otherwise, spill containment equipment and procedures must be considered depending on the task, including, but not limited to, chemical/product transfer points and handling.

8.8.1 Initial Spill Notification and Response

Any worker who discovers a hazardous substance spill will immediately notify the SHSO. The worker will, to his/her best ability, report the hazardous substance involved, the location of the spill, the estimated quantity of material spilled, the direction/flow of the spill material, related fire/explosion incidents, and any associated injuries without compromising their own safety.

8.8.2 Spill Evaluation and Response

The SHSO is responsible for evaluating spills and determining the appropriate response. When this evaluation is being made, the spill area will be isolated and demarcated to the extent possible. If necessary to protect nearby community members, notification of the appropriate authorities is made by the PM as appropriate. On-Site response is limited to small spills (e.g., <10 gallons); large spills require external emergency responders who will be contacted by the SHSO.

8.9 Decontamination

The decontamination section of the HASP describes how personnel and equipment are decontaminated when they leave the Exclusion Zone. This section also describes how residual waste from decontamination processes is disposed. The site decontamination procedures are designed to achieve an orderly, controlled removal or neutralization of contaminants that may accumulate on personnel or equipment. These procedures minimize worker contact with contaminants and protect against the transfer of contaminants to clean areas of the site and off-site. They also extend the useful life of PPE by reducing the amount of time that contaminants contact and can permeate PPE surfaces. Decontamination is facilitated within the CRZ at this site, if applicable.

8.9.1 Decontamination Procedures for Personnel and PPE

The following are general decontamination procedures established and implemented at this site.

1. Decontamination is required for all workers exiting a contaminated area. Personnel may re-enter the SZ only after undergoing the decontamination procedures described below in the next section.
2. Protective clothing is decontaminated, cleaned, laundered, maintained and/or replaced as needed to ensure its effectiveness.
3. PPE used at this site that requires maintenance or parts replacement is decontaminated prior to repairs, or
4. PPE used at this site is decontaminated or prepared for disposal on the premises. Personnel who handle contaminated equipment have been trained in the proper means to do so to avoid hazardous exposure.
5. This site uses an off-site laundry for decontamination of PPE. The site has informed that facility of the hazards associated with contaminated PPE from this site.
6. The site requires and trains workers that if their permeable clothing is splashed or becomes wetted with a hazardous substance, they will immediately exit the work zone, perform applicable decontamination procedures, shower, and change into uncontaminated clothing.

7. Procedures for disposal of decontamination waste meet applicable local, State, and Federal regulations.

8.9.2 Decontamination Procedures for Equipment

All tools, equipment, and machinery from the EZ or CRZ are decontaminated in the CRZ prior to removal to the SZ. Equipment decontamination procedures are designed to minimize the potential for hazardous skin or inhalation exposure and to avoid cross-contamination and chemical incompatibilities.

General Equipment Decontamination Procedures:

1. Decontamination is required for all equipment exiting a contaminated area. Equipment may re-enter the SZ only after undergoing the equipment decontamination procedures.
2. Vehicles that travel regularly between the contaminated and clean areas of the site are carefully decontaminated each time they exit the EZ and the effectiveness of that decontamination is monitored to reduce the likelihood that contamination will be spread to other parts of the site.
3. Particular attention is given to decontaminating tires, scoops, and other parts of heavy equipment that are directly exposed to contaminants and contaminated soil.
4. Procedures for disposal of decontamination waste shall meet applicable local, State, and Federal regulations.

The following items may be used to decontaminate equipment:

- Fresh water rinse;
- Non-phosphorus detergent wash;
- Acetone rinse;
- Distilled water rinse; and
- A steam cleaner or pressure washer (heavy equipment only).

8.9.3 Monitoring the Effectiveness of Decontamination Procedures

Visual examination and sampling are used to evaluate the effectiveness of decontamination procedures. Visual examination is used to ensure that procedures are implemented as described and that they appear to control the spread of contaminants under changing site conditions. Visual examination is also used to inspect for signs of residual contamination or for contaminant permeation of PPE.

Personnel who work in contaminated areas of the site, either the Contamination Reduction Zone (CRZ) or the Exclusion Zone, are trained in the principles and practices of decontamination described in this section of the HASP and in related SOPs. If site procedures are changed as a result of inspection and monitoring, all affected employees are notified of these changes.

8.10 Confined Space Entry

Confined space entry will not be performed under the RI scope of work.

The following is a list of the safety requirements for confined space entry at the Site:

- **ROUX PERSONNEL ARE NOT AUTHORIZED TO ENTER AN OSHA PERMIT REQUIRED CONFINED SPACE;**

- Currently the scope of work **DOES NOT** require personnel to enter permitted confined space for this project; and
- Any changes to the field activities that may necessitate confined space entry will be reported to the Project Principal and OHSM.

Confined space is defined as any space, depression, or enclosure that:

- Has limited opening for entry and egress;
- Is large enough for and employee to enter and perform assigned work; and
- Is not intended for continuous occupancy.

A permit required confined space is one that meets the definition of a confined space and has one or more of the following characteristics:

- May contain or produce life-threatening atmospheres due to oxygen deficiency the presence of toxic, flammable, or corrosive contaminants;
- Contains a material that has the potential for engulfment;
- Has an internal configuration that may cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section; and
- Contains any other serious safety or health hazards.

Although Roux personnel will not perform confined space entry, it is expected that subcontractors performing cleaning and mitigation and/or remedial measures activities may be required to enter structures that are considered to be a permit required confined space. Permitting of the confined space as well as hazard mitigation for entry will be completed by the subcontractor in accordance with 29 CFR 1910.146 or 1926.1201-1213 and/or applicable local/client requirements.

8.11 Client and Site-Specific

In addition to the OSHA-specific procedures discussed above, there may be client and site-specific safety procedures that must be adhered to during the performance of remedial activities at the Site.

8.12 Unusual or Significant Risks

Field activities that appear to have unusual or significant risks that cannot be adequately managed with existing risk tools such as LMRAs, HASPs, traffic safety plans, work permits, design and O&M practices, equipment HAZOPS or other safety tools must be referred to the CHSD to help with the assessment and management of the associated potential safety risks. Examples include the use of explosives for demolition, use of firearms to control wildlife, rappelling, demolition over water, diving, etc.

8.13 Activity-Specific Hazards

In addition to the general hazards discussed above, there are activity-specific hazards associated with each work activity planned for the Site. An activity-specific JSA has been completed for each of the activities planned for the Site. JSAs are provided in **Appendix A**. In the event that new work activities or tasks are planned, JSAs will be developed and implemented prior to performing the new activities. In the absence of a JSA, the personnel performing work must prepare a field JSA and receive clearance from a designated competent safety official prior to performing any task with significant risk. In emergency situations where

time is critical, Risk Assessments (LMRAs) will be utilized to identify the task, associated hazards and mitigative actions to take. For lower risk activities (as deemed by the discretion of a Competent Person) where a JSA is determined to not be needed, the individual(s) conducting the activities must perform LMRAs prior to and during the work.

8.13.1 Electrical and Other Utility Assessment and Accommodations

Roux shall perform a site walk to identify any potential overhead electrical or utility lines. All applicable guidelines will be followed in the vicinity of overhead power and utility lines (see Section 8.13.3 below). Roux will review all available Site maps showing buried utility lines to identify potential hazards.

8.13.2 Subsurface Work

Subsurface work activities will require adherence to Roux's Corporate Subsurface Utility Clearance Management program found within Appendix E.

8.13.2.1 Excavations and Trenching

Trenching and excavation work activities carried out by Roux and their subcontractors shall comply with applicable OSHA standards (i.e., 29 CFR 1926.650-652). Regional Notification Centers (i.e., Underground Services Alert) shall be notified at least two working days prior to the start of any digging or excavation work per state requirements (i.e., 811-One Call). Personnel responsible for excavation activities will be trained in their job responsibilities. Additionally, for trenches 4 feet or deeper, where employees will enter, the trench needs to have a stairway, ladder or other safe means of egress, and located so that employees do not have to travel farther than 25 feet horizontally. Where employees will enter trenches greater than 5 feet deep, the trench must have some type of protective system or sloped sidewalls appropriately to prevent cave-ins.

The SHSO or other responsible Roux personnel will be present on-Site during all Roux contracted excavation and backfill operations and will supplement health and safety monitoring conducted by Subcontractor air quality screening to ensure that appropriate levels of protection and safety procedures are utilized. The proximity of chemical, water, sewer, and electrical lines will be identified by Roux and/or their subcontractor before any subsurface activity or sampling is attempted. Prior to any excavation activities, trees, shrubbery, and other objects that can potentially pose as a hazard during excavation should be supported or removed from the excavation area. The following safe work practices will be implemented during this task.

- The proximity of chemical, water, sewer, and electrical lines will be identified by a facility representative prior to beginning any subsurface activity;
- At the start of every day, a competent person will inspect excavations to evaluate if the area is stable and safe to enter. Inspections will be conducted as needed throughout the excavation operations. If deemed necessary, a competent person may also conduct inspections after rainfall or any other event that can potentially affect the integrity of the excavation. Employees will not enter excavations where water has accumulated until protective measures have been implemented.
- Prior to entering excavations greater than 4 feet in depth, air monitoring for oxygen and hazardous atmospheres must be conducted to assure atmospheric conditions are within normal levels described in Section 8.6. Continuous air monitoring with a standard multi-gas detector (O2, LEL%, CO, H2S) shall be used during the course of work within an excavation; if action limits are reached workers shall safely exit the excavation. Upgrades to worker protection should be evaluated with the SHSO and PP in consultation with the CHSD. Emergency rescue equipment, such as breathing

apparatuses and safety harnesses connected to an extraction device, will be readily available in the event of hazardous atmospheric conditions;

- While earthmoving, stay out of the excavator's delineated heavy equipment exclusion zone and away from the excavation sides where there is potential for cave in (within excavations that are 6 feet or more in depth, a delineated perimeter 6 feet away from the excavated edge is required);
- During loading and unloading operations, stand away from haul trucks and other vehicles to avoid contact with any falling loads; and
- Traffic cones, caution tape, or other barriers will be set up around the perimeter of the excavation when employees are working along the excavation edge and for any excavation that will be left open overnight or unattended for more than two days.

Maximum Allowable Slopes

Soil or Rock Type	Maximum Allowable Slopes (H:V)[1] for Excavations Less Than 20 Feet Deep[3]
Stable Rock	Vertical (90°)
Type A[2]	$^3/_4$: 1 (53°)
Type B	1 : 1 (45°)
Type C	1 $^1/_2$: 1 (34°)

29 CFR 1926 Subpart P Appendix B Sloping and Benching Table B-1

Notes:

[1] Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

[2] A short-term maximum allowable slope of $^1/_2$H : 1V (63°) is allowed in excavations in Type A soil that are 12 feet (3.67 meters) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 meters) in depth shall be $^3/_4$H : 1V (53°).

[3] Sloping or benching for excavations greater than 20 feet deep shall be designed and stamped by a registered professional engineer.

Proper stockpiling (i.e., 2 feet minimum distance from the excavation edge), containment, transport, storage, and disposal practices will be utilized and is dependent upon the potential type and amount of waste generated during operations. The location of safety equipment and evacuation procedures will be established prior to initiation of operations according to this HASP.

8.13.3 Heavy Equipment

Use of heavy equipment at the Site will require adherence to Roux's Corporate Heavy Equipment Exclusion Zone Management Program found within Appendix F. Additionally, operation of the drill rig/other heavy equipment will maintain clearances from overhead power lines in accordance with 29 CFR 1926.1408 Table A Minimum Clearance Distances provided below.

Minimum Required Clearances for Energized Overhead Power Lines

Nominal System Voltage of Power Line (K V)	Minimum Required Clearance (feet)
0-50	10
51-100	12
101-200	15
201-300	20
301-500	25
501-750	35
751-1000	45

1 kilovolt (KV) = 1,000 volts

8.14 Traffic Control

If Site operations encroach upon public streets or highways and a hazard exists to Site personnel because of traffic conditions, a traffic control plan will be implemented in accordance with the United States Department of Transportation's (DOT's) "Manual on Uniform Traffic Control Devices."

8.15 Sanitation

Sanitation facilities will be provided in accordance with the sanitation standards (29 CFR 1910.141, 29 CFR 1926.51 and 29 CFR 1928.110). Sanitation facilities will be maintained and kept in good conditions at all times.

9. Field Team Review

Each person performing work at or visiting this site shall sign this section after site-specific training is completed and before being permitted to access the CRZ or Exclusion Zone.

I have read and understand this Site-Specific Health and Safety Plan. I will comply with the provision contained therein.

Site/Project: Swan and Chicago Streets Site

Name & Company	Signature	Date

10. Approvals

By their signature, the undersigned certify that this HASP is approved and will be utilized at the Swan and Chicago Streets Site.

TBD – Site Health and Safety Officer	Date
Paul Werthman – Office Health and Safety Manager	Date
Bryan Mayback – Project Manager	Date
Michael Lesakowski – Project Principal	Date

TABLES

1. Toxicological Properties of Hazardous Substances Present at the Site

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
VOLATILE ORGANIC COMPOUNDS (VOCs)									
Acetone	67-64-1	TWA 250 ppm STEL 500 ppm	TWA 250 ppm (590 mg/m^3)	TWA 1000 ppm (2400 mg/m^3)	2500 ppm [10% LEL]	Inhalation, ingestion, skin and/or eye contact	irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a fragrant, mint-like odor BP: 133°F Fl.Pt. = 0°F LEL: 12.8% UEL: 2.5% Class IB Flammable liquid: Fl.P. below 73°F and BP at or above 100°F.
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)									
Benzo[a]anthracene	56-55-3	https://cameochemicals.noaa.gov/chemical/16171				Inhalation, injestion, skin and/or eye contact			Colorless leaflets or plates or coarse gold powder with a greenish-yellow fluorescence. May reasonably be expected to be a carcinogen. BP: 815° F at 760 mm Hg Fl.Pt. = NA LEL: NA UEL: NA
Benzo[a]pyrene (as coal tar pitch volatiles)	50-32-8	TWA 0.2 mg/m3 (as Benzene solubles)	Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m3 (benzene-soluble fraction) [1910.1002]	Ca [80 mg/m3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue BP: NA Fl.Pt. = NA LEL: NA UEL: NA Combustible Solids
Benzo[b]fluoranthene	205-99-2	None listed	https://cameochemicals.noaa.gov/chemical/16172			Inhalation, injestion, skin and/or eye contact			Needles or yellow fluffy powder BP: NA Fl.Pt. = NA LEL: NA UEL: NA
Benzo[g,h,i]perylene	191-24-2	https://cameochemicals.noaa.gov/chemical/16174				Inhalation, injestion, skin and/or eye contact	Inhalation of material may be harmful. Contact may cause burns to skin and eyes. Inhalation of Asbestos dust may have a damaging effect on the lungs. Fire may produce irritating, corrosive and/or toxic gases. Some liquids produce vapors that may cause dizziness or suffocation. Runoff from fire control may cause pollution.	Lungs, skin, eyes	Colorless to white crystalline solid. Water insoluble. BP: NA Fl.Pt. = NA LEL: NA UEL: NA
Benzo[k]fluoranthene	207-08-9	https://cameochemicals.noaa.gov/chemical/16173				Inhalation, injestion, skin and/or eye contact	When heated to decomposition this compound emits acrid smoke and irritating fumes.		Pale yellow needles or yellow crystalline solid BP: 896° F Fl.Pt. = NA LEL: NA UEL: NA
Chrysene (as coal tar pitch volatiles	218-01-9	TWA 0.2 mg/m3 (as Benzene solubles)	Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m3 (benzene-soluble fraction) [1910.1002]	Ca [80 mg/m3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue BP: NA Fl.Pt. = NA LEL: NA UEL: NA Combustible Solids
Dibenzo(a,h)anthracene	53-70-3	https://cameochemicals.noaa.gov/chemical/16192				Inhalation, injestion, skin and/or eye contact	Symptoms of exposure to this compound may include irritation. This compound is harmful if swallowed or inhaled. It may cause irritation. When heated to decomposition it emits acrid smoke, irritating fumes and toxic fumes of carbon monoxide and carbon dioxide.	Lungs	White crystals or pale yellow solid. Sublimes BP: 975° F Fl.Pt. = NA LEL: NA UEL: NA
Fluoranthene	206-44-0	https://cameochemicals.noaa.gov/chemical/16213				Inhalation, injestion, skin and/or eye contact	When heated to decomposition this compound emits acrid smoke and fumes.		Light yellow fine crystals BP: 482° F Fl.Pt. = NA LEL: NA UEL: NA
Indeno[1,2,3-cd]pyrene	193-39-5	https://cameochemicals.noaa.gov/chemical/16218				Inhalation, injestion, skin and/or eye contact			Yellow crystals BP: 997° F Fl.Pt. = NA LEL: NA UEL: NA
Phenanthrene	85-01-8	https://cameochemicals.noaa.gov/chemical/16236				Inhalation, injestion, skin and/or eye contact	Symptoms following exposure to this compound may include skin sensitization, dermatitis, bronchitis, cough, dyspnea, respiratory neoplasm, kidney neoplasm, skin irritation, and respiratory irritation.	Skin, respiratory tract	Colorless monoclinic crystals with a faint aromatic odor. Solutions exhibit a blue fluorescence. BP: 642° F Fl.Pt. = 340° F LEL: NA UEL: NA
Pyrene (see coal tar pitch volatiles)	129-00-0	TWA 0.2 mg/m3 (as Benzene solubles)	Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m3 (benzene-soluble fraction) [1910.1002]	Ca [80 mg/m3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue BP: NA Fl.Pt. = NA LEL: NA UEL: NA Combustible Solids
METALS									

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Arsenic	7440-38-2	TWA 0.01 mg/m3	Ca C 0.002 mg/m3 [15-minute]	[1910.1018] TWA 0.010 mg/m3	Ca [5 mg/m3 (as As)]	Inhalation, skin absorption, skin and/or eye contact, ingestion	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin, [potential occupational carcinogen]	Liver, kidneys, skin, lungs, lymphatic system	Metal: Silver-gray or tin-white, brittle, odorless solid BP: Sublimes Fl.Pt. = NA LEL: NA UEL: NA Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame
Barium	7440-39-3	TWA 0.5 mg/m3	0.5 mg Ba/m3 TWA	0.5 mg Ba/m3 TWA	50 mg Ba/m3	Inhalation, ingestion, skin and/or eye contact	Inhalation or contact with vapors, substance or decomposition products may cause severe injury or death. Contact may cause burns to skin, eyes, and mucous membranes. May be toxic by ingestion, inhalation and skin absorption. Used to make other chemicals.	Lungs, skin, eyes, and mucous membrane	A silver to white metallic solid BP: 1337°F Fl.Pt. = NA LEL: NA UEL: NA
Cadmium	7440-43-9	TWA 0.01 mg/m^3 total dust TWA 0.002 mg/m^3 (as Cd) respirable fraction	Ca	TWA 0.005 mg/m^3	Ca [9 mg/m3 (as Cd)]	Inhalation, ingestion	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]	Respiratory system, kidneys, prostate, blood	Silver-white/blue tinged lustrous, odorless solid. BP: 1409°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible - will burn in powder form
Chromium	7440-47-3	TWA 0.5 mg/m^3 (metal) TWA 0.003 mg/m^3 (water-soluble Cr III compounds) TWA 0.0002 mg/m^3 (water-soluble Cr VI compounds) STEL 0.0005 mg/m3 (water-soluble Cr VI compounds)	TWA 0.5 mg/m^3	TWA 1 mg/m^3	250 mg/m^3 (as Cr)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; lung fibrosis (histologic)	Eyes, skin, respiratory system	Blue-white to steel-gray, lustrous, brittle, hard, odorless solid. BP: 4788°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible - will burn in dust form if heated in a flame
Lead	7439-92-1	TWA 0.05 mg/m3	TWA (8-hour) 0.050 mg/m3	[1910.1025] TWA 0.050 mg/m3	100 mg/m3 (as Pb)	Inhalation, ingestion, skin and/or eye contact	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension	Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue	A heavy, ductile, soft, gray solid BP: 3164°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid in bulk form
Mercury	7439-97-6	TWA 0.1 mg/m3, as Hg Aryl compounds TWA 0.025 mg/m3 as Hg, inorganic forms including metallic mercury	Hg Vapor: TWA 0.05 mg/m3 [skin] Other: C 0.1 mg/m3 [skin]	TWA 0.1 mg/m3	10 mg/m3 (as Hg)	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria	Eyes, skin, respiratory system, central nervous system, kidneys	Metal: Silver-white, heavy, odorless liquid. [Note: "Other" Hg compounds include all inorganic & aryl Hg compounds except (organo) alkyls.] BP: 674°F Fl.Pt. = NA LEL: NA UEL: NA Metal: Noncombustible Liquid

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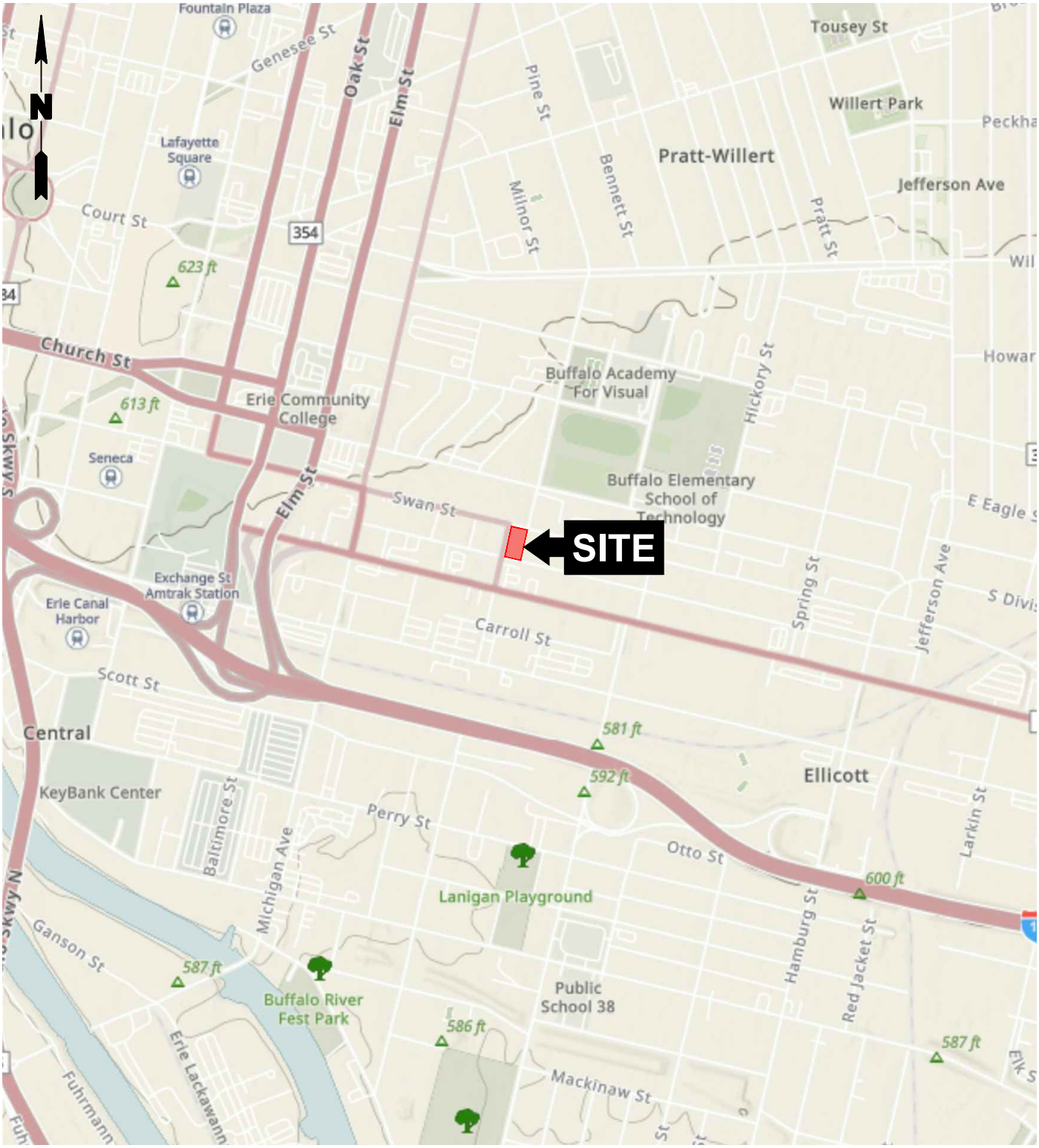
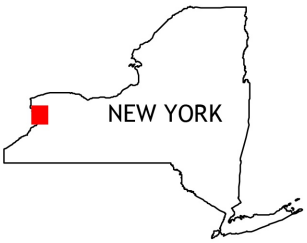
Abbreviations:

ACGIH – American Conference of Governmental Industrial Hygienists.
BP – boiling point at 1 atmosphere, °F
C – Ceiling, is a concentration that should not be exceeded during and part of the working exposure.
Ca – Carcinogenic.
CAS# - Chemical Abstracts Service registry number which is unique for each chemical.
DSEN - Dermal Sensitization
Ft Pt. – Flash point
IDLH - Immediately Dangerous to Life and Health concentrations represent the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.
LEL – Lower explosive (flammable) limit in air, % by volume (at room temperature)
mg/m^3 – Milligrams of substance per cubic meter of air
NIOSH - National Institute for Occupational Safety and Health.
OSHA – Occupational Safety and Health Administration
OTO - Ototoxicant
PEL - OSHA Permissible Exposure Limit (usually) a time weighted average concentration that must not be exceeded during any 8 hour work shift of a 40 hr work week.
ppm – parts per million
REL – NIOSH Recommended Limit indicated a time weighted average concentration that must not be exceeded during any 10 hour work shift of a 40 hr work week
RSEN - Respiratory Sensitization
SG - Specific Gravity
STEL – ACGIH Short-term exposure limit (ST)
TLV - ACGIH Threshold Limit Values (usually 8 hour time weighted average concentrations).
TWA – 8-hour, time-weighted average
UEL – Upper explosive (flammable) limit in air, % by volume (at room temperature)
VP - Vapor Pressure

FIGURES

1. Site Location and Vicinity Map
2. Site Plan with Emergency Muster Area
3. Route to Hospital





BUFFALO NE QUADRANGLE
NEW YORK - ERIE COUNTY
7.5-MINUTE SERIES

1000' 0 1000'

Title: **SITE LOCATION AND VICINITY MAP**

SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

HEALTH AND SAFETY PLAN

Prepared for:

SWAN CHICAGO LLC

ROUX

Compiled by: CMS	Date: JULY 2026	FIGURE
Prepared by: CMS/CNK	Scale: AS SHOWN	1
Project Mgr: BWM	Project: 5143.0001B000	
File: FIGURE 1; SITE LOCATION AND VICINITY MAP.DWG		

F:\CAD\0-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\RIWP\HASP\FIGURE 1; SITE LOCATION AND VICINITY MAP.DWG

MAP PER GOOGLE EARTH, JUNE 2024.

LEGEND:

BCP SITE BOUNDARY

PARCEL BOUNDARY

30' 0 30'

Title: **SITE PLAN WITH EMERGENCY MUSTER AREA**

SWAN AND CHICAGO STREETS SITE
BUFFALO, NEW YORK

HEALTH AND SAFETY PLAN

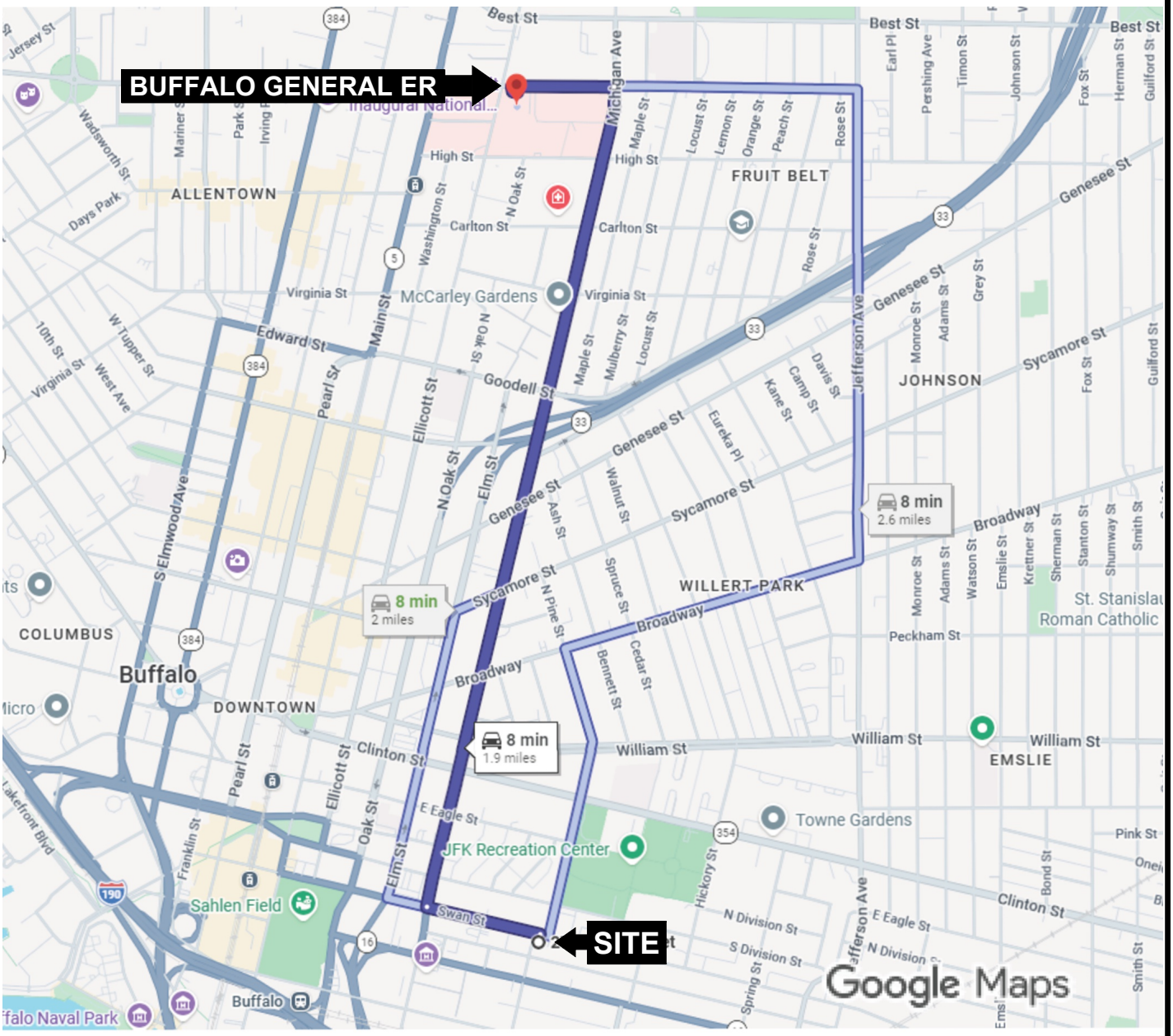
Prepared for:

SWAN CHICAGO LLC

ROUX

Compiled by: CNK	Date: AUGUST 2026	FIGURE
Prepared by: CNK	Scale: AS SHOWN	2
Project Mgr: BWM	Project: 5143.0001B000	
File: FIGURE 2; SITE PLAN WITH EMERGENCY MUSTER AREA.DWG		

F:\CAD\0-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\RIWP\HASP\FIGURE 2; SITE PLAN WITH EMERGENCY MUSTER AREA.DWG



ROUTE TO BUFFALO GENERAL EMERGENCY ROOM:

1. HEAD WEST ON SWAN STREET.
2. TURN RIGHT ONTO MICHIGAN AVENUE.
3. TURN LEFT ONTO EAST NORTH STREET.
4. TURN LEFT INTO EMERGENCY ROOM DROP–OFF AREA.

N

1,500' 0 1,500'

Title:

ROUTE TO HOSPITAL

SWAN AND CHICAGO STREETS SITE BUFFALO, NEW YORK

HEALTH AND SAFETY PLAN

Prepared for:

SWAN CHICAGO LLC

ROUX

Compiled by: CNK	Date: AUGUST 2026	FIGURE
Prepared by: CNK	Scale: AS SHOWN	3
Project Mgr: BWM	Project: 5143.0001B000	
File: FIGURE 3; ROUTE TO HOSPITAL.DWG		

F:\CAD\0-ROUX\DRAGHI BURGOS CONSTRUCTION\SWAN AND CHICAGO STREETS SITE\R\WP\HASP\FIGURE 3; ROUTE TO HOSPITAL.DWG

APPENDICES

APPENDIX A

Job Safety Analysis Forms

JOB SAFETY ANALYSIS	Ctrl. No. GEN-006	DATE 11/13/25	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY:	WORK TYPE:	WORK ACTIVITY (Description):
Generic	**Drilling**	**Direct Push Soil Borings / Well Installation**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION: (as needed) ☒ SAFETY SHOES: Composite-toe or steel-toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing, long-sleeved shirt	☒ GLOVES: Nitrile and cut-resistant ☒ OTHER: Insect Repellant, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Geoprobe or Truck-Mounted Direct Push Drill Rig, Hand Tools, Photoionization Detector, Multi-Gas Meter (or equivalent), Macrocore liners, Liner Opening Tool, 20 lb. Type ABC Fire Extinguisher, 42" Cones & traffic control paddles, "Work Area" Signs, Water.

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs

EXCLUSION ZONE (EZ): Maintain a Minimum Heavy Equipment Exclusion Zone around equipment and loads while in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, the tip zone of the equipment, the fall zone of the equipment, and the contents.

"SHOW ME YOUR HANDS"

The driller and helper should show that their hands are clear of controls and moving parts.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilization of drilling rig (ensure the Subsurface Clearance Protocol and Drill Rig Checklist are completed)	**1a. CONTACT:** Equipment/property damage.	1a. The drill rig's tower/derrick will be lowered and secured before mobilization. 1a. A spotter should be utilized while moving the drill rig. If personnel move into the path of the drill rig, the drill rig will be stopped until the path is again clear. Use a spotter for all required backing operations. 1a. Set up the work area and position equipment to eliminate or reduce the need for backing support trucks and trailers. 1a. When backing up the truck rig with an attached trailer, use a second spotter if there is tight clearance simultaneously on multiple sides of the equipment or if turning angles limit driver visibility.
Secure Work Zone		1a. Inspect the driving path for uneven terrain. Level or avoid if needed. 1a. Ensure the work area is secure and inform others of work activity. Establish a HEEZ using traffic cones, barrels & snow fencing or telescoping poles. Use flag persons to maintain clear traffic and minimize motorist confusion during set-up. HEEZ is to include the tip/swing radius of the equipment.
	1b. FALL: Slip/trip/fall hazards.	1b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions before mobilizing equipment. 1b. Do not climb over stored materials/equipment; walk around. Practice good housekeeping. 1b. Use established pathways and walk on stable, secure ground.
	1c. CONTACT: Crushing from a rollover.	1c Geoprobe should cross all hills/obstructions head-on with the mast down to reduce the risk of rollover.
2. Raising the tower/derrick of the drill rig	**2a. CONTACT:** Overhead hazards.	2a. Before raising the tower/derrick, the area above the drilling rig will be inspected for wires, tree limbs, piping, or other structures that could come in contact with the rig's tower and/or drilling rods or tools. 2a. Maintain a minimum safe distance of 10' from overhead lines, material, or structures.
	2b. CONTACT: Pinch Points/Amputation Points when raising the rig, and the instability of the rig	2b. Inspect the equipment before use and avoid pinch/amputation points. 2b. Lower outriggers to ensure stability before raising the rig tower/derrick. 2b. If the rig needs to be mounted, use three points of contact.
3. Advancement of drilling equipment and sound installation	**3a. CONTACT:** Flying debris	3a. Be aware of and avoid potential line-of-fire hazards and wear required PPE such as eye, ear, and hand protection.
	3b. EXPOSURE: Noise and dust.	3b. Wet borehole area with sprayer to minimize dust. 3b. Stand upwind and keep your body away from the rig. 3b. If conditions warrant, a disposable dust mask (e.g., N95/P100) should be worn. 3b. Wear hearing protection when the drill rig is in operation.

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.
[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards; Energy Source – electricity, pressure, compression/tension.
[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Advancement of drilling equipment and well installation (Continued)	**3c. FALL:** Slip/trip/fall hazards.	3c. Contain drill cuttings and drilling water to prevent fall hazards from developing in the work area. 3c. See 1b.
	3d. CAUGHT: Limb/extremity pinching; abrasion/crushing.	3d. Ensure all Emergency Safety Stop buttons function properly. 3d. Always wear leather gloves when making connections and using hand tools; wear cut-resistant (i.e., Kevlar) gloves when handling cutting tools. 3d. Inspect the equipment prior to use for potential pinch/amputation points. Keep hands away from pinch/amputation points, and the use of tools is preferable compared to fingers and hands. 3d. Inspect the drill head for worn surface or missing teeth; replace it if damaged or blunt. 3d. Ensure all jewelry is removed, loose clothing is secured, and PPE is correctly fitted and secured close to the body. 3d. All non-essential personnel should stay away from the immediate work area; position the body out of the line-of-fire of equipment. 3d. Drillers and helpers will understand and use the "Show Me Your Hands" Policy. 3d. Spinning rods/casing have an **exclusion zone of 24 inches** while in operation.
	3e. CONTACT: Equipment imbalance during the advancement of drill equipment.	3e. Drillers will advance the borehole with caution to avoid causing the rig to become imbalanced and/or tip. 3e. The blocking and leveling devices used to secure the rig will be inspected by drillers and Roux personnel regularly to see if shifting has occurred. 3e. In addition, personnel and equipment that are non-essential to the advancement of the borehole will be positioned away from the rig at a distance that is at least as far as the boom is high (**minimum exclusion zone**).
	3f. EXPOSURE: Inhalation of contamination/vapors.	3f. Monitor ambient air for dangerous conditions using a calibrated photoionization detector (PID) to monitor the breathing zone of the work area. 3f. If a reading of >5ppm is recorded, the Roux field personnel must temporarily cease work, instruct all Site personnel to step away from the area of elevated readings, and inform the Roux PM of the condition. The Roux PM will then recommend additional precautions in accordance with the site-specific health and safety plan. 3f. Use a multi-gas meter to monitor ambient air for dangerous conditions (i.e., unsafe levels of carbon monoxide when drilling indoors or the presence of explosive vapors).
	3g. EXERTION: Potential for muscle strain/injury while lifting and installing well casings, lifting sand bags, and/or lifting rods.	3g. Keep your back straight and bend at the knees. 3g. Utilize team lifting or mechanical means for objects over 40 lbs. 3g. Use a mechanical lifting device for odd-shaped objects.
4. Remove the sample liner.	**4a. EXERTION:** Potential for muscle strain/injury while removing the liner from the probe rod.	4a Utilize team lifting or mechanical means for objects over 40 lbs. 4a. Use the hydraulic liner extruder if available.
	4b. CONTACT: Pinch points and cuts	4b. Place the liner on the sturdy surface when opening. 4b. Don cut-resistant gloves and use an appropriate liner cutter when opening liners. 4b. Always cut away from the body.
	4c. EXPOSURE: Inhalation and/or dermal contact with contaminants.	4c. Wear chemical-resistant disposable gloves when handling liners. 4c. See 3f.

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[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards; Energy Source – electricity, pressure, compression/tension.
[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
5. Decontaminate equipment.	**5a. EXPOSURE/CONTACT**: To contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, vapors). **5b. EXPOSURE:** The chemicals in the cleaning solution.	5a. Wear chemical-resistant disposable gloves and safety glasses. 5a. Contain decontamination water so that it does not spill. 5a. Use an absorbent pad to clean spills, if necessary. 5a. Spray equipment from a side angle, not straight on, to avoid backsplash. 5a. See 3b and 3f. 5b. See 4a. Review the SDS to ensure appropriate precautions are taken and understood.

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.
[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards; Energy Source – electricity, pressure, compression/tension.
[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

JOB SAFETY ANALYSIS	Ctrl. No. GEN-007	DATE 05/22/2025	☐ NEW ☒ REVISED	PAGE 1 of 2
JSA TYPE CATEGORY **GENERIC**	WORK TYPE **General Site Activity**	WORK ACTIVITY (Description) **Driving**		

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☐ HARD HAT: when outside vehicle ☐ LIFELINE / BODY HARNESS ☐ SAFETY GLASSES: when outside vehicle	☐ GOGGLES ☐ FACE SHIELD ☐ HEARING PROTECTION ☐ SAFETY TOE BOOTS: when outside vehicle	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☐ PPE CLOTHING: high visibility vest when outside vehicle	☐ GLOVES: Leather/ cut-resistant level 2 ☐ OTHER _____

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Motor Vehicle (i.e., car, truck, SUV)

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Driving to/leaving the Site	**1a. CONTACT:** Severe injury/disability, property damage, monetary loss (insurance premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc. *Common factors that may lead to a CONTACT incident, but not limited to: • distracted driving (cell phone, GPS, radio, billboards, "rubbernecking") • lack of situational awareness • unfamiliarity with traffic patterns/road layout • weather conditions (wet/icy roads, hydroplaning, black ice) • weariness • high speeds • obstructed vision (solar glare, debris on windshield, blind spots, large vehicle at the front) • changes in travel pathway (construction, snow banks, non-operational signals, potholes, detours, special events) • improper vehicle maintenance (non-operational signal light, worn tires, cracked windshield, ineffective wipers) • loose or unsecure objects	1a. PLAN AHEAD – review/make yourself familiar with maps and driving directions before beginning the drive to the Site. Do not attempt to drive and review maps/directions at the same time. Pull over and stop your vehicle before looking at maps/directions. 1a. If a Roux vehicle or a Roux-rented vehicle, complete a vehicle inspection form. If a personal vehicle, complete a basic 360 vehicle inspection before driving. Verify Inspection and Registration are current, tires and wipers are in good condition, all lights are functional, all glass/mirrors are undamaged, the horn is functional, roof/hood/trunk are free from accumulated snow, and visibility is not impaired due to snow/ice/frost/fog on windows. 1a. Do not hang items in the car that can obstruct your view or become projectiles in a collision. 1a. Do not get distracted using touch screen radios or GPS units built into newer models. Keep your eyes on the road and stay alert. 1a. Follow posted speed limits and obey traffic signals and roadway signs. 1a. Always wear your seat belt and shoulder harness when driving. 1a. When driving around large vehicles and trucks, maintain extra space as these vehicles may not be able to see a smaller car too close. 1a. Follow the "Rules of the Road," including: using your turn signals, coming to a complete stop, and allowing vehicles the right of way (yield) when required by traffic laws. 1a. Apply the Smith Five Keys® of safe driving • Aim High in Steering® - Expand eye lead time to a minimum of 15 seconds • Get the Big Picture® - Maintain a proper 4-second minimum following distance at all times - Scan mirrors every 5-8 seconds to achieve a circle of awareness - Position your vehicle so you can see relevant/non-relevant objects • Keep Your Eyes Moving® - Try to maintain about 180 degrees of visibility - Avoid blank and fixed stares. Avoid focusing on one object for more than 2 seconds • Leave Yourself an Out® - Avoid traveling in traffic clusters - Surround yourself with space - Anticipate the actions of others

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Driving to/leaving Site (cont'd)	**1a. CONTACT:** Severe injury/disability, property damage, monetary loss (insurance premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc.	• Make Sure They See You® - Maintain eye contact with oncoming vehicles/pedestrians - Use warning devices (e.g., hand signals, high-lights, horns, etc.) - Proper timing is essential 1a. Do not perform reconnaissance or inspections while driving. Your vehicle should be parked in a safe location when viewing or surveying the Site and vicinity 1a. Avoid sudden turns and stops. Do not drive recklessly – be in control of the vehicle at all times. 1a. In inclement weather, first determine if work can be POSTPONED. Otherwise, plan according to weather conditions, including checking the forecast along the entirety of the travel route (especially for long distances). Reduce speed as road conditions warrant. Travelling with winter car equipment in the winter is strongly recommended (i.e., shovel, scraper, brush, blanket, extra clothing, flashlight, bag of sand). If your vehicle has 4-wheel drive, review the operator's manual and understand the operating procedure prior to engaging 4-wheel drive. If at any point on your drive, the weather becomes too severe to proceed safely, pull over if safe to do so or seek nearest cover (e.g., overpass) 1a. If feeling drowsy or sleepy, do not drive. Pull over in a safe place to rest if you experience any signs of drowsiness. Make sure to get adequate sleep the night before an early drive. 1a. Never operate a vehicle under the influence of alcohol, illegal substances, or medications affecting your performance. 1a. Keep your eyes on the road. Do not call, text, or talk on cellular phones. Pull over to a safe location if you must answer or make a call. 1a. When parking, pull through when possible. If backing is required, visually inspect the area to ensure it is free from obstructions prior to backing in and relying solely on mirrors; use spotters when available.
2. Entering/Exiting Vehicle.	**2a. CAUGHT:** Personal injury (broken fingers/hand) while entering or exiting vehicles **2b. FALL:** Personal injury (twisted ankle, deep contusion, concussion, broken wrist/arm, etc.) from a slip/fall on an uneven, unstable, or slippery surface while exiting/entering the vehicle **2c. CONTACT:** Severe injury/disability, property damage, monetary loss (insurance premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc.	2a. Open and close doors slowly. Never put hands or feet in between the door and the vehicle to avoid pinch points. 2b. When exiting the vehicle, make sure your feet are on firm footing and weight is evenly distributed before exiting/standing. In inclement weather, use your hands to support yourself by holding the car door and/or steering wheel when exiting the vehicle. 2c. Check both directions for traffic before opening the door. Do not exit the vehicle if traffic does not permit you to exit safely 2c. Check the anticipated path of the door prior to opening. Do not open the door into any obstructions (e.g., bollards, high curbs)

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-009	DATE: 05/23/2025	☐ NEW ☒ REVISED	PAGE 1 of 1

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**O&M**	**Movement of 55-Gallon Drums/Drum Handling with Mobile Carrier**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Cut-resistant gloves level II
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER:
☐ LIFELINE / BODY HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent long-sleeve shirt or shirt and reflective safety vest.	
☒ SAFETY GLASSES	☒ SAFETY SHOES: Steel or composite toe		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Mobile Drum Carrier, over-pack drum container, safety cones, and caution tape

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Preparing for an Inspection of the Drum	**1a. FALL:** Tripping/falling due to uneven surface. Loose debris/garbage in the work area.	1a. Clear the area of loose garbage and debris. Inspect 55-gal drums for proper condition, labeling, check drum ring and bolts for tightness, and inspect mobile drum carrier. 1a. Do a Test Lift to get a general sense of the weight of the drum. 1a. Inspect and use established pathways to avoid uneven terrain, weather-related hazards (i.e., debris, puddles, ice, etc.), and other obstructions. 1a. Secure a work area and coordinate and communicate the planned work activities with other personnel working in the area. 1a. Delineate work area with safety cones and caution tape
	1b. CONTACT/EXPOSURE: Drums could potentially be damaged or contain hazardous material. A mobile drum carrier could potentially be in poor working condition, causing malfunctioning during operation.	1b. Prior to inspecting drums, don cut-resistant gloves. If the drum is not properly labeled, do not open it and cease all drum transport activities. Immediately contact the project manager and inform him/her of the drum situation. 1b. Do not continue drum transport activities until the project manager determines further actions. 1b. If the drum is properly labeled, but leaking, improperly sealed, or in poor condition, place the drum in an overpack drum. 1b. Inspect the mobile drum carrier to ensure its overall integrity. Look for rust marks or potential weak points where the drum carrier could malfunction. Inspect the wheels to ensure that they easily turn and nothing is impeding their movement.
	1c. EXERTION/CAUGHT: Potential pinching/exertion hazards while securing the ring/ tightening bolts	1c. Keep back straight and knees slightly bent while securing the drum ring/tightening bolt. Wear cut-resistant gloves.
2. Position the drum clamp tightly in between the drum ribs, securing the drum clamp to the drum with the chain	**2a. CAUGHT:** Pinching fingers between the drum clamp and the handle/chain.	2a. Attach drum clamp with chain and tighten until snug. Do not place hands between the drum clamp and the drum as the chain is tightened; wear cut-resistant gloves. Keep face away from the drum when handling in case of escaping vapors.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Disengage safety latches on handle, pull handle down until drum is lifted off the ground, and safety latches are reengaged; slightly suspend drum off the ground	**3a. EXERTION/ CONTACT:** Potential muscle strain associated with lifting/engaging the drum/handle. The drum could shift/slip downward and crush toes.	3a. Ascertain whether the drum is overweight; if it is, then two people are needed to lower the handle while the drum is secured with the clamp so that safety latches can be engaged. Keep body out of the line-of-fire of the handle (do not position the head above the handle) as it is being pushed down. Do not allow feet/toes to be positioned under the drum as it is being lifted; wear steel/composite-toed boots.
	3b. CAUGHT: Fingers could be pinched while engaging/disengaging the safety latches on the handle	3b. Wear cut-resistant gloves while disengaging/reengaging safety latches. 3b. Avoid placing hands in pinch points.
4. Transport drums to the designated location and disengage the drum clamp (repeat Step 3 in reverse order)	**4a. FALL:** Tripping/ falling due to obstructions and uneven terrain. Potential for the drum to fall during transport.	4a. Ensure the transport path is free of potential obstructions that may cause the drum/carrier to become unstable. Position the drum clamp between the ribs on the drum to prevent possible slipping.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-010	DATE 05/28/2025	☐ NEW ☒ X REVISED	PAGE 1 of 2
JSA TYPE CATEGORY **Generic**	WORK TYPE **Surveying**	WORK ACTIVITY (Description) **Elevation Surveying**		

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☐ HEARING PROTECTION ☒ SAFETY SHOES: Steel-toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	☒ GLOVES: Cut-resistant or leather ☒ OTHER:

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Surveying equipment (i.e., leveling rod/measuring ruler, tripod and auto level).

