FINAL
FINAL ENGINEERING REPORT

Former C&B Dry Cleaners Remedial Design
(NYSDEC Site Number 907028)

NYSDEC STANDBY ENGINEERING CONTRACT
Work Assignment #D007625-30

PREPARED FOR
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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CERTIFICATIONS

I, Thomas Heins, am currently a registered professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Design was implemented and that the construction activities were completed in substantial conformance with the Department-approved Remedial Design.

Signature: _____

Date: 1/28/22

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NYS Professional Engineer #: 065443

State: New York

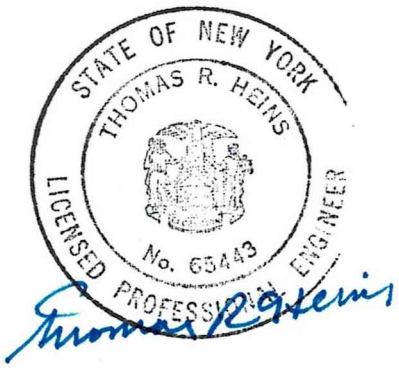


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LIST OF ACRONYMS AND ABBREVIATIONS

ACM	Asbestos Containing Materials
amsl	above mean sea level
bgs	below ground surface
COC	chain-of-custody
COC	Contaminants of Concern
DCE	dichloroethylene
DWR	Daily Work Report
EDD	Electronic Data Deliverable
EDP	Electronic Data Processor
ESA	Environmental site Assessment
IDW	Investigation-Derived Wastes
IHWS	Inactive Hazardous Waste sites
IRM	Interim Remedial Measures
ISCO	In-Situ Chemical Oxidation
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NYSDOH	New York State Department of Health
PCE	Tetrachloroethene
PDI	Pre-Design Investigation
PID	Photo Ionization Detector
QA/QC	Quality Control/Quality Assurance
RAO	Remedial Action Objectives
RCRA	Resources Conservation Recovery Act
RD	Remedial Design
RI	Remedial Investigation
SCG	Standard Criteria & Guidance
SCO	Soil Cleanup Objectives
SDG	Sample Delivery Group
TCL	Target Compound List
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compounds
UST	Underground Storage Tanks
VOCs	Volatile organic compounds

1.0 BACKGROUND AND SITE DESCRIPTION

Henningson, Durham, & Richardson Architecture and Engineering, P. C. (HDR) was retained by the New York State Department of Environmental Conservation (NYSDEC) to prepare the Final Engineering Report (FER) for the Former C&B Dry Cleaners Site (NYSDEC Site # 907028) ("site") in Chautauqua County, New York. The work is being completed under Work Assignment 30 of Contract D007625. The remedial design (RD) was prepared in accordance with the Record of Decision (ROD) (NYSDEC, 2013) for the site, as well as applicable New York State (NYS) regulations and guidance (6 NYCRR Part 375 and Department of Environmental Remediation (DER) Guidance Document DER-10).

The 2013 ROD required: a Pre-Design Investigation (PDI); excavation and off-site disposal of on-site soils contaminated with arsenic; removal and off-site disposal of VOC-contaminated subsurface soil/fill down to the top of the groundwater table; and treatment of tetrachloroethylene- (PCE-) impacted soil and shallow groundwater (on-site and off-site) using in-situ chemical oxidation (ISCO). The ROD included Standard Criteria or Guidance (SCGs) for groundwater, as shown in **Table 1**. The ROD also included SCG for Protection of Groundwater for soil for arsenic at 16 mg/kg [parts per million (ppm)].

The PDI was completed in early 2015. The results of the PDI are documented in HDR's PDI report (HDR, 2015). PCE was not detected in soil at concentrations above the SCO during the PDI. Soil remediation for PCE contamination in the vadose zone was not, therefore, required. A soil IRM at the site was completed in October 2015 and consisted of the excavation and off-site disposal of approximately 880 cubic yards of arsenic-impacted soil greater than 16 ppm. Since the removal and off-site disposal of soil contamination was completed as part of the IRM, soil remediation was not included as part of remedial design prepared in support of the ROD.

HDR prepared a groundwater RD for the in-situ chemical oxidation (ISCO) of impacted groundwater during 2016. As part of this work, HDR subcontracted with XDD, LLC (XDD) for the performance of an ISCO bench test to evaluate the efficacy of several oxidant mixtures with respect to treatment of PCE and other chlorinated VOCs in site groundwater. Results of this work are fully outlined in the Final Design Report prepared by HDR and submitted under separate cover (HDR 2016).

This FER was prepared to summarize remedial program activities completed at the site. An electronic copy of this FER with all supporting documentation is included as **Appendix A**.

1.1 Site Location and Description

The site is located at 2241 Washington Street in the City of Jamestown, Chautauqua County, New York (**Figure 1**), and encompasses two tax parcels (SBL 109-3-11.2 and 109-3-12.1) (**Figure 2**). It is currently vacant and has not been occupied since at least 1999, when the commercial dry-cleaning operations ceased. The site consists of approximately 0.22 acres of land and the remains of a former approximate 2,170-square-foot building that was demolished in July 2003. Building remains include the concrete floors and foundation. Asphalt and gravel access roads and parking areas are located outside the limits of the former building. The main site features include a gravel access road, parking areas, and the foundation remains of the former building, demolished in 2003. The site is generally flat.

The site is currently inactive and is zoned C-M Service and Highway Commercial District. Commercial development occurs along the east and west sides of Washington Street in the vicinity of the site. The site is bounded to the east by Washington Street, beyond which is a used automobile dealership and soft drink bottler; to the north by a restaurant (Pal Joey's); to the west by an unpaved parking lot associated with Pal Joey's and to the south by a commercial building (Swanson Building) formerly used for the storage of automobiles, automobile parts and service equipment. The Swanson Building is currently in a state of disrepair with a collapsed roof and has been condemned by the City of Jamestown. To the south of the Swanson Building is the Pelican Site.

1.2 Site History

The site was utilized for commercial dry-cleaning operations from approximately 1931 through 1999, when it was closed and abandoned. Chautauqua County acquired the site via tax foreclosure from James and Joann Perry in November 2001. Previous owner/operators of the dry-cleaning facility also included Ronald and Janice Hodges; A.F. & A. Maruccia, R. Olson & J. O'Connell; and Carpenter and Bacot. With regard to the former structure located on the site, historical records indicated the following:

- The main portion of the former building was constructed in 1931.
- The boiler room at the rear of the former building was constructed in 1936.
- An addition on the south side of the building was constructed in 1939.

The structure formerly located at the site was demolished in July 2003.

1.3 Summary of Previous Investigations

The site has been the subject of previous environmental assessments, investigations, and remedial actions. The following paragraphs provide a summary of those investigations.

Preliminary Environmental Site Assessment/Emergency Removal Actions: A Preliminary Environmental Site Assessment (ESA) of the site was completed in 2001 and included a records review, site reconnaissance and interviews with knowledgeable persons. Based on this ESA and as referenced above, it was determined that the site was used almost exclusively for commercial dry-cleaning operations until its abandonment in 1999.

During the site reconnaissance, miscellaneous debris including empty drums, discarded laundry machines, and miscellaneous rubbish were observed outside the former building. Abandoned clothing, equipment and materials were observed within the former building. Numerous containers, some partially to completely full, of chemicals and detergents were also identified throughout the former building.

A subsequent emergency removal action of these materials for off-site disposal was initiated. A sludge-like material, likely waste generated from cleaning clothes, was observed in a box near a laundry machine, in five-gallon buckets, and on the floor of the boiler room. The majority of the sludge was removed from the site during the removal of the underground storage tanks (USTs) (see below).

Underground Storage Tank Investigation/Removal: The site reconnaissance revealed the presence of several abandoned pipes along the north side of the building and raised suspicion of the existence of Underground Storage Tanks (USTs). The Chautauqua County Department of Public Facilities (CCDPF) completed excavations that revealed two USTs on the western side of the building.

The USTs measured approximately 64 inches in diameter, with an estimated capacity of 500 gallons each. The USTs located adjacent to each other were abandoned in place (filled with pea gravel). The USTs also contained a liquid with a volatile hydrocarbon odor. Chemical analysis of samples collected from the southern UST indicated the presence of VOCs, including 1,1,2,2-tetrachloroethane (48,000 µg/kg) and 4-chlorotoluene (3,700 µg/kg).

A removal action for these USTs was initiated on December 19, 2001. Both USTs and the associated piping were emptied, cleaned, and removed. A PID was used to screen excavated soil/fill and soil samples were collected from the excavation. Analytical results soil/fill samples collected from the excavation sidewalls indicated the presence of VOCs, specifically PCE, at concentrations ranging from 7 µg/kg to 25 µg/kg.

Soils present at 6.5 to 8.5 feet below ground surface below the bottom of the UST excavation exhibited visual, olfactory, and photoionic evidence of contamination. Although no Target Compound List (TCL) VOCs were detected in the sample collected from this location, 20 tentatively identified compounds (TICs) were detected. The total concentration of these TICs was 503,300 µg/kg, which was above the then-current NYSDEC guidance level of 10,000 µg/kg for total VOCs.

An additional test pit was excavated approximately 35 feet west of the former USTs to evaluate the soils for evidence of contamination. The test pit was excavated to approximately seven feet below ground surface (bgs), where visual and photoionic evidence of contamination were evident. No TCL VOCs were detected in a sample collected from the bottom of this test pit, but 20 TICs were detected. The total concentration of these TICs was 1,058,370 µg/kg, which was above the then-current NYSDEC guidance level for total VOCs of 10,000 µg/kg.

The excavated soil/fill that exhibited evidence of VOC contamination was placed in a lined roll-off container and covered with high-density polyethylene sheeting. This material was transported to an approved landfill facility in Model City, New York for disposal.

Asbestos Survey: Prior to demolition of the C&B Dry Cleaners building, a pre-demolition asbestos survey was completed to identify and quantify asbestos-containing materials (ACMs). Because the survey determined that ACMs were present in the building, an ACM abatement program was completed prior to demolition. The demolition of the on-site structures occurred in July 2003.

Remedial Investigation/Alternative Analysis: On behalf of the CCDPF, TVGA Consultants (TVGA) conducted a remedial investigation (RI) at the site from 2005 to 2007 and submitted a Remedial Investigation/Alternatives Analysis report to the NYSDEC in December 2007. The RI was conducted to characterize VOC contamination detected in subsurface soil/fill within the on-site areas, to determine the presence of VOC contamination in the on-site/off-site groundwater, and, if present, to characterize the groundwater contamination. The following tasks were completed during the RI:

- A passive soil gas survey was conducted to locate areas of the site that contained significant concentrations of VOCs in the subsurface and to assist in optimizing test pit investigation;
- Seven (7) test pits were conducted to investigate subsurface areas adjacent to the former building that might have contained USTs and visually characterize the soil and fill materials present on the western portion of the site near former USTs;
- Fifteen (15) soil probes were advanced to characterize the subsurface soil/fill and define the extent of the contamination. Twenty-One (21) micro-wells were installed to determine if

contaminated groundwater is migrating off-site and characterize the extent and magnitude of that migration;

- Fifteen (15) test borings were installed to characterize the subsurface soil and facilitate the permanent installation of groundwater monitoring wells. Five (5) groundwater monitoring wells were installed at the test borings to determine the groundwater flow direction and hydraulic gradient of the upper-most water bearing zone, as well as characterize the groundwater quality at the site.
- Groundwater samples from on-site and off-site wells were collected to assess VOC concentrations in groundwater.
- Sub-slab vapor sampling was conducted at the Pal Joey's restaurant located immediately adjacent to the north of the site to determine if the air quality under the floor slab at Pal Joey's has been affected by the presence of subsurface VOC contamination at the site.
- Sampling of surface water and sediment; and,
- Ecological and Human Health Exposure Assessments.

Analytical results of soil gas, subsurface soil/fill, surface water, groundwater, and air samples collected during the RI were evaluated to determine the magnitude and extent of potential contamination occurring in these media. The detailed field investigation, analytical results and findings of the RI are described in the December 2007 Draft Remedial Investigation/Alternatives Analysis Report prepared by TVGA Consultants (TVGA, 2007). The 2007 RI and alternative analysis was used in preparing the 2013 ROD for the Site.

1.4 Nature and Extent of Contamination

The data evaluation conducted based on the 2007 RI findings and risk assessments identified contaminants of concern (COC), which included PCE, trichloroethylene (TCE), dichloroethylene (DCE), and arsenic. These COCs were determined to exceed the applicable SCGs for groundwater, soil, and soil vapor intrusion, which are summarized below:

On-site Soil - Eleven different TCL VOCs were detected in on-site subsurface soils, but only PCE was detected at concentrations that exceeded the commercial SCGs at multiple locations. The PCE concentrations detected in soil were 8,000 mg/kg and 160 mg/kg, which were above the Protection of Groundwater Soil Cleanup Objective (SCOs) of 1.3 ppm. Toxicity Characteristic Leaching Procedure (TCLP) analysis of subsurface soil from two areas indicated the concentration of PCE at 45 mg/l and 2.7 mg/l respectively, exceeded the regulatory threshold for characteristic hazardous waste of 0.7 mg/l. These samples were from near the former UST area and the former wash tubs.

Arsenic was detected at concentrations that exceeded the SCOs in the four on-site soil samples analyzed for TAL metals. Arsenic was detected at concentrations of 109 mg/kg and 85.7 mg/kg respectively, above the Protection of Groundwater and Commercial Use SCO of 16 mg/kg.

Off-site Soil - VOCs detected in off-site subsurface soil were below the protection of groundwater SCO's.

On-site Groundwater - Seven different TCL VOCs were detected in all but one of seven onsite groundwater samples at concentrations that exceeded NYSDEC Class GA Groundwater Standard or Guidance Value. PCE concentrations ranged from 7 to 1,000,000 µg/l, with the most significantly elevated concentrations detected in the groundwater sample in the vicinity of the former USTs. The

PCE concentrations in a majority of the remaining on-site locations were significantly above the SCG of 5.0 µg/l, but none approached the levels near the former USTs. The other VOCs detected at concentrations above the SCGs include 1,1,2,2- tetrachloroethane; 1,1-dichloroethene (1,1-DCE); vinyl chloride; cis-1,2-dichloroethene; isopropylbenzene; and TCE.

Off-site Groundwater - Five different TCL VOCs were detected in all but one of the 18 offsite groundwater samples at concentrations that exceeded SCGs. PCE was present in 15 of the 21 samples at concentrations above the SCG, with concentrations up to 9,200 µg/l. These concentrations were highest near the site boundary and decreased significantly with distance from the site. The other VOCs detected at concentrations above the SCGs included 1,1,1- trichloroethane, cis-1,2-DCE, vinyl chloride, and TCE. The results indicated that the groundwater contaminant plume had migrated off-site to the south of the site, impacting the two adjacent properties. The contaminant plume also slightly extended beyond the northerly boundary of the site.

Soil Vapor and Indoor Air - Contaminants from the site adversely impacted both indoor and sub-slab air quality at an adjacent property (Pal Joey's) north of the site which was addressed by an Interim Remedial Measures (IRM). PCE was detected in the sub-slab soil vapor and in an ambient air sample collected from the basement and the results exceeded the NYSDOH indoor air guidance value for PCE. The concentration of PCE in the sub-slab sample was 190,000 µg/m3, and in the ambient air basement sample 2,200 µg/m^3.

Pre-Design Investigation

On behalf of the NYSDEC, HDR performed a PDI during 2015 in conjunction with Groundwater & Environmental Services (GES) to verify arsenic soil contamination results and limits of in the northwest area of the site; verify PCE soil contamination results in the vadose zone; and determine the ISCO parameters to complete an effective RD for the existing on-site and off-site groundwater contamination.

PCE was not detected in soil at concentrations above the SCO during the PDI. Therefore, it was determined not be necessary to perform ISCO treatment of soil to reduce concentrations of PCE in the vadose zone as outlined within the ROD. This allowed the RD to focus on ISCO treatment of PCE in groundwater only.

Sampling delineated the horizontal and vertical limits of the arsenic-impacted soils at the site except in the northwestern portion of the site. Specifically, the horizontal and vertical limits had not been delineated to the north of CBSB101 and CBSB106. Further subsurface soil sampling during the RA was proposed to fully determine the extent of the vertical and horizontal contamination in this area.

PCE and other chlorinated VOCs were detected in groundwater at concentrations above their respective SCOs across the site. In general, the footprint of the contaminant plume was similar to that identified during previous investigations; however, the concentration of PCE was lower than that previously detected. This indicated that natural degradation processes are successfully reducing contaminant concentrations at the site.

The ISCO bench scale treatability testing indicated that iron-activated persulfate and potassium permanganate were the most successful at treating the site contaminants in groundwater. Of these two, potassium permanganate was recommended based on its ability to destruct greater than 99% of COCs in groundwater. Based on discussions with the NYSDEC, however, sodium permanganate was

chosen for use rather than potassium permanganate due to potential hazards associated with the handling and use of potassium permanganate.

2.0 SUMMARY OF SITE REMEDY

2.1 Remedial Action Objectives

Based on the findings of the 2007 RI, the remedial action objectives (RAOs) for the site were established through the remedy selection process stated in 6 NYCRR Part 375. The RAOs developed for the site include restoring the site to pre-disposal conditions to the extent feasible. The remedy was selected to eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles. The RAOs were organized by media of concern and specify contaminant type, exposure pathways and SCG which will be used as SCOs that eliminate or mitigate the significant threat to public health and environment.

The remedial action objectives (RAOs) for the site include the following:

Groundwater

RAOs for Public Health Protection:

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

Soil

RAOs for Public Health Protection:

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection:

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection:

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

2.2 Description of Selected Remedy

HDR prepared a Remedial Design (RD) for the in-situ chemical oxidation of impacted groundwater during 2016. Results of this work are more fully outlined in the Final Design Report prepared by HDR and submitted under separate cover (HDR 2016).

Elements of the RD included:

- Installation of four new shallow performance monitoring wells to provide groundwater quality data within areas along the northwest, western, and southern edges of the plume with perceived gaps in groundwater quality data.
- Groundwater sampling prior to ISCO injections to establish baseline conditions.
- Installation of approximately 60 injection points within the plume of impacted groundwater with PCE concentrations above 200 µg/l.
- ISCO injections to be conducted within the shallow groundwater aquifer, with a maximum installation depth of approximately 15 feet bgs, or to the top of the clay confirming layer.
- Groundwater quality monitoring/performance monitoring after the first round of ISCO injections to assess the efficacy of the remediation, and to inform the second round of ISCO injections.

The RD construction drawings, including a pre-construction site map and excavation plan, can be found in **Appendix B**.

2.3 Project Bidding and Awards

Since the total estimated cost of the RA was less than $500,000, a RA contract was awarded to one of NYSDEC's stand-by remediation contractors, GES of Cheektowaga, New York. A formal bidding process was not implemented for the Interim Remedial Measures (IRM) or RA.

3.0 INTERIM REMEDIAL MEASURES

The information and certifications made in the Interim Remedial Measures (IRM) Report (HDR, 2016) were relied upon to prepare this report.

The April 2013 ROD outlined the selected remedial alternatives for remediation of impacted on-site soil and groundwater at the on-site and off-site areas. The results of a pre-design investigation (PDI) completed by HDR during early 2015, and documented in HDR's August 2015 PDI report (HDR, 2015), indicate that required soil remediation was limited to on-site soils impacted by arsenic at concentrations above the SCG for Protection of Groundwater of 16 parts per million (ppm). Therefore, the on-site soils remediation was completed as an interim remedial measure as outlined within the April 2013 ROD.

The results of the IRMs are presented in the IRM Report prepared by HDR (HDR 2016). The results of IRM work indicated that barium and arsenic were the only constituents detected in soil samples at concentrations above soil cleanup objectives (SCOs). Arsenic was detected in soil samples collected from the western portion of the site at concentrations above the soil SCOs of 16 mg/kg. Arsenic values ranged between 2.5 to 217 mg/kg with a maximum concentration detected at the northwest corner of the site within a depth interval of 4-6 feet below ground surface (bgs). However, the northwestern portion of the soil impacts were not fully delineated during the first sampling event. A second sampling event was therefore conducted by GES to fully determine the extent of arsenic impacts within the northern portion of the site.

After discussions with the NYSDEC it was determined that the most cost-effect way to address impacts to site soil was through the excavation and offsite disposal of arsenic-impacted soil with real-time soil confirmation sampling using a field X-Ray Fluorescence (XRF) unit to screen for arsenic concentrations. The performance of in-situ chemical oxidation of site soil as outlined within the 2013 Record of Decision (ROD) was determined by NYSDEC to no longer be necessary since chlorinated VOCs were no longer detected in the vadose zone at concentrations above SCOs.

3.1 IRM Project Organization

GES project personnel had the responsibility and authority for developing, modifying, and implementing the approved RAWP. GES provided project personnel with previous experience on similar projects. All project personnel possessed the minimum level of experience and technical training for their given project role and responsibilities.

GES's field team for this project included a Project Manager, and Project Superintendent/Site Safety and Health Officer (SSHO), and excavation subcontractor to GES. All subcontractors, vendors, and suppliers were contracted directly to the GES and were responsible for following the procedures described in the approved work plans. Each field team member was assigned to satisfy the requirements of the project specifications. The Project Manager for this project was Mr. Eric Popken, and Project Superintendent/Site Safety and Health Officer (SSHO) was Thomas Palmer.

Site Safety and Health Officer: Thomas Palmer was the SSHO who performed site-specific training and briefing sessions for employee(s) before the start of field activities at the site and a briefing session each day before starting work in accordance with the SSHP. The SSHO ensured the availability,

proper use, and maintenance of specified personal protective equipment, decontamination, and other Safety and Health equipment needed to complete the activities associated with this Work Plan.

3.2 Summary of the Interim Remedial Measures

The remedial action consisted of the following major work elements:

- In-situ waste characterization for off-site disposal of contaminated soils.
- Mobilization and site preparation.
- Excavation and off-site disposal of contaminated soils.
- Site restoration.

3.2.1 Pre-Construction Activities

- **Site Access**: NYSDEC was responsible for obtaining site access agreements needed to complete the work.
- **Pre-Construction Documentation**: Prior to the start of site preparation activities, HDR/GES conducted a pre-construction photographic recording of the site. This recording was conducted to document the existing conditions of the site, all adjacent properties that may be affected by site activities, and the local roads adjacent to the site, and any other features of interest on and adjacent to the site.
- **Pre-Construction Mark-outs**: The limits of construction and excavation were marked based on the proposed excavation plan provided in the approved RAWP. Mark-outs were conducted based on the existing physical features of the site.
- **Utility Mark-outs**: Prior to the start of land disturbance onsite, GES confirmed that utility mark-outs had been completed and that any underground utilities not identified by the Dig Safely New York service had been confirmed prior to starting excavation.
- **Security**: During working hours, GES was responsible for the overall security of the site. All GES personnel were responsible for ensuring that unauthorized personnel did not access the site. All visitors to the site were required to sign the daily site entry/exit log.
- **Pre-Construction Work Plans**: GES submitted the Health and Safety work plan for review and acceptance by HDR and NYSDEC.

3.2.2 Mobilization and Site Preparation

The mobilization consisted of mobilizing the equipment, personnel, and materials necessary to clear trees and brush, and install the erosion and sediment control measures. The equipment consisted of an excavator (Komatsu® PC210 LC) and a support truck.

- **Soil erosion and sediment controls (SESCs)**: SESCs were installed at the site where necessary to prevent the migration of sediment into non contaminated areas and/or environmentally-sensitive areas.

- **Perimeter Air Monitoring:** Real-time perimeter air monitoring was performed throughout the IRM to provide a measure of protection for the offsite receptors including residences and businesses from potential airborne contaminant releases as a direct result of construction activities. Prior to the start of any land disturbance, the monitoring stations were spaced to the

southwest and northeast of the construction area to provide downwind monitoring of the construction in the event of a change in wind direction. Air monitoring equipment included real-time monitoring for particulates (i.e., dust) and VOCs. The particulate monitoring was performed continuously using real-time monitoring equipment TSI DustTrak 8520. The continuous readings were averaged over a period of 15 minutes for comparison to the site-specific airborne particulate action level. The real-time particulate monitor was equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration was visually assessed during all work activities. There were no recorded exceedances of action levels during the construction activities.

- **Clearing and Grubbing**: Clearing and grubbing was not required for the excavation activities.

- **Decontamination:** Personnel decontamination was performed upon exiting the exclusion zone in accordance with the approved Health and Safety Plan. An exclusion zone was set up surrounding the excavation area, and existing asphalt surface was used as the contamination reduction zone. All construction work was performed in modified level D equipment. Personal protective equipment (PPE) removed during personnel decontamination were combined with the contaminated material and disposed off-site.

  GES proposed an alternate load out procedure which included use of the existing asphalt parking lot as a load out platform to avoid truck tire contact with contaminated soil. Therefore, a decontamination pad was not constructed for a load out platform. The asphalt surface where the trucks were being loaded was covered with a layer of plastic to prevent tracking of the site soils onto Washington Street. Soil that fell on the plastic during the load out process was removed from the plastic and swept back into the excavation. All trucks were visually inspected to ensure that soils and other visible contamination were removed before leaving the site.

- **Work Zone Air Monitoring:** Work zone air monitoring was conducted during all intrusive activities. Based on the monitoring, no significant dust or odor control measures needed to be implemented during the remedial activities. Regular rainfall events that occurred during the remedial activities resulted in relatively wet soil conditions throughout the excavation. Photo Ionization Detector (PID) readings were recorded to determine levels of VOCs related to the observed odors. PID readings above background levels correlated well with the strongest odors within the excavation limits; however, each response noted was transient in nature lasting only a few seconds. There were no odor issues observed outside of the excavation limits during the construction.

- **Noise Control:** GES made an effort to reduce the level of noise produced at the site, though the site was not located in a residential area. There were no complaints related to noise issues during the construction.

- **Traffic Control**: All traffic (i.e., site personnel, subcontractors, truck traffic, and visitors) entering and exiting the site utilized Washington Street from October 19 to 27, 2015. Vehicular traffic was sporadic throughout the day except for early mornings and later in the afternoon. Minimal disturbance of normal traffic patterns resulted from truck traffic entering and exiting the site. Disturbance to the traffic pattern was typically very transient in nature. Overall, no lane closures

or formal supplemental equipment (arrow boards, safety zone trucks, cones, additional signage, etc.) were required during the remedial action.

- **Reporting**: HDR and GES maintained records of the RA construction activities throughout the project. Project reporting documents included:
    - Daily Site Inspection Report: A Daily Site Inspection Report was prepared each day by GES and HDR. Pertinent information regarding the day's activities, personnel present on the site, weather conditions, health and safety, major equipment used at the site, imported material used at the site, problems encountered, and corrective actions taken were recorded on a daily basis. It should be noted that an HDR representative could not be present during the final day of site restoration (October 27, 2015), and a daily report was not prepared by HDR for this day.
    - Project Progress Photographs: Progress of the site activities was photographically documented on a daily basis and four to five photographs representing the major site activities were submitted to the NYSDEC along with the Daily Site Inspection Report.

- **Health and Safety:** Work was completed over the course of approximately seven days without any lost time due to injury. GES provided oversight for on-site health and safety (H&S), with tailgate meetings conducted each morning, and when relevant issues were encountered. HDR conducted work according to the NYSDEC Standby Engineering Contract Generic Health and Safety plan. Special H&S considerations such as slip, trip, and fall hazards/prevention, excavation/trenching safety, and safety while working in the vicinity of heavy equipment (excavators, bulldozers, and dump trucks) were discussed as they pertained to the daily activities. General site workers were required to be trained and medically monitored for Hazardous Waste Operations and Emergency Response in accordance with 20 CFR 1919.120, including for excavation. Individuals involved with shipping of hazardous materials were required to receive the appropriate Department of Transportation (DOT) training. All work was conducted in modified Level D PPE. Work zone and perimeter air monitoring were performed throughout the period of construction. No recordable accidents occurred during the construction activities.

3.2.3 Waste Characterization Sampling and Analyses

In-situ soil waste characterization sampling was performed prior to excavation to characterize soil for disposal without the need to stockpile soil on site. This limited disturbance to adjacent facilities. Waste characterization samples were collected from in-situ soils representing one sample per approximately 560 tons of material. Three soil samples were collected from twelve (12) soil borings (SB-101 to SB-112) conducted on August 31, 2015 by GES and composited from approximately 1 to 4 ft bgs. Samples for VOC analyses were transferred directly into the sample container, and for the remaining analyses, sub-volumes from each depth interval were homogenized in a bowl and then transferred into the sample containers. Three waste characterization samples were collected and analyzed for Toxicity Characteristic Leaching Procedure (TCLP) analyses for select VOCs, SVOCs, metals, ignitability, percent moisture, and pH. A summary of the samples collected to characterize the waste, and associated analytical results are provided in the IRM Report (HDR, 2016).

3.2.4 Excavation

As shown on **Figure 3**, soil located within the limit of excavation was excavated and transported off-site for disposal. The horizontal and vertical limits of arsenic impacted soil were delineated to the north of SB-106. During the excavation, an XRF unit was utilized to measure the arsenic concentrations in soil to determine the horizontal and vertical limits of the excavation on a real-time basis.

The field screening for arsenic in soil was conducted using an X-MET 7500 XRF unit with a 1 ppm detection limit for arsenic. HDR operated the XRF unit and informed GES on the limits of the excavation. During excavation, the XRF unit was utilized to measure arsenic concentrations so that the limits of excavation could be expanded, if necessary, to establish a “clean” horizontal limit at the edge of the excavation prior to collecting confirmatory samples. GES conducted excavation of contaminated soils starting from the northwest side of the property and working progressively toward the southeast end of the property where Washington Street is located. Excavation was conducted using a Komatsu® PC210 LC excavator. As discussed with the NYSDEC Project Manager, soil was excavated down to the groundwater table as observed by HDR.

No signs of staining, odors or elevated PID levels, were observed during excavation. Groundwater was encountered at a depth of between 4 and 5.5 feet below ground surface. GES utilized D&L Trucking, LLC. and KW Excavating, LLC. to transport contaminated soils to the Chautauqua County Landfill located in Jamestown, New York. All drivers were properly licensed; trucks were Part 364 permitted, registered, properly marked, manifested, and placarded. No soil was permitted to track off site. Based on the final excavation depth survey, a total of approximately 880 cubic yards of soil was excavated as part of the remedial action. The excavation as-built drawing provided as **Figure 3** depicts the pre-excavation elevations and final excavation depths and limits. The excavation was completed by October 22, 2015, and restoration activities were completed on October 27, 2015.

3.2.5 Post-Excavation Sampling

Once GES achieved the depth and limit of excavation based on XRF screening and depth to groundwater, HDR observed the bottom and sidewalls for evidence of contamination. HDR collected the sidewall confirmation samples once there was no evidence of contamination (XRF reading at non-detect level). Confirmation samples were collected using disposable spoons and bowls. As per NYSDEC approval, bottom samples were not collected as the soil was excavated down to the groundwater table. Sidewall samples were collected every 30 linear feet along the perimeter of the excavation from approximately 0 to 3 inches below the surface layer, which was approximately four to six inches below the ground surface.

Soil samples were shipped to a NYSDOH Environmental Laboratory Approval Program (ELAP) certified stand by laboratory (Test America) under chain of custody (COC) protocol, via overnight delivery for arsenic analysis only. The excavation was backfilled with certified clean bank run material immediately following the completion of excavation activities and the collection of post-excavation samples to permit use of the parking area by the adjacent restaurant (Pal Joey’s) and minimize potential impacts to the establishment. The results of post-excavation sampling indicated that 7 of 11 samples contained arsenic at concentrations slightly greater than the SCG of 16 mg/kg for commercial use. Concentrations in post-excavation samples ranged from 8.7 mg/kg to 27.1 mg/kg.

3.2.6 Backfill

The excavation was backfilled with clean imported material (bank run) meeting the requirements of 6NYCRR Part 375 Table 375-6.8(b) for a commercial use. Backfill was not sampled by GES since the NYSDEC had pre-approved the source of the clean fill: S St. George Enterprises, Inc. GES arranged transportation of the approved soil and backfilled the excavated area. Backfill was conducted by tamping soil using the excavator bucket and repeated tracking over the area using the excavator placed using a maximum of 12-inch lifts and compacting between lifts. A total of 2,029 tons of backfill material and 133 tons of pea-stone were used to backfill the excavation. Pea-stone was utilized to backfill the southwest corner of the excavation area to prevent water ponding.

3.2.7 Waste Management and Transportation

Waste characterization sampling was conducted to classify the soils removed during excavation remedial activities. Classification of the soils was required prior to shipping to the approved disposal facility. Waste minimization, storage, handling, and load out procedures were conducted during the remedial action. GES submitted a waste disposal application to the Chautauqua County Landfill, and the landfill owner issued an acceptance letter for waste disposal. A total of 880 yards or 1678 tons of non-hazardous soil was excavated and transported off site for disposal to Chautauqua County Landfill located in Jamestown, New York. Manifests and disposal documentation, including a daily truck log of exported material, were included in the IRM Report (HDR, 2016). GES kept a daily and running Truck Log in Microsoft XLS showing the following fields:

- Date.
- Manifest /BOL No.
- Landfill Truck No.
- Transporter.
- Driver Name.
- Time Out.
- LF Weight.

GES provided the Truck Log to NYSDEC at the end of the excavation activities. Truck drivers used their own truck-internal scaling system to ensure they are within their legal weight limits prior to leaving the site. However, for payment purposes, the certified scales at the disposal facility were used and submitted.

3.2.8 Site Restoration

Upon completion of the excavation activities, the site was backfilled with clean, approved fill material. The final grading of the site matched, as closely as possible, the existing drainage patterns preventing storm water from ponding on Site. Final survey of the site was conducted on October 23, 2015, and final restoration was documented with an as-built drawing. The drawing (Appendix C) included the location of the gravel and vegetative caps, the location of all soils removed indicating the surveyed limits of the excavation, and location of all confirmation samples. Information was certified by a NYS licensed Engineer.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Remedial activities completed at the Site were conducted in accordance with the NYSDEC-approved Remedial Action Work Plan (HDR, 2015) and Final Design Report (HDR 2016) for the C & B site. Deviations from the RAWP and RD are noted below.

4.1 Governing Documents

Since the RA work was completed by the NYSDEC's stand-by remediation contractor, GES, a formal bidding process was not implemented for the RA. Therefore, all governing documents such as the Site-Specific Health & Safety Plan (HASP), Quality Assurance Project Plan (QAPP), Construction Quality Assurance Plan (CQAP), Soil/Materials Management Plan (S/MMP), Community Air Monitoring Plan (CAMP), Contractors Site Operations Plans (SOPs) had been included as part of GES's contract with the NYSDEC and were not reviewed by HDR.

4.1.1 Site Specific Health & Safety Plan

All remedial work performed under this Remedial Action was in compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA. The HASP was complied with for all remedial and invasive work performed at the Site.

Under contract to the NYSDEC, GES was responsible for implementing the remedial action at the Former C&B Dry Cleaners Site. GES's field team for this project includes a Project Manager, and Project Superintendent/Site Safety and Health Officer (SSHO). All subcontractors, vendors, and suppliers were contracted directly to the GES and were responsible for following the procedures described in the approved work plans.

Each field team member was assigned to satisfy the requirements of the project specifications. The Project Manager for this project was Mr. Eric Popken, and Project Superintendent/Site Safety and Health Officer (SSHO) was Thomas Palmer. The Site Safety and Health Officer (SSHO) performed site-specific training and briefing sessions for employee(s) before the start of field activities at the site and a briefing session each day before starting work in accordance with the SSHP. The SSHO ensured the availability, proper use, and maintenance of specified personal protective equipment, decontamination, and other Safety and Health equipment needed to complete the activities associated with the RAWP. All project personnel had the authority to stop work based on a safety concern.

4.2 Remedial Program Elements

4.2.1 Contractors and Consultants

The RA work including groundwater ISCO injections and subsequent groundwater monitoring were performed by GES pursuant to NYSDEC Call-Out ID#127233. HDR provided remedial action oversight and construction inspection services during the RA.

4.2.2 Site Preparation

NYSDEC was responsible for obtaining site access agreements needed to complete the work. All existing site conditions were also documented with a preconstruction survey of affected areas. This

pre-construction survey identified and marked-out the limits of construction, existing site topography, property boundaries, and captured all structures and other existing physical features of the site.

Prior to the start of ISCO injections or monitoring well installation activities onsite, GES confirmed that utility mark-outs have been completed and also any underground utilities not identified by the Dig Safely New York service has been confirmed.

GES used the fenced-in area on the Pelican Site south of the Swanson Building as a secure staging area for equipment during non-working hours for that equipment that was not demobilized each day. During working hours, GES was responsible for the overall security of the site. All GES personnel were responsible for ensuring that unauthorized personnel did not access the site. All visitors to the site were required to sign the daily site entry/exit log.

4.2.3 Reporting

Records of the RA construction activities were maintained throughout the project. A summary of all the reporting documents is provided below:

Daily Inspection Report: A Daily Inspection Report for all site activities was prepared for each day by GES and HDR. Pertinent information regarding personnel present on the Site, weather conditions, health and safety, major equipment used at the Site, imported material used at the Site, problems encountered, and corrective actions taken, and site activities were recorded on a daily basis. All daily reports are included in electronic format in **Appendix D**.

Project Progress Photographs: Progress of the site activities was photographically documented on a daily basis and four to five photographs representing the major site activities were submitted to the NYSDEC along with the Daily Inspection Report. The digital photo log is included in the daily reports in **Appendix D**.

4.2.4 Performance Monitoring Well Installation

Four new performance monitoring wells were installed by GES and their subcontractor (Terracon) during the period from March 13-15, 2017. The new wells were identified as performance monitoring wells PMW-1, PMW-2, PMW-3, and PMW-4. Each of these wells was constructed of 2-inch diameter, schedule-40 polyvinyl chloride (PVC) pipe with a 10-foot screen length installed to the top of the clay confining layer, with an average completion depth of 15 feet bgs. The locations of the new performance monitoring wells are shown on **Figure 2**. Field logs for this work are provided in **Appendix E**.

4.2.5 Baseline Groundwater Monitoring Prior to ISCO Injections

GES performed groundwater sampling on April 19-20, 2017 at the site to establish baseline conditions prior to ISCO injections. Sampling was conducted using low-flow groundwater sampling techniques after well purging, with purge water contained within 55-gallon steel drums for disposal as investigation-derived waste (IDW). Samples were obtained from groundwater monitoring wells PMW-4, CBPZ101, CBPZ102 and CBPZ110 on April 19, 2017, and samples were obtained from monitoring wells PMW-1, PMW-2, PMW-3, MW-5 and CBPZ107 on April 20, 2017. All samples were submitted to TestAmerica laboratories in Buffalo, New York, and analyzed for Total Dissolved Solids (TDS) by Method SM 2540C, Total Suspended Solids (TSS) by Method 2540D, Target Analyte List (TAL) Metals

by Method SW6010C, Target Compound List (TCL) VOCs by Method 8260C, Sulfate by Method SW903B, Total Organic Carbon (TOC) by Method SW9060 and Total Chloride by Method SW9251. Laboratory analytical results are summarized within **Table 2** and shown on **Figure 4**. Laboratory reports and validation reports are provided under separate cover in the April 2019 Results of 2017 ISCO Injections report.

4.2.6 2017 ISCO Injections for Groundwater Remediation

GES and their subcontractor (Parratt-Wolff) performed ISCO injections at the former C&B Cleaners Site during the period from August 14-25, 2017. ISCO injections were planned for the locations shown on **Figure 5**. After discussions with the NYSDEC, it was concluded that a number of ISCO injection locations proposed within the remedial design could not be installed between the southwest corner of the Swanson Building and the wetland area to the west due to the marshy nature of site soil in this area and the likely impact of injections on the neighboring wetland area.

ISCO treatability testing conducted by XDD, LLC. Indicated that a 5% potassium permanganate solution would provide the most efficient means of treating chlorinated VOCs in site groundwater; however, potassium permanganate posed a health and safety concern since it was only available as a powder in concentrated form and would have needed to be mixed with water to the desired strength on site. Since potassium permanganate is a very strong oxidizer, it was concluded that GES would instead use a 5% solution of sodium permanganate since this oxidant was available in a liquid form and could be delivered pre-mixed via tanker trucks. The 5% sodium permanganate mixture was provided by Slack Chemical, located in Carthage, New York.

ISCO injections were conducted by installing temporary injection points daily using a direct-push rig to install points to the top of the clay layer with a completion depth varying between 10 and 15 feet bgs. Groundwater was present at an approximate depth of 5 feet bgs; therefore, ISCO injections targeted a saturated (groundwater) zone with a thickness varying between 5 and 10 feet. Daily reports for ISCO injections are provided within **Appendix D,** and field logs are in **Appendix E**.

Approximately 43 locations were identified on the first day based on an initial site reconnaissance. ISCO injections were performed by connecting five to seven injections points to a piping manifold, with pressure gauges, flow meters and valves to adjust flow as necessary to each injection point. A small centrifugal pump was used to transfer the sodium permanganate solution directly from the tanker truck to each well at an approximate flow rate of 5 gallons per minute (gpm) with the goal of injecting approximately 1,300 gallons per well, although the amount injected varied by location. Two tankers, each containing approximately 4,100 gallons of pre-mixed oxidant, were scheduled for delivery each day. As a safety precaution, tankers containing sodium permanganate were not left on site at night; but were required to demobilize each day, regardless of whether the tankers were empty by the end of the day.

The suspected source of contamination at the site was previously identified near monitoring well MW-5 (located just north of the Swanson Building) and in the vicinity of the northern wall of the Swanson Building basement. ISCO injections were, therefore, anticipated to be more heavily biased to locations as close to the northern wall of the Swanson Building basement as possible to more effectively treat these areas. In addition, the Swanson Building basement appeared to be constructed within the shallow groundwater aquifer, with a completion depth just above the confining unit (the clay layer) for the shallow aquifer. The basement of the dilapidated building was open to the environment

and it was flooded, likely due to direct contact with the groundwater table. In addition, an opening in the basement located within the southwestern corner of the building was partially submerged, and surface water flowed out of the basement via a drainage swale to the adjacent wetland area. It was therefore possible to directly monitor water within the basement of the Swanson Building and the drainage swale at the outfall of the basement for signs of oxidant (purple in color).

GES and HDR monitored injections throughout the event to confirm that oxidant was flowing freely into the subsurface, not daylighting on the ground, and not appearing in the adjacent wetland area. Injections to a location were discontinued if the observed line pressure was too high (potentially indicating that the injection point was installed within the clay confining layer) or if oxidant was visible at the ground surface. Several injection points had to be raised or relocated because the point was installed too far into the clay and oxidant was not leaving the point. GES and HDR also monitored existing wells at the site, as well as the basement of the Swanson Building and the surface water outfall from the Swanson Building, for purple color indicative of sodium permanganate as proof that the subsurface was saturated with oxidant.

ISCO injections were completed at the site on August 25, 2017. A total of 44 locations were installed during the 10-day event. The total volume of sodium permanganate injected over the event varied as shown below.

Date	Sodium Permanganate Injected (Gallons)
8/14/2017	0
8/15/2017	4,100
8/16/2017	8,200
8/17/2017	8,200
8/18/2017	4,100
8/21/2017	8,200
8/22/2017	8,200
8/23/2017	8,200
8/24/2017	8,200
8/25/2017	1,200
Total	**58,600**

At the end of the injection event GES and HDR confirmed that groundwater within all monitoring wells along the northern edge of the Swanson Building were observed to be pink or purple in color, indicating the presence of oxidant. Water within the basement of the Swanson Building was also observed to be purple; however, no color was observed to be entering the adjacent wetland area.

4.2.6.1 Groundwater Performance Monitoring

As indicated above, GES performed groundwater sampling at the site on April 19-20, 2017 to provide baseline groundwater conditions prior to ISCO injections. GES also conducted groundwater sampling at the site on January 1-3, 2018 and July 17-19, 2018 to evaluate the efficacy of in-situ chemical oxidation (ISCO) injections at reducing concentrations of chlorinated VOCs in groundwater at the site. Groundwater monitoring wells sampled during these events are identified on **Figure 4** and included: CBPZ107, PMW-1, MW-5, PMW-3, PMW-2, CBPZ110, CBPZ101, PMW-4 and CBPZ102.

Groundwater sampling was conducted using low-flow sampling techniques. Groundwater was purged from each well at an approximate rate of 200 ml/min until turbidity levels were below 50 NTU and/or until conditions stabilized in the well. Groundwater field notes and logs for the two sampling events are provided within **Appendix E**. Groundwater elevation monitoring was not conducted by GES during either groundwater sampling event.

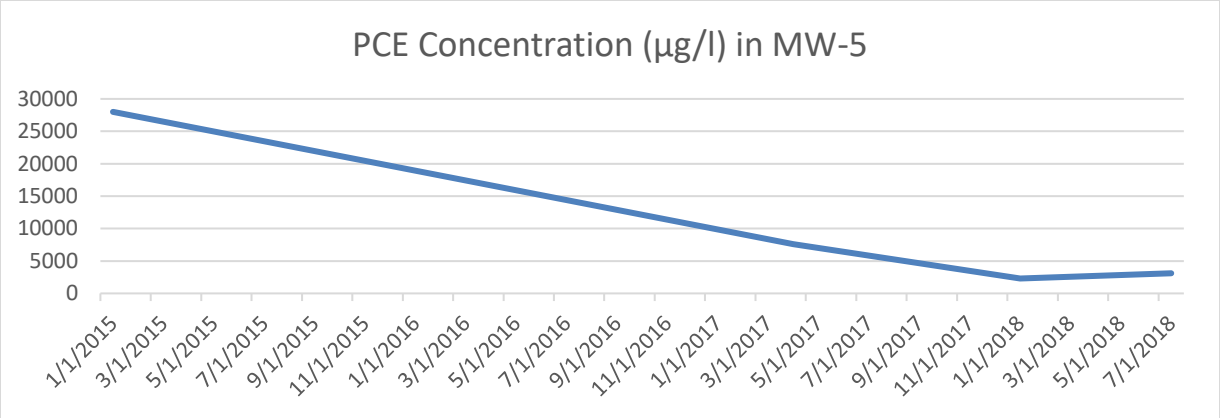
Groundwater samples were submitted to TestAmerica laboratories in Buffalo, New York, and analyzed for volatile organic compounds (VOCs) by USEPA Method 8260C, inorganics by method 6010C, and for the indicator parameters of chloride, sulfate, total dissolved solids (TDS), total suspended solids (TSS) and total organic carbon (TOC) similar to the analyses requested for the baseline analyses.

4.2.6.2 Groundwater Sampling Results

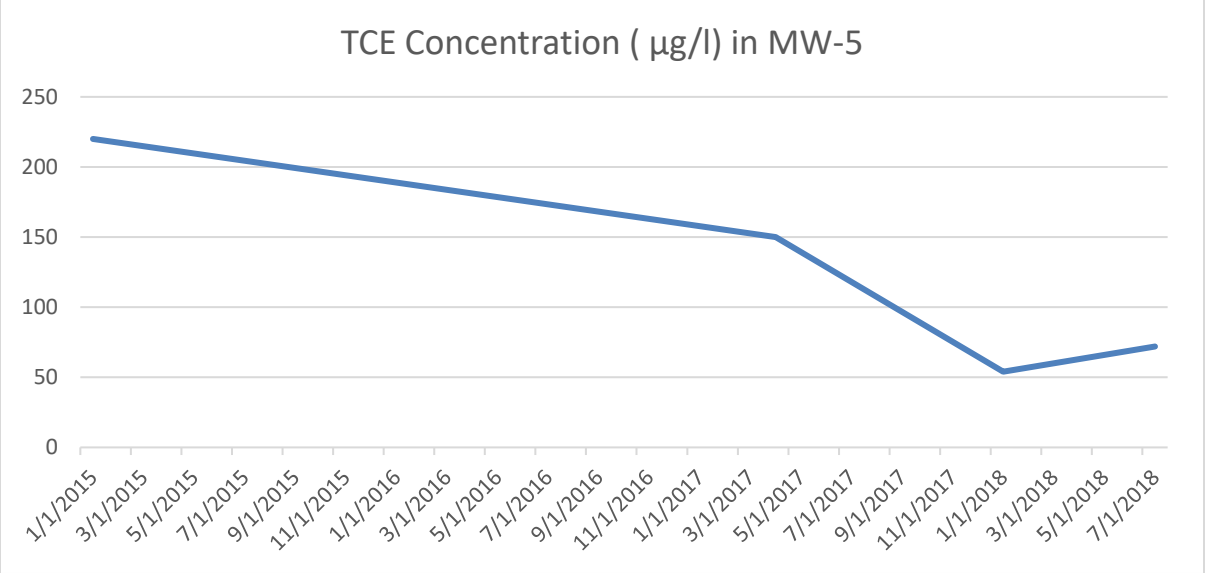
Results of laboratory analyses are summarized on **Figure 4** and **Table 2**. Laboratory reports and validation reports are provided under separate cover in the April 2019 Results of 2017 ISCO Injections report. Analytical results indicated that PCE, TCE, cis-1,2-dichloroethylene (DCE), and vinyl chloride (VC) were detected in monitoring wells CBPZ107, PMW-1, MW-5, PMW-3, PMW-2, CBPZ110, CBPZ101, PMW-4, and CBPZ102 at concentrations above New York State Groundwater Quality Standards (GWQS) during sampling conducted July 17-19, 2018. PCE concentrations ranged from <1 µg/l within upgradient monitoring wells PMW-1 and CBPZ107 to 3,100 µg/l within monitoring well MW5.

While elevated in comparison to GWQS, volatiles concentrations detected during post-ISCO groundwater sampling were far lower than identified during 2015 sampling at the same locations. As an example, PCE was detected at monitoring well MW-5 at a concentration of 28,000 µg/l on January 15, 2015. It was detected at this location at a far lower concentration of 7,600 µg/l during baseline sampling conducted on April 20, 2017; it was detected at a concentration of 2,300 on January 3, 2018 and at a concentration of 3,100 on July 17, 2018.

In general, PCE concentrations within the footprint of the impacted groundwater plume targeted for ISCO injections decreased over time, with the most dramatic reductions taking place within the vicinity of MW-5 and the monitoring wells located immediately to the southwest of the Swanson Building, including PMW-3 (concentrations decreased from 1,200 µg/l to 260 µg/l), PMW-2 (concentrations decreased from 730 µg/l to 180 µg/l) and CBPZ101 (concentrations decreased from 250 µg/l to 68 µg/l) and PMW-4 (concentrations decreased from 1,200 µg/l to <20 µg/l). Concentrations increased slightly between the first and second round of post-ISCO sampling within monitoring wells MW-5, PMW-2, and CBPZ107, indicating a potential rebound in PCE concentrations; however, the overall trend in PCE concentrations was downward. The reduction in PCE concentrations within MW-5 is demonstrated by the graph below.



Concentrations of other chlorinated VOCs such as TCE and DCE also generally decreased within the footprint of ISCO injections. TCE was detected at a concentration of 220 µg/l in monitoring well MW-5 on January 15, 2015 (prior to ISCO injections) and at a concentration of 54 µg/l on January 3, 2018 after ISCO injections. The TCE concentration detected within monitoring MW-5 increased slightly between the first and second round of post-ISCO injections, to 72 µg/l on July 17, 2018. This represents a slight rebound in TCE concentrations after the decrease caused by ISCO injections.



Concentrations of DCE also generally decreased within the footprint of ISCO injections at locations where they had been detected prior to the ISCO injections (this was generally in monitoring wells located southwest (downgradient) from the site and the Swanson Building). DCE concentrations decreased in monitoring wells PMW-3 (decreased from <20 µg/l in 2017 to <10 µg/l in July 2018), CBPZ110 (decreased from 54 µg/l in 2015 to 8.5 µg/l in July 2018), CBPZ101 (decreased from 79 µg/l in 2015 to 20 µg/l in July 2018), and PMW-4 (decreased from 260 µg/l in 2017 to 63 µg/l in July 2018). This indicates that the ISCO injections are successfully breaking down PCE present in groundwater into its degradation bi-products.

Vinyl chloride (VC) was detected infrequently in monitoring wells at the site prior to ISCO injections (prior to 2017). In general, VC was detected to the south/southwest of the Swanson Building, and it is indicative of the degradation of DCE in groundwater. Results of groundwater sampling conducted prior

to and after ISCO injections indicated that VC concentrations, where detected prior to ISCO injections, fluctuated as a result of ISCO injections, with neither a general increase nor decrease in concentrations overall. VC concentrations neither increased nor decreased in downgradient monitoring well CBPZ110 (6.3 µg/l in 2015, 4.3 µg/l during 2017, <4 µg/l on January 4, 2018, and <10 µg/l on July 18, 2018). VC concentrations decreased in downgradient monitoring well CBPZ101 (44 µg/l in 2015, 24 µg/l in 2017, <4 µg/l on January 4, 2018 and <2 µg/l on July 19, 2018); and VC concentrations slightly increased in downgradient monitoring wells PMW-4 (increased from 34 µg/l in 2017 to 48 µg/l on July 19, 2018) and CBPZ102 (increased from 3.6 µg/l in 2015 and 2017 to 11 µg/l on July 19, 2018).

VOC concentrations generally did not decrease within monitoring wells located outside the footprint of ISCO injections, such as monitoring well CBPZ107 (concentrations increased slightly from 6.3 µg/l to 17 µg/l) located upgradient from MW-5, or monitoring well CBPZ102 (concentrations increased slightly from 20 µg/l to 29 µg/l) located cross/downgradient from the area of active injections

4.2.7 2020 Groundwater Investigation

HDR mobilized to the site on February 25, 2020 to perform groundwater sampling prior to a second round of ISCO injections at the site. Groundwater samples were collected from a total of ten (10) monitoring wells located both on and off site, and submitted to Eurofins TestAmerica laboratory in Buffalo, NY. All 10 groundwater samples were analyzed for Target Compound List Volatile Organic Compounds (VOCs) by USEPA Method 8260, while five of the ten groundwater samples were also analyzed for 1, 4-dioxane by USEPA Method 8270 SIM, and Per- and Polyfluorinated Alkyl Substances (PFAS) by USEPA Method 537 (modified). A total of 10 samples were collected for VOC analyses at CBMW5, CBSP28, CBPZ101, CBPZ102, CBPZ107, CBPZ110, PMW-1, PMW-2, PMW-3, and PMW-4. Five samples were also collected for PFAS and 1,4-Dioxane analyses at CBMW5, CBPZ101, PMW-1, PMW-3, and PMW-4. A field duplicate was collected for VOCs, PFAS, and 1,4-Dioxane analyses at PMW-3.

The most recent groundwater sampling results prior to conducting the 2021 injection event are summarized in **Figure 6** and **Table 3**. In addition, a groundwater contour map (**Figure 7**) was created using depth to water data from the February 2020 sampling event (**Table 4**). Daily reports and field logs are included in **Appendix D** and **Appendix E**, respectively. Exceedances of the New York State GWQS for VOCs occurred at all sample locations, except for CBPZ107 and PMW-1. Cis-1,2-dichloroethylene (DCE) exceeded its criterion of 5 micrograms per liter (µg/l) at six well locations, with a maximum of 69 µg/l at CBPZ102. Tetrachloroethylene (PCE) exceeded its criterion of 5 µg/l at seven locations, with a maximum of 3300 µg/l at CBMW5. Trichloroethylene exceeded its criterion of 5 µg/l at six locations, with a maximum of 84 µg/l at CBMW5. Finally, vinyl chloride (VC) exceeded its criterion of 2 µg/l only at PMW-4 (30 µg/l).

The NYS GWQS for perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) are each 10 nanograms per liter (ng/l), or part per trillion (ppt). PFOS was the only PFAS compound to exceed its criterion (10 ng/l). PFOS exceedances occurred at all EC well locations, except for PMW-1, with the highest results at CBMW5 (26 ng/l) and CBPZ101 (13 ng/l). PFOA results were below its NYS GW criterion (10 ng/l), with the highest results at CBMW5 (6.1 ng/l) and PMW-3 (5.2 ng/l). All 1,4-Dioxane results were non-detectable (below the detection limit of 0.20 µg/l) and below the NYS GW Criteria of 1 µg/l.

In general, it appeared that concentrations of chlorinated VOCs have remained relatively stable within the source area (i.e., surrounding MW-5) of the plume located north of the Swanson Building in comparison to the concentrations detected during the 2018 sampling event, and they remain approximately 50% lower than the concentrations detected prior to the August 2017 ISCO injections. In addition, concentrations at several wells downgradient from the source area (southwest of the Swanson Building) have decreased in comparison to prior sampling results.

4.2.8 2021 ISCO Re-Injection

PCE and other chlorinated VOC concentrations in site groundwater were expected to continue to decrease naturally; however, to accelerate the process, additional ISCO injections were completed in the shallow groundwater aquifer during April 2021. GES and their subcontractor, Parratt-Wolff, conducted an ISCO injection event at the former C&B Cleaners Site from April 12 to 17, 2021. A total of 18 injection points were installed via direct push rig to a maximum depth of approximately 15 feet bgs, or to the top of the clay confirming layer. A higher number of injection points were concentrated in the suspected source area, located near MW-5 and along the northern edge of the Swanson Building, with additional points downgradient in the marshy area to the west of the Swanson Building and on the Pelican Site to the south of the building. The approximate injection point locations are shown on **Figure 8**; however, actual locations varied to avoid obstructions and uneven terrain. Approximately 21,500 gallons of 5% sodium permanganate mixture provided by Thatcher Company of New York, Inc. were injected from April 13 to 15, 2021. Documentation of the sodium permanganate concentration and deliveries is provided in Appendix B of the June 2021 In-Situ Chemical Oxidation Summary prepared by GES (included as **Appendix F** of this report).

Two tanker trucks delivered approximately 3,900 gallons of pre-mixed oxidant each per day. ISCO injections were performed by connecting up to six injections points to a piping manifold, with pressure gauges, flow meters, and valves to adjust flow as necessary to each injection point. A truck-mounted hydraulic pump was used to transfer the sodium permanganate solution directly from the tanker truck to each well at a flow rate up to 10 gallons per minute (gpm). A target volume of 1,300 gallons was planned to be injected within a 5 to 15 feet bgs zone at each point; however, the actual amount injected and the depth interval varied by location. Injection volumes were calculated using totalizer readings from the manifold, which tracked within 1 to 4% of the documented weight of oxidant delivered each day.

GES and HDR monitored the ground surface, Swanson Building basement, and wetland area for daylighting throughout the injection event. All daylighting and incidental spills of injectate were immediately neutralized, and injection rates and depths were adjusted to minimize daylighting. Prior to beginning work, the Swanson Building had been found further deteriorated and its basement still flooded, apparently in direct communication with the groundwater table. Water from the basement had also been observed flowing out of the opening in the southwest corner of the basement. Beginning on the first day of injections, April 13, 2021, injectate was seen in the building basement. On the following day, injectate was observed upwelling in the marshy area west of the Swanson Building and also seeping out of the opening in the building's southwest corner toward the wetlands to the west.

In light of the substantial daylighting, injections were paused while GES discussed how to proceed with NYSDEC. Based on the discussions, it was decided to construct a berm at the southwest corner of the Swanson Building to reduce the flow of injectate toward the wetlands, continue injections at a

slower rate, and monitor and neutralize additional daylighting. Upon completing injections on the Pelican Site on April 15, 2021, upwelling injectate was observed entering surface water in the wetlands from a seep west of CBPZ102 and ~50 ft south-southwest of IB-219. Due to the extensive daylighting across the site and injectate entering the wetlands surface water, it was ultimately decided to suspend the remainder of injections.

Of the 20 planned injection locations, 17 were injected, plus 1 unplanned location (IB-221, which was installed approximately 15 feet east of IB-218 on the Pelican Site). Locations IB-213 through -215 were cancelled as they lay in the low, marshy area west of the Swanson Building with upwelling injectate. Injection points IB-204, -208, -211, and -212 received less than the target 1,300 gallons each. Of the target 26,000 gallons of injections, approximately 21,340 gallons were injected into the planned 17 locations, with an additional 600 gallons injected into the added location IB-221. The remaining 4,060 gallons were not delivered to the site. The total volume of injectate calculated from totalizer readings on the injection manifold (21,500 gallons) was within 2% of the total volume of injectate delivered to the site. Volumes injected each day are summarized below and also presented in **Table 5** and in field logs in **Appendix E**.

Date	Sodium Permanganate Injected (gallons)
4/13/2021	7,750
4/14/1951	7,740
4/15/2021	6,450
Total	**21,940**

Throughout and at the conclusion of the injection event, GES confirmed that groundwater within monitoring wells in the injection was pink or purple in color, indicating the presence of oxidant. Following the event, GES returned to the site periodically to monitor and neutralize daylighting and seeping of injectate toward the wetland area. Daily reports from the injection event are provided in **Appendix D**.

4.2.8.1 Groundwater Performance Monitoring

GES plans to conduct groundwater quality monitoring/performance monitoring during July 2021 to assess the overall effectiveness of the latest round of ISCO injections. Procedures for groundwater quality monitoring are provided in the Operation and Maintenance Plan in Section 4 of the Site Management Plan (SMP). The Monitoring Plan also addresses inspection procedures that must occur after any severe weather condition has taken place that may affect on-site ECs.

4.3 Institutional Controls

The site remedy requires that an environmental easement be placed on the property to prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, limit the use and development of the site to commercial and industrial uses only.

Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- Requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);

- Allows the use and development of the controlled property for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- Restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH;
- Requires compliance with the Department approved Site Management Plan.

The environmental easement for the site will be executed by the Department and filed with the Chautauqua County Clerk upon completion of remedial activities and subsequent performance monitoring. The environmental easement, including the County Recording Identifier number for this filing, will be submitted as a future amendment to this document. A placeholder for this document is provided in **Appendix G**.

4.4 Deviations from The Remedial Action Work Plan

A summary of deviations from the work plan are provided below:

1. During the 2017 ISCO injection event, a number of ISCO injection locations proposed in the work plan could not be installed between the southwest corner of the Swanson Building and the wetland area to the west due to the marshy nature of site soil in this area and the likely impact of injections on the neighboring wetland area.
2. During the groundwater performance monitoring conducted in 2017 & 2018, groundwater elevations were not recorded by GES during either groundwater sampling event.
3. During the 2021 ICSO injection event, three of the ISCO injection locations (IB-213 through -215) proposed in the work plan could not be installed between the southwest corner of the Swanson Building and the wetland area to the west due to the marshy nature of this area and the likely impact of injections on the neighboring wetland. Of the 20 planned injection locations, 17 were injected, plus 1 unplanned location installed on the Pelican Site. Of the target 26,000 gallons of injections, approximately 21,340 gallons were injected.

5.0 REFERENCES

New York State Department of Environmental Conservation. Record of Decision for Former C&B Dry Cleaners, Environmental Restoration Project, Jamestown, Chautauqua County, Site No. E907028 – April 2013.

TVGA Consultants. Draft Remedial Investigation/Alternatives Analysis Report, Former C&B Dry Cleaners, (NYSDEC Site No. E907028), 2241 Washington Street, City of Jamestown, Chautauqua County. December 2007.

HDR, Pre-Design Investigation Report, Former C&B Dry Cleaners – Soil Remediation (NYSDEC Site Number 907028), NYSDEC Standby Engineering Contract, Work Assignment #D007625-16. August 2015.

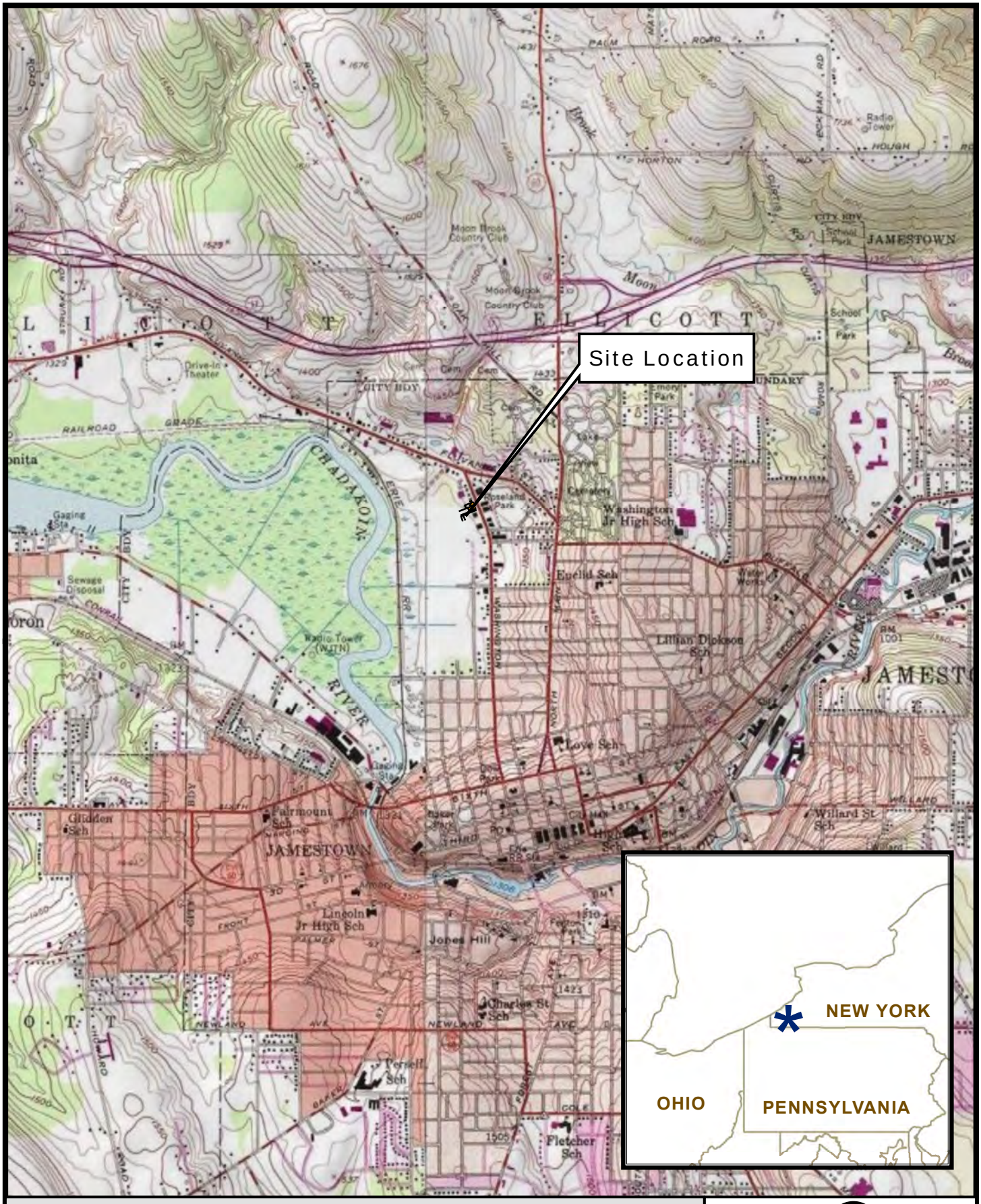
HDR, Interim Remedial Measures Report, Former C&B Dry Cleaners – Soil Remediation (NYSDEC Site Number 907028), NYSDEC Standby Engineering Contract, Work Assignment #D007625-16. July 2016

HDR, Final Design Report, Former C&B Dry Cleaners (NYSDEC Site Number 907028), Jamestown, Chautauqua County, New York, NYSDEC Standby Engineering Contract, Work Assignment #D007625-16. August 2016.

HDR, Results of 2017 ISCO Injections, Former C&B Dry Cleaners (NYSDEC Site Number 907028), Jamestown, Chautauqua County, New York, NYSDEC Standby Engineering Contract, Work Assignment #D007625-30. April 2019.

HDR, Technical Memorandum – Emerging Contaminant Groundwater Investigation, Former C&B Dry Cleaners (NYSDEC Site Number 907028), Jamestown, Chautauqua County, New York, NYSDEC Standby Engineering Contract, Work Assignment #D007625-30. April 2020.

Figures



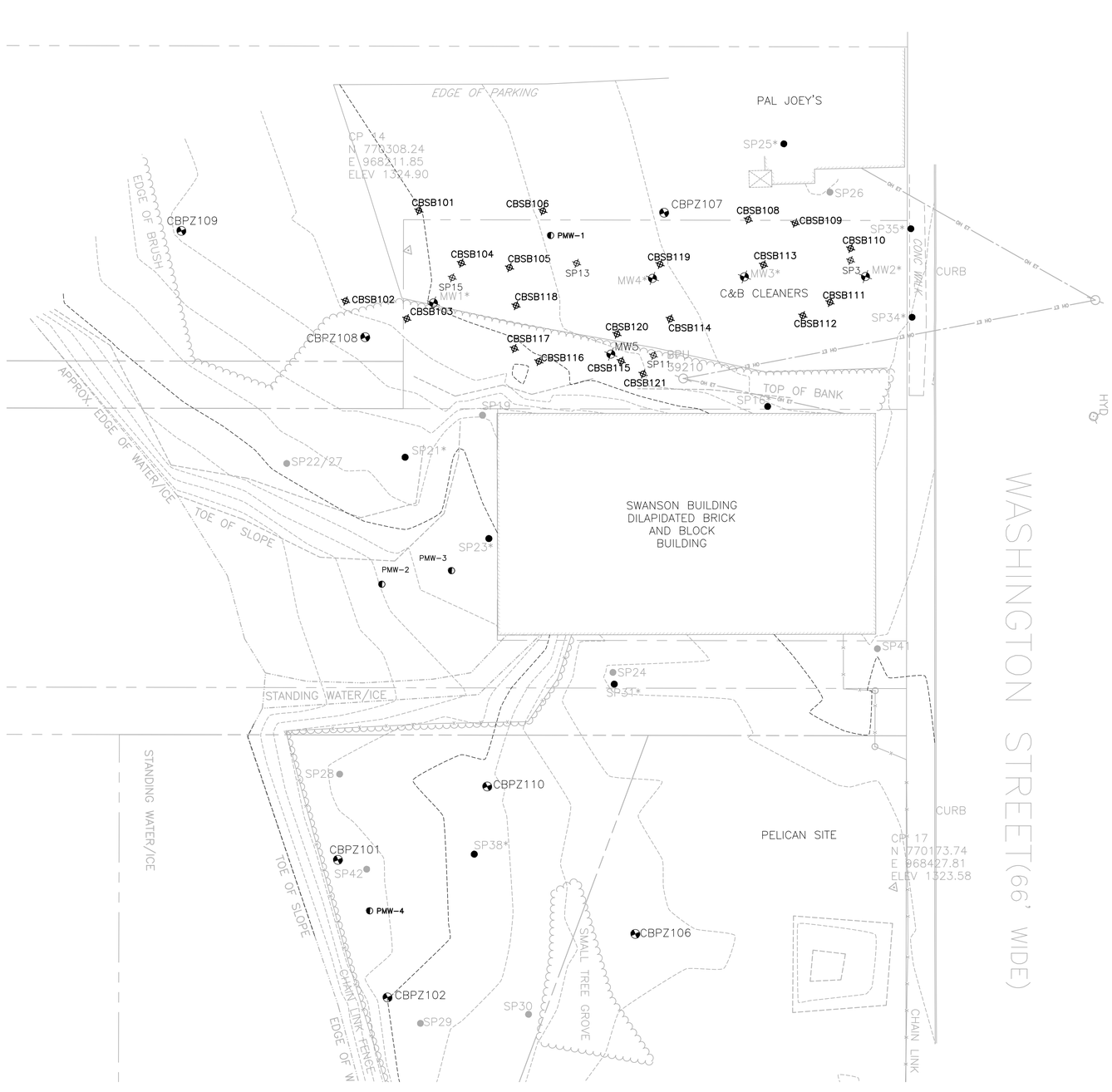
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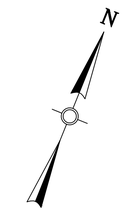
NOT TO SCALE

Source: United States Geological Survey Topographic Map. For more information on this map, visit http://goto.arcgisonline.com/maps/NGS_Topo_US_2D

Site Location Map
Former C&B Dry Cleaners Site
City of Jamestown, New York

Job No.	Date	Figure No.
10050422	4/2020	1





LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- PERFORMANCE MONITORING WELL

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
PROJECT NUMBER	10050422

FINAL ENGINEERING REPORT

FORMER C&B DRY CLEANERS

CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

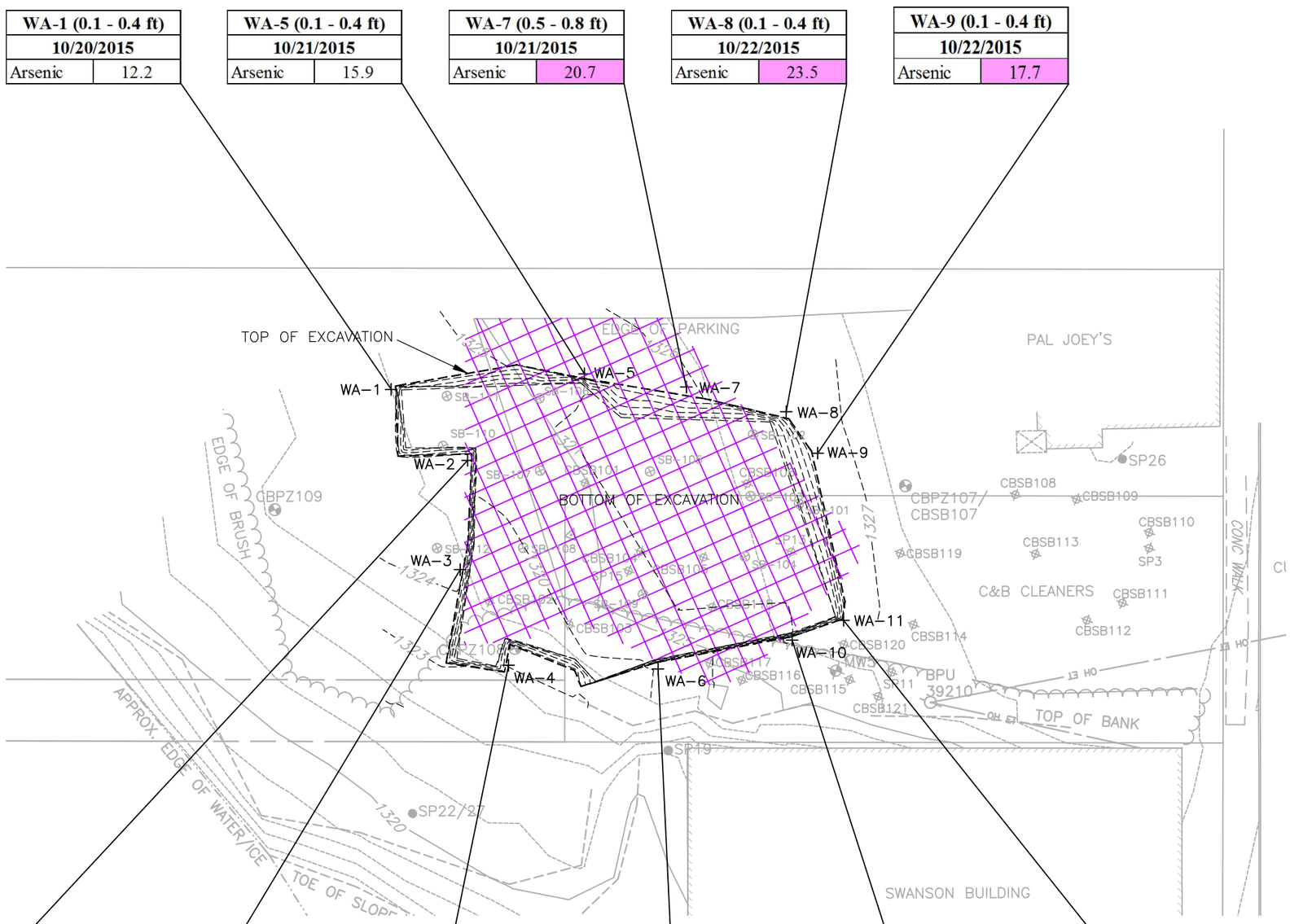
SITE MAP

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE 2



LEGEND:

- AS-BUILT LIMITS OF EXCAVATION
- EXCAVATION PIT CONTOUR LINE
- EXISTING CONTOUR LINE
- CHAIN LINK FENCE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- PRE-DESIGN INVESTIGATION SOIL BORING
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- +WA-1 CONFIRMATORY SAMPLE LOCATION (SIDEWALL SAMPLE)
- PRE-REMEDIAL ACTION SOIL BORING LOCATION (BY GES)

SAMPLE IDENTIFICATION
SAMPLE DEPTH OR INTERVAL

WA-2 (0.1 - 0.4 ft)	
10/20/2015	
Arsenic	24.0

SAMPLE DATE
ANALYTICAL RESULT MG/KG (PINK HIGHLIGHT INDICATES CONCENTRATION GREATER THAN RESTRICTED COMMERCIAL SCO)
ANALYTICAL PARAMETER

Restricted Use Commercial Soil Cleanup Objectives	
Contaminant	(mg/kg)
Arsenic	16

NOTES:

1. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C., IN JANUARY AND OCTOBER 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
2. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.
3. AS-BUILT LIMIT OF EXCAVATION WAS SURVEYED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C., ON OCTOBER 23, 2015.

