

Spill Investigation Work Plan

Sunnyside Yard 39-29 Honeywell Street Queens, New York

April 7, 2025

Prepared for: National Railroad Passenger Corporation

Prepared by:

Roux Environmental Engineering and Geology, D.P.C. 209 Shafter Street Islandia, New York 11749

0055.0071Y194/CV

Environmental Consulting & Management +1.800.322.ROUX rouxinc.com

Table of Contents

Certification	.ii
1. Introduction	1
1.1 SIWP Document Organization	1
1.2 Project Team and Contact Information	1
2. Background	2
2.1 Site Description and Setting	2
2.2 Proposed Acela / Ready Tracks Construction	2
2.3 Summary of Previous Investigations and Remediation	2
2.3.1 SPH	3
2.3.2 Soil	3
2.3.3 Groundwater	3
2.3.4 Subsurface Structures	4
2.3.5 Underground Storage Tanks	4
2.3.6 In Situ Soil Characterization and Delineation Sampling	4
2.3.7 NYSDEC Open Spill #2209440	5
2.3.8 NYSDEC Open Spill #2406650	5
3. RI Work Plan Objectives, Scope, and Rationale	6
3.1 Objective	6
3.2 Spill Investigation Scope	6
3.2.1 Site Reconnaissance	6
3.2.2 Soil Borings	6
3.2.3 Groundwater Monitoring Well Installation	7
4. Health and Safety Plan and Community Air Monitoring Plan	9
5. Reporting and Schedule1	0

Figures

- 1. Site Location Map
- 2. Site Plan
- 3. Delineation Test Pits and Proposed Soil Borings

Appendices

- A. Health and Safety Plan
- B. Community Air Monitoring Plan

Certification

I, Robert Kovacs, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Spill Investigation Work Plan 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).

Robert Kovacs, P.G.

April 7, 2025

ful Apri

NYS Professional Geologist #000437

Date

Signature

1. Introduction

Roux Environmental Engineering and Geology, D.P.C. (Roux), on behalf of National Railroad Passenger Corporation (Amtrak), has prepared this Spill Investigation Work Plan (SIWP) in support of the Acela Ready Tracks Construction Program (Acela Ready Tracks) at Sunnyside Yard, 39-29 Honeywell Street, Queens, New York (Site). The Site is located in an urban area in northwestern Queens County (Figure 1). The Site is currently in the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program, Site No. 241006, which is administered by the New York State Department of Environmental Conservation (NYSDEC). This SIWP was developed in accordance with the DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010 (DER-10).

The purpose of this SIWP is to delineate the spill areas encountered during excavation activities related to completion of subsurface construction activities for the Acela Ready Tracks project and provide additional data in support of eventual closure of the open spills for this area of the Site (NYSDEC Spill #2209440 and Spill #2406650).

1.1 SIWP Document Organization

This SIWP contains a background section (Section 2) describing the Site, its history, and results of previous environmental investigations; a section defining the objectives and scope of the Spill Investigation (Section 3); and Sections 4 and 5 that describe project operations plans (e.g., Quality Assurance/Quality Control, Health and Safety). Reporting requirements and the project schedule are discussed in Section 6. Figures are provided to illustrate site conditions and the locations of proposed work.

1.2 Project Team and Contact Information

Roux's Principal-In-Charge for this Site will be Robert Kovacs, P.G., Principal Scientist, who will be responsible for the overall implementation of the project. Roux's Project Manager and Quality Assurance Officer for this project will be Jack Rusk, Project Geologist, who will be responsible for day-to-day management of the project, including preparation of work plans, scoping, and directing field activities. The Field Manager for the work, who will be determined prior to the start of work, will be responsible for implementing and directing field activities onsite. All of the above are based in Roux's Islandia, New York, headquarters office and can be reached at (631) 232-2600.

2. Background

This section provides pertinent background information, including a description of the Site and its setting, the history of the Site, and the results of previous environmental work conducted at the Site.

2.1 Site Description and Setting

Sunnyside Yard is located in an urban area in northwestern Queens County (Figure 1). The East River is located approximately one mile to the west while Newtown Creek, which defines the border between Queens and Kings Counties, is located less than 0.5 mile south of the western portion of the Yard. The Yard consists of a railroad maintenance and storage facility that currently encompasses approximately 133 acres. The Yard functions as a maintenance facility for electric locomotives and railroad cars for Amtrak and a train layover storage yard for New Jersey Transit Corporation (NJTC). The Yard is currently in the NYS Inactive Hazardous Waste Disposal Site Remedial Program, Site No. 241006, which is administered by NYSDEC. The Yard was subdivided into six operable units (OUs), OU-1 through OU-6, to streamline remedial efforts. The land use surrounding the Yard is a combination of commercial, light industrial and residential areas. The Long Island Rail Road (LIRR) currently owns a portion of the original Yard along the northern boundary (including a portion of OU-3) and maintains rights of way through the Yard. This SIWP pertains to a portion of area within OU-4 and immediately west of OU-3.

OU-3 encompasses approximately eight acres in the north central portion of the Yard, and as mentioned above, includes property owned by the LIRR. OU-4 comprises 120 of the total 133 acres of the Site and is located to the west of OU-3. Several former structures/features were present in OU-3 and OU-4, but have since been demolished to land surface, removed, closed, or rendered inoperable, as described in subsequent sections. Since remaining contamination exists within OU-3 and OU-4, any future intrusive work that will encounter or disturb the remaining contamination will be performed in compliance with the approved site-specific Excavation Work Plan (EWP) dated January 10, 2022. The locations of OU-3 and OU-4, as well as the approximate footprint of the proposed Acela Ready Tracks construction area (limits of construction) and spill investigation area of concern are shown in Figure 2.

2.2 Proposed Acela / Ready Tracks Construction

As part of the proposed Acela Ready Tracks construction project, Amtrak will be upgrading/installing subsurface utilities (i.e., water line, electrical duck banks, traction power duck banks, etc.), new rail tracks and a retaining wall within portions of OU-3 and OU-4. The Acela Ready Track project is currently underway. Future work to be completed on the Acela Ready Track project will include soil excavations within portions of OU-3, soil transportation and offsite disposal, soil reuse, Site grading, and the installation of new subsurface utilities and rail lines.

Following completion of the work, the surface within the limits of construction will be completed with a combination of asphalt paths, new rail tracks, and ballast stone.

2.3 Summary of Previous Investigations and Remediation

This section provides a brief description of the previous investigation and remediation activities conducted in OU-3 and OU-4 including the historic separate phase hydrocarbon (SPH) plume, the soil (unsaturated

and saturated), polychlorinated biphenyl (PCB) Remedial Zones, groundwater, and subsurface structures. Further details are presented in the EWP.

2.3.1 SPH

By the time the OU-3 Remedial Investigation (RI) was submitted to NYSDEC in May 2005, the SPH plume had been fully delineated both horizontally and vertically. At its largest extent, the historic outer boundary of the plume (historic zero-foot SPH contour), which was very conservatively defined by the absence of a visible sheen on the water table, occupied an area of approximately three acres in the central part of OU-3. Physical evidence of sheen and/or petroleum odor was noted up to 10 feet below land surface (ft bls) in several borings and deeper in some borings.

Significant SPH recovery activities have been completed both as Interim Remedial Measures (IRMs) before the October 2007 OU-3 RAWP, and as part of the final OU-3 remedy following the October 2007 OU-3 RAWP. These SPH remedial activities included SPH recovery using a dual phase vacuum extraction system (DPVE), soil/SPH excavation, surfactant enhanced SPH recovery, bioremediation, and manual SPH bailing/recovery. As a result of this work, an estimated total of 14,920 gallons of SPH was recovered.

Currently the SPH plume consists of only one small, isolated occurrence of SPH (less than 0.1 feet thickness), which presents the current SPH plume configuration (as measured on December 15, 2020).

2.3.2 Soil

The Site-specific soil cleanup objectives for the Site are lead: 3,900 parts per million (ppm); PCBs: 25 ppm; and total semivolatile organic compounds (SVOCs): 500 ppm. In 2008, a 0.2-acre area of hydrocarbonimpacted surface soil was visually delineated to the north, west and east of the former Engine House, partly within the bounds of the historic SPH plume and partly within the limits of the mobile SPH plume. Based on observations from soil borings completed during multiple investigations, the average depth of hydrocarbon impacts was one ft bls, within the unsaturated zone. Surficial hydrocarbon-impacted soil was excavated to a depth of two ft bls, transported off-site and properly disposed of as part of the approved remedy for OU-3. The excavation was then backfilled with clean fill and brought to grade.

In 2010, a PCB soil hot spot (measuring 24-feet long by 21.5-feet wide by approximately 1-foot deep) was excavated in OU-3 in accordance with the OU-3 RAWP. Also, in 2010, a lead soil hot spot (measuring 24-feet long by 21-feet wide by 2-feet deep) was excavated in accordance with the OU-3 RAWP.

A 0.5-acre area of hydrocarbon-impacted soil was visually delineated to the north, west, and east, within the bounds of the historic SPH plume. In 2016 this soil, visually observed to be hydrocarbon-impacted and a potential source for SPH, was excavated to a depth of five ft bls, transported off-site and properly disposed of as part of the approved remedy for OU-3. The excavation was then backfilled with clean fill and brought to grade.

2.3.3 Groundwater

Groundwater beneath the entire Yard is defined as OU-6. Groundwater in OU-6 at the Yard (including OU-3 and OU-4) is slightly impacted at concentrations above the NYSDEC GA standards and is impacted by several upgradient sources, including Standard Motor Products (Site No. 241016, Class 2 Site on NYSDEC Registry of Inactive Hazardous Waste Disposal Sites) by contamination (primarily chlorinated volatile organic compounds [CVOCs], benzene, toluene, ethylbenzene, and xylenes [BTEX], and metals).

As per the OU-6 ROD issued by NYSDEC dated March 2010, a no action remedy with monitoring was selected for OU-6 (including groundwater in the area of OU-3), which is currently on-going.

2.3.4 Subsurface Structures

Former subsurface structures located in OU-3 were investigated and some were removed. The following is a listing of structures formerly located in OU-3:

- Interior and exterior Engine House service pits (removed in 2008 and 2010)
- Oil House basement (removed in 2008)
- Metro Shed inspection pit (cleaned and backfilled in 1997, partially removed in 2010)
- Fuel transfer pump vaults (removed in 2010)

2.3.5 Underground Storage Tanks

Nine USTs with capacities ranging from 7,800 to 11,000 gallons were in the two former UST areas, west (three USTs, Nos. 1, 2, and 3) and east (six USTs, Nos. 4 through 9) in OU-3. It was reported that UST Nos. 1 through 5 formerly contained No. 2 fuel oil, while Tank Nos. 6 through 9 formerly contained No. 4 fuel oil. All USTs have since been abandoned or removed.

In addition, the former Boiler House UST (20,000-gallon No. 2 fuel oil tank) located within OU-4, which was previously abandoned in place, was removed as part of the Metropolitan Transit Authority (MTA) East Side Access (ESA) Project.

2.3.6 In Situ Soil Characterization and Delineation Sampling

In May/June 2021, all proposed excavated material for the Acela Ready Tracks project was sampled *in situ* for reuse and waste characterization evaluation purposes. During soil characterization activities, one soil characterization sample was collected for every approximate 800 cubic yards of soil for reuse and disposal evaluations. Soil characterization samples were submitted for laboratory analysis for Yard-specific criteria compounds (total SVOCs, PCBs and lead) and typical disposal facility requirements, which included target compound list (TCL) volatile organic compounds (VOCs), pesticides/herbicides, target analyte list (TAL) metals, TCLP RCRA 8 metals, and RCRA characteristics (e.g., reactivity, corrosivity and ignitability) as well as additional analytical parameters required to allow for material acceptance into a specific proposed treatment, storage, and disposal facility (TSDF) including Pennsylvania landfills. Soil sampling methodologies and results are described in the *In Situ* Soil Characterization Summary Report (Summary Report) dated September 20, 2021, prepared by Roux and included in Appendix D of the EWP.

From November 2 to November 5, 2021, delineation soil sampling activities were completed around WC-21 and WCR-10 to define the boundaries of the PCB (WC-21) and TCLP lead (WCR-10) exceedances for waste characterization delineation purposes. A total of eight PCB delineation samples were collected for laboratory analysis from eight soil borings installed around the perimeter of grid cell WC-21 and advanced to depths of five ft bls. A total eight lead delineation samples were collected for laboratory analysis (total lead and TCLP lead) from five soil borings installed on the eastern, southern, and western sides of grid cell WCR-10 that were adjacent to other grid cells and advanced to depths of eight ft bls. Soil sampling methodologies and results for the PCB and TCLP lead delineation activities are described in the PCB Delineation Soil Sampling Summary Memorandum dated November 11, 2021, and TCLP lead Delineation Soil Sampling Summary Memorandum dated November 17, 2021, which are included in Appendix D of the

EWP. Based on the sample results, there were no PCB or TCLP lead detections above Yard-specific criteria (for PCBs) or USEPA criteria (for TCLP lead) and the areas were delineated to the extent of each grid cell boundary.

Based on the Soil Characterization and delineation results, all soil, except soil from the 0-5 ft bls interval within WC-21 and the 0-8 ft bls interval within WCR-10, proposed to be excavated during the Acela Ready Tracks work meets Yard-specific criteria for reuse as backfill up to one-foot bls.

2.3.7 NYSDEC Open Spill #2209440

On February 23, 2023, and March 8, 2023, petroleum contamination (stained/odorous soil and SPH) was encountered at approximately 10 feet below grade during excavation activities at a location in the vicinity of the former boiler house and approximately 90 ft to the east of this location (within waste characterization grid cells WC-18, WC-19, and WC-20 - see Figure 3). Roux field staff noted heavily stained/odorous soil and some SPH on the surface of groundwater within both excavations. As a result, and in consultation with Amtrak, Roux called in a spill to NYSDEC, and Spill #2209440 was assigned to the Site.

In accordance with NYSDEC requirements and at Amtrak's request, Roux oversaw initial delineation test pits conducted by Amtrak's contractor, Railroad Construction Company (RCC) on April 6, 2023, and May 25, 2023, in an attempt to delineate the heavily stained/odorous soil and SPH. After completing 12 test pits, the spill area was not able to be fully delineated in all directions.

2.3.8 NYSDEC Open Spill #2406650

In September 2024, petroleum contamination (stained/odorous soil and SPH) was encountered approximately two feet below grade during excavation activities for utility installation within waste characterization grid cell WC-22 (see Figure 3). Roux field staff noted stained/odorous soil and some SPH on the surface of groundwater within the excavation. As a result, and in consultation with Amtrak, Roux called in a spill to NYSDEC, and Spill #2406650 was assigned to the Site.

3. RI Work Plan Objectives, Scope, and Rationale

Roux, on behalf of Amtrak, has developed a scope of work (presented in this SIWP) that is intended to satisfy NYSDEC requirements and ultimately justify closure of the open spill. Data collected will determine the basis for any future remedial actions for the open spill.

3.1 Objective

The objective is to further assess the extent of stained/odorous soil and SPH associated with the open spill.

3.2 Spill Investigation Scope

The scope of the spill investigation will include the collection of sufficient Site investigation data so that the extent of the identified spill can be characterized to support the development of an area specific remedy and to ultimately close the open spill.

To accomplish this, the scope of work for the spill investigation will include the following:

- The performance of Site reconnaissance and survey mark-out of all proposed locations;
- The advancement of soil borings to visually inspect and screen for evidence of impacts and delineate the spill area. Soil samples will also be collected for geologic logging in accordance with the Unified Soils Classification System (USCS);
- The installation of permanent groundwater monitoring wells within the delineated spill area with initial assessment and logging of any SPH; and
- The performance of a final survey of all newly installed monitoring wells, for horizontal coordinates, land surface elevation and measure point elevation.

All spill investigation activity will be conducted in accordance with the applicable requirements of the NYSDEC DER-10. All data will be submitted to NYSDEC in electronic format, in accordance with DER-10, Section 1.15.

The overall scope of each component of the spill investigation is discussed in the following subsections. Detailed field sampling procedures are provided in the Quality Assurance Project Plan/Field Sampling Plan (see Section 4). The proposed sampling locations are shown on Figure 3 of this SIWP.

3.2.1 Site Reconnaissance

Prior to proceeding with the soil borings, an initial assessment of the area will be conducted to ensure the proposed locations are free of any above-grade objects and obstructions and are accessible via drilling equipment. Due to the proposed Acela Ready Tracks project work to be completed in the same area as the spill, each location will also be marked and staked out by a NYS-licensed surveyor, to ensure the monitoring wells to be installed will not interfere with the future construction activities.

3.2.2 Soil Borings

A minimum of 19 soil borings are proposed to be advanced at the Site at the locations shown on Figure 3. Prior to initiating the soil borings, the community air monitoring program (CAMP) will be set up and initiated, in accordance with the EWP.

To delineate Spill #2406650, Roux will advance soil borings in a "step-out" method. The first "step-out" will be advanced 5-feet from the location of Spill #2406650. If evidence of impact is found at the first "step-out", a second "step-out" will be completed 10-feet from the location of Spill #2406650. Approximate "step-out" locations contingent on field conditions are shown on Figure 3.

Each soil boring location will be pre-cleared to a depth of five ft bls using soft dig techniques (e.g., air knife, vacuum, hand tools), to confirm the absence of subsurface utilities or obstructions. Soil samples will be collected using hand tools or by utilizing a Geoprobe® direct push drill rig or roto sonic drill rig, operated by a drilling subcontractor under the oversight of Roux field personnel. Each soil boring will be advanced to approximately 15 ft bls (approximately seven ft into the water table), as groundwater is expected to be encountered at an approximate depth of eight ft bls.

Soil from each soil boring will be visually inspected for evidence of impacts and screened for organic vapors in the field using a photoionization detector (PID). Soil lithology will be recorded according to the USCS.

Soil samples from five (approximately 20 percent) of the borings collected from the investigation will be analyzed for the Site constituents of concern (COCs): SVOCs, PCBs, and lead. Analyzed samples will be collected from both spill areas and, if evidence of impact is observed, analyzed samples will be biased toward the impacted interval. Laboratory analysis will be completed by a New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)-certified laboratory.

Soil cuttings generated as part of the soil boring installation will be characterized and managed in accordance with the EWP.

3.2.3 Groundwater Monitoring Well Installation

Following the completion of soil borings and delineation of the spill, monitoring well locations will be identified within the delineated SPH area. A minimum of six monitoring wells will be installed, with additional monitoring wells installed based on the findings from the soil boring investigation. The final location and number of wells will be coordinated with the NYSDEC, ahead of installation.

Each newly installed monitoring well will be constructed of 4-inch diameter, schedule 40 PVC with 10 feet of 0.010- slotted screen to allow for efficient SPH recovery, if any. All monitoring wells will be installed to a depth of approximately 15 ft bls to bridge the water table. Each monitoring well will be completed as follows: filter pack consisting of #2 Morie sand, installed from the base of the soil boring/monitoring well up to two to three feet above the top of the well screen; 1- to 2-foot thick layer of bentonite hole plug on top of the sand pack and hydrated with potable water; bentonite/grout slurry will be placed on top of the bentonite hole plug to within approximately one foot of the ground surface; and the surface of the monitoring wells will be completed with a flush-mounted traffic-bearing well cover.

Following installation, each monitoring well will be developed to remove fines that may have accumulated within the well and filter pack during installation. Depth-to-water static level measurements will be obtained from each monitoring well from a mark on the PVC top of casing (north side) via a water level meter that has been decontaminated, prior to introduction into each successive monitoring well. Each monitoring well will be developed by manual surging repeatedly with a PVC surge block along the entire length of the screen via 3- to 4-foot strokes continued for periods of 2 to 4 minutes. In between periods of surging, a manual well development pump will be used to remove approximately 10 standing well volumes from the monitoring

wells. Although turbidity will not be quantitatively measured in the field, a visual assessment of turbidity will be monitored and noted during well development.

All newly installed monitoring wells will be surveyed for horizontal coordinates, land surface elevation and measuring point elevations.

All drill cuttings will be characterized, and managed in accordance with the EWP and purge water will be containerized, prior to characterizing and disposing off-site at a permitted facility.

Within approximately 1 week of redevelopment, the newly installed monitoring wells will be gauged for evidence and thickness of SPH. If measurable SPH is detected and consistent over the initial 1 week period, Roux will develop an SPH Monitoring/Recovery Plan in consultation with NYSDEC to outline the frequency, duration, and modes of monitoring and recovery of any SPH found in the monitoring wells.

4. Health and Safety Plan and Community Air Monitoring Plan

A site-specific Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) have been prepared for the Site and will be followed as part of all on-site work activities. The site-specific HASP and CAMP are included as Appendices A and B, respectively.

5. Reporting and Schedule

The following will be provided to the NYSDEC during the course of the spill investigation work.

Daily Progress Reports

Daily progress report submittals to be provided to the NYSDEC during field activities and will include the following.

- An update of progress made during the reporting day;
- Locations of work;
- A site map with identification of items completed;
- A summary of CAMP findings, including exceedances;
- An explanation of notable Site conditions; and
- 1-week look ahead.

SPH Monitoring/Recovery Work Plan

Following the completion of the spill investigation, assuming measurable SPH is detected in any of the newly installed monitoring wells, Roux will develop an SPH Monitoring/Recovery Plan that will outline the frequency, duration, and modes of monitoring and recovery of any SPH found in the monitoring wells. Methods and frequencies for SPH monitoring and recovery will be determined based on field observations, measurements from the installation and gauging of the monitoring wells, and soil sampling analytical results.

Schedule

Scope of Work	Approximate Start Date
Finalize SIWP with any NYSDEC/ NYSDOH Comments, NYSDEC Approves SIWP	April 2025
Spill Investigation Field Work (1-2 weeks of field work)	May 2025
Draft and submit SPH Monitoring/Recovery Work Plan	June 2025

FIGURES

- 1. Site Location Map
- 2. Site Plan
- 3. Delineation Test Pits and Proposed Soil Borings









<u>NOTE</u>

GRAYSCALE FEATURES INCLUDE BOTH EXISTING INFRASTRUCTURE AND PROPOSED INFRASTRUCTURE AS PART OF THE ACELA READY TRACK PROJECT.

SOURCES

- AMTRAK INTERCITY TRAINSETS (ICT) PROGRAM, SUNNYSIDE YARD MAINTENANCE FACILITY, 100% TRACK DESIGN SUBMITTAL, APRIL 2024.
- AMTRAK, SUNNYSIDE YARD EXPANSION, READY TRACKS RA-3, RT-1, AND RT-2, NOVEMBER 2020.