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Check in with Site manager/ property owner.	**1a. CONTACT/EXPOSURE/FALL:** Lack of communication could result in H&S incident.	1a. Inform Site personnel of work scope, timeline and location(s). 1a. Inquire about other activities taking place at the Site. 1a. If applicable, obtain General Work permit for the day.
2. Locate surveying position for instrument and rod and set-up work area	**2a. FALL:** Slip/trip hazards	2a. Inspect area for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.) and obstructions prior to setting up at the survey location. Keep eyes engaged with walking surface while in movement. Remember "Walking is Working." 2a. Conduct housekeeping and maintain clear paths to walk in and remove debris as required.
	2b. CONTACT: Traffic (surveying locations could potentially be in parking areas and sidewalks)	2b. Be aware of oncoming traffic. Utilize a flagman / spotter for locations in streets or high-traffic areas. 2b. Place Traffic cones around the work area and delineate work zone with caution tape, snow fencing or safety bars, if necessary. 2b. Wear appropriate PPE including high visibility clothing and reflective safety vest when exposed to traffic and vehicles. 2b. Face traffic, maintain eye contact with oncoming vehicles and establish a safe exit route.
	2c. OVEREXERTION: Hazard due to carrying, lifting, and bending while transporting equipment	2c. Use proper body positioning and lifting techniques; keep back straight, lift with legs, keep load close to body, and never reach with a load. 2c. Avoid carrying too much equipment at one time and team-lift equipment that is heavier than 50 lb.
	2d. CAUGHT/CONTACT: Pinch Points / sharp edges associated with setting up the tripod	2d. Wear cut resistant gloves when handling the tripod and keep fingers away from pinch points located near moving parts of the tripod. Do not carry tripod by the pointed ends.
	2e. OVEREXERTION: Hazard due to bending awkwardly to look through the autolevel	2e. When practical, set the height of the auto level optic so as to minimize bending at the waist.
3. Open / close manhole cover to well that is being surveyed (if necessary).	**3a. OVEREXERTION:** Muscle strain	3a. See 2c. Bend knees when reaching to open well. Use manhole lifting hook or pry bar to avoid bending.
	3b. CAUGHT: Pinch points associated with removing / replacing manholes and working with hand tools	3b. Wear leather gloves or cut resistant gloves when working with well cover and hand tools. 3b. Use proper tools (ratchet and crowbar, pry bar or magnet for well cover) and inspect before use. 3b. Do not put fingers under well cover.
	3c. EXPOSURE: To potentially hazardous vapors To biological hazards	3c. No open flames/heat sources. 3c. To minimize exposure to vapors, allow well to vent after opening it and before survey activities begin. 3c. Work on the upwind side of manhole/well. 3.c Use caution while opening lids to inspect work area for bees and insects inside of covers. 3c. Use insect/tick repellent, as necessary.
	3d. CONTACT: With traffic	3d. See 2b.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
4. Perform survey.	**4a. FALL:** Slip/trip hazards **4b. CONTACT:** Traffic (surveying locations could be potentially located in parking areas and sidewalks) **4c. ENERGY SOURCES:** Electrical shock from survey rod striking overhead electric lines or lights	4a. See 2a. 4b. See 2b. 4b. Personnel using the scope will be devoting most of their attention to the surveying activity and shall be aware of vehicular and pedestrian traffic. Personnel holding the measuring stick should be extra vigilant of survey personnel and communicate any potential hazards to the instrument person via handheld radio or similar means. Ensure reflective safety vest is worn. 4c. Prior to raising and extending the survey rod, personnel should thoroughly inspect the area above the measuring point. If overhead electrical lines are encountered within 10 feet of the measuring rod tip ; stop work and consult with the Office Health and Safety Officer.
5. Break down work area.	**5a. CONTACT:** Traffic (surveying locations can potentially be in parking areas and sidewalks) **5b. EXERTION:** Hazard due to carrying, lifting, and bending while transporting equipment **5c. CONTACT:** Personal injury or equipment damage by striking surroundings with an extended rod or unsecured tripod leg	5a. See 2b. 5b. See 2c. 5c. Ensure rod is entirely collapsed prior to mobilization / demobilization between survey points. 5c. Ensure tripod legs are fully collapsed and secured with strap prior to mobilization / demobilization between set-ups.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-011	DATE: 05/28/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**Construction - Excavation**	**Excavation / Trenching**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: cut resistant level II
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☒ LONG SLEEVED SHIRT	HEARING PROTECTION (as needed)	☒ PPE CLOTHING: Fluorescent reflective vest or high visibility long sleeved clothing	
☐ LIFELINE / BODY HARNESS	☒ SAFETY SHOES: Steel-toe boots		
☒ SAFETY GLASSES			

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Jackhammer, Excavator, Backhoe, Hand Tools, Photoionization Detector, barrels, 42" traffic cones, snow fencing, telescoping poles, temporary chain link fence, ladders, shovels, digging bars, power tools (cut-off saw), Two-way radios, Sheeting, Trench box, Retractable lanyard, Harness

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EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or footprint of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Pre-Clearance Protocol.	**1a. CONTACT:** Damage to underground utility.	1a. Confirm that (if applicable) "Call Before You Dig" and local utility companies were contacted prior to trenching in order to confirm utility mark outs. Must have a case # before digging.
	1b. ENERGY SOURCE/CONTACT: Property damage; Pressurized water mains may cause lacerations or broken bones. Pressurized gas mains may explode, causing serious injury or death. Underground electric may cause severe burns, shock, or death.	**1b. Complete subsurface clearance checklist**. 1b. For excavations, all utilities need to be marked and then exposed by hand, following the protocols in this program. Pre-clearing for excavations may be performed by the "moat" technique (i.e., soft digging around the perimeter). In these cases, dig in small lifts (<12" for the first five feet) using a dedicated spotter.) For Tolerance Zone work, unless otherwise agreed upon with the Utility Operator, work within the tolerance zone requires verification by means of hand-dug test holes to expose the utility. Once structures have been verified, a minimum clearance of three feet must be maintained between the utility and any powered equipment.
	1c. FALL: Slip, Trip or Fall may cause muscle strains or tears, abrasions, lacerations, or broken bones.	1c. Be aware of the conditions when walking or loading equipment and working. Walk within an established pathway, avoiding uneven surfaces. Remove potential slip/trip/fall hazards.
2. Set up work zone.	**2a. CONTACT/CAUGHT:** Cuts/lacerations from equipment. Broken bones from contact by vehicle/equipment.	2a. Isolate work area from hazards with cones, barricades, snow fencing, telescoping poles, or a temporary chain link fence. Utilize a flag person when necessary (i.e., third-party traffic in the area). Install traffic signs in roadways and for detours. Spotters will maintain and enforce the exclusion zone.
	2b. FALL: Slip, Trip or Fall may cause muscle strains or tears, abrasions, lacerations, or broken bones.	2b. See 1c.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Trenching Activity.	**3a. CONTACT:** Serious injury, including broken bones, muscle strains or tears, and possibly death, due to contact with the machine.	3a. Spotter(s) required for all heavy equipment operation. No worker shall be allowed inside the exclusion zone or along the trench/excavation area while any equipment is in operation. A minimum exclusion zone greater than the length of the equipment boom must be established. Workers are only allowed in the exclusion zone if the operator is in "Hands Off "mode. The operator will not operate the equipment until the worker is out of the exclusion zone. Spotters and operators will have radios for communication when either loses sight of one another, and/or in case of emergency.
	3b. FALL: Slip, Trip or Fall may cause muscle strains or tears, abrasions, lacerations, or broken bones	3b. Any trench/excavation deeper than 3' must have a ladder within 25' of any worker in the excavation. At least 3'(rungs) of the ladder shall be above the top of the excavation. All equipment, tools, material, and spoil piles shall be maintained 2' minimum from the edge of the excavation. 3b. Any trench/excavation deeper than 6' must have fall protection, a retractable lanyard for ladder use, and a 42" high guardrail system along the edge of the trench/excavation.
	3c. EXPOSURE: Noise, Dust, concrete-asphalt, and petroleum hydrocarbon vapors may cause damage to the ears and lungs	3c. Air monitoring using a calibrated photoionization detector (PID) will be used to monitor the breathing zone of the work area. If a reading of >5ppm is recorded, the oversight personnel must temporarily cease work and instruct all Site personnel to step away from the area of elevated readings.
4. Setting Trench protections if necessary.	**4a. CAUGHT:** Injury due to contact with a failed trench may include muscle strains or tears, abrasions or lacerations, broken bones, and possibly death.	4a. To prevent cave-ins and avoid being caught/between, excavations over 5' in depth, unless working in stable rock, shall have engineer-approved shoring, sheeting, or trench box. The top of protection shall be at least 18" above the top of the excavation.
	4b. CONTACT/CAUGHT: Injury due to rigging activities and entering the exclusion zone during lifting and/or transport of shoring/trench box/material may include muscle strains or tears, abrasions or lacerations, broken bones, and possibly death. Pinch/ Amputation points.	4b. Use only inspected rigging with 2, 3, or 4 lift points; wear cut-resistant gloves. Rigging to be hooked up to factory-installed hookup points on equipment. Control load with non-conductive tag lines with workers out of the exclusion zone. Do not stand underneath a suspended load; wear steel-toed boots and a hard hat. Keep hands and extremities out of pinch/amputation points/ line of fire areas.
	4c. FALL: Possible injuries due to a fall into an excavation may include muscle strains or tears, abrasions or lacerations, or broken bones. Impact/ impalement hazard	4c. Shoring to be set and sides will be backfilled to avoid fall hazards before workers are allowed to enter area. The operator will be in "HANDS OFF" mode before workers enter the work area to unhook the rigging. An inspected ladder extending 3' above the top of the shoring will be used to enter and exit the excavation. Workers will use three points of contact when using the ladder. Cover/ cap vertical impalement hazards.
5. Secure/Leave Site. If backfilling, see excavation backfilling and compaction JSA for potential hazards and critical actions.	**5a. FALL:** Potential Slip, Trip or Fall - may cause muscle strains, tears, abrasions or lacerations, or broken bones.	5a. See 1c. 5a. All open excavations must be backfilled or secured prior to departure with steel plates, orange construction fence, or temporary chain link fencing.

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JOB SAFETY ANALYSIS Ctrl. No. GEN-013	DATE 05/28/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE:	WORK ACTIVITY (Description):
Generic	**Gauging and Sampling**	**Gauging and Sampling**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☒ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: , Nitrile and cut-resistant level II
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER: Knee pads, Insect Repellant, sunscreen (as needed)
☐ LIFELINE / BODY HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	
☒ SAFETY GLASSES	☒ SAFETY SHOES: Composite-toed or steel-toed boots		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Traffic Safety Cones, Caution Tape, Interface Probe with Ground Clamp, and/or Water Level Meter, 20-lb. type ABC Fire Extinguisher, Buckets. Tools as needed: Socket Wrench, Screw Driver, Crow Bar, Mallet, and Wire Brush.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilization to monitoring well(s).	**1a. FALL:** Personal injury from slip/trip/fall due to uneven terrain and/or obstructions.	1a. Inspect the pathway and plan for the most suitable designated pathway prior to mobilization. 1a. Use established pathways, walk and/or drive on stable, secure ground, and avoid steep hills or uneven terrain. 1a. If working near open water with an unguarded edge, wear a personal flotation device (PFD).
	1b. CONTACT: With traffic/third parties.	1b. Identify potential traffic sources and delineate the work area with traffic safety cones. Position the vehicle to protect against oncoming traffic. Use caution tape to provide a more visible delineation of the work area if necessary. 1b. Wear appropriate PPE, including high visibility clothing and reflective vest, when exposed to traffic 1b. Face traffic, maintain eye contact with oncoming vehicles, and establish a safe exit route.
	1c. EXERTION: Muscle strain from lifting equipment	1c. Use proper lifting techniques when handling/moving equipment; bend knees and keep back straight. 1c. Use mechanical assistance or team lifting techniques when equipment is 40 lbs. or heavier. 1c. Make multiple trips to carry equipment.
	1d. EXPOSURE: To biological hazards.	1d. Inspect work area for bees and insects. 1d. Use insect/tick repellent, as necessary. 1d. Treat clothing with permethrin prior to mobilization. 1d. Don Tyvek/mosquito nets, as applicable.
2. Open/close well.	**2a. EXERTION:** Muscle strain.	2a. Use proper lifting techniques; keep back straight, lift with legs, and bend knees when reaching to open/close the well.
	2b. CAUGHT: Pinch/crush points associated with removing/replacing manholes and working with hand tools.	2b. Wear cut-resistant level II gloves when working with well cover and hand tools. 2b. Use proper tools (ratchet and pry bar or magnet for well cover) and inspect before use. 2b. Do not put fingers under the well cover.
	2c. CAUGHT: Pinch points associated with placing the J-plug back onto the PVC pipe.	2c. See 2b. 2c. Keep fingers out of line-of-fire when securing cap.
	2d. EXPOSURE: To potential hazardous vapors.	2d. No open flames/heat sources. 2d. To minimize exposure to vapors, allow the well to vent after opening it and before sampling activities begin. 2d. Stand upwind if possible, to avoid inhaling vapors. 2d. Monitor atmosphere with multi-gas meter/PID.
3. Gauge well.	**3a. CONTACT:** With contamination (e.g., contaminated groundwater).	3a. Wear chemical-resistant disposable gloves (over cut-resistant gloves) and safety glasses when gauging well. 3a. Insert and remove the probe slowly to avoid splashing. 3a. Use an absorbent pad to clean probe.
	3b. CONTACT: With traffic.	3b. See 1b.
	3c. Exposure: To static electricity, fire, or explosion.	3c. Ground interface probe to a designated grounding point/rod, well casing, or electrically conductive surface to dissipate static electricity.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
4. Purge and sample well	**4a. EXPOSURE/CONTACT:** To contamination (e.g., SPH, contaminated groundwater, vapors) and/or sample preservatives.	4a. Open and fill sample jars slowly to avoid splashing and contact with preservatives. 4a. Wear cut-resistant gloves and chemical-resistant disposable gloves when sampling. 4a. Fill sample containers over the purge container to avoid spilling water onto the ground. 4a. Use an absorbent pad to clean spills. 4a. When using a bailer to purge a well, pull the bailer slowly from the well to avoid splash hazards. 4a. When sampling or purging the water using a bailer, pour water slowly to reduce the potential for splash hazards with groundwater. 4a. When using a tubing valve, always remove the valve slowly after sample collection to release any pressure and avoid pressurized splash hazards. 4a. When collecting a groundwater sample, always point the sampling apparatus (tubing, bailer, etc.) away from the face and body.
	4b. CONTACT: Personal injury from cuts, abrasions, or punctures by glassware or sharp objects.	4b. To avoid spills or breakage, place sampleware on an even surface. 4b. Do not over-tighten caps on glass sampleware. 4b. Wear chemical-resistant nitrile disposable gloves over cut-resistant (i.e., Kevlar) gloves when sampling and handling glassware (i.e., VOA vials) or when using approved cutting tools.
	4c. EXERTION: Muscle strain while carrying equipment.	4c. Use proper lifting techniques when handling/moving equipment, bend knees, and keep back straight. 4c. Use mechanical assistance or team lifting techniques when equipment is 40 lbs. or heavier. 4c. Make multiple trips to carry equipment.
	4d. CONTACT: With traffic.	4d. See 1b.
	4e. CONTACT: Pinch points with groundwater pump components (i.e., wheel, line, clamps).	4e. Wear cut-resistant gloves when working with groundwater pumps. 4e. Never place hands on or near pinch points such as the wheel, clamps, or other moving parts during pump operations. 4e. Use the correct mechanisms, such as a pump reel, to lower the pump into the well. 4e. Never attempt to manually stop any moving part of equipment, including hose reels and/or tubing.
	4f. EXERTION: Muscle strain from repetitive motion of bailing and sampling a well.	4f. See 4c. 4f. Include a stretch break when repetitive motions are part of the task.
5. Management of purge water.	**5a. EXPOSURE/CONTACT:** To contamination (e.g., SPH, contaminated groundwater, vapors).	5a. Do not overfill the container, and pour liquids slowly so that they do not splash. 5a. Properly dispose of used materials/PPE in an appropriate container in the designated storage area.
	5b. EXERTION: Muscle strain from lifting/carrying, and moving containers.	5b. Use proper lifting techniques when lifting/carrying or moving container(s) (see 4c.). 5b. Do not overfill container(s).
6. Decontaminate equipment.	**6a. EXPOSURE/CONTACT:** To contamination (e.g., SPH, contaminated groundwater, vapors).	6a. Work on the upwind side, where possible, of the decon area. 6a. Wear chemical-resistant disposable gloves and safety glasses. 6a. Use an absorbent pad to clean spills.
	6b. CAUGHT: Pinch points associated with handling hand tools	6b. See 2b. 6b. Inspect hand tools for sharp edges before decontaminating.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-014	DATE: 05/28/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY:	WORK TYPE:	WORK ACTIVITY (Description):
Generic	**Drilling**	**Hollow Stem Auger Soil Borings / Well Installation**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☒ GOGGLES: Spoggles required if winds exceed 15 mph. ☐ FACE SHIELD HEARING PROTECTION: (as needed). ☐ SAFETY SHOES: Steel or Composite Toe.	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent long-sleeve shirt or long-sleeve shirt and reflective safety vest.	☒ GLOVES: Cut-Resistant, and Nitrile. ☒**Error! Bookmark not defined.** OTHER: Insect Repellant, Sunscreen (as needed).

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Truck-Mounted Drilling Rig or Track Rig, Saw, Hand Tools, Photoionization Detector, Multi-Gas Meter (or equivalent), Interface Probe, 20 lb. Type ABC Fire Extinguisher, Traffic Cones/barrels, Caution Tape & Flags, "Work Area" Signs.

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs

EXCLUSION ZONE (EZ): Maintain a Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, the tip zone of the equipment, the fall zone of the equipment, and the contents.

"SHOW ME YOUR HANDS"
Driller and helper should show that hands are clear from controls and moving parts

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilization/demobilization and establish a work area.	**1a. See Mobilization/ Demobilization JSA GEN-015.**	1a. See Mobilization / Demobilization JSA GEN-015.
2. Raising the tower/derrick of the drilling rig.	**2a. CONTACT:** Overhead hazards.	2a. Prior to raising the tower/derrick, the area above the drilling rig will be inspected for overhead hazards (wires, tree limbs, piping, or other structures) that may be contacted by the rig's tower or drilling rods. 2a. The tower/derrick must not be raised beneath overhead power lines unless approved by the Roux PM. 2a. Maintain a minimum of 10' from all overhead structures. 2a. Do not move the rig while the tower/derrick is raised.
	2b. CONTACT: Amputation/crush points when raising the rig and the instability of the rig.	2b. Inspect the equipment prior to use and avoid any potential amputation points. 2b. Lower outriggers to ensure stability prior to raising the rig tower derrick. Keep feet and body out of the line of fire when lowering outriggers. 2b. Inspect the set-up location for uneven terrain. Level or avoid the area if needed. 2b. If the rig needs to be mounted, be sure to use three points of contact.
3. Advancement of augers for soil boring installation.	**3a. CONTACT:** Equipment imbalance during advancement of drill equipment.	3a. Drillers will advance the borehole with caution to avoid causing the rig to become imbalanced and/or tip. 3a. The blocking and leveling devices used to secure the rig will be inspected by drillers and Roux personnel regularly to see if shifting has occurred. **3a. Drillers will maintain the "Purple Zone" policy surrounding augers to ensure no personnel come into contact with augers while in use. Workers can spray paint a 3' semi-circle surrounding the augers to visually show that no personnel should enter the "Purple Zone" while drilling activities are being conducted.** 3a. In addition, personnel and equipment that are non-essential to the advancement of the borehole will be positioned away from the rig at a distance that is at least as far as the boom is high (minimum exclusion zone of 20 feet).
	3b. CONTACT: Flying/spraying debris.	3b. Wear all required PPE (especially hand, eye, and ear protection). 3b. Maintain minimum EZ distance (i.e., swing/tip radius of rig) when rig is in operation to avoid potential line of fire hazards from flying materials or debris.
	3c. CAUGHT: Limb/extremity amputation, abrasion, and crushing.	3c. Inspect the equipment prior to use for potential pinch points. 3c. Test all emergency shutdown devices prior to drilling. 3c. Inspect the drill head for worn surface or missing teeth; replace it if damaged or blunt. 3c. Inspect augers; do not use if the auger flight is damaged or bent.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Advancement of augers for soil boring installation (Continued).	**3c. CAUGHT:** Limb/extremity amputation, abrasion, and crushing.	3c. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body. 3c. All non-essential personnel should stay away from the immediate work area; position the body out of the line-of-fire of equipment, particularly when installing auger flights and steel override casings. 3c. Drillers and helpers will understand and use the "Show Me Your Hands" Policy. 3c. Spinning augers should have an exclusion zone of 20 feet when in operation.
	3d. FALL: Slip/trip/fall hazards.	3d. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 3d. Do not climb over stored materials/equipment; walk around. Practice good housekeeping. 3d. Use established pathways and walk on stable, secure ground. 3d. Use three points of contact when mounting or dismounting the rig. 3d. Remove soil cuttings to avoid a tripping hazard from developing near augers.
	3e. EXPOSURE: Inhalation of contamination/vapors.	3e. Air monitoring using a calibrated photoionization detector (PID) and multi-gas meter to monitor the breathing zone of the work area. 3e. The Action Level for breathing zone air is five (5) parts per million (sustained) as detected by the PID. 3e. If a reading of >5ppm is recorded, the Roux field personnel must temporarily cease work, instruct all Site personnel to step away from the area of elevated readings, and inform the Roux PM of the condition. The Roux PM will then recommend additional appropriate precautions in accordance with the site-specific health and safety plan.
	3f. EXPOSURE: Noise and dust.	3f. Wet borehole area with sprayer to minimize dust. Stand upwind and keep your body positioned away from the rig. 3f. Wear hearing protection while the drill rig is operating or the noise levels exceed 85 dBA.
	3g. EXERTION: Installing well casings and lifting augers.	3g. Keep back straight and bend at the knees. 3g. Utilize team lifting for objects heavier than 40 lbs. 3g. Use a mechanical lifting device for odd-shaped objects.
4. Installation of well materials.	**4a. CONTACT:** Installing well materials while also pulling up augers.	4a. Potential contact with augers during the installation of well materials. 4a. Keep distance from augers and do not place any materials while augers are in motion.
	4b. CAUGHT: Possible pinch or crush hazard assembling PVC and sending down the borehole.	4b. Keep all body parts out of potential pinch points while placing PVC together and sending down borehole.
	4c. FALL: Slip/trip/fall hazards with hand tools and materials.	4c. See 3d.
	4d. EXPOSURE: Potential contamination, harmful vapors, dust, and/or noise.	4d. See 3e and 3f. 4d. Stand upwind to avoid exposure to dust generated from packing materials.
	4e. EXERTION: Lifting heavy bags of materials to backfill the borehole.	4e. See 3g.
5. Cleaning the auger flights	**5a. CONTACT:** Cuts/scrapes or puncture wounds from contacting the auger.	5a. Follow the "Show Me Your Hands" Procedure and make sure the auger is out of gear before contacting the auger with the tool or hand. 5a. Pull the cleaning tool across your body with the handle away from your body; do not push toward the auger. 5a. Do not clean more than ¾ turn around the auger at a time. 5a. Wear cut-resistant and nitrile gloves. 5a. Always use two hands to operate the cleaning tool. 5a. Inspect the tool before use and remove from service if the handle or metal is cracked/fatigued. 5a. Stand out of the line of fire.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
6. Decontaminate equipment.	**6a. EXPOSURE / CONTACT:** To contamination (e.g., contaminated groundwater, vapors).	6a. Wear chemical-resistant disposable gloves and safety glasses. 6a. Contain decontamination water so that it does not spill. 6a. Use an absorbent pad to clean spills, if necessary.
	6b. EXPOSURE: To chemicals in cleaning solution (including ammonia).	6b. See 3e. Wear all appropriate PPE and stand upwind of any exposed cleaning solutions.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-015	DATE: 05/28/2025	☐NEW ☒REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Site Recon**	**Mobilization/Demobilization**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION (as needed) ☒ SAFETY SHOES: Steel Toe or composite toe	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest of high-visibility clothing; long-sleeved shirt; long pants	☒ GLOVES: Cut-resistant Level II, nitrile ☐ OTHER

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Required Equipment: Varies

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilize/demobilize and establish a work area	**1a. FALL:** Slip/trips/falls from obstructions, uneven terrain, weather conditions, heavy loads, and/or poor housekeeping.	1a. Use 3 points-of-contact/ensure secure footing when entering and exiting the vehicle. 1a. Inspect walking path for uneven terrain, steep hills, obstructions, and/or weather-related hazards (i.e., ice, snow, and puddles) prior to mobilizing equipment. Use established pathways. Walk on stable/secure ground. 1a. Do not climb over stored materials/equipment; walk around. Practice good housekeeping; organize and store equipment neatly in one area at its lowest potential energy. 1a. Wear boots with adequate treads. 1a. Delineate unsafe areas with traffic safety cones, caution tape, and/or flagging.
	1b. CONTACT: Personal injury and/or property damage caused by being struck by Site traffic or equipment used in Site activities.	1b. Observe and maintain the posted speed limits. 1b. When first arriving onsite, park vehicles in designated parking spaces and/or out of the way locations. Use parking brake on all vehicles and tire chocks on work trucks and trailers. 1b. Check in with Site Manager/Supervisor to ensure coordination with other Site activities and to discuss any special hazards. Ensure that short-service employees (SSE) are identified. 1b. Identify potential traffic sources. 1b. Wear PPE, including high visibility clothing or reflective vest, when around vehicles or operating equipment 1b. Use a spotter while moving work vehicles; plan to avoid backing whenever possible. 1b. Maintain a minimum exclusion zone when vehicles are in motion (i.e., greater than the swing/tip radius of the equipment). When backing up the truck rig with an attached trailer, use a second spotter if there is tight clearance simultaneously on multiple sides of the equipment or if turning angles limit driver-to-spotter visibility. 1b. Delineate work area with traffic cones, flags, caution tape, and/or other barriers. 1b. Position “Work Area” signs at Site entrances, if possible, or at either side of the work area. 1b. Position the largest vehicle to protect against oncoming traffic. 1b. Face traffic, maintain eye contact with oncoming vehicles, use a spotter, and establish a safe exit route.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
		1b. Observe potential overhead and ground surface features that may interfere with moving equipment. Clear the path of physical hazards prior to initiating mobilization.
	1c. CAUGHT: Personal injury from pinch points and being in the line of fire of the vehicle and/or equipment.	1c. Make sure the driver has engaged the parking brake and placed wheel chocks in a position to prevent movement. Be sure that the vehicle is parked in front/down gradient (positioned to block oncoming traffic) of the work area. 1c. Wear cut-resistant gloves (Kevlar or similar) when handling objects/tools or equipment, 1c. Keep body parts away from line-of-fire of equipment. 1c. Always carry tools by the handles and/or designated carrier. Ensure sharp-edged tools are sheathed/secure. 1c. Remove any loose jewelry. Avoid wearing loose clothing and/or ensure loose clothing is secure. 1c. Secure all items on the equipment, tighten up any items or features that have the potential to shift or break during mobilization.
	1d. OVEREXERTION: Muscle strains while lifting/carrying equipment.	1d. Use body positioning and lifting techniques that avoid muscle strain; keep back straight, lift with legs, turn with whole body, keep load close to body, and never reach with a load. 1d. Ensure that loads are balanced. Use assistance (mechanical or additional person) to carry equipment that is either unwieldy or over 50 lbs.
	1e. EXPOSURE: Personal injury from exposure to biological and environmental hazards.	1e. Inspect the area to avoid contact with biological hazards (i.e., poisonous plants, stinging insects, ticks, etc.). 1e. Wear long-sleeved clothes that can be treated with Permethrin, apply insect repellent (may contain DEET) to exposed skin, and inspect clothes and skin for ticks during and after work. 1e. Apply sunscreen (SPF 15+) if exposure to the sun for 30 minutes or more is expected.
	1f. EXPOSURE: Weather-related injuries.	1f. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, nausea, rapid and shallow breathing). Take breaks in cool places and hydrate as needed. 1f. Watch for cold stress symptoms (severe shivering, slowing body movement, weakness, stumbling or inability to walk, collapse). Take breaks in warm areas as needed. 1f. Wear clothing appropriate for weather and temperature conditions (e.g., rain jackets, snow pants, multiple layers). 1f. If lightning is observed, wait 30 minutes in a sheltered location (car is acceptable) before resuming work.
	1g. EXPOSURE: Personal injury from noise hazards.	1g. Wear hearing protection if sound levels exceed 85 dBA (if you must raise your voice for normal conversation).

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-019	DATE: 05/28/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Site Reconnaissance**	**Site Walk and Inspection**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION: earplugs/muffs as necessary ☒ SAFETY SHOES: Steel or composite toed	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: High-visibility vest or high-vis outerwear	☒ GLOVES: /cut-resistant (level II)/chemical resistant ☒ OTHER: Tyvek and rubber boots as necessary, dust mask as necessary

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Required Equipment: Site map, emergency contact list, documentation of urgent care/hospital routes, and/or guide familiar with Site, operating cell phone or walkie-talkie if Site allows, and bug spray.

Commitment to Safety – All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs

EXCLUSION ZONE (EZ): Maintain a Minimum Heavy Equipment Exclusion Zone around equipment and loads while in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, the tip zone of the equipment, the fall zone of the equipment, and the contents.

SITE SECURITY: Before site inspection, verify the appropriate method to address Site Security concerns related to potential criminal activity, homeless population, and/or isolation concerns. Work with the Project Principal and/or Project Manager to address appropriately.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Check in with the Site contact.	**1a. CONTACT/EXPOSURE/FALL:** Personal injury caused by a lack of awareness of site-specific hazards.	1a. Inquire about hazards and other activities taking place at the Site. 1a. Inform Site contact of work scope, timeline, and location(s). 1a. Discuss emergency evacuation procedures and muster points with the Site contact.
2. Traversing the Site	**2a. CONTACT:** Property damage and personal injury caused by obstructions/vehicles or unauthorized personnel at remote Sites.	2a. All equipment must be stowed and secured prior to moving. 2a. Maintain speed limit as posted on-site. 2a. When possible, drive on established roadways. 2a. Yield to all pedestrians. 2a. Use pull-through spots or back into parking spots. 2a. Don high-visibility clothing/safety vest. If working at a remote Site, add orange accessories during hunting season.
	2b. FALL: Uneven terrain and weather conditions. Overgrown shrubs and vines. Equipment in the work zone.	2b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 2b. Use established pathways and walk on stable, secure ground when possible. 2b. Communicate traversing hazards with others.
	2c. OVEREXERTION: Muscle strain while carrying equipment.	2c. When carrying equipment to/from the work area, use proper lifting techniques; keep back straight, lift with legs, keep the load close to the body, never reach with a load. Ensure that loads are balanced to reduce the potential for muscle strain. Use the buddy system or mechanical means to maneuver items heavier than 40 lbs. If necessary, make multiple trips to carry equipment.
	2d. EXPOSURE: Biological hazards – ticks, bees/wasps, poison ivy, insects; (Ticks are most active whenever the temperature is above freezing, typically from March to November.)	2d. Inspect the area to avoid contact with biological hazards. 2d. Ticks: • Treat outer clothing, including pants, shirts, socks, boots, and hats, the evening before with Permethrin (allowing at least two hours before use). • Apply DEET or equivalent to exposed skin before travelling to the Site and reapply after two hours. • Wear light colored clothing and visually check for ticks during and after work. 2d. Bees: • Use bee spray as appropriate to deter/eliminate bees. • Protect exposed skin with insect repellent.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
	2e. EXPOSURE: Heat Stress & Cold Stress. Personal injury from working in inclement weather conditions.	2d. Poison Ivy: • Identify areas of poison ivy and spray with weed killer. Don Tyvek and rubber boots while traversing poison ivy areas. • If skin comes into contact with poison ivy, wash the skin thoroughly with soap and water. 2e. Wear sunscreen with SPF 15 or greater on exposed skin whenever 30 minutes or more of sun exposure is expected. 2e. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). Take breaks as needed. 2e. Watch for cold stress symptoms (severe shivering, slowing body movement, weakness, stumbling or inability to walk, collapse). Take breaks as needed. 2e. Wear appropriate rain gear as needed. 2e. Take frequent breaks if tired, wet, or cold/hot. Drink water. 2e. If lightning is observed, wait 30 minutes after the last thunder boom/lightning bolt in a sheltered location (car acceptable) before starting work again.
3. Walking near heavy equipment and machinery.	**3a. CONTACT:** Personal injury from Site and roadway traffic. Personal injury from flying debris **3b. OVEREXERTION:** Personal injury from lifting/moving/rotating equipment. **3c. EXPOSURE:** Hearing damage from noise-generating equipment/processes. Inhalation/exposure to hazardous vapors and or dust. **3d. EXPOSURE:** Working in a remote area.	3a. See 2a. 3a. Maintain an exclusion zone of at least 10 feet from all engaged equipment. Increase distance to include swing tip radius. 3a. Keep body parts out of the line-of-fire of pinch points. 3a. Wear appropriate PPE always. 3b. See 2c. 3c. Wear hearing protection if >85 dBA. (i.e., noise levels which require you to raise your voice to communicate) 3c. Always wear cut-resistant gloves when handling any tools or equipment. 3c. Always wear appropriate PPE based on the chemicals present. 3d. Use the "buddy system" whenever possible. If working alone, contact PM upon arrival/departure and during work activities prior to commencing work if applicable. 3d. Always carry a communication device (i.e., cell phone, walkie-talkie) or directional (i.e., map, compass, etc.) when traversing remote areas. 3d. If available, follow Lone Worker Protocol/Procedure.
4. Working in adverse weather conditions.	**4a. EXPOSURE:** Heat Stress & Cold Stress. Personal injury from working in inclement weather conditions.	4a. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). Take breaks as needed. 4a. Watch for cold stress symptoms (severe shivering, slowing body movement, weakness, stumbling or inability to walk, collapse). Take breaks as needed. 4a. Wear appropriate rain gear as needed. 4a. Take frequent breaks if tired, wet, or cold/hot. Drink water. 4a. If lightning is observed, wait 30 minutes after the last thunder boom/lightning bolt in a sheltered location (car acceptable) before starting work again.
5. Departing Site.	**5a. EXPOSURE:** Exposure to unnecessary hazards should prompt personnel to believe Roux is on-site during an emergency and conduct a search.	5a. Sign out or notify the Site contact and Roux Project Manager of your departure.

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JSA TYPE CATEGORY: **GENERIC**	WORK TYPE: **Gauging & Sampling**	WORK ACTIVITY (Description): **Soil Sampling**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES ☒ FLAME RESISTANT CLOTHING (as needed)	☐ GOGGLES ☐ FACE SHIELD: ☒ HEARING PROTECTION: (as needed) ☒ SAFETY SHOES: Composite-toe or steel-toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	☒ GLOVES: . Nitrile and cut resistant level II ☒ OTHER: Insect repellent, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Recommended Equipment: traffic safety cones, caution tape, trowel

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs.

EXCLUSION ZONE (EZ): Maintain a Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, the tip zone of the equipment, the fall zone of the equipment, and the contents.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Secure location	**1a. CONTACT:** Personnel and vehicular traffic may enter the work area.	1a. If in an area with foot or vehicle traffic, delineate the work area with traffic cones and/or caution tape to prevent exposure to traffic and inform others of work activity. 1a. Wear a reflective vest and/or high visibility clothing. 1a. Face the direction of any vehicular traffic. Position the vehicle to protect the worker from traffic. 1a. Communicate work activity with adjacent work areas.
	1b. FALL: Tripping/falling due to uneven terrain or entry/exit from excavations.	1b. Inspect pathways and work area for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions. 1b. Use established pathways and walk on stable, secure ground. 1b. Stage equipment and tools in a convenient, stable, and orderly manner. Store equipment at the lowest potential energy. 1b. Roux employees should stay 6 feet from in-progress excavations and trenches. Should entry to an excavation be required (when stabilization is complete), ladders must be employed for steep embankments, excavations, pits, and trenches.
	1c. EXPOSURE: Exposure to sun and excessive heat, possibly causing sunburn, heat exhaustion, or heat stroke. Exposure to cold temperatures may cause cold stress. Skin burn as a result of fire, if applicable. Exposure to explosive vapors due to tank farm operations. Exposure to airborne dust due to high wind speeds. Biological hazards - ticks, bees/wasps, poison ivy, thorns, insects, etc.	1c. Wear sunscreen with an SPF 15 or greater whenever 30 minutes or more of exposure is expected. 1c. Use a tent to shade the work area from direct sunlight, particularly when warm temperatures are expected. 1c. Be aware of the location of all Site personnel. 1c. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). 1c. Watch for cold stress symptoms (severe shivering, slowing of body movement, weakness, stumbling or inability to walk, collapse). 1c. Take breaks for rest and water as necessary. Move to an area that is well shaded or a climate-controlled area (i.e., car, site trailer, etc.). 1c. No open flames/heat sources. 1c. Conduct air monitoring and ensure that harmful vapor concentrations are within the levels detailed in the Site Specific HASP. Follow the procedures detailed in HASP for exceedances. 1c. Flame retardant clothing must be worn when specified by Site policy. 1c. Cell phones should be disabled when specified by Site policy. 1c. Pre-treat field clothing with Permethrin prior to site visit to kill ticks and insects. 1c. Wear long-sleeved shirts and tuck in (or tape) pant legs into socks or boots to prevent ticks from reaching skin. 1c. Spray insect repellent containing DEET or equivalent on exposed skin when working in overgrown areas of the Site. 1c. Inspect the area to avoid contact with biological hazards. 1c. Wear cut-resistant gloves when handling material, equipment, or branches, shrubs, etc. that may lie within the walking path. 1c. Wear spoggles if the average wind speeds are above 15 mph. 1c. Personnel shall examine themselves and their co-workers' outer clothing for ticks periodically when on-site. 1c. If skin comes in contact with poison ivy, wash skin thoroughly with soap and water. If rash persists after washing, immediately notify your supervisor, the OM, and OHSM for possible consultation with a physician at an approved Occupational Health Clinic.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
2. Collect Soil Sample	**2a. CONTACT:** Personal injury from pinch points, cuts, and abrasions from sampling equipment, tools, and material within the soil sample. Personal injury from contact with moving equipment while sampling. Personal injury from contact with glass sample jars.	2a. Wear cut-resistant (i.e., Kevlar) gloves under chemical-resistant (nitrile) disposable gloves when handling soil samples and sampling jars. 2a. Where possible, use a trowel or equivalent tool to avoid contact with soil. 2a. If sampling from a bucket of heavy equipment, ensure all equipment is off and the operator utilizes the “show me your hands” policy. 2a. See 1a.
	2b. EXPOSURE: Exposure to contamination (impacted soil) and/or lab preservatives.	2b. Wear chemical-resistant (nitrile) disposable gloves over cut-resistant gloves to protect hands when handling samples; use containment material or plastic sheeting to protect surrounding areas. 2b. Wear safety glasses to protect eyes from dust or air-borne contaminants that may result from disturbing the soil. 2b. Where possible, remain upgradient from the sample location if collecting soil samples from stockpile, drill rig, etc., to avoid breathing contaminant vapors, if they are present. 2b. When collecting a soil sample from a hand auger, put a large zip lock bag over the entire auger to prevent soil from spilling onto the ground. 2b. Open sample jars slowly and fill carefully to avoid contact with preservatives.
	2c. EXERTION: Exertion due to repetitive motion and ergonomics.	2c. Utilize a table or raised surface for soil sampling if multiple soil samples are going to be taken to minimize repetitive bending motion.
3. Decontaminate equipment	**3a. EXPOSURE/CONTACT:** Contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated vapors, and/or soil).	3a. Wear chemical-resistant (nitrile) disposable gloves and safety glasses. 3a. Use an absorbent pad to clean spills. 3a. Properly dispose of used materials/PPE in the provided drums in the designated drum storage area. 3a. Remain upwind of the sample and avoid breathing contaminant vapors, if they are present.
	3b. EXPOSURE: Chemicals in the cleaning solution include ammonia.	3b. Wear chemical-resistant (nitrile) disposable gloves and safety glasses. 3b. Work on the upwind side of the decontamination area. 3b. Use an absorbent pad to clean spills. 3b. Properly dispose of used materials/PPE in the provided drums in the designated drum storage area. Ensure that all drums are properly labeled and secured.

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JSA TYPE CATEGORY:	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Gauging and Sampling**	**Soil Vapor Sampling (Permanent Monitoring Points)**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Cut-resistant level ii & Nitriles
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER: Bug Spray, Sun Screen, Knee Pads, or kneeling pad
☐ LIFELINE / BODY HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	
☒ SAFETY GLASSES	☒ SAFETY SHOES: Steel-toe composite safety boots		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

9/16" Socket and Wrench, Non-Toxic Clay, Teflon-Lined Tubing, Masterflex Tubing, Air Pump with Low Flow, Dry Cal, Enclosure (Bucket with 2 holes), Helium Gas Canister, Summa Canisters and Flow Controllers, MultiRAE Photo Ionization Detector (PID), Helium Detector, Tubing Cutter, Traffic/Safety Cones, Caution Tape or Retractable Cone Bars

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs.

Work Zone (WZ): A 5-foot exclusion zone will be maintained for non-essential personnel.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Define and secure a work area.	**1a. FALL:** Potential tripping hazards.	1a. Ensure work area is secure and inform others (third party) of work activity. 1a. Remove tripping hazards and inspect the walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment.
	1b. CONTACT: Potential contact with moving vehicles or pedestrians.	1b. If working alongside roads, look both ways before entering roadways, face traffic, and utilize the work vehicle to protect employees. 1b. Delineate work area (including vehicles) with traffic safety cones and caution tape or retractable cone bars. 1b. Maintain a 5-foot exclusion zone. 1b. Wear high visibility clothing or a reflective safety vest.
	1c. EXERTION: Muscle strain while lifting and carrying equipment.	1c. When carrying equipment to/from the work area, keep back straight, lift with legs, keep the load close to the body, never reach with a load. Ensure that loads are balanced. Use the buddy system or mechanical means to maneuver loads heavier than 40 lbs. If necessary, make multiple trips to carry equipment.
2. Remove well cover / close well cover.	**2a. CONTACT/CAUGHT:** Pinch points and scrapes associated with hand tools and well covers.	2a. Keep hands away from pinch points. 2a. Use hand tools with extensions or a magnet to remove and replace well covers. 2a. Wear cut-resistant gloves. 2a. Use knee pads or a kneeling pad when repetitive kneeling on rough ground is anticipated.
	2b. FALL: Potential tripping hazards associated with installing bolts.	2b. Place security bolts in a secure location so as not to create tripping hazards. Replace security bolts so that they fit flush with monitoring well covers.
	2c. EXERTION: Physical exertion is required to remove bolts that were over-torqued or stripped.	2c. Replace any security bolts that show signs of stripping. Do not over-tighten. 2c. Use body positioning and bending techniques that minimize muscle strain; keep back straight, bend at the knees. 2c. See 2a.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Screen vapor point with PID.	**3a. FALL:** Potential tripping hazards associated with equipment. **3b. EXPOSURE:** Inhalation of soil vapor	3a. Place the equipment in one area close to the sampling location. 3a. Identify an area where the equipment is to be stored within the work area (away from the main walking path). 3a. Do not leave equipment on the ground. Return equipment to the storage area between uses. 3b. Replace brass caps immediately upon completion to avoid soil vapors migrating to the surface through sample tubing. 3b. Stand upwind of the sample point during screening activities.
4. Remove/replace brass caps at the end of the sample tubing.	**4a. CONTACT:** Pinch points are associated with hand tools and brass caps. **4b. EXPOSURE:** Potential pathway for vapors to migrate to the land surface.	4a. Use a wrench to remove and replace brass caps. 4a. Wear cut-resistant gloves to protect against pinch points and scrapes. 4b. See 3b. 4b. Stand upwind of the sample point location.
5. Set up soil vapor sampling equipment and calibration of meters.	**5a. FALL:** Potential tripping hazards associated with equipment and tubing. **5b. CONTACT:** Pinch points associated with handling equipment. **5c. EXPOSURE:** Inhalation of calibration gas and helium.	5a. See 3a. 5a. Keep tubing slack to a minimum and locate the summa canister as close to the sampling location as possible. 5a. Avoid stepping over equipment and tubing. 5b. Do not place fingers/hands under sampling equipment. 5b. Make multiple trips when unloading equipment in the work area. 5b. Wear cut-resistant gloves to protect against pinch points while handling sampling equipment. 5c. Review the SDS for each type of calibration gas used before calibrating. 5c. Calibrate meters in a well-ventilated area and keep the air flow regulator away from your face. 5c. Close valve on canisters after use to avoid inhalation of excess helium or calibration gas. 5c. Stand upwind of the bucket during the helium tracer gas test.
6. Cleaning Work Area.	**6a. FALL:** Potential tripping hazards are associated with equipment and tubing. **6b. CONTACT:** Storing and transport of equipment in car.	6a. See 3a. 6a. See 3b. 6b. Ensure that the equipment is placed securely in the vehicle. Do not stack equipment on top of each other. Secure the equipment so that it will not slide while being transported. 6b. Wear cut-resistant gloves while handling/loading equipment.