30 0 30 60

SCALE: 1" = 30'

PROJECT TITLE
FORMER C & B DRY CLEANER
CHAUTAUQUA COUNTY, NEW YORK

SHEET TITLE
SUMMARY OF SOIL CONFIRMATORY SAMPLE RESULTS - ARSENIC

PROJECT NUMBER

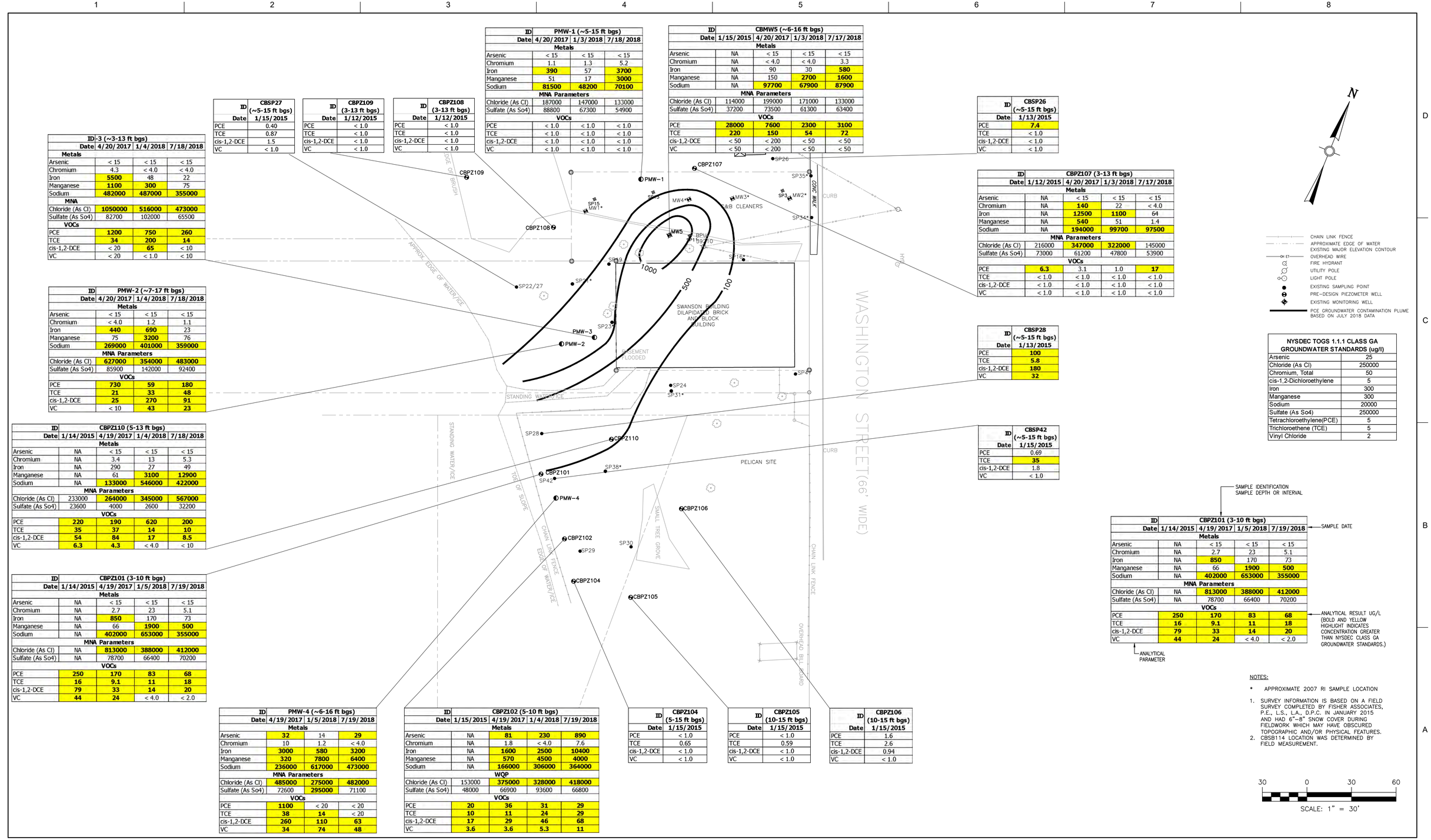
PROJECT MANAGER
E. ZIMMERMAN

DATE
07/2016

REFERENCE SHEET

SCALE
1"= 30'

FIGURE
3



ID	PMW-3 (~3-13 ft bgs)		
Date	4/20/2017	1/4/2018	7/18/2018
Metals			
Arsenic	< 15	< 15	< 15
Chromium	4.3	< 4.0	< 4.0
Iron	**5500**	48	22
Manganese	**1100**	**300**	75
Sodium	**482000**	**487000**	**355000**
MNA			
Chloride (As Cl)	**1050000**	**516000**	**473000**
Sulfate (As So4)	82700	102000	65500
VOCs			
PCE	**1200**	**750**	**260**
TCE	**34**	**200**	**14**
cis-1,2-DCE	< 20	**65**	< 10
VC	< 20	< 1.0	< 10

ID	PMW-2 (~7-17 ft bgs)		
Date	4/20/2017	1/4/2018	7/18/2018
Metals			
Arsenic	< 15	< 15	< 15
Chromium	< 4.0	1.2	1.1
Iron	**440**	**690**	23
Manganese	75	**3200**	76
Sodium	**269000**	**401000**	**359000**
MNA Parameters			
Chloride (As Cl)	**627000**	**354000**	**483000**
Sulfate (As So4)	85900	142000	92400
VOCs			
PCE	**730**	**59**	**180**
TCE	**21**	**33**	**48**
cis-1,2-DCE	**25**	**270**	**91**
VC	< 10	**43**	**23**

ID	CBPZ110 (5-13 ft bgs)			
Date	1/14/2015	4/19/2017	1/4/2018	7/18/2018
Metals				
Arsenic	NA	< 15	< 15	< 15
Chromium	NA	3.4	13	5.3
Iron	NA	290	27	49
Manganese	NA	61	**3100**	**12900**
Sodium	NA	**133000**	**546000**	**422000**
MNA Parameters				
Chloride (As Cl)	233000	**264000**	**345000**	**567000**
Sulfate (As So4)	23600	4000	2600	32200
VOCs				
PCE	**220**	**190**	**620**	**200**
TCE	**35**	**37**	**14**	**10**
cis-1,2-DCE	**54**	**84**	**17**	**8.5**
VC	**6.3**	**4.3**	< 4.0	< 10

ID	CBPZ101 (3-10 ft bgs)			
Date	1/14/2015	4/19/2017	1/5/2018	7/19/2018
Metals				
Arsenic	NA	< 15	< 15	< 15
Chromium	NA	2.7	23	5.1
Iron	NA	**850**	170	73
Manganese	NA	66	**1900**	**500**
Sodium	NA	**402000**	**653000**	**355000**
MNA Parameters				
Chloride (As Cl)	NA	**813000**	**388000**	**412000**
Sulfate (As So4)	NA	78700	66400	70200
VOCs				
PCE	**250**	**170**	**83**	**68**
TCE	**16**	**9.1**	**11**	**18**
cis-1,2-DCE	**79**	**33**	**14**	**20**
VC	**44**	**24**	< 4.0	< 2.0

ID	CBSP27 (~5-15 ft bgs)
Date	1/15/2015
PCE	0.40
TCE	0.87
cis-1,2-DCE	1.5
VC	< 1.0

ID	CBPZ109 (3-13 ft bgs)
Date	1/12/2015
PCE	< 1.0
TCE	< 1.0
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	CBPZ108 (3-13 ft bgs)
Date	1/12/2015
PCE	< 1.0
TCE	< 1.0
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	PMW-1 (~5-15 ft bgs)		
Date	4/20/2017	1/3/2018	7/18/2018
Metals			
Arsenic	< 15	< 15	< 15
Chromium	1.1	1.3	5.2
Iron	**390**	57	**3700**
Manganese	51	17	**3000**
Sodium	**81500**	**48200**	**70100**
MNA Parameters			
Chloride (As Cl)	187000	147000	133000
Sulfate (As So4)	88800	67300	54900
VOCs			
PCE	< 1.0	< 1.0	< 1.0
TCE	< 1.0	< 1.0	< 1.0
cis-1,2-DCE	< 1.0	< 1.0	< 1.0
VC	< 1.0	< 1.0	< 1.0

ID	CBMW5 (~6-16 ft bgs)			
Date	1/15/2015	4/20/2017	1/3/2018	7/17/2018
Metals				
Arsenic	NA	< 15	< 15	< 15
Chromium	NA	< 4.0	< 4.0	3.3
Iron	NA	90	30	**580**
Manganese	NA	150	**2700**	**1600**
Sodium	NA	**97700**	**67900**	**87900**
MNA Parameters				
Chloride (As Cl)	114000	199000	171000	133000
Sulfate (As So4)	37200	73500	61300	63400
VOCs				
PCE	**28000**	**7600**	**2300**	**3100**
TCE	**220**	**150**	**54**	**72**
cis-1,2-DCE	< 50	< 200	< 50	< 50
VC	< 50	< 200	< 50	< 50

ID	CBSP26 (~5-15 ft bgs)
Date	1/13/2015
PCE	**7.4**
TCE	< 1.0
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	CBPZ107 (3-13 ft bgs)			
Date	1/12/2015	4/20/2017	1/3/2018	7/17/2018
Metals				
Arsenic	NA	< 15	< 15	< 15
Chromium	NA	**140**	22	< 4.0
Iron	NA	**12500**	**1100**	64
Manganese	NA	**540**	51	1.4
Sodium	NA	**194000**	**99700**	**97500**
MNA Parameters				
Chloride (As Cl)	216000	**347000**	**322000**	145000
Sulfate (As So4)	73000	61200	47800	53900
VOCs				
PCE	**6.3**	3.1	1.0	**17**
TCE	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-DCE	< 1.0	< 1.0	< 1.0	< 1.0
VC	< 1.0	< 1.0	< 1.0	< 1.0

ID	CBSP28 (~5-15 ft bgs)
Date	1/13/2015
PCE	**100**
TCE	**5.8**
cis-1,2-DCE	**180**
VC	**32**

ID	CBSP42 (~5-15 ft bgs)
Date	1/15/2015
PCE	0.69
TCE	**35**
cis-1,2-DCE	1.8
VC	< 1.0

ID	PMW-4 (~6-16 ft bgs)		
Date	4/19/2017	1/5/2018	7/19/2018
Metals			
Arsenic	**32**	14	**29**
Chromium	10	1.2	< 4.0
Iron	**3000**	**580**	**3200**
Manganese	**320**	**7800**	**6400**
Sodium	**236000**	**617000**	**473000**
MNA Parameters			
Chloride (As Cl)	**485000**	**275000**	**482000**
Sulfate (As So4)	72600	**295000**	71100
VOCs			
PCE	**1100**	< 20	< 20
TCE	**38**	**14**	< 20
cis-1,2-DCE	**260**	**110**	**63**
VC	**34**	**74**	**48**

ID	CBPZ102 (5-10 ft bgs)			
Date	1/15/2015	4/19/2017	1/4/2018	7/19/2018
Metals				
Arsenic	NA	**81**	**230**	**890**
Chromium	NA	1.8	< 4.0	7.6
Iron	NA	**1600**	**2500**	**10400**
Manganese	NA	**570**	**4500**	**4000**
Sodium	NA	**166000**	**306000**	**364000**
WQP				
Chloride (As Cl)	153000	**375000**	**328000**	**418000**
Sulfate (As So4)	48000	66900	93600	66800
VOCs				
PCE	**20**	**36**	**31**	**29**
TCE	**10**	**11**	**24**	**29**
cis-1,2-DCE	**17**	**29**	**46**	**68**
VC	**3.6**	**3.6**	**5.3**	**11**

ID	CBPZ104 (5-15 ft bgs)
Date	1/15/2015
PCE	< 1.0
TCE	0.65
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	CBPZ105 (10-15 ft bgs)
Date	1/15/2015
PCE	< 1.0
TCE	0.59
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	CBPZ106 (10-15 ft bgs)
Date	1/15/2015
PCE	1.6
TCE	2.6
cis-1,2-DCE	0.94
VC	< 1.0

NYSDEC TOGS 1.1.1 CLASS GA GROUNDWATER STANDARDS (ug/l)	
Arsenic	25
Chloride (As Cl)	250000
Chromium, Total	50
cis-1,2-Dichloroethylene	5
Iron	300
Manganese	300
Sodium	20000
Sulfate (As So4)	250000
Tetrachloroethylene(PCE)	5
Trichloroethene (TCE)	5
Vinyl Chloride	2

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
2. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION		
			PROJECT MANAGER	E. ZIMMERMAN
			PROJECT NUMBER	10050422

GROUNDWATER RESULT SUMMARY

FORMER C&B DRY CLEANERS

CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

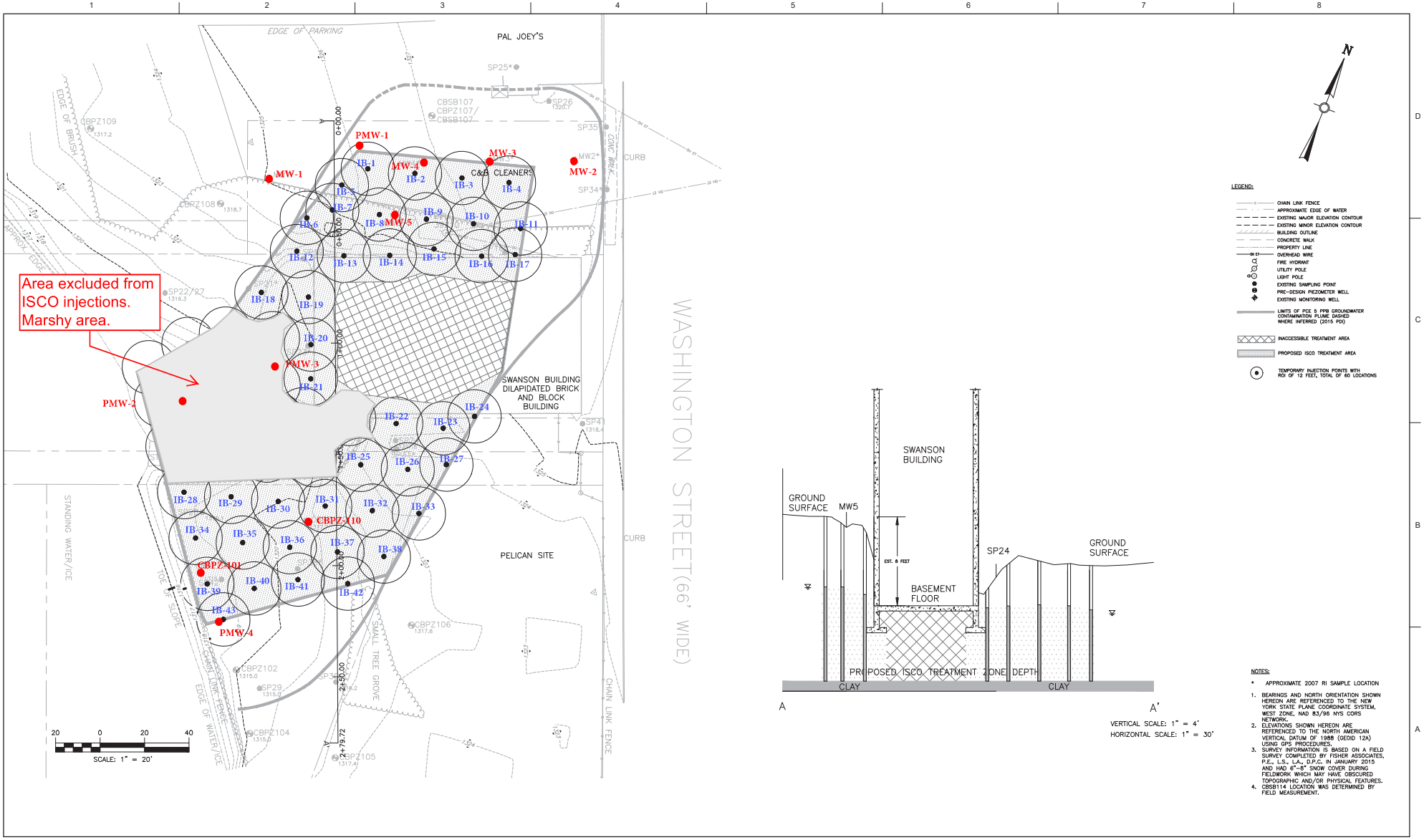
SUMMARY OF GROUNDWATER RESULTS 2017/2018

0 30 60

FILENAME

SCALE 1"= 30'

FIGURE 4



LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- LIMITS OF PCE & PPB GROUNDWATER CONTAMINATION PLUME DASHED WHERE INFERRED (2015 PDI)
- INACCESSIBLE TREATMENT AREA
- PROPOSED ISCO TREATMENT AREA
- TEMPORARY INJECTION POINTS WITH ROI OF 12 FEET, TOTAL OF 60 LOCATIONS

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
2	6/2016	60% DESIGN
1	2/2016	30% DESIGN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

FINAL

MONITORING WELL & ISCO INJECTION POINT LOCATIONS FORMER C&B DRY CLEANERS

CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE 5

ID	CBSP27 (~5-15 ft bgs)
Date	1/15/2015
PCE	0.40
TCE	0.87
cis-1,2-DCE	1.5
VC	< 1.0

ID	CBPZ109 (3-13 ft bgs)
Date	1/12/2015
PCE	< 1.0
TCE	< 1.0
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	CBPZ108 (3-13 ft bgs)
Date	1/12/2015
PCE	< 1.0
TCE	< 1.0
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	PMW-1 (~5-15 ft bgs)			
Date	4/20/2017	1/3/2018	7/18/2018	2/25/2020
Metals				
Arsenic	< 15	< 15	< 15	NA
Chromium	1.1	1.3	5.2	NA
Iron	**390**	57	**3700**	NA
Manganese	51	17	**3000**	NA
Sodium	**81500**	**48200**	**70100**	NA
MNA Parameters				
Chloride (As Cl)	187000	147000	133000	NA
Sulfate (As So4)	88800	67300	54900	NA
VOCs				
PCE	< 1.0	< 1.0	< 1.0	< 1.0
TCE	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-DCE	< 1.0	< 1.0	< 1.0	< 1.0
VC	< 1.0	< 1.0	< 1.0	< 1.0

ID	CBPZ107 (3-13 ft bgs)				
Date	1/12/2015	4/20/2017	1/3/2018	7/17/2018	2/25/2020
Metals					
Arsenic	NA	< 15	< 15	< 15	NA
Chromium	NA	**140**	22	< 4.0	NA
Iron	NA	**12500**	**1100**	64	NA
Manganese	NA	**540**	51	1.4	NA
Sodium	NA	**194000**	**99700**	**97500**	NA
MNA Parameters					
Chloride (As Cl)	216000	**347000**	**322000**	145000	NA
Sulfate (As So4)	73000	61200	47800	53900	NA
VOCs					
PCE	**6.3**	3.1	1.0	**17**	1.1
TCE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-DCE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
VC	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

ID	CBSP26 (~5-15 ft bgs)
Date	1/13/2015
PCE	**7.4**
TCE	< 1.0
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	PMW-2 (~7-17 ft bgs)			
Date	4/20/2017	1/4/2018	7/18/2018	2/25/2020
Metals				
Arsenic	< 15	< 15	< 15	NA
Chromium	< 4.0	1.2	1.1	NA
Iron	**440**	**690**	23	NA
Manganese	75	**3200**	76	NA
Sodium	**269000**	**401000**	**359000**	NA
MNA Parameters				
Chloride (As Cl)	**627000**	**354000**	**483000**	NA
Sulfate (As So4)	85900	142000	92400	NA
VOCs				
PCE	**730**	**59**	**180**	**140**
TCE	**21**	**33**	**48**	**8.6**
cis-1,2-DCE	**25**	**270**	**91**	**10**
VC	< 10	**43**	**23**	< 4.0

ID	PMW-3 (~3-13 ft bgs)			
Date	4/20/2017	1/4/2018	7/18/2018	2/25/2020
Metals				
Arsenic	< 15	< 15	< 15	NA
Chromium	4.3	< 4.0	< 4.0	NA
Iron	**5500**	48	22	NA
Manganese	**1100**	**300**	75	NA
Sodium	**482000**	**487000**	**355000**	NA
MNA Parameters				
Chloride (As Cl)	**1050000**	**516000**	**473000**	NA
Sulfate (As So4)	82700	102000	65500	NA
VOCs				
PCE	**1200**	**750**	**260**	**210**
TCE	**34**	**200**	**14**	**7**
cis-1,2-DCE	< 20	**65**	< 10	**5.1**
VC	< 20	< 1.0	< 10	< 4.0

ID	CBPZ101 (3-10 ft bgs)				
Date	1/14/2015	4/19/2017	1/5/2018	7/19/2018	2/25/2020
Metals					
Arsenic	NA	< 15	< 15	< 15	NA
Chromium	NA	2.7	23	5.1	NA
Iron	NA	**850**	170	73	NA
Manganese	NA	66	**1900**	**500**	NA
Sodium	NA	**402000**	**653000**	**355000**	NA
MNA Parameters					
Chloride (As Cl)	NA	**813000**	**388000**	**412000**	NA
Sulfate (As So4)	NA	78700	66400	70200	NA
VOCs					
PCE	**250**	**170**	**83**	**68**	**110**
TCE	**16**	**9.1**	**11**	**18**	**13**
cis-1,2-DCE	**79**	**33**	**14**	**20**	**22**
VC	**44**	**24**	< 4.0	< 2.0	< 2.0

ID	PMW-4 (~6-16 ft bgs)			
Date	4/19/2017	1/5/2018	7/19/2018	2/25/2020
Metals				
Arsenic	**32**	14	**29**	NA
Chromium	10	1.2	< 4.0	NA
Iron	**3000**	**580**	**3200**	NA
Manganese	**320**	**7800**	**6400**	NA
Sodium	**236000**	**617000**	**473000**	NA
MNA Parameters				
Chloride (As Cl)	**485000**	**275000**	**482000**	NA
Sulfate (As So4)	72600	**295000**	71100	NA
VOCs				
PCE	**1100**	< 20	< 20	0.8
TCE	**38**	**14**	< 20	3.7
cis-1,2-DCE	**260**	**110**	**63**	**55**
VC	**34**	**74**	**48**	**30**

ID	CBMW5 (~6-16 ft bgs)				
Date	1/15/2015	4/20/2017	1/3/2018	7/17/2018	2/25/2020
Metals					
Arsenic	NA	< 15	< 15	< 15	NA
Chromium	NA	< 4.0	< 4.0	3.3	NA
Iron	NA	90	30	**580**	NA
Manganese	NA	150	**2700**	**1600**	NA
Sodium	NA	**97700**	**67900**	**87900**	NA
MNA Parameters					
Chloride (As Cl)	114000	199000	171000	133000	NA
Sulfate (As So4)	37200	73500	61300	63400	NA
VOCs					
PCE	**28000**	**7600**	**2300**	**3100**	**3300**
TCE	**220**	**150**	**54**	**72**	**84**
cis-1,2-DCE	< 50	< 200	< 50	< 50	**54**
VC	< 50	< 200	< 50	< 50	< 50

ID	CBSP28 (~5-15 ft bgs)	
Date	1/13/2015	2/26/2020
PCE	**100**	**11**
TCE	**5.8**	4.3
cis-1,2-DCE	**180**	2.8
VC	**32**	1.3

ID	CBPZ110 (5-13 ft bgs)				
Date	1/14/2015	4/19/2017	1/4/2018	7/18/2018	2/25/2020
Metals					
Arsenic	NA	< 15	< 15	< 15	NA
Chromium	NA	3.4	13	5.3	NA
Iron	NA	290	27	49	NA
Manganese	NA	61	**3100**	**12900**	NA
Sodium	NA	**133000**	**546000**	**422000**	NA
MNA Parameters					
Chloride (As Cl)	233000	**264000**	**345000**	**567000**	NA
Sulfate (As So4)	23600	4000	2600	32200	NA
VOCs					
PCE	**220**	**190**	**620**	**200**	**32**
TCE	**35**	**37**	**14**	**10**	**5.2**
cis-1,2-DCE	**54**	**84**	**17**	**8.5**	4.9
VC	**6.3**	**4.3**	< 4.0	< 10	< 1.0

ID	CBSP42 (~5-15 ft bgs)
Date	1/15/2015
PCE	0.69
TCE	**35**
cis-1,2-DCE	1.8
VC	< 1.0

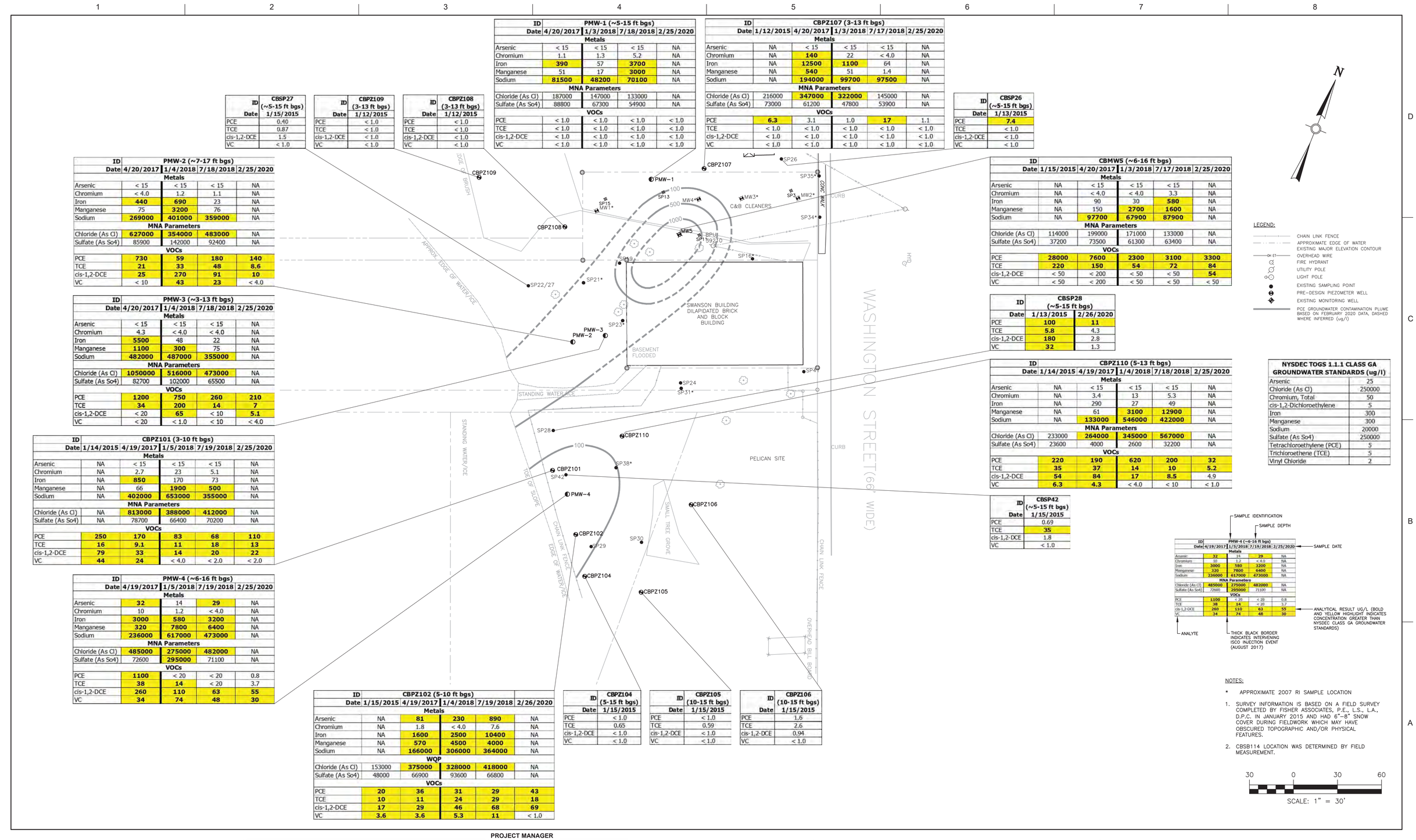
ID	CBPZ102 (5-10 ft bgs)				
Date	1/15/2015	4/19/2017	1/4/2018	7/19/2018	2/26/2020
Metals					
Arsenic	NA	**81**	**230**	**890**	NA
Chromium	NA	1.8	< 4.0	7.6	NA
Iron	NA	**1600**	**2500**	**10400**	NA
Manganese	NA	**570**	**4500**	**4000**	NA
Sodium	NA	**166000**	**306000**	**364000**	NA
WQP					
Chloride (As Cl)	153000	**375000**	**328000**	**418000**	NA
Sulfate (As So4)	48000	66900	93600	66800	NA
VOCs					
PCE	**20**	**36**	**31**	**29**	**43**
TCE	**10**	**11**	**24**	**29**	**18**
cis-1,2-DCE	**17**	**29**	**46**	**68**	**69**
VC	**3.6**	**3.6**	**5.3**	**11**	< 1.0

ID	CBPZ104 (5-15 ft bgs)
Date	1/15/2015
PCE	< 1.0
TCE	0.65
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	CBPZ105 (10-15 ft bgs)
Date	1/15/2015
PCE	< 1.0
TCE	0.59
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	CBPZ106 (10-15 ft bgs)
Date	1/15/2015
PCE	1.6
TCE	2.6
cis-1,2-DCE	0.94
VC	< 1.0

NYSDEC TOGS 1.1.1 CLASS GA GROUNDWATER STANDARDS (ug/l)	
Arsenic	25
Chloride (As Cl)	250000
Chromium, Total	50
cis-1,2-Dichloroethylene	5
Iron	300
Manganese	300
Sodium	20000
Sulfate (As So4)	250000
Tetrachloroethylene (PCE)	5
Trichloroethene (TCE)	5
Vinyl Chloride	2



LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- OH ET — OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- PCE GROUNDWATER CONTAMINATION PLUME BASED ON FEBRUARY 2020 DATA, DASHED WHERE INFERRED (ug/l)

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
2. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

30 0 30 60

SCALE: 1" = 30'

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	E. ZIMMERMAN
PROJECT NUMBER	10050422

GROUNDWATER RESULT SUMMARY

FORMER C&B DRY CLEANERS

CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

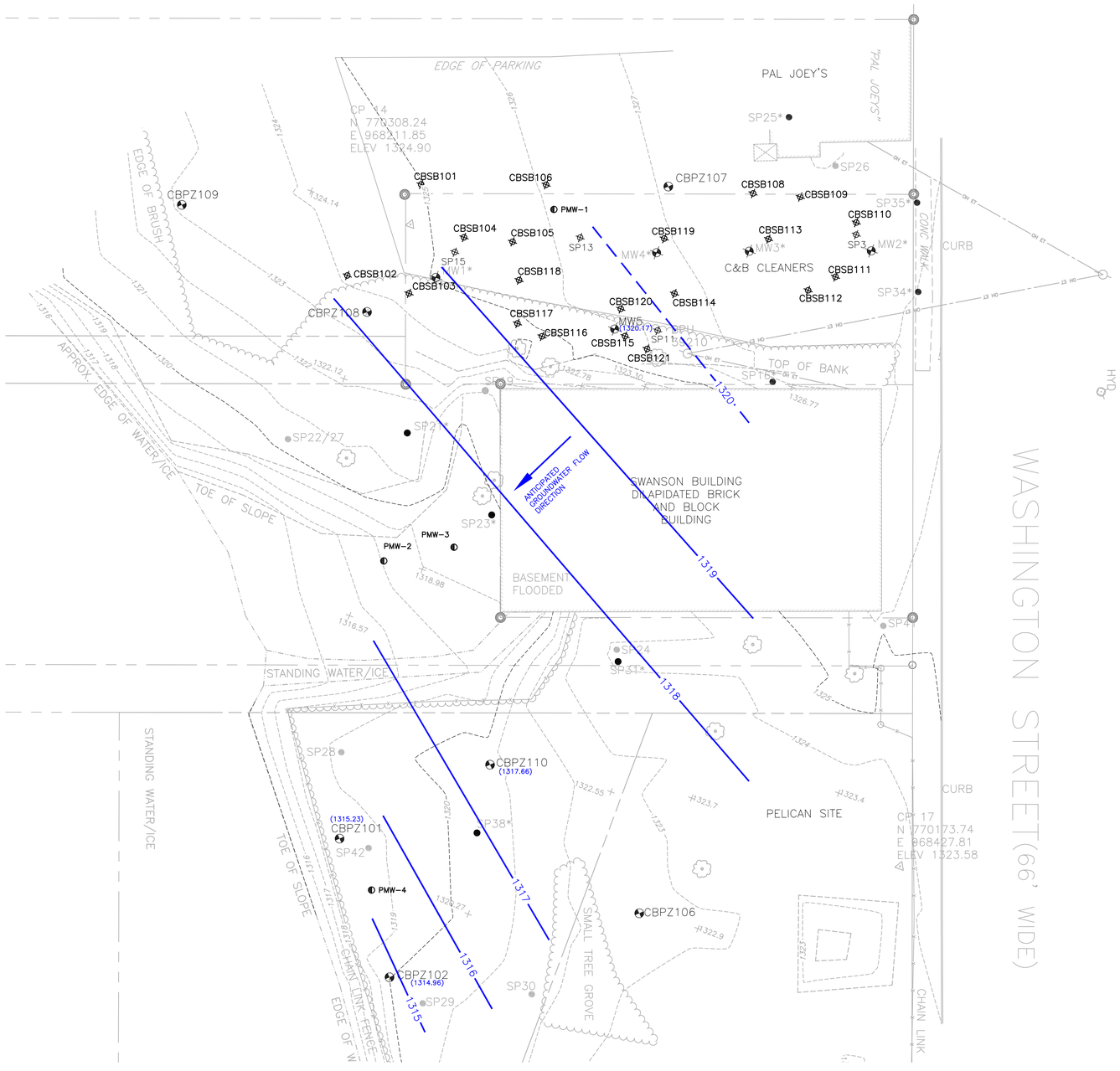
SUMMARY OF GROUNDWATER RESULTS - 2015 to 2020

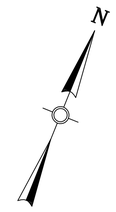
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FILENAME

SCALE 1"= 30'

FIGURE 6





LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- GROUNDWATER CONTOURS (DASHED WHERE INFERRED)
- (1320.17) GROUNDWATER ELEVATION (02/25/20)

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. GROUNDWATER ELEVATIONS ARE BASED ON A ROUND OF SYNOPTIC DEPTH TO WATER MEASUREMENTS COLLECTED ON 02/25/20.
2. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
3. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
4. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"–8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
5. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
PROJECT NUMBER	10050422

GROUNDWATER RESULT SUMMARY

FORMER C&B DRY CLEANERS

CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

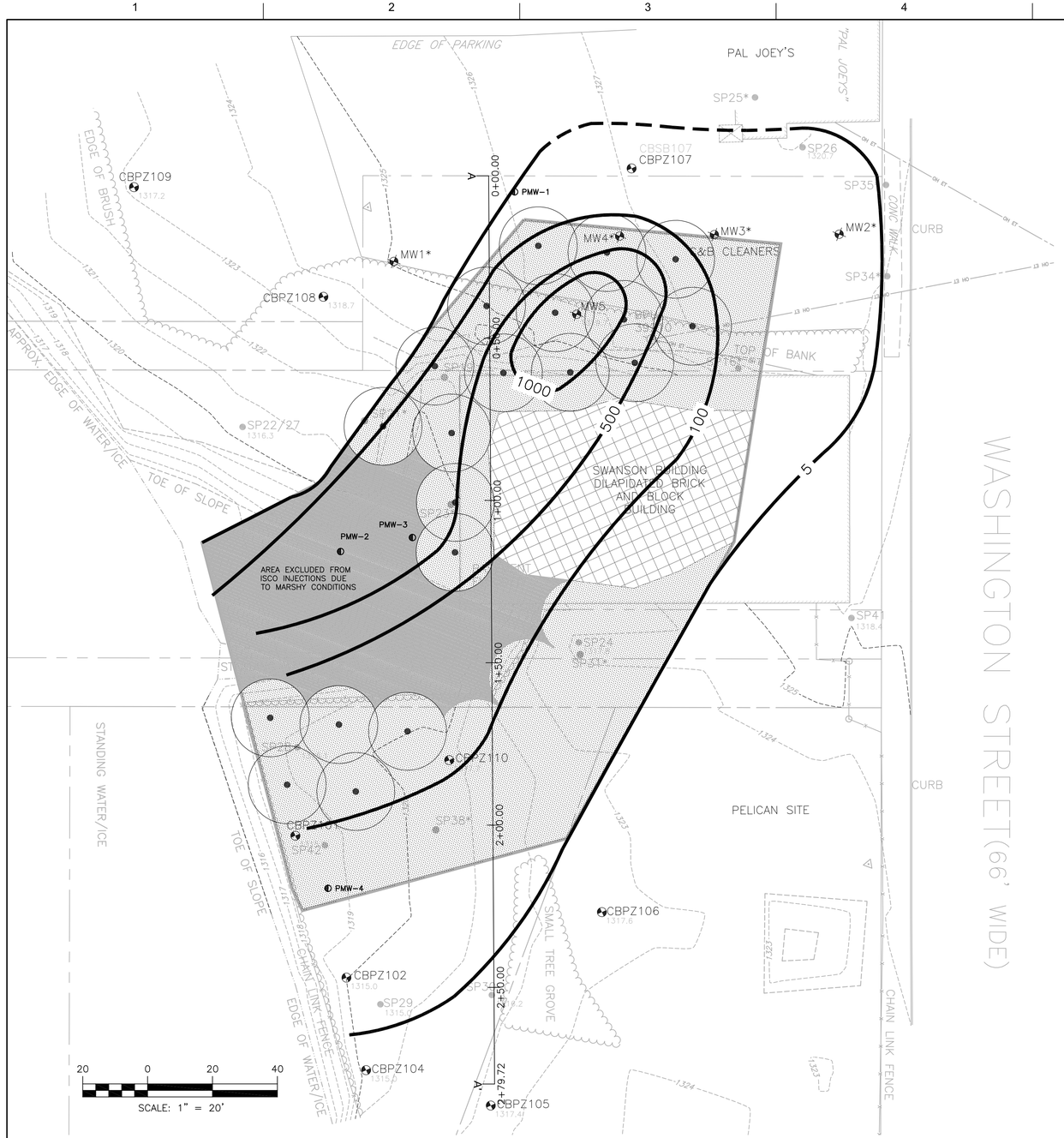
GROUNDWATER CONTOURS

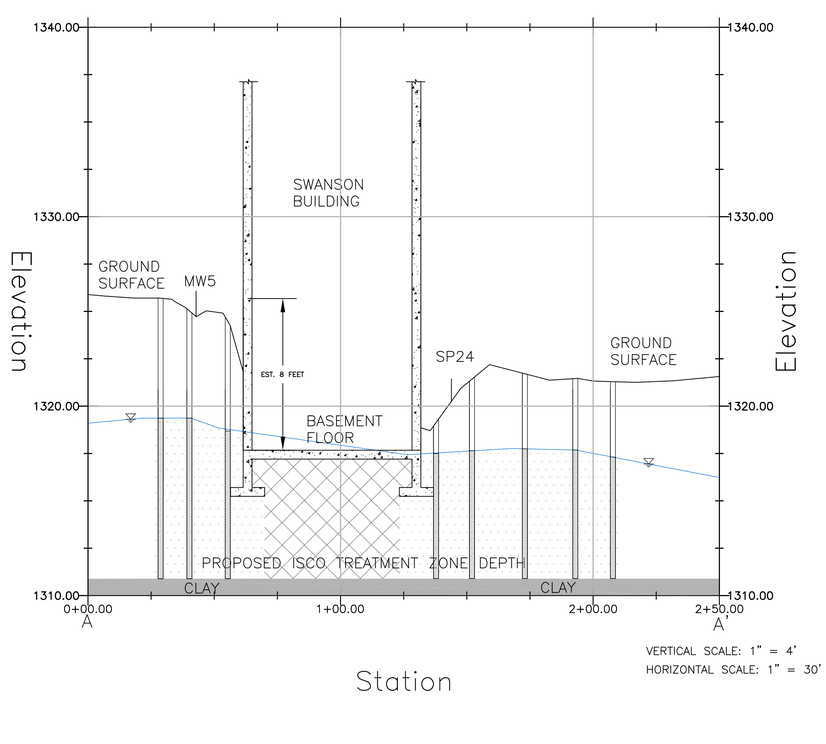
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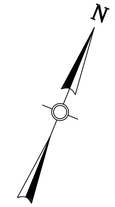
FILENAME

SCALE 1"= 20'

FIGURE 7







LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- PERFORMANCE MONITORING WELL
- **PCE CONTAMINATION ISO-CONCENTRATION LINES (PPB; DASHED WHERE INFERRED)**
- INACCESSIBLE TREATMENT AREA
- PROPOSED ISCO TREATMENT AREA
- TEMPORARY INJECTION POINTS WITH ROI OF 12 FEET, TOTAL OF 60 LOCATIONS
- INFERRED LIMITS OF PCE GROUNDWATER

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
0	4/2019	RE-INJECTION WORK PLAN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
PROJECT NUMBER	10050422

GROUNDWATER RESULT SUMMARY

FORMER C&B DRY CLEANERS

CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

TEMPORARY INJECTION POINT LAYOUT - 2021

0 20 40

FILENAME	
SCALE	1"= 20'
FIGURE	8

Tables

Table 1 - Groundwater SCGs
Former C&B Dry Cleaners Site
Jamestown, Chautauqua County, NY

Detected Constituents	Concentration Range Detected (ppb)	SCG (ppb)	Frequency Exceeding SCG
VOCs			
1,1,2,2-Tetrachloroethane	ND	5	0 of 10
Tetrachloroethene	ND - 3300	5	7 of 10
Trichloroethene	ND - 84	5	6 of 10
1,1-Dichloroethene	ND - 0.94	5	0 of 10
cis-1,2-Dichloroethene	ND - 69	5	6 of 10
Vinyl chloride	ND - 30	2	1 of 10

Notes:

1. Concentration Range and Frequency Exceeding SCG based on February 2020 groundwater sampling analytical results.

PPB - Parts per billion, which is equivalent to micrograms per liter, ppm, in water.

SCG - Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

Table 2 - Groundwater Sample Analytical Results - 2015 to 2018
Former C&B Dry Cleaners Site
Jamestown, Chautauqua County, NY

Analyte	Cas No.	Location ID Sample Date Sample ID	NYSDEC TOGS 1.1.1 CLASS GA GROUNDWATER STANDARDS (ug/l)	CBMW5 1/15/2015 CBMW5-20150115-20150115		CBMW5 4/20/2017 MW-5-20170420		CBMW5 1/3/2018 MW-5-20180103		CBMW5 7/17/2018 DUP-071718-20180717		CBMW5 7/17/2018 MW-5-20180717		CBPZ101 1/14/2015 CBPZ101-20150114-20150114		CBPZ101 4/19/2017 CBPZ101-20170419		CBPZ101 1/5/2018 CBPZ-101-20180105		CBPZ101 7/19/2018 CBPZ-101-20180719	
				Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.
VOCs																					
1,1,1-Trichloroethane	71-55-6	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
1,1,2,2-Tetrachloroethane	79-34-5	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1			50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
1,1,2-Trichloroethane	79-00-5	1		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
1,1-Dichloroethane	75-34-3	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
1,1-Dichloroethene	75-35-4	5		50	U	200	U	50	U	50	U	50	U	0.31	J	4	U	4	U	2	U
1,2,4-Trichlorobenzene	120-82-1			50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.04		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
1,2-Dibromoethane	106-93-4	0.0006		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
1,2-Dichlorobenzene	95-50-1	3		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
1,2-Dichloroethane	107-06-2	0.6		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
1,2-Dichloropropane	78-87-5	1		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
1,3-Dichlorobenzene	541-73-1	3		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
1,4-Dichlorobenzene	106-46-7	3		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
2-Butanone	78-93-3			500	U	2000	U	500	U	500	UT	500	UT	10	U	40	U	40	U	20	U
2-Hexanone	591-78-6			250	U	1000	U	250	U	250	U	250	U	5	U	20	UT	20	U	10	U
4-Methyl-2-Pentanone	108-10-1			250	U	1000	U	250	U	250	U	250	U	5	U	20	UT	20	U	10	U
Acetone	67-64-1			500	U	2000	U	500	UT	500	U	500	U	10	U	40	U	29	JT	20	U
Benzene	71-43-2	1		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Bromodichloromethane	75-27-4			50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Bromoform	75-25-2			50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Bromomethane	74-83-9	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Carbon Disulfide	75-15-0	60		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Carbon Tetrachloride	56-23-5	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Chlorobenzene	108-90-7	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Chloroethane	75-00-3	5		50	U	200	UT	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Chloroform	67-66-3	7		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Chloromethane	74-87-3	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
cis-1,2-Dichloroethylene	156-59-2	**5**		50	U	200	U	50	U	50	U	50	U	**79**		**33**		**14**		**20**	
cis-1,3-Dichloropropene	10061-01-5			50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Cyclohexane	110-82-7			50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Dibromochloromethane	124-48-1			50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Dichlorodifluoromethane	75-71-8	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Ethylbenzene	100-41-4	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Isopropylbenzene	98-82-8	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Methyl Acetate	79-20-9			130	U	500	U	130	U	130	U	130	U	2.5	U	10	U	10	U	5	U
Methyl tert-Butyl Ether	1634-04-4			50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Methylcyclohexane	108-87-2			50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Methylene Chloride	75-09-2	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Styrene	100-42-5	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Tetrachloroethylene(PCE)	127-18-4	**5**		**28000**		**7600**		**2300**		**3100**		**2300**	T	**250**		**170**		**83**		**68**	
Toluene	108-88-3	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
trans-1,2-Dichloroethene	156-60-5	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
trans-1,3-Dichloropropene	10061-02-6			50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Trichloroethene (TCE)	79-01-6	**5**		**220**		**150**	J	**54**		**72**		**51**		**16**		**9.1**		**11**		**18**	
Trichlorofluoromethane	75-69-4	5		50	U	200	U	50	U	50	U	50	U	1	U	4	U	4	U	2	U
Vinyl Chloride	75-01-4	**2**		50	U	200	U	50	U	50	U	50	U	**44**		**24**		4	U	2	U
Xylenes, Total	XYLENES			100	U	400	U	100	U	100	U	100	U	2	U	8	U	8	U	4	U
Metals																					
Aluminum	7429-90-5					200	U	200	U	200		260				540		180	J	200	U
Antimony	7440-36-0	3				20	U	20	U	20	U	20	U			20	U	20	U	20	U
Arsenic	7440-38-2	**25**				15	U	15	U	15	U	15	U			15	U	15	U	15	U
Barium	7440-39-3	1000				230		41		80		78				340		7.4		8.2	
Beryllium	7440-41-7	3				2	U	2	U	2	U	2	U			2	U	2	U	2	U
Cadmium	7440-43-9	5				2	U	2	U	2	U	2	U			2	U	2	U	2	U
Calcium	7440-70-2					80600		99400		92600		92400				143000		72400		79700	
Chromium, Total	7440-47-3	**50**				4	U	4	U	3.3	J	3.5	J			2.7	J	23		5.1	
Cobalt	7440-48-4	200				4	U	4	U	4	U	4	U			4	U	4	U	4	U
Copper	7440-50-8					10	U	10	U	10	U	10	U			3.1	J	3.8	J	10	U
Iron	7439-89-6	**300**				90		30	J	**400**		**580**				**850**		170		73	
Lead	7439-92-1	25				10	U	10	U	10	U	10	U			5.8	J	10	U	10	U
Magnesium	7439-95-4					18700		26800		22400		22500				27400		17800		15300	
Manganese	7439-96-5	**300**				150		**2700**		**1600**		**1600**				66		**1900**		**500**	B
Nickel	7440-02-0	100				10	U	10	U	10	U	10	U			1.7	J	13		13	
Potassium	7440-09-7					2200		3400	B	3700	B	3700	B			4100		7200		5600	
Selenium	7782-49-2	10				25	U	25	U	25	U	25	U			25	U	25	U	25	U
Silver	7440-22-4	50				6	U	6	U	6	U	6	U			6	U	6	U	6	U
Sodium	7440-23-5	**20000**				**97700**		**67900**		**88500**		**87900**				**402000**		**653000**		**355000**	
Thallium	7440-28-0					20	U	20	U	20	U	20	U			20	U	20	U	20	U
Vanadium	7440-62-2					5	U	5	U	5	U	5	U			5	U	5	U	5	U
Zinc	7440-66-6					10	U	10	U	5	J	4	J			6	J	2.7	BJ	10	U
MNA Parameters																					
Sulfate (As So4)	14808-79-8	**250000**		37200		73500		61300		52400	B	63400	B			78700		66400		70200	B
Total Organic Carbon	TOC			2200		1300		890	BJ	1900	B	1900	B			870	J	18200	B	3600	B
Chloride (As Cl)	16887-00-6	**250000**		114000		199000		171000	B	133000	B	131000	B			**813000**		**388000**		**412000**	
Total Dissolved Solids	E-10173			485000		555000		589000		562000		559000				1650000		1790000	B	1190000	
Total Suspended Solids	TSS			4300	U	4000	U	4000	U	138000		247000				21200		33200		4000	U

Notes:
U - Analytical Non-Detect Value
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B - Detected in associate blank
NA - Not Analyzed
NS - Not Sampled
ug/l - micrograms per liter
NYSDEC Class GA - NYSDEC Part 703: Surface Water and Groundwater Quality Standards and

Table 2 - Groundwater Sample Analytical Results - 2015 to 2018
Former C&B Dry Cleaners Site
Jamestown, Chautauqua County, NY

		Location ID		CBPZ102		CBPZ102		CBPZ102		CBPZ102		CBPZ104		CBPZ105		CBPZ106		CBPZ107		CBPZ107	
		Sample Date		1/15/2015		4/19/2017		1/4/2018		7/19/2018		1/15/2015		1/15/2015		1/15/2015		1/12/2015		4/20/2017	
		Sample ID		CBPZ102-20150115-20150115		CBPZ102-20170419		CBPZ-102-20180104		CBPZ-102-20180719		CBPZ104-20150115-20150115		CBPZ105-20150115-20150115		CBPZ106-20150115-20150115		CBPZ107-20150112-20150112		CBPZ107-20170420	
Analyte	Cas No.	NYSDEC TOGS 1.1.1 CLASS GA GROUNDWATER STANDARDS (ug/l)	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.
VOCs																				
1,1,1-Trichloroethane	71-55-6	5	1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	5	1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	5	1	U	1	U	0.5	JT	0.88	J	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.04	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane	106-93-4	0.0006	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	95-50-1	3	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	0.6	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	1	1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	3	1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	3	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone	78-93-3		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone	591-78-6		5	U	5	UT	5	U	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	108-10-1		5	U	5	UT	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	67-64-1		10	U	10	U	10	UT	10	U	10	U	10	U	10	U	10	U	10	U
Benzene	71-43-2	1	1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4		1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide	75-15-0	60	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	56-23-5	5	1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	5	1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT
Chloroform	67-66-3	7	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethylene	156-59-2	**5**	**17**		**29**		**46**	**T**	**68**		1	U	1	U	0.94	J	1	U	1	U
cis-1,3-Dichloropropene	10061-01-5		1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
Cyclohexane	110-82-7		1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	5	1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
Methyl Acetate	79-20-9		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Methyl tert-Butyl Ether	1634-04-4		1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
Methylcyclohexane	108-87-2		1	U	1	U	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
Methylene Chloride	75-09-2	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	100-42-5	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethylene(PCE)	127-18-4	**5**	**20**		**36**		**31**	**T**	**29**		1	U	1	U	1.6		**6.3**		3.1	
Toluene	108-88-3	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	5	1	U	1	U	1	UT	0.94	J	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene (TCE)	79-01-6	**5**	**10**		**11**		**24**	**T**	**29**		0.65	J	0.59	J	2.6		1	U	1	U
Trichlorofluoromethane	75-69-4	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	**2**	**3.6**		**3.6**		**5.3**	**T**	**11**		1	U	1	U	1	U	1	U	1	U
Xylenes, Total	XYLENES		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Metals																				
Aluminum	7429-90-5				330		200	U	200	U									8400	
Antimony	7440-36-0	3			20	U	20	U	20	U									20	U
Arsenic	7440-38-2	**25**			**81**		**230**		**890**										15	U
Barium	7440-39-3	1000			270		75		160										250	
Beryllium	7440-41-7	3			2	U	2	U	2	U									0.37	J
Cadmium	7440-43-9	5			2	U	2	U	0.51	J									2	U
Calcium	7440-70-2				124000		135000		125000										64500	
Chromium, Total	7440-47-3	**50**			1.8	J	4	U	7.6										**140**	
Cobalt	7440-48-4	200			4	U	1.1	J	1.7	J									5.1	
Copper	7440-50-8				2.1	J	8.1	U	2	J									33	
Iron	7439-89-6	**300**			**1600**		**2500**		**10400**										**12500**	
Lead	7439-92-1	25			6.3	U	4.4	U	3.1	U									22	
Magnesium	7439-95-4				25400		26500		22800										15600	
Manganese	7439-96-5	**300**			**570**		**4500**		**4000**	**B**									**540**	
Nickel	7440-02-0	100			1.7	J	12		9	J									33	
Potassium	7440-09-7				3000		4600		6000										5100	
Selenium	7782-49-2	10			25	U	25	U	25	U									25	U
Silver	7440-22-4	50			6	U	6	U	6	U									6	U
Sodium	7440-23-5	**20000**			**166000**		**306000**		**364000**										**194000**	
Thallium	7440-28-0				20	U	20	U	20	U									20	U
Vanadium	7440-62-2				5	U	5	U	5	U									15	
Zinc	7440-66-6				23		29	B	54	B									41	
MNA Parameters																				
Sulfate (As So4)	14808-79-8	**250000**	48000		66900		93600		66800	B	41200						73000		61200	
Total Organic Carbon	TOC		760	J	1100	B	4900	B	4100	B	560	J					810	J	570	J
Chloride (As Cl)	16887-00-6	**250000**	153000	B	**375000**		**328000**	**B**	**418000**		122000	B					216000	B	**347000**	
Total Dissolved Solids	E-10173		526000		908000		1190000	B	1310000		469000						700000		902000	
Total Suspended Solids	TSS		186000		6600		4000	U	34000		8400						289000		64000	

Notes:
U - Analytical Non-Detect Value
J - Estimated Analytical Value
B - Detected in associate blank
NA - Not Analyzed
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ug/l - micrograms per liter
NYSDEC Class GA - NYSDEC Part 703: Surface Water and Groundwater Qualit

Table 2 - Groundwater Sample Analytical Results - 2015 to 2018
Former C&B Dry Cleaners Site
Jamestown, Chautauqua County, NY

		Location ID	CBPZ107		CBPZ107		CBPZ108		CBPZ109		CBPZ110		CBPZ110		CBPZ110		CBPZ110		CBSP26	
		Sample Date	1/3/2018		7/17/2018		1/12/2015		1/12/2015		1/14/2015		4/19/2017		1/4/2018		7/18/2018		1/13/2015	
		Sample ID	CBPZ107-20180103		CBPZ-107-20180717		CBPZ108-20150112-20150112		CBPZ109-20150112-20150112		CBPZ110-20150114-20150114		CBPZ110-20170419		CBPZ-110-20180104		CBPZ-110-20180718		CBSP26-20150113-20150113	
Analyte	Cas No.	NYSDEC TOGS 1.1.1 CLASS GA GROUNDWATER STANDARDS (ug/l)	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.
VOCs																				
1,1,1-Trichloroethane	71-55-6	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
1,1,2-Trichloroethane	79-00-5	1	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
1,1-Dichloroethane	75-34-3	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
1,1-Dichloroethene	75-35-4	5	1	U	1	U	1	U	1	U	0.59	J	4	U	4	U	10	U	1	U
1,2,4-Trichlorobenzene	120-82-1		1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.04	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
1,2-Dibromoethane	106-93-4	0.0006	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
1,2-Dichlorobenzene	95-50-1	3	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
1,2-Dichloroethane	107-06-2	0.6	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
1,2-Dichloropropane	78-87-5	1	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
1,3-Dichlorobenzene	541-73-1	3	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
1,4-Dichlorobenzene	106-46-7	3	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
2-Butanone	78-93-3		10	U	10	UT	10	U	10	U	10	U	40	U	40	U	100	U	10	U
2-Hexanone	591-78-6		5	U	5	U	5	U	5	U	5	U	20	UT	20	U	50	U	5	U
4-Methyl-2-Pentanone	108-10-1		5	U	5	U	5	U	5	U	5	U	20	UT	20	U	50	U	5	U
Acetone	67-64-1		10	U	10	U	10	U	10	U	10	U	40	U	40	UT	100	U	10	U
Benzene	71-43-2	1	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Bromodichloromethane	75-27-4		1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Bromoform	75-25-2		1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Bromomethane	74-83-9	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Carbon Disulfide	75-15-0	60	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Carbon Tetrachloride	56-23-5	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Chlorobenzene	108-90-7	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Chloroethane	75-00-3	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Chloroform	67-66-3	7	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Chloromethane	74-87-3	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
cis-1,2-Dichloroethylene	156-59-2	**5**	1	U	1	U	1	U	1	U	**54**		**84**		**17**		**8.5**	J	1	U
cis-1,3-Dichloropropene	10061-01-5		1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Cyclohexane	110-82-7		1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Dibromochloromethane	124-48-1		1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Dichlorodifluoromethane	75-71-8	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Ethylbenzene	100-41-4	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Isopropylbenzene	98-82-8	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Methyl Acetate	79-20-9		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	10	U	25	U	2.5	U
Methyl tert-Butyl Ether	1634-04-4		1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Methylcyclohexane	108-87-2		1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Methylene Chloride	75-09-2	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Styrene	100-42-5	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Tetrachloroethylene(PCE)	127-18-4	**5**	1		**17**		1	U	1	U	**220**		**190**		**620**		**200**		**7.4**	
Toluene	108-88-3	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
trans-1,2-Dichloroethene	156-60-5	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
trans-1,3-Dichloropropene	10061-02-6		1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Trichloroethene (TCE)	79-01-6	**5**	1	U	1	U	1	U	1	U	**35**		**37**		**14**		**10**		1	U
Trichlorofluoromethane	75-69-4	5	1	U	1	U	1	U	1	U	1	U	4	U	4	U	10	U	1	U
Vinyl Chloride	75-01-4	**2**	1	U	1	U	1	U	1	U	**6.3**		**4.3**		4	U	10	U	1	U
Xylenes, Total	XYLENES		2	U	2	U	2	U	2	U	2	U	8	U	8	U	20	U	2	U
Metals																				
Aluminum	7429-90-5		970		66	J							130	J	200	U	200	U		
Antimony	7440-36-0	3	20	U	20	U							20	U	20	U	20	U		
Arsenic	7440-38-2	**25**	15	U	15	U							15	U	15	U	15	U		
Barium	7440-39-3	1000	170		120								170		9.6		43			
Beryllium	7440-41-7	3	2	U	2	U							2	U	2	U	2	U		
Cadmium	7440-43-9	5	2	U	2	U							2	U	2	U	2	U		
Calcium	7440-70-2		131000		90900								114000		66800		102000			
Chromium, Total	7440-47-3	**50**	22		4	U							3.4	J	13		5.3			
Cobalt	7440-48-4	200	4	U	4	U							4	U	4	U	4	U		
Copper	7440-50-8		4	U	10	U							10	U	6.5	J	10	U		
Iron	7439-89-6	**300**	**1100**		64								290		27	J	49	J		
Lead	7439-92-1	25	7.7	J	10	U							3	J	10	U	10	U		
Magnesium	7439-95-4		26800		19600								20700		12300		19900			
Manganese	7439-96-5	**300**	51		1.4	J							61		**3100**		**12900**	B		
Nickel	7440-02-0	100	3.4	J	10	U							10	U	16		62			
Potassium	7440-09-7		4200	B	4400	B							3100		5400	B	7200			
Selenium	7782-49-2	10	25	U	25	U							25	U	25	U	25	U		
Silver	7440-22-4	50	6	U	6	U							6	U	6	U	6	U		
Sodium	7440-23-5	**20000**	**99700**		**97500**								**133000**		**546000**		**422000**			
Thallium	7440-28-0		20	U	20	U							20	U	20	U	20	U		
Vanadium	7440-62-2		1.7	J	5	U							5	U	5	U	5	U		
Zinc	7440-66-6		4.8	J	10	U							10	U	2.6	BJ	10	U		
MNA Parameters																				
Sulfate (As So4)	14808-79-8	**250000**	47800		53900	B	**406000**				23600		4000	J	2600	J	32200	B		
Total Organic Carbon	TOC		510	BJ	970	BJ	2800				2600		1800		17700	B	4500	B		
Chloride (As Cl)	16887-00-6	**250000**	**322000**		145000	B	86300	B			233000	B	**264000**		**345000**		**567000**			
Total Dissolved Solids	E-10173		847000		564000		916000				714000		750000		1530000	B	1420000			
Total Suspended Solids	TSS		4800		4800		674000				4300	U	16000		4000	U	4000	U		

Notes:
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ug/l - micrograms per liter
NYSDEC Class GA - NYSDEC Part 703: Surface Water and Groundwater Qualit

Table 2 - Groundwater Sample Analytical Results - 2015 to 2018
Former C&B Dry Cleaners Site
Jamestown, Chautauqua County, NY

Analyte	Cas No.	Location ID Sample Date Sample ID	NYSDEC TOGS 1.1.1 CLASS GA GROUNDWATER STANDARDS (ug/l)	CBSP27 1/15/2015 CBSP27-20150115-20150115		CBSP28 1/13/2015 CBSP28-20150113-1-20150113		CBSP28 1/13/2015 CBSP28-20150113-20150113		CBSP42 1/15/2015 CBSP42-20150115-20150115		PMW-1 4/20/2017 PMW-1-20170420		PMW-1 1/3/2018 DUP-010318-20180103		PMW-1 1/3/2018 PMW-1-20180103		PMW-1 7/18/2018 PMW-1-20180718		PMW-2 4/20/2017 PMW-2-20170420	
				Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.
VOCs																					
1,1,1-Trichloroethane	71-55-6	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
1,1,2,2-Tetrachloroethane	79-34-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1			1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
1,1,2-Trichloroethane	79-00-5	1		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
1,1-Dichloroethane	75-34-3	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
1,1-Dichloroethene	75-35-4	5		1	U	0.62	J	0.51	J	1	U	1	U	1	U	1	U	1	UT	10	U
1,2,4-Trichlorobenzene	120-82-1			1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U	10	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.04		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
1,2-Dibromoethane	106-93-4	0.0006		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
1,2-Dichlorobenzene	95-50-1	3		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
1,2-Dichloroethane	107-06-2	0.6		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
1,2-Dichloropropane	78-87-5	1		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
1,3-Dichlorobenzene	541-73-1	3		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
1,4-Dichlorobenzene	106-46-7	3		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
2-Butanone	78-93-3			10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U
2-Hexanone	591-78-6			5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	50	U
4-Methyl-2-Pentanone	108-10-1			5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	50	U
Acetone	67-64-1			10	U	10	U	10	U	10	U	10	U	3.5	J	10	U	10	UT	100	U
Benzene	71-43-2	1		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
Bromodichloromethane	75-27-4			1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
Bromoform	75-25-2			1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
Bromomethane	74-83-9	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
Carbon Disulfide	75-15-0	60		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
Carbon Tetrachloride	56-23-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
Chlorobenzene	108-90-7	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
Chloroethane	75-00-3	5		1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	UT	10	UT
Chloroform	67-66-3	7		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
Chloromethane	74-87-3	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
cis-1,2-Dichloroethylene	156-59-2	**5**		1.5		**180**		**160**		1.8		1	U	1	U	1	U	1	U	**25**	
cis-1,3-Dichloropropene	10061-01-5			1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
Cyclohexane	110-82-7			1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
Dibromochloromethane	124-48-1			1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
Dichlorodifluoromethane	75-71-8	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
Ethylbenzene	100-41-4	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
Isopropylbenzene	98-82-8	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
Methyl Acetate	79-20-9			2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	25	U
Methyl tert-Butyl Ether	1634-04-4			1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
Methylcyclohexane	108-87-2			1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
Methylene Chloride	75-09-2	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
Styrene	100-42-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
Tetrachloroethylene(PCE)	127-18-4	**5**		0.4	J	**94**		**100**		0.69	J	1	UT	1	U	1	U	1	U	**730**	
Toluene	108-88-3	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	10	U
trans-1,2-Dichloroethene	156-60-5	5		1	U	1.3		1.3		1		1	U	1	U	1	U	1	U	10	U
trans-1,3-Dichloropropene	10061-02-6			1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
Trichloroethene (TCE)	79-01-6	**5**		0.87	J	**5.8**		**5.7**		**35**		1	U	1	U	1	U	1	UT	**21**	
Trichlorofluoromethane	75-69-4	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UT	10	U
Vinyl Chloride	75-01-4	**2**		1	U	**32**		**31**		1	U	1	U	1	U	1	U	1	UT	10	U
Xylenes, Total	XYLENES			2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	20	U
Metals																					
Aluminum	7429-90-5											310		200	U	200	U	3400	T	410	
Antimony	7440-36-0	3										20	U	20	U	20	U	20	U	20	U
Arsenic	7440-38-2	**25**										15	U	15	U	15	U	15	U	15	U
Barium	7440-39-3	1000										120		100		98		340	T	200	
Beryllium	7440-41-7	3										2	U	2	U	2	U	0.39	J	2	U
Cadmium	7440-43-9	5										2	U	2	U	2	U	2	U	2	U
Calcium	7440-70-2											106000		110000		108000		132000	T	151000	
Chromium, Total	7440-47-3	**50**										1.1	J	1.3	J	1.1	J	5.2		4	U
Cobalt	7440-48-4	200										4	U	4	U	4	U	3.4	J	4	U
Copper	7440-50-8											10	U	3.1	J	10	U	13		10	U
Iron	7439-89-6	**300**										**390**		57		49	J	**3700**	T	**440**	
Lead	7439-92-1	25										10	U	4.9	J	3.2	J	12		4.6	J
Magnesium	7439-95-4											28500		27400		26500		31400	T	31200	
Manganese	7439-96-5	**300**										51		17		15		**3000**	B	75	
Nickel	7440-02-0	100										10	U	10	U	10	U	7.9	J	10	U
Potassium	7440-09-7											1900		1600	B	1600	B	2600	T	2900	
Selenium	7782-49-2	10										25	U	25	U	25	U	25	U	25	U
Silver	7440-22-4	50										6	U	6	U	6	U	6	U	6	U
Sodium	7440-23-5	**20000**										**81500**		**48200**		**47300**		**70100**	T	**269000**	
Thallium	7440-28-0											20	U	20	U	20	U	20	U	20	U
Vanadium	7440-62-2											5	U	5	U	5	U	3.9	J	5	U
Zinc	7440-66-6											10	U	3.6	J	2.1	J	25	B	10	U
MNA Parameters																					
Sulfate (As So4)	14808-79-8	**250000**						51900				88800		67300		65700		54900	B	85900	
Total Organic Carbon	TOC							1700				1000	U	470	BJ	580	BJ	810	BJ	660	J
Chloride (As Cl)	16887-00-6	**250000**						**388000**	B			187000		147000	B	148000	B	133000		**627000**	
Total Dissolved Solids	E-10173							873000				615000		589000		544000		798000	BHT	1390000	
Total Suspended Solids	TSS							4000	U			18000		4000	U	4000	U	9330000		26400	

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Former C&B Dry Cleaners Site
Jamestown, Chautauqua County, NY

		Location ID	PMW-2		PMW-2		PMW-3		PMW-3		PMW-3		PMW-4		PMW-4		PMW-4		PMW-4	
		Sample Date	1/4/2018		7/18/2018		4/20/2017		1/4/2018		7/18/2018		4/19/2017		4/19/2017		1/5/2018		7/19/2018	
		Sample ID	PMW-2-20180104		PMW-2-20180718		PMW-3-20170420		PMW-3-20180104		PMW-3-20180718		DUP-041917-20170419		PMW-4-20170419		PMW-4-20180105		PMW-4-20180719	
Analyte	Cas No.	NYSDEC TOGS 1.1.1 CLASS GA GROUNDWATER STANDARDS (ug/l)	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result (ug/l)	Qua.	Result	Qua.
VOCs																				
1,1,1-Trichloroethane	71-55-6	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
1,1,2,2-Tetrachloroethane	79-34-5	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
1,1,2-Trichloroethane	79-00-5	1	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
1,1-Dichloroethane	75-34-3	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
1,1-Dichloroethene	75-35-4	5	0.83	J	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
1,2,4-Trichlorobenzene	120-82-1		1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.04	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
1,2-Dibromoethane	106-93-4	0.0006	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
1,2-Dichlorobenzene	95-50-1	3	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
1,2-Dichloroethane	107-06-2	0.6	1	U	5	U	20	U	1	U	10	U	20	UT	20	U	20	U	20	U
1,2-Dichloropropane	78-87-5	1	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
1,3-Dichlorobenzene	541-73-1	3	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
1,4-Dichlorobenzene	106-46-7	3	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
2-Butanone	78-93-3		10	U	50	U	200	U	10	U	100	U	200	U	200	U	200	U	200	U
2-Hexanone	591-78-6		5	U	25	U	100	U	5	U	50	U	100	UT	100	UT	100	U	100	U
4-Methyl-2-Pentanone	108-10-1		5	U	25	U	100	U	5	U	50	U	100	UT	100	UT	100	U	100	U
Acetone	67-64-1		3.2	JT	50	U	200	U	10	UT	100	U	200	U	200	U	200	UT	200	U
Benzene	71-43-2	1	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Bromodichloromethane	75-27-4		1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Bromoform	75-25-2		1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Bromomethane	74-83-9	5	1	U	5	U	20	U	1	U	10	U	20	UT	20	U	20	U	20	U
Carbon Disulfide	75-15-0	60	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Carbon Tetrachloride	56-23-5	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Chlorobenzene	108-90-7	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Chloroethane	75-00-3	5	1	U	5	U	20	UT	1	U	10	U	20	UT	20	U	20	U	20	U
Chloroform	67-66-3	7	0.38	J	5	U	20	U	0.38	J	10	U	20	U	20	U	20	U	20	U
Chloromethane	74-87-3	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
cis-1,2-Dichloroethylene	156-59-2	**5**	**270**		**91**		20	U	**65**		10	U	**260**		**250**		**110**		**63**	
cis-1,3-Dichloropropene	10061-01-5		1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Cyclohexane	110-82-7		1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Dibromochloromethane	124-48-1		1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Dichlorofluoromethane	75-71-8	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Ethylbenzene	100-41-4	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Isopropylbenzene	98-82-8	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Methyl Acetate	79-20-9		2.5	U	13	U	50	U	2.5	U	25	U	50	U	50	U	50	U	50	U
Methyl tert-Butyl Ether	1634-04-4		1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Methylcyclohexane	108-87-2		1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Methylene Chloride	75-09-2	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Styrene	100-42-5	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Tetrachloroethylene(PCE)	127-18-4	**5**	**59**		**180**		**1200**		**750**		**260**		**1100**	T	**1100**		20	U	20	U
Toluene	108-88-3	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
trans-1,2-Dichloroethene	156-60-5	5	1.7		5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
trans-1,3-Dichloropropene	10061-02-6		1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Trichloroethene (TCE)	79-01-6	**5**	**33**		**48**		**34**		**200**		**14**		**38**		**36**		**14**	J	20	U
Trichlorofluoromethane	75-69-4	5	1	U	5	U	20	U	1	U	10	U	20	U	20	U	20	U	20	U
Vinyl Chloride	75-01-4	**2**	**43**		**23**		20	U	1	U	10	U	**34**		**33**		**74**		**48**	
Xylenes, Total	XYLENES		2	U	10	U	40	U	2	U	20	U	40	U	40	U	40	U	40	U
Metals																				
Aluminum	7429-90-5		290		200	U	3400		200	U	200	U	1300		1400		200	U	200	U
Antimony	7440-36-0	3	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Arsenic	7440-38-2	**25**	15	U	15	U	15	U	15	U	15	U	**32**		**28**		14	J	**29**	
Barium	7440-39-3	1000	100		64		290		70		64		260		260		10		69	
Beryllium	7440-41-7	3	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Cadmium	7440-43-9	5	2	U	2	U	2	U	2	U	2	U	0.52	J	0.65	J	2	U	2	U
Calcium	7440-70-2		102000		77800		161000		101000		76700		128000		131000		65900		77600	
Chromium, Total	7440-47-3	**50**	1.2	J	1.1	J	4.3		4	U	4	U	10		11		1.2	J	4	U
Cobalt	7440-48-4	200	4	U	4	U	2.1	J	4	U	4	U	0.92	J	1	J	4	U	4	U
Copper	7440-50-8		10	U	10	U	9.1	J	10	U	10	U	6.4	J	7.1	J	2.9	J	10	U
Iron	7439-89-6	**300**	**690**		23	J	**5500**		48	J	22	J	**2900**		**3000**		**580**		**3200**	
Lead	7439-92-1	25	10	U	10	U	10		10	U	10	U	8.4	J	7.1	J	3.1	J	10	U
Magnesium	7439-95-4		21500		13400		31000		19100		13200		26300		26900		17600		19200	
Manganese	7439-96-5	**300**	**3200**		76	B	**1100**		**300**		75	B	**310**		**320**		**7800**		**6400**	B
Nickel	7440-02-0	100	10	U	10	U	7.5	J	10	U	10	U	2	J	2	J	3	J	1.6	J
Potassium	7440-09-7		2700		3900		4600		4100		3800		2800		2800		10900		10200	
Selenium	7782-49-2	10	25	U	25	U	25	U	25	U	25	U	25	U	25	U	25	U	25	U
Silver	7440-22-4	50	6	U	6	U	6	U	6	U	6	U	6	U	6	U	6	U	6	U
Sodium	7440-23-5	**20000**	**401000**		**359000**		**482000**		**487000**		**355000**		**234000**		**236000**		**617000**		**473000**	
Thallium	7440-28-0		20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Vanadium	7440-62-2		5	U	5	U	6.3		5	U	5	U	2.7	J	2.4	J	5	U	5	U
Zinc	7440-66-6		10	U	10	U	17		10	U	10	U	32		37		2.4	BJ	10	U
MNA Parameters																				
Sulfate (As So4)	14808-79-8	**250000**	142000		92400	B	82700		102000		65500	B	72600		72600		**295000**		71100	B
Total Organic Carbon	TOC		6500	B	2600	B	590	J	3500	B	1700	B	670	J	660	J	21500	B	6600	B
Chloride (As Cl)	16887-00-6	**250000**	**354000**		**483000**		**1050000**		**516000**	B	**473000**		**484000**		**485000**		**275000**		**482000**	
Total Dissolved Solids	E-10173		1340000	B	824000		2040000		1510000		1150000		1190000		1230000		1660000	B	1500000	
Total Suspended Solids	TSS		8400		4000	U	402000		4000	U	4000	U	6800		4800		4000	U	5600	

Notes:
U - Analytical Non-Detect Value
J - Estimated Analytical Value
B - Detected in associate blank
NA - Not Analyzed
NS - Not Sampled
ug/l - micrograms per liter
NYSDEC Class GA - NYSDEC Part 703: Surface Water and Groundwater Qualit

Table 3 - Groundwater Sample Analytical Results Summary - 2020

Former C&B Dry Cleaners Site
Jamestown, Chautauqua County, NY

			Location ID	CBMW5		CBPZ101		CBPZ102	
			Sample ID	CBMW5-5-15-20200225		CBPZ101-3-10-2020225		CBPZ102-5-10-20200226	
			Sample Type	N		N		N	
			Sample Depth (ft btoc)	6 - 16		3 - 10		5 - 10	
			Sample Date	2/25/2020		2/25/2020		2/26/2020	
Analyte	**Cas No.**	**NYS GW Crieria**	**Unit**	**Result**	**Qua.**	**Result**	**Qua.**	**Result**	**Qua.**
1,1,1-Trichloroethane	71-55-6	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,1,2,2-Tetrachloroethane	79-34-5	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,1,2-Trichloroethane	79-00-5	1	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,1-Dichloroethane	75-34-3	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,1-Dichloroethene	75-35-4	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.04	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,2-Dibromoethane	106-93-4	0.0006	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,2-Dichlorobenzene	95-50-1	3	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,2-Dichloroethane	107-06-2	0.6	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,2-Dichloropropane	78-87-5	1	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,3-Dichlorobenzene	541-73-1	3	ug/l	< 50	U	< 2.0	U	< 1.0	U
1,4-Dichlorobenzene	106-46-7	3	ug/l	< 50	U	< 2.0	U	< 1.0	U
2-Butanone	78-93-3	50	ug/l	< 500	U	< 20	U	< 10	U
2-Hexanone	591-78-6	50	ug/l	< 250	U	< 10	U	< 5.0	U
4-Methyl-2-Pentanone	108-10-1		ug/l	< 250	U	< 10	U	< 5.0	U
Acetone	67-64-1	50	ug/l	< 500	U	< 20	U	< 10	U
Benzene	71-43-2	1	ug/l	< 50	U	< 2.0	U	< 1.0	U
Bromodichloromethane	75-27-4	50	ug/l	< 50	U	< 2.0	U	< 1.0	U
Bromoform	75-25-2	50	ug/l	< 50	U	< 2.0	U	< 1.0	U
Bromomethane	74-83-9	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
Carbon Disulfide	75-15-0	60	ug/l	< 50	U	< 2.0	U	< 1.0	U
Carbon Tetrachloride	56-23-5	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
Chlorobenzene	108-90-7	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
Chloroethane	75-00-3	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
Chloroform	67-66-3	7	ug/l	< 50	U	< 2.0	U	< 1.0	U
Chloromethane	74-87-3	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
cis-1,2-Dichloroethylene	156-59-2	**5**	ug/l	**54**		**22**		**69**	
cis-1,3-Dichloropropene	10061-01-5		ug/l	< 50	U	< 2.0	U	< 1.0	U
Cyclohexane	110-82-7		ug/l	< 50	U	< 2.0	U	< 1.0	U
Dibromochloromethane	124-48-1	50	ug/l	< 50	U	< 2.0	U	< 1.0	U
Dichlorodifluoromethane	75-71-8	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
Dimethyl Benzene/ Xylenes, Total	1330-20-7	5	ug/l	< 100	U	< 4.0	U	< 2.0	U
Ethylbenzene	100-41-4	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
Isopropylbenzene	98-82-8	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
Methyl Acetate	79-20-9		ug/l	< 130	U	< 5.0	U	< 2.5	U
Methyl tert-Butyl Ether	1634-04-4	10	ug/l	< 50	U	< 2.0	U	< 1.0	U
Methylcyclohexane	108-87-2		ug/l	< 50	U	< 2.0	U	< 1.0	U
Methylene Chloride	75-09-2	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
Styrene	100-42-5	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
Tetrachloroethylene(PCE)	127-18-4	**5**	ug/l	**3300**		**110**		**43**	
Toluene	108-88-3	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
trans-1,2-Dichloroethene	156-60-5	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
trans-1,3-Dichloropropene	10061-02-6		ug/l	< 50	U	< 2.0	U	< 1.0	U
Trichloroethene (TCE)	79-01-6	**5**	ug/l	**84**		**13**		**18**	
Trichlorofluoromethane	75-69-4	5	ug/l	< 50	U	< 2.0	U	< 1.0	U
Vinyl Chloride	75-01-4	**2**	ug/l	< 50	U	< 2.0	U	< 1.0	U

Notes:

B - Compound was found in the blank and sample
FD - Field duplicate
ft btoc - Feet below top of casing
ID - Identificaiton
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value
N - Normal
NA - Not available
ng/l - Nanograms per liter
No. - Number
NYS GW - New York State Groundwater
Qual. - Qualifier
U - Analytical non-detect value
ug/l - Micrograms per liter
10 - Bold results with yellow highlights exceed the NYS GW Criteria

Table 3 - Groundwater Sample Analytical Results Summary - 2020

Former C&B Dry Cleaners Site
Jamestown, Chautauqua County, NY

			Location ID	CBPZ107		CBPZ110		CBSP28	
			Sample ID	CBPZ107-3-13-20200225		CBPZ110-5-13-20200225		CBSP28-5-15-20200226	
			Sample Type	N		N		N	
			Sample Depth (ft btoc)	3 - 13		5 - 13		5 - 15	
			Sample Date	2/25/2020		2/25/2020		2/26/2020	
Analyte	**Cas No.**	**NYS GW Crieria**	**Unit**	**Result**	**Qua.**	**Result**	**Qua.**	**Result**	**Qua.**
1,1,1-Trichloroethane	71-55-6	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,1,2,2-Tetrachloroethane	79-34-5	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,1,2-Trichloroethane	79-00-5	1	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,1-Dichloroethane	75-34-3	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,1-Dichloroethene	75-35-4	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.04	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,2-Dibromoethane	106-93-4	0.0006	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,2-Dichlorobenzene	95-50-1	3	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,2-Dichloroethane	107-06-2	0.6	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,2-Dichloropropane	78-87-5	1	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,3-Dichlorobenzene	541-73-1	3	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
1,4-Dichlorobenzene	106-46-7	3	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
2-Butanone	78-93-3	50	ug/l	< 10	U	< 10	U	< 10	U
2-Hexanone	591-78-6	50	ug/l	< 5.0	U	< 5.0	U	< 5.0	U
4-Methyl-2-Pentanone	108-10-1		ug/l	< 5.0	U	< 5.0	U	< 5.0	U
Acetone	67-64-1	50	ug/l	< 10	U	< 10	U	< 10	U
Benzene	71-43-2	1	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Bromodichloromethane	75-27-4	50	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Bromoform	75-25-2	50	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Bromomethane	74-83-9	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Carbon Disulfide	75-15-0	60	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Carbon Tetrachloride	56-23-5	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Chlorobenzene	108-90-7	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Chloroethane	75-00-3	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Chloroform	67-66-3	7	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Chloromethane	74-87-3	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
cis-1,2-Dichloroethylene	156-59-2	**5**	ug/l	< 1.0	U	4.9		2.8	
cis-1,3-Dichloropropene	10061-01-5		ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Cyclohexane	110-82-7		ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Dibromochloromethane	124-48-1	50	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Dichlorodifluoromethane	75-71-8	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Dimethyl Benzene/ Xylenes, Total	1330-20-7	5	ug/l	< 2.0	U	< 2.0	U	< 2.0	U
Ethylbenzene	100-41-4	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Isopropylbenzene	98-82-8	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Methyl Acetate	79-20-9		ug/l	< 2.5	U	< 2.5	U	< 2.5	U
Methyl tert-Butyl Ether	1634-04-4	10	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Methylcyclohexane	108-87-2		ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Methylene Chloride	75-09-2	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Styrene	100-42-5	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Tetrachloroethylene(PCE)	127-18-4	**5**	ug/l	1.1		**32**		**11**	
Toluene	108-88-3	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
trans-1,2-Dichloroethene	156-60-5	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
trans-1,3-Dichloropropene	10061-02-6		ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Trichloroethene (TCE)	79-01-6	**5**	ug/l	< 1.0	U	**5.2**		4.3	
Trichlorofluoromethane	75-69-4	5	ug/l	< 1.0	U	< 1.0	U	< 1.0	U
Vinyl Chloride	75-01-4	**2**	ug/l	< 1.0	U	< 1.0	U	1.3	

Notes:

B - Compound was found in the blank and sample
FD - Field duplicate
ft btoc - Feet below top of casing
ID - Identificaiton
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value
N - Normal
NA - Not available
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U - Analytical non-detect value
ug/l - Micrograms per liter
10 - Bold results with yellow highlights exceed the NYS GW Criteria

Table 3 - Groundwater Sample Analytical Results Summary - 2020

Former C&B Dry Cleaners Site
Jamestown, Chautauqua County, NY

			Location ID	PMW-1		PMW-2		PMW-3	
			Sample ID	PMW-1-5-15-20200225		PMW-2-7-17-20200225		PMW-3-3-13-20200225	
			Sample Type	N		N		N	
			Sample Depth (ft btoc)	5 - 15		7 - 17		3 - 13	
			Sample Date	2/25/2020		2/25/2020		2/25/2020	
Analyte	**Cas No.**	**NYS GW Crieria**	**Unit**	**Result**	**Qua.**	**Result**	**Qua.**	**Result**	**Qua.**
1,1,1-Trichloroethane	71-55-6	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,1,2,2-Tetrachloroethane	79-34-5	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,1,2-Trichloroethane	79-00-5	1	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,1-Dichloroethane	75-34-3	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,1-Dichloroethene	75-35-4	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.04	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,2-Dibromoethane	106-93-4	0.0006	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,2-Dichlorobenzene	95-50-1	3	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,2-Dichloroethane	107-06-2	0.6	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,2-Dichloropropane	78-87-5	1	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,3-Dichlorobenzene	541-73-1	3	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
1,4-Dichlorobenzene	106-46-7	3	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
2-Butanone	78-93-3	50	ug/l	< 10	U	< 40	U	< 40	U
2-Hexanone	591-78-6	50	ug/l	< 5.0	U	< 20	U	< 20	U
4-Methyl-2-Pentanone	108-10-1		ug/l	< 5.0	U	< 20	U	< 20	U
Acetone	67-64-1	50	ug/l	< 10	U	< 40	U	< 40	U
Benzene	71-43-2	1	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Bromodichloromethane	75-27-4	50	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Bromoform	75-25-2	50	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Bromomethane	74-83-9	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Carbon Disulfide	75-15-0	60	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Carbon Tetrachloride	56-23-5	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Chlorobenzene	108-90-7	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Chloroethane	75-00-3	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Chloroform	67-66-3	7	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Chloromethane	74-87-3	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
cis-1,2-Dichloroethylene	156-59-2	**5**	ug/l	< 1.0	U	**10**		**5.1**	
cis-1,3-Dichloropropene	10061-01-5		ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Cyclohexane	110-82-7		ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Dibromochloromethane	124-48-1	50	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Dichlorodifluoromethane	75-71-8	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Dimethyl Benzene/ Xylenes, Total	1330-20-7	5	ug/l	< 2.0	U	< 8.0	U	< 8.0	U
Ethylbenzene	100-41-4	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Isopropylbenzene	98-82-8	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Methyl Acetate	79-20-9		ug/l	< 2.5	U	< 10	U	< 10	U
Methyl tert-Butyl Ether	1634-04-4	10	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Methylcyclohexane	108-87-2		ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Methylene Chloride	75-09-2	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Styrene	100-42-5	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Tetrachloroethylene(PCE)	127-18-4	**5**	ug/l	< 1.0	U	**140**		**210**	
Toluene	108-88-3	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
trans-1,2-Dichloroethene	156-60-5	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
trans-1,3-Dichloropropene	10061-02-6		ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Trichloroethene (TCE)	79-01-6	**5**	ug/l	< 1.0	U	**8.6**		**7**	
Trichlorofluoromethane	75-69-4	5	ug/l	< 1.0	U	< 4.0	U	< 4.0	U
Vinyl Chloride	75-01-4	**2**	ug/l	< 1.0	U	< 4.0	U	< 4.0	U

Notes:

B - Compound was found in the blank and sample
FD - Field duplicate
ft btoc - Feet below top of casing
ID - Identificaiton
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value
N - Normal
NA - Not available
ng/l - Nanograms per liter
No. - Number
NYS GW - New York State Groundwater
Qual. - Qualifier
U - Analytical non-detect value
ug/l - Micrograms per liter
10 - Bold results with yellow highlights exceed the NYS GW Criteria

Table 3 - Groundwater Sample Analytical Results Summary - 2020

Former C&B Dry Cleaners Site
Jamestown, Chautauqua County, NY

			Location ID	PMW-3		PMW-4	
			Sample ID	PMW-3-3-13-20200225-1		PMW-4-6-16-20200025	
			Sample Type	FD		N	
			Sample Depth (ft btoc)	3 - 13		6 - 16	
			Sample Date	2/25/2020		2/25/2020	
Analyte	**Cas No.**	**NYS GW Crieria**	**Unit**	**Result**	**Qua.**	**Result**	**Qua.**
1,1,1-Trichloroethane	71-55-6	5	ug/l	< 4.0	U	< 1.0	U
1,1,2,2-Tetrachloroethane	79-34-5	5	ug/l	< 4.0	U	< 1.0	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	5	ug/l	< 4.0	U	< 1.0	U
1,1,2-Trichloroethane	79-00-5	1	ug/l	< 4.0	U	< 1.0	U
1,1-Dichloroethane	75-34-3	5	ug/l	< 4.0	U	< 1.0	U
1,1-Dichloroethene	75-35-4	5	ug/l	< 4.0	U	0.94	J
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	< 4.0	U	< 1.0	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.04	ug/l	< 4.0	U	< 1.0	U
1,2-Dibromoethane	106-93-4	0.0006	ug/l	< 4.0	U	< 1.0	U
1,2-Dichlorobenzene	95-50-1	3	ug/l	< 4.0	U	< 1.0	U
1,2-Dichloroethane	107-06-2	0.6	ug/l	< 4.0	U	< 1.0	U
1,2-Dichloropropane	78-87-5	1	ug/l	< 4.0	U	< 1.0	U
1,3-Dichlorobenzene	541-73-1	3	ug/l	< 4.0	U	< 1.0	U
1,4-Dichlorobenzene	106-46-7	3	ug/l	< 4.0	U	< 1.0	U
2-Butanone	78-93-3	50	ug/l	< 40	U	< 10	U
2-Hexanone	591-78-6	50	ug/l	< 20	U	< 5.0	U
4-Methyl-2-Pentanone	108-10-1		ug/l	< 20	U	< 5.0	U
Acetone	67-64-1	50	ug/l	< 40	U	< 10	U
Benzene	71-43-2	1	ug/l	< 4.0	U	< 1.0	U
Bromodichloromethane	75-27-4	50	ug/l	< 4.0	U	< 1.0	U
Bromoform	75-25-2	50	ug/l	< 4.0	U	< 1.0	U
Bromomethane	74-83-9	5	ug/l	< 4.0	U	< 1.0	U
Carbon Disulfide	75-15-0	60	ug/l	< 4.0	U	< 1.0	U
Carbon Tetrachloride	56-23-5	5	ug/l	< 4.0	U	< 1.0	U
Chlorobenzene	108-90-7	5	ug/l	< 4.0	U	< 1.0	U
Chloroethane	75-00-3	5	ug/l	< 4.0	U	< 1.0	U
Chloroform	67-66-3	7	ug/l	< 4.0	U	< 1.0	U
Chloromethane	74-87-3	5	ug/l	< 4.0	U	< 1.0	U
cis-1,2-Dichloroethylene	156-59-2	**5**	ug/l	4.9		**55**	
cis-1,3-Dichloropropene	10061-01-5		ug/l	< 4.0	U	< 1.0	U
Cyclohexane	110-82-7		ug/l	< 4.0	U	< 1.0	U
Dibromochloromethane	124-48-1	50	ug/l	< 4.0	U	< 1.0	U
Dichlorodifluoromethane	75-71-8	5	ug/l	< 4.0	U	< 1.0	U
Dimethyl Benzene/ Xylenes, Total	1330-20-7	5	ug/l	< 8.0	U	< 2.0	U
Ethylbenzene	100-41-4	5	ug/l	< 4.0	U	< 1.0	U
Isopropylbenzene	98-82-8	5	ug/l	< 4.0	U	< 1.0	U
Methyl Acetate	79-20-9		ug/l	< 10	U	< 2.5	U
Methyl tert-Butyl Ether	1634-04-4	10	ug/l	< 4.0	U	< 1.0	U
Methylcyclohexane	108-87-2		ug/l	< 4.0	U	< 1.0	U
Methylene Chloride	75-09-2	5	ug/l	< 4.0	U	< 1.0	U
Styrene	100-42-5	5	ug/l	< 4.0	U	< 1.0	U
Tetrachloroethylene(PCE)	127-18-4	**5**	ug/l	**200**		0.8	J
Toluene	108-88-3	5	ug/l	< 4.0	U	< 1.0	U
trans-1,2-Dichloroethene	156-60-5	5	ug/l	< 4.0	U	< 1.0	U
trans-1,3-Dichloropropene	10061-02-6		ug/l	< 4.0	U	< 1.0	U
Trichloroethene (TCE)	79-01-6	**5**	ug/l	**6.7**		3.7	
Trichlorofluoromethane	75-69-4	5	ug/l	< 4.0	U	< 1.0	U
Vinyl Chloride	75-01-4	**2**	ug/l	< 4.0	U	**30**	

Notes:

B - Compound was found in the blank and sample
FD - Field duplicate
ft btoc - Feet below top of casing
ID - Identificaiton
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value
N - Normal
NA - Not available
ng/l - Nanograms per liter
No. - Number
NYS GW - New York State Groundwater
Qual. - Qualifier
U - Analytical non-detect value
ug/l - Micrograms per liter
10 - Bold results with yellow highlights exceed the NYS GW Criteria

Table 4 - Groundwater Elevations - 2020
Former C&B Dry Cleaners Site
Jamestown, Chautauqua County, NY

Location ID	Well Construction Details			Synoptic DTW Readings (02/25/20)		
	Well Diam. (in.)	Screened Interval (ft btoc)	Top of Casing Elevation (ft amsl)	PID (ppm)	DTW (ft btoc)	Water Elevation (ft amsl)
CBMW5	2	5 - 15	1327.67	28.7	7.50	1320.17
CBPZ101	2	3 - 10	1321.27	0.0	6.04	1315.23
CBPZ102	2	5 - 10	1322.75	0.1	7.79	1314.96
CBPZ107	2	3 - 13	NA	0.0	5.72	NA
CBPZ110	2	5 - 13	1323.46	0.0	5.80	1317.66
CBSP28	2	5 - 15	NA	0.0	7.05	NA
PMW-1	2	5 - 15	NA	0.0	5.28	NA
PMW-2	2	7 - 17	NA	1.3	3.63	NA
PMW-3	2	3 - 13	NA	0.7	4.15	NA
PMW-4	2	6 - 16	NA	0.0	6.77	NA

Notes:

amsl - Above mean sea level
btoc - Below top of casing
diam. - Diameter
DTW - Depth to water
ft - Feet
ID - Identification
in. - Inch
NA - Not available
PID - Photoinonization detector
ppm - Parts per million

Table 5 - ISCO Injections Volumes - 2021

Former C&B Dry Cleaners

City of Jamestown, Chautauqua County, New York

Temporary Injection Point ID	Location	Depth Interval (ft bgs)	Vol. Injected (gal)			Total Injection Vol. (gal)	Comments
			4/13/2021	4/14/2021	4/15/2021		
IB-201	North of Swanson	5 - 15	1,301	0	0	1,301	
IB-202	North of Swanson	5 - 15	1,213	0	0	1,213	
IB-203	North of Swanson	5 - 15	1,274	0	0	1,274	
IB-204	North of Swanson	6 - 15	0	651	253	904	
IB-205	North of Swanson	5 - 15	1,304	0	0	1,304	
IB-206	North of Swanson	6 - 15	0	730	644	1,374	
IB-207	North of Swanson	6 - 15	0	818	526	1,344	
IB-208	North of Swanson	6 - 15	0	661	255	916	
IB-209	North of Swanson	6 - 15	0	475	595	1,070	
IB-210	North of Swanson	5 - 15	1,300	0	0	1,300	
IB-211	North of Swanson	5 - 15	1,247	0	0	1,247	
IB-212	West of Swanson	6 - 14	0	629	479	1,108	
IB-213	West of Swanson	NA	0	0	0	0	Not injected during this event.
IB-214	West of Swanson	NA	0	0	0	0	Not injected during this event.
IB-215	West of Swanson	NA	0	0	0	0	Not injected during this event.
IB-216	Pelican Site	5 - 15	0	750	563	1,313	
IB-217	Pelican Site	5 - 15	0	797	525	1,322	
IB-218	Pelican Site	6 - 15	0	732	574	1,306	
IB-219	Pelican Site	5 - 15	0	684	615	1,299	
IB-220	Pelican Site	5 - 15	0	759	550	1,309	
IB-221	Pelican Site	9 - 15	0	0	600	600	New point installed 15 ft east of IB-218 in line with IB-216 through -218.
Total Vol. Tot.			**7,640**	**7,690**	**6,180**	**21,500**	
Trucks Total Vol.[1]			7,750	7,740	6,450	21,940	
% Difference			1%	1%	4%	2%	

Notes:

1. ISCO injectate is pre-mixed 5% sodium permanganate solution with a density of 8.63 lb/gal.

ft bgs - Feet below ground surface

gal - Gallon

NA - Not applicable

Tot. - Totalizer

Vol. - Volume

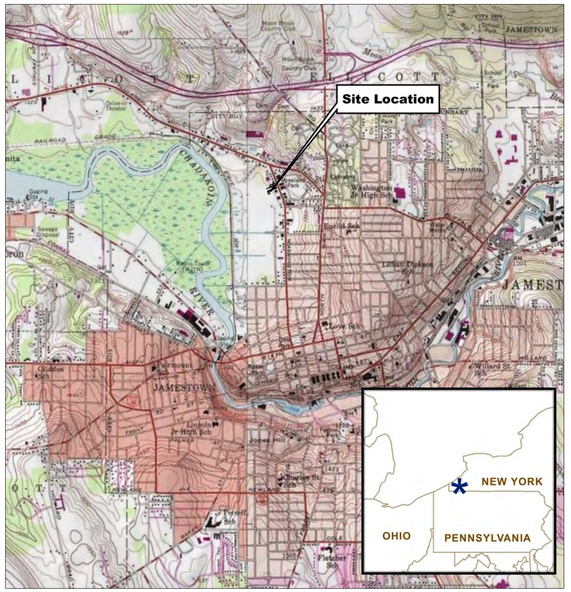
Appendix A

FER CD

Appendix B

RD Construction Drawings

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation



SCALE: 1"=4000'

Contract Drawings For

FINAL DESIGN DRAWINGS FOR FORMER C&B DRY CLEANERS SITE

NYSDEC SITE NOS. 907028
2241 WASHINGTON STREET
CITY OF JAMESTOWN,
CHAUTAUQUA COUNTY, NEW YORK

CONTRACT NO. D007625-016

AUGUST 2016

INDEX OF DRAWINGS

GENERAL
G-01 COVER / DRAWING INDEX
G-02 GENERAL NOTES

CIVIL/SITE WORK
C-01 EXISTING CONDITIONS
C-02 GROUNDWATER CONTOURS
C-03 LIMITS OF TREATMENT AREA - ISCO
C-04 TEMPORARY INJECTION POINT LAYOUT
C-05 PROPOSED PERFORMANCE MONITORING WELLS NETWORK
C-06 PROPOSED STAGING AREA LOCATION FOR ISCO EQUIPMENT

GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND REGULATIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS BEFORE BEGINNING WORK.
3. SITE IS LOCATED AT 2241 WASHINGTON STREET IN THE CITY OF JAMESTOWN IN CHAUTAUQUA COUNTY, NY. THE SITE IS IDENTIFIED AS NYSDEC SITE NUMBER E907028.
4. THE SITE COMPOSED OF TWO PARCELS (SBL 109-3-11.2 AND 109-3-12.1). NYSDEC WILL BE RESPONSIBLE FOR OBTAINING ALL ACCESS AGREEMENTS NECESSARY TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND SPECIFICATIONS. NYSDEC WILL ALSO OBTAIN ALL NECESSARY ACCESS AGREEMENTS FROM THE ADJACENT PROPERTIES WHERE CONSTRUCTION ACTIVITIES WILL OCCUR AS SHOWN ON THE CONTRACT DRAWINGS.
5. LOCATION OF ALL UTILITIES, STRUCTURES AND PROPERTY LINES ARE BASED ON THE BEST AVAILABLE INFORMATION AND ARE NOT WARRANTED TO BE EXACT. IT IS NOT WARRANTED THAT ALL ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION, AND FOR THE PROTECTION OF EXISTING PIPING AND STRUCTURES.
6. ALL SITE FEATURES SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION.
7. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING ABOVEGROUND AND UNDERGROUND UTILITIES AND STRUCTURES WHETHER SHOWN ON THIS PLAN OR NOT, AND TO PROTECT THEM FROM DAMAGE. INACTIVE OR ABANDONED UTILITIES SHALL BE CAPPED IN ACCORDANCE WITH LOCAL CODES. REMOVE INACTIVE SERVICES AS REQUIRED TO MAINTAIN OPERATION.
8. IN THE EVENT THE CONTRACTOR DAMAGES ANY EXISTING UTILITY SERVICE CAUSING SERVICE INTERRUPTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY NYSDEC OR THE ENGINEER. ANY DAMAGE TO UTILITIES WILL BE REPAIRED/REPLACED AT THE CONTRACTOR'S OWN EXPENSE.
9. PRIOR TO ANY CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES. FOR ASSISTANCE CALL UFPO AT 1-800-962-7962 OR 811 AS WELL AS USE A GEOPHYSICAL SURVEYOR FOR THE PROPERTY.
10. THE CONTRACTOR SHALL TAKE CARE WHEN WORKING IN THE VICINITY OF OVERHEAD POWER LINES.
11. PROVISIONS SHALL BE MADE TO MINIMIZE THE SPREAD OF DEBRIS, DIRT, AND DUST.
12. PROVISIONS SHALL BE TAKEN TO MINIMIZE NOISE. CONSTRUCTION ACTIVITIES ARE NOT PERMITTED BETWEEN THE HOURS OF "6PM TO 7AM" MONDAY THROUGH SATURDAY AND ALL DAY SUNDAY AND NATIONAL HOLIDAYS.
13. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING UNAUTHORIZED PERSONS DO NOT ENTER THE EXCLUSION ZONE. SNOW FENCE OR OTHER ACCEPTABLE MEANS SHALL BE PROVIDED AROUND THE HAZARDOUS WORK ZONE TO RESTRICT ACCESS.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY OF THE SITE. ANY REPAIRS RESULTING FROM DAMAGE CAUSED BY TRESPASSERS SHALL BE AT THE EXPENSE OF THE CONTRACTOR. MINIMUM SECURITY MEASURES SHALL BE AS REQUIRED BY THE CONTRACT SPECIFICATIONS.
15. CONSTRUCTION WATER COLLECTED FROM DECONTAMINATION OR WELL INSTALLATION ACTIVITIES SHALL BE COLLECTED IN TEMPORARY STORAGE TANKS FOR DISPOSAL OFF SITE AS SPECIFIED IN THE CONTRACT SPECIFICATIONS.
16. ALL AREAS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITIONS AND TO THE SATISFACTION OF THE ENGINEER.

ENVIRONMENTAL NOTES:

1. THE CONTRACTOR SHALL REDUCE VEHICLE IDLING. ALL VEHICLES, BOTH ON AND OFF ROAD (INCLUDING CONSTRUCTION EQUIPMENT) SHALL BE SHUT OFF WHEN NOT IN USE FOR MORE THAN 5 MINUTES IN ACCORDANCE WITH 6NYCRR PART 217 MOTOR VEHICLE EMISSIONS, SUBPART 217-3 IDLING PROHIBITION FOR HEAVY DUTY VEHICLES.
2. CONTRACTORS MUST NOT SPILL, DISCHARGE, OR RELEASE ANY HAZARDOUS MATERIAL OR CHEMICAL UPON OR FROM THE SITE. A RELEASE IS DEFINED AS ANY UNPLANNED RELEASE, LEAKING, PUMPING, POURING, EMITTING, DUMPING, DISCHARGING, EMPTYING, OR DISPOSING OF A HAZARDOUS MATERIAL OR CHEMICAL (INCLUDING WASTEWATER OR CHEMICALLY TREATED WATER) FROM A PRIMARY CONTAINMENT. CONTRACTOR IS RESPONSIBLE FOR PROVIDING SECONDARY CONTAINMENT FOR CHEMICALS USED ONSITE.
3. CONTRACTOR EQUIPMENT MUST BE PROPERLY MAINTAINED AND IS SUBJECT TO INSPECTION BY THE ENGINEER. IF EQUIPMENT IS FOUND LEAKING, IT MUST IMMEDIATELY BE CONTAINED, STOPPED, AND REPAIRED. ALL ASSOCIATED COSTS INCLUDING CLEANUP WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. UNREPORTED SPILLS, DISCHARGES, AND RELEASES ARE A VIOLATION OF FEDERAL, STATE, AND LOCAL LAWS. IF A CHEMICAL OR UNKNOWN LIQUID IS SPILLED, DISCHARGED, OR RELEASED TO THE PROPERTY, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER.
5. WHEN A SPILL, DISCHARGE, OR RELEASE IS DIRECTLY ATTRIBUTABLE TO A CONTRACTOR, THEIR SUBCONTRACTOR OR SUPPLIER, THE CONTRACTOR MUST PROVIDE ANY ASSISTANCE REQUIRED TO IDENTIFY THE CAUSE OF THE RELEASE AND TO CLEAN UP THE RELEASE. HOWEVER CONTRACTORS MUST NOT BEGIN CLEAN UP UNTIL AUTHORIZED TO DO SO BY THE ENGINEER.
6. ANY CHEMICAL SPILL, DISCHARGE, OR RELEASE CAUSED BY THE CONTRACTOR MUST BE CLEANED TO NYSDEC'S SATISFACTION. ALL ASSOCIATED CLEANUP COSTS ARE THE RESPONSIBILITY OF THE RESPONSIBLE CONTRACTOR.