Title:

DELINEATION TEST PITS AND PROPOSED SOIL BORINGS

SPILL INVESTIGATION WORK PLAN

Prepared for:

AMTRAK

ROUX	Compiled by: P.M.	Date: 3/27/2025	FIGURE
	Prepared by: B.H.C.	Scale: AS SHOWN	
	Project Mgr: P.M.	Project: 0055.0148Y004	3
	File: 0055.0071Y194.03		

- A. Health and Safety Plan
- B. Community Air Monitoring Plan

Spill Investigation Work Plan Sunnyside Yard 39-29 Honeywell Street, Queens, New York APPENDIX A

Health and Safety Plan



Site-Specific Health and Safety Plan

39-29 Honeywell Street Queens, New York

January 19, 2021

Prepared for:

National Passenger Railroad Corporation Washington D.C. 20002

Prepared by:

Roux Environmental Engineering and Geology, D.P.C. 209 Shafter Street Islandia, New York 11749

Environmental Consulting & Management +1.800.322.ROUX rouxinc.com

Table of Contents

Site-Specific Emergency Information Emergency Phone Numbers	1 1
 Introduction 1.1 Roles and Responsibilities 	4 4
 Background 2.1 Site Description 2.2 Site History 2.3 Known and Potential Releases of Hazardous Substances at the Site 	7 7 7 7
3. Scope of Work	8
 4. Site Control	9 9 9 9 9 9 . 10
 Job Hazard Evaluation	. 11 . 12 . 12 . 12 . 12
 6. Emergency Response Plan 6.1 Emergency Response 6.2 Emergency Alerting and Evacuation 6.3 Emergency Medical Treatment and First Aid 6.4 Adverse Weather Conditions 6.5 Electrical Storm Guidelines 	. 13 . 13 . 13 . 13 . 13 . 14 . 15
 7. Safety Procedures. 7.1 Training 7.2 Site-Specific Safety Briefings for Visitors	. 16 . 16 . 16 . 17 . 17 . 17 . 17 . 17 . 18 . 19 . 19
 7.6.1 Action Levels for Air Monitoring	. 19 . 21 . 22 . 22

Table of Contents (Continued)

	7.8.1 Initial Spill Notification and Response	. 22
	7.8.2 Spill Evaluation and Response	. 22
	7.9 Decontamination	. 23
	7.9.1 Decontamination Procedures for Personnel and PPE	. 23
	7.9.2 Decontamination Procedures for Equipment	. 23
	7.9.3 Monitoring the Effectiveness of Decontamination Procedures	. 24
	7.10 Confined Space Entry	. 24
	7.11 Client and Site-Specific	. 25
	7.12 Unusual or Significant Risks	. 25
	7.13 Activity-Specific Hazards	. 26
	7.13.1 Electrical and Other Utility Assessment and Accommodations	. 26
	7.13.2 Subsurface Work	. 26
	7.13.2.1 Excavations and Trenching	. 26
	7.13.3 Heavy Equipment	. 27
	7.14 Heat Stress	. 27
	7.14.1 Heat Stress	. 28
	7.14.2 Heat Exhaustion	. 28
	7.14.3 Heat Stroke	. 28
	7.15 Cold Stress	. 29
8.	Field Team Review	. 30
9.	Approvals	. 31

Tables

1. Toxicological Properties of Hazardous Substances Present at the Site

Figures

- 1. Site Location Map
- 2. Site Plan with Emergency Muster Area
- 3. Routes to Urgent Care and Hospital

Appendices

- A. Job Safety Analysis (JSA) Forms
- B. SDSs for Chemicals Used
- C. COVID-19 Interim Health and Safety Guidance
- D. Personal Protective Equipment (PPE) Management Program
- E. Subsurface Utility Clearance Management Program
- F. Amtrak Contractor Safety Course booklet and New York Division Supplement
- G. Heavy Equipment Exclusion Zone Policy

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
Office Manager (OM)	Michael Ritorto		(631) 232-2600
Project Principal (PP)	Robert Kovacs		(631) 630-2320
Project Manager (PM)	Jeff Wills		(631) 630-2366
Site Supervisor (SS)	Roux Field Man	ager - TBD	TBD
Site Health and Site Safety Officer (SHSO)	Christian Hoelzl	i	(631) 232-2600
Office Health and Safety Manager (OHSM)	Kristina DeLuca		(631) 630-2406
Corporate Health and Safety Manager (CHSM)	Brain Hobbs		(631) 630-2419
AllOne Health	Occupational Health Care Management Provider		800-350-4511
Client Emergency Contact	Richard Mohlenhoff		(917) 692-2127
Outside Assistance			
Agency	Contact	Telephone	Address/Location
Ambulance/emergency medical services (EMS)	Mount Sinai Hospital of Queens	(718) 932-1000 or 911	25-10 30 th Avenue, Queens, NY 11102
Police	Amtrak Police	(212) 630-7113	39-29 Honeywell Street, Queens, NY 11101
Fire	FDNY	911	
Site Address	39-29 Honeywell Street, Queens, New York 11101		

Route to Hospital and Urgent Care Facility



DIRECTIONS TO HOSPITAL - (718) 932-1000

- 1. TAKE 42 PL TO NORTHERN BLVD
- 2. TAKE 36TH AVE TO 33RD ST
- 3. TURN RIGHT ONTO 33RD ST
- 4. TURN LEFT ONTO 31ST AVE
- 5. CONTINUE ON 29TH ST. DRIVE TO 30TH RD

DIRECTIONS TO URGENT CARE - (929) 265-5990

- 1. HEAD NORTH ON 36TH CRES/43RD ST
- 2. CONTINUE ONTO 42 PL
- 3. CONTINUE ONTO 43RD ST
- 4. TURN LEFT ONTO BROADWAY

Emergency Response Site Map



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 in situ waste characterization sampling program and excavation oversight activities being performed by Roux at the Amtrak Sunnyside Yard Acela 21/Ready Tracks Construction project, located at 39-29 Honeywell Street, Queens, New York (Site; Figure 1). These activities fall within the scope of operations covered by 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 sampling and excavation oversight 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 Manager (CHSM). The PM for this project is Jeff Wills. The Site Supervisor (SS) is to be determined (TBD) and Site Health and Safety Officer (SHSO) is Christian Hoelzli.

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, CHSM, 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 the 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 Site Supervisor(s) and others as necessary for safety and health efforts.

Site Supervisor

The Site Supervisor is responsible for field operations and reports to the Project Manager (PM). The Site Supervisor 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 National Railroad Passenger Corporation (Amtrak) Sunnyside Yard is located in an urban area at 39 29 Honeywell Street in northeastern Queens County, New York. The East River is located approximately one mile to the west. Land use immediately adjacent to the Yard is almost exclusively mixed commercial and light industrial, with surrounding residential areas located primarily to the south and east. Sunnyside Yard is a Class 2 Site, No. DEC 241006, listed in the NYSDEC's Registry of Inactive Hazardous Waste Disposal Sites. As a result of the listing for the entire Yard, Amtrak, New Jersey Transit Corporation (NJTC), and the NYSDEC entered into an Order on Consent (OOC) Index #W2 0081 87 6 effective October 1989.

2.2 Site History

The Pennsylvania Tunnel and Terminal Company, a subsidiary of the Pennsylvania Railroad (later known as the Penn Central Transportation Company), constructed the terminal in the early 1900s. On April 1, 1976, the Consolidated Rail Corporation (Conrail) acquired the Yard and, on the same day, conveyed it to Amtrak. The Yard consists of an active railroad maintenance and storage facility for railroad rolling stock, encompassing approximately 133 acres. It functions primarily as a maintenance facility for electric locomotives and railroad cars for both Amtrak and NJTC.

2.3 Known and Potential Releases of Hazardous Substances at the Site

The site-specific compounds of concern (COCs) are polychlorinated biphenyls (PCBs), semivolatile organic compounds (SVOCs), carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and lead.

3. Scope of Work

As stated above, this HASP is designed to identify all potential hazards associated with the work activities being performed at the Site for the Amtrak SSY Acela 21/Ready Tracks project. The proposed scope of work will vary depending on the planned work activities and includes, but is not limited to the following tasks:

- 1. In situ waste characterization soil sampling.
- 2. Monitoring well installation, development, and surveying.
- 3. Gauging of monitoring wells for separate phase hydrocarbons (SPH) and collection of groundwater samples for laboratory analysis.
- 4. Implementation of a Community Air Monitoring Plan (CAMP). during all subsurface work associated with the Acela 21/Ready Tracks project. Note, this does not include any track work outside the footprint of the Acela 21/Ready Tracks project.

A work plan detailing the proposed scope of work to be implemented will accompany the HASP during the proposed work activities being performed at the Yard.

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. During hours of Site operation, Site entry and exit is authorized only at the points identified in **Figure 2**. Entry and exit at these points are controlled by the following: booth with security guard, Amtrak contractor ID card required. When the Site is not operating, access to the Site is controlled by the following: booth with security guard, Amtrak contractor ID card required. Amtrak contractor ID card required.

4.3 Buddy System

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 or other difficulties;
- Periodically checking the integrity of partner's PPE; and
- Notifying the Site manager 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. Note, cell phone use is strictly prohibited when working within 25 feet of the tracks.

As applicable, hand signals will be used according to the following:

Hand Signals

SIGNAL	MEANING
Hand gripping throat	Out of air, can't breathe
Grip partner's wrist	Leave area immediately
Hands on top of head	Need assistance
Thumbs up	l'm 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

This Site is 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
- 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. The SZ will contain the temporary project trailers and provides for field team communications and staging for emergency response. 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 <u>general</u> 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 safety data sheets 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.

The information in the JSAs and Safety Data Sheets (SDSs) is made available to all employees and subcontractors who could be affected by an exposure to the hazards covered in them 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) are required 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 CHSM.

5.3 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 and consistent with **Appendix C**. Government guidance/orders generally consist of implementation of the following protocols/procedures (or some variation thereof):

- Self-monitoring for symptoms;
- Fitness check for work each day;
- Limiting businesses to "essential" operations;
- Social distancing (generally 6 feet);
- Cloth face masks/ coverings;
- Hand washing/ disinfectant use; and
- Care/ awareness of surroundings (public spaces, equipment, hotel rooms, rental cars).

Additional guidance on minimizing potential exposure to SARS-CoV-2, including a JSA, are included in **Appendix C**.

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, AllOne Health (AOH), is initiated. 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, AOH, immediately following the notifications provided above.
- b. 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 location to Northwell GoHealth Urgent Care and Mount Sinai Hospital of Queens in Astoria 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 Project Manager 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.



6.4 Adverse Weather Conditions

In the event of adverse weather conditions, the SHSO or project principal will determine if work can continue without sacrificing the health and safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat stress and heat-related injuries;
- Potential for cold stress and cold-related injuries;
- Treacherous weather-related conditions;
- Limited visibility; and
- Electrical storm potential.

Site activities will be limited to daylight hours and acceptable weather conditions. Inclement working conditions include heavy rain, fog, high winds, and lightning. Observe daily weather reports and evacuate if necessary in case of inclement weather conditions.

6.5 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. 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.

7.1 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.

Roux personnel training records are maintained in a corporate database with records available upon request from either the OHSM/SHSO/CHSM or Human Resources Department.

7.2 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.

7.3 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.

7.4 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 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.

7.4.1 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.

7.4.2 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.

7.4.3 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.

7.5 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 hazards 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;
- 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.

7.5.1 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 \geq 90 dBA. 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).

7.6 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.
- If required, a pre-calibrated multi-gas meter with combustible Lower Explosive Limit (LEL), oxygen (O₂), carbon monoxide (CO), and hydrogen sulfide (H₂S) sensors shall be used to monitor the potential for oxygen-deficient atmospheres, explosive concentrations of organic vapors, and toxic gases during intrusive operations. Monitoring will be performed according to the action levels for oxygen and combustible gases provided in this section. The calibration for this device will be performed using a known gas composition calibration mixture.

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 CHSM.

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 (e.g., client, board of health, regulators, etc.).

7.6.1 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.

Air Monitoring Summ Organi	ary and Action Levels c Vapors
PID Reading in Breathing Zone (ppm) ¹	Action
0-1 ppm above background ²	Continue monitoring
1-5 ppm sustained 60 seconds	Continue monitoring, if applicable initiate additional collection of benzene using colorimetric tubes.
<5 ppm and no presence of benzene	Continue Monitoring, ventilate space
≥ 5 ppm - ≤ 25 ppm and no presence of benzene	Ventilate space until PID reads < 5 ppm. If < 5 ppm cannot be achieved, upgrade to Level C ³ .
<u>></u> 25 ppm	Ventilate space and evacuate area.

1

Based on relative response/sensitivity of PID to benzene. 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. Measured air concentrations of known organic vapors will be reduced by the respirator to one half of the PEL or lower, and 2

3 the individual and combined compound concentrations shall be within the service limit of the respirator cartridge.

Air Monitoring Summary Oxyger	and Action Levels า
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

Action levels based on USEPA Standard Operating Safety Guides; Table 5-1, Atmospheric Hazard Action Guidelines may 1. be further restricted based on the CHSM's professional judgment and experience.

Air Monitoring Summary and Action Levels Carbon Monoxide					
CO Reading in Breathing Zone (ppm) ¹	Action				
<25 ppm	Inspect exhaust system for leaks or other sources of CO. Monitor initially and every 15 minutes during use of CO-generating equipment.				
25-50 ppm	Ventilate area. Monitor continuously and record measurements. Contact PM.				
>50 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 Sun Combເ	nmary and Action Levels Istible Gases
Lower Explosive Limit (LEL) Reading	Action
< 4% LEL (<2,000 ppm)	Site activities will continue with normal monitoring
4% – 20% LEL (2,000 – 10,000 ppm)	Stop work until levels dissipate to <4% LEL
> 20% LEL (>10,000 ppm)	Potential explosion hazard. Halt all site activities, research source of release, aerate work area, suppress source.

Air Monitoring Sum Hydro	mary and Action Levels gen Sulfide			
Hydrogen Sulfide (H ₂ S) 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			
Cannot use air purifying respirators for H ₂ S because of olfactory fatigue				

7.6.2 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 formaldehyde 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.

7.7 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.

7.8 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 no limited to, chemical/product transfer points and handling.

7.8.1 Initial Spill Notification and Response

Any worker who discovers a hazardous substance spill will immediately notify Jeff Wills (PM). 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.

7.8.2 Spill Evaluation and Response

Jeff Wills (PM) 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.

7.9 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.

7.9.1 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.

7.9.2 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.

The following items may be used to decontaminate equipment:

- Fresh water rinse;
- Non-phosphorus detergent wash;
- Distilled water rinse;
- Acetone rinse;
- Distilled water rinse; and
- A steam cleaner or pressure washer (heavy equipment only).

7.9.3 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.

7.10 Confined Space Entry

Confined space entry is not anticipated to be performed.

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 1910.146.

7.11 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.

All employees assigned to work at the Yard must attend the Amtrak Contractor Employee Safety Program Course (CSG 101), which includes Roadway Worker Protection for compliance with 49 CFR Part 214 (Training Booklet included as Appendix F). In addition, all employees must display the Amtrak Contractor Employee Safety Trained Badge when working in the Yard.

As part of Amtrak's compliance efforts, each employee must understand the following:

- A job briefing with an Amtrak representative is required prior to commencing work;
- Never foul any track without protection provided by Amtrak;
- Immediately clear tracks upon signal from watchman;
- Never return to tracks until clear signal is given by watchman; and follow all Amtrak on track safety rules and instructions.

The two most common dangers involved with working on or about railroad tracks are moving trains and electrical power lines. The following procedures must be followed.

- Clear the tracks when a train approaches from either direction. A gang watchman will signal that a train is approaching by blowing a whistle or air horn and by raising a black and white signal disc overhead.
- To avoid the dangers from electrical hazards, stay at least 15 feet away from any energized line. Do not approach closer than 15 feet to an electrical wire unless a Class A employee tells you it is de energized and properly grounded.

A copy of the Contractor Safety Course booklet and New York Division Supplement is included as Appendix F. Amtrak provides Contractor Responsibilities for conducting work and handling equipment and materials to prevent any part of the equipment from fouling an operating track or wire line without written permission. The Contractor Responsibilities are also included as Appendix F.

7.12 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 LPS, HASPs, traffic safety plans, work permits, design and O&M practices, equipment HAZOPS or other safety tools must be referred to the CHSM 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.

7.13 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 SPSAs 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 SPSAs prior to and during the work.

7.13.1 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 7.13.3 below).

Roux has also reviewed all available Site maps showing buried utility lines to identify potential hazards, which revealed that no underground hazards are known to exist in the vicinity of the areas of the Site pertinent to this HASP.

7.13.2 Subsurface Work

Subsurface work activities will require adherence to Roux's Corporate Subsurface Utility Clearance Management program found within **Appendix E**.

7.13.2.1 Excavations and Trenching

All trenching and excavation work activities contracted by Roux shall comply with 29 CFR 1926.651-652 Subpart P. Additionally, for trenches greater than 4 feet deep, where employees will enter, the trench needs to have a stairway or ladder or other safe means of egress. Where employees will enter trenches greater than 5 feet deep, the trench must have some type of protective system or sloped appropriately to prevent cave-ins.

The SHSO 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.

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.
- 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).

Soil or Rock Type	Maximum Allowable Slo	pes (H:V) ¹ for Excavations Less Than 20 Feet Deep ³
Stable Rock	Vertical	(90°)
Type A ²	³ / ₄ : 1	(53°)
Туре В	1:1	(45°)
Туре С	1 ¹ / ₂ : 1	(34°)

Maximum Allowable Slopes

OSHA (29 CFR 1926.652, Subpart P, Appendices A and B)

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.

7.13.3 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 G**. Additionally, operation of the drill rig/other heavy equipment will maintain clearances from overhead power lines in accordance with OSHA 29 CFR1926.1408 Table A Minimum Clearance Distances provided below.

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

Minimum Required Clearances for Energized Overhead Power Lines

1 kilovolt (KV) = 1,000 volts

7.14 Heat Stress

The National Oceanic and Atmospheric Administration records average minimum/maximum temperatures of 82/25 degrees Fahrenheit during the year in Queens, New York.

7.14.1 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 in hot weather environments. 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.

7.14.2 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.

7.14.3 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 when worn in hot weather environments.

7.15 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. <u>Do not cover the victim's face</u>. If the victim is still conscious, administer hot drinks and encourage activity such as walking, wrapped in a blanket.

8. 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: Amtrak SSY Acela 21 / Ready Tracks

Name & Company	Signature	Date

9. Approvals

By their signature, the undersigned certify that this HASP is approved and will be utilized at the Amtrak SSY Site.

Christian Hoelzli – Site Health and Safety Officer

Kristina DeLuca - Office Health and Safety Manager

Jeff Wills - Project Manager

Robert Kovacs – Project Principal

Date

Date

Date

Date

Site-Specific Health and Safety Plan 39-29 Honeywell Street, Queens, New York

TABLE

Toxicological Properties of Hazardous Substances Present at the Site

Compound	CAS#	TLV (mg/m³)	IDLH (ppm)	PEL (mg/m³)	Routes of Exposure	Toxic Properties	Target Organs	Physical/ Chemical Properties
Trichloroethene	79-01-6	270 50 ppm	None	270 50 ppm	Dermal; inhalation; ingestion	CNS depression Sensory irritant Kidney damage Liver damage Heart damage	CNS skin eyes kidney liver CVS	Liquid BP = 189°F flammable LEL = 12.5% UEL = 90%
Toluene	108-88-3	375 100 ppm	2,000	375 100 ppm	Dermal; inhalation; ingestion	CNS depression Liver damage Kidney damage Defatting of skin	CNS liver kidney skin	Liquid benzene odor BP = 232°F flammable LEL = 1.2% UEL = 7.1%
1,2-Dichloroethene	540-59-0	790 200 ppm	4,000	790 200 ppm	Dermal; ingestion; inhalation	CNS depressant Epigastric cramps Sensory irritant Dermatitis	CNS stomach skin	Colorless liquid BP = 118-140□F LEL = 9.7% UEL = 12.8%
Petroleum hydrocarbons (Petroleum distilled)	8002-05-9	1,600 400 ppm	10,000	1,600 400 ppm	Dermal; inhalation; ingestion	CNS depressant Respiratory irritant Dried/cracked skin	CNS respiratory tract skin	Colorless liquid BP = 86-460°F UEL = 5.9% LEL = 1.1% Flammable
Chromium	7440-47-3	0.5	None	1	Dermal; inhalation; ingestion	Decreased pulmonary function Sensory irritant	lung skin eyes	Steel gray metal
TLV - Threshold Limit Value mg/m ³ - milligrams per cubic me IDLH - Immediately dangerous ppm - parts per million PEL - Permissible Exposure Lim CNS - Central Nervous System CVS - Cardiovascular System GI - Gastrointestinal	eter to life or health hit	B L U °(°F	P - Boiling Point EL - Lower Expl EL - Upper Expl C - degrees Celci F - degrees Fahre	losive Limit losive Limit us nheit				

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at Operable Units 3&4, Sunnyside Yard, Queens, New York

Compound	CAS#	TLV (mg/m³)	IDLH (ppm)	PEL (mg/m³)	Routes of Exposure	Toxic Properties	Target Organs	Physical/ Chemical Properties
Arsenic	7440-38-2	0.2	None	0.5 organic 0.01 - inorganic	Dermal; inhalation; ingestion	Sensory irritant Lung & skin cancer Aplastic anemia Numbness	skin eyes lungs blood peripheral nervous system	Silver gray - tin white BP = sublimes
Lead	7439-92-1	0.15	700	0.2	Dermal; inhalation; ingestion	Abdominal pain CNS depressant Anemia Nephropathy Reproductive effects	GI tract CNS blood kidneys	Metal - soft gray BP = 3,164°F
Zinc	7440-66-6	10	None	10	Dermal; inhalation; ingestion	Skin irritant Cough	skin lungs	Bluish-white metallic element BP = 908°F
Copper (dusts and mists)	7440-50-8	1	None	1	Dermal; inhalation; ingestion	Sensory irritant GI irritation CNS depressant	skin eyes GI tract CNS	Reddish metal BP = 4,730°F Powdered form may ignite
Aroclor 1254	11097-69-1	0.5 (Skin)	None	0.5 (Skin)	Dermal; inhalation; ingestion	Eye, skin irritation Acne form dermatitis Potential carcinogen	skin eyes liver	Colorless to pale yellow mild hydrocarbon odor nonflammable

TLV - Threshold Limit ValueBP - Boiling Pointmg/m³ - milligrams per cubic meterLEL - Lower Explosive LimitIDLH - Immediately dangerous to life or healthUEL - Upper Explosive Limitppm - parts per million°C - degrees CelciusPEL - Permissible Exposure Limit°F - degrees FahrenheitCVS - Cardiovascular SystemGI - Gastrointestinal

Compound	CAS#	TLV (mg/m³)	IDLH (ppm)	PEL (mg/m³)	Routes of Exposure	Toxic Properties	Target Organs	Physical/ Chemical Properties
Aroclor 1260	11096-82-5	0.001	None	None	Dermal; inhalation; ingestion	Liver damage Nausea Abdominal pain	liver skin	Colorless Mild hydrocarbon odor
Benzo(a)pyrene	50-32-8	None	None	None	Dermal; inhalation; ingestion	Teratogen carcinogen	Reproductive lung skin	Yellowish needles; BP = 312°F
Chrysene	218-01-9	0.1	None	0.2	Dermal	Mutagen Carcinogen	NA	White crystals
Manganese	7439-96-5	1.0 fume	10,000	5.0	Inhalation; ingestion	Metal fume fever Apathy Anorexia Insomnia Headaches	Resp. system CNS blood kidneys	Lustrous, brittle, silvery solid BP = 3,564°F

TLV - Threshold Limit Value mg/m ³ - milligrams per cubic meter JDI H - Immediately dangerous to life or health
ppm - parts per million
CNS - Central Nervous System
CVS - Cardiovascular System GI - Gastrointestinal

BP - Boiling Point LEL - Lower Explosive Limit UEL - Upper Explosive Limit °C - degrees Celcius °F - degrees Fahrenheit Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at Operable Units 3&4, Sunnyside Yard, Queens, New York

References

Guide to Occupational Exposure Values. 1990. American Conference of Governmental Industrial Hygienists.

Proctor, N.H., J.P. Hughes and M.L. Fischman. 1989. Chemical Hazards of the Workplace. Van Nostrand Reinhold. New York.

Sax, N. 1987. Hawley's Condensed Chemical Dictionary. 11th Edition Van Nostrand and Reinhold Company.

Sax, N.I. and R.J. Lewis. 1989. Dangerous Properties of Industrial Materials. 7th Edition. Van Nostrand Reinhold. New York.

U.S. Department of Labor. 1990. OSHA Regulated Hazardous Substances, Industrial Exposure and Control Technologies Government Institutes, Inc.

FIGURES

- 1. Site Location Map
- 2. Site Plan with Emergency Muster Area
- 3. Routes to Urgent Care and Hospital



001100110005500148001000055.01480



	LEGEND	EMERG	ENCY MUSTER	AREA	
		APPRO	XIMATE CONSTF	RUCTION AREA	
17.					
	HAZARDO	US WAS	TE EMERGENCY	INFORMATION	
193 9 19	PRIMAR		GENCY COORDI	NATOR:	
10	CELL	: (516) 6	37-0213		
	WOR	K: (631) (630-2366		
11:1	ALTERN	ATE EMI	ERGENCY COOR	DINATOR:	
	ROBERT KOVACS CELL: (516) 250-0359				
q	WOR	K: (631)	630-2320		
- 11-2	POLICE	DEPART	MENT:		
相关	AMTF	RAK POL	ICE - (212) 630-7	113	
and the second	NYSDE0 (800)	C SPILL H 457-7362	HOTLINE: 2		
	HOSPIT/ MOU (718)	AL: NT SINA 932-100	I HOSPITAL OF C 0	QUEENS	
at la	URGEN ASTC (929)	T CARE)RIA NOF 265-599	RTHWELL URGEI 0	NT CARE	
and the second s					
K	20	n	0	200'	
	20	-			
	Tales				
A Real	EME	RGE	NCY RES	PONSE MA	Р
	30-20			DRESS: SLAND CITY NY 1110)1
• •	Prepared for:	IONETV		CAND OF I, NT ITIL	, 1
		AN	ITRAK SUNNYSI	DE YARD	
10 m			Compiled by: J.W.	Date: 01/19/21	FIGURE
	ROI	JX	Prepared by: M.S.R. Project Mar: J W	Scale: AS SHOWN Project: 0055.0148Y002	🤈
201-1			· -, · · · · · · · · · · · ·		⊣ ▲

File: 0055.0148Y101.2.mxd





- 1. TAKE 42 PL TO NORTHERN BLVD
- 2. TAKE 36TH AVE TO 33RD ST
- 3. TURN RIGHT ONTO 33RD ST
- 4. TURN LEFT ONTO 31ST AVE
- 5. TURN RIGHT ONTO 29TH ST
- 6. TURN LEFT ONTO 30TH AVE

DIRECTIONS TO URGENT CARE

- 1. HEAD NORTH ON 36TH CRES/43RD ST
- 2. CONTINUE ONTO 42 PL
- 3. CONTINUE ONTO 43RD ST
- 4. TURN LEFT ONTO BROADWAY
- 5. TURN RIGHT ONTO STEINWAY ST



Title:

ROUTES TO URGENT CARE AND HOPSITAL

APPROXIMATE ADDRESS: 39-29 HONEYWELL ST LONG ISLAND CITY, NY 11101

Prepared for:

RO

AMTRAK SUNNYSIDE YARD

Compiled by: J.W.	Date: 01/19/21	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	
Project Mgr: J.W.	Project: 0055.0148Y002	3
File: 0055.0148Y101.3.		