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JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**Construction**	**Spotting Heavy Machinery**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ Particulate Respirator	☒ GLOVES: Cut resistant Level II
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER:
☒ LONG SLEEVED SHIRT	☒ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective clothing/safety vest	
☐ LIFELINE / BODY HARNESS	☒ SAFETY SHOES: Steel-/Composite-toe boots		
☒ SAFETY GLASSES			

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Heavy Machinery (i.e., excavator, payloader, truck, forklift, etc.), two-way radios.

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs

EXCLUSION ZONE (EZ): Maintain a Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities, and/or footprint of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Prepare for machine activity.	**1a. CONTACT:** Obstructions in the work area may create contact hazards from machinery. **1b. Fall :** Slip/Trip/Fall	1a. Cordon off the work area with safety barrels/cones and a rigid barrier (snow fence, traffic bar, etc.). Ensure that only necessary personnel are in the work area. Spotter and equipment operator shall enforce the Exclusion Zone (**EZ**). The operator will not operate but shall remain in the hands-off mode while personnel are within the exclusion zone. 1b. Ensure that the work area is flat, level, and clear of any obstructions or debris before setting up the work zone.
2. Spotting.	**2a. CONTACT:** Machine or load contact with personnel, property, or machinery.	2a. Discuss the specifics of the work with the operator and be clear about any hand signals that will be used. Clearly discuss the limits of the assigned work area and the machine's **EZ**. Maintain **EZ**. The **EZ** shall be delineated by using traffic cones/barrels and a fixed rigid barrier. 2a. The Minimum Heavy Equipment **EZ** is greater than the swing/tip radius of the equipment. 2a. Both the spotter and equipment operators shall have verbal/ visual contact and/or 2-way radios/cellular devices on their persons to ensure audible communication in the event any changes or new hazards may arise. 2a. All workers should stay outside of the **EZ** of all equipment unless the operator is stopped and in "Hands Off" mode. **(This includes the spotter unless an exception has been established in the Site-specific JSA.)** If the **EZ** must be reduced due to work area restrictions, then the spotter and operator shall enforce the reduced **EZ**. 2a. Spotters must make eye contact with the machine operator, or all movement ceases until visual contact can be reestablished. 2a. Spotter shall keep an eye out for any issues with the machine that the operator may not see and communicate with other work crews and spotters on behalf of the operator. 2a. If the spotter needs to take a break, he must find a replacement before leaving or have the machine stop operations. **No heavy equipment shall operate without a spotter under any circumstances.** 2a. Wear fluorescent clothing/safety vest. 2a. **Do not multitask. Only perform Spotting**

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
	2b. FALL: Slip/Trip/Fall	2b. Look where you are walking to identify and avoid slip/trip/fall hazards. Avoid icy and/or wet surfaces. Remove obstacles if possible. 2b. Use designated walkways during spotting whenever possible. 2b. **Do not walk backwards. Always face the direction towards which you are walking.**
	2c. CAUGHT: Caught between machinery and nearby objects.	2c. **Maintain EZ.** Do not stand between large, loose, or fixed objects or structures and the machinery while it is in motion. Keep the operator in sight at all times while being aware of surrounding structures.
	2d. EXPOSURE: Inhalation of exhaust from machinery.	2d. The spotter will position him/herself upwind of the working machinery, when possible. Spotter will also inform others working within the vicinity of the **EZ** of proper positioning, if applicable.

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JOB SAFETY ANALYSIS	Cntrl. No. GEN-027	DATE: 05/29/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Drilling**	**Pre-Drilling Clearance, Vactron, and Air Knife**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☒ FACE SHIELD (While Air Knifing) ☒ HEARING PROTECTION (As needed) ☒ SAFETY SHOES: Composite toe or steel toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing; long-sleeve shirt	☒ GLOVES: Nitrile, cut-resistant Level II ☒ OTHER: Dusk mask, insect repellent, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Vac-Truck or Vac Drum, Compressor, Jack Hammer, Air Knife. Circular Saw, Hand Tools, Dust Mask, Photoionization Detector, Multi Gas Meter, Traffic safety cones and flags, Retractable Cone Bars, Caution Tape, 20 lb. Fire Extinguisher, "Work Area" Signs, Pressurized Water Sprayer

Commitment to Safety – All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs.

EXCLUSION ZONE: All non-essential personnel must maintain a distance of 10 feet from drilling equipment while it is in motion or engaged.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Verify pre-clearance protocol	**1a. CONTACT:** Underground utility damage; property damage; personal injury.	1a. Confirm "Call Before You Dig" and local utility companies were contacted before starting work to confirm utility mark outs. Must have a case # before digging. 1a Walk the Site to evaluate utility markings and review maps (see Site Walk Inspection JSA - GEN-019). Utilities are not always adequately marked out; ensure the use of observational skills through the pre-clearing checklist. 1a. Review the pre-clearing checklist form and the sub-surface clearance form. The pre-clearing protocol indicates that clearance must be conducted to a minimum of 5 vertical feet below the ground surface or 10 vertical feet below the ground surface in the critical zone using hand tools.
	1b. ENERGY SOURCE/CONTACT: Property damage; Pressurized water mains may cause lacerations or broken bones. Pressurized gas mains may explode, causing serious injury or death. Underground electric may cause severe burns, shock, or death.	1b. MUST Complete subsurface clearance checklist before pre-clearance. 1b. Pre-clearing of each soil boring/monitoring well location must be conducted to a minimum of 5 vertical feet below the ground surface (10 feet minimum for Critical Zone) using hand tools (shovel and non-metallic dig bar and hand auger) before drilling. The supervisor should be contacted to discuss the appropriate pre-clearing depth.
	1c. FALL: Slip, Trip, or Fall may cause muscle strains or tears, abrasions, lacerations, or broken bones.	1c. Be aware of the conditions when walking or loading equipment and working. Walk within an established pathway, avoiding uneven surfaces. Remove potential slip, trip, and fall hazards.
2. Mobilize/demobilize and establish a work area	**2a. SEE MOBILIZATION / DEMOBILIZATION JSA – GEN-015**	2a. See Mobilization / Demobilization JSA.
3. Concrete saw cutting, jackhammer, and hand clearance with hand tools, air knife	**3a. CONTACT:** Flying debris striking the face or body	3a Maintain a 10' minimum exclusion zone. Use the required PPE (i.e., cut-resistant gloves, safety glasses, and face shield). 3a. Use anti-whip devices on compressor hoses. Ensure hose couplings are secure. 3a Wear a face shield to protect your face from flying debris when using the air knife. 3a. Utilize a traffic cone, cage, or physical barriers over the hole during air knife activities to keep flying debris close to the ground.
	3b. EXPOSURE: Inhalation/exposure to hazardous vapors and/or concrete dust, noise exposure	3b. Monitor breathing zone with a calibrated PID and/or multi-gas meter. If meters sustain readings greater than recommended in the HASP for the specific contaminant of concern (COCs), the Roux field personnel must temporarily cease work and instruct all Site personnel to step away from the area of elevated readings. Contact PM. 3b. Wet concrete while using a saw to minimize dust, and may require donning respiratory protection. 3b. Stand upwind and keep your body behind the saw. Observers and helpers should stay out of the line of fire from the saw blade. Always cut away from the body. 3b. No open flames/heat sources. 3b. Wear hearing protection when a saw, jackhammer, or air compressor is in operation; otherwise, if sound levels exceed 85 dB, put on hearing protection.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift." Avoid general statements such as, "be careful."

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
	3c. ENERGYSOURCE/CONTACT: Property damage; Pressurized water mains may cause lacerations or broken bones. Pressurized gas mains may explode, causing serious injury or death. Underground electric may cause severe burns, shock, or death.	3c. For air knifing, ensure extension/lance tip reaches the full 5 feet bgs. Air knife should be advanced **AT A MINIMUM** in all four corners of the expected boring location to find any possible arrangement of utilities. 3c. Ensure the diameter of the soil preclearance hole is at a **MINIMUM 2x** the diameter of any drilling or hard dig equipment that will be entering the hole, which rotates. For direct push applications (CPT, Geoprobe®, etc.), the borehole clearance diameter shall be at least 125% of the diameter of the largest tool being pushed through the subsurface (e.g., tip, rod, sampler, etc.). 3c. See the Complete subsurface clearance protocol for information provided above.
	3d. ERGONOMICS/EXERTION: Muscle strain due to poor body positioning when handling equipment and materials	3d. Use body positioning and lifting techniques that minimize muscle strain; keep back straight, lift with legs, keep load close to body, and never reach with a load. 3d. Ensure that loads are balanced to reduce the potential for muscle strain. 3d. Two people or a mechanical lifting aid are required when lifting objects over 40 lbs. or when the shape makes the object difficult to lift.
	3e. FALL: Tripping/falling due to uneven terrain, weather conditions, and materials/equipment stored at the Site	3e. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions before mobilizing equipment—mobilization/Demobilization JSA. 3e. Do not climb over stored materials/equipment; walk around. Practice good housekeeping. 3e. Use established pathways and walk on stable, secure ground. 3e. Equipment and tools will be stored at the lowest point of potential energy and out of the walkway and immediate work area (i.e., tools should not be propped against walls or nearby equipment or vehicles). 3e. Equipment and tools that are not anticipated to be used will be returned to a storage area that is out of the immediate work area. 3e. Ensure power cords and compressed air lines are grouped when used within the work area. 3e. The pre-cleared location will be finished flush to grade to prevent a slip/trip hazard, or it will be coned and taped off.
	3f. CAUGHT: Amputation points associated with the equipment and vacuum hose	3f. Always wear cut-resistant gloves when making connections, using hand tools, or when handling cutting tools. 3f. Inspect the equipment before use for potential pinch points. 3f. Test all emergency shutdown devices before working with the equipment. 3f. Inspect saw blade for worn surface or missing teeth; switch blade if damaged or blunt. 3f. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body. 3f. All non-essential personnel shall maintain a 10-foot exclusion zone; position the body out of the line-of-fire of equipment. 3f. Drillers and helpers will understand and comply with the "Show Me Your Hands Policy".
4. Move the drum to the staging area using the drum cart	**4a. EXPOSURE/CONTACT:** Contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, soil)	4a. Wear Nitrile chemical-resistant gloves under cut-proof gloves. 4a. Do not overfill drums. Ensure that the drum lids are attached securely. 4a. All drums will be staged in the designated storage area.
	4b. EXERTION: Muscle strain while maneuvering drums with drum cart/lift gate	4b. See 3d. Do not overfill drums. Use the lift gate on the back of the truck to load and unload drums. Use a drum dolly to move the drum.
	4c. CAUGHT: Pinch points associated with handling the drum lid	4c. Ensure that fingers are not placed under the lid of the drum. Wear cut resistant gloves. Use appropriate ratchet while sealing drum lid.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
5. Decontaminate equipment.	**5a. EXPOSURE/CONTACT**: To contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, vapors).	5a. Wear chemical-resistant disposable gloves and safety glasses. 5a. Contain decontamination water so that it does not spill. 5a. Use an absorbent pad to clean spills, if necessary. 5a. Spray equipment from side angle, not straight on, to avoid backsplash. 5a. See 3b.
	5b. EXPOSURE: To chemicals in cleaning solution.	5b. See 4a. Review SDS to ensure appropriate precautions are taken and understood.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-029	DATE: 05/29/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Preclearing/Sampling**	**Hand Augering**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☐ HEARING PROTECTION ☒ SAFETY SHOES: Steel or composite-toed boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Long-sleeved high-visibility clothing	☒ GLOVES: Cut Resistant level II / Nitrile / Chemical resistant ☐ OTHER

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Hand Auger Tools (buckets, rods), 5-gallon buckets, hand tools (hammer, etc.)

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Drive/walk to hand clearing/hand augering location	**1a. CONTACT:** Property damage and personal injury caused by obstructions/vehicles	1a. Maintain speed limit on-site. 1a. All equipment must be stowed and secured prior to moving. 1a. Drive on established roadways. 1a. Do not back up the vehicle without a spotter where visibility is limited; use pull-through spots or back into parking spots; use an audible signal (horn/back-up alarm) when backing up vehicles.
	1b. FALL: Personal injury from tripping/falling due to uneven terrain, weather conditions, and materials/equipment stored at portions of the Site	1b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 1b. Do not climb over stored materials/equipment; walk around. Use established pathways and walk on stable, secure ground. 1b. Use the established ramp when descending into/ascending from impoundment areas. 1b. Keep tools and equipment in a designated area. When not in use, tools and equipment must be returned to their proper storage location. Keep the work area clear of obstructions.
	1c. EXERTION: Muscle strain/exhaustion while carrying equipment (i.e., hand auger, post-hole digger, shovel, pry bar)	1c. When carrying equipment to/from the work area, use proper lifting techniques; keep back straight, lift with legs, keep the load close to the body, never reach with a load. Ensure that loads are balanced to reduce the potential for muscle strain. Use mechanical assistance or make multiple trips to carry equipment.
	1d. EXPOSURE: Exposure to the sun, possibly causing sunburn. Biological hazards - bees/wasps, poison oak, thorns, insects, etc.	1d. Wear sunscreen with an SPF of at least 15 whenever 30 minutes or more of exposure is expected. 1d. Inspect the area to avoid contact with biological hazards. 1d. Wear cut-resistant gloves when handling material, debris, branches, shrubs, etc. that may lie within the walking path. 1d. Avoid any areas on-site that have poison oak.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
2. Secure location	**2a. CONTACT:** Personnel and vehicular traffic may enter the work area.	2a. Delineate the work area with traffic cones and/or caution tape to prevent exposure to traffic and inform others of work activity. 2a. Wear a reflective vest and/or fluorescent clothing. 2a. Face the direction of vehicular traffic. Position the vehicle to protect the worker from traffic. 2a. Communicate work activity with adjacent work areas.
	2b. FALL: Tripping/falling due to uneven terrain, and materials /equipment stored within the work area	2b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment to the impoundments. 2b. Equipment and tools will be staged in a convenient, stable, and orderly manner. 2b. Equipment and tools will be stored at the lowest point of potential energy and out of the walkway and immediate work area (i.e., tools should not be propped against walls or nearby equipment or vehicles). 2b. Equipment and tools that are not anticipated to be used will be returned to an appropriate storage area that is out of the immediate work area.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Verify pre-clearance protocol; review completed Subsurface Utility Checklist and utility verification site walkthrough.	**3a. ENERGY SOURCE:** Underground utility damage; property damage; personal injury	3a. Confirm that "Call Before You Dig"/811 and local utility companies were contacted prior to hand augering. 3a. Walk the Site to evaluate utility markings and review maps.
4. Augering/advancing borehole	**4a. EXPOSURE:** Contaminated soil/water/vapor	4a. Monitor the breathing zone with a PID when VOCs are a concern. If vapors exceed site-specific action levels, upgrade PPE as per the HASP. 4a. Wear chemical-resistant disposable gloves and safety glasses when handling impacted materials. 4a. Place excavated soil on plastic sheeting and store soil waste in a designated area. 4a. Work on the upwind side of the boring.
	4b. EXERTION: Muscle strain from lifting, bending, repetitive motion.	4b. Body positioning and rotating with the auger to reduce strain. Do not twist back.
	4c. CAUGHT: Personal injury as a result of jewelry/loose clothing caught on equipment, well covers, machinery, hand auger, pry bar, etc.	4c. No form of jewelry should be worn while on-site. 4c. Clothing must be appropriately sized so that it is not loose-fitting.
	4d. CONTACT/CAUGHT: Pinch points, abrasions	4d. Keep head and upper body clear when lifting hand auger, pry bar/post-hole digger. Ensure not to be overly aggressive when using the pry bar. 4d. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body.
5. Lithologic observation and soil sampling	**5a. EXPOSURE:** Contact with contamination (impacted soil and/or lab preservatives)	5a. Wear chemical-resistant disposable gloves to protect hands when handling samples; wear safety glasses when on site and/ or goggles when handling any preservatives; use containment material or plastic sheeting to protect surrounding areas. 5a. When collecting a soil sample from a hand auger, put a large zip lock bag over the entire auger to prevent the spillage of soil onto the ground. 5a. Open sample jars slowly and fill them carefully to avoid contact with preservatives.
6. Decontaminate equipment	**6a. EXPOSURE:** Contact with contamination (impacted soil and/or lab preservatives, decontamination solution)	6a. Wear chemical-resistant disposable gloves and safety glasses. 6a. Use an absorbent pad to clean spills. 6a. Properly dispose of used materials/PPE trash bags. 6a. Refer to the SDS for the decontamination solution for proper handling.
	6b. CONTACT/CAUGHT: pinch points and cuts/abrasions	6b. Keep fingers/hands out of pinch points when disassembling the hand auger during decontamination.

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APPENDIX B

SDSs for Chemicals Used

SAFETY DATA SHEET

US OSHA Hazard Communication Standard (29 CFR 1910.1200) and Canada WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR)

Issuing Date 15-Aug-2023 **Revision Date** 15-Aug-2023 **Revision Number** 1

1. Identification

Product identifier

Product Name Alconox

Other means of identification

Product Code(s) 1101, 1103, 1104, 1104-1, 1112, 1112-1, 1125, 1150

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended use Cleaning agent; Detergent

Restrictions on use Do not mix with other detergents unless otherwise specified

Details of the supplier of the safety data sheet

Supplier Address
Alconox Inc.
30 Glenn St., Suite 309
White Plains, NY 10603 USA
914-948-4040

E-mail cleaning@alconox.com

Emergency telephone number

Emergency telephone ChemTel Inc.: North America: 1-888-255-3924
International: +1-813-248-0573

2. Hazard(s) identification

Classification

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A

Label elements

Warning

Hazard statements
Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves, eye protection and face protection.
Precautionary Statements - Response
Specific treatment (see information on this label).
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice and attention.
Skin
IF ON SKIN: Wash with plenty of water and soap.
If skin irritation occurs: Get medical advice and attention.
Take off contaminated clothing and wash it before reuse.
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
Rinse mouth.
Precautionary Statements - Disposal
Dispose of contents and container to an approved waste disposal plant.

Unknown acute toxicity

Other information
May be harmful in contact with skin. Harmful to aquatic life with long lasting effects.

3. Composition/information on ingredients

Substance

Not applicable.

Mixture

Chemical name	CAS No.	Weight-%	**Hazardous Material Information Review Act registry number (HMIRA registry #)**	**Date HMIRA filed and date exemption granted (if applicable)**
Benzenesulfonic acid, mono-C10-16-alkyl derivs., sodium salts	68081-81-2	10-30	-	-
Sodium carbonate	497-19-8	7-13	-	-
Sodium Dodecyl Sulphate	151-21-3	0.5-1.5	-	-
Tetrasodium EDTA	64-02-8	0.1-1	-	-

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance.

Inhalation Remove to fresh air. Get medical attention immediately if symptoms occur.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

	Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Ingestion	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms	May cause redness and tearing of the eyes. Burning sensation.
Effects of Exposure	No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	No information available.
Specific hazards arising from the chemical	No information available.
Hazardous combustion products	Sodium oxides, Carbon oxides, Sulfur oxides, Phosphorus oxides, Nitrogen oxides (NOx).
Explosion data	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.
Other information	Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Pick up and transfer to properly labeled containers.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

7. Handling and storage

Precautions for safe handling

Advice on safe handling	Avoid breathing dust. Handle in accordance with good industrial hygiene and safety

practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

8. Exposure controls/personal protection

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection If splashes are likely to occur, wear safety glasses with side-shields.

Hand protection Wear nitrile or rubber gloves. Wear suitable gloves. Impervious gloves.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Avoid breathing dust. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Off-white powder
Physical state	Solid
Color	Off-white
Odor	No information available
Odor threshold	No information available

Property	Values	Remarks • Method
pH	9.5 (1% Solution)	No data available
Melting point / freezing point		No data available
Initial boiling point and boiling range		No data available
Flash point		No data available
Evaporation rate		No data available
Flammability		No data available
Flammability Limit in Air		
Upper flammability or explosive limits		No data available
Lower flammability or explosive limits		No data available
Vapor pressure		No data available
Relative vapor density		No data available
Relative density		No data available
Water solubility		No data available

Solubility(ies)	No data available
Partition coefficient	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	No data available
Dynamic viscosity	No data available

Other information

Explosive properties	No information available.
Oxidizing properties	No information available.
Softening point	No information available
Molecular weight	No information available
VOC content	0 %
Liquid Density	No information available
Bulk density	No information available

10. Stability and reactivity

Reactivity	None under normal use conditions.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	None known based on information supplied.
Incompatible materials	Strong acids, Strong bases, Strong oxidizing agents.
Hazardous decomposition products	None known based on information supplied.

11. Toxicological information

Information on likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.
Eye contact	Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.
Skin contact	Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).
Ingestion	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed. (based on components).

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms	Redness. May cause redness and tearing of the eyes.
Acute toxicity	Harmful if swallowed.

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document:

ATEmix (oral)	1,962.10 mg/kg
ATEmix (dermal)	2,660.40 mg/kg
ATEmix (inhalation-dust/mist)	6.95 mg/l

Unknown acute toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Sodium carbonate	= 4090 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	= 2300 mg/m³ (Rat) 2 h
Sodium Dodecyl Sulphate	= 1288 mg/kg (Rat)	= 200 mg/kg (Rabbit)	> 3900 mg/m³ (Rat) 1 h
Tetrasodium EDTA	= 1658 mg/kg (Rat)	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. Causes skin irritation.

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye irritation.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

12. Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Sodium carbonate 497-19-8	-	LC50: =300mg/L (96h, Lepomis macrochirus) LC50: 310 - 1220mg/L (96h, Pimephales promelas)	-	EC50: =265mg/L (48h, Daphnia magna)
Sodium Dodecyl Sulphate 151-21-3	EC50: =53mg/L (72h, Desmodesmus subspicatus) EC50: 30 - 100mg/L (96h, Desmodesmus subspicatus) EC50: =117mg/L (96h, Pseudokirchneriella subcapitata) EC50: 3.59 - 15.6mg/L (96h, Pseudokirchneriella subcapitata)	LC50: 15 - 18.9mg/L (96h, Pimephales promelas) LC50: 8 - 12.5mg/L (96h, Pimephales promelas) LC50: 22.1 - 22.8mg/L (96h, Pimephales promelas) LC50: 4.3 - 8.5mg/L (96h, Oncorhynchus mykiss) LC50: =4.62mg/L (96h, Oncorhynchus mykiss) LC50: =4.2mg/L (96h, Oncorhynchus mykiss) LC50: =7.97mg/L (96h, Brachydanio rerio) LC50: 9.9 - 20.1mg/L (96h, Brachydanio rerio) LC50: 4.06 - 5.75mg/L	-	EC50: =1.8mg/L (48h, Daphnia magna)

		(96h, Lepomis macrochirus) LC50: 4.2 - 4.8mg/L (96h, Lepomis macrochirus) LC50: =4.5mg/L (96h, Lepomis macrochirus) LC50: 5.8 - 7.5mg/L (96h, Pimephales promelas) LC50: 10.2 - 22.5mg/L (96h, Pimephales promelas) LC50: 6.2 - 9.6mg/L (96h, Pimephales promelas) LC50: 13.5 - 18.3mg/L (96h, Poecilia reticulata) LC50: 10.8 - 16.6mg/L (96h, Poecilia reticulata) LC50: =1.31mg/L (96h, Cyprinus carpio)		
Tetrasodium EDTA 64-02-8	-	LC50: =41mg/L (96h, Lepomis macrochirus) LC50: =59.8mg/L (96h, Pimephales promelas)	-	-

Persistence and degradability No information available.

Bioaccumulation

Component Information

Chemical name	Partition coefficient
Sodium Dodecyl Sulphate 151-21-3	1.6

Other adverse effects No information available.

13. Disposal considerations

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations, Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

California waste information This product contains one or more substances that are listed with the State of California as a hazardous waste.

14. Transport information

DOT Not regulated

TDG Not regulated

IATA Not regulated

IMDG Not regulated

15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories
Contact supplier for inventory compliance status

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Pentasodium Triphosphate 7758-29-4	-	X	X
Tetrasodium pyrophosphate 7722-88-5	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA	**Health hazards**	2	**Flammability**	0	**Instability**	0	**Special hazards**	-
HMIS	**Health hazards**	2	**Flammability**	0	**Physical hazards**	0	**Personal protection**	X

(M)SDS Number UL-NOX-003

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend
SVHC: Substances of Very High Concern for Authorization:
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances
vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances
STOT: Specific Target Organ Toxicity
ATE: Acute Toxicity Estimate
LC50: 50% Lethal Concentration
LD50: 50% Lethal Dose

Legend Section 8: Exposure controls/personal protection			
TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitizers		

Key literature references and sources for data used to compile the SDS
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Issuing Date	15-Aug-2023
Revision Date	15-Aug-2023
Revision Note	Initial Release.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Diesel Fuel

Product Use: Blendstock, Chemical Feedstock, Fuel Oil, Fuel
Synonyms: #2 ULSD; Dyed Diesel Fuel; Fuel Oil; #1 ULSD; CARB Diesel; CARB Diesel; Diesel; Diesel fuel – all grades; Diesel Fuels; Fuel Oil #1; Fuel Oil #2; Heating oil; HO; HSHO; Kero; Kerosene; LSHO; No. 1 ULSD; No. 2 ULSD; Off Road Diesel Fuel, B2 – B20 Diesel; R2 – R20 Diesel Fuel; SDS 900; ULS No. 1 Diesel; ULS No. 2 Diesel; ULSD; ULSK; Ultra Low Sulfur Diesel; Winter diesel
Company Identification
REG Marketing & Logistics Group, LLC
416 South Bell Avenue
Ames, IA 50010
United States of America

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency & Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
Product Information: Phone: 1 888.734.8686 / Email: REG-SDSDistribution@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION:
- Flammable liquid: Category 3.
- Acute inhalation toxicant: Category 4.
- Aspiration toxicant: Category 1.
- Carcinogen: Category 2.
- Skin irritation: Category 2.
- Target organ toxicant (central nervous system): Category 3.
- Target organ toxicant (repeated exposure): Category 2.
- Target organ toxicant (respiratory irritant): Category 3.
- Acute aquatic toxicant: Category 2.
- Chronic aquatic toxicant: Category 2.

Signal Word: Danger
Physical Hazards:
- Flammable liquid and vapour.

Health Hazards:

- May be fatal if swallowed and enters airways.
- Causes skin irritation.
- Harmful if inhaled.
- May cause respiratory irritation.
- May cause drowsiness or dizziness.
- Suspected of causing cancer.
- May cause damage to organs (Blood/Blood Forming Organs, Liver, Thymus) through prolonged or repeated exposure.

Environmental Hazards:
- Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS:
Prevention:
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Keep container tightly closed.
- Keep cool.
- Ground/bond container and receiving equipment.
- Use explosion-proof electrical/ventilating/lighting/equipment.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wash thoroughly after handling.
- Use only outdoors or in a well-ventilated area.
- Avoid release to the environment.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Use personal protective equipment as required.

Response:
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- IF ON SKIN: Wash with plenty of soap and water.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- IF exposed or concerned: Get medical advice/attention.
- Specific treatment (see Notes to Physician on this label).
- Do NOT induce vomiting.
- If skin irritation occurs: Get medical advice/attention.
- Take off contaminated clothing and wash it before reuse.
- In case of fire: Use media specified in the SDS to extinguish.
- Collect spillage.

Storage:
- Store in a well-ventilated place. Keep container tightly closed.
- Store locked up.

Disposal:
- Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT

Fuel Oil, No. 2	68476-30-2	0 - 100 %weight
Kerosene	8008-20-6	0 - 100 %weight
Fatty acids, C14-18 and C16-18-unsatd., Methyl esters	67762-26-9	0 - 95 %weight
Fuels, diesel, C9-18 alkane branched and linear	1159170-26-9	0 - 95 %weight
Naphthalene	91-20-3	< 3 %weight

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.
Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue or if any other symptoms develop.

Most important symptoms and effects, both acute and delayed
IMMEDIATE HEALTH EFFECTS
Eye: Contact with the eyes may cause irritation. Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. Contact with the skin is not expected to cause an allergic skin response.
Ingestion: Highly toxic; may be fatal if swallowed. Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death. May be irritating to mouth, throat, and stomach. Symptoms may include pain, nausea, vomiting, and diarrhea.
Inhalation: The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Excessive or prolonged breathing of this material may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death. If this material is heated, fumes may be unpleasant and produce nausea and irritation of the eye and upper respiratory tract.

DELAYED OR OTHER HEALTH EFFECTS:
Cancer: Prolonged or repeated exposure to this material may cause cancer. Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).
Target Organs: Contains material that may cause damage to the following organ(s) following repeated inhalation at concentrations above the recommended exposure limit: Liver Blood/Blood Forming Organs Thymus
Medical Conditions Aggravated by Exposure: Exposure to naphthalene may aggravate existing blood disorders. Individuals with congenital erythrocyte glucose-6-phosphate dehydrogenase deficiency may be particularly susceptible to the hemolytic effects of naphthalene.

See Section 11 for additional information. Risk depends on duration and level of exposure.

Indication of any immediate medical attention and special treatment needed
Note to Physicians: Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO_2) to extinguish flames. Do not use water spray or a direct stream of water.
Unusual Fire Hazards: See Section 7 for proper handling and storage.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion. Combustion may form oxides of: Hydrocarbons, Nitrogen, Sulfur.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Precautionary Measures: Liquid evaporates and forms vapor (fumes) which can catch fire and burn with explosive force. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches.
Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

General Storage Information: DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces . USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the workplace when designing engineering controls and selecting personal protective equipment (PPE). If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, refer to PPE information below.

Factors that affect PPE include, but are not limited to: properties of the chemical, other chemicals which may contact the same PPE, physical requirements (fit & sizing, cut/puncture protection, dexterity, thermal protection, etc.), and potential allergic reactions to the PPE material. It is the responsibility of the user to read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances. Refer to appropriate CEN standards.

ENGINEERING CONTROLS:
Use general ventilation, local exhaust ventilation, or a combination of both.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: Wear protective equipment to prevent eye contact. Selection of protective equipment may include safety glasses, chemical goggles, face shields, or a combination depending on the work operations conducted.
Skin Protection: Wear chemical personal protective equipment (PPE) to prevent skin contact. Selection of chemical protective clothing should be performed by an Occupational Hygienist or Safety Professional and be based upon applicable standards (ASTM F739 or EN 374). Using chemical PPE depends upon operations conducted and may include chemical gloves, boots, chemical apron, chemical suit, and complete facial protection. **Refer to PPE manufacturers to obtain breakthrough time information to determine how long PPE can be used before it needs to be replaced.** Unless specific glove manufacturer data indicates otherwise, the below table is based upon available industry data to assist in the glove selection process and is intended to be used as reference only.

Chemical Glove Material	Thickness (mm)	Typical Breakthrough Time (minutes)
Nitrile	0.5	5
Viton Butyl	0.3	60

Butyl	**Not recommended for use**
Neoprene	**Not recommended for use**
Polyvinyl Chloride (PVC)	**Not recommended for use**

Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying

Respirator for Organic Vapors.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	Form	TWA	STEL	Ceiling	Notation
Fuel Oil, No. 2	ACGIH	Inhalable fraction and vapor	100 mg/m3	--	--	Skin total hydrocarbon
Kerosene	ACGIH	Vapor	200 mg/m3	--	--	Skin
Fuel Oil, No. 2	ACGIH	Vapor and aerosol	100 mg/m3	--	--	Skin total hydrocarbon
Kerosene	CVX	Vapor	200 mg/m3	--	--	Skin
Fuel Oil, No. 2	CVX	Vapor and aerosol	100 mg/m3	--	--	--
Naphthalene	ACGIH	--	10 ppm	--	--	Skin
Naphthalene	ACGIH	Vapor	10 ppm	15 ppm	--	A4 Skin
Naphthalene	OSHA Z-1	--	50 mg/m3	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Varies depending on specification
Physical State: Liquid
Odor: Petroleum naphtha odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <13 psia
Relative Vapor Density: No data available
Initial Boiling Point: >130°C (266°F)
Solubility: Negligible
Freezing Point: No data available
Melting Point: No data available
Specific Gravity: 67 @ 15.6°C (60°F)
Particle Characteristics: Not applicable
Density: No data available
Kinematic Viscosity: 1.3 mm2/s - 4.1 mm2/s @ 40°C (104°F)
Coefficient of Therm. Expansion / °F: No data available
Evaporation Rate: Not Applicable
Decomposition temperature: No data available
Partition coefficient n-octanol/water (logarithmic value): No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available

Flashpoint: > 38 °C (> 100 °F)
Autoignition: > 210 °C (> 410 °F)
Flammability (Explosive) Limits (% by volume in air): Lower: 0.4 Upper: 8

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Conditions to Avoid: Do not store near sources of ignition. Do not heat above flash point. Avoid contact with mineral acid/alkali.
Incompatibility With Other Materials: Not applicable
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The material is not considered an eye irritant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Skin Corrosion/Irritation: This material causes skin irritation. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Skin Sensitization: The material is not considered a skin sensitizer. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Acute Dermal Toxicity: LD50: >2000 mg/kg (rabbit).

Acute Oral Toxicity: LD50: >5000 mg/kg (rat).

Acute Inhalation Toxicity: LC50: 1 - 5 mg/l (rat).
Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The material is not considered a mutagen. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Carcinogenicity: This material is suspected of causing cancer. The product has not been tested. The statement is based on evaluation of data for similar materials or product components. Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Reproductive Toxicity: The material is not considered a reproductive toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Specific Target Organ Toxicity - Single Exposure: This material may cause drowsiness or dizziness. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.
This material may cause respiratory irritation. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Specific Target Organ Toxicity - Repeated Exposure: This material may cause damage to organs through prolonged or repeated exposure. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Aspiration Hazard: This material is considered an aspiration hazard based on the kinematic viscosity of the material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains naphthalene.
GENERAL TOXICITY: Exposure to naphthalene has been reported to cause methemoglobinemia and/or hemolytic anemia, especially in humans deficient in the enzyme glucose-6-phosphate dehydrogenase. Laboratory animals given repeated oral doses of naphthalene have developed cataracts.
REPRODUCTIVE TOXICITY AND BIRTH DEFECTS: Naphthalene did not cause birth defects when administered orally to rabbits, rats, and mice during pregnancy, but slightly reduced litter size in mice at dose levels that were lethal to the pregnant females. Naphthalene has been reported to cross the human placenta. GENETIC TOXICITY: Naphthalene caused chromosome aberrations and sister chromatid exchanges in Chinese hamster ovary cells, but was not a mutagen in several other in-vitro tests.CARCINOGENICITY: In a study conducted by the National Toxicology Program (NTP), mice exposed to 10 or 30 ppm of naphthalene by inhalation daily for two years had chronic inflammation of the nose and lungs and increased incidences of metaplasia in those tissues. The incidence of benign lung tumors (alveolar/bronchiolar adenomas) was significantly increased in the high-dose female group but not in the male groups. In another two-year inhalation study conducted by NTP, exposure of rats to 10, 30, and 60 ppm naphthalene caused increases in the incidences of a variety of nonneoplastic lesions in the nose. Increases in nasal tumors were seen in both sexes, including olfactory neuroblastomas in females at 60 ppm and adenomas of the respiratory epithelium in males at all exposure levels. The relevance of these effects to humans has not been established. No carcinogenic effect was reported in a 2-year feeding study in rats receiving naphthalene at 41 mg/kg/day.

This product contains kerosene. CONCAWE (product dossier 94/106) has summarized current health, safety and environmental data available for a number of kerosenes (typically straight-run kerosene, CAS 8008-20-6, or hydrodesulfurized kerosene, CAS 64742-81-0). ACUTE/SUBCHRONIC: Following acute exposure to kerosene, signs observed in rats and rabbits were of a low order of toxicity: central nervous system depression occurred following oral exposure, skin irritation (ranging from slight to severe irritation) occurred with dermal exposure, and respiratory tract irritation occurred with inhalation exposure. None of the kerosenes tested produced more than slight eye irritation and none were skin sensitizers. However, intratracheal administration or artificial aspiration of small volumes (0.1 to 0.2 ml) of kerosene into the lungs of rats, chickens and primates resulted in lung damage and/or death. In a study in which rats, mice, rabbits and cats were exposed to kerosene aerosol concentrations in the range 0.05 to 120 mg/l for up to four weeks, reductions in respiratory rate, pulmonary hyperaemia, leucocytosis, monocytosis and decreased erythrocyte sedimentation rate were observed, and histological examination revealed inflammatory changes in the respiratory tract (tracheitis, bronchitis and pneumonia).
CANCER: Chronic (3 to 24 months) mouse dermal toxicity studies of kerosenes and jet fuels produced mild to moderate skin irritation, while long-term (2+ years) studies showed moderate to severe skin damage as well as an increased incidence of tumors after long latency periods (probably due to a secondary mechanism related to skin irritancy). DEVELOPMENTAL/REPRODUCTION: Hydrodesulfurized kerosene was tested by the Petroleum Product Stewardship Council in a OECD Guideline 421 Reproductive/Developmental Toxicity Study. The kerosene sample was diluted to 494 (60%), 330 (40%),and 165 (20%) mg/kg/day in food grade mineral oil and applied daily during pre-mating and mating to day 19 of gestation. There was no apparent maternal, reproductive, or developmental toxicity at any dose. Males treated for eight weeks had increased relative kidney weights in the high dose group but no microscopic changes in testes or epididymides. No gross anomalies were observed in the pups.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is expected to be toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.
The product has not been tested. The statement has been derived from the properties of the individual

components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is expected to be readily biodegradable. The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Partition coefficient n-octanol/water (logarithmic value): No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by international, country, or local laws and regulations.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: UN1202, DIESEL FUEL, 3, III

IMO/IMDG Shipping Description: UN1202, DIESEL FUEL, 3, III, (FLASH POINT SEE SECTION 9), MARINE
POLLUTANT (DIESEL FUEL)

ICAO/IATA Shipping Description: UN1202, DIESEL FUEL, 3, III

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:
Acute toxicity (any route of exposure)
Aspiration Hazard
Carcinogenicity
Flammable (gases, aerosols, liquids, or solids)
Skin Corrosion or Irritation
Specific target organ toxicity (single or repeated exposure)

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	05=MA RTK
01-2A=IARC Group 2A	06=NJ RTK
01-2B=IARC Group 2B	07=PA RTK
02=NTP Carcinogen	08-1=TSCA 5(e)
03=EPCRA 313	08-2=TSCA 12(b)

04=CA Proposition 65

The following components of this material are found on the regulatory lists indicated.

Fuel Oil, No. 2	06, 07
Kerosene	05, 06, 07
Naphthalene	01-1, 01-2B, 02, 03, 04, 05, 06, 07

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: DSL (Canada), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: AIIC (Australia), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan).

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 2 Flammability: 2 Reactivity: 0

HMIS RATINGS: Health: 2* Flammability: 2 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

REVISION STATEMENT: This is a new Safety Data Sheet.
No revision information

Revision Date: December 01, 2023

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	PNOS - Particles Not Otherwise Specified

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Technical Center, 6001 Bollinger Canyon Road, San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility

for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

SAFETY DATA SHEET

Helium

Section 1. Identification

GHS product identifier : Helium

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046,Helium USP

Product type : Gas.

Product use : Synthetic/Analytical chemistry.

Synonym : helium (dot); Helium-4; He; o-Helium; UN 1046,Helium USP

SDS # : 001025

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Prevention : Not applicable.

Response : Not applicable.

Storage : Protect from sunlight. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046,Helium USP

Product code : 001025

CAS number/other identifiers

CAS number : 7440-59-7

Ingredient name	%	CAS number
Helium	100	7440-59-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid breathing gas. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous.

Section 7. Handling and storage

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Helium	**ACGIH TLV (United States, 3/2019). Oxygen Depletion [Asphyxiant].**

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Odor : Odorless.

Odor threshold : Not available.

pH : Not available.

Melting point : -272.2°C (-458°F)

Boiling point : -268.9°C (-452°F)

Critical temperature : -267.9°C (-450.2°F)

Flash point : [Product does not sustain combustion.]

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : 0.14 (Air = 1) Liquid Density@BP: 7.8 lb/ft3 (125 kg/m3)

Specific Volume (ft ^{3}/lb) : 96.1538

Gas Density (lb/ft ^{3}) : 0.0104

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : 0.28

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Not applicable.

Flow time (ISO 2431) : Not available.

Molecular weight : 4 g/mole

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 10. Stability and reactivity

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Section 11. Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Helium	0.28	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1046	UN1046	UN1046	UN1046	UN1046
UN proper shipping name	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED
Transport hazard class(es)	2.2	2.2	2.2	2.2	2.2
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

DOT Classification : **Limited quantity** Yes.
Quantity limitation Passenger aircraft/rail: 75 kg. Cargo aircraft: 150 kg.

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).
Explosive Limit and Limited Quantity Index 0.125
Passenger Carrying Road or Rail Index 75

IATA : **Quantity limitation** Passenger and Cargo Aircraft: 75 kg. Cargo Aircraft Only: 150 kg.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

Section 15. Regulatory information

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : This material is listed.
New York : This material is not listed.
New Jersey : This material is listed.
Pennsylvania : This material is listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : This material is listed or exempted.
Canada : This material is listed or exempted.
China : This material is listed or exempted.
Europe : This material is listed or exempted.
Japan : **Japan inventory (ENCS)**: Not determined.
Japan inventory (ISHL): Not determined.
New Zealand : This material is listed or exempted.
Philippines : This material is listed or exempted.
Republic of Korea : This material is listed or exempted.
Taiwan : This material is listed or exempted.
Thailand : Not determined.
Turkey : Not determined.
United States : This material is active or exempted.
Viet Nam : This material is listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	/	1
Flammability		0
Physical hazards		3

Section 16. Other information

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
GASES UNDER PRESSURE - Compressed gas	Expert judgment

History

Date of printing : 1/27/2021

Date of issue/Date of revision : 1/27/2021

Date of previous issue : 4/23/2018

Version : 1.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

Creation Date 24-Aug-2009 **Revision Date** 13-Oct-2023 **Revision Number** 8

1. Identification

Product Name **Hydrochloric acid**

Cat No. : **A481-212; A481-212LC; S71942SC; S71943; S71943ND; S80036; S80038; SA49**

CAS No 7647-01-0
Synonyms Muriatic acid; Hydrogen chloride; HCl (Technical/Certified ACS Plus/Optima/NF/FCC)

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Corrosive to metals	Category 1
Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Danger

Hazard Statements
May be corrosive to metals

Causes severe skin burns and eye damage
May cause respiratory irritation

Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Keep only in original container
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Spills
Absorb spillage to prevent material damage
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in corrosive resistant polypropylene container with a resistant inliner
Store in a dry place
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Water	7732-18-5	62-65
Hydrochloric acid	7647-01-0	35-38

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a

pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Corrosive material. Causes burns by all exposure routes. Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products
Hydrogen chloride gas.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Do not get in eyes, on skin, or on clothing.

Environmental Precautions Should not be released into the environment. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Incompatible Materials. Metals. Strong oxidizing agents. Bases. sodium hypochlorite. Amines. Fluorine. Cyanides. Alkaline.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Hydrochloric acid	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m^3 (Vacated) Ceiling: 5 ppm (Vacated) Ceiling: 7 mg/m^3	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m^3	Ceiling: 2 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type: Particulates filter conforming to EN 143. or. Acid gases filter: Type E, Yellow.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	pungent
Odor Threshold	No information available
pH	< 1
Melting Point/Range	-35 °C / -31 °F
Boiling Point/Range	57 °C / 135 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	125 mbar @ 20 °C
Vapor Density	1.27
Specific Gravity	1.18
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	1.8 mPa.s @ 15°C
Molecular Formula	HCl

Molecular Weight 55.55

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat.

Incompatible Materials Metals, Strong oxidizing agents, Bases, sodium hypochlorite, Amines, Fluorine, Cyanides, Alkaline

Hazardous Decomposition Products Hydrogen chloride gas

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions Contact with metals may evolve flammable hydrogen gas.

11. Toxicological information

Acute Toxicity

Product Information
Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Vapor LC50 Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-
Hydrochloric acid	238 - 277 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	1.68 mg/L (Rat) 1 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Causes burns by all exposure routes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Hydrochloric acid	7647-01-0	Not listed	Not listed	Not listed	Not listed	Not listed

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hydrochloric acid	-	282 mg/L LC50 96 h Gambusia affinis mg/L LC50 48 h Leucscus idus	-	56mg/L EC50 72h Daphnia

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1789
Proper Shipping Name HYDROCHLORIC ACID
Hazard Class 8
Packing Group II

TDG

UN-No UN1789
Proper Shipping Name HYDROCHLORIC ACID
Hazard Class 8
Packing Group II

IATA

UN-No UN1789
Proper Shipping Name Hydrochloric acid
Hazard Class 8
Packing Group II

IMDG/IMO

UN-No UN1789
Proper Shipping Name Hydrochloric acid
Hazard Class 8
Packing Group II

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Water	7732-18-5	X	ACTIVE	-
Hydrochloric acid	7647-01-0	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Water	7732-18-5	X	-	231-791-2	X	X		X	X	KE-35400
Hydrochloric acid	7647-01-0	X	-	231-595-7	X	X	X	X	X	KE-20189

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Hydrochloric acid	7647-01-0	35-38	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Hydrochloric acid	X	5000 lb	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hydrochloric acid	X		-

OSHA - Occupational Safety and Health Administration Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Hydrochloric acid	-	TQ: 5000 lb

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Hydrochloric acid	5000 lb	5000 lb

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Water	-	-	X	-	-
Hydrochloric acid	X	X	X	X	X

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product contains the following DHS chemicals:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Hydrochloric acid	Release STQs - 15000lb (concentration >=37%) Release STQs - 5000lb (anhydrous) Theft STQs - 500lb (anhydrous)

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Water	7732-18-5	-	-	-
Hydrochloric acid	7647-01-0	-	Use restricted. See item 75. (see link for restriction details)	-

REACH links
https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Water	7732-18-5	Listed	Not applicable	Not applicable	Not applicable
Hydrochloric acid	7647-01-0	Listed	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Water	7732-18-5	Not applicable	Not applicable	Not applicable	Not applicable
Hydrochloric acid	7647-01-0	25 tonne	250 tonne	Not applicable	Annex I - Y34

16. Other information

Prepared By Regulatory Affairs

Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date	24-Aug-2009
Revision Date	13-Oct-2023
Print Date	13-Oct-2023
Revision Summary	SDS sections updated. 2. 3. 11.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Hydrogen Sulfide

Section 1. Identification

GHS product identifier : Hydrogen Sulfide

Chemical name : hydrogen sulphide

Other means of identification : Hydrogen sulfide; Sulfuretted hydrogen; Sewer gas; Hydrosulfuric acid; dihydrogen sulfide; hydrosulphuric acid; sulphuretted hydrogen; HYDROGEN SULFIDE H2S; Sulfur hydride; Hydrogen sulfide (H2S); Sulfuric acid

Product type : Gas.