WASTE DISPOSAL NOTES:

1. THE CONTRACTOR MUST TAKE EVERY EFFORT TO REDUCE THE AMOUNT OF WASTE THAT IS GENERATED, TO REUSE MATERIALS WITH THE CONCURRENCE OF NYSDEC, AND TO SEGREGATE WASTE MATERIALS FOR WASTE DISPOSAL.
2. ALL WASTE MATERIALS MUST BE PROPERLY TRANSPORTED, STORED, HANDLED, AND CONTAINED TO PREVENT SPILLS, LEAKAGE, DISCHARGE OR RELEASE TO THE ENVIRONMENT. WASTE CONTAINERS MUST BE PROPERLY LABELED TO IDENTIFY CONTENTS.
3. CONTRACTORS MUST NOT DISCHARGE OR DISPOSE OF ANY WASTE INTO ANY STORM OR SANITARY SEWER DRAIN SYSTEM OR WATER BODY.
4. CONTRACTORS MUST DISPOSE ALL WASTE MATERIALS ACCORDING TO ALL LOCAL, STATE AND FEDERAL REGULATIONS.
5. NYSDEC SHALL APPROVE THE WASTE DISPOSAL MANNER AND LOCATION SELECTED BY THE CONTRACTOR. ALL WASTE MANIFESTS REQUIRED FOR THE PROJECT SHALL BE PREPARED AND SIGNED BY THE NYSDEC OR THEIR REPRESENTATIVES.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
3	8/2016	FINAL DESIGN
2	7/2016	INTERMEDIATE DESIGN
1	2/2016	PRELIMINARY DESIGN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

FINAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

GENERAL NOTES

0

FILENAME

SCALE NOT TO SCALE

FIGURE G-02



N

LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
3	8/2016	FINAL DESIGN
2	7/2016	INTERMEDIATE DESIGN
1	2/2016	PRELIMINARY DESIGN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

FINAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

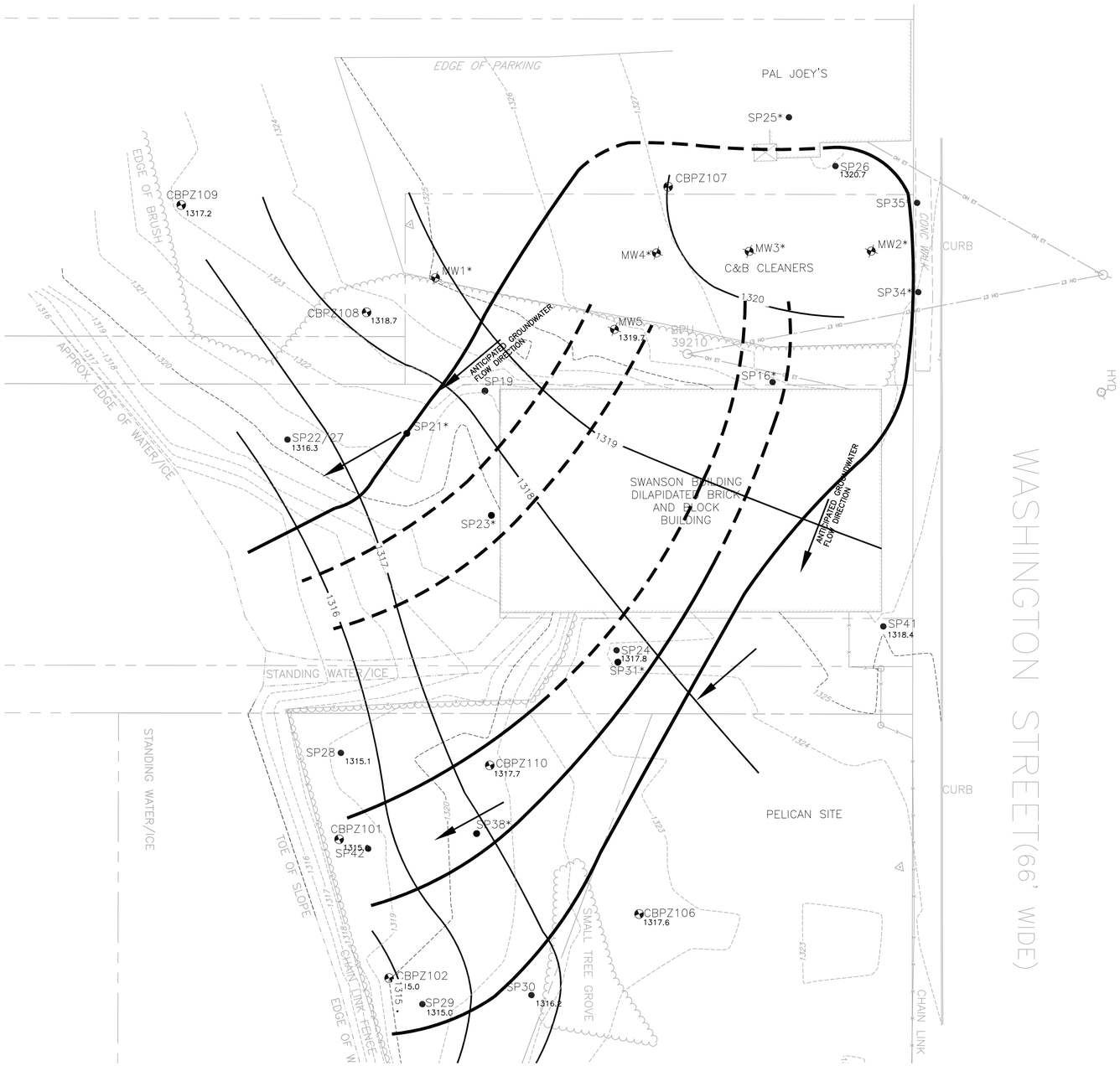
EXISTING CONDITIONS

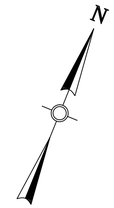
0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-01





LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- LIMITS OF PCE 5 PPB GROUNDWATER CONTAMINATION PLUME DASHED WHERE INFERRED (2015 PDI)
- GROUNDWATER CONTOURS (1 FOOT INTERVAL)
- PCE GROUNDWATER CONTAMINATION PLUME 200 PPB DASHED WHERE INFERRED

0.40	PCE CONCENTRATION IN ug/L
ND	NOT DETECTED AT REPORTING DETECTION
NS	NOT SAMPLED

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

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ISSUE	DATE	DESCRIPTION
3	8/2016	FINAL DESIGN
2	7/2016	INTERMEDIATE DESIGN
1	2/2016	PRELIMINARY DESIGN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

FINAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

GROUNDWATER CONTOURS

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-02



N

LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- LIMITS OF PCE 5 PPB GROUNDWATER CONTAMINATION PLUME DASHED WHERE INFERRED (2015 PDI)
- PCE GROUNDWATER CONTAMINATION PLUME 200 PPB DASHED WHERE INFERRED
- PROPOSED ISCO TREATMENT AREA

NOTES:

- • APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

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2	7/2016	INTERMEDIATE DESIGN
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PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

FINAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

LIMIT OF TREATMENT AREA - ISCO

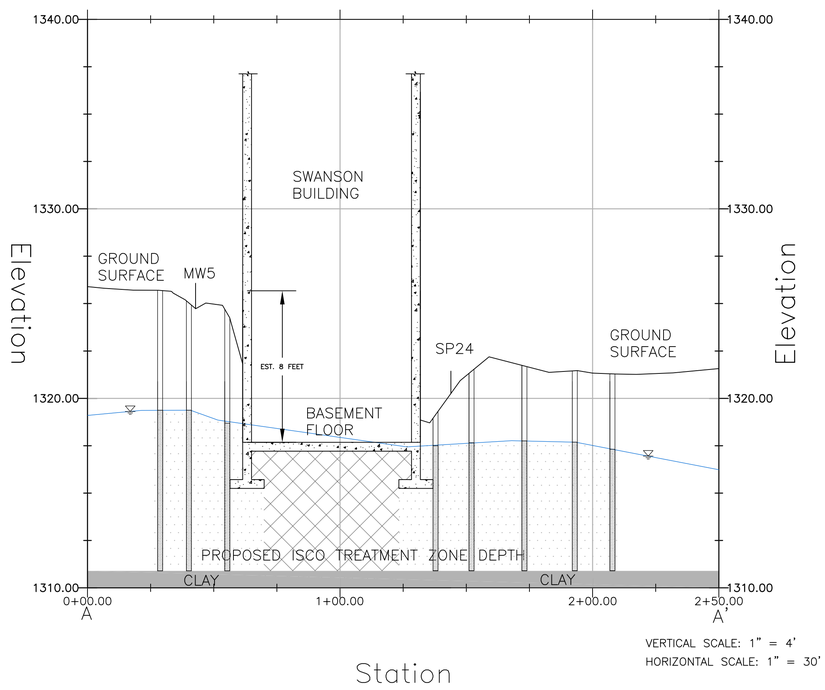
0 20 40

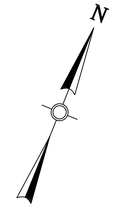
FILENAME

SCALE 1"= 20'

FIGURE C-03







LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- LIMITS OF PCE 5 PPB GROUNDWATER CONTAMINATION PLUME DASHED WHERE INFERRED (2015 PDI)
- INACCESSIBLE TREATMENT AREA
- PROPOSED ISCO TREATMENT AREA
- TEMPORARY INJECTION POINTS WITH ROI OF 12 FEET, TOTAL OF 60 LOCATIONS

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
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4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
3	8/2016	FINAL DESIGN
2	7/2016	INTERMEDIATE DESIGN
1	2/2016	PRELIMINARY DESIGN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

FINAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

TEMPORARY INJECTION POINT LAYOUT

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-04



NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
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4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
3	8/2016	FINAL DESIGN
2	7/2016	INTERMEDIATE DESIGN
1	2/2016	PRELIMINARY DESIGN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

FINAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

PROPOSED PERFORMANCE MONITORING WELLS NETWORK

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-05



NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"–8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.
5. ALL CHEMICALS MUST BE STORED PER THE MANUFACTURER'S REQUIREMENTS AND KEPT IN CLOSED CONTAINERS WHEN NOT IN USE.
6. ALL CHEMICALS MUST BE STORED IN A DRY LOCATION SURROUNDED BY A SECONDARY CONTAINMENT SYSTEM WITH A MINIMUM CAPACITY OF 110% OF THE VOLUME OF CHEMICAL BEING STORED.
7. THE SECONDARY CONTAINMENT SYSTEM, INCLUDING WALLS AND FLOOR, MUST BE COMPATIBLE WITH THE CHEMICALS STORED OR USED WITHIN THE CONTAINMENT SYSTEM, CAPABLE OF CONTAINING CHEMICALS AND MUST BE CONSTRUCTED SO THAT ANY DISCHARGE FROM A PRIMARY CONTAINER, SUCH AS A TANK, WILL NOT ESCAPE THE CONTAINMENT SYSTEM BEFORE CLEANUP OCCURS.
8. THE SECONDARY CONTAINMENT SYSTEM MUST BE CONSTRUCTED SO THAT SPILLED CHEMICALS DO NOT REACH THE GROUND.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
3	8/2016	FINAL DESIGN
2	7/2016	INTERMEDIATE DESIGN
1	2/2016	PRELIMINARY DESIGN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147–230036

FINAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

PROPOSED STAGING AREA LOCATION FOR ISCO EQUIPMENT

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C–06

Appendix C

Boundary and Topographic Survey

WASHINGTON STREET (66' WIDE)

BM
NORTH BONETT BOLT
OF HYDRANT
ELEV:1328.21

LANDS OF
COUNTY OF CHAUTAUQUA
L. 2479 P. 943
AREA = 0.220 ACRES±
TAX NO. 370.14-1-12

60.00'
N20°40'23"W

CURB
CONC WALK
FND 1 1/2" IRON PIPE
FND 1/2" REBAR
RIGHT OF WAY
CHAIN LINK FENCE
OVERHEAD BILL BOARD

"PAL JOEYS"
FND IRON PIPE
SP26
TOP PVC @ HIGH POINT:1327.87
COVER @ GND:1328.11
CBSB110
CBSB111
CBSB112
CBSB113
CBSB 108
CBSB 109
CBPZ107
TOP PVC:1326.88
COVER @ GND:1327.08
160.00'
S69°19'37"W
CBSB 119
SAMPLE POINT
CBSB 120
CBSB 121
CBSB 115
MW5
TOP PVC:1327.67
TOP COVER:1328.29
GND:1325.6
CBSB106
CBSB 116
CBSB 118
CBSB 105
CBSB 117
CBSB 104
CBSB 101
CBSB 103
FND 1 1/2" IRON PIPE BENT
EDGE OF PARKING
BOTTOM OF EXCAVATION
TOP OF EXCAVATION
60.00'
S20°40'23"E
CBPZ108
TOP PVC:1326.35
GND:1323.4
CBSB 102
CBPZ109
TOP PVC:1326.21
GND:1323.2
EDGE OF BRUSH

DILAPIDATED BRICK AND BLOCK BUILDING
LANDS OF
GERALD SWANSON AND
KATHLLEEN SWANSON
L. 2479 P. 943
TAX NO. 370.14-1-16
BPU 39210
160.00'
N69°19'37"E
2 BOLE CHERRY
MULTI BOLE BOX ELDER 4' AT BASE
FND 1 1/2" 2 BOLE IRON PIPE
20" DEAD
BASEMENT FLOODED
SP19
GND:1321.0
16" ASH
1 1/2" IRON PIPE
20" ASH
BRUSH
SP22/27
TOP PVC:1323.85
TOP COVER:1324.13
GND:1320.5
SP42
TOP PVC:1327.84
GND:1325.0
14" POPLAR
20" POPLAR
SP24
TOP PVC:1327.36
TOP COVER:1328.21
GND:1324.2
TAX MAP DIVISION LINE
CLUMP OF SMALL TREES
CLUMP OF SMALL TREES
SMALL TREE GROVE
CBPZ106
TOP PVC:1324.74
GND:1322.7
CBPZ110
TOP PVC:1323.46
GND:1320.7
SP30
TOP PVC:1324.52
TOP COVER:1325.34
GND:1321.5
CBPZ105
TOP PVC:1324.87
GND:1322.2
SP29
TOP PVC:1323.56
TOP COVER:1324.43
GND:1320.7
CBPZ104
TOP PVC:1323.34
GND:1320.7
SP28
TOP PVC:1322.34
TOP COVER:1323.12
GND:1319.3
SP43
GND:1318.7
CBPZ102
TOP PVC:1322.75
GND:1320.0
CHAIN LINK FENCE
EDGE OF WATER/ICE
TOE OF SLOPE
STANDING WATER/ICE
CBPZ101
TOP PVC:1321.27
GND:1318.6
LANDS OF
CITY OF JAMESTOWN
L. 2282 P. 567
TAX NO. 370.14-1-18
LANDS OF
CITY OF JAMESTOWN
L. 2282 P. 567
TAX NO. 370.14-1-17
LANDS OF
CITY OF JAMESTOWN
L. 2282 P. 567
TAX NO. 370.14-1-15
LANDS OF
JOSEPH J. PINTAGRO AND
MARY E. PINTAGRO
L. 2129 P. 94
TAX NO. 370.14-1-14
LANDS OF
JOSEPH J. PINTAGRO AND
MARY E. PINTAGRO
L. 2129 P. 94
TAX NO. 370.14-1-11
LANDS OF
JOSEPH J. PINTAGRO AND
MARY E. PINTAGRO
L. 2129 P. 94
TAX NO. 370.14-1-13
APPROX. EDGE OF WATER/ICE
TAX MAP DIVISION LINE
TAX MAP DIVISION LINE

GRID

LEGEND

- OH ET — OVERHEAD WIRES
- G — UNDERGROUND GAS LINE
- W — UNDERGROUND WATER LINE
- UG T — UNDERGROUND PHONE LINE
- S — SANITARY SEWER
- D — STORM SEWER
- GUIDE RAIL
- SOIL BORING (SB)
- PIEZOMETER/MON WELLS (PZ MW)
- SOIL PROBE (SP)
- UNKNOWN MANHOLE
- CATCH BASIN
- WATER VALVE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- FOUND REBAR/PIPE
- SURVEY MARKER NAIL

ABBREVIATIONS

D/M	DEED AND MEASURED
N	NORTH
E	EAST
S	SOUTH
W	WEST
FND	FOUND
GND	GROUND

30 0 30 60
SCALE: 1" = 30'

NOTES:

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM FIELD LOCATIONS, VISIBLE AT THE TIME OF SURVEY AND UTILITY RECORD PLANS RECIEVED THROUGH A "DIG SAFELY NEW YORK" INQUIRY. THE LOCATIONS OF ALL UNDERGROUND UTILITIES SHOULD BE STAKED BY THE RESPECTIVE UTILITY COMPANY PRIOR TO ANY CONSTRUCTION.

WE: FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C., HEREBY CERTIFY THAT THIS MAP WAS REVISED NOVEMBER 12, 2015 FROM NOTES OF AN INSTRUMENT SURVEY COMPLETED BY US ON OCTOBER 23, 2015 USING REFERENCES AND EVIDENCE SHOWN HEREON.

THIS MAP IS SUBJECT TO ANY EASEMENTS OR ENCUMBRANCES THAT AN ABSTRACT OF TITLE MAY SHOW.

BY: _____ DATE: _____
SCOTT V. SMITH N.Y.S.P.L.S. NO. 050561

REV	DESCRIPTION	DATE	BY
3			
2			
1	ADDED EXCAVATION AREA WITH CONTOURS	11/12/15	MM

New York State Education Law Section 7209 states that it is a violation of this law for any person, unless he/she is acting under the direction of a licensed professional engineer or land surveyor, to alter an item in any way.

If an item bearing the seal of an engineer or land surveyor is altered, the altering engineer or land surveyor shall affix to the item his/her seal and the notation "altered by" followed by his/her signature and the date of such alteration, and a specific description of the alteration.

FA PROJECT NO.
152002
PROJECT MANAGER
S. SMITH
DRAWN BY
M.M.
SCALE
1" = 30'
ISSUE DATE
1/23/2015

FISHER ASSOCIATES
WWW.FISHERASSOC.COM
135 Calkins Road, Rochester, NY 14623
Phone: 585-334-1310

PROJECT
SURVEY OF THE FORMER C&B DRY CLEANER SITE
NYSDEC STANDY CONTRACT WORK, RFP 447950-20002
2241 WASHINGTON STREET
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY

TITLE OF DRAWING
BOUNDARY AND TOPOGRAPHIC SURVEY

DRAWING NO.
FA - 1

SHEET 1 OF 1

FILE NAME: H:\Projects\152002-CB_Dry_Cleaners\Sur\CAD\Former C&B Dry Cleaner 111215.dwg
DATE/TIME: 11/12/2015 2:40:24 PM
USER: Mike Miller

Appendix D

Daily Reports

DAILY OBSERVATION REPORT

Report No.: 001 HDR Project File: 10020330 Date: August 14, 2017

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

Client: ***NYSDEC, Division of Environmental Remediation***

Site: ***Former C&B Dry Cleaners***
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

NYSDEC PM: George Momberger

Remedial Contractor: Groundwater & Environmental Services. (GES)

Remedial Contractor PM: Eric Popken

HDR PM: Erich Zimmerman

Air Monitoring: Pawel Mecinski, GES

Health & Safety: Pawel Mecinski, GES

Weather Conditions

General Description	***Sunny, 0-2 mph***	***am***	***Sunny, 0-2 mph***	***pm***
Temperature	***62 F***	***am***	***79°F***	***pm***
Wind Direction	***SW***	***am***	***S/SW***	***pm***

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan?		***Yes ( )**	**No (X)**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No (X)**	**NA ( )**
	Air (VOCs):	***Yes ( )**	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- **GES held a health and safety meeting and site walk with Parratt-Wolff.**
- **Mobilization and set-up for ISCO**
- **GES conducted Water level and geochemical parameters measurement at wells MW5, PMW-1, PMW-2, PMW-3, PMW-4, CBPZ-101 and CBPZ-110.**
- **Parratt-Wolff installed injection points (to 15 ft bgs) at IB-6, IB-7, IB-8, IB-9, IB-10 and IB11.**
- **No sodium permanganate delivery today.**

DAILY OBSERVATION REPORT

Report No.: 001 HDR Project File: 10020330 Date: August 14, 2017

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not lined or tarped? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not decontaminated prior to exiting the site? *** Yes ( ) No ( ) NA (X)**

Materials Removed From Site:

Wastestream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged To Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Dongke Yu	HDR	Oversight	8
Pawel Mecinski	GES	Field lead	8
Staff	Parratt-Wolff	ISCO subcontractor	4

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Truck mounted drill rig	Y		Y
Dust Trak	Y		Y
YSI	Y		Y
Water level	Y		Y

DAILY OBSERVATION REPORT

Report No.: 001 HDR Project File: 10020330 Date: August 14, 2017

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
Erich Zimmerman	**HDR**	**Yes (X)**	**No ( )**
Eric Popken	**GES**	**Yes (X)**	**No ( )**
Will Hackett	**Parratt-Wolff**	**Yes (X)**	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

The injection event is planned to occur over a period of approximately 10 days, working Monday through Friday for two (2) weeks. Day 1 will be a mobilization and set-up day. The locations of the 43 temporary injection points will also be marked on Day 1. Days 2 through 9 are anticipated for drilling and injection. If the subsurface will allow for six (6) injection points to be drilled and the full target volume of 1,364 gallons of 5% sodium persulfate to be injected daily, the 9th day of the event will only require 1 injection point to be drilled. Planning for Day 10 to be a break down and demobilization day, between days 2 and 10 of the injection schedule there is flexibility for less than six (6) points to be completed daily and still finish the work in the 2-week timeframe.

ISSUES PENDING:

ITEMS OF CONCERN/COMMENTS:

A truck mounted drill rig is on site instead of Geoprobe. Locations next to the Swanson building are not accessible by this drill rig. Geoprobe will be on site later.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Dongke Yu (HDR)**

Name: (*signature*) **Date: 08/14/2017**

DAILY OBSERVATION REPORT

Report No.: 001 HDR Project File: 10020330 Date: August 14, 2017

PHOTO LOG

Date	Photo ID	Description
08/14/2017	1	Coned-off area for ISCO. Looking West
08/14/2017	2	Dust and air monitoring on site.
08/14/2017	3	Injection points installation
08/14/2017	4	Site was secured at the end of day. Looking East

1



2

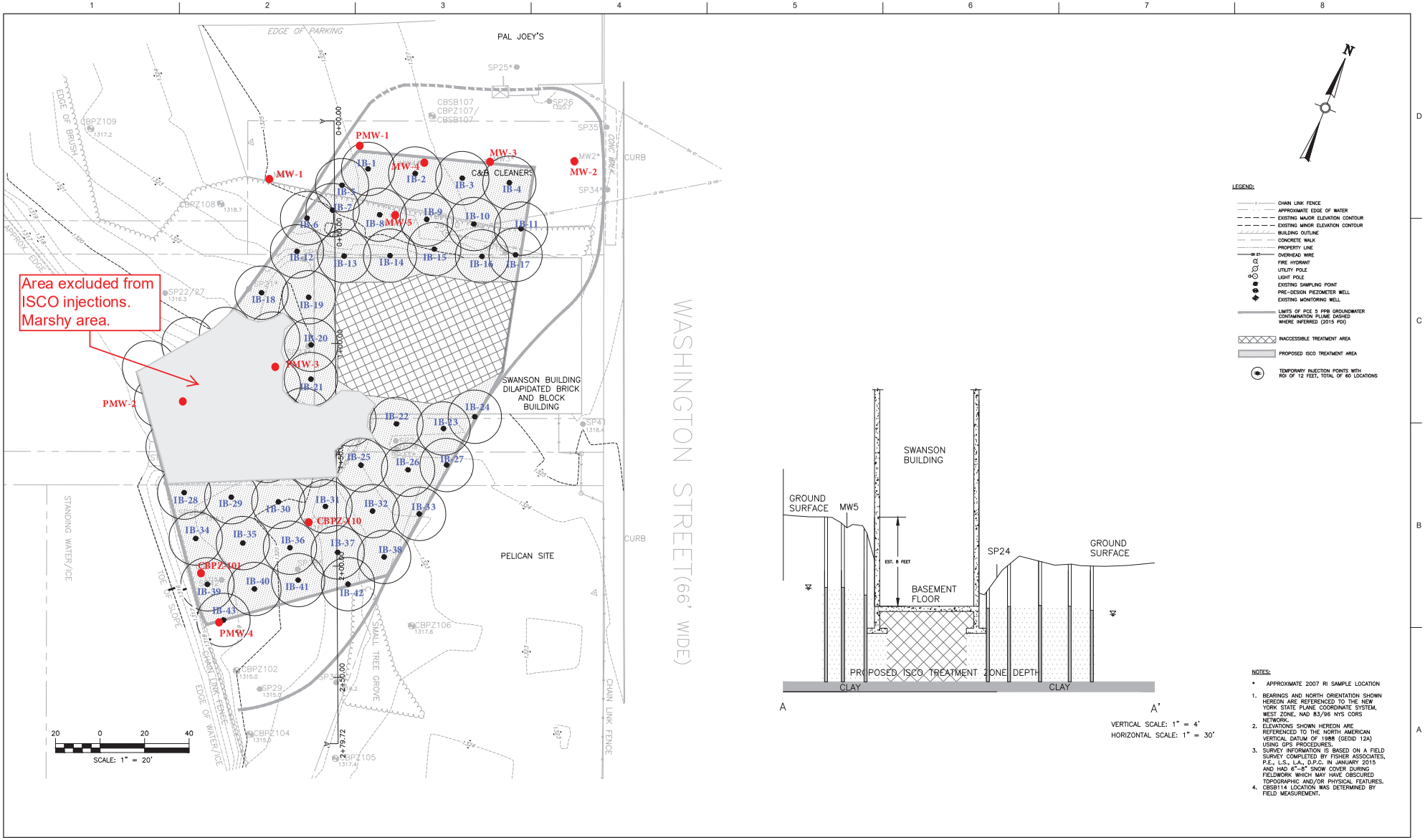


3



4





LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OH ET — OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- LIMITS OF PCE 5 PPB GROUNDWATER CONTAMINATION PLUME DASHED WHERE INFERRED (2015 PDI)
- INACCESSIBLE TREATMENT AREA
- PROPOSED ISCO TREATMENT AREA
- TEMPORARY INJECTION POINTS WITH ROI OF 12 FEET, TOTAL OF 60 LOCATIONS

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

ISSUE	DATE	DESCRIPTION
2	6/2016	60% DESIGN
1	2/2016	30% DESIGN

PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

DRAFT

60% REMEDIAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

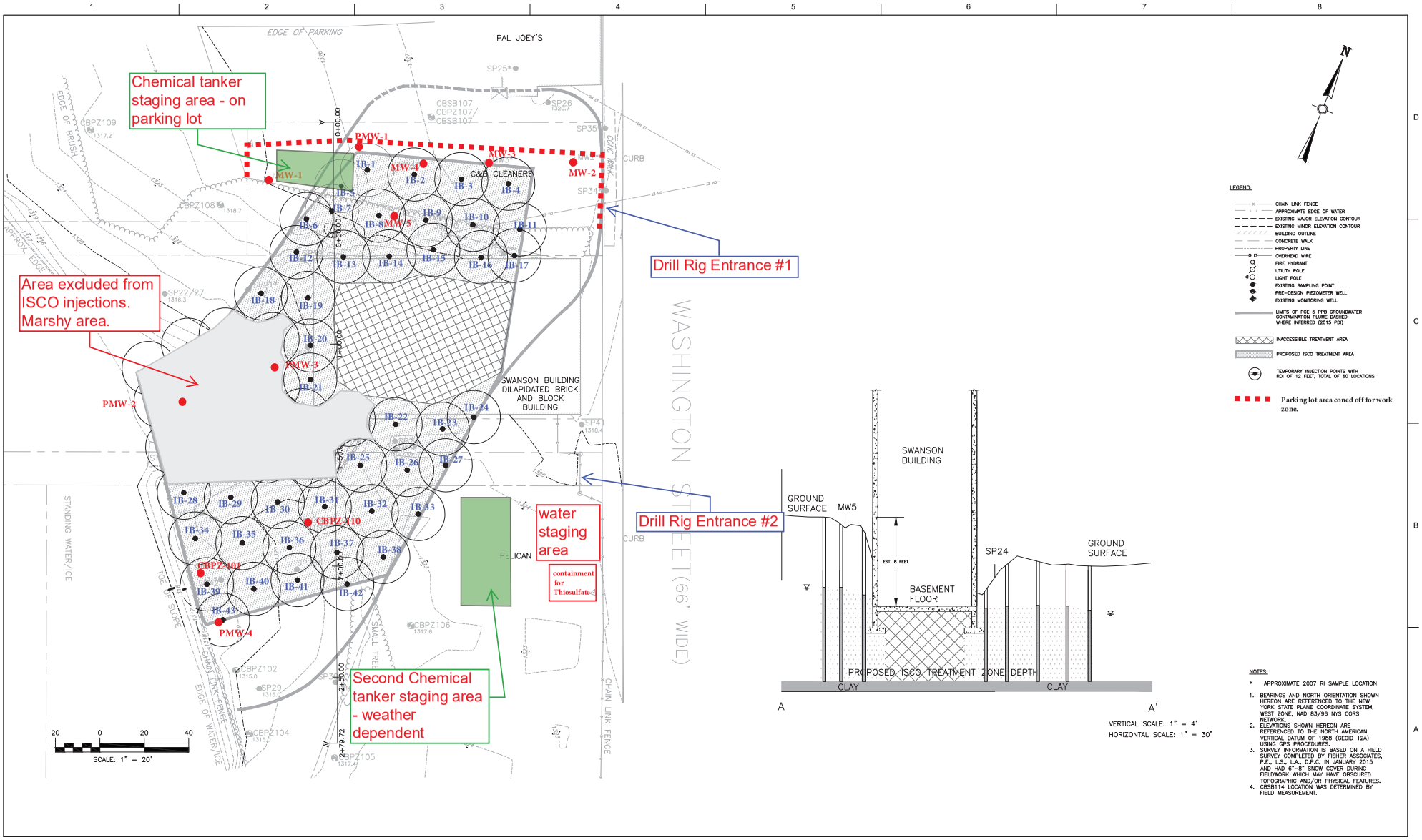
Figure 1 - Site Map

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-04



ISSUE	DATE	DESCRIPTION
2	6/2016	60% DESIGN
1	2/2016	30% DESIGN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

DRAFT

60% REMEDIAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

Figure 2 - Staging Areas

FILENAME
SCALE 1"= 20'
FIGURE C-04

DAILY OBSERVATION REPORT

Report No.: 002 HDR Project File: 10020330 Date: August 15, 2017

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

Client: ***NYSDEC, Division of Environmental Remediation***

Site: ***Former C&B Dry Cleaners***
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

NYSDEC PM: George Momberger

Remedial Contractor: Groundwater & Environmental Services. (GES)

Remedial Contractor PM: Eric Popken

HDR PM: Erich Zimmerman

Air Monitoring: Pawel Mecinski, GES

Health & Safety: Pawel Mecinski, GES

Weather Conditions

General Description	***Sunny, 0-2 mph***	***am***	***Cloudy/Rain, 0-2 mph***	***pm***
Temperature	***63 F***	***am***	***78°F***	***pm***
Wind Direction	***SW***	***am***	***S/SW***	***pm***

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan?		****Yes ( )***	**No (X)**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	****Yes ( )***	**No (X)**	**NA ( )**
	Air (VOCs):	****Yes ( )***	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		****Yes ( )***	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- **GES held a health and safety meeting.**
- **An injection manifold, which has seven injection legs, was used for sodium permanganate injection to six injection points at the same time. One leg was not used. Water test was performed before chemical injection.**
- **In total, Parratt-Wolff has injected about 1, 579, 905, 881, 798 and 938 gallons of pre-mixed solution of 5% sodium permanganate at IB-6, IB-7, IB-8, IB-9, IB-10 and IB11 respectively. IB-6 was not taking any sodium permanganate. Chemical injection will continue tomorrow for these points.**
- **Two sodium permanganate tankers were delivered today (approximately 4100 gallons pre-mixed sodium permanganate solution each tanker). Only one tanker was consumed. Both of tankers were sent off site by the end of day.**
- **GES conducted Water level and geochemical parameters measurement at wells MW5, PMW-1, PMW-2, PMW-3, PMW-4, CBPZ-101 and CBPZ-110 at the end of day. Water sample from MW5 was observed purple color.**
- **No purple color was observed from the adjacent creek during injection.**

DAILY OBSERVATION REPORT

Report No.: 002 HDR Project File: 10020330 Date: August 15, 2017

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not lined or tarped? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not decontaminated prior to exiting the site? *** Yes ( ) No ( ) NA (X)**

Materials Removed From Site:

Wastestream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged To Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Dongke Yu	HDR	Oversight	9.5
Pawel Mecinski	GES	Field lead	9.5
Staff	Parratt-Wolff	ISCO subcontractor	9.5
Staff	Slack Chemical	Chemical delivery	7 to 9

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Truck mounted drill rig	Y		
Dust Trak	N		
YSI	Y		
Water level	Y		

DAILY OBSERVATION REPORT

Report No.: 002 HDR Project File: 10020330 Date: August 15, 2017

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
Erich Zimmerman	**HDR**	**Yes (X)**	**No ( )**
Will Hackett	**Parratt-Wolff**	**Yes (X)**	**No ( )**
Anthony Lopes	**NYSDEC**	**Yes (X)**	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

The injection event is planned to occur over a period of approximately 10 days, working Monday through Friday for two (2) weeks. Day 1 will be a mobilization and set-up day. The locations of the 43 temporary injection points will also be marked on Day 1. Days 2 through 9 are anticipated for drilling and injection. If the subsurface will allow for six (6) injection points to be drilled and the full target volume of 1,364 gallons of 5% sodium permanganate to be injected daily, the 9th day of the event will only require 1 injection point to be drilled. Planning for Day 10 to be a break down and demobilization day, between days 2 and 10 of the injection schedule there is flexibility for less than six (6) points to be completed daily and still finish the work in the 2-week timeframe.

ISSUES PENDING:

ITEMS OF CONCERN/COMMENTS:

A truck mounted drill rig is on site instead of Geoprobe. Locations next to the Swanson building are not accessible by this drill rig. Geoprobe will be on site later.

A pressure release port was added to each injection point in order to safety detach injection hose.

Due to the shallow depth of clay layer in IB-6 and IB-7 area, drill rods were pulled up approximately 3 feet for chemical injection.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Dongke Yu (HDR)**

Name: (*signature*)

Date: 08/14/2017

DAILY OBSERVATION REPORT

Report No.: 002 HDR Project File: 10020330 Date: August 15, 2017

PHOTO LOG

Date	Photo ID	Description
08/15/2017	1	Manifold used for injection
08/15/2017	2	Connection at each injection point
08/15/2017	3	Pre-mixed solution tanker
08/15/2017	4	Pulling up rods for second interval injection

1



2



3



4



DAILY OBSERVATION REPORT

Report No.: 003 HDR Project File: 10020330 Date: August 16, 2017

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

Client: ***NYSDEC, Division of Environmental Remediation***

Site: ***Former C&B Dry Cleaners***
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

NYSDEC PM: George Momberger

Remedial Contractor: Groundwater & Environmental Services. (GES)

Remedial Contractor PM: Eric Popken

HDR PM: Erich Zimmerman

Air Monitoring: Pawel Mecinski, GES

Health & Safety: Pawel Mecinski, GES

Weather Conditions

General Description	***Sunny, 0-2 mph***	***am***	***Sunny, 0-2 mph***	***pm***
Temperature	***63 F***	***am***	***78°F***	***pm***
Wind Direction	***SW***	***am***	***S/SW***	***pm***

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan?		***Yes ( )**	**No (X)**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No (X)**	**NA ( )**
	Air (VOCs):	***Yes ( )**	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes (X)**	**No ( )**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- **GES held a health and safety meeting.**
- **Finished injections at IB-7, IB-8, IB-9, IB-10 and IB11. The total volume injected at each location was 1418, 1398, 1399, 1408 and 1411 gallons, respectively. Injection is complete for these locations and they were grouted up.**
- **IB-1, 2, 3, 4, 5 and 6R were installed for injection. They were all advanced to 12 feet bgs, except for IB-6R, which was installed to 10 feet bgs. Injections were started and by the end of the day, and the total volume for each location was 1011, 975, 1084, 966, 958 and 463 gallons, respectively.**
- **Two sodium permanganate tankers were delivered today (approximately 4100 gallons pre-mixed sodium permanganate solution each tanker). All of the solution was injected and both of the tankers were sent off site by the end of day.**
- **GES conducted Water level and geochemical parameters measurement at wells MW-1, MW-2, MW-3, MW-4, MW-5, PMW-1, PMW-2, PMW-3, CBPZ-101 and CBPZ-110 at the end of day. Water samples from PMW-1 and MW-5 were observed to be purple in color.**
- **No purple color was observed in the adjacent water body during injection.**

DAILY OBSERVATION REPORT

Report No.: 003 HDR Project File: 10020330 Date: August 16, 2017

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not lined or tarped? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not decontaminated prior to exiting the site? *** Yes ( ) No ( ) NA (X)**

Materials Removed From Site:

Wastestream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged To Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Dongke Yu	HDR	Oversight	10
Pawel Mecinski	GES	Field lead	10
Staff	Parratt-Wolff	ISCO subcontractor	10
Staff	Slack Chemical	Chemical delivery	7 to 9

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Truck mounted drill rig	Y		
Dust Trak	Y		
YSI	Y		
Water level	Y		

DAILY OBSERVATION REPORT

Report No.: 003 HDR Project File: 10020330 Date: August 16, 2017

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
		Yes ( )	No ( )
		Yes ( )	No ( )
		Yes ( )	No ( )
		Yes ( )	No ( )

PROJECT SCHEDULE:

The injection event is planned to occur over a period of approximately 10 days, working Monday through Friday for two (2) weeks. Day 1 will be a mobilization and set-up day. The locations of the 43 temporary injection points will also be marked on Day 1. Days 2 through 9 are anticipated for drilling and injection. If the subsurface will allow for six (6) injection points to be drilled and the full target volume of 1,364 gallons of 5% sodium permanganate to be injected daily, the 9th day of the event will only require 1 injection point to be drilled. Planning for Day 10 to be a break down and demobilization day, between days 2 and 10 of the injection schedule there is flexibility for less than six (6) points to be completed daily and still finish the work in the 2-week timeframe.

ISSUES PENDING:

ITEMS OF CONCERN/COMMENTS:

A truck mounted drill rig is on site instead of Geoprobe. Locations next to the Swanson building are not accessible by this drill rig. Geoprobe will be on site later.

IB-6R was installed next to IB-6 (approximately 3 feet offset) due to the injection issue (inability to inject due to presence of clay) at IB-6.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Dongke Yu (HDR)**

Name: (*signature*) **Date: 08/16/2017**

DAILY OBSERVATION REPORT

Report No.: 003 HDR Project File: 10020330 Date: August 16, 2017

PHOTO LOG

Date	Photo ID	Description
08/16/2017	1	Site prep for injection
08/16/2017	2	Injection point connection
08/16/2017	3	Manifold layout
08/16/2017	4	Installation of new injection points

1



2

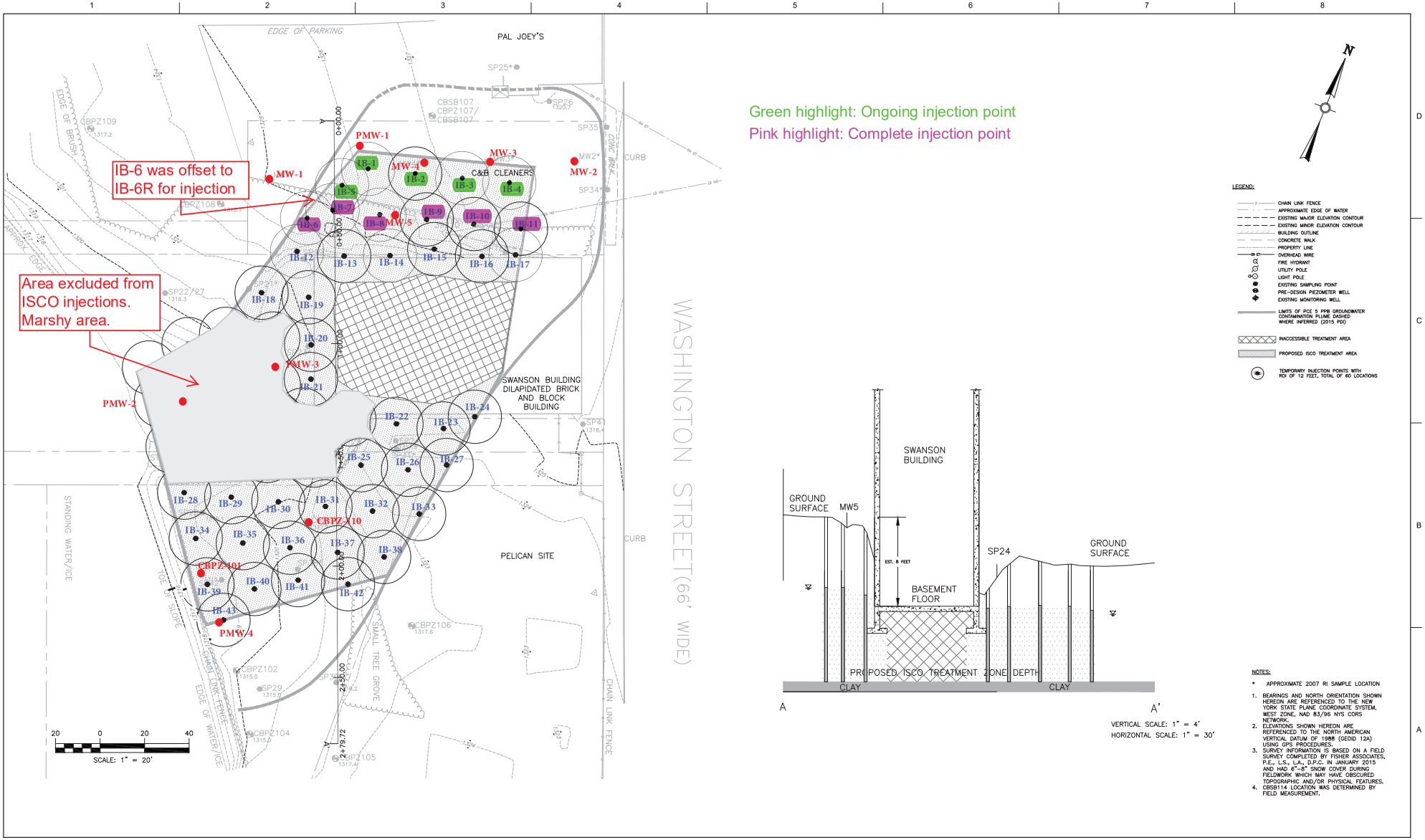


3



4





Green highlight: Ongoing injection point

Pink highlight: Complete injection point

LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OH ET — OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- LIMITS OF PCE 5 PPB GROUNDWATER CONTAMINATION PLUME DASHED WHERE INFERRED (2015 PDI)
- INACCESSIBLE TREATMENT AREA
- PROPOSED ISCO TREATMENT AREA
- TEMPORARY INJECTION POINTS WITH ROI OF 12 FEET, TOTAL OF 60 LOCATIONS

VERTICAL SCALE: 1" = 4'

HORIZONTAL SCALE: 1" = 30'

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

ISSUE	DATE	DESCRIPTION
2	6/2016	60% DESIGN
1	2/2016	30% DESIGN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

DRAFT

60% REMEDIAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

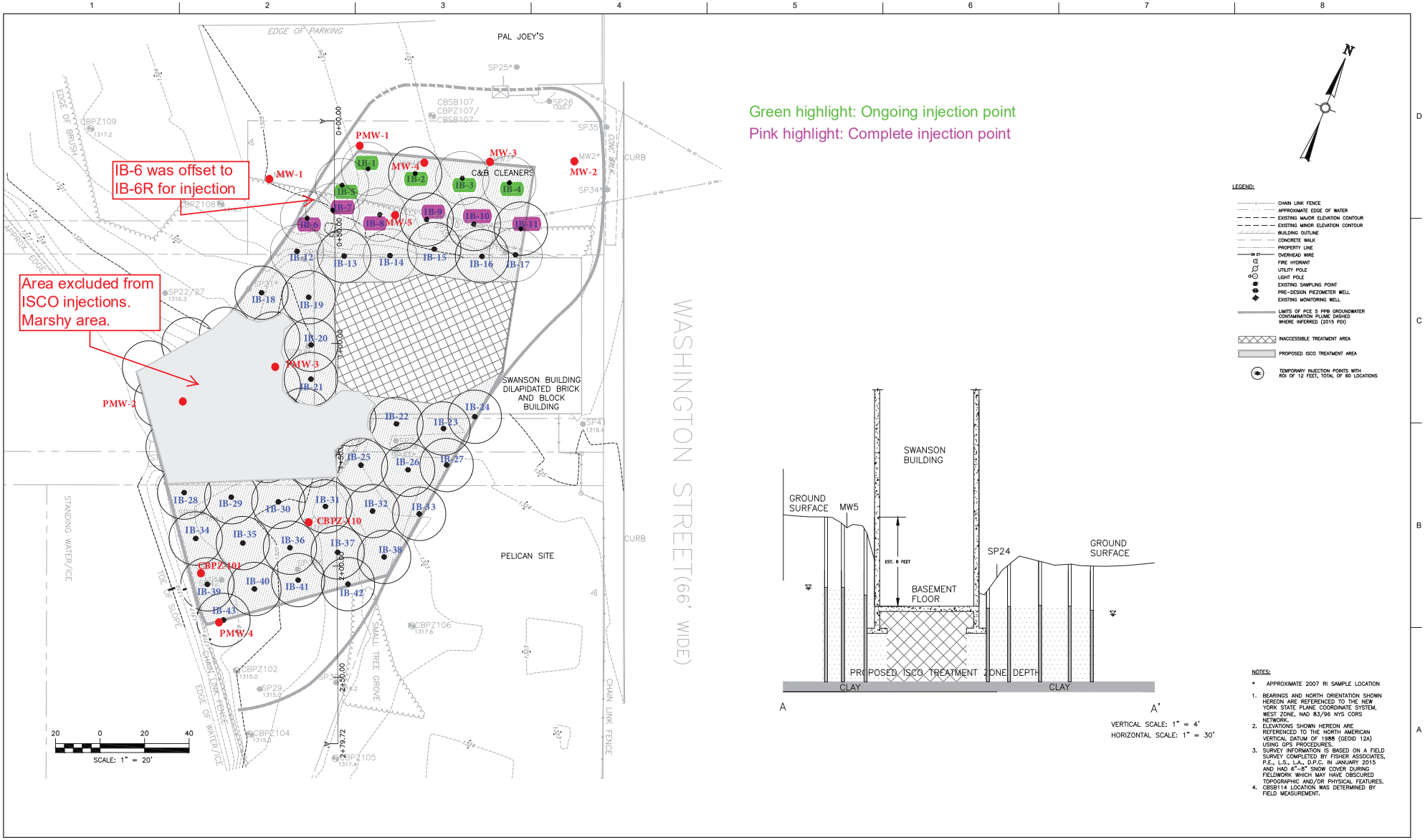
Figure 1 - Site Map

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-04



Green highlight: Ongoing injection point

Pink highlight: Complete injection point

LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OH ET — OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- LIMITS OF PCE 5 PPB GROUNDWATER CONTAMINATION PLUME DASHED WHERE INFERRED (2015 PDI)
- INACCESSIBLE TREATMENT AREA
- PROPOSED ISCO TREATMENT AREA
- TEMPORARY INJECTION POINTS WITH ROI OF 12 FEET, TOTAL OF 60 LOCATIONS

VERTICAL SCALE: 1" = 4'

HORIZONTAL SCALE: 1" = 30'

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

ISSUE	DATE	DESCRIPTION
2	6/2016	60% DESIGN
1	2/2016	30% DESIGN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

DRAFT

60% REMEDIAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

Figure 1 - Site Map

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-04

DAILY OBSERVATION REPORT

Report No.: 004 HDR Project File: 10020330 Date: August 17, 2017

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

Client: ***NYSDEC, Division of Environmental Remediation***

Site: ***Former C&B Dry Cleaners***
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

NYSDEC PM: George Momberger

Remedial Contractor: Groundwater & Environmental Services. (GES)

Remedial Contractor PM: Eric Popken

HDR PM: Erich Zimmerman

Air Monitoring: Pawel Mecinski, GES

Health & Safety: Pawel Mecinski, GES

Weather Conditions

General Description	***Sunny, 0-2 mph***	***am***	***Cloudy/Rain, 0-2 mph***	***pm***
Temperature	***63 F***	***am***	***79°F***	***pm***
Wind Direction	***SW***	***am***	***S/SW***	***pm***

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan?		***Yes ( )**	**No (X)**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No (X)**	**NA ( )**
	Air (VOCs):	***Yes ( )**	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- **GES held a health and safety meeting.**
- **Finished injection at IB-1, IB-2, IB-3, IB-4, IB-5 and IB-6R. The total volume for each location is 1521, 1529, 1535, 1236, 1521 and 1028 gallons respectively. Injection is complete for these locations and they were grouted up.**
- **IB-28, 29, 30, 34, 35 and 36 were installed for injection. They were all advanced to 13 feet bgs. By the end of the day, the total volume for each location is 167, 3, 1362, 1381, 1499 and 878 gallons respectively.**
- **Two sodium permanganate tankers were delivered today (approximately 4100 gallons pre-mixed sodium permanganate solution each tanker). All of the solution was injected and both of the tankers were sent off site by the end of day.**
- **Chemical surfacing was identified at IB-4 and IB-36. Injections were stopped at these locations, and later resumed at a lower flow rate.**
- **GES conducted Water level and geochemical parameters measurement at wells MW5, PMW-1, PMW-2, PMW-3, PMW-4, CBPZ-101 and CBPZ-110 at the end of day. Water from MW5, PMW-1 and Swanson Building basement area were observed to be purple in color.**
- **No purple color was observed in the adjacent water body during injection.**

DAILY OBSERVATION REPORT

Report No.: 004 HDR Project File: 10020330 Date: August 17, 2017

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not lined or tarped? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not decontaminated prior to exiting the site? *** Yes ( ) No ( ) NA (X)**

Materials Removed From Site:

Wastestream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged To Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Dongke Yu	HDR	Oversight	12
Pawel Mecinski	GES	Field lead	12
Staff	Parratt-Wolff	ISCO subcontractor	12
Staff	Slack Chemical	Chemical delivery	7 to 10

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Truck mounted drill rig	Y		
Dust Trak	Y		
YSI	Y		
Water level	Y		

DAILY OBSERVATION REPORT

Report No.: 004 HDR Project File: 10020330 Date: August 17, 2017

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
Amita Patel	**HDR**	**Yes (X)**	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

As of today, 14 out of 43 injection points have been done. Injection flow rates varied from 1 to 4 gpm at the locations on the Pelican site. Flow rate varied based on the subsurface geology at each individual location. The Geoprobe will be on site Monday (2017-08-21), and it is expected to expedite the schedule; however, based on progress to date the field work may go into week three.

ISSUES PENDING:

ITEMS OF CONCERN/COMMENTS:

A truck-mounted drill rig is on site instead of a Geoprobe. Locations next to the Swanson building are not accessible by this drill rig. The Geoprobe will be on site Monday 2017-08-21.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Dongke Yu (HDR)**

Name: (*signature*) **Date: 08/17/2017**

DAILY OBSERVATION REPORT

Report No.: 004 HDR Project File: 10020330 Date: August 17, 2017

PHOTO LOG

Date	Photo ID	Description
08/17/2017	1	Tanker truck for chemical delivery
08/17/2017	2	Chemical surfacing at IB-4
08/17/2017	3	Injection points at Pelican site
08/17/2017	4	Purple color water seen from Swanson building basement

1



2

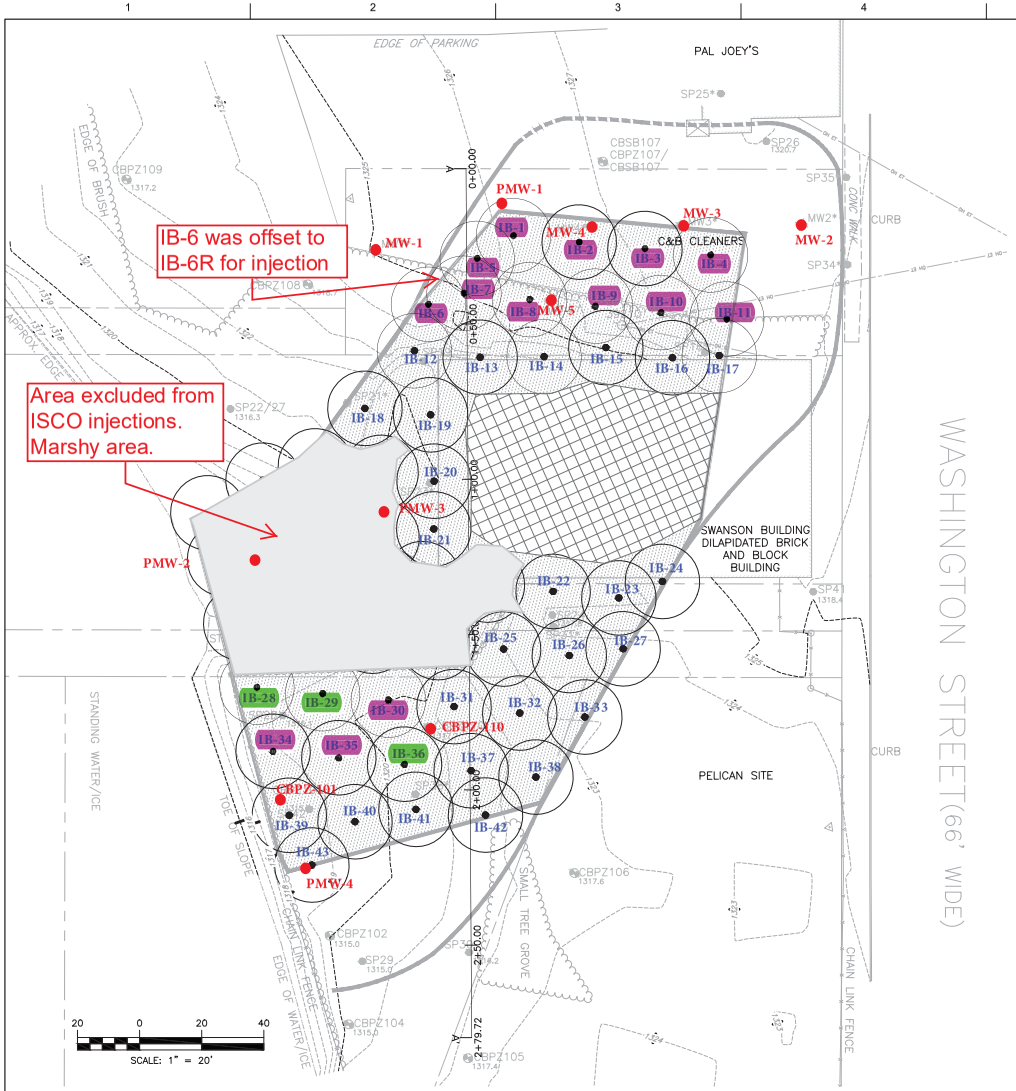


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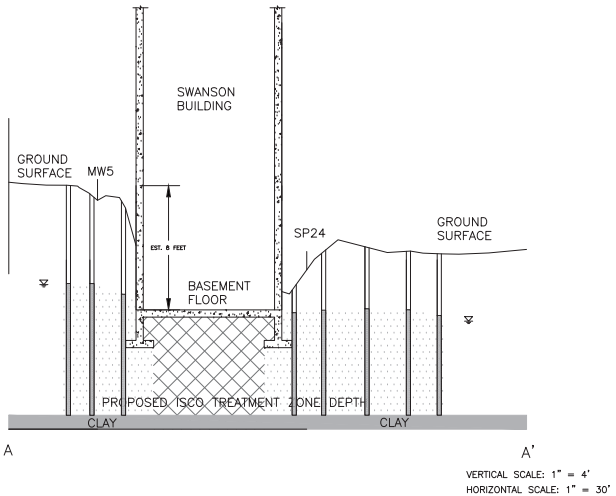
4





Green highlight: Ongoing injection point

Pink highlight: Complete injection point



LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- LIMITS OF PCE 5 PPB GROUNDWATER CONTAMINATION PLUME DASHED WHERE INFERRED (2015 PDI)
- INACCESSIBLE TREATMENT AREA
- PROPOSED ISCO TREATMENT AREA
- TEMPORARY INJECTION POINTS WITH ROI OF 12 FEET, TOTAL OF 60 LOCATIONS

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

ISSUE	DATE	DESCRIPTION
2	6/2016	60% DESIGN
1	2/2016	30% DESIGN

PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

DRAFT

60% REMEDIAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

Figure 1 - Site Map

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-04

DAILY OBSERVATION REPORT

Report No.: 005 HDR Project File: 10020330 Date: August 18, 2017

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

Client: ***NYSDEC, Division of Environmental Remediation***

Site: ***Former C&B Dry Cleaners***
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

NYSDEC PM: George Momberger

Remedial Contractor: Groundwater & Environmental Services. (GES)

Remedial Contractor PM: Eric Popken

HDR PM: Erich Zimmerman

Air Monitoring: Pawel Mecinski, GES

Health & Safety: Pawel Mecinski, GES

Weather Conditions

General Description	***Sunny, 0-2 mph***	***am***	***Sunny, 0-2 mph***	***pm***
Temperature	***65 F***	***am***	***76°F***	***pm***
Wind Direction	***SW***	***am***	***S/SW***	***pm***

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan?		***Yes ( )**	No (X)	NA ( )
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	No (X)	NA ( )
	Air (VOCs):	***Yes ( )**	No (X)	NA ( )
Were any dust/odor issues reported or observed?		***Yes ( )**	No (X)	NA ( )

OTHER ITEMS:

Site Sketch Attached:	Yes ( )	No (X)
Photos Taken:	Yes (X)	No ( )

DESCRIPTION OF DAILY WORK PERFORMED:

- **GES held a health and safety meeting.**
- **Resumed injection at IB-36 and installed IB-28R in between IB-28 and IB-29 due to the low injection rate issue. IB-29 was canceled.**
- **Installed and started injections at IB-39, 40, 41 and 43. By the end of toady, the volume of permanganate injected at IB-28R, 36, 39, 40, 41 and 43 is 402, 1060, 952, 879, 870 and 806 gallons, respectively.**
- **Only one sodium permanganate tanker was delivered today (approximately 4100 gallons pre-mixed sodium permanganate solution). All of the solution was injected and the tanker was sent off site by the end of day.**
- **GES conducted Water level and geochemical parameters measurement at wells MW5, PMW-1, PMW-2, PMW-3, PMW-4, CBPZ-101 and CBPZ-110 at the end of day. Water from all the wells and within the Swanson Building basement area was observed to be purple in color.**
- **No purple color was observed in the adjacent water body during injection.**

DAILY OBSERVATION REPORT

Report No.: 005 HDR Project File: 10020330 Date: August 18, 2017

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not lined or tarped? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not decontaminated prior to exiting the site? *** Yes ( ) No ( ) NA (X)**

Materials Removed From Site:

Wastestream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged To Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Dongke Yu	HDR	Oversight	6.5
Pawel Mecinski	GES	Field lead	6.5
Staff	Parratt-Wolff	ISCO subcontractor	6.5
Staff	Slack Chemical	Chemical delivery	6.5

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Truck mounted drill rig	Y		
Dust Trak	Y		
YSI	Y		
Water level	Y		

DAILY OBSERVATION REPORT

Report No.: 005 HDR Project File: 10020330 Date: August 18, 2017

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
Amita Patel	**HDR**	**Yes (X)**	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

The injection event is planned to occur over a period of approximately 10 days, working Monday through Friday for two (2) weeks. As of today (day 5), 16 out of 43 injection points have been completed and 6 more have been installed and injections started. Injection flow rates varied from 1 to 4 gpm between locations at the Pelican site depending on the subsurface geology at each individual location. The Geoprobe will be on site Monday (2017-08-21) and it is expected to expedite the schedule. Based on current progress, it is now likely work will be completed by Friday, 8/25.

ISSUES PENDING:

ITEMS OF CONCERN/COMMENTS:

A truck mounted drill rig is on site instead of Geoprobe. Locations next to the Swanson building are not accessible by this drill rig. The Geoprobe will be on site Monday 2017-08-21.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Dongke Yu (HDR)**

Name: (*signature*)

Date: 08/18/2017

DAILY OBSERVATION REPORT

Report No.: 005 HDR Project File: 10020330 Date: August 18, 2017

PHOTO LOG

Date	Photo ID	Description
08/18/2017	1	Prepared for injections at the Pelican site
08/18/2017	2	IDW drum
08/18/2017	3	Installing injection points
08/18/2017	4	Chemical injection in the Pelican site

1



2

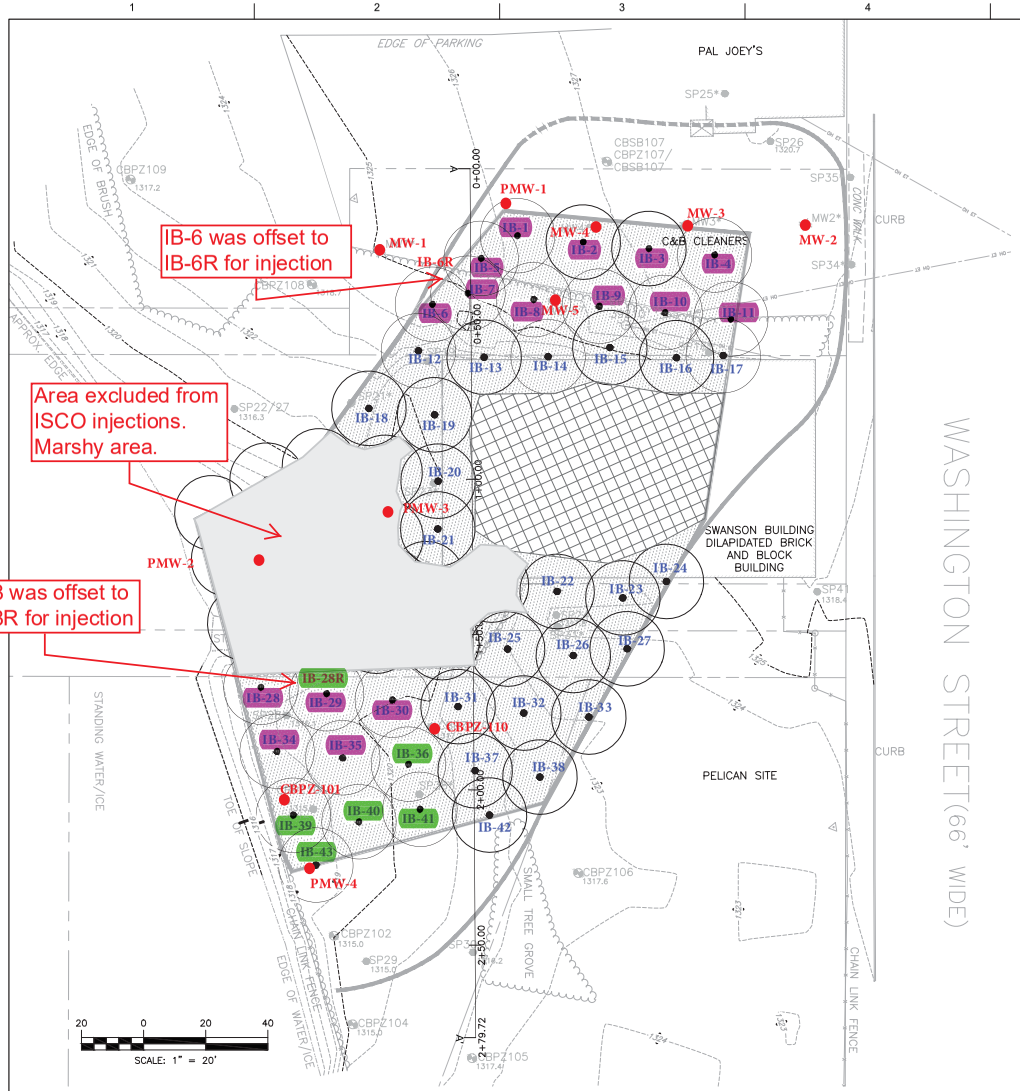


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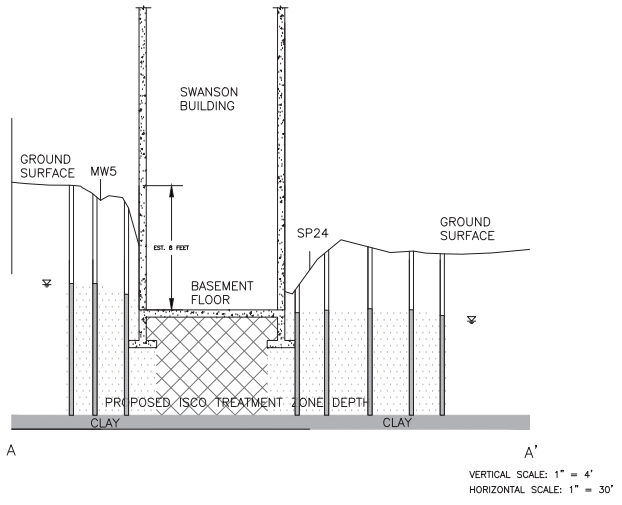
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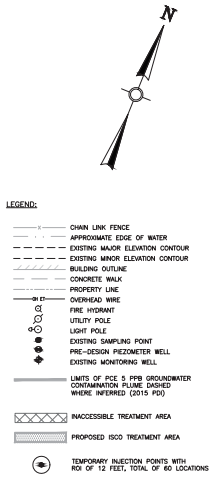




Green highlight: Ongoing injection point

Pink highlight: Complete injection point





NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

ISSUE	DATE	DESCRIPTION
2	6/2016	60% DESIGN
1	2/2016	30% DESIGN

PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

DRAFT

60% REMEDIAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

Figure 1 - Site Map

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-04

DAILY OBSERVATION REPORT

Report No.: 006 HDR Project File: 10020330 Date: August 21, 2017

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

Client: ***NYSDEC, Division of Environmental Remediation***

Site: ***Former C&B Dry Cleaners***
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

NYSDEC PM: George Momberger

Remedial Contractor: Groundwater & Environmental Services. (GES)

Remedial Contractor PM: Eric Popken

HDR PM: Erich Zimmerman

Air Monitoring: Dan Zordan, GES

Health & Safety: Dan Zordan, GES

Weather Conditions

General Description	***Sunny, 0-2 mph***	***am***	***Sunny, 0-2 mph***	***pm***
Temperature	***65 F***	***am***	***82°F***	***pm***
Wind Direction	***SW***	***am***	***S/SW***	***pm***

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan?		***Yes ( )	No (X)	NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )	No (X)	NA ( )**
	Air (VOCs):	***Yes ( )	No (X)	NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )	No (X)	NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- **GES held a health and safety meeting.**
- **Resumed injection at IB-28R, 36, 39, 40, 41, 42 and 43. IB-42 is offset from IB-42R due to the clay layer at the bottom of the rods. By the end of today, the volume of permanganate injected at IB-28R, 36, 39, 40, 41, 42, 43 is 1372, 1248, 1492, 1456, 1381, 21 and 1318 gallons, respectively. They are all considered as complete.**
- **Installed and start injection at IB-25, 31, 32, 33, 37, 38 and 42R. By the end of toady, the volume of injected chemical for IB-25, 31, 32, 33, 37 and 42R is 859, 944, 974, 910, 913 and 180 gallons, respectively. IB-38 has no injection flow. It will be re-installed tomorrow to a shallow depth of 10 feet.**
- **Two sodium permanganate tankers were delivered today (approximately 4100 gallons pre-mixed sodium permanganate solution each tanker). All of the solution was injected and the tankers were sent off site by the end of day.**
- **GES conducted Water level and geochemical parameters measurement at wells MW-5, PMW-1, PMW-2, PMW-3, PMW-4, CBPZ-101 and CBPZ-110 at the end of day. Water from all the wells and Swanson Building basement area were observed to be purple in color.**
- **No purple color was observed in the adjacent water body during injection.**

DAILY OBSERVATION REPORT

Report No.: 006 HDR Project File: 10020330 Date: August 21, 2017

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not lined or tarped? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not decontaminated prior to exiting the site? *** Yes ( ) No ( ) NA (X)**

Materials Removed From Site:

Wastestream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged To Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Dongke Yu	HDR	Oversight	
Dan Zordan	GES	Field lead	
Staff	Parratt-Wolff	ISCO subcontractor	
Staff	Slack Chemical	Chemical delivery	

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Truck mounted drill rig	Y		
Dust Trak	Y		
YSI	Y		
Water level	Y		
Geoprobe	Y		

DAILY OBSERVATION REPORT

Report No.: 006 HDR Project File: 10020330 Date: August 21, 2017

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
Eric	**Popken**	**Yes (X)**	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

The injection event was planned to occur over a period of approximately 10 days, working Monday through Friday for two (2) weeks. A total of 43 injection points were planned. As of today (day 6 of 10), 22 of 43 injection locations have been completed and 7 more have been started; but not completed. A new injection location is proposed south of IB-42 (to be identified as IB-44) since injections could not be completed at this location.

ISSUES PENDING:

ITEMS OF CONCERN/COMMENTS:

Geoprobe is onsite for this week.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Dongke Yu (HDR)**

Name: (*signature*) **Date: 08/21/2017**

DAILY OBSERVATION REPORT

Report No.: 006 HDR Project File: 10020330 Date: August 21, 2017

PHOTO LOG

Date	Photo ID	Description
08/21/2017	1	Preparing to resume injection
08/21/2017	2	Dust and VOC monitoring
08/21/2017	3	Geoprobe onsite
08/21/2017	4	Installing new injection points

1



2

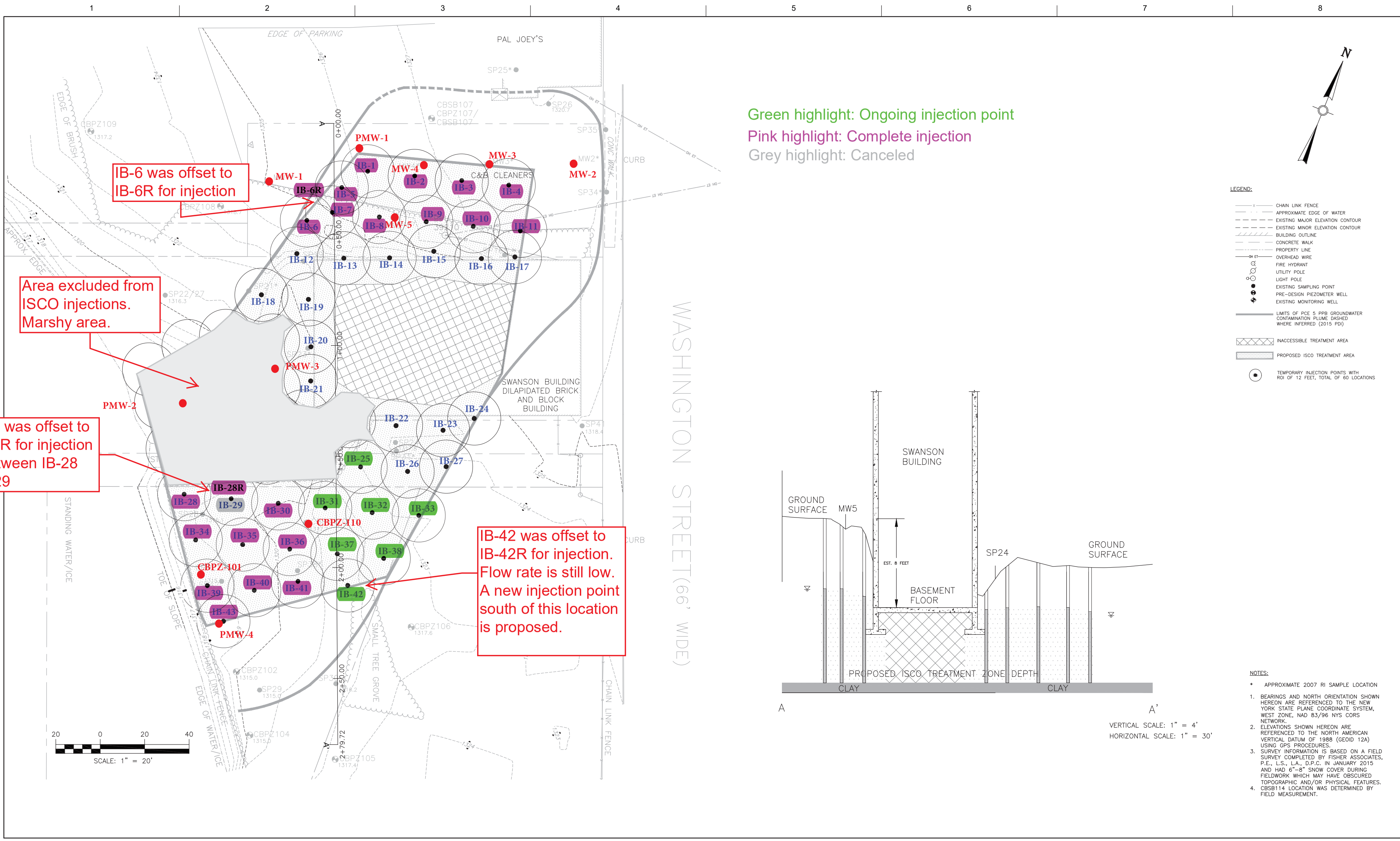


3



4





New York State Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
2	6/2016	60% DESIGN
1	2/2016	30% DESIGN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

DRAFT

60% REMEDIAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

Figure 1 - Site Map

FILENAME

SCALE 1"= 20'

FIGURE C-04

DAILY OBSERVATION REPORT

Report No.: 007 HDR Project File: 10020330 Date: August 22, 2017

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

Client: ***NYSDEC, Division of Environmental Remediation***

Site: ***Former C&B Dry Cleaners***
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

NYSDEC PM: George Momberger

Remedial Contractor: Groundwater & Environmental Services. (GES)

Remedial Contractor PM: Eric Popken

HDR PM: Erich Zimmerman

Air Monitoring: Dan Zordan, GES

Health & Safety: Dan Zordan, GES

Weather Conditions

General Description	***Sunny, 0-2 mph***	***am***	***Rainy, 0-2 mph***	***pm***
Temperature	***65 F***	***am***	***82°F***	***pm***
Wind Direction	***SW***	***am***	***S/SW***	***pm***

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan?		****Yes ( )***	***No (X)***	***NA ( )***
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No (X)**	**NA ( )**
	Air (VOCs):	***Yes ( )**	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- **GES held a health and safety meeting.**
- **Finished injections at IB-25, 31, 32, 33 and 37. The volume of sodium permanganate injected at these locations was 1530, 1499, 1517, 1430 and 1539 gallons, respectively. These locations are considered to be complete.**
- **Installed and started injections at IB-22, 23, 24, 26, 27, 38R and 44. By the end of toady, the volume of injected chemical is 659, 551, 225, 673, 506, 552 and 644 gallons, respectively. All the injection points from today were installed to 10 feet due to the shallow depth of clay. Only one injection interval at each injection point.**
- **Two sodium permanganate tankers were delivered today (approximately 4100 gallons pre-mixed sodium permanganate solution each tanker). All of the solution was injected and the tankers were sent off site by the end of the day.**
- **GES conducted Water level measurement at wells MW-5, PMW-1, PMW-2, PMW-3, PMW-4, CBPZ-101 and CBPZ-110 at the end of day. Water from all the wells and the Swanson Building basement area were observed to be purple in color.**
- **No purple color was observed in the adjacent water body.**

DAILY OBSERVATION REPORT

Report No.: 007 HDR Project File: 10020330 Date: August 22, 2017

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not lined or tarped? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not decontaminated prior to exiting the site? *** Yes ( ) No ( ) NA (X)**

Materials Removed From Site:

Wastestream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged To Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Dongke Yu	HDR	Oversight	
Dan Zordan	GES	Field lead	
Staff	Parratt-Wolff	ISCO subcontractor	
Staff	Slack Chemical	Chemical delivery	

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Truck mounted drill rig	Y		
Dust Trak	Y		
YSI	Y		
Water level	Y		
Geoprobe	Y		

DAILY OBSERVATION REPORT

Report No.: 007 HDR Project File: 10020330 Date: August 22, 2017

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
		Yes ( )	No ( )
		Yes ( )	No ( )
		Yes ( )	No ( )
		Yes ( )	No ( )

PROJECT SCHEDULE:

The injection event was planned to occur over a period of approximately 10 days, working Monday through Friday for two (2) weeks. A total of 43 injection points were planned. As of today (day 7 of 10), 27 of 43 injection locations have been completed and 7 more have been started; but not completed. This includes new injection location IB-44.

ISSUES PENDING:

ITEMS OF CONCERN/COMMENTS:

Geoprobe is onsite for this week.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Dongke Yu (HDR)**

Name: (*signature*) **Date: 08/22/2017**

DAILY OBSERVATION REPORT

Report No.: 007 HDR Project File: 10020330 Date: August 22, 2017

PHOTO LOG

Date	Photo ID	Description
08/22/2017	1	First tanker on site
08/22/2017	2	Dust and VOC monitoring
08/22/2017	3	Injection points along the building wall
08/22/2017	4	Purple water from the Southwest corner of Swanson building basement

1



2

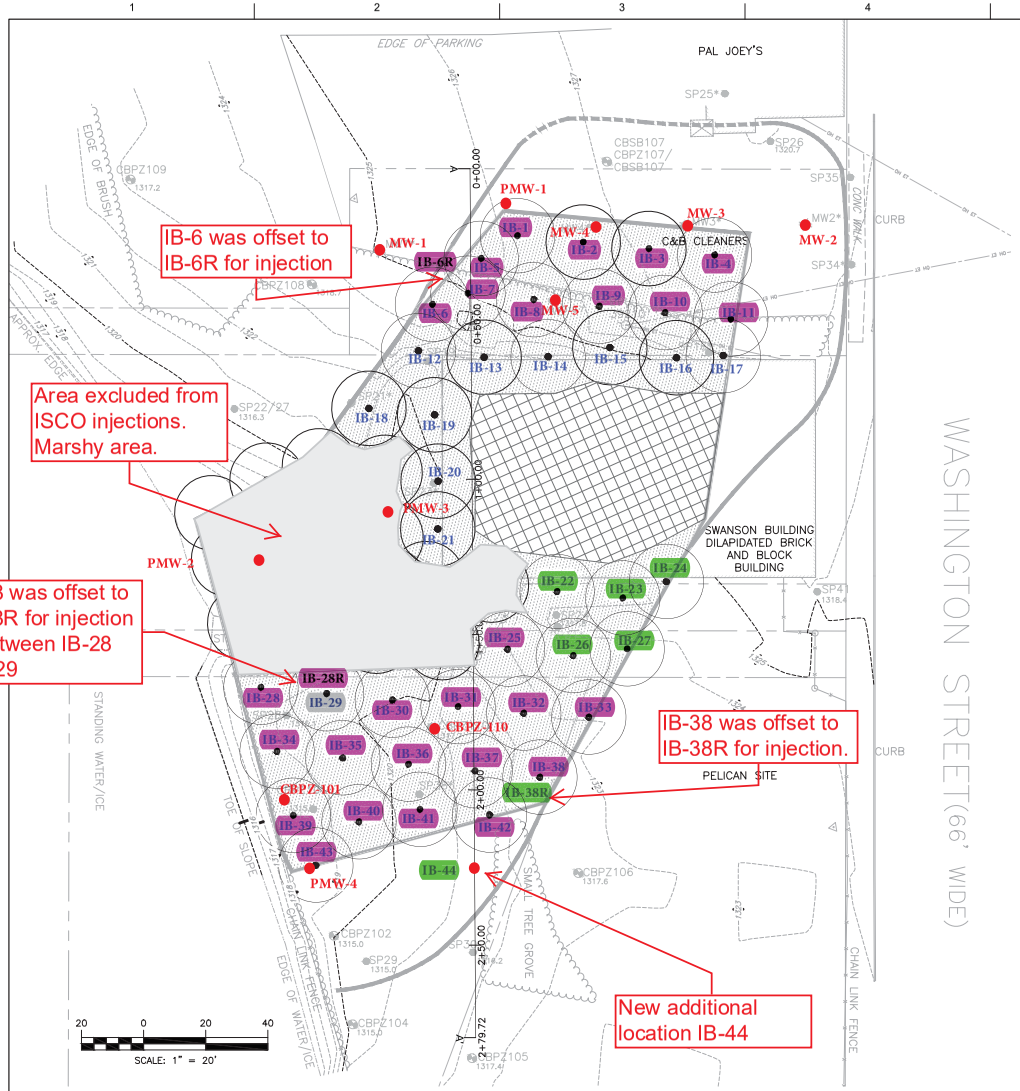


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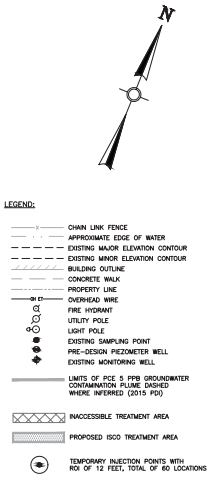


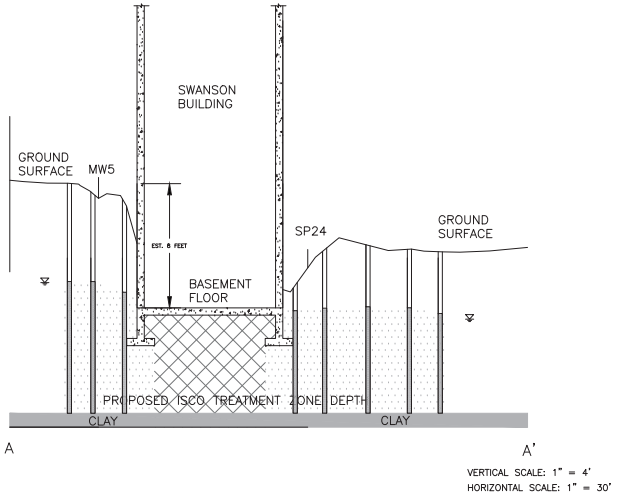
4





Green highlight: Ongoing injection point
Pink highlight: Complete injection
Grey highlight: Canceled





NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

ISSUE	DATE	DESCRIPTION
2	6/2016	60% DESIGN
1	2/2016	30% DESIGN

PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

DRAFT

60% REMEDIAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

Figure 1 - Site Map

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-04

DAILY OBSERVATION REPORT

Report No.: 008 HDR Project File: 10020330 Date: August 23, 2017

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

Client: ***NYSDEC, Division of Environmental Remediation***

Site: ***Former C&B Dry Cleaners***
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

NYSDEC PM: George Momberger

Remedial Contractor: Groundwater & Environmental Services. (GES)

Remedial Contractor PM: Eric Popken

HDR PM: Erich Zimmerman

Air Monitoring: Dan Zordan, GES

Health & Safety: Dan Zordan, GES

Weather Conditions

General Description	***Sunny, 0-2 mph***	***am***	***Sunny, 0-2 mph***	***pm***
Temperature	***55 F***	***am***	***72°F***	***pm***
Wind Direction	***SW***	***am***	***S/SW***	***pm***

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan?		****Yes ( )***	***No (X)***	***NA ( )***
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	****Yes ( )***	***No (X)***	***NA ( )***
	Air (VOCs):	****Yes ( )***	***No (X)***	***NA ( )***
Were any dust/odor issues reported or observed?		****Yes ( )***	***No (X)***	***NA ( )***

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- **GES held a health and safety meeting.**
- **Finished injections at IB-22, 23, 24, 26, 27, 38R and 44. The volume of sodium permanganate injected at each location was 1519, 1440, 579, 1456, 1468, 823 and 1334 gallons, respectively. These locations are considered to be complete.**
- **Installed and started injections at IB-12, 13, 14, 15, 18, 19, 20 and 21. All the injection points were installed to a depth of 10 feet below ground surface. Only one injection interval at each injection point. No injection flow at IB-21 from the beginning and it will be re-installed tomorrow. Chemical surfacing problem occurred around IB-18, 19 and 20. Injection will be resumed at these locations.**
- **By the end of today, the volume injected at IB-12, 13, 14, 15, 18, 19 and 20 was 641, 1510, 1625, 409, 154, 168 and 283 gallons, respectively.**
- **Two sodium permanganate tankers were delivered today (approximately 4100 gallons pre-mixed sodium permanganate solution each tanker). All of the solution was injected and the tankers were sent off site by the end of day.**
- **GES conducted Water level measurement at wells MW5, PMW-1, PMW-2, PMW-3, PMW-4, CBPZ-101 and CBPZ-110 at the end of day. All monitoring points evidenced purple color in the water.**
- **No purple color was observed in the adjacent water body during injection.**

DAILY OBSERVATION REPORT

Report No.: 008 HDR Project File: 10020330 Date: August 23, 2017

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not lined or tarped?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not decontaminated prior to exiting the site?	*** Yes ( )**	**No ( )**	**NA (X)**

Materials Removed From Site:

Wastestream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged To Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Dongke Yu	HDR	Oversight	
Dan Zordan	GES	Field lead	
Staff	Parratt-Wolff	ISCO subcontractor	
Staff	Slack Chemical	Chemical delivery	

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Truck mounted drill rig	Y		
Dust Trak	Y		
YSI	Y		
Water level	Y		
Geoprobe	Y		

DAILY OBSERVATION REPORT

Report No.: 008 HDR Project File: 10020330 Date: August 23, 2017

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
George Momberger	**NYSDEC**	**Yes (X)**	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

The injection event was planned to occur over a period of approximately 10 days, working Monday through Friday for two (2) weeks. A total of 43 injection points were planned. As of today (day 8 of 10), 34 of 44 injection locations have been completed and 8 more have been started; but not completed.