APPENDICES

- A. Job Safety Analysis (JSA) Forms
- B. SDSs for Chemicals Used
- C. COVID-19 Interim Health and Safety Guidance
- D. Personal Protective Equipment (PPE) Management Program
- E. Subsurface Utility Clearance Management Program
- F. Amtrak Contractor Safety Course booklet and New York Division Supplement
- G. Heavy Equipment Exclusion Zone Policy

Site-Specific Health and Safety Plan 39-29 Honeywell Street, Queens, New York

APPENDIX A

Job Safety Analysis (JSA) Forms

JOB SAFETY ANALYSIS		Ctrl. No. CVD-19	DATE: 04/16/202	20	NEW REVISED	PAGE 1 of 2
JSA TYPE CATEGORY				WORK ACTIVITY	(Description)	tod by
Generic		Fieldwork		Coronavir	Areas Arrec	ted by
DEVELOPMENT TEAM	1	POSITION / TITL	.E	REVIEW	ED BY:	POSITION / TITLE
Kristina DeLuca		Health and Safety Spec	cialist	Brian Hobbs		CHSM
		REQUIRED AND / OR RECOM	IMENDED PERSON	AL PROTECTIVE	EQUIPMENT	
 □ LIFE VEST ○ HARD HAT - In field □ LIFELINE / BODY HAF ○ SAFETY GLASSES - 	RNESS In field	GOGGLES FACE SHIELD HEARING PROTECTION SAFETY SHOES – Stee	N I/composite toe in fie	AIR PURIFY	/ING RESPIRATOR RESPIRATOR IING – High visibility	 GLOVES – Leather/cut- resistant in field and nitrile as needed OTHER
		REQUIRED AND	/ OR RECOMMEN	DED EQUIPMENT		
Cloth face covering, nitril	e gloves,	hand soap, water source, ha	and sanitizer, disir	fectant spray and	disinfectant wipes	Cho throughout the dou
	- All pers	6' of distance between you	ursolf and all oth	or people at all ti	by verbalizing Sr	sas infoughout the day.
can be conducted while	e maintai	ning this distance, contact	vour Proiect Ma	inager immediate	elv.	t believe the scope of work
Assess JOB STEPS	2 PO	Analyze TENTIAL HAZARDS	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	³ CRI		
1 Project	N/A		 Review and 	d follow COV		Roux Client and local
Preplanning			 Review and orders/protor Ensure all w home even if in contact w contact your Determine F wipes/spray, demands an Use the mini work. 	orkers are fit for orkers are fit for i symptoms do n ith someone po Office Manager PPE needs and soap and wat d limited supply mum number of	r duty - anyone f not align with CO ptentially positive c. d ensure adequ ter or hand sar , plan ahead. f employees nece	eeling sick should remain at /ID-19. If a worker has been or positive for COVID-19, late supply of disinfectant litizer at Site. Due to high essary to safely complete the
2. Mobilization	Expos	sure:	Personal/Ren	tal/Roux Owne	d Vehicle	
	Bec infe	coming infected or acting co-workers	 Do not carpo Use the sam Verify worke the vehicle. I DO not valet nitrile gloves surfaces (ste by wiping the instructions). each use of along with ra immediately 	ool. e vehicle every rs/other people Maintain 6' of di- t your car or allo s and safety gering wheel, kr oroughly with ap . This cleaning a the vehicle. Ase ags/wipes, appro- after each episo	day and do not are not approad stance from othe ow others to use glasses and cle nobs, door hand oproved disinfect and disinfection eptically remove opriately. Wash ode of cleaning.	share with co-workers. hing vehicle prior to exiting rs. your car. If necessary, don an/disinfect all high touch es, turn signals, radio, etc.) tants (follow manufacturer's shall occur before and after gloves and dispose of them nands or use hand sanitizer
			Public Transp	ortation		
			 Public transi renting a car wear approp donning and hand sanitize 	t should not be rather than tak priate PPE and I doffing proced er immediately a	used unless abs ing public transit apply social di lures for nitrile g after.	olutely necessary. Consider . If public transit is required, stancing (6 ft). Use proper gloves. Wash hands or use
			Hotel Stay (Re	efer to COVID-	19 H&S Guidan	ce for more info)
			 If a hotel stay disinfect you surfaces of y Use proper of Place the "E housekeepin the reintrodu entirely, time gyms, etc.). 	r is deemed nece r room upon init your room with a donning and doff Do Not Disturb" ng services to the ction and sprea spent in hotel Wash hands or	essary for the give ial arrival and ret an appropriate dis fing procedures f placard on the e extent feasible d of the virus fro common areas (use hand sanitiz	en field work, ensure that you urning each day. Disinfect all sinfectant using nitrile gloves. or nitrile gloves. room while away and limit during your stay to minimize n others. Minimize, or avoid i.e., the lobby, dining areas, er often.

 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; 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".

3. Tailgate Meeting	Exposure: Becoming infected or infecting co-workers	 Must occur outside or remotely (i.e. video or conference call). Maintain at least a 6+ ft distance between you and others. Discuss primary infection prevention measures listed below. Do not require employees or subcontractors to sign in, the Site Supervisor shall record names on the attendance form. If the Site has more than 10 workers, separate tailgate meetings should be performed. Discuss COVID-19 symptoms with coworkers and subcontractors to ensure fitness for duty. Anyone exhibiting signs or symptoms should be instructed to leave the Site, contact your Project Manager.
4. Site Activities	Exposure: Becoming infected or infecting co-workers	 Coordinate field activities at the beginning of the day (i.e. Tailgate meeting) to minimize time spent in crowded spaces or overlap while completing job tasks. Don cloth face coverings as appropriate. Apply social distancing (6+ ft) when interacting with others. If anyone comes within 6 ft of you while conducting work and your work prevents you from moving away, politely ask them to move back. If others are unable to move from your space, stop work and leave area. Do not shake hands or touch others. Do not shake hands or touch others. Do not share equipment or other items with co-workers and subcontractors unless wearing appropriate PPE (e.g. nitrile gloves). Assume equipment and other surfaces are potentially contaminated and remove gloves aseptically (See Appendix A of Roux Interim H&S Guidance for proper glove removal). If anyone is coughing or sneezing in your vicinity, stop work and leave the area. Do not work in areas with limited ventilation with others. Cover your mouth and nose with tissue or paper towel or with your elbow when coughing or sneezing and wash hands or use hand sanitizer immediately after. If sick contact SHSO/PM and leave Site immediately. Disinfect work surfaces/areas with approved disinfectant you're responsible for (ex: desk, office doorknob, computer, etc.) at least once at the beginning of your shift and at least once at the end of your shift with either sanitizing wipes or disinfection should also take place whenever suspected contaminated material comes in contact with any work surfaces/areas. Usah hands or use hand sanitizer immediately after. Avoid public spaces and going out to eat by bringing your own lunch to the Site. If performing work in high density urban areas, it is recommended all food must be consumed at or in your vehicle. Wash hands or use hand sanitizer is reader whenever suspected contaminated material comes in contact with any work surfaces/areas. Wash hands or use

Primary Infection Prevention Measures

- Wash your hands often with soap and water for at least 20 seconds.
- If soap and water are not available, use an alcohol-based sanitizer that contains at least 60% ethanol or 70% isopropanol. Key times 0 to wash hands include after blowing your nose, coughing or sneezing, after using the restroom, and before eating or preparing food.
- Do not touch your eyes, face, nose and mouth with unwashed hands.
- Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow. Throw potentially contaminated items (e.g. used tissues) in the trash.
- Avoid close contact/secondary contact with people and potentially contaminated surfaces.
 - Apply appropriate social distance (6+ feet). 0
 - Stop handshaking/touching others and use caution when accessing public spaces. 0
- Clean and disinfect frequently touched surfaces daily. Commonly touched items can include but are not limited to tables, doorknobs, light switches, countertops, handles, desks, phones, keyboard, toilets, sinks and field equipment. If surfaces are dirty, they should be cleaned with soap and water prior to disinfection. If surface cannot be cleaned/disinfected, then wash hands or use sanitizer as soon as possible.

¹ Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job

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".

ROUX ASSOCIATES, INC.

JOB SAFETY ANALYSIS	Ctrl. No. GEN-007	DATE 7/1	10/202	20	□ NEW ⊠ REVISED	PAGE 1 of 2		
			WOF	RK ACTIVITY (Desc	ription)			
Valerie Sabatasso	Staff Scientist		Bria	an Hobbs	DT:	Corporate Health & Safety		
Valene Gabalasso	olan ooleniist		Dric			Manager		
	REQUIRED AND / OR RECOM	MENDED PER	RSON	AL PROTECTIVE E	QUIPMENT			
LIFE VEST HARD HAT: when outside vehicle					ESPIRATOR	GLOVES: <u>Leather/ cut-resistant</u>		
LIFELINE / BODY HARNESS	HEARING PROTECTION			PPE CLOTHING: 1	nigh visibility vest,	OTHER		
SAFETY GLASSES: <u>when outside</u>	SAFETY TOE BOOTS: when	n outside		when outside vehic	<u>cle</u>			
venicie	REQUIRED AND	OR RECOM	MEND	DED EQUIPMENT				
Motor Vehicle (i.e. car, truck, SUV)								
COMMITMENT TO SAFETY- All per	rsonnel onsite will actively partic	ipate in haza	ard re	ecognition and mit	igation throughout	the day by verbalizing SPSAs		
EXCLUSION ZONE (EZ): Maintain	Minimum Heavy Equipment E	xclusion Zo	one a	round equipmen	t and loads while	it is in motion. The HEEZ must		
be greater than the swing zone of	any moving part of the equipr	nent, tip zo	ne of	the equipment,	fall zone of the eq	uipment and contents, distance		
that debris may travel during dem	olition activities and/or foot pi	rint of a stru	uctur	e to be demolish	ned.			
LIOB STEPS		2DS						
1. Driving to/leaving Site	1a. CONTACT:			1a. PLAN AHE	AD – review/make	yourself familiar with maps and		
5 5	Severe injury/disability, pr	roperty		driving dire	ctions before begin	ning the drive to the Site. Do not		
	damage, monetary loss (i	nsurance		attempt to o	drive and review ma	aps/directions at the same time.		
	premiums, deductibles, id license/iob) caused by co	Ilision with a	or .	Pull over ar	na stop your venicle	e before looking at maps/directions.		
	struck by other vehicles, o	obstructions	,	1a. Complete a	basic vehicle inspe	ection before driving. Verify		
	pedestrians, animals, etc.			Inspection a	and Registration are	e current, tires and wipers are in		
				undamage	d. the horn is function	Il lights are functional, all glass/mirrors are horn is functional roof/bood/trunk are free from		
	*Common factors that may lea	nd to		accumulate	ated snow and visibility is not impaired due to			
	CONTACT Incident, but not lin	nited to:		snow/ice/fro	ost/fog on windows	3.		
	 distracted driving (cell p 	hone, GPS,	, 1a. Do not hang items in car that		g items in car that c	an obstruct your view or become		
	 lack of situational aware 	ck of situational awareness			n a collision.			
	 unfamiliarity with traffic p 	unfamiliarity with traffic patterns/road layout 1a. Do not get distracted using tou into newer models. Keep your				ch screen radios or GPS units built		
	layout					r eyes on the road and stay alert.		
	 weather conditions (wet, bydroplaning, black ice) 	/icy roads,		1a. Follow post	ed speed limits and	d obey traffic signals and roadway		
	 weariness 			signs.				
	high speeds			1a. Always wea	ar your seat belt and	d shoulder harness when driving.		
	 obstructed vision (solar on windshield, blind spo 	glare, debris	S	1a. When drivin	g around large veh	icles and trucks, maintain extra		
	 changes in travel pathway 	av		space as th	iese vehicles may r	not be able to see a smaller car too		
	(construction, snow ban	ks, non-		close.				
	operational signals, poth	noles, detoui	rs,	1a. Follow the	'Rules of the Road'	d" including: using your turn signals,		
	special events)	nance (non-		coming to a complete stop, and		nd allowing vehicles the right of way		
	operational signal light,	worn tires,	tires,		n uley ale when ua			
	cracked windshield, inef	fective wipe	ers)	1a. Apply the S	mith Five Keys® of	t sate driving		
	 loose or unsecure object 	ts		 Aim H 	ligh in Steering®			
				- E	Expand eye lead tim	ne to a minimum of 15 seconds		
				• Gettin - M	le big Picture® Лaintain proper a 4	second minimum following		
				C	listance at all times			
				- 5	Scan mirrors every	5-8 seconds to achieve a circle of		
				- F	awareness Position your vehicle	e so vou can see relevant/non-		
				r	elevant objects			
				 Keep 	Your Eyes Moving	8		
				- 1	ry to maintain abou	ut 180 degrees of visibility		
					biect for more than	a states. Avoid locusing on one		
				Leave	Yourself an Out®			
				- 4	void traveling in tra	affic clusters		
				- 5	burround yourself w	vitn space		
				- ,				

2

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job. 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. 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". 3

Assess	Analyze POTENTIAL HAZARDS	
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,	 Make Sure They See You® Maintain eye contact with on-coming vehicles/pedestrians Use warning devices (e.g., hand signals, highlights, horns etc.) Proper timing is essential
	pedestrians, animals, etc.	 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
		 Avoid sudden turns and stops. Don't drive recklessly – be in control of vehicle at all times.
		1a. In inclement weather, first determine if work can be POSTPONED. Otherwise, plan according to weather conditions including checking forecast along entirety of 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 to operators manual and understand operating procedure prior to engaging 4-wheel drive. If at any point on your drive weather becomes too severe to proceed safely pull over if safe to do so or seek nearest cover (e.g., overpass)
		 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.
		 Never operate a vehicle under the influence of alcohol or illegal substances or medications affecting your performance.
		 Keep your eyes on the road. Do not call or talk on cellular phones. Pull over to a safe location if you must answer or make a call.
		 When parking, pull-through when possible. If backing is required visually inspect 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	2a. Open and close doors slowly. Never put hands or feet in between door and vehicle to avoid pinch points.
	2b. FALL: Personal injury (twisted ankle, deep contusion, concussion, broken wrist/arm, etc.) from slip/fall on uneven or unstable or slippery surface while exiting/entering vehicle	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 hands to support yourself, by holding the car door and/or steering wheel, when exiting the vehicle.
	2c. CONTACT: Severe injury/disability, property	2c. Check both directions for traffic before opening door. Do not exit vehicle if traffic does not permit you to exit safely
	premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc.	2c. Check anticipated path of door prior to opening, do not open door into any obstructions (e.g., bollards, high curbing)

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-015	DATE: 7/1(0/2020	□NEW ⊠REVISED	PAGE 1 of 2
JSA TYPE CATEGORY	WORK TYPE		WORK ACTIVITY (Description)		
GENERIC	Site Recon		Mobilizatio	on/Demobilizat	ion
DEVELOPMENT TEAM	POSITION / TITLE		REVIEWED BY: POSITION / TITLE		POSITION / TITLE
Rebecca Lowy	Staff Assistant Geologist		Brian Hobbs	Brian Hobbs Corporate Health	
Tally Sodre	OHSM				
F	REQUIRED AND / OR RECOMMEN	DED PERSO	VAL PROTECTIVE	EQUIPMENT	
 □ LIFE VEST ☑ HARD HAT □ LIFELINE / BODY HARNESS ☑ SAFETY GLASSES 	GOGGLES FACE SHIELD HEARING PROTECTION (as needed) SAFETY SHOES: <u>Steel Toe or composite toe BEOLUBED AND (OP DECOMMENT </u>		AIR PURIF RESPIRAT SUPPLIED PPE CLOT Fluorescer of high-visi long sleevy pants	YING FOR PRESPIRATOR THING: treflective vest ibility clothing; e shirt; long	 GLOVES: Leather, nitrile, and cut resistant (as needed) OTHER
Required Equipment: Varies	REQUIRED AND / UK	RECOMMEN	DED EQUIPMENT		
				· · · · · · · · · · · · · · · · · · ·	
COMMITMENT TO SAFETY- All perso	onnel onsite will actively particip	ate in hazar	d recognition and	1 mitigation througho	ut the day by verbalizing SPSAs
EXCLUSION ZONE (EZ): Maintain m must be greater than the swing zon contents, distance that debris may	inimum Heavy Equipment Exc e of any moving part of the ec travel during demolition activ	clusion Zon quipment, ti iti <u>es and/or</u>	e around equip p zone of the eq fo <u>ot print of a s</u>	ment and loads whi uipment, fall zone o tru <u>cture to be demo</u>	le it is in motion. The HEEZ of the equipment and blished.
Assess	Analyze			Act	
1JOB STEPS	2POTENTIAL HAZARD	S	1 - 1 - 0 - noi	³ CRITICAL AC	TIONS
establish work area	 1a. FALL: Slip/trips/falls from obstructions, uneven terrain, weather conditions, heavy loads, and/or poor housekeeping. 1b. CONTACT: Personal injury and/or property damage caused by being struck by Site traffic or equipment used in Site activities. 		 ip zone of the equipment, fall zone of the equipment and foot print of a structure to be demolished. Act CRITICAL ACTIONS 1a. Use 3 points-of-contact/ensure secure footing when entering and exiting vehicle. 1a. Inspect walking path for uneven terrain, steep hills, obstructions, and/or weather-related hazards (i.e., i.e., snow, and puddles) prior to mobilizing equipment. Us 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 potent energy. 1a. Wear boots with adequate treads. 1a. Delineate unsafe areas with 42" cones, caution tape and/or flagging. 1b. Observe and maintain the posted speed limits. 1b. When first arriving onsite, park vehicles in designated parking space 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 a special hazards. Ensure that short-service employee (SSE) are identified. 1b. Use a spotter while moving work vehicles; plan ahead avoid backing whenever possible. 1b. Maintain a minimum exclusion zone when vehicles armotion (i.e. greater than swing/tip radius of equipment When backing up truck rig with an attached trailer use second spotter if there is tight clearance simultaneous on multiple sides of the equipment or if turning angles limit driver-to-spotter visibility. 		

1 2

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job. 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. 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." 3

Assess 1JOB STEPS	Analyze ² POTENTIAL HAZARDS	Act ³ CRITICAL ACTIONS
		 Position largest vehicle to protect against oncoming traffic. Face traffic, maintain eye contact with oncoming vehicles, use a spotter, and establish a safe exit route. 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 line-of-fire of vehicle and/or equipment.	 Make sure driver has engaged parking brake and placed wheel chocks in a position to prevent movement. Be sure that vehicle is parked in front/down gradient (positioned to best block oncoming traffic) of work area. Wear leather gloves when handling any tools or equipment. Wear cut-resistant gloves (Kevlar or similar) when handling sharp objects/cutting tools/glass. Keep body parts away from line-of-fire of equipment. Always carry tools by the handles and/or designated carrier. Ensure sharp-edged tools are sheathed/secure. Remove any loose jewelry. Avoid wearing loose clothing and/or ensure loose clothing is secure. Secure all items on the equipment, tighten up any items or features that have 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.	 Inspect area to avoid contact with biological hazards (i.e. poisonous plants, stinging insects, ticks, etc.). Wear long sleeved clothes treated with Permethrin, apply insect repellant containing DEET to exposed skin, and inspect clothes and skin for ticks during and after work. Apply sunscreen (SPF 15+) if exposure to 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 of 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 accentable) before resuming work
	Personal injury from noise hazards.	 1g. Wear hearing protection if sound levels exceed 85 dBA (if you must raise your voice for normal conversation).

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	Cntrl. No. GEN-027	DAT	E: 11/3/2020		PAGE 1 OF 2
JSA TYPE CATEGORY	WORK TYPE		WORK ACTIVITY (Description)		
			Pre-Drilling Clearance, Vactron and Air Knife		
Courtney Rempfer	Staff Scientist		Joseph Midwig	J BY:	Office Health & Safety Manager
Sara Redding	Senior Hydrogeologist		Brian Hobbs		Corporate Health & Safety Manager
	REQUIRED AND / OR RECOMMEN	DED PE	RSONAL 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 of steel toe boots	or	AIR PURIFYING I SUPPLIED RESP PPE CLOTHING: reflective vest or h clothing; long-slee	RESPIRATOR IRATOR Fluorescent nigh visibility sve shirt	 GLOVES: Leather, Nitrile, cut-resistant OTHER: Dusk mask, insect repellant, sunscreen (as needed)
	REQUIRED AND / OR	RECON	MMENDED EQUIPMENT		
Vac-Truck or Vac Drum, Comp inch safety cones and flags, Re	ressor, Jack Hammer, Air Knife. Circul etractable Cone Bars, Caution Tape, 20	ar Saw 0 lb. Fir	r, Hand Tools, Dust Ma e Extinguisher, "Work <i>I</i>	sk, Photoionization De Area" Signs, Pressuriz	etector, Multi Gas Meter, 42 ed Water Sprayer
Commitment to Safety – All pe	ersonnel onsite will actively participat	<mark>e in haz</mark>	zard recognition and m	nitigation throughout	the day by verbalizing SPSAs
EXCLUSION ZONE: All non-e	essential personnel will maintain a di	stance	of 10 feet from drilling	g equipment while ec	uipment is moving/engaged
Assess					NE
1. Verify pre-clearance protocol	 1a. CONTACT: Underground damage; property damage; persinjury 1b. ENERGY SOURCE/CONT. Property damage; Pressurized y mains may cause lacerations or br bones. Pressurized gas mains explode causing serious injury, or d Underground electric may cause se burns, shock, or death. 1c. FALL: Slip, Trip or Fall may cause strains or tears, abras lacerations, or broken bones. 	ACT: water roken may leath. evere cause sions,	 Confirm that (if companies were utility mark outs.) Walk the Site to Walk Inspection ensure use of obs Review pre-clear Pre-clearing prote minimum of 5 ve below ground sur Pre-clearing of a conducted to a n (10 feet minimum metallic dig bar a contacted to disc MUST Complet clearance. Be aware of the working. Walk wi Remove potentia 	applicable) "Call Before contacted prior to sta Must have a case # be evaluate utility markin JSA). Utilities are no servational skills throu ing checklist fromm ar pool indicates that clear errical feet below grou face in the critical zon each soil boring/mon ninimum of 5 vertical of critical Zone) usin nd hand auger) prior to uss appropriate pre-cl e subsurface clearat conditions when walk thin established pathw I slip/trip/fall hazards.	ore You Dig" and local utility arting work in order to confirm efore digging. gs and review maps (see Site t always properly marked out gh the pre-clearing checklist. ad sub-surface clearance form. arance must be conducted to a und surface or 10 vertical feet e using hand tools. itoring well location must be feet below the ground surface ing hand tools (shovel and non- o drilling. Supervisor should be earing depth. nce checklist prior to pre- ting or loading equipment and vay avoiding uneven surfaces.
2. Mobilize/demobilize and	2a. SEE MOBILIZATION /		2a. See Mobilization	/ Demobilization JSA	
			0- M-1-1-1-1-1-1		Here the second DDE //
3. Concrete saw cutting, jack hammer and hand clearance with hand tools, air knife	 3a. CONTACT: Flying debris strikin face or body 3b. EXPOSURE: Inhalation/exposu 	ng ure to	 3a Maintain 10' min leather/cut proof 3a. Use anti-whip de 3a Wear a face shie knife. 3a. Utilize a traffic co activities to keep 3b. Monitor breathing If meters success 	Imum exclusion zone gloves, safety glasses vices on compressor h eld to protect face from one or physical barriers flying debris close to g g zone with a calibrate	. Use the required PPE (i.e., /face shield). loses. In flying debris when using air s over the hole during air knife ground.
	hazardous vapors and/or con dust, noise exposure 3c. ENERGY SOURCE/CONT Property damage; Pressurized v	ACT: water	 a meters sustain for the specific personnel must t step away from t b. Wet concrete wh to prevent inhala 3b. Stand upwind ar should avoid line 3b. No open flames/ 3b. Wear hearing pr are in operation. hearing protectio 	contaminant of conc emporarily cease wor he area of elevated re ille using saw to minir tion. Ind keep body behind of fire for saw blade. heat sources. otection when saw, ja Otherwise, if sound n.	serns (COCs) the Roux field k, instruct all Site personnel to adings. Contact PM. nize dust and wear dust mask saw. Observers and helpers Always cut away from body. ackhammer or air compressor levels exceed 85 dbA, put on

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.
 A hazard is a potential danger. Break hazards into five 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.
 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."

	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 extention/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 diameter of soil preclearance hole is at a MINIMUM 2x the diameter of any drilling or hard dig equipment that will be entering the hole. 3c. See 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 minimizes 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 50 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 prior to mobilizing equipment. Mob/Demob 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
	3f. CAUGHT: Amputation points associated with the equipment and vacuum hose	 within the work area. 3e. Pre-cleared location will be finished flush to grade as to prevent a slip/trip hazard or coned and taped off. 3f. Always wear leather gloves when making connections and using hand tools; wear cut-resistant (i.e., Kevlar) gloves when handling cutting tools. 3f. Inspect the equipment prior to use for potential pinch points. 3f. Test all emergency shutdown devices prior to using 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 body out of the line-of-fire of equipment. 3f. Drillers and helpers will understand and use the "Show Me Your Hands Policy".
4. Move drum to staging area using drum cart	4a. EXPOSURE/CONTACT: Contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, soil)	 4a. Wear Nitrile chemical-resistant gloves under leather or 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	and unload drums. Use drum dolly to move drum.
	4c. CAUGHT: Pinch points associated with handling drum lid	4c. Ensure that fingers are not placed under the lid of the drum. Wear leather gloves or cut proof gloves. Use appropriate ratchet while sealing drum lid.
5. Decontaminate equipment.	 5a. EXPOSURE/CONTACT: To contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, vapors). 5b. EXPOSURE: To chemicals in cleaning colution 	 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.
	To chemicals in cleaning solution.	5b. See 4a. Review SDS to ensure appropriate precautions are taken and understood.