Product use : Synthetic/Analytical chemistry.

Synonym : Hydrogen sulfide; Sulfuretted hydrogen; Sewer gas; Hydrosulfuric acid; dihydrogen sulfide; hydrosulphuric acid; sulphuretted hydrogen; HYDROGEN SULFIDE H2S; Sulfur hydride; Hydrogen sulfide (H2S); Sulfuric acid

SDS # : 001029

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE GASES - Category 1
GASES UNDER PRESSURE - Liquefied gas
ACUTE TOXICITY (inhalation) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
AQUATIC HAZARD (ACUTE) - Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable gas.
Contains gas under pressure; may explode if heated.
Fatal if inhaled.
May cause respiratory irritation.
Very toxic to aquatic life.

Extended exposure to gas reduces the ability to smell sulfides.
May form explosive mixtures with air.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Do not depend on odor to detect presence of gas. Approach suspected leak area with caution.

Section 2. Hazards identification

Prevention : In case of inadequate ventilation wear respiratory protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not breathe gas.

Response : Collect spillage. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.

Storage : Store locked up. Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : hydrogen sulphide

Other means of identification : Hydrogen sulfide; Sulfuretted hydrogen; Sewer gas; Hydrosulfuric acid; dihydrogen sulfide; hydrosulphuric acid; sulphuretted hydrogen; HYDROGEN SULFIDE H2S; Sulfur hydride; Hydrogen sulfide (H2S); Sulfuric acid

Product code : 001029

CAS number/other identifiers

CAS number : 7783-06-4

Ingredient name	%	CAS number
hydrogen sulfide	100	7783-06-4

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Section 4. First aid measures

Inhalation : Fatal if inhaled. May cause respiratory irritation.

Skin contact : No known significant effects or critical hazards.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:, respiratory tract irritation, coughing

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
sulfur oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Section 6. Accidental release measures

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Use only non-sparking tools. Avoid release to the environment. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Do not breathe gas.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Store locked up. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
hydrogen sulfide	**ACGIH TLV (United States, 3/2019).** STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours. **NIOSH REL (United States, 10/2016).** CEIL: 15 mg/m³ 10 minutes. CEIL: 10 ppm 10 minutes. **OSHA PEL 1989 (United States, 3/1989).** STEL: 21 mg/m³ 15 minutes. STEL: 15 ppm 15 minutes. TWA: 14 mg/m³ 8 hours.

Section 8. Exposure controls/personal protection

	TWA: 10 ppm 8 hours. **OSHA PEL Z2 (United States, 2/2013).** AMP: 50 ppm 10 minutes. CEIL: 20 ppm

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Odor : Rotten eggs.

Odor threshold : Not available.

pH : Not available.

Melting point : -82°C (-115.6°F)

Section 9. Physical and chemical properties

Boiling point	:	-60°C (-76°F)
Critical temperature	:	100.5°C (212.9°F)
Flash point	:	Not available.
Evaporation rate	:	Not available.
Flammability (solid, gas)	:	Not available.
Lower and upper explosive (flammable) limits	:	Lower: 4.3% Upper: 45%
Vapor pressure	:	252 (psig)
Vapor density	:	1.19 (Air = 1)
Specific Volume (ft ^{3}/lb)	:	11.236
Gas Density (lb/ft ^{3})	:	0.089
Relative density	:	Not applicable.
Solubility	:	Not available.
Solubility in water	:	5 g/l
Partition coefficient: n-octanol/water	:	Not available.
Auto-ignition temperature	:	270°C (518°F)
Decomposition temperature	:	Not available.
Viscosity	:	Not applicable.
Flow time (ISO 2431)	:	Not available.
Molecular weight	:	34.08 g/mole

Section 10. Stability and reactivity

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatible materials	:	Oxidizers
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	:	Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
hydrogen sulfide	LC50 Inhalation Gas.	Rat	712 ppm	1 hours

Irritation/Corrosion

Not available.

Sensitization

Section 11. Toxicological information

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
hydrogen sulfide	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : Fatal if inhaled. May cause respiratory irritation.

Skin contact : No known significant effects or critical hazards.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:, respiratory tract irritation, coughing

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Section 11. Toxicological information

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Inhalation (gases)	356 ppm

Other information : IDLH : 100 ppm

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
hydrogen sulfide	Acute EC50 62 µg/l Fresh water Acute LC50 2 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus Fish - Coregonus clupeaformis - Yolk-sac fry	2 days 96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

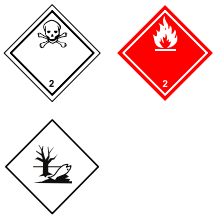
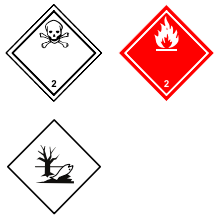
Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Hydrogen sulfide; Hydrogen sulfide H2S	7783-06-4	Listed	U135

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1053	UN1053	UN1053	UN1053	UN1053
UN proper shipping name	HYDROGEN SULFIDE	HYDROGEN SULFIDE; OR HYDROGEN SULPHIDE	HYDROGEN SULFIDE	HYDROGEN SULPHIDE	HYDROGEN SULPHIDE
Transport hazard class(es)	2.3 (2.1)	2.3 (2.1) 	2.3 (2.1)	2.3 (2.1) 	2.3 (2.1)
Packing group	-	-	-	-	-
Environmental hazards	No.	Yes.	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes. The environmentally hazardous substance mark is not required.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

DOT Classification : Toxic - Inhalation hazard Zone B
Reportable quantity 100 lbs / 45.4 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
Limited quantity Yes.
Quantity limitation Passenger aircraft/rail: Forbidden. Cargo aircraft: Forbidden.
Special provisions 2, B9, B14

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2), 2.13-2.17 (Class 2), 2.7 (Marine pollutant mark).
The marine pollutant mark is not required when transported by road or rail.
Explosive Limit and Limited Quantity Index 0
ERAP Index 0
Passenger Carrying Vessel Index Forbidden
Passenger Carrying Road or Rail Index Forbidden

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.
Quantity limitation Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: Forbidden.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
Clean Water Act (CWA) 311: hydrogen sulphide

Clean Air Act (CAA) 112 regulated toxic substances: hydrogen sulphide

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
hydrogen sulfide	100	Yes.	500	-	100	-

SARA 304 RQ : 100 lbs / 45.4 kg

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	hydrogen sulphide	7783-06-4	100
Supplier notification	hydrogen sulphide	7783-06-4	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

New York : This material is listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

Section 15. Regulatory information

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	:	This material is listed or exempted.
Canada	:	This material is listed or exempted.
China	:	This material is listed or exempted.
Europe	:	This material is listed or exempted.
Japan	:	**Japan inventory (ENCS)**: This material is listed or exempted. **Japan inventory (ISHL)**: Not determined.
New Zealand	:	This material is listed or exempted.
Philippines	:	This material is listed or exempted.
Republic of Korea	:	This material is listed or exempted.
Taiwan	:	This material is listed or exempted.
Thailand	:	Not determined.
Turkey	:	Not determined.
United States	:	This material is active or exempted.
Viet Nam	:	This material is listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	/	4
Flammability		4
Physical hazards		3

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Section 16. Other information

Classification	Justification
FLAMMABLE GASES - Category 1	Expert judgment
GASES UNDER PRESSURE - Liquefied gas	Expert judgment
ACUTE TOXICITY (inhalation) - Category 2	On basis of test data
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Expert judgment
AQUATIC HAZARD (ACUTE) - Category 1	Expert judgment

History

Date of printing : 2/11/2021

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Date of previous issue : 11/30/2017

Version : 1.01

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

Isobutylene

Section 1. Identification

GHS product identifier : Isobutylene

Chemical name : 2-methylpropene

Other means of identification : 1-Propene, 2-methyl-; Isobutene; Isobutylene; 1-Propene, 2-methyl- (isobutene); 1, 1-Dimethylethylene; Isopropylidenemethylene; iso-Butene; i-Butene; 2-Methylpropylene; 2-Methyl-2-propene; 2-Methyl-1-propene

Product type : Gas.

Product use : Synthetic/Analytical chemistry.

Synonym : 1-Propene, 2-methyl-; Isobutene; Isobutylene; 1-Propene, 2-methyl- (isobutene); 1, 1-Dimethylethylene; Isopropylidenemethylene; iso-Butene; i-Butene; 2-Methylpropylene; 2-Methyl-2-propene; 2-Methyl-1-propene

SDS # : 001031

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE GASES - Category 1
GASES UNDER PRESSURE - Liquefied gas

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable gas.
May form explosive mixtures with air.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response : Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage : Protect from sunlight. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : 2-methylpropene

Other means of identification : 1-Propene, 2-methyl-; Isobutene; Isobutylene; 1-Propene, 2-methyl- (isobutene); 1, 1-Dimethylethylene; Isopropylidenemethylene; iso-Butene; i-Butene; 2-Methylpropylene; 2-Methyl-2-propene; 2-Methyl-1-propene

Product code : 001031

CAS number/other identifiers

CAS number : 115-11-7

Ingredient name	%	CAS number
Isobutylene	100	115-11-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Use only non-sparking tools. Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Isobutylene	**ACGIH TLV (United States, 3/2017).** TWA: 250 ppm 8 hours.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Odor : Characteristic.

Odor threshold : Not available.

pH : Not available.

Melting point : -140.7°C (-221.3°F)

Boiling point : -6.9°C (19.6°F)

Critical temperature : 144.75°C (292.6°F)

Flash point : Closed cup: -76.1°C (-105°F)

Evaporation rate : Not available.

Flammability (solid, gas) : Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and oxidizing materials.

Lower and upper explosive (flammable) limits : Lower: 1.8%
Upper: 9.6%

Vapor pressure : 24.3 (psig)

Vapor density : 1.94 (Air = 1)

Specific Volume (ft ^{3}/lb) : 6.6845

Gas Density (lb/ft ^{3}) : 0.1496 (25°C / 77 to °F)

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : 0.26 g/l

Partition coefficient: n-octanol/water : 2.34

Auto-ignition temperature : 465°C (869°F)

Decomposition temperature : Not available.

Viscosity : Not applicable.

Flow time (ISO 2431) : Not available.

Molecular weight : 56.12 g/mole

Aerosol product

Heat of combustion : -45029034 J/kg

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Incompatible materials : Oxidizers

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Isobutylene	LC50 Inhalation Vapor	Rat	550000 mg/m³	4 hours

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Section 11. Toxicological information

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Isobutylene	2.34	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Section 12. Ecological information

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1055	UN1055	UN1055	UN1055	UN1055
UN proper shipping name	ISOBUTYLENE	ISOBUTYLENE	ISOBUTYLENE	ISOBUTYLENE	ISOBUTYLENE
Transport hazard class(es)	2.1	2.1	2.1	2.1	2.1
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

DOT Classification : **Limited quantity** Yes.
Quantity limitation Passenger aircraft/rail: Forbidden. Cargo aircraft: 150 kg.
Special provisions 19, T50

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).
Explosive Limit and Limited Quantity Index 0.125
ERAP Index 3000
Passenger Carrying Ship Index Forbidden
Passenger Carrying Road or Rail Index Forbidden
Special provisions 29

IATA : **Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: 150 kg.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
Clean Air Act (CAA) 112 regulated flammable substances: Isobutylene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : This material is listed.
New York : This material is not listed.
New Jersey : This material is listed.
Pennsylvania : This material is listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : This material is listed or exempted.
Canada : This material is listed or exempted.
China : This material is listed or exempted.
Europe : This material is listed or exempted.
Japan : **Japan inventory (ENCS)**: This material is listed or exempted.
Japan inventory (ISHL): Not determined.
Malaysia : Not determined.
New Zealand : This material is listed or exempted.
Philippines : This material is listed or exempted.
Republic of Korea : This material is listed or exempted.

Section 15. Regulatory information

Taiwan	:	This material is listed or exempted.
Thailand	:	Not determined.
Turkey	:	Not determined.
United States	:	This material is listed or exempted.
Viet Nam	:	Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	/	1
Flammability		4
Physical hazards		3

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

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Procedure used to derive the classification

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FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Liquefied gas	Expert judgment Expert judgment

History

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Key to abbreviations	:	ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973

Section 16. Other information

as modified by the Protocol of 1978. ("Marpol" = marine pollution)
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Safety Data Sheet

Nitric Acid 20% w/w

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Nitric Acid 20% w/w

Synonyms/Generic Names: None

Product Number: 3800

Product Use: Industrial, Manufacturing or Laboratory use

Manufacturer: Columbus Chemical Industries, Inc.
N4335 Temkin Rd.
Columbus, WI. 53925

For More Information: 920-623-2140 (Monday-Friday 8:00-4:30)
www.columbuschemical.com

In Case of Emergency Call: CHEMTREC - 800-424-9300 or 703-527-3887 (24 Hours/Day, 7 Days/Week)

2. HAZARDS IDENTIFICATION

Hazard Not Otherwise Classified (HNOC): None

Signal Words: Danger

Pictograms:

GHS Classification:

Skin corrosion	Category 1A
Serious eye damage	Category 1

GHS Label Elements, including precautionary statements:

Hazard Statements:

H314	Causes severe skin burns and eye damage.

Precautionary Statements:

P260	Do not breathe dusts or mists.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do not induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/physician.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local regulations.

Potential Health Effects

Eyes	Causes eye irritation.
Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Ingestion	May be harmful if swallowed.

NFPA Ratings

Health	3
Flammability	0
Reactivity	1
Specific hazard	Not Available

HMIS Ratings

Health	3
Fire	0
Reactivity	1

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Weight %	CAS #	EINECS# / ELINCS#	Formula	Molecular Weight
Nitric Acid	19-21	7697-37-2	231-714-2	HNO_3	63.01 g/mol
Water	Balance	7732-18-5	231-791-2	H_2O	18.00 g/mol

4. FIRST-AID MEASURES

Eyes	Rinse with plenty of water for at least 15 minutes and seek medical attention immediately.
Inhalation	Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
Skin	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and wash using soap. Get medical attention immediately.
Ingestion	**Do Not Induce Vomiting!** Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately.

5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media	Product is not flammable. Use appropriate media for adjacent fire. Cool containers with water.
Special protective equipment and precautions for firefighters	Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots.
Specific hazards arising from the chemical	Emits toxic fumes (nitrogen oxides) under fire conditions. (See also Stability and Reactivity section).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	See section 8 for recommendations on the use of personal protective equipment.
Environmental precautions	Prevent spillage from entering drains. Any release to the environment may be subject to federal/national or local reporting requirements.
Methods and materials for containment and cleaning up	Neutralize spill with sodium bicarbonate or lime. Absorb spill with noncombustible absorbent material, then place in a suitable container for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste and cleanup materials in accordance with regulations.

7. HANDLING AND STORAGE

Precautions for safe handling
See section 8 for recommendations on the use of personal protective equipment. Use with adequate ventilation. Wash thoroughly after using. Keep container closed when not in use. Avoid formation of aerosols.

Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area. Keep away from incompatible materials (see section 10 for incompatibilities).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure controls:

Component	Exposure Limits	Basis	Entity
Nitric Acid	2 ppm 5.2 mg/m^3	TLV	ACGIH
	4 ppm 10 mg/m^3	STEL	ACGIH
	2 ppm 5 mg/m^3	PEL	OSHA
	2 ppm 5 mg/m^3	REL	NIOSH
	4 ppm 10 mg/m^3	STEL	NIOSH
	25 ppm	IDLH	NIOSH

TWA: Time Weighted Average over 8 hours of work.
TLV: Threshold Limit Value over 8 hours of work.
REL: Recommended Exposure Limit
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit during x minutes.
IDLH: Immediately Dangerous to Life or Health
WEEL: Workplace Environmental Exposure Levels
CEIL: Ceiling

Personal Protection

Eyes	Wear chemical safety glasses or goggles and face shield if splashing is likely to occur.
Inhalation	Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator.
Skin	Wear nitrile or rubber gloves and a full body suit.

Other	Not Available

Other Recommendations
Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.)	Colorless liquid.
Odor	Not Available
Odor threshold	Not Available
pH	Not Available
Melting point/freezing point	Not Available
Initial boiling point and boiling range	Not Available
Flash point	Not Flammable
Evaporation rate	Not Available
Flammability (solid, gas)	Not Flammable
Upper/lower flammability or explosive limit	Not Explosive
Vapor pressure	Not Available
Vapor density	Not Available
Specific gravity	1.13 – 1.14g/cm^3 at 20°C (68°F)
Solubility (ies)	Soluble in water.
Partition coefficient: n-octanol/water	Not Available
Auto-ignition temperature	Not Available
Decomposition temperature	Not Available

10. STABILITY AND REACTIVITY

Chemical Stability	Stable
Possibility of Hazardous Reactions	Will not occur.
Conditions to Avoid	May discolor on exposure to air and light.
Incompatible Materials	Alkali metals, organic materials, acetic anhydride, acetonitrile, alcohols, acrylonitrile.
Hazardous Decomposition Products	Nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Skin	Not Available
Eyes	Not Available
Respiratory	Not Available
Ingestion	Not Available

Carcinogenicity

IARC	No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH	No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP	No components of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA	No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Signs & Symptoms of Exposure

Skin	Itching, swelling, redness, burning.
Eyes	Itching, redness, burning, watering eyes.
Respiratory	Burning, choking, shortness of breath, coughing, wheezing, dizziness.
Ingestion	Burning, choking, nausea, vomiting, pain.

Chronic Toxicity	Not Available
Teratogenicity	Not Available
Mutagenicity	Not Available
Embryotoxicity	Not Available
Target Organ(s)	Lungs, Teeth, Cardiovascular system
Reproductive Toxicity	Not Available
Respiratory/Skin Sensitization	Not Available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Aquatic Vertebrate	Not Available
Aquatic Invertebrate	Not Available
Terrestrial	Not Available

Persistence and Degradability	Not Available
Bioaccumulative Potential	Not Available
Mobility in Soil	Not Available
PBT and vPvB Assessment	Not Available
Other Adverse Effects	Not Available

13. DISPOSAL CONSIDERATIONS

Waste Product or Residues	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product or residue.
Product Containers	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container.

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods.

14. TRANSPORTATION INFORMATION

US DOT	UN2031, Nitric acid, 8, pg II
TDG	UN2031, NITRIC ACID, 8, PG II
IMDG	UN2031, NITRIC ACID, 8, PG II
Marine Pollutant	No
IATA/ICAO	UN2031, Nitric acid, 8, pg II

15. REGULATORY INFORMATION

TSCA Inventory Status	All ingredients are listed on the TSCA Active inventory.
DSL / NDSL	All ingredients are listed on the DSL inventory.
California Proposition 65	Not Listed
Rhode Island: Hazardous Substance List	Listed: Nitric Acid
Massachusetts: Toxic or Hazardous Substance List, Right to Know	Listed: Nitric Acid
Pennsylvania: Hazardous Substance List	Listed: Nitric Acid
New Jersey: Right to Know Hazardous Substance List	Listed: Nitric Acid
SARA 302	Listed: Nitric Acid
SARA 304	Listed: Nitric Acid
SARA 311	Acute Health Hazard.
SARA 312	Acute Health Hazard.
SARA 313	Listed: Nitric Acid
WHMIS Canada	Class C: Oxidizing material. Class E: Corrosive material.

16. OTHER INFORMATION

Revision	Date
Original	10/11/2017
Revision 1	01/03/2022

Disclaimer: The information provided in this Safety Data Sheet (“SDS”) is correct to the best of our knowledge, information, and belief at the date of publication. The information in this SDS relates only to the specific Product identified under Section 1, and does not relate to its use in combination with other materials or products, or its use as to any particular process. Those handling, storing, or using the Product should satisfy themselves that they have current information regarding the particular way the Product is handled, stored or used and that the same is done in accordance with federal, state and local law. WE DO NOT MAKE ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING (WITHOUT LIMITATION) WARRANTIES WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN OR WITH RESPECT TO FITNESS FOR ANY PARTICULAR USE. WE DO NOT ASSUME RESPOSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, INJURY, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THIS PRODUCT.

SAFETY DATA SHEET

Creation Date 16-Jun-2009 **Revision Date** 07-Sep-2023 **Revision Number** 8

1. Identification

Product Name **Sodium hydroxide**

Cat No. : **BP359-500; BP359-212**

CAS No 1310-73-2
Synonyms Caustic soda

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Corrosive to metals	Category 1
Skin Corrosion/Irritation	Category 1 A
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Danger

Hazard Statements
May be corrosive to metals
Causes severe skin burns and eye damage
May cause respiratory irritation

Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Keep only in original container
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Spills
Absorb spillage to prevent material damage
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in corrosive resistant polypropylene container with a resistant inliner
Store in a dry place
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Sodium hydroxide	1310-73-2	100

4. First-aid measures

General Advice
Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

Skin Contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

Inhalation
Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call

a physician or poison control center immediately.

Ingestion Do NOT induce vomiting. Immediate medical attention is required. Never give anything by mouth to an unconscious person. Drink plenty of water.

Most important symptoms and effects Causes burns by all exposure routes. . Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Not combustible. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Do not use a solid water stream as it may scatter and spread fire

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
The product causes burns of eyes, skin and mucous membranes. Reacts violently with water. Contact with metals may evolve flammable hydrogen gas.

Hazardous Combustion Products
Hydrogen. Sodium oxides.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	1	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.

Environmental Precautions Do not allow material to contaminate ground water system. Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up Avoid dust formation. Sweep up and shovel into suitable containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Use only under a chemical fume hood. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

Incompatible Materials. Strong oxidizing agents. Acids. Metals. Water.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Sodium hydroxide	Ceiling: 2 mg/m³	Ceiling: 2 mg/m³ TWA: 2 mg/m³	IDLH: 10 mg/m³ Ceiling: 2 mg/m³	Ceiling: 2 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Tight sealing safety goggles. Face protection shield.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type: Particulates filter conforming to EN 143.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	Odorless
Odor Threshold	No information available
pH	14 (5 %)
Melting Point/Range	318 °C / 604.4 °F
Boiling Point/Range	1390 °C / 2534 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	Not flammable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mbar @ 700 °C
Vapor Density	Not applicable
Specific Gravity	No information available
Bulk Density	2.13 g/cm3
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	H Na O

Molecular Weight 40

10. Stability and reactivity

Reactive Hazard Yes

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat.

Incompatible Materials Strong oxidizing agents, Acids, Metals, Water

Hazardous Decomposition Products Hydrogen, Sodium oxides

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium hydroxide	140 - 340 mg/kg (Rat)	1350 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Causes severe burns by all exposure routes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Sodium hydroxide	1310-73-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Sodium hydroxide	Not listed	LC50: = 45.4 mg/L, 96h static (Oncorhynchus mykiss)	Not listed	Not listed

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1823
Proper Shipping Name SODIUM HYDROXIDE, SOLID
Hazard Class 8
Packing Group II

TDG

UN-No UN1823
Proper Shipping Name SODIUM HYDROXIDE, SOLID
Hazard Class 8
Packing Group II

IATA

UN-No UN1823
Proper Shipping Name Sodium hydroxide, solid
Hazard Class 8
Packing Group II

IMDG/IMO

UN-No UN1823
Proper Shipping Name Sodium hydroxide, solid
Hazard Class 8
Packing Group II

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Sodium hydroxide	1310-73-2	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Sodium hydroxide	1310-73-2	X	-	215-185-5	X	X	X	X	X	KE-31487

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Sodium hydroxide	X	1000 lb	-	-

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sodium hydroxide	1000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Sodium hydroxide	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Sodium hydroxide	1310-73-2	-	Use restricted. See item	-

			75. (see link for restriction details)	

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Sodium hydroxide	1310-73-2	Listed	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Sodium hydroxide	1310-73-2	Not applicable	Not applicable	Not applicable	Annex I - Y35

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 16-Jun-2009
Revision Date 07-Sep-2023
Print Date 07-Sep-2023
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

26597-42 StablCal Formazin Turbidity Standard, < 0.1 NTU

UFI: AK0E-980S-J30M-50DY

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Water analysis

1.3. Details of the supplier of the safety data sheet

Company name: HACH LANGE GmbH
Street: Willstätterstr. 11
Place: D-40549 Düsseldorf
Telephone: +49 (0)211 5288-383
e-mail: SDS@hach.com
Internet: www.de.hach.com
Responsible Department: HACH LANGE Ltd.
5, Pacific Way
Salford Manchester M50 1DL - United Kingdom
Tel. +44 (0) 161 872 1487 * Fax +44 (0) 161 848 7324
e-Mail: info-uk@hach.com

HACH LANGE Ltd.
Unit 1, Chestnut Road Western Industrial Estate
IRL-Dublin 12
Tel. +353 (0)1 4602522
e-Mail: info-ie@hach.com

1.4. Emergency telephone number:

Poison Control Center Mainz: Tel: +49 (0) 6131 19240 - 24 hour emergency service -

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
Respiratory or skin sensitisation: Resp. Sens. 1
Respiratory or skin sensitisation: Skin Sens. 1
Hazard Statements:
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

methenamine; hexamethylenetetramine

Signal word: Danger

Pictograms:

Hazard statements

H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P304+P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

Additional advice on labelling

The product is classified as dangerous in accordance with Regulation (EC) No. 1272/2008.

2.3. Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	CLP Classification			
7732-18-5	Water			>90 %
	231-791-2			
100-97-0	methenamine; hexamethylenetetramine			5-10 %
	202-905-8	612-101-00-2		
	Flam. Sol. 2, Resp. Sens. 1, Skin Sens. 1; H228 H334 H317			
50-00-0	formaldehyde ... %			<0,1 %
	200-001-8	605-001-00-5		
	Carc. 1B, Muta. 2, Acute Tox. 3, Acute Tox. 3, Acute Tox. 3, Skin Corr. 1B, Skin Sens. 1; H350 H341 H331 H311 H301 H314 H317			

Full text of H and EUH statements: see section 16.

Specific concentration limits and M-factors

CAS No	EC No	Chemical name	Quantity
	Specific concentration limits and M-factors		
50-00-0	200-001-8	formaldehyde ... %	<0,1 %
	Skin Corr. 1B; H314: >= 25 - 100 Skin Irrit. 2; H315: >= 5 - < 25 Eye Irrit. 2; H319: >= 5 - < 25 Skin Sens. 1; H317: >= 0,2 - 100 STOT SE 3; H335: >= 5 - 100		

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Take off all contaminated clothing immediately.

After inhalation

Move to fresh air.

After contact with skin

Wash off immediately with plenty of water.

After contact with eyes

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

After ingestion

Induce vomiting, but only if victim is fully conscious.

4.2. Most important symptoms and effects, both acute and delayed

sensitising effects

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.

5.2. Special hazards arising from the substance or mixture

Fire may liberate hazardous vapours.

5.3. Advice for firefighters

In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Additional information

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

6.4. Reference to other sections

13. Disposal considerations

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Use only in well-ventilated areas.

Advice on protection against fire and explosion

See also section 5

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep in a dry, cool place.

Hints on joint storage

None known.

7.3. Specific end use(s)

Reagent for analysis

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
50-00-0	Formaldehyde	2	2.5		TWA (8 h)	WEL
		2	2.5		STEL (15 min)	WEL

Additional advice on limit values

None known.

8.2. Exposure controls

Appropriate engineering controls

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Protective and hygiene measures

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Wash hands before breaks and after work.

Eye/face protection

Safety glasses with side-shields

Hand protection

Use barrier skin cream.
Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374. In full contact: Gloves material: Viton, Layer thickness: 0.70 mm, Breakthrough time: >480 min. In splash contact: Glove material: nitrile rubber, Layer thickness 0,20 mm, Breakthrough time: > 30 min

Skin protection

Remove and wash contaminated clothing before re-use.

Respiratory protection

Breathing apparatus only if aerosol or dust is formed. Recommended Filter type: ABEK-filter

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid
Colour:	colourless
Odour:	odourless
pH-Value (at 20 °C):	7,5-8,5

Changes in the physical state

Melting point:	no data available
Initial boiling point and boiling range:	100 °C

Sublimation point:	not applicable
Softening point:	not applicable
Pour point:	not applicable
:	no data available
Flash point:	not applicable
Sustaining combustion:	No data available
Flammability	
Solid:	not applicable
Gas:	not applicable
Explosive properties	
not applicable	
Lower explosion limits:	not applicable
Upper explosion limits:	not applicable
Ignition temperature:	no data available
Auto-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Decomposition temperature:	no data available
Oxidizing properties	
not applicable	
Vapour pressure:	no data available
Vapour pressure:	no data available
Density (at 20 °C):	1,04 g/cm³
Bulk density:	not applicable
Water solubility: (at 20 °C)	completely soluble
Solubility in other solvents	
no data available	
Partition coefficient:	no data available
Viscosity / dynamic:	no data available
Viscosity / kinematic:	no data available
Flow time:	no data available
Vapour density:	no data available
Evaporation rate:	no data available
Solvent separation test:	no data available
Solvent content:	no data available

9.2. Other information

Solid content:	not applicable

no data available

SECTION 10: Stability and reactivity

10.1. Reactivity

See also section 10.3

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Extremes of temperature and direct sunlight.

10.5. Incompatible materials

No dangerous reaction known under conditions of normal use.
Oxidizing agents

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

Further information

None known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

No data is available on the product itself.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
100-97-0	methenamine; hexamethylenetetramine				
	oral	LD50 9200 mg/kg	Ratte		
50-00-0	formaldehyde ... %				
	oral	ATE 100 mg/kg			
	dermal	ATE 300 mg/kg			
	inhalation (4 h) vapour	LC50 250 mg/l	rat		
	inhalation aerosol	ATE 0,5 mg/l			

Irritation and corrosivity

No known effect.

Sensitising effects

May cause sensitisation by skin contact.
May cause sensitisation by inhalation. (List of references: Asthma in the workplace, I.Leonard Bernstein)

Carcinogenic/mutagenic/toxic effects for reproduction

Contains no ingredient listed as a carcinogen

STOT-single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT-repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

No aspiration toxicity classification

Specific effects in experiment on an animal

No data is available on the product itself.

Additional information on tests

no data available

Practical experience

Observations relevant to classification

no data available

Other observations

no data available

Further information

Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1. Toxicity

No data is available on the product itself.

Do not flush into surface water or sanitary sewer system.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] | [d]	Species	Source	Method
100-97-0	methenamine; hexamethylenetetramine					
	Acute fish toxicity	LC50 49800 mg/l	96 h	Fisch		

12.2. Persistence and degradability

No data is available on the product itself.

12.3. Bioaccumulative potential

No data is available on the product itself.

12.4. Mobility in soil

no data available

12.5. Results of PBT and vPvB assessment

no data available

12.6. Other adverse effects

No known effect.

Further information

no data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

In accordance with local and national regulations.

List of Wastes Code - residues/unused products

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - used product

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - contaminated packaging

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

Land transport (ADR/RID)

Other applicable information (land transport)

Not subject to transport regulations.

Inland waterways transport (ADN)

Other applicable information (inland waterways transport)

Not tested

Marine transport (IMDG)

Other applicable information (marine transport)

Not subject to transport regulations.

Air transport (ICAO-TI/IATA-DGR)

Other applicable information (air transport)

Not subject to transport regulations.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

no data available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

not applicable

Other applicable information

no data available

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 28

National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

Revision: 30.05.2022
Safety datasheet sections which have been updated: 2, 7, 11, 15
Revision: 10.04.2018
Safety datasheet sections which have been updated: 2, 3, 11, 16
Revision: 10.12.2015
Safety datasheet sections which have been updated: 2, 11
Revision: 24.11.2015
Safety datasheet sections which have been updated: 2, 3, 11
Revision: 26.05.2015

Safety datasheet sections which have been updated: 2, 4, 11

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Resp. Sens. 1; H334	Calculation method
Skin Sens. 1; H317	Calculation method

Relevant H and EUH statements (number and full text)

H228	Flammable solid.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H350	May cause cancer.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

26601-42 StablCal Formazin Standard; 20 NTU

UFI: NFJN-JYR1-911T-GUK1

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Water analysis

1.3. Details of the supplier of the safety data sheet

Company name: HACH LANGE GmbH
Street: Willstätterstr. 11
Place: D-40549 Düsseldorf
Telephone: +49 (0)211 5288-383
e-mail: SDS@hach.com
Internet: www.de.hach.com
Responsible Department: HACH LANGE Ltd.
5, Pacific Way
Salford Manchester M50 1DL - United Kingdom
Tel. +44 (0) 161 872 1487 * Fax +44 (0) 161 848 7324
e-Mail: info-uk@hach.com

HACH LANGE Ltd.
Unit 1, Chestnut Road Western Industrial Estate
IRL-Dublin 12
Tel. +353 (0)1 4602522
e-Mail: info-ie@hach.com

1.4. Emergency telephone number:

Poison Control Center Mainz: Tel: +49 (0) 6131 19240 - 24 hour emergency service -

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
Respiratory or skin sensitisation: Resp. Sens. 1
Respiratory or skin sensitisation: Skin Sens. 1
Hazard Statements:
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

methenamine; hexamethylenetetramine

Signal word: Danger

Pictograms:

Hazard statements

H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.

Precautionary statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Additional advice on labelling

The product is classified as dangerous in accordance with Regulation (EC) No. 1272/2008.

2.3. Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	CLP Classification			
7732-18-5	Water			> 90 %
	231-791-2			
100-97-0	methenamine; hexamethylenetetramine			1-5 %
	202-905-8	612-101-00-2		
	Flam. Sol. 2, Resp. Sens. 1, Skin Sens. 1; H228 H334 H317			
7757-82-6	Sodium sulfate			< 1 %
	231-820-9			

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Take off all contaminated clothing immediately.

After inhalation

Move to fresh air.

After contact with skin

Wash off immediately with plenty of water.

After contact with eyes

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Show this safety data sheet to the doctor in attendance.

After ingestion

Clean mouth with water and drink afterwards plenty of water.
Call a physician immediately. Show this safety data sheet to the doctor in attendance.

4.2. Most important symptoms and effects, both acute and delayed

sensitising effects

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.

5.2. Special hazards arising from the substance or mixture

Fire may liberate hazardous vapours.

5.3. Advice for firefighters

In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Additional information

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

6.4. Reference to other sections

13. Disposal considerations

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Use only in well-ventilated areas.
Avoid contact with skin and eyes.

Advice on protection against fire and explosion

See also section 5

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep in a dry, cool place.

Hints on joint storage

None known.

7.3. Specific end use(s)

Reagent for analysis

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Additional advice on limit values

None known.

8.2. Exposure controls

Appropriate engineering controls

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Protective and hygiene measures

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Wash hands before breaks and after work.

Eye/face protection

Safety glasses with side-shields

Hand protection

Use barrier skin cream.
Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374. In full contact: Gloves material: Viton, Layer thickness: 0.70 mm, Breakthrough time: >480 min. In splash contact: Glove material: nitrile rubber, Layer thickness 0,20 mm, Breakthrough time: > 30 min

Skin protection

Remove and wash contaminated clothing before re-use.

Respiratory protection

Provide adequate ventilation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	suspension
Colour:	cloudy, milky
Odour:	odourless
pH-Value (at 20 °C):	8,26

Changes in the physical state

Melting point:	no data available
Initial boiling point and boiling range:	100 °C
Sublimation point:	not applicable
Softening point:	not applicable
Pour point:	not applicable
:	no data available
Flash point:	not applicable
Sustaining combustion:	No data available

Flammability

Solid:	not applicable
Gas:	not applicable

Explosive properties

not applicable

Lower explosion limits:	not applicable
Upper explosion limits:	not applicable

Ignition temperature:	no data available
Auto-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Decomposition temperature:	no data available
Oxidizing properties	
not applicable	
Vapour pressure:	no data available
Vapour pressure:	no data available
Density (at 20 °C):	1,01 g/cm³
Bulk density:	not applicable
Water solubility: (at 20 °C)	miscible
Solubility in other solvents	
no data available	
Partition coefficient:	no data available
Viscosity / dynamic:	no data available
Viscosity / kinematic:	no data available
Flow time:	no data available
Vapour density:	no data available
Evaporation rate:	no data available
Solvent separation test:	no data available
Solvent content:	no data available

9.2. Other information

Solid content:	not applicable

no data available

SECTION 10: Stability and reactivity

10.1. Reactivity

See also section 10.3

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Extremes of temperature and direct sunlight.

10.5. Incompatible materials

Oxidizing agents

10.6. Hazardous decomposition products

Ammonia, Carbon monoxide, nitrogen oxides (NOx)

Further information

Stable under recommended storage conditions.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

No data is available on the product itself.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
100-97-0	methenamine; hexamethylenetetramine				
	oral	LD50 9200 mg/kg	Ratte		
7757-82-6	Sodium sulfate				
	oral	LD50 5989 mg/kg	mouse		

Irritation and corrosivity

No known effect.

Sensitising effects

May cause sensitisation by skin contact.

May cause sensitisation by inhalation. (List of references: Asthma in the workplace, I.Leonard Bernstein)

Carcinogenic/mutagenic/toxic effects for reproduction

Contains no ingredient listed as a carcinogen

STOT-single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT-repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

No aspiration toxicity classification

Specific effects in experiment on an animal

No data is available on the product itself.

Additional information on tests

no data available

Practical experience

Observations relevant to classification

no data available

Other observations

no data available

Further information

Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1. Toxicity

No data is available on the product itself.

Do not flush into surface water or sanitary sewer system.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
100-97-0	methenamine; hexamethylenetetramine						
	Acute fish toxicity	LC50 mg/l	49800	96 h	Fisch		
7757-82-6	Sodium sulfate						
	Acute fish toxicity	LC50	120 mg/l	96 h	Gambusia affinis	Merck	
	Acute crustacea toxicity	EC50 mg/l	2564	48 h			

12.2. Persistence and degradability

No data is available on the product itself.

12.3. Bioaccumulative potential

No data is available on the product itself.

12.4. Mobility in soil

no data available

12.5. Results of PBT and vPvB assessment

no data available

12.6. Other adverse effects

No known effect.

Further information

no data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

In accordance with local and national regulations.

List of Wastes Code - residues/unused products

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - used product

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - contaminated packaging

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

Land transport (ADR/RID)

Other applicable information (land transport)

Not subject to transport regulations.

Inland waterways transport (ADN)

Other applicable information (inland waterways transport)

Not tested

Marine transport (IMDG)

Other applicable information (marine transport)

Not subject to transport regulations.

Air transport (ICAO-TI/IATA-DGR)

Other applicable information (air transport)

Not subject to transport regulations.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

no data available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

not applicable

Other applicable information

no data available

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3

National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

Revision: 03.01.2019
Safety datasheet sections which have been updated: 15, 16
Revision: 22.06.2016
Safety datasheet sections which have been updated: 2, 3
Revision: 27.05.2015
Safety datasheet sections which have been updated: 2, 4, 11

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Resp. Sens. 1; H334	Calculation method
Skin Sens. 1; H317	Calculation method

Relevant H and EUH statements (number and full text)

H228	Flammable solid.
H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

26602-42 StablCal Formazin Turbidity Standard; 100 NTU

UFI: VXTP-DY7N-611F-SVMQ

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Water analysis

1.3. Details of the supplier of the safety data sheet

Company name: HACH LANGE GmbH
Street: Willstätterstr. 11
Place: D-40549 Düsseldorf
Telephone: +49 (0)211 5288-383
e-mail: SDS@hach.com
Internet: www.de.hach.com
Responsible Department: HACH LANGE Ltd.
5, Pacific Way
Salford Manchester M50 1DL - United Kingdom
Tel. +44 (0) 161 872 1487 * Fax +44 (0) 161 848 7324
e-Mail: info-uk@hach.com

HACH LANGE Ltd.
Unit 1, Chestnut Road Western Industrial Estate
IRL-Dublin 12
Tel. +353 (0)1 4602522
e-Mail: info-ie@hach.com

1.4. Emergency telephone number:

Poison Control Center Mainz: Tel: +49 (0) 6131 19240 - 24 hour emergency service -

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
Respiratory or skin sensitisation: Resp. Sens. 1
Respiratory or skin sensitisation: Skin Sens. 1
Hazard Statements:
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

methenamine; hexamethylenetetramine

Signal word: Danger

Pictograms:

Hazard statements

H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.

Precautionary statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Additional advice on labelling

The product is classified as dangerous in accordance with Regulation (EC) No. 1272/2008.

2.3. Other hazards

no data available

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	CLP Classification			
7732-18-5	Water			> 90 %
	231-791-2			
100-97-0	methenamine; hexamethylenetetramine			1-5 %
	202-905-8	612-101-00-2		
	Flam. Sol. 2, Resp. Sens. 1, Skin Sens. 1; H228 H334 H317			
7757-82-6	Sodium sulfate			< 1 %
	231-820-9			

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Take off all contaminated clothing immediately.

After inhalation

Move to fresh air.

After contact with skin

Wash off immediately with plenty of water.

In the case of skin irritation or allergic reactions see a physician.

After contact with eyes

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Show this safety data sheet to the doctor in attendance.

After ingestion

Clean mouth with water and drink afterwards plenty of water.
Call a physician immediately. Show this safety data sheet to the doctor in attendance.

4.2. Most important symptoms and effects, both acute and delayed

sensitising effects

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.

5.2. Special hazards arising from the substance or mixture

Fire may liberate hazardous vapours.

5.3. Advice for firefighters

In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Additional information

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

6.4. Reference to other sections

13. Disposal considerations

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Use only in well-ventilated areas.
Avoid contact with skin and eyes.

Advice on protection against fire and explosion

See also section 5

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep in a dry, cool place.

Hints on joint storage

None known.

Further information on storage conditions

Keep locked up or in an area accessible only to qualified or authorised persons.

7.3. Specific end use(s)

Reagent for analysis

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Additional advice on limit values

None known.

8.2. Exposure controls

Appropriate engineering controls

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Protective and hygiene measures

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Wash hands before breaks and after work.

Eye/face protection

Safety glasses with side-shields

Hand protection

Use barrier skin cream.
Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374. In full contact: Gloves material: Viton, Layer thickness: 0.70 mm, Breakthrough time: >480 min. In splash contact: Glove material: nitrile rubber, Layer thickness 0,20 mm, Breakthrough time: > 30 min

Skin protection

Remove and wash contaminated clothing before re-use.

Respiratory protection

Provide adequate ventilation.
Breathing apparatus only if aerosol or dust is formed. Recommended Filter type: ABEK-filter

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	suspension
Colour:	cloudy, milky
Odour:	odourless
pH-Value (at 20 °C):	8,54

Changes in the physical state

Melting point:	not applicable
Initial boiling point and boiling range:	100 °C
Sublimation point:	not applicable
Softening point:	not applicable
Pour point:	not applicable
:	no data available
Flash point:	not applicable
Sustaining combustion:	No data available

Flammability

Solid:	not applicable
Gas:	not applicable

Explosive properties

not applicable

Lower explosion limits:	not applicable
Upper explosion limits:	not applicable
Ignition temperature:	not applicable
Auto-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Decomposition temperature:	not applicable

Oxidizing properties

not applicable

Vapour pressure:	no data available
Vapour pressure:	no data available
Density (at 20 °C):	1,01 g/cm³
Bulk density:	no data available
Water solubility: (at 20 °C)	miscible

Solubility in other solvents

no data available

Partition coefficient:	no data available
Viscosity / dynamic:	no data available
Viscosity / kinematic:	no data available
Flow time:	no data available
Vapour density:	no data available
Evaporation rate:	no data available
Solvent separation test:	no data available
Solvent content:	no data available

9.2. Other information

Solid content:	not applicable

no data available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerisation does not occur.

10.4. Conditions to avoid

Extremes of temperature and direct sunlight.

10.5. Incompatible materials

Oxidizing agents

10.6. Hazardous decomposition products

Ammonia, Carbon monoxide, nitrogen oxides (NOx)

Further information

Stable under recommended storage conditions.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

No data is available on the product itself.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
100-97-0	methenamine; hexamethylenetetramine				
	oral	LD50 9200 mg/kg	Ratte		
7757-82-6	Sodium sulfate				
	oral	LD50 5989 mg/kg	mouse		

Irritation and corrosivity

No known effect.

Sensitising effects

May cause sensitisation by skin contact.

May cause sensitisation by inhalation. (List of references: Asthma in the workplace, I.Leonard Bernstein)

Carcinogenic/mutagenic/toxic effects for reproduction

Contains no ingredient listed as a carcinogen

STOT-single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT-repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

No aspiration toxicity classification

Specific effects in experiment on an animal

No data is available on the product itself.

Additional information on tests

no data available

Practical experience

Observations relevant to classification

no data available

Other observations

no data available

Further information

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1. Toxicity

No data is available on the product itself.

Do not flush into surface water or sanitary sewer system.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
100-97-0	methenamine; hexamethylenetetramine						
	Acute fish toxicity	LC50 mg/l	49800	96 h	Fisch		
7757-82-6	Sodium sulfate						
	Acute fish toxicity	LC50	120 mg/l	96 h	Gambusia affinis	Merck	
	Acute crustacea toxicity	EC50 mg/l	2564	48 h			

12.2. Persistence and degradability

No data is available on the product itself.

12.3. Bioaccumulative potential

no data available

12.4. Mobility in soil

no data available

12.5. Results of PBT and vPvB assessment

no data available

12.6. Other adverse effects

Discharge into the environment must be avoided.

Further information

no data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

In accordance with local and national regulations.

List of Wastes Code - residues/unused products

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - used product

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - contaminated packaging

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

Land transport (ADR/RID)

Other applicable information (land transport)

Not subject to transport regulations.

Inland waterways transport (ADN)

Other applicable information (inland waterways transport)

Not tested

Marine transport (IMDG)

Other applicable information (marine transport)

Not subject to transport regulations.

Air transport (ICAO-TI/IATA-DGR)

Other applicable information (air transport)

Not subject to transport regulations.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Use personal protective equipment.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not relevant

Other applicable information

no data available

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3

National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

Revision: 10.08.2020
Safety datasheet sections which have been updated: 15, 16
Revision: 22.06.2016
Safety datasheet sections which have been updated: 2, 3
Revision: 06.05.2015
Safety datasheet sections which have been updated: 2, 4, 11

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Resp. Sens. 1; H334	Calculation method
Skin Sens. 1; H317	Calculation method

Relevant H and EUH statements (number and full text)

H228	Flammable solid.
H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

26605-42 StablCal® Standard, 800 NTU or FNU

UFI: 5JGQ-UYVW-Q117-HTG6

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Water analysis

1.3. Details of the supplier of the safety data sheet

Company name: HACH LANGE GmbH
Street: Willstätterstr. 11
Place: D-40549 Düsseldorf
Telephone: +49 (0)211 5288-383
e-mail: SDS@hach.com
Internet: www.de.hach.com
Responsible Department: HACH LANGE Ltd.
5, Pacific Way
Salford Manchester M50 1DL - United Kingdom
Tel. +44 (0) 161 872 1487 * Fax +44 (0) 161 848 7324
e-Mail: info-uk@hach.com

HACH LANGE Ltd.
Unit 1, Chestnut Road Western Industrial Estate
IRL-Dublin 12
Tel. +353 (0)1 4602522
e-Mail: info-ie@hach.com

1.4. Emergency telephone number:

Poison Control Center Mainz: Tel: +49 (0) 6131 19240 - 24 hour emergency service -

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
Respiratory or skin sensitisation: Resp. Sens. 1
Respiratory or skin sensitisation: Skin Sens. 1
Hazard Statements:
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

methenamine; hexamethylenetetramine

Signal word: Danger

Pictograms:

Hazard statements

H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P362+P364	Take off contaminated clothing and wash it before reuse.
P501	Dispose of contents/container to Disposal.