ISSUES PENDING:

ITEMS OF CONCERN/COMMENTS:

Sodium permanganate surfacing has been observed at several injection locations (IB-18, 19 and 20) due to the very shallow depth to water (nearly at the surface). Injection rates at these locations have been decreased and the full volume of permanganate cannot be injected at these locations without surfacing. These locations will have less permanganate injected.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Dongke Yu (HDR)**

Name: (*signature*) **Date: 08/23/2017**

DAILY OBSERVATION REPORT

Report No.: 008 HDR Project File: 10020330 Date: August 23, 2017

PHOTO LOG

Date	Photo ID	Description
08/23/2017	1	Resumed injection after the first tanker arrived
08/23/2017	2	Installing injection points
08/23/2017	3	Chemical surfacing at IB-18, 19 and 20 area
08/23/2017	4	Purple water sample from MW5

1



2

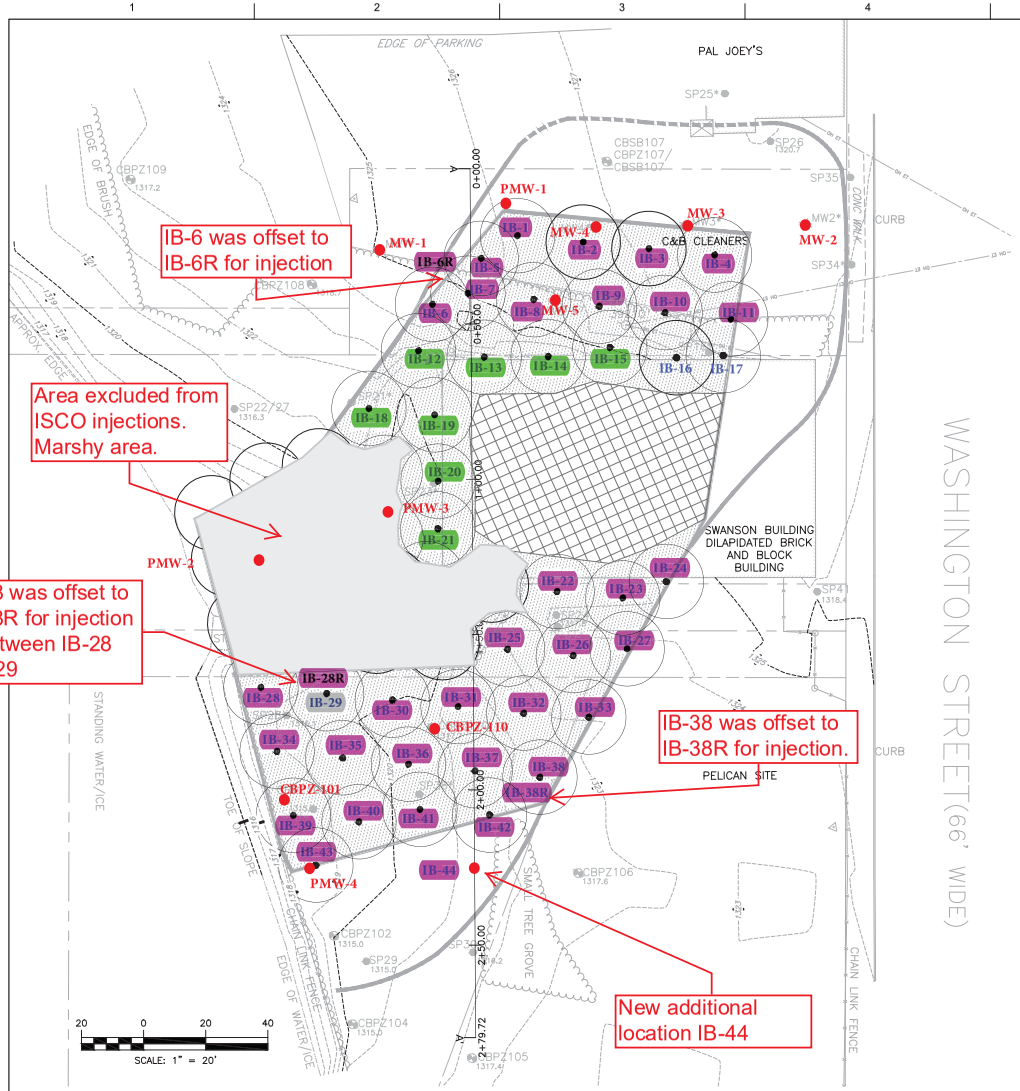


3



4

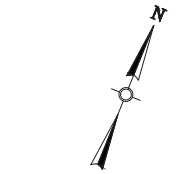




Green highlight: Ongoing injection point

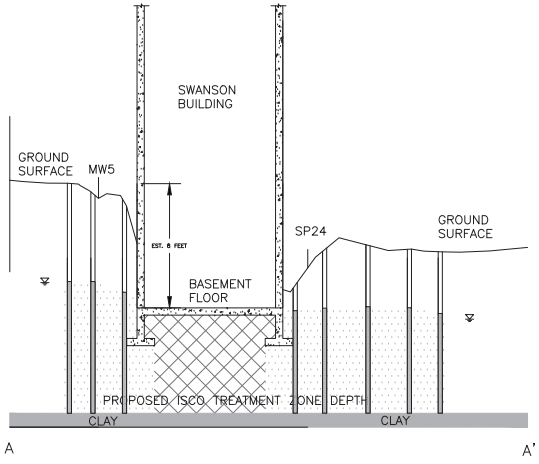
Pink highlight: Complete injection

Grey highlight: Canceled



LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OH ET — OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- LIMITS OF PCE 5 PPB GROUNDWATER CONTAMINATION PLUME DASHED WHERE INFERRED (2015 PDI)
- INACCESSIBLE TREATMENT AREA
- PROPOSED ISCO TREATMENT AREA
- TEMPORARY INJECTION POINTS WITH ROI OF 12 FEET, TOTAL OF 60 LOCATIONS



VERTICAL SCALE: 1" = 4'

HORIZONTAL SCALE: 1" = 30'

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

ISSUE	DATE	DESCRIPTION
2	6/2016	60% DESIGN
1	2/2016	30% DESIGN

PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

DRAFT

60% REMEDIAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

Figure 1 - Site Map

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-04

DAILY OBSERVATION REPORT

Report No.: 009 HDR Project File: 10020330 Date: August 24, 2017

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

Client: ***NYSDEC, Division of Environmental Remediation***

Site: ***Former C&B Dry Cleaners***
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

NYSDEC PM: George Momberger

Remedial Contractor: Groundwater & Environmental Services. (GES)

Remedial Contractor PM: Eric Popken

HDR PM: Erich Zimmerman

Air Monitoring: Dan Zordan, GES

Health & Safety: Dan Zordan, GES

Weather Conditions

General Description	***Sunny, 0-2 mph***	***am***	***Sunny, 0-2 mph***	***pm***
Temperature	***55 F***	***am***	***70°F***	***pm***
Wind Direction	***SW***	***am***	***S/SW***	***pm***

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan?		***Yes ( )**	**No (X)**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No (X)**	**NA ( )**
	Air (VOCs):	***Yes ( )**	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- **GES held a health and safety meeting.**
- **Re-installed IB-21 at new location IB-21R. Installed IB-16 and 17. Resumed injection at IB-12, 18, 19 and 20.**
- **Daylighting of permanganate recurred at injection points IB-18, 19 and 20 due to shallow depth to water. Injections were discontinued at these points. Extra permanganate will be injected at locations IB-13, 14, 15, 16 and 17 to compensate.**
- **By the end of today, the volume of injected chemical at IB-13, 14, 15, 16, 17 and 21R was 1968, 2213, 1631, 1866, 2095 and 1559 gallons, respectively. Injection location IB-12 will be reinstalled as IB-12R.**
- **Two sodium permanganate tankers were delivered today (approximately 4100 gallons pre-mixed sodium permanganate solution each tanker). All of the solution was injected and the tankers were sent off site by the end of day.**
- **GES conducted Water level measurement at wells MW5, PMW-1, PMW-2, PMW-3, PMW-4, CBPZ-101 and CBPZ-110 at the end of day. Water in all wells and in the Swanson Building basement area was observed to be purple in color.**
- **No purple color was observed in the adjacent water body during injections today.**

DAILY OBSERVATION REPORT

Report No.: 009 HDR Project File: 10020330 Date: August 24, 2017

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not lined or tarped? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not decontaminated prior to exiting the site? *** Yes ( ) No ( ) NA (X)**

Materials Removed From Site:

Wastestream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged To Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Dongke Yu	HDR	Oversight	10
Dan Zordan	GES	Field lead	10
Staff	Parratt-Wolff	ISCO subcontractor	10
Staff	Slack Chemical	Chemical delivery	10

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Truck mounted drill rig	Y		
Dust Trak	Y		
YSI	Y		
Water level	Y		
Geoprobe	Y		

DAILY OBSERVATION REPORT

Report No.: 009 HDR Project File: 10020330 Date: August 24, 2017

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
		Yes ( )	No ( )
		Yes ( )	No ( )
		Yes ( )	No ( )
		Yes ( )	No ( )

PROJECT SCHEDULE:

The injection event is planned to occur over a period of approximately 10 days, working Monday through Friday for two (2) weeks. A total of 43 injection points were planned. As of today (day 9 of 10), 43 of 44 injection locations have been completed and 1 more has been started; but not completed.

ISSUES PENDING:

ITEMS OF CONCERN/COMMENTS:

Geoprobe is onsite for this week.

Extra sodium permanganate will be injected at locations IB-13, 14, 15, 16 and 17 to compensate for the minimal volume that could be injected at locations IB-18, 19 and 20 due to shallow groundwater depths.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Dongke Yu (HDR)**

Name: (*signature*) **Date: 08/24/2017**

DAILY OBSERVATION REPORT

Report No.: 009 HDR Project File: 10020330 Date: August 24, 2017

PHOTO LOG

Date	Photo ID	Description
08/24/2017	1	First tanker on site
08/24/2017	2	Installing injection points using the Geoprobe
08/24/2017	3	Chemical surfacing recurred at IB-18, 19 and 20
08/24/2017	4	Swanson building basement water observed to be purple

1



2

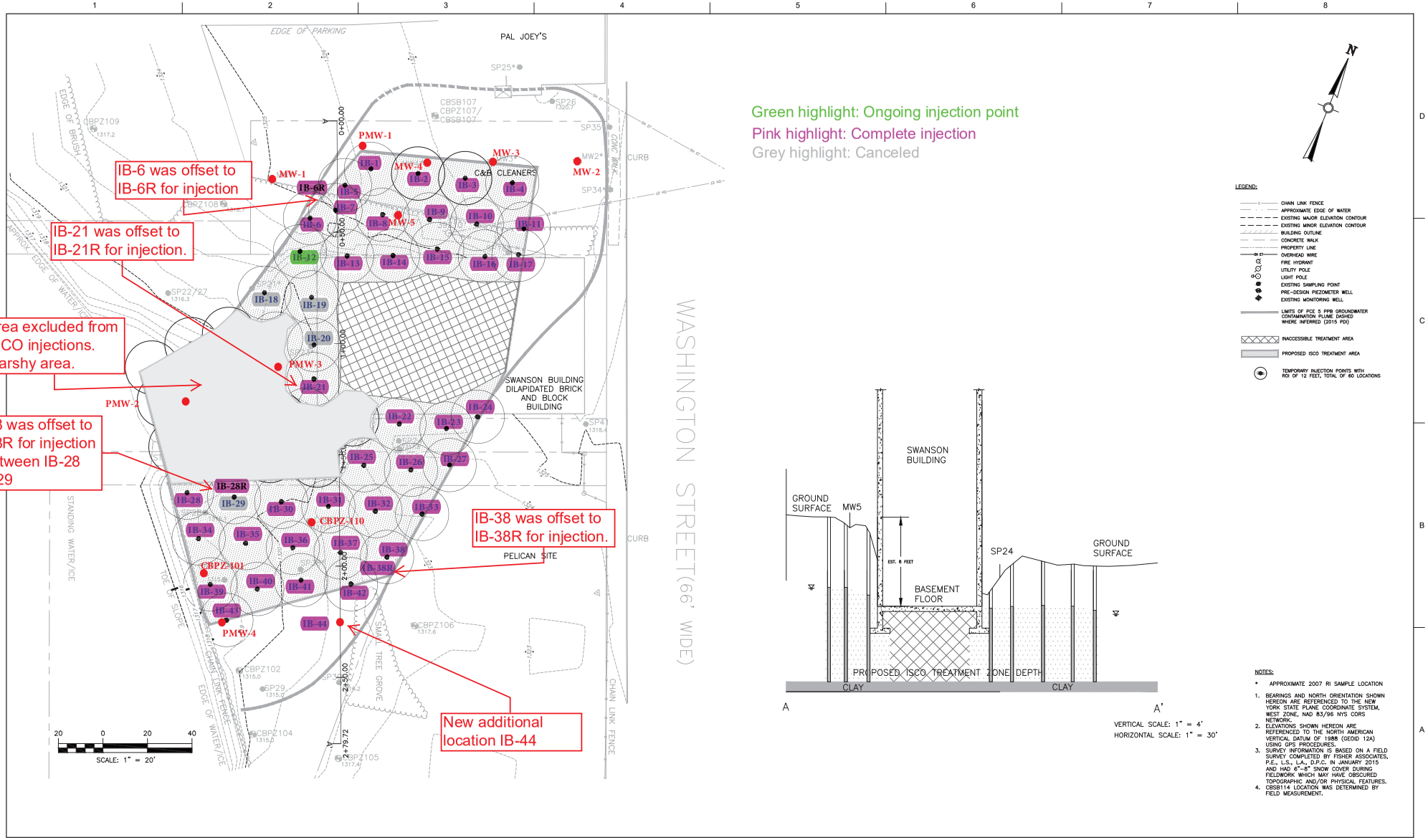


3



4





Green highlight: Ongoing injection point

Pink highlight: Complete injection

Grey highlight: Canceled

LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- LIMITS OF PCE 5 PPB GROUNDWATER CONTAMINATION PLUME DASHED WHERE INFERRED (2015 PDI)
- INACCESSIBLE TREATMENT AREA
- PROPOSED ISCO TREATMENT AREA
- TEMPORARY INJECTION POINTS WITH ROI OF 12 FEET, TOTAL OF 60 LOCATIONS

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

ISSUE	DATE	DESCRIPTION
2	6/2016	60% DESIGN
1	2/2016	30% DESIGN

PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

DRAFT

60% REMEDIAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

Figure 1 - Site Map

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-04

DAILY OBSERVATION REPORT

Report No.: 010 HDR Project File: 10020330 Date: August 25, 2017

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

Client: ***NYSDEC, Division of Environmental Remediation***

Site: ***Former C&B Dry Cleaners***
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

NYSDEC PM: George Momberger

Remedial Contractor: Groundwater & Environmental Services. (GES)

Remedial Contractor PM: Eric Popken

HDR PM: Erich Zimmerman

Air Monitoring: Dan Zordan, GES

Health & Safety: Dan Zordan, GES

Weather Conditions

General Description	***Sunny, 0-2 mph***	***am***	***Sunny, 0-2 mph***	***pm***
Temperature	***55 F***	***am***	***70°F***	***pm***
Wind Direction	***SW***	***am***	***S/SW***	***pm***

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan?		***Yes ( )**	**No (X)**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No (X)**	**NA ( )**
	Air (VOCs):	***Yes ( )**	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- **GES held a health and safety meeting.**
- **Re-installed IB-12 as IB-12R. Started injections at IB-12R, 15 and 16.**
- **By the end of today, the volume of permanganate injected at locations IB-12R, 15 and 16 was 456, 2011 and 2290 gallons, respectively.**
- **Only one partially-full sodium permanganate tanker was delivered today (approximately 1200 gallons pre-mixed sodium permanganate solution). All of the solution was injected and the tanker was sent off site by late morning.**
- **GES conducted Water level measurements at wells MW-5, PMW-1, PMW-2, PMW-3, PMW-4, CBPZ-101 and CBPZ-110 at the end of day. Water within all wells and within the Swanson Building basement area was observed to be purple in color.**
- **No purple color was observed within the adjacent water body during injections today.**
- **Injections are complete for the site. Slack Chemical will pick up clean water totes on site next week. There are also 19 drums of IDW remaining at the Pelican Site.**

DAILY OBSERVATION REPORT

Report No.: 010 HDR Project File: 10020330 Date: August 25, 2017

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not lined or tarped? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not decontaminated prior to exiting the site? *** Yes ( ) No ( ) NA (X)**

Materials Removed From Site:

Wastestream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged To Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Dongke Yu	HDR	Oversight	6
Dan Zordan	GES	Field lead	6
Staff	Parratt-Wolff	ISCO subcontractor	6
Staff	Slack Chemical	Chemical delivery	6

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Truck mounted drill rig	Y		
Dust Trak	Y		
YSI	Y		
Water level	Y		
Geoprobe	Y		

DAILY OBSERVATION REPORT

Report No.: 010 HDR Project File: 10020330 Date: August 25, 2017

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
Erich Zimmerman	**HDR**	**Yes (X)**	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

The injection event is planned to occur over a period of approximately 10 days, working Monday through Friday for two (2) weeks. A total of 43 injection points were planned. As of today (day 10 of 10), 44 of 44 injection locations have been completed. This injection event is complete.

ISSUES PENDING:

ITEMS OF CONCERN/COMMENTS:

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Dongke Yu (HDR)**

Name: (*signature*) **Date: 08/25/2017**

DAILY OBSERVATION REPORT

Report No.: 010 HDR Project File: 10020330 Date: August 25, 2017

PHOTO LOG

Date	Photo ID	Description
08/25/2017	1	Injection manifold set up for injections at IB-12R, 15 and 16
08/25/2017	2	IB-12R injection point
08/25/2017	3	IDW drums in Pelican site
08/25/2017	4	The C&B Site at the completion of injections. Water totes in distance to be picked up by Slack Chemical next week

1



2

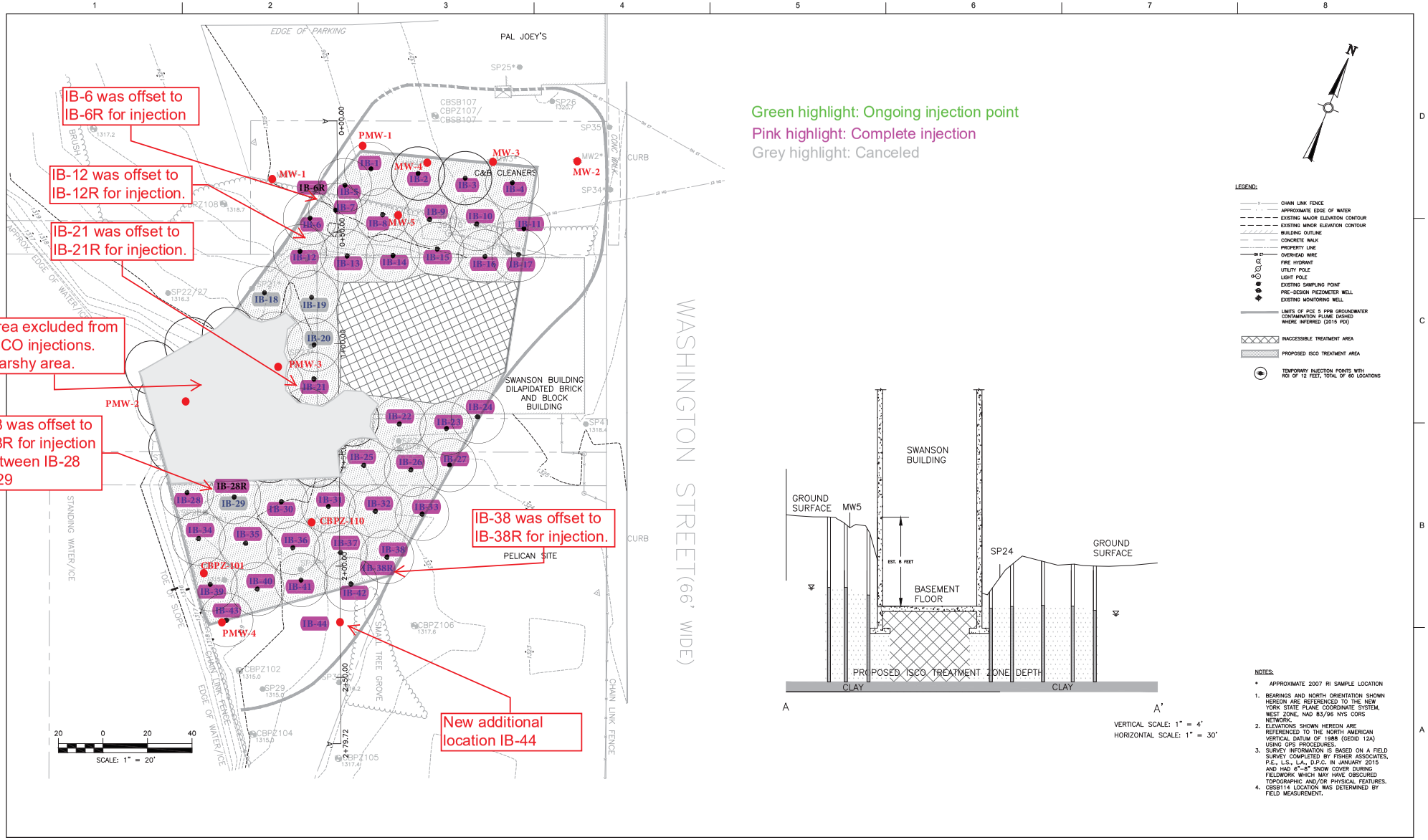


3



4





ISSUE	DATE	DESCRIPTION
2	6/2016	60% DESIGN
1	2/2016	30% DESIGN

PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

DRAFT

60% REMEDIAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

Figure 1 - Site Map

FILENAME
SCALE 1"= 20'
FIGURE C-04

DAILY OBSERVATION REPORT

Report No.: 011 HDR Project File: 10020330 Date: February 25, 2020

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

NYSDEC PM: George Momberger
HDR PM: Erich Zimmerman
Air Monitoring: NA
Health & Safety: Tom Giordano, HDR

Client: NYSDEC, Division of Environmental Remediation

Site: Former C&B Dry Cleaners
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

Weather Conditions

General Description	***Overcast, 9 mph***	***am***	***Overcast***	***pm***
Temperature	***38 ºF***	***am***	***51 ºF***	***pm***
Wind Direction	***WSW***	***am***		***pm***

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan?		****Yes ( )***	***No (X)***	***NA ( )***
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	****Yes ( )***	***No ( )***	***NA (X)***
	Air (VOCs):	****Yes ( )***	***No ( )***	***NA (X)***
Were any dust/odor issues reported or observed?		****Yes ( )***	***No ( )***	***NA (X)***

OTHER ITEMS:

Site Sketch Attached:	**Yes (X)**	**No ( )**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- HDR mobilized to the site today, 2/25/20 to perform GW sampling for VOC analysis at 10 well locations, plus emerging contaminant (PFAS and 1,4-Dioxane) analysis at 5 of the 10 locations. Sampling locations are shown in the attached site sketch.
- A PFC sampling checklist was completed to document that PFC-containing materials were minimized at the site during PFAS sampling. Samples were obtained using HDPE and flexible silicone tubing.
- Prior to sampling, a synoptic round of DTW and PID measurements were collected at the 10 well locations proposed for sampling. The condition of the wells were recorded in the field notes. Padlocks on the three stick up PMW locations and CBMW5 were cut off in order to access the wells.
- Samples were collected at 8 of the 10 well locations:
    - Samples were collected for VOC analysis at CBMW5, CBPZ101, CBPZ107, CBPZ110, PMW-1, PMW-2, PMW-3, and PMW-4.
    - Samples were also collected for PFAS and 1,4-Dioxane analysis at CBMW5, CBPZ101, PMW-1, PMW-3, and PMW-4.
- The following lab QC samples were collected:

- A field duplicate was collected for VOCs, PFAS, and 1,4-Dioxane analysis at PMW-3.
- An MS/MSD was collected for PFAS and 1,4-Dioxane analysis at PMW-1.
- A trip blank was collected for VOC analysis.
- An equipment blank was collected for VOC, PFAS, and 1,4-Dioxane analysis by pumping PFC-free water through HDPE and silicone tubing via a Peri pump.

- Samples were held overnight on ice.
- Three 55-gallon drums were found at the site: one full drum was found on the north side of the Swanson building, and two other drums were found south of the Swanson building (one of which was less than ¼ full of water). Per DEC request, purge water from today's sampling was transferred to the partially filled IDW drum staged on the south side of the Swanson building (see the attached site sketch).

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not lined or tarped?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not decontaminated prior to exiting the site?	***Yes ( )**	**No ( )**	**NA (X)**

Materials Removed From Site:

Wastestream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged To Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Tom Giordano	HDR	Field crew lead	11.5
Matt Papula	HDR	Field crew member	11.5

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?

DAILY OBSERVATION REPORT

Report No.: 011 HDR Project File: 10020330 Date: February 25, 2020

2 Geotech Geopump II peristaltic pumps	Y	HDPE tubing	Y
2 Heron Skinny Dipper DTW probes	Y	Flexible silicone tubing	Y
2 Horiba U-52-2 WQMs with flow cells	Y		
2 Lamotte 2020t turbidity meters	Y		
1 RAE MiniRAE 3000 PID	Y		

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
None.		**Yes ( )**	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

- Sampling will conclude tomorrow, 2/26/20, and all samples from both days of sampling will be hand-delivered to TestAmerica in Amherst, NY on the same day.

ISSUES PENDING:

- HDR will look to replace the damaged manhole cover at CBPZ107.
- Padlocks at the three stick up PMW locations and CBMW5 will be replaced tomorrow.

ITEMS OF CONCERN/COMMENTS:

- Teflon tubing was found in each of the 10 wells proposed for sampling. The tubing was removed and bagged for disposal.
- Several wells at the site are in poor condition. For example:
  - The well cover for CBPZ107 was broken while being opened and is now missing a well cover and ear (bolt thread). In addition Teflon tubing is lodged out of view from the surface.
  - The stick up casing and PVC riser at PMW-5 are severely bent. In the future, it will likely be impossible to use a submersible pump, bailer, standard DTW probe, etc. at this location.
  - Several other stickup wells are bent.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog and sketch.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Tom Giordano (HDR)**

Name: (*signature*)  **Date: 2/25/20**

DAILY OBSERVATION REPORT

Report No.: 011 HDR Project File: 10020330 Date: February 25, 2020

PHOTO LOG

Date	Photo ID	Description
2/25/20	1	CBMW5 stickup casing bent.
2/25/20	2	CBPZ107 manhole cover broken off.
2/25/20	3	PMW-2 location.
2/25/20	4	PMW-3 sampling setup.

1



2



3



4



ID	PMW-3 (~3-13 ft bgs)		
Date	4/20/2017	1/4/2018	7/18/2018
Metals			
Arsenic	< 15	< 15	< 15
Chromium	4.3	< 4.0	< 4.0
Iron	**5500**	48	22
Manganese	**1100**	**300**	75
Sodium	**482000**	**487000**	**355000**
MNA			
Chloride (As Cl)	**1050000**	**516000**	**473000**
Sulfate (As So4)	82700	102000	65500
VOCs			
PCE	**1200**	**750**	**260**
TCE	**34**	**200**	**14**
cis-1,2-DCE	< 20	**65**	< 10
VC	< 20	< 1.0	< 10

ID	CBSP27 (~5-15 ft bgs)
Date	1/15/2015
PCE	0.40
TCE	0.87
cis-1,2-DCE	1.5
VC	< 1.0

ID	CBPZ109 (3-13 ft bgs)
Date	1/12/2015
PCE	< 1.0
TCE	< 1.0
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	CBPZ108 (3-13 ft bgs)
Date	1/12/2015
PCE	< 1.0
TCE	< 1.0
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	PMW-1 (~5-15 ft bgs)		
Date	4/20/2017	1/3/2018	7/18/2018
Metals			
Arsenic	< 15	< 15	< 15
Chromium	1.1	1.3	5.2
Iron	**390**	57	**3700**
Manganese	51	17	**3000**
Sodium	**81500**	**48200**	**70100**
MNA Parameters			
Chloride (As Cl)	187000	147000	133000
Sulfate (As So4)	88800	67300	54900
VOCs			
PCE	< 1.0	< 1.0	< 1.0
TCE	< 1.0	< 1.0	< 1.0
cis-1,2-DCE	< 1.0	< 1.0	< 1.0
VC	< 1.0	< 1.0	< 1.0

ID	CBMW5 (~6-16 ft bgs)			
Date	1/15/2015	4/20/2017	1/3/2018	7/17/2018
Metals				
Arsenic	NA	< 15	< 15	< 15
Chromium	NA	< 4.0	< 4.0	3.3
Iron	NA	90	30	**580**
Manganese	NA	150	**2700**	**1600**
Sodium	NA	**97700**	**67900**	**87900**
MNA Parameters				
Chloride (As Cl)	114000	199000	171000	133000
Sulfate (As So4)	37200	73500	61300	63400
VOCs				
PCE	**28000**	**7600**	**2300**	**3100**
TCE	**220**	**150**	**54**	**72**
cis-1,2-DCE	< 50	< 200	< 50	< 50
VC	< 50	< 200	< 50	< 50

ID	CBSP26 (~5-15 ft bgs)
Date	1/13/2015
PCE	**7.4**
TCE	< 1.0
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	CBPZ107 (3-13 ft bgs)			
Date	1/12/2015	4/20/2017	1/3/2018	7/17/2018
Metals				
Arsenic	NA	< 15	< 15	< 15
Chromium	NA	**140**	22	< 4.0
Iron	NA	**12500**	**1100**	64
Manganese	NA	**540**	51	1.4
Sodium	NA	**194000**	**99700**	**97500**
MNA Parameters				
Chloride (As Cl)	216000	**347000**	**322000**	145000
Sulfate (As So4)	73000	61200	47800	53900
VOCs				
PCE	**6.3**	3.1	1.0	**17**
TCE	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-DCE	< 1.0	< 1.0	< 1.0	< 1.0
VC	< 1.0	< 1.0	< 1.0	< 1.0

ID	PMW-2 (~7-17 ft bgs)		
Date	4/20/2017	1/4/2018	7/18/2018
Metals			
Arsenic	< 15	< 15	< 15
Chromium	< 4.0	1.2	1.1
Iron	**440**	**690**	23
Manganese	75	**3200**	76
Sodium	**269000**	**401000**	**359000**
MNA Parameters			
Chloride (As Cl)	**627000**	**354000**	**483000**
Sulfate (As So4)	85900	142000	92400
VOCs			
PCE	**730**	**59**	**180**
TCE	**21**	**33**	**48**
cis-1,2-DCE	**25**	**270**	**91**
VC	< 10	**43**	**23**

ID	CBSP28 (~5-15 ft bgs)
Date	1/13/2015
PCE	**100**
TCE	**5.8**
cis-1,2-DCE	**180**
VC	**32**

ID	CBPZ110 (5-13 ft bgs)			
Date	1/14/2015	4/19/2017	1/4/2018	7/18/2018
Metals				
Arsenic	NA	< 15	< 15	< 15
Chromium	NA	3.4	13	5.3
Iron	NA	290	27	49
Manganese	NA	61	**3100**	**12900**
Sodium	NA	**133000**	**546000**	**422000**
MNA Parameters				
Chloride (As Cl)	233000	**264000**	**345000**	**567000**
Sulfate (As So4)	23600	4000	2600	32200
VOCs				
PCE	**220**	**190**	**620**	**200**
TCE	**35**	**37**	**14**	**10**
cis-1,2-DCE	**54**	**84**	**17**	**8.5**
VC	**6.3**	**4.3**	< 4.0	< 10

ID	CBSP42 (~5-15 ft bgs)
Date	1/15/2015
PCE	0.69
TCE	**35**
cis-1,2-DCE	1.8
VC	< 1.0

ID	CBPZ101 (3-10 ft bgs)			
Date	1/14/2015	4/19/2017	1/5/2018	7/19/2018
Metals				
Arsenic	NA	< 15	< 15	< 15
Chromium	NA	2.7	23	5.1
Iron	NA	**850**	170	73
Manganese	NA	66	**1900**	**500**
Sodium	NA	**402000**	**653000**	**355000**
MNA Parameters				
Chloride (As Cl)	NA	**813000**	**388000**	**412000**
Sulfate (As So4)	NA	78700	66400	70200
VOCs				
PCE	**250**	**170**	**83**	**68**
TCE	**16**	**9.1**	**11**	**18**
cis-1,2-DCE	**79**	**33**	**14**	**20**
VC	**44**	**24**	< 4.0	< 2.0

ID	PMW-4 (~6-16 ft bgs)		
Date	4/19/2017	1/5/2018	7/19/2018
Metals			
Arsenic	**32**	14	**29**
Chromium	10	1.2	< 4.0
Iron	**3000**	**580**	**3200**
Manganese	**320**	**7800**	**6400**
Sodium	**236000**	**617000**	**473000**
MNA Parameters			
Chloride (As Cl)	**485000**	**275000**	**482000**
Sulfate (As So4)	72600	**295000**	71100
VOCs			
PCE	**1100**	< 20	< 20
TCE	**38**	**14**	< 20
cis-1,2-DCE	**260**	**110**	**63**
VC	**34**	**74**	**48**

ID	CBPZ102 (5-10 ft bgs)			
Date	1/15/2015	4/19/2017	1/4/2018	7/19/2018
Metals				
Arsenic	NA	**81**	**230**	**890**
Chromium	NA	1.8	< 4.0	7.6
Iron	NA	**1600**	**2500**	**10400**
Manganese	NA	**570**	**4500**	**4000**
Sodium	NA	**166000**	**306000**	**364000**
WQP				
Chloride (As Cl)	153000	**375000**	**328000**	**418000**
Sulfate (As So4)	48000	66900	93600	66800
VOCs				
PCE	**20**	**36**	**31**	**29**
TCE	**10**	**11**	**24**	**29**
cis-1,2-DCE	**17**	**29**	**46**	**68**
VC	**3.6**	**3.6**	**5.3**	**11**

ID	CBPZ104 (5-15 ft bgs)
Date	1/15/2015
PCE	< 1.0
TCE	0.65
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	CBPZ105 (10-15 ft bgs)
Date	1/15/2015
PCE	< 1.0
TCE	0.59
cis-1,2-DCE	< 1.0
VC	< 1.0

ID	CBPZ106 (10-15 ft bgs)
Date	1/15/2015
PCE	1.6
TCE	2.6
cis-1,2-DCE	0.94
VC	< 1.0

NYSDEC TOGS 1.1.1 CLASS GA GROUNDWATER STANDARDS (ug/l)	
Arsenic	25
Chloride (As Cl)	250000
Chromium, Total	50
cis-1,2-Dichloroethylene	5
Iron	300
Manganese	300
Sodium	20000
Sulfate (As So4)	250000
Tetrachloroethylene(PCE)	5
Trichloroethene (TCE)	5
Vinyl Chloride	2

SAMPLE IDENTIFICATION
SAMPLE DEPTH OR INTERVAL

ID	CBPZ101 (3-10 ft bgs)			
Date	1/14/2015	4/19/2017	1/5/2018	7/19/2018
Metals				
Arsenic	NA	< 15	< 15	< 15
Chromium	NA	2.7	23	5.1
Iron	NA	**850**	170	73
Manganese	NA	66	**1900**	**500**
Sodium	NA	**402000**	**653000**	**355000**
MNA Parameters				
Chloride (As Cl)	NA	**813000**	**388000**	**412000**
Sulfate (As So4)	NA	78700	66400	70200
VOCs				
PCE	**250**	**170**	**83**	**68**
TCE	**16**	**9.1**	**11**	**18**
cis-1,2-DCE	**79**	**33**	**14**	**20**
VC	**44**	**24**	< 4.0	< 2.0

SAMPLE DATE
ANALYTICAL RESULT UG/L (BOLD AND YELLOW HIGHLIGHT INDICATES CONCENTRATION GREATER THAN NYSDEC CLASS GA GROUNDWATER STANDARDS.)
ANALYTICAL PARAMETER

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"–8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
2. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

VOCs Sampling Location

EC Sampling Locations

CHAIN LINK FENCE
APPROXIMATE EDGE OF WATER
EXISTING MAJOR ELEVATION CONTOUR
OVERHEAD WIRE
FIRE HYDRANT
UTILITY POLE
LIGHT POLE
EXISTING SAMPLING POINT
PRE-DESIGN PIEZOMETER WELL
EXISTING MONITORING WELL
PCE GROUNDWATER CONTAMINATION PLUME BASED ON JULY 2018 DATA

30 0 30 60
SCALE: 1" = 30'

NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER: E. ZIMMERMAN
PROJECT NUMBER: 10050422

GROUNDWATER RESULT SUMMARY

FORMER C&B DRY CLEANERS

CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

SUMMARY OF GROUNDWATER RESULTS

0 30 60

FILENAME
SCALE 1"= 30'

FIGURE 3

DAILY OBSERVATION REPORT

Report No.: 012 HDR Project File: 10020330 Date: February 26, 2020

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

NYSDEC PM: George Momberger
HDR PM: Erich Zimmerman
Air Monitoring: NA
Health & Safety: Tom Giordano, HDR

Client: NYSDEC, Division of Environmental Remediation

Site: Former C&B Dry Cleaners
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

Weather Conditions

General Description	***Overcast, 6 mph***	***am***	***Overcast***	***pm***
Temperature	***34 ºF***	***am***	***45 ºF***	***pm***
Wind Direction	***E***	***am***		***pm***

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan?		***Yes ( )**	**No (X)**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No ( )**	**NA (X)**
	Air (VOCs):	***Yes ( )**	**No ( )**	**NA (X)**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No ( )**	**NA (X)**

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- HDR concluded GW sampling today and demobilized from the site.
- Samples were collected at 2 of the 10 well locations:
  - Samples were collected for VOC analysis at CBSP28 and CBPZ102.
- Samples from both days of sampling were packed in coolers with ice, sealed with custody seals, and hand-delivered to TestAmerica in Amherst, NY.
- Purge water from today's sampling was transferred to the partially filled IDW drum staged on the south side of the Swanson building on a wooden pallet. This drum is now ~4/5 full, and a second empty drum is staged alongside it. Non-hazardous waste labels were affixed to both drums.

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards?	***Yes ( )**	**No ( )**	**NA (X)**

DAILY OBSERVATION REPORT

Report No.: 012 HDR Project File: 10020330 Date: February 26, 2020

Were there any vehicles which were not lined or tarped? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not decontaminated prior to exiting the site? *** Yes ( ) No ( ) NA (X)**

Materials Removed From Site:

Wastestream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged To Date*	Transporter	Disposal Facility
None.				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Tom Giordano	HDR	Field crew lead	3
Matt Papula	HDR	Field crew member	3

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
2 Geotech Geopump II peristaltic pumps	Y	HDPE tubing	Y
2 Heron Skinny Dipper DTW probes	Y	Flexible silicone tubing	Y
2 Horiba U-52-2 WQMs with flow cells	Y		
2 Lamotte 2020t turbidity meters	Y		
1 RAE MiniRAE 3000 PID	Y		

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
Erich Zimmerman	HDR PM	Yes ( )	No (X)
		Yes ( )	No ( )
		Yes ( )	No ( )

DAILY OBSERVATION REPORT

Report No.: 012 HDR Project File: 10020330 Date: February 26, 2020

		Yes ( )	No ( )

PROJECT SCHEDULE:

- Sampling is complete; HDR demobilized from the site today, 2/26/20.

ISSUES PENDING:

- The manhole at CBPZ107 was filled with gravel as a temporary measure to protect the PVC riser until repairs can be made to the manhole. Measurements to the well were taken from the nearby Pal Joey's building to aid in locating the well in the future.
- New padlocks were placed on the three stick up PMW locations and CBMW5. The keys will be held at HDR's Mahwah, NJ office.

ITEMS OF CONCERN/COMMENTS:

- No additional.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Tom Giordano (HDR)**

Name: (*signature*)  **Date: 2/26/20**

DAILY OBSERVATION REPORT

Report No.: 012 HDR Project File: 10020330 Date: February 26, 2020

PHOTO LOG

Date	Photo ID	Description
2/26/20	1	Piezometer locations along west side of site parking lot.
2/26/20	2	SP30 stickup bent (not sampled during this event).
2/26/20	3	Drums staged on the south side of the Swanson building.
2/26/20	4	CBPZ107 manhole filled with gravel.

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2



3



4



DAILY INSPECTION REPORT

Report No.: 001 HDR Project File: 10050422 Date: April 12, 2021

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

NYSDEC PM: Samantha Salotto, PE

Remedial Contractor: Groundwater & Environmental Services (GES)

Remedial Contractor PM: Thomas D. Palmer

HDR PM: Erich Zimmerman

Air Monitoring: Yes

Health & Safety: Tom Giordano, HDR

Client: Division of Environmental Remediation, Remedial Bureau E, Remedial Section A
Site: Former C&B Dry Cleaners
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

Weather Conditions:

General Description	Cloudy	**am**	Cloudy, some rain	**pm**
Temperature	52 ºF	**am**	57 ºF	**pm**
Wind Direction	SSW 6 mph	**am**	SSW 6 mph	**pm**

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan? ** HDR HASP was amended to include COVID-19 precautions.*		***Yes (X)**	**No ( )**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No (X)**	**NA ( )**
	Air (VOCs):	***Yes ( )**	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- HDR, GES, and Parratt Wolff mobilized to the Former C&B Dry Cleaners site today, 4/12/21, for an ISCO injection event. Parratt Wolff will install twenty temporary injection points and perform ISCO injections under the direction of GES. HDR is providing oversight on behalf of NYSDEC.
- Injection equipment, supplies, and a portable restroom were staged at the rear (west end) of the Pal Joey's parking lot. Rinsing/flushing water was delivered, and an emergency rinse shower was set up. A stock of water, vinegar, and hydrogen peroxide was prepared to neutralize small incidental spills.
- GES collected baseline depth to water (DTW) readings and water chemistries (ORP and conductivity) at the following monitoring locations: MW-5, PMW-2 through -4, CBPZ101, CBPZ108, and CBPZ110. MW-1 and PMW-1, which were proposed for monitoring, could not be located and were replaced with CBPZ108. DTW and water chemistry readings will be collected at the end of each workday at these same locations. In addition, single-use bailers will be used to assess whether sodium permanganate is present in the groundwater at these locations.
- GES marked all 20 temporary injection points according to the work plan, with minor deviations where access by the Geoprobe is obstructed and where marshy conditions exist in the area behind (west of) the Swanson building.
- Parratt wolf installed temporary injection points at the following locations: IB-201, -202, -203, -205, -210, and -211. Each point consists of rods extending to 15 feet below ground surface (ft bgs) with a 3-foot perforated segment at the bottom. The temporary points were protected overnight with traffic cones.
- Air monitoring was performed during all intrusive activities using two CAMP units, each equipped with a PID

and DustTrak. One CAMP unit was stationed upwind from the work area (near MW-1) and one downwind from the work area (near MW-2).

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not lined or tarped?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not decontaminated prior to exiting the site?	*** Yes ( )**	**No ( )**	**NA (X)**

Materials Removed from Site:

Waste Stream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged to Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Tom Giordano	HDR	OS on behalf of NYSDEC	7
Pawel Mecinski	GES	Field lead	7
Pat Colern	GES	Field team	6.5
Josh Daugherty	GES	Field team	5.5
Lee Penrod	Parratt Wolff	Lead driller	3.5
Alex Hayes	Parratt Wolff	Driller	3.5
Will Hachert	Parratt Wolff	Driller	3.5

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Geoprobe 6620DT	Y		
Support trucks	Y		
Two CAMP units (equipped with PID and DustTrak)	Y		
YSI water quality meter	Y		
DTW meter	Y		

DAILY INSPECTION REPORT

Report No.: 001 HDR Project File: 10050422 Date: April 12, 2021

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
None.		**Yes ( )**	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

- Sodium permanganate (injectate) and sodium thiosulfate (neutralizer) will be delivered to the site tomorrow morning, and injections at the first six injection points will commence.

ISSUES PENDING:

- None.

ITEMS OF CONCERN/COMMENTS:

- None.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Tom Giordano (HDR)**

Name: (*signature*)  **Date: 4/12/21**

DAILY INSPECTION REPORT

Report No.: 001 HDR Project File: 10050422 Date: April 12, 2021

PHOTO LOG

Date	Photo ID	Description
4/12/21	1	Existing conditions north of Swanson building
4/12/21	2	Proposed IB-215 location west of Swanson building
4/12/21	3	Geoprobe installing injection point IB-211
4/12/21	4	Proposed injection locations on Pelican site

1



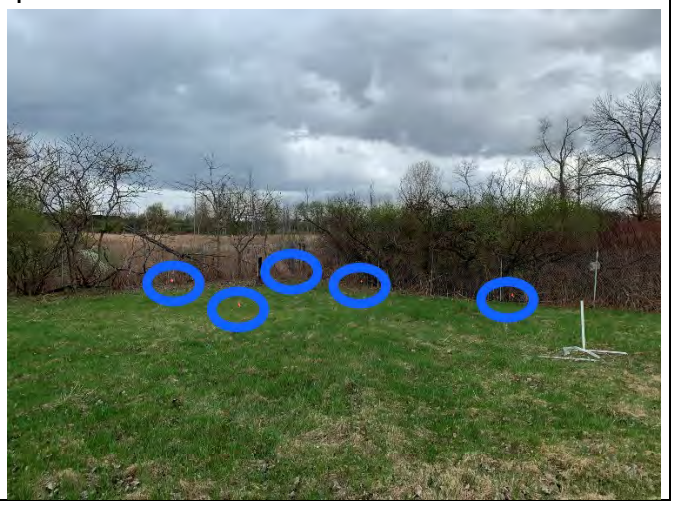
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3



4



DAILY INSPECTION REPORT

Report No.: 002 HDR Project File: 10050422 Date: April 13, 2021

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

NYSDEC PM: Samantha Salotto, PE

Remedial Contractor: Groundwater & Environmental Services (GES)

Remedial Contractor PM: Thomas D. Palmer

HDR PM: Erich Zimmerman

Air Monitoring: Yes

Health & Safety: Tom Giordano, HDR

Client: Division of Environmental Remediation, Remedial Bureau E, Remedial Section A

Site: Former C&B Dry Cleaners
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

Weather Conditions:

General Description	Cloudy	**am**	Cloudy	**pm**
Temperature	45 ºF	**am**	63 ºF	**pm**
Wind Direction	SSE 3 mph	**am**	W 6 mph	**pm**

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan? ** HDR HASP was previously amended to include COVID-19 precautions.*		***Yes ( )**	**No (X)**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No (X)**	**NA ( )**
	Air (VOCs):	***Yes ( )**	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- Two trucks delivered a total of ~7,750 gallons of 5% sodium permanganate (ISCO injectate). One 55-gallon poly drum of 30% sodium thiosulfate (neutralizer) was also delivered.
- Parratt wolf injected six locations simultaneously with 5% sodium permanganate using an injection manifold and hydraulic pump. The volume injected at each location was distributed roughly evenly within the depth intervals shown in the table below by incrementally raising the injection rods. Flow rates ranged from 3-10 gallons per minute (gpm), and pressures were generally low (near zero) and no greater than 12 psi.

Location	Depth Interval (ft bgs)	Volume (gal)	Comments
IB-201	5 - 15	1,301	
IB-202	5 - 15	1,213	
IB-203	5 - 15	1,274	
IB-205	5 - 15	1,304	
IB-210	5 - 15	1,300	
IB-211	5 - 15	1,247	
Total	NA	7,639*	

* Note a 2% discrepancy between the total volume measured, 7,639 gal (measured by summing flow meter readings on the injection manifold), versus the ~7,750 gal of injectate delivered to the site.

- GES walked the site and observed the Swanson building basement and adjacent wetland area to monitor for

any daylighting of injectate. Instances of minor daylighting (less than one gallon) of injectate at IB-203 and IB-211, as well as small incidental spills/leaks, were neutralized. In order to prevent further daylighting, the flow rate into each injection point was adjusted and bentonite powder was used to seal injection points. Injectate observed in the basement of the Swanson building will be neutralized at the conclusion of this field event.

- Following completion of injections at the six locations, the temporary injection points were removed and the work area was broken down. GES collected depth to water readings, water chemistries (ORP and conductivity), and aliquots for visual indications of injectate at the following monitoring locations: MW-2, MW-4 (light purple), MW-5 (dark purple; no chemistries taken), PMW-2, PMW-3, CBPZ101, CBPZ108, and CBPZ110.
- Air monitoring was not performed today, as no injection points were installed. There have been no exceedances of the air monitoring action levels during this event thus far.

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not lined or tarped?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not decontaminated prior to exiting the site?	*** Yes ( )**	**No ( )**	**NA (X)**

Materials Removed from Site:

Waste Stream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged to Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Tom Giordano	HDR	OS on behalf of NYSDEC	8
Pawel Mecinski	GES	Field lead	8
John Daugherty	GES	Field team	8
Lee Penrod	Parratt Wolff	Lead driller	8
Alex Hayes	Parratt Wolff	Driller	8
Devin Gawarecki	Parratt Wolff	Driller	8

DAILY INSPECTION REPORT

Report No.: 002 HDR Project File: 10050422 Date: April 13, 2021

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Geoprobe 6620DT	Y	Injection manifold	Y
Support trucks	Y		
Two CAMP units (equipped with PID and DustTrak)	Y		
YSI water quality meter	Y		
DTW meter	Y		
Hydraulic pump	Y		

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
None.		**Yes ( )**	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

- The next six injection points will be installed and injected tomorrow, 4/14/21.

ISSUES PENDING:

- None.

ITEMS OF CONCERN/COMMENTS:

- None.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Daily health checklist and photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Tom Giordano (HDR)**

Name: (*signature*)  **Date: 4/13/21**

Report No.: 002 HDR Project File: 10050422 Date: April 13, 2021

DAILY HEALTH CHECKLIST

Is social distancing being practiced?	Yes ☒	No ☐
Is the tail gate safety meeting held outdoors?	Yes ☒	No ☐
Are remote/call in job meetings being held in lieu of meeting in person where possible?	Yes ☒	No ☐
Were personal protective gloves, masks, and eye protection being used?	Yes ☒	No ☐
Are sanitizing wipes, wash stations or spray available?	Yes ☒	No ☐
Have any workers/visitors been excluded based on close contact with individuals diagnosed with COVID-19, have recently traveled to restricted areas or countries, or are symptomatic (fever, chills, cough/shortness of breath)?	Yes ☐	No ☒
Comments:		

REMEDIAL ACTIVITIES AT PROPERTIES

1. Have anyone at this location been tested and confirmed to have COVID-19?	Yes ☐	No ☒
2. Is anyone at this location isolated or quarantined for COVID-19?	Yes ☐	No ☒
3. Has anyone at this location had contact with anyone known to have COVID-19 in the past 14 days?	Yes ☐	No ☒
4. Does anyone at this location have any symptoms of a respiratory infection (e.g., cough, sore throat, fever, or shortness of breath)?	Yes ☐	No ☒
5. Does the Department and its contractors have your permission to enter the property at this time?	Yes ☒	No ☐
If Yes to any of 1-4 above: • If it is not critical that service/entry be carried out immediately and can be postponed until the risk of COVID-19 is lower, or can be accomplished remotely/without entry, postpone or conduct service without entry. • If it is critical that service/entry be carried out immediately, advise occupants that as a precaution and for our own protection, project personnel will be donning appropriate PPE* (including respiratory protection) - and do so prior to entry.	Yes ☐	No ☐
Comments:		

DAILY INSPECTION REPORT

Report No.: 002 HDR Project File: 10050422 Date: April 13, 2021

PHOTO LOG

Date	Photo ID	Description
4/13/21	1	Injection manifold over secondary containment
4/13/21	2	30% sodium thiosulfate (neutralizer) drum
4/13/21	3	5% sodium permanganate tanker truck
4/13/21	4	Injection work area in Pal Joey's parking lot

1



2



3



4



DAILY INSPECTION REPORT

Report No.: 003 HDR Project File: 10050422 Date: April 14, 2021

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

NYSDEC PM: Samantha Salotto, PE

Remedial Contractor: Groundwater & Environmental Services (GES)

Remedial Contractor PM: Thomas D. Palmer

HDR PM: Erich Zimmerman

Air Monitoring: Yes

Health & Safety: Tom Giordano, HDR

Client: Division of Environmental Remediation, Remedial Bureau E, Remedial Section A

Site: Former C&B Dry Cleaners
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

Weather Conditions:

General Description	Mostly cloudy	**am**	Sunny	**pm**
Temperature	41 ºF	**am**	61 ºF	**pm**
Wind Direction	SSE 7 mph	**am**	WNW 11 mph	**pm**

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan? ** HDR HASP was previously amended to include COVID-19 precautions.*		***Yes ( )**	**No (X)**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No (X)**	**NA ( )**
	Air (VOCs):	***Yes ( )**	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- Two trucks delivered a total of ~7,740 gallons of 5% sodium permanganate (ISCO injectate).
- Parratt Wolff injected up to six locations simultaneously with 5% sodium permanganate using an injection manifold and hydraulic pump. The volume injected at each location was distributed roughly evenly within the depth intervals shown in the table below by incrementally raising the injection rods. Flow rates ranged from 4 to 7 gallons per minute (gpm), and pressures ranged from 3 to 22 psi.

Location	Depth Intvl. (ft bgs)	Volume (gal)	Comments
IB-204	9 - 15	651	Injection paused due to injectate seeping from building basement
IB-206	9 - 15	730	Injection paused due to injectate seeping from building basement
IB-207	9 - 15	818	Injection paused due to injectate seeping from building basement
IB-208	9 - 15	661	Injection paused due to injectate upwelling
IB-209	9 - 15	475	Injection paused due to injectate upwelling
IB-212	9 - 14	629	Injection paused due to injectate upwelling; clay at 14-15 ft bgs
IB-216	9 - 15	750	To be completed to 5 ft bgs tomorrow 4/15
IB-217	9 - 15	797	To be completed to 5 ft bgs tomorrow 4/15
IB-218	9 - 15	732	To be completed to 5 ft bgs tomorrow 4/15
IB-219	9 - 15	684	To be completed to 5 ft bgs tomorrow 4/15

Report No.: 003 HDR Project File: 10050422 Date: April 14, 2021

IB-220	9 - 15	759	To be completed to 5 ft bgs tomorrow 4/15
Total	NA	7,686	

* Note a 1% discrepancy between the total measured volume, 7,686 gal (calculated by summing flow meter readings on the injection manifold), versus the ~7,743 gal of injectate delivered to the site.

- During injections, upwelling and seeping of injectate was observed around the Swanson building:
  - Upwelling was observed in a depression west of the Swanson building near its northwest corner, with puddles forming here and in a line to the southwest. This area is several feet lower than the upgradient Pal Joey's parking lot, and the upwelling possibly resulted from shallow injections at upgradient locations IB-208, IB-209, and IB-212.
  - The Swanson building basement was found to be flooded prior to beginning work, with water pooling out of a doorway at its southwest corner. After the first day's injections, the water in the basement was found to contain diluted injectate. After resuming injections this morning, diluted injectate was observed seeping out of the southwest corner of the building toward the wetlands to the west.
- All upwelling/seeping injectate was promptly neutralized, and then injection flow rates were reduced. Injectate was not observed west of the property in the wetlands. After being notified, the NYSDEC PM requested that injections be paused while a solution to the upwelling/seeping could be established. After discussions between NYSDEC, HDR, and GES, NYSDEC decided on the following course of action:
  1. Create a berm at the southwest corner of the Swanson building to slow the seeping of diluted injectate;
  2. Inject the remaining volume of the day's first tanker truck into IB-206 and IB-207 at a reduced flowrate;
  3. Then begin injections at the five locations on the Pelican site south of the Swanson building; and,
  4. Closely monitor and neutralize any minor upwelling/seeping of injectate and pause injections again if significant upwelling/seeping occurs.
- Following this course of action, upwelling/seeping were minimized, with minor instances being neutralized. GES successfully reduced injectate seeping out of the Swanson building by creating an earthen berm at its southwest corner and adding concrete mix to decrease the berm's permeability. Injectate in the basement of the Swanson building will be neutralized at the conclusion of this field event.
- Before removing injection rods from each location, the injection line was flushed with water. GES collected depth to water readings, water chemistries (ORP and conductivity), and groundwater aliquots for visual indications of injectate (noted parenthetically) at the following monitoring locations: MW-2 (purple), MW-4 (purple), MW-5 (purple), PMW-2, PMW-3, CBPZ101 (purple), CBPZ108, and CBPZ110.
- Air monitoring was performed during intrusive activities using an upwind and downwind CAMP unit, each equipped with a PID and DustTrak. There have been no exceedances of the air monitoring action levels during the event thus far.

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not lined or tarped?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not decontaminated prior to exiting the site?	*** Yes ( )**	**No ( )**	**NA (X)**

DAILY INSPECTION REPORT

Report No.: 003 HDR Project File: 10050422 Date: April 14, 2021

Materials Removed from Site:

Waste Stream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged to Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Tom Giordano	HDR	OS on behalf of NYSDEC	11
Pawel Mecinski	GES	Field lead	11
Sandya Rajan	GES	Field team	4
Donald Curtis	GES	Field team	4
Lee Penrod	Parratt Wolff	Lead driller	11
Alex Hayes	Parratt Wolff	Driller	11
Devin Gawarecki	Parratt Wolff	Driller	11

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Geoprobe 6620DT	Y	Injection manifold	Y
Support trucks	Y		
Two CAMP units (equipped with PID and DustTrak)	Y		
YSI water quality meter	Y		
DTW meter	Y		
Hydraulic pump	Y		

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
None.		**Yes ( )**	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

- Injections will continue tomorrow, 4/14/21.

DAILY INSPECTION REPORT

Report No.: 003 HDR Project File: 10050422 Date: April 14, 2021

ISSUES PENDING:

- Where to distribute the remaining injectate will be determined tomorrow.

ITEMS OF CONCERN/COMMENTS:

- The site will continue to be monitored for upwelling/seeping injectate.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Daily health checklist and photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Tom Giordano (HDR)**

Name: (*signature*)  **Date: 4/14/21**

Report No.: 003 HDR Project File: 10050422 Date: April 14, 2021

DAILY HEALTH CHECKLIST

Is social distancing being practiced?	Yes ☒	No ☐
Is the tail gate safety meeting held outdoors?	Yes ☒	No ☐
Are remote/call in job meetings being held in lieu of meeting in person where possible?	Yes ☒	No ☐
Were personal protective gloves, masks, and eye protection being used?	Yes ☒	No ☐
Are sanitizing wipes, wash stations or spray available?	Yes ☒	No ☐
Have any workers/visitors been excluded based on close contact with individuals diagnosed with COVID-19, have recently traveled to restricted areas or countries, or are symptomatic (fever, chills, cough/shortness of breath)?	Yes ☐	No ☒
Comments:		

REMEDIAL ACTIVITIES AT PROPERTIES

1. Have anyone at this location been tested and confirmed to have COVID-19?	Yes ☐	No ☒
2. Is anyone at this location isolated or quarantined for COVID-19?	Yes ☐	No ☒
3. Has anyone at this location had contact with anyone known to have COVID-19 in the past 14 days?	Yes ☐	No ☒
4. Does anyone at this location have any symptoms of a respiratory infection (e.g., cough, sore throat, fever, or shortness of breath)?	Yes ☐	No ☒
5. Does the Department and its contractors have your permission to enter the property at this time?	Yes ☒	No ☐
If Yes to any of 1-4 above: • If it is not critical that service/entry be carried out immediately and can be postponed until the risk of COVID-19 is lower, or can be accomplished remotely/without entry, postpone or conduct service without entry. • If it is critical that service/entry be carried out immediately, advise occupants that as a precaution and for our own protection, project personnel will be donning appropriate PPE* (including respiratory protection) - and do so prior to entry.	Yes ☐	No ☐
Comments:		

DAILY INSPECTION REPORT

Report No.: 003 HDR Project File: 10050422 Date: April 14, 2021

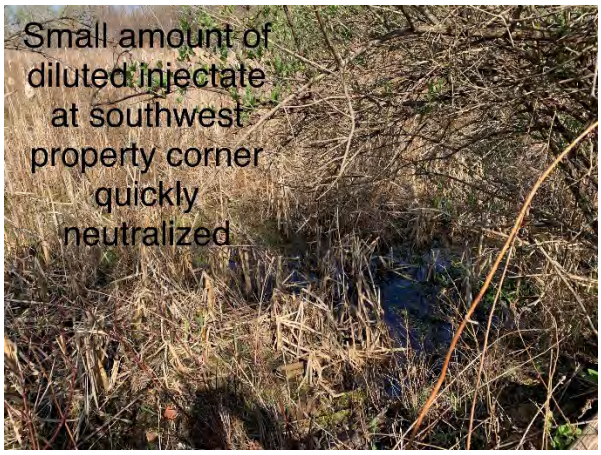
PHOTO LOG

Date	Photo ID	Description
4/14/21	1	Swanson building basement
4/14/21	2	Southwest corner of property
4/14/21	3	Wetlands to west
4/14/21	4	Area to west of Swanson building

1



2



3



4



DAILY INSPECTION REPORT

Report No.: 004 HDR Project File: 10050422 Date: April 15, 2021

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

NYSDEC PM: Samantha Salotto, PE

Remedial Contractor: Groundwater & Environmental Services (GES)

Remedial Contractor PM: Thomas D. Palmer

HDR PM: Erich Zimmerman

Air Monitoring: Yes

Health & Safety: Tom Giordano, HDR

Client: Division of Environmental Remediation, Remedial Bureau E, Remedial Section A

Site: Former C&B Dry Cleaners
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

Weather Conditions:

General Description	Cloudy	**am**	Cloudy, snow flurries	**pm**
Temperature	39 ºF	**am**	45 ºF	**pm**
Wind Direction	W 8 mph	**am**	W 13 mph	**pm**

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan? ** HDR HASP was previously amended to include COVID-19 precautions.*		***Yes ( )**	**No (X)**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No (X)**	**NA ( )**
	Air (VOCs):	***Yes ( )**	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes ( )**	**No (X)**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- Prior to beginning work, the site was walked to check for any additional upwelling/seeping of injectate. No additional upwelling was observed to the west of the Swanson building. However, minor diluted injectate was found to have seeped through the berm at the Swanson basement overnight but did not extend to the wetlands to the west. All surface injectate was neutralized
- Two trucks delivered a total of ~6,450 gallons of 5% sodium permanganate (ISCO injectate). Injection work was paused for ~1.5 hours in the afternoon due to the second injectate tanker being delayed.
- Parratt Wolff injected up to six locations simultaneously with 5% sodium permanganate using an injection manifold and hydraulic pump. The volume injected at each location was distributed roughly evenly within the depth intervals shown in the table below. Flow rates ranging from 2 to 6 gpm were kept lower today in an effort to minimize daylighting, and injection pressures ranged from 4 to 20 psi.

Location	Cumulative Depth Intvl. (ft bgs)	Volume (gal)	Cumulative Volume (gal)	Comments
IB-204	6 - 15	253	904	Shifted 4 feet east due to upwelling out of injection point annulus.
IB-206	6 - 15	644	1374	
IB-207	6 - 15	526	1344	
IB-208	6 - 15	255	916	

IB-209	6 - 15	595	1070	
IB-212	6 - 14	479	1108	Shifted 10 feet north due to upwelling nearby.
IB-216	5 - 15	563	1313	
IB-217	5 - 15	525	1322	
IB-218	5 - 15	574	1306	
IB-219	5 - 15	615	1299	
IB-220	5 - 15	550	1309	
IB-221	9 - 15	600	600	Point added in line with IB-216 through IB-218, 15 ft east of IB-218.
Total	NA	6179*		

* Note a 4% discrepancy between the total measured volume, 6,179 gal (calculated by summing flow meter readings on the injection manifold), versus the ~6,450 gal of injectate delivered to the site.

- Daylighting of injectate was observed:
  - Following injections on the Pelican site, upwelling injectate was observed entering surface water in the wetlands west of CBPZ102 and ~50 ft south-southwest of IB-219. This flow was monitored and regularly neutralized. Later in the day, injectate in the surface water was observed to the north, either from the seep off of the Pelican site and/or from an undetermined separate source. At this point, injections were complete, and GES monitored the seep and applied neutralizer to the surface water.
  - During injections north of the Swanson building, minor upwelling was again observed in a depression west of the Swanson building near its northwest corner and was found to be directly connected to injections at IB-212. As a result, IB-212 was shifted 10 ft north, injections were resumed, and injectate at the surface was neutralized.
  - Diluted injectate was again observed seeping slowly from the flooded Swanson building basement through the berm and southwest corner of the building foundation. The minor seeping was regularly neutralized before it could reach the wetlands to the west.
- Based on the amount of upwelling and seeping injectate observed today and a discussion between GES, NYSDEC and HDR, it was decided to postpone the remaining planned injections later.
- GES collected depth to water readings, water chemistries (ORP and conductivity), and groundwater aliquots for visual indications of injectate (noted parenthetically) at the following monitoring locations: MW-2 (purple), MW-4 (purple), MW-5 (purple), PMW-2, PMW-3, CBPZ101 (purple), CBPZ108, and CBPZ110 (purple).
- Air monitoring was performed during intrusive activities using an upwind and downwind CAMP unit, each equipped with a PID and DustTrak. There have been no exceedances of the air monitoring action levels during the event thus far.

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not lined or tarped?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not decontaminated prior to exiting the site?	***Yes ( )**	**No ( )**	**NA (X)**

DAILY INSPECTION REPORT

Report No.: 004 HDR Project File: 10050422 Date: April 15, 2021

Materials Removed from Site:

Waste Stream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged to Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Tom Giordano	HDR	OS on behalf of NYSDEC	11
Pawel Mecinski	GES	Field lead	11
Donald Curtis	GES	Field team	7
Lee Penrod	Parratt Wolff	Lead driller	11
Alex Hayes	Parratt Wolff	Driller	11
Devin Gawarecki	Parratt Wolff	Driller	11

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Geoprobe 6620DT	Y	Injection manifold	Y
Support trucks	Y		
Two CAMP units (equipped with PID and DustTrak)	Y		
YSI water quality meter	Y		
DTW meter	Y		
Hydraulic pump	Y		

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
None.		**Yes ( )**	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**

DAILY INSPECTION REPORT

Report No.: 004 HDR Project File: 10050422 Date: April 15, 2021

PROJECT SCHEDULE:

- Injections are currently paused. Tomorrow Parratt Wolff will decon its downhole equipment and demobilize from the site, and GES will monitor/neutralize injectate at the surface and will also add neutralizer to the Swanson building basement.

ISSUES PENDING:

- When to resume injections is TBD.

ITEMS OF CONCERN/COMMENTS:

- The site will continue to be monitored for upwelling/seeping injectate.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Daily health checklist and photolog.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Tom Giordano (HDR)**

Name: (*signature*)  **Date: 4/15/21**

Report No.: 004 HDR Project File: 10050422 Date: April 15, 2021

DAILY HEALTH CHECKLIST

Is social distancing being practiced?	Yes ☒	No ☐
Is the tail gate safety meeting held outdoors?	Yes ☒	No ☐
Are remote/call in job meetings being held in lieu of meeting in person where possible?	Yes ☒	No ☐
Were personal protective gloves, masks, and eye protection being used?	Yes ☒	No ☐
Are sanitizing wipes, wash stations or spray available?	Yes ☒	No ☐
Have any workers/visitors been excluded based on close contact with individuals diagnosed with COVID-19, have recently traveled to restricted areas or countries, or are symptomatic (fever, chills, cough/shortness of breath)?	Yes ☐	No ☒
Comments:		

REMEDIAL ACTIVITIES AT PROPERTIES

1. Have anyone at this location been tested and confirmed to have COVID-19?	Yes ☐	No ☒
2. Is anyone at this location isolated or quarantined for COVID-19?	Yes ☐	No ☒
3. Has anyone at this location had contact with anyone known to have COVID-19 in the past 14 days?	Yes ☐	No ☒
4. Does anyone at this location have any symptoms of a respiratory infection (e.g., cough, sore throat, fever, or shortness of breath)?	Yes ☐	No ☒
5. Does the Department and its contractors have your permission to enter the property at this time?	Yes ☒	No ☐
If Yes to any of 1-4 above: • If it is not critical that service/entry be carried out immediately and can be postponed until the risk of COVID-19 is lower, or can be accomplished remotely/without entry, postpone or conduct service without entry. • If it is critical that service/entry be carried out immediately, advise occupants that as a precaution and for our own protection, project personnel will be donning appropriate PPE* (including respiratory protection) - and do so prior to entry.	Yes ☐	No ☐
Comments:		

DAILY INSPECTION REPORT

Report No.: 004 HDR Project File: 10050422 Date: April 15, 2021

PHOTO LOG

Date	Photo ID	Description
4/15/21	1	Upwelling west of the Pelican site
4/15/21	2	Purple injectate in wetland surface water west of Pelican site
4/15/21	3	Adding bentonite seal in annular space around injection rods
4/15/21	4	Purple injectate in wetland upstream from Pelican site

1



2



3



4



DAILY INSPECTION REPORT

Report No.: 005 HDR Project File: 10050422 Date: April 16, 2021

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

NYSDEC PM: Samantha Salotto, PE

Remedial Contractor: Groundwater & Environmental Services (GES)

Remedial Contractor PM: Thomas D. Palmer

HDR PM: Erich Zimmerman

Air Monitoring: Yes

Health & Safety: Tom Giordano, HDR

Client: Division of Environmental Remediation, Remedial Bureau E, Remedial Section A

Site: Former C&B Dry Cleaners
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

Weather Conditions:

General Description	Cloudy, rain	**am**	Cloudy, rain	**pm**
Temperature	37 ºF	**am**	39 ºF	**pm**
Wind Direction	W 12 mph	**am**	W 15 mph	**pm**

HEALTH & SAFETY:
(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan? ** HDR HASP was previously amended to include COVID-19 precautions.*		***Yes ( )**	**No (X)**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No (X)**	**NA ( )**
	Air (VOCs):	***Yes ( )**	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes (X)**	**No ( )**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- A summary of daylighting conditions at the site is provided below and in the attached site sketches:
  - Injectate was found in the wetlands surface water, beginning at the seep west of CBPZ102 and stretching to the north where the stream bends west. As of the end of the day, the seep continues to flow into the surface water, albeit at a lower rate than yesterday.
  - The Swanson building basement water level appears to have risen with injections yesterday and the rain overnight. Injectate from the basement continues to seep through the berm and southwest corner of the building foundation.
- A two-thirds-full tote of 30% sodium thiosulfate was delivered to the site. Approximately 200 gallons of 30% solution was pumped to the flooded Swanson building basement, neutralizing a localized area, which quickly turned purple again. Diluted sodium thiosulfate was applied to the seep west of the Pelican site and to the wetlands surface water as needed throughout the day.
- No injections were performed today. Parrott Wolff decontaminated its downhole equipment, staged 5 empty poly totes on the Pelican site near the southeast corner of the Swanson building, and demobilized from the site. GES partially demobilized from the site today, leaving a reduced crew to continue monitoring and neutralizing further surfaced injectate.
- GES collected depth to water readings and groundwater aliquots at select monitoring locations. Injectate was observed in the following wells: MW-2 (dark purple), PMW-4 (dark purple), PZ-102 (light pink), and PZ-108

(light pink). Two stormwater basins along Washington Street, one in front of Pal Joey's (up-gradient to the injection area) and another near the southern portion of the Pelican site (side-gradient to the injection area), were monitored throughout the day, and neither contained injectate.

- No Air Monitoring was performed today. There were no exceedances of the air monitoring action levels during the event.

OFF-SITE WASE TRANSPORTATION/DISPOSAL :
(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not lined or tarped?	***Yes ( )**	**No ( )**	**NA (X)**
Were there any vehicles which were not decontaminated prior to exiting the site?	*** Yes ( )**	**No ( )**	**NA (X)**

Materials Removed from Site:

Waste Stream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged to Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Tom Giordano	HDR	OS on behalf of NYSDEC	8
Pawel Mecinski	GES	Field lead	5
Donald Curtis	GES	Field team	1.5
Pat Colern	GES	Field team	5
Lee Penrod	Parratt Wolff	Lead driller	5
Alex Hayes	Parratt Wolff	Driller	5
Devin Gawarecki	Parratt Wolff	Driller	5

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
Geoprobe 6620DT	Y	Injection manifold	Y
Support trucks	Y		
Two CAMP units (equipped with PID and DustTrak)	Y		

Report No.: 005 HDR Project File: 10050422 Date: April 16, 2021

YSI water quality meter	Y		
DTW meter	Y		
Hydraulic pump	Y		

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
None.		**Yes ( )**	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

- GES will return to the site tomorrow to assess/neutralize injectate at the surface and monitor select wells for presence of injectate. GES will repeat several times a week, as requested by NYSDEC.

ISSUES PENDING:

- When to resume injections is TBD.

ITEMS OF CONCERN/COMMENTS:

- The site will continue to be monitored for upwelling/seeping injectate.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Daily health checklist, photolog, and site sketches.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Tom Giordano (HDR)**

Name: (*signature*)  **Date: 4/16/21**

Report No.: 005 HDR Project File: 10050422 Date: April 16, 2021

DAILY HEALTH CHECKLIST

Is social distancing being practiced?	Yes ☒	No ☐
Is the tail gate safety meeting held outdoors?	Yes ☒	No ☐
Are remote/call in job meetings being held in lieu of meeting in person where possible?	Yes ☒	No ☐
Were personal protective gloves, masks, and eye protection being used?	Yes ☒	No ☐
Are sanitizing wipes, wash stations or spray available?	Yes ☒	No ☐
Have any workers/visitors been excluded based on close contact with individuals diagnosed with COVID-19, have recently traveled to restricted areas or countries, or are symptomatic (fever, chills, cough/shortness of breath)?	Yes ☐	No ☒
Comments:		

REMEDIAL ACTIVITIES AT PROPERTIES

1. Have anyone at this location been tested and confirmed to have COVID-19?	Yes ☐	No ☒
2. Is anyone at this location isolated or quarantined for COVID-19?	Yes ☐	No ☒
3. Has anyone at this location had contact with anyone known to have COVID-19 in the past 14 days?	Yes ☐	No ☒
4. Does anyone at this location have any symptoms of a respiratory infection (e.g., cough, sore throat, fever, or shortness of breath)?	Yes ☐	No ☒
5. Does the Department and its contractors have your permission to enter the property at this time?	Yes ☒	No ☐
If Yes to any of 1-4 above: • If it is not critical that service/entry be carried out immediately and can be postponed until the risk of COVID-19 is lower, or can be accomplished remotely/without entry, postpone or conduct service without entry. • If it is critical that service/entry be carried out immediately, advise occupants that as a precaution and for our own protection, project personnel will be donning appropriate PPE* (including respiratory protection) - and do so prior to entry.	Yes ☐	No ☐
Comments:		

DAILY INSPECTION REPORT

Report No.: 005 HDR Project File: 10050422 Date: April 16, 2021

PHOTO LOG

Date	Photo ID	Description
4/16/21	1	Berm at Swanson building southwest corner
4/16/21	2	Seep into surface water west of Pelican site
4/16/21	3	Wetland surface water after application of neutralizer
4/16/21	4	Empty totes and remaining neutralizer on Pelican site

1



2



3



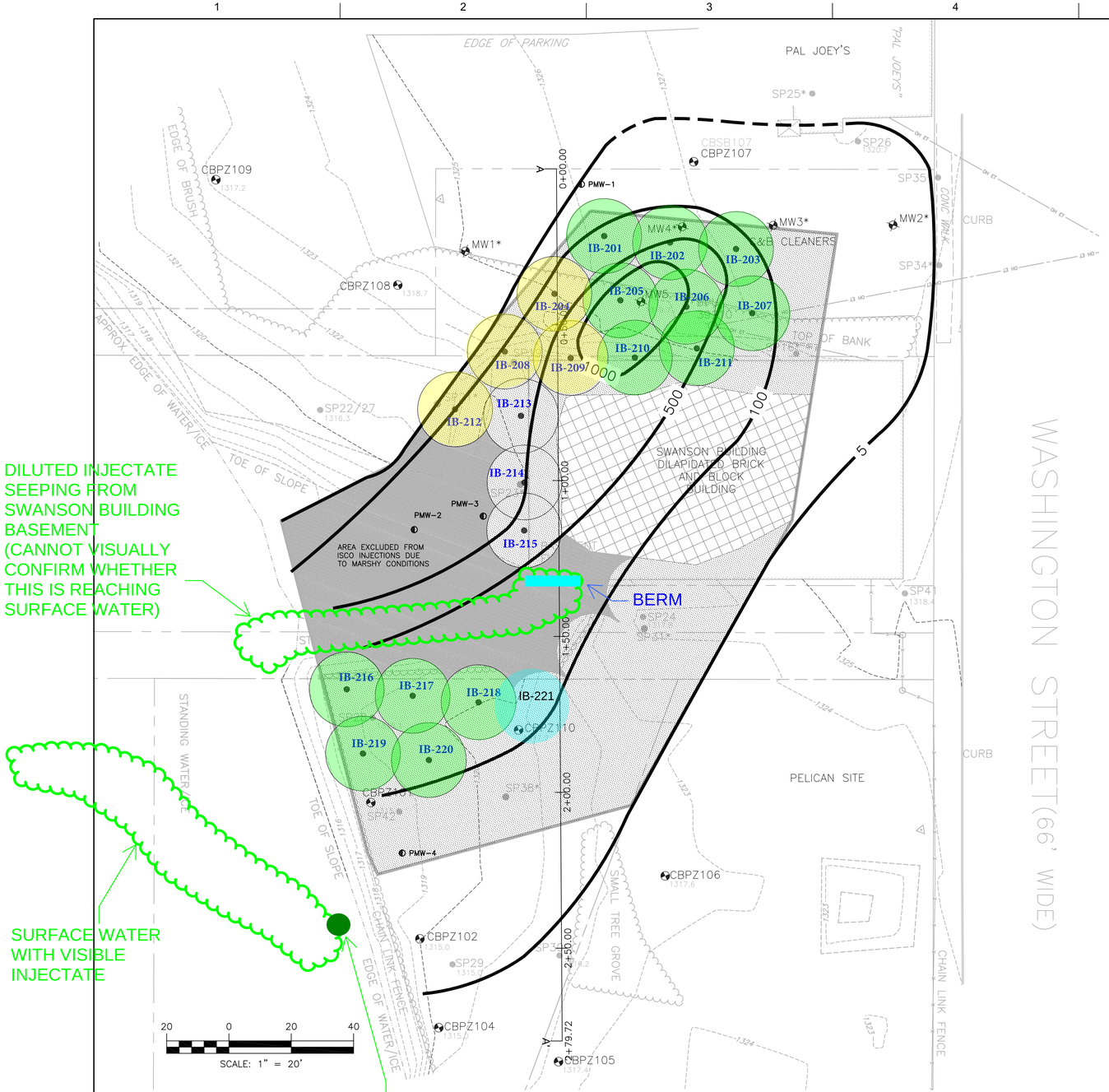
4



Report No.: 005 HDR Project File: 10050422 Date: April 16, 2021

SITE SKETCHES


PAL JOEY'S PARKING LOT
APPROX. INJECTION AREA
2225
2229
SWANSON BUILDING
DILUTED INJECTATE SEEPING FROM SWANSON BUILDING BASEMENT (CANNOT VISUALLY CONFIRM WHETHER THIS IS REACHING SURFACE WATER)
BERM
APPROX. INJECTION AREA
PELICAN SITE
SURFACE WATER WITH VISIBLE INJECTATE
APPROXIMATE SEEP INTO SURFACE WATER
Washington St
Washington St
Washington St
Washington St
Jamestown Electric Supply Inc
Electrical supply store
Google



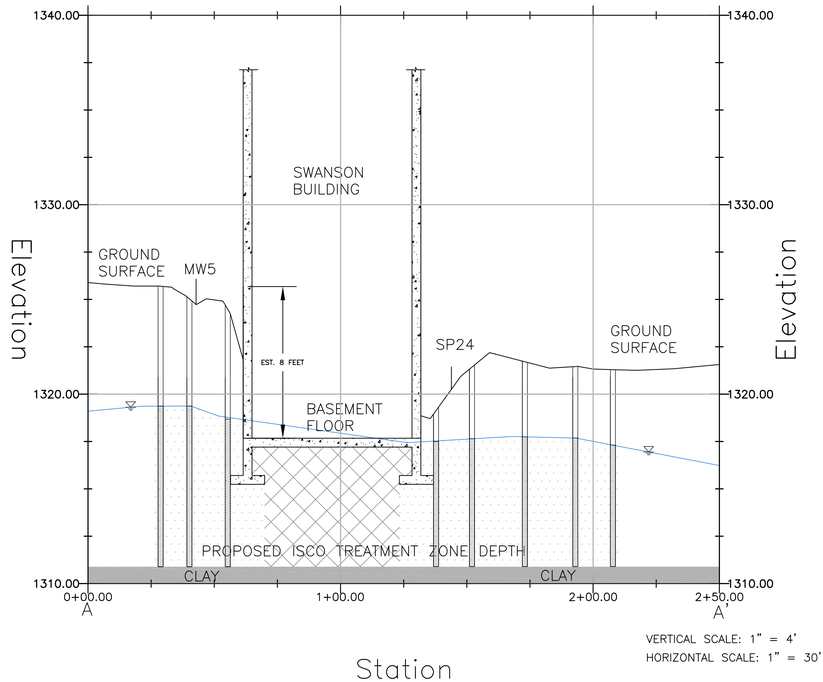
DILUTED INJECTATE SEEPING FROM SWANSON BUILDING BASEMENT (CANNOT VISUALLY CONFIRM WHETHER THIS IS REACHING SURFACE WATER)

SURFACE WATER WITH VISIBLE INJECTATE

APPROXIMATE SEEP INTO SURFACE WATER

KEY:

- INJECTED TO ~1300 GAL TARGET
- INJECTED TO LESS THAN TARGET
- NOT INJECTED
- NEW POINT ADDED AND INJECTED (IB-221)





LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- PERFORMANCE MONITORING WELL
- **PCE CONTAMINATION ISO-CONCENTRATION LINES (PPB; DASHED WHERE INFERRED)**
- INACCESSIBLE TREATMENT AREA
- PROPOSED ISCO TREATMENT AREA
- TEMPORARY INJECTION POINTS WITH ROI OF 12 FEET, TOTAL OF 60 LOCATIONS
- INFERRED LIMITS OF PCE GROUNDWATER

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
0	4/2019	RE-INJECTION WORK PLAN

PROJECT MANAGER	E. ZIMMERMAN
PROJECT NUMBER	10050422

GROUNDWATER RESULT SUMMARY

FORMER C&B DRY CLEANERS

CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

FIGURE 1 - SITE MAP

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-04


CATCH
BASIN
LOCATION
Washington St
CATCH
BASIN
LOCATION
50 ft
20 m

DAILY INSPECTION REPORT

Report No.: 006 HDR Project File: 10050422 Date: April 17, 2021

HDR Inc.
1 International Boulevard, 10th Floor
Mahwah, NJ 07495

NYSDEC PM: Samantha Salotto, PE

Remedial Contractor: Groundwater & Environmental Services (GES)

Remedial Contractor PM: Thomas D. Palmer

HDR PM: Erich Zimmerman

Air Monitoring: No

Health & Safety: Tom Giordano, HDR

Client: Division of Environmental Remediation, Remedial Bureau E, Remedial Section A

Site: Former C&B Dry Cleaners
2241 Washington Street
Jamestown, Chautauqua County, NY
NYSEC Site Number 907028

Weather Conditions:

General Description	Cloudy	**am**	NA	**pm**
Temperature	39 ºF	**am**	NA	**pm**
Wind Direction	W 4 mph	**am**	NA	**pm**

HEALTH & SAFETY:

(*For any box/boxes below checked "Yes", list the deviation in the "Items for Concern" section of this report).

Were there any changes to the Health & Safety Plan? ** HDR HASP was previously amended to include COVID-19 precautions.*		***Yes ( )**	**No (X)**	**NA ( )**
Were exceedances of the perimeter action levels reported by the contractor on this date? (continuous monitoring during intrusive activities, periodic monitoring during non-intrusive activities)	**Air (particulates):**	***Yes ( )**	**No (X)**	**NA ( )**
	Air (VOCs):	***Yes ( )**	**No (X)**	**NA ( )**
Were any dust/odor issues reported or observed?		***Yes ( )**	**No (X)**	**NA ( )**

OTHER ITEMS:

Site Sketch Attached:	**Yes (X)**	**No ( )**
Photos Taken:	**Yes (X)**	**No ( )**

DESCRIPTION OF DAILY WORK PERFORMED:

- A summary of daylighting conditions at the site is provided below:
  - The seep west of the Pelican site is still flowing into the wetlands surface water but at a lower rate than yesterday. Injectate in the stream does not reach as far north as it was found yesterday morning; it is localized to ~15 feet north of the seep.
  - The Swanson building basement water level is higher than yesterday, with the rain and the neutralizer that was added yesterday. The level is just a few inches below the top of the berm and is still seeping through to the marshy area on the other side.
- Diluted sodium thiosulfate was applied to the seep west of the Pelican site, to injectate that had seeped from the Swanson building basement, and to any visible injectate in the wetlands surface water. Conditions were documented before and after applying neutralizer.
- GES collected depth to water readings and groundwater aliquots at the following monitoring locations: PZ-104, PZ-107, PZ-108, PZ-109, PMW-2, and PMW-3. Injectate was only observed in PZ-108 (light pink). Two stormwater basins along Washington Street, one in front of Pal Joey's (up-gradient to the injection area) and another near the southern portion of the Pelican site (side-gradient to the injection area), were inspected, and neither contained injectate.
- No injections were performed today.

Report No.: 006 HDR Project File: 10050422 Date: April 17, 2021

- No Air Monitoring was performed today. There were no exceedances of the air monitoring action levels during the injection event.

OFF-SITE WASE TRANSPORTATION/DISPOSAL :

(*For any box/boxes below checked "Yes", list the deviation in the "Items of Concern" section of this report).

Were there any vehicles which did not display proper D.O.T numbers and placards? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not lined or tarped? ***Yes ( ) No ( ) NA (X)**

Were there any vehicles which were not decontaminated prior to exiting the site? *** Yes ( ) No ( ) NA (X)**

Materials Removed from Site:

Waste Stream	Loads & Weight Shipped, or Volume Discharged Today*	Loads & Weight Shipped, or Volume Discharged to Date*	Transporter	Disposal Facility
C&D Debris				
Soil, Hazardous				
Groundwater				
UST Cleanout Wastes				
UST Steel				

*Weights estimated. Actual weights to be reported at completion of project based on weight tickets submitted by the disposal facilities.

CONTRACTOR/SUBCONTRACTOR PERSONNEL ON SITE:

Name	Company/Agency Affiliation	Role/Function	Hours on site (estimated)
Tom Giordano	HDR	OS on behalf of NYSDEC	1
Pat Colern	GES	Field team	1.5

EQUIPMENT ON SITE:

Equipment/Model	Used?	Equipment/Model	Used?
DTW meter	Y		

DAILY INSPECTION REPORT

Report No.: 006 HDR Project File: 10050422 Date: April 17, 2021

VISITORS TO SITE:

Name	Representing	Entered Exclusion/CRZ Zone?	
None.		**Yes ( )**	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**
		Yes ( )	**No ( )**

PROJECT SCHEDULE:

- GES will return to the site tomorrow to assess/neutralize injectate at the surface and monitor select wells for presence of injectate. GES will repeat several times a week, as requested by NYSDEC.

ISSUES PENDING:

- When to resume injections is TBD.

ITEMS OF CONCERN/COMMENTS:

- The site will continue to be monitored for upwelling/seeping injectate.

ATTACHMENT(S) TO THIS REPORT (photo log, sketches, etc.):

Daily health checklist, photolog, and site sketches.

SITE REPRESENTATIVE CONSTRUCTION INSPECTOR: **Tom Giordano (HDR)**

Name: (*signature*)  **Date: 4/17/21**

Report No.: 006 HDR Project File: 10050422 Date: April 17, 2021

DAILY HEALTH CHECKLIST

Is social distancing being practiced?	Yes ☒	No ☐
Is the tail gate safety meeting held outdoors?	Yes ☒	No ☐
Are remote/call in job meetings being held in lieu of meeting in person where possible?	Yes ☒	No ☐
Were personal protective gloves, masks, and eye protection being used?	Yes ☒	No ☐
Are sanitizing wipes, wash stations or spray available?	Yes ☒	No ☐
Have any workers/visitors been excluded based on close contact with individuals diagnosed with COVID-19, have recently traveled to restricted areas or countries, or are symptomatic (fever, chills, cough/shortness of breath)?	Yes ☐	No ☒
Comments:		

REMEDIAL ACTIVITIES AT PROPERTIES

1. Have anyone at this location been tested and confirmed to have COVID-19?	Yes ☐	No ☒
2. Is anyone at this location isolated or quarantined for COVID-19?	Yes ☐	No ☒
3. Has anyone at this location had contact with anyone known to have COVID-19 in the past 14 days?	Yes ☐	No ☒
4. Does anyone at this location have any symptoms of a respiratory infection (e.g., cough, sore throat, fever, or shortness of breath)?	Yes ☐	No ☒
5. Does the Department and its contractors have your permission to enter the property at this time?	Yes ☒	No ☐
If Yes to any of 1-4 above: • If it is not critical that service/entry be carried out immediately and can be postponed until the risk of COVID-19 is lower, or can be accomplished remotely/without entry, postpone or conduct service without entry. • If it is critical that service/entry be carried out immediately, advise occupants that as a precaution and for our own protection, project personnel will be donning appropriate PPE* (including respiratory protection) - and do so prior to entry.	Yes ☐	No ☐
Comments:		

DAILY INSPECTION REPORT

Report No.: 006 HDR Project File: 10050422 Date: April 17, 2021

PHOTO LOG

Date	Photo ID	Description
4/17/21	1	Catch basin with no signs of injectate
4/17/21	2	Injectate seeped through berm at Swanson building
4/17/21	3	Seep west of Pelican site slower than yesterday
4/17/21	4	Seep west of Pelican site entering surface water

1



2



3



4



Appendix E

Field Logs

Groundwater & Environmental Services, Inc.

WORK ORDER FOR FIELD SERVICES

Printed 2/28/2017
Page 1 of 1

Client	NYSDEC	Job Number	0901689
Site Number	Former C&B Dry Cleaners	Project Manager	Eric Popken Ext. 4345
Site Location	2241 Washington Street	Case Manager/Engineer	Eric Popken Ext. 4345
	Jamestown, NY	Client Representative	George Momberger
Dealer Name		Client Phone Number	
Dealer Phone		PSID Number	635568
Laboratory	TestAmerica	Date of Work	3/13/2017-3/16/17
Lab Code		Requested Personnel	Geo
GW Category	Soil Category	Work Approved by PM	Date
UC Scopes		T&M Scopes	Well installation Oversight

Report Type (None / Predeliverable / **Deliverable**)

Task	Task Description	*	Phase Code	Task Code	Activity Code	Billable Hours	Hours Worked
1	Review entire work order and gather necessary equipment, supplies, and site-specific HASP. *This task should be done before leaving the office.*	✓	05	214			
2	If needed, schedule Detail Officer and/or notify all interested parties of when work will be conducted	✓	05	214			
3	Bring HASP to site	✓	05	214			
4	GES to oversee drilling contractor install 4 monitoring wells. Please review the attached RFQ for more details	✓	05	214			
5	This work should take 3-4 days. Will require overnight stays.	✓	05	214			
6	Conduct HSSE meeting with contractor. Discuss SPSAs and review JSA.	✓	05	214			
7	Photodocument activities. Collect GPS readings of well locations.	✓	05	214			
8	Bring silt fencing if not already deployed on-site.	✓	05	214			
9	Check in with Eric Periodically.	✓	05	214			
10	Classify and screen soil samples. Record in logbook.	✓	05	214			
11	Bring camp monitoring equipment. Setup upwind and downwind daily. When back at office, please upload data onto the network.	✓	05	214			
12	Collect waste disposal sample from soil generated	✓	05	214			
Totals							

Work completed by: **Reviewed by:** **Reviewed by:**

Jennifer Clay 3/16/17

Field Personnel **Date** | **Case Manager** **Date** | **Project Manager** **Date**

* This field requires that field personnel initial that they have completed each listed task

TestAmerica Buffalo
10 Hazelwood Drive

Amherst, NY 14228-2223
phone 716.691.2600 fax 716.691.7991

Chain of Custody Record

Regulatory Program:

a Laboratories, Inc.

Client Contact	George Momberger	Site Contact: Eric Popken (GES)	Date: 03/15/2017	COC No:
NYSDEC - Albany	Tel/Fax: (518) 402-9814	Lab Contact: Orlette Johnson	Carrier:	1 of 1
625 Broadway	Analysis Turnaround Time			Sampler:
Albany, NY 12233	Calendar (C) or Work Days (W) C			For Lab Use Only:
(518) 402-9814 Phone	TAT if different from Below			Walk-in Client:
FAX	[X] 2 weeks			Lab Sampling:
Project Name: NYSDEC Jamestown	[ ] 1 week			
Site: 907028	[ ] 2 days			Job / SDG No.:
P O #	[ ] 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	pH	Paint Filter	Ignitability	TCLP Metals	TCLP Volatiles	TCLP Semi-Volatiles	PCBs	Sample Specific Notes:
Waste-1	3/15/2017	15:15	C	S	4	N	N	X	X	X	X	X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
in the Comments Section if the lab is to dispose of the sample.

[ ] *Non-Hazard* [ ] *Flammable* [ ] *Skin Irritant* [ ] *Poison B* [■] *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

[ ] *Return To Client* [ ] *Disposal By Lab* [ ] *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments:
email report to - epopken@gesonline.com, buffalolabs@gesonline.com
NYSDEC EQuIS EDD

Custody Seals Intact:	Custody Seal No.:		Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by: TO FRIDGE	Company: GES	Date/Time: 3/15/17 17:15	Received by:	Company: TAL	Date/Time: 3/16/17 12:40
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Buffalo
10 Hazelwood Drive

Amherst, NY 14228-2223
phone 716.691.2600 fax 716.691.7991

Chain of Custody Record

Regulatory Program:

a Laboratories, Inc.