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.
 A hazard is a potential danger. Break hazards into five 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.
 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-006	DATE 7/1	0/2020	□ NEW ⊠ REVISED	PAGE 1 of 2	
JSA TYPE CATEGORY:	WORK TYPE:		WORK ACTIVITY (Description):			
Generic	Drilling		Direct Push	Soil Borings /	Well Installation	
	POSITION / TITL	<u>E</u>	REVIEW	ED BY:	POSITION / TITLE	
Timothy Zei	Project Hydrogeologist	t	Raymond Olso	n	Office Health & Safety Manager	
			Brian Hobbs		Corporate Health & Safety Manager	
		MMENDED P		ECTIVE EQUIPME	NT	
☐ LIFE VEST ⊠ HARD HAT ☐ LIFELINE / BODY HARNESS ⊠ SAFETY GLASSES	 ☐ GOGGLES ☐ FACE SHIELD ☑ HEARING PROTECTIC (as needed) ☑ SAFETY SHOES: <u>Con</u> <u>steel toe boots</u> 	DN: nposite-toe or	AIR PORIFY SUPPLIED R SUPPLIED R PPE CLOTH reflective ves clothing. Lon	ING RESPIRATOR RESPIRATOR ING: <u>Fluorescent</u> tor high visibility g Sleeve Shirt	 GLOVES: <u>Learner, Nitrile and Cut</u> resistant OTHER: <u>Insect Repellant.</u> <u>sunscreen (as needed)</u> 	
	REQUIRED AN	D / OR RECO	MMENDED EQU	PMENT	· · · · · ·	
Geoprobe or Truck-Mounted Direct F Opening Tool, 20 lb. Type ABC Fire	Push Drill Rig, Hand Tools, Extinguisher, 42" Cones &	Photoionizati Flags, "Work	Area" Signs, Wat	-Gas Meter (or equ er	ivalent), Macrocore liners, Liner	
COMMITMENT TO SAFETY- All per	sonnel onsite will actively	participate in	nazard recognitior	and mitigation thre	Sugnout the day by verbalizing SPSAs	
EXCLUSION ZONE (EZ): Maintain I must be greater than the swing zo distance that debris may travel du	Minimum Heavy Equipmon ne of any moving part of ring demolition activities	ent Exclusion the equipments and/or foot	n Zone around eo ent, tip zone of th print of a structu	quipment and load e equipment, fall : re to be demolish	Is while it is in motion. The HEEZ zone of the equipment and contents, ed.	
Driller an	S" "S d helper should show	HOW ME Ye that hands	OUR HANDS" are clear from	controls and m	oving parts	
Assess 1JOB STEPS	Analyze ² POTENTIAL HAZAR	DS		Act CRITICAL A	CTIONS	
1. Mobilization of drilling rig (ensure	a. CONTACT:	1a.	The drill rig's tow	ver/derrick will be lo	wered and secured prior to	
 Mobilization of dnilling ig (ensure the Subsurface Clearance Protocol and Drill Rig Checklist are completed) 2. Raising tower/derrick of drill rig 	 1a. CONTACT: Equipment/propert damage. 1b. FALL: Slip/trip/fall hazard 1c. CONTACT: Crushing from roll- 2a. CONTACT: Overhead hazards 2b. CONTACT: Pinch Points/Ampu Points when raisin 	ty 1a. 1a. 1a. 1a. 1a. 1a. 1a. 1a.	mobilization. A spotter should into the path of ti again clear. Use Set-up the work or reduces the n When backing up there is tight clear or if turning angle Inspect the drivin Drill rig should ha tip radius for not the rig is moving Inspect walking p puddles, snow, e Do not climb over housekeeping. Use established Geoprobe should to reduce risk of Prior to raising th inspect walk the Maintain a safe of Inspect the equip Lower outriggers If the rig needs t	be utilized while m he drill rig, the drill a spotter for all rec area and position e eed for backing of s p truck rig with an a arance simultaneou es limit driver visibi ng path for uneven ave a minimum exc n-essential person / in operation. bath for uneven tern etc.), and obstructio er stored materials/ pathways and walk d cross all hills/obsi roll-over. ne tower/derrick, the es, tree limbs, pipir he rig's tower and/o distance of 10' from poment prior to use a s to ensure stability o be mounted, be s	oving the drill rig. If personnel move rig will be stopped until the path is juired backing operations. equipment in a manner that eliminates support trucks and trailers. tttached trailer use a second spotter if sly on multiple sides of the equipment lity. terrain. Level or avoid if needed. clusion zone which encompasses its nel (i.e., driller helper, geologist) when train, weather-related hazards (i.e., ice, ns prior to mobilizing equipment. equipment; walk around. Practice good to on stable, secure ground. tructions head on with the mast down e area above the drilling rig will be ng, or other structures, that could come r drilling rods or tools. overhead structures.	
3. Advancement of drilling equipment and well installation	rig and instability of 3a. CONTACT: Flying debris 3b. EXPOSURE: Noise and dust.	of rig 3a. 3b. 3b. 3b. 3b. 3b.	Be aware of and as eye, ear, and Wet borehole are Stand upwind an Dust mask shoul Wear hearing pro	avoid potential line hand protection. ea with sprayer to r id keep body away d be worn if conditi otection when the c	es of fire and wear required PPE such ninimize dust. from rig. ons warrant. Irill rig is in operation.	

2

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job. 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. 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". 3

ROUX ASSOCIATES, INC.

Assess		
3 Advancement of drilling	32 CONTACT:	CRITICAL ACTIONS
equipment and well installation	Flying debris	developing in work area.
(Continued)	 3b. EXPOSURE: Noise and dust. 3c. FALL: Slip/trip/fall hazards. 	 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 use of tools is preferable compared to fingers and hands.
	3d. CAUGHT: Limb/extremity pinching; abrasion/crushing.	 3d. Inspect drill head for worn surface or missing teeth; replace if damaged or blunt. 3d. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body. 3d. All non-essential personnel should stay away from the immediate work area; position 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 tip radius while in operation.
	3e. CONTACT: Equipment imbalance during 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 periodically 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. useful for the step and the precaution of the precause of the
	3g. EXERTION: Potential for muscle strain/injury while lifting and installing well casings, lifting sand bags and/or lifting rods	 ansate levels of calibor monorate when aning indexis of the presence of explosive vapors). 3g. Keep back straight and bend at the knees. 3g. Utilize team lifting for objects over 50lbs. 3g. Use mechanical lifting device for odd shaped objects.
4. Remove sample liner.	4a. EXERTION: Potential for muscle strain/injury while removing liner from probe rod.	4a Utilize team lifting for objects over 50lbs.4a. Use hydraulic liner extruder if available.
	4b. CONTACT: Pinch points and cuts	 4b. Place liner on sturdy surface when opening. 4b. Don cut-resistant gloves and use 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 3e.
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 including ammonia.	5b. See 4a. Review SDS to ensure appropriate precautions are taken and understood.

2

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job. 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. 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". 3

ROUX ASSOCIATES, INC.

JOB SAFETYANALYSIS	Ctrl. No. GEN-020	DATE:	7/10/2020	□NEW ⊠REVISED		PAGE 1 of 2
JSA TYPE CATEGORY:	WORK TYPE:	W	ORK ACTIVITY (Description):		
GENERIC	Gauging & Sampling	S	oil Sampling		-	
DEVELOPMENT TEAM	POSITION / TITLE		REVIE	WED BY:	P	OSITION / TITLE
MaryBeth Lyons	Project Scientist	Br	rian Hobbs		Corpora Manage	ate Health and Safety er
	REQUIRED AND / OR RECO	OMMEND	DED PERSONAL	PROTECTIVE EQUIPMENT	•	
	GOGGLES		AIR PURIFYING	RESPIRATOR	GL(OVES: Leather, Nitrile and cut
 ☑ HARD HAT □ LIFELINE / BODY HARNESS ☑ SAFETY GLASSES ☑ ELAME DESISTANT 	FACE SHIELD: HEARING PROTECTION: (a: <u>needed)</u> SAFETY SHOES: Composity	s I	SUPPLIED RESP PPE CLOTHING: high visibility cloth	PIRATOR Fluorescent reflective vest or ning	⊠ OTI sun	<u>stant</u> HER: <u>Insect repellant.</u> screen (as needed)
CLOTHING (as needed)	or steel toe boots					
Recommended Equipment: 42"	traffic cones, caution tape, trow	el	RECOMMENDED	EQUIPMENT		
COMMITMENT TO SAFETY- A	Il personnel onsite will actively p	articipate	in hazard recogni	tion and mitigation througho	ut the day I	by verbalizing SPSAs.
EXCLUSION ZONE (EZ): Main greater than the swing zone o	tain Minimum Heavy Equipme f any moving part of the equip olition activities and/or foot pr	nt Exclus	sion Zone around cone of the equ	l equipment and loads whi ipment, fall zone of the equipalished	ile it is in n uipment ar	notion. The HEEZ must be ad contents, distance that
Assess	Analyze			Act		
1JOB STEPS	² POTENTIAL HAZARDS			³ CRITICAL ACTI	ONS	
1. Secure location	 1a. CONTACT: Personnel and vehicular traffic may enter the wor area. 1b. FALL: Tripping/falling due to uneven terrain or entry/e from excavations. 1c. EXPOSURE: Exposure to sun and excessive heat, possibly causing sunburn, heat exhaustion or heat strok Exposure to cold temperatures possibly causing cold stress. Skin burn as a result of if applicable. Exposure to explosive vapors due to tank farm operations. Exposure to airborne du due to high wind speeds Biological hazards - tick bees/wasps, poison ivy, thorns, insects, etc. 	r rk 1a 1a 1a 1b exit 1b 1b 1b 1c 1c (r (a. 1c 1c 1c 1c 1c 1c 1c 1c 1c 1c	 a. If in an area with cones and/or caractivity. a. Wear reflective b. Face the direct traffic. a. Communicate with traffic. b. Inspect pathwarice, puddles, sroped equipment at log. c. Roux employee Should entry to ladders must be trenches. c. Wear sunscree exposure is exposure i	h foot or vehicle traffic, delin aution tape to prevent expos vest and/or high visibility clo ion of any vehicular traffic. P work activity with adjacent we ys and work area for unever now, etc.), and obstructions. d pathways and walk on stat nt and tools in a convenient, west potential energy. is should stay 5 feet from in- an excavation be required (e employed for steep emban n with an SPF 15 or greater bected. adde the work area from dire re expected. b location of all Site personne- stress symptoms (severe shindling). stress symptoms (severe shindling or inability to walk, co r rest and water as necessar trolled area (i.e., car, site tra- /heat sources. clothing must be worn when speci- lothing with Permethrin prior ved shirts and tuck in (or tap om reaching skin. pellant contact with biologica ant gloves when handling br ng path. if the average wind speeds l examine themselves and co en onsite.	neate the we sure to traffi othing. Position veh ork areas. In terrain, we oble, secure stable, and progress e when stabil kments, ex whenever s ect sunlight el. amping, ex ivering, slo llapse). ry. Move to ailer, etc.). specified by sited by Site r to site visi be) pant leg exposed sk I hazards. anches, sh are above o-worker's o sh skin thou	ork area with 42" traffic c and inform others of work icle to protect worker from eather-related hazards (i.e., ground. d orderly manner. Store xcavations and trenches. lization is complete), ccavations, pits, and 30 minutes or more of particularly when warm thaustion, dizziness, rapid wing of body movement, an area that is well shaded Site policy. policy. t to kill ticks and insects. s into socks or boots to cin when working in rubs, etc. that may lie 15 mph. pouter clothing for ticks roughly with soap and for ticks
			and OHSM for Occupational H	possible consultation with a lealth Clinic.	physician a	it an approved

2

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job. 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. 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". 3

Assess JOB STEPS	2P	Analyze OTENTIAL 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 soil sample. Personal injury from contact with moving equipment while sampling. Personal injury from contact with glass sample jars.	2a. 2a. 2a. 2a.	Wear cut-resistant (i.e., Kevlar) gloves under chemical-resistant (nitrile) disposable gloves when handling soil samples and sampling jars. Where possible, use trowel or equivalent tool to avoid contact with soil. If sampling from bucket of heavy equipment, ensure all equipment is off and operator utilizes the "show me your hands" policy. See 1a.
	2b.	EXPOSURE: Exposure to contamination (impacted soil) and/or lab preservatives.	2b. 2b. 2b. 2b. 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. Wear safety glasses to protect eyes from dust or air-borne contaminants that may results from disturbing the soil. Where possible, remain upgradient from sample location if collecting soil sample from stockpile, drill rig, etc. to avoid breathing contaminant vapors, if they are present. When collecting soil sample from hand auger, put large zip lock bag over entire auger to prevent spillage of soil on to the ground. 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. 3a. 3a. 3a.	Wear chemical-resistant (nitrile) disposable gloves and safety glasses. Use an absorbent pad to clean spills. Properly dispose of used materials/PPE in provided drums in designated drum storage area. Remain upwind of sample and avoid breathing contaminant vapors, if they are present.
	3b.	EXPOSURE: Chemicals in cleaning solution including ammonia.	3b. 3b. 3b. 3b.	Wear chemical-resistant (nitrile) disposable gloves and safety glasses. Work on the upwind side of decontamination area. Use an absorbent pad to clean spills. Properly dispose of used materials/PPE in provided drums in designated drum storage area. Ensure that all drums are properly labeled and secured.

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job. 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. 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". 3

JOB SAFETY ANALYSIS Ctrl. No. GEN-013 DATE 7		7/10/2020 X REVISED PAGE 1 of 2		PAGE 1 of 2		
JSA TYPE CATEGORY	WORK TYPE:		WORK ACTIVITY (Description):			
Generic	Gauging and Sampling		Gauging and	Sampling		
DEVELOPMENT TEAM	POSITION / TITLE		REVIEWE	DBY:		POSITION / TITLE
Brandon Tufano	Staff Geologist		Brian Hobbs		Corpo Manaç	rate Health & Safety ger
	REQUIRED AND / OR RECOM	MENDED PE			T	
	GOGLES FACE SHIELD HEARING PROTECTION SAFETY SHOES: <u>Composit</u> toe boots	te-toe or steel	 ☐ AIR PORIFITING ☐ SUPPLIED RES ☑ PPE CLOTHING <u>reflective vest oc</u> <u>clothing</u> 	S RESPIRATOR SPIRATOR G: <u>Fluorescent</u> or high visibility		esistant DTHER: <u>Knee pads, Insect</u> Repellant, sunscreen (as needed)
to had Octobe Octobe October 7	REQUIRED AND	/ OR RECOM			- D l .	to Table as a dad. Or dat
Wrench, Screw Driver, Crow Bai	r, Mallet, and Wire Brush.	iter Level Me	ter, 20-ib., Type ABC	Fire Extinguisher	, виске	ets. Tools as needed: Socket
COMMITMENT TO SAFETY- AI	Il personnel onsite will actively p	articipate in h	azard recognition ar	nd mitigation throu	ghout th	ne day by verbalizing SPSAs
Assess	Analyze 2POTENTIAL HAZARD	S				IS
1 Mobilization to monitoring	12 EALL: Personal injury fr	rom	1a Inspect pathy	vay and plan for m	ost suit	able designated nathway
well(s).	slip/trip/fall due to uneve and/or obstructions.	n terrain	 1a. Inspect path prior to mobil 1a. Use establish ground and a 1a. If working ne 	ization. ned pathways, wal woid steep hills or ar open water with	k and/or uneven an ung	r drive on stable, secure i terrain. juarded edge, wear life vest.
	1b. CONTACT: With traffic/ parties.	'third	 Identify poter inch traffic sa oncoming tra delineation o Wear approp vest. Face traffic, r 	ntial traffic sources ifety cones. Positi ffic. Use caution t f the work area if r riate PPE includin maintain eye conta	and de on vehic ape to p necessa g high v act with c	lineate work area with 42- cle to protect against provide a more visible ry. visibility clothing or reflective oncoming vehicles, and
	1c. EXERTION: Muscle stra lifting equipment	ain from	establish a sa 1c. Use proper li bend knees a 4c. Use mechani equipment is 4c. Make multiple	afe exit route. fting techniques w and keep back stra ical assistance or 50 lbs. or heavier e trips to carry equ	hen har aight. team lift ipment.	ndling/moving equipment; ing techniques when
	1d. EXPOSURE:					
	To biological hazards.		1d. Inspect work	area for bees and	insects	i.
2. Open/close well.	2a. EXERTION: Muscle stra	ain.	2a. Use proper li bend knees v	fting techniques; k when reaching to c	essary. eep bac pen/clo	ck straight, lift with legs and use well.
	2b. CAUGHT: Pinch/crush associated with removing manholes and working w tools.	points g/replacing vith hand	 2b. Wear leather cover and ha 2b. Use proper to before use. 2b. Do not put fir 	gloves or cut resisent to of tools. nd tools. pols (ratchet and p	stant glo ory bar fo over.	oves when working with well or well cover) and inspect
	2c. CAUGHT: Pinch points with placing J-plug back pipe.	associated onto PVC	2c. See 2b. 2c. Keep fingers	out of line-of-fire v	when se	curing cap.
	2d. EXPOSURE: To potenti hazardous vapors.	ial	2d. No open flam 2d. To minimize and before sa 2d. Stand up-win	nes/heat sources. exposure to vapor ampling activities to ad, if possible, to a	s, allow begin. void inh	well to vent after opening it
3. Gauge well.	3a. CONTACT: With conta (e.g. contaminated groun	amination ndwater).	 3a. Wear chemic gloves) and s 3a. Insert and rei 3a. Use an absorb 	al-resistant dispos safety glasses whe move probe slowly rbent pad to clean	sable glo en gaugi / to avoi probe.	oves (over cut-resistant ing well. id splashing.
	3b. CONTACT: With traffic.		3b. See 1b.			

2

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job. 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. 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".

³

Assess 1JOB STEPS		Analyze ² POTENTIAL HAZARDS	Act ³ CRITICAL ACTIONS
4. Purge and samp	le 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 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 using a tubing or purging the water using a bailer, pour out 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 sampling
	4b	. CONTACT: Personal injury from cuts, abrasions, or punctures by glassware or sharp objects.	 apparatus (tubing, bailer, etc.) away from face and body. 4b. To avoid spills or breakage, place sample ware on even surface. 4b. Do not over tighten caps on glass sample ware. 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 cutting tools.
	40.	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 50 lbs. or heavier.
	4d	With traffic.	4c. Make multiple trips to carry equipment.4d. See 1b.
	4e.	• CONTACT: Pinch points with groundwater pump components (i.e., wheel, line, clamps).	 4e. Wear leather 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 pump into 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.
 Management of water. 	purge 5a	EXPOSURE/CONTACT: To contamination (e.g., SPH, contaminated groundwater, vapors).	 5a. Do not overfill container and pour liquids slowly so that they do not splash. 5a. Properly dispose of used materials/PPE in appropriate container in 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 e	quipment. 6a .	EXPOSURE/CONTACT: To contamination (e.g., SPH, contaminated groundwater, vapors).	 6a. Work on the upwind side, where possible, of 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.

2

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job. 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. 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". 3

JOB SAFETY ANALYSIS	Ctrl. No. GEN-011	DATE: 7/10/202	20	□ NEW ⊠ REVISED	PAGE 1 of 2
JSA TYPE CATEGORY		ovetion		(Description)	
Generic	Construction - Exc	avation	Excavation	/ Trenching	
DEVELOPMENT TEAM	POSITION / TITLE		REVIEW	ED BY:	POSITION / TITLE
David Kaiser	Senior Engineer		Brian Hobbs		Corporate Health & Safety Manager
lan Holst	Senior Engineer				
	REQUIRED AND / OR RECOM	MENDED PERSO	NAL PROTECTIVE	EQUIPMENT	
 □ LIFE VEST ☑ HARD HAT ☑ LONG SLEEVED SHIRT □ LIFELINE / BODY HARNESS ☑ SAFETY GLASSES 	GOGGLES FACE SHIELD HEARING PROTECTION SAFETY SHOES: <u>Steel-t</u>	GOGGLES FACE SHIELD HEARING PROTECTION SAFETY SHOES: <u>Steel-toe boots</u>		ING RESPIRATOR RESPIRATOR ING: <u>Fluorescent</u> st or high visibility long <u>hing</u>	GLOVES: <u>Leather or cut</u> resistant OTHER
	REQUIRED AND	/ OR RECOMMEN	IDED EQUIPMENT	<u> </u>	
Jackhammer, Excavator, Backhoe, F fence, ladders, shovels, digging bars	Hand Tools, Photoionization D s, power tools (cut-off saw), Ty	Detector, barrels, wo-way radios, S	42" traffic cones, heeting, Trench b	snow fencing, teles ox, Retractable lang	coping poles, temporary chain link yard, Harness
COMMITMENT TO SAFETY- All per	sonnel onsite will actively par	rticipate in hazaro	d recognition and	mitigation througho	ut the day by verbalizing SPSAs
EXCLUSION ZONE (EZ): Maintain	Minimum Heavy Equipment	Exclusion Zon	e around equipm	ent and loads whi	le it is in motion. The HEEZ
must be greater than the swing zo distance that debris may travel du	ne of any moving part of th ring demolition activities ar	e equipment, tip nd/or footprint o	o zone of the equ of a structure to I	ipment, fall zone o be demolished.	of the equipment and contents,
Assess	Analyze			Act	
¹ JOB STEPS	² POTENTIAL HAZA	RDS		³ CRITICAL A	CTIONS
1. Pre-Clearance Protocol.	1a. CONTACT: Damage to undergro	ound utility.	1a. Confirm th local utility in order to before dig	nat (if applicable) / companies were o confirm utility ma ging.	"Call Before You Dig" and contacted prior to trenching ark outs. Must have a case #
	1b. ENERGY SOURCE, Property damage; Pressurized water m cause lacerations or bones. Pressurized gas ma explode causing ser death.	/CONTACT: nains may broken ins may ious injury, or	 Pre-cleari to a minin (10 feet m (shovel ar Supervisc pre-clearin Complete 	ng of the trenchin num of 5 vertical f inimum for Critica nd non-metallic di r should be conta ng depth. e subsurface cle	g location must be conducted eet below the ground surface al Zone) using hand tools g bar) prior to trenching. acted to discuss appropriate arance checklist.
	Underground electric severe burns, shock	c may cause a, or death.			
	1c. FALL: Slip, Trip or Fall may muscle strains or tea lacerations, or broke	y cause ars, abrasions, en bones.	1c. Be aware equipmen avoiding u hazards.	of the conditions t and working. Wa ineven surfaces.	when walking or loading alk within established pathway Remove potential slip/trip/fall
2. Set up work zone.	2a. CONTACT/CAUGH Cuts/lacerations from Broken bones from ovehicle.	T: n equipment. contact by	2a. Isolate we and snow link fence third party and for de Spotters v	ork area from haza fencing, telescop . Utilize a flag per r traffic in area). Ir etours. vill maintain and e	ards with cones, barricades, hing poles or temporary chain son when necessary (i.e., hstall traffic signs in roadways enforce exclusion zone.
	2b. FALL: Slip, Trip or Fall may muscle strains or tea lacerations, or broke	/ cause ars, abrasions, an bones.	2b. See 1c.		

¹ 2

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job. 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; Energy Source – electricity, pressure, compression/tension. 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". 3

Assess JOB STEPS	Analyze 2POTENTIAL 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 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 only allowed in exclusion zone if the operator is in "Hands Off "mode. Operator will not operate equipment until worker is out of 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 3c. EXPOSURE: 	 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 spoil piles shall be maintained 2' minimum from edge of excavation. 3b. Any trench/excavation deeper than 6' must have fall protection, retractable lanyard for ladder use, and 42" high guardrails along the edge of the trench/excavation. 			
	Noise, Dust, Concrete- Asphalt, petroleum hydrocarbon vapors may cause damage to 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.			
 Setting Trench protections if necessary. 	4a. CAUGHT: Injury due to contact with failed trench, may include muscle strains or tears, abrasions or lacerations, broken bones and possibly death.	4a. To prevent cave-ins and avoid caught by/between, excavations over 4' in depth, unless working in stable rock, shall have engineer approved shoring, sheeting or trench box. Top of protection shall be at least 2' above top of excavation.			
	4b. CONTACT/CAUGHT: Injury due to rigging activities and entering 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.	4b. Use only inspected rigging with 2, 3 or 4 lift points; wear cut-resistant gloves. Rigging to be hooked up to factory installed hook up points on equipment. Control load with non-conductive tag lines with workers out of exclusion zone. Don't stand underneath suspended load; wear steel toed boots and hard hat.			
	4c. FALL: Possible injury due to fall into excavation may include muscle strains or tears, abrasions or lacerations, or broken bones.	4c. Shoring to be set and sides will be backfilled to avoid fall hazards before workers are allowed to enter area. Operator will be in "HANDS OFF" mode before workers enter work area to unhook rigging. An inspected ladder extending 3' above top of the shoring will be used to enter and exit the shoring. Workers will use three points of contact when using the ladder.			
 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 or 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. 			