Additional advice on labelling

The product is classified as dangerous in accordance with Regulation (EC) No. 1272/2008.

2.3. Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	CLP Classification			
7732-18-5	Water			>90 %
	231-791-2			
100-97-0	methenamine; hexamethylenetetramine			5-10 %
	202-905-8	612-101-00-2		
	Flam. Sol. 2, Resp. Sens. 1, Skin Sens. 1; H228 H334 H317			
7757-82-6	Sodium sulfate			<0,5 %
	231-820-9			
50-00-0	formaldehyde ... %			<0,1 %
	200-001-8	605-001-00-5		
	Carc. 1B, Muta. 2, Acute Tox. 3, Acute Tox. 3, Acute Tox. 3, Skin Corr. 1B, Skin Sens. 1; H350 H341 H331 H311 H301 H314 H317			

Full text of H and EUH statements: see section 16.

Specific concentration limits and M-factors

CAS No	EC No	Chemical name	Quantity
	Specific concentration limits and M-factors		
50-00-0	200-001-8	formaldehyde ... %	<0,1 %
	Skin Corr. 1B; H314: >= 25 - 100 Skin Irrit. 2; H315: >= 5 - < 25 Eye Irrit. 2; H319: >= 5 - < 25 Skin Sens. 1; H317: >= 0,2 - 100 STOT SE 3; H335: >= 5 - 100		

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Take off all contaminated clothing immediately.

After inhalation

Move to fresh air.

After contact with skin

Wash off immediately with plenty of water.

After contact with eyes

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

After ingestion

Induce vomiting, but only if victim is fully conscious.

4.2. Most important symptoms and effects, both acute and delayed

sensitising effects

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.

5.2. Special hazards arising from the substance or mixture

Fire may liberate hazardous vapours.

5.3. Advice for firefighters

In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Additional information

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

6.4. Reference to other sections

13. Disposal considerations

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Use only in well-ventilated areas.

Advice on protection against fire and explosion

See also section 5

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep in a dry, cool place.

Hints on joint storage

None known.

7.3. Specific end use(s)

Reagent for analysis

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
50-00-0	Formaldehyde	2	2.5		TWA (8 h)	WEL
		2	2.5		STEL (15 min)	WEL

Additional advice on limit values

None known.

8.2. Exposure controls

Appropriate engineering controls

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Protective and hygiene measures

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Wash hands before breaks and after work.

Eye/face protection

Safety glasses with side-shields

Hand protection

Use barrier skin cream.
Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374. In full contact: Gloves material: Viton, Layer thickness: 0.70 mm, Breakthrough time: >480 min. In splash contact: Glove material: nitrile rubber, Layer thickness 0,20 mm, Breakthrough time: > 30 min

Skin protection

Remove and wash contaminated clothing before re-use.

Respiratory protection

Breathing apparatus only if aerosol or dust is formed. Recommended Filter type: ABEK-filter

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid
Colour:	colourless
Odour:	odourless
pH-Value (at 20 °C):	7,5-8,5

Changes in the physical state

Melting point:	no data available
Initial boiling point and boiling range:	100 °C

Sublimation point:	not applicable
Softening point:	not applicable
Pour point:	not applicable
:	no data available
Flash point:	not applicable
Sustaining combustion:	No data available
Flammability	
Solid:	not applicable
Gas:	not applicable
Explosive properties	
not applicable	
Lower explosion limits:	not applicable
Upper explosion limits:	not applicable
Ignition temperature:	no data available
Auto-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Decomposition temperature:	no data available
Oxidizing properties	
not applicable	
Vapour pressure:	no data available
Vapour pressure:	no data available
Density (at 20 °C):	1,04 g/cm³
Bulk density:	not applicable
Water solubility: (at 20 °C)	completely soluble
Solubility in other solvents	
no data available	
Partition coefficient:	no data available
Viscosity / dynamic:	no data available
Viscosity / kinematic:	no data available
Flow time:	no data available
Vapour density:	no data available
Evaporation rate:	no data available
Solvent separation test:	no data available
Solvent content:	no data available

9.2. Other information

Solid content:	not applicable

no data available

SECTION 10: Stability and reactivity

10.1. Reactivity

See also section 10.3

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Extremes of temperature and direct sunlight.

10.5. Incompatible materials

No dangerous reaction known under conditions of normal use.
Oxidizing agents

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

Further information

None known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

No data is available on the product itself.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
100-97-0	methenamine; hexamethylenetetramine				
	oral	LD50 9200 mg/kg	Ratte		
7757-82-6	Sodium sulfate				
	oral	LD50 5989 mg/kg	mouse		
50-00-0	formaldehyde ... %				
	oral	ATE 100 mg/kg			
	dermal	ATE 300 mg/kg			
	inhalation (4 h) vapour	LC50 250 mg/l	rat		
	inhalation aerosol	ATE 0,5 mg/l			

Irritation and corrosivity

No known effect.

Sensitising effects

May cause sensitisation by skin contact.
May cause sensitisation by inhalation. (List of references: Asthma in the workplace, I.Leonard Bernstein)

Carcinogenic/mutagenic/toxic effects for reproduction

Contains no ingredient listed as a carcinogen

STOT-single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT-repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

No aspiration toxicity classification

Specific effects in experiment on an animal

No data is available on the product itself.

Additional information on tests

no data available

Practical experience

Observations relevant to classification

no data available

Other observations

no data available

Further information

Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1. Toxicity

No data is available on the product itself.

Do not flush into surface water or sanitary sewer system.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
100-97-0	methenamine; hexamethylenetetramine						
	Acute fish toxicity	LC50 mg/l	49800	96 h	Fisch		
7757-82-6	Sodium sulfate						
	Acute fish toxicity	LC50	120 mg/l	96 h	Gambusia affinis	Merck	
	Acute crustacea toxicity	EC50 mg/l	2564	48 h			

12.2. Persistence and degradability

No data is available on the product itself.

12.3. Bioaccumulative potential

No data is available on the product itself.

12.4. Mobility in soil

no data available

12.5. Results of PBT and vPvB assessment

no data available

12.6. Other adverse effects

No known effect.

Further information

no data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

In accordance with local and national regulations.

List of Wastes Code - residues/unused products

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - used product

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - contaminated packaging

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

Land transport (ADR/RID)

Other applicable information (land transport)

Not subject to transport regulations.

Inland waterways transport (ADN)

Other applicable information (inland waterways transport)

Not tested

Marine transport (IMDG)

Other applicable information (marine transport)

Not subject to transport regulations.

Air transport (ICAO-TI/IATA-DGR)

Other applicable information (air transport)

Not subject to transport regulations.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

no data available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

not applicable

Other applicable information

no data available

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 28

National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

Revision: 15.08.2018
Safety datasheet sections which have been updated: 2, 3, 15
Revision: 22.09.2015
Safety datasheet sections which have been updated: 2, 3
Revision: 18.06.2015
Safety datasheet sections which have been updated: 2, 4, 11

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Resp. Sens. 1; H334	Calculation method
Skin Sens. 1; H317	Calculation method

Relevant H and EUH statements (number and full text)

H228	Flammable solid.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H350	May cause cancer.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier

Product Name STABLCAL® FORMAZIN STANDARD 100 NTU

Other means of identification

Product Code(s) 2684901

Safety data sheet number M03412

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory Use. Standard solution.
Uses advised against None.
Restrictions on use None.

Details of the supplier of the safety data sheet

Manufacturer Address
Hach Company P.O.Box 389 Loveland, CO 80539 USA +1(970) 669-3050

Emergency telephone number
+1(303) 623-5716 - 24 Hour Service +1(515)232-2533 - 8am - 4pm CST

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Respiratory sensitization	Category 1
Skin sensitization	Category 1

Hazards not otherwise classified (HNOC)
Not applicable

Label elements

Signal word - Danger

Hazard statements

H317 - May cause an allergic skin reaction
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statements
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P285 - In case of inadequate ventilation wear respiratory protection
P304 + P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
P501 - Dispose of contents/ container to an approved waste disposal plant
P272 - Contaminated work clothing should not be allowed out of the workplace
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P363 - Wash contaminated clothing before reuse

Other Hazards Known
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable

Mixture

Chemical Family Mixture.

Percent ranges are used where confidential product information is applicable.

Chemical name	CAS No.	Percent Range	HMRIC #
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	100-97-0	5 - 10%	-
Sodium sulfate	7757-82-6	<1%	-
Formaldehyde	50-00-0	<0.1%	-
Ammonium sulfate	7783-20-2	<0.1%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance.

Inhalation May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical advice/attention.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.

Ingestion May produce an allergic reaction. Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed

Symptoms May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/ or wheezing. Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed

Note to physicians May cause sensitization in susceptible persons. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Caution: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical Product is or contains a sensitizer. May cause sensitization by inhalation and skin contact. May cause sensitization by skin contact.

Hazardous combustion products This material will not burn.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

6. ACCIDENTAL RELEASE MEASURES

U.S. Notice Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Reference to other sections See section 8 for more information. See section 13 for more information.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Provide extract ventilation to points where emissions occur. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

Flammability class Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Formaldehyde CAS#: 50-00-0	STEL: 0.3 ppm TWA: 0.1 ppm	TWA: 0.75 ppm (vacated) TWA: 3 ppm (vacated) STEL: 10 ppm (vacated) Ceiling: 5 ppm STEL: 2 ppm	IDLH: 20 ppm Ceiling: 0.1 ppm 15 min TWA: 0.016 ppm

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection Wear suitable gloves.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear suitable protective clothing.

General Hygiene Considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid		
Appearance	Turbid solution aqueous solution	**Color**	white
Odor	Odorless	**Odor threshold**	No data available

Property	Values	Remarks • Method
Molecular weight	No data available	
pH	No data available	
Melting point/freezing point	~ 0 °C / 32 °F	Estimation based on theoretical calculation
Boiling point / boiling range	~ 100 °C / 212 °F	Estimation based on theoretical calculation
Evaporation rate	1 (water = 1) Estimation based on theoretical calculation	
Vapor pressure	17.477 mm Hg / 2.33 kPa at 20 °C / 68 °F	Estimation based on theoretical calculation
Vapor density (air = 1)	0.62 (air = 1)	
Specific gravity (water = 1 / air = 1)	1.02	
Partition Coefficient (n-octanol/water)	Not applicable	
Soil Organic Carbon-Water Partition Coefficient	Not applicable	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	No data available	
Kinematic viscosity	No data available	

Solubility(ies)

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

Solubility in other solvents

Chemical Name	Solubility classification	Solubility	Solubility Temperature
None reported	No information available	No data available	No information available

Other Information

Metal Corrosivity

Steel Corrosion Rate	No data available
Aluminum Corrosion Rate	No data available

Volatile Organic Compounds (VOC) Content

No information available See ingredients information below

Chemical name	CAS No.	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	100-97-0	Not applicable	X
Sodium sulfate	7757-82-6	No data available	-
Formaldehyde	50-00-0	No data available	X
Ammonium sulfate	7783-20-2	No data available	-

Explosive properties

Upper explosion limit No data available
Lower explosion limit No data available

Flammable properties

Flash point Not applicable

Flammability Limit in Air
Upper flammability limit No data available
Lower flammability limit No data available

Oxidizing properties No data available.

Bulk density No data available

Particle Size No information available

Particle Size Distribution No information available

10. STABILITY AND REACTIVITY

Reactivity
Not applicable.

Chemical stability
Stability Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact None
Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions
Possibility of Hazardous Reactions None under normal processing.

Hazardous polymerization
None under normal processing.

Conditions to avoid
Conditions to avoid None known based on information supplied.

Incompatible materials
Incompatible materials Strong oxidizing agents, strong acids, and strong bases.

Hazardous Decomposition Products
Ammonia. Carbon monoxide. Formaldehyde. Nitrogen oxides. Sodium oxides. Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Product Information

Inhalation	May cause sensitization in susceptible persons.
Eye contact	No known effect based on information supplied.
Skin contact	Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. May cause sensitization by skin contact.
Ingestion	May cause additional affects as listed under "Inhalation".
Symptoms	Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing. Itching. Rashes. Hives.
Aggravated Medical Conditions	Respiratory disorders. Skin disorders. Allergies.
Toxicologically synergistic products	None known.
Toxicokinetics, metabolism and distribution	See ingredients information below.

Chemical name	Toxicokinetics, metabolism and distribution
Formaldehyde (<0.1%) CAS#: 50-00-0	Readily Absorbed via the respiratory and gastrointestinal routes. Absorbed formaldehyde can be oxidized to formate and carbon dioxide. Half-life of formaldehyde is 1 min in rat plasma.

Product Acute Toxicity Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

Unknown Acute Toxicity
3.731E-05% of the mixture consists of ingredient(s) of unknown toxicity.

Acute Toxicity Estimations (ATE)

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	No information available
ATEmix (dermal)	No information available
ATEmix (inhalation-dust/mist)	No information available
ATEmix (inhalation-vapor)	No information available
ATEmix (inhalation-gas)	No information available

Ingredient Acute Toxicity Data
Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%)	Rat LD_{50}	100 mg/kg	None reported	None reported	GESTIS (Information System on Hazardous Substances of

CAS#: 50-00-0					the German Social Accident Insurance)
Ammonium sulfate (<0.1%) CAS#: 7783-20-2	Rat LD_{50}	2840 mg/kg	None reported	None reported	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)

Dermal Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Rabbit LD_{50}	270 mg/kg	None reported	None reported	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)

Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat LC_{50}	0.578 mg/L	4 hours	None reported	LOLI

Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Human LD_{Lo}	70 mg/kg	None reported	**Gastrointestinal** **Kidney, Ureter, or Bladder** **Liver** Other changes Ulcerated stomach Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)
Ammonium sulfate (<0.1%) CAS#: 7783-20-2	Man TD_{Lo}	1500 mg/kg	None reported	**Gastrointestinal** Gas	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Formaldehyde (<0.1%) CAS#: 50-00-0	Human TD_{Lo}	643 mg/kg	None reported	**Gastrointestinal** **Lungs, Thorax, or Respiration** Nausea or vomiting Respiratory obstruction Ulcerated stomach	RTECS (Registry of Toxic Effects of Chemical Substances)
Ammonium sulfate (<0.1%) CAS#: 7783-20-2	Domestic mammal - Not specified LD_{Lo}	3500 mg/kg	None reported	**Lungs, Thorax, or Respiration** Respiratory stimulation	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Aspiration toxicity
No data available

Product Skin Corrosion/Irritation Data
No data available.

Ingredient Skin Corrosion/Irritation Data
If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Organization for Economic Co-operation and Development (OECD) - Test 404: Acute Dermal Corrosion/Irritation	Rabbit	500 mg	4 hours	Not corrosive or irritating to skin	ECHA (The European Chemicals Agency)
Sodium sulfate (<1%) CAS#: 7757-82-6	Standard Draize Test	Rabbit	500 mg	4 hours	Not corrosive or irritating to skin	ECHA (The European Chemicals Agency)
Formaldehyde (<0.1%) CAS#: 50-00-0	Standard Draize Test	Human	0.150 mg	72 hours	Corrosive to skin	RTECS (Registry of Toxic Effects of Chemical Substances)
Ammonium sulfate (<0.1%) CAS#: 7783-20-2	Standard Draize Test	Rabbit	800 mg	20 hours	Not corrosive or irritating to skin	ECHA (The European Chemicals Agency)

Product Serious Eye Damage/Eye Irritation Data
No data available.

Ingredient Eye Damage/Eye Irritation Data
No data available

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Organization for Economic Co-operation and Development (OECD) - Test 405: Acute Eye Corrosion/Irritation	Rabbit	100 mg	24 hours	Not corrosive or irritating to eyes	ECHA (The European Chemicals Agency)
Sodium sulfate (<1%) CAS#: 7757-82-6	Standard Draize Test	Rabbit	90 mg	24 hours	Not corrosive or irritating to eyes	ECHA (The European Chemicals Agency)
Formaldehyde (<0.1%) CAS#: 50-00-0	Rinse Test	Human	1 ppm	6 minutes	Corrosive to eyes	RTECS (Registry of Toxic Effects of Chemical Substances)
Ammonium sulfate (<0.1%) CAS#: 7783-20-2	Standard Draize Test	Rabbit	0.050 mL	None reported	Not corrosive or irritating to eyes	ECHA (The European Chemicals Agency)

Sensitization Information

Product Sensitization Data
Skin Sensitization Exposure Route No data available.
Respiratory Sensitization Exposure Route No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route If available, see data below.

Chemical name	Test method	Species	Results	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	OECD Test No. 406: Skin Sensitization	Guinea pig	Confirmed to be a skin sensitizer	ECHA (The European Chemicals Agency)
Sodium sulfate (<1%) CAS#: 7757-82-6	OECD Test No. 406: Skin Sensitization	Guinea pig	Not confirmed to be a skin sensitizer	HSDB (Hazardous Substances Data Bank)
Formaldehyde (<0.1%) CAS#: 50-00-0	Patch test	Human	Confirmed to be a skin sensitizer	ERMA (New Zealands Environmental Risk Management Authority)

Respiratory Sensitization Exposure Route If available, see data below.

Chemical name	Test method	Species	Results	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Based on human experience	Human	Confirmed to be a respiratory sensitizer	HSDB (Hazardous Substances Data Bank)
Formaldehyde (<0.1%) CAS#: 50-00-0	IgE Specific Immune Response Test	Guinea pig	Confirmed to be a respiratory sensitizer	CICAD (Concise International Chemical Assessment Documents)

Chronic Toxicity Information

Product Specific Target Organ Toxicity Repeat Dose Data

Oral Exposure Route No data available.
Dermal Exposure Route No data available.
Inhalation (Dust/Mist) Exposure Route No data available.
Inhalation (Vapor) Exposure Route No data available.
Inhalation (Gas) Exposure Route No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Rat NOAEL	80 mg/kg	None reported	None reported	Vendor SDS

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Rat TC_{Lo}	350 mg/m^3	21 days	**Kidney, Ureter, or Bladder** Urine volume decreased or anuria **Nutritional and Gross Metabolic** Weight loss or decreased weight gain **Biochemical** Enzyme inhibition, induction, or change in blood or tissue levels	RTECS (Registry of Toxic Effects of Chemical Substances)

				(true cholinesterase)	

Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Human TC_{Lo}	0.017 mg/L	0.5 days	**Eye** **Lungs, Thorax, or Respiration** Lacrimation Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Formaldehyde (<0.1%) CAS#: 50-00-0	Human TC_{Lo}	2 mg/L	40 minutes	**Lungs, Thorax, or Respiration** Other changes Respiratory depression	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Product Carcinogenicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Carcinogenicity Data

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	100-97-0	-	-	-	-
Sodium sulfate	7757-82-6	-	-	-	-
Formaldehyde	50-00-0	A1	Group 1	Known	X
Ammonium sulfate	7783-20-2	-	-	-	-

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	A2 - Suspected Human Carcinogen
IARC (International Agency for Research on Cancer)	Group 1 - Carcinogenic to Humans
NTP (National Toxicology Program)	Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	X - Present

Oral Exposure Route If available, see data below
Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat	15 mg/L	78 weeks	**Olfaction** Tumors	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Product Germ Cell Mutagenicity *invitro* Data
No data available.

Ingredient Germ Cell Mutagenicity *invitro* Data
If available, see data below

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data

1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Cytogenetic analysis	Human HeLa Cell	1 mmol/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Test**	**Cell Strain**	**Reported dose**	**Exposure time**	**Results**	**Key literature references and sources for data**
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Morphological transformation	Hamster kidney	10 mg/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Product Germ Cell Mutagenicity *invivo* Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Germ Cell Mutagenicity *invivo* Data

Oral Exposure Route If available, see data below

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Dominant lethal test	Mouse	25000 mg/kg	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Micronucleus test	Human	.000985 mg/L	8.5 years	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Test**	**Species**	**Reported dose**	**Exposure time**	**Results**	**Key literature references and sources for data**
Formaldehyde (<0.1%) CAS#: 50-00-0	Micronucleus test	Human	2 mg/L	15 minutes	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Product Reproductive Toxicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium sulfate (<1%) CAS#: 7757-82-6	Mouse TD_{Lo}	14000 mg/kg	4 days	**Effects on Newborn** Other neonatal measures or effects	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat TC_{Lo}	40 mg/L	14 days	**Effects on Embryo or Fetus** Fetotoxicity (except death e.g. stunted fetus)	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat TC_{Lo}	.001 mg/L	24 weeks	**Effects on Embryo or Fetus** Cytological changes (including somatic cell genetic material)	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product Ecological Data

Aquatic toxicity

Fish No data available
Crustacea No data available
Algae No data available

Ingredient Ecological Data

Aquatic toxicity

Fish If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Sodium sulfate (<1%) CAS#: 7757-82-6	96 hours	None reported	LC_{50}	56 mg/L	IUCLID (The International Uniform Chemical Information Database)
Formaldehyde (<0.1%) CAS#: 50-00-0	96 hours	*Morone saxatilis*	LC_{50}	6.7 mg/L	PEEN (Pan European Ecological Network)
Ammonium sulfate (<0.1%) CAS#: 7783-20-2	96 hours	*Oncorhynchus mykiss*	LC_{50}	36.7 mg/L	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)

Crustacea If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Sodium sulfate (<1%) CAS#: 7757-82-6	48 Hours	*Daphnia magna*	EC_{50}	3150 mg/L	IUCLID (The International Uniform Chemical Information Database)
Formaldehyde (<0.1%) CAS#: 50-00-0	48 Hours	*Daphnia pulex*	EC_{50}	5.8 mg/L	PEEN (Pan European Ecological Network)
Ammonium sulfate	48 Hours	None reported	LC_{50}	14 mg/L	GESTIS (Information System on

(<0.1%) CAS#: 7783-20-2					Hazardous Substances of the German Social Accident Insurance)

Algae If available, see ingredient data below

Other Information

Persistence and degradability

Product Biodegradability Data
No data available.

Ingredient Biodegradability Data

Chemical name	Test method	Biodegradation	Exposure time	Results
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	None reported	70%	28 days	Readily biodegradable

Bioaccumulation

Product Bioaccumulation Data
No data available.

Partition Coefficient (n-octanol/water) Not applicable

Ingredient Bioaccumulation Data

Chemical name	Test method	Exposure time	Species	Bioconcentration factor (BCF)	Results
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	None reported	None reported	None reported	None reported	Not determined
Formaldehyde (<0.1%) CAS#: 50-00-0	Estimation through BCFBAF v3.01 part of the Estimation Programs Interface (EPI) Suite™	None reported	None reported	BCF = 3.16228	Does not have the potential to bioaccumulate

Mobility

Soil Organic Carbon-Water Partition Coefficient Not applicable

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

Other adverse effects
Contains a substance with an endocrine-disrupting potential.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

US EPA Waste Number Not applicable, U122

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Formaldehyde 50-00-0	U122	Included in waste streams: K009, K010, K038, K040, K156, K157	-	U122

14. TRANSPORT INFORMATION

U.S. DOT Not regulated

TDG Not regulated

IATA Not regulated

IMDG Not regulated

Note: No special precautions necessary.

Additional information
There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods.
If the item is not in a reagent set or kit, the classification given above applies.
If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories

TSCA Complies
DSL/NDSL Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

EINECS/ELINCS Complies
ENCS Does not comply
IECSC Does not comply
KECL Complies
PICCS Does not comply
TCSI Does not comply
AICS Does not comply
NZIoC Complies

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TCSI - Taiwan Chemical Substances Inventory
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	SARA 313 - Threshold Values %
Formaldehyde (CAS #: 50-00-0)	0.1
Ammonium sulfate (CAS #: 7783-20-2)	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Formaldehyde 50-00-0	100 lb	-	-	X

CERCLA

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Formaldehyde 50-00-0	100 lb	100 lb	RQ 100 lb final RQ RQ 45.4 kg final RQ

U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues

Chemical name	U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues
Formaldehyde (<0.1%) CAS#: 50-00-0	Release - Toxic (solution)

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Chemical name	California Proposition 65
Formaldehyde (CAS #: 50-00-0)	Carcinogen

WARNING: This product can expose you to chemicals including Formaldehyde, which is known to the State of California to cause cancer.
For more information, go to http://www.P65Warnings.ca.gov

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane 100-97-0	X	-	-
Sodium sulfate 7757-82-6	-	X	X
Formaldehyde 50-00-0	X	X	X
Ammonium sulfate 7783-20-2	-	X	X

U.S. EPA Label Information

Chemical name	FIFRA	FDA
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	180.0910	-
Sodium sulfate	-	21 CFR 186.1797
Ammonium sulfate	180.0910	21 CFR 184.1143

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments
None

Additional information

Global Automotive Declarable Substance List (GADSL)

Chemical name	Global Automotive Declarable Substance List Classifications	Global Automotive Declarable Substance List Thersholds
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane 100-97-0	Declarable Substance (FI)	0.1 %
Formaldehyde 50-00-0	Declarable Substance (FI) Prohibited Substance (LR) Declarable Substance (LR)	0.0 % 0.1 %

NFPA and HMIS Classifications

NFPA	**Health hazards** - 2	**Flammability** - 0	**Instability** - 0	**Physical and Chemical Properties** -
HMIS	**Health hazards** - 2	**Flammability** - 0	**Physical Hazards** - 0	**Personal protection** - X - See section 8 for more information

Key or legend to abbreviations and acronyms used in the safety data sheet

NIOSH IDLH — *Immediately Dangerous to Life or Health*
ACGIH — ACGIH (American Conference of Governmental Industrial Hygienists)

NDF	*no data*

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

Prepared By	Hach Product Compliance Department
Issue Date	16-Aug-2018
Revision Date	17-Aug-2018
Revision Note	None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

HACH COMPANY©2018

End of Safety Data Sheet

SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier

Product Name STABLCAL® FORMAZIN STANDARD 800 NTU

Other means of identification

Product Code(s) 2660501

Safety data sheet number M03413

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory Use. Standard solution.
Uses advised against None.
Restrictions on use None.

Details of the supplier of the safety data sheet

Manufacturer Address
Hach Company P.O.Box 389 Loveland, CO 80539 USA +1(970) 669-3050

Emergency telephone number
+1(303) 623-5716 - 24 Hour Service +1(515)232-2533 - 8am - 4pm CST

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Respiratory sensitization	Category 1
Skin sensitization	Category 1

Hazards not otherwise classified (HNOC)
Not applicable

Label elements

Signal word - Danger

Hazard statements

H317 - May cause an allergic skin reaction
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statements
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P285 - In case of inadequate ventilation wear respiratory protection
P304 + P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
P501 - Dispose of contents/ container to an approved waste disposal plant
P272 - Contaminated work clothing should not be allowed out of the workplace
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P363 - Wash contaminated clothing before reuse

Other Hazards Known
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable

Mixture

Chemical Family Mixture.

Percent ranges are used where confidential product information is applicable.

Chemical name	CAS No.	Percent Range	HMRIC #
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	100-97-0	5 - 10%	-
Sodium sulfate	7757-82-6	<1%	-
Ammonium sulfate	7783-20-2	<1%	-
Formaldehyde	50-00-0	<0.1%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance.

Inhalation May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical advice/attention.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.

Ingestion May produce an allergic reaction. Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed

Symptoms May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/ or wheezing. Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed

Note to physicians May cause sensitization in susceptible persons. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Caution: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical Product is or contains a sensitizer. May cause sensitization by inhalation and skin contact. May cause sensitization by skin contact.

Hazardous combustion products This material will not burn.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

6. ACCIDENTAL RELEASE MEASURES

U.S. Notice Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Reference to other sections See section 8 for more information. See section 13 for more information.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Provide extract ventilation to points where emissions occur. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

Flammability class Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Formaldehyde CAS#: 50-00-0	STEL: 0.3 ppm TWA: 0.1 ppm	TWA: 0.75 ppm (vacated) TWA: 3 ppm (vacated) STEL: 10 ppm (vacated) Ceiling: 5 ppm STEL: 2 ppm	IDLH: 20 ppm Ceiling: 0.1 ppm 15 min TWA: 0.016 ppm

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection Wear suitable gloves.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear suitable protective clothing.

General Hygiene Considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid		
Appearance	Turbid solution aqueous solution	**Color**	white
Odor	Odorless	**Odor threshold**	No data available

Property	Values	Remarks • Method
Molecular weight	No data available	
pH	No data available	
Melting point/freezing point	~ 0 °C / 32 °F	Estimation based on theoretical calculation
Boiling point / boiling range	~ 100 °C / 212 °F	Estimation based on theoretical calculation
Evaporation rate	1 (water = 1)	Estimation based on theoretical calculation
Vapor pressure	17.477 mm Hg / 2.33 kPa at 20 °C / 68 °F	Estimation based on theoretical calculation
Vapor density (air = 1)	0.62 (air = 1)	
Specific gravity (water = 1 / air = 1)	1.02	
Partition Coefficient (n-octanol/water)	Not applicable	
Soil Organic Carbon-Water Partition Coefficient	Not applicable	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	No data available	
Kinematic viscosity	No data available	

Solubility(ies)

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

Solubility in other solvents

Chemical Name	Solubility classification	Solubility	Solubility Temperature
None reported	No information available	No data available	No information available

Other Information

Metal Corrosivity

Steel Corrosion Rate No data available
Aluminum Corrosion Rate No data available

Volatile Organic Compounds (VOC) Content
No information available See ingredients information below

Chemical name	CAS No.	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	100-97-0	Not applicable	X
Sodium sulfate	7757-82-6	No data available	-
Ammonium sulfate	7783-20-2	No data available	-
Formaldehyde	50-00-0	No data available	X

Explosive properties

Upper explosion limit No data available
Lower explosion limit No data available

Flammable properties

Flash point No data available

Flammability Limit in Air
Upper flammability limit No data available
Lower flammability limit No data available

Oxidizing properties No data available.

Bulk density No data available

Particle Size No information available

Particle Size Distribution No information available

10. STABILITY AND REACTIVITY

Reactivity
Not applicable.

Chemical stability
Stability Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact None
Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions
Possibility of Hazardous Reactions None under normal processing.

Hazardous polymerization
None under normal processing.

Conditions to avoid
Conditions to avoid None known based on information supplied.

Incompatible materials
Incompatible materials Strong oxidizing agents, strong acids, and strong bases.

Hazardous Decomposition Products

Ammonia. Carbon monoxide. Formaldehyde. Nitrogen oxides. Sodium oxides. Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Product Information

Inhalation	May cause sensitization in susceptible persons.
Eye contact	No known effect based on information supplied.
Skin contact	Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. May cause sensitization by skin contact.
Ingestion	May cause additional affects as listed under "Inhalation".
Symptoms	Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing. Itching. Rashes. Hives.
Aggravated Medical Conditions	Respiratory disorders. Skin disorders. Allergies.
Toxicologically synergistic products	None known.
Toxicokinetics, metabolism and distribution	See ingredients information below.

Chemical name	Toxicokinetics, metabolism and distribution
Formaldehyde (<0.1%) CAS#: 50-00-0	Readily Absorbed via the respiratory and gastrointestinal routes. Absorbed formaldehyde can be oxidized to formate and carbon dioxide. Half-life of formaldehyde is 1 min in rat plasma.

Product Acute Toxicity Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

Unknown Acute Toxicity
0.00030371% of the mixture consists of ingredient(s) of unknown toxicity.

Acute Toxicity Estimations (ATE)

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	No information available
ATEmix (dermal)	No information available
ATEmix (inhalation-dust/mist)	No information available
ATEmix (inhalation-vapor)	No information available
ATEmix (inhalation-gas)	No information available

Ingredient Acute Toxicity Data
Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Ammonium sulfate	Rat LD_{50}	2840 mg/kg	None	None reported	GESTIS (Information System

(<1%) CAS#: 7783-20-2			reported		on Hazardous Substances of the German Social Accident Insurance)
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat LD_{50}	100 mg/kg	None reported	None reported	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)

Dermal Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Rabbit LD_{50}	270 mg/kg	None reported	None reported	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)

Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat LC_{50}	0.578 mg/L	4 hours	None reported	LOLI

Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Ammonium sulfate (<1%) CAS#: 7783-20-2	Man TD_{Lo}	1500 mg/kg	None reported	**Gastrointestinal** Gas	RTECS (Registry of Toxic Effects of Chemical Substances)
Formaldehyde (<0.1%) CAS#: 50-00-0	Human LD_{Lo}	70 mg/kg	None reported	**Gastrointestinal** **Kidney, Ureter, or Bladder** **Liver** Other changes Ulcerated stomach Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Ammonium sulfate (<1%) CAS#: 7783-20-2	Domestic mammal - Not specified LD_{Lo}	3500 mg/kg	None reported	**Lungs, Thorax, or Respiration** Respiratory stimulation	RTECS (Registry of Toxic Effects of Chemical Substances)
Formaldehyde (<0.1%) CAS#: 50-00-0	Human TD_{Lo}	643 mg/kg	None reported	**Gastrointestinal** **Lungs, Thorax, or Respiration** Nausea or vomiting Respiratory obstruction Ulcerated stomach	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Aspiration toxicity
No data available

Product Skin Corrosion/Irritation Data
No data available.

Ingredient Skin Corrosion/Irritation Data
If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Organization for Economic Co-operation and Development (OECD) - Test 404: Acute Dermal Corrosion/Irritation	Rabbit	500 mg	4 hours	Not corrosive or irritating to skin	ECHA (The European Chemicals Agency)
Sodium sulfate (<1%) CAS#: 7757-82-6	Standard Draize Test	Rabbit	500 mg	4 hours	Not corrosive or irritating to skin	ECHA (The European Chemicals Agency)
Ammonium sulfate (<1%) CAS#: 7783-20-2	Standard Draize Test	Rabbit	800 mg	20 hours	Not corrosive or irritating to skin	ECHA (The European Chemicals Agency)
Formaldehyde (<0.1%) CAS#: 50-00-0	Standard Draize Test	Human	0.150 mg	72 hours	Corrosive to skin	RTECS (Registry of Toxic Effects of Chemical Substances)

Product Serious Eye Damage/Eye Irritation Data
No data available.

Ingredient Eye Damage/Eye Irritation Data
If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Organization for Economic Co-operation and Development (OECD) - Test 405: Acute Eye Corrosion/Irritation	Rabbit	100 mg	24 hours	Not corrosive or irritating to eyes	ECHA (The European Chemicals Agency)
Sodium sulfate (<1%) CAS#: 7757-82-6	Standard Draize Test	Rabbit	90 mg	24 hours	Not corrosive or irritating to eyes	ECHA (The European Chemicals Agency)
Ammonium sulfate (<1%) CAS#: 7783-20-2	Standard Draize Test	Rabbit	0.050 mL	None reported	Not corrosive or irritating to eyes	ECHA (The European Chemicals Agency)
Formaldehyde (<0.1%) CAS#: 50-00-0	Rinse Test	Human	1 ppm	6 minutes	Corrosive to eyes	RTECS (Registry of Toxic Effects of Chemical Substances)

Sensitization Information

Product Sensitization Data
Skin Sensitization Exposure Route No data available.
Respiratory Sensitization Exposure Route No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route If available, see data below.

Chemical name	Test method	Species	Results	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	OECD Test No. 406: Skin Sensitization	Guinea pig	Confirmed to be a skin sensitizer	ECHA (The European Chemicals Agency)
Sodium sulfate (<1%) CAS#: 7757-82-6	OECD Test No. 406: Skin Sensitization	Guinea pig	Not confirmed to be a skin sensitizer	HSDB (Hazardous Substances Data Bank)
Formaldehyde (<0.1%) CAS#: 50-00-0	Patch test	Human	Confirmed to be a skin sensitizer	ERMA (New Zealands Environmental Risk Management Authority)

Respiratory Sensitization Exposure Route If available, see data below.

Chemical name	Test method	Species	Results	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Based on human experience	Human	Confirmed to be a respiratory sensitizer	HSDB (Hazardous Substances Data Bank)
Formaldehyde (<0.1%) CAS#: 50-00-0	IgE Specific Immune Response Test	Guinea pig	Confirmed to be a respiratory sensitizer	CICAD (Concise International Chemical Assessment Documents)

Chronic Toxicity Information

Product Specific Target Organ Toxicity Repeat Dose Data

Oral Exposure Route No data available.
Dermal Exposure Route No data available.
Inhalation (Dust/Mist) Exposure Route No data available.
Inhalation (Vapor) Exposure Route No data available.
Inhalation (Gas) Exposure Route No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Rat NOAEL	80 mg/kg	None reported	None reported	Vendor SDS

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Rat TC_{Lo}	350 mg/m^3	21 days	**Kidney, Ureter, or Bladder** Urine volume decreased or anuria **Nutritional and Gross Metabolic** Weight loss or decreased weight gain **Biochemical** Enzyme inhibition, induction, or	RTECS (Registry of Toxic Effects of Chemical Substances)

				change in blood or tissue levels (true cholinesterase)	

Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Human TC_{Lo}	0.017 mg/L	0.5 days	**Eye** **Lungs, Thorax, or Respiration** Lacrimation Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Human TC_{Lo}	2 mg/L	40 minutes	**Lungs, Thorax, or Respiration** Other changes Respiratory depression	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Product Carcinogenicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Carcinogenicity Data

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	100-97-0	-	-	-	-
Sodium sulfate	7757-82-6	-	-	-	-
Ammonium sulfate	7783-20-2	-	-	-	-
Formaldehyde	50-00-0	A1	Group 1	Known	X

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	A2 - Suspected Human Carcinogen A1 - Known Human Carcinogen
IARC (International Agency for Research on Cancer)	Group 1 - Carcinogenic to Humans
NTP (National Toxicology Program)	Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	X - Present

Oral Exposure Route If available, see data below
Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat	15 mg/L	78 weeks	**Olfaction** Tumors	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Product Germ Cell Mutagenicity *invitro* Data
No data available.

Ingredient Germ Cell Mutagenicity *invitro* Data
If available, see data below

Chemical name	Test	Cell Strain	Reported	Exposure	Results	Key literature

			dose	time		references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Cytogenetic analysis	Human HeLa Cell	1 mmol/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Test**	**Cell Strain**	**Reported dose**	**Exposure time**	**Results**	**Key literature references and sources for data**
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Morphological transformation	Hamster kidney	10 mg/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Product Germ Cell Mutagenicity *invivo* **Data**

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Germ Cell Mutagenicity *invivo* **Data**

Oral Exposure Route If available, see data below

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	Dominant lethal test	Mouse	25000 mg/kg	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Micronucleus test	Human	.000985 mg/L	8.5 years	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Test**	**Species**	**Reported dose**	**Exposure time**	**Results**	**Key literature references and sources for data**
Formaldehyde (<0.1%) CAS#: 50-00-0	Micronucleus test	Human	2 mg/L	15 minutes	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Product Reproductive Toxicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium sulfate (<1%) CAS#: 7757-82-6	Mouse TD_{Lo}	14000 mg/kg	4 days	**Effects on Newborn** Other neonatal measures or effects	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat TC_{Lo}	40 mg/L	14 days	**Effects on Embryo or Fetus** Fetotoxicity (except death e.g. stunted fetus)	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat TC_{Lo}	.001 mg/L	24 weeks	**Effects on Embryo or Fetus** Cytological changes (including somatic cell genetic material)	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product Ecological Data

Aquatic toxicity

Fish No data available
Crustacea No data available
Algae No data available

Ingredient Ecological Data

Aquatic toxicity

Fish If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Sodium sulfate (<1%) CAS#: 7757-82-6	96 hours	None reported	LC_{50}	56 mg/L	IUCLID (The International Uniform Chemical Information Database)
Ammonium sulfate (<1%) CAS#: 7783-20-2	96 hours	*Oncorhynchus mykiss*	LC_{50}	36.7 mg/L	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)
Formaldehyde (<0.1%) CAS#: 50-00-0	96 hours	*Morone saxatilis*	LC_{50}	6.7 mg/L	PEEN (Pan European Ecological Network)

Crustacea If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Sodium sulfate (<1%) CAS#: 7757-82-6	48 Hours	*Daphnia magna*	EC_{50}	3150 mg/L	IUCLID (The International Uniform Chemical Information Database)
Ammonium sulfate (<1%)	48 Hours	None reported	LC_{50}	14 mg/L	GESTIS (Information System on Hazardous Substances of the

CAS#: 7783-20-2					German Social Accident Insurance)
Formaldehyde (<0.1%) CAS#: 50-00-0	48 Hours	*Daphnia pulex*	EC_{50}	5.8 mg/L	PEEN (Pan European Ecological Network)

Algae If available, see ingredient data below

Other Information

Persistence and degradability

Product Biodegradability Data
No data available.

Ingredient Biodegradability Data

Chemical name	Test method	Biodegradation	Exposure time	Results
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	None reported	70%	28 days	Readily biodegradable

Bioaccumulation

Product Bioaccumulation Data
No data available.

Partition Coefficient (n-octanol/water) Not applicable

Ingredient Bioaccumulation Data

Chemical name	Test method	Exposure time	Species	Bioconcentration factor (BCF)	Results
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (5 - 10%) CAS#: 100-97-0	None reported	None reported	None reported	None reported	Not determined
Formaldehyde (<0.1%) CAS#: 50-00-0	Estimation through BCFBAF v3.01 part of the Estimation Programs Interface (EPI) Suite™	None reported	None reported	BCF = 3.16228	Does not have the potential to bioaccumulate

Mobility

Soil Organic Carbon-Water Partition Coefficient Not applicable

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

Other adverse effects
Contains a substance with an endocrine-disrupting potential.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

US EPA Waste Number U122

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Formaldehyde 50-00-0	U122	Included in waste streams: K009, K010, K038, K040, K156, K157	-	U122

14. TRANSPORT INFORMATION

U.S. DOT Not regulated
Special Provisions

TDG Not regulated

IATA Not regulated

IMDG Not regulated

Note: No special precautions necessary.

Additional information
There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods.
If the item is not in a reagent set or kit, the classification given above applies.
If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories
TSCA Complies
DSL/NDSL Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories
EINECS/ELINCS Complies
ENCS Does not comply
IECSC Does not comply
KECL Complies
PICCS Does not comply
TCSI Does not comply
AICS Does not comply
NZIoC Complies

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TCSI - Taiwan Chemical Substances Inventory
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	SARA 313 - Threshold Values %
Ammonium sulfate (CAS #: 7783-20-2)	1.0
Formaldehyde (CAS #: 50-00-0)	0.1

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Formaldehyde 50-00-0	100 lb	-	-	X

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Formaldehyde 50-00-0	100 lb	100 lb	RQ 100 lb final RQ RQ 45.4 kg final RQ

U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues

Chemical name	U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues
Formaldehyde (<0.1%) CAS#: 50-00-0	Release - Toxic (solution)

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Chemical name	California Proposition 65
Formaldehyde (CAS #: 50-00-0)	Carcinogen

WARNING: This product can expose you to chemicals including Formaldehyde, which is known to the State of California to cause cancer.
For more information, go to http://www.P65Warnings.ca.gov

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane 100-97-0	X	-	-
Sodium sulfate 7757-82-6	-	X	X
Ammonium sulfate 7783-20-2	-	X	X
Formaldehyde 50-00-0	X	X	X

U.S. EPA Label Information

Chemical name	FIFRA	FDA
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	180.0910	-
Sodium sulfate	-	21 CFR 186.1797
Ammonium sulfate	180.0910	21 CFR 184.1143

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments
None

Additional information

Global Automotive Declarable Substance List (GADSL)

Chemical name	Global Automotive Declarable Substance List Classifications	Global Automotive Declarable Substance List Thersholds
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane 100-97-0	Declarable Substance (FI)	0.1 %
Formaldehyde 50-00-0	Declarable Substance (FI) Prohibited Substance (LR) Declarable Substance (LR)	0.0 % 0.1 %

NFPA and HMIS Classifications

NFPA	**Health hazards** - 2	**Flammability** - 0	**Instability** - 0	**Physical and Chemical Properties** -
HMIS	**Health hazards** - 2	**Flammability** - 0	**Physical Hazards** - 0	**Personal protection** - X - See section 8 for more information

Key or legend to abbreviations and acronyms used in the safety data sheet

NIOSH IDLH	*Immediately Dangerous to Life or Health*
ACGIH	ACGIH (American Conference of Governmental Industrial Hygienists)
NDF	*no data*

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

Prepared By	Hach Product Compliance Department
Issue Date	16-Aug-2018
Revision Date	17-Aug-2018
Revision Note	None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

HACH COMPANY©2018

End of Safety Data Sheet

SAFETY DATA SHEET

Creation Date 23-Jun-2009 **Revision Date** 26-Dec-2021 **Revision Number** 9

1. Identification

Product Name **Sulfuric acid**

Cat No. : **AC424520000; AC424520025; AC424520026; AC424520100; AC424525000; AC424525001, AC424528000**

CAS No 7664-93-9
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/Irritation	Category 1
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Danger

Hazard Statements

Causes severe skin burns and eye damage
May cause respiratory irritation

Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)

WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Sulfuric acid	7664-93-9	>95

4. First-aid measures

General Advice Immediate medical attention is required. Remove and isolate contaminated clothing and shoes.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Rinse mouth. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects Causes burns by all exposure routes. . Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Unsuitable Extinguishing Media DO NOT USE WATER

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Corrosive material. Reacts violently with water. Reaction with water may generate much heat which will increase the concentration of fumes in the air. Contact with metals may evolve flammable hydrogen gas. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Hazardous Combustion Products
Hydrogen. Sulfur oxides.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	2	W

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Wear self-contained breathing apparatus and protective suit. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing.

Environmental Precautions Avoid release to the environment. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. After cleaning, flush away traces with water.

7. Handling and storage

Handling Handle product only in closed system or provide appropriate exhaust ventilation. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

Incompatible Materials. Strong oxidizing agents. Combustible material. Bases. Organic materials. Reducing Agent. Finely powdered metals. Peroxides.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Sulfuric acid	TWA: 0.2 mg/m³	(Vacated) TWA: 1 mg/m³ TWA: 1 mg/m³	IDLH: 15 mg/m³ TWA: 1 mg/m³	TWA: 0.2 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Handle in a place equipped with local exhaust ventilation. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Odorless
Odor Threshold	No information available
pH	1 1N aq.sol
Melting Point/Range	10 °C / 50 °F
Boiling Point/Range	290 °C / 554 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 146 °C
Vapor Density	No information available
Specific Gravity	1.840
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	340 °C
Viscosity	21mPa.s @ 25 °C
Molecular Formula	H2 O4 S
Molecular Weight	98.07

10. Stability and reactivity

Reactive Hazard Yes

Stability Water reactive. Hygroscopic.

Conditions to Avoid Incompatible products. Excess heat. Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents, Combustible material, Bases, Organic materials, Reducing Agent, Finely powdered metals, Peroxides

Hazardous Decomposition Products Hydrogen, Sulfur oxides

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions Contact with metals may evolve flammable hydrogen gas. Reacts violently with water.