Client Contact	George Momberger	Site Contact: Eric Popken (GES)	Date: 03/15/2017	COC No:
NYSDEC - Albany	Tel/Fax: (518) 402-9814	Lab Contact: Orlette Johnson	Carrier:	1 of 1
625 Broadway	Analysis Turnaround Time			Sampler:
Albany, NY 12233	Calendar (C) or Work Days (W) C			For Lab Use Only:
(518) 402-9814 Phone	TAT if different from Below			Walk-in Client:
FAX	[X] 2 weeks			Lab Sampling:
Project Name: NYSDEC Jamestown	[ ] 1 week			
Site: 907028	[ ] 2 days			Job / SDG No.:
P O #	[ ] 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	pH	Paint Filter	Ignitability	TCLP Metals	TCLP Volatiles	TCLP Semi-Volatiles	PCBs	Sample Specific Notes:
Waste-1	3/15/2017	15:15	C	S	4	N	N	X	X	X	X	X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
in the Comments Section if the lab is to dispose of the sample.

[ ] *Non-Hazard* [ ] *Flammable* [ ] *Skin Irritant* [ ] *Poison B* [■] *Unknown*

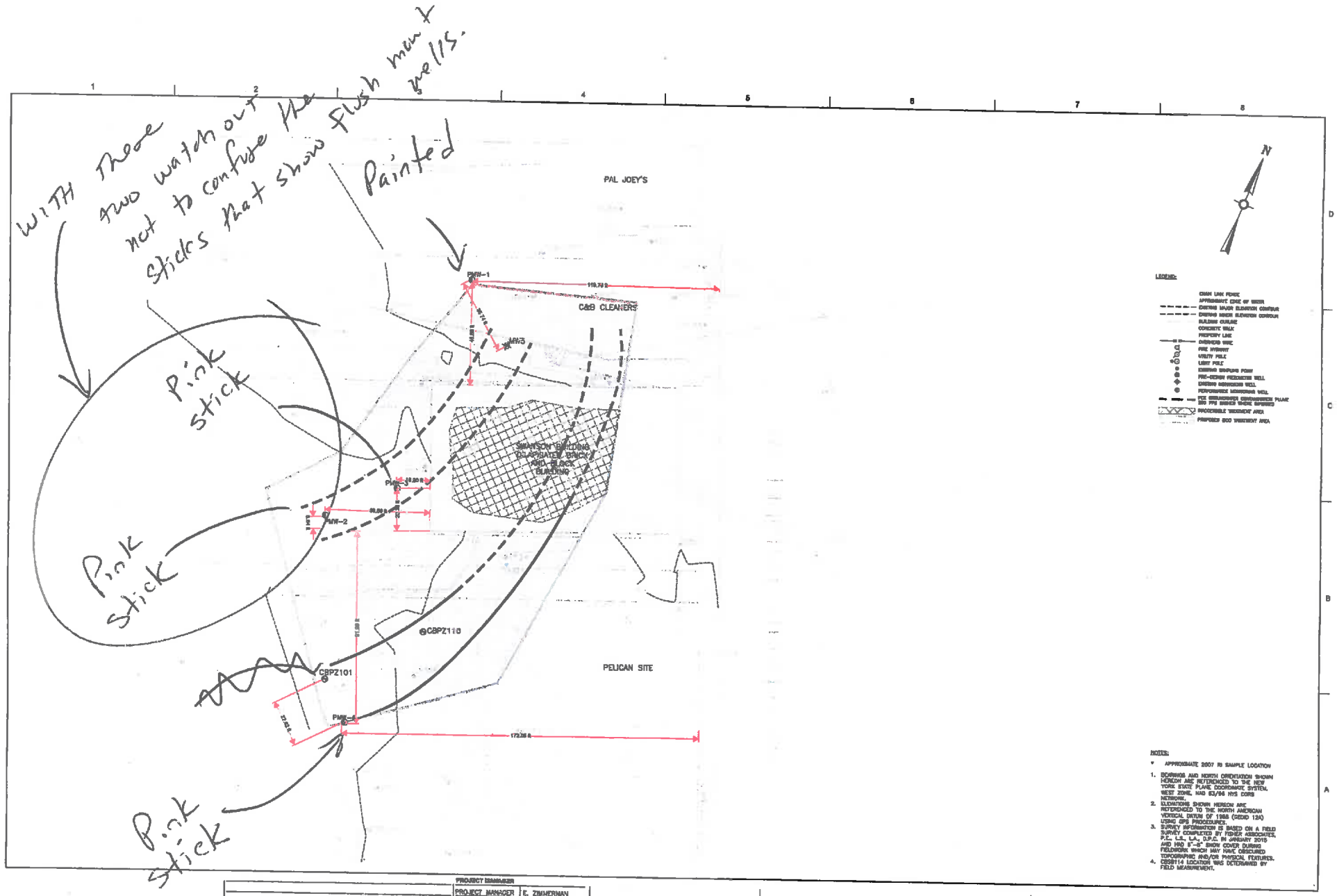
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

[ ] *Return To Client* [ ] *Disposal By Lab* [ ] *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:
email report to - epopken@gesonline.com, buffalolabs@gesonline.com
NYSDEC EQuIS EDD

Custody Seals Intact:	Custody Seal No.:	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature] TO FRIDGE	GES	3/15/17 17:15			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:



NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
3	8/2016	FINAL DESIGN
2	7/2016	INTERMEDIATE DESIGN
1	2/2016	PRELIMINARY DESIGN

PROJECT MANAGER	E. ZIMMERMAN
CAD	J. PHILLIP
QA/QC	A. PATEL
PROJECT NUMBER	147-230036

FINAL DESIGN
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

PROPOSED PERFORMANCE MONITORING WELLS NETWORK

0 20 40
SCALE 1"= 20'

FILENAME

FIGURE C-05

Location 2241 Washington St, Jamestown, NY Date 3-13-17

Project / Client NYSDEC Jamestown

JL / Terracon Well Install 1/4

8:00- Onsite, 20sF, Cloudy, Calm
- Review HASP, SDSs, SPSAs, Hosp. Route & sign
- locate well proposed locations

8:45- Drill Crew stop by to scout route to bring drill rig into town.

8:48- Tailgate onsite

8:55- Finish T. onsite
- Upwind CAMP: 853 011 3801
PID: Serial No: 110-003876
Calibrate - Air - 0.1 ppm
- 100 ppm cal gas - 100 ppm

- Downwind CAMP: 853 0133 109
PID: Serial No: 110-013328
Calibrate - Air - 0.2 ppm
100 ppm cal gas - 99.1 ppm
* Attempt to recalibrate several times, did not improve

Location 2241 Washington St Jamestown Date 3-13-17

Project / Client NYSDEC Jamestown

JC Well Install 2/4

PMW-3

0-2'	75% rec, FILL, silt, some f sand & Gravel,
10:55	little odor, no odor, moist
2-1-1-3	0.5 ppm
2-4'	25% rec, SAA, dark brown, sat.
3-11-3	0.5 ppm
4-6'	10% rec, Fill, Gravel, some silt, dark
11:10	brown, sat, no odor, 0.4 ppm
2-1-3-9	
6-8'	50% rec, Tan-brown, fine sand,
12-6-6-8	many silt, trace fine gravel,
	very wet, 0.3 ppm
8-10'	50% rec, 8-9' black-brown, silt, organic
11:30	odor & material, 0.8 ppm
9-4-6-0	9-10'- tan-gray, clay/silt, wet, no odor
10-12'	0% rec, no recovery
5-4-4-5	
12-14'	5% rec, Gray, clay/silt, sat, slate debris?
14-16'	75% rec, 0.3 ppm, Gray, clay/silt, very
11:50	moist, no odor
2-1-2-1	
16-18'	100% rec., 0.3 ppm, Gray, silt, some fine
3-4-55	Sand, very moist, no odor, little clay

Location 2241 Washington St, Jamestown, NY Date 3-13-17

Project / Client NYSDEC Jamestown

JC/Terracon Well Install 3/4

PMW-2 cont'd

18-20' SAA, 100% rec, 0.4 0.8ppm

11-1-1

12:10

- 14' ~~depth~~ well depth - 14-3' - sand pack

- 10' - screen - 3-1' - 2-0 - bent chips

- bent backfill to 14' - 1-0' - grout

PMW-3

0-2' 40% rec, topsoil 0-6",

15:15 6"-2', Fill, silt, f-c sand & gravel,

1-1-2-3 mottled color, moist, no odor; 0.2ppm

2-4' 40% rec, 0.5ppm, silt & coarse gravel,

5:45-3 moist, mottled color, little fine sand, no odor

4-6' 10% rec, 4-5' black-brown silt, organic, moist

15:30 odor & material, 5-6', wet-sat, brown,

4-3-7-8 gravel, some silt & f-c sand, no odor

6-8' 0% rec, cobble stuck in tube

3-3-4-4

8-10' 60% rec, 8-8.5' Drk Brown, Silt, many coarse

15:45 gravel, sat, some f sand, moist, no odor

8-9-7-8 8.5-9.5' f-m tan-brown sand, trace fine gravel, 9.5-10', gray, silt & clay, moist, no odor

Location 2241 Washington St, Jamestown Date 3-13-17

Project / Client NYSDEC Jamestown

JC Well Install 4/4

PMW-3 cont'd

10-12' 50% rec, SAA

15:55

65-4-8

- end boring

- install at 10' bg, 5' screen

- 4-10' sand pack

- 2-4' bent chips

- 0-2' grout

- Clean up & secure site, agree to meet onsite at 8AM

17:15 - Tom G. offsite

- Terracon offsite

- offsite

Location 2241 Washington St, Jamestown, NY Date 3-14-17

Project / Client NYSDEC Jamestown

JC/Terracon Well Install 1/4

8:00 - Onsite, Snowing, 20°F,
- Tom G. (HDR) onsite
- Review HASP, SDSs, SPSAs, & JSAs, sig
- Calibrate CAMP equipment
10:15 - break to warm up
13:00 - PMW-1 Installed
- move to PMW-4
16:00
15:30 - PMW-4 Installed
- secure site
- Plan to meet onsite @ 8:00 tomorrow
16:45 - Terra con offsite
- Tom G. (HDR) offsite)
- offsite

Location 2241 Washington St, Jamestown Date 3-14-17

Project / Client NYSDEC Jamestown

JC Well Install 2/4

PMW-1

0-6", Auger through frozen hard pack
6"-2' Fill, 40% rec, Sand & Gravel, tan, dry, no odor, 0.0ppm
16-12-21
2-4' Fill, 75% rec, SAA, 0.0ppm
9:20
10-11-11-12
4-6' 40% rec, brown, Fill, f-c sand & gravel, dry, no odor
9:40
14-12-14-15
6-8' 30% rec, wet brown, fill, f-c sand & gravel, some silt, no odor
11-12-12-10 0.0ppm
8-10' 5% rec, SAA, Sat., 0.0ppm
10:00
7-6-5-4
10-12' 0% rec, rock (no shoe)
3-3-3-3
~~2-3-3-3~~ 12-14', 50% rec, tan-brown, Sat, f-m sand, little f gravel
10:15
14-16' 75% rec, 14'-15' - Fine sand & silt, wet, some f-m gravel, no odor
10:45
3-1-2-3 15-16', Grey, Silt, some Clay, little fine sand, wet-moist
- End boring

Location 2241 Washington St, Jamestown, NY Date 3-14-17

Project / Client NYSDEC Jamestown

dc Well Install 3/4

PMW-1 cont'd
- Well Install at 15' bg
0-5' casing
5-15' screen
4-15' sand pack
2-4' bent chips

PMW-4

0-2 60% rec, Fill, silt, brown, red brick & fire brick debris

2-3-11-3

2-4'

3-2-2-4

4-6' 40% rec, Fill, SAA, moist

13:55

4-6-3-2

6-8' 0%, no recovery

2-18-1-11

8-10' 50% rec, black, organic silt, wet At 8' sheen, slight petroleum odor, 0.5ppm

14:15

2-1-1-3

10-12' 10% rec, Fill, wet, Fire brick debris, 0.0ppm

Location 2241 Washington St, Jamestown Date 3-14-17

Project / Client NYSDEC Jamestown

X Well Install 4/4

PMW-4 cont'd

10-12' 50% rec, 10-10.5', Fill, SAA, sat.

7-10-10-5 10.5-12', Grey-brown f-c Sand & Gravel, little silt, sat, no odor, 0.0ppm

12-14' 50% rec, 12-13', SAA, 13-14', Grey

2-1- Silt, some Clay, little fine sand, no

1-2 odor, 0.0ppm

- end boring
- Well constructed, depth 14'
well screen 4-14'
casing 0-4'
sand pack 3-14'
bent chips 1-3'
grout 0-1'

Location 2241 Washington St, Jamestown Date 3-15-17

Project / Client NYSDEC Jamestown

JC/Terracon Well Install 1/2

8:15 - Onsite, Snowing, 10sF, high wind, low vis.
- Terracon onsite
- Tom G. (HDR) onsite
- Review HASP, SOSs, SPSAs, JSAs, & sign
- no monitoring needed
- Terracon goes to get concrete
→ do not need to fill bolland w/ concrete per Erich (HDR)

10:35 - riser & bollards installed at PMW-4, GPS location collected
- move drum to staging area
- move to parking lot
- Install PMW-1 flush mount box & circle pad
- Install PMW-2 & PMW-3 risers/bollards

15:15 - Waste sample collected composit of 4 drums of soil (WASTE-1 @ 15:15)
- leave ring on PMW-1 overnight, Terracon will pick up tomorrow

15:45 - Terracon offsite
- Tom G (HDR) offsite
- offsite

Location 2241 Washington St, Jamestown Date 3-15-17

Project / Client NYSDEC Jamestown

JC Well Install 2/2

Datum: WGS 1984

Well ID	LAT	LONG.
PMW-4	42.11184463° N	79.24680264° W
PMW-2	42.11211386° N	79.24692768° W
PMW-3	42.11214685° N	79.24685739° W
PMW-1	42.11245049° N	79.24689114° W

Note:

GPS is Trimble Geo XH (Serial No. 5006 463 227)

- Give 1 key to Tom G. (HDR)
- leave silt fence up for slope stabilizing when snow melts

GES HSSE VARIANCE REQUEST FORM

Requested by:	Eric Popken
GES Office:	1109-Buffalo
Date Requested:	March 9, 2017
Project Location:	Former C&B Cleaners, Jamestown, NY
Client name:	NYSDEC
Variance Requested:	Installation of 4 monitoring wells using a HSA drill rig to depths ranging from 15-20 feet deep. Site is an inactive former dry cleaners property and surrounding vacant properties. Seeking variance to waive the hand clearing requirement for this scope of work.
Reason for Variance:	Client not expecting hand clearing for this scope of work unless working in close vicinity of known or potential utilities, which does not appear to be needed based on records on hand. All wells are >100 feet from RoW where all lines are located. See attached maps showing boring locations and proximity to utilities. Maps were provided by HDR, engineering firm for NYSDEC on this project. All borings within private property. No active known utilities on-site.
GES Client Program Manager Approval	
GES Director HSSE Approval:	
GES office Project Manager Approval:	
Client Approval (if required):	

PERMIT TO DRILL, TRENCH OR EXCAVATE

Site:_NYSDEC Jamestown, C&B Cleaners_____
Address:____2241 Washington Street, Jamestown, NY_____
Client:__NYSDEC_____
Project Manager:__Eric Popken_____
Note: A permit must be obtained for each location/address to be drilled. For example, a drilling project with wells on-site and off-site requires two permits, one for each property.

REQUIREMENTS

1. This permit must be completed in its entirety prior to initiating any ground disturbance activities.
2. All other client requirements must be met. These have been incorporated into the permit as much as possible.
3. No hand clearing/air-knifing, drilling, trenching, or excavation can be conducted unless this permit is signed an authorized as required.
4. This permit (including all attachments) must remain on-site for duration of all field activities.

REFERENCE

☐ GES Drilling Protocol
☒ GES Trenching & Excavation Protocol
☐ Site Walkthrough Utility Determination Record
☐ ExxonMobil Subsurface Clearance Procedure
☐ ExxonMobil Subsurface Clearance Checklist

(1) SAFETY/PREPARATION TASKS

SITE ACCESS

☐ Client Owned – No access agreement needed
☒ Access Agreement Obtained & Conditions Understood

PERMITS

☒ No permits required
☐ DOT ROW, permit obtained & valid
☐ Municipal ROW, permit obtained & valid

HISTORICAL SITE PLANS

☒ Historical site plans reviewed
☐ None Available:

List plan/date/details:_____Site Map provide by DEC_____

☒ Completed Section 1 & 2 of Subsurface Clearance Checklist for EM (Safety & Preparation) OR Section 1 of GES Drilling Protocol (Prior to Site Visit):

(2) INITIAL SITE VISIT

DigSafe/UFPO

_8/26/15_____Date/Time called
_08265-540-017_____Number
__8/31-9/10/15_____Effective Dates

Groundwater & Environmental Services, Inc.
495 Aero Drive, Suite 3
Cheektowaga, NY 14225

10/7/16

Contract #: C100607
Invoice #:

Spill/Site#: 907028
PIN:

GES Project #: 0901689
Work Period:

Spill/Site Name: Former C&B Dry Cleaners, 2241 Washington Street, Jamestown, New York

Description of Work Performed: Well installation oversight

Work Date: 3-13-17

Overtime approved by: _____, DEC PM

Labor and LVE:

Contract Item # Job Title	Employee Name	Start Time	Arrive Site Time	Depart Site Time	End Time	Break/ Off Time	Total Straight Time	Total Over time	Total Double Time	LVE
	J. Clay	6:30	8:00	17:15	17:30		11			
LVE Low Value Equipment	J. Clay		8:00	17:15						9.25
	1									

Equipment:

Contract Item # Description	Contractor Equip #	Start Time	End Time	Break/ Off Time	Total Equipment Hours/Days
E-002 Truck - 1/2 Ton Pickup 4WD		6:30	17:30		11
E-059 Photo-Ionization Detector w/calibration kit		8:00	17:15		9.25 1
E-058 Sonic Interface Probe - oil/water level meter					

Materials/Receipted Costs:

Vendor Name/Item Description	# of Units	Unit Cost	Total Cost

Subcontractors:

Subcontractor Name and Description	# of Units	Unit Cost	Total Cost

Travel/Per Diem/Non-Contract Items:

Hotel & Staff Name(s) or Vendor Name and Description	# of Units	Unit Cost	Total Cost

Groundwater & Environmental Services, Inc.
495 Aero Drive, Suite 3
Cheektowaga, NY 14225

10/7/16

Contract #: C100607
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Description of Work Performed: Well installation oversight

Work Date: 3-14-17

Overtime approved by: _____, DEC PM

Labor and LVE:

Contract Item # Job Title	Employee Name	Start Time	Arrive Site Time	Depart Site Time	End Time	Break/ Off Time	Total Straight Time	Total Over time	Total Double Time	LVE
	J. Clay	7:45	800	1645	1700		9.25			
LVE Low Value Equipment	J. Clay		800	1645						8.75

Equipment:

Contract Item # Description	Contractor Equip #	Start Time	End Time	Break/ Off Time	Total Equipment Hours/Days
E-002 Truck - 1/2 Ton Pickup 4WD		745	1700		
E-059 Photo-Ionization Detector w/calibration kit		800	1645		~~8.75~~ 1
E-058 Sonic Interface Probe - oil/water level meter					

Materials/Receipted Costs:

Vendor Name/Item Description	# of Units	Unit Cost	Total Cost

Subcontractors:

Subcontractor Name and Description	# of Units	Unit Cost	Total Cost

Travel/Per Diem/Non-Contract Items:

Hotel & Staff Name(s) or Vendor Name and Description	# of Units	Unit Cost	Total Cost

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Cheektowaga, NY 14225

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Contract #: C100607
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GES Project #: 0901689
Work Period:

Spill/Site Name: Former C&B Dry Cleaners, 2241 Washington Street, Jamestown, New York

Description of Work Performed: Well installation oversight

Work Date: 3-15-17

Overtime approved by: _____, DEC PM

Labor and LVE:

Contract Item # Job Title	Employee Name	Start Time	Arrive Site Time	Depart Site Time	End Time	Break/ Off Time	Total Straight Time	Total Over time	Total Double Time	LVE
	J. Clay	8:00	815	1545	1715		9.25			
LVE Low Value Equipment	J. Clay		815	1545						7.50

Equipment:

Contract Item # Description	Contractor Equip #	Start Time	End Time	Break/ Off Time	Total Equipment Hours/Days
E-002 Truck - 1/2 Ton Pickup 4WD		8:00	1715		9.25
E-059 Photo-Ionization Detector w/calibration kit					1
E-058 Sonic Interface Probe - oil/water level meter					

Materials/Receipted Costs:

Vendor Name/Item Description	# of Units	Unit Cost	Total Cost

Subcontractors:

Subcontractor Name and Description	# of Units	Unit Cost	Total Cost

Travel/Per Diem/Non-Contract Items:

Hotel & Staff Name(s) or Vendor Name and Description	# of Units	Unit Cost	Total Cost

NYSDEC Sales & Rental EQUIPMENT INVOICE FORM - Northeast Region 1100

Client/Site:	NYSDEC Former C&B Cleaners, 2241 Washington St., Jamestown, NY	**Date:**	3-13-17	**PSID #:**	635568
Proj/Ph/Task/Act:	0901689-05-214	**Project Manager:**	EP	**S&R Doc #:**	
Scope of Work:	Well installation	**Technician(s):**	JC		

Vehicle hours has to match total time billed to job on timesheet. Equipment hours match clock hours on site.
LVE is equal to total man hours on site billed to project. DOES NOT include driving and/or loading/unloading time.
Please call or talk to PM at the end of the day if you have any questions completing this sheet.

ITEM #	Item Description	UOM	QUANTITY (# of items)	AMOUNT	TOTAL
LVE999	LVE NYSDEC	HR	1	9.25	9.25
EH001	E-001 Automobile/Sedans - Hr	HR			
EH002	E-002 Truck (F-150) - 1/2 Ton Pick-Up 4 WD	HR	1	11	11
EH003	E-003 Truck (F-250) - 3/4 Ton Pick-Up 4 WD	HR			
EH004	E-004 Truck (F-350) - 1 Ton Pick-Up 4 WD	HR			
EH005	E-005 Truck, Flatbed, Box or Van > 1 Ton	HR			
EH008	E-008 Trailer - Light duty, not enclosed, < 5 ton capacity	HR			
EH050	E-050 Air Compressor (min 185 cfm @ 125 psi) hoses included	HR			
ED051	E-051 Air Compressor (>10 hp but less than E-050) (Daily Rate)	DAILY			
EH053	E-053 Pressure Washer (min 2,000 psi and 4 GPM)	HR			
EH054	E-054 Generator > 5,000 watt	HR			
EH055	E-055 Jackhammer up to 40 pound class	HR			
EH056	E-056 Asphalt cutter/concrete saw (portable gas powered) <12 HP	HR			
ED058	E-058 Sonic Interface Probe - oil/water level meter (Keck KIR or similar) (Daily Rate)	DAILY	1	1.00	1.00
ED059	E-059 Photo-Ionization Detector (PID) w/calibration kit (H-NU Meter or equivalent) (Daily Rate)	DAILY	1	1.00	1.00
ED060	E-060 Handheld Multiparameter Probe (Daily Rate)	DAILY			
EH063	E-063 Water Table Depression Pump (3 to 5 hp)	HR			
EH064	E-064 Water Table Depression Pump (> 5 hp)	HR			
EH065	E-065 > 1 hp. Submersible Pump.(w/min. 50 ft. hose)	HR			

NYSDEC Sales & Rental EQUIPMENT INVOICE FORM - Northeast Region 1100

Client/Site:	NYSDEC Former C&B Cleaners, 2241 Washington St., Jamestown, NY	**Date:**	3-14-17	**PSID #:**	635568
Proj/Ph/Task/Act:	0901689-05-214	**Project Manager:**	EP	**S&R Doc #:**	
Scope of Work:	**Well installation**	**Technician(s):**	JC		

Vehicle hours has to match total time billed to job on timesheet. Equipment hours match clock hours on site.
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ITEM #	Item Description	UOM	QUANTITY (# of items)	AMOUNT	TOTAL
LVE999	LVE NYSDEC	HR	1	8.75	8.75
EH001	E-001 Automobile/Sedans - Hr	HR			
EH002	E-002 Truck (F-150) - 1/2 Ton Pick-Up 4 WD	HR	1	9.25	9.25
EH003	E-003 Truck (F-250) - 3/4 Ton Pick-Up 4 WD	HR			
EH004	E-004 Truck (F-350) - 1 Ton Pick-Up 4 WD	HR			
EH005	E-005 Truck, Flatbed, Box or Van > 1 Ton	HR			
EH008	E-008 Trailer - Light duty, not enclosed, < 5 ton capacity	HR			
EH050	E-050 Air Compressor (min 185 cfm @ 125 psi) hoses included	HR			
ED051	E-051 Air Compressor (>10 hp but less than E-050) (Daily Rate)	DAILY			
EH053	E-053 Pressure Washer (min 2,000 psi and 4 GPM)	HR			
EH054	E-054 Generator > 5,000 watt	HR			
EH055	E-055 Jackhammer up to 40 pound class	HR			
EH056	E-056 Asphalt cutter/concrete saw (portable gas powered) <12 HP	HR			
ED058	E-058 Sonic Interface Probe - oil/water level meter (Keck KIR or similar) (Daily Rate)	DAILY	1	1.00	1.00
ED059	E-059 Photo-Ionization Detector (PID) w/calibration kit (H-NU Meter or equivalent) (Daily Rate)	DAILY	1	1.00	1.00
ED060	E-060 Handheld Multiparameter Probe (Daily Rate)	DAILY			
EH063	E-063 Water Table Depression Pump (3 to 5 hp)	HR			
EH064	E-064 Water Table Depression Pump (> 5 hp)	HR			
EH065	E-065 > 1 hp. Submersible Pump.(w/min. 50 ft. hose)	HR			

NYSDEC Sales & Rental EQUIPMENT INVOICE FORM - Northeast Region 1100

Client/Site:	NYSDEC Former C&B Cleaners, 2241 Washington St., Jamestown, NY	**Date:**	3-15-17	**PSID #:**	635568
Proj/Ph/Task/Act:	0901689-05-214	**Project Manager:**	EP	**S&R Doc #:**	
Scope of Work:	Well installation	**Technician(s):**	JC		

Vehicle hours has to match total time billed to job on timesheet. Equipment hours match clock hours on site.
LVE is equal to total man hours on site billed to project. DOES NOT include driving and/or loading/unloading time.
Please call or talk to PM at the end of the day if you have any questions completing this sheet.

ITEM #	Item Description	UOM	QUANTITY (# of items)	AMOUNT	TOTAL
LVE999	LVE NYSDEC	HR	1	7.5	7.5
EH001	E-001 Automobile/Sedans - Hr	HR			
EH002	E-002 Truck (F-150) - 1/2 Ton Pick-Up 4 WD	HR	1	9.25	9.25
EH003	E-003 Truck (F-250) - 3/4 Ton Pick-Up 4 WD	HR			
EH004	E-004 Truck (F-350) - 1 Ton Pick-Up 4 WD	HR			
EH005	E-005 Truck, Flatbed, Box or Van > 1 Ton	HR			
EH008	E-008 Trailer - Light duty, not enclosed, < 5 ton capacity	HR			
EH050	E-050 Air Compressor (min 185 cfm @ 125 psi) hoses included	HR			
ED051	E-051 Air Compressor (>10 hp but less than E-050) (Daily Rate)	DAILY			
EH053	E-053 Pressure Washer (min 2,000 psi and 4 GPM)	HR			
EH054	E-054 Generator > 5,000 watt	HR			
EH055	E-055 Jackhammer up to 40 pound class	HR			
EH056	E-056 Asphalt cutter/concrete saw (portable gas powered) <12 HP	HR			
ED058	E-058 Sonic Interface Probe - oil/water level meter (Keck KIR or similar) (Daily Rate)	DAILY	1	1.00	1.00
ED059	E-059 Photo-Ionization Detector (PID) w/calibration kit (H-NU Meter or equivalent) (Daily Rate)	DAILY	1	1.00	1.00
ED060	E-060 Handheld Multiparameter Probe (Daily Rate)	DAILY			
EH063	E-063 Water Table Depression Pump (3 to 5 hp)	HR			
EH064	E-064 Water Table Depression Pump (> 5 hp)	HR			
EH065	E-065 > 1 hp. Submersible Pump.(w/min. 50 ft. hose)	HR			

Groundwater & Environmental Services, Inc.
Request for Quote – Soil Boring

Site Addresses:

- Former C&B Dry Cleaners Site, NYSDEC Site #904028 (covers multiple parcels).
  - 2241 Washington Street. Jamestown, NY.
  - 2245 Washington Street. Jamestown, NY.
  - 2229 Washington Street, Jamestown, NY.
  - Adjacent Parcel, ~2221 Washington Street, Jamestown, NY

Due date for Bids:

- February 10, 2017

Tentative Start Date:

- Late February 2017

Scope of Work:

- Installation of four (4) 2-inch monitoring wells utilizing 4 ¼" ID hollow stem augers.
  - Wells will be constructed of 2-inch, schedule 40 PVC.
  - 20-slot screen, 10 foot long screen lengths.
  - Filter sand gradation to be compatible with 20-slot screen
  - Bentonite seal using pellets. 2-5' thick.
  - Grout mixture above bentonite seal – Portland cement/bentonite grout.
  - 4" diameter, steel stick up protective casings for three of the wells, with 2 protective guard bollards installed at each of the three stick up wells.
    - Protective casings to be constructed of ASTM A53 steel, ¼ inch thickness, 4 inch diameter, set in concrete.
    - Guard posts to be constructed of ASTM A53 steel pipe, ¼ inch thickness, 3 inch diameter, 6 ft in length, set in concrete.
    - Weatherproof padlocks to be provided by driller for all 3 stick up wells, all keyed alike.
  - 4th well will be finished with an 8" diameter flush-mount curb box set in a 2' x 2' concrete pad.
- Total depth of borings to be approximately 15-20 ftbg.
- Soil samples will be collected via macro-core sampling or split spoon sampling.
- Assume that all cuttings will be staged in 55-gallon drums and staged on-site for disposal by GES.
- No hand clearing at this site.
- Shop drawings will need to be provided for all product on-site including (but not limited to): well materials, sand, bentonite, portland, pro-casings, road boxes, bollards, locks, guard posts, concrete. These materials must be submitted prior to mobilization for review and approval by NYSDEC.

Other notes and items to follow:

- The subcontractor must be GES approved, and will bill GES directly in accordance with the T&C's agreed to in the subcontractor MSA between the contractor and GES. All on-site personnel must have OSHA 40Hr HAZWOPER Training and LPS training.
- Drilling subcontractor will contact UFPO for a public mark-out. The contractor shall take all reasonable precautions to prevent damage to utilities.
- The subcontractor shall have Health and Safety equipment including personal protection equipment, barricades, caution tape, road cones, etc.

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID R4553
Description MiniRAE 2000
Calibrated 3/11/2017 11:28:45AM

Manufacturer Rae Systems
Model Number PGM7600
Serial Number/ Lot Number 110-003876
Location Rochester, NY
Department

State Certified
Status Pass
Temp °C 22.7
Humidity % 19

Calibration Specifications

Group # 1
Group Name Isobutylene
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
100.00 / 100.00	PPM	100.00	PPM	101.00	100.00	0.00%	Pass

Test Instruments Used During the Calibration (As Of Cal Entry Date)

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
ROC 100PPM ISO - CAP-248-100-14	NYS ISO 103L	Pine	103L-248-100	CAP-248-100-14		3/11/2019

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Kevin Barr

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID R12366
Description TSI DustTrak II 8530
Calibrated 3/11/2017 10:44:44AM

Manufacturer Tsi
Model Number 8530
Serial Number/ Lot Number 8530113801
Location Rochester, NY
Department

State Certified
Status Pass
Temp °C 22.8
Humidity % 19

Calibration Specifications

Group # 1
Group Name Zero - Flow - User cal / data transfer
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	(As Of Cal Entry Date) Last Cal Date/ Opened Date	Next Cal Date / Expiration Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Kevin Barr

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

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Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

Pine Environmental Services, Inc

Instrument ID R12366
Description TSI 8530 DustTrak II
Calibrated 7/7/2016

Manufacturer TSI
Model Number 8530
Serial Number 8530113801
Location New Jersey
Temp 77

Classification
Status pass
Frequency Yearly EOM
Department Lab
Humidity 34

Calibration Specifications

Group # 1
Group Name Arizona Road Dust
Test Performed: Yes **As Found Result: Fail** **As Left Result: Pass**

Test Instruments Used During the Calibration

				(As Of Cal Entry Date)	
Test Instrument ID	**Description**	**Manufacturer**	**Serial Number**	**Last Cal Date**	**Next Cal Date**
DUST TRAK DRX MASTER 8533151105	TSI Dust Trak DRX Aerosol Monitor	TSI	8533151105	3/22/2016	3/22/2017
FLUKE 114	Fluke 114 NIST Traceable Multimeter	Fluke	15310288	5/6/2016	5/6/2017

Notes about this calibration

photometric calibration ratio: 0.9

Calibration Result Calibration Successful
Who Calibrated Kevin Cole

Advanced Labs, Inc. hereby certifies that this instrument is calibrated and functions to meet the manufacture's specifications using NIST traceable standards, or is derived from accepted values of physical constants.

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID 22242
Description TSI DustTrak II 8530
Calibrated 3/11/2017 10:45:18AM

Manufacturer Tsi
Model Number 8530
Serial Number/ Lot Number 8530133109
Location Rochester, NY
Department

State Certified
Status Pass
Temp °C 22.8
Humidity % 19

Calibration Specifications

Group # 1
Group Name INSTRUMENT TEST
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Kevin Barr

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Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

CERTIFICATE OF CALIBRATION AND TESTING

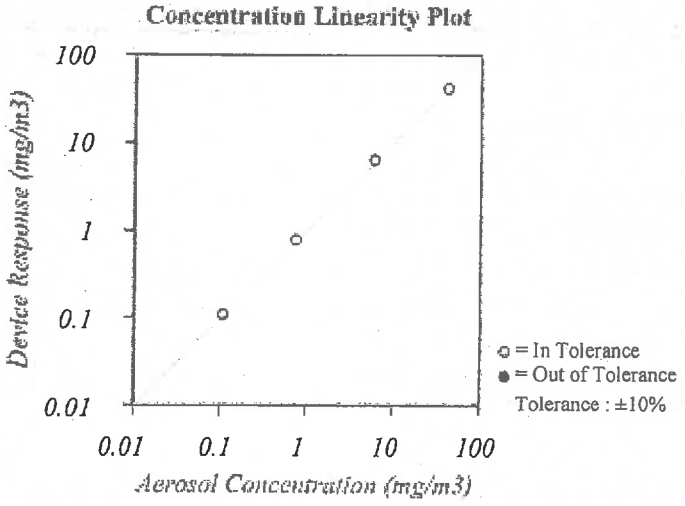
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Conditions		
Temperature	75.4 (24.1)	°F (°C)
Relative Humidity	22	%RH
Barometric Pressure	28.99 (981.7)	inHg (hPa)

Model	**8530**
Serial Number	**8530133109**

☒ As Left ☐ As Found

☒ In Tolerance ☐ Out of Tolerance



System ID: DTII01-02

FLOW AND PRESSURE VERIFICATION — **SYSTEM DTII01-02**

Parameter	Standard	Measured	Allowable Range	Parameter	Standard	Measured	Allowable Range
Flow lpm	3.0	3.0	2.85 ~ 3.15	Pressure kPa	98.3	98.3	93.40 ~ 103.23

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass per standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due
Temp/Humidity	E005656	03-08-16	03-08-17
DC Voltage	E003314	05-19-16	05-19-17
Photometer	E003319	07-19-16	01-19-17
1 um PSL	655458	n/a	n/a
10 um PSL	42808	n/a	n/a
Flowmeter	E002232	03-08-16	03-08-17

Measurement Variable	System ID	Last Cal.	Cal. Due
Temp/Humidity	E005657	03-16-16	03-16-17
DC Voltage	E003315	05-19-16	05-19-17
Microbalance	M001324	11-02-16	11-02-18
3 um PSL	43042	n/a	n/a
Pressure	E003511	10-11-16	10-11-17

Calibrated

December 29, 2016
Date

TSI P/N 2300167

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC

1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID R9210
Description MiniRae 2000
Calibrated 3/11/2017 11:27:57AM

Manufacturer Rae Systems
Model Number PGM7600
Serial Number/ Lot Number 110-013328
Location Rochester, NY
Department

State Certified
Status Pass
Temp °C 22.7
Humidity % 19

Calibration Specifications

Group # 1
Group Name Isobutylene
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
100.00 / 100.00	PPM	100.00	PPM	99.70	100.00	0.00%	Pass

Test Instruments Used During the Calibration

(As Of Cal Entry Date)

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
ROC 100PPM ISO - CAP-248-100-14	NYS ISO 103L	Pine	103L-248-100	CAP-248-100-14		3/11/2019

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Kevin Barr

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Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

03/13/17 TOM GIORDANO

CAB WELL INSTALLATION / DEVELOPMENT

0845 — ARRIVE AT SITE. WEATHER TODAY IS 20-30°F, OVERCAST. 12" OF SNOW EXPECTED TONIGHT. SITE LEAD JENNIFER CLAY FROM GROUNDWATER AND ENVIRONMENTAL SERVICES, INC. (GES) IS ON-SITE.

0915 — ERICH ZIMMERMAN (HDR PM) ARRIVES. WALK SITE AND DISCUSS DRILLING LOCATIONS / ORDER, GIVEN WEATHER AHEAD. WILL DRILL AT LEAST ACCESSIBLE LOCATION WHILE WEATHER IS CLEAR. (PMW-2).

0910 — DRILLER (TERRACON ARRIVES WITH RIG (MOROOKA TCX-850)

0915 — HEALTH AND SAFETY TAILGATE MEETING HELD BY GES — GENERAL SITE SAFETY AND COLD STRESS COVERED

0920 — ERECT SILT FENCE AROUND PMW-2. MOVE RIG OVER PMW-2 AVOIDING STUMPS LEFT FROM CLEARING.

0950 — TOWER RAISED AT PMW-2. ERICH DEPARTS.

1000 — JEN SETS UP MONITORING EQUIPMENT. DUSTTRAK II POSITIONED. PID (MINIRAE 2000) CALIBRATED.

(DRILLER CREW IS JASON TOTSDOWSKI & BEN DOFFEN)

1040 — UPWIND DUSTTRAK POSITIONED.

1050 — DRILLING (DIRECT PUSH) BEGINS. FOLLOWED BY ROTARY.

1105 — CALL ERICH & CONFIRM THAT RECORDING BETWEEN INTERVALS W/IN ONE LOCATION IS UNNECESSARY. WILL RECORD RAPID READINGS ARE ELEVATED AND WHEN MOVING TO NEW LOCATION

JEN IS LOGGING PID, BLOW COUNTS, AND GENERAL DESCRIPTIONS FOR 2-FT INTERVALS. DRILLER DOUBLE-PUSHES 2 2-FT INTERVALS FOR LOGGING AND THEN FOLLOWS UP WITH 4-FT INTERVAL OF ROTARY. CUTTINGS ARE PLACED ON POLY SHEET NEXT TO BORE HOLE

1130 – LOGGING 8-10 FT

1210 – LUNCH → CALL ERICH TO CONFIRM WELL DEPTH AND SCREEN INTERVAL. PMW-2 WILL BE 14 FT bgs WITH SCREEN AT 4-14 FT. IN GENERAL, WILL STOP BORINGS AT CLAY/CONFINING LAYER.

1225 – JEN GIVES DRILLER GO-AHEAD TO INSTALL WELL AT PMW-2.

1315 – RETURN FROM LUNCH. WELL INSTALLATION AT PMW-2 IS UNDERWAY.

1430 – PVC INSTALLED AT PMW-2. CALL ERICH TO DISCUSS WHETHER THERE IS A NEED TO POWER WASH AUGERS BETWEEN LOCATIONS. HE SAYS YES, SO DRILLER MUST RENT A WATER.

1500 – RIG MOVED TO PMW-3.

1510 – TOWER RAISED AT PMW-3

1515 – 0-2 ft bgs AT PMW-3 BEING LOGGED.

1555 – SCREEN AT PMW-3 WILL BE 5-10 FT.

1640 – PMW-3 INSTALLATION COMPLETE

1645 – BEGIN PACKING UP EQUIPMENT. RIG WILL REMAIN OVER PMW-3 OVERNIGHT. RIG TRAILER WILL REMAIN AT BACK OFF PAL JOBS OVERNIGHT (LOCKED-OFF).

17:20 DEPART FROM SITE.

3/13/17

3/14/17

0800 – HDR, GES ARRIVE
0820 – TERRACON ARRIVES
WEATHER TODAY IS 15-20°F, CLOUDY, SNOWING THROUGHOUT DAY, 12" SNOWFALL EXPECTED TODAY INTO TOMORROW
0825 – H&S TAILGATE
0835 – JEN CALIBRATES EQUIPMENT. DRILLING CREW IS SAME AS 3/13. DRILLERS WARM UP RIG AND UNLOAD DRUMS TO FILL WITH YESTERDAY'S SOIL CUTTINGS.
0840 – UPWIND/DOWNWIND MONITORING LOCATIONS ESTABLISHED FOR PMW-1 LOCATION.
0845 – RIG TOWER LOWERED. SOIL CUTTINGS ARE DRUMMED
0855 – RIG POSITIONED OVER PMW-1
0910 – BEGIN DRILLING AT PMW-1. AUGER FIRST FEW INCHES ~~ICE~~ SINCE THE PARKING LOT IS COMPACTED AND FROZEN.
0955 – DRILLING 8-10 ft bgs. IN GENERAL, POOR RECOVERY SO FAR AT THIS LOCATION DUE TO GRAVEL LODGING IN SPLIT SPOON SHOE.
1010 – WARM UP BREAK
1045 – PMW-1 ENCOUNTERS CLAY AT 14-16 ft bgs SCREEN INTERVAL WILL BE 5-15 ft BGS
1100 – WELL INSTALLATION UNDERWAY AT PMW-1
1145 – WELL INSTALLATION AT PMW-1 COMPLETE
1200 – LUNCH
1250 – MOVE TO PMW-4 LOCATION TO SET UP UPWIND/DOWNWIND MONITORING LOCATIONS.
1324 – RIG MOVED INTO POSITION OVER PMW-4
1340 – BEGIN DRILLING AT PMW-4
1355 – OBSERVE SHEEN ~~6~~ 6 ft bgs AT PMW-4. CHEMICAL-LIKE

6 ft bgs

0.5 ppm PID
ODOR, POSSIBLE PRODUCT. SPLIT SPOON FOR THIS INTERVAL IS CLEANED WITH ALCONOX.
1430 – CLAY ENCOUNTERED AT ~14 ft bgs AT PMW-4. WELL SCREEN WILL BE SET AT 4-14 ft bgs. WELL INSTALLATION BEGINS.
16:15 – WRAPPING UP WELL INSTALLATION. JEN TURNS OFF MONITORING EQUIPMENT AND PACKS IT IN TRUCK
16:30 – RETURN TO PAL JOEY'S PARKING LOT. DRILLER LOAD UN-NEEDED SUPPLIES INTO TRUCK TO REMOVE FROM SITE
16:45 – DEPART FROM SITE

3/14/17

TOM GIORDANO 3/15/17
0800 – ARRIVE AT SITE WEATHER IS 15–25°F TODAY, SNOWING HARD SINCE YESTERDAY. LOCAL ROADS ARE COVERED IN ICE/SLUSH/SNOW. WINDY.
0820 – GEJ ARRIVES
0830 – TERRACON ARRIVES H+S TAILGATE
0845 – TERRACON DEPARTS FROM SITE TO PICK UP CONCRETE MIX FOR WELL PAD/BOLLARD CONSTRUCTION.
0915 – DRILLER RETURNS TO PMW-4.
0925 – RIG REAR MOTOR MUST BE CHANGED. WARMING UP RIG. WILL DRILL HOLES FOR BOLLARD INSTALLATION. JEN USES GPS TO TAG PMW-4 LOCATION COORDINATES.
09:30 – PAD/BOLLARD/STICK-UP CASING/RISER PIPE INSTALLATION UNDERWAY AT PMW-4
10:30 – INSTALLATION AT PMW-4 COMPLETE. PACKING UP RIG AND

SUPPLIES AND WASTE DRUM. RISER CASING LOCKED WITH PADLOCK.

1055 – WASTE DRUM FROM PMW-4 STAGED ALONGSIDE SWANSON BUILDING SOUTH WALL; RIG (PELICAN PROPERTY) MOVED BACK TO PAL JOEY'S LOT

1100 – PAD, ETC. INSTALLATION UNDERWAY AT PMW-1. FLUSH MOUNT FINISH.

1130 – PMW-1 INSTALLATION OF FLUSH MOUNT COMPLETE. LUNCH BREAK

1210 – RIG MOVED TO PMW-3 TO CORE TWO HOLES FOR BOLLARDS

1245 – PMW-3 FINISHED. MOVING TO FINAL PAD/BOLLARD INSTALLATION AT PMW-2.

1440 – PMW-2 COMPLETE.

1430 – DRILLER HAS PACKED EQUIPMENT/SUPPLIES AND IS MOVING TWO SOIL DRUMS FROM NEAR PMW-2 TO PELICAN PROPERTY ALONG SOUTH WALL OF SWANSON BUILDING STAGED ON WOOD PALLETTE. OTHER DRUMS FROM PREVIOUS WORK ARE NEARBY AND CONTAIN POLY SHEETING AND LINERS.

1510 – JEN COLLECT 1 COMPOSITE SAMPLE OF THE FOUR IDW DRUMS.

1520 – RIG IS BACK AT PAL JOEY'S

1530 – DRILLER DEPARTS AND JEN PREPS IDW SAMPLES FOR SHIPMENT.

1600 – DEPART FROM SITE. RIG IS STAYING AT PAL JOEY'S OVERNIGHT.

3/15/17

Groundwater & Environmental Services, Inc.

WORK ORDER FOR FIELD SERVICES

Printed 4/17/2017

Client	NYSDEC	Job Number	0901689	
Site Number	Former C&B Dry Cleaners	Project Manager	Eric Popken	Ext. 4345
Site Location	2241 Washington Street	Case Manager/Engineer	Eric Popken	Ext. 4345
	Jamestown, NY	Client Representative	George Momberger	
Dealer Name		Client Phone Number		
Dealer Phone		PSID Number	635565	

Laboratory	TestAmerica	Date of Work	4/19-21/17
Lab Code		Requested Personnel	Tech
GW Category		Work Approved by PM	Date

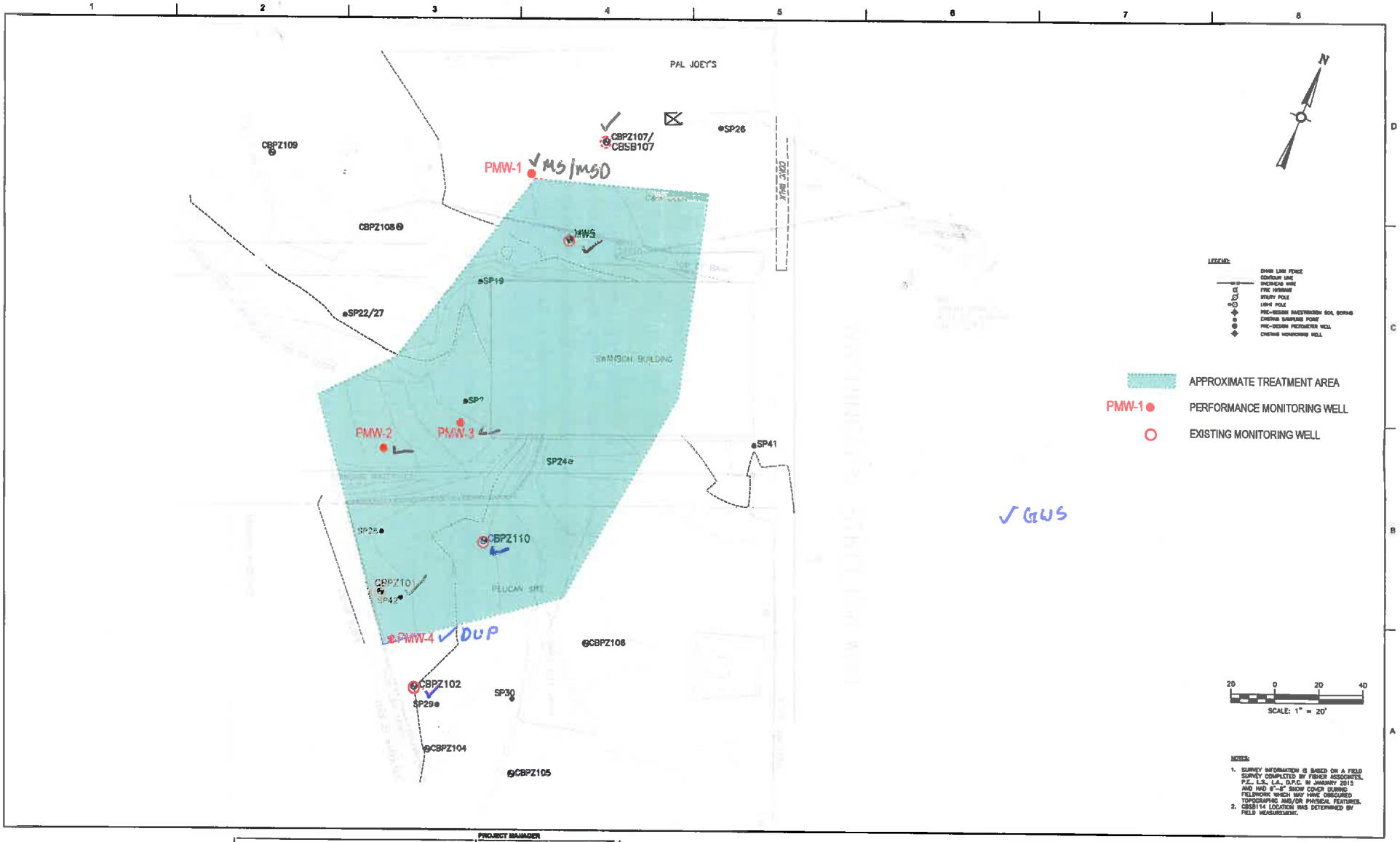
UC Scopes		T&M Scopes	GWS

Report Type (None / Predeliverable / Deliverable)

Task	Task Description	* ✓	Phase Code	Task Code	Activity Code	Billable Hours	Hours Worked
1	Review entire work order and gather necessary equipment, supplies, and site-specific HASP. *This task should be done before leaving the office.*	✓	05	206			
2	If needed, schedule Detail Officer and/or notify all interested parties of when work will be conducted	✓	05	206			
3	Review HASP, JSAs, SDS, and Hospital Route	✓	05	206			
4	Set up traffic control	✓	05	206			
5	Low flow purge and sample wells (PMW-1, PMW-2, PMW-3, PMW-4, CBPZ101, CBPZ110, MW-5, and CBPZ107)	✓	05	206			
6	Record DTW, Temp, pH, Spec. Cond., ORP, DO, and Turb	✓	05	206			
7	Place samples on ice and complete CoC	✓	05	206			
8	Secure wells	✓	05	206			
9	Deliver samples to TestAmerica or schedule pickup	✓	05	206			
10			05	206			
Totals							

Work completed by:		Reviewed by:		Reviewed by:	
Jennifer Clay	4/21/17				
Field Personnel	Date	Case Manager	Date	Project Manager	Date

* This field requires that field personnel initial that they have completed each listed task



HDR

ISSUE	DATE	DESCRIPTION	PROJECT MANAGER
			PROJECT NUMBER

DRAFT

PRE-DESIGN INVESTIGATION REPORT
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

PRE-DESIGN INVESTIGATION SAMPLE LOCATIONS

0 20 40

FILENAME	7/2015	FIGURE
SCALE	1"= 20'	2

Location 2241 Washington St, Jamestown Date 4-19-17

Project / Client NYSDEC Former C&B Drycleaners

JC GWS 1/1

8:15 - Onsite, Raining, 60sF, breezy
- Review HASP, SDSs, SPSAs, JSAs, hospital route, & sign
- Walk site, evaluate driving route, very solid
- Set up to low flow GWS
→ See low flow logs for details.

15:30 - 4 wells (PMW-4, CBPZ101, CBPZ102, CBPZ110) purged & sampled
- 1st drum from develop. is full, 2nd drum arriving tomorrow + additional bottleware

16:00 - Offsite

Location 2241 Washington St, Jamestown Date 4-20-17

Project / Client NYSDEC Former C&B Dry Cleaners

JC GWS 1/1

7:45 - Onsite, Overcast, Thunderstorms, 60sF
- Review HASP, JSAs, SDSs, & sign
- Walk site, no apparent issues
- Set up low flow GWS
→ See low flow logs for details

17:45 - 5 wells (PMW-1, PMW-2, PMW-3, CBPZ107, & MW-5) purged & sampled
- 1 & 1/2 drums full of purge water, 1 empty drum,
- 4 soil drums
- 9 drums of various solid waste in poor condition

18:15 - notify PM
- offsite

Location 2241 Washington St, Jamestown Date 4/21/17

Project / Client NYSDEC Former C&B Dry Cleaners

JC GWS 1/1

800- Onsite
- Review & Sign HASP
- Collect Field Blank sample (FB-042119)
- Secure equipment
- leave site for lab

9:58:30

Location _____ Date _____

Project / Client _____

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

2" well diam

Site:	NYSDEC Jamestown	**Tubing Diameter (ID):**	1/4"
Project #:	0901689	**Initial Depth to Water (ft, TOC)**	5.28
Date:	4-20-17	**Depth to Bottom of Well (ft, TOC)**	14.76
Sampling Device:	Geotech Peri Pump	**Feet of Water in Well (ft)**	9.46
Well ID:	PMW-1	**Volume of Water in Well (gal)**	1.5

Meter(s): YSI 556 & La Motte Turb. meter

Time	Depth to Water (ft, TOC)	Temperature (°C)	pH	Specific Conductance (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
14:15	5.31	10.84	7.71	0.845	93.5	2.94	56.1
14:25	5.31	10.37	7.32	0.824	98.1	1.36	69.2
14:35	5.30	10.46	7.29	0.828	94.7	1.36	74.6
14:45	5.31	10.34	7.27	0.826	93.6	1.55 x	36.9 x
14:50	5.31	10.27	7.27	0.821	93.3	1.65	28.0 x
14:55	5.31	10.29	7.27	0.821	92.8	1.76	17.3 x
15:00	5.31	10.27	7.27	0.821	92.3	1.79	13.59 ✓
15:05	5.31	10.44	7.27	0.825	91.5	1.78	11.15 x
15:10	5.31	10.55	7.26	0.825	91.6	1.76	7.59 x
15:15	5.31	10.52	7.27	0.827	91.1	1.77	6.39 x
15:20	5.31	10.78	7.26	0.828	90.9	1.72	3.79
15:22	5.31	10.78	7.26	0.829	90.6	1.71	~~5.72~~ 3.52
15:24	5.31	10.85	7.26	0.830	90.3	1.71	4.04
		±3%	±0.1	±3%	±10mV	±10% or <0.5mg/L	±10% or <5NTU

Purge Start Time: 14:15

Purge End Time: 15:24

Weather: Cloudy, 60-70F, humid

Purge/Sampled by: J. Clay

Notes: 15:45 Sample Time 4.5 gal purged
- MS/MSD collected

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site:	NYSDEC Jamestown	**Tubing Diameter (ID):**	1/4"
Project #:	0901689	**Initial Depth to Water (ft, TOC)**	3.40
Date:	4-20-17	**Depth to Bottom of Well (ft, TOC)**	16.80
Sampling Device:	Geotech Peri Pump	**Feet of Water in Well (ft)**	
Well ID:	PMW-2	**Volume of Water in Well (gal)**	

Meter(s): YSI 556 & La Motte Turb. Meter

Time	Depth to Water (ft, TOC)	Temperature (°C)	pH	Specific Conductance (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
8:35	3.74	9.75	7.93	1.775	67.2	6.66	2240 AU
8:45	3.69	9.48	7.25	1.762	73.0	2.30	81.2
8:55	3.67	9.41	7.08	1.751	75.4	1.89	34.3
9:05	3.67	9.54	7.04	1.732	77.9	1.94	21.6 x
9:10	3.67	9.50	7.03	1.724	79.3	1.94	20.7
9:15	3.67	9.44	7.03	1.719	80.0	1.95	17.6 x
9:20	3.68	9.38	7.02	1.709	80.5	1.96	15.0 x
9:25	3.69	9.36	7.02	1.697	80.7	1.92	13.05 x
9:30	3.69	9.52	7.02	1.694	80.5	1.94	12.46
9:35	3.70	9.73	7.03	1.697	80.5	1.85	12.44
		±3%	±0.1	±3%	±10mV	±10% or <0.5mg/L	±10% or <5NTU

Purge Start Time: 8:34

Purge End Time: 9:35

Weather: Overcast, 60s F, calm

Purge/Sampled by: J. Hay

Notes: 9:55 Sample Time 3.5 gal purged

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site:	NYSDEC Jamestown	**Tubing Diameter (ID):**	1/4"
Project #:	0901689	**Initial Depth to Water (ft, TOC)**	4.11
Date:	4-20-17	**Depth to Bottom of Well (ft, TOC)**	12.42
Sampling Device:	Geotech Peri Pump	**Feet of Water in Well (ft)**	
Well ID:	PMW-3	**Volume of Water in Well (gal)**	

Meter(s): YSI 556 & Lamotte Turb. Meter

Time	Depth to Water (ft, TOC)	Temperature (°C)	pH	Specific Conductance (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
10:20	4.15	9.61	7.46	2.480	~~278~~ 213	10.78	82
10:30	4.14	8.73	7.34	2.410	87.9	6.13	11.3
10:40	4.14	8.45	7.32	2.392	89.3	6.22	4.25 x
10:45	4.14	8.44	7.32	2.384	89.8	6.11	3.73
10:50	4.14	8.82 x	7.32	2.412	90.1	6.06	3.42
10:55	4.14	9.31 x	7.32	2.438	89.7	6.07	2.18
~~10~~ 11:00	4.14	9.38	7.32	2.447	89.5	6.07	1.89
11:05	4.15	9.16	7.32	2434	89.7	6.14	1.15
		±3%	±0.1	±3%	±10mV	±10% or <0.5mg/L	±10% or <5NTU

Purge Start Time:	10:17	Notes:	11:25 Sample Time 4.75 gal purged
Purge End Time:	11:05		
Weather:	Partly Cloudy, 60sF, humid		
Purge/Sampled by:	J. Clay		

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Well Diam - 2"

Site:	NYSDEC Jamestown	**Tubing Diameter (ID):**	1/4"
Project #:	0901689	**Initial Depth to Water (ft, TOC)**	6.74
Date:	4/19/17	**Depth to Bottom of Well (ft, TOC)**	15.52
Sampling Device:	Peri Pump (Geotech)	**Feet of Water in Well (ft)**	
Well ID:	PMW-4	**Volume of Water in Well (gal)**	

Meter(s): YSI 556 & LaMotte Turb. meter

Time	Depth to Water (ft, TOC)	Temperature (°C)	pH	Specific Conductance (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
12:4035	6.84	10.18	7.79	1.461	38.5	12.21	28.8
12:45	6.81	9.73	7.42	1.397	10.1	1.13	31.5
12:55	6.81	9.79	7.34	1.391	5.1	0.77	15.5
13:05	6.80	9.76	7.31	1.395	5.8	0.61 x	8.93 x
13:10	6.80	9.68	7.30	1.398	6.4	0.63	7.72 x
13:15	6.80	9.69	7.29	1.407	7.1	0.64	4.95 x
13:20	6.80	9.70	7.29	1.412	7.4	0.61	4.96
13:25	6.79	9.71	7.28	1.418	7.8	0.68	4.36
		±3%	±0.1	±3%	±10mV	±10% or <0.5mg/L	±10% or <5NTU

Purge Start Time: 12:383

Purge End Time: 13:25

Weather:

Purge/Sampled by: J. Clay & [illegible]

Notes: 13:45 Sample Time 2.75 gal purged - DUPLICATE collected (DUP-041917)

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

well diam – 1"

Site:	NYSDEC Jamestown	**Tubing Diameter (ID):**	1/4"
Project #:	0901689	**Initial Depth to Water (ft, TOC)**	6.24
Date:	4/19/17	**Depth to Bottom of Well (ft, TOC)**	15.92
Sampling Device:	Peri Pump Geotech	**Feet of Water in Well (ft)**	9.68
Well ID:	CBPZ101	**Volume of Water in Well (gal)**	0.40

Meter(s):

Time	Depth to Water (ft, TOC)	Temperature (°C)	pH	Specific Conductance (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
10:15	* —	9.34	7.45	0.834	-48.9	6.88	over range
10:25	—	8.90	8.87	1.912	-15.1	5.19	28.3
10:35	—	8.81	7.37	1.960	0.8	5.52	13.2
10:45	—	8.67	7.41	1.993	10.7	6.01	8.08 x
10:50	—	8.62	7.42	1.989	16.5	6.01	12.21 x
10:55	—	8.61	7.43	2.018	21.7	6.11	8.14 x
11:00	—	8.62	7.45	2.019	25.6	6.12	3.73 x
11:05	—	8.56	7.46	2.024	29.0	6.14	3.32
11:10	—	8.60	7.47	2.027	31.8	6.23	2.20
		±3%	±0.1	±3%	±10mV	±10% or <0.5mg/L	±10% or <5NTU

Purge Start Time: 10:13

Purge End Time: 11:10

Weather: Cloudy, 50s F, light breeze

Purge/Sampled by: J. Clay

Notes: 11:30 Sample Time 3.5 gal purged

* Cannot get IP reading w/ tubing in well

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site:	NYSDEC Jamestown	**Tubing Diameter (ID):**	1/4"
Project #:	0901689	**Initial Depth to Water (ft, TOC)**	7.79
Date:	4/19/17	**Depth to Bottom of Well (ft, TOC)**	17.90
Sampling Device:	Geotech PeriPump	**Feet of Water in Well (ft)**	10.11
Well ID:	CBPZ102	**Volume of Water in Well (gal)**	0.41

Meter(s): YSI 556 & LaMotte turb. meter

Time	Depth to Water (ft, TOC)	Temperature (°C)	pH	Specific Conductance (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
14:15	* —	11.36	7.94	0.441	3.4	24.83	over range
14:25	—	9.14	7.49	0.625	-86.7	1.24	13.2
14:35	—	9.37	7.41	0.807	-84.0	1.11	6.50
14:45	—	9.10	7.35	0.942 x	-57.1 x	1.06	2.00 x
14:50	—	9.12	7.34	0.982 x	-50.1	1.11	1.17
14:55	—	9.14	7.33	1.023	-52.4	1.18	0.87
15:00	—	9.14	7.32	1.049	-49.2	1.23	0.52
		±3%	±0.1	±3%	±10mV	±10% or <0.5mg/L	±10% or <5NTU

Purge Start Time:	14:14	Notes:	15:30 Sample Time 3.0 gal purged
Purge End Time:	15:00		* Cannot get IP Reading in 1" well w/ tubing in place
Weather:	Raining, 60sF, calm		
Purge/Sampled by:	J. Clay		

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

1" well

Site:	NYSDEC Jamestown	**Tubing Diameter (ID):**	1/4"
Project #:	0901689	**Initial Depth to Water (ft, TOC)**	5.63'
Date:	4-20-19	**Depth to Bottom of Well (ft, TOC)**	12.90'
Sampling Device:	Geotech Peri Pump	**Feet of Water in Well (ft)**	7.27
Well ID:	CBPZ107	**Volume of Water in Well (gal)**	0.30

Meter(s):

Time	Depth to Water (ft, TOC)	Temperature (°C)	pH	Specific Conductance (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
12:45	* —	12.10	7.99	1.255	66.0	17.01	over range
12:55	—	10.65	7.42	1.037	85.5	6.71	84.2
13:05	—	10.77	7.38	1.031	88.8	6.67	16.8
13:15	—	11.21 x	7.41	1.044	89.6	6.62	11.6 x
13:20	—	11.10	7.40	1.042	90.8	6.62	9.97 x
13:25	—	11.15	7.39	1.041	92.1	6.55	8.23 x
13:30	—	11.37	7.39	1.046	92.5	6.56	5.46 x
13:35	—	11.49	7.39	1.051	93.1	6.54	3.60 x
13:40	—	11.34	7.38	1.048	93.8	6.58	2.80
13:45	—	11.49	7.38	1.052	94.1	6.56	2.62
		±3%	±0.1	±3%	±10mV	±10% or <0.5mg/L	±10% or <5NTU

Purge Start Time: 12:44

Purge End Time:

Weather: Scattered Showers, 70°F, humid

Purge/Sampled by: J. Clay

Notes: 14:00 Sample Time 4.0 gal purged

* Cannot record IP reading when tubing is installed

** Removed tubing after sampling **

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

well diam -1"

Site:	NYSDEC Jamestown	**Tubing Diameter (ID):**	1/4"
Project #:	0901689	**Initial Depth to Water (ft, TOC)**	5.59
Date:	4/19/17	**Depth to Bottom of Well (ft, TOC)**	15.76
Sampling Device:	Peri Pump (Geotech)	**Feet of Water in Well (ft)**	10.17
Well ID:	CBPZ110	**Volume of Water in Well (gal)**	0.4

Meter(s): YSI 556 & Lamotte Turb meter

Time	Depth to Water (ft, TOC)	Temperature (°C)	pH	Specific Conductance (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
9:00	* —	9.41	7.99	0.594	28.9	3.71	45
9:10	—	8.78	6.81	0.717	2.9	0.95	8.88
9:20	—	8.81	6.76	0.824 x	9.5	1.02	4.32 x
9:25	—	8.73	6.79	0.844	13.8	1.07	3.79
9:30	—	8.71	6.80	0.856	16.8	1.09	3.04
		±3%	±0.1	±3%	±10mV	±10% or <0.5mg/L	±10% or <5NTU

Purge Start Time: 8:55

Purge End Time:

Weather: Rain, 50s F, windy

Purge/Sampled by: J. Clay

Notes: 9:45 Sample Time 2 gal purged

* 1" diam wells cannot get IP reading w/ tubing at well

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

2" well diam

Site:	NYSDEC Jamestown	**Tubing Diameter (ID):**	1/4"
Project #:	0901689	**Initial Depth to Water (ft, TOC)**	7.28
Date:	4-20-18 17	**Depth to Bottom of Well (ft, TOC)**	15.40
Sampling Device:	Geotech Peri Pump	**Feet of Water in Well (ft)**	
Well ID:	MW-5	**Volume of Water in Well (gal)**	

Meter(s):

Time	Depth to Water (ft, TOC)	Temperature (°C)	pH	Specific Conductance (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
16:30	7.50	11.25	7.98	0.613	81.8	11.40	72.8
16:40	7.57	9.86	7.15	0.577	106.0	8.92	29.2
16:50	7.57	10.11	7.09	0.581	107.0	8.53	13.1
~~16:55~~ 17:00	7.58	9.74 x	7.01	0.597	112.3	7.76	6.80 x
17:05	7.58	9.71	6.96	0.607	115.5	7.25	4.26 x
17:10	7.59	9.67	6.96	0.624	115.9	6.74	3.40
17:15	7.59	9.60	6.95	0.647 x	117.3	6.25	3.66
17:20	7.59	9.53	6.95	0.662	118.0	5.79	3.41
17:25	7.59	9.49	6.95	0.679	118.3	5.28	2.78
		±3%	±0.1	±3%	±10mV	±10% or <0.5mg/L	±10% or <5NTU

Purge Start Time:	16:30	Notes:	17:45 Sample Time 3.5 gal purged
Purge End Time:	17:25		
Weather:	Partly Cloudy, 60°F, humid		
Purge/Sampled by:	J. Clay		

TestAmerica Buffalo
10 Hazelwood Drive

Amherst, NY 14228-2223
phone 716.691.2600 fax 716.691.7991

Chain of Custody Record

Regulatory Program:

a Laboratories, Inc.

Client Contact	George Momberger	Site Contact: Eric Popken (GES)	Date: 4/20/17	COC No:
NYSDEC - Albany	Tel/Fax: (518) 402-9814	Lab Contact: Orlette Johnson	Carrier:	1 of 2
625 Broadway	Analysis Turnaround Time			Sampler:
Albany, NY 12233	Calendar (C) or Work Days (W) C			For Lab Use Only:
(518) 402-9814 Phone	TAT if different from Below			Walk-in Client:
FAX	[X] 2 weeks			Lab Sampling:
Project Name: NYSDEC Jamestown	[ ] 1 week			
Site: 907028	[ ] 2 days			Job / SDG No.:
P O #	[ ] 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	TDS SM 2540C	TSS SM 2540D	Metals SW 6010C	VOCs SW 8260C	Sulfate SW 9038	TOC SW 9060	Chloride (As Cl) SW 9251	Sample Specific Notes:
PMW-1	4-20-17	15:45	G	GW	27	N	Y	X	X	X	X	X	X	X	
PMW-2	4-20-17	9:55	G	GW	9	N	N	X	X	X	X	X	X	X	
PMW-3	4-20-17	11:25	G	GW	9	N	N	X	X	X	X	X	X	X	
PMW-4	4-19-17	13:45	G	GW	9	N	N	X	X	X	X	X	X	X	
MW-5	4-20-17	17:45	G	GW	9	N	N	X	X	X	X	X	X	X	
CBPZ101	4-19-17	11:30	G	GW	9	N	N	X	X	X	X	X	X	X	
CBPZ102	4-19-17	15:30	G	GW	9	N	N	X	X	X	X	X	X	X	
CBPZ107	4-20-17	14:00	G	GW	9	N	N	X	X	X	X	X	X	X	
CBPZ110	4-19-17	9:45	G	GW	9	N	N	X	X	X	X	X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
in the Comments Section if the lab is to dispose of the sample.

[ ] *Non-Hazard* [ ] *Flammable* [ ] *Skin Irritant* [ ] *Poison B* [X] *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

[ ] *Return To Client* [ ] *Disposal By Lab* [ ] *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments:
email report to - epopken@gesonline.com, buffalolabs@gesonline.com
NYSDEC EQuIS EDD

Custody Seals Intact:	Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____		
Relinquished by:	Company: GES	Date/Time: 4/21/17 1115	Received by:	Company:	Date/Time: 4/21/17 1115
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Buffalo
10 Hazelwood Drive

Amherst, NY 14228-2223
phone 716.691.2600 fax 716.691.7991

Chain of Custody Record

Regulatory Program:

a Laboratories, Inc.

Client Contact	George Momberger	Site Contact: Eric Popken (GES)	Date: 4/20/17	COC No:
NYSDEC - Albany	Tel/Fax: (518) 402-9814	Lab Contact: Orlette Johnson	Carrier:	2 of 2
625 Broadway	Analysis Turnaround Time			Sampler:
Albany, NY 12233	Calendar (C) or Work Days (W) C			For Lab Use Only:
(518) 402-9814 Phone	TAT if different from Below			Walk-in Client:
FAX	[X] 2 weeks			Lab Sampling:
Project Name: NYSDEC Jamestown	[ ] 1 week			
Site: 907028	[ ] 2 days			Job / SDG No.:
P O #	[ ] 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	TDS SM 2540C	TSS SM 2540D	Metals SW 6010C	VOCs SW 8260C	Sulfate SW 9038	TOC SW 9060	Chloride (As Cl) SW 9251	Sample Specific Notes:
DUP-041917	4/19/2017	-	G	GW	9	N	N	X	X	X	X	X	X	X	
FB-042117	4/21/2017	9:30	G	W	9	N	N	X	X	X	X	X	X	X	
TRIP_BLANK	-	-	G	W	2	N	N				X				

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
In the Comments Section if the lab is to dispose of the sample.
[ ] *Non-Hazard* [ ] *Flammable* [ ] *Skin Irritant* [ ] *Poison B* [■] *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
[ ] *Return To Client* [ ] *Disposal By Lab* [ ] *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments:
email report to - epopken@gesonline.com, buffalolabs@gesonline.com
NYSDEC EQuIS EDD

Custody Seals Intact:	Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____		
Relinquished by:	Company: GES	Date/Time: 4/21/17 1115	Received by:	Company:	Date/Time: 4/21/17 1115
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Groundwater & Environmental Services, Inc.
495 Aero Drive, Suite 3
Cheektowaga, NY 14225

10/7/16

Contract #: C100607
Invoice #:

Spill/Site#: 907028
PIN:

GES Project #: 0901689
Work Period:
Spill/Site Name: Former C&B Dry Cleaners, 2241 Washington Street, Jamestown, New York

Description of Work Performed:
GWS

Work Date: 9/19/16

Overtime approved by: _____, DEC PM

Labor and LVE:

Contract Item # Job Title	Employee Name	Start Time	Arrive Site Time	Depart Site Time	End Time	Break/ Off Time	Total Straight Time	Total Over time	Total Double Time	LVE
	Jennifer Clay	600	~~8:15~~	→	700	~~0.5~~	1			
LVE - Low Value Equipment	Jennifer Clay		~~8:15~~			~~0.5~~				
	J. Clay	745	815	1600	1600	0.5	7.75			
LVE	J. Clay		815	1600		0.5				7.25

Equipment:

Contract Item # Description	Contractor Equip #	Start Time	End Time	Break/ Off Time	Total Equipment Hours/Days
E-002 Truck - 1/2 Ton Pickup 4WD	99719 JY	6:00	7:00	~~0.5~~	1.0
E-058 Sonic Interface Probe - oil/water level meter	907601	815	16:00	0.5	1
E-002 Truck	99719JY	745	16:00	0.5	7.75

Materials/Receipted Costs:

Vendor Name/Item Description	# of Units	Unit Cost	Total Cost

Subcontractors:

Subcontractor Name and Description	# of Units	Unit Cost	Total Cost

Travel/Per Diem/Non-Contract Items:

Hotel & Staff Name(s) or Vendor Name and Description	# of Units	Unit Cost	Total Cost

NYSDEC Sales & Rental EQUIPMENT INVOICE FORM - Northeast Region 1100

Client/Site:	NYSDEC Former C&B Cleaners, 2241 Washington St., Jamestown, NY	**Date:**	4/19/17	**PSID #:**	635565
Proj/Ph/Task/Act:	0901689-05-206	**Project Manager:**	EP	**S&R Doc #:**	
Scope of Work:	~~Well Development~~ GWS	**Technician(s):**	JC		

Vehicle hours has to match total time billed to job on timesheet. Equipment hours match clock hours on site.
LVE is equal to total man hours on site billed to project. DOES NOT include driving and/or loading/unloading time.
Please call or talk to PM at the end of the day if you have any questions completing this sheet.

ITEM #	Item Description	UOM	QUANTITY (# of items)	AMOUNT	TOTAL
LVE999	LVE NYSDEC	HR	1	7.25	7.25
EH001	E-001 Automobile/Sedans - Hr	HR			
EH002	E-002 Truck (F-150) - 1/2 Ton Pick-Up 4 WD	HR	1	8.75	8.75
EH003	E-003 Truck (F-250) - 3/4 Ton Pick-Up 4 WD	HR			
EH004	E-004 Truck (F-350) - 1 Ton Pick-Up 4 WD	HR			
EH005	E-005 Truck, Flatbed, Box or Van > 1 Ton	HR			
EH008	E-008 Trailer - Light duty, not enclosed, < 5 ton capacity	HR			
EH050	E-050 Air Compressor (min 185 cfm @ 125 psi) hoses included	HR			
ED051	E-051 Air Compressor (>10 hp but less than E-050) (Daily Rate)	DAILY			
EH053	E-053 Pressure Washer (min 2,000 psi and 4 GPM)	HR			
EH054	E-054 Generator > 5,000 watt	HR			
EH055	E-055 Jackhammer up to 40 pound class	HR			
EH056	E-056 Asphalt cutter/concrete saw (portable gas powered) <12 HP	HR			
ED058	E-058 Sonic Interface Probe - oil/water level meter (Keck KIR or similar) (Daily Rate)	DAILY	1	1.00	1.00
ED059	E-059 Photo-Ionization Detector (PID) w/calibration kit (H-NU Meter or equivalent) (Daily Rate)	DAILY			
ED060	E-060 Handheld Multiparameter Probe (Daily Rate)	DAILY			
EH063	E-063 Water Table Depression Pump (3 to 5 hp)	HR			
EH064	E-064 Water Table Depression Pump (> 5 hp)	HR			
EH065	E-065 > 1 hp. Submersible Pump.(w/min. 50 ft. hose)	HR			

Groundwater & Environmental Services, Inc.
495 Aero Drive, Suite 3
Cheektowaga, NY 14225

10/7/16

Contract #: C100607
Invoice #:

Spill/Site#: 907028
PIN:

GES Project #: 0901689
Work Period:
Spill/Site Name: Former C&B Dry Cleaners, 2241 Washington Street, Jamestown, New York

Description of Work Performed:
GWS

Work Date: 4/20/17
Overtime approved by: _____, DEC PM

Labor and LVE:

Contract Item # Job Title	Employee Name	Start Time	Arrive Site Time	Depart Site Time	End Time	Break/ Off Time	Total Straight Time	Total Over time	Total Double Time	LVE
	Jennifer Clay	745	745	1815	1815	0.5	10			
LVE - Low Value Equipment	Jennifer Clay	~~745~~	745	1815		0.5				10

Equipment:

Contract Item # Description	Contractor Equip #	Start Time	End Time	Break/ Off Time	Total Equipment Hours/Days
E-002 Truck - 1/2 Ton Pickup 4WD	99719 JY	745	1817	0.5	10
E-058 Sonic Interface Probe - oil/water level meter	907601			0.5	1

Materials/Receipted Costs:

Vendor Name/Item Description	# of Units	Unit Cost	Total Cost

Subcontractors:

Subcontractor Name and Description	# of Units	Unit Cost	Total Cost

Travel/Per Diem/Non-Contract Items:

Hotel & Staff Name(s) or Vendor Name and Description	# of Units	Unit Cost	Total Cost

NYSDEC Sales & Rental EQUIPMENT INVOICE FORM - Northeast Region 1100

Client/Site:	NYSDEC Former C&B Cleaners, 2241 Washington St., Jamestown, NY	**Date:**	4/20/17	**PSID #:**	635565
Proj/Ph/Task/Act:	0901689-05-206	**Project Manager:**	EP	**S&R Doc #:**	
Scope of Work:	**Well Development**	**Technician(s):**	JC		

Vehicle hours has to match total time billed to job on timesheet. Equipment hours match clock hours on site.
LVE is equal to total man hours on site billed to project. DOES NOT include driving and/or loading/unloading time.
Please call or talk to PM at the end of the day if you have any questions completing this sheet.

ITEM #	Item Description	UOM	QUANTITY (# of items)	AMOUNT	TOTAL
LVE999	LVE NYSDEC	HR	1	10	10
EH001	E-001 Automobile/Sedans - Hr	HR			
EH002	E-002 Truck (F-150) - 1/2 Ton Pick-Up 4 WD	HR	1	10	10
EH003	E-003 Truck (F-250) - 3/4 Ton Pick-Up 4 WD	HR			
EH004	E-004 Truck (F-350) - 1 Ton Pick-Up 4 WD	HR			
EH005	E-005 Truck, Flatbed, Box or Van > 1 Ton	HR			
EH008	E-008 Trailer - Light duty, not enclosed, < 5 ton capacity	HR			
EH050	E-050 Air Compressor (min 185 cfm @ 125 psi) hoses included	HR			
ED051	E-051 Air Compressor (>10 hp but less than E-050) (Daily Rate)	DAILY			
EH053	E-053 Pressure Washer (min 2,000 psi and 4 GPM)	HR			
EH054	E-054 Generator > 5,000 watt	HR			
EH055	E-055 Jackhammer up to 40 pound class	HR			
EH056	E-056 Asphalt cutter/concrete saw (portable gas powered) <12 HP	HR			
ED058	E-058 Sonic Interface Probe - oil/water level meter (Keck KIR or similar) (Daily Rate)	DAILY	1	1.00	1.00
ED059	E-059 Photo-Ionization Detector (PID) w/calibration kit (H-NU Meter or equivalent) (Daily Rate)	DAILY			
ED060	E-060 Handheld Multiparameter Probe (Daily Rate)	DAILY			
EH063	E-063 Water Table Depression Pump (3 to 5 hp)	HR			
EH064	E-064 Water Table Depression Pump (> 5 hp)	HR			
EH065	E-065 > 1 hp. Submersible Pump.(w/min. 50 ft. hose)	HR			

Groundwater & Environmental Services, Inc.
495 Aero Drive, Suite 3
Cheektowaga, NY 14225

10/7/16

Contract #: C100607
Invoice #:

Spill/Site#: 907028
PIN:

GES Project #: 0901689
Work Period:
Spill/Site Name: Former C&B Dry Cleaners, 2241 Washington Street, Jamestown, New York

Description of Work Performed:
GWS

Work Date: 4/21/17
Overtime approved by: _____, DEC PM

Labor and LVE:

Contract Item # Job Title	Employee Name	Start Time	Arrive Site Time	Depart Site Time	End Time	Break/ Off Time	Total Straight Time	Total Over time	Total Double Time	LVE
	Jennifer Clay	800	800	830	915	~~0.5~~	1.25			
LVE - Low Value Equipment	Jennifer Clay		800	830		~~0.5~~				0.5
	J. Clay	1000	—	—	1145		1.75			
LVE	J. Clay		—	—						0

Equipment:

Contract Item # Description	Contractor Equip #	Start Time	End Time	Break/ Off Time	Total Equipment Hours/Days
E-002 Truck - 1/2 Ton Pickup 4WD	99719 JY	800	915	~~0.5~~	1.25
~~E-058 Sonic Interface Probe - oil/water level meter~~	~~907601~~			~~0.5~~	~~0.5~~
F-002 Truck	99719JY	1000	1145		1.75

Materials/Receipted Costs:

Vendor Name/Item Description	# of Units	Unit Cost	Total Cost

Subcontractors:

Subcontractor Name and Description	# of Units	Unit Cost	Total Cost

Travel/Per Diem/Non-Contract Items:

Hotel & Staff Name(s) or Vendor Name and Description	# of Units	Unit Cost	Total Cost

NYSDEC Sales & Rental EQUIPMENT INVOICE FORM - Northeast Region 1100

Client/Site:	NYSDEC Former C&B Cleaners, 2241 Washington St., Jamestown, NY	**Date:**	4/21/17	**PSID #:**	635565
Proj/Ph/Task/Act:	0901689-05-206	**Project Manager:**	EP	**S&R Doc #:**	
Scope of Work:	**Well Development**	**Technician(s):**	JC		

Vehicle hours has to match total time billed to job on timesheet. Equipment hours match clock hours on site.
LVE is equal to total man hours on site billed to project. DOES NOT include driving and/or loading/unloading time.
Please call or talk to PM at the end of the day if you have any questions completing this sheet.

ITEM #	Item Description	UOM	QUANTITY (# of items)	AMOUNT	TOTAL
LVE999	LVE NYSDEC	HR	1	0.5	0.5
EH001	E-001 Automobile/Sedans - Hr	HR			
EH002	E-002 Truck (F-150) - 1/2 Ton Pick-Up 4 WD	HR	1	3	3
EH003	E-003 Truck (F-250) - 3/4 Ton Pick-Up 4 WD	HR			
EH004	E-004 Truck (F-350) - 1 Ton Pick-Up 4 WD	HR			
EH005	E-005 Truck, Flatbed, Box or Van > 1 Ton	HR			
EH008	E-008 Trailer - Light duty, not enclosed, < 5 ton capacity	HR			
EH050	E-050 Air Compressor (min 185 cfm @ 125 psi) hoses included	HR			
ED051	E-051 Air Compressor (>10 hp but less than E-050) (Daily Rate)	DAILY			
EH053	E-053 Pressure Washer (min 2,000 psi and 4 GPM)	HR			
EH054	E-054 Generator > 5,000 watt	HR			
EH055	E-055 Jackhammer up to 40 pound class	HR			
EH056	E-056 Asphalt cutter/concrete saw (portable gas powered) <12 HP	HR			
ED058	E-058 Sonic Interface Probe - oil/water level meter (Keck KIR or similar) (Daily Rate)	DAILY	~~1~~	~~1.00~~	~~1.00~~
ED059	E-059 Photo-Ionization Detector (PID) w/calibration kit (H-NU Meter or equivalent) (Daily Rate)	DAILY			
ED060	E-060 Handheld Multiparameter Probe (Daily Rate)	DAILY			
EH063	E-063 Water Table Depression Pump (3 to 5 hp)	HR			
EH064	E-064 Water Table Depression Pump (> 5 hp)	HR			
EH065	E-065 > 1 hp. Submersible Pump.(w/min. 50 ft. hose)	HR			

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID 23203
Description LaMotte 2020we
Calibrated 4/13/2017 10:24:58AM

Manufacturer LaMotte
Model Number 2020WE
Serial Number/ Lot Number 3128-1513
Location Rochester, NY
Department

State Certified
Status Pass
Temp °C 23.2
Humidity % 32

Calibration Specifications

Group # 1
Group Name Turbidity
Stated Accy Pct of Reading

Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
1.00 / 1.00	NTU	1.00	NTU	0.52	1.00	0.00%	Pass
10.00 / 10.00	NTU	10.00	NTU	7.77	10.00	0.00%	Pass

Test Instruments Used During the Calibration

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	(As Of Cal Entry Date) Last Cal Date/ Opened Date	(As Of Cal Entry Date) Next Cal Date / Expiration Date
ROC - 10 NTU C689840	10 NTU TURBIDITY STANDARD	GFS	C689840			12/31/2017
ROC 0.0 NTU - C688427	NYS 0.0 NTU - AUTO CAL SOLUTION	GFS	SL30005-5G	C688427		7/31/2017
ROC 1 NTU TURB	ROC TURB 1 NTU	Pine Environmental Services, Inc.	8577	C688017		7/31/2017

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Kevin Barr

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC

1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID 13610
Description YSI 556
Calibrated 4/17/2017 12:19:27PM

Manufacturer YSI
Model Number 556
Serial Number/ Lot Number 12H102438
Location Rochester, NY
Department

State Certified
Status Pass
Temp °C 22.8
Humidity % 35

Calibration Specifications

Group # 1
Group Name PH
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
7.00 / 7.00	PH	7.00	PH	7.07	7.00	0.00%	Pass
4.00 / 4.00	PH	4.00	PH	4.03	4.00	0.00%	Pass
10.00 / 10.00	PH	10.00	PH	10.01	10.00	0.00%	Pass

Group # 2
Group Name Conductivity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.000

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
1.413 / 1.413	ms/cm	1.413	ms/cm	1.450	1.413	0.00%	Pass

Group # 3
Group Name Redox (ORP)
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
240.00 / 240.00	mv	240.00	mv	235.90	240.00	0.00%	Pass

Group # 4
Group Name Disolved Oxygen Span
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
100.00 / 100.00	%	100.00	%	96.70	100.00	0.00%	Pass

FIELD WORK DIRECTIVE

TASK : **Groundwater Monitoring and Sampling**

PSID: **659281**

client	New York State Dept. of Environmental Conservation	bst/ph/tsk/altorg	0901689/05/213/1109
project name	NYSDEC/Jamestown/NY/WashingtonSt/2241	internal due	01.15.18
location	2241 Washington Street, Jamestown, NY	event type	Sampling, Post Remediation
pm/cm/engineer	EPopken/EPopken/	description	- Post Injection GWS #1
assigned employee	**Jennifer Clay**	estimate LOE hrs	20

SUBMIT

submitter initials	field event date	# pages	Lab Samples collected? (YES) / NO	Waste Generated? (YES) / NO
JLee	1/3-5/18	38	11	1 water drum

Field comments on work completion (alt-enter for line break):

DUP, FB, MS/SD collected

SCAN

scanner initials	scanned date	# pages	comments (note pages added, rescan, etc.)
JLee	1/5/18	38	

TIMESHEET GUIDANCE (field personnel - use to prepare timesheet)

phase	task	activity	ht	RQD timesheet comments	field staff timesheet comments	plan hrs	act. hrs
05	213			start/end times	800 –	8	
05	213		95	on-site/off-site times	945 –		
05	213			start/end times	See Daily Sheet	8	
05	213		95	on-site/off-site times			
05	213			start/end times		8	
05	213		95	on-site/off-site times			

EXPENSE GUIDANCE bst : **0901689**

phase	task	category	RQD expense comments	field staff expense comments	plan amt	act. amt
05	213		Ice			
05	213		Per Diem	$51/day	1	1
05	213		Per Diem	$51/day	1	1
05	213		Per Diem	$51/day	1	1

S&R FORM (no other S&R form needed) bst : **0901689**

phase	task	act	unit code	description	dates equip used	equip alt org	plan qty	act. qty
05	213		LVE999	LVE (HR onsite) 2 people	1/3/18	1109	8	13.25
05	213		EH002	E-002 Truck 1/2 ton (HR) 2 trucks	1/3/18	1109	9	19.5
05	213		ED058	E-058 Sonic Interface Probe (DY)	1/3/18	1109	1	~~0.75~~ 1
05	213		LVE999	LVE (HR onsite)	1/4/18	1109	8	8.25
05	213		EH002	E-002 Truck 1/2 ton (HR)	1/4/18	1109	8	8.25
05	213		ED058	E-058 Sonic Interface Probe (DY)	1/4/18	1109	1	1
05	213		LVE999	LVE (HR onsite)	1/5/18	1109	8	5.25

FIELD WORK DIRECTIVE

TASK : **Groundwater Monitoring and Sampling** PSID: **659281**

05	213		EH002	E-002 Truck 1/2 ton (HR)	1/5/18	1109	9	7.25
05	213		ED058	E-058 Sonic Interface Probe (DY)	1/5/18	1109	1	1
				truck #:				
				mileage:				

Plan Review 1 last: mnaber 01/02/2018

Plan Review 2 last: EPopken 01/02/2018

FIELD WORK DIRECTIVE

TASK : **Groundwater Monitoring and Sampling**

PSID: **659281**

Management of Change and Communication Plan:

Field personnel are **required** to notify the PM/CM . . . (check upon completion)

x	Upon Arrival to the Site	x	Before departure from the site
x	Changing site conditions / work scope	x	If a loss or near loss occurs

Contact Numbers and Additional Instructions *(if missing contact #, add to "Contact Tab")*:

	Name	Contact
PM	Eric D. Popken	800-287-7857 x4345
CM	Eric D. Popken	800-287-7857 x4345
Eng	Jessica Thomas	800-360-9405 x4328
HSSE	Mark Lancaster	866-839-5195 x3846
VP HSSE	Thomas Baylis	800-368-0337 x3350

CONTACT NUMBERS & ADDITIONAL INSTRUCTIONS (Third Party, Property Owners, etc.):

HSSE REQUIREMENTS:

Please refer to the HSSE - General Tab for Site-specific information
Bring a copy of the generic Health & Safety Plan (HASP) onsite.
Print out recommended JSAs (see HSSE - General Tab) and make site-specific edits, as needed.