¹ 2

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job. 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. 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". 3

JOB SAFETY ANALYSIS	Ctrl. No. GEN-003	DATE 7/1	0/202	20	□ NEW ⊠ REVISED	PAGE 1 of 2
JSA TYPE CATEGORY GENERIC	WORK TYPE Construction - Excavation		wor Bac	RK ACTIVITY (Deso Ckfilling Ex	cription) cavation & Co	ompaction
DEVELOPMENT TEAM	POSITION / TITLE		Bria	REVIEWED	BY:	POSITION / TITLE
			Dila	11110005		Manager
Edward Lacina	Senior Construction Manag	ger				
	REQUIRED AND / OR RECOMI		RSONA	AL PROTECTIVE E	EQUIPMENT	
□ LIFE VEST ⊠ HARD HAT □ LIFELINE / BODY HARNESS ⊠ SAFETY GLASSES	GOGGLES FACE SHIELD HEARING PROTECTION SAFETY TOE BOOTS			AIR PURIFYING F SUPPLIED RESP PPE CLOTHING: approved safety	RESPIRATOR IRATOR reflective DOT	GLOVES: <u>Leather/ cut-resistant</u> level 2 OTHER
Payloader Backhoe Dump Trucks	REQUIRED AND.	/ OR RECOM	MEND or with	ED EQUIPMENT	r APR when tampi	ng if dust present. Two-way radios
		inoto in hozo	ord roc		tigation throughout	
EXCLUSION ZONE (EZ): Maintain	Minimum Heavy Equipment E	xclusion Zo	one (H	IEEZ) around ec	upment and load	s while it is in motion. The HEEZ
must be greater than the swing zo	one of any moving part of the e	equipment,	tip zo	one of the equip	ment, fall zone of	the equipment and contents,
distance that debris may travel du	ring demolition activities and	or foot prin	nt of a	structure to be	demolished.	
¹ JOB STEPS	2POTENTIAL HAZAR	DS			³ CRITICAL A	ACTIONS
1. Pre-construction meeting:	1a. CONTACT:			1a. Call state	811 for mark out	service and one call ticket.
Review proposed excavation	Potential for contact wi	th subsurfa	ace	1a. Obtain pri	vate utility mark o	out service as necessary.
locations	utilities and above grou	ind utilities		1a. Review a	nd mark proposed	d excavations w/white paint.
				1a. Identify al within 10	I "Critical" zones. feet of any operat	A Critical zone is any area ting utility.
				1a. Complete	e subsurface cle	arance checklist.
				1a. Soft dig m suspected	nust be conducted d underground uti	d within 2 lateral feet of any lity.
				1a. Protection located w and utility	n of aboveground ithin the work zon owner.	utilities identified as being he must be coordinated w/ client
2. Secure Work Area	2a. CONTACT: Potential for personnel work area.	to enter th	е	2a. Ensure we activity. Establish fencing or	ork area is secure a HEEZ using 42 telescoping pole	e and inform others of work " traffic cones, barrels & snow s.
	Potential for equipmen	t to contact	t,	Use of fla minimize pattern.	g persons to mair motorist confusio	ntain clear traffic and to n during set-up of new traffic
	or crush personnel.			HEEZ to i	nclude tip/swing r	radius of equipment.
				 Dump Trube set-up Spotters s access to Truck whe engine sh 	ick/Excavator/Pay by personnel who shall be in place for the HEEZ sels are chocked w ut off.	vloader/Backhoe equipment to o are familiar with machinery. or all equipment. and to control when driver is not in truck and
				2a. Personnel minimum equipmen	shall stay out of t or greater than th t is maneuvering.	the exclusion zone (10' le equipment boom) while
	2b. EXERTION: Potential for muscle str while installing traffic co barrel	ain or tear ones and		2b. Keep bac knees wh more labc	k straight, keep lo ile lifting and work prers for lifting or u	bad close to the body and bend king. If over 50 lbs., use 2 or use of equipment.

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job. 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. 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". 3

3. Backfilling excavation, and compaction	3a. CONTACT: Traffic and live equipment.	 3a. Equipment and trucks shall be isolated from other workers, subcontractors and third party traffic with 42" traffic cones, barricades, snow fencing or telescoping poles, and/or Jersey barriers. Spotters shall direct dump truck for placement of fill near excavation. Pay loader/ Excavator, as directed by spotter, shall move fill into trench where it shall be placed in layers and compacted by mechanical means. 3a. Spotters will wear florescent vests at all times. 3a. Spotters will remain out of the exclusion zone, line of fire from equipment and third-party vehicles. 3a. Spotters and operators will have radios for communication, when other visual and/or hand signals are insufficient. 3a. Locate all overhead utilities. All personnel and machinery should maintain a 10' distance from overhead electric lines. Refer to OSHA chart for distances and voltage.
		3a. For excavations engineered (shored, sloped, benched) all personnel, equipment, and materials must remain a minimum of 2 feet from edge of excavation.
	3b. EXPOSURE:	
	Fumes from gas powered tamper	3b. Fueling of all equipment will be done outside of work area in a well-ventilated area. Refueling will be done only after a 2-5-minute cool down.
	3c. FALL: Slips, trips, fall hazards.	 3c. Work area will be clean and free of any debris to remove slip, trip and fall hazards. All tools will be kept in designated areas. Insure work area is well illuminated. 3c. Workers should only be working in areas that have been leveled with a machine. 3c. All persons working at elevations over 6' shall use a guardrail system or personal fall arrest system while around excavation.
	3d. OVEREXERTION: Muscle strain, or tear.	 3d. Keep knees bent and back straight while transferring/ lifting/lowering tamper from elevated areas. Utilize a co- worker to avoid staining muscles. 3d. Keep knees bent and back straight while maneuvering.
		tamper. Utilize a co-worker to avoid staining muscles.
	3e. EXPOSURE: Noise from tamper.	 Workers will wear hearing protection during compaction tamper activities.
	Dust inhalation.	3e. Wear NIOSH approved dust mask for personal comfort. If dust is visible for extended time, limit by wetting down area.
		3e. If dust continues stop work and evaluate if APR is needed with approval and clearance.
4. Secure/leave site.	4a. FALL: Slip, trip, fall	4a. Clear work area of all debris and store all equipment in designated areas/containers before opening to traffic.
		4a. Replace fencing and barricades as needed to secure path before opening roadway or area up to traffic(vehicle, pedestrian and/or bicycle).

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".

Site-Specific Health and Safety Plan 39-29 Honeywell Street, Queens, New York

APPENDIX B

SDSs for Chemicals Used



MATERIAL SAFETY DATA SHEET Ivey-sol[®] Surfactant Technology

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Ivey-sol
Not Applicable (mixture)
Non-ionic Surfactants
Not Applicable (mixture)
Ivey-sol 103, Ivey-sol 106, and Ivey-sol 108

CONTACT BY COUNTRY:

Canada:		
Canada Colors & Chemical	6605 Hurontario Street, Suite 400, Missis Tel: + 1-416-848-7692	ssauga,ON L5T 0A3 www.canadacolors.com
United States:		
EnviroSupply & Service, Inc.	1791 Kaiser Ave., Irvine, California, USA Tel: + 1-949-757-0353	92614 www.EnviroSupply.net
Australia:		
Quantum Chemicals Pty Ltd.	70 Quantum Close, Quantum Industrial Dandenong South Victoria, 3175	Park,
	Tel: +61-3-8795 8067	www.quantumchemicals.com.au
Prepared By: Telephone Number:	Technical Products Department (Ivey Int + 1-604-538-1168 or Toll Free + 1-800-	ternational Inc.) 246-2744
Prepared (Last Updated):	August 29,2012	

Ivey International Inc. (IVEY) urges each customer or recipient of this MSDS to study it carefully to become aware of and understand the proper use and handling of the subject product. The reader should consider consulting reference materials, and/or IVEY technical support personnel, and/or other recognized experts, as necessary or appropriate to the use and understanding of the data contained in this MSDS. To promote the safe handling, storage and use of this product, each customer or recipient should (1) notify his employees, agents, contractors, and others whom he knows or believes will use this product, of the information in this MSDS and any other information regarding product use, storage and handling, (2) furnish this same information to each of his customers for the product, and (3) request his customers to notify their employees, customers, and other users of the product, and of this information.

SECTION 2: COMPOSITION INFORMATION

Components:	Ivey-sol (biodegradable) non-ionic surfactants (Blend)
Generic Description:	Water based biodegradable wetting agents and surfactants.

Ivey-sol[®]/SPT[®] Technology - Stock Mixtures. Patented and or proprietary blends. Information in this MSDS is applicable for all component products listed.

SECTION 3: HAZARDS IDENTIFICATION

Effects of a Single Exposure.

Swallowing:	Non to slightly toxic. individuals.	May cause	abdominal	discomfort	and	nausea	for	some
Skin Absorption: Inhalation:	No evidence of harmful No evidence of harmful	effects. effects.						

Skin Contact:	Brief contact should not result in any significant effects. Prolong exposure may cause mild irritation with local itching and redness for individuals with sensitive skin.
Eye Contact: Effects of	May cause mild to moderate irritation.
Repeated Exposure:	Repeated skin contact may cause mild dermatitis (dryness of skin).
Medical Conditions:	Existing dermatitis may be aggravated through repeated skin contact.
Other Effects:	None currently known.

Section 4: FIRST AID MEASURES

Swallowing:	If patient if fully conscious, give two glasses of water
Skin Absorption:	Wash exposed skin with soap and water. Obtain medical attention if irritation or dermatitis persists. Wash exposed clothing before reuse.
Inhalation:	Not applicable.
Eye Contact:	Immediately flush eyes with water and continue to flush as required. Remove any contact lenses, if worn. Obtain medical attention if deemed necessary.
Note to Physician:	There is no required antidote. Treatment should be directed at the control of symptoms and the clinical condition of the patient.

Section 5: FIRE FIGHTER MEASURES

Flammability:	Not Flammable
Auto Ignition Temperature	Not Available
Upper Flammable Limit	Not Established
Lower Flammable Limit	Not Established
Explosive Date:	Explosive Power - Not Available
	Rate of Burning - Not Available
Hazardous Combustion Products:	Not applicable
Special Protective Equipment:	Not Applicable
Extinguishing Media:	Not Applicable
Extinguishing Media to be avoided:	Not Applicable
Special Fire Fighting Procedures:	Not Applicable

Section 6: ACCIDENTAL RELEASE MEASURES

Step to be taken if

Material is Released or Spilled: Eliminate and/or contain source with inert material (sand, earth, absorbent pads, etc.). Wear basic eye and skin protection. Floor may be slightly slippery; so use care to avoid falling. Avoid discharge to natural waters, and/or dilute with water. Transfer liquids to suitable containers for recovery, re-use or disposal. Contact III for technical assistance if required.

Section 7: HANDLING AND STORAGE

Handling Procedures: Avoid contact with eyes, skin, and clothing. Do not swallow. Keep containers closed or sealed when not in use. Wash thoroughly after handling. Keep closed or sealed when not in use. Do not allow to freeze. Storage: Ventilation: General mechanical room ventilation should be satisfactory.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Gloves / Type Gloves / Type:	Latex, or similar would be sufficient.		
Respiratory / Type:	None expected to be required. However, if an engineered/industrial		
	application where vapors and/or misting may occur, wear		
	MSHA/NIOSH approved half mask air purifying respirator.		
Eye / Type:	Mono Goggles or similar.		

Footwear / Type: Clothing / Type: Other / Type: Engineering Controls: No special requirements. Wear an apron and /or coveralls. Eye bath. General mechanical room ventilation should be satisfactory.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Water Based Liquid
Appearance:	Clear to slightly Cloudy White Color
Odor:	Mild
Molecular Weight:	Mixture (Not Applicable)
Boiling Point:	Not Applicable
Freezing Point:	Approx. 0°C (32°F)
Pour Point:	Not Applicable
Melting Point:	Not Applicable
Specific Gravity:	0.99-1.04 (Water = 1.0)
Vapor Pressure:	<0.01 mm Hg
Vapor Density:	> 1 (Air = 1.00)
pH:	Not Available (Typically 6.5-7.5 Range)
Solubility in Water:	100%
Evaporation Rate:	<0.01
Coefficient of Oil/Water Distribution	Not Determined

Section 10: STABILITY AND REACTIVITY

Stable
Prolonged excessive heat may cause product decomposition.
Freezing should also be avoided as it may cause product
decomposition. In some cases, it may cause irreversible changes.
Normally un-reactive; however avoid strong bases at high
temperatures, strong acids, strong oxidizing agents, and materials
with reactive hydroxyl compounds. These compounds would
damage the mixture and reduce its effectiveness during application.
Not applicable.
Will not occur.

Section 11: TOXICOLOGICAL INFORMATION

Exposure Limit of Material:	Not Established
LD/50:	Not Available
LC/50:	Not Available
EL:	Not Established
Carcinogenicity of Material:	None Known
Reproductive Effects:	Not Available
Irritancy of Material:	See Section 3
Sensitizing Capability:	Not Available
Synergistic Materials:	Not Available

LD: Lethal Dose LC: Lethal Concentration EL: Exposure Limit

Section 12: ECOLOGICAL CONSIDERATIONS

Environmental Toxicity: Biodegradability: LC/50: LC/50: Low Potential to affect aquatic organisms* >90% in 28 days** 48 Hour: 0.11 %, Species: Daphnia magna 96 Hour: 0.07695%, Species: Rainbow Trout

- * When used in accordance with Ivey International Inc. In-situ and Ex-situ Remediation Applicable Guidelines.
- ** Based on actual testing or on data for similar material(s). Degradation Biodegradation reached in Modified OECD Screening Test (OECD Test No.301 E) after 28 days: 90 %. Biodegradation reached in CO2 Evolution Test (Modified Sturm Test, OECD Test No. 301 B) after 28 days: 70 %.

All available ecological data have been taken into account for the development of the hazard and precautionary information contained in this Material Safety Data Sheet.

Section 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: For aqueous Ivey-sol mixture solutions; aerobic biological wastewater treatment systems are effective in treating said mixtures. Ivey-sol does not have any known negative affect on coagulant or flocculent water treatment processes.

Section 14: TRANSPORTATION INFORMATION

UN Number:	Not Applicable
TDG Classification:	Not Required
Shipping Name:	Ivey-sol
Packing Group:	Not Applicable
Special Shipping Instructions:	Do not allow to freeze

Section 15: REGULATORY INFORMATION

WHMIS Classification:	Not Controlled as per WHMIS Regulation.
CPR Compliance:	This product has been classified in accordance with the hazard criteria of
	the CPR, and the MSDS contains all the information required by the CPR.
CEPA Compliance:	All ingredients of this product are listed on the DSL.

Section 16: OTHER INFORMATION

Available Literature and Brochures:	Additional information on this product may be obtained by calling our customer service representatives at -800-246-2744 or -604-538-1168.
Recommended Uses and restrictions:	For the application of air, soil, groundwater, shoreline, and off- shore spill petroleum reclamations purposes. Secondary recoveries of petroleum products form crude-oil, oil-shale, and oil-sands. Additional information on uses can be made available by contacting out technical sales director in your area by visiting www.iveyinternational.com, or by calling toll free 1-800-246-2744 or +1-604-538-1168
Legend:	 TS - Trade Secret D2B - Toxic Material causing Other Effects. mm - Millimeters LD - Lethal Dose LC - Lethal Concentration EL - Exposure Limit Hg - Mercury (760 mm Hg = 1 Atmosphere, Sea Level)

Ref: Ivey-sol/MSDS/ (Revised August 29,2012)

Site-Specific Health and Safety Plan 39-29 Honeywell Street, Queens, New York

APPENDIX C

COVID-19 Interim Health and Safety Guidance



COVID-19 INTERIM HEALTH AND SAFETY GUIDANCE

CORPORATE HEALTH AND SAFETY MANAGER	:	Brian Hobbs, CIH, CSP
EFFECTIVE DATE	:	03/2020
REVISION DATE	:	10/08/2020
REVISION NUMBER	:	5



TABLE OF CONTENTS

1.	PURPOSE	1		
2.	SCOPE AND APPLICABILITY	1		
3.	BACKGROUND	1		
4.	TRAINING REQUIREMENTS	2		
5.	EXPOSURE RISK POTENTIAL	2		
6.	COVID-19 HEALTH SCREENING	4 4 5		
7.	SELF-ISOLATION & QUARANTINE	55566		
8.	WORKPLACE CONTROLS	6		
9.	INFECTION PREVENTION MEASURES	7		
10. CLOTH FACE COVERINGS				
11.	HOTEL SELECTION PROCESS AND OVERNIGHT/REMOTE WORK	9		
12.	12. TRANSPORTATION-RENTAL CARS AND ROUX-OWNED VEHICLES			
AP	PENDICES			

- A. Subcontractor Work Crew COVID-19 Daily Health Attestation
- B. Job Safety Analysis-Working in Areas Affected by COVID-19
- C. How to Remove Gloves



1. PURPOSE

This guidance has been implemented to establish work practices, administrative procedures, and engineering controls to minimize potential exposure to SARS-CoV-2, the virus that causes COVID-19. The following guidance has been developed based on local, state and federal recommendations/requirements regarding COVID-19. The purpose of this document is to supplement existing site-specific Health and Safety Plans (HASPs) and provide interim health and safety guidance to minimize potential exposure to SARS-CoV-2. Should additional scientific information or regulatory information change, this document shall be updated accordingly.

2. SCOPE AND APPLICABILITY

This guidance covers all Roux employees and the subcontractors that Roux oversees. Site specific HASPs shall be developed to incorporate elements of mitigative measures against COVID-19 exposure. If work cannot be carried out in compliance with this guidance, the project shall be further evaluated by the Project Principal (PP), Office Manager (OM), and Corporate Health and Safety Manager (CHSM) prior to work authorization.

Roux subcontractors are required to review, comply with, and implement Roux's COVID-19 Interim Health and Safety Guidance while on site. Subcontractors may implement additional preventative measures as they see fit. All work shall be conducted in a manner consistent with the federal, state, and local guidance as it relates to COVID-19.

3. BACKGROUND

What is COVID-19?

COVID-19 is a respiratory illness that can spread from person to person. The virus that causes COVID-19 is a novel coronavirus that was first identified during an investigation into an outbreak in Wuhan, China. This virus continues to spread internationally and within the United States. There is currently no vaccine to prevent COVID-19.

What are the symptoms of COVID-19?

Reported illnesses have ranged from mild symptoms to severe illness and death for confirmed COVID-19 cases. Symptoms may appear 2 to 14 days following exposure to the virus. People with these symptoms or combinations of symptoms may have COVID-19:

- Fever or chills
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches

Congestion or runny nose

New loss of taste or smell

Nausea or vomiting

Sore throat

Diarrhea

• Headache

This list is not all possible symptoms. The CDC will continue to update this list as they learn more about the virus. For an updated symptom list please reference the <u>following link for CDC Symptoms of Coronavirus</u>.

If someone develops emergency warning signs for COVID-19, they should be instructed to get medical attention immediately. Emergency warning signs can include those listed below; however, this list is not all inclusive. Please consult your medical provider for any other symptoms that are severe or concerning.

- Trouble breathing
- Persistent pain or pressure in the chest
- New confusion

- Inability to wake or stay awake
- Bluish lips or face



How does COVID-19 spread?¹

SARS-COV-2 spreads very easily from person to person during close contact.

Individuals who are within close contact (within 6 feet) of a person with COVID-19 or have direct contact with that person are at greatest risk of infection.

- When people with COVID-19 cough, sneeze, sing, talk, or breathe they produce respiratory droplets. These droplets can range in size from larger droplets (some of which are visible) to smaller droplets. Small droplets can also form particles when they dry very quickly in the airstream.
- Infections occur mainly through exposure to respiratory droplets when a person is in close contact with someone who has COVID-19.
- Respiratory droplets cause infection when they are inhaled or deposited on mucous membranes, such as those that line the inside of the nose and mouth.
- As the respiratory droplets travel further from the person with COVID-19, the concentration of these droplets decreases. Larger droplets fall out of the air due to gravity. Smaller droplets and particles spread apart in the air.
- With passing time, the amount of infectious virus in respiratory droplets also decreases.

SARS-CoV-2 can sometimes spread by airborne transmission under certain circumstances.

Some infections can be spread by exposure to virus in small droplets and particles that can linger in the air for minutes to hours. These viruses may be able to infect people who are further than 6 feet away from the person who is infected or after that person has left the space. This kind of spread is referred to as **airborne transmission** and is an important way that infections like tuberculosis, measles, and chicken pox are spread.

- There is evidence that under certain conditions, people with COVID-19 seem to have infected others who
 were more than 6 feet away. These transmissions occurred within enclosed spaces that had inadequate
 ventilation. Sometimes the infected person was breathing heavily, for example while singing or exercising.
 - Under these circumstances, scientists believe the amount of infectious smaller droplet and particles produced by the people with COVID-19 became concentrated enough to spread the virus to other people. The people who were infected were in the same space during the same time or shortly after the person with COVID-19 had left.
- Available data indicate it is much more common for the virus that causes COVID-19 to spread through close contact with a person who has COVID-19 than through airborne transmission.²

Spread from contact with contaminated surfaces or objects is less common.

Respiratory droplets can also land on surfaces and objects. It is possible that a person could get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or eyes. Spread from touching surfaces is not thought to be a common way that COVID-19 spreads.

4. TRAINING REQUIREMENTS

All employees with potential exposure to COVID-19 shall be provided training that incorporates COVID-19 exposure mitigation strategies, such as implementation of proper social distancing, personal hygiene (e.g., handwashing), as well as disinfection procedures, as outlined by CDC guidelines.

5. EXPOSURE RISK POTENTIAL

Worker risk of occupational exposure to COVID-19 can vary from very high, high, medium, or lower (caution) risk. This level of exposure is dependent on several factors, which can include industry type; need for contact within

¹ How COVID-19 Spreads <u>https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html#edn1</u>

² Scientific Brief: SARS-CoV-2 and Potential Airborne Transmission | CDC <u>https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-sars-cov-2.html</u>



6 feet of people known to be or suspected of being infected with COVID-19; density of work environment; and industrial setting (i.e., healthcare building, occupied interior work area, minimal ventilation).

Provided below is background risk level information taken from the U.S. Department of Labor Occupational Safety and Health Administration Guidance on preparing workplaces for COVID-19. Risk evaluations for each project shall be conducted by the PP and OM in consultation with the CHSM to ensure Roux employees and subcontractors remain within the lower exposure (caution) category. If it is identified there is a medium exposure risk or higher, further evaluation and mitigative measures shall be evaluated to reduce overall exposure risk prior to work authorization.



Very High Exposure Risk (Activities not conducted by Roux)

Very high exposure risk includes occupations/work activities with high potential for exposure to known or suspected sources of COVID-19 during specific medical, postmortem, or laboratory procedures. This can include but is not limited to:

- Healthcare workers (e.g., doctors, nurses, dentists, paramedics, emergency medical technicians) performing aerosol-generating procedures (e.g., intubation, cough induction procedures, bronchoscopies, some dental procedures and exams, or invasive specimen collection) on known or suspected COVID-19 patients.
- Healthcare or laboratory personnel collecting or handling specimens from known or suspected COVID-19 patients (e.g., manipulating cultures from known or suspected COVID-19 patients).
- Morgue workers performing autopsies, which generally involve aerosol-generating procedures on the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

High Exposure Risk (Activities not conducted by Roux)

High exposure risk occupations/work activities include exposure to known or suspected COVID-19 positive individuals. This can include but not limited to:

- Healthcare delivery and support staff (e.g., doctors, nurses, and other hospital staff who must enter patients' rooms) exposed to known or suspected COVID-19 patients. (Note: when such workers perform aerosol-generating procedures, their exposure risk level becomes very high.)
- Medical transport workers (e.g., ambulance vehicle operators) moving known or suspected COVID-19 patients in enclosed vehicles.
- Mortuary workers involved in preparing (e.g., for burial or cremation) the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

Medium Exposure Risk

Medium exposure risk occupations/work activities include those that require frequent and/or close contact with (i.e., within 6 feet of) people who may be infected with COVID-19, but who are not known or suspected to be COVID-19 positive. For most of our worksites, it is assumed there is on-going community transmission for COVID-19. Therefore, workers who work at sites and may have contact with the general public, other contractors, high-population-density work environments (i.e., greater than 10 people) fall within medium exposure risk group category. This can include, but is not limited to, sampling events that require two or more workers to collect and log samples in close contact or work occurring in an interior space with limited ventilation and several workers present.



Lower Exposure Risk (Caution)

Lower exposure risk (caution) occupations/work activities are those that do not require contact with people known to be or suspected of being COVID-19 positive. During these activities, there is limited contact (i.e., within 6 feet of) the general public or other workers. Workers in this category have minimal occupational contact with the public and other coworkers. This can include construction oversight that does not require close contact as well as sampling or gauging events performed by one worker.