11. Toxicological information

Acute Toxicity

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sulfuric acid	2140 mg/kg (Rat)	Not listed	LC50 = 0.375 mg/L (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Causes severe burns by all exposure routes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Sulfuric acid	7664-93-9	Group 1	Known	A2	X	A2

IARC (International Agency for Research on Cancer)

ACGIH: (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Sulfuric acid	-	LC50: > 500 mg/L, 96h static (Brachydanio rerio)	-	EC50: 29 mg/L/24h

Persistence and Degradability Miscible with water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1830
Proper Shipping Name SULFURIC ACID
Hazard Class 8
Packing Group II

TDG

UN-No UN1830
Proper Shipping Name SULFURIC ACID
Hazard Class 8
Packing Group II

IATA

UN-No UN1830
Proper Shipping Name SULFURIC ACID
Hazard Class 8
Packing Group II

IMDG/IMO

UN-No UN1830
Proper Shipping Name SULFURIC ACID
Hazard Class 8
Packing Group II

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Sulfuric acid	7664-93-9	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Sulfuric acid	7664-93-9	X	-	231-639-5	X	X	X	X	X	KE-32570

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Sulfuric acid	7664-93-9	>95	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Sulfuric acid	X	1000 lb	-	-

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sulfuric acid	1000 lb	1000 lb

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Sulfuric acid	7664-93-9	Carcinogen	-	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Sulfuric acid	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Sulfuric acid	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Sulfuric acid	7664-93-9	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Sulfuric acid	7664-93-9	Not applicable	Not applicable	Not applicable	Annex I - Y34

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 23-Jun-2009
Revision Date 26-Dec-2021
Print Date 26-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

1. Identification

Product identifier **UNLEADED GASOLINE**

Other means of identification

SDS number 002-GHS

Synonyms Regular/Premium/Midgrade - Unleaded Gasoline * RFG - Reformated Unleaded Gasoline * Conventional Unleaded Gasoline * Premium Conventional Gasoline * Oxygenated Unleaded Gasoline * Non-Oxygenated Unleaded Gasoline * CARB (California Air Resource Board) Unleaded Gasoline * PBOB - Premium Blendstock for Oxygenate Blending * RBOB - Reformulated Blendstock for Oxygenate Blending * Premium RBOB * CBOB - Conventional Blendstock for Oxygenate Blending * Petrol * Motor Fuel

Recommended use Motor fuels. Blendstock for motor fuels.

Recommended restrictions No other uses are advised.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier Valero Marketing & Supply Company and Affiliates
One Valero Way
San Antonio, TX 78269-6000

General Assistance 210-345-4593

E-Mail CorpHSE@valero.com

Contact Person Industrial Hygienist

Emergency Telephone 24 Hour Emergency 866-565-5220
1-800-424-9300 (CHEMTREC USA)

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 1
Health hazards	Skin corrosion/irritation	Category 2
	Germ cell mutagenicity	Category 1B
	Carcinogenicity	Category 1B
	Reproductive toxicity	Category 2
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Extremely flammable liquid and vapor. May be fatal if swallowed and enters airways. Causes skin irritation. May cause drowsiness or dizziness. May cause genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist/vapors. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response	If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If exposed or concerned: Get medical advice/attention. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. In case of fire: Use water fog, alcohol resistant foam, dry chemical powder, carbon dioxide for extinction. Collect spillage.
Storage	Keep cool. Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national regulations.
Hazard(s) not otherwise classified (HNOC)	Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Gasoline	86290-81-5	80 - 100

Hazardous Components of Complex Mixtures

Chemical name	CAS number	%
Octane (All isomers)	111-65-9	0 - 70
Toluene	108-88-3	0 - 30
Hexane (Other Isomers)	96-14-0	5 - 25
Xylene (o, m, p isomers)	1330-20-7	0 - 25
Butane (normal, iso and butylene)	106-97-8	0 - 15
Ethanol	64-17-5	≤ 10
1,2,4-Trimethylbenzene	95-63-6	0 - 6
Pentane (mixed isomers)	109-66-0	1 - 5
n-Heptane	142-82-5	1 - 5
Ethylbenzene	100-41-4	0 - 5
Cumene	98-82-8	≤ 5
Benzene	71-43-2	< 5
n-Hexane	110-54-3	0 - 3
Cyclohexane	110-82-7	0 - 3

Composition comments Note: Components of hazardous substances/mixtures are listed for disclosure purposes. Ranges may represent maximum regulatory limits or apply to multiple product grades (see Synonyms - Section 1). Typical and actual concentrations of individual components may be substantially less than the maximum values shown or zero, depending on the product grade or specifications.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if they feel unwell.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Direct contact with eyes may cause temporary irritation. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Extremely flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. The product is immiscible with water and will spread on the water surface. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water. Retain and dispose of contaminated wash water. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content and flammability. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist/vapors. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Hazardous Components of Complex Mixtures	Type	Value
Benzene (CAS 71-43-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Hazardous Components of Complex Mixtures	Type	Value
Ethanol (CAS 64-17-5)	PEL	1900 mg/m3
		1000 ppm
Xylene (o, m, p isomers) (CAS 1330-20-7)	PEL	435 mg/m3
		100 ppm
n-Hexane (CAS 110-54-3)	PEL	1800 mg/m3
		500 ppm
Cyclohexane (CAS 110-82-7)	PEL	1050 mg/m3
		300 ppm
Cumene (CAS 98-82-8)	PEL	245 mg/m3
		50 ppm
Ethylbenzene (CAS 100-41-4)	PEL	435 mg/m3
		100 ppm
n-Heptane (CAS 142-82-5)	PEL	2000 mg/m3
		500 ppm
Pentane (mixed isomers) (CAS 109-66-0)	PEL	2950 mg/m3
		1000 ppm
Octane (All isomers) (CAS 111-65-9)	PEL	2350 mg/m3
		500 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Hazardous Components of Complex Mixtures	Type	Value
Toluene (CAS 108-88-3)	Ceiling	300 ppm
	TWA	200 ppm
Benzene (CAS 71-43-2)	Ceiling	25 ppm
	TWA	10 ppm

US. ACGIH Threshold Limit Values

Material	Type	Value
UNLEADED GASOLINE	STEL	500 ppm
	TWA	300 ppm

Components	Type	Value
Gasoline (CAS 86290-81-5)	STEL	500 ppm
	TWA	300 ppm

Hazardous Components of Complex Mixtures	Type	Value
Ethanol (CAS 64-17-5)	STEL	1000 ppm

US. ACGIH Threshold Limit Values

Hazardous Components of Complex Mixtures	Type	Value
Butane (normal, iso and butylene) (CAS 106-97-8)	STEL	1000 ppm
Hexane (Other Isomers) (CAS 96-14-0)	STEL	1000 ppm
	TWA	500 ppm
Xylene (o, m, p isomers) (CAS 1330-20-7)	STEL	150 ppm
	TWA	100 ppm
n-Hexane (CAS 110-54-3)	TWA	50 ppm
Cyclohexane (CAS 110-82-7)	TWA	100 ppm
Toluene (CAS 108-88-3)	TWA	20 ppm
Benzene (CAS 71-43-2)	STEL	2.5 ppm
	TWA	0.5 ppm
Cumene (CAS 98-82-8)	TWA	50 ppm
Ethylbenzene (CAS 100-41-4)	TWA	20 ppm
n-Heptane (CAS 142-82-5)	STEL	500 ppm
	TWA	400 ppm
Pentane (mixed isomers) (CAS 109-66-0)	TWA	1000 ppm
1,2,4-Trimethylbenzene (CAS 95-63-6)	TWA	25 ppm
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Hazardous Components of Complex Mixtures	Type	Value
Ethanol (CAS 64-17-5)	TWA	1900 mg/m3
		1000 ppm
Butane (normal, iso and butylene) (CAS 106-97-8)	TWA	1900 mg/m3
		800 ppm
Hexane (Other Isomers) (CAS 96-14-0)	Ceiling	1800 mg/m3
		510 ppm
	TWA	350 mg/m3
		100 ppm
Xylene (o, m, p isomers) (CAS 1330-20-7)	STEL	655 mg/m3
		150 ppm
	TWA	435 mg/m3
		100 ppm
n-Hexane (CAS 110-54-3)	TWA	180 mg/m3
		50 ppm
Cyclohexane (CAS 110-82-7)	TWA	1050 mg/m3
		300 ppm
Toluene (CAS 108-88-3)	STEL	560 mg/m3
		150 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Hazardous Components of Complex Mixtures	Type	Value
	TWA	375 mg/m3
		100 ppm
Benzene (CAS 71-43-2)	STEL	1 ppm
	TWA	0.1 ppm
Cumene (CAS 98-82-8)	TWA	245 mg/m3
		50 ppm
Ethylbenzene (CAS 100-41-4)	STEL	545 mg/m3
		125 ppm
	TWA	435 mg/m3
		100 ppm
n-Heptane (CAS 142-82-5)	Ceiling	1800 mg/m3
		440 ppm
	TWA	350 mg/m3
		85 ppm
Pentane (mixed isomers) (CAS 109-66-0)	Ceiling	1800 mg/m3
		610 ppm
	TWA	350 mg/m3
		120 ppm
1,2,4-Trimethylbenzene (CAS 95-63-6)	TWA	125 mg/m3
		25 ppm
Octane (All isomers) (CAS 111-65-9)	Ceiling	1800 mg/m3
		385 ppm
	TWA	350 mg/m3
		75 ppm

Biological limit values

ACGIH

Hazardous Components of Complex Mixtures	Value	Determinant	Specimen	Sampling Time
Benzene (CAS 71-43-2)	500 µg/g	t,t-Muconic acid	Creatinine in urine	*

ACGIH Biological Exposure Indices

Hazardous Components of Complex Mixtures	Value	Determinant	Specimen	Sampling Time
Xylene (o, m, p isomers) (CAS 1330-20-7)	1.5 g/g	Methylhippuric acids	Creatinine in urine	*
n-Hexane (CAS 110-54-3)	0.5 mg/l	2,5-Hexanedione, without hydrolysis	Urine	*
Toluene (CAS 108-88-3)	0.3 mg/g	o-Cresol, with hydrolysis	Creatinine in urine	*
	0.03 mg/l	Toluene	Urine	*
	0.02 mg/l	Toluene	Blood	*
Benzene (CAS 71-43-2)	25 µg/g	S-Phenylmercapturic acid	Creatinine in urine	*

ACGIH Biological Exposure Indices

Hazardous Components of Complex Mixtures	Value	Determinant	Specimen	Sampling Time
Ethylbenzene (CAS 100-41-4)	0.15 g/g	Sum of mandelic acid and phenylglyoxylic acid	Creatinine in urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Benzene (CAS 71-43-2)	Can be absorbed through the skin.
Cumene (CAS 98-82-8)	Can be absorbed through the skin.
n-Hexane (CAS 110-54-3)	Can be absorbed through the skin.
Toluene (CAS 108-88-3)	Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cumene (CAS 98-82-8)	Skin designation applies.
Toluene (CAS 108-88-3)	Skin designation applies.

US - Tennessee OELs: Skin designation

Cumene (CAS 98-82-8)	Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Benzene (CAS 71-43-2)	Danger of cutaneous absorption
n-Hexane (CAS 110-54-3)	Danger of cutaneous absorption

US. NIOSH: Pocket Guide to Chemical Hazards

Cumene (CAS 98-82-8)	Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Cumene (CAS 98-82-8)	Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear protective gloves. Viton® or nitrile rubber gloves are possible options. Verify chemical resistant charts before using. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.

Skin protection

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection When conditions indicate, use chemical respirator with organic vapor cartridge and full facepiece or other appropriate methods.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Liquid.

Form Liquid.

Color Clear to straw yellow.

Odor Characteristic Gasoline Odor (Strong).

Odor threshold Not available.

pH Not available.

Melting point/freezing point	< -76 °F (< -60 °C)
Initial boiling point and boiling range	80.1 - 440.1 °F (26.7 - 226.7 °C) (20% Evaporated Point: ≥100 °F)
Flash point	-40.0 °F (-40.0 °C) (closed cup)
Evaporation rate	10 - 11 BuAc
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.3 %
Flammability limit - upper (%)	7.1 %
Vapor pressure	60.8 - 101.3 kPa (20°C)
Vapor density	3 - 4 (Air=1)
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Very slightly soluble.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	> 500 °F (> 260 °C)
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Flash point class	Flammable IB
Oxidizing properties	Not oxidizing.
VOC	100 %

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause drowsiness and dizziness. Headache. Nausea, vomiting. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Symptoms related to the physical, chemical and toxicological characteristics	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity	May be fatal if swallowed and enters airways. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere.

Components	Species	Test Results
Gasoline (CAS 86290-81-5)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg, 24 Hours
Inhalation		
Vapor		
LC50	Rat	> 5610 mg/m3, 4 Hours
Oral		
LD50	Rat	> 5000 mg/kg

Hazardous Components of Complex Mixtures	Species	Test Results
Ethanol (CAS 64-17-5)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg
Inhalation		
Vapor		
LC50	Mouse	39 g/m3, 4 Hours
Oral		
LD50	Rat	7000 - 11000 mg/kg
Butane (normal, iso and butylene) (CAS 106-97-8)		
Acute		
Inhalation		
LC50	Rat	658 mg/l, 4 Hours
Xylene (o, m, p isomers) (CAS 1330-20-7)		
Acute		
Oral		
LD50	Rat	3523 mg/kg
Cyclohexane (CAS 110-82-7)		
Acute		
Oral		
LD50	Rat	12710 mg/kg
n-Hexane (CAS 110-54-3)		
Acute		
Oral		
LD50	Rat	28710 mg/kg
Toluene (CAS 108-88-3)		
Acute		
Dermal		
LD50	Rabbit	12200 mg/kg
Inhalation		
Vapor		
LC50	Rat	28.1 mg/l, 4 Hours
Benzene (CAS 71-43-2)		
Acute		
Oral		
LD50	Rat	930 mg/kg

Hazardous Components of Complex Mixtures	Species	Test Results
Ethylbenzene (CAS 100-41-4)		
Acute		
Dermal		
LD50	Rabbit	15400 mg/kg
Inhalation		
LC50	Rat	17.4 mg/l, 4 hours
Oral		
LD50	Rat	3500 - 4700 mg/kg
n-Heptane (CAS 142-82-5)		
Acute		
Inhalation		
Vapor		
LC50	Rat	> 29.29 mg/l, 4 Hours
Oral		
LD50	Rat	15000 mg/kg
Pentane (mixed isomers) (CAS 109-66-0)		
Other		
NOAEL	Rat	> 1000 mg/kg/day
Acute		
Dermal		
LD50	Rabbit	3000 mg/kg/day
Inhalation		
LC50	Rat	18 mg/l, 4 Hours
Oral		
LD50	Rat	> 2000 mg/kg/day
Chronic		
Other		
NOAEL	Rat	20 mg/l
1,2,4-Trimethylbenzene (CAS 95-63-6)		
Acute		
Oral		
LD50	Rat	2720 - 3960 mg/kg

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity May cause genetic defects.

Carcinogenicity May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Benzene (CAS 71-43-2)	1 Carcinogenic to humans.
Cumene (CAS 98-82-8)	2B Possibly carcinogenic to humans.
Ethylbenzene (CAS 100-41-4)	2B Possibly carcinogenic to humans.
Gasoline (CAS 86290-81-5)	2B Possibly carcinogenic to humans.
Toluene (CAS 108-88-3)	3 Not classifiable as to carcinogenicity to humans.
Xylene (o, m, p isomers) (CAS 1330-20-7)	3 Not classifiable as to carcinogenicity to humans.

NTP Report on Carcinogens

Benzene (CAS 71-43-2)	Known To Be Human Carcinogen.
Cumene (CAS 98-82-8)	Reasonably Anticipated to be a Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Benzene (CAS 71-43-2)	Cancer

Reproductive toxicity	Suspected of damaging fertility or the unborn child.
Specific target organ toxicity - single exposure	May cause drowsiness and dizziness.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	May be fatal if swallowed and enters airways.
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.
Further information	May be absorbed through the skin.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

Components		Species	Test Results
Gasoline (CAS 86290-81-5)			
Aquatic			
Algae	EC50	Pseudokirchneriella subcapitata	3.1 mg/l, 72 Hours
Crustacea	EC50	Daphnia magna	4.5 mg/l, 48 Hours
Fish	LC50	Oncorhynchus mykiss	10 mg/l, 96 Hours
		Pimephales promelas	8.2 mg/l, 96 Hours

Hazardous Components of Complex Mixtures		Species	Test Results
Ethanol (CAS 64-17-5)			
Aquatic			
Acute			
Crustacea	LC50	Ceriodaphnia dubia	5012 mg/l, 48 hours
		Daphnia magna	454 mg/l, 11 days
Fish	LC50	Pimephales promelas	13480 mg/l, 96 hours
Chronic			
Crustacea	NOEC	Ceriodaphnia dubia	9.6 mg/l, 10 days
Xylene (o, m, p isomers) (CAS 1330-20-7)			
Aquatic			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	2.6 mg/l, 96 hours
Cyclohexane (CAS 110-82-7)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	0.9 mg/l, 48 hours
Acute			
Fish	LC50	Fathead minnow (Pimephales promelas)	3.961 - 5.181 mg/l, 96 hours
n-Hexane (CAS 110-54-3)			
Aquatic			
Acute			
Fish	LC50	Fathead minnow (Pimephales promelas)	2.101 - 2.981 mg/l, 96 hours
Toluene (CAS 108-88-3)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	11.5 mg/l, 48 hours
Fish	LC50	Oncorhynchus kisutch	5.5 mg/l, 96 hours
Chronic			
Crustacea	NOEC	Ceriodaphnia dubia	0.74 mg/l, 7 days
Fish	NOEC	Oncorhynchus kisutch	1.4 mg/l, 40 days

Hazardous Components of Complex Mixtures		Species	Test Results
Ethylbenzene (CAS 100-41-4)			
Aquatic			
Acute			
Crustacea	EC50	Water flea (Daphnia magna)	1.81 - 2.38 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	4.2 mg/l, 96 hours
Chronic			
Crustacea	EC50	Ceriodaphnia dubia	3.6 mg/l, 7 days
Pentane (mixed isomers) (CAS 109-66-0)			
Acute			
	EC50	Selenastrum capricornutum (new Pseudokirchneriella subcapita	7.51 mg/l, 72 Hours
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	2.7 mg/l, 48 Hours
Fish	LC50	Oncorhynchus mykiss	4.26 mg/l, 96 Hours
1,2,4-Trimethylbenzene (CAS 95-63-6)			
Aquatic			
Acute			
Fish	LC50	Fathead minnow (Pimephales promelas)	7.72 mg/l, 96 hours
Octane (All isomers) (CAS 111-65-9)			
Aquatic			
Crustacea	LC50	Daphnia magna	0.38 mg/l, 48 hours

Persistence and degradability Expected to be inherently biodegradable.

Bioaccumulative potential The product is not bioaccumulating.

Mobility in soil No data available.

Other adverse effects Oil spills are generally hazardous to the environment. The product contains volatile organic compounds which have a photochemical ozone creation potential.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D001: Waste Flammable material with a flash point <140 F
D018: Waste Benzene
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

US RCRA Hazardous Waste U List: Reference

Benzene (CAS 71-43-2)	U019
Cumene (CAS 98-82-8)	U055
Cyclohexane (CAS 110-82-7)	U056
Toluene (CAS 108-88-3)	U220
Xylene (o, m, p isomers) (CAS 1330-20-7)	U239

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN1203
UN proper shipping name	Gasoline
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	144, 177, B1, B33, IB2, T4, TP1
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1203
UN proper shipping name	GASOLINE
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	Yes
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1203
UN proper shipping name	GASOLINE
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	Yes
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.

General information Shipping descriptions in this section are offered as examples only. Classification for transport must accurately reflect the material hazards as designated under a variety of regulations and is solely the responsibility of the person offering the material for transport into commerce.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Benzene (CAS 71-43-2)	Listed.
Butane (normal, iso and butylene) (CAS 106-97-8)	Listed.
Cumene (CAS 98-82-8)	Listed.
Cyclohexane (CAS 110-82-7)	Listed.
Ethylbenzene (CAS 100-41-4)	Listed.
Gasoline (CAS 86290-81-5)	Listed.
Hexane (Other Isomers) (CAS 96-14-0)	Listed.
n-Heptane (CAS 142-82-5)	Listed.
n-Hexane (CAS 110-54-3)	Listed.
Octane (All isomers) (CAS 111-65-9)	Listed.

Pentane (mixed isomers) (CAS 109-66-0)	Listed.
Toluene (CAS 108-88-3)	Listed.
Xylene (o, m, p isomers) (CAS 1330-20-7)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Benzene (CAS 71-43-2)	Cancer Central nervous system Blood Aspiration Skin Eye respiratory tract irritation Flammability

Toxic Substances Control Act (TSCA) All components of the mixture on the TSCA 8(b) inventory are designated "active".

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories
Flammable (gases, aerosols, liquids, or solids)
Skin corrosion or irritation
Germ cell mutagenicity
Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)
Aspiration hazard
Hazard not otherwise classified (HNOC)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
1,2,4-Trimethylbenzene	95-63-6	0 - 6
Benzene	71-43-2	< 5
Cumene	98-82-8	≤ 5
Cyclohexane	110-82-7	0 - 3
Ethylbenzene	100-41-4	0 - 5
n-Hexane	110-54-3	0 - 3
Toluene	108-88-3	0 - 30
Xylene (o, m, p isomers)	1330-20-7	0 - 25

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Benzene (CAS 71-43-2)
Cumene (CAS 98-82-8)
Ethylbenzene (CAS 100-41-4)
n-Hexane (CAS 110-54-3)
Toluene (CAS 108-88-3)
Xylene (o, m, p isomers) (CAS 1330-20-7)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Butane (normal, iso and butylene) (CAS 106-97-8)
Pentane (mixed isomers) (CAS 109-66-0)

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Toluene (CAS 108-88-3)	6594

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Toluene (CAS 108-88-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Toluene (CAS 108-88-3)	594

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

Ethanol (CAS 64-17-5) Low priority

US state regulations

US. Massachusetts RTK - Substance List

1,2,4-Trimethylbenzene (CAS 95-63-6)
Benzene (CAS 71-43-2)
Butane (normal, iso and butylene) (CAS 106-97-8)
Cumene (CAS 98-82-8)
Cyclohexane (CAS 110-82-7)
Ethanol (CAS 64-17-5)
Ethylbenzene (CAS 100-41-4)
Hexane (Other Isomers) (CAS 96-14-0)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
Octane (All isomers) (CAS 111-65-9)
Pentane (mixed isomers) (CAS 109-66-0)
Toluene (CAS 108-88-3)
Xylene (o, m, p isomers) (CAS 1330-20-7)

US. New Jersey Worker and Community Right-to-Know Act

1,2,4-Trimethylbenzene (CAS 95-63-6)
Benzene (CAS 71-43-2)
Butane (normal, iso and butylene) (CAS 106-97-8)
Cumene (CAS 98-82-8)
Cyclohexane (CAS 110-82-7)
Ethanol (CAS 64-17-5)
Ethylbenzene (CAS 100-41-4)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
Octane (All isomers) (CAS 111-65-9)
Pentane (mixed isomers) (CAS 109-66-0)
Toluene (CAS 108-88-3)
Xylene (o, m, p isomers) (CAS 1330-20-7)

US. Pennsylvania Worker and Community Right-to-Know Law

1,2,4-Trimethylbenzene (CAS 95-63-6)
Benzene (CAS 71-43-2)
Butane (normal, iso and butylene) (CAS 106-97-8)
Cumene (CAS 98-82-8)
Cyclohexane (CAS 110-82-7)
Ethanol (CAS 64-17-5)
Ethylbenzene (CAS 100-41-4)
Gasoline (CAS 86290-81-5)
Hexane (Other Isomers) (CAS 96-14-0)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
Octane (All isomers) (CAS 111-65-9)
Pentane (mixed isomers) (CAS 109-66-0)
Toluene (CAS 108-88-3)
Xylene (o, m, p isomers) (CAS 1330-20-7)

US. Rhode Island RTK

1,2,4-Trimethylbenzene (CAS 95-63-6)
Benzene (CAS 71-43-2)
Butane (normal, iso and butylene) (CAS 106-97-8)
Cumene (CAS 98-82-8)
Cyclohexane (CAS 110-82-7)
Ethanol (CAS 64-17-5)
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n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
Octane (All isomers) (CAS 111-65-9)
Pentane (mixed isomers) (CAS 109-66-0)
Toluene (CAS 108-88-3)
Xylene (o, m, p isomers) (CAS 1330-20-7)

California Proposition 65

WARNING: This product can expose you to chemicals including Benzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

Benzene (CAS 71-43-2)	Listed: February 27, 1987
Cumene (CAS 98-82-8)	Listed: April 6, 2010
Ethylbenzene (CAS 100-41-4)	Listed: June 11, 2004

California Proposition 65 - CRT: Listed date/Developmental toxin

Benzene (CAS 71-43-2)	Listed: December 26, 1997
Toluene (CAS 108-88-3)	Listed: January 1, 1991

California Proposition 65 - CRT: Listed date/Male reproductive toxin

Benzene (CAS 71-43-2)	Listed: December 26, 1997
n-Hexane (CAS 110-54-3)	Listed: December 15, 2017

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

1,2,4-Trimethylbenzene (CAS 95-63-6)
Benzene (CAS 71-43-2)
Butane (normal, iso and butylene) (CAS 106-97-8)
Cumene (CAS 98-82-8)
Cyclohexane (CAS 110-82-7)
Ethylbenzene (CAS 100-41-4)
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n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
Octane (All isomers) (CAS 111-65-9)
Pentane (mixed isomers) (CAS 109-66-0)
Toluene (CAS 108-88-3)
Xylene (o, m, p isomers) (CAS 1330-20-7)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	13-May-2013
Revision date	30-June-2020
Version #	06
NFPA ratings	

References	CONCAWE
Disclaimer	The information in this Safety Data Sheet (SDS) was obtained from sources believed to be reliable and accurate, and is not represented as being absolutely complete. The end user of this product has the responsibility for evaluating the adequacy of the data for the intended application and conditions of use; for determining the safety, toxicity, regulatory requirements, and suitability of the product under these conditions; and for obtaining additional or clarifying data where uncertainty exists. The data serves as general guidance only, and is to be used in combination with professional judgement of persons experienced in a specific application, use or process; and additional data may be required. Valero Marketing & Supply Co., (Valero) provides this data without any warranty, expressed or implied regarding its correctness or accuracy; and does not assume any liability arising out of product handling, storage, use or disposal by others.

APPENDIX C

Heat Illness Prevention Program

HEAT ILLNESS
PREVENTION PROGRAM

CORPORATE HEALTH AND SAFETY DIRECTOR	:	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	:	**10/2019**
REVISION DATE	:	**04/2026**
REVISION NUMBER	:	**5**

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APPENDICES

Appendix A – NIOSH Work/Rest Schedule Recommendations

1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux"), have established this heat illness prevention program to assist in preventing workplace accidents, injuries, and illnesses associated with heat stress and exposure to extreme temperatures. Roux is committed to taking every precaution to protect employees who might be exposed to heat stress, including establishing safe work practices, heat illness prevention controls, and emergency preparedness, which will be detailed in this plan.

2. SCOPE AND APPLICABILITY

Roux's Heat Illness Prevention Program applies to all employees and subcontractors who may be exposed to heat stress in the field. The National Institute for Occupational Safety and Health (NIOSH) defines occupational heat stress as the combination of metabolic heat, environmental heat, and heat retained by clothing and personal protective equipment (PPE), resulting in increased heat storage within the body. NIOSH indicates that excessive heat storage can exceed the body's ability to regulate internal temperature and may lead to heat-related illnesses, including heat exhaustion, heat stroke, heat cramps, and heat rash.

3. ROLES AND RESPONSIBILITIES

The Heat Illness Prevention Program Administrator for Roux is the Corporate Health and Safety Director (CHSD), Brian Hobbs, CIH, CSP. The daily administration of the program is delegated to the Operations Manager (OM) , Office Health and Safety Manager (OHSM), and Site Health and Safety Officer (SHSO). The CHSD has the authority, responsibility, and overall accountability for the comprehensive implementation of this program.

All managers and supervisors shall implement and maintain the heat illness prevention program in work areas where there is a potential for heat stress.

Management Responsibilities

Management (i.e., Project Managers, Project Principals, OM) must provide the following to promote compliance and foster a good safety culture:

- Comply with applicable standards.
- Inform employees of the provisions of the heat illness prevention program and ensure understanding.
- Provide sufficient water, shade, rest areas, and other heat illness controls for employees.
- Assist with establishing work practices to minimize heat stress risks, such as acclimatization, required rest periods, employee monitoring, and strategic scheduling.
- Encourage employees to report hazardous conditions or heat illness symptoms.
- Provide training to any employee who could possibly be exposed to the risk of heat illness.

Employee Responsibilities

Employees are expected to actively participate in the organization's heat illness prevention program, which includes the following responsibilities:

- Receive appropriate training with regard to heat stress.
- Understand core concepts of heat illness prevention and follow guidelines to mitigate risks.
- Recognize the signs and symptoms of heat illness and immediately report them.

- Cooperate with workplace inspections and incident investigations.

Effective Communication

All Roux employees shall be accountable for ensuring there is effective communication with both the field team and their subcontractors. Communication between Roux employees, project leads (e.g., Project Principal, Project Managers), and subcontractors (if applicable) will be established and maintained so that employees can quickly contact should there be a change in condition or someone at the Site exhibits signs/symptoms of heat stress. These types of incidents would follow Roux's Incident Investigation and Reporting Management Program 2.12 and Roux's Injury Illness Prevention Program 2.22.

4. HAZARD IDENTIFICATION AND ASSESSMENT

Prior to scheduled fieldwork, the project team shall ensure a hazard assessment is conducted as it relates to heat stress. This will include a determination of how much heat and exertion employees are likely to be exposed to based on the work activity.

Factors that can increase heat stress include the following:

- Temperatures at the work site;
- Humidity;
- A lack of air movement or exchange;
- The amount of time employees spend working in the heat;
- The time of day work takes place;
- Sources of radiant heat (e.g., sunlight, fire, or hot furnace);
- Work activities that produce heat (e.g., welding);
- Physical contact with warm or hot objects or liquids;
- The clothing and PPE employees are required to wear; and/or
- Physically strenuous work.

Results of the hazard analysis should be used to determine appropriate controls for mitigating heat stress, whenever possible, including planning acclimatization and developing work schedules that rotate workers to limit employee exposure. Typically, the Site Supervisor (SS) or Site Health and Safety Officer (SHSO) shall conduct worksite observations to ensure all employees follow heat illness prevention procedures and that hazards are sufficiently controlled. However, all employees should be continuously evaluating work site conditions and be able to recognize heat stressors in order to prevent heat illnesses.

Acclimatization is a physiological adaptation process that occurs when workers are gradually exposed to hot environments, allowing the body to adjust and better tolerate heat stress over time. Proper acclimatization reduces physiological strain by improving the body's ability to regulate internal temperature and is a critical preventive measure for reducing the risk of heat-related illnesses, particularly for new, returning, or reassigned workers.

5. TRAINING

All Roux employees shall be trained on the topics listed below prior to beginning work, which may potentially expose workers to heat stress. All SS/SHSO will be trained in heat illness prevention prior to supervising employees.

Training Topics

- The environmental, behavioral, and personal risk factors for heat illness, such as radiant heat sources, level of physical exertion, clothing and PPE, and use of alcohol or drugs.
- Types of heat illnesses, common symptoms, and appropriate emergency response for each.
- The knowledge that mild symptoms may quickly become more severe or life-threatening.
- The importance of immediately reporting any signs or symptoms of heat illness to the supervisor.
- The employer's responsibility to provide shade, water, access to first aid, and cool-down rests during work and the employee's freedom to exercise their rights under this standard without fear of retaliation.
- The employer's heat stress plan and its procedures:
  - Procedures for employees who are newly assigned to work in high-heat areas.
  - The organization's acclimatization methods, as applicable.
  - Heatwave procedures.
  - Heat illness and emergency response, including contact information.
- The importance of frequent consumption of water and the taking of rest breaks.
- How heat illness prevention applies to employees' specific tasks.

Increasing Training Effectiveness:

- The SS/SHSO will hold daily tailgates with the field team to go over daily work tasks and basic safety information, including Job Safety Analysis (JSA) review, as well as incorporate elements such as current weather and effects on the work activities for the day.
- If a heat wave or high heat is anticipated, OHSMs and/or OMs will provide communications to Roux employees prior to their shifts and remind them of any special high heat procedures.

6. DRINKING WATER

Employees shall be given access to potable drinking water. Access to water will be provided as near as possible to where employees are working, and there shall be enough locations so employees will have sufficient water. Water should be fresh and pure, free of taste or smell that would discourage employees from drinking, comfortably cool, and obtained from an approved source.

The recommendation is that during warm or hot weather, employees drink four 8-ounce glasses of water, or a total of one quart per hour, throughout the entire work shift. Easy access to sufficient potable drinking water throughout the work shift encourages employees to drink.

During a heat wave, water shall be replenished more often to keep it available and cool. Water containers (and all spouts and levers) must be kept clean. If able, provide single-use drinking cups with appropriate waste receptacles. Accessible sanitation facilities shall also be maintained at work Sites as appropriate.

SS/SHSO is responsible for the following:

- Drink sufficient water before, during, and after work shifts to maintain hydration.
- Encourage frequent drinking of small amounts of water throughout the shift. In high-heat environments, remind field staff and subcontractors that drinking extra water may be necessary.

- Discourage the choice of drinks with caffeine or sugar that may possibly dehydrate employees instead of water. Also, discourage the drinking of alcohol.
- Monitor the water supply.
- If employees become dehydrated and are unable to alleviate symptoms with the steps below, get them immediate medical attention.

Field Staff/Subcontractors are responsible for the following:

- Drink sufficient water before, during, and after work shifts to maintain hydration. Drink up to 4 cups of water per hour, especially during hot weather.
- Be aware that in high-heat situations, you may need to drink more water.
- Monitor yourself and others for signs of dehydration. If you feel dehydrated:
  - Follow Roux's Incident Notification Flowchart;
  - Rest in the shaded resting area; and
  - Drink water in small amounts, but frequently.

7. ACCESS TO SHADE

Access to shaded areas will be provided to Roux staff, as needed. Employees are encouraged to use these areas when they feel overheated. Roux's SS/SHSO shall oversee the proper implementation of shaded areas and will communicate these locations on a daily basis with the Field Team.

Depending on the Site, shaded areas can include the following:

- Pop-up Tents
- Canopies
- Umbrellas
- Structures mechanically ventilated or open to air movement
  - Garage
- Conex-mounted RV canopies
- Full and thick tree canopies that block direct sunlight
- Buildings
- Enclosed areas only if they provide cooling comparable to shade in open-air
  - Vehicles with air conditioning

Shaded Area Requirements

The shade shall be strong enough to cool employees down and other shadows should not be visible in the shade. The shade will be provided by Roux when the air temperature exceeds 80°F. If the temperature is less than 80°F, shade will be available and provided upon request. The SS/SHSO will monitor conditions to determine when the air will exceed (and is exceeding) 80°F. For most Sites, air will be monitored hourly and shade will be set up immediately if 80°F is exceeded.

Shade shall be located as close as practical to areas where employees are working and is easily accessible. These areas will be considered safe and free from other hazards. Shaded areas should be large enough to

accommodate all employees who are on a break, resting, or recovering without crowding. Should natural vegetation be used for shade, the SS/SHSO will evaluate shade for effectiveness.

Field Staff Responsibilities

Field Staff should take ordinary rest breaks in the shaded areas and monitor themselves for signs of heat stress, and go to the shaded area when they need to cool down. Any issues or problems with shaded areas should be reported to the SS/SHSO for the Site.

If shaded areas are used for a preventative cool-down, the SS/SHSO will ensure the affected employees will remain in the shade until they begin to feel better. The SS/SHSO will continue to monitor the employees and ask them if they are experiencing symptoms of a heat illness. Employees shall not be sent back to work before symptoms have ended and at a minimum at least 10 minutes of rest.

8. MONITORING AND SCHEDULING

Monitoring

The SS/SHSO and Field Team will continue to monitor themselves and others for signs of heat illness. The SS/SHSO will monitor temperature and weather conditions when the air temperature exceeds 80°F to ensure heat stress controls are properly implemented. Throughout the summer, weather and temperature will be monitored at least two weeks ahead, and the work schedule will be planned to accommodate the expected weather.

Scheduling

Scheduling accommodations may include:

- Working during cooler hours of the day
- Working at night
- Stopping work early
- Rescheduling work activities
- Increasing frequency of breaks

In general, strenuous work activities shall be rescheduled to the coolest parts of the day.

Special precautions are required for temperatures above 80°F, 95°F, and heat waves. These precautions are provided in the sections below.

Work Level Intensity

Work level intensity refers to the physical effort required to perform a task and is a key factor in determining an employee's metabolic heat load and appropriate heat stress controls. For the purposes of heat stress evaluation and implementation of work/rest schedules, job tasks may be categorized as light, moderate, or heavy work based on the nature of the activity and physical demands.

- **Light Work** - Light work includes tasks that require minimal physical exertion and generate lower metabolic heat. Examples include operating equipment, inspection activities, walking on flat and level ground, using light hand tools (e.g., wrenches or pliers), and travel by conveyance. The use of light hand tools may constitute moderate work depending on task duration, posture, and repetition.

- **Moderate Work** - Moderate work involves sustained physical activity that results in increased heart rate and heat generation. Examples include jack-leg drilling, installing ground support, loading explosives, carrying equipment or supplies weighing approximately 20 to 40 pounds, and using hand tools such as shovels, fin-hoes, or scaling bars for short periods.
- **Heavy Work** - Heavy work consists of high-intensity tasks that produce significant metabolic heat and rapidly increase heat stress risk. Examples include climbing, carrying equipment or supplies weighing 40 pounds or more, installing utilities, and using hand tools such as shovels, fin-hoes, or scaling bars for extended periods of time.

Supervisors and employees should consider work level intensity during task planning and execution to ensure appropriate heat stress controls, including work/rest schedules, are implemented and adjusted as conditions change.

9. ACCLIMATIZATION AND NEW EMPLOYEE PROCEDURES

Roux requires employees to be acclimatized in order for them to better tolerate heat in the workplace. Acclimatization is the physical process of adapting to a different thermal environment, allowing a better toleration of heat. Acclimatization procedures require gradual exposure that gives the employee time to adjust to each level of exposure. Acclimatization is essential for new employees but is necessary for all employees when the temperature significantly changes. Heat stress is much more likely if these procedures are not followed.

The SS/SHSO is responsible for observing new employees during their first 14 days of employment in high-heat areas.

Re-acclimatization is necessary if employees are absent from high-heat environments for a week or more or the temperature increases significantly.

10. HEATWAVE AND EXTREME HEAT PROCEDURES

Heat Wave Procedures

A heat wave is defined as consistent temperatures over 80°F or if the temperature is 10° higher than the average daily temperatures in the preceding 5 days.

SS/SHSO and Project Management (e.g., PP, PM) shall closely observe and monitor employees during a heat wave. The Field Teams should institute a ratio of one SS to 20 or fewer employees, a mandatory buddy system, or a consistent practice for supervisors to check on employees. Pre-shift meetings to review high-heat procedures with employees will be carried out to emphasize work-rest schedules, drinking water, shade, etc.

Extreme Heat Procedures

When work-site temperatures equal or exceed 95°F, the employer will enact extreme heat procedures:

- Employees will be closely observed by the SS/SHSO for signs of heat illness. New employees will be supervised for acclimatization.
- Effective communication and monitoring will be ensured through the use of periodic check-ins via phone with the SS/SHSO. Communications between employees and Project Management (e.g., PP/PM) will be established and maintained. Mandatory 10-minute break periods are required for every two hours worked. SS/SHSO must enforce this rule.

- Pre-shift safety tailgate meetings will occur to review procedures and to remind employees to drink water and take cool-down rests if needed. SS/SHSO shall remind employees to rest and drink water. Employees should drink more water than usual.

11. EMERGENCY RESPONSE PROCEDURES

Roux is dedicated to providing prompt appropriate care for all employees who report or show symptoms of heat illness. If an employee shows signs of heat illness, they will be monitored and shall not be left alone or sent home without being offered first aid or emergency medical services. If on-site personnel require any medical treatment, the following steps will be taken:

1. Notify Roux's Project and Corporate Management Team for any work-related injury and/or illness occurrence, and communicate with the contracted Occupational Health Care Management Provider, AllOne Health (AOH), immediately following the notifications provided above.
2. Based on discussions with the Project Team, Corporate Management, and the AOH evaluation, if medical attention beyond onsite First Aid is warranted, transport the injured/ill person (IP) to the Urgent Care Center, or notify the Fire Department or Ambulance Emergency service and request an ambulance or transport the victim to the hospital, and continue communications with Corporate Management Team. An Urgent Care/Hospital Route map with locations and directions is provided within Site Specific Health and Safety Plans.
3. First aid medical support will be provided by onsite personnel trained and certified in First Aid, Cardio Pulmonary Resuscitation (CPR), Automatic External Defibrillation (AED), and Blood-Borne Pathogens (BBP) Awareness, until relieved by emergency medical services (EMS).
4. The SHSO and Project Manager will perform a Loss Investigation (LI), and the Project Team will complete the final Loss Report.

12. HEAT-RELATED ILLNESSES

Heat Stress

Heat stress is a significant potential hazard and can be associated with heavy physical activity and/or the use of personal protective equipment (PPE) in hot-weather environments. Preventing excessive increases in core body temperature is critical, as the body's inability to adequately dissipate heat can lead to heat stress and subsequent heat-related illnesses. For these reasons, the company will provide potable drinking water and access to shade or other areas of relief (i.e., air-conditioned vehicles and/or work trailers). Supervisors, prior to supervising personnel in the field as well as all personnel involved with the fieldwork of a project, are trained in this HASP, which includes measures for maintaining safe core body temperature, preventing heat-related illnesses, and implementing the procedures below in response to heat-related symptoms and illness.

Since much of our work is dependent upon environmental factors beyond our control, air temperature and humidity shall be closely monitored, and efforts shall be made to avoid radiant heat sources and to provide as much air circulation as practicable wherever work is performed. Physical factors evaluated as part of Job Safety Analysis (JSA) reviews include the level and duration of physical activity and the type of clothing selected (i.e., color, weight, and breathability), as these factors directly influence heat retention and core body temperature. In addition, personal factors such as age, weight, fitness, drug or alcohol use, and prior history of heat-related illness shall be considered when assessing individual heat stress risk. Heat cramps are brought on by prolonged exposure to heat. As an individual sweats, water and salts are lost by the body, resulting in painful muscle cramps. The signs and symptoms of heat stress are as follows:

- Severe muscle cramps, usually in the legs and abdomen;
- Exhaustion, often to the point of collapse; and

- Dizziness or periods of faintness.

First aid treatment includes, but is not limited to, shade, rest, and fluid replacement. Typically, the individual should recover within one-half hour while being monitored constantly. If the individual has not improved substantially within 30 minutes and the body temperature has not decreased, the individual should be transported to a hospital for medical attention.

Heat Exhaustion

Heat exhaustion may occur in a healthy individual who has been exposed to excessive heat while working or exercising. The circulatory system of the individual fails as blood collects near the skin to rid the body of excess heat through transference. The signs and symptoms of heat exhaustion are as follows:

- Rapid and shallow breathing;
- Weak pulse;
- Cold and clammy skin with heavy perspiration;
- Skin appears pale;
- Fatigue and weakness;
- Dizziness; and
- Elevated body temperature.

First aid treatment includes, but is not limited to, cooling the victim, elevating the feet, and replacing fluids. If the individual is not substantially improved within 30 minutes and the body temperature has not decreased, the individual should be transported to the hospital for medical attention.

Heat Stroke

Heat stroke occurs when an individual is exposed to excessive heat and stops sweating. This condition is classified as a MEDICAL EMERGENCY requiring immediate cooling of the victim and transport to a medical facility. The signs and symptoms of heat stroke are as follows:

- Dry, hot red skin;
- Body temperature approaching or above 105 degrees F;
- Confusion, altered mental state, slurred speech;
- Seizures;
- Large (dilated) pupils; and
- Loss of consciousness – the individual may go into a coma.

First aid treatment requires immediate cooling and transportation to a medical facility. Heat stress is a significant hazard if any type of protective equipment (semi-permeable or impermeable) that prevents evaporative cooling is worn in hot-weather environments.

13. OTHER HEAT CONTROLS

Clothing and PPE

Employees should choose clothing that is reflective, light-colored, lightweight, loose-fitting, and breathable. Clothing should cover the exposed parts of the body. In direct sun, hard hats with a brim or bill may be helpful. Should specialized cooling garments be applicable, please consult with your OM/OHSM/CHSD.

Managing Employee Risk Factors

It is recommended that employees are aware of how their health can affect their risk of heat stress. The following increases personnel's risk for a heat-related illness:

- A poor level of physical fitness
- Obesity
- Chronic or acute illnesses
- Conditions such as diabetes, heart disease, or high blood pressure
- Certain medications, such as diuretics
- Age (60+)

Employees should:

- Maintain their health outside of work
- Be aware of the effects of medications
- Drink adequate amounts of water
- Eat light, cool meals during work shifts and save heavy meals until after the shift is over
- Do not skip meals: food helps replace electrolytes when sweating
- Take breaks as needed
- Do not consume alcohol prior to working in a hot environment

Work Rest Schedules

NIOSH recommends the use of work/rest schedules as an administrative control to reduce the risk of heat-related illness when employees are exposed to elevated temperatures or performing physically demanding tasks. Work/rest schedules are designed to limit metabolic and environmental heat load by alternating periods of work with scheduled rest breaks that allow the body to dissipate heat and recover.

NIOSH work/rest recommendations are based on ambient air temperature and account for work intensity (light, moderate, or heavy), with adjustments for environmental conditions such as direct sunlight and humidity. These schedules are intended to supplement, not replace, other heat illness prevention measures and may not be applicable to all worksites; therefore, site-specific conditions, employee acclimatization, clothing, PPE, and individual health factors shall be considered when implementing work/rest controls. Continuous work in hot environments is not advisable and that reliance on self-pacing alone may not provide adequate protection from heat stress. Supervisors should ensure that rest breaks are provided in shaded or cooler areas whenever feasible and that employees are encouraged to take additional rest as needed when heat stress indicators are observed.

To develop a work/rest schedule, the Site Supervisor (SS) or Site Health and Safety Officer (SHSO) should identify the ambient air temperature and the intensity of work being performed (light, moderate, or heavy) and apply the corresponding work-to-rest ratio for those conditions. As temperatures or physical workload increase, rest periods should be extended to reduce heat accumulation and minimize the risk of heat-related illness. Conditions that require additional caution, including temperatures above 105 °F, indicate elevated risk and require close supervision and consideration of additional controls, such as reduced workloads, increased rest frequency, or rescheduling of work. Please see *Appendix A – NIOSH Work/Rest Schedule Recommendations* for a sample work/rest schedule for workers wearing normal clothing and additional adjustments for temperature and work intensity.

Appendix A
NIOSH Work/Rest Schedule Recommendations

Sample Work/Rest Schedule for Workers Wearing Normal Clothing*

The NIOSH work/rest schedule is based on air temperature, with adjustments for direct sunlight and humidity. It may not be applicable to all worksites. Other work/rest schedules are available, some of which are based on Wet Bulb Globe Temperature.