SCOPE OF WORK DETAILS:

Low flow purge and sample wells PMW-1, PMW-2, PMW-3, PMW-4, CBPZ101, CBPZ102, CBPZ107, CBPZ110, and MW-5. Collect YSI and turb readings. Sample for compounds on the chain of custody (VOCs, metals, TSS, TDS, Metals, Sulfate, TOC and chloride).

GAUGING

(Record DTP, DTW, and DTB on the Well Sampling Log) . Contact CM/PM if NAPL are detected.)

# of Wells	Well IDs	Comments
9	See Scope of Work Details	

NAPL RECOVERY

(Document NAPL recovery on the NAPL G&R Log)

# of Wells	Well IDs	Comments

FIELD WORK DIRECTIVE

TASK : **Groundwater Monitoring and Sampling**

PSID: **659281**

SAMPLING

(Document sampling activities on the Well Sampling or Low-Flow Sampling Logs. Complete site-specific chain-of-custody (COC))

# of Wells	Type of Sampling	Well IDs	Analysis	Comments
8	Low Flow	See above	VOCs, Metals	Collect 1 field dup, & 1 field blank. Submit trip blank.

LABORATORY INFORMATION:

(Utilize site-specific COC. All laboratory information is included on the site-specific COC) - Samples to be submitted to TestAmerica in Buffalo.

WASTE MANAGEMENT INFORMATION

*Field staff are **required to understand and comply** with GES' Hazardous and Non-Hazardous Waste Management Program (Policy #018). In general, each hazardous waste and non-hazardous waste storage drum should be stored in a location that is secure from traffic and/or other activities that could result in damage. Storage requirements or recommendations must be discussed with the PM.*

Check all that Apply *(insert comments under other)*

- ☐ Purge water to be filtered through carbon and discharge on-site to positive drainage
- ☐ Purge water to be stored in drum with overpack and appropriate label
- ☐ NAPL stored on-site in a labeled drum(s) with a vent, an overpack, and an electrical ground
- ☐ Measure water or NAPL levels in drum/ document drum conditions (see NAPL G&R Log)
- ☑ Other: Purge Water to be stored in a drum and labeled (no overpack).

Special / Client-Specific Waste Management Requirements:

Drums to be staged along southeast corner of the Swanson Building (dilapidated building) on the grassy vacant property.

SITE-SPECIFIC HEALTH AND SAFETY DETAILS

TASK : **Groundwater Monitoring and Sampling** PSID **659281**

Local Hospital Name, Phone Number & Address (Map on Attachment Tab):

Hospital Name	WCA Hospital
Street Address	207 Foote Avenue
City, State, Zip	Jamestown, New York 1701
Phone Number	716-487-0141
Directions to Hospital Location from Site	See attached HASP

SITE BACKGROUND	
Project /Site Name	NYSDEC/Jamestown/NY/WashingtonSt/2241
Site Address	2241 Washington Street, Jamestown, NY
Nearest Intersection	See Site Map
County	Chautauqua
Additional Information	Located next to Pal Joey's Bar, also includes 2 properties to the south.

***SITE-SPECIFIC HAZARDS (CHEMICAL OF CONCERN) INFORMATION**

Contaminant	OSHA TWA /PEL (ppm)	ACGIH TLV (ppm)	Hazards	Entry Routes	IP (eV)
See attached HASP					

Note:

Consult standard reference manuals for air concentration/toxicity data. Action level depends on PEL/REL/TLV. These Action Levels, if not defined by regulation, is some percent (usually 50%) of the applicable PEL/REL/TLV. That number must also be adjusted to account for instrument response factors.

ppm = parts per million

C = Ceiling; **PEL** = Permissible Exposure Limit (ppm); **IP** = Ionization Potential, in electron volts (eV);

TWA = Time Weighted Average (ppm); **TLV** = Threshold Limit Value (ppm)

1 = irritant to skin 6 = may cause nausea and vomiting

2 = irritant to eyes 7 = may cause liver and kidney damage

3 = irritant to respiratory system 8 = irritant to GI tract

4 = may cause headache 9 = carcinogen/possible carcinogen

5 = may cause dizziness, lightheadedness 10 = may cause damage to CNS

SITE-SPECIFIC HEALTH AND SAFETY DETAILS

TASK : **Groundwater Monitoring and Sampling** PSID **659281**

REQUIRED SAFETY DATA SHEETS (SDS')

SDS Name	Link (Provide Link to SDS or Include with FWD)
Hydrochloric Acid	See attached HASP
Liquinox	See attached HASP

REQUIRED JOB SAFETY ANALYSES (JSAs)

JSA Name (select from options)	SharePoint Link *(click to open)*	Site-Specific Edits (put comments here or on the JSA)
Groundwater Sampling - Powered Pumps JSA	http://sharepoint.gesonline.com/HSSE/JSAs/Groundwater Sampling - Powered Pumps JSA.docx	
Gauging Liquid Levels in GW Monitoring Wells JSA	http://sharepoint.gesonline.com/HSSE/JSAs/Gauging Liquid Levels in GW Monitoring Wells JSA.docx	Modify to account for low-flow methodology
Snow and Ice Removal by Hand JSA	http://sharepoint.gesonline.com/HSSE/JSAs/Snow and Ice Removal by Hand JSA.docx	
	#N/A	

PRE-ENTRY MEETING NOTES/ATTENDANCE

(Include date, length of meeting, names of personnel in attendance, topics of discussion, comments and concerns, etc.)

1/3/18 - Some traffic/public, extreme cold, snow shoveling, slips, trips, falls

SITE SAFETY AND HEALTH PLAN COMPLIANCE AGREEMENT

All project personnel, including visitors, must follow the requirements of this Site Safety Plan. In order to document individual agreement with this requirement, all personnel must complete this "Site Safety and Health Plan Compliance Agreement." These agreements will be kept in this Site Safety Plan and will become part of the permanent project record upon completion of site activities. **By signing below, I have read the Site Health and Safety Plan (HASP), or I have been verbally advised of its contents. I understand, and I agree to comply with all of its provisions. I understand that I could be prohibited from working on the project, and I may be subject to disciplinary actions for violating any of the health and safety requirements specified in the HASP.**

Name	Signature	Date	Time (in)	Time In / Out	LPS Card (date)	OSHA Card (date)
Jennifer Clay	Jennifer Clay	1/3/18	945		—	—
Peter Zaffem		1/3/18	1000		—	—
Jennifer Clay	Jennifer Clay	1/4/18	830		—	—
Jennifer Clay	Jennifer Clay	1/5/18	800		—	—

SITE-SPECIFIC HEALTH AND SAFETY DETAILS

TASK : **Groundwater Monitoring and Sampling** PSID **659281**

GES DAILY SITE SAFETY CHECKLIST

Date of field work:	1/3/18	1/4/18	1/5/18		
1. Proper training certificates have been obtained from all onsite personnel.	✓	✓	✓		
2. The site-specific HASP has been reviewed and signed by GES employees and GES-hired subcontractors.	✓	✓	✓		
3. The daily site-safety meeting has been conducted.	✓	✓	✓		
4. Applicable JSAs are onsite, reviewed by staff to ensure all tasks/jobs are covered, and site specific JSA modifications occur when needed.	✓	✓	✓		
5. Fire extinguishers are available for use and are fully charged.	✓	✓	✓		
6. A fully-stocked first aid kit & eye wash bottle is readily available.	✓	✓	✓		
7. Any potential tripping hazards have been removed from site.	✓	✓	✓		
8. All vessels containing flammable or corrosive material are properly labeled.	✓	✓	✓		
9. Proper personal protective equipment is being used for present conditions.	✓	✓	✓		
10. Equipment onsite is checked and in safe working order.	✓	✓	✓		
11. Safety cones and flags or barricades have been utilized to mark out work area along with all required signage (No Smoking, No Trespassing,	✓	✓	✓		
12. No person onsite has the appearance of being under the influence of motor skill altering substances.	✓	✓	✓		
13. All workers onsite are clothed in an appropriate manner (highly visible clothing, no tank tops, muscle shirts or shorts).	✓	✓	✓		
14. Electrical power-operated tools shall be properly grounded and used with a Ground-Fault Circuit Interrupter (GFCI).	NA	NA	NA		
15. All required permits (GES and/or client) are completed by an authorized individual.	NA	NA	NA		
16. When working alone, has a phone call been placed to the PM to discuss site conditions, review the Scope of Work, LPS requirements, and coordinate communications for the day? Note: The frequency/ amount of additional calls from the field should be established during the PM's discussion with the individual. A call must always occur prior to leaving the site. **(FILL IN OFFICE COMMUNICATION TIME)**	TIME: NA	TIME: 830 1030 1430 1645 1715	TIME: 845 1030 1200 1315	TIME:	TIME:
17. Prior to leaving the site for the day, the GES site supervisor has conducted a meeting with onsite staff to review worker conditions (possible injuries), JSA revisions, discuss possible Near Losses/ Losses, and activities scheduled for the next day.	✓	✓	✓		
18. All health and safety concerns have been communicated to the Local Health and Safety Officer and Project Manager	✓	✓	✓		
I verify and initial that the above information is correct by initialing in the boxes to the right:	JMC	JMC	JMC		

DECONTAMINATION PLAN

TASK : **Groundwater Monitoring and Sampling** PSID **659281**

1. PERSONNEL DECONTAMINATION

Section 7 of the Generic HASP lists the specific levels of protection required. Consistent with the levels of protection required, step by step procedures for personnel decontamination for each Level of Protection are attached.

2. LEVELS OF PROTECTION REQUIRED FOR DECONTAMINATION

The levels of protection required for personnel assisting with decontamination will be:
Check which one applies

☐ LEVEL B ☐ LEVEL C ☐ LEVEL D

Modifications include:

3. DISPOSITION OF DECONTAMINATION WASTES

(Provide a description of daily, weekly, and end of project waste disposition including identification of storage area, hauler, and final disposal site if applicable.)

Decon water to be drummed with the purge water.

4. EQUIPMENT DECONTAMINATION

A procedure for decontamination steps required for non-sampling equipment and heavy machinery follows:

Decon any tools or equipment that touches groundwater with liquinox-water spray/buckets and rinse. Decon between wells.

5. SAMPLING EQUIPMENT DECONTAMINATION

Sampling equipment will be decontaminated in accordance with the following procedure:

Decon any tools or equipment that touches groundwater with liquinox-water spray/buckets and rinse. Decon between wells.

DECONTAMINATION PLAN

TASK : **Groundwater Monitoring and Sampling** PSID **659281**

LEVEL C DECONTAMINATION PROCEDURES (if required)

[Check indicated Functions or add steps as necessary]:

STEP	FUNCTION	DESCRIPTION OF PROCESS, SOLUTION AND CONTAINER
☐	Segregated equipment drop	
☐	Boot cover and glove wash	
☐	Boot cover and glove rinse	
☐	Tape removal - outer glove / boot	
☐	Boot cover removal	
☐	outer glove removal	
	----------HOT-LINE----------	
☐	Suit/safety boot wash	
☐	Suit/boot/ glove rinse	
☐	Safety boot removal	
☐	Suite Removal	
☐	Inner Glove Wash	
☐	Inner Glove Rinse	
☐	Face piece removal	
☐	Inner glove removal	
☐	Inner clothing removal	
	----------CRC/SAFE ZONE BOUNDARY----------	
☐	Field Wash	
☐	Redress	



PROJECT MANAGER

DATE DESCRIPTION

PROJECT NUMBER

DRAFT

PRE-DESIGN INVESTIGATIO
FORMER C&B DRY CLE
CITY OF JAMESTOWN, CHAUTAUQUA COU

LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **659281**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	1/3/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	JC.
Project #/Phase/Task/Org:	0901689/05/213/1109	Sampling Method:	Low Flow

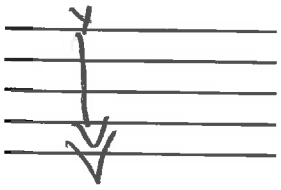
Well ID: PMW-1
Well Diameter: 2-inch
Initial Depth to Water (ft): 5.62
Depth to Bottom (ft): ~~14.75~~ 14.80

Pump Type/Model: Peristaltic Pump/ 033240
Water Quality Meter Model/SN: YSI 556/ 12477 & LaMotte Turb Meter/ 038756
Date Meter Calibrated:

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (ml/min)	Cumulative Volume Purged (Gallons)	Temp. (°C)	Spec. Cond. (uS/cm or umhos/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1305	5.65		200		6.61	0.790	4.91	205.4	8.14	437	slightly turbid, light brown
1315	5.65		200		7.58	0.880	7.03	170.9	1.25	25.2	clear
1325	5.64		200		7.53	0.880	7.23	177.3	1.40	15.3	"
1330	5.64		200		7.36	0.882	7.25	179.9	1.33	9.83 x	"
1335	5.64		200		7.46	0.882	7.27	181.2	1.32	8.08 x	"
1340	5.64		200		7.46	0.881	7.27	181.4	1.32	6.82 x	"
1345	5.64		200		7.68	0.882	7.29	180.3	1.33	5.16 x	"
1350	5.64		200		7.69	0.883	7.29	179.3	1.34	4.26 x	"
1355	5.64		200		7.72	0.883	7.30	178.4	1.29	3.24 x	"
1400	5.64		200		7.73	0.885	7.29	177.8	1.31	2.25 x	"
1405	5.64		200		7.64	0.886	7.30	177.4	1.33	1.71 x	"
1410	5.64		200		7.72	0.885	7.30	176.6	1.41	1.86	"
1415	5.64		200		7.76	0.884	7.31	176.5	1.34	1.56	

Stabilization Target Ranges:
Temp: +/- 3%
Specific Conductivity: +/- 3%
pH: +/- 0.1 units
ORP/EH: +/- 10 mV
DO: +/- 10%
Turbidity: +/- 10% for >1 NTU

Target Range Achieved? (Y/N)



Comments: **Weather:** 9°F, Partly Cloudy, Calm
Sample Time: 1430
QC Sample: DUP-010318 collected

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LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **659281**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	1/4/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	
Project #/Phase/Task/Org:	0901689/05/213/1109	Sampling Method:	Low Flow

Well ID: **PMW-2**
Well Diameter: **2-inch**
Initial Depth to Water (ft): 3.95
Depth to Bottom (ft): **16.80**

Pump Type/Model: **Peristaltic Pump/** 033240
Water Quality Meter Model/SN: **YSI 556/** 12477 **& LaMotte Turb Meter/** 038756
Date Meter Calibrated:

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (mL/min)	Purge Rate (mL/min)	Cumulative Volume Purged (Gallons)	Temp. (°C)	Spec. Cond. (uS/cm or umhos/cm)	pH	ORP/Eh (mV) 10.6	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
10:45	4.16		225/250?		5.78	2.160	7.15	~~2.166~~	1.24	----	turbid, brown
1100	4.21		225		6.71	2.192	7.55	-0.8	0.48	32.2	clear, light brown
1110	4.20		225		7.05	2.162	7.56	5.4	0.55	14.5	
1115	4.20		225		7.02	2.157	7.55	1.9	0.51	15.2	
1120	4.20		225		7.07	2.129	7.54	3.0	0.[illegible]	15.6	
1125	4.22		225		7.02	2.116	7.53	-1.4	0.41	9.76	
1130	4.23		225		6.95	2.108	7.53	-3.7	0.40	9.29	
1135	4.23		250		6.87	2.094	7.51	-0.4	0.44	9.81	

Stabilization Target Ranges: **Target Range Achieved? (Y/N)**

Temp: +/- 3% Y
Specific Conductivity: +/- 3% Y
pH: +/- 0.1 units Y
ORP/EH: +/- 10 mV Y
DO: +/- 10% Y
Turbidity: +/- 10% for >1 NTU Y

Comments: **Weather:** 9°F, Breezy, Snowing
Sample Time: 1200
QC Sample:

LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **659281**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	1/4/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	JC
Project #/Phase/Task/Org:	0901689/05/213/1109	Sampling Method:	Low Flow

Well ID: **PMW-3**
Well Diameter: **2-inch**
Initial Depth to Water (ft): 4.36
Depth to Bottom (ft): **12.42**

Pump Type/Model: **Peristaltic Pump/** 033240
Water Quality Meter Model/SN: **YSI 556/** 12477 **& LaMotte Turb Meter/** 038756
Date Meter Calibrated:

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (mL/min)	Cumulative Volume Purged (Gallons)	Temp. (°C)	Spec. Cond. (uS/cm or umhos/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
905	4.36		200		5.50	2.280	7.05	184.9	1.27	8.53	clear, light brown
915	4.36		200		4.78	2.295	6.96	182.5	0.66	9.47	
925	4.35		200		4.43	2.307	6.98	179.2	0.56	8.98	
930	4.35		200		4.41	2.306	6.97	181.5	0.52	4.84	
935	4.35		200		3.97	2.313	6.99	180.0	0.45	5.98	
940	4.35		200		3.74	2.313	7.01	183.6	0.52	5.16	
945	4.35		200		3.74	2.308	7.03	184.3	0.40	5.79	
950	4.35		200		3.72	2.307	7.08	183.1	0.41	5.86	
955	4.35		200		3.89	2.304	7.13	181.2	0.45	6.45	

Stabilization Target Ranges: **Target Range Achieved? (Y/N)**

Temp: +/- 3%
Specific Conductivity: +/- 3%
pH: +/- 0.1 units
ORP/EH: +/- 10 mV
DO: +/- 10%
Turbidity: +/- 10% for >1 NTU

Comments: **Weather:** 15°F, Snowing, Breezy
Sample Time: 1015
QC Sample:

LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **659281**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	1/5/[illegible]
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	JC
Project #/Phase/Task/Org:	0901689/05/213/1109	Sampling Method:	Low Flow

Well ID: **PMW-4**
Well Diameter: **2-inch**
Initial Depth to Water (ft): 7.20
Depth to Bottom (ft): **15.52**

Pump Type/Model: **Peristaltic Pump/** 033240
Water Quality Meter Model/SN: **YSI 556/** 12477 **& LaMotte Turb Meter/** 038756
Date Meter Calibrated:

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (mL/min)	Cumulative Volume Purged (Gallons)	Temp. (°C)	Spec. Cond. (uS/cm or umhos/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
905	7.60		250		8.01	2.504	7.57	54.4	5.78	9.83	clear
9:20	7.31		250		6.51	2.536	7.54	-21.4	0.58	3.59	"
930	7.32		250		6.97	2.509	7.49	-22.3	0.43	2.60	"
935	7.32		250		6.87	2.509	7.49	-17.3	0.41	2.61	"
940	7.32		250		6.58	2.521	7.49	-18.2	0.37	~~2.26~~	10% sheen
945	7.32		250		6.75	2.507	7.48	-18.2	0.35	1.71	"
950	7.33		250		6.72	2.505	7.48	-23.6	0.35	1.68	"

Stabilization Target Ranges: **Target Range Achieved? (Y/N)**

Temp: +/- 3%
Specific Conductivity: +/- 3%
pH: +/- 0.1 units
ORP/EH: +/- 10 mV
DO: +/- 10%
Turbidity: +/- 10% for >1 NTU

Comments: **Weather:** 3°F, High winds, Snowing
Sample Time: 1210
QC Sample: ~~1010~~

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LOW FLOW SAMPLING LOG

TASK : Groundwater Monitoring & Sampling | PSID 659281

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	1/5/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	JC
Project #/Phase/Task/Org:	0901689/05/213/1109	Sampling Method:	Low Flow

Well ID: CBPZ-101
Well Diameter: 1-inch
Initial Depth to Water (ft): 6.35
Depth to Bottom (ft): 15.92

Pump Type/Model: Peristaltic Pump/ 033240
Water Quality Meter Model/SN: YSI 556/ 12477 & LaMotte Turb Meter/ 038756
Date Meter Calibrated:

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (mL/min)	Cumulative Volume Purged (Gallons)	Temp. (°C)	Spec. Cond. (uS/cm or umhos/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1100	6.83		300		4.57	2.654	7.87	84.0	10.29	35.1	drk brown, turbid
1115	6.80		275		4.43	2.709	7.69	492.6	0.35	6.05	brown, clear
1125	6.82		275		4.34	2.732	7.71	501.0	0.56	19.5	light brown, clear
1130	6.83		275		4.32	2.730	7.70	529.2 x	0.52	11.4 x	clear
1135	6.84		275		4.26	2.732	7.71	538.7	0.57	15.7 x	"
1140	6.84		275		4.36	2.727	7.72	548.5	0.62	9.91 x	"
1145	6.85		275		4.31	2.726	7.72	554.2	0.65	8.00 x	"
1150	6.86		275		4.30	2.727	7.73	557.7	0.58	8.46	"
1155	6.86		275		4.21	2.731	7.72	561.4	0.56	7.39	light pink, clear

Stabilization Target Ranges: | **Target Range Achieved? (Y/N)**

Temp: +/- 3%
Specific Conductivity: +/- 3%
pH: +/- 0.1 units
ORP/EH: +/- 10 mV
DO: +/- 10%
Turbidity: +/- 10% for >1 NTU

Comments: **Weather:** 3°F, High Winds, Snowing
Sample Time: 1215
QC Sample:

LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **659281**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	1/4/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	JC
Project #/Phase/Task/Org:	0901689/05/213/1109	Sampling Method:	Low Flow

Well ID: **CBPZ-102**
Well Diameter: **1-inch**
Initial Depth to Water (ft): 8.07
Depth to Bottom (ft): **17.90**

Pump Type/Model: **Peristaltic Pump/** 033240
Water Quality Meter Model/SN: **YSI 556/** 12477 **& LaMotte Turb Meter/** 038756
Date Meter Calibrated:

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (mL/min)	Cumulative Volume Purged (Gallons)	Temp. (°C)	Spec. Cond. (uS/cm or umhos/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1345	8.15		220		7.33	1.861	7.46	124.0	3.90	72.6	
1355	8.11		220		7.32	1.854	7.47	-8.5	0.72	17.3	
1405	8.11		220		7.01	1.835	7.43	-25.0	0.61	12.8	
1415	8.10		220		6.55	1.842	7.40	-21.8	0.69 x	2.03 x	
1420	8.10		220		6.43	1.849	7.39	-25.5	0.73	0.92 x	
1425	8.10		220		6.51	1.853	7.35	-27.0	0.79	0.67	
1430	8.10		220		6.65	1.855	7.41	-27.9	0.78	0.60	

Stabilization Target Ranges: **Target Range Achieved? (Y/N)**

Temp: +/- 3%
Specific Conductivity: +/- 3%
pH: +/- 0.1 units
ORP/EH: +/- 10 mV
DO: +/- 10%
Turbidity: +/- 10% for >1 NTU

Comments: **Weather:** 15°F, Windy, Snowing
Sample Time: 1445
QC Sample: MW1MSD collected

LOW FLOW SAMPLING LOG

TASK : Groundwater Monitoring & Sampling

PSID 659281

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	1/4/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	JC
Project #/Phase/Task/Org:	0901689/05/213/1109	Sampling Method:	Low Flow

Well ID: CBPZ-107
Well Diameter: 1-inch
Initial Depth to Water (ft): 6.03
Depth to Bottom (ft): 12.90

Pump Type/Model: Peristaltic Pump/ 033240
Water Quality Meter Model/SN: YSI 556/ 12477 & LaMotte Turb Meter/ 03856
Date Meter Calibrated:

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (mL/min)	Cumulative Volume Purged (Gallons)	Temp. (°C)	Spec. Cond. (uS/cm or umhos/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1535	6.12		200		7.24	1.197	6.97	211.3	7.45	190	Brown, turbid
1545	6.07		200		8.16	1.242	7.35	206.2	5.16	76.8	light brown, turbid
1555	6.07		200		7.97	1.244	7.33	205.3	5.21	15.9 x	
1600	6.07		200		7.83	1.244	7.32	205.1	5.38	14.5	
1605	6.07		200		7.89	1.240	7.30	203.9	5.42	6.96 x	
1610	6.07		200		7.98	1.241	7.29	203.5	5.28	7.37	
1615	6.07		200		8.04	1.240	7.29	203.2	5.17	8.09	

Stabilization Target Ranges: | **Target Range Achieved? (Y/N)**

Temp: +/- 3% — Y
Specific Conductivity: +/- 3%
pH: +/- 0.1 units
ORP/EH: +/- 10 mV
DO: +/- 10%
Turbidity: +/- 10% for >1 NTU

Comments: Weather: 9°F, Sunny, Calm
Sample Time: 1630
QC Sample:

LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **659281**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	1/4/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s): -	JKC
Project #/Phase/Task/Org:	0901689/05/213/1109	Sampling Method:	Low Flow

Well ID: **CBPZ-110**
Well Diameter: **1-inch**
Initial Depth to Water (ft): 5.65
Depth to Bottom (ft): **15.76**

Pump Type/Model: **Peristaltic Pump/** 0353240
Water Quality Meter Model/SN: **YSI 556/** 12477 **& LaMotte Turb Meter/** 0388756
Date Meter Calibrated:

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (mL/min)	Cumulative Volume Purged (Gallons)	Temp. (°C)	Spec. Cond. (uS/cm or umhos/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
~~1550~~ 1550	6.60		300		7.03	0.838	7.86	74.3	14.93	19	dark brown, turbid
1600	6.23		~~755~~ 300	1	7.53	1.817	7.44	100.4	0.51	11.0	brown, clear
1610	6.18		300		7.22	1.978	7.49	97.9	0.26	25.2	dark brown, turbid
1615	6.17		300		7.25	2.069	7.54	98.1	0.32x	7.05	clear
1620	6.19		300		7.28	2.107	7.57	97.4	0.25x	3.11	clear
1625	6.20		300		7.27	2.137	7.59	96.8	0.28	2.20x	"
1630	6.20		300		7.27	2.169	7.60	96.7	0.31	1.20x	"
1635	6.21		300		7.20	2.194	7.62	96.4	0.34	1.15	"
1640	6.21		300		7.15	2.213	7.63	96.1	0.37	1.23	"

Stabilization Target Ranges: **Target Range Achieved? (Y/N)**

Temp: +/- 3%
Specific Conductivity: +/- 3%
pH: +/- 0.1 units
ORP/EH: +/- 10 mV
DO: +/- 10%
Turbidity: +/- 10% for >1 NTU

Comments: **Weather:** Snowing, 15°F, Windy
Sample Time:
QC Sample: 1655

LOW FLOW SAMPLING LOG

TASK : Groundwater Monitoring & Sampling | PSID 659281

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	1/3/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	J. Clay
Project #/Phase/Task/Org:	0901689/05/213/1109	Sampling Method:	Low Flow

Well ID: MW-5
Well Diameter: 2-Inch
Initial Depth to Water (ft): 7.70
Depth to Bottom (ft): ~~15.40~~ 15.30

Pump Type/Model: Peristaltic Pump/ 033240
Water Quality Meter Model/SN: YSI 556/ 12477 & LaMotte Turb Meter/ 038756
Date Meter Calibrated:

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (mL/min)	Cumulative Volume Purged (Gallons)	Temp. (°C)	Spec. Cond. ~~mS/cm or umhos/cm~~	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1055	7.83		300		6.27	0.916	7.77	~~13.9~~	10.01	26.4	brown, turbid
1105	7.87		300		8.14	0.929	5.87	282.0	0.89	9.38	clear
1115	7.87		300		8.14	0.934	6.07	261.7	0.74	5.30	"
1125	7.87		300		8.03	0.935	6.39 x	244.3 x	0.54 x	3.46 x	"
1130	7.87		300		7.99	0.937	6.48	238.4	0.43 x	2.85 x	"
1135	7.87		300		7.94	0.937	6.58	232.2	0.42	3.25 x	"
1140	7.87		300		7.94	0.938	6.72 x	223.7	0.47	2.78 x	"
1145	7.87		300		8.02	0.937	6.82	217.8	0.39 x	2.13 x	"
1150	7.87		300		8.12	0.937	6.98 x	208.0	0.37	1.39 x	"
1155	7.87		300		7.89	0.940	7.05	204.6	0.40	1.18 x	"
1200	7.87		300		7.99	0.937	7.06	202.8	0.43	0.96 x	
1205	7.87		300		7.91	0.940	7.10	200.0	0.44	1.12 x	
1210	7.87		300		7.95	0.938	7.16	196.0	0.38	0.91 x	
1215	7.87		300		7.99	0.941	7.26	189.5	0.37	0.88	
1218	7.87		300		7.85	0.941	7.26	190.8	0.36	0.78	

Stabilization Target Ranges:	Target Range Achieved? (Y/N)
Temp: +/- 3%	Y
Specific Conductivity: +/- 3%	Y
pH: +/- 0.1 units	Y
ORP/EH: +/- 10 mV	Y
DO: +/- 10%	Y
Turbidity: +/- 10% for >1 NTU	Y

Comments: Weather: 9°F, Partly Cloudy, Calm
Sample Time: 1230
QC Sample:

CHAIN OF CUSTODY

PAGE OF

FED-EX Tracking #	Bottle Order Control #
Lab Quote #	Lab Job #

CLIENT/REPORTING INFORMATION

Groundwater & Environmental Services, Inc.
495 Aero Drive, Cheektowaga, NY 14225
Project Manager: Eric D. Popken
Phone #: 800-287-7857
PM Email: EPopken@gesonline.com
fax 866-902-2187

PROJECT INFORMATION

Project Name: NYSDEC - Former C&B Cleaners Site #907028
Project Address: 2241 Washington Street, Jamestown, NY
Project PSID #: 659281

BILLING INFORMATION

Groundwater & Environmental Services, Inc.
ap@gesonline.com
ATTN: Accounts Payable
Invoice Instructions (Project #/ Phase / Task / Altorg)
Bill to NYSDEC Site #907028 - George Momberger

REQUESTED ANALYSIS (see Test Codes sheet)

LAB USE ONLY

Sampler(s) Name:

Sampler(s) Name:

Lab Sample #	Field ID / Point of Collection (Sys_loc_code)	Depth Interval (ft)	Date Sampled	Time Sampled	Sampler	Matrix	Total # Bottles	number of preserved bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Amber	VOCs SW8260C	Metals SW 6010C	Chloride (as Cl) SW9251	TDS SM 2540C	TSS SM 2540	Sulfate SW 9038	TOC SW 9060	MS/MSD	LAB USE ONLY
	PMW-3	—	1/4/18	1015	JC	GW	9	5		1		3					X	X	X	X	X	X	X		
	PMW-2	—	1/4/18	1200	JC	GW	9	5		1		3													
	CBPZ-107	—	1/4/18	1445	JC	GW	27	15		3		9												X	
	PMW-4	—	1/5/18	1010	JC	GW	9	5		1		3													
	CBPZ-110	—	1/4/18	1655	JC	GW	9	5		1		3													
	CBPZ-101	—	1/5/18	1215	JC	GW	9	5		1		3													
	FB-010518	—	1/5/18	1600	JC	W	9	5		1		3					X	X	X	X	X	X	X		

Turnaround Time (Business Days) — **Approved By (Lab PM) / Date**

- [X] Standard 14 Days _____/_____
- [ ] 1 day RUSH _____/_____
- [ ] Other _____ _____/_____

Laboratory Information

Lab:
Address:
Phone:
Lab PM:
Lab PM Email:

Please Email the EQ EDD Package to ges@equisonline.com
EQEDD Name: NYSDEC/Jamestown/NY/WashingtonSt/2241_LabReport#.27427.EQEDD.zip

Data Deliverable Information

- [ ] Commercial 'A' (Level 1) = Results Only
- [ ] Commercial 'B" (Level 2) = Results + QC Summary
- [ ] FULLT1 (Level 3 & 4)
- [ ] NJ Reduced = Results + QC Summary + Partial Raw Data
- [ ] Commercial 'C'
- [ ] *NJ Data of Known Quality Protocol Reporting*
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [x] EDD Format _____
- [ ] Other _____

Sample Custody must be documented below each time samples change possession, including courier.

Relinquished By Sampler:	Date / Time:	Received By:
1	1	1
Relinquished By:	Date / Time:	Received By:
2	2	2
Relinquished By:	Date / Time:	Received By:
3	3	3

Custody Seal Number: [ ] Intact [ ] Not Intact [ ] Preserved where applicable [ ] On Ice **Cooler Temp** _____

CHAIN OF CUSTODY

PAGE OF

FED-EX Tracking #	Bottle Order Control #
Lab Quote #	Lab Job #

CLIENT/REPORTING INFORMATION	PROJECT INFORMATION	BILLING INFORMATION
Groundwater & Environmental Services, Inc. 495 Aero Drive, Cheektowaga, NY 14225 **Project Manager:** Eric D. Popken **Phone #:** 800-287-7857 **PM Email:** EPopken@gesonline.com **fax** 866-902-2187	**Project Name:** NYSDEC - Former C&B Cleaners Site #907028 **Project Address:** 2241 Washington Street, Jamestown, NY **Project PSID #:** 659281	Groundwater & Environmental Services, Inc. ap@gesonline.com ATTN: Accounts Payable **Invoice Instructions (Project #/ Phase / Task / Altorg)** Bill to NYSDEC Site #907028 - George Momberger

Sampler(s) Name:	Sampler(s) Name:

Lab Sample #	Field ID / Point of Collection (Sys_loc_code)	Depth Interval (ft)	Date Sampled	Time Sampled	Sampler	Matrix	Total # Bottles	number of preserved bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Amber	REQUESTED ANALYSIS (see Test Code sheet): VOCs SW8260C	Metals SW 6010C	Chloride (as Cl) SW9251	TDS SM 2540C	TSS SM 2540	Sulfate SW 9038	TOC SW 9060	MS/MSD	LAB USE ONLY
	PMW-3	—	1/4/18	1015	JC	GW	9	6		1		3					X	X	X	X	X	X	X		
	PMW-2	—	1/4/18	1200	JC	GW	9	5		1		3					↓	↓	↓	↓	↓	↓	↓		
	CBPZ-107	—	1/4/18	1445	JC	GW	27	15		3		9												X	
	PMW-4	—	1/5/18	1010	JC	GW	9	5		1		3													
	CBPZ-110	—	1/4/18	1655	JC	GW	9	5		1		3													
	CBPZ-101	—	1/5/18	1215	JC	GW	9	5		1		3													
	FB-010518	—	1/5/18	1600	JC	W	9	5		1		3					X	X	X	X	X	X	X		

Turnaround Time (Business Days) — **Approved By (Lab PM) / Date**

- [X] Standard 14 Days
- [ ] 1 day RUSH
- [ ] Other _____

Laboratory Information

Lab: _____
Address: _____
Phone: _____
Lab PM: _____
Lab PM Email: _____

Please Email the EQ EDD Package to ges@equisonline.com

EQEDD Name: NYSDEC/Jamestown/NY/WashingtonSt/2241_LabReport#.27427.EQEDD.zip

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- [ ] *NJ Data of Known Quality Protocol Reporting*
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [x] EDD Format _____
- [ ] Other _____

Sample Custody must be documented below each time samples change possession, including courier.

Relinquished By Sampler:	Date / Time:	Received By:
1 Jennifer Clay Sample Chief GES	1 1/5/18 1845	1 Katelyn Howard FA
Relinquished By: 2	Date / Time: 2	Received By: 2
Relinquished By: 3	Date / Time: 3	Received By: 3

Custody Seal Number: [ ] Intact [ ] Not Intact [ ] Preserved where applicable [ ] On Ice Cooler Temp _____

CHAIN OF CUSTODY

Client: New York State Dept. of Environm

PAGE 1 OF 1

FED-EX Tracking #

Lab Quote #

Bottle Order Control #

Lab Job #

CLIENT/REPORTING INFORMATION	PROJECT INFORMATION	BILLING INFORMATION
Groundwater & Environmental Services, Inc. 495 Aero Drive, Cheektowaga, NY 14225 **Project Manager:** Eric D. Popken **Phone #:** 800-287-7857 *PM Email:* EPopken@gesonline.com fax 866-902-2187 Sampler(s) Name:	**Project Name:** NYSDEC - Former C&B Cleaners Site #907028 **Project Address:** 2241 Washington Street, Jamestown, NY **Project PSID #:** 659281 Sampler(s) Name:	Groundwater & Environmental Services, Inc. ges-invoices@gesonline.com ATTN: Accounts Payable **Invoice Instructions (Project #/ Phase / Task / Altorg)** Bill to NYSDEC Site #907028 - George Momberger

Lab Sample #	Field ID / Point of Collection (Sys_loc_code)	Depth Interval (ft)	Date Sampled	Time Sampled	Sampler	Matrix	Total # Bottles	number of preserved bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Amber	VOCs SW8260C	Metals SW 6010C	Chloride (as Cl) SW9251	TDS SM 2540C	TSS SM 2540	Sulfate SW 9038	TOC SW 9060	MS/MSD	LAB USE ONLY
	PMW-1	-	1/3/18	~~1430~~ 1430	JC	WG	9	6		1		3					X	X	X	X	X	X	X		
	~~PMW-2~~	-		~~1430~~		WG		3		1		3					X	X	X	X	X	X	X		
	~~PMW-3~~	-				WG		3		1		3					X	X	X	X	X	X	X		
	~~PMW-4~~	-				WG		3		1		3					X	X	X	X	X	X	X		
	MW-5	-	1/3/18	1230	JC	WG	9	5		1		3					X	X	X	X	X	X	X		
	~~CBPZ101~~	-				WG		3		1		3					X	X	X	X	X	X	X		
	~~CBPZ102~~	-				WG		3		1		3					X	X	X	X	X	X	X		
	CBPZ107	-				WG		3		1		3					X	X	X	X	X	X	X		
	~~CBPZ110~~	-	1/3/18	1630	JC	WG	9	5		1		3					X	X	X	X	X	X	X		
	DUP-010318	-				WG		3		1		3					X	X	X	X	X	X	X		
	~~FB~~	-	1/3/18	-	JC	WG	9	5		1		3					X	X	X	X	X	X	X		
	TRIP_BLANK	-	-	-		WG		3		1		3					X	X	X	X	X	X	X		
					JC	WG	1	1									X								

Turnaround Time (Business Days)

- [x] Standard 14 Days
- [ ] 1 day RUSH
- [ ] Other _____

Approved By (Lab PM) / Date

_____/_____

_____/_____

_____/_____

Laboratory Information

Lab: TestAmerica Buffalo
Address: 10 Hazelwood Drive, Amherst, NY
Phone: 716-691-2223
Lab PM: Orlette Johnson
Lab PM Email:

Data Deliverable Information

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- [ ] FULLT1 (Level 3 & 4)
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Please Email the EQ EDD Package to ges@equisonline.com

EQEDD Name: NYSDEC/Jamestown/NY/WashingtonSt/2241_LabReport#.27427.EQEDD.zip

Sample Custody must be documented below each time samples change possession, including courier.

Relinquished By Sampler: Jennifer Clay GES	Date / Time: 1 1/3/18 1655	Received By: 1
Relinquished By: 2 GES	Date / Time: 2 1/4/18 0935	Received By: 2 1/4/18 0935
Relinquished By: 3	Date / Time: 3	Received By: 3

Custody Seal Number: [ ] Intact [ ] Not Intact

[ ] Preserved where applicable [ ] On Ice Cooler Temp _____

Groundwater & Environmental Services, Inc.
495 Aero Drive, Suite 3
Cheektowaga, NY 14225

Contract #: C100607 Spill/Site#: 907028
Invoice #: PIN:

GES Project #: 0901689 Work Period:
Spill/Site Name: Former C&B Dry Cleaners, 2241 Washington Street, Jamestown, New York
Description of Work Performed: GWS

Work Date: 1/3/2018 Overtime approved by: , DEC PM

Labor and LVE:

Contract Item # Job Title	Employee Name	Start Time	Arrive Site Time	Depart Site Time	End Time	Break/ Off Time	Total Straight Time	Total Over time	Total Double Time	LVE
	Jennifer Clay	800	945	1700	1700	0.5	8.5			
LVE	Jennifer Clay		945	1700	1700	0.5				6.75
	Peter Zaffram	800	~~900~~	1700	~~1700~~	0.5	11			
LVE	Peter Zaffram		~~1000~~	1700	~~1930~~	0.5				6.5

Equipment:

Contract Item # Description	Contractor Equip #	Start Time	End Time	Break/ Off Time	Tot Equip Hours/
E-002 Truck - 1/2 Ton Pickup 4WD	15257 MJ	800	1700	0.5	8.5
LVE Low Value Equipment		945	1700	0.5	6.75
E-058 Sonic Interface Probe - oil/water level meter	907601	945	1700	0.5	6.75
E-002 Truck - 4WD 1/2 Ton	8345 MG	800	1930	0.5	11

Materials/Receipted Costs:

Vendor Name/Item Description	# of Units	Unit Cost	Total Cost

Subcontractors:

Subcontractor Name and Description	# of Units	Unit Cost	Total Cost

Travel/Per Diem/Non-Contract Items:

Hotel & Staff Name(s) or Vendor Name and Description	# of Units	Unit Cost	Total Cost
Per Diem	1	$ 51.00	$ 51.00

Groundwater & Environmental Services, Inc.
495 Aero Drive, Suite 3
Cheektowaga, NY 14225

Contract #: C100607
Invoice #:

Spill/Site#: 907028
PIN:

GES Project #: 0901689
Work Period:
Spill/Site Name: Former C&B Dry Cleaners, 2241 Washington Street, Jamestown, New York
Description of Work Performed: GWS

Work Date: 1/4/2018
Overtime approved by: _____, DEC PM

Labor and LVE:

Contract Item # Job Title	Employee Name	Start Time	Arrive Site Time	Depart Site Time	End Time	Break/ Off Time	Total Straight Time	Total Over time	Total Double Time
	Jennifer Clay	830			1715	0.5	8.25		LVE
LVE	Jennifer Clay		830	1715		0.5			8.25

Equipment:

Contract Item # Description	Contractor Equip #	Start Time	End Time	Break/ Off Time	Tot Equip Hours/
E-002 Truck - 1/2 Ton Pickup 4WD	15257 MJ	830	1715	0.5	8.25
LVE Low Value Equipment		830	1715	0.5	8.25
E-058 Sonic Interface Probe - oil/water level meter	907601	830	1715	0.5	8.25

Materials/Receipted Costs:

Vendor Name/Item Description	# of Units	Unit Cost	Total Cost

Subcontractors:

Subcontractor Name and Description	# of Units	Unit Cost	Total Cost

Travel/Per Diem/Non-Contract Items:

Hotel & Staff Name(s) or Vendor Name and Description	# of Units	Unit Cost	Total Cost
Per Diem	1	$ 51.00	$ 57.00

Groundwater & Environmental Services, Inc.
495 Aero Drive, Suite 3
Cheektowaga, NY 14225

Contract #: C100607 Spill/Site#: 907028
Invoice #: PIN:

GES Project #: 0901689 Work Period:
Spill/Site Name: Former C&B Dry Cleaners, 2241 Washington Street, Jamestown, New York
Description of Work Performed: GWS

Work Date: 1/5/2018 Overtime approved by: , DEC PM

Labor and LVE:

Contract Item # Job Title	Employee Name	Start Time	Arrive Site Time	Depart Site Time	End Time	Break/ Off Time	Total Straight Time	Total Over time	Total Double Time
	Jennifer Clay	~~800~~	800	1315	15:45	0.5	7.25		
LVE	Jennifer Clay		~~800~~	1315		~~0.5~~			

LVE
~~4.75~~ 5.25

Equipment:

Contract Item # Description	Contractor Equip #	Start Time	End Time	Break/ Off Time	Tot Equip Hours/
E-002 Truck - 1/2 Ton Pickup 4WD	15257 MJ	~~800~~	1545	0.5	7.25
LVE Low Value Equipment		800	1315	~~0.5~~	~~4.75~~ 5.25
E-058 Sonic Interface Probe - oil/water level meter	907601	800	1315	~~0.5~~	~~4.75~~ 5.25

Materials/Receipted Costs:

Vendor Name/Item Description	# of Units	Unit Cost	Total Cost

Subcontractors:

Subcontractor Name and Description	# of Units	Unit Cost	Total Cost

Travel/Per Diem/Non-Contract Items:

Hotel & Staff Name(s) or Vendor Name and Description	# of Units	Unit Cost	Total Cost
Per Diem	1	51.00	51.00

FIELD WORK DIRECTIVE ATTACHMENTS

TASK : Groundwater Monitoring and Sampling PSID 659281

HOSPITAL ROUTE MAP

L:\Projects\Health Safety\HASPs\NY

(double-click to open & print)

Additional Details:

HASP

SITE MAP

L:\Projects\ s\NYSDEC Contrac

(double-click to open & print)

Additional Details:

Locations to be sampled highlighted in red

Attachment (Specify)

L:\Projects\ Projects\NYSDEC Contract\

(double-click to open & print)

Additional Details:

Bottleware & analysis list

Attachment (Specify)

(double-click to open & print)

Additional Details:

Shipping Summary

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING



TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Bottle Order Information

Bottle Order: *C&B Dry Cleaners Site# 907028*
Bottle Order #: *23049*
Request From Client: *12/29/2017*
Date Order Posted: *4/19/2017 10:46:18AM*
Order Status: *In Process*
Prepared By: *Orlette Johnson*
Deliver By Date: ***1/2/2018 4:00:00PM***

Project/Event Information

Project Manager: *Orlette Johnson*
Lab Project Number: *48010966*
Project Ref: *C&B Dry Cleaners Site# 907028*
Event Desc:

Client Samples:

Sets	Bottles/Set	Bottle Type Description	Field Filtered	Preservative	Method	Matrix	Comments
13	1	Plastic 250ml - with Nitric Acid		Nitric Acid	6010C - TAL Metals ICP	Water	
13	3	Voa Vial 40ml - Hydrochloric Acid		Hydrochloric Acid	8260C - TCL list OLM04.2	Water	
13	2	Voa Vial 40ml - Hydrochloric Acid		Hydrochloric Acid	9060A - Organic Carbon, Total (TOC)	Water	
13	1	Plastic 1 liter - unpreserved		None	2540D - Total Suspended Solids	Water	
13	1	Plastic 500ml - unpreserved		None	2540C_Calcd - TDS	Water	
13	1	Plastic 125mL - unpreserved		None	9251 - Chloride 9038 - Sulfate, Turbidimetric	Water Water	

Please notify us immediately if an error is found in shipment

Job Safety Analysis (JSA)

NYSDEC Jamestown Jan. 2018

JSA Title: Groundwater Sampling – Powered Pumps

Date Developed: 2/8/2005	**Revised Date:** 4/5/2017
Initial Development Team: Scott Martin, Project Env Sci/ Valerie Wood, Project Env. Scientist	
Latest Revision by: K. Gioulis, RHSO	
Quality Review by: Tom Baylis, VP HSSE	

Revision #: 007

This JSA has been fully reviewed with all staff members and all activity job steps, hazards, work practices, and PPE are clearly understood and have been implemented. All necessary revisions have been written on this JSA.

REQUIRED PPE: ☐Air Purifying Respirator; ☐Ear Muffs; ☐Ear Plugs; ☐Face Shield; ☐Fire Retardant Clothing; ☑Gloves (Chemical Resistant, Cut Resistant, Leather, Nitrile, Other); ☐Goggles; ☐Hard Hat; ☑Safety Glasses; ☑Safety-toed Boots; ☐Shirt (Highly-Visible Short/Long Sleeve); ☐Tychem Suit; ☐Tyvek Suit; ☑Vest (Highly Visible Reflective Striped); ***Other:*** Enter other required PPE. cold weather Gear

TASK-SPECIFIC TOOLS AND EQUIPMENT: LEL (to be used if within 35 feet of an ignition source); PID (if organic vapors are probable), Peristaltic/Monsoon/Whale pump

Activity/Sequence of Job Tasks	Potential Hazards	Risk Control Measures
A. Locate and Open Onsite Well 1. Set up Traffic Control and Inspect and Open/Close wells	**1a.** Hand and arm fractures or contusions as a result of tripping and falling when walking or working on uneven surfaces **1b.** Fractures /contusions due to contact with moving vehicles.	**1a.** Inspect the work area and look for uneven areas that may create a tripping hazard. Plan walking path through work area to avoid the uneven areas ➢ If the path of travel is obstructed (~~lighting, over growth, clutter~~ snow...) utilize a ~~walking stick and probe~~ shovel ahead, walk slowly and use caution. ➢ Don safety boots with skid / puncture resistant soles that comply with GES requirements. **1b.** Utilize cones/barricades/safety fence to establish the work zone – Comply with GES Traffic Control program. ➢ Position work vehicle between work area and on-coming traffic. ➢ Inform facility personnel of work (restricted) area. ➢ Use "spotter" to warn personnel of approaching vehicles in high traffic areas. ➢ Don high visible sleeved shirt or outerwear, such as high visible traffic vests or clothing. ➢ If working alongside an active roadway, where vehicular traffic is heavy, dawn/dusk hours, or if weather if overcast or rainy, high visible outwear with reflective stripping must be worn.
	1c. Cuts or contusions to the hands, fingers, arms or other body parts due to contact with sharp edges of well, well lid or well box	**1c.** Remove well / manhole covers so that they do not pinch fingers. ➢ Keep body parts (hands, fingers) out from between the lid and well opening. ➢ Use ~~a crowbar or~~ a pry bar to remove the lid or cap. ➢ Don leather gloves
	1d. Back/body sprain/strain from lifting, moving or carrying equipment /materials	**1d.** Determine whether the item must be lifted - can it be left in place or pushed/pulled into place? ➢ Ensure path is level and clear of debris/obstacles. shovel snow ➢ When lifting, bend at the knees; not the waist, keep back and torso straight; don't twist. ➢ When carrying, keep load close to the body. ➢ Items over 50 lbs. or large/awkward items require team lift or mechanical assistance. ➢ Minimize distance over which items must be carried/pushed/pulled by placing equipment/material storage w/in 15' of work area
or use impact	**1e.** Shoulder/body sprain/ from using a socket wrench to loosen and remove bolts from the lid	**1e.** Ensure your wrists are straight when using a wrench. USE IMPACT ➢ Be sure that the opening of the socket is in full contact with the bolt before you apply pressure. ➢ Pull, don't push. Use a slow, steady motion. If the bolt cannot be loosened with normal force, contact office to discuss options. ➢ Kneel with knee protection on a solid surface with one foot planted firmly on the floor and don't lean into the work.
	1f. Cuts, contusions to knees or legs when kneeling on hard surfaces when opening well.	**1f.** Inspect and eliminate any debris found on the ground prior to kneeling. ➢ If possible, avoid kneeling on ground or hard surface; instead crouch down bending at the knees. ➢ Use kneeling pads when kneeling on hard surfaces.
B. Conduct Liquid Gauging 1. Insert interface probe into well and record liquid level reading in site log book	**1a.** Respiratory or skin irritation/inflammation, headache, nausea, dizziness, caused by exposure to site contaminants / organic vapors	**1a.** Do not splash purged water on clothing or skin. ➢ Discuss and implement monitoring and action levels requirements stated in the HASP ➢ ~~If organic vapors are present, replace the well cap and do not proceed until a PID is obtained to scan the atmosphere ensuring that concentrations are below 5 ppm.~~ ➢ If respirator upgrade is required, contact CHSSE, Site Operations/Project Management before proceeding. ➢ Don nitrile sampling gloves

Hazard Categories: Exposure, Caught (in, under, between, by), Strain/Overexertion, Contact, Falls, Energy Sources

C. Purge Monitoring Well 1. Set up of equipment; insert pump into monitoring well and purge water into approved container at surface *Note: if purge water is added to 55 gallon drum ensure drum is inspected and secured.* *Note: Ensure all site drains (storm drains, catch basins...) are covered to prevent accidental spills.* NA grass or gravel	1a. Respiratory irritation/inflammation, headache, nausea, dizziness, caused by exposure to hazardous atmosphere 1b. Irritation or burns to hand, arms and other body parts that result from skin contact with battery (power purge pump) 1c. Cuts or contusions to the hands, arms or other body parts due to contact with sharp edges of cutting tools, pieces of equipment, 1d. Back/body sprain / strain while lifting/lowering pump into well. 1e. Electrocution/ burns to hands/ skin resulting from contact with release of stored electrical energy. (battery / wiring) 1f. Burns to hands/ arms or body due to fire that can result from the ignition of flammable vapors in the well. no flammable vapors at site	1a. Comply with action levels stated in the Site Specific HASP. ➢ Read and Comply with all requirements stated in the SDS/MSDS ➢ Do not splash purged water on clothing or skin. 1b. Prior to lifting and carrying battery from vehicle to sample location, inspect the battery to ensure that there is no visible sign of leaking acid. ➢ It is recommended that the battery is placed and carried to location in a carrying container that would prevent acid from contacting sampling personnel and equipment. 1c. Ensure the cutting instrument(s) used are the approved tool for cutting polyethylene tubing and are equipped with "self-retracting" blades that CANNOT be overridden by the user (i.e. held out or locked open) or blades that are guarded and do not allow the blade to come in contact with the user. ➢ NOTE: The use of utility and / or personal knives (i.e., Stanley knives, box cutters, pocket knives) is STRICTLY PROHIBITED. ➢ Keeping all body parts out of the cutting path (line of fire of the cutting tool). ➢ Inspect the cutting equipment prior to start of cut. ➢ Cut away from your body and keep hands out of the path of cutting tools. ➢ Don Kevlar Level II Cut Resistant Gloves. 1d. Take frequent breaks as needed to prevent fatigue to shoulder and arm muscles caused by pulling pump. ➢ Ensure path is level and clear of debris/obstacles. ➢ When lifting, bend at the knees; not the waist, keep back and torso straight; don't twist. ➢ Items over 50 lbs. or large/awkward items require team lift or mechanical assistance. 1e. If using an energy source to power and electric pump, refer to the owner's manual for setup procedures. ➢ When using a battery, make sure that the polarity is correct (i.e., positive to positive contact, etc,). ➢ If the connection is loose, repair or replace the cord. ➢ Don gloves that are electrically rated for task. ➢ Don safety boots with electrical safety rating that comply with GES requirements. 1f. Eliminate/control ignition sources (i.e. no smoking, no hot work in unapproved/untested areas) ➢ Relocate/protect combustible materials that are within 35' of work area. ➢ Monitor work zone with CGI/LEL meter to ensure LEL is below 10% if PID readings indicate that there is a potential for a flammable atmosphere. ➢ Complete consultant or client Hot Work Permit for qualifying activities. ➢ Implement all Hot Work protocols including Fire Watch, monitoring area for 30 minutes, having two 20lb fire extinguishers located in immediate area if necessary. Inspect Equipment Prior to use
D. Conduct Groundwater Sampling 1. Insert pump into monitoring well to collect water for sampling	1a. Skin irritation or other health effects from exposure to site contaminants	1a. Do not splash purged water on clothing or skin or release to grade. Take frequent breaks as needed to prevent fatigue to shoulder and arm muscles caused by bailing water. ➢ Be aware of the signs and symptoms of repetitive stress injuries and report all symptoms immediately. ➢ If sample collection activity causes splashing, slow the sample collection process to prevent the loss of water. ➢ Don nitrile gloves and safety glasses.
2. Collect groundwater in sampling container	2a. Irritation or burns to eyes, hand, arms and other body parts that result from skin contact with site contaminants and preservatives 2b. Cuts or contusions to the hands, arms or other body parts due to contact with sharp edges of glassware	2a. Do not splash purged water on clothing or skin. ➢ Sample preservative may have leaked from a container or multiple containers; sample preservatives consist of various types of acids that include HCL, HNO3, and H2SO4 - hand and skin protection is necessary ➢ Where handling preservatives, review MSDS/SDS and understand signs/symptoms of exposure and first aid measures. ➢ Don safety glasses and nitrile sampling gloves. 2b. Ensure glassware is free of sharp edges and is not broken prior to filling sample. ➢ If glassware is broken, discard. ➢ Ensure threads of vial do not contain small pieces of silt or sand. ➢ When securing cap on vial, do not over tighten or vial could break. ➢ Don Kevlar Level II Cut Resistant Gloves.
E. Decontamination 1. Soak/spray durable equipment to prevent cross-contamination between multiple well locations	1a. Irritation or burns to hand, arms, eyes and other body parts that result from skin contact with decontamination materials	1a. Avoid splashing decontamination material or purge water on clothing or skin. ➢ When cleaning equipment do not spray decontamination material into the wind or near face/eyes. ➢ Don safety glasses and nitrile sampling gloves

Note: *When using non-intrinsically safe pumps within 35 feet of a vapor source, within the critical zone as defined by client-specific protocols, or when there are noticeable gasoline vapor odors, the atmosphere must be tested with a combustible gas indicator so that it can be determined if the atmosphere contains less than 10% of the LEL.* ***Note:*** *Tie a rope or line to the pump that can be used to raise and lower pump from the well. Do not lower or raise the pump by pulling on the electrical feeds.*

Hazard Categories: Exposure, Caught (in, under, between, by), Strain/Overexertion, Contact, Falls, Energy Sources

Job Safety Analysis (JSA)

JSA Title: Gauging Liquid Levels in Groundwater Monitoring Wells

Date Developed: 2/28/2005	**Revised Date:** 4/20/2017
Initial Development Team: Brian Brittain, Sr. Environ Tech/ Courtney Reese, PM	
Latest Revision by: Mark Lancaster, RHSO	
Quality Review by: J. Pachy, LLHSO	

Revision #: 011

This JSA has been fully reviewed with all staff members and all activity job steps, hazards, work practices, and PPE are clearly understood and have been implemented. All necessary revisions have been written on this JSA.

REQUIRED PPE: ☐Air Purifying Respirator; ☐Ear Muffs; ☐Ear Plugs; ☐Face Shield; ☐Fire Retardant Clothing; ☑Gloves (Chemical Resistant, Cut Resistant, Leather, Nitrile, Other); ☐Goggles; ☐Hard Hat; ☑Safety Glasses; ☑Safety-toed Boots; ☐Shirt (Highly-Visible Short/Long Sleeve); ☐Tychem Suit; ☐Tyvek Suit; ☑Vest (Highly Visible Reflective Striped); ***Other:*** Enter other required PPE.

TASK-SPECIFIC TOOLS AND EQUIPMENT: Click here to enter tools and equipment.

Activity/Sequence of Job Tasks	Potential Hazards	Risk Control Measures
Please ensure that all necessary JSAs associated with your work scope have been identified and reviewed.		
A. Locate and Open Wells 1. Locate Wells	1a. Hand and arm fractures or contusions as a result of tripping and falling when walking or working on uneven surfaces 1b. Fractures/contusions to body due to contact with moving vehicles.	1a. Inspect the work area and look for uneven areas that may create a tripping hazard. ➢ Plan walking path through work area to avoid the uneven areas ➢ If the path of travel is obstructed (~~lighting, over growth, clutter~~ snow...) utilize a ~~walking stick~~ shovel and probe ahead, walk slowly and use caution. ➢ Don safety boots with skid / puncture resistant soles that comply with GES requirements. 1b. Utilize cones/barricades/safety fence to establish the work zone – Comply with GES Traffic Control program. ➢ Position work vehicle between work area and on-coming traffic. ➢ Do not permit access to work zone by non-essential personnel. ➢ Inform facility personnel of work (restricted) area. ➢ Use "spotter" to warn personnel of approaching vehicles in high traffic areas. ➢ Don high visible sleeved shirt or outerwear, such as high visible traffic vests or clothing. ➢ If working alongside an active roadway, where vehicular traffic is heavy, dawn/dusk hours, or if weather if overcast or rainy, high visible outwear with reflective stripping must be worn.
2. Inspect and Open Wells	2a. Skin punctures/bites from contact with insects/animals inside well lid 2b.Cuts or contusions to the hands, arms or other body parts due to contact with sharp edges of well, well lid or well box 2b. Back/body sprain/strain from lifting, moving or carrying equipment/materials to well (	2a. Visually inspect area around well lid for any signs of insects/animals ➢ Remove lid towards you to allow any insects/animals to escape away from you ➢ Keep hands/arms away from well lid 2b. Remove manhole covers so that they do not pinch fingers. ➢ Keep body parts (hands, fingers) out from between the lid and well opening. ➢ Use a crowbar/pry bar to remove the lid or cap ➢ Avoid kneeling or use kneeling pads when kneeling on hard and uneven surfaces. ➢ Don cut resistant gloves 2b. Determine whether the item must be lifted - can it be left in place or pushed/pulled into place? ➢ Ensure path is level and clear of debris/obstacles. ➢ When lifting, bend at the knees, not the waist, keep back and torso straight; don't twist. ➢ When carrying, keep load close to the body. ➢ Items over 50 lbs. or large/awkward items require team lift or mechanical assistance. Minimize distance over which items must be carried/pushed/pulled by placing equipment/material storage w/in 15' of work area

Hazard Categories: Exposure, Caught (in, under, between, by), Strain/Overexertion, Contact, Falls, Energy Sources

	2c. Shoulder/muscle sprain resulting from using a socket wrench to loosen and remove bolts from the lid **2d.** Abrasions/Cuts to hands from contact with ground surface while loosening bolts from the well lid	**2c.** Ensure your wrists are straight when using a wrench. or use impact ➢ Be sure that the opening of the socket is in full contact with the bolt before you apply pressure. ➢ Pull, don't push/over-reach. Use a slow, steady motion. If the bolt cannot be loosened with normal force, contact office to discuss options. ➢ Kneel on a solid surface with one foot planted firmly on the floor – do not lean into the work. ➢ Don leather gloves. ***Note:*** *Never use hand sockets with power or impact wrenches. Replace sockets showing cracks or wear.* **2d.** Use extension or a deep well socket on socket wrench to increase hand placement/distance to ground surface. impact ➢ Pull wrench to loosen bolts using a slow, steady motion ➢ Don Cut Resistant/Leather gloves
B. Conduct Liquid Gauging 1. Insert interface probe into well and record liquid level reading in site log book	**1a.** Respiratory irritation/inflammation, headache, nausea, dizziness, caused by exposure to hazardous atmosphere.	**1a.** Discuss and implement monitoring and action levels requirements stated in the HASP ➢ If organic vapors are present, replace the well cap and do not proceed until a PID is obtained to scan the atmosphere ensuring that concentrations are below 5 ppm. ➢ If respirator upgrade is required, contact PM, RHSSE/CHSSE before proceeding. ***Note:*** *Be aware that there may be elevated levels of gasoline or product vapors in the wells.*
C. Replace Well Plug and Cover	**1a.** Fractures or cuts to the fingers when securing well plug into well casing. **1b.** Fractures or cuts fingers when replacing well cover over well.	**1a.** Grasp well plug from the top bringing it straight down onto the well casing. ➢ Keep fingers away from the sides of the well plug and well casing while pushing down to secure it ➢ Ensure cut resistant gloves are donned **1b.** Slide lid over well opening, keeping fingers away from opening ➢ Use crowbar/pry bar to aide in placement of lid into annulus ➢ Keep fingers out from between the lid and annulus ➢ Ensure cut resistant gloves are donned
On-site edits:		

Hazard Categories: Exposure, Caught (in, under, between, by), Strain/Overexertion, Contact, Falls, Energy Sources

Job Safety Analysis (JSA)

JSA Title: Snow and Ice Removal by Hand

Date Developed: 12/6/2005	**Revised Date:** 4/12/2017
Initial Development Team: Phil Chang, Proj. Hydro / J. Pachy, RHSSE	
Latest Revision by: Kara Gioulis, RHSO	
Quality Review by: Kyle Slabik LHSO	

Revision #: 005

This JSA has been fully reviewed with all staff members and all activity job steps, hazards, work practices, and PPE are clearly understood and have been implemented. All necessary revisions have been written on this JSA.

REQUIRED PPE: ☐Air Purifying Respirator; ☐Ear Muffs; ☐Ear Plugs; ☐Face Shield; ☐Fire Retardant Clothing; ☒Gloves (Chemical Resistant, Cut Resistant, Leather, Nitrile, Other); ☐Goggles; ☒Hard Hat; ☒Safety Glasses; ☒Safety-toed Boots; ☐Shirt (Highly-Visible Short/Long Sleeve); ☐Tychem Suit; ☐Tyvek Suit; ☒Vest (Highly Visible Reflective Striped); ***Other:*** Outer clothing must be hi-visible, add winter gear / clothing

TASK-SPECIFIC TOOLS AND EQUIPMENT: Snow shovel, approved ice scrapping / chipping tool, rock salt, ice melt, sand, heavy winter clothing, ice cleats (Yak Tracks or Yaktrax)

Activity/Sequence of Job Tasks	Potential Hazards	Risk Control Measures
1. Preparing to remove snow and / or ice.	1a. Fractures /contusions to body due to contact with vehicles.	1a. Utilize cones/barricades/safety fence to establish the work zone ➢ Position work vehicle between work area and on-coming traffic. ➢ Use "spotter" to warn personnel of approaching vehicles in high traffic areas. ➢ Don high visible sleeved shirt or outerwear, such as high visible traffic vests or clothing. ➢ If working alongside an active roadway, where vehicular traffic is heavy, dawn/dusk hours, or if weather if overcast or rainy, high visible outwear with reflective stripping must be worn.
	1b. Hand, arm, leg, torso or head fractures or contusions as a result of slipping on snow/ice and falling	1b. Clear pathway of ice/snow by spread ice melt or rock salt over the affected area and allow sufficient time to soften/melt ice. ➢ Keep your feet shoulder-width apart to increase your stability. ➢ Be aware that depressions and obstructions can be hidden by snowfall. ➢ Walk cautiously because slippery conditions under foot can change rapidly. ➢ Don safety boots with skid / puncture resistant soles. ➢ Don ice cleats or crampons if working outside and ice conditions cannot be completely mitigated with sand or salt.
	1c. Cold stress (chilblains, or trench foot, Hypothermia, frostbite) from overexposure to cold	1c. When possible, schedule work during warmest parts of day (midday); avoid working in early am or evening. ➢ In extreme conditions (<10˚F) discuss postponing work. ➢ Establish work-rest regimens, w/ breaks in heated locations for rest and fluid intake. Limit caffeinated drinks. ➢ Guideline: for temps <20˚F, take 10 - 15 min break after 45 mins – 1 hour of work. ➢ Use relief workers when available. ➢ Dress in layers, and bring extra dry socks & base layers. ➢ Replace wet clothing as soon as possible to prevent cold stresses. ➢ Use additional PPE, like fleece hard hat liners, hand/toe warmers, and wicking base layers.
2. Shoveling Snow from Walking/Work Surfaces .	2a. Muscle strain, "Shoulders too high/too low"/back strain "Butts up, twist and shout" and overexertion while performing snow removal activities	2a. Remove snow from area with snow shovel – TAKE IT SLOW! ➢ Be sure to stretch and warm up before starting. ➢ Push the snow as you shovel. If you have to lift, follow the required lifting techniques (lift with your legs, not your back and turn whole body to avoid twisting during the lift). ➢ Do not lift shovel loads that are greater than 10 to 15 lbs. and keep shoulders at equal height. ➢ Do not work to the point of exhaustion. If you run out of breath, take a break. ➢ Discuss signs / symptoms of over-exertion, as shoveling snow is very strenuous. ➢ *If you feel tightness in your chest, call 911 immediately. It may be the onset of a cardiac emergency and immediate action is required.*
3. Ice Removal from Walking/Work Surfaces ***Note:*** *If removing of ice proves to be too difficult (based on thickness great then 1") call office and discuss best approach; continue activity, reschedule work...*	3a. Muscle strain, "Shoulders too high/too low"/back strain "Butts up" and overexertion while performing ice removal activities	3a. Clear pathway of ice by spreading ice melt or rock salt over the affected area and allow sufficient time to soften/melt ice. ➢ Be sure to stretch and warm up before starting. ➢ Use approved tool for the task, which could include a snow or other square point shovel or wooden-handled sidewalk scraper. ➢ When using tool, keep your feet shoulder-width apart to increase your stability. ➢ Keep upright stance and do not use excessive force to remove ice. ➢ Do not work to the point of exhaustion. If you run out of breath, take a break. ➢ Discuss signs / symptoms of over-exertion, as shoveling snow is very strenuous.

Hazard Categories: Exposure, Caught (in, under, between, by), Strain/Overexertion, Contact, Falls, Energy Sources

Note: *Shoveling (like lifting weights) can raise your heart rate and blood pressure dramatically; so pace yourself.*	**3b.** Contusions, muscle or joint sprain due to contact with solid surfaces or objects	➢ *If you feel tightness in your chest, call 911 immediately. It may be the onset of a cardiac emergency and immediate action is required.* **3b.** Perform a full scan of the area, identify any surface structures (sewer grates, manhole covers, well covers, utilities, parking lot parking ties...) as well as overhead hazards (overhangs, tree branches, utilities...) ➢ If objects are identified, utilize ice melt or rock salt to remove ice. ➢ Do not "thrust" tool towards ice, use slow, steady jabbing motion, jab tool from chest level or below, never jab tool from above shoulders / head as this may cause an injury to muscle, bones or joints if you jab through ice and contact hard surface. ***NOTE:*** *If removing ice from any surface besides the ground and a heat gun might be used, STOP work and contact office to discuss safest approach. Do not use a heat gun without approval from HSSE or senior office staff*
HSSE-approved ice removal tools **Note:** *If these tools are not the correct tools for the job, Stop work, contact office to discuss and revise JSA.*		
On-site edits:		

Hazard Categories: Exposure, Caught (in, under, between, by), Strain/Overexertion, Contact, Falls, Energy Sources

INSTRUMENT QC/ PACKING LIST

Description	YSI 556 sonde and display Barometer equipped: ☐ Yes ☒ No
Sonde ID#	—
Display ID#	12477
Date Calibrated	1-2-2018

PINE
www.pine-environmental.com

Standard Items	**Prepared**	**QC check**	**Received by customer**	**Returned to Pine**
YSI 556 sonde w/ 4 m cable and case	✓	✓		
YSI 556 Display	✓	✓		
Manual	✓	✓		
Quick reference card	✓	✓		
Probe Guard	✓	✓		
Calibration cup w/sponge	✓	✓		
Flow cell	✓	✓		
• Cell adapter for older style cell (if applicable)	✓	✓		
2 of each barb size (1/4, 3/8, 1/2)	✓	✓		
DO_2 probe reconditioning kit	✓	✓		
4 C batteries	✓	✓		
556 Communications cable	✓	✓		
YSI Ecowatch Software	✓	✓		
Calibration kit, pH (4,7,10), conductivity, and ORP	✓	✓		
ProCal Calibration Sheet	✓	✓		

Prepared by: MP
QC checked by: MC
Date: 1-2

This packing list is to ensure that every item needed to operate the unit was sent and received. Upon receiving a shipment, please fill out the "Received by customer" column. Call Pine within 24 hours of receiving the equipment if any pieces are missing, damaged, or malfunctioning. Thank you for choosing Pine Environmental Services LLC

INSTRUMENT QC/ PACKING LIST

Description	LaMotte 2020we
Instrument ID	38756
Date Calibrated	1-2-18

PINE
www.pine-environmental.com

Standard Items	**Prepared**	**QC check**	**Received by customer**	**Returned to Pine**
LaMotte 2020we w/ hard case	✓	✓		
Manual	✓	✓		
Lint-free lens papers (KimWipes)	✓	✓		
0 NTU vial	✓	✓		
1 NTU vial	✓	✓		
10 NTU vial	✓			
(2) sample vials	✓	✓		
Plastic water sample bottle with spout	✓	✓		
Charger and cord	✓	✓		
ProCal calibration report	✓	✓		
Optional Items				
Extra sample vials ___	NA	NA		

Prepared by: MP
QC checked by: mc
Date: 1-2

This packing list is to ensure that every item needed to operate the unit was sent and received. Upon receiving a shipment, please fill out the "Received by customer" column. Call Pine within 24 hours of receiving the equipment if any pieces are missing, damaged, or malfunctioning. Thank you for choosing Pine Environmental Services LLC.

INSTRUMENT QC/ PACKING LIST

Description	Peristaltic Pump
Instrument ID	33240
Type	☐ DC only ☒ AC and DC
Date Tested	1-2-18

PINE
www.pine-environmental.com

Standard Items	**Prepared**	**QC check**	**Received by customer**	**Returned to Pine**
Peristaltic pump and hard case	✓	✓		
Pump head	✓	✓		
12 V battery in cloth bag	✓	✓		
12V battery charger	✓	✓		
Power cable: pump to battery	✓	✓		
Power cable: pump to AC *(AC/DC unit only)*	✓	✓		
Alligator clips: car battery to power cable	✓	✓		
Extra fuse, 10A	✓	✓		
Optional Items				
2 1' section(s) of 3/16" x 3/8" silicone tubing	✓	✓		
1 Extra battery and charger	✓	✓		

Prepared by: MP
QC checked by: mc
Date: 1-2

This packing list is to ensure that every item needed to operate the unit was sent and received. Upon receiving a shipment, please fill out the "Received by customer" column. Call Pine within 24 hours of receiving the equipment if any pieces are missing, damaged, or malfunctioning. Thank you for choosing Pine Environmental Services LLC.

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC

1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID 12477
Description YSI 556
Calibrated 1/2/2018 9:43:17AM

Manufacturer YSI
Model Number 556
Serial Number/ Lot Number 09G100703
Location Rochester, NY
Department

State Certified
Status Pass
Temp °C 23
Humidity % 19

Calibration Specifications

Group # 1
Group Name PH
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
7.00 / 7.00	PH	7.00	PH	7.00	7.00	0.00%	Pass
4.00 / 4.00	PH	4.00	PH	4.00	4.00	0.00%	Pass
10.00 / 10.00	PH	10.00	PH	10.00	10.00	0.00%	Pass

Group # 2
Group Name Conductivity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.000

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
1.413 / 1.413	ms/cm	1.413	ms/cm	1.413	1.413	0.00%	Pass

Group # 3
Group Name Redox (ORP)
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.0

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
240.00 / 240.00	mv	240.0	mv	240.0	240.0	0.00%	Pass

Group # 4
Group Name Disolved Oxygen Span
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
100.0 / 100.0	%	100.00	%	100.00	100.00	0.00%	Pass

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID 12477
Description YSI 556
Calibrated 1/2/2018 9:43:17AM

Test Instruments Used During the Calibration

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	(As Of Cal Entry Date) Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
ROC - 1.413 COND - 7GH94	1.413 MS/CM CONDUCTIVITY STANDARD	Pine Environmental Services, Inc.	6GJ307	7GH94		8/31/2018
ROC - ORP 240	ORP 240 mV	Hanna	HI 7021	1600		5/1/2022
ROC - PH 10.00 - 6GB799	PH 10.00 BUFFER SOLUTION	Pine Environmental Services, Inc.	6GB799	6GB799		4/30/2018
ROC - PH 4.00 - 7GD788	PH 4.00 BUFFER SOLUTION	Pine Environmental Services, Inc.	7GD788	7GD788		4/30/2019
ROC - PH 7.00 - 6GI910	PH 7.00 BUFFER SOLUTION	Pine Environmental Services, Inc.	6GI910	6GI910		9/30/2018

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Michele Pagano

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID 38756
Description lamotte 2020 WE
Calibrated 1/2/2018 9:58:42AM

Manufacturer LaMotte
Model Number 2020we
Serial Number/ Lot Number 8678-5016
Location Rochester, NY
Department

State Certified
Status Pass
Temp °C 23
Humidity % 19

Calibration Specifications

Group # 1
Group Name Turbidity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	NTU	0.00	NTU	0.00	0.00	0.00%	Pass
1.00 / 1.00	NTU	1.00	NTU	1.00	1.00	0.00%	Pass
10.00 / 10.00	NTU	10.00	NTU	10.00	10.00	0.00%	Pass

Test Instruments Used During the Calibration

(As Of Cal Entry Date)

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
ROC - 0 NTU - C693065	0 NTU TURBIDITY SOLUTION	AMCOCLEAR	8483	C693065		12/31/2017
ROC - 1 NTU - C796765	1 NTU TURBIDITY SOLUTION	AMCOCLEAR	8577	C796765		7/31/2018

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Michele Pagano

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC

1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID 33240
Description Geo Pump
Calibrated 1/2/2018 10:08:23AM

Manufacturer Geotech
Model Number 23672
Serial Number/ Lot Number n/a
Location Rochester, NY
Department

State Certified
Status Pass
Temp °C 23
Humidity % 19

Calibration Specifications

Group # 1
Group Name Functional Test
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Next Cal Date / Last Cal Date/ Expiration Date Opened Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Michele Pagano

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

FIELD WORK DIRECTIVE

TASK : **Post-Injection GWS #2**

PSID: **729915**

client	New York State Dept. of Environmental Conservation
project name	NYSDEC/Jamestown/NY/WashingtonSt/2241
location	2241 Washington Street, Jamestown, NY
pm/cm/engineer	EPopken/JClay/
assigned employee	

bst/ph/tsk/altorg	0901689///1109
internal due	07.20.18
event type	GW Sampling, Low Flow
description	Post-Injection GWS #2
estimate LOE hrs	30

SUBMIT

submitter initials	field event date	# pages	Lab Samples collected? YES / NO	Waste Generated? YES / NO
	7/17-19			2 drums of water onsite

Field comments on work completion (alt-enter for line break): 9 sample points + 1 ms/msD + 1 Dup + 1 FB

SCAN

scanner initials	scanned date	# pages	comments (note pages added, rescan, etc.)
JKC	7/20	31	

TIMESHEET GUIDANCE (field personnel - use to prepare timesheet)

phase	task	activity	ht	RQD timesheet comments	field staff timesheet comments	plan hrs	act. hrs
05	213			Mob/Onsite times		10	9.5
05	213			Onsite times		8	8
05	213			Onsite/Demob times		10	8.5

EXPENSE GUIDANCE bst : **0901689**

phase	task	category	RQD expense comments	field staff expense comments	plan amt	act. amt
05	213		Ice for samples	Receipt (1) attached	3	1
05	213		GSA Per Diem ($51/day)		3	

S&R FORM (no other S&R form needed) bst : **0901689**

phase	task	act	unit code	description	dates equip used	equip alt org	plan qty	act. qty
05	213		EH002	E-002 Field Truck (/hour)	7/17/18	1109	10	9.5
05	213		ED058	E-058 Sonic IP (/hr onsite)	↓	1109	~~8~~ 1	1
05	213		LVE999	Low Value Equipment (/hr onsite)	↓	1109	~~1~~ 8	8
05	213		EH002	E-002 Field Truck (/hour)	7/18/18	1109	10	8
05	213		ED058	E-058 Sonic IP (/hr onsite)	↓	1109	~~8~~	1
05	213		LVE999	Low Value Equipment (/hr onsite)	↓	1109	~~1~~	8
05	213		EH002	E-002 Field Truck (/hour)	7/19/18	1109	10	8.5
05	213		ED058	E-058 Sonic IP (/hr onsite)	↓	1109	~~8~~	1
05	213		LVE999	Low Value Equipment (/hr onsite)	↓	1109	~~1~~	7

Plan Review 1 last:

Plan Review 2 last:

FIELD WORK DIRECTIVE

TASK : **Post-Injection GWS #2**

PSID: **729915**

Management of Change and Communication Plan:

Field personnel are **required** to notify the PM/CM . . . (check upon completion)

	Upon Arrival to the Site		Before departure from the site
	Changing site conditions / work scope		If a loss or near loss occurs

Contact Numbers and Additional Instructions *(if missing contact #, add to "Contact Tab")*:

	Name	Phone Extension	Cell Phone
PM	Eric D. Popken	4345	716-481-1964
CM	Jennifer Clay	4349	619-743-9953
Eng			
HSSE	Mark Lancaster	3846	
VP HSSE	Thomas Baylis	3350	610-587-1124

CONTACT NUMBERS & ADDITIONAL INSTRUCTIONS (Third Party, Property Owners, etc.):

HSSE REQUIREMENTS:

Please refer to the HSSE Tab for Site-specific information
Bring a copy of the generic Health & Safety Plan (HASP) onsite.
Print out recommended JSAs (see HSSE Tab) and make site-specific edits, as needed.

SCOPE OF WORK DETAILS:

-The scope of work is to perform post injection low flow gauging and sampling.

GAUGING

(Record DTP, DTW, and DTB on the Well Sampling Log) . Contact CM/PM if NAPL are detected.)

# of Wells	Well IDs	Comments
9	PMW-1, PMW-2, PMW-3, PMW-4, CBPZ101, CBPZ102, CBPZ107, CBPZ110, MW-5	

NAPL RECOVERY

(Document NAPL recovery on the NAPL G&R Log)

# of Wells	Well IDs	Comments
0		

FIELD WORK DIRECTIVE

TASK : **Post-Injection GWS #2**

PSID: **729915**

SAMPLING

(Document sampling activities on the Well Sampling or Low-Flow Sampling Logs. Complete site-specific chain-of-custody (COC))

# of Wells	Type of Sampling	Well IDs	Analysis	Comments
9	Low-Flow	PMW-1, PMW-2, PMW-3, PMW-4, CBPZ101, CBPZ102, CBPZ107, CBPZ110, MW-5	See CoC	Collect YSI/turbidity readings until stable

LABORATORY INFORMATION:

(Utilize site-specific COC. All laboratory information is included on the site-specific COC)

WASTE MANAGEMENT INFORMATION

*Field staff are **required to understand and comply** with GES' Hazardous and Non-Hazardous Waste Management Program (Policy #018). In general, each hazardous waste and non-hazardous waste storage drum should be stored in a location that is secure from traffic and/or other activities that could result in damage. Storage requirements or recommendations must be discussed with the PM.*

Check all that Apply *(insert comments under other)*

- ☐ Purge water to be filtered through carbon and discharge on-site to positive drainage
- ☑ Purge water to be stored in drum with overpack and appropriate label
- ☐ NAPL stored on-site in a labeled drum(s) with a vent, an overpack, and an electrical ground
- ☐ Measure water or NAPL levels in drum/ document drum conditions (see NAPL G&R Log)
- ☐ Other:

Special / Client-Specific Waste Management Requirements:

Site-Specific Health and Safety Plan Cover Page

NYSDEC/Jamestown/NY/WashingtonSt/2241 - 2241 Washington Street, Jamestown NY

HASP Generic Template

PSID: 729915

SITE BACKGROUND		LOCAL HOSPITAL INFORMATION	
NYSDEC/Jamestown/NY/WashingtonSt/2241		Do Not Transport Injured Personnel to Hospital - CALL 911	
2241 Washington Street, Jamestown, NY		Hospital Name	WCA Hospital
Chautauqua		Street Address	207 Foote Avenue
Nearest Intersection	See Site Map	City, State, Zip	Jamestown, New York 14701
		Phone Number	716-487-0141
SITE MAP	Additional Information	HOSPITAL ROUTE MAP	Directions to Hospital from Site
L:\Projects\ s\NYSDEC Contrac (double-click open/print)		L:\Projects\ s\NYSDEC Contrac (double-click open/print)	

EMERGENCY PHONE NUMBERS Local Police 911 Local Fire 911 Local 911

National Response Center (NRC):
1-800-424-8802
The NRC should be contacted in the event of a significant chemical release.
Once notified, the NRC will activate a federal response to the spill.
Please confirm with the client and project manager to determine if the spill should be reported.

Poison Control Center:
1-800-222-1222
The Poison Control Center should be contacted in the event of accidental poisoning.
They will provide information on immediate treatment for the poisoning.

PROJECT CONTACT INFORMATION

Role	Name	Phone	Cell Phone
Site Supervisor	GES Personnel	N/A	GES Personnel Cell Phone
Project Manager	Eric D. Popken	800-287-7857 x4349	716-481-1964
Vice President of Corporate Health and Safety	Thomas Baylis	800-426-9871 x3021	610-587-1124
Client Representative	George Momberger		

REQUIRED JOB LOSS ANALYSES (JLAs)

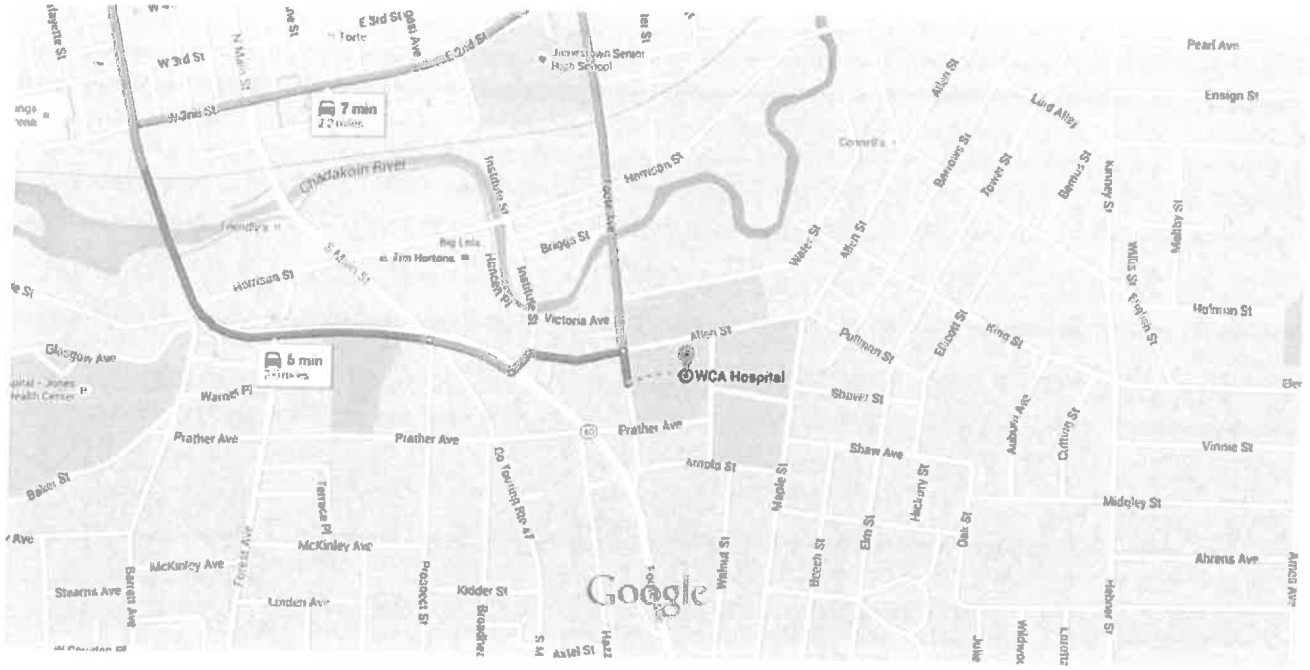
Link	JLA Name (use dropdown)	Site-Specific Edits (comment here or on JLA)
SharePoint	Groundwater Sampling - Powered Pumps JLA.docx	

ALL APPLICABLE SAFETY DATA SHEETS LOCATED IN HASP ATTACHMENT

NO PERMIT-REQUIRED WORK PLANNED

ALL APPLICABLE CHEMICAL HAZARDS LOCATED IN HASP ATTACHMENT

Google **2241 Washington St, Jamestown, NY 14701 to WCA Hospital** Drive 2.0 miles, 6 min



2241 Washington St
Jamestown, NY 14701

1. Head **south** on **Washington St** toward **W 23rd St**

1.7 mi

2. Continue onto **Foote Ave**

0.1 mi

3. Turn **left** onto **Institute St**

141 ft

4. Turn **right** onto **Allen St**

0.1 mi

5. Turn **right** onto **Foote Ave**

   Destination will be on the left

187 ft

WCA Hospital
207 Foote Avenue, Jamestown, NY 14702

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the

Job Safety Analysis (JLA)

JLA Title: Groundwater Sampling – Powered Pumps

Date Developed: 2/8/2005	**Revised Date:** 2/19/2018
Initial Development Team: Scott Martin, Project Env Sci/ Valerie Wood, Project Env. Scientist	
Latest Revision by: K. Gioulis, RHSO; Basith Mohammed, RHSSEM	
Quality Review by: Tom Baylis, VP HSSE	

Revision #: 008

This JSA has been fully reviewed with all staff members and all activity job steps, hazards, work practices, and PPE are clearly understood and have been implemented. All necessary revisions have been written on this JSA.

REQUIRED PPE: ☐Air Purifying Respirator; ☐Ear Muffs; ☐Ear Plugs; ☐Face Shield; ☐Fire Retardant Clothing; ☐Gloves (Chemical Resistant, Cut Resistant, Leather, Nitrile, Other); ☐Goggles; ☐Hard Hat; ☐Safety Glasses; ☐Safety-toed Boots; ☐Shirt (Highly-Visible Short/Long Sleeve); ☐Tychem Suit; ☐Tyvek Suit; ☐Vest (Highly Visible Reflective Striped); ***Other:*** Enter other required PPE.