6. COVID-19 HEALTH SCREENING

6.1. Roux Employees

All Roux employees are required to self-attest to a COVID-19 Daily Health Questionnaire which is to be completed at home through a mobile application on scheduled workdays. The purpose of this program is to ensure business continuity as well as mitigate any potential exposure to our employees and others if it is determined employees are at-risk for contracting COVID-19. As part of this self-attestation, all employees are required to take their temperatures daily at home to confirm they do not have a fever (\geq 100.4). Employees who answer yes to any of these questions are instructed to contact their Office Manager and/or Department Head immediately and should not enter the office or go to a field site. Information shall be used to determine appropriate internal response in consultation with the Human Resources Director and Corporate Health and Safety Manager.

Below, you will find our COVID-19 Daily Health Questionnaire that all Roux employees are required to self-attest to **<u>every scheduled workday by 9:30 am.</u>** If employees do not promptly fill out the questionnaire by the time listed above, there will be additional follow up by HR, H&S, and/or OMs.

According to the U.S. Centers for Disease Control and Prevention & the World Health Organization, COVID-19 Symptoms include:

- Fever (<u>></u>100. 4°F) or chills
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches

- New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea

• Headache

Have you experienced any of the COVID-19 related symptoms noted above in the last 14 days? Please Note: We do not expect employees to answer "yes" to the symptoms question if these are symptoms you normally experience due to another condition or medication.

- Yes
- *No*

Have you been in close contact* with someone who is suspected or confirmed to have COVID-19 or who is under investigation for COVID-19 within the last 14 days? *Close contact is defined as someone who was within 6 feet of an infected person for at least 15 minutes or coming into direct contact with secretions (e.g., sharing utensils, being coughed on) from an infected person.

- Yes
- No



Have you traveled outside of the country, been on a cruise ship and/or traveled to areas within the United States which have state mandated travel restrictions in the last 14 days?

- Yes
- *No*

Have you tested positive for COVID-19 within the last 14 days?

- Yes
- No

6.2. Subcontractors

In an effort to mitigate the risk of transmission of COVID-19, Subcontractors who shall perform work on-site are required to attest to the fitness of their work crew on a daily basis. This requires each worker to self-assess by asking themselves the four questions listed in the section above and also contained within the Roux Subcontractor Work Crew COVID-19 Daily Health Attestation. If any crew member answers "yes" to any of the questions, that worker is not to report to the field site and should seek proper medical advice, in accordance with local, state and federal guidelines.

On a daily basis, the subcontractor supervisor must provide the Subcontractor Work Crew COVID-19 Daily Health Attestation complete with the names of all work crew fit to be on the site for that day (i.e., who have answered "no" to all questions on the self-assessment) to Roux's Project Manager. The Subcontractor must notify Roux if there have been any "yes" responses daily. Subcontractors shall not be required to provide the name or any other personal information of any employee who has answered "yes" to any of the self-assessment questions, however, the subcontractor should provide the date and times that employee has been onsite in the prior 14 days. Records shall be maintained within the project files indicating health screening has been performed, records shall be retained for not less than 14 days following the date of submission. The Roux Subcontractor Work Crew COVID-19 Daily Health Check Attestation can be found within Appendix A.

7. SELF-ISOLATION & QUARANTINE

7.1. Self-Isolation

What if I am asked to self-isolate at home and when can I return from home isolation?

Depending on the situation, if you are COVID-19 positive or suspected to have COVID-19, employees may be required to self-isolate in their homes, as per CDC or local health department guidelines. As per CDC guidance, return from isolation has been broken out into two categories. The first includes confirmed or suspected COVID-19 individuals exhibiting symptoms, and the second includes those who have not had COVID-19 symptoms (i.e., asymptomatic), but tested positive and are under self-isolation. Both categories, along with strategies to return from home isolation, are outlined below.

People with COVID-19 under home isolation:

Accumulating evidence supports ending isolation and precautions for persons with COVID-19 using a symptombased strategy. Specifically, researchers have reported that people with mild to moderate COVID-19 remain infectious no longer than 10 days after their symptoms began, and those with more severe illness or those who are severely immunocompromised remain infectious no longer than 20 days after their symptoms began. Therefore, CDC has updated the recommendations for discontinuing home isolation as follows:

- 1. **Persons with COVID-19 who have symptoms** and were directed to care for themselves at home may discontinue isolation under the following conditions:
 - a. At least 10 days* have passed since symptom onset;
 - b. At least 24 hours have passed since resolution of fever without the use of fever-reducing medications; and
 - c. Other symptoms have improved.



- * A limited number of persons with severe illness may produce replication-competent virus beyond 10 days, which may warrant extending the duration of isolation for up to 20 days after symptom onset. Consultation with your healthcare provider will be warranted in such cases of severe illness.
- 2. **Persons infected with SARS-CoV-2 who never develop COVID-19 symptoms** may discontinue isolation and other precautions 10 days after the date of their first positive RT-PCR test for SARS-CoV-2 RNA.

7.2. Quarantine

Employees may be required to self-quarantine due to potential exposure with a suspected and/or confirmed COVID-19 positive individual as well as recent travel as per local/state guidelines. People in quarantine should stay home, separate themselves from others, monitor their health, and follow directions from their state or local health department. If Roux employees meet the criteria to self-quarantine based on potential exposure/travel, they are required to selfquarantine for 14 days regardless of local/state exemptions. Even if you test negative for COVID-19 or feel healthy, symptoms may still appear 2 to 14 days after exposure to the virus.

7.2.1. Close Contact Quarantine

Employees who have come into close contact with someone who has COVID-19 are required to self-quarantine for 14 days following their last contact with the COVID-19 positive person. Close contact can be defined as being within 6 feet of someone who has COVID-19 for a total of 15 minutes or more, providing care at home to someone who is sick with COVID-19, having direct physical contact with COVID-19 individual, sharing utensils with COVID-19 individual, and being sneezed/coughed on by someone with COVID-19.

7.2.2. Travel Related Quarantine

All travel out of state must be communicated with the OM and/or Department Head prior to departure. Please note, some state/local entities require submissions of traveler health forms. It is expected all Roux employees will comply with such state/local travel requirements. All employees returning from international and/or cruise ship travel must quarantine for 14 days from the time they have returned home.

Personal Travel

Employees who will be traveling out of state are responsible for checking the local/state quarantine guidance for the regions they are traveling from and to in advance of travel and notifying their OM prior to traveling in order to evaluate the impact on the business. Based on state/local guidelines you may be required to quarantine for 14 days from the time you have returned home.

Work-Related Travel

The Project Team (i.e., PM & PP) and field staff who will be traveling are responsible for checking the local/state quarantine guidance for the regions they are traveling from and to in advance of travel and notifying their OM prior to traveling in order to evaluate the impact to the business. Additionally, health and safety considerations shall be reviewed by the OM in consultation with the CHSM regarding logistics and overnight accommodations. Based on state/local guidelines, you may be required to quarantine for 14 days from the time you have returned home.

8. WORKPLACE CONTROLS

During the project planning phase, worksite evaluations shall be carried out by the PP and OM in consultation with the CHSM to determine risk exposure levels for work activities. If it is determined there is a medium exposure risk level or higher, additional workplace controls shall be evaluated and implemented as required in addition to the basic infection prevention measures outlined below in Section 8. Additional workplace controls can include engineering controls (i.e., ventilation, physical barriers), administrative controls (i.e., minimizing contact between workers, rotating shifts, site specific training), and additional personal protective equipment (i.e., respiratory protection). If exposure risk cannot be mitigated, potential project postponement may be necessary at the discretion of the OM in consultation with the CHSM.



A Job Safety Analysis (JSA) has been developed and is provided in Appendix B, which summarizes and applies concepts within this guidance including the infection prevention measures listed below. This JSA shall be required for all field work in areas where there is community-based transmission of COVID-19.

9. INFECTION PREVENTION MEASURES

The following is basic infection prevention and personal hygiene practices which shall be implemented for all Roux field activities as well as in the office setting.

• Personal Hygiene

- Wash your hands often with soap and water for at least 20 seconds.
 - If soap and water are not available, use an alcohol-based sanitizer that contains at least 60% ethanol or 70% isopropanol.
 - Key times to wash your hands include after blowing your nose, coughing or sneezing, after using the restroom, and before eating or preparing food.
- Do not touch your eyes, face, nose and mouth with unwashed hands.
- Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow.
- Throw potentially contaminated items (e.g., used tissues) in the trash.
- Avoid Close Contact/Secondary Contact with People and Potentially Contaminated Surfaces
 - Apply appropriate social distance (6+ feet).
 - Stop handshaking—use and utilize other noncontact methods for greeting.
 - Do not work in areas with limited ventilation with other Site workers (e.g., small work trailer which lacks HVAC system). If working in a trailer, the following conditions must be met: limited to 4 workers, large enough to have the ability to apply social distance and has open windows and/or operational HVAC to ensure proper ventilation of the workspace.
 - Morning tailgate/safety meetings shall occur outside and not within work trailers.
 - Do not require employees or subcontractors to sign in using the same tailgate form. The Site Supervisor/SHSO should record names of those in attendance on the form.
 - If the Site has more than 10 workers, separate tailgate meetings should be performed in smaller groups.
 - Do not share equipment or other items with co-workers and subcontractors unless wearing appropriate PPE (e.g., nitrile gloves). Assume equipment and other surfaces are potentially contaminated and remove gloves aseptically.
 - If receiving labware or other equipment disinfect to the extent feasible. If there are concerns for contaminating labware please wear appropriate PPE (e.g., gloves) to minimize contact.
 - Contact your lab/equipment vendor to confirm equipment is properly disinfected prior to being shipped.
 - o Do not carpool with others (e.g., clients, coworkers).
 - For company owned vehicles limit sharing of vehicles with coworkers. If unable to limit sharing of company owned vehicles, properly disinfect vehicle before driving with a focus on commonly touched surfaces (e.g., steering wheels, shifters, buttons, etc.).
 - Use caution when using public restrooms, portable toilets. Use paper towel as a barrier when touching door handles and faucets.

• Cleaning and Disinfecting

 Clean and disinfect frequently touched surfaces daily. Commonly touched items can include but are not limited to tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, sinks, and field equipment (i.e., photo-ionization detector, field equipment).

• Hard (Non-porous) Surfaces

• If surfaces are dirty, they should be cleaned with a detergent/soap and water prior to disinfection.



- Refer to the manufacturer's instructions to ensure safe and effective use of the product and wear appropriate personal protective equipment (e.g., gloves, safety glasses, face shield).
- Many products require:
 - Keeping surface wet for a period of time (i.e., contact time)
 - o Refer to manufacturer's instructions outlining adequate contact time.
 - Precautions such as wearing gloves and making sure you have good ventilation during use of the product.
- Disposable gloves should be removed aseptically and discarded after cleaning. Wash hands immediately following removal of gloves. Refer to Appendix C for how to remove gloves aseptically.
- For disinfection, diluted household bleach solutions, alcohol solutions with at least 70% alcohol, and most common EPA-registered household disinfectants should be effective.
 - Diluted household bleach solutions can be used if appropriate for the surface. Follow manufacturer's instructions for application and proper ventilation. Check to ensure the product is not past its expiration date. Never mix household bleach with ammonia or any other cleanser. Unexpired household bleach will be effective against coronaviruses when properly diluted. Leave the solution on the surface for at least 1 minute.
 - Prepare a bleach solution by mixing:
 - 5 tablespoons (1/3 cup) bleach per gallon of water or
 - 4 teaspoons bleach per quart of water
- <u>Products with EPA-approved emerging viral pathogen claims are expected to be effective against</u> <u>COVID-19</u>. Follow the manufacturer's instructions for all cleaning and disinfecting products (e.g., concentration, application method and contact time, etc.).

• Soft (Porous) Surfaces

- For soft (porous) surfaces, remove visible contamination if present and clean with appropriate cleaners indicated for use on the surfaces. After cleaning:
 - Launder items as appropriate in accordance with the manufacturer's instructions. If possible, launder using the warmest appropriate water setting for the item and dry items completely; or
 - Use products with the EPA-approved emerging viral pathogens that claim they are suitable for porous surfaces.

• Electronics

- For electronics such as tablets, touch screens, keyboards, remote controls, etc. remove visible contamination if present.
 - Follow the manufacturer's instructions for all cleaning and disinfection products.
 - Consider use of wipeable covers for electronics.
 - If no manufacturer guidance is available, consider the use of alcohol-based wipes or sprays containing at least 70% alcohol to disinfect touch screens. Dry surfaces thoroughly to avoid pooling of liquids.

• Linens, Clothing, and Other Items that Go in the Laundry

- Although it is unlikely field clothing would become potentially contaminated with COVID-19, it is recommended that field staff regularly launder field clothing following any field event upon returning home.
- In order to minimize the possibility of dispersing the virus from potentially contaminated clothing, do not shake dirty laundry.
- Wash items as appropriate in accordance with the manufacturer's instructions. If possible, launder items using the warmest appropriate water setting for the items and dry items completely.
- Clean and disinfect hampers or other containers used for transporting laundry according to guidance listed above.



10. CLOTH FACE COVERINGS

The CDC recommends the use of cloth face coverings in public settings where other social distancing measures are difficult to maintain, such as grocery stores and pharmacies, and especially in areas of significant communitybased transmission. This recommendation is based on recent studies and an understanding that a significant portion of asymptomatic, as well as pre-symptomatic, individuals can shed the virus to others before showing symptoms. Studies indicate that COVID-19 can spread among people interacting in close proximity through speaking, coughing, or sneezing. The purpose of the cloth covering is NOT to provide protection to the wearer, but to protect the wearer from unknowingly infecting others if they are asymptomatic/pre-symptomatic. The use of cloth face coverings is to supplement and NOT replace the existing practices outlined above.

Based on existing studies and on-going recommendations and/or requirements from federal, state, and local entities, Roux is recommending the use of cloth face coverings, when appropriate. Appropriate use is defined when local authorities or clients require the use of cloth face coverings in conjunction with established social distancing, or if an employee elects to use a cloth covering on their own accord. Roux will provide cloth face coverings that shall meet the basic requirements outlined by the CDC guidance.

Cloth Face Coverings should:

- Fit snugly but comfortably against the side of the face;
- Covers your nose and mouth and secure it under your chin;
- Include multiple layers of fabric;
- Allow for breathing without restriction; and
- Be able to be laundered and machine dried with no damage or change to shape.

When donning and doffing the cloth face covering, individuals should avoid touching their eyes, nose, and mouth. Following removal of the cloth face covering, employees should wash their hands immediately using the guidelines described in Section 8 above. Cloth face coverings should be routinely washed depending on the frequency of use.

The CDC does not recommend the use of gaiters or face shields. Evaluation of these face covers is on-going but effectiveness is unknown at this time. Masks with exhalation valves or vents should NOT be worn to help prevent the person wearing the mask from spreading COVID-19 to others (source control).

Note, the cloth face coverings recommended are not surgical masks or N-95 respirators. Those are critical supplies that must continue to be reserved for healthcare workers and other medical first responders, as recommended by current CDC guidance. Should there be a requirement for workers to be in respiratory protection (e.g., full-face respirator w/cartridges, P100, N95 respirators), it shall be addressed during the project pre-planning phase, which includes discussions with the PP and OM in consultation with CHSM.

11. HOTEL SELECTION PROCESS AND OVERNIGHT/REMOTE WORK

Hotel Selection

Due to the current COVID-19 situation, Roux is recommending overnight travel be limited to the extent possible. If there is a project requiring the overnight stay at a hotel, accommodations shall be made only after the hotel and hotel's location have been vetted in accordance with Roux's established guidance as defined below. The Project Team, which includes the Project Manager (PM) and PP along with the OM, in consultation with the CHSM, shall verify the hotel has appropriate protocols in place to limit the potential exposure and spread of COVID- 19 through proper cleaning and disinfection practices. Discussions with the hotel shall include, but are not limited to, measures taken to keep guests safe during their stay, guest room sanitization schedule, training of staff regarding disinfecting protocols using EPA-approved disinfectants, hotel staff fitness for duty requirements, etc. Some example questions are listed below. Following the initial hotel assessment by the Project Team, the OM and the CHSM shall review the hotel assessment findings prior to the CHSM's authorization that the hotel may be used by any Roux employees.



Sample Questions for Evaluating Hotels

- 1. Is there an established COVID-19 guidance/policy your location is following?
- 2. What additional measures are being implemented to keep workers and customers safe?; (e.g. signs/placards, social-distancing/mask reminders)
- 3. Is there a guest room sanitization schedule?
- 4. Have staff been trained on properly cleaning/disinfecting areas?
- 5. What types of disinfectants are in use at your location?
- 6. How are you evaluating staff fitness for duty? (e.g., temperature checks, not reporting to work when sick, etc.)

Employees staying overnight should abide by the following guidance:

- Ensure you properly disinfect your room upon arrival. This should include a wipe down of all commonly touched surfaces with an approved disinfectant. Use appropriate PPE (e.g., nitrile gloves) when disinfecting surfaces.
- Place the "Do Not Disturb" placard on the room while away and consider limiting hotel housekeeping service to the extent feasible (e.g., not having the room cleaned each day) to minimize potential secondary contact with others.
- Do not spend any more time in hotel common areas (i.e., lobby, hallways, etc.) than is necessary.
- Follow proper Infection Prevention Measures found within Section 8 above.
- Have meals in your hotel room after disinfecting outer package surfaces, as outlined in Section 8 above. Do not eat in public spaces or restaurants.
- If the hotel has a restaurant or café, do not have your meal in a common area; instead order food to be picked up or delivered to your room. If delivered, opt for contactless delivery (left outside the door, delivery person knocks and leaves). Always use your own pen if you need to sign something.
- Employees may also pick up food from takeout locations, order groceries or food for delivery to the hotel. Call local restaurants to order food for delivery (call the hotel lobby for recommendations) or use food ordering apps. Some apps have options for contactless delivery.

12. TRANSPORTATION-RENTAL CARS AND ROUX-OWNED VEHICLES

Rental Cars

Due to the current COVID-19 situation, Roux recommends rental car usage be limited to the extent possible. If there is a project requiring the use of a rental car (e.g. truck/van), accommodations shall be made only after the rental car company and their store's location have been vetted in accordance with Roux's established guidance, as defined below. The Project Team (PM and PP) and OM in consultation with the CHSM shall verify the rental company where you are picking up your vehicle has appropriate protocols in place to limit the potential exposure and spread of COVID- 19 through proper cleaning and disinfection practices. Discussions with the rental car company shall include, but are not limited to, measures to be taken to keep customers safe during pickup/drop-off, rental car disinfection protocols, training of staff regarding disinfecting protocols using EPA-approved disinfectants, rental car company staff fitness for duty requirements, etc. Some example questions are listed below. Following the initial rental car company store assessment by the Project Team, the OM and the CHSM shall review the rental car company assessment findings prior to the CHSM's authorization that the rental car company store may be used by any Roux employees.

Sample Questions for Evaluating Rental Car Companies

- 1. Is there an established COVID-19 guidance your location is following?
- 2. What additional measures are being implemented to keep workers and customers safe?
- 3. Is there a car sanitization schedule?



- 4. Have staff been trained on properly cleaning/disinfecting vehicles?
- 5. What types of disinfections are in use at your location?
- 6. How are you evaluating staff fitness for duty? (e.g., temperature checks, not reporting to work when sick, etc.)

Upon vehicle pickup, employees shall don nitrile gloves and safety glasses and clean/disinfect all high-touch surfaces (steering wheel, knobs, door handles, turn signals, radio, etc.) by wiping thoroughly with approved disinfectants (following manufacturer's instructions). Aseptically remove gloves and dispose of them along with rags/wipes, appropriately. Wash hands or use hand sanitizer immediately after each episode of cleaning. Due to social distancing requirements, personnel shall not carpool to destinations.

Roux-Owned Vehicles

Due to the current COVID-19 situation, Roux-owned vehicles should be dedicated to individual employees to the extent feasible, and if authorized by the OM. In the case this cannot be accommodated, employees shall don nitrile gloves and safety glasses, and clean/disinfect all high-touch surfaces (steering wheel, knobs, door handles, turn signals, radio, etc.) by wiping thoroughly with approved disinfectants (following manufacturer's instructions). This cleaning and disinfection shall occur before and after each use of the vehicle. Aseptically remove gloves and dispose of them along with rags/wipes, appropriately. Wash hands or use hand sanitizer immediately after each episode of cleaning. Due to social distancing requirements, personnel shall not carpool to destinations.



APPENDIX A

Roux Subcontractor Work Crew

COVID-19 Daily Health Screening Questionnaire



Subcontractor Work Crew COVID-19 Daily Health Attestation

Date:			
Company Name:			
Supervisor Name:	Signature:		
Project Name:			
Site Address:			
Number of Workers on site:			
Prior to entry onto a field site, the following questions shall be asked by the Subcontractor Supervisor to their work crew.			
It is preferred this questionnaire is completed for each individual prior to their arrival at the field site. If the answer to any of these questions is YES, the worker is not to report to the field site and seek proper medical advice, in accordance with CDC Guidelines.			
The Subcontractor Supervisor must provide this form on a daily basis to the Roux primary contact for the project and notify Roux of any YES responses.			
 Have you experienced any signs/symptoms of COVID-19 such as fever (≥100.4°F), cough, shortness of breath, chills, fatigue, muscle/body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea/vomiting or diarrhea in the last 14 days? 			
2. Have you been in close contact* with someone who is suspected or confirmed to have COVID-19 or who is under investigation for COVID-19 within the last 14 days?			
*Close contact is defined as someone who was within 6 feet of an infected person for at least 15 minutes or coming into direct contact with secretions (e.g. sharing utensils, being coughed on) from an infected person.			
3. Have you traveled outside of the country, been on a cruise ship and/or traveled to areas within the United States which have state mandated travel restrictions in the last 14 days?			
4. Have you tested positive for COVID-19 within the last 14 days?			
Please list the crew member's names on site for the day.			
1.	9.		
2.	10.		
3.	11.		
4.	12.		
5.	13.		
6.	14.		
7. 15.			
8.	16.		



APPENDIX B

Job Safety Analysis-Working in Areas Affected by COVID-19

JOB SAFETY ANA	LYSIS	Ctrl. No. CVD-19	DATE: 04/16/202	20	NEW REVISED	PAGE 1 of 2
JSA TYPE CATEGORY				WORK ACTIVITY	(Description)	a al las s
Generic		Fieldwork		Working in	Areas Affect	ed by
			F	Coronaviru		
Kristina Del uca		Health and Safety Spec	E ialist	Brian Hobbs	ED BY:	CHSM
		REQUIRED AND / OR RECOM	MENDED PERSON	AL PROTECTIVE E		CHOM
□ LIFE VEST ⊠ HARD HAT – In field □ LIFELINE / BODY HAF ⊠ SAFETY GLASSES –	RNESS In field	GOGGLES FACE SHIELD HEARING PROTECTION SAFETY SHOES – Steel	N /composite toe in fie	AIR PURIFY	ING RESPIRATOR RESPIRATOR ING – High visibility	GLOVES – Leather/cut- resistant in field and nitrile as needed OTHER
		REQUIRED AND	/ OR RECOMMEN	DED EQUIPMENT		
Cloth face covering, nitril	e gloves,	hand soap, water source, ha	ind sanitizer, disir	fectant spray and	disinfectant wipes.	As throughout the day
	- All pers Maintain	6' of distance between you	urself and all oth	er neonle at all ti	imes If you do not	believe the scope of work
can be conducted while	maintai	ning this distance, contact	your Project Ma	nager immediate	ely.	
Assess		Analyze	<u> </u>		Act	
¹ JOB STEPS	² PO	ENTIAL HAZARDS		³ CRI	TICAL ACTIONS	
1. Project Preplanning	N/A		 Review and orders/protod Ensure all we home even if in contact we contact your Determine F wipes/spray, demands an Use the mining work. 	d follow CO cols. orkers are fit for symptoms do n ith someone po Office Manager PPE needs and soap and wat d limited supply mum number of	VID-19 CDC, F r duty - anyone fea tot align with COVI otentially positive r. d ensure adequa ter or hand sanit , plan ahead. employees neces	Roux, Client and local ling sick should remain at D-19. If a worker has been or positive for COVID-19, ate supply of disinfectant izer at Site. Due to high sary to safely complete the
2. Mobilization	Expos	ure:	Personal/Ren	tal/Roux Owne	d Vehicle	
	Bec infe	coming infected or cting co-workers	 Do not carpo Use the sam Verify worke the vehicle. I DO not valet nitrile gloves surfaces (ste by wiping the instructions). each use of along with ra immediately 	ool. e vehicle every rs/other people Maintain 6' of dia t your car or allo s and safety g eering wheel, kr proughly with ap . This cleaning a the vehicle. Ase ags/wipes, appro after each episo	day and do not sh are not approach stance from others ow others to use y glasses and clea nobs, door handle pproved disinfecta and disinfection sl eptically remove g opriately. Wash ha ode of cleaning.	are with co-workers. ing vehicle prior to exiting s. rour car. If necessary, don n/disinfect all high touch s, turn signals, radio, etc.) ints (follow manufacturer's nall occur before and after loves and dispose of them ands or use hand sanitizer
			Public Transp	ortation		
			 Public transit renting a car wear approp donning and hand sanitize 	t should not be u rather than tak priate PPE and doffing proced er immediately a	used unless absol ing public transit. apply social dist lures for nitrile gla after.	utely necessary. Consider If public transit is required, ancing (6 ft). Use proper oves. Wash hands or use
			Hotel Stav (Re	efer to COVID-1	19 H&S Guidance	for more info)
			 If a hotel stay disinfect your surfaces of y Use proper d Place the "E housekeepin the reintrodu entirely, time gyms, etc.). 	r is deemed nece r room upon initi our room with a lonning and doff Do Not Disturb" ig services to the ction and sprea spent in hotel of Wash hands or	essary for the giver ial arrival and return n appropriate disin ing procedures for placard on the re e extent feasible d d of the virus from common areas (i.e use hand sanitize	 i field work, ensure that you ning each day. Disinfect all ifectant using nitrile gloves. nitrile gloves. oom while away and limit uring your stay to minimize others. Minimize, or avoid e., the lobby, dining areas, r often.