See reverse for temperature adjustments for the NIOSH work/rest schedule and examples of light, moderate, and heavy work.

Temperature (°F)	Light Work Minutes Work/Rest	Moderate Work Minutes Work/Rest	Heavy Work Minutes Work/Rest
90	Normal	Normal	Normal
91	Normal	Normal	Normal
92	Normal	Normal	Normal
93	Normal	Normal	Normal
94	Normal	Normal	Normal
95	Normal	Normal	45/15
96	Normal	Normal	45/15
97	Normal	Normal	40/20
98	Normal	Normal	35/25
99	Normal	Normal	35/25
100	Normal	45/15	30/30
101	Normal	40/20	30/30
102	Normal	35/25	25/35
103	Normal	30/30	20/40
104	**Normal**	**30/30**	**20/40**
105	Normal	25/35	15/45
106	45/15	20/40	Caution
107	40/20	15/45	Caution
108	**35/25**	**Caution**	**Caution**
109	30/30	Caution	Caution
110	15/45	Caution	Caution
111	Caution	Caution	Caution
112	Caution	Caution	Caution

Things you need to know:

- Continuous work in the heat is not advisable—you must take rest breaks periodically to allow your body to cool down.
- A variety of work/rest schedules are available that can be adapted to your worksite. Relying on self-pacing alone may not be sufficient.

Example

A worker performing heavy work in 104 °F temperatures should work for 20 minutes and rest for 40 minutes.

Example

A worker performing moderate work at 108 °F should use extreme caution! The risk for heat injury is high in this situation.

* From NIOSH Criteria for a Recommended Standard, Occupational Exposure to Heat and Hot Environments, https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf. **Assumptions:** workers are physically fit, well-rested, fully hydrated, under age 40, and environment has 30% humidity and perceptible air movement.

HEAT STRESS Work/Rest Schedules

Temperature Adjustments for this Work/Rest Schedule

Adjust the temperature in the table based on:

Environmental conditions	AND	Humidity
• Full sun (no clouds): Add 13 °F • Partly cloudy/overcast: Add 7 °F • No shadows visible, in the shade, or at night: No adjustment		• 40% humidity: Add 3 °F • 50% humidity: Add 6 °F • 60% humidity or more: Add 9 °F

Example Adjustment

Conditions at a mine are 90 °F, with partly cloudy skies and 50% humidity. Adjust the table as follows:

Add 7 °F for partly cloudy skies and 6 °F for 50% humidity, to arrive at 103 °F.

Photo by ©Thinkstock

Examples of Work at Different Intensity Levels

Light work

- Operating equipment
- Inspection work
- Walking on flat, level ground
- Using light hand tools (wrench, pliers, etc.). However, this may be moderate work depending on the task
- Travel by conveyance

Moderate work

- Jack-leg drilling
- Installing ground support
- Loading explosives
- Carrying equipment/supplies weighing 20–40 pounds
- Using hand tools (shovel, fin-hoe, scaling bar) for short periods

Heavy work

- Climbing
- Carrying equipment/supplies weighing 40 pounds or more
- Installing utilities
- Using hand tools (shovel, fin-hoe, scaling bar) for extended periods

Case Study: Use of Work/Rest Schedule

A crew was shoveling ore out from under the primary conveyor at a surface mine in Arizona in August. The high temperature that day was 113 °F. The crew was rotating in 10-minute shifts and hydrating between shifts. Coworkers noticed signs of heat illness in two employees, and they were transferred to the medical station for evaluation. From there they were sent to the hospital, where they were given IV saline and released home. Both employees recovered after rehydration at the hospital.

Lessons Learned

In extreme heat, even a work/rest schedule may not eliminate the risk of heat illness. In this case, use of work/rest schedules, frequent hydration, and team monitoring helped keep this situation from becoming even more serious. Without those safety precautions the workers could have potentially suffered more severe heat illness, possibly including heat stroke, which is life threatening.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

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APPENDIX D

Personal Protective Equipment Management Program

PERSONAL PROTECTIVE EQUIPMENT MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY DIRECTOR	**:**	**Brian Hobbs, CIH, CSP**
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APPENDICES

Appendix A – EPA's Emergency Responder Health and Safety Manual

1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C., and Remedial Engineering (collectively, “Roux”), have instituted the following program to establish guidelines for selecting personal protective equipment (PPE) for use by Roux personnel performing field activities in hazardous environments. PPE is not intended to substitute for engineering, work practice, and/or administrative controls, but it should be used in conjunction with these controls to protect employees in the workplace. Clothing, body coverings, and other accessories designed to prevent workers from being exposed to workplace hazards are all types of PPE.

2. SCOPE AND APPLICABILITY

These guidelines apply to all PPE selection decisions to implement the Roux program. The foundations for this program are the numerous Occupational Health and Safety Administration (OSHA) standards related to PPE cited in 29 CFR 1910 Subpart I, 29 CFR 1926 Subpart E, and the hazardous environment work employee protection requirements under the OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) standard at 29 CFR 1910.120 and 1926.65 as well as California OSHA (Cal/OSHA) Title 8 5192 HAZWOPER. To ensure hazard assessments are documented, the levels and types of protection, as well as tasks requiring protection, are covered in site-specific Health and Safety Plans (HASPs) and Job Safety Analyses (JSAs).

3. PROCEDURES

Due to the varied nature of site activities and the differing potential hazards across sites, several aspects must be considered when selecting PPE. The following text describes PPE selection logic and provides guidelines and requirements for the appropriate selection and use of PPE.

3.1 Introduction

To harm the body, chemicals must first gain entrance. The intact skin and respiratory tract are usually the first body tissues that are exposed to chemical contaminants. These tissues provide barriers to some chemicals but, in many cases, are damaged themselves or are highly permeable to certain chemical compounds. PPE, therefore, is used to minimize or eliminate chemical compounds from coming into contact with these first barrier tissues.

Proper PPE selection is essential in preventing exposure. The Project Manager (PM) or health and safety personnel making the selection will have to consider several factors. The level of protection, type, and kind of equipment selected depend on the hazardous conditions. In some cases, additional selection factors include cost, availability, compatibility with other equipment, and performance. All these factors must be accurately assessed before work can be safely carried out.

3.1.1 Training

Training shall be provided to all field-based employees on the proper use and care of PPE. Training shall include, but not be limited to, the initial 40-hour HAZWOPER training, annual 8-hour HAZWOPER refresher training, and site-specific PPE training. The training program includes when PPE is necessary, what types of PPE are required, how to don, doff, adjust, and wear PPE; the limitations of PPE; the proper care, maintenance, useful life, signs of PPE failure and emergency procedures to follow in the event of PPE failure and disposal of PPE. In addition, retraining shall be conducted when workplace changes require a change in PPE, when an employee demonstrates a lack of knowledge, or when improper use of PPE is identified.

3.2 Types of PPE

The type and selection of PPE must meet certain general criteria and requirements as required under OSHA 29 CFR 1910.132 (General Industry) and 1926.95 (Construction) as well as state/local requirements. In addition to these general requirements, specific requirements and specifications apply to certain types of PPE and form the basis of the protective clothing scheme. All manufacturers' recommendations for PPE care and use shall be followed. All PPE shall be maintained in a sanitary and reliable condition. Additionally, proper fit and size shall be evaluated to ensure adequate employee protection. Should PPE become defective, it shall be immediately removed from service and discarded.

The following is a list of the common types of specific PPE and the specific requirements for the PPE type, where applicable:

1. Hard Hats - Regulated by 29 CFR 1910.135 and 1926.100; and specified in ANSI Z89.1.
2. Face Shields and Safety Glasses - Regulated by 29 CFR 1910.133 and 1926.102; and specified in ANSI Z87.1.
3. Respiratory Protection - Regulated by 29 CFR 1910.134 and 1926.103.
4. Hand Protection - Regulated by 29 CFR 1910.138
5. Foot Protection - Regulated by 29 CFR 1910.136 and 1926.96; and specified in ANSI Z41.1.
6. Protective Clothing (e.g., fully encapsulated suits, aprons) - Specified in NFPA 1991/1992/1994.

3.2.1 PPE Inspection, Cleaning, Maintenance, and Storage

The Office Health and Safety Manager (OHSM) or their designee is responsible for procuring PPE in accordance with this management program. Single-use/disposable PPE should be purchased and used whenever practicable.

3.2.1.1 PPE Inspection

Roux employees must inspect PPE regularly, before and after each use, to check for defects and damage. Garments and other PPE in central storage must be inspected at least annually or as recommended by the manufacturer by the OHSM, Equipment Manager, and/or their designee. Defective or damaged equipment must be tagged as out-of-service, immediately removed from the work site, and discarded.

3.2.1.2 PPE Cleaning and Maintenance

All Roux employees are responsible for routine cleaning of their assigned PPE. Decontamination of PPE is addressed within Roux's Site Control and Decontamination Program as specified within site-specific health and safety plans. As appropriate, Roux employees should be issued single-use PPE when practicable to minimize the requirement for decontamination. When performing routine cleaning of reusable PPE:

- Always follow the manufacturer's recommendations to avoid damaging the PPE. For example, some cleaning solutions compromise the integrity of protective helmets shell.
- Clean and maintain PPE according to the manufacturer's recommendations. Before being re-issued, PPE should be thoroughly sanitized.
- Disassemble, wash and sanitize reusable respirators after each use. For more information, refer to Roux's Respiratory Protection Management Program.

Employees are not authorized to repair PPE without prior approval from the Health and Safety Department. Reusable PPE may require maintenance by the manufacturer to maintain integrity and certification. Many

manufacturers specify which repairs, if performed by the end-user, will void the product warranty. Therefore, Roux employees are not authorized to perform such maintenance or repairs.

3.2.1.3 PPE Storage

Certain equipment failures can be directly attributed to improper storage. The OHSM or Equipment Manager (or another designated person) is responsible for implementing procedures for appropriate PPE storage for equipment that is centrally stored. Both central storage and dedicated PPE provided to employees should be stored using the following:

- Store goggles and safety glasses in protective cases.
- Store PPE (such as helmets, boots, etc.) in clean, dust-proof containers or bags out of direct sunlight.
- PPE should ideally be stored under climate-controlled conditions. PPE, stocked gear bags, and/or go-kits should not be stored in hot, cold, or other extreme environmental conditions, and they should not be stored in vehicles (government-owned or rentals) for even short periods of time. Do not store helmets on the rear window shelf of a vehicle.
- Store different kinds of clothing and gloves separately to prevent errors in selection.
- Hang or fold protective clothing in accordance with manufacturers' recommendations.
- Never store contaminated PPE near new protective clothing or street clothing. Potentially contaminated, reusable clothing must be stored (usually bagged) away from new PPE in a well-ventilated area with good airflow around each item until the garment is decontaminated or disposed.
- See Roux's Respiratory Protection Management Program for detailed respirator storage procedures.

3.3 Fitting, Donning, and Doffing PPE

Roux shall provide appropriately sized PPE for Roux employees. Improper fitting, such as tight-fitting garments, can tear, especially at the knees, crotch, shoulders, back, and elbows due to movement. Protective clothing that is too large can easily snag and/or limit a user's dexterity. The Roux PM shall ensure site/project-specific PPE is kept in sufficient stock, including appropriately sized PPE (e.g., Level C ensembles). The OHSM, Equipment Manager, and/or their designee shall maintain a sufficient stock of appropriately sized PPE in central storage locations.

The Site Supervisor (SS)/Site Health and Safety Officer (SHSO) is responsible for ensuring that site-specific procedures for donning and doffing PPE are incorporated into site-specific HASPs. Donning and doffing procedures may differ depending on the type of PPE and clothing (e.g., Level D, Modified Level D, Level C) utilized. Site-specific conditions may warrant adjustments to such procedures. Consult the CHSD for additional information. Roux's Site Control & Decontamination Management Program can be referenced to develop such procedures, which provide additional information on doffing and decontamination for Level A-D work.

Site-specific donning and doffing procedures should include using an assistant where necessary. Donning and doffing certain types of PPE without assistance could risk failure or damage. Care must be taken to prevent contaminants from spreading onto the PPE. Decontamination procedures should limit the potential for cross-contamination and may include gross decontamination of outer boots, gloves, and suits as necessary to prevent contaminants from tracking into the contamination reduction zone (CRZ) and clean zone(s).

3.4 Controlling Hazards Associated with PPE Use

PPE use can pose potential health and safety hazards, which range from minor discomfort to life-threatening heat stroke. The magnitude of the potential hazard can vary depending on factors such as an individual's fitness level, the type of PPE worn, work demands, individual work practices, work duration, and environmental conditions. The use of PPE can also reduce efficiency and work performance.

Among the hazards associated with PPE use, heat stress is a prevalent and significant one. Particularly, the use of substantial and/or impermeable attire, such as heavy coveralls, Tyvek suits, splash suits, or Level A or B suits, alongside strenuous work, amplifies the risk of heat stress. Regular monitoring for indications of heat stress is imperative for workers operating in such conditions. Roux's Heat Illness Prevention Program outlines requirements for signs and symptoms, as well as preventive measures to mitigate the risk of heat illness. In addition, cold environments can pose adverse risks; for example, the use of non-insulated steel-toe safety shoes in frigid conditions can increase the risk of frostbite, while safety gloves worn for chemical protection may inadequately insulate hands from the cold.

It is the responsibility of Project Teams to integrate site-specific protocols for managing PPE hazards into such site-specific HASPs. These protocols can encompass considerations like work/rest ratios, crew rotations, and other accommodations for exceptionally demanding conditions.

The following measures are recommended for controlling hazards posed by PPE use:

- Prioritize through the hierarchy of controls with a focus on elimination, substitution, engineering, work practice, and administrative control implementation rather than sole reliance on PPE. PPE shall be considered the last line of worker protection.
- Workers should maintain physical fitness to be able to withstand the potential physical strain of PPE use. A physically fit individual will endure less physiological strain, as evidenced by a lower heart rate, reduced body temperature (indicating less retained body heat), more effective sweating, and slightly lower oxygen consumption and carbon dioxide production. Furthermore, acclimatization to extreme environmental conditions, such as high temperatures, can influence work performance and physical capacity.
- Understand the symptoms of PPE failure. Workers encountering any of these symptoms while donning PPE should promptly notify their onsite SHSO and/or SS:
    - Perception of odors when wearing a respirator
    - Skin irritation
    - Acute discomfort
    - Difficulty breathing
    - Unusual fatigue
    - Dizziness
    - Inability to see, hear, or speak clearly
    - Uncomfortable restriction of movement
    - Rapid pulse, nausea, or chest pain
- Implement a buddy system. Especially in situations where there is a need for an increased level of protection (e.g., Level A-C), workers should work in pairs or teams, and are instructed to monitor the integrity of their team/partners' gear and remain alert for symptoms of PPE failure.

3.5 PPE Selection

For site-specific work, the Project Manager, in consultation with the Health and Safety Department, has overall responsibility for coordinating the selection and distribution of PPE to field staff and for ensuring that the selected PPE is appropriate for the site-specific hazards. Generally speaking, Roux employees are not engaged in emergency response or perform work at uncontrolled hazardous waste sites; if this is the case, the CHSD shall be made aware of the work and consult with the Project Team on appropriate PPE selection. Most work falls under environmental sampling of low-concentration contaminants in water/soil/perimeter air. Therefore, work is carried out in Level D PPE. Upgrades would be based on more information as they become available. The United States Environmental Protection Agency (EPA) has created Guidelines for PPE Ensemble Selection to assist workers in selecting PPE ensembles for specific activities and tasks and determining which ensembles and air monitoring equipment should be used to address specific chemicals. Guidelines to Ensembles for Specific Activities/Tasks Where Chemical Exposure is Possible are provided as a reference in Appendix A.

3.6 Protective Clothing Selection Criteria

3.6.1 Chemicals Present

The most important factor in selecting PPE is determining which chemicals the employee may be exposed to. The number of chemicals on field investigations may range from a few to several hundred. The exact chemicals or groups of chemicals present at the site (certain groups tend to require similar protection) can be determined by collecting and analyzing samples of air, soil, water, or other site media. When data is lacking, research into the hazardous materials used or stored at the site can be used to infer potential chemical exposures on the site.

The most appropriate clothing shall be selected once the known or suspected chemicals have been identified and considered based on the type of work to be performed.

Protective garments are made from several different materials to protect against specific chemicals. There is no universal protective material. All will decompose, permeate, or otherwise fail to protect under given circumstances. Fortunately, most manufacturers make guides to using their products (i.e., Dupont's Tyvek™ Permeation Guide). These guides are usually for gloves and coveralls and typically provide information on chemical degradation rates (the failure of the material to maintain structural integrity when in contact with the chemical) and may also provide information on permeation rates (whether the material allows the chemical to pass through). When permeation tables are available, they shall be used with degradation tables to determine the most appropriate protective material for the specific chemical hazard(s).

During most site work, chemicals are usually in mixed combinations, and the protective materials are not in continuous contact with pure chemicals for long periods; therefore, the selected material may be adequate for the particular chemical of most concern and the type of work being performed, yet not the "best" protecting material for all site chemicals and activities. Selection shall be based on the most hazardous chemicals, considering their hazards and concentrations. Sometimes, layering (i.e., using several layers of protective materials) affords the best protection.

3.6.2 Concentration of the Chemical(s)

One of the major criteria for selecting protective material is the concentration of the chemical(s) in air, liquid, and solid state. Airborne and liquid chemical concentrations should be compared to the OSHA standards, American Conference of Governmental Industrial Hygienists (ACGIH) and National Institute for Occupational Safety and Health (NIOSH) guidelines to determine the level of skin or other absorptive surface (e.g., eyes) protection needed. While these standards are not designed specifically for skin exposed

directly to the liquid, they may provide skin designations for chemicals known to have significant skin or dermal absorption effects. For example, airborne PCB levels on-site may be low because PCBs are not very volatile, so the inhalation hazard may be minimal; however, PCB-containing liquid in direct contact with the skin may cause overexposure. Thus, PCBs have been assigned a skin designation in the OSHA and ACGIH exposure limit tables.

3.6.3 Physical State

The characteristics of a chemical may range from nontoxic to highly toxic, depending on its physical state. Inorganic lead in soil would not be considered toxic to site personnel unless it became airborne since it is generally not absorbed through the intact skin. However, organic lead in a liquid could be readily absorbed through the skin. Soil is frequently contaminated with hazardous materials. Concentrations will vary from a few parts per million to nearly 100% by volume. The degree of hazard depends on the type of soil and the chemical's concentration. Generally speaking, “dry” soils that have not become airborne do not pose a hazard to site personnel if they take minimal precautions, such as wearing lightweight gloves.

3.6.4 Length of Exposure

The longer a material is exposed to a chemical, the higher the probability of a breakthrough. Determinations of actual breakthrough times for short-term exposures indicate that several materials that would be considered inadequate under long-term exposures can be used. Different materials that would be considered inadequate under long-term exposures can be used. It should be kept in mind that during the manufacturer’s permeation testing, a pure (100% composition) liquid is usually placed in direct contact with the material, producing a worst-case situation.

3.6.5 Abrasion

When selecting protective clothing, the job the employee is engaged in must be taken into consideration. Persons moving drums or performing other manual tasks may require added protection for their hands, lower chest, and thighs. Using leather gloves and a heavy apron over standard protective clothing will help prevent damage to the standard PPE and thus reduce worker exposure.

3.6.6 Dexterity

Although protection from skin and inhalation hazards is the primary concern when selecting PPE, the ability to perform the assigned task must be maintained. For example, personnel cannot be expected to perform work that requires fine dexterity if they must wear thick gloves. Therefore, the PPE selection process must consider the task being performed and provide PPE alternatives or techniques that maintain dexterity while still protecting the worker (e.g., wearing tight latex gloves over more bulky hand protection to increase dexterity).

3.6.7 Ability to Decontaminate

If disposable clothing cannot be used, the ability to decontaminate the selected materials must be considered. Once a chemical comes into contact with the material, the PPE must be cleaned before reuse. If the chemical has completely permeated the material, the clothing cannot be adequately decontaminated, and the material should be discarded.

3.6.8 Climactic Conditions

Protective clothing adds a body burden by increasing weight, restricting movement, and impeding the body’s natural cooling. In severe situations, a modified work program must be used.

Some materials act differently when they are very hot and very cold. For example, PVC becomes almost brittle in frigid temperatures. If there are any questions about the stability of the protective materials under different conditions, the manufacturer should be contacted before using PPE in the field.

3.6.9 Work Load

As with climatic conditions, the type of work activity may affect work duration and personnel's ability to perform certain tasks. Similarly, the amount of protective materials a person wears will affect their ability to perform certain tasks. For example, a person in a fully encapsulating suit, even at 72°F, cannot work for more than a short period without requiring a break.

The work schedule should be adjusted to maintain employees' health. Modified work practices may include allowing more time for individual job tasks and implementing work/rest cycles per NIOSH and ACGIH thermal stress recommendations. Special consideration should be given to selecting clothing that protects the worker while imposing the least burden when personnel are required to perform strenuous tasks. Excessive physical stress is often the most significant hazard encountered during fieldwork.

3.6.10 Types of Protective Materials

1. Cellulose or Paper: suitable for nuisance dust and coarse fibers.
2. Natural and Synthetic Fibers
   a. Tyvek™: suitable small-sized hazardous particles, including lead, asbestos, and mold.
   b. Tychem™: is suitable for a variety of hazards, from light liquid splashes to heavy exposures to industrial chemicals and agents.
   c. Nomex™: is suitable for flame-resistance, radiation resistance, acids, alkalis, fluorocarbon refrigerants (CFCs), and non-polar solvents.
3. Elastomers
   a. Polyethylene: suitable for polar substances and solvents.
   b. Saran™ : suitable for flame-resistance, acids, alkalis, oils, and organic solvents.
   c. Polyvinyl Chloride (PVC): suitable for alcohols, oils, inorganic acids, alkalis, and salts.
   d. Neoprene: suitable for polar/non-polar substances, petroleum mixtures, and ≤ 200 F heat resistance.
   e. Butyl Rubber: suitable for polar substances and solvents.
   f. Viton: suitable for non-polar substances, petroleum mixtures, and ≤ 200 F heat resistance.
   g. Nitrile: suitable for polar/non-polar substances and petroleum mixtures.

3.7 Protection Levels

3.7.1 Level A Protection

Level A protection (a fully encapsulated suit) is used when skin hazards exist or when no known data positively rule out skin and other absorption hazards. Per the Roux Respiratory Protection Management Program, Roux employees are not authorized to enter an IDLH atmosphere; therefore, the program does not permit the use of supplied-air respirators (SARs) or self-contained breathing apparatus (SCBAs). At no time will Level A work be performed without the consent of the CHSD and OM.

The following conditions warrant the use of Level A protection:

- Hazardous substances have been identified and require the highest level of protection for skin, eyes, and the respiratory system;
- The atmosphere contains less than 19.5% oxygen or an atmosphere immediately dangerous to life and health (IDLH) that has not been ruled out;
- Site operations involve a high potential for splash, skin immersion, or exposure to suspected skin hazards;
- Direct-reading instruments indicate high levels of unidentified but potentially hazardous vapors or gases in the air (e.g., Total atmospheric readings on the Photoionization Detector (PID), Flame Ionization Detector (FID), and similar instruments indicate 500 to 1,000 ppm of unidentified substances); and
- Direct-reading instruments are not available to test the air, and suspected highly toxic substances may be present.

It may be necessary to base the decision to use Level A protection on indirect evidence. Other conditions that may indicate the need for Level A protection include:

- Confined spaces;
- Sites containing known skin hazards;
- Sites with no established history to rule out skin and other absorption hazards;
- Site exhibiting signs of acute mammalian toxicity (e.g., dead animals, illnesses associated with past entry into the site by humans);
- Sites at which sealed drums of unknown materials must be opened;
- Visible indicators such as leaking containers or smoking chemical fires; and
- Extremely hazardous substances (e.g., cyanide compounds, concentrated pesticides, Department of Transportation Poison "A" materials, suspected carcinogens, and infectious substances) are known or suspected to be present, and skin contact is possible.

Table 1: Recommended Level A Ensemble Components

Component	Type	Manufacturer / Recommended Material	Notes
Respirator	Positive-pressure full-facepiece SCBA or positive-pressure supplied-air respirator with escape SCBA[1]	NIOSH-approved respirator	See Roux's Respiratory Protection Program. Roux employees are not approved to utilize Supplied Air (SAR) and/or Self-contained breathing apparatus (SCBA).
Suit	Totally encapsulated chemical- and vapor-protective suit	DuPont® Tychem™ or Responder CSM™	Other material types may be substituted based on known contaminants.
Inner Gloves	Lightweight	Nitrile, Neoprene, PVC, or Viton®	Other material types may be substituted based on known contaminants.
Outer Gloves	An integral part of the suit	See Appendix A for additional information	Confirm chemical performance rating for suspected contaminants. Glove material may have different performance ratings than suit material. All fully-encapsulating suit materials must be compatible with substances involved.
Inner Boot	Integral Part of Suit	-	-
Outer Boot	HazMat boot[2]	–	Confirm chemical performance rating of outer boot for suspected contaminants. Provides slip/abrasion resistance.
Hard Hat	Standard[3]	-	-

[1] Must be NIOSH approved.
[2] Must meet NFPA 1991/NFPA 1994 requirements depending on the site hazard assessment.
[3] Must comply with the applicable ANSI standard.

3.7.2 Level B Protection

Level B protection is utilized when the highest level of respiratory protection is needed, but hazardous material exposure to the few unprotected areas of the body is unlikely. At no time will Level B work be performed by Roux personnel without the consent of the CHSD and OM.

The following conditions suggest a need for Level B protection:

- The type and atmospheric concentration of toxic substances have been identified, and they require the highest level of respiratory protection;

- IDLH atmospheres where the substance or concentration in the air does not present a severe skin hazard;
- The type and concentrations of toxic substances do not meet the selection criteria permitting the use of air-purifying respirators and
- It is highly unlikely that the work being done will generate high concentrations of vapors, gases, particulates, or splashes of materials that will affect personnel's skin.

Table 2: Recommended Level B Ensemble Components

Component	Type	Manufacturer / Recommended Material	Notes
Respirator	Positive-pressure full- facepiece SCBA or positive-pressure supplied-air respirator with escape SCBA[1]	NIOSH approved respirator	See Roux's Respiratory Protection Program. Roux employees are not approved to utilize Supplied Air (SAR) and/or Self-contained breathing apparatus (SCBA).
Suit	Chemical-resistant clothing (liquid-splash protective suit with integral boot and hood)[2]	DuPont® Tychem® CPF 3	Other material types may be substituted based on known contaminants.
Inner Gloves	Light/medium weight	Nitrile, Neoprene, PVC, Viton®, or PE/EVAL	Other material types may be substituted based on known contaminants.
Outer Gloves	Medium/heavy weight	Butyl MIL-G12223, Nitrile, Neoprene, PVC, Viton®, PE/EVAL, or heavy weight Nitrile or Neoprene	Confirm chemical performance rating. Other material types may be substituted based on known contaminants.
Inner Boot	Safety work boot	–	Other boot types may be substituted based on known contaminants and physical hazards. Puncture resistant shanks may be required.
Outer Boot	Heavy weight Latex booties or outer boots[2]	Latex booties are used to protect suit for light duty applications. NFPA-rated outer boots may be required based on anticipated site conditions and tasks.	Other outer boot coverings may be substituted based on known contaminants/anticipated tasks.
Hard Hat	Standard[3]	-	-

[1] Must be NIOSH approved.
[2] Must meet NFPA 1991/NFPA 1994 requirements depending on the site hazard assessment.
[3] Must comply with the applicable ANSI standard.

3.7.3 Level C Protection

Level C protection is utilized when skin and respiratory hazards are well defined, and the criteria for using negative pressure respirators have been fulfilled (i.e., known contaminants and contaminant concentrations, acceptable oxygen levels, approved filter/cartridge available, known cartridge service

life, etc.). Level C protection may require an emergency escape respirator during specific initial entry and site reconnaissance situations or when applicable after that.

Table 3: Recommended Level C Ensemble Components

Component	Type	Manufacturer / Recommended Material	Notes
Respirator	Full-face air-purifying respirator with appropriate cartridge[1]	NIOSH approved respirator	See Roux's Respiratory Protection Program for information about the brand, model, acceptable configurations, and specific care instructions for the standard issue respirator. Half-faced respirators may be donned if hazard assessment warrants.
Suit	Puncture/tear resistant suit material with boot and hood[2]	DuPont® Tychem® CPF 2/CPF 3 or Saranex	Other material types may be substituted based on known contaminants, if considered more appropriate.
Inner Gloves	Light weight	Nitrile, Neoprene	Other material types like Neoprene, PVC, Viton®, or PE/EVAL may be substituted based on known contaminants, if considered more appropriate.
Outer Gloves	Medium/heavy weight	Butyl, Nitrile, or other work glove	Confirm chemical performance rating. Other material types may be substituted based on known contaminants, if considered more appropriate.
Inner Boot	Safety work boot	–	Other boot types may be substituted based on known contaminants and physical hazards. Puncture resistant shanks may be required.
Outer Boot	Heavy weight Latex booties or outer boots[2]	Latex booties are used to protect suit for light duty applications. NFPA rated outer boots may be required based on anticipated site conditions and tasks.	Other outer boot coverings may be substituted based on known contaminants.
Hard Hat	Standard[3]	-	-
Eye Protection	Safety glasses/goggles[3],[4]	-	-

1 Must be NIOSH approved.
2 Must meet NFPA 1991/NFPA 1994 requirements depending on the site hazard assessment.
3 Must comply with the applicable ANSI standard.
4 In the case a ½ face respirator is worn eye protection is required.

3.7.4 Level D Protection

Level D is the basic work uniform. Level D is worn when the atmosphere contains no known hazard. Work functions preclude splashes, immersion, potential for inhalation, or direct contact with hazard chemicals. For most Roux field jobs Level D is the standard minimum level of protection worn.

Table 4: Recommended Level D Ensemble Components

Component	Type	Manufacturer / Recommended Material	Notes
Respirator	None	-	-
Suit	Coveralls, street clothes, or disposable Tyvek suit	–	Other types may be substituted as appropriate.
Inner Gloves	N/A		
Outer Gloves	As appropriate for physical hazards and for comfort	–	-
Boot	Safety work boot	–	Roux's standard safety boot is 6", steel/composite safety toe, and electrical hazard (EH) rated.
Outer Boot Covering	As appropriate	–	–
Hard Hat	Standard[3]	-	-
Eye Protection	Safety glasses/goggles[3]	-	-
High Visibility Clothing	High Visibility Vest /Jacket[3]	-	ANSI Class 2 Safety Vests/Jackets are the standard. Class 3 Safety vests/jackets shall be worn in worksites with 50+ MPH traffic.
Hearing Protection	Ear muffs/plugs	-	Workers exposed to excessive noise shall don hearing protection. Refer to Roux's Hearing Conservation Program for more information.

[1] Must be NIOSH approved.
[2] Must meet NFPA 1991/NFPA 1994 requirements depending on the site hazard assessment.
[3] Must comply with the applicable ANSI standard.

3.7.5 Level E Protection

Level E protection is used when radioactivity above 10 millirems per hour (mrems/hr) is detected at the site. Personal protective equipment for Level E includes:

- Coveralls;
- Air purifying respirator (i.e., P100 or equivalent);
- Time limits on exposure;
- Appropriate dermal protection for the type of radiation present, and

- Radiation dosimetry and ambient monitoring.

3.7.6 Additional Considerations

Fieldwork will contain a variety of situations due to chemicals in various concentrations and combinations. These situations may be partially ameliorated by following the work practices listed below:

1. Foot protection is needed on every site. If the ground to be worked on is contaminated with liquid, and it is necessary to walk in the chemicals, some sort of protective shoe coverings or "booties" can be worn over the boots. Shoe coverings should be designed with soles to help prevent slips. Using disposable shoe coverings when contacting liquid contamination can on and reduce overall decontamination requirements. If non-liquids are to be encountered, a Tyvek™ bootie could be used. The advantage of booties is questionable if the ground contains any sharp objects. Boots should be worn with either cotton or wool socks to help absorb perspiration.
2. If the site requires hard hats, chin straps should be used if a person is stooping over where his/her hat may fall off. Respirator straps should not be placed over the hard hats, as this will affect the respirator's fit.

   Some types of protective materials conduct heat and cold readily. In cold conditions, natural material clothing should be worn under protective clothing. Protective clothing should be removed before allowing a person "to get warm." Applying heat, such as with a space heater, to the outside of the protective clothing may drive contaminant permeation. In hot weather, under clothing will absorb sweat. It is recommended that workers use all cotton undergarments.
3. Body protection should be worn and taped to prevent anything from running into the top of the boot. Gloves should be worn and taped to prevent substances from entering the top of the glove. Duct tape is preferred, but masking tape can be used. When aprons are used, they should be taped across the back for added protection. However, this should be done so that the person has mobility.
4. Atmospheric conditions such as precipitation, temperature, wind direction, humidity, wind velocity, and pressure determine the behavior of contaminants in air or the potential for volatile materials to become airborne. These parameters should be considered in determining the need for and the level of protection.
5. A program must be established for periodic air monitoring during site operations. Without an air monitoring program, any changes to air quality would go undetected and might jeopardize on-site personnel. Monitoring can be done with various types of air pumps and filtering devices, followed by laboratory analysis of the filtration media, personnel dosimeters, and periodic walk-throughs by personnel carrying real-time direct-reading survey instruments.
6. For operations in the exclusion zone, different levels of protection may be selected, and various types of chemical-resistant clothing may be worn. This selection should be based on the job function, reason for being in the area, and the potential for skin contact with, or inhalation of, the chemicals present.
7. Escape masks must be readily available when levels of respiratory protection do not include an SCBA and the possibility of an IDLH atmosphere exists. The use and placement of escape masks should be made on a case-by-case basis. Escape masks should be strategically located at the site in areas with a higher potential for vapors, gases, or particulates.

3.8 Decontamination of PPE

Roux prefers the use of single-use PPE to minimize the requirement for significant decontamination. The following procedures shall be considered should a field project require the need for decontamination of PPE. Roux has also developed a Site Control and Decontamination Management Program.

3.8.1 Site-Specific Decontamination Plans

The Project Manager (or another authorized individual) is responsible for formulating the site-specific PPE decontamination plan as an integral part of the Health and Safety Plan (HASP). The SHSO/SS' responsibilities include ensuring the plan's implementation and adapting it as site conditions evolve. Refer to Roux's Site Control and Decontamination Management program for additional requirements.

The decontamination plan, often created in conjunction with PPE selection, must be established prior to workers entering potentially contaminated areas. The plan should address the following key aspects:

- Decontamination Hazard Evaluation and Risk Assessment: Assessing risks associated with decontamination processes.
- PPE for Decontamination Line Assistants: Specifying appropriate PPE for personnel involved in decontamination.
- Roles and Responsibilities During Decontamination: Defining tasks and duties during the decontamination process.
- Layout and Quantity of Decontamination Stations: Determining the number and arrangement of decontamination stations, along with the designated PPE decontamination procedures at each station.
- Decontamination Equipment: Identifying the necessary equipment for effective decontamination.
- Decontamination Methods: Describing the methods and protocols for decontaminating personnel and equipment.
- Preventing Contamination of Clean Areas: Outlining procedures to prevent contamination of uncontaminated zones.
- Minimizing Contact with Contaminants During CPC Removal: Providing guidelines to reduce wearer exposure during the removal of Chemical Protective Clothing (CPC).
- Disposal Procedures for Inadequately Decontaminated Clothing and Equipment: Ensuring proper disposal practices for items that have not been adequately decontaminated.

The initial decontamination plan, which is developed in conjunction with the initial site hazard assessment, should be based on worst-case assumptions about the extent and type of contamination.

3.8.2 Emergency Decontamination of PPE

The designated SHSO/SS (or another authorized individual) assumes responsibility for addressing emergency decontamination within the site-specific Health and Safety Plan (HASP). Emergency decontamination may become necessary due to events such as fires, explosions, sudden violent storms, or medical emergencies. The emergency decontamination plan must clearly delineate emergency egress routes, as well as procedures for both decontamination and egress.

Some key points to consider regarding emergency decontamination.

- Immediate Notification: The SHSO/SS (or their designated counterpart) must be promptly informed of any circumstances requiring emergency decontamination. Additionally, they are accountable for tracking all personnel during the process.
- Urgent Medical Treatment: If urgent medical attention is necessary, decontamination of PPE may be delayed until the victim's condition stabilizes.
- Balancing Priorities: When feasible, decontamination should occur without hindering essential first aid. However, if a worker is exposed to an extremely toxic or corrosive substance, immediate decontamination is crucial to prevent severe injury or fatality.

- Heat-Related Illness: In cases of heat-related illness, protective clothing must be promptly removed (refer to Roux's Heat Illness Prevention Program).

Emergency Facilities:

- For workers potentially exposed to corrosive materials, quick drenching or flushing facilities must be provided in accordance with 29 CFR 1910.151(c) and 1926.50(g).
- Similarly, if workers face other hazards (such as splash or dust) that could harm the eyes or body, readily accessible wash stations are essential. These stations should be properly located and maintained, including regular water changes, as per the manufacturer's instructions.

3.8.3 Protection of Decontamination Line Assistants

Should work require a decontamination corridor the following shall be used as guidance. The SHSO/SS (or other designated person) must for ensuring that decontamination line assistants receive appropriate PPE and addressing their protection within the site-specific HASP. Key zones—namely, the Exclusion Zone (EZ), Contamination Reduction Zone (CRZ), and Clean Support Zone—must be clearly marked both in the field and within the site-specific HASP. The following should be considered when preparing for protection of decontamination line assistants.

1. Task Hazard Analysis: A thorough analysis must be conducted for line assistants to determine the optimal PPE level required. Factors influencing this decision include:
   - Expected or Visible Contamination on Responders
   - Type of Contaminant and associated respiratory and skin hazards
   - Total Vapor/Gas Concentrations in the CRZ
   - Presence of Particulates and specific inorganic or organic vapors in the CRZ
   - Results of Wipe Tests (refer to Section 5.4)
   - Slope and Configuration of the CRZ
2. PPE Levels: Depending on the situation:
   - Line assistants may need to wear the same PPE level as workers in the EZ.
   - Alternatively, line assistants may be adequately protected by using PPE one level lower (e.g., wearing Level C protection while decontaminating workers who are wearing Level B)."

3.8.4 Procedures to Minimize PPE Contamination

Proper work practices and procedures should be implemented at sites to minimize the potential for contact with chemicals of concern while onsite. The following guidance should be considered when developing site-specific procedures:

- Opt for single-use Personal Protective Equipment (PPE) when feasible to minimize decontamination needs.
- Ensure complete sealing of PPE closures and interfaces, including pockets, zippers, and other potential openings.
- Position gloves and boots underneath the sleeves and pant legs of outerwear to reduce exposure.
- Place hoods outside the collar if they are not already attached.
- Utilize disposable outerwear and equipment when suitable to facilitate easy disposal and reduce decontamination efforts.
- Secure all junctions with tape to block contaminants from entering gloves, boots, jackets, and suits.

- Adopt work practices that limit contact with hazardous substances, such as avoiding unnecessary exposure.
- Employ remote techniques for sampling, handling, and opening containers, like using drum grapples and pneumatic impact wrenches.
- Store monitoring and sampling devices in bags designed with openings for sample ports and sensors.
- Cover contaminant sources with plastic sheeting or overpacks to shield PPE from contamination.

3.8.5 PPE Disposal

The PM, in coordination with the field team, shall ensure the safe disposal of all wastes generated from PPE use. PPE must be placed in appropriate containers, labeled, and prepared for disposal separately from other forms of waste. Refer to Roux's General Waste Corporate Management Program for further guidance.

APPENDIX A
EPA's Emergency Responder Health and Safety Manual

GUIDELINES TO ENSEMBLES FOR SPECIFIC ACTIVITIES/TASKS WHERE CHEMICAL EXPOSURE IS POSSIBLE

GUIDELINES TO ENSEMBLES FOR SPECIFIC ACTIVITIES/TASKS WHERE CHEMICAL EXPOSURE IS POSSIBLE

IMPORTANT: READ FOOTNOTES AND ASSUMPTIONS/JUSTIFICATIONS PRIOR TO USING TABLE

Notes:

1. This table is for use by trained environmental professionals only. To use this table:
   a. Scan the activity description to find activities (bolded) that most closely matches those you plan to engage in.
   b. Review Hazard/Conditions section to make sure the hazards of the planned activity match those listed. Note the Required Work Practices and be ready to follow them.
   c. For those activities most likely to be conducted as part the response, select Targeted Minimum PPE (Personal Protective Equipment).
   d. Necessary equipment needs to be available and used unless other information becomes available which necessitates an upgrade or allows a downgrade in the protection level. The work area must be continuously re-evaluated to ensure workers have the proper safety equipment.
   e. When working in hazardous environments, workers must always be aware of their surroundings. In addition to this Table, workers entering these environments need to use “common sense” prior to proceeding.
2. These ensembles focus on chemical protection and may not be adequate for all hazards. This Table can be used as a starting point but does not circumvent proper evaluation by an industrial hygienist in appropriate situations. See Table 2 for more specific chemical agents.
3. Suits, gloves, boots listed in the Minimum PPE column will not be appropriate for all activities, hazards and conditions. The listings should be used as a guide only. Confirm PPE compatibility with specific chemical contaminants.
4. A comprehensive Task Hazard Analysis must be performed prior to final selection of ensembles/PPE material types.
5. Hardhat (Class A or C), safety glasses/other eye protection are typically required but may not be specified here. In noisy environments (above 85dB) hearing protection is required. In areas where there is traffic, heavy machinery, or other hazards involving worker visibility problems a Class 2 High Visibility Vest must be worn. Activities requiring vests include natural disaster responses, demolitions, and excavations.
6. PPE makes and models referenced in these tables are only suggestions. Other comparable, adequate makes and models may be used.

Activity Description	Hazards/Conditions	Targeted Minimum PPE
Emergency Response and/or Initial Entry/Assessment – Low Hazard Expected (Sites/Facilities): • Air and Radiation Monitoring Sweep • Visual Assessment • Note Taking • Photo-documentation	• Suspected low hazard based on site history/visual evidence. • No CBRN suspected. • No visible/suspected vapors. • No potential for IDLH atmosphere. • Unknown physical hazards. • Some site background information. • No intrusive work expected. • Low potential for chemical splash/contact (based on expected tasks/ known conditions). • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Level B** (Downgrade/upgrade based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs) **Respirator: Scott or MSA Full Face** **Suit Type:** [I]Tychem CPF-3 (with boot, hood)/ChemTape **Inner Glove:** [II]Nitrile (6 mil min recommended) **Outer Glove:** [II]Neoprene, Nitrile, (28 mil min recommended) **Outer Steel Toe Boot:** [IV]Tingley HazProof Model 82330 **or** **Steel Toe Boot Cover**: [V]Latex HazMaster Booty and rely on suit boot material for permeation protection. **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON**: Dry or soap & water

Activity Description	Hazards/Conditions	Targeted Minimum PPE
Emergency Response and/or Initial Entry/Assessment of Unknown – Potential Moderate Hazard (Sites/Facilities): • Air and Radiation Monitoring Sweep • Visual Assessment • Note Taking • Photo-documentation	• Possible high hazard chemicals based on site history/visual evidence (spills, corrosion, industrial practices, etc.). • No CBRN suspected. • No visible/suspected vapors. • **No** reasonable potential for **IDLH** atmosphere. • Unknown physical hazards. • Little/ no site background information. • No intrusive work expected. • Low potential for chemical splash/contact. • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Level B** (Downgrade/upgrade based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs) **Respirator: Scott or MSA Full Face** **Suit Type:** [I]Tychem Responder (with boot, hood)/ChemTape **Inner Glove:** [II]Nitrile (6 mil min recommended) **Outer Glove:** [II]Neoprene, Nitrile, (28 mil min recommended) **Outer Steel Toe Boot:** [IV]Tingley HazProof Model 82330 **or** **Steel Toe Boot Cover**: [V]Latex HazMaster Booty and rely on suit boot material for permeation protection. **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON**: Dry or soap & water

Activity Description	Hazards/Conditions	Targeted Minimum PPE
Emergency Response and/or Initial Entry/Assessment of Unknown - Suspected High Hazard (Sites/Facilities): • Air and Radiation Monitoring Sweep • Visual Assessment • Note Taking • Photo-documentation	• Potential for high hazard chemicals/ IDLH based on site history/visual evidence (visible/expected reactions, spills, vapors, fumes, smoke, known releases, etc.). • No CBRN suspected. • Potential for chemical reactions. • Unknown physical hazards. • Little/ no site background information or information suggesting high hazard. • Intrusive work possible. • Potential for chemical splash/contact. • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Level A** (Downgrade/upgrade (Trelleborg, etc.) based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs) **Respirator: Scott or MSA Full Face** **Suit Type:** Encapsulating [I]Tychem Responder/Responder CSM (with boot, hood, gloves)/ChemTape **Inner Glove:** [II]Nitrile (6 mil min recommended) **Outer Glove:** [II]Neoprene, Nitrile, (28 mil min recommended) **Outer Steel Toe/Steel Shank Boot:** [IV]Tingley HazProof Model 82330 and rely on suit boot material for permeation protection. (ASTM F-2413/ANSI Z41) **DECON**: Dry or soap & water: water source for emergency DECON; other DECON agents on hand.

Activity Description	Hazards/Conditions	Targeted Minimum PPE
Drum/Tank Sampling • Container opening • Continuous air monitoring • Product sampling	• Unknown chemicals. • No CBRN. • Potential splash hazard. • Physical hazard controls in place. • Assumes no initial hazardous atmosphere. • Ensure availability of water source for emergency DECON/shower/eyewash. • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Level B** (Upgrade/Downgrade based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs) **Respirator: Scott or MSA Full Face** **Suit Type:** [I]Tychem Responder (with boot, hood)/ChemTape **Inner Glove:** [II]Nitrile, Neoprene, Viton, PVC **Outer Glove:** [II]Heavy Duty Butyl, Nitrile, **Other:** ANSI Approved Splash Shield **Outer Steel Toe Boot:** [IV]Tingley HazProof Model 82330 **or** **Steel Toe Boot Cover**: [V]Latex HazMaster Booty and rely on suit boot material for permeation protection. **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON or soap and water; water source for emergency DECON and eyewash suggested.