TASK-SPECIFIC TOOLS AND EQUIPMENT: LEL (to be used if within 35 feet of an ignition source); PID (if organic vapors are probable), Peristaltic/Monsoon/Whale pump

Activity/Sequence of Job Tasks	Potential Hazards	Risk Control Measures
A. Locate and Open Onsite Well 1. Set up Traffic Control and Inspect and Open/Close wells	**1a.** Hand and arm fractures or contusions as a result of tripping and falling when walking or working on uneven surfaces **1b.** Fractures /contusions due to contact with moving vehicles. **1c.** Cuts or contusions to the hands, fingers, arms or other body parts due to contact with sharp edges of well, well lid or well box **1d.** Back/body sprain/strain from lifting, moving or carrying equipment /materials **1e.** Shoulder/body sprain/ from using a socket wrench to loosen and remove bolts from the lid **1f.** Cuts, contusions to knees or legs when kneeling on hard surfaces when opening well.	**1a.** Inspect the work area and look for uneven areas that may create a tripping hazard. Plan walking path through work area to avoid the uneven areas ➢ If the path of travel is obstructed (lighting, over growth, clutter...) utilize a walking stick and probe ahead, walk slowly and use caution. ➢ Don safety boots with skid / puncture resistant soles that comply with GES requirements. **1b.** Utilize cones/barricades/safety fence to establish the work zone – Comply with GES Traffic Control program. ➢ Position work vehicle between work area and on-coming traffic. ➢ Inform facility personnel of work (restricted) area. ➢ Use "spotter" to warn personnel of approaching vehicles in high traffic areas. ➢ Don high visible sleeved shirt or outerwear, such as high visible traffic vests or clothing. ➢ If working alongside an active roadway, where vehicular traffic is heavy, dawn/dusk hours, or if weather if overcast or rainy, high visible outwear with reflective stripping must be worn. **1c.** Remove well / manhole covers so that they do not pinch fingers. ➢ Keep body parts (hands, fingers) out from between the lid and well opening. ➢ Use a crowbar or a pry bar to remove the lid or cap. ➢ Don leather gloves **1d.** Determine whether the item must be lifted - can it be left in place or pushed/pulled into place? ➢ Ensure path is level and clear of debris/obstacles. ➢ When lifting, bend at the knees; not the waist, keep back and torso straight; don't twist. ➢ When carrying, keep load close to the body. ➢ Items over 50 lbs. or large/awkward items require team lift or mechanical assistance. ➢ Minimize distance over which items must be carried/pushed/pulled by placing equipment/material storage w/in 15' of work area **1e.** Ensure your wrists are straight when using a wrench. ➢ Be sure that the opening of the socket is in full contact with the bolt before you apply pressure. ➢ Pull, don't push. Use a slow, steady motion. If the bolt cannot be loosened with normal force, contact office to discuss options. ➢ Kneel with knee protection on a solid surface with one foot planted firmly on the floor and don't lean into the work. **1f.** Inspect and eliminate any debris found on the ground prior to kneeling. ➢ If possible, avoid kneeling on ground or hard surface; instead crouch down bending at the knees. ➢ Use kneeling pads when kneeling on hard surfaces.
B. Conduct Liquid Gauging 1. Insert interface probe into well and record liquid level reading in site log book	**1a.** Respiratory or skin irritation/inflammation, headache, nausea, dizziness, caused by exposure to site contaminants / organic vapors	**1a.** Do not splash purged water on clothing or skin. ➢ Discuss and implement monitoring and action levels requirements stated in the HASP ➢ If organic vapors are present, replace the well cap and do not proceed until a PID is obtained to scan the atmosphere ensuring that concentrations are below 5 ppm. ➢ If respirator upgrade is required, contact CHSSE, Site Operations/Project Management before proceeding. ➢ Don nitrile sampling gloves

Hazard Categories: Exposure, Caught (in, under, between, by), Strain/Overexertion, Contact, Falls, Energy Sources

C. Purge Monitoring Well 1. Set up of equipment; insert pump into monitoring well and purge water into approved container at surface	1a. Respiratory irritation/inflammation, headache, nausea, dizziness, caused by exposure to hazardous atmosphere 1b. Irritation or burns to hand, arms and other body parts that result from skin contact with battery (power purge pump) 1c. Cuts or contusions to the hands, arms or other body parts due to contact with sharp edges of cutting tools, pieces of equipment, 1d. Back/body sprain / strain while lifting/lowering pump into well. 1e. Electrocution/ burns to hands/ skin resulting from contact with release of stored electrical energy. (battery / wiring) 1f. Burns to hands/ arms or body due to fire that can result from the ignition of flammable vapors in the well.	1a. Comply with action levels stated in the Site Specific HASP. Read and Comply with all requirements stated in the SDS ➢ Do not splash purged water on clothing or skin. 1b. Prior to lifting and carrying battery from vehicle to sample location, inspect the battery to ensure that there is no visible sign of leaking acid. ➢ It is recommended that the battery is placed and carried to location in a carrying container that would prevent acid from contacting sampling personnel and equipment. 1c. Ensure the cutting instrument(s) used are the approved tool for cutting polyethylene tubing and are equipped with "self-retracting" blades that CANNOT be overridden by the user (i.e. held out or locked open) or blades that are guarded and do not allow the blade to come in contact with the user. ➢ NOTE: The use of utility and / or personal knives (i.e., Stanley knives, box cutters, pocket knives) is STRICTLY PROHIBITED. ➢ Keeping all body parts out of the cutting path (line of fire of the cutting tool). ➢ Inspect the cutting equipment prior to start of cut. ➢ Cut away from your body and keep hands out of the path of cutting tools. ➢ Don Kevlar Level II Cut Resistant Gloves. 1d. Take frequent breaks as needed to prevent fatigue to shoulder and arm muscles caused by pulling pump. ➢ Ensure path is level and clear of debris/obstacles. ➢ When lifting, bend at the knees; not the waist, keep back and torso straight; don't twist. ➢ Items over 50 lbs. or large/awkward items require team lift or mechanical assistance. 1e. If using an energy source to power and electric pump, refer to the owner's manual for setup procedures. ➢ When using a battery (external or vehicle battery), make sure that the polarity is correct (i.e., positive to positive contact, etc.). ➢ Inspect the portable and or vehicle battery cables and leads - If the connection is loose, repair or replace the cord. ➢ Don gloves that are electrically rated for task. ➢ Don safety boots with electrical safety rating that comply with GES requirements. 1f. Eliminate/control ignition sources (i.e. no smoking, no hot work in unapproved/untested areas) ➢ Relocate/protect combustible materials that are within 35' of work area. ➢ Monitor work zone with CGI/LEL meter to ensure LEL is below 10% if PID readings indicate that there is a potential for a flammable atmosphere. ➢ Complete consultant or client Hot Work Permit for qualifying activities. ➢ Implement all Hot Work protocols including Fire Watch, monitoring area for 30 minutes, having two 20lb fire extinguishers located in immediate area if necessary. ***Note:*** *if purge water is added to 55 gallon drum ensure drum is inspected and secured.* ***Note:*** *Ensure all site drains (storm drains, catch basins...) are covered to prevent accidental spills.*
D. Conduct Groundwater Sampling 1. Insert pump into monitoring well to collect water for sampling	1a. Skin irritation or other health effects from exposure to site contaminants	1a. Do not splash purged water on clothing or skin or release to grade. Take frequent breaks as needed to prevent fatigue to shoulder and arm muscles caused by bailing water. ➢ Be aware of the signs and symptoms of repetitive stress injuries and report all symptoms immediately. ➢ If sample collection activity causes splashing, slow the sample collection process to prevent the loss of water. ➢ Don nitrile gloves and safety glasses.
2. Collect groundwater in sampling container	2a. Irritation or burns to eyes, hand, arms and other body parts that result from skin contact with site contaminants and preservatives 2b. Cuts or contusions to the hands, arms or other body parts due to contact with sharp edges of glassware	2a. Do not splash purged water on clothing or skin. ➢ Sample preservative may have leaked from a container or multiple containers; sample preservatives consist of various types of acids that include HCL, HNO3, and H2SO4 – hand and skin protection is necessary ➢ Where handling preservatives, review MSDS/SDS and understand signs/symptoms of exposure and first aid measures. ➢ Don safety glasses and nitrile sampling gloves. 2b. Ensure glassware is free of sharp edges and is not broken prior to filling sample. ➢ If glassware is broken, discard. ➢ Ensure threads of vial do not contain small pieces of silt or sand. ➢ When securing cap on vial, do not over tighten or vial could break. ➢ Don Kevlar Level II Cut Resistant Gloves.
E. Decontamination 1. Soak/spray durable equipment to prevent cross-contamination between multiple well locations	1a. Irritation or burns to hand, arms, eyes and other body parts that result from skin contact with decontamination materials	1a. Avoid splashing decontamination material or purge water on clothing or skin. ➢ When cleaning equipment do not spray decontamination material into the wind or near face/eyes. ➢ Don safety glasses and nitrile sampling gloves

Note: *When using non-intrinsically safe pumps within 35 feet of a vapor source, within the critical zone as defined by client-specific protocols, or when there are noticeable gasoline vapor odors, the atmosphere must be tested with a combustible gas indicator so that it can be determined if the atmosphere contains less than 10% of the LEL.* ***Note:*** *Tie a rope or line to the pump that can be used to raise and lower pump from the well. Do not lower or raise the pump by pulling on the electrical feeds.*

Hazard Categories: Exposure, Caught (in, under, between, by), Strain/Overexertion, Contact, Falls, Energy Sources

Site-Specific Health and Safety Plan Field Forms

NYSDEC/Jamestown/NY/WashingtonSt/2241 - 2241 Washington Street, Jamestown NY

HASP Generic Template

PSID: 729915

PRE-ENTRY MEETING NOTES/ATTENDANCE (Include date, length of meeting, names of personnel in attendance, topics of discussion, comments and concerns, etc.)

CERTIFICATIONS FOR:

Name	Expires	Name	Expires

SITE SAFETY AND HEALTH PLAN COMPLIANCE AGREEMENT

All project personnel, including visitors, must follow the requirements of this Site Safety Plan. In order to document individual agreement with this requirement, all personnel must complete this "Site Safety and Health Plan Compliance Agreement."

These agreements will be kept in this Site Safety Plan and will become part of the permanent project record upon completion of site activities.

By signing below, I have read the Site Health and Safety Plan (HASP), or I have been verbally advised of its contents. I understand, and I agree to comply with all of its provisions. I understand that I could be prohibited from working on the project, and I may be subject to disciplinary actions for violating any of the health and safety requirements specified in the HASP.

Name	Signature	Date	IN (time)	OUT (time)	LPS Card (date)	OSHA Card (date)
J. Clay	J. Clay	7/17/18	730		✓	✓
J. Clay	J. Clay	7/18/18	900		✓	✓
J. Clay	J. Clay	7/19/18	800		✓	✓

Site-Specific Health and Safety Plan Field Forms

NYSDEC/Jamestown/NY/WashingtonSt/2241 - 2241 Washington Street, Jamestown NY

HASP Generic Template

PSID: 729915

GES DAILY SITE SAFETY CHECKLIST					
Date of field work:	7/17/18	7/18/18	7/19/18		
1. Proper training certificates have been obtained from all onsite personnel.	✓	✓	✓		
2. The site-specific HASP has been reviewed and signed by GES employees and GES-hired subcontractors.	✓	✓	✓		
3. The daily site-safety meeting has been conducted.	✓	✓	✓		
4. Applicable JSAs are onsite, reviewed by staff to ensure all tasks/jobs are covered, and site specific JSA modifications occur when needed.	✓	✓			
5. Fire extinguishers are available for use and are fully charged.	✓	✓	✓		
6. A fully-stocked first aid kit & eye wash bottle is readily available.	✓	✓	✓		
7. Any potential tripping hazards have been removed from site.	✓	✓	✓		
8. All vessels containing flammable or corrosive material are properly labeled.	✓	✓	✓		
9. Proper personal protective equipment is being used for present conditions.	✓	✓	✓		
10. Equipment onsite is checked and in safe working order.	✓	✓	✓		
11. Safety cones and flags or barricades have been utilized to mark out work area along with all required signage (No Smoking, No Trespassing, Work Area...).	✓	✓	✓		
12. No person onsite has the appearance of being under the influence of motor skill altering substances.	✓	✓	✓		
13. All workers onsite are clothed in an appropriate manner (highly visible clothing, no tank tops, muscle shirts or shorts).	✓	✓	✓		
14. Electrical power-operated tools shall be properly grounded and used with a Ground-Fault Circuit Interrupter (GFCI).	NA	NA	NA		
15. All required permits (GES and/or client) are completed by an authorized individual.	NA	NA	NA		
16. When working alone, has a phone call been placed to the PM to discuss site conditions, review the Scope of Work, LPS requirements, and coordinate communications for the day? Note: The frequency/ amount of additional calls from the field should be established during the PM's discussion with the individual. A call must always occur prior to leaving the site. **(FILL IN OFFICE COMMUNICATION TIME)**	TIME: NA	TIME: 900 1100 1300 1400 1500	TIME: 800 1000 1200 1400	TIME:	TIME:
17. Prior to leaving the site for the day, the GES site supervisor has conducted a meeting with onsite staff to review worker conditions (possible injuries), JSA revisions, discuss possible Near Losses/ Losses, and activities scheduled for the next day.	✓	✓	✓		
18. All health and safety concerns have been communicated to the Local Health and Safety Officer and Project Manager	✓	✓	✓		
I verify and initial that the above information is correct by initialing in the boxes to the right:	[illegible]	[illegible]	[illegible]		

Groundwater & Environmental Services, Inc.
415 Lawrence Bell Drive, Suite 6
Williamsville, NY 14221

10/7/16

Contract #: C100607
Invoice #:

Spill/Site#: 907028
PIN:

GES Project #: 0901689
Work Period:
Spill/Site Name: Former C&B Dry Cleaners, 2241 Washington Street, Jamestown, New York
Description of Work Performed: Post-Inj GWS #2

Work Date: 7/17/18
Overtime approved by: _____, DEC PM

Labor and LVE:

Contract Item # Job Title	Employee Name	Start Time	Arrive Site Time	Depart Site Time	End Time	Break/ Off Time	Total Straight Time	Total Over time	Total Double Time	LVE
	Jennifer Clay	600			1600	0.5	9.5			
LVE - Low Value Equipment	Jennifer Clay		730	1600		0.5				8

Equipment:

Contract Item # Description	Contractor Equip #	Start Time	End Time	Break/ Off Time	Total Equipment Hours/Days
E-002 Truck - 1/2 Ton Pickup 4WD	21040 ML	600	1600	0.5	9.5
E-058 Sonic Interface Probe - oil/water level meter	32687	730	1600	0.5	8

Materials/Receipted Costs:

Vendor Name/Item Description	# of Units	Unit Cost	Total Cost

Subcontractors:

Subcontractor Name and Description	# of Units	Unit Cost	Total Cost

Travel/Per Diem/Non-Contract Items:

Hotel & Staff Name(s) or Vendor Name and Description	# of Units	Unit Cost	Total Cost

Groundwater & Environmental Services, Inc.
415 Lawrence Bell Drive, Suite 6
Williamsville, NY 14221

10/7/16

Contract #: C100607
Invoice #:

Spill/Site#: 907028
PIN:

GES Project #: 0901689
Work Period:
Spill/Site Name: Former C&B Dry Cleaners, 2241 Washington Street, Jamestown, New York
Description of Work Performed: Post-Inj GWS #2

Work Date: 7/18/18
Overtime approved by: _____, DEC PM

Labor and LVE:

Contract Item # Job Title	Employee Name	Start Time	Arrive Site Time	Depart Site Time	End Time	Break/ Off Time	Total Straight Time	Total Over time	Total Double Time	LVE
	Jennifer Clay	900			1730	0.5	8			
LVE - Low Value Equipment	Jennifer Clay		900	1730		0.5				8

Equipment:

Contract Item # Description	Contractor Equip #	Start Time	End Time	Break/ Off Time	Total Equipment Hours/Days
E-002 Truck - 1/2 Ton Pickup 4WD	21040 ML	900	1730	0.5	9
E-058 Sonic Interface Probe - oil/water level meter	32687	900	1730	0.5	9

Materials/Receipted Costs:

Vendor Name/Item Description	# of Units	Unit Cost	Total Cost

Subcontractors:

Subcontractor Name and Description	# of Units	Unit Cost	Total Cost

Travel/Per Diem/Non-Contract Items:

Hotel & Staff Name(s) or Vendor Name and Description	# of Units	Unit Cost	Total Cost

Groundwater & Environmental Services, Inc.
415 Lawrence Bell Drive, Suite 6
Williamsville, NY 14221

10/7/16

Contract #: C100607
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GES Project #: 0901689
Spill/Site Name: Former C&B Dry Cleaners, 2241 Washington Street, Jamestown, New York

Work Period:

Description of Work Performed: Post-Inj GWS #2

Work Date: 7/17/18

Overtime approved by: _____, DEC PM

Labor and LVE:

Contract Item # Job Title	Employee Name	Start Time	Arrive Site Time	Depart Site Time	End Time	Break/ Off Time	Total Straight Time	Total Over time	Total Double Time	LVE
	Jennifer Clay	800			1700	0.5	8.5			
LVE - Low Value Equipment	Jennifer Clay		800	1530		0.5				7

Equipment:

Contract Item # Description	Contractor Equip #	Start Time	End Time	Break/ Off Time	Total Equipment Hours/Days
E-002 Truck - 1/2 Ton Pickup 4WD	21040 ML	800	1700	0.5	8.5
E-058 Sonic Interface Probe - oil/water level meter	32687	800	1530	0.5	1

Materials/Receipted Costs:

Vendor Name/Item Description	# of Units	Unit Cost	Total Cost

Subcontractors:

Subcontractor Name and Description	# of Units	Unit Cost	Total Cost

Travel/Per Diem/Non-Contract Items:

Hotel & Staff Name(s) or Vendor Name and Description	# of Units	Unit Cost	Total Cost



NOTES:

1. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
2. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

ISSUE	DATE	DESCRIPTION	PROJECT MANAGER	
			PROJECT NUMBER	

DRAFT

PRE-DESIGN INVESTIGATION REPORT
FORMER C&B DRY CLEANERS
CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

PRE-DESIGN INVESTIGATION SAMPLE LOCATIONS

0 20 40

FILENAME	7/2015
SCALE	1"= 20'

FIGURE 2

LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **729915**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	7/19/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	J. Clay
Project #/Phase/Task/Org:	0901689///1109	Sampling Method:	Low-Flow

Well ID: **CBPZ-102**
Well Diameter: **1-inch**
Initial Depth to Water (ft): 8.31
Depth to Bottom (ft): **17.90**

Pump Type/Model: **Peristaltic Pump/** 033240
Water Quality Meter Model/SN: **YSI ProSeries/** 04175T **LaMotte Turb Meter/** 19298
Date Meter Calibrated: **See Attachments**

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (ml/min)	Cumulative Volume Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1200	8.38				13.3	2327	7.16	-20.7	0.27	190 NFU	Orange, clear
1210	8.39				13.8	2361	7.02	-7.4	0.34	198	"
1220	8.38				13.9	2356	7.05	-65.7	0.31	3.96	clear
1225	8.39				13.9	2359	7.06	-73.0	0.28	x ~~2.38~~ 1.90	"
1230	8.39				13.9	2362	7.07	-75.5	0.26	1.91	"
1235	8.39				13.9	2364	7.08	-76.5	0.20 x	1.85	"
1240	8.39				13.9	2367	7.08	-77.1	0.18	13.4	"
1245	8.41				13.9	2367	7.07	-81.3	0.16	106	orange, clear
1250	8.41				14.5	2377	7.09	-100.5 x	0.20 x	21.1	clear
1255	8.41				14.5	2377	7.10	-102.8	0.18	14.9 x	"
1300	8.41				14.5	2377	7.11	-103.4	0.20	27.0 x	"
1302	8.42				14.5	2378	7.11	-103.3	0.19	16.7 x	"
1304	8.42				14.5	2379	7.11	-104.1	0.20	29.4 x	"
1306	8.42				14.5	2378	7.10	-103.5	0.20	7.70 x	"
1308	8.42				14.5	2378	7.10	-103.2	0.20	7.10	"
1310	8.42				14.5	2377	7.10	-104.6	0.18	3.10 x	"

Stabilization Target Ranges: **Target Range Achieved? (Y/N)**

Temp: +/- 3% Y
Specific Conductivity: +/- 3%
pH: +/- 0.1 units
ORP/EH: +/- 10 mv
DO: +/- 10%
Turbidity: +/- 10% for >1 NTU

Comments: ~7 gal

Sample Time: 1345

Page 1 OF 2

LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling**

PSID: 729915

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	7/19/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	J.Clay
Project #/Phase/Task/Org:	0901689///1109	Sampling Method:	Low-Flow

Well ID: CBPZ-107
Well Diameter: 1-Inch
Initial Depth to Water (ft): 8.31
Depth to Bottom (ft): 17.90

Pump Type/Model: Peri Pump 0333240
Water Quality Meter Model/SN: YSI Pro+ 041759 / LaMotte 19298
Date Meter Calibrated:

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (ml/min)	Cumulative Volume Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm or ~~umhos/cm~~)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1312	8.42				14.6	2378	7.10	-104.6	0.18	2.06 x	clear
1314	8.42				14.5	2378	7.11	-103.7	0.19	12.1 x	"
1316	8.42				14.6	2378	7.11	-104.7	0.19	4.34 x	"
1318	8.42				14.6	2377	7.11	-104.8	0.18	2.58 x	"
1320	8.42				14.5	2377	7.11	-104.8	0.18	2.34	"
1322	8.42				14.5	2377	7.11	-104.7	0.20	2.25	"

Stabilization Target Ranges:
Temp: +/- 3%
Specific Conductivity: +/- 3%
pH: +/- 0.1 units
ORP/EH: +/- 10 mv
DO: +/- 10%
Turbidity: +/- 10% for >1 NTU

Target Range Achieved? (Y/N)
Y
↓

Comments: 1345
1 x 3 gal

LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **729915**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	7/19/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	J. Clay
Project #/Phase/Task/Org:	0901689///1109	Sampling Method:	Low-Flow

Well ID: **PMW-4**
Well Diameter: **2-inch**
Initial Depth to Water (ft): 7.33
Depth to Bottom (ft): **15.52**

Pump Type/Model: **Peristaltic Pump/** 0332410
Water Quality Meter Model/SN: **YSI ProSeries/** 041759 **LaMotte Turb Meter/** 19298
Date Meter Calibrated: **See Attachments**

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (ml/min)	Cumulative Volume Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1015	7.57				14.8	2726	7.62	-42.8	1.02	4.61	clear
1025	7.63				15.1	2703	7.39	-120.0	0.18	3.67	"
1035	7.65				15.3	2706	7.40	-147.5	0.12	0.79	"
1040	7.66				14.9	2710	7.40	-151.9	0.12	0.87	"
1045	7.66				15.0	2705	7.40	-154.2	0.11	0.59	"

Stabilization Target Ranges: **Target Range Achieved? (Y/N)**

Temp: +/- 3% Y
Specific Conductivity: +/- 3% Y
pH: +/- 0.1 units Y
ORP/EH: +/- 10 mv Y
DO: +/- 10% Y
Turbidity: +/- 10% for >1 NTU Y

Comments: ~3 gal

Sample Time: 1100

Page 1 OF 1

LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **729915**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	7/19/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	J. Clay ~~7/19/18~~
Project #/Phase/Task/Org:	0901689///1109	Sampling Method:	Low-Flow

Well ID: **CBPZ-101**
Well Diameter: **1-inch**
Initial Depth to Water (ft): 6.42
Depth to Bottom (ft): **15.92**

Pump Type/Model: **Peristaltic Pump/** 033240
Water Quality Meter Model/SN: **YSI ProSeries/** 041759 **LaMotte Turb Meter/** 19298
Date Meter Calibrated: **See Attachments**

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (ml/min)	Cumulative Volume Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
840	6.80				13.0	2332	7.99	195.5	0.84	Overrange	drk brown, turbid
850	6.75				15.4	2256	7.56	153.7	0.24	9.74	clear
900	6.76				15.4	2239	7.52	149.0	0.18	11.71	"
905	6.77				15.5	2237	7.51	146.0	0.17	9.28 x	"
910	6.77				15.8	2228	7.51	143.7	0.14	5.96 x	"
915	6.77				15.9	2227	7.50	141.8	0.13	3.40 x	"
920	6.77				16.1	2228	7.50	139.0	0.13	2.84 x	"
925	6.78				16.1	2228	7.49	136.8	0.12	2.88	"
930	6.78				16.2	2229	7.49	135.3	0.12	2.13 x	"
935	6.78				16.2	2231	7.49	133.7	0.12	2.77 x	"
940	6.78				16.3	2230	7.49	132.6	0.11	1.66 x	"
942	6.79				16.3	2232	7.49	132.1	0.10	1.61	"
944	6.79				16.3	2230	7.49	131.4	0.10	3.62 x	"
946	6.79				16.3	2232	7.48	131.0	0.12	2.54 x	"
948	6.79				16.3	2233	7.48	130.7	0.10	2.49	"
950	6.79				16.3	2238	7.48	130.3	0.11	2.49	"

Stabilization Target Ranges:	Target Range Achieved? (Y/N)
Temp: +/- 3%	Y
Specific Conductivity: +/- 3%	"
pH: +/- 0.1 units	"
ORP/EH: +/- 10 mv	"
DO: +/- 10%	"
Turbidity: +/- 10% for >1 NTU	"

Comments: ~5 gal

Sample Time: 1005

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LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **729915**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	7/18/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	J.Clay
Project #/Phase/Task/Org:	0901689///1109	Sampling Method:	Low-Flow

Well ID: **CBPZ-110**
Well Diameter: **1-inch**
Initial Depth to Water (ft): 5.65
Depth to Bottom (ft): **15.76**

Pump Type/Model: **Peristaltic Pump/** 0332410
Water Quality Meter Model/SN: **YSI ProSeries/** 04175C **LaMotte Turb Meter/** 19298
Date Meter Calibrated: **See Attachments**

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (ml/min)	Cumulative Volume Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1415	6.24				15.7	1943	7.65	107.1	0.48	17.8	clear
1425	6.07				15.6	2500	7.18	27.3	0.17	2.42	"
1430	6.10				15.7	2651	7.15	30.3	0.14	0.82	"
1440	6.07				15.6	2675	7.15	35.0	0.12	0.66	"
1445	6.07				15.7	2693	7.15	37.8	0.12	0.78	"

Stabilization Target Ranges:	Target Range Achieved? (Y/N)
Temp: +/- 3%	Y
Specific Conductivity: +/- 3%	
pH: +/- 0.1 units	
ORP/EH: +/- 10 mv	
DO: +/- 10%	
Turbidity: +/- 10% for >1 NTU	Y

Comments: ~2 gal

Sample Time: 1500

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LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **729915**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	7-18-18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	J. Clay
Project #/Phase/Task/Org:	0901689///1109	Sampling Method:	Low-Flow

Well ID: **PMW-1**
Well Diameter: **2-inch**
Initial Depth to Water (ft): 5.51
Depth to Bottom (ft): **14.75**

Pump Type/Model: **Peristaltic Pump/** 033240
Water Quality Meter Model/SN: **YSI ProSeries/** 04/759 **LaMotte Turb Meter/** 19298
Date Meter Calibrated: **See Attachments**

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (ml/min)	Cumulative Volume Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1155	5.52				17.8	1075	7.45	237.0	1.02	1236 AU	brown, turbid
1205	5.52				17.8	1060	7.03	228.4	0.25	14.3	clear
1215	5.52				17.9	1061	7.06	219.8	0.24	3.63	"
1220	5.52				18.0	1060	7.06	216.6	0.28	14.1 x	"
1225	5.52				18.3	1058	7.07	212.9	0.29	2.45 x	"
1230	5.52				18.4	1059	7.08	210.0	0.30	2.49	"
1235	5.52				18.4	1059	7.08	205.4	0.28	1.97 x	"
1240	5.52				18.4	1060	7.09	201.7	0.29	1.93	"
1245	5.52				18.6	1059	7.10	192.5	0.28	1.35 x	"
1250	5.52				18.6	1059	7.10	187.8	0.29	11.3 x	"
1255	5.52				18.8	1059	7.10	183.5	0.29	1.47 x	"
1300	5.52				18.6	1058	7.09	182.7	0.29	1.16 x	"
1302	5.52				18.4	1058	7.09	182.8	0.31	1.14	"
1306	5.52				18.5	1058	7.09	183.1	0.31	1.13	"

Stabilization Target Ranges: **Target Range Achieved? (Y/N)**
Temp: +/- 3%
Specific Conductivity: +/- 3%
pH: +/- 0.1 units
ORP/EH: +/- 10 mv
DO: +/- 10%
Turbidity: +/- 10% for >1 NTU

Comments: Collect MS/MSD ~4 gal

Sample Time: 1320

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LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **729915**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	7/18/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	J.Clay
Project #/Phase/Task/Org:	0901689///1109	Sampling Method:	Low-Flow

Well ID: **PMW-3**
Well Diameter: **2-inch**
Initial Depth to Water (ft): 4.23
Depth to Bottom (ft): **12.42**

Pump Type/Model: **Peristaltic Pump/** 033240
Water Quality Meter Model/SN: **YSI ProSeries/** 04I759 **LaMotte Turb Meter/** 19298
Date Meter Calibrated: **See Attachments**

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (ml/min)	Cumulative Volume Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1015	~~6.~~ 4.25				14.6	2242	7.42	203.1	0.18	3.09	clear
1025	4.24				14.4	2228	7.29	200.1	0.11	1.36	"
1030	4.25				14.4	2222	7.29	197.6	0.10	2.03 x	"
1035	4.25				14.5	2216	7.28	196.4	0.10	1.83	"
1040	4.25				14.5	2214	7.29	195.6	0.09	0.91 x	"
1045	4.25				14.3	2212	7.28	195.7	0.09	0.80	"
1050	4.25				14.3	2210	7.28	195.6	0.08	0.60	"

Stabilization Target Ranges: **Target Range Achieved? (Y/N)**

Temp: +/- 3% Y
Specific Conductivity: +/- 3% Y
pH: +/- 0.1 units Y
ORP/EH: +/- 10 mv Y
DO: +/- 10% Y
Turbidity: +/- 10% for >1 NTU Y

Comments: ~2 gal

Sample Time: 1105

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LOW FLOW SAMPLING LOG

TASK : Groundwater Monitoring & Sampling

PSID 729915

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	7-18-18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	J. Clay
Project #/Phase/Task/Org:	0901689///1109	Sampling Method:	Low-Flow

Well ID: PMW-2
Well Diameter: 2-inch
Initial Depth to Water (ft): 3.67
Depth to Bottom (ft): 16.80

Pump Type/Model: Peristaltic Pump/ 033240
Water Quality Meter Model/SN: YSI ProSeries/ 041759 LaMotte Turb Meter/ 19298
Date Meter Calibrated: See Attachments

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (ml/min)	Cumulative Volume Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
920	3.80				17.2	2437	8.10	157.6	7.99	17.1	clear
930	3.88				14.7	2401	7.25	58.8	0.15	1.16	"
935	3.86				14.5	2374	7.22	50.0	0.14	0.95	"
940	3.85				14.4	2359	7.20	41.4	0.12	0.80	"
945	3.87				14.5	2341	7.18	33.7	0.12	0.86	"

Stabilization Target Ranges: | **Target Range Achieved? (Y/N)**

Temp: +/- 3%
Specific Conductivity: +/- 3%
pH: +/- 0.1 units
ORP/EH: +/- 10 mv
DO: +/- 10%
Turbidity: +/- 10% for >1 NTU

Comments: ~1.5 gal

Sample Time: 1000

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LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **729915**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	7/17/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	J. Clay
Project #/Phase/Task/Org:	0901689///1109	Sampling Method:	Low-Flow

Well ID: **MW-5**
Well Diameter: **2-inch**
Initial Depth to Water (ft): 7.53
Depth to Bottom (ft): **15.40**

Pump Type/Model: **Peristaltic Pump/** 033240
Water Quality Meter Model/SN: **YSI ProSeries/** 04I759 **LaMotte Turb Meter/** 19298
Date Meter Calibrated: **See Attachments**

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (ml/min)	Cumulative Volume Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
1225	7.61				17.5	1081	7.73	98.3	2.03	34.5	Brown w/ black particles
1235	7.62				17.9	935	6.72	124.3	3.32	15.7	clear
1245	7.63				18.1	9242	6.72	129.7	2.72	7.17	"
1250	7.63				18.3	961	6.75	130.4	2.08 x	24.1 x	Brown w/ black particles
1255	7.63				18.5	973	6.78	130.6	1.82 x	40.4 x	"
1300	7.63				18.2	979	6.79	129.0	1.57 x	12.05 x	clear
1305	7.64				18.1	988	6.82	126.2	1.30 x	3.70 x	"
1310	7.63				18.1	991	6.83	123.9	1.13 x	7.41 x	"
1315	7.64				18.2	996	6.84	120.4	0.96 x	2622 AU x	drk brown, turbid
1320	7.64				18.4	1006	6.88	119.4	0.93	942 AU x	"
1325	7.64				18.2	1006	6.87	117.3	0.79 x	32.2 x	brown, slightly turbid
1330	7.64				18.4	1010	6.88	115.5	0.76	23.0 x	"
1335	7.65				18.3	1015	6.89	113.9	0.60 x	18.3 x	"
1340	7.65				18.2	1017	6.90	112.3	0.53	15.3 x	"
1342	7.65				18.2	1018	6.90	111.6	0.50	14.5	"
1346	7.65				18.2	1019	6.91	111.2	0.51	14.1	"

Stabilization Target Ranges: **Target Range Achieved? (Y/N)**
Temp: +/- 3% Y
Specific Conductivity: +/- 3%
pH: +/- 0.1 units
ORP/EH: +/- 10 mv
DO: +/- 10%
Turbidity: +/- 10% for >1 NTU

Comments: Duplicate Collected ~5gal DUP-071718
Sample Time: 1400

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LOW FLOW SAMPLING LOG

TASK : **Groundwater Monitoring & Sampling** PSID **729915**

Project Name:	NYSDEC/Jamestown/NY/WashingtonSt/2241	Date:	7/17/18
Project Address:	2241 Washington Street, Jamestown, NY	Sampler(s):	J. Clay
Project #/Phase/Task/Org:	0901689///1109	Sampling Method:	Low-Flow

Well ID: **CBPZ-107**
Well Diameter: **1-inch**
Initial Depth to Water (ft): 5.69
Depth to Bottom (ft): **12.90**

Pump Type/Model: **Peristaltic Pump/** 033240
Water Quality Meter Model/SN: **YSI ProSeries/** 041759 **LaMotte Turb Meter/** 19298
Date Meter Calibrated: **See Attachments**

Clock Time (24 Hour)	Depth to Water (ft)	Pump Rate (ml/min)	Purge Rate (ml/min)	Cumulative Volume Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm)	pH	ORP/Eh (mV)	DO (mg/L)	Turbidity (NTU)	Comments (Clear/Turbid, Sheen, Color, Well Dry)
9:20	5.73	300			19.1	1076	7.41	98.6	2.59	915 AU	Turbid, brown
930	5.73	300			19.0	1066	6.92	108.1	2.69	18.9	clear
940	5.73	300			19.0	1067	6.96	109.7	2.66	10.67 x	"
~~945~~	5.73	300			19.1	1065	6.98	108.4	2.57	11.0	"
950	5.73	300			18.9	1068	6.99	106.6	2.61	5.86 x	"
955	5.73	300			18.8	1068	7.00	107.8	2.65	4.21 x	"
1000	5.73	300			18.8	1065	7.00	108.7	2.69	45.2 x	slightly turbid
1005	5.73	300			18.8	1067	7.01	108.6	2.54	6.72 x	clear
1010	5.73	300			19.0	1068	7.02	108.5	2.64	2.96 x	"
1015	5.73	300			18.9	1067	7.02	108.7	2.67	2.13 x	"
1020	5.74	300			18.9	1067	7.03	108.7	2.60	1.55 x	"
1025	5.74	300			18.9	1068	7.03	108.6	2.60	1.40	"
1030	5.74	300			18.9	1068	7.04	108.8	2.66	1.31	"

Stabilization Target Ranges: **Target Range Achieved? (Y/N)**

Temp: +/- 3%	Y
Specific Conductivity: +/- 3%	"
pH: +/- 0.1 units	"
ORP/EH: +/- 10 mv	"
DO: +/- 10%	"
Turbidity: +/- 10% for >1 NTU	"

Comments: ~4gal

Sample Time: 1045

CHAIN OF CUSTODY

Client: New York State Dept. of Environmental Conservation

PAGE OF

FED-EX Tracking #	Bottle Order Control #
Lab Quote #	Lab Job #

CLIENT/REPORTING INFORMATION	PROJECT INFORMATION	BILLING INFORMATION	PROJECT TRACKING INFO.
Groundwater & Environmental Services, Inc. 415 Lawrence Bell Drive, Williamsville, NY 14221 **Project Manager:** Eric D. Popken **Phone #:** 800-287-7857 **PM Email:** epopken@gesonline.com **fax** 866-902-2187	**Project Name:** NYSDEC/Jamestown/NY/WashingtonSt/2241 **Project Address:** 2241 Washington Street, Jamestown, NY **Project PSID #:** 729915	Groundwater & Environmental ges-invoices@gesonline.com **ATTN:** Accounts Payable **Invoice Instructions** **Proj/Phase/Task/Org:** 0901689/05/213/1109 **PO #:** 728882	**NYSDEC Region 9** **NYSDEC PM:** George Momberger **NYSDEC Phone:** 716-851-7200 **Lab PM:** Orlette Johnson **NYSDEC Site No:** 907028

Sampler(s) Name:	Sampler(s) Name:

Lab Sample #	Field ID / Point of Collection (Sys_loc_code)	Depth Interval (ft)	Date Sampled	Time Sampled	Sampler	Matrix	Total # Bottles	number of preserved bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Amber	REQUESTED ANALYSIS: Total List VOCs by GC/MS via 8260C	Metals (ICP) via 6010C	Sulfate, Turbidimetric via 9038	Total Organic Carbon via 9060A	Chloride via 9251	Total Dissolved Solids via SM 2540C	Total Suspended Solids via SM 2540D	MS/MSD	LAB USE ONLY
	PMW-1	NA				WG	9	5		1		3													
	PMW-2	NA				WG	9	5		1		3													
	PMW-3	NA				WG	9	5		1		3													
	PMW-4	NA				WG	9	5		1		3													
	CBPZ-101	NA				WG	9	5		1		3													
	~~CBPZ-102~~	NA				WG	9	5		1		3													
	CBPZ-107	NA	7/17/18	1045	JKC	WG	9	5		1		3					X	X	X	X	X	X	X		
	~~CBPZ-110~~	NA				WG	9	5		1		3													
	MW-5	NA	7/17/18	1400	JKC	WG	9	5		1		3					X	X	X	X	X	X	X		
	DUP-071718	NA	7/17/18	—	JKC	WG	9	5		1		3					X	X	X	X	X	X	X		
	FB-	NA				WG	9	5		1		3													
	TRIP BLANK	NA	Lab Supplied			WG	2	2									X								

Turnaround Time (Business Days) — **Approved By (Lab PM) / Date**

- ☑ Standard 14 Days ____/____
- ☐ 1 day RUSH ____/____
- ☐ Other _____ ____/____

Laboratory Information

Lab: TestAmerica Buffalo
Address: 10 Hazelwood Dr, Amherst, NY
Phone: 484-685-0864
Lab PM: Orlette Johnson
Lab PM Email: orlette.johnson@testamericainc.com

Data Deliverable Information

- ☐ Commercial 'A' (Level 1) = Results Only
- ☐ Commercial 'B" (Level 2) = Results + QC Summary
- ☐ FULLT1 (Level 3 & 4)
- ☐ NJ Reduced = Results + QC Summary + Partial Raw Data
- ☐ Commercial 'C'
- ☐ *NJ Data of Known Quality Protocol Reporting*
- ☐ NYASP Category A
- ☐ NYASP Category B
- ☐ State Forms
- ☑ EQDD for GES EQuIS
- ☑ NYDEC EDD for NYSDEC EQuIS

Please Email the EQ EDD Package to ges@equisonline.com

EQEDD Name: NYSDEC/Jamestown/NY/WashingtonSt/2241_LabReport#.27427.EQEDD.zip

Sample Custody must be documented below each time samples change possession, including courier.

Relinquished By Sampler:	Date / Time:	Received By:
1 [signature] GES	1 7/17/18 1725	1 [signature] 7/17/18 1725
Relinquished By:	Date / Time:	Received By:
2	2	2
Relinquished By:	Date / Time:	Received By:
3	3	3

Custody Seal Number: ☐ Intact ☐ Not Intact ☐ Preserved where applicable ☐ On Ice Cooler Temp _____

CHAIN OF CUSTODY

Client: New York State Dept. of Environmental Conservation

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FED-EX Tracking # | Bottle Order Control #

Lab Quote # | Lab Job #

CLIENT/REPORTING INFORMATION	PROJECT INFORMATION	BILLING INFORMATION	PROJECT TRACKING INFO.
Groundwater & Environmental Services, Inc. 615 Lawrence Bell Drive, Williamsville, NY 14221	**Project Name:** NYSDEC/Jamestown/NY/WashingtonSt/2241	Groundwater & Environmental ges-invoices@gesonline.com	NYSDEC Region 9
Project Manager: Eric D. Popken	**Phone #:** 800-287-7857	**Project Address:** 2241 Washington Street, Jamestown, NY	ATTN: Accounts Payable **Invoice Instructions**	NYSDEC PM: George Momberger NYSDEC Phone: 716-851-7200
PM Email: epopken@gesonline.com	fax 866-902-2187	**Project PSID #:** 729915	Proj/Phase/Task/Org: 0901689/05/213/1109 PO #: 728882 ← VENDOR	Lab PM: Orlette Johnson NYSDEC Site No: 907028

Sampler(s) Name: Jennifer Clay

Lab Sample #	Field ID / Point of Collection (Sys_loc_code)	Depth Interval (ft)	Date Sampled	Time Sampled	Sampler	Matrix	Total # Bottles	number of preserved bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Amber	Total List VOCs by GC/MS via 8260C	Metals (ICP) via 6010C	Sulfate, Turbidimetric via 9038	Total Organic Carbon via 9060A	Chloride via 9251	Total Dissolved Solids via SM 2540C	Total Suspended Solids via SM 2540D	MS/MSD	LAB USE ONLY
	PMW-1	NA	7/18/18	1320	JKC	WG	9	5		1		3					X	X	X	X	X	X	X		
	PMW-2	NA	7/18/18	1000	JKC	WG	9	5		1		3					X	X	X	X	X	X	X		
	PMW-3	NA	7/18/18	1105	JKC	WG	9	5		1		3					X	X	X	X	X	X	X		
	PMW-4	NA	7/19/18	1100	JKC	WG	9	5		1		3					X	X	X	X	X	X	X		
	CBPZ-101	NA	7/19/18	1005	JKC	WG	9	5		1		3					X	X	X	X	X	X	X		
	CBPZ-102	NA	7/19/18	1345	JKC	WG	9	5		1		3					X	X	X	X	X	X	X		
																	X	X	X	X	X	X	X		
	CBPZ-110	NA	7/18/18	1500	JKC	WG	9	5		1		3					X	X	X	X	X	X	X		
	FB- 071918	NA	7/19/18	1650	JKC	WG	9	5		1		3					X	X	X	X	X	X	X		
	TRIP BLANK	NA	Lab Supplied			WG	~~3~~ 2	2									X								

Turnaround Time (Business Days) — **Approved By (Lab PM) / Date**

- ☑ Standard 14 Days
- ☐ 1 day RUSH
- ☐ Other _____

Laboratory Information

Lab: TestAmerica Buffalo
Address: 10 Hazelwood Dr, Amherst, NY
Phone: 484-685-0864
Lab PM: Orlette Johnson
Lab PM Email: orlette.johnson@testamericainc.com

Please Email the EQ EDD Package to ges@equisonline.com

EQEDD Name: NYSDEC/Jamestown/NY/WashingtonSt/2241_LabReport#.27427.EQEDD.zip

Data Deliverable Information

- ☐ Commercial 'A' (Level 1) = Results Only
- ☐ Commercial 'B" (Level 2) = Results + QC Summary
- ☐ FULLT1 (Level 3 & 4)
- ☐ NJ Reduced = Results + QC Summary + Partial Raw Data
- ☐ Commercial 'C'
- ☐ *NJ Data of Known Quality Protocol Reporting*
- ☐ NYASP Category A
- ☐ NYASP Category B
- ☐ State Forms
- ☑ EQDD for GES EQuIS
- ☑ NYDEC EDD for NYSDEC EQuIS

Sample Custody must be documented below each time samples change possession, including courier.

	Date / Time:	Received By:
Relinquished By Sampler: Jennifer Clay / GES	1 7/19/18 1745	1 TRB
Relinquished By :	2	2
Relinquished By :	3	3

Custody Seal Number: ☐ Intact ☐ Not Intact ☐ Preserved where applicable ☐ On Ice Cooler Temp _____

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC

1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID 19298
Description LaMotte 2020we
Calibrated 7/16/2018 10:02:42AM

Manufacturer LaMotte
Model Number 2020WE
Serial Number/ Lot Number 1856-0412
Location Rochester, NY
Department

State Certified
Status Pass
Temp °C 21.0
Humidity % 51

Calibration Specifications

Group # 1
Group Name Turbidity
Stated Accy Pct of Reading

Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
1.00 / 1.00	NTU	1.00	NTU	1.00	1.00	0.00%	Pass
10.00 / 10.00	NTU	10.00	NTU	10.00	10.00	0.00%	Pass

Test Instruments Used During the Calibration

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	(As Of Cal Entry Date) Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
ROC - 0 NTU - 17502171	0 NTU TURBIDITY SOLUTION	AMCOCLEAR	17502171			1/31/2019
ROC - 1 NTU - C796765	1 NTU TURBIDITY SOLUTION	AMCOCLEAR	8577	C796765		7/31/2018
ROC - 10 NTU - C689840	10 NTU TURBIDITY SOLUTION	AMCOCLEAR	8578	C689840		7/31/2018

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Mike Santiago

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID 33240
Description Geo Pump
Calibrated 7/16/2018 10:11:56AM

Manufacturer Geotech
Model Number 23672
Serial Number/ Lot Number n/a
Location Rochester, NY
Department

State Certified
Status Pass
Temp °C 21.2
Humidity % 50

Calibration Specifications

Group # 1
Group Name Functional Test
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Next Cal Date / Last Cal Date/ Expiration Date Opened Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Mike Santiago

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC

1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID 41759
Description YSI PRO PLUS
Calibrated 7/16/2018 10:00:53AM

Manufacturer YSI
Model Number PRO PLUS
Serial Number/ Lot Number 18d102966
Location Rochester, NY
Department

State Certified
Status Pass
Temp °C 21.74
Humidity % 46.53

Calibration Specifications

Group # 1
Group Name PH
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
7.00 / 7.00	PH	7.00	PH	7.00	7.00	0.00%	Pass
4.00 / 4.00	PH	4.00	PH	4.00	4.00	0.00%	Pass
10.00 / 10.00	PH	10.00	PH	10.00	10.00	0.00%	Pass

Group # 2
Group Name Conductivity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.000

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
1.413 / 1.413	ms/cm	1.413	ms/cm	1.413	1.413	0.00%	Pass

Group # 3
Group Name Redox (ORP)
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
240.00 / 240.00	mv	240.00	mv	240.00	240.00	0.00%	Pass

Group # 4
Group Name Disolved Oxygen Span
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
100.00 / 100.00	%	100.00	%	100.00	100.00	0.00%	Pass

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC

1057 East Henrietta Rd.
Rochester NY 14623
Phone: 585-424-2140

Pine Environmental Services, Inc.

Instrument ID 41759
Description YSI PRO PLUS
Calibrated 7/16/2018 10:00:53AM

Test Instruments Used During the Calibration

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	(As Of Cal Entry Date) Next Cal Date / Last Cal Date/ Expiration Date Opened Date
ROC - 1.413 COND - 7GH94	1.413 MS/CM CONDUCTIVITY STANDARD	Pine Environmental Services, Inc.	6GJ307	7GH94	8/31/2018
ROC - ORP 240	ORP 240 mV	Hanna	HI 7021	1600	5/1/2022
ROC - PH 4.00 - 7GD788	PH 4.00 BUFFER SOLUTION	Pine Environmental Services, Inc.	7GD788	7GD788	4/30/2019
ROC - PH 7.00 - 6GI910	PH 7.00 BUFFER SOLUTION	Pine Environmental Services, Inc.	6GI910	6GI910	9/30/2018
ROC PH10 7GH058	PH-10	Pine	32034	7GH058	8/30/2019

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Michele Pagano

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

COUNTRY FAIR

ST RD 60/GERRY LEV
GERRY, NY
Merchant ID 13238076
~ #ORIGINAL ~



Store #76 07/19/2018 2:41:55 PM
Register 2 Transaction 2448726
Operator 144 Associate christina

Qty	Name	Price	Total
1	BAG ICE 7 LB/	$ 1.99	$ 1.99
~~1~~	~~FOUNTAIN DRINK/30~~	~~$ 0.99~~	~~$ 0.99~~

SubTotal	2.98
NY State	0.12
Chaut County NY	0.12
Total	**3.22**

Tender Info:
VISA 3.22
ACCT 4270XXXXXXXX7969 SWIPED
Reference: 95000620047

Thank You For Shopping Country Fair!

Red Roof Inn Jamestown - Falconer
1980 East Main Street
Falconer, NY 14733 US
Phone: 716-665-3670
Fax: 716-664-7651
Email: i0273@redroof.com
Printed: 7/19/2018 4:24:33 AM

Folio (Detailed)

Name: CLAY, JENNIFER KIYOKO

Conf #: 55332SB003847

Address: 4755 CHESTNUT RIDG 2
AMHERST, NY 14228-0000 US

Room: 133 Room Type: NP1KM, NON-SMOKING SUPERIOR 1 KING BED MICRO-
Nights: 1 Guests: 1/0
Rate Plan: P05 Daily Rate: $94.99 + $11.87 Tax GTD: 900 - CASH
Arrival: 7/18/2018 (Wed) Departure: 7/19/2018 (Thu)

Date	Code	Description	Amount	Balance
7/18/2018	100	ROOM CHARGES	$94.99	$94.99
7/18/2018	150	STATE TAX	$7.12	$102.11
7/18/2018	151	COUNTY TAX	$4.75	$106.86
7/18/2018	912	MASTERCARD (1743) 080104 286039504	($106.86)	$0.00

Summary

Room	Tax	F&B	Other	CC	Cash	DB
$94.99	$11.87	$0.00	$0.00	($106.86)	$0.00	$0.00

FORMER C+B DRY CLEANERS

GW SAMPLING 2/25/20

0730 - HDR ARRIVES AT C+B SITE.

SCOPE - HDR WILL PERFORM GW SAMPLING FOR VOCs AND 1,4-D / PFAS AT ~10 LOCATIONS. CREW IS TOM GARDNER (TG) + MATT MARVA (MP)

NOTE - HDR BRIEFLY VISITED SITE YESTERDAY 2/24/20 TO SEE IF THERE IS SPACE IN ON-SITE IDW DRUMS TO CONTAIN PURGE WATER FROM THIS EVENT (PER DEC). FOUND 1 FULL DRUM, 1 PARTIAL FILLED WITH WATER (~1/4), AND 1 EMPTY. WILL USE THE PARTIAL & EMPTY FOR PURGE WATER.

0740 - HDR BEGINS SYNOPTIC:

WELL	PID (ppm)	DTW (ft btoc)
PMW-1	0.0	5.28
CBPZ107	0.0	5.72
CBMW5	28.7	7.50
CBSP28	0.0	7.05
CBPZ110	0.0	5.80
CBPZ101	0.0	6.04
PMW-4	0.0	6.77
CBPZ102	0.1	7.79

F1

JAMESTOWN, NY 2/25/20

PMW-3	9.7	4.15
PMW-2	1.3	3.63

NOTE - HDR OFFSITE 0815 - 0835 TO PICK UP STRONGER BOLT CUTTER TO REMOVE PADLOCK AT CBMW5 AND OTHER STICK-UP LOCATIONS.

NOTE - CBMW5 IS SEVERELY RUST (STICK UP). PVC DOES NOT APPEAR TO HAVE CRACKED.

NOTE - CBPZ10 MANHOLE LID TO BE BROKEN OPEN. COVER AND PADLOCK MUST BE REPLACED. ONE OF THE BOLT THREADS IS CRACKED OFF. ALSO, LDPE TUBING IS STUCK IN WELL.

NOTE - CBPZ110 IS MISSING WELL PLUG. REPLACE W/ PLUG FROM ANOTHER LOCATION.

NOTE - LDPE TUBING W/ FLEX SEGMENT (FOR PERI PUMP) IS FOUND IN EACH WELL (EXCEPT CBSP28). TUBING IS BAGGED FOR DISPOSAL.

WX - OVERCAST / DAMP RAIN IN PM. 39/45 F. WIND ENE 8 MPH

0800 - COFFEE TB

P2

CJB 2/25/20

0945 - BEGIN PURGING PMW-3
1015 - BEGIN PURGING PMW-2
1050 - SAMPLE PMW-3
1100 - SAMPLE PMW-2

"PMW-2-7-17-20200225"
"PMW-3-3-13-20200225"

AND DUP
"PMW-3-3-13-20200225-1"

1145 - BEGIN PURGING CBPZ107.
CANNOT LOWER DTW PROBE
DUE TO EXISTING LDPE
TUBING THAT IS LOST DOWN
WELL..
- BEGIN PURGING PMW-1.

1235 - SAMPLE BOTH CBPZ107
AND PMW-1:
"CBPZ107-3-13-20200225"
"PMW-1-5-15-20200225"
+ MS/MSD
"PMW-1-5-15-20200225-2"

1320 - SAMPLE MGMT.
- BREAK FOR LUNCH

1455 - BEGIN PURGING CBMW-5
1515 - BEGIN PURGING CBPZ110

PS

JAMESTOWN, NY 2/25/20

NOTE - ALL TUBING USED FOR THIS
EVENT IS HDPE & A PERI
PUMP IS BEING USED.

1550 - SAMPLE CBMW5
"CBMW5-5-15-20200225"
1650 - SAMPLE CBPZ110
"CBPZ110-5-13-20200225
1647 - BEGIN PURGING CBPZ101
1700 - BEGN PURGING
PMW-4
1725 - SAMPLE CBPZ101:
"CBPZ101-3-10-20200225"
1740 - SAMPLE PMW-4:
"PMW-4-6-16-20200225"
1800 - COLLECT EQUIPMENT
BLANK BY PUMPING (PERI)
PFC-FREE WATER THRU
HDPE/SILICONE TUBING.
1805 - PACK UP EQUIPMENT/
SUPPLIES.
TRANSFER PURGE WATER
TO IDW DRUM (PARTIAL)
1820 - PERFORM SAMPLE MGMT.
1830 - HDR DEPARTS.

2/25/20

PM

CBS 2/26/20

0740 - HDR ARRIVES AT SITE.
TG + MP.
WX - 34/45°F OVERCAST
RAIN IN PM, TURNING TO
SNOW TOMORROW MORNING.
WIND E 6 MPH.
- BEGIN PURGING
0805 - BEGIN PURGING CBSPZ8
- SAMPLE
"
0850 - SAMPLE
"CBSPZ8-S-1F-20200226"
0900 - PACK EQUIPMENT +
TRANSFER PURGE WATER TO
IDW DRUM. LABEL BOTH DRUMS
WITH "NON-HAZ" WASTE LABELS.
1 DRUM IS ~1/5 FULL, AND
THE OTHER HAS ~5 GALS
IN IT.
0920 - PICK UP ICE AND PERFORM
SAMPLE MGMT.
0955 - GO TO PLUMBING SUPPLY
STORE TO SEARCH FOR 5"
WELL COVER FOR CBPZ-107

P5

JAMESTOWN NY 2/26/20

1030 - RETURN TO SITE.
ERICA ZIMMERMAN (EZ)
(HDR PM) IS ON SITE.
TRANSFER PACKED AND
CUSTODY-SEALED COOLERS
TO EZ'S TRUCK FOR DELIVERY
TO TESTAMERICA AMHERST.
1100 - EZ DEPARTS. TG + MP
~~WAL~~ TG GO TO HARDWARE
STORE TO PURCHASE REPLACEMENT
PADLOCKS FOR PMW-2, -3, 4
+ CBMW5 AND TEMP
COVER FOR CBPZ107.
1120 - HDR BACK ON SITE TO
DOCUMENT CONDITION OF
WELLS, AFFIX PADLOCKS,
AND FILL CBPZ107 MANHOLE
W/ GRAVEL PER EZ'S
INSTRUCTIONS.
1130 - IDW DRUMS SECURED +
LABELED NON-HAZ.
HDR DEPARTS

2/26/20

P6

Well Sampling Log

Sheet 1 of 1

Site: C+B
Date: 2/25/20
Weather:

Company: HDR
Field Personnel: MPP/TG

Monitor Well #: [redacted] CBMW5
Wel Permit #:
Well Depth:
Well Diameter: 2" Inches

Screened/Open Interval: 5-15

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: [redacted]' Ft Below TOC
Depth to Water After Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Change*	pH (pH Units) Reading	Change*	Redox Potential (mv) Reading	Change*	Specific Conductivity (mS/cm) Reading	Change*	Dissolved Oxygen (mg/L) Reading	Change*	Turbidity (NTU) Reading	Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
1500	X		9.35		7.73		126		1.06		9.47		1.23		200	7.43
1505			8.71		7.42		142		1.07		7.75		2.08			7.71
1510			8.43		7.31		147		1.07		6.55		1.62			
1515			8.27		7.27		148		1.08		6.34		1.02			
1520			8.17		7.24		148		1.08		6.15		0.92			
1525			8.06		7.22		147		1.08		5.81		0.86			
1530			7.96		7.22		146		1.08		5.14		0.60			
1535			7.94		7.21		145		1.09		5.07		0.64			
1540			7.90		7.22		144		1.08		5.02		0.82			
1545			7.64		7.23		141		1.09		4.92		0.75			
1550	Sampling															

Comments: FULL SUITE

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Sampling Log

Sheet 1 of 1

Site: CB
Date: 4/25/2020
Weather:

Company: HDR
Field Personnel: MP/TG

Monitor Well #: CBP2-101 Well Depth: 10'
Wel Permit #: Well Diameter: Inches

Screened/Open Interval: 3-10'

PID Readings (ppm):
Background: 0
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: 8' Ft Below TOC
Depth to Water After Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature (degrees C) Change*	pH (pH Units) Reading	pH (pH Units) Change*	Redox Potential (mv) Reading	Redox Potential (mv) Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity (mS/cm) Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen (mg/L) Change*	Turbidity (NTU) Reading	Turbidity (NTU) Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
1647	X		6.87		7.74		145		1.47		8.96		1.28		300	5.98
1652			5.21		7.86		137		1.57		1.37		2.27			
1657			4.98		7.84		134		1.58		0.05		1.57			
1702			4.86		7.83		133		1.56		0.58		1.02			
1707			4.79		7.82		131		1.56		0.93		0.42			
1712			4.73		7.82		130		1.56		0.90		0.78			
1717			4.69		7.81		129		1.56		0.88		0.70			
1722			4.68		7.81		128		1.56		0.87		0.32			
1725	Sampling															

Comments:

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Sampling Log

Sheet 1 of 1

Site: CFB
Date: 3/26/20
Weather:

Company: HDR
Field Personnel:

Monitor Well #: CBPZ102
Wel Permit #:
Well Depth:
Well Diameter: Inches

Screened/Open Interval: 5-10

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: ~~7.5~~ 9 Ft Below TOC
Depth to Water After Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature (degrees C) Change*	pH (pH Units) Reading	pH (pH Units) Change*	Redox Potential (mv) Reading	Redox Potential (mv) Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity (mS/cm) Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen (mg/L) Change*	Turbidity (NTU) Reading	Turbidity (NTU) Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
0755	X		4.55		7.88		152		1.98		7.75		3.1		300 mL	~~7.8~~ 7.76
0803			5.78		7.50		172		1.88		3.43		7.1		↓	7.82
0808			5.77		7.47		175		1.88		3.25		7.1		↓	7.84
0813			5.81		7.45		175		1.87		3.10		0.0		↓	7.86
0818			5.82		7.45		174		1.87		3.00		0.46		↓	7.88
0823			5.85		7.44		171		1.87		2.90		0.62		↓	7.87
0828			5.89		7.43		170		1.87		2.86		0.78		↓	7.86
0833			5.84		7.43		168		1.87		2.80		0.42		↓	7.86
0838			5.86		7.43		166		1.87		2.78		0.63		↓	7.86
0840	Sampling															

Comments:

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Sampling Log

Sheet 1 of 1

Site: C+S
Date: 2/25/20
Weather:

Company: HDR
Field Personnel:

Monitor Well #: CBPZ107
Well Permit #:
Well Depth:
Well Diameter: 1 Inches
Screened/Open Interval: 3-13

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: 8 Ft Below TOC
Depth to Water After Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature (degrees C) Change*	pH (pH Units) Reading	pH (pH Units) Change*	Redox Potential (mv) Reading	Redox Potential (mv) Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity (mS/cm) Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen (mg/L) Change*	Turbidity (NTU) Reading	Turbidity (NTU) Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
1145	X															NA *
1155	X		9.01		7.36		131		1.20		8.31		11.7		150	NA *
1205	X		8.83		7.30		138		1.21		7.23		6.73		150	NA *
1210	X		8.86		7.29		137		1.21		7.06		6.05		150	
1215	X		8.89		7.27		137		1.21		6.93		4.77		150	
1220	X		8.95		7.28		136		1.20		6.90		4.45		150	
1225	X		9.05		7.28		134		1.20		6.81		3.56		150	
1230	X		9.10		7.28		133		1.20		6.77		2.80		150	
1235		X														

Comments: ~~FULL SUITE~~ VOCs ONLY

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

* DTW INDICATOR CANNOT FIT AROUND SAMPLE TUBING & TUBING THAT WAS LEFT DOWN WELL

Well Sampling Log

Sheet 1 of 1

Site: C+B
Date: 2/25/20
Weather:

Company: HDR
Field Personnel:

Monitor Well #: CBPZ 110
Well Depth:
Wel Permit #:
Well Diameter: Inches

Screened/Open Interval: 5-13

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: 9 Ft Below TOC
Depth to Water After Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature (degrees C) Change*	pH (pH Units) Reading	pH (pH Units) Change*	Redox Potential (mv) Reading	Redox Potential (mv) Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity (mS/cm) Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen (mg/L) Change*	Turbidity (NTU) Reading	Turbidity (NTU) Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
15:15	X														300	6.19
15:25	X		5.65		7.95		87		0.287		10.48		56.1		160	5.85
15:30	X		5.58		7.87		94		0.329		9.11		47.4		160	5.82
15:35	X		5.53		7.85		96		0.357		8.56		44.6		160	5.82
15:40	X		5.46		7.82		98		0.383		7.95		43.0		160	5.82
15:45	X		5.42		7.80		98		0.414		7.42		3.61	*	160	5.82
15:50	X		5.38		7.79		102		0.441		~~8.44~~ 7.17		3.11		160	5.82
15:55	X		5.35		7.76		101		0.473		6.74		2.69		160	5.82
16:00	X		5.32		7.72		103		0.539		6.07		2.29		160	5.82
16:05	X		5.31		7.70		104		0.573		5.76		2.12		160	5.82
16:10	X		5.32		7.68		105		0.600		5.55		2.51		160	5.82
16:20	X		5.31		7.65		105		0.662		5.05		1.98		160	5.82
16:25	X		5.28		7.65		105		0683		4.86		~~1.77~~		160	5.82
16:30	X		5.24		7.64		105		0.725		4.54		1.70		160	5.82
16:35	X		5.23		7.63		105		0.744		4.45		2.53		160	5.82
16:40	X		5.22		7.61		105		0.769		4.24		2.26		160	5.82
16:45	X		5.22		7.60		105		0.785		4.13		1.88		160	5.82
16:50		X	***													

Comments:

VOCs ONLY

(* SWITCH TO LAMOTTE TURBIDITY RDG)

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

SAMPLED AFTER PURGING > 3 WELL VOLS

Well Sampling Log

Sheet 1 of 1

Site: C+B
Date: 2/26/20
Weather:

Company: HDR
Field Personnel:

Monitor Well #: CB5P28
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval: 5-15

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: 10 Ft Below TOC
Depth to Water After Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature (degrees C) Change*	pH (pH Units) Reading	pH (pH Units) Change*	Redox Potential (mv) Reading	Redox Potential (mv) Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity (mS/cm) Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen (mg/L) Change*	Turbidity (NTU) Reading	Turbidity (NTU) Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
0805	X															7.05
0810	X		4.12		7.99		-44		1.55		4.32		6.98		300	7.12
0820	X		3.84		7.92		-79		1.49		4.25		1.70		260	7.12
0825	X		3.85		7.84		-84		1.49		4.09		1.13		260	7.12
0830	X		3.78		7.87		-87		1.49		4.08		1.84		260	7.12
0835	X		3.77		7.86		-89		1.49		4.08		0.67		260	7.12
0840	X		3.75		7.87		-91		1.47		4.12		0.42		260	7.12
0845	X		3.72		7.88		-92		1.47		4.13		0.76		260	7.12
0850	X	X	3.70		7.88		-93		1.48		4.06		0.72		260	7.12

Comments:

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Sampling Log

Sheet 1 of 1

Site: C+S
Date: 2/25/25
Weather:

Company: HDR
Field Personnel: MTP / TG

Monitor Well #: PMW-1
Well Depth: 5.31
Wel Permit #:
Well Diameter: 2" Inches

Screened/Open Interval: 5-15

PID Readings (ppm):
Background: 0.0
Beneath Outer Cap: 0.0
Beneath Inner Cap: 0.0

Pump Intake Depth: 10 Ft Below TOC
Depth to Water After Pump Installation: _____ Ft below TOC
Make/Model of Pump: _____

TIME	Purging	Sampling	Temperature (degrees C) Reading	Change*	pH (pH Units) Reading	Change*	Redox Potential (mv) Reading	Change*	Specific Conductivity (mS/cm) Reading	Change*	Dissolved Oxygen (mg/L) Reading	Change*	Turbidity (NTU) Reading	Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
1157			7.42		7.68		105		1.21		4.64		47.1		260	5.31
1202			7.23		7.65		110		1.21		3.81		47.2			
1207			7.19		7.65		109		1.21		3.75		43.8			
1212			7.17		7.66		106		1.21		3.60		41.3			
1217			7.15		7.66		103		1.21		3.65		37.8			
1222			7.13		7.66		99		1.21		3.91		1.28			
1227			7.14		7.67		95		1.20		3.61		1.24			
1232			7.19		7.67		92		1.20		3.65		1.09		260	5.31
1235	Sampling															5.31

Comments: FULL-SUITE WCH: well Volume:

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Sampling Log

Sheet 1 of 1

Site: C+B
Date: 2/25/20
Weather:

Company: HDR
Field Personnel: TG & MP

Monitor Well #: PMW-2
Well Permit #:
Well Depth:
Well Diameter: Inches

Screened/Open Interval: 7-17

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: 12 Ft Below TOC
Depth to Water After Pump Installation: Ft below TOC
Make/Model of Pump: PERI

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature (degrees C) Change*	pH (pH Units) Reading	pH (pH Units) Change*	Redox Potential (mv) Reading	Redox Potential (mv) Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity (mS/cm) Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen (mg/L) Change*	Turbidity (NTU) Reading	Turbidity (NTU) Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
1015	X														300	3.60
1025	X		7.21		7.06		156		1.83		1.13		5.6		150	3.90
1030	X		7.11		7.12		150		1.83		0.62		7.45		150	3.90
1035	X		7.11		7.12		147		1.81		0.42		4.34		150	3.90
1040	X		7.09		7.13		145		1.79		0.30		4.83		150	3.90
1045	X		7.01		7.13		138		1.77		0.11		2.32		150	3.90
1050	X		6.96		7.11		134		1.75		0.01		1.83		150	3.90
1055	X		6.86		7.10		131		1.72		0.00		1.88		150	3.90
1100		X														

Comments: "PMW-2-7-17-20200225"

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Sampling Log

Sheet 1 of 1

Site: C+D
Date: 2/25/20
Weather:

Company: HDR
Field Personnel: MTP/TG

Monitor Well #: FMW-3
Well Permit #:
Well Depth: 13'
Well Diameter: 2" Inches

Screened/Open Interval: 3-13

PID Readings (ppm):
Background: 0.0
Beneath Outer Cap: 0.0
Beneath Inner Cap: 0.7

Pump Intake Depth: 8 Ft Below TOC
Depth to Water After Pump Installation: 4.15' Ft below TOC
Make/Model of Pump: PEK1

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature (degrees C) Change*	pH (pH Units) Reading	pH (pH Units) Change*	Redox Potential (mv) Reading	Redox Potential (mv) Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity (mS/cm) Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen (mg/L) Change*	Turbidity (NTU) Reading	Turbidity (NTU) Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
0945	X		6.01		8.11		145		2.15		0.96		149		240	4.15
0955	X		5.81		8.10		140		2.15		0.00		85.3			
1000			5.65		8.11		138		2.14		0.00		32.4		↓	
1005			5.62		8.11		136		2.13		0.00		12.9		↓	
1010			5.56		8.11		134		2.12		0.00		5.7		240	4.20
1015			5.57		8.12		132		2.11		0.00		0.0		↓	
1020			5.56		8.13		129		2.10		0.00		0.0		↓	4.20
1025			5.53		8.12		127		2.09		0.00		0.0			
1030			5.72		7.63		129		1.81		2.43		56.5		240	4.20
1035			5.71		7.63		128		1.81		2.41		5.85		240	4.23
1040			5.66		7.62		125		1.81		2.40		5.89		240	4.24
1045			5.64		7.62		124		1.80		2.34		4.79		240	4.23
1050	S	Sampling														4.14

Comments: MCM: 8.85
well Volume: 5L
@ 1030 reinstalled Horiba. Both DO and Turbidity were nearly 0.0

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Sampling Log

Sheet 1 of 1

Site: C+S
Date: 2/27/20
Weather:

Company: HDR
Field Personnel:

Monitor Well #: PMW-4
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval: 6-16

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: 11 Ft Below TOC
Depth to Water After Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature (degrees C) Change*	pH (pH Units) Reading	pH (pH Units) Change*	Redox Potential (mv) Reading	Redox Potential (mv) Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity (mS/cm) Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen (mg/L) Change*	Turbidity (NTU) Reading	Turbidity (NTU) Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
1700	X															6.95
1705	X		6.47		7.58		-28		1.54		2.11		5.02		240	6.95
~~1710~~	~~X~~	—														
1715	X		6.43		7.65		-85		1.55		1.55		4.83		240	6.95
1720	X		6.43		7.66		-94		1.55		1.47		2.88		240	6.95
1725	X		6.41		7.67		-99		1.55		1.43		2.45		240	6.95
1730	X		6.35		7.67		-103		1.55		1.42		1.29		240	6.95
1735	X		6.29		7.67		-107		1.56		1.37		1.01		240	6.95
1740		X														

Comments: FULL SUITE

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

PFCs Sampling Checklist

Date: 2/25/20

Weather (*temp./precipitation*): OVERCAST / DAMP 39/45 °F Site Name: C+B

Field Clothing and PPE:

- [x] No clothing or boots containing Gore-Tex™
- [x] All safety boots made from polyurethane and PVC
- [x] No materials containing Tyvek®
- [x] Field crew has not used fabric softener on clothing
- [x] Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- [x] Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- [x] No Teflon® or LDPE containing materials on-site
- [x] All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- [x] No waterproof field books on-site
- [x] No plastic clipboards, binders, or spiral hard cover notebooks on-site
- [x] No adhesives (Post-It Notes) on-site
- [x] Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- [x] All sample containers made of HDPE or polypropylene
- [x] Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- [x] Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- [x] "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- [x] Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- [x] No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

- EXISTING TEFLON TUBING REMOVED FROM WELLS AND DISCARDED PRIOR TO PURGING
- VOC VOA VIALS SEGREGATED FROM OTHER BOTTLEWARE

Field Lead Name: TOM GIORDANO

Field Lead Signature: [signature] Time: 2/25/20

PFC Sampling – Prohibited and Acceptable Items

Prohibited	Acceptable
Field Equipment	
Teflon® containing materials	High-density polyethylene (HDPE) materials
Low density polyethylene (LDPE) materials	Acetate Liners
	Silicon Tubing
Waterproof field books	Loose paper (non-waterproof)
Plastic clipboards, binders, or spiral hard cover notebooks	Aluminum field clipboards or with Masonite
	Sharpies®, pens
Post-It Notes®	
Chemical (blue) ice packs	Regular ice
Field Clothing and PPE	
New cotton clothing or synthetic water resistant, waterproof, or stain-treated clothing, clothing containing Gore-Tex™	Well-laundered clothing made of natural fibers (preferable cotton)
Clothing laundered using fabric softener	No fabric softener
Boots containing Gore-Tex™	Boots made with polyurethane and PVC
Tyvek®	Cotton clothing
No cosmetics, moisturizers, hand cream, or other related products as part of personal cleaning/showering routine on the morning of sampling	**Sunscreens** - Alba Organics Natural Sunscreen, Yes To Cucumbers, Aubrey Organics, Jason Natural Sun Block, Kiss my face, Baby sunscreens that are "free" or "natural" **Insect Repellents** - Jason Natural Quit Bugging Me, Repel Lemon Eucalyptus Insect repellant, Herbal Armor, California Baby Natural Bug Spray, BabyGanics **Sunscreen and insect repellant** - Avon Skin So Soft Bug Guard Plus – SPF 30 Lotion
Sample Containers	
LDPE or glass containers	HDPE or polypropylene
Teflon-lined caps	Unlined polypropylene caps
Rain Events	
Waterproof or resistant rain gear	Gazebo tent that is only touched or moved prior to and following sampling activities
Equipment Decontamination	
Decon 90®	Alconox® and/or Liquinox®
Water from an on-site well	Potable water from municipal drinking water supply
Food Considerations	
All food and drink, with exceptions noted on right	Bottled water and hydration fluids (i.e, Gatorade® and Powerade®) to be brought and consumed only in the staging areas

Eco-Rental Solutions

Calibration Certificate

rev 8/9/11

Work Order No.: SE-075839
Date of Service: 02/20/20
Order Time: 9:29:51 AM

Unit Under Test: RAE MiniRAE 3000 PID

Asset No.: FA00919 Technician: Joe Baker

Initials: JSB

Serial No: 592-910796

TEST	Specification	Result
Standard Calibration	Pass/Fail	PASS

TEST STANDARDS USED:

DESCRIPTION	LOT NO./EXPIRATION DATE	QUANTITY
100ppm Isobutylene in Air	Lot No. CBH-248-100-18 Exp. 02/23/21	1

TEST EQUIPMENT USED:

DESCRIPTION	ASSET NO.	SERIAL NO.	DATE OF LAST CAL	DATE CAL DUE

Test Equipment and standards are traceable to National standards.

10.6 eV Lamp

Eco-Rental Solutions

Calibration Certificate

rev 8/9/11

Work Order No.: SE-075842
Date of Service: 02/20/20
Order Time: 9:51:55 AM

Unit Under Test: Horiba U-52-2, 2m cable

Asset No.: FA03780 Technician: Joe Baker
Serial No:

Initials: JBB

TEST	Specification	Result
Standard Calibration	Pass/Fail	PASS

TEST STANDARDS USED:

DESCRIPTION	LOT NO./EXPIRATION DATE	QUANTITY
AutoCal Solution for Horiba U-22/52	Lot No. 19150080 Exp. 6/20	1
pH 10.00 Standard Solution	Lot No. 9GB956 Exp. 2/21	1
ORP Standard Solution	Lot No. 19500109 Exp. 9/12/20	1
Turbidity Free Water		1
100 NTU Horiba U-52 AMCO Turb. Std.	Lot No. 19430131 Exp. 12/20	1
ZERO DO	Lot No. C689701 Exp. 8/21	1
Air Saturated Water		1

TEST EQUIPMENT USED:

DESCRIPTION	ASSET NO.	SERIAL NO.	DATE OF LAST CAL	DATE CAL DUE

Test Equipment and standards are traceable to National standards.

Eco-Rental Solutions

Calibration Certificate

rev 8/9/11

Work Order No.: SE-075841
Date of Service: 02/20/20
Order Time: 9:44:58 AM

Unit Under Test: Horiba U-52-2, 2m cable

Asset No.: FA02665 Technician: Joe Baker
Serial No: UJNX0XAA/6YHJAFP4

Initials: JBB

TEST	Specification	Result
Standard Calibration	Pass/Fail	PASS

TEST STANDARDS USED:

DESCRIPTION	LOT NO./EXPIRATION DATE	QUANTITY
AutoCal Solution for Horiba U-22/52	Lot No. 19150080 Exp. 6/20	1
pH 10.00 Standard Solution	Lot No. 9GB956 Exp. 2/21	1
ORP Standard Solution	Lot No. 19500109 Exp. 9/12/20	1
Turbidity Free Water		1
100 NTU Horiba U-52 AMCO Turb. Std.	Lot No. 19430131 Exp. 12/20	1
Zero Air	Lot No.MBG-1-13 Exp. 02/23/2021	1
Air Saturated Water		1

TEST EQUIPMENT USED:

DESCRIPTION	ASSET NO.	SERIAL NO.	DATE OF LAST CAL	DATE CAL DUE

Test Equipment and standards are traceable to National standards.

Eco-Rental Solutions

Calibration Certificate

rev 8/9/11

Work Order No.: SE-075849
Date of Service: 02/20/20
Order Time: 11:06:33 AM

Unit Under Test: Lamotte 2020WE Turbidity Meter

Initials: JEB

Asset No.: FA02122 Technician: Joe Baker
Serial No: 5365-0715

TEST	Specification	Result
Standard Calibration	Pass/Fail	PASS

TEST STANDARDS USED:

DESCRIPTION	LOT NO./EXPIRATION DATE	QUANTITY
Turbidity Free Water		1
1 NTU AMCO Turbidity Standard	Lot No. 18438731 Exp: 05/20	1
10 NTU AMCO Turbidity Standard	Lot No: 18438732 Exp:05/20	1

TEST EQUIPMENT USED:

DESCRIPTION	ASSET NO.	SERIAL NO.	DATE OF LAST CAL	DATE CAL DUE

Test Equipment and standards are traceable to National standards.

Eco-Rental Solutions

Calibration Certificate

rev 8/9/11

Work Order No.: SE-075844
Date of Service: 02/20/20
Order Time: 10:37:45 AM

Unit Under Test: Lamotte 2020WE Turbidity Meter

Initials: JBB

Asset No.: FA02903 Technician: Joe Baker
Serial No: 8205-2616

TEST	Specification	Result
Standard Calibration	Pass/Fail	PASS

TEST STANDARDS USED:

DESCRIPTION	LOT NO./EXPIRATION DATE	QUANTITY
Turbidity Free Water		1
1 NTU AMCO Turbidity Standard	Lot No. 18438731 Exp: 05/20	1
10 NTU AMCO Turbidity Standard	Lot No: 18438732 Exp:05/20	1

TEST EQUIPMENT USED:

DESCRIPTION	ASSET NO.	SERIAL NO.	DATE OF LAST CAL	DATE CAL DUE

Test Equipment and standards are traceable to National standards.

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins

Client Information	Sampler: HDR	Lab PM: Johnson, Orlette S	Carrier Tracking No(s): DELIVERED TO LAB	COC No: 480-142747-31852.2
Client Contact: George Momberger	Phone: 201.786.8474	E-Mail: orlette.johnson@testamericainc.com		Page: Page 2 of 3
Company: New York State D.E.C.		Analysis Requested		Job #:
Address: 625 Broadway 9th Floor	Due Date Requested:			Preservation Codes:
City: Albany	TAT Requested (days): STANDARD			A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify)
State, Zip: NY, 12233-7258				
Phone:	PO #: CallOut ID 123259			
Email: george.momberger@dec.ny.gov	WO #:			
Project Name: C&B Dry Cleaners Site# 907028	Project #: 48021739			
Site: C+B	SSOW#:			

480-166748 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C - TCL list OLM04.2	8270D_SIM_MS_ID - 1,4-Dioxane SIM	PFC_IDA - PFAS, Standard List (21 Analytes)	Total Number	Special Instructions/Note:
			Preservation Code:				A	N	N		
Equipment Blank EB-20200225	2/25/20	18:00	G	Water			X	X	X		
				Water							
CBMW5				Water							
CBPZ101				Water							
CBPZ107				Water							
PMW-3				Water							
PMW-4				Water							
Field Duplicate				Water							NO VOCs
MS PMW-1-5-15 VG				Water			VG				
MSD PMW-1-5-15-20200225-2	2/25/20	12:35	G	Water				X	X		MS/MSD'S PARENT IS PMW-1-5-15-20200225
Equipment Blank				Water							

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time: 2-26-20 1230	Company: TVB

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1(M

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins

Client Information	Sampler: HDR	Lab PM: Johnson, Orlette S	Carrier Tracking No(s): DELIVERED TO LAB	COC No: 480-142747-31852.1
Client Contact: George Momberger	Phone: 201.786.8474	E-Mail: orlette.johnson@testamericainc.com		Page: Page 1 of 3
Company: New York State D.E.C.				Job #:
Address: 625 Broadway 9th Floor	Due Date Requested:			
City: Albany	TAT Requested (days): STANDARD			
State, Zip: NY, 12233-7258				
Phone:	PO #: CallOut ID 123259			
Email: george.momberger@dec.ny.gov	WO #:			
Project Name: C&B Dry Cleaners Site# 907028	Project #: 48021739			
Site: C+B	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C - TCL list OLM04.2	8270D_SIM_MS_ID - 1,4-Dioxane SIM	PFC_IDA - PFAS, Standard List (21 Analytes)														Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	N	N															
CBMW5 - 5-15-20200225	2/25/20	15:50	G	Water			X	X	X															
CBPZ101 - 3-10-20200225	2/25/20	17:25	G	Water			X	X	X															
CBPZ102 - 5-10-20200226	2/26/20	08:40	G	Water			X																	
CBPZ107 - 3-13-20200225	2/25/20	12:35	G	Water			X	[redacted]																VOCs ONLY
CBPZ110 - 5-13-20200225	2/25/20	16:50	G	Water			X																	
CBSP28 - 5-15-20200226	2/26/20	08:50	G	Water			X																	
PMW-1 - 5-15-20200225	2/25/20	12:35	G	Water			X	X	X															
PMW-2 - 7-17-20200225	2/25/20	~~11:50~~ 11:00	G	Water			X																	
PMW-3 - 3-13-20200225	2/25/20	10:50	G	Water			X	X	X															
PMW-4 - 6-16-20200225	2/25/20	17:40	G	Water			X	X	X															
~~Field Duplicate~~ PMW-3-3-13-20200225-1	2/25/20	10:50	G	Water			X	X	X															

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
			[signature]	2/26/20 1230	TAL
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
			[signature]	2-26-20 1230	TAL

Custody Seals Intact: Δ Yes Δ No	Custody Seal No:	Cooler Temperature(s) °C and Other Remarks:
		3.1 2.9 2.9 #1

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins

Client Information	Sampler: HDR	Lab PM: Johnson, Orlette S	Carrier Tracking No(s): DELIVERED TO LAB	COC No: 480-142747-31852.3
Client Contact: George Momberger	Phone: 201.786.8474	E-Mail: orlette.johnson@testamericainc.com		Page: Page 3 of 3
Company: New York State D.E.C		Analysis Requested		Job #:
Address: 625 Broadway 9th Floor	Due Date Requested:			Preservation Codes:
City: Albany	TAT Requested (days): STANDARD			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: NY, 12233-7258				
Phone:	PO #: CallOut ID 123259			Other:
Email: george.momberger@dec.ny.gov	WO #:			
Project Name: C&B Dry Cleaners Site# 907028	Project #: 48021739			
Site: C+B	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C - TCL list OLM04.2	8270D_SIM_MS_ID - 1,4-Dioxane SIM	PFC_IDA - PFAS, Standard List (21 Analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	N	N		
Trip Blank-1 TB-20200225	2/25/20	0800	G	Water			X				
Trip Blank-2				Water							
Trip Blank-3				Water							

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 2-26-20 1230	Company: TAB

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1°C 1.1

Table 1 - ISCO Injections Log - April 2021
Former C&B Dry Cleaners
City of Jamestown, Chautauqua County, New York

Temporary Injection Point ID	Location	Depth Interval (ft bgs)	Vol. (gal)									Total Injection Vol. (gal)	Difference from Target Vol. of 1300 gal Per Point	Comments
			4/13/2021			4/14/2021			4/15/2021					
			Initial Tot.	*Final Tot.*	Vol. Injected	*Initial Tot.*	*Final Tot.*	Vol. Injected	*Initial Tot.*	*Final Tot.*	Vol. Injected			
IB-201	North of Swanson	5 - 15	*3335*	*4635*	1301			0			0	1301	1	
IB-202	North of Swanson	5 - 15	*38147*	*39360*	1213			0			0	1213	-87	
IB-203	North of Swanson	5 - 15	*56005*	*57279*	1274			0			0	1274	-26	
IB-204	North of Swanson	6 - 15			0	*55182*	*55833*	651	*57257*	*57510*	253	904	-396	
IB-205	North of Swanson	5 - 15	*2011*	*3315*	1304			0			0	1304	4	
IB-206	North of Swanson	6 - 15			0	*39381*	*40111*	730	*42121*	*42765*	644	1374	74	
IB-207	North of Swanson	6 - 15			0	*4652*	*5470*	818	*5664*	*6190*	526	1344	44	
IB-208	North of Swanson	6 - 15			0	*4131*	*4792*	661	*6227*	*6482*	255	916	-384	
IB-209	North of Swanson	6 - 15			0	*57285*	*57760*	475	*59175*	*59770*	595	1070	-230	
IB-210	North of Swanson	5 - 15	*2815*	*4115*	1300			0			0	1300	0	
IB-211	North of Swanson	5 - 15	*53919*	*55166*	1247			0			0	1247	-53	
IB-212	West of Swanson	6 - 14			0	*3341*	*3970*	629	*5411*	*5890*	479	1108	-192	Clay encounterd 14-15 ft bgs.
IB-213	West of Swanson	NA			0			0			0	0	-1300	Not injected during this event.
IB-214	West of Swanson	NA			0			0			0	0	-1300	Not injected during this event.
IB-215	West of Swanson	NA			0			0			0	0	-1300	Not injected during this event.
IB-216	Pelican Site	5 - 15			0	*4827*	*5577*	750	*5619*	*6182*	563	1313	13	
IB-217	Pelican Site	5 - 15			0	*4014*	*4811*	797	*4850*	*5375*	525	1322	22	
IB-218	Pelican Site	6 - 15			0	*55858*	*56590*	732	*56646*	*57220*	574	1306	6	
IB-219	Pelican Site	5 - 15			0	*57788*	*58472*	684	*58510*	*59125*	615	1299	-1	
IB-220	Pelican Site	5 - 15			0	*40145*	*40904*	759	*40941*	*41491*	550	1309	9	
IB-221	Pelican Site	9 - 15			0			0	*41491*	*42091*	600	600	NA	New point installed 15 ft east of IB-218 in line with IB-216 through -218.
Total Vol. Tot.					7639			7686			6179	21504	-4496	
Truck 1 Wt					*34280*			*34240*			*30080*			
Truck 2 Wt					*32600*			*32580*			*25580*			
Trucks Total Vol.[1]					7750			7740			6450	21940		
% Difference					1%			1%			4%	2%		

Notes:
1. ISCO injectate is pre-mixed 5% sodium permanganate solution with a density of 8.63 lb/gal.
2. Each well will receive approximately 1300 gal

ft bgs - Feet below ground surface
gal - Gallon
lb - Pound
NA - Not applicable
Tot. - Totalizer
Vol. - Volume
Wt - Weight

Appendix F

In-Situ Chemical Oxidation Summary (GES, June 2021)

Groundwater & Environmental Services, Inc.

EASTERN NEW YORK OFFICE

June 4, 2021

Ms. Samantha Salotto, PE
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, Remedial Bureau E, Remedial Section A
Albany, New York 12233-7017

Re: In-Situ Chemical Oxidation Summary
Former C&B Dry Cleaners
Jamestown, New York
NYSDEC Site Number 907028

Dear Ms. Salotto:

Please find the enclosed *In-Situ Chemical Oxidation Summary* prepared by Groundwater & Environmental Services, Inc. (GES), on behalf of the New York State Department of Environmental Conservation (NYSDEC), for the former C&B Dry Cleaners located in Jamestown, New York (the site). Should you have any questions or comments regarding the information provided herein, please contact Thomas D. Palmer at (800) 287-7857, extension 4346.

Respectfully Submitted,
Groundwater & Environmental Services, Inc.

Pawel Mecinski
Project Remedial Specialist

Thomas D. Palmer
Senior Project Manager

Enclosure

cc: Erich Zimmerman, HDR

In-Situ Chemical Oxidation Summary

Former C&B Dry Cleaners
(NYSDEC Site Number 907028)

Prepared for:

New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Prepared by:

Groundwater and Environmental Services, Inc.
415 Lawrence Bell Drive, Suite 6
Williamsville, New York 14221

June 2021

IN-SITU CHEMICAL OXIDATION SUMMARY

Former C&B Dry Cleaners
Jamestown, New York
NYSDEC Site Number 907028

Prepared for:

New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

June 2021

Prepared by:

Pawel Mecinski
Project Remedial Specialist

Reviewed by:

Thomas D. Palmer
Senior Project Manager

Genevieve F. Bock, P.E.
NE Region Engineering Manager

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1.0 INTRODUCTION

Groundwater & Environmental Services, Inc. (GES) has prepared this *In-Situ Chemical Oxidation Summary* for the New York State Department of Environmental Conservation (NYSDEC) pursuant to the NYSDEC Call-Out ID #127233 for the Former C&B Dry Cleaners Site in Jamestown, New York (the site). This report outlines the following information:

- Injection event description;
- Injection event locations and injected volumes; and,
- Summary of injection monitoring.

2.0 INJECTION EVENT DESCRIPTION

GES, on behalf of the NYSDEC, conducted an in-situ chemical oxidation (ISCO) injection event at the site between April 12 and April 16, 2021 in general accordance with the *In-Situ Chemical Oxidation Work Plan*, dated March 17, 2021. A notification of the injection activities was submitted to the Underground Injection Control (UIC) section of the United States Environmental Protection Agency (USEPA) Region 2 on March 1, 2021 in advance of the injection activities at the site as required under the UIC program regulation. A copy of the UIC notification for the site is included as **Appendix A**.

2.1 Injection Implementation

2.1.1 Contractor Details

GES contracted Parratt-Wolff, Inc. (Parratt-Wolff) to complete direct push technology (DPT) drilling activities at the site and provide and operate injection equipment. GES also contracted Hepure Technologies, Inc. (Hepure) as the chemical vendor to provide a 5% sodium permanganate solution who subcontracted Thatcher Company of New York, Inc (Thatcher) as chemical loader and hauler to the site for injection activities.

2.1.2 Injection Schedule

GES and Parratt-Wolff mobilized to the site on Monday, April 12, 2021 and prepared for the injection event in addition to marking the twenty (20) intended DPT boring locations. The initial six (6) DPT borings were also installed on April 12, 2021. Injection activities commenced in the morning on April 13, 2021 and continued through Thursday, April 15, 2021. Injections activities were stopped on Thursday, April 15, 2021 due to extensive chemical daylighting in the abandoned Swanson building basement, nearby low-lying ground areas, and the adjacent unnamed stream. Site activities on Friday April 16, 2021 consisted of site ground, building, and stream monitoring and neutralizing activities only.

Two (2) chemical tankers were delivered to the site daily for use in injections. Each tanker held between approximately 3,500-4,000 gallons of chemical, with the final tanker on the final day of injections delivering approximately 3,000 gallons of chemical. Tankers departed the site at the end of each day and no sodium permanganate was left on-site overnight. Refer to **Appendix B** for chemical tanker delivery tickets and to **Appendix C** for daily field monitoring/chemical delivery tracking sheets.

2.2 Injection Locations

Initially, 20 boreholes were planned for injection during the 2021 event and the intention was to inject across the intervals of 15 to 12, and 12 to 9 feet below ground surface (bgs), followed by injection across the 9 to 5 foot bgs interval at each boring location. However, in several areas of the site the clay layer (representing the vertical extent of the injection area) was found to be located shallower than 15 feet bgs and limited chemical acceptance was observed at several boring locations. Additionally, extensive preferential chemical daylighting and surfacing was observed, which hindered injections at shallower vertical zones. Therefore, the actual depth of each boring, location of additional borings, injection intervals per boring, and volume of chemical injected per boring was adjusted throughout the event as necessary based on discussions between GES and the HDR (Engineer) representative on-site.

A total of 18 direct push injection soil borings were installed by Parratt Wolf under the supervision of GES personnel during the 2021 injection event:

- From the initially planned 20 boring locations (IB-201 through IB-220) only 17 were installed at the site (IB-201 through IB-212 and IB-216 through IB-220).
    - Injection borings IB-213 through IB-215 (located along the western wall of the building) were not installed due to extensive chemical surfacing near and inside the abandoned Swanson building basement and nearby western and southwestern areas of the property boundary.
    - Injection borings IB-204, IB-208, IB-209, and IB-212 received less volume than originally planned due to significant surfacing of chemicals in these areas during injection at adjacent boring locations.
- One (1) new boring (IB-221) was also added to the scope of work based on lithology observed and limited chemical acceptance at adjacent borings: Boring IB-221 was located to the east of IB-218.

Figure 1 presents the locations of the completed and cancelled borings from the 2021 ISCO event. **Table 1** describes the total depth of each borehole and the injection interval utilized at each borehole.

2.3 Injection Volumes

Based on the daily tanker delivery tickets, a total volume of approximately 21,942 gallons of an approximately 5% sodium permanganate solution was delivered to the site throughout the 2021 ISCO event. A summary table of tanker delivery weights and gallons is provided below.

Table A – Summary of Tanker Deliveries
2021 Injection Event

Date Truck Onsite	Delivery Time	Net Weight (pounds)	Approximate Volume (gallons)*
4/13/2021	8:00 AM	34,280	3,972
4/13/2021	12:00 PM	32,600	3,778
4/14/2021	8:00 AM	34,240	3,968
4/14/2021	12:00 PM	32,580	3,775
4/15/2021	8:00 AM	30,080	3,486
4/15/2021	3:00 PM	25,580	2,964
	Total:	189,360	21,942

* Assumes weight of 5% sodium permanganate is approximately 8.63 pounds/gallon.

Although the initial plan for the 2021 injection event included 26,000 gallons of a 5% sodium permanganate solution, the remaining approximately 4,000 gallons of solution was not delivered/injected during the event due to the numerous daylighting issues observed at the property during the injection event.

The delivered sodium permanganate solution was injected into the subsurface at the site in the 18 installed boring locations. An average volume of approximately 1,227 gallons was injected per location at the 17 original planned boring locations (IB-201 through IB-212 and IB-216 through IB-220). One (1) additionally installed boring location IB-221 accepted 600 gallons of chemical between 9 and 15 feet bgs. **Table 1** details the volume injected per boring location and **Table 2** is a digitized version of the injection manifold monitoring which details injection volume, pressure, and flow rate monitored at each injection location. Injections proceeded at pressures ranging from 0 to 28 pounds per square inch (psi) and injection flow rates of between 0.1 and 10 gallons per minute (gpm) per boring location.

Injections were monitored by both GES and Parratt-Wolff personnel during all injection activities.

2.4 Injection Monitoring

2.4.1 Injection Monitoring of Local Area

Throughout the April 2021 ISCO event, GES collected groundwater monitoring data from on-site and off-site groundwater monitoring wells that were accessible. Groundwater quality parameters including depth to water, water color (indicating presence of permanganate), temperature, conductivity, oxidation-reduction potential (ORP), and pH were measured prior to, during, and at the end of the event. The groundwater monitoring results are tabulated in **Table 3.**

In addition to daily groundwater monitoring, GES also conducted surface water and ground staining observations for chemical surfacing at a minimum of four times per day. Some sodium permanganate influence was observed on the adjacent water body (stream) during the injection event.

Surfacing of permanganate-impacted groundwater resulting in puddling on the ground surface was observed throughout the site during the 2021 injections, primarily in the shallow low-lying ground areas west of the building. Specifically, areas near proposed injection borings IB-213 and IB-214 were daylighting with sodium permanganate when injections occurred at IB-204 and IB-212. Some immediate soil borings were observed to be daylighting through the boring holes, which were immediately plugged with hydrated bentonite.

The basement of the Swanson building was observed to be flooded with at least one (1) foot of standing water ahead of the commencement of on-Site injection activities. The basement was influenced by the injection with standing water visually observed to be changing color from clear to dark purple throughout the entire basement area. Permanganate impacted water from the Swanson building basement also was flowing over land into the grass areas of the property, primarily from the southwest corner of the building. This was possibly due to additional deterioration of the building foundation and wall structures since the previous 2017 injection event. GES created a retaining berm made out of cinderblocks, concrete powder, and sand to retain and slow down basement water outflow at the southwestern corner of the building.

The area southwest of piezometer well CBPZ-102, near the stream, was observed to develop a preferential pathway with a single artesian spot where sodium permanganate was observed to be daylighting. This artesian condition appears to be the cause of permanganate impacts to the adjacent unnamed stream located to the west of the site. Upon observing permanganate injections in the stream, all injection activities ceased and activities were discussed with the NYSDEC and the Engineer.

A sodium thiosulfate solution was utilized to neutralize any detected chemical daylighting at the ground surface, the affected section of the slow flowing stream, and any basement outflow. Additionally, approximately 180 gallons of concentrated 30% sodium thiosulfate was added to the Swanson building basement at the end of the project to assist in neutralizing the sodium permanganate impacted water which had entered the basement during the injection event. See **Appendix C** for field monitoring data sheets, which list and describe specific areas where sodium permanganate daylighting was observed.

2.4.2 Community Air Monitoring Program

A community air monitoring program (CAMP) was implemented during all subsurface disruptions during the week long injection event (consisting of installing DPT borings). Air monitoring stations were set-up daily and consisted of one (1) upwind and one (1) downwind air monitoring station which each included a DustTrak particulate monitor and a photoionization detector (PID). The monitors were run continuously throughout the day during all drilling activities and the readings from the particulate monitor and the PID were recorded manually on an hourly basis during drilling activities. At no time during the injection event were particulate action levels [downwind particulate reading is more than 100 micrograms per cubic meter (µg/m3) above the upwind reading for a 15-minute average] or PID action levels [the downwind PID reading is more than 5 parts per million (ppm) above the upwind reading for a 15-minute average] reached. Therefore, no adjustment or interruption of site work was required due to CAMP monitoring. CAMP monitoring station data logs for the DustTrak are attached in **Appendix D**.

2.5 Decontamination

The only materials which came in contact with site contaminants during the event were the drilling rods and the down-well monitoring devices [interface probe and multi-parameter meter (YSI)]. Down-well monitoring devices were decontaminated daily by neutralizing the affected equipment with sodium thiosulfate solution. Drill rods were neutralized with sodium thiosulfate solution and steam washed by Parratt Wolff employees.

3.0 POST-INJECTION MONITORING

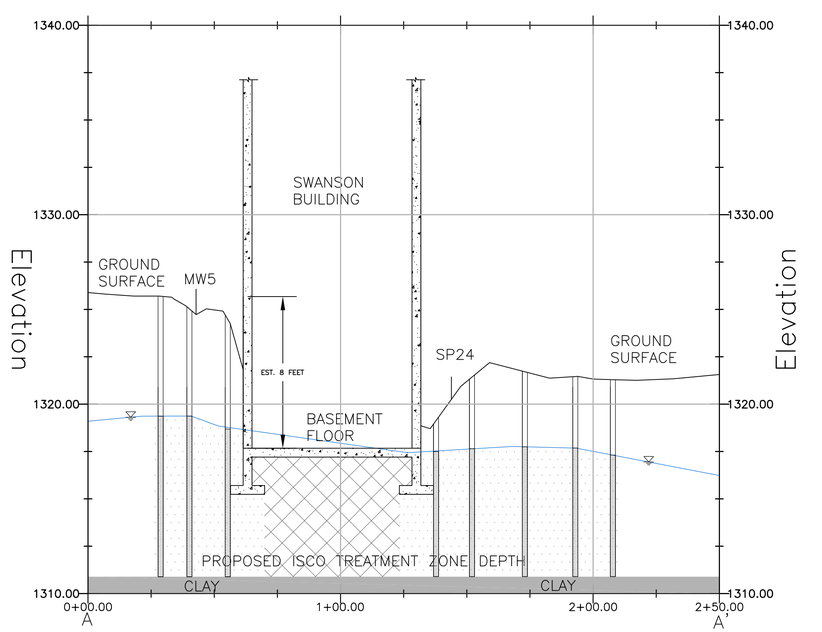
Due to surfacing of chemical from the building basement onto the ground surface and into the stream adjacent to the Site, GES completed several days of monitoring and sodium permanganate neutralization following completion of the injection event. During the monitoring events, GES checked the stream for the presence of any purple water and neutralized any purple permanganate with sodium thiosulfate. Additionally, GES monitored the presence of permanganate impacted groundwater in the building basement and in the area of the site grass outside of the building. GES monitored several on-site wells and piezometers (PZ-104, PZ-107, PZ-108, PZ-109, PMW-2, and PMW-3) for the presence of permanganate and depth to water as

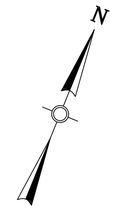
well. Daily reports of monitoring activities, including photographs, were submitted to the NYSDEC. Post-injection monitoring activities were conducted on the following days:

- April 16, 2021
- April 17, 2021
- April 18, 2021
- April 19, 2021
- April 23, 2021
- April 30, 2021
- May 7, 2021
- May 14, 2021
- May 21, 2021

FIGURES







LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- PERFORMANCE MONITORING WELL
- **PCE CONTAMINATION ISO-CONCENTRATION LINES (PPB; DASHED WHERE INFERRED)**
- INACCESSIBLE TREATMENT AREA
- PROPOSED ISCO TREATMENT AREA
- TEMPORARY INJECTION POINTS WITH ROI OF 12 FEET, TOTAL OF 60 LOCATIONS
- INFERRED LIMITS OF PCE GROUNDWATER

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
0	4/2019	RE-INJECTION WORK PLAN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
PROJECT NUMBER	10050422

GROUNDWATER RESULT SUMMARY

FORMER C&B DRY CLEANERS

CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

FIGURE 1 - SITE MAP

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-04

TABLES

Table 1

ISCO SUMMARY

Former C&B Dry Cleaners
Site # 907028
2241 Washington Street
Jamestown, New York

Injection Boring	Boring Termination Depth (feet below grade)	Deep Zone Injection Interval (feet below grade)	Intermediate Zone Injection Interval (feet below grade)	Shallow Zone Injection Interval (feet below grade)	Totalizer Injected Volume (gallons)	Comments
IB-201	15	12-15	9-12	5-9	1,301	no issues
IB-202	15	12-15	9-12	5-9	1,203	no issues
IB-203	15	12-15	9-12	5-9	1,264	slow borehole daylighting
IB-204	15	12-15	9-12	6-9	904	6-9' zone partially completed, borehole daylighting at shallow injection zone
IB-205	15	12-15	9-12	5-9	1,304	no issues
IB-206	15	12-15	9-12	5-9	1,374	no issues
IB-207	15	12-15	9-12	5-9	1,344	no issues
IB-208	15	12-15	9-12	6-9	916	6-9' zone partially completed
IB-209	15	12-15	9-12	6-9	1,060	6-9' zone partially completed
IB-210	15	12-15	9-12	5-9	1,300	no issues
IB-211	15	12-15	9-12	5-9	1,237	borehole daylighting
IB-212	14	11-14	9-12	6-9	1,108	clay between 14-15', raise screen, daylighting near IB-213 & 214 and immediate borehole
IB-216	15	12-15	9-12	5-9	1,313	no issues
IB-217	15	12-15	9-12	5-9	1,322	no issues
IB-218	15	12-15	9-12	5-9	1,306	daylighting near boring
IB-219	15	12-15	9-12	5-9	1,299	no issues
IB-220	15	12-15	9-12	5-9	1,309	no issues
IB-221	15	12-15	9-12	-	600	additional boring, 5-9' not started
Total Sodium Permaganate (5%) Volume Injected: ***(based on totalizer readings)***					**21,464**	**gallons**

Notes: Injections completed between April 13 and April 15, 2021.
Chemical injected via 3ft long screens in 4 different depth intervals. Target quantity was 1,300 gallons per point, or 390 gallons per interval zone up to 6ft deep and then additional 130 gallons at 5-8' interval.
Borings IB-213, IB-214, and IB-215 were not completed due to localized surfacing.

Table 2

INJECTION MANIFOLD MONITORING DATA

Former C&B Dry Cleaners
Site #907028
2241 Washington Street
Jamestown, New York

DATE: 4/13/2021
Weather: 60-70 deg. F, Sunny, Wind 5-10mph E
GES Oversight: Pawel Mecinski

Time:	Total Manifold (3/13/2021)				Leg #1: **IB-201**				Leg #2: **IB-202**				Leg #3: **IB-203**				Leg #4: **IB-211**				Leg #5: **IB-210**				Leg #6: **IB-205**			
	Total Flow (gpm)	Total Temp (F)	Total Pressure (psi)	Total Injected Volume (gallons)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)
8:30	Start	48	0	0	0	0	3335	0	0	0	38157	0	0	0	56016	0	0	0	53929	0	0	0	2815	0	0	0	2011	0
9:15	30.0	48	16	73	0	5	3408	73	6	5	38157	0	0	5	56016	0	4	3	53929	0	0	4.0	2815	0	6	8	2011	0
10:15	35.0	48	6	1,704	0	6	3725	391	6	5	38214	57	0	5	56321	306	0	5	54319	390	0	6	3044	230	0	8	2342	331
11:15	44.0	48	10	3,107	0	6	4115	781	10	7	38404	247	0	10	56650	635	0	5	54442	513	0	6	3206	392	0	10	2551	540
12:15	43.0	48	23	4,709	4	6	4310	976	12	9	38590	433	0	5	56820	805	0	7	54710	781	5	8.0	3570	756	2	8	2970	959
13:15	21.0	48	6	6,661	2	6	4635	1,301	4	4	39004	847	0	4	57032	1,017	0	2	54931	1,002	0	5.0	4005	1,191	-	-	3315	1,304
14:09	End	50	-	7,609	-	-	4635	**1,301**	-	-	39360	**1,203**	-	-	57279	**1,264**	-	-	55166	**1,237**	-	-	4115	**1,301**	-	-	3315	**1,304**

Notes:
gal -gallons
gpm -gallons per minute
psi -pounds per square inch
(F) -degrees Fahrenheit

Table 2

INJECTION MANIFOLD MONITORING DATA

Former C&B Dry Cleaners
Site #907028
2241 Washington Street
Jamestown, New York

DATE: 4/14/2021
Weather: 50 deg. F, Sunny, some clouds
GES Oversight: Pawel Mecinski

Time:	Total Manifold (4/14/2021)				Leg #1: **IB-207**				Leg #2: **IB-206**				Leg #3: **IB-209**				Leg #4: **IB-204**				Leg #5: **IB-208**				Leg #6: **IB-212**			
	Total Flow (gpm)	Total Temp (F)	Total Pressure (psi)	Total Injected Volume (gallons)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)
8:00	Start	49	0	0	0	0	4652	0	0	0	39381	0	0	0	57295	0	0	0	55182	0	0	0	4131	0	0	0	3341	0
8:22	31.0	49	106	146	10	4	4665	13	20	4	39400	19	24	4	57310	15	4	6	55241	59	28	7	4152	21	20	6	3360	19
9:30	34.0	49	78	1,396	10	6	4848	196	20	6	39451	70	21	5	57401	106	3	6	55580	398	12	5	4426	295	12	6	3672	331
10:30	5.0	49	10	3,420	10	5	5197	545	-	-	39850	469	-	-	57760	465	-	-	55833	651	-	-	4792	661	-	-	3970	629
11:30	0.0	49	0	3,420	0	0.0	5197	545	-	-	39850	469	-	-	57760	465	-	-	55833	651	-	-	4792	661	-	-	3970	629
13:30	8.0	49	26	3,443	12	4	5210	558	14	4	39860	479	-	-	57760	465	-	-	55833	651	-	-	4792	661	-	-	3970	629
14:09	End	49	0	3,954	-	-	5470	**818**	-	-	40111	**730**	-	-	57760	**465**	-	-	55833	**651**	-	-	4792	**661**	-	-	3970	**629**

Time:	Total Manifold (4/14/2021)				Leg #1: **IB-220**				Leg #2: **IB-219**				Leg #3: **IB-218**				Leg #4: **IB-216**				Leg #5: **IB-217**				Leg #6: **IB-221**			
	Total Flow (gpm)	Total Temp (F)	Total Pressure (psi)	Total Injected Volume (gallons)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)
15:23	Start	49	0	0	0	0	40145	0	0	0.0	57788	0	0	0	55858	0	0	0	4827	0	0	0	4014	0	0	0	0	0
16:30	32.0	49	79	1,830	16	7	40528	383	21	6	58116	328	4	7	56189	331	16	6	5218	391	22	6	4411	397	0	0	11,004	0
17:30	32.0	49	77	3,673	14	6	40887	742	20	6	58468	680	4	9	56585	727	17	6	5556	729	22	5	4809	795	0	0	11,004	0
17:40	End	49	0	3,722	-	-	40904	**759**	-	-	58472	**684**	-	-	56590	**732**	-	-	5577	**750**	-	-	4811	**797**	-	-	11,396	0

Notes:
gal -gallons
gpm -gallons per minute
psi -pounds per square inch
(F) -degrees Fehreinheit

Table 2

INJECTION MANIFOLD MONITORING DATA

Former C&B Dry Cleaners
Site #907028
2241 Washington Street
Jamestown, New York

DATE: 4/15/2021
Weather: 40 deg. F, Showers, Wind 10-15mph E
GES Oversight: Pawel Mecinski

Time:	Total Manifold (4/15/2021)				Leg #1: **IB-207**				Leg #2: **IB-206**				Leg #3: **IB-209**				Leg #4: **IB-204**				Leg #5: **IB-208**				Leg #6: **IB-212**			
	Total Flow (gpm)	Total Temp (F)	Total Pressure (psi)	Total Injected Volume (gallons)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)
15:00	Start	50	0	0	0	0	5664	818	0	0	42121	730	0	0	59175	465	0	0	57257	651	0	0	6227	661	0	0	5411	629
15:45	24.0	50	69	738	8	5	5711	865	-	4	42358	967	15	4	59380	670	7	4	57373	767	19	2	6291	725	20	5	5480	698
17:00	End	50	0	2,752	-	-	6190	**1,344**	-	-	42765	**1,374**	-	-	59770	**1,060**	-	-	57510	**904**	-	-	6482	**916**	-	-	5890	**1,108**
Time:	Total Manifold (4/15/2021)				Leg #1: **IB-220**				Leg #2: **IB-219**				Leg #3: **IB-218**				Leg #4: **IB-216**				Leg #5: **IB-217**				Leg #6: **IB-221**			
	Total Flow (gpm)	Total Temp (F)	Total Pressure (psi)	Total Injected Volume (gallons)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)	Pressure (psi)	Flow (gpm)	Totalizer Reading (gal)	Injected Volume (gal)
8:00	Start	48	0	0	0	0	40941	759	0	0	58510	684	0	0	56646	732	0	0	5619	750	0	0	4850	797	-	-	-	0
9:10	27.0	48	79	0	14	5	40941	759	20	6	58510	684	10	5	56646	732	15	6	5619	750	20	5	4850	797	-	-	-	0
9:59	27.0	48	55	1,524	14	6	41253	1,071	14	6	58875	1,049	8	5	56873	959	8	5	5936	1,067	11	5	5153	1,100	0	0	41,491	0
11:00	12.0	48	25	3,006	-	-	41491	1,309	-	-	59125	1,299	5	2	57150	1,236	-	-	6182	1,313	-	-	5375	1,322	20	10	41,740	249
11:30	End	48	0	3,427	-	-	41491	**1,309**	-	-	59125	**1,299**	-	-	57220	**1,306**	-	-	6182	**1,313**	-	-	5375	**1,322**	-	-	42,091	**600**

Notes:
gal -gallons
gpm -gallons per minute
psi -pounds per square inch
(F) -degrees Fehreinheit
Injected gallon volumes of individual injection borings at the start of daily injections are continuation of injection totals from 4.14.2021

Table 3

PRE AND POST INJECTION MONITORING RESULTS

Former C&B Dry Cleaners
Site # 907028
2241 Washington Street
Jamestown, New York

Monitoring Well	Event	Date	Depth to Water (feet)	Oxygen Reduction Potential (mV)	pH	Specific Conductivity (mS/cm)	Temperature (°C)	Groundwater Color
CBPZ-108	Pre-Injection	04/12/21	6.62	163	7.01	0.440	10.10	Clear
	Mid Injection	04/13/21	6.70	236	7.09	0.553	11.20	Brown/Silty
	Mid Injection	04/14/21	6.67	562	7.19	0.585	11.70	Brown/Silty
	Post Injection	04/15/21	6.62	593	7.21	0.655	8.20	Brown/Silty
PMW-2	Pre-Injection	04/12/21	3.62	184	7.04	1.260	7.30	Clear
	Mid Injection	04/13/21	3.62	253	7.10	1.234	12.60	Clear
	Mid Injection	04/14/21	3.65	451	7.16	1.226	10.50	Clear
	Post Injection	04/15/21	3.53	553	7.11	1.242	10.00	Clear
PMW-3	Pre-Injection	04/12/21	4.13	186	6.99	1.611	5.30	Clear
	Mid Injection	04/13/21	4.13	248	7.20	1.118	11.40	Clear
	Mid Injection	04/14/21	4.03	531	7.37	1.307	8.40	Clear
	Post Injection	04/15/21	3.98	533	7.17	1.350	8.00	Clear
PMW-4	Pre-Injection	04/12/21	6.95	-202	7.16	1.394	7.50	Clear
	Mid Injection	04/13/21	-	-	-	-	-	-
	Mid Injection	04/14/21	6.83	147	7.01	1.421	8.10	Clear
	Post Injection	04/15/21	6.79	427	6.55	1.377	7.50	Red/Purple
MW-5	Pre-Injection	04/12/21	7.41	198	7.23	1.982	6.40	Clear
	Mid Injection	04/13/21	5.97	-	-	-	-	Dark Purple
	Mid Injection	04/14/21	7.36	504	7.26	0.678	10.00	Red/Purple
	Post Injection	04/15/21	6.48	601	7.55	0.906	7.20	Red/Purple
MW-2	Pre-Injection	04/12/21	5.88	-	-	-	-	Brown/Silty
	Mid Injection	04/13/21	5.69	-	-	-	-	Light Brown
	Mid Injection	04/14/21	5.88	593	6.89	2.658	9.10	Red/Purple
	Post Injection	04/15/21	5.88	616	7.12	2.845	9.00	Red/Purple
MW-4	Pre-Injection	04/12/21	5.33	-	-	-	-	Clear
	Mid Injection	04/13/21	4.95	-	-	-	-	Light Purple
	Mid Injection	04/14/21	5.24	600	7.30	1.193	8.50	Red/Purple
	Post Injection	04/15/21	5.18	587	7.25	1.010	8.60	Red/Purple
CPBA-101	Pre-Injection	04/12/21	6.27	-	-	-	-	Clear
	Mid Injection	04/13/21	-	-	-	-	-	-
	Mid Injection	04/14/21	5.69	278	7.23	1.368	9.30	Red/Purple
	Post Injection	04/15/21	5.95	662	6.79	12.633	8.20	Red/Purple
CPBA-110	Pre-Injection	04/12/21	5.51	-	-	-	-	Clear
	Mid Injection	04/13/21	-	-	-	-	-	-
	Mid Injection	04/14/21	5.42	308	7.22	1.236	9.50	Brown/Silty
	Post Injection	04/15/21	5.38	636	6.92	4.946	8.00	Red/Purple

Notes:

mV	-Milivolts
°C	-Degrees Centigrade
(mS/cm)	-MiliSiemens per centimeter
-	-Not measured

APPENDIX A

March 1, 2021

Ms. Kimberly McEathron
Acting Chief
Drinking Water and Groundwater Protection Section
US Environmental Protection Agency, Region 2
290 Broadway, 20th Floor
New York, NY 10007-1866
Via Email: Region2_UIC@epa.gov

RE: In-Situ Chemical Oxidation (ISCO) Remediation
Former C&B Dry Cleaners Site (multiple parcels)
***Primary Parcel*: 2241 Washington Street**
***Secondary Parcels:* 2245, 2229, and 2221 Washington Street**
Jamestown, NY 14701
NYSDEC Site Number 904028

Dear Ms. McEathron

Groundwater and Environmental Services, Inc., (GES) on behalf of the New York State Department of Environmental Conservation (NYSDEC) is providing notification of remedial activities involving the injection of sodium permanganate into the subsurface at the above-referenced site. The proposed activities will be conducted to address the remaining hydrocarbon impacts at the site under a work plan approved by the New York State Department of Environmental Conservation (NYSDEC).

Remedial activities are anticipated to take place over approximately five (5) days starting on April 12, 2021. This project is subject to the groundwater protection requirements of the Environmental Protection Agency (EPA) Underground Injection Control (UIC) program. EPA form #7520-16 (Inventory of Injection Wells) was previously submitted in July 2017 for a similar event completed in 2017. An updated form #7520-16 is attached with this letter as **Appendix A**.

In-situ chemical oxidation (ISCO) at the site will include injection of an approximately 5% sodium permanganate solution into approximately 20 temporary boreholes. The oxidant will be directly applied to the subsurface via direct-push technology and the boreholes will be abandoned with bentonite and sand to grade following completion of injection at each point. A Site map with the proposed boring locations is attached as **Figure C-04**.

During the April 2021 event, a total volume of up to approximately 26,000 gallons of a 5% sodium permanganate solution will be injected through geoprobe rods into the subsurface to target the soil interval between 5 feet and 15 feet below ground surface (bgs). Injections will occur at a maximum rate of approximately 5 gallons per minute (gpm) per borehole, with simultaneous injection at up to seven (7) locations per day.

Permanganate can rapidly convert a wide range of chlorinated volatile organic compounds (VOCs) to carbon dioxide, water and chloride ions. The permanganate is reduced to an insoluble manganese dioxide during the reaction. Permanganate oxidation involves a direct electron transfer unlike other oxidants, such as persulfate and hydrogen peroxide, which use the free radical approach. Permanganate has a unique affinity for oxidizing organic compounds containing carbon-carbon double bonds, aldehyde groups or hydroxyl groups. As an

electrophile, the permanganate ion is strongly attracted to the electrons in carbon-carbon double bonds found in chlorinated alkenes, borrowing electron density from these bonds to form a bridged, unstable oxygen compound known as the cyclic hypomanganate ester. This intermediate product further reacts by a number of mechanisms including hydroxylation, hydrolysis, or cleavage. Under most naturally occurring subsurface pH and temperature conditions, the carbon-carbon double bond of alkenes is broken spontaneously and the unstable intermediates are converted to carbon dioxide through either hydrolysis or further oxidation by the permanganate ion.

The injection process will be monitored and controlled to ensure a safe and effective application. All chemicals will be delivered to the site as a pre-mixed solution. Prior to the injection event, GES will collect baseline water chemistry samples. During the ISCO injection event, GES will monitor groundwater conditions in surrounding monitoring wells and will monitor the area for surficial changes and daylighting of chemicals

A Safety Data Sheet (SDS) for the concentrated sodium permanganate solution (40% concentration) is included as **Appendix B**. A diluted solution of 5% sodium permanganate will be delivered and utilized onsite. Additional injections of sodium permanganate solution into temporary boreholes may be conducted at the site in the future based on an evaluation of the effectiveness of the April 2021 event in reducing hydrocarbon impacts at the site.

If you have any questions or concerns regarding this project, please contact Thomas Palmer at (800) 287-7857, extension 4346.

Respectfully Submitted,
Groundwater & Environmental Services, Inc.

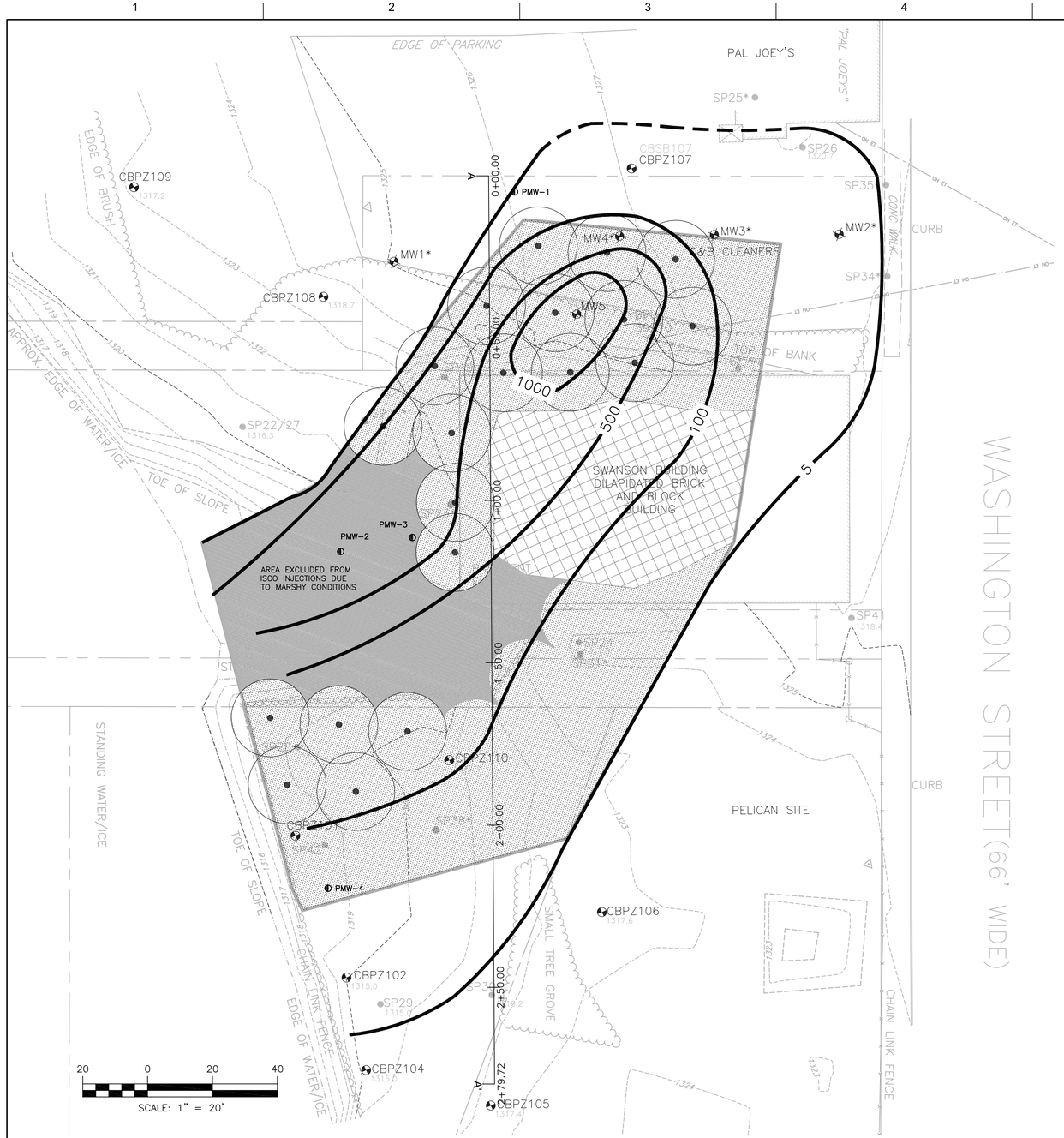
Genevieve F. Bock, P.E.
NE Region Engineering Manager
Gbock@gesonline.com

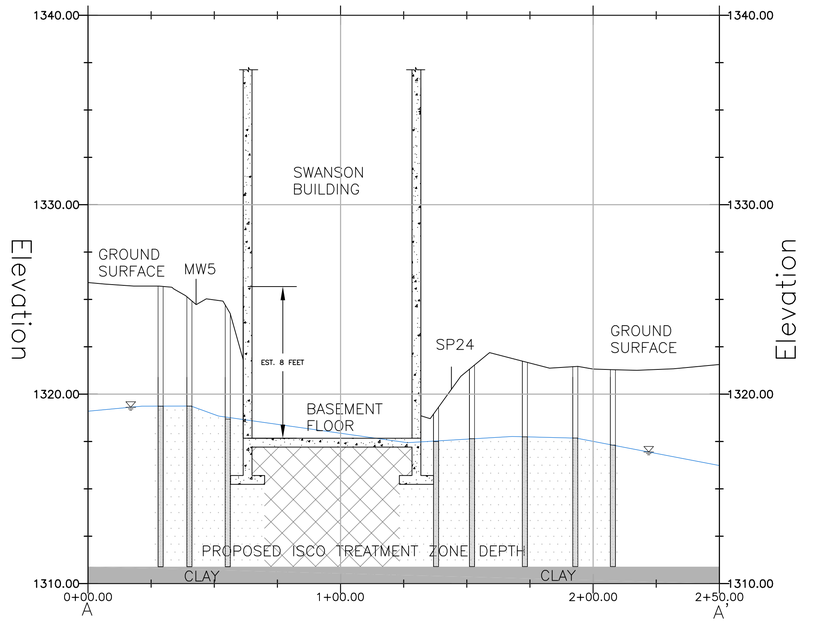
Thomas D. Palmer
Senior Project Manager
tpalmer@gesonline.com

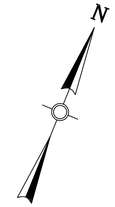
Figure C-04 Site Map
Appendix A UIC Inventory of Injection Wells
Appendix B Safety Data Sheet

cc: Samantha Salotto, NYSDEC Samantha.Salotto@dec.ny.gov
Erich Zimmerman, P.E., HDR Erich.Zimmerman@hdrinc.com

Figure







LEGEND:

- CHAIN LINK FENCE
- APPROXIMATE EDGE OF WATER
- EXISTING MAJOR ELEVATION CONTOUR
- EXISTING MINOR ELEVATION CONTOUR
- BUILDING OUTLINE
- CONCRETE WALK
- PROPERTY LINE
- OVERHEAD WIRE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- EXISTING SAMPLING POINT
- PRE-DESIGN PIEZOMETER WELL
- EXISTING MONITORING WELL
- PERFORMANCE MONITORING WELL
- **PCE CONTAMINATION ISO-CONCENTRATION LINES (PPB; DASHED WHERE INFERRED)**
- INACCESSIBLE TREATMENT AREA
- PROPOSED ISCO TREATMENT AREA
- TEMPORARY INJECTION POINTS WITH ROI OF 12 FEET, TOTAL OF 60 LOCATIONS
- INFERRED LIMITS OF PCE GROUNDWATER

NOTES:

* APPROXIMATE 2007 RI SAMPLE LOCATION

1. BEARINGS AND NORTH ORIENTATION SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/96 NYS CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) USING GPS PROCEDURES.
3. SURVEY INFORMATION IS BASED ON A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES, P.E., L.S., L.A., D.P.C. IN JANUARY 2015 AND HAD 6"-8" SNOW COVER DURING FIELDWORK WHICH MAY HAVE OBSCURED TOPOGRAPHIC AND/OR PHYSICAL FEATURES.
4. CBSB114 LOCATION WAS DETERMINED BY FIELD MEASUREMENT.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
0	4/2019	RE-INJECTION WORK PLAN

PROJECT MANAGER	
PROJECT MANAGER	E. ZIMMERMAN
PROJECT NUMBER	10050422

GROUNDWATER RESULT SUMMARY

FORMER C&B DRY CLEANERS

CITY OF JAMESTOWN, CHAUTAUQUA COUNTY, NEW YORK

TEMPORARY INJECTION POINT LAYOUT - 2019

0 20 40

FILENAME

SCALE 1"= 20'

FIGURE C-04

Appendix A

Type or print all information. See reverse for instructions. OMB No. 2040-0042 Approval Expires 4/30/07

INVENTORY OF INJECTION WELLS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF GROUND WATER AND DRINKING WATER

(This information is collected under the authority of the Safe Drinking Water Act)

1. DATE PREPARED *(Year, Month, Day)*: 21-02-26

2. FACILITY ID NUMBER:

PAPERWORK REDUCTION ACT NOTICE

The public reporting burden for this collection of information is estimated at about 0.5 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, 2136, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

3. TRANSACTION TYPE *(Please mark one of the following)*

- ☐ Deletion
- ☐ First Time Entry
- ☑ Entry Change
- ☐ Replacement

4. FACILITY NAME AND LOCATION

A. NAME *(last, first, and middle initial)*: Former C&B Dry Cleaners

B. STREET ADDRESS/ROUTE NUMBER: 2241 Washington Street

C. LATITUDE

DEG	MIN	SEC
42	06	44.3

D. LONGITUDE

DEG	MIN	SEC
-79	14	48.1

E. TOWNSHIP/RANGE

TOWNSHIP	RANGE	SECT	1/4 SECT

F. CITY/TOWN: Jamestown

G. STATE: NY

H. ZIP CODE: 14701

I. NUMERIC COUNTY CODE: 013

J. INDIAN LAND *(mark "x")*: ☐ Yes ☒ No

5. LEGAL CONTACT:

A. TYPE *(mark "x")*: ☐ Owner ☒ Operator

B. NAME *(last, first, and middle initial)*: Salotto, Samantha R.

C. PHONE *(area code and number)*: (518) 402-9903

D. ORGANIZATION: NYSDEC

E. STREET/P.O. BOX: 625 Broadway

F. CITY/TOWN: Albany

G. STATE: NY

H. ZIP CODE: 12233-7016

I. OWNERSHIP *(mark "x")*

- ☐ PRIVATE
- ☐ PUBLIC
- ☐ SPECIFY OTHER
- ☒ STATE
- ☐ FEDERAL

6. WELL INFORMATION:

A. CLASS AND TYPE		B. NUMBER OF WELLS		C. TOTAL NUMBER OF WELLS	D. WELL OPERATION STATUS				
		COMM	NON-COMM		UC	AC	TA	PA	AN
V	5		20	20	20				
				0					
				0					
				0					
				0					
				0					
				0					

COMMENTS *(Optional)*: 20 temporary borings will be installed for injection purposes. The borings will be immediately abandoned following injections.

KEY:

DEG = Degree
MIN = Minute
SEC = Second
SECT = Section
1/4 SECT = Quarter Section

COMM = Commercial
NON-COMM = Non-Commercial
AC = Active
UC = Under Construction
TA = Temporarily Abandoned
PA = Permanently Abandoned and Approved by State
AN = Permanently Abandoned and not Approved by State

Appendix B

SODIUM PERMANGANATE

SAFETY DATA SHEET

Reviewed on 6/26/2015

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name: Sodium permanganate
Description: 40% minimum as NaMn04

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Oxidation of organic compounds for remediation

1.3 Details of the supplier of the safety data sheet

Company: Hepure Technologies, Inc.
63 Main Street, Suite 203B
Flemington, NJ 08822
Phone: 877-727-4776

1.4 Emergency telephone number

Emergency Phone #: CHEMTREC 1-800-424-9300

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Oxidizing liquids (Category 2), H272
Acute toxicity, Oral (Category 4), H302
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Specific target organ toxicity, single exposure (Category 3, Respiratory Tract irritation)
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word	Danger
Hazard statement(s)	
H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P210	Keep away from heat.
P220	Keep/store away from clothing/combustible materials.
P221	Take any precaution to avoid mixing with combustibles.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face Protection
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all Contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a Position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/ physician.
P321	Specific treatment (see supplemental first aid instructions on this label).
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS – none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Formula: $MnNaO_4$

Molecular weight : 141.93 g/mol

Hazardous components:

Component	Classification	Concentration
Sodium Permanganate		
CAS-No. 10101 -50-5 EC-No. 233-251 -1	Ox. Sol. 2; Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1 ; Aquatic Acute 1 ; Aquatic Chronic 1 ; H272, H302, H314, H410	>=36-40%

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

***Physicians Note**

Decomposition products are alkaline

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Use large amounts of water. Dike to contain.
DO NOT USE dry chemicals, foams

5.2 Special hazards arising from the substance or mixture

Sodium oxides, Manganese/manganese oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting.

5.4 Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Contain spill by collecting the liquid in a pit or holding behind a dam. Dilute to approx. 6% solution with water and then reduce with sodium thiosulfate, a bisulfite, or ferrous salt solution. Flush with abundant water into the sewer if permitted by federal, state, and local authorities. If not, collect and treat as above.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.
Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Segregate from acids, peroxides, formaldehyde, and all combustible, organic, or easily oxidized materials.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Sodium permanganate	10101 -50-5	C	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Ceiling limit is to be determined from breathing-zone air samples.		
	TWA	0.200000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)	
	Central Nervous System impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) varies			
	TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits	
	ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits	
	TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)	
	Central Nervous System impairment 2014 Adoption			

	varies		
	TWA	0.020000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Central Nervous System impairment 2014 Adoption varies		
	TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Central Nervous System impairment varies		
	TWA	0.02 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Central Nervous System impairment varies		

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form:	Purple liquid
b) Odor	No data available
c) Odor Threshold	No data available
d) pH	6-9
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	100 °C (212 °F)
g) Flash point	>105 degrees C
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	760 mm @ 105 degrees C
l) Vapor density	No data available
m) Relative density	1.391 g/cm3
n) Water solubility	Complete solubility in all proportions
o) Partition coefficient: noctanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	Not explosive. Can explode in contact with sulfuric acid, peroxides, and metal powders.
t) Oxidizing properties	Strong oxidizing agent.

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Acids, peroxides, and all combustible organic or readily oxidizable materials including inorganic oxidizable materials and metal powders. With hydrochloric acid, chlorine gas is liberated.

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5; when involved in a fire, sodium permanganate may form corrosive fumes.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	No data available
Inhalation	No data available
Dermal	No data available
Skin corrosion/irritation	No data available
Serious eye damage/eye irritation	No data available
Respiratory or skin sensitization	No data available
Germ cell mutagenicity	No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity	No data available
Specific target organ toxicity – single exposure	No data available
Specific target organ toxicity –	

repeated exposure	No data available
Aspiration hazard	No data available
Additional Information	RTECS: Not available

Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds., Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence (Sodium permanganate)

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

When it becomes a waste, sodium permanganate is considered a D001 hazardous (ignitable) waste. For disposal of sodium permanganate solutions, follow procedures in Section 6 and deactivate the permanganate to insoluble manganese dioxide. Dispose of it in a permitted landfill. Contact Hepure Technologies, Inc for additional recommendations.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 3214 Class: 5.1 Packing group: II

Proper shipping name: 49 CFR172.101 Permanganates, inorganic, aqueous solution, n.o.s. (Sodium permanganate)

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

DOT Hazard Class:	49 CFR172.101	5.1
Hazard Class:	49 CFR172.101	Oxidizer

IMDG

UN number: 3214 Class: 5.1 Packing group: II EMS-No: F-H, S-Q

Proper shipping name: PERMANGANATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. (Sodium permanganate)

Marine pollutant: yes

IATA

UN number: 3214 Class: 5.1 Packing group: II

Proper shipping name: Permanganates, inorganic, aqueous solution, n.o.s. (Sodium permanganate)

15. REGULATORY INFORMATION

Toxic Substances Control Act (TSCA)

All components of this product are listed in the Toxic Substances Control Act Inventory

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):

Reportable Quantity - * pounds (RCRA hazardous waste)

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 311 Components

Acute Health	Yes
Chronic Health	Yes
Fire	Yes
Sudden Release of Pressure	No
Reactive	No

SARA 311 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 311.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Sodium permanganate	10101 -50-5	2007-07-01

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Sodium permanganate	10101 -50-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Sodium permanganate	10101 -50-5	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity

Eye Dam.	Serious eye damage
H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Ox. Sol.	Oxidizing solids
Skin Corr.	Skin corrosion

HMIS Rating

Health:	1
Flammability:	0
Physical Hazard:	0
Protective Equipment:	D

NFPA Rating

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0
Special hazard:	OX

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Hepure Technologies, Inc. and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

APPENDIX B

THATCER COMPANY OF NEW YORK, INC.
TRUCK SCALE TICKET

Ticket #
Weighed on a Rice Lakes Scale

In: 4/12/2021 12:30 pm
Out: 4/12/2021 2:30 pm

Order#:
Tractor and Trailer(s): T-636
Carrier:
Notes:
Additive: Miscellaneous

Gross: 70,240
Tare: 35,960
Net: 34,280

4/13
8 AM

Copy Distribution: 1 – Dispatch 2 – Control 3 – Customer 4 - Office

THATCHER COMPANY OF NEW YORK, INC.
Truck Scale Ticket

Ticket # 62666
Weighed on a Rice Lakes Scale

In: 4/12/2021 04:34 PM
Out: 4/12/2021 07:33 PM

Order # : 655309
Tractor and Trailer(s) :
Carrier : Kuhnle
Notes : sod. permanganate
Additive : Miscellaneous

Gross : 67400
Tare : 34800
Net : 32600

Copy Distribution: 1 - Dispatch 2 - Control 3 - Customer 4 - Office

4/13
12 PM

THATCHER COMPANY OF NEW YORK, INC.
Truck Scale Ticket

Ticket # 62685
Weighed on a Rice Lakes Scale

In: 4/13/2021 02:32 PM
Out: 4/13/2021 03:57 PM

Order # : 655310
Tractor and Trailer(s) :
Carrier : Kuhnle
Notes : Sodium Permanganate
Additive : Miscellaneous

Gross : 70000
Tare : 35760
Net : 34240

Copy Distribution: 1 - Dispatch 2 - Control 3 - Customer 4 - Office

4/14
8 AM

THATCHER COMPANY OF NEW YORK, INC.
Truck Scale Ticket

Ticket # 62688
Weighed on a Rice Lakes Scale

In: 4/13/2021 06:12 PM
Out: 4/13/2021 07:43 PM

Order # : 655311
Tractor and Trailer(s) :
Carrier : Kuhnle
Notes : sod. permanagate
Additive : Miscellaneous

Gross : 66880
Tare : 34300
Net : 32580

Copy Distribution: 1 - Dispatch 2 - Control 3 - Customer 4 - Office

4/14
12 PM

THATCHER COMPANY OF NEW YORK, INC.
Truck Scale Ticket

Ticket # 62707
Weighed on a Rice Lakes Scale

In: 4/14/2021 05:17 PM
Out: 4/14/2021 06:32 PM

Order # : 655312
Tractor and Trailer(s) :
Carrier : Kuhnle
Notes : sod. permanganate
Additive : Miscellaneous

Gross : 65960
Tare : 35880
Net : 30080

Copy Distribution: 1 - Dispatch 2 - Control 3 - Customer 4 - Office

4/15
8 pm

THATCHER COMPANY OF NEW YORK, INC.
Truck Scale Ticket

Ticket # 62716
Weighed on a Rice Lakes Scale

In: 4/15/2021 11:21 AM
Out: 4/15/2021 11:21 AM

Order # : 655313
Tractor and Trailer(s) : 551
Carrier : Kuhnle
Notes : Sod. Perm 5%
Additive : Miscellaneous

Gross : 60020
Tare : 34440
Net : 25580

Copy Distribution: 1 - Dispatch 2 - Control 3 - Customer 4 - Office

4/15

1500

STRAIGHT BILL OF LADING

From: **Thatcher Company of New York, Inc.**
At: 4135 Route 104
Williamson NY 14589
Phone: 315-589-9330

THATCHER GROUP

ORDER DATE	B/L NO.
3/23/2021	655299
Internal Use Only	

**** CHEMICAL EMERGENCY CONTACT: CHEMTREC DAY OR NIGHT 800-424-9300 CUST NO: CCN 22106 * ***

CUST NO. 2500350

SOLD TO
Hepure Technologies, Inc.
PO Box 5784
Hillsborough, NJ 08844
866-727-4776

SHIP TO
GES Environmental
2241 Washington St.
Jamestown, NY 14701
866-727-4776 866-727-4776 x 4

Ship Date	Delivery Date	WHS	SHIP VIA	FREIGHT	FOB REMARK	SALES AGENT	OPERATOR
4/12/2021	4/13/2021	NY01	Thatcher/Carrier	Prepaid & Add	Origin	AMP	MiaS

CUSTOMER PO NUMBER	ORDERED BY
2278	

Quantity Shipped	TYPE OF CONTAINER	HM	DESCRIPTION	QUANTITY ORDERED	NET WEIGHT	GROSS WEIGHT	FRTC LS
	1 BULK CARGO TANK 4/13 @ 8AM	X	UN3214,Permanganates, inorganic, aqueous solution, n.o.s.,(Sodium permanganate),,5.1, PGII Sodium Permanganate 5% 4000 BULK Product Code: 1916010	4000	34532 Lbs	34532 Lbs	
			Total Weights:		**34532 Lbs**	**34532 Lbs**	
			8AM DELIVERY REQUIRED ON 4/13 DATE/QUANTITY SUBJECT TO CHANGE ONCE PROJECT STARTS Blind shipment - use BOL provided by customer				

GROSS: (lbs) 70,240 | TARE: (lbs) 35,960 | NET: (lbs) 34,280

I hereby certify that the above materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to applicable regulations of the Department of Transportation.
Shipper BY: S. Catron

Carrier certifies that vessel supplied for this shipment is suitable for the transportation of each commodity named hereon and has been properly washed prior to loading.
BY: (Carrier) Kuhnle

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

Receiver states that product matches receiver's order and is in good condition. Acceptance of delivery is acceptance of attached contract terms.
BY: _____
(Customer)
DATE: _____

Pallets IN: | Pallets OUT:

Notes:

Trailer Numbers
Right Hoses Assigned to Trailer? Yes / No | Yes / No
of Hoses Needed Beyond Assigned

COD Amt: $ 0.00

Remit COD payment, and send freight bill with copy of B/L to:
Thatcher Company
Box 27407
Salt Lake City, UT 84127

DISPATCH

B655299

Carrier approves load securement
carrier BY: MAL

Carrier offered required placards
carrier BY: MAL

Emergency response guide present
carrier BY: MAL

Security	Load	Pick

Delivered
BY: KUHNLE
DATE: _____
TIME IN: _____ AM/PM
TIME OUT: _____ AM/PM

All product sales and deliveries are subject to Terms and Conditions found at www.tchem.com/terms

Printed: 4/9/2021 11:43:51 AM by MiaS

CHEM

THATCHER COMPANY OF NEW YORK

an ISO9001:2015 registered company (cert. #US013192)

P.O. BOX 118, WILLIAMSON, NEW YORK 14589
(315) 589-9330 PHONE
(315) 589-9835 FAX

CERTIFICATE OF ANALYSIS

Sodium Permanganate 5%
This is to certify that the listed lot number was assayed with the following results:

PO # 2278

	SPECIFICATION	RESULTS
Physical Appearance:	Clear purple liquid with no insoluble matter	OK
%$NaMNO_4$	4.5 – 5.4%	5.0 %

Thatcher Company of New York
Laboratory Services

4/13
8 AM

STRAIGHT BILL OF LADING

From: **Thatcher Company of New York, Inc.**
At: 4135 Route 104
Williamson NY 14589
Phone: 315-589-9330

THATCHER GROUP

ORDER DATE	B/L NO.
3/23/2021	655309
Internal Use Only	

**** CHEMICAL EMERGENCY CONTACT: CHEMTREC DAY OR NIGHT 800-424-9300 CUST NO: CCN 22106 ***

CUST NO.	SOLD TO	SHIP TO
2500350	Hepure Technologies, Inc. PO Box 5784 Hillsborough, NJ 08844 866-727-4776	GES Environmental 2241 Washington St. Jamestown, NY 14701 866-727-4776 866-727-4776 x 4

Ship Date	Delivery Date	WHS	SHIP VIA	FREIGHT	FOB REMARK	SALES AGENT	OPERATOR
4/12/2021	4/13/2021	NY01	Thatcher/Carrier	Prepaid & Add	Origin	AMP	MiaS

CUSTOMER PO NUMBER	ORDERED BY
2278	

Quantity Shipped	TYPE OF CONTAINER	HM	DESCRIPTION	QUANTITY ORDERED	NET WEIGHT	GROSS WEIGHT	FRTC LS
	1 BULK CARGO TANK	X	**UN3214,Permanganates, inorganic, aqueous solution, n.o.s.,(Sodium permanganate),,5.1, PGII** **Sodium Permanganate 5% 3800 BULK** Product Code: 1916010	3800	32805 Lbs	32805 Lbs	
			Total Weights:		**32805 Lbs**	**32805 Lbs**	
			12PM DELIVERY REQUIRED ON 4/13				
			DATE/QUANTITY SUBJECT TO CHANGE ONCE PROJECT STARTS				
			Blind shipment - use BOL provided by customer				

4/13
1200

GROSS: (lbs) | TARE: (lbs) | NET: (lbs)

I hereby certify that the above materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to applicable regulations of the Department of Transportation.
Shipper BY: S. Catron

Carrier certifies that vessel supplied for this shipment is suitable for the transportation of each commodity named hereon and has been properly washed prior to loading.
BY: (Carrier)

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

Receiver states that product matches receiver's order and is in good condition. Acceptance of delivery is acceptance of attached contract terms.
BY: _____
(Customer)
DATE: _____

Pallets IN: | Pallets OUT:

Notes:

Trailer Numbers
Right Hoses Assigned to Trailer? Yes / No | Yes / No
of Hoses Needed Beyond Assigned

COD Amt: $ 0.00

Remit COD payment, and send freight bill with copy of B/L to:
Thatcher Company
Box 27407
Salt Lake City, UT 84127

OFFICE

B655309

Carrier approves load securement carrier
BY:

Carrier offered required placards carrier
BY:

Emergency response guide present carrier
BY:

Security	Load	Pick

Delivered
BY: _____
DATE: _____
TIME IN: _____ AM/PM
TIME OUT: _____ AM/PM

All product sales and deliveries are subject to Terms and Conditions found at www.tchem.com/terms

Printed: 4/9/2021 11:44:39 AM by MiaS

STRAIGHT BILL OF LADING

From: **Thatcher Company of New York, Inc.**
At: 4135 Route 104
Williamson NY 14589
Phone: 315-589-9330

THATCHER GROUP

ORDER DATE	B/L NO.
3/23/2021	655309
Internal Use Only	

**** CHEMICAL EMERGENCY CONTACT: CHEMTREC DAY OR NIGHT 800-424-9300 CUST NO: CCN 22106 * ***

CUST NO.: 2500350

SOLD TO:
Hepure Technologies, Inc.
PO Box 5784
Hillsborough, NJ 08844
866-727-4776

SHIP TO:
GES Environmental
2241 Washington St.
Jamestown, NY 14701
866-727-4776 866-727-4776 x 4

Ship Date	Delivery Date	WHS	SHIP VIA	FREIGHT	FOB REMARK	SALES AGENT	OPERATOR
4/12/2021	4/13/2021	NY01	Thatcher/Carrier	Prepaid & Add	Origin	AMP	MiaS

CUSTOMER PO NUMBER	ORDERED BY
2278	

Quantity Shipped	TYPE OF CONTAINER	HM	DESCRIPTION	QUANTITY ORDERED	NET WEIGHT	GROSS WEIGHT	FRTC LS
	1 BULK CARGO TANK	X	**UN3214,Permanganates, inorganic, aqueous solution, n.o.s.,(Sodium permanganate),,5.1, PGII** **Sodium Permanganate 5% 3800 BULK** Product Code: 1916010	3800	32805 Lbs	32805 Lbs	
			Total Weights:		**32805 Lbs**	**32805 Lbs**	
			12PM DELIVERY REQUIRED ON 4/13				
			DATE/QUANTITY SUBJECT TO CHANGE ONCE PROJECT STARTS				
			Blind shipment - use BOL provided by customer				

GROSS: (lbs) | TARE: (lbs) | NET: (lbs)

I hereby certify that the above materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to applicable regulations of the Department of Transportation.
Shipper BY: S. Catron

Carrier certifies that vessel supplied for this shipment is suitable for the transportation of each commodity named hereon and has been properly washed prior to loading.
BY: _____ (Carrier)

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
_____ (Signature of Consignor)

Receiver states that product matches receiver's order and is in good condition. Acceptance of delivery is acceptance of attached contract terms.
BY: _____
(Customer)
DATE: _____

Pallets IN: | Pallets OUT:

Notes:

Trailer Numbers
Right Hoses Assigned to Trailer? ☐ Yes ☐ No ☐ Yes ☐ No
of Hoses Needed Beyond Assigned

COD Amt: $ 0.00

Remit COD payment, and send freight bill with copy of B/L to:
Thatcher Company
Box 27407
Salt Lake City, UT 84127

CUSTOMER

B655309

Carrier approves load securement carrier BY:

Carrier offered required placards carrier BY:

Emergency response guide present carrier BY:

Security	Load	Pick

Delivered
BY: _____
DATE: _____
TIME IN: _____ AM/PM
TIME OUT: _____ AM/PM

All product sales and deliveries are subject to Terms and Conditions found at www.tchem.com/terms

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Kuhnle Bros. Inc.

P.O. BOX 375 NEWBURY OHIO 44065

CERTIFIED WASH-OUT TICKET
LIQUID TANK INSPECTION REPORT

TRAILER # 1039 DATE 4/4/21

PRODUCT COMP 1 Air COMP 2 _____ COMP 3 _____ COMP 4 _____

SERVICES

COLD WATER		HOT WATER	X
DETERGENT		STEAM	X
CAUSTIC		PASSIVATE	
SOLVENT		FIRE HOSE	
SUPER CAUSTIC		PURGE LINES	
FOOD GRADE/KOSHER		OTHER	

DR
PHOTO INVENTORY FEE X

MISCELLANEOUS

HOSES X
PUMP
COMPARTMENTS 1 2 3 4
SPRAY DEODORIZE
STEAM NON-HAZ

WASH-BAY PERSONNEL SIGNATURE _____

4/13

THATCHER COMPANY OF NEW YORK

an ISO9001:2015 registered company (cert. #US013192)

P.O. BOX 118, WILLIAMSON, NEW YORK 14589
(315) 589-9330 PHONE
(315) 589-9835 FAX

CERTIFICATE OF ANALYSIS

Sodium Permanganate 5%
This is to certify that the listed lot number was assayed with the following results:

PO # 2278

	SPECIFICATION	RESULTS
Physical Appearance:	Clear purple liquid with no insoluble matter	OK
%$NaMNO_4$	4.5 – 5.4%	5.0 %

Thatcher Company of New York
Laboratory Services

4/13
1200

STRAIGHT BILL OF LADING

From: **Thatcher Company of New York, Inc.**
At: 4135 Route 104
Williamson NY 14589
Phone: 315-589-9330

THATCHER GROUP

ORDER DATE	B/L NO.
3/23/2021	655310
Internal Use Only	

**** CHEMICAL EMERGENCY CONTACT: CHEMTREC DAY OR NIGHT 800-424-9300 CUST NO: CCN 22106 * ***

CUST NO.	SOLD TO	SHIP TO
2500350	Hepure Technologies, Inc. PO Box 5784 Hillsborough, NJ 08844 866-727-4776	GES Environmental 2241 Washington St. Jamestown, NY 14701 866-727-4776 866-727-4776 x 4

Ship Date	Delivery Date	WHS	SHIP VIA	FREIGHT	FOB REMARK	SALES AGENT	OPERATOR
4/13/2021	4/14/2021	NY01	Thatcher/Carrier	Prepaid & Add	Origin	AMP	MiaS

CUSTOMER PO NUMBER	ORDERED BY
2278	

Quantity Shipped	TYPE OF CONTAINER	HM	DESCRIPTION	QUANTITY ORDERED	NET WEIGHT	GROSS WEIGHT	FRTC LS
	1 BULK CARGO TANK	X	**UN3214,Permanganates, inorganic, aqueous solution, n.o.s.,(Sodium permanganate),,5.1, PGII** **Sodium Permanganate 5% 4000 BULK** Product Code: 1916010	4000	34532 Lbs	34532 Lbs	
			Total Weights:		**34532 Lbs**	**34532 Lbs**	
			8AM DELIVERY REQUIRED ON 4/14				
			DATE/QUANTITY SUBJECT TO CHANGE ONCE PROJECT STARTS				
			Blind shipment - use BOL provided by customer				

4/14 8AM

GROSS: (lbs) | TARE: (lbs) | NET: (lbs)

I hereby certify that the above materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to applicable regulations of the Department of Transportation.
Shipper BY: S. Catron

Carrier certifies that vessel supplied for this shipment is suitable for the transportation of each commodity named hereon and has been properly washed prior to loading.
BY: _____ (Carrier)

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
_____ (Signature of Consignor)

Receiver states that product matches receiver's order and is in good condition. Acceptance of delivery is acceptance of attached contract terms.
BY: _____
(Customer)
DATE: _____

Pallets IN: | Pallets OUT:

Notes:

Trailer Numbers

Right Hoses Assigned to Trailer? Yes / No | Yes / No

of Hoses Needed Beyond Assigned

COD Amt: $ 0.00

Remit COD payment, and send freight bill with copy of B/L to:
Thatcher Company
Box 27407
Salt Lake City, UT 84127

CONTROL B655310

Carrier approves load securement
carrier
BY:

Carrier offered required placards
carrier
BY:

Emergency response guide present
carrier
BY:

Security	Load	Pick

Delivered
BY: _____
DATE: _____
TIME IN: _____ AM/PM
TIME OUT: _____ AM/PM

All product sales and deliveries are subject to Terms and Conditions found at www.tchem.com/terms

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THATCHER COMPANY OF NEW YORK

an ISO9001:2015 registered company (cert. #US013192)

P.O. BOX 118, WILLIAMSON, NEW YORK 14589
(315) 589-9330 PHONE
(315) 589-9835 FAX

CERTIFICATE OF ANALYSIS

Sodium Permanganate 5%
This is to certify that the listed lot number was assayed with the following results:

PO # 2278

	SPECIFICATION	RESULTS
Physical Appearance:	Clear purple liquid with no insoluble matter	OK
%$NaMNO_4$	4.5 – 5.4%	5.0 %

Thatcher Company of New York
Laboratory Services

4/14
8 AM

THATCHER COMPANY OF NEW YORK

an ISO9001:2015 registered company (cert. #US013192)

P.O. BOX 118, WILLIAMSON, NEW YORK 14589
(315) 589-9330 PHONE
(315) 589-9835 FAX

CERTIFICATE OF ANALYSIS

Sodium Permanganate 5%
This is to certify that the listed lot number was assayed with the following results:

PO # 2278

	SPECIFICATION	RESULTS
Physical Appearance:	Clear purple liquid with no insoluble matter	OK
%$NaMNO_4$	4.5 – 5.4%	5.0 %

Thatcher Company of New York
Laboratory Services

STRAIGHT BILL OF LADING

From: **Thatcher Company of New York, Inc.**
At: 4135 Route 104
Williamson NY 14589
Phone: 315-589-9330

THATCHER GROUP

ORDER DATE	B/L NO.
3/23/2021	655311
Internal Use Only	

**** CHEMICAL EMERGENCY CONTACT: CHEMTREC DAY OR NIGHT 800-424-9300 CUST NO: CCN 22106 ***

CUST NO.	SOLD TO	SHIP TO
2500350	Hepure Technologies, Inc. PO Box 5784 Hillsborough, NJ 08844 866-727-4776	GES Environmental 2241 Washington St. Jamestown, NY 14701 866-727-4776 866-727-4776 x 4

Ship Date	Delivery Date	WHS	SHIP VIA	FREIGHT	FOB REMARK	SALES AGENT	OPERATOR
4/13/2021	4/14/2021	NY01	Thatcher/Carrier	Prepaid & Add	Origin	AMP	MiaS

CUSTOMER PO NUMBER	ORDERED BY
2278	

Quantity Shipped	TYPE OF CONTAINER	HM	DESCRIPTION	QUANTITY ORDERED	NET WEIGHT	GROSS WEIGHT	FRTC LS
	1 BULK CARGO TANK	X	**UN3214,Permanganates, inorganic, aqueous solution, n.o.s.,(Sodium permanganate),,5.1, PGII** **Sodium Permanganate 5% 3800 BULK** Product Code: 1916010	3800	32805 Lbs	32805 Lbs	
			Total Weights:		**32805 Lbs**	**32805 Lbs**	
			12PM DELIVERY REQUIRED ON 4/14				
			DATE/QUANTITY SUBJECT TO CHANGE ONCE PROJECT STARTS				
			Blind shipment - use BOL provided by customer				

GROSS: (lbs) | TARE: (lbs) | NET: (lbs)

I hereby certify that the above materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to applicable regulations of the Department of Transportation.
Shipper BY: S. Catron

Carrier certifies that vessel supplied for this shipment is suitable for the transportation of each commodity named hereon and has been properly washed prior to loading.
BY: (Carrier)

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
_____ (Signature of Consignor)

Receiver states that product matches receiver's order and is in good condition. Acceptance of delivery is acceptance of attached contract terms.
BY: _____
(Customer)
DATE: _____

Pallets IN: | Pallets OUT:

Notes:

Trailer Numbers | # of Hoses Needed Beyond Assigned

Right Hoses Assigned to Trailer? Yes / No | Yes / No

COD Amt: $ 0.00

Remit COD payment, and send freight bill with copy of B/L to:
Thatcher Company
Box 27407
Salt Lake City, UT 84127

OFFICE

B655311

Carrier approves load securement carrier
BY:

Carrier offered required placards carrier
BY:

Emergency response guide present carrier
BY:

Security	Load	Pick

Delivered
BY: _____
DATE: _____
TIME IN: _____ AM/PM
TIME OUT: _____ AM/PM

All product sales and deliveries are subject to Terms and Conditions found at www.tchem.com/terms

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STRAIGHT BILL OF LADING

Reprint # 2

From: **Thatcher Company of New York, Inc.**
At: 4135 Route 104
Williamson NY 14589
Phone: 315-589-9330

THATCHER GROUP

ORDER DATE	B/L NO.
3/23/2021	655313
Internal Use Only	

**** CHEMICAL EMERGENCY CONTACT: CHEMTREC DAY OR NIGHT 800-424-9300 CUST NO: CCN 22106 ****

CUST NO. 2500350

SOLD TO
Hepure Technologies, Inc.
PO Box 5784
Hillsborough, NJ 08844
866-727-4776

SHIP TO
GES Environmental
2241 Washington St.
Jamestown, NY 14701
866-727-4776 866-727-4776 x 4

Ship Date	Delivery Date	WHS	SHIP VIA	FREIGHT	FOB REMARK	SALES AGENT	OPERATOR
4/14/2021	4/15/2021	NY01	Thatcher/Carrier	Prepaid & Add	Origin	AMP	MiaS

CUSTOMER PO NUMBER	ORDERED BY
2278	

Quantity Shipped	TYPE OF CONTAINER	HM	DESCRIPTION	QUANTITY ORDERED	NET WEIGHT	GROSS WEIGHT	FRTC LS
	1 BULK CARGO TANK	X	**UN3214,Permanganates, inorganic, aqueous solution, n.o.s.,(Sodium permanganate),,5.1, PGII** **Sodium Permanganate 5% 3000 BULK** Product Code: 1916010	3000	25899 Lbs	25899 Lbs	
			Total Weights:		**25899 Lbs**	**25899 Lbs**	
			12PM DELIVERY REQUIRED ON 4/15				
			DATE/QUANTITY SUBJECT TO CHANGE ONCE PROJECT STARTS				
			Blind shipment - use BOL provided by customer				

GROSS: (lbs) | TARE: (lbs) | NET: (lbs)

I hereby certify that the above materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to applicable regulations of the Department of Transportation.
Shipper BY: S. Catron

Carrier certifies that vessel supplied for this shipment is suitable for the transportation of each commodity named hereon and has been properly washed prior to loading.
BY: (Carrier)

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

Receiver states that product matches receiver's order and is in good condition. Acceptance of delivery is acceptance of attached contract terms.
BY: (Customer)
DATE:

Pallets IN: | Pallets OUT:

Notes:

Trailer Numbers
Right Hoses Assigned to Trailer? Yes / No Yes / No
of Hoses Needed Beyond Assigned

COD Amt: $ 0.00

Remit COD payment, and send freight bill with copy of B/L to:
Thatcher Company
Box 27407
Salt Lake City, UT 84127

OFFICE

B655313

Carrier approves load securement carrier BY:

Carrier offered required placards carrier BY:

Emergency response guide present carrier BY:

Security	Load	Pick

Delivered
BY:
DATE:
TIME IN: AM/PM
TIME OUT: AM/PM

All product sales and deliveries are subject to Terms and Conditions found at www.tchem.com/terms

Printed: 4/15/2021 9:19:31 AM by AmyB

STRAIGHT BILL OF LADING

Reprint # 2

From: **Thatcher Company of New York, Inc.**
At: 4135 Route 104
Williamson NY 14589
Phone: 315-589-9330

THATCHER GROUP

ORDER DATE	B/L NO.
3/23/2021	655313
Internal Use Only	

**** CHEMICAL EMERGENCY CONTACT: CHEMTREC DAY OR NIGHT 800-424-9300 CUST NO: CCN 22106 ****

CUST NO.: 2500350

SOLD TO:
Hepure Technologies, Inc.
PO Box 5784
Hillsborough, NJ 08844
866-727-4776

SHIP TO:
GES Environmental
2241 Washington St.
Jamestown, NY 14701
866-727-4776 866-727-4776 x 4

Ship Date	Delivery Date	WHS	SHIP VIA	FREIGHT	FOB REMARK	SALES AGENT	OPERATOR
4/14/2021	4/15/2021	NY01	Thatcher/Carrier	Prepaid & Add	Origin	AMP	MiaS

CUSTOMER PO NUMBER	ORDERED BY
2278	

Quantity Shipped	TYPE OF CONTAINER	HM	DESCRIPTION	QUANTITY ORDERED	NET WEIGHT	GROSS WEIGHT	FRTC LS
	1 BULK CARGO TANK	X	**UN3214,Permanganates, inorganic, aqueous solution, n.o.s.,(Sodium permanganate),,5.1, PGII** **Sodium Permanganate 5% 3000 BULK** Product Code: 1916010	3000	25899 Lbs	25899 Lbs	
			Total Weights:		**25899 Lbs**	**25899 Lbs**	
			12PM DELIVERY REQUIRED ON 4/15				
			DATE/QUANTITY SUBJECT TO CHANGE ONCE PROJECT STARTS				
			Blind shipment - use BOL provided by customer				

GROSS: (lbs) | TARE: (lbs) | NET: (lbs)

I hereby certify that the above materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to applicable regulations of the Department of Transportation.
Shipper BY: S. Catron

Carrier certifies that vessel supplied for this shipment is suitable for the transportation of each commodity named hereon and has been properly washed prior to loading.
BY: (Carrier)

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

Receiver states that product matches receiver's order and is in good condition. Acceptance of delivery is acceptance of attached contract terms.
BY: (Customer)
DATE:

Pallets IN: | Pallets OUT:

Notes:

Trailer Numbers
Right Hoses Assigned to Trailer? Yes / No | Yes / No
of Hoses Needed Beyond Assigned

COD Amt: $ 0.00

Remit COD payment, and send freight bill with copy of B/L to:
Thatcher Company
Box 27407
Salt Lake City, UT 84127

CUSTOMER

B655313

Carrier approves load securement carrier BY:

Carrier offered required placards carrier BY:

Emergency response guide present carrier BY:

Security	Load	Pick

Delivered
BY:
DATE:
TIME IN: AM/PM
TIME OUT: AM/PM

All product sales and deliveries are subject to Terms and Conditions found at www.tchem.com/terms

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THATCHER COMPANY OF NEW YORK

an ISO9001:2015 registered company (cert. #US013192)

P.O. BOX 118, WILLIAMSON, NEW YORK 14589
(315) 589-9330 PHONE
(315) 589-9835 FAX

CHEM

CERTIFICATE OF ANALYSIS

Sodium Permanganate 5%
This is to certify that the listed lot number was assayed with the following results:

PO # 2278

	SPECIFICATION	RESULTS
Physical Appearance:	Clear purple liquid with no insoluble matter	OK
%$NaMNO_4$	4.5 – 5.4%	5.0 %

Thatcher Company of New York
Laboratory Services

STRAIGHT BILL OF LADING

From: **Thatcher Company of New York, Inc.**
At: 4135 Route 104
Williamson NY 14589
Phone: 315-589-9330

THATCHER GROUP

ORDER DATE	B/L NO.
3/23/2021	655311
Internal Use Only	

**** CHEMICAL EMERGENCY CONTACT: CHEMTREC DAY OR NIGHT 800-424-9300 CUST NO: CCN 22106 * ***

CUST NO.	SOLD TO	SHIP TO
2500350	Hepure Technologies, Inc. PO Box 5784 Hillsborough, NJ 08844 866-727-4776	GES Environmental 2241 Washington St. Jamestown, NY 14701 866-727-4776 866-727-4776 x 4

Ship Date	Delivery Date	WHS	SHIP VIA	FREIGHT	FOB REMARK	SALES AGENT	OPERATOR
4/13/2021	4/14/2021	NY01	Thatcher/Carrier	Prepaid & Add	Origin	AMP	MiaS

CUSTOMER PO NUMBER	ORDERED BY
2278	

Quantity Shipped	TYPE OF CONTAINER	HM	DESCRIPTION	QUANTITY ORDERED	NET WEIGHT	GROSS WEIGHT	FRTC LS
	1 BULK CARGO TANK	X	**UN3214,Permanganates, inorganic, aqueous solution, n.o.s.,(Sodium permanganate),,5.1, PGII** **Sodium Permanganate 5% 3800 BULK** Product Code: 1916010	3800	32805 Lbs	32805 Lbs	
			Total Weights:		**32805 Lbs**	**32805 Lbs**	
			12PM DELIVERY REQUIRED ON 4/14				
			DATE/QUANTITY SUBJECT TO CHANGE ONCE PROJECT STARTS				
			Blind shipment - use BOL provided by customer				

GROSS: (lbs) | TARE: (lbs) | NET: (lbs)

I hereby certify that the above materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to applicable regulations of the Department of Transportation.
Shipper BY: S. Catron

Carrier certifies that vessel supplied for this shipment is suitable for the transportation of each commodity named hereon and has been properly washed prior to loading.
BY: _____ (Carrier)

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
_____ (Signature of Consignor)

Receiver states that product matches receiver's order and is in good condition. Acceptance of delivery is acceptance of attached contract terms.
BY: _____
(Customer)
DATE: _____

Pallets IN: | Pallets OUT:

Notes:

Trailer Numbers | # of Hoses Needed Beyond Assigned

Right Hoses Assigned to Trailer? Yes / No | Yes / No

COD Amt: $ 0.00

Remit COD payment, and send freight bill with copy of B/L to:
Thatcher Company
Box 27407
Salt Lake City, UT 84127

CUSTOMER

B655311

Carrier approves load securement carrier BY:

Carrier offered required placards carrier BY:

Emergency response guide present carrier BY:

Security	Load	Pick

Delivered
BY: _____
DATE: _____
TIME IN: _____ AM/PM
TIME OUT: _____ AM/PM

All product sales and deliveries are subject to Terms and Conditions found at www.tchem.com/terms

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THATCHER COMPANY OF NEW YORK

an ISO9001:2015 registered company (cert. #US013192)

P.O. BOX 118, WILLIAMSON, NEW YORK 14589
(315) 589-9330 PHONE
(315) 589-9835 FAX

CHEM

CERTIFICATE OF ANALYSIS

Sodium Permanganate 5%
This is to certify that the listed lot number was assayed with the following results:

PO # 2278

	SPECIFICATION	RESULTS
Physical Appearance:	Clear purple liquid with no insoluble matter	OK
%$NaMNO_4$	4.5 – 5.4%	5.0 %

Thatcher Company of New York
Laboratory Services

STRAIGHT BILL OF LADING

Reprint # 1

From: **Thatcher Company of New York, Inc.**
At: 4135 Route 104
Williamson NY 14589
Phone: 315-589-9330

THATCHER GROUP

ORDER DATE	B/L NO.
3/23/2021	655312
Internal Use Only	

**** CHEMICAL EMERGENCY CONTACT: CHEMTREC DAY OR NIGHT 800-424-9300 CUST NO: CCN 22106 ****

CUST NO. 2500350

SOLD TO
Hepure Technologies, Inc.
PO Box 5784
Hillsborough, NJ 08844
866-727-4776

SHIP TO
GES Environmental
2241 Washington St.
Jamestown, NY 14701
866-727-4776 866-727-4776 x 4

Ship Date	Delivery Date	WHS	SHIP VIA	FREIGHT	FOB REMARK	SALES AGENT	OPERATOR
4/14/2021	4/15/2021	NY01	Thatcher/Carrier	Prepaid & Add	Origin	AMP	MiaS

CUSTOMER PO NUMBER	ORDERED BY
2278	

Quantity Shipped	TYPE OF CONTAINER	HM	DESCRIPTION	QUANTITY ORDERED	NET WEIGHT	GROSS WEIGHT	FRTC LS
	1 BULK CARGO TANK	X	**UN3214,Permanganates, inorganic, aqueous solution, n.o.s.,(Sodium permanganate),,5.1, PGII** **Sodium Permanganate 5% 3500 BULK** Product Code: 1916010	3500	30216 Lbs	30216 Lbs	
			Total Weights:		**30216 Lbs**	**30216 Lbs**	
			8AM DELIVERY REQUIRED ON 4/15				
			DATE/QUANTITY SUBJECT TO CHANGE ONCE PROJECT STARTS				
			Blind shipment - use BOL provided by customer				

GROSS: (lbs) 65160 TARE: (lbs) 35280 NET: (lbs) 30220

I hereby certify that the above materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to applicable regulations of the Department of Transportation.
Shipper BY: S. Catron

Carrier certifies that vessel supplied for this shipment is suitable for the transportation of each commodity named hereon and has been properly washed prior to loading.
BY: (Carrier)

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

Receiver states that product matches receiver's order and is in good condition. Acceptance of delivery is acceptance of attached contract terms.
BY: _____
(Customer)
DATE: _____

Pallets IN: Pallets OUT:

Notes:

Trailer Numbers

Right Hoses Assigned to Trailer? ☐ Yes ☐ No ☐ Yes ☐ No

of Hoses Needed Beyond Assigned

COD Amt: $ 0.00

Remit COD payment, and send freight bill with copy of B/L to:
Thatcher Company
Box 27407
Salt Lake City, UT 84127

CONTROL B655312

Carrier approves load securement carrier BY:

Carrier offered required placards carrier BY:

Emergency response guide present carrier BY:

Security	Load	Pick

Delivered
BY: _____
DATE: _____
TIME IN: _____ AM/PM
TIME OUT: _____ AM/PM

All product sales and deliveries are subject to Terms and Conditions found at www.tchem.com/terms

Printed: 4/14/2021 6:42:50 AM by MiaS

Kuhnle Bros.

P.O. BOX 375
NEWBURY, OH 44065
(800)873-8757

PRO.#
516623

CUSTOMER - 2

DRIVER NAME	TRACTOR	TRAILER
Matthew Logsdon	524	636

SHIPPER	LOAD DATE	CONSIGNEE	DEL. DATE
Thatcher Company Williamson, NY		GES Environmental Jamestown, NY	

BILL OF LADING #	PURCHASE ORDER #
655316	2278

DESCRIPTION OF ARTICLE / PRODUCT	HAZMAT	GALLONS	
Sodium Permanganate.	YES (NO)		GROSS 70,000
			TARE 35,760
			NET 34,240

LOADING DELAY		UNLOADING DELAY	
DATE	APPT. TIME	DATE 11-14-21	APPT. TIME 8:00A
ARRIVE	AM PM	ARRIVE 8:00 AM	(AM) PM
DEPART	AM PM	DEPART 2:30PM	AM (PM)
TOTAL LOADING TIME		TOTAL UNLOADING TIME 6Hr 30 Min.	
MUST HAVE EXPLANATION OF DELAY		MUST HAVE EXPLANATION OF DELAY	
		NY DEC Shutdown	
CUSTOMER SIGNATURE		CUSTOMER SIGNATURE Lee Rumod	

DISPATCH MUST BE NOTIFIED IMMEDIATELY FOR ALL LOADING AND UNLOADING DELAYS

APPROVED FOR UNLOADING. THE CONNECTION, THE DELIVERY LOCATION, AND PRODUCT HAVE BEEN VERIFIED AND ARE SATISFACTORY.

X Lee Rumod
SIGNATURE

DELIVERY SATISFACTORY EXCEPT AS NOTED.

X Lee Rumod
SIGNATURE

MEMO

Kuhnle Bros.

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NEWBURY, OH 44065
(800)873-8757

516622

CUSTOMER - 2

DRIVER NAME	TRACTOR	TRAILER
Matt Loasdon	524	636

SHIPPER	LOAD DATE	CONSIGNEE	DEL. DATE
thatcher company Williamson, NY		GES Environmental Jamestown, NY	

BILL OF LADING #	PURCHASE ORDER #		
655299	2278		
DESCRIPTION OF ARTICLE / PRODUCT	**HAZMAT** YES (NO)	**GALLONS**	**GROSS** 79,240
Sodium Permanganate.		4000	TARE 45,960
UN 3214			NET 34,280

LOADING DELAY		UNLOADING DELAY	
DATE	APPT. TIME	DATE 4-13-21	APPT. TIME
ARRIVE	AM PM	ARRIVE 8:00	(AM) PM
DEPART	AM PM	DEPART 9:00	AM (PM)
TOTAL LOADING TIME		TOTAL UNLOADING TIME 1 HR	
MUST HAVE EXPLANATION OF DELAY		MUST HAVE EXPLANATION OF DELAY	
		Normal Unload	
CUSTOMER SIGNATURE		CUSTOMER SIGNATURE	

DISPATCH MUST BE NOTIFIED IMMEDIATELY FOR ALL LOADING AND UNLOADING DELAYS

APPROVED FOR UNLOADING. THE CONNECTION, THE DELIVERY LOCATION, AND PRODUCT HAVE BEEN VERIFIED AND ARE SATISFACTORY.

SIGNATURE

DELIVERY SATISFACTORY EXCEPT AS NOTED.

SIGNATURE

MEMO

Kuhnle Bros

P.O. BOX 375
NEWBURY, OH 44065
(800)873-8757

PRO. # 516624

CUSTOMER - 2

DRIVER NAME	TRACTOR	TRAILER
Matt Logsdon	524	1636

SHIPPER	LOAD DATE	CONSIGNEE	DEL. DATE
Thatcher Company Williamson, NY	4-14-21	GES environmental Jamestown, NY	4-15-21

BILL OF LADING #	PURCHASE ORDER #
655312	0278

DESCRIPTION OF ARTICLE / PRODUCT	HAZMAT YES (X) NO	GALLONS	GROSS / TARE / NET
Sodium Permanganate.			GROSS 65,960
			TARE 35,880
			NET 30,080

LOADING DELAY			UNLOADING DELAY		
DATE	APPT. TIME		DATE 4-15-21	APPT. TIME	
ARRIVE	AM PM		ARRIVE 8:00	(AM)	PM
DEPART	AM PM		DEPART 12:00pm	(AM)	PM
TOTAL LOADING TIME			TOTAL UNLOADING TIME 4 Hr.		
MUST HAVE EXPLANATION OF DELAY			MUST HAVE EXPLANATION OF DELAY		
			Normal		
CUSTOMER SIGNATURE (X)			CUSTOMER SIGNATURE		

DISPATCH MUST BE NOTIFIED IMMEDIATELY FOR ALL LOADING AND UNLOADING DELAYS

APPROVED FOR UNLOADING. THE CONNECTION, THE DELIVERY LOCATION, AND PRODUCT HAVE BEEN VERIFIED AND ARE SATISFACTORY.

(X) _____ SIGNATURE

DELIVERY SATISFACTORY EXCEPT AS NOTED.

(X) _____ SIGNATURE

MEMO

KUHNLE BROS., INC.
P.O. BOX 375
NEWBURY, OH 44065
(800)873-8757

PRO. # 529790

CUSTOMER - 2

DRIVER NAME	TRACTOR	TRAILER
Kevin Crumrien	551	1029

SHIPPER	LOAD DATE	CONSIGNEE	DEL. DATE
Thatcher Co of New York	4-14-21	CES Environmental	4-15-21
4135 NY-104		2241 Washington St.	
Williamson NY 14589		Jamestown NY. 14701	

BILL OF LADING #	PURCHASE ORDER #

DESCRIPTION OF ARTICLE / PRODUCT	HAZMAT YES / NO	GALLONS	GROSS / TARE / NET
UN 3214, Permanganates, inorganic aqueous solution, N.O.S. (Sodium permanganate), 5.1 PG-II		3000	GROSS ~~60,020~~ ~~57,440~~ TARE 34,440 NET 23,580 ~~25,000~~
Sodium Permanganate 50% 3000			

LOADING DELAY		UNLOADING DELAY	
DATE 4-14-21	APPT. TIME	DATE 4-15-21	APPT. TIME
ARRIVE 9:15	AM (PM)	ARRIVE 2:45	AM (PM)
DEPART 10:30	AM (PM)	DEPART 5:00	AM (PM)
TOTAL LOADING TIME 1 Hr 15 min		TOTAL UNLOADING TIME	
MUST HAVE EXPLANATION OF DELAY		MUST HAVE EXPLANATION OF DELAY	
Had to go back to Williamson NY to fix load on 4-15-21 1 Hr back			
CUSTOMER SIGNATURE		CUSTOMER SIGNATURE	

DISPATCH MUST BE NOTIFIED IMMEDIATELY FOR ALL LOADING AND UNLOADING DELAYS

APPROVED FOR UNLOADING. THE CONNECTION, THE DELIVERY LOCATION, AND PRODUCT HAVE BEEN VERIFIED AND ARE SATISFACTORY.

SIGNATURE

DELIVERY SATISFACTORY EXCEPT AS NOTED.

SIGNATURE

MEMO

KUHNLE BROS., INC.
P.O. BOX 375
NEWBURY, OH 44065
(800)873-8757

PRO. # 529789

CUSTOMER - 2

DRIVER NAME	TRACTOR	TRAILER
Kevin Cramer	551	1029

SHIPPER	LOAD DATE	CONSIGNEE	DEL. DATE
Thatcher Co of New York	4-13-21	GES Environmental	4-14-21
4135 NY - 104		2241 Washington St.	
Williamson NY 14589		Jamestown NY 14701	

BILL OF LADING #		PURCHASE ORDER #	
DESCRIPTION OF ARTICLE / PRODUCT	HAZMAT (YES) NO	GALLONS	GROSS 66,880
UN 3214, Permanganates, Inorganic		3800	TARE 34,300
Aqueous solution, N.O.S (Sodium			NET 32,580
permanganate), 5.1, PGII			
Sodium Permanganate 5%			

LOADING DELAY		UNLOADING DELAY	
DATE 4-13-21	APPT. TIME	DATE 4-14-21	APPT. TIME 10:00 PM
ARRIVE 5:30	AM (PM)	ARRIVE 11:50	(AM) PM
DEPART 7:30	AM (PM)	DEPART 6:15	AM (PM)
TOTAL LOADING TIME 2 Hrs.		TOTAL UNLOADING TIME	
MUST HAVE EXPLANATION OF DELAY		MUST HAVE EXPLANATION OF DELAY	
		Arrived 11:50 AM sat til 3:30 PM	
		Start unload at 5:30 PM til 6:15 PM	
CUSTOMER SIGNATURE		CUSTOMER SIGNATURE	

DISPATCH MUST BE NOTIFIED IMMEDIATELY FOR ALL LOADING AND UNLOADING DELAYS

APPROVED FOR UNLOADING. THE CONNECTION, THE DELIVERY LOCATION, AND PRODUCT HAVE BEEN VERIFIED AND ARE SATISFACTORY.

SIGNATURE

DELIVERY SATISFACTORY EXCEPT AS NOTED.

SIGNATURE

MEMO Arrived at 11:50 AM Sat til 3:30 PM to start unloading

KUHNLE BROS., INC.
P.O. BOX 375
NEWBURY, OH 44065
(800)873-8757

PRO. # 529788

CUSTOMER - 2

DRIVER NAME	TRACTOR	TRAILER
Kevin Cramer	551	1029

SHIPPER	LOAD DATE	CONSIGNEE	DEL. DATE
Thatcher Co of New York	4-12-21	GES Environmental	4-13-21
4135 NY-104		2241 Washington St.	
Williamson NY. 14589		Jamestown NY 14701	

BILL OF LADING #	PURCHASE ORDER #
655309	2278

DESCRIPTION OF ARTICLE / PRODUCT	HAZMAT	GALLONS	GROSS / TARE / NET
UN3214, Permanganates, inorganic, Aqueous solution, N.O.S (Sodium permanganate, 5.1, PGII Sodium Permanganate 5%	YES / NO	3800	GROSS 67,400 TARE 34,800 NET 32,805

LOADING DELAY		UNLOADING DELAY	
DATE	4-12-21	DATE	4-13-21
APPT. TIME		APPT. TIME	
ARRIVE	3:00 AM (PM)	ARRIVE	11:45 (AM) PM
DEPART	7:30 AM (PM)	DEPART	2:20 AM (PM)
TOTAL LOADING TIME		TOTAL UNLOADING TIME	
MUST HAVE EXPLANATION OF DELAY	mixing product	MUST HAVE EXPLANATION OF DELAY	unloading from trailer pumping into ground
CUSTOMER SIGNATURE		CUSTOMER SIGNATURE	

DISPATCH MUST BE NOTIFIED IMMEDIATELY FOR ALL LOADING AND UNLOADING DELAYS

APPROVED FOR UNLOADING. THE CONNECTION, THE DELIVERY LOCATION, AND PRODUCT HAVE BEEN VERIFIED AND ARE SATISFACTORY.

SIGNATURE

DELIVERY SATISFACTORY EXCEPT AS NOTED.

SIGNATURE

MEMO Load time 3:00 PM to 7:30 PM

RIST TRANSPORT LTD the CARRIER of CHOICE

Consignee Copy

Received Goods are in Good Condition Except as Noted Hereon stretch wrap or other unitization of pallets or skids intact unless otherwise noted

369 Bostwick Rd.
Phelps, NY 14532 (315) 789-8871

Consignee:
GES ENVIRONMENTAL
2241 WASHINGTON ST
GURANTEED BEFORE NOON
Jamestown NY 14701

Advanced:

PO#: 2283

Beyond: HANJAM GVA9073517 Terms: PPD Trailer: 15474

Shipper:
THATCHER COMPANY OF NEW YORK
4135 ROUTE 104
PO BOX 