¹ 2

Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job. 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; Energy Source – electricity, pression/tension. 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". 3

3. Tailgate Meeting	Exposure: Becoming infected or infecting co-workers	 Must occur outside or remotely (i.e. video or conference call). Maintain at least a 6+ ft distance between you and others. Discuss primary infection prevention measures listed below. Do not require employees or subcontractors to sign in, the Site Supervisor shall record names on the attendance form. If the Site has more than 10 workers, separate tailgate meetings should be performed. Discuss COVID-19 symptoms with coworkers and subcontractors to ensure fitness for duty. Anyone exhibiting signs or symptoms should be instructed to leave the Site, contact your Project Manager.
4. Site Activities	Exposure: Becoming infected or infecting co-workers	 Coordinate field activities at the beginning of the day (i.e. Tailgate meeting) to minimize time spent in crowded spaces or overlap while completing job tasks. Don cloth face coverings as appropriate. Apply social distancing (6+ ft) when interacting with others. If anyone comes within 6 ft of you while conducting work and your work prevents you from moving away, politely ask them to move back. If others are unable to move from your space, stop work and leave area. Do not shake hands or touch others. Do not share equipment or other items with co-workers and subcontractors unless wearing appropriate PPE (e.g. nitrile gloves). Assume equipment and other surfaces are potentially contaminated and remove gloves aseptically (See Appendix B of Roux Interim H&S Guidance for proper glove removal). If anyone is coughing or sneezing in your vicinity, stop work and leave the area. Do not work in areas with limited ventilation with others. Cover your mouth and nose with tissue or paper towel or with your elbow when coughing or sneezing and wash hands or use hand sanitizer immediately after. If sick contact SHSO/PM and leave Site immediately. Disinfect work surfaces/areas with approved disinfectant you're responsible for (ex: desk, office doorknob, computer, etc.) at least once at the beginning of your shift and at least once at the beginning of your shift and at least once at the beginning of your shift and at least once at the beginning of your shift and at least once at the approved contaminated material comes in contact with any work surfaces/areas. Wash hands or use hand sanitizer immediately after. Avoid public spaces and going out to eat by bringing your own lunch to the Site. If performing work in high density urban areas, it is recommended all food must be consumed at or in your vehicle. Wash hands or use hand sanitizer before eating and immediately after.

Primary Infection Prevention Measures

- Wash your hands often with soap and water for at least 20 seconds.
 - If soap and water are not available, use an alcohol-based sanitizer that contains at least 60% ethanol or 70% isopropanol. Key times 0 to wash hands include after blowing your nose, coughing or sneezing, after using the restroom, and before eating or preparing food.
- Do not touch your eyes, face, nose and mouth with unwashed hands.
- Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow. Throw potentially contaminated items (e.g. used tissues) in the trash.
- Avoid close contact/secondary contact with people and potentially contaminated surfaces.
 - Apply appropriate social distance (6+ feet). 0
 - Stop handshaking/touching others and use caution when accessing public spaces. 0
- Clean and disinfect frequently touched surfaces daily. Commonly touched items can include but are not limited to tables, doorknobs, light switches, countertops, handles, desks, phones, keyboard, toilets, sinks and field equipment. If surfaces are dirty, they should be cleaned with soap and water prior to disinfection. If surface cannot be cleaned/disinfected, then wash hands or use sanitizer as soon as possible.

Each lob or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job

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.

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".

ROUX ASSOCIATES, INC.



APPENDIX C

How to Remove Gloves



How to Remove Gloves

To protect yourself, use the following steps to take off gloves



Grasp the outside of one glove at the wrist. Do not touch your bare skin.



Hold the glove you just removed in your gloved hand.



Peel the glove away from your body, pulling it inside out.



Peel off the second glove by putting your fingers inside the glove at the top of your wrist.



Turn the second glove inside out while pulling it away from your body, leaving the first glove inside the second.



Dispose of the gloves safely. Do not reuse the gloves.



Clean your hands immediately after removing gloves.
Site-Specific Health and Safety Plan 39-29 Honeywell Street, Queens, New York

APPENDIX D

Personal Protective Equipment (PPE) Management Program



PERSONAL PROTECTIVE EQUIPMENT MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY MANAGER	:	Brian Hobbs, CIH, CSP
EFFECTIVE DATE	:	01/19
REVISION NUMBER	:	4



TABLE OF CONTENTS

1.	PURPOSE	. 1
2.	SCOPE AND APPLICABILITY	. 1
3.	PROCEDURES	. 1
	3.1 Introduction	. 1
	3.2 Types of PPE	. 1
	3.3 Protective Clothing Selection Criteria	. 2
	3.3.1 Chemicals Present	. 2
	3.3.2 Concentration of the Chemical(s)	.2
	3.3.3 Physical State	. 3
	3.3.4 Length of Exposure	. პ ი
	3.3.5 ADIASION	.ა ვ
	3.3.7 Ability to Decontaminate	. J ຊ
	3 3 8 Climactic Conditions	. 3
	3.3.9 Work Load	. 4
	3.4 Types of Protective Materials	. 4
	3.5 Protection Levels	. 4
	3.5.1 Level A Protection	. 4
	3.5.2 Level B Protection	. 5
	3.5.3 Level C Protection	. 6
	3.5.4 Level D Protection	. 6
	3.5.5 Level E Protection	. 6
	3.5.6 Additional Considerations	. 7



1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux") has instituted the following program to establish guidelines for the selection of personal protective equipment (PPE) for use by Roux personnel performing field activities in hazardous environments. PPE is not meant to be a substitute for engineering, work practice, and/or administrative controls, but PPE should be used in conjunction with these controls to protect the employees in the work place. Clothing, body coverings, and other accessories designed to prevent worker exposure to workplace hazards are all types of PPE. To ensure adequate PPE employee-owned PPE is evaluated on a case-by-case basis to insure its adequacy, maintenance and sanitation.

2. SCOPE AND APPLICABILITY

These guidelines apply to all PPE selection decisions to be made in implementing 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. To ensure hazard assessments are documented the levels of protection, types of protection and 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 different potential hazards associated with different 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 the respiratory tract are usually the first body tissues attacked by chemical contaminants. These tissues provide barriers to some chemicals but in many cases, are damaged themselves or are highly permeable by certain chemical compounds. Personal protective equipment therefore is used to minimize or eliminate chemical compounds coming into contact with these first barrier tissues.

The proper selection of equipment is important in preventing exposures. The PM making the selection will have to take several factors into consideration. The level of protection, type and kind of equipment selected depends on the hazardous conditions and in some cases cost, availability, compatibility with other equipment, and performance. An accurate assessment of all these factors must be made before work can be safely carried out.

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 and 1926.95. In addition to these general requirements, specific requirements and specifications exist for some types of PPE that form the basis of the protective clothing scheme. 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 Not specifically regulated.
- 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) Not specifically regulated.

3.3 Protective Clothing Selection Criteria

3.3.1 Chemicals Present

The most important factor in selecting PPE is the determination of what chemicals the employee may be exposed to. On field investigations, the number of chemicals may range from a few to several hundred. The exact chemicals or group of chemicals present at the site (certain groups tend to require similar protection) can be determined by collecting and analyzing samples of the air, soil, water, or other site media. When data are lacking, research into the materials used or stored at the site can be used to infer chemicals possibly on the site.

Once the known or suspected chemicals have been identified, and taking into consideration the type of work to be performed, the most appropriate clothing shall be selected.

Protective garments are made of several different substances for protection against specific chemicals. There is no universal protective material. All will decompose, be permeated by, or otherwise fail to protect under given circumstances. Fortunately, most manufacturers make guides to the use of their products (i.e., Dupont's Tyvek[™] Permeation Guide). These guides are usually for gloves and coveralls and typically provide information regarding chemical degradation rates (failure of the material to maintain structural integrity when in contact with the chemical), and may provide information on the permeation rate (whether or not the material allows the chemical to pass through). When permeation tables are available, they shall be used in conjunction with degradation tables to determine the most appropriate protective material.

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 of time; therefore, the selected material may be adequate for the particular chemical and type of work being performed, yet not the "best" protecting material for all site chemicals and activities. Selection shall depend upon the most hazardous chemicals based on their hazards and concentrations. Sometimes layering, using several different layers of protective materials, affords the best protection.

3.3.2 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/or solid state. Airborne and liquid chemical concentrations should be compared to the OSHA standards and/or 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 indicative of chemicals known to have significant skin or dermal absorption effects. For example, airborne levels of PCB on-site may be



low because it is not very volatile, so the inhalation hazard may be minimal; however, PCB-containing liquid coming in direct contact with the skin may cause overexposure. Thus, PCB has been assigned a skin designation in both the OSHA and ACGIH exposure limit tables.

3.3.3 Physical State

The characteristics of a chemical may range from nontoxic to extremely 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. Organic lead in a liquid could be readily absorbed. Soil is frequently contaminated with hazardous materials. Concentrations will vary from a few parts per million to nearly one hundred percent. The degree of hazard is dependent on the type of soil and concentration of the chemical. Generally speaking, "dry" soils do not cause a hazard to site personnel if they take minimal precautions such as wearing some type of lightweight gloves.

3.3.4 Length of Exposure

The length of time a material is exposed to a chemical increases the probability of breakthrough. Determinations of actual breakthrough times for short-term exposures indicate that several different materials can be used which would be considered inadequate under long-term exposures. It should be kept in mind that during testing, a pure (100% composition) liquid is usually placed in direct contact with the material producing a worst-case situation.

3.3.5 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. The use of leather gloves and a heavy apron over the other normal protective clothing will help prevent damage to the normal PPE and thus reduce worker exposures.

3.3.6 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 a thick glove. Therefore, the PPE selection process must consider the task being performed and provide PPE alternatives or techniques that allow dexterity to be maintained while still protecting the worker (e.g., wearing tight latex gloves over more bulky hand protection to increase dexterity).

3.3.7 Ability to Decontaminate

If disposable clothing cannot be used, the ability to decontaminate the materials selected must be taken into consideration. Once a chemical contacts the material, it must be cleaned before it can be reused. If the chemical has completely permeated the material, it is unlikely that the clothing can be adequately decontaminated and the material should be discarded.

3.3.8 Climactic Conditions

The human body works best with few restraints from clothing. Protective clothing adds a burden by adding weight and restricting movement as well as preventing the natural cooling process. 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 very cold temperatures. If there are any questions about the stability of the protective materials under different conditions, the manufacturer should be contacted.

3.3.9 Work Load

Like climactic conditions, the type of work activity may affect work duration and the ability or personnel 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 total encapsulating suit, even at 72 °F, cannot work for more than a short period of time without requiring a break.

The work schedule should be adjusted to maintain the health of the employees. Special consideration should be given to the selection of clothing that both protects and adds the least burden when personnel are required to perform strenuous tasks. Excessive bodily stress frequently represents the most significant hazard encountered during field work.

3.4 Types of Protective Materials

- 1. Cellulose or Paper
- 2. Natural and Synthetic Fibers
 - a. Tyvek™
 - b. Nomex™
- 3. Elastomers
 - a. Polyethylene
 - b. Saran
 - c. Polyvinyl Chloride (PVC)
 - d. Neoprene
 - e. Butyl Rubber
 - f. Viton

3.5 Protection Levels

3.5.1 Level A Protection

Level A protection (a fully encapsulated suit) is used when skin hazards exist or when there is no known data that positively rule out skin and other absorption hazards. Since Level A protection is extremely physiologically and psychologically stressful, the decision to use this protection must be carefully considered. At no time will Level A work be performed without the consent of the OM. The following conditions suggest a need for Level A protection:

- confined facilities where probability of skin contact is high;
- sites containing known skin hazards;
- sites with no established history to rule out skin and other absorption hazards;
- atmosphere immediately dangerous to life and health (IDLH) through the skin absorption route;
- site exhibiting signs of acute mammalian toxicity (e.g., dead animals, illnesses associated with past entry into site by humans);



- sites at which sealed drums of unknown materials must be opened;
- 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
- 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.

The following items constitute Level A protection:

- open circuit, pressure-demand self-contained breathing apparatus (SCBA);
- totally encapsulated suit;
- gloves, inner (surgical type);
- gloves, outer;
- chemical protective;
- boots, chemical protective, steel toe and shank;
- radiation detector (if applicable); and
- communications.

3.5.2 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.

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 or particulates, or splashes of materials that will affect the skin of personnel.

Personal protective equipment for Level B includes:

- open circuit, pressure-demand SCBA;
- chemical protective clothing:
- overalls and long-sleeve jacket; or
- coveralls;
- gloves, inner (surgical type); gloves, outer, chemical protective;
- boots, chemical protective, steel toe and shank; and
- communications optional.



3.5.3 Level C Protection

Level C protection is utilized when both skin and respiratory hazards are well defined and the criteria for the use of 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 carrying an emergency escape respirator during certain initial entry and site reconnaissance situations, or when applicable thereafter.

Personal protective equipment for Level C typically includes:

- full facepiece air-purifying respirator;
- emergency escape respirator (optional);
- chemical protective clothing:
 - o overalls and long-sleeved jacket; or
 - o coveralls;
- gloves, inner (surgical type);
- gloves, outer, chemical protective; and
- boots, chemical protective, steel toe and shank.

3.5.4 Level D Protection

Level D is the basic work uniform. Personal protective equipment for Level D includes:

- coveralls;
- safety boots/shoes;
- eye protection;
- hand protection;
- reflective traffic safety vest (mandatory for traffic areas or railyard);
- hard hat (with face shield is optional); and
- emergency escape respirator is optional.

3.5.5 Level E Protection

Level E protection is used when radioactivity above 10 mr/hr is detected at the site. Personal protective equipment for Level E includes:

- coveralls;
- air purifying respirator;
- time limits on exposure;
- appropriate dermal protection for the type of radiation present; and
- radiation dosage monitoring.



3.5.6 Additional Considerations

Field work 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:

- Some sort of foot protection is needed on a 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 "booties" can be worn over the boots. This cuts down on decontamination requirements. They are designed with soles to help prevent them from slipping around. If non-liquids are to be encountered, a Tyvek[™] bootie could be used. If the ground contains any sharp objects, the advantage of booties is questionable. Boots should be worn with either cotton or wool socks to help absorb the perspiration.
- 2. If the site situation requires the use of hard hats, chin straps should be used if a person will be stooping over where his/her hat may fall off. Respirator straps should not be placed over the hard hats. This will affect the fit of the respirator.

Some types of protective materials conduct heat and cold readily. In cold conditions, natural material clothing should be worn under the protective clothing. Protective clothing should be removed prior to allowing a person "to get warm". Applying heat, such as a space heater, to the outside of the protective clothing may drive the contaminants through. 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 in such a way that the person has mobility.
- 4. Atmospheric conditions such as precipitation, temperature, wind direction, wind velocity, and pressure determine the behavior of contaminants in air or the potential for volatile material getting into the air. These parameters should be considered in determining the need for and the level of protection.
- 5. A program must be established for periodic monitoring of the air during site operations. Without an air monitoring program, any changes would go undetected and might jeopardize response personnel. Monitoring can be done with various types of air pumps and filtering devices followed by analysis of the filtration media; personnel dosimeters; and periodic walk-throughs by personnel carrying real-time 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 a SCBA and the possibility of an IDLH atmosphere exists. Their use can be made on a case-bycase basis. Escape masks could be strategically located at the site in areas that have higher possibilities of vapors, gases or particulates.

Site-Specific Health and Safety Plan 39-29 Honeywell Street, Queens, New York

APPENDIX E

Subsurface Utility Clearance Management Program



SUBSURFACE UTILITY CLEARANCE MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY MANAGER	:	Brian Hobbs, CIH, CSP
EFFECTIVE DATE	:	01/19
REVISION NUMBER	:	2



TABLE OF CONTENTS

1.	PURPOSE	1
2.	SCOPE AND APPLICABILITY	1
3.	PROCEDURES	1 1 2 3

APPENDICES

Appendix A – Definitions

Appendix B – Example of Completed One Call

Appendix C – Roux Subsurface Utility Clearance Checklist

Appendix D – Utility Verification/Site Walkthrough Record



1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux") has 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.

2. SCOPE AND APPLICABILITY

The Subsurface Utility Clearance Management Program applies to all Roux employees, its 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. Deviation from the program regardless of the specific work activity or work location must be pre-approved based on client's site knowledge, site experience and client's willingness for the use of this program. Any and all exceptions shall be documented and pre-approved by the Project Principal and the Office Manager.

3. PROCEDURES

3.1 Before Intrusive Activities

During the project kick-off meeting for intrusive activities the PM will review the Roux Subsurface Utility Clearance Checklist and Utility Verification (Appendix C) / Site Walkthrough Record (Appendix D) and the below bullet points with the project field team:

(Please note that these are intended as general reminders only and should not be solely relied upon.)

- 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. (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).
- Have written confirmation prior to mobilizing to the site that the firm 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 utilities mark-out has 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 said utilities have been located by the utility locators.

(Note: The Tolerance Zone is defined as two 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 two feet from the outside edge of any subsurface structure.)

Install Pre-Clearance exploratory test holes (e.g., hand-dug test holes or other soft digging techniques) for the first 5-ft below land surface (BLS) at each location prior to conducting mechanized intrusive activities. The size of the pre-clearance exploratory test hole should be at a minimum twice the diameter of any downhole tool or boring device. (Note: 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 PM and PP to evaluate alternative approaches for the project. Alternative approaches will need to be pre-approved by the OM.



- 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 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 hand-dug test holes performed to expose the utility. Once structures have been verified a minimum clearance of two feet must be maintained between the utility and any powered equipment.</p>
- In addition, the following activities should be conducted:
 - Review the work scope to be performed with the site owner/tenant to determine if it may impact any utilities;
 - Attempt to procure any utility maps or historic drawings of subsurface conditions of the site;
 - 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 / GPR / geophysical-type services which may be helpful in locating utilities. Use of private utility locating firms, however, does not eliminate the legal requirement for the Excavator 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 and below reinforced slabs, etc. They should not be relied upon as the only means of performing utility clearance;
 - Documented description of the dig site which is included in the projects 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 During Intrusive Activities

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 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 are performed.
- Halt the intrusive activities and immediately consult with the PP if an unmarked utility is encountered.
- Completing any subsurface utility clearance incident reports that are necessary.



- If a utility cannot be found as marked Roux personnel shall notify the facility owner/operator directly or through the one call center. Following notification, the excavation 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. Ticket life shall be dictated by state law however at a maximum ticket life shall not exceed 20 working days.

3.3 Stop Work Authority

Each Roux employee has Stop Work Authority which 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 after such action is reviewed and resolved. The PM will initiate and execute all management notifications and contact with emergency facilities and personnel when this action is appropriate.



Appendix A - Definitions

Intrusive Work Activities	All activities such as digging or scraping the 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 the basement slab of a recently demolished building.
Mark-out / Stake Out	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 utilities that are identified 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 the soft digging will be completed prior to intrusive work.
Tolerance Zone	Defined as two feet on either side of the designated centerline of an identified utility, plus half of the diameter or half of the greatest dimension (for elliptical sewers, duct backs and other non-cylindrical utilities) of that utility and two feet from the outside edge of any subsurface structure.
Structure	For the purpose of this program a structure is defined as any underground feature that may a present 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.
Soft Digging	The safest way to remove material from unknown obstructions or services is by using tools such as a vactor or air knife, non-mechanical tools, or hand tools. The methods are clean and non-evasive and used for uncovering and exposing buried services, excavating and for providing a quick method of soil removal from sensitive areas.
Verification	Exploratory test-hole dug with hand tools within the Tolerance Zone to expose and verify the location, type, size, direction-of-run and depth of a utility or subsurface structure. Vacuum excavation (soft dig) methods can further facilitate exposure of a subsurface utility and accurately provide its location and identification prior to intrusive work approaching the Tolerance Zone.



Appendix B - Example of Completed One Call Report

Example Completed One-Call Report

New York 811

Send To: C_EMAIL Seq No: 744

Ticket No: 133451007 ROUTINE

Start Date: 12/16/13 Time: 7:00 AM Lead Time: 20

State:NYCounty:QUEENSPlace:QUEENSDig Street:46TH AVEAddress:Nearest Intersecting Street:VERNON BLVDSecond Intersecting Street:11TH ST

Type of Work: SOIL BORINGS Type of Equipment: GEOPROBE Work Being Done For: ROUX

In Street: X On Sidewalk: X Private Property: Other: On Property Location if Private: Front: Rear: Side:

Location of Work: MARK THE ENTIRE NORTH SIDE OF THE STREET AND SIDEWALK OF: 46TH AVE BETWEEN VERNON BLVD AND 11TH STREET

Remarks:

Nad: Lat: Lon: Zone: ExCoord NW Lat: 40.7475399 Lon: -73.9534811 SE Lat: 40.7457406 Lon: -73.9493680

Company: ZEBRA ENVIROMENTALBest Time: 6AM-5PMContact Name:DAVID VINESPhone: (516)596-6300Field Contact:DAVID VINESPhone: (516)596-6300Caller Address:30 N PROSPECT AVE
LYNBROOK, NY 11563Fax Phone: (516)596-4422Email Address:david@zebraenv.com

Additional Operators Notified:ATTNY01AT&T CORPORATION(903)753-3145CEQCONSOLIDATED EDISON CO. OF N.Y(800)778-9140MCINY01MCI(800)289-3427PANYNJ01PORT AUTHORITY OF NY & NJ(201)595-4841VZQVERIZON COMMUNICATIONS(516)297-1602

Link to Map for C_EMAIL: <u>http://ny.itic.occinc.com/XGMZ-DF2-L23-YAY</u>

Original Call Date: 12/11/13 Time: 1:15 PM Op: webusr IMPORTANT NOTE: YOU MUST CONTACT ANY OTHER UTILITIES DIRECTLY



Appendix C - Roux Subsurface Utility Clearance Checklist

Roux Subsurface Utility Clearance Checklist

Date of Revision – 12/3/14

Work site set-up and work execution

ΑCΤΙVΙΤΥ	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.				
HASP is available and reviewed by site workers / visitors.				
Subsurface Utility Clearance Procedure has been reviewed with all site workers.				
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.				
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).				
Verbal endorsement received from Roux PM 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 solely relied upon.

- Tolerance zone is defined as two 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 two feet from the outside of any subsurface structure.
- Install Pre-Clearance exploratory test holes (e.g., hand-dug test holes or vacuum excavation) must be performed for the first five feet below land surface (BLS) at each location prior to conducting mechanized intrusive activities. The size of the pre-clearance exploratory test hole should be at a minimum twice the diameter of any downhole tool or boring device. (Note: 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 PM and PP to evaluate alternative approaches for the project. Alternate approaches will need to be pre-approved by the OM.
- 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 two feet must be maintained between the utility and any powered equipment.



Appendix D - Utility Verification/Site Walkthrough Record

Employee Name:_____

Date:

Instructions: For each utility suspected at the job site, indicate 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:

Site-Specific Health and Safety Plan 39-29 Honeywell Street, Queens, New York

APPENDIX F

Amtrak Contractor Safety Course booklet and New York Division Supplement

The Two Most Serious Dangers Involved With Working On or About Railroad Tracks Are:

MOVING TRAINS and ELECTRICAL POWER



Amtrak ®January 2009

Remember: Safety is the Number One Requirement!

COURSE GOALS

The purpose and goal of this course is your safety, the safety of your co-workers, and the safety of everyone on AMTRAK property, especially passengers riding on our trains.

To reach this goal, your company must have submitted, and have had approved, a **Site Specific Safety Work Plan**. This Plan will describe the work you will be doing, the hazards that are present in the work, and how you, your co-workers, and everyone else on AMTRAK property will be protected from these hazards. The Senior Project Manager or Project Engineer, and the local Safety Department Representative will approve this

Amtrak ®January 2009

plan. If your job meets the Federal Railroad Administration (FRA) criteria (49CFR214) for **Roadway Worker**, you **must complete** an approved Roadway Worker Protection **course** prior to starting work.

The training you receive will:

1. Emphasize the importance of the Site Specific Work Plan and the rules and work practices that you must follow while working on AMTRAK property.

2. Stress the importance of using Personal Protective Equipment (PPE) that is required while working on Amtrak property.

3. Familiarize you with the hazards involved in working on or near tracks on which trains move.

4. Stress the importance of maintaining a safe environment that protects AMTRAK

Amtrak ®January 2009

4

٢.

passengers and individuals working on the property.

BASIC RULES AND GUIDELINES

1. To access AMTRAK property, the AMTRAK Senior Project Manager/or Deputy Chief Engineer or their Duly Authorized Representative must approve the contractor/lessee/agency.

2. All activities must be coordinated with the Senior Project Manager/Deputy Chief Engineers' Duly Authorized Representative.

3. The Senior Project Manager must arrange for appropriate track outages and protection.

4. You must report any unsafe or hazardous conditions to your supervisor and to the AMTRAK representative so that corrective actions can be taken.

5. While on AMTRAK property, you will have in your possession an AMTRAK PHOTO ID badge, indicating you have received this training. This badge must be displayed on the outside of your clothes (above the waist) at all times.

6. The color orange will be used only to designate the presence of workers. It will not be used on barriers or fencing materials on or along the right-of-way.

7. Before starting any work, you must participate in a documented job briefing with the employee in charge, at your location.

8. You may not possess, consume, or be under

Amtrak ®January 2009

5

Amtrak ®January 2009

the influence of intoxicants, narcotics or other mood altering substances, including medication while performing work on AMTRAK property.

9. Horseplay, fighting, practical jokes, scuffling, or wrestling will not be tolerated.

10. You must be able to understand and communicate all information provided within the Contractor Safety and Security Training course.

FAILURE TO COMPLY WITH THESE RULES WILL RESULT IN YOUR IMMEDIATE EXPULSION FROM AMTRAK PROPERTY.

CLOTHING AND PERSONAL PROTECTIVE EQUIPMENT

AMTRAK complies with all OSHA Personal Protective Equipment (PPE) Regulations.

Your clothing must fit well and not be so loose that it would be easily snagged or become a hazard.

Normal PPE for working on AMTRAK property will be a hard hat, safety glasses, reflective orange vests, hearing protection and proper footwear and must be used as appropriate to the work being done.

Other PPE requirements, such as goggles, face shields, safety belts, safety harnesses, respirators, and hearing protection will be

Amtrak ®January 2009

Amtrak ®January 2009

determined by your Site Specific Safety Work Plan and provided by your employer.

Your shoes must be at least six inches high, preferably leather, and completely laced, buckled, zipped, or otherwise fastened. The shoe must have a defined heel and steel or composite toe.

Do not wear shoes with loose, thin, cracked, rippled, or wedged-type soles.

Do not wear shoes with a metal plate or cleat on the sole or heel.

Do not allow shoelaces to dangle far enough to become a hazard.

Do not wear sandals, open toe, canvas, athletic type, or shoes that cannot be fastened.

Do not use metallic ladders, tape measures or any other conductive material around track or energized wires.

Specific footwear requirements may be addressed in your Site Specific Safety Work Plan.

<u>NOTE</u>: You or your co-workers will not be permitted on AMTRAK property if you are not utilizing the proper Personal Protective Equipment.

Amtrak ®January 2009

Amtrak ®January 2009

9

CONTRACTOR/ LESSEE/AGENCY RESPONSIBILITIES

Contractors/Lessees are responsible for providing the AMTRAK Senior Project Manager/Chief Engineers Duly Authorized Representative and the local Safety Representative with a **Site Specific Safety Work Plan** that, as a minimum - **1**. Defines the job, **2**. Lists the hazards present in the job, **3**. Lists the controls that will be used to mitigate the hazards. The list of controls will include the specific PPE and employee training requirements.

The contractor's, lessee's or agency's workers will attend the Contractor/ Lessee / Agency Safety Training prior to commencing work and

Amtrak ®January 2009

11

upon successful completion they will receive their AMTRAK PHOTO ID which must be on their person at all times when on AMTRAK property. The ID will be issued at the end of the safety training. The photo ID is valid for one year from date of issue. Employee will be required to return Photo ID Badge to employer at end of project, termination or when he no longer has reason to be on Amtrak property.

The contractor's, lessee's or agency's equipment operators will be qualified on their equipment and will provide the Senior Project Manager/Chief Engineers Duly Authorized Representative a copy of their qualification certificate, and the current/updated inspection record for the equipment.

NOTE: Cranes and other heavy equipment must be inspected prior to arriving on AMTRAK property. A photocopy of the crane

Amtrak ®January 2009

inspection will be kept on the crane at all times. Contractor must supply and maintain approved ground cable(s) and will be responsible for their application.

The contractor, lessee or agency will conduct a documented Job Briefing at the start of each work shift. The Job Briefing will be conducted by the contractor supervisor / foreman or with a qualified AMTRAK employee when appropriate.

Those contractors, lessees and agencies who meet the requirements of a Roadway Worker, will not foul any track unless they have permission from the qualified AMTRAK employee in charge at the job site who will ensure it is safe to work on or near the tracks.

Unsecured construction material <u>will not</u> be placed or stored within **25 feet** of the centerline of the track.

If needed, the contractor, lessee or agency will

Amtrak ®January 2009

13

provide and install an approved barrier when the work requires debris or equipment within **25 feet** of the **centerline of the track** or **15 feet** from **the overhead catenary system** only after approval of Chief Engineer/Senior Project Engineer or designated representative.

The only permissible exception to this practice shall be that when work is being performed on a station platform, workers shall remain behind the warning stripe or tactile strips. No part of the worker's body nor any part, attachment, boom, or any other appurtenance of any piece of equipment, tools or any other material shall extend beyond such warning strip or stripe or come within 4 feet of the inside of the rail closest to the platform.

It is the contractor's, lessee's or agency's responsibility to monitor and enforce the applicable OSHA, EPA, FRA and all other federally required regulations and safe work practices.

Amtrak ®January 2009

REMEMBER

Subcontractors/sub-lessees will adhere to the same AMTRAK Safety requirements as the primary Contractor/Lessee.

Contractor/lessee/agency employees will become familiar with placement of Watchmen to understand the importance of safety around the tracks. This can be accomplished through the job safety briefings.

PRIOR TO COMMENCING WORK, YOU MUST HAVE A JOB BRIEFING WHICH IS DOCUMENTED AND PLACED ON FILE.

Amtrak ®January 2009

15

A Site Specific Safety Work Plan is required for all work.

The Senior Project Manager / Chief Engineers' Duly Authorized Representative and the Local Safety Department MUST approve the plan.

If your job meets the requirements of a Roadway Worker (49CFR.214), you must complete an approved Roadway Worker Protection Course **PRIOR** to starting work. All Contract Employees must have on their person, their assigned AMTRAK photo ID at all times. This photo ID is valid for one (1) year from the date of issue.

A documented Job Briefing will be conducted by the AMTRAK employee in charge prior to starting work.

Amtrak ®January 2009

16

¢,

BASIC TERMINOLOGY

CLEARANCE POINT - A point **15 feet from the centerline of outside track** for employees and standing equipment or **15 feet from overhead catenary systems** unless working on station platforms where the warning stripe or tiles shall serve as the clearance point.

CLASS "A" EMPLOYEE - An AMTRAK Electrical Traction (ET) Department Employee qualified to provide protection from electrical hazards.

CONTRACTOR - A person, persons, or company that have entered into a contract with AMTRAK to perform work on AMTRAK property or AMTRAK equipment, including any sub-contractors, lessees or agencies. **EMPLOYEE IN-CHARGE OF ON-TRACK PROTECTION (EROTP)** – Any employee qualified RWP, Operating Rules and Physical Characteristics designated on the Job Briefing Form to provide on-track safety for a particular workgroup.

FLAGMAN - An AMTRAK Train Service employee qualified to protect contractor employees against the movement of trains and to obtain the use **of track**. The flagman is qualified on the "Rules for Conducting Transportation" and qualified on the physical characteristics of the portion of the railroad involved.

FOUL TIME - A method of establishing working limits through exclusive track occupancy. No trains will operate within a specific segment of track during a specific time period.

Amtrak ®January 2009

18

Amtrak ®January 2009

GANG/ADVANCE WATCHMAN - A person assigned to signal others of the approach of trains or on-track equipment. Only a Qualified AMTRAK Employee may perform this function.

HOT RAIL - Expression used to indicate train movement.

JOB BRIEFING - A formal, documented discussion, conducted by the AMTRAK representative on site, with each work group or gang, on all safety aspects of the job to be performed. A Job Briefing will be conducted at the beginning of each shift, prior to the start of any task and whenever the conditions of a job may change.

LESSEE - A person, persons, or company that has leased AMTRAK property for their use, to include any sub-contractors or lessees.

ON-TRACK SAFETY BRIEFING - Conducted by the AMTRAK employee responsible for On-Track protection PRIOR to any employee OR equipment fouling track. The briefing should focus on the types of protection being provided so everyone fully understands the role they play and contributions they must make to ensure the job is done safely.

OPERATING or LIVE TRACK - Track over which trains may move.

QUALIFIED AMTRAK EMPLOYEE - An employee who has successfully completed any required training for, has demonstrated proficiency in, and has been authorized by the employer to perform the duties of a particular position or function.

RAILROAD BRIDGE WORKER - Any employee of a railroad (or a contractor) responsible for the construction, inspection,

Amtrak ®January 2009

20

Amtrak ®January 2009

testing or maintenance of a bridge whose assigned duties to be performed on the bridge include inspection, testing, maintenance, repair, construction, or re-construction of the structural member, operating mechanisms and water traffic control systems, or train control systems integral to that bridge (Ref. FRA Bridgeworker Safety Guide).

<u>RIGHT-OF-WAY</u> - The limits of railroad property ownership on either side of tracks.

ROADWAY WORKER - Any employee of a railroad, or of a **contractor** to a railroad, whose duties include inspection, construction, maintenance, or repair of railroad track, bridges, roadway, signal and communication systems, electric traction systems, roadway facilities or roadway maintenance machinery on or near track with the potential of fouling a track, and flagman and Gang/Advance watchman.

Amtrak ®January 2009

21

TRACK OUT-OF-SERVICE – Track will be taken out-of-service, by a qualified Amtrak employee, if the work to be performed involves equipment to be used on the track(s) or will disturb the track or catenary structure so that it would be unsafe for normal speed.

THIRD PARTY CONTRACTOR WORKER -

A contractor whose employees are performing work for utility companies, i.e., overhead power lines, underground pipe jacking, etc. or for public works projects such as overhead highway bridge reconstruction.

USE OF TRACK – Obtaining permission from proper authority for track occupancy (Track Out-of-Service / foul time).

WORKING LIMITS – A segment of track with definite boundaries established in accordance with this rule, upon which trains and engines may move only as authorized by the roadway

Amtrak ®January 2009

worker having control over that defined segment of track. Working limits may be established through "exclusive track occupancy", "inaccessible track", or "foul time."

KEY ELEMENTS:

YOU MUST ...

<u>BE</u> alert at all times for trains in any direction at any time on any track.

NOTIFY Amtrak before entering within 25' of Amtrak's Right of Way.

BE in the clear **15 seconds** prior to the arrival of train(s) at the work site.

<u>ATTEND</u> Job Briefing prior to commencing work.

Amtrak ®January 2009

23

<u>ATTEND</u> On-Track Safety Briefing prior to going within 15' of track.

<u>BE</u> protected by a Watchman or a Flagman when working within 15' of track or 15 ' of overhead wires or catenary.

WAIT for signal from designated Watchman or Flagman providing protection prior to returning to work.

<u>UNDERSTAND</u> what protection is being provided

QUESTION any point of protection explained in the on-track briefing that you do not **completely** understand or agree with

Key Definitions:

EROTP - An Amtrak employee qualified in

Amtrak ®January 2009

physical characteristics and Amtrak Operating Rules who responsible for providing on-track protection

Watchman – An Amtrak employee who is trained and qualified to provide warning of approaching trains to on-track workers.

Flagman – An Amtrak employee designated to direct or restrict the movement of trains past a point on the track to provide on track safety for roadway workers.

Class A ET Lineman – An Amtrak employee trained and qualified to de-energize and reenergize catenary power to provide protection for other workers.

Amtrak ®January 2009
Site-Specific Health and Safety Plan 39-29 Honeywell Street, Queens, New York

APPENDIX G

Heavy Equipment Exclusion Zone Policy



HEAVY EQUIPMENT EXCLUSION ZONE MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY MANAGER	:	Brian Hobbs, CIH, CSP
EFFECTIVE DATE	:	01/2019
REVISION NUMBER	:	1



TABLE OF CONTENTS

1.	PURPOSE	. 2
2.	SCOPE AND APPLICABILITY	. 2
3.	PROCEDURES	. 2 . 3
4.	TRAINING	. 3



1. PURPOSE

The purpose of the Exclusion Zone Management Program is to establish the minimum clearance distance that must be maintained between workers and heavy equipment while equipment is in operation (i.e., engaged or moving). The intent is to have no personnel or equipment entering the Exclusion Zone while the equipment is in operation or moving to ensure that Roux and Subcontractor employees are not 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 who are performing field work and are potentially exposed to heavy equipment. For the purpose of this program, 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, an Exclusion Zones must be established and maintained during activities involving the movement/operation of heavy equipment. The Exclusion Zone requirements apply to all personnel on the site but are primarily focused on those personnel who are required to be working in the vicinity of the equipment. The exclusion zone is in effect when heavy equipment is moving or engaged (ex. 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 tip-over distance of the heavy equipment; and
 - Greater than the radius of blind spots.

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 Safety Analysis (JSA).

- 2. The spotter (or another individual) should be assigned responsibility for enforcing the Exclusion Zone. 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 should stop work if the spotter is not within his/her line of sight. If multiple pieces of equipment are being used, each piece of equipment must have its own Exclusion Zone and spotter. For large excavation and demolition projects the spotter should be in constant radio contact (not cell phone) with the machine driver.
- 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 (ex. 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 DISENGAGE THE CONTROLS and STOP and SIGNAL BY "SHOWING HIS HANDS". This signal will indicate that it is safe for the personnel to enter the limits of the Exclusion Zone to perform the required activity. The equipment must remain completely stopped/disengaged until all personnel have exited the limits of the Exclusion Zone and the designated Spotter has signaled by "SHOWING HIS 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 that is free of Slip/Trip/Fall hazards.
- 5. The Exclusion Zone should be delineated using cones with orange snow fence 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 fence should be used. For certain types of wide-spread or moving/mobile equipment operations, such delineation may not be practicable around pieces of 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 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.

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 with emphasis on 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 the JSA and potentially other project-specific plans (i.e., critical lift plans, etc.), and approved by the Roux Project Principal and client representative, if required, prior to implementation.

4. TRAINING

Many Roux projects have different requirements that are client-specific or site-specific in nature. It is the responsibility of the Project Principal (or Project Manager if delegated this responsibility by the Project Principal) to ensure that the workers assigned to his/her projects are provided orientation and training with respect to these client and/or site-specific requirements.

Spill Investigation Work Plan Sunnyside Yard 39-29 Honeywell Street, Queens, New York APPENDIX B

Community Air Monitoring Plan



Community Air Monitoring Plan

OU-3 and OU-4 Sunnyside Yards Long Island City, New York

September 15, 2020

Prepared for:

National Passenger Railroad Corporation Washington D.C. 20002

Prepared by:

Roux Environmental Engineering and Geology, D.P.C. 209 Shafter Street Islandia, New York 11749

Environmental Consulting & Management +1.800.322.ROUX rouxinc.com

Table of Contents

Introduction	. 1
1.1 VOC Monitoring	. 1
1.2 Particulate Monitoring, Response Levels and Actions	. 2
1.3 Meteorological Monitoring	. 3
1.4 Available Suppression Techniques	. 3
1.5 Reporting	. 3
	Introduction

Tables

1. Action Limit Summary for VOCs and Particulates

Appendices

A. Action Limit Report

1. Introduction

This Community Air Monitoring Plan (CAMP) was prepared by Roux Environmental Engineering and Geology D.P.C. (Roux) for the Operable Units (OU) -3 and OU-4 of Sunnyside Yard located in Long Island City, New York (Site). A Site Location Map is provided on Figure 1. Sunnyside Yard is located in an urban area in northwestern Queens County (Figure 1). The East River is located approximately one mile to the west while Newtown Creek, which defines the border between Queens and Kings Counties, is located less than 0.5 mile south of the western portion of the Yard. The Yard consists of a railroad maintenance and storage facility that currently encompasses approximately 133 acres. The Yard functions as a maintenance facility for electric locomotives and railroad cars for Amtrak and a train layover storage yard for New Jersey Transit Corporation (NJTC). The Yard is currently in the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program, Site No. 241006, which is administered by New York State Department of Environmental Conservation (NYSDEC). The Yard was subdivided into six operable units (OUs), OU-1 through OU-6, to streamline remedial efforts. The land use surrounding the Yard is a combination of commercial, light industrial and residential areas. The Long Island Rail Road (LIRR) currently owns a portion of the original Yard along the northern boundary (including a portion of OU 3) and maintains rights of way through the Yard.

The monitoring program will be implemented at all times during which earth disturbance activities are occurring. This CAMP is designed to provide a measure of protection for the downwind community (i.e., offsite receptors, including residents and workers nit directly involved with the subject work activities) from potential airborne contaminant releases that may be as a direct result of remedial and construction activities. This monitoring plan is consistent with the New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan guidance document included as Appendix 1A of the NYSDEC DER-10.

Test results of previous sampling activities, conducted by Roux since 2007 at the Site indicate that some areas of the Site contain varying levels of metals and / or semivolatile organic compounds (SVOCs), particularly polynuclear aromatic hydrocarbons (PAHs), which exceed the applicable New York State Department of Environmental Conservation (NYSDEC) criteria. The metals and SVOCs were primarily observed in historic fill/soil at varying depths beneath the Site.

The specifics of the CAMP are presented in the following four (4) sections:

- 1.1 VOC Monitoring Approach
- 1.2 Particulate Monitoring Approach
- 1.3 Meteorological Monitoring Approach
- 1.4 Available Suppression Techniques

1.1 VOC Monitoring

Total VOC concentrations in air will be monitored continuously at a location downwind of the excavation activities during all ground intrusive activities. An upwind monitoring station will be set up adjacent to where the excavation is occurring. The VOC monitoring equipment will be located at temporary monitoring stations that will be established daily based on Site logistics and weather conditions. The monitoring work will be conducted using MiniRAE 3000 (or equivalent) portable VOC monitors, or similar type monitors, for all VOC monitoring. The equipment will be calibrated at least once daily using isobutylene as the calibration

gas. One (1) upwind and one (1) downwind monitor will be deployed each day. Each monitoring unit is equipped with an audible alarm to indicate exceedance of the action levels (as defined below and summarized in Table 1).

The equipment is capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total VOCs at the downwind perimeter of the Site 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 the ambient air concentration of total VOCs at the downwind perimeter of the Site persists at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of VOCs identified, suppression techniques employed to abate emissions, and monitoring continued. After these steps, work activities can resume if the total organic vapor level at the Site perimeter is below 5 ppm over the background concentration for the 15-minute average. If levels are in excess of 25 ppm above background, identified contributing ground-intrusive activities will be halted and vapor suppression techniques will be evaluated and modified until monitoring indicates VOC levels at the Site perimeter are below 5 ppm over background. Once VOC levels are below 5 ppm at the Site perimeter, work will resume with continued monitoring.

All 15-minute readings will be recorded and be available for State Regulator (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes will be recorded. If an exceedance of the action level occurs, an Action Limit Report (ALR) will be completed, identifying the monitoring device location, the measured VOC level, the activity causing the exceedance, meteorological conditions, and the corrective actions taken, as provided in Appendix A. Additionally, the NYSDEC and NYSDOH will be notified within 24 hours of the VOC ALR generation. Daily monitoring equipment locations and meteorological conditions will also be documented on the daily CAMP Monitoring Location Plan. All documentation will be kept on file at the Site.

1.2 Particulate Monitoring, Response Levels and Actions

Particulate concentrations will be monitored continuously at temporary particulate monitoring stations set up at the sidewalk at upwind and downwind locations. The particulate monitoring will 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 levels (as defined below and summarized in Table 1). Monitoring equipment will be MIE Data Ram monitors or equivalent. A minimum of one (1) upwind and one (1) downwind monitor will be deployed each day, equipped with an omni-directional sampling inlet and a PM-10 sample head. The data logging averaging period will be set to 15-minutes with time and date stamp recording. Alarm averaging will be set at 90 micrograms per cubic meter (μ g/m³) per 15-minute period. This setting will allow proactive evaluation of Site conditions prior to reaching Action Levels of 100 μ g/m³ above background. The equipment will be outfitted with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. The monitoring will be used to compare values to the following:

If the downwind PM-10 particulate level is 100 µg/m³ greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the Site, 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 μ g/m³ above the upwind level and provided that no visible dust is migrating from the Site.

 If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 µg/m³ above the upwind level, work must be stopped, a re-evaluation of activities initiated, and dust suppression techniques modified. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 µg/m³ of the upwind level and in preventing visible dust migration.

All 15-minute readings will be recorded and be available for State Regulator (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes will be recorded. If an exceedance of the action level occurs, an ALR will be completed, identifying the monitoring device location, the measured particulate concentration, the activity causing the exceedance, meteorological conditions, and the corrective actions taken, as provided in Appendix A. Daily monitoring equipment locations will also be documented on the daily CAMP Monitoring Location Plan. All documentation will be kept on file at the Site.

1.3 Meteorological Monitoring

Wind speed (estimated) and wind direction, will be approximated based on field observations of onsite personnel. Meteorological data consisting of temperature, barometric pressure, and relative humidity will be recorded in the field book based upon publicly available information from local weather stations.

1.4 Available Suppression Techniques

Odor Control

Due to the nature of the project, with excavation occurring, the potential for generation of nuisance odors and the need for odor control may be necessary. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project.

All necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) use of chemical odorants in spray or misting systems; and, (e) use of staff to monitor odors in surrounding neighborhoods.

Dust Control

Due to the nature of the project, the potential for generation of nuisance dust and the need for dust control may be necessary. Dust suppression will be achieved through the use of water for wetting excavation areas, if required. Water will be available on-site at suitable supply and pressure for use in dust control.

1.5 Reporting

All recorded monitoring data will be downloaded and field logged periodically, including action limit reports (if any) and daily CAMP monitoring location plans. All records will be maintained onsite and available for NYSDEC/NYSDOH review. A summary of CAMP findings, including excursions, will be provided in the Daily and Monthly Reports. All CAMP monitoring records will be included in the overall Final Engineering Report that will be submitted to the NYSDEC and NYSDOH and will include all of the CAMP data collected, daily monitoring station location maps, and copies of the ALRs (if any). If an ALR is generated due to VOC exceedances, the NYSDEC and NYSDOH will be notified within 24 hours of the exceedance.

Community Air Monitoring Plan OU-3 and OU-4 Sunnyside Yard Long Island City, New York

TABLE

Action Limit Summary for VOCs and Particulates

Table 1. Action Limit Summary for VOCs and Particulates, Sunnyside Yard (OU-3 & OU-4), Long Island City, NY

Contaminant	Downwind Action Levels*	Action/Response
	< 5 ppm	1. Resume work with continuing monitoring.
	5 ppm < level < 25 ppm	1. Work activities must be temporarily halted, source vapors must be identified, suppression techniques employed to abate emissions and monitoring continued.
Volatile Organic Compounds (VOCs) (Monitoring Via Photoionization		 After these steps, if VOC levels (200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or structure, whichever is less) is below 5 ppm over background, resume work.
Detector and Odor Observation)	> 25 ppm	 Identified contributing ground intrusive activities must be halted and vapor suppression techniques must be evaluated and modified until monitoring indicates VOC levels below the action level.
		 After these steps, if VOC levels (half the distance to the nearest potential receptor or structure) are below 5 ppm over background, resume work.
	< 100 ug/m ³	1. If dust is observed leaving the work area, then dust control techniques must be implemented or additional controls used.
	100 ug/m3 < level < 150 ug/m ³	1. Employ dust suppression techniques.
Particulates (Monitoring Via Particulate		 Work may continue with dust suppression techniques provided that downwind PM-10 particulate concentration do not exceed 150 ug/m³ above the upwind level and provided that no visible dust is migrating from the work area.
Meter and Observation)	vation) > 150 ug/m ³	1. STOP work
		 Re-evaluate activities, modify dust suppression techniques. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 ug/m³ of the upwind level and in preventing visible dust migration.

* Instantaneous readings above background. Particulate readings are based on the respirable (PM-10) fraction. Background readings are taken at upwind locations relative to Work Areas or Exclusion Zones.

Community Air Monitoring Plan OU-3 and OU-4 Sunnyside Yard Long Island City, New York

APPENDIX A

Action Limit Report

Project Location: Sunnyside Yard (OU-3 & OU-4), Long Island City, NY						
Date:		Time:				
Name:						
Contaminant: PM-10:		VOC:				
Wind Speed:	Wind E	Direction:				
Temperature:	Barometric F	Pressure:				
DOWNWIND DATA						
Monitor ID #:	Location:	Level Reported:				
Monitor ID#:	Location:	Level Reported:				
UPWIND DATA						
Monitor ID #:	Location:	Level Reported:				
Monitor ID#:	Location:	Level Reported:				
BACKGROUND CORRECTED LE	VELS					
Monitor ID #:	Location:	Level Reported:				
Monitor ID#:	Location:	Level Reported:				
ACTIVITY DESCRIPTION						
CORRECTIVE ACTION TAKEN						

ACTION LIMIT REPORT