Activity Description	Hazards/Conditions	Targeted Minimum PPE
Hazardous Categorization Testing (**HAZCAT**) • Opening sample containers in controlled environment • Working with small sample quantities in well-ventilated area • Conducting HAZCAT testing with appropriate lab equipment	• Assumes known chemical classes and site situation/background. • No CBRN suspected. • Assumes immediate suit removal if contaminated and frequent glove changes. • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Level B** (Upgrade/Downgrade based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs) **Respirator: Scott or MSA Full Face** **Suit Type:** [I]Tychem CPF4 (with hood, boot) **Inner Glove:** [II]Nitrile **Outer Glove:** [II]Viton or 4-H (use surgie over the 4-H for dexterity) **Outer Steel Toe Boot:** [IV]Tingley HazProof Model 82330 **or** **Steel Toe Boot Cover**: [V]Latex HazMaster Booty and rely on suit boot material for permeation protection. **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry or soap and water; water source for emergency DECON and eyewash suggested

Activity Description	Hazards/Conditions	Targeted Minimum PPE
Oil Spill Response/Recovery Operations – Fresh Product: • Recovery operations (vac truck, skimmers, boom deployment where direct contact expected) • Product sampling • Continuous air monitoring at/near source of spill	• Crude oil/diesel/kerosene/gasoline spill. • Assumes fresh/ongoing spill, close proximity to source. • Assumes early phase while evaporation of light organics, benzene/other aromatics is still occurring (24-48 hours or if spill is on-going). • Assumes down-wind location. • Continuous air monitoring required for %LEL, Organics, %O_2 (and H_2S as necessary for sour crude). • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Modified Level C:** 1/2 face respirator w/safety glasses/goggles as needed for splash protection. Downgrade as appropriate based on air monitoring. **Respirator: Scott or MSA ½ Face** **Respirator Cartridge:** [III] Multi-Phase Cartridge (Scott 642 Multi-purpose; MSA with/GME P-100 or equivalent). **Suit Type:** [I]Tychem CPF4 w/boot [jet fuel use Tychem BR] **Inner Glove:** [II]Neoprene (for protection at DECON line only, not for prolonged contact) **Outer Glove:** [II]Viton-Butyl Rubber (assumes potential for direct contact with fresh material – based on benzene/aromatic constituents) SEE NEXT ROW FOR WEATHERED PRODUCT. **Outer Steel Toe Boot:** [IV]Tingley HazProof Model 82330 **or** **Steel Toe Boot Cover**: [V]Latex HazMaster Booty and rely on suit boot material for permeation protection. **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON/ Soap and water as feasible

Activity Description	Hazards/Conditions	Targeted Minimum PPE
Oil Spill Response Assessment/Recovery – Weathered Product • Shoreline clean-up assessment (SCAT) • Environmental sampling/weathered product sampling • Recovery Operations for weathered material • Assessment via boat/on or near water – use appropriate flotation device with ensemble.	• Crude oil/diesel/kerosene/gasoline spill. • Assumes weathered oil (over 24-48 hours, depending on spilled material and ambient temperatures). • Assumes operations are remote from source of spill. • Assumes no other potential for airborne aromatics/benzene/flammable vapors.	**Modified Level D** (Upgrade/Downgrade based on potential for contact and air monitoring with FID/PID, LEL/O_2 Meter. **If contact with material suspected, use following:** **Suit Type:** [I]Tychem F w/boot [jet fuel-Tychem BR] (Tychem SL may be an option for weathered crude/diesel – see manufacturer's information) **Inner Glove:** [II]Nitrile **Outer Glove:** [II]Nitrile (Best Nitri-solv 727) **Outer Boot Cover:** [V]Latex HazMaster Booty **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON/Soap and water as feasible

Activity Description	Hazards/Conditions	Targeted Minimum PPE
Demolition/Excavation Operations: • Heavy equipment operation • Excavation/Trenching • Continuous air monitoring when soil is disturbed or demolition activities conducted. • Fuel Oil underground tank removal. • Drum Excavation activities EXCLUDED.	• Demolition activities generating potentially hazardous particulates (asbestos, lead, silica, etc.). • Excavation activities that could expose soil contaminated with low levels of known hazardous chemicals to the surrounding area /in the trench/ excavation. • No potential for IDLH atmosphere. • Site background information available. • Known physical hazards. • Workers will have minimal/ no contact with contaminants (i.e., operators in a cab, inspectors/ observers at a safe distance). • Continuous air monitoring required in trench for %LEL, Toxics, and %O_2 when workers are in trench and for particulate when activities generating particulate are conducted. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Modified Level C:** 1/2 face respirator w/safety glasses. Downgrade or upgrade as appropriate based on air monitoring. **Respirator: Scott or MSA ½ Face** **Respirator Cartridge:** [III] Multi-Phase Cartridge (Scott 642 Multi-purpose P-100; MSA with/GME P-100 or equivalent). **Suit Type:** [I]Proshield Next Gen **Inner Glove:** NA **Outer Glove:** Leather **Outer Steel Toe Boot: NA** **Steel Toe Boot Cover**: [V]Latex HazMaster Booty (if chemical in soil is possible) **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON/ Soap and water as feasible

Activity Description	Hazards/Conditions	Targeted Minimum PPE
Natural Disaster Response (Hurricane, Tornado, Flood, Earthquake) - Orphan Container Recovery: • Routine hand collection/pick-up of small containers from debris piles/lines • Land based operations - conducted on foot **Note:** Physical Hazards may necessitate PPE modifications.	• Unknown materials – confident identification based on visual observations. • **Required Work practice:** re-evaluate prior to moving suspicious containers. Air monitoring and PPE upgrade may be required. • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Modified Level D:** Upgrade/downgrade based on suspicious containers (not easily identified visually) and air monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs **Suit Type:** [I]Tychem CPF-3 w/boot **Inner Glove:** [II]Nitrile **Outer Glove:** [II]Nitrile (Best Nitri-solv 727) or Leather **Outer Boot Cover:** [V]Latex HazMaster Booty **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON/Soap and water as feasible
Natural Disaster Response (Hurricane, Tornado, Flood, Earthquake) - Orphan Container Recovery: • Routine Drum recovery from debris lines/piles/ other – conducted on land **Note:** Physical Hazards may necessitate PPE modifications.	• Unknown materials – confident identification based on visual observations. • **Required Work practice:** re-evaluate prior to moving suspicious containers. Air monitoring and PPE upgrade may be required. • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Modified Level D:** Upgrade/downgrade based on suspicious containers (not easily identified visually) and air monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs **Suit Type:** [I]Tychem CPF-3 w/boot **Inner Glove:** [II]Nitrile **Outer Glove:** [II]Nitrile (Best Nitri-solv 727) or Leather **Outer Boot Cover** [V]Latex HazMaster Booty **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON/Soap and water as feasible

Activity Description	Hazards/Conditions	Targeted Minimum PPE
Natural Disaster Response (Hurricane, Tornado, Flood, Earthquake) – Flood water sampling: • Water Sampling of flood waters where potential for contact with hands/feet is high **Note:** Physical Hazards may necessitate PPE modifications.	• Unknown contaminants • Potential for pathogens suspected • Low potential for acute exposure to hazardous chemicals • Assumes open air/well-ventilated areas **Required Work Practice:** Monitor all poorly ventilated areas in appropriate PPE/Respiratory Protection for organic vapors (PID & FID), %LEL/flammable atmospheres, H_2S prior to entry	**Modified Level D:** Upgrade based on more information as it becomes available. **Suit Type:** [i]Proshield Next Gen **Inner Glove:** [ii]Nitrile **Outer Glove:** [ii]Nitrile (Best Nitri-solv 727) **Outer Boot**: Waders (butyl, neoprene) as needed. **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON/Soap and water as feasible
Environmental Sampling (Low Concentration Water/Soil/Perimeter Air): • Multi-media Sampling • Documentation (written/photo) • Inspection of clean-up operations	• Known Chemical Contaminants. • Airborne concentrations well below PELs. • Minimal chance of skin exposure to chemicals. • Insects possible.	**Level D:** Upgrade based on more information as it becomes available. **Suit Type:** [i]Proshield 1 (if ticks, etc. maybe a problem) **Inner Glove:** [ii]Nitrile **Outer Glove:** NA **Outer Boot:** NA **Steel Toe Boots:** ASTM F-2413/ANSI Z41 **DECON:** NA

i. Tychem and Proshield suits can be purchased from Safeware: 800-331-6707, http://www.safewareinc.com , (see also LSS, http://www.labsafety.com, Dupont: 1-800-931-3456, http://www2.dupont.com/Personal_Protection/en_US/index.html)

ii. Nitrile Inner/Outer Gloves; Viton; Butyl Rubber; 4-H (polymeric) can be purchased from Safeware: 800-331-6707, http://ww.safewareinc.com ; Airgas: 1-866-718-0685, http://www.airgas.com (see also North Safety, http://www.northsafety.com); Best Gloves, http://www.bestglove.com ; Lab Safety Supply (LSS), http://www.labsafety.com; Airbill, http://www.airbill.com)

iii. Multi-Phase Cartridge (Scott 642 Multi-purpose; MSA with/GME P-100 or equivalent) can be purchased from LSS: 1-800-356-0673, http://www.labsafety.com (see also Safeware, http://www.safewareinc.com; Scott Safety, http://www.scotthealthsafety.com/; MSA, http://www.msanet.com/)

iv. Tingley HazProof Overboots or similar can be purchased from LSS: 1-800-356-0673, http://www.labsafety.com; National Safety, Inc.: 1-800-213-7092, http://www.nationalsafetyinc.com

v. Latex Hazmaster Booties, Nuke Boot or similar can be purchased from Safeware: 800-331-6707, http://www.safewareinc.com; Airbill: 1-215-632-2000, http://www.airbill.com; (see also Airgas, http://www.airgas.com; LSS, http://www.labsafety.com

APPENDIX E

Subsurface Utility Clearance Management Program

SUBSURFACE UTILITY CLEARANCE MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY DIRECTOR	**:**	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	**:**	**01/2019**
REVIEW DATE	**:**	**04/2026**
REVISION NUMBER	**:**	**6**

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APPENDICES

Appendix A – Roux Subsurface Utility Clearance Checklist/ Utility Verification/Site Walkthrough Record

Appendix B – Private Utility Technology Applications and Considerations

1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C., and Remedial Engineering (collectively, "Roux"), have instituted the following program for completing proper utility mark-outs and for conducting subsurface clearance activities. This establishes a method to ensure, to the greatest extent possible, that utilities have been identified and contact and/or damage to underground utilities and other subsurface structures will be avoided. For the purpose of this program, a structure is defined as any underground feature that may present a potential source(s) of energy, such as, but not limited to, utility vaults, bunkers, piping, electrical boxes, wires, conduits, culverts, utility lines, underground tanks, and ducts.

2. SCOPE AND APPLICABILITY

The Subsurface Utility Clearance Management Program applies to all Roux employees, as well as their contractors and subcontractors. Employees are expected to follow this program for all intrusive work involving Roux or other personnel (e.g., contractors, subcontractors) working for Roux, unless the client's requirements are more stringent. Intrusive work activities can include, but are not limited to, digging or scraping the ground surface, including, but not limited to, excavation; test pitting or trenching; soil vapor sampling or the installation of soil borings, soil vapor monitoring points and wells, or monitoring wells; and drilling within concrete slabs on grade.

Deviation from the program, regardless of the specific work activity or location, must be pre-approved based on the client's site knowledge, experience, site conditions, and additional documentation on the site. Any exceptions shall be documented through the Roux Subsurface Utility Clearance Variance Form, located within the Roux Health & Safety Online Application or via OKTA. Approval is required from the Project Principal (PP) and the Operations Manager (OM), in consultation with the Office Health and Safety Manager (OHSM) or Corporate Health and Safety Director (CHSD), prior to mobilization. Depending on the work location, more stringent federal, state, local, or client requirements may apply. It is the responsibility of the Project Team to identify such requirements prior to mobilization.

3. PROCEDURES

3.1 Before Intrusive Activities/Job Planning Process

Prior to intrusive work at a site, the Project Manager (PM) shall ensure that the notification of the State One Call or equivalent service (Nationwide-811) is completed a minimum of 48-72 hours (One-Call State Law Directory) before intrusive work activities (this timeline excludes Saturdays, Sundays, Legal Holidays and 811 observed holidays). This notification is required by law for all states. State-specific or local laws related to utility location may vary. The project team is responsible for understanding requirements that may affect their work site.

Obtain, review, and field verify relevant historical site data that may include: as-builts/site plans; easement/right-of-way information; historical aerial photos/development plans; local/state permitting records; previous site investigation/boring logs; and/or interviews with site representative/client. Interviews with site or client personnel should ask the following:

- Employee(s) Name and Relationship with the site;
- Types of utilities, including structure and location of utilities on-site;

- Depth of known utilities; and
- Any other relevant information as it pertains to the site.

Prior to intrusive work activities, information pertaining to the site should be included in Roux's Subsurface Utility Clearance Checklist and Utility Verification/Site Walkthrough forms. This form is located within the Roux Health & Safety Online Application or through OKTA.

If there is the potential for unexploded ordnances or munitions, consultation with your OM and CHSD is required prior to site operations.

3.1.1 Project Kick-Off Meeting

During the project kick-off meeting for intrusive activities, the PM will review the Roux Subsurface Utility Clearance Checklist, Utility Verification / Site Walkthrough Record (Appendix A) and the below bullet points with the project field team:

- Confirm that the State One Call or equivalent is received and that the ticket number is confirmed, reviewed, and valid for the time of work. If intrusive work activities are not conducted during this valid time period, the One Call ticket must be renewed, and the site must be remarked;
- Review the work scope to be performed with the site owner/tenant to determine if it may impact any utilities;
- Determine the need for utility owner companies to be contacted or to have their representatives on site;
- Where mark-outs terminate at the property boundary, consider the use of private utility locating / (e.g., Radio Frequency Detection, Electromagnetic Induction), Ground Penetrating Radar (GPR) , and other applicable geophysical inspection services. The use of private utility locating firms, however, does not eliminate the legal requirement for the subcontractor (e.g., driller, excavation firm) to submit a request for Public Utility Mark-outs. Also, the information provided by the service may be inaccurate and unable to locate subsurface utilities and structures in urban areas, landfills, urban fill areas, below-reinforced slabs, etc. They should not be relied upon as the only means of performing utility clearance;
    - A mark-out is defined as the process of contracting with a competent and qualified company to confirm the presence or absence of underground utilities and structures. This process will clearly mark out and delineate identified utilities so that intrusive work activities can be performed without causing disturbance or damage to the subsurface utilities and structures. After utility mark-outs are completed, soft Digging must completed prior to intrusive work. Section 3.4 Preferred Methods of Clearing the Subsurface (Pre-Clearing) outlines requirements for pre-clearing techniques in order of preference.
- Documented description of the dig site, which is included in the project's Health and Safety Plan (HASP), and one call report will be maintained in the field and distributed amongst Roux personnel, its contractors, and subcontractors; and
- Documentation of the actual placement of mark outs in the field shall be collected using dated pictures, videos, and/or sketches with distance from markings to fixed objects. All documentation shall be maintained within the project file.

3.2 Utility Mark Out

- Ensure the Mark-out / Stake-out Request Information Sheet (or one-call report) is complete and accurate for the site, including address and cross streets, and review for missing utilities. Ensure ticket life is still valid for work.

- Note: Utility mark-out organizations do not have contracts with all utilities, and it is often necessary to contact certain utilities separately, such as the local water and sewer authorities, local transportation departments, and railroad operators. In the event the Project Teams anticipate subsurface work will impact public utilities, railroad operations, or public roadways, coordination with the utility owners/operators is required.

- Have written confirmation prior to mobilizing to the site that the Project Team or Roux personnel performing the intrusive activity has correctly completed the mark-out notification process, including requesting mark-outs, waiting for mark-outs to be applied to ground surfaces at the site, and receiving written confirmation of findings (via fax or email) from utility operators for all known or suspected utilities in the proposed area of intrusive activity, and provided utility owner written confirmation to Roux personnel for review and project files documentation.
- Do not begin any intrusive activity until all utility mark-outs have been completed (i.e., Did all utilities mark-out the site?) and any unresolved mark-out issues are finalized. Perform a site walk to review the existing utilities and determine if the utility locators have located said utilities.

  (Note: The Tolerance Zone is defined as three (3) feet from the outside edge of any subsurface structure.)
- For non-subscribing utility owners or if public one-call service is not available, perform due diligence and request further information regarding utility type, construction details, location, and burial depth directly from public service providers/utility owners. Request utility mark-out by each public service provider/utility owner as applicable. Confirm contact and response by each public utility owner on the Subsurface Utility Clearance Checklist.
- If utilizing a Private Mark out, ensure the contractor has a plan regarding what types of technology will be used based on Table 1 in Appendix B: Private Utility Technology Applications and Considerations. If possible, it is recommended that multiple technologies be used to sweep each location/work area. Use a tracer wire to locate the utility (when tracer wires are present). Record the results of the private utility mark-out on the Utility Verification/Site Walkthrough Record form.

3.3 Utility Mark Out Limitations

Utility mark outs are a required first step prior to any excavation or ground-disturbing activity; however, the 811 one-call system has inherent limitations. Utility markings provided through 811 typically identify only publicly owned utilities, and utilities located on private property, such as service laterals beyond the meter, private water or sewer lines, irrigation systems, site lighting, and other privately owned infrastructure, are not marked and may require supplemental investigation using private utility locating or geophysical methods.

3.4 Site Visit/Utility Walkthrough

Before mobilization with the subcontractor or during the pre-work safety tailgate with the subcontractor, perform a site walkthrough after utility mark-outs have been completed to determine whether additional potential hazards are present and look for visible signs of utilities that may be present. Outlined below are considerations regarding a site walk before intrusive activities. Before initiating any intrusive work, verify that the utilities marked on-site align with the information provided in the One Call response notification/ticket and with site plans and documents. If any discrepancies arise, address them promptly to ensure accuracy and do not start intrusive work until they are rectified.

- Identify overhead utilities that may impede equipment mobilization or work zones to ensure adequate Occupational Safety and Health Administration (OSHA) clearance distance(s), as specified within the site-specific Health and Safety Plan (HASP) and 29 CFR 1926.1408 Table A.

The presence of any of the following may indicate potential subsurface structures:

- Locations of buildings, equipment, and features like area lights, signs, sprinkler systems, phones, drains, natural gas meters, manholes, etc.;
- Warning tape, which is often a sign of underground services;
- Material like pea gravel, sand, or other non-native materials can indicate the presence of tanks or lines or any deviations from the established native soil or backfill conditions;
- Red concrete that is often used for electrical duct banks;
- Evidence of damaged utilities, such as piping materials, insulation, or odors present in the work area; and
- Other utilities, including fire hydrants, electrical transformers, pipeline markers, valve covers, steam lines, valve box covers, clean-outs, etc.

By observing the path between the main service line and the connection point (e.g., a utility meter at the exterior of the site building), it may be possible to determine the likely routing of on-site utilities. However, this method should not be relied upon solely, and proper risk mitigation strategies should be in place before proceeding with any ground disturbance activities. Look outside your work zone for other potential utilities that may cross through it.

For sites with potential underground storage tanks present (UST), the following guidance applies:

- Identify if the product piping is either rigid or flexible.
- Conduct a visual examination of the tank field, observation wells, dispensers, vent stacks, and UST fill points to determine their location.
- Locate and become familiar with the emergency shutoff button/switch, if present.
- Determine the orientation, arrangement, and location of the tanks, as well as their size and capacity, through the examination of visible features at grade, such as fill ports and extractor covers, and by consulting any available as-built drawings.

Before commencing any subsurface intrusive work, field staff should thoroughly address any discrepancies in utility company mark-outs or the absence of mark-outs.

3.4.1 Project Management - Field Personnel

Whenever possible, it is advisable to assign the same project personnel to both utility location and clearance tasks as well as intrusive activities. This continuity ensures that site knowledge and utility information gathered during the clearance phase remain up-to-date. Having this historical perspective helps minimize the risk potential of utility strikes.

In cases where maintaining the same personnel throughout the project is not feasible, a thorough knowledge transfer regarding site utilities, locations, clearance results, and proposed intrusive activities becomes essential. The PM must ensure that there is a successful handoff of information when there is a change in field personnel.

3.4.2 Utility Markings

The utility marking color code includes various uniform colors. The following APWA uniform color code (ANSI Z535.1) is provided below. While certain government agencies or large industrial facilities may use additional colors, Roux's policy is to consider any unlisted paint marking or pin flag color as a subsurface utility marking unless proven otherwise.

If utilities or subsurface anomalies are identified but their type or classification remains uncertain, it is advised to employ pink paint or pin flag (Temporary Survey Marking) for marking. Once the utility type is definitively established, the pink marks should be updated to represent the correct type of utility accurately.

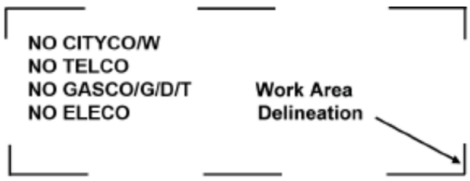
White	Proposed Excavation
Pink	Temporary Survey Markings
Red	Electric Power Lines, Cables, Conduit, and Lighting Cables
Yellow	Gas, Oil, Steam, Petroleum, or Gaseous Materials
Orange	Communication, Alarm or Signal Lines, Cables, or Conduit
Blue	Potable Water
Purple	Reclaimed Water, Irrigation, and Slurry Lines
Green	Sewers and Drain Lines

Understanding the markings left by locators during the 811 process is crucial for avoiding utility-related issues. Typically, these markings are done when Roux staff members are not physically present on-site. To enhance understanding/accuracy, it is advisable for staff to be present during the 811 process or engage in conversations with locators, both public and private, while on-site. Additionally, utility marks must adhere to the proper standards outlined in the Uniform Color Code.

Common Abbreviations *(Source: Common Ground Alliance)*

Facility Identifier		Underground Construction Descriptions		Infrastructure Materials	
CH	Chemical	C	Conduit	ABS	Acrylonitrile - Butadiene - Styrene
E	Electric	CDR	Corridor	ACP	Asbestos Cement Pipe
FO	Fiber Optic	D	Distribution Facility	CL	Cast Iron
G	Gas	DB	Direct Buried	CMC	Cement Mortar Coated
LPG	Liquefied Petroleum	DE	Dead End	CML	Cement Mortar Lined
PP	Petroleum Products	JT	Joint Trench	CPP	Corrugated Plastic Pipe
RR	Railroad Signal	HP	High Pressure	CMP	Corrugated Metal Pipe
S	Sewer	HH	Hand Hole	CU	Copper
SD	Storm Drain	MH	Manhole	CWD	Creosote Wood Duct
SS	Storm Sewer	PB	Pull Box	HDPE	High Density Polyethylene
SL	Street Lighting	R	Radius	MTD	Multiple Tile Duct
STM	Steam	STR	Structure (vaults, junction inlets, lift station)	PLA	Plastic (conduit or pipe)
SP	Slurry System	T	Transmission Facility	RCB	Reinforced Concrete Box
TEL	Telephone			RCP	Reinforced Concrete Pipe
TS	Traffic Signal			RF	Reinforced Fiberglass

Facility Identifier		Underground Construction Descriptions		Infrastructure Materials	
TV	Television			SCCP	Steel Cylinder Concrete Pipe
W	Water			STL	Steel
W	Reclaimed Water "Purple"			VCP	Vitrified Clay Pipe



3.5 Preferred Methods of Clearing the Subsurface (Pre-Clearing)

At least one of the methods listed below shall be carried out during pre-clearing activities. The Project Team is responsible for evaluating risks associated with the Scope of Work to determine which method is selected.

If none of the following pre-clearing activities are performed, a Subsurface Utility Clearance Variance must be submitted to the OM. This Subsurface Utility Clearance Variance must provide clear lines of evidence that there are no utilities present within the intrusive work zone. Examples include demolition permits of the site, utility closure documents indicating no live utilities on-site, as-builts, site history, etc.

The following approaches shall be considered and implemented based on the Scope of Work.

- ***Soft Digging***
  - This is the preferred method of utility clearance when clearing higher-risk utilities. Soil should be cleared through the use of the following:
    - a vacuum truck/equivalent and an accompanying air knife (preferred) to break up and loosen the soil with pressurized air for removal with the vacuum, or
    - hydro-excavation (i.e., water lance and vacuum truck/equivalent) to break up and loosen the soil using high-pressure water for removal with the vacuum.
- ***Hand Digging***
  - Soil should be broken up and removed using a shovel or other appropriate hand tools without excessive force. Limit the use of dig bars or other tools that, if used incorrectly, can significantly damage utilities.
- ***Hand Augering***
  - The hand auger must be turned slowly using even hand pressure without excessive force. Rounded-edge augers are preferred. Hand augers should not be used in pea stone/pea gravel where utilities may be present and could potentially be damaged by the hand auger. The abrupt absence of soil recovery in a hand auger could indicate utilities as pea gravel or sand may have spilled out of the auger (exception: native soil conditions that typically result in poor hand auger recoveries). If any resistance is encountered while operating the hand auger for pre-clearance, the equipment will be removed, and the exploratory test hole will be visually inspected by onsite personnel for any obstructions or indications of subsurface structures.

3.5.1 Guidance for Tools and Equipment

Personnel performing pre-clearance activities shall keep tools and equipment in safe working order and be properly inspected before use. If tools or equipment are broken, they will be tagged and removed from service. The following specify additional guidelines regarding tools and equipment:

- Hand-digging tools must have a non-conductive handle, such as fiberglass, wood, or composite, or fully insulated handles and potential contact surfaces.
- Blades on shovels and post-hole diggers should have rounded or blunt edges.
- Pick axes, pointed spades, and push probes (i.e., heavy duty probes with an accompanying slide hammer) must not be used for physical clearance.
- Crowbars, pinch-bars, or pry bars should not be used to break hardened soil or backfill except when authorized by the Site Supervisor (SS). This should only be used to loosen materials like bricks or larger stones.
- Electric-powered equipment must have ground-fault protection.
- Should there be refusal or difficulty with advancing hand tools, the contractor shall stop work and notify the Roux SS or Site Health and Safety Officer (SHSO) immediately.

3.6 During Intrusive Activities

3.6.1 Concrete/Paving Surface Removal

Remove any surface coverings (i.e., pavement, brush, debris, etc.) to ensure workers have clear visibility of the work area and subsurface conditions. Avoid mechanical jackhammering over known lines unless they are de-energized, locked-out/tagged-out, and potential repairs are planned or if the utility has been completely disconnected prior. When cutting or coring, go only as far as needed to penetrate the surface cover. When removing a large surface area, begin at the perimeter of the removal zone. This initial step helps identify any utilities passing through the work zone. For extensive areas, using a concrete saw might not be practical. Instead, heavy equipment is often employed. During this process, a designated spotter should guide the heavy equipment. Their role is to watch for warning signs of utilities. It is crucial that the heavy equipment does not have “teeth” that could potentially pass through the surface and damage utilities.

3.6.2 Pre-Clearance Procedures

Install pre-clearance exploratory test holes using one of the techniques, as outlined in Section 3.4, for the first 5-ft below land surface (BLS) at each location before conducting intrusive mechanized activities. Should utilities be located at a greater depth than 5-ft BLS consult with the OM, OHSM and CHSD regarding adjustments to the pre-clearance requirements to go greater than 5-ft BLS. Some Clients may require greater than 5-ft BLS for pre-clearance test holes; Project teams should be aware of such Client requirements prior to work.

Public sewer utilities (sanitary and combined sewer mains) installed within public roads are generally significantly deeper than other utilities to allow gravity flow and accommodate service laterals, crossings, and frost protection. When working within or adjacent to roadways, employees must attempt to obtain and review available utility records, plans, and as-builts, in addition to 811 responses and exploratory pre-clearance test holes, to ensure sewer utilities are identified and not contacted.

Pre-clearance exploratory test holes should be defined in the SOW/proposal provided to the client to prevent project delays and to allow adequate time for the PM and PP to evaluate alternative approaches for the project. Alternative approaches will need to be pre-approved by the OM through a Subsurface Utility Clearance Variance.

Both single-point and three-point clearance are acceptable as long as the following criteria are met below. For single-point clearance, the exploratory test hole is advanced at the exact location of the proposed borehole. If three-point clearance is performed, it must be done in a triangular pattern around the proposed borehole and in a configuration that would not allow utilities to enter the borehole.

- The size of the pre-clearance exploratory test hole should be, at a minimum, twice the diameter of any downhole tool or boring device.
- For direct push applications (CPT, Geoprobe®, etc.), the borehole clearance diameter shall be at least 125% of the diameter of the largest tool being pushed through the subsurface (e.g., tip, rod, sampler, etc.), to the minimum required depth.
- For excavations, all utilities need to be marked and then exposed by soft-digging or by hand, following the protocols in this program. Pre-clearing for excavations may be performed by the "moat" technique (i.e., soft Digging around the perimeter). In these cases, dig in small lifts (<12" for first 5 feet using a dedicated spotter.
- For Tolerance Zone work, unless otherwise agreed upon with the Utility Operator, work within the tolerance zone requires verification by means of pre-clearance test holes specified in Section 3.4 to expose the utility. Once structures have been verified, a minimum clearance of three feet must be maintained between the utility and any powered equipment. If considered a high-risk utility, additional requirements may be necessary and required by the Operator of the utility. Consultation with the OM and CHSD may be appropriate.

The PM, field team lead, or personnel performing oversight is to:

- Ensure the mark-out remains valid. (In certain states, there are limits regarding the duration of time after the mark-out was applied to the ground surface work can be started or interrupted.) Additionally, the mark-outs must be maintained, documented, and in many cases, refreshed periodically to be considered valid. This will be accomplished through calls to the one call center.
- Ensure intrusive activities are only performed within the safe boundaries of the mark-out as detailed in the One-Call Report.
- Halt all work if intrusive activities have resulted in the discovery of an unmarked utility. Roux personnel shall notify the facility owner/operator and the one call center. All incidents such as this will be reported as per Roux Incident Investigation and Reporting Management Program.
- Halt all work if intrusive activities must take place outside of the safe boundaries of a mark-out and only proceed after new mark-outs and subsurface utility clearance are performed.
- Halt the intrusive activities and immediately consult with the PP if an unmarked utility is encountered.
- Complete any loss reports associated with subsurface utility strikes, as necessary.
- If a utility cannot be found as marked, Roux personnel shall notify the facility owner/operator directly or through the one-call center. If the facility operator is not responsive, then the one-call center must be notified. Following notification, the excavation/mechanical intrusive work may continue unless otherwise specified in state law.

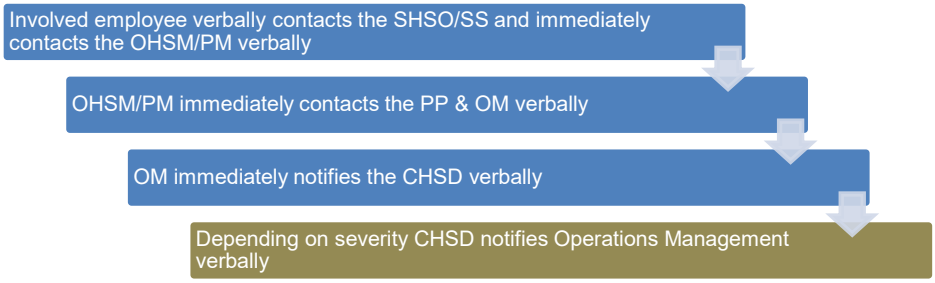
- Contractors/subcontractors must contact the one-call center to refresh the ticket when the excavation continues past the life of the ticket. State law dictates ticket life. Project teams must be aware of their state-specific requirements.

3.7 Stop Work Authority

Each Roux employee has Stop Work Authority that he or she will execute upon determination of any imminent safety hazard, emergency situation, or other potentially dangerous situation, such as hazardous weather conditions. This Stop Work Authority includes subsurface clearance issues such as the adequacy of a mark-out or identification during intrusive operations of an unexpected underground utility. Authorization to proceed with work will be issued by the PM/PP in consultation with the OHSM after such action is reviewed and resolved. The PM will initiate and execute all management notifications and contact emergency facilities and personnel when this action is appropriate.

3.8 Reporting Utility Incidents

Roux field personnel engaged in any utility strike (e.g., subsurface/aboveground) must promptly stop work, shutdown any equipment and get to a safe location at the Site. Then notify the PM to discuss the incident. In case of injuries, field personnel must call 911 or the local emergency services number and then inform the PM. Additional notifications shall follow Roux's Incident Notification Process. Depending on the utility strike additional notifications shall be made to utility operators and/or clients/site contacts.



Appendix A
Roux Subsurface Utility Clearance Checklist

Appendix A

Roux Subsurface Utility Clearance Checklist/Utility Verification/Site Walkthrough Record

Roux Subsurface Utility Clearance Checklist ***Date of Revision: 3/2024***

Work site set-up and work execution

ACTIVITY	Yes	No	N/A	COMMENTS INCLUDING JUSTIFICATION IF RESPONSE IS NO OR NOT APPLICABLE
Daily site safety meeting conducted, SPSAs performed, JSAs reviewed, appropriate work permits obtained (if applicable).				
HASP is available and reviewed by site workers / visitors.				
Subsurface Utility Clearance Procedure has been reviewed with all site workers.				
Mechanical intrusive work activities may not be performed at any location without authorization from the Roux Site Supervisor (SS). Clearance activities may not be performed at any location unless the SS is physically present.				
Work area secured; traffic control established as needed. Emergency shut-off switch located. Fire extinguishers / other safety equipment available as needed.				
Utility mark-outs (public / private) clear and visible. Provide Excavator's Stake-Out Reference Number / Request Date / Time.				
Tolerance zone work identified. Intrusive work activities cannot be performed in areas that are in direct conflict with any markings made by public or private locators.				
Unless the PP & OM authorizes it, all boreholes and test pit locations must be physically cleared before using mechanized equipment. Required minimum physical clearance depths and diameters are as follows: • Physically clear to a depth of 5 feet bls. • The size of the pre-clearance exploratory test hole must be, at a minimum, twice the diameter of any downhole tool or boring device. • For direct push applications (CPT, Geoprobe®, etc.) the borehole clearance diameter shall be at least 125% to the diameter of the largest tool being pushed through the subsurface (e.g., tip, rod, sampler, etc.).				
Work execution plan reviewed and adhered to (ground disturbance methods, clearance depths, any special utility protection requirements, or any other execution requirements; especially for Tolerance Zone work).				

Mechanical intrusive work is prohibited within 3-feet distance in all directions from subsurface structures that will be intentionally exposed during pre-clearance. Any removal of material within 3-feet of the subsurface structure may only proceed by hand using non-conductive tools/compressed air if authorized by state law and the owner/operator of the utility.				
All equipment onsite must maintain the appropriate horizontal distance from any point on the equipment to the nearest overhead electrical power line. Refer to site-specific HASP and local/utility company requirements.				
Verbal endorsement received from Roux PM and OM for any required field deviations to work execution plan.				

Key Reminders for Execution

The Subsurface Utility Clearance Protocol should be referenced to determine all requirements while executing subsurface work. The bullet points below are intended as general reminders only and should not be relied upon solely.

- The size of the pre-clearance exploratory test hole must be at a minimum twice the diameter of any downhole tool or boring device to minimum required depth of 5 feet bls.
- For direct push applications (CPT, Geoprobe®, etc.) the borehole clearance diameter shall be at least 125% of the diameter of the largest tool being pushed through the subsurface (e.g., tip, rod, sampler, etc.), to the minimum required depth of 5 feet bls.
- The tolerance zone is defined as three feet plus half of the diameter or half of the greatest dimension (for elliptical sewers, duct banks, and other non-cylindrical utilities) of a utility and three feet from the outside of any subsurface structure.
- For excavations, all utilities need to be marked and then exposed by hand, following the protocols in this program. Pre-clearing for excavations may be performed by the “moat” technique (i.e., soft digging around the perimeter). In these cases, dig in small lifts (<12” for first five feet) using a dedicated spotter.) For Tolerance Zone work, unless otherwise agreed upon with the Utility Operator, work within the tolerance zone requires verification by means of hand-dug test holes to expose the utility. Once structures have been verified, a minimum clearance of three feet must be maintained between the utility and any powered equipment.

Utility Verification/Site Walkthrough Record

Employee Name:_____

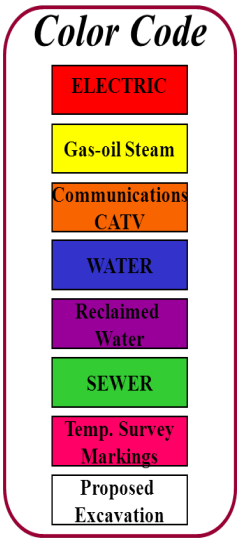
Date: _____

Instructions: For each utility suspected at the job site, indicate the location on the job site, approximate burial depth, and means of detecting the utility. Leave blank if that utility is not believed to be present.

Utility	Description of Utility Location Identified Onsite	Approx. Depth (bls)	Method / Instrumentation used to determine Utility Location	Utility Owner Response (Date/Time)	Mark Out Indicates (Clear / Conflict)
Electrical Lines					
Gas Lines					
Pipelines					
Steam Lines					
Water Lines					
Sanitary and Stormwater Sewer lines					
Pressured Air-Lines					
Tank Vent Lines					
Fiber Optic Lines					
Underground Storage Tanks					
Phone Lines/ Other					

* bls - below land surface

Site Sketch Showing Utilities:



Other Comments / Findings:

Completed by: _____

Signature: _____ Date: _____

Appendix B
Private Utility Technology Applications and Considerations

Appendix B – Private Utility Technology Applications and Considerations

Technology ⇒ Utility/Object ⇓	Radio Frequency Electro-Magnetic Detector (connection to utility, or induction without connection)	Radio Frequency Electro-Magnetic Detector (passive sweep)	Ground Penetrating Radar (GPR)⊙	Acoustic Plastic Pipe Locator	Beacon, Sonde or Conductive Rodder Insertion	EM-61 (time domain electromagnetics) Ξ	
Power/Instrument Line (Energized/Signaled) □	❋ G	G	G	R	R	G	
Power Line (Non-energized) □	❋ G	R	G	R	R	G	
Sewer/Water Line (Metallic) □	❋ G	Y	G	Y	G	G	
Sewer/Water Line (Non-metallic)	R	R	G	G	❋ G	R	
Instrument / Telecomm Lines (Non-energized)	❋ G	R	G	R	R	Y Only if metallic	
Hydrocarbon Transmission Line (Pipeline)◆ □	❋ G	R	G	R	R	G	
Metallic/Non-Metallic Line (with Tracer Wire)	❋ G	Y	G	Y	Y	G metallic	Y non-metallic
Metallic/Non-Metallic Line (without Tracer Wire)	G metallic	R non-metallic	R	❋ G	Y	Y	G metallic	R non-metallic
Metal or Fiberglass UST	R	R	❋ G	R	R	R	G metallic	R non-metallic

Additional Considerations

Technology ⇒ Variable ⇓	Radio Frequency Electro-Magnetic Detector	Ground Penetrating Radar (GPR)⊙	Acoustic Pipe Locator	Beacon, Sonde, or Conductive Rodder Insertion	EM-61 Ξ
Moist Soil	G	Y	G	G	G
Dry Soil	Y	G	Y	G	G
Clay	Y	R	G	G	G
Concrete w/Rebar	R	Y	G	G	R
Long Horizontal Profile	G	G	G	G	G
Short Horizontal but Deep Vertical Profile	Y	G	R	R	G
Access to Line✚	G	N/A	G	G	G
No Access to Line✚	G (induction or passive) R (direct connect)	G	R	R	G G
Ferrous Metal	G	G	G	G	G
Non-ferrous Metal	Y	G	G	G	G
Adjacent or crossing conductive utility(ies)	Y	N/A	N/A	N/A	Y

Each site will be unique. Do not use this table as the sole criteria for technology selection. Use it as a starting point to assess available, applicable technology(s).

❋ Indicates best technology for given object. Site structures, rebar in concrete, shallow groundwater tables, perched storm water, etc. can significantly affect performance and reliability of any electro/magnetic method. Other utilities which cross or are adjacent to the target line can cause the EM signal to bleed or jump to the other utility line.

□ Metallic lines that have power running through them or can be connected to a tracer signal generator.

◆ Natural gas pipeline locating technicians must be trained/certified (in the U.S. requires DOT and Office of Pipeline Safety standards, other regions may have similar certification or requirements).

⊙ Most sensitive to interpretation. The skill, training and experience of operator are critical.

Ξ Emerging technology with limited availability.

✚ Access: induce unique electronic signature, apply acoustical impulse or insert conductive rodder/beacon/sonde.

Green Generally, an applicable technology **Yellow** May or may not be applicable **Red** Not generally applicable

APPENDIX F

Heavy Equipment Exclusion Zone Management Program

HEAVY EQUIPMENT EXCLUSION ZONE MANAGEMENT PROGRAM

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1. PURPOSE

The Heavy Equipment Exclusion Zone Management Program aims to establish the minimum clearance distances that must be maintained between workers and heavy equipment while the equipment is in operation (i.e., engaged or in motion). The intent is to have no personnel or equipment entering the Heavy Equipment Exclusion Zone (HEEZ) while the equipment is in operation or moving to ensure that Roux and Subcontractor employees are unnecessarily exposed to the hazards of the equipment.

2. SCOPE AND APPLICABILITY

This Management Program applies to all Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C., and Remedial Engineering (collectively, "Roux") employees and their subcontractors performing fieldwork and are potentially exposed to heavy equipment. Heavy equipment includes, but is not necessarily limited to, excavation equipment, drill rigs, vacuum trucks, forklifts, lull telehandlers, man lifts, bobcats, delivery trucks, etc.

3. PROCEDURES

As specified in the following sections of this program, exclusion zones must be established and maintained during activities involving the movement/operation of heavy equipment. The HEEZ requirements apply to all personnel on the site but are primarily focused on personnel required to operate and/or work near heavy equipment. The HEEZ is in effect when heavy equipment is moving or engaged (e.g., movement of an arm or bucket of an excavator, rotation of an auger, lifting of a load with a forklift, raising/lowering of a man lift, etc.).

1. The Exclusion Zone must meet the following minimum requirements:
   - A minimum distance of 10 feet from all heavy equipment and loads being moved by the equipment;
   - Greater than the swing/reach radius of any moving part on the heavy equipment (i.e., for large equipment, this may mean an exclusion zone distance larger than 20 feet);
   - Greater than the fall zone of equipment and their contents (i.e., the area beneath or around equipment where tools, materials, or components may fall or be ejected during operation or failure.) ; and
   - Greater than the tip-over distance of the heavy equipment.

   The size of the Exclusion Zone will need to be determined on a task-specific basis considering the size of the heavy equipment in use and the task being performed. Prior to all heavy equipment operations, the Exclusion Zone(s) distance must be specifically identified in the Job Planning Process and incorporated in the pre-job tailgate meeting with the subcontractor(s), including any updates to our Job Safety Analysis (JSA).

2. The spotter (or another individual authorized by Roux) is responsible for enforcing the Exclusion Zone and not conducting any other task.
   - The spotter should be positioned immediately outside of the Exclusion Zone within a clear line of sight of the equipment operator.
   - The spotter must signal the operator to stop work if anyone or anything has the potential to enter or compromise the Exclusion Zone.

- The operator must stop work if the spotter is not within their line of sight. If a spotter must be within the Exclusion Zone, they must be in a designated area outside the swing/tip radius, fall zone, line of fire of lifted loads, etc.
- If multiple pieces of equipment are being used, one spotter may be adequate so long as there is a clear line of sight and the spotter can control the zone(s). Radios would be required since hand signals would not be adequate if two pieces of equipment are in operation at the same time in the Exclusion Zone.

3. If an individual must enter the Exclusion Zone, the designated Spotter must signal the Equipment Operator to stop the equipment.
    - Once the equipment is no longer moving (e.g., movement of an arm of an excavator is STOPPED, lifting of a load with a forklift STOPPED, raising/lowering of a man lift is STOPPED, etc.), the operator must bring the boom/arm to the ground ensuring a “Zero Energy State” and DISENGAGE THE CONTROLS and STOP and SIGNAL BY “SHOWING THEIR HANDS”.
    - This signal will indicate that it is safe for the person to enter the limits of the HEEZ to perform the required activity. The equipment must remain completely stopped/disengaged until all personnel exited the Exclusion Zone's boundaries and the designated Spotter has signaled by “SHOWING THEIR HANDS” to the Equipment Operator that it is safe to resume operations.
4. When entering the limits of the Exclusion Zone, personnel must, at a minimum:
    - Establish eye contact with the operator and approach the heavy equipment in a manner that is in direct line of sight to the Equipment Operator;
    - Never walk under any suspended loads or raised booms/arms of the heavy equipment; and
    - Identify a travel path free of Slip/Trip/Fall hazards.
5. The Exclusion Zone should be delineated using cones with orange snow fences or solid poles between the cones, barrels, tape, or other measures. For work in rights-of-way, rigid barriers, such as Jersey barriers or temporary chain link fences, should be used. For certain types of widespread or moving/mobile equipment operations, such delineation may not be practicable around equipment or individual work areas. In such instances, it is expected that the entire operation will be within a larger secure work area or that additional means will be utilized to ensure the security of the work zone.

All subcontractors who provide heavy equipment operations to field projects must implement a program that meets or exceeds the expectations described above, as well as any additional requirements that may be required on a client or site-specific basis. Logistics involving heavy equipment should be understood and discussed prior to the field event during the job planning phase.

3.1 Exceptions

It is recognized that certain heavy equipment activities may require personnel to work within the limits of the Exclusion Zone as specified in this program. Such activities may include certain excavation clearance tasks, drill crew activities, or construction tasks. However, any such activity must be pre-planned, emphasizing limiting the amount and potential exposure of any activity required within the zone. The critical safety steps to mitigate the hazards associated with working within the Exclusion Zone must be defined in applicable JSAs and other project-specific plans (i.e., Job Planning Forms, critical lift plans, etc.), and approved by the Roux Project Principal (PP), Office Health and Safety Manager (OHSM) and client representative, if required, prior to implementation.

4. TRAINING

Many Roux projects include client-specific or site-specific requirements that may necessitate additional training or controls. Regardless of project-specific requirements, all Roux employees receive mandatory initial training and annual refresher training on the Heavy Equipment Exclusion Zone policy to ensure consistent understanding and implementation across all operations.

5. STOP WORK AUTHORITY

All Roux employees and their subcontractors have stop-work authority. Upon hire, all Roux employees are provided with initial safety orientation, including the implementation of stop work authority. All Roux employees and subcontractors are encouraged to stop work whenever any task or operation presents an unreasonable risk or employees are unsure how to carry out work safely. Upon observing any questionable safety-related behavior or condition, they are to stop work immediately and discuss the behavior or condition with the individual(s) involved.

Questionable safety-related behaviors or unsafe conditions include, but are not limited to:

- Failure to establish an Exclusion Zone that meets minimum distance requirements
- Assigning a spotter who is simultaneously performing other tasks (e.g., labor, inspection, surveying)
- Failure of the spotter to signal stop work when a person, vehicle, or object approaches or breaches the Exclusion Zone
- Entering the Exclusion Zone without the spotter first signaling the operator to stop work
- Allowing unauthorized personnel to enter the Exclusion Zone
- Entering the Exclusion Zone before the equipment has reached a confirmed zero-energy state
- Failure to adequately delineate the Exclusion Zone using cones, fencing, barriers, or other approved means when practicable

Upon stopping work, the following actions will be taken:

- Notify the affected parties to include the Project Manager (PM) and Site Health and Safety Officer (SHSO);
- Work to correct the situation or not proceed until the situation is corrected by the PM or SHSO;
- Resume work only when told to proceed by either the PM or SHSO;
- The SHSO will document the Stop-Work intervention in the field logbook;
- Stop-Work interventions will be reported to the PP for review to ensure the interventions are closed; and
- The PP will share learnings from the interventions, as appropriate, throughout the firm, to demonstrate the importance of the Stop-Work interventions.

Please note: Any form of retribution or intimidation directed at any individual or company for exercising their right to issue a stop work authority will not be tolerated.

APPENDIX G

Community Air Monitoring Plan

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

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Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50° C (14 to 122° F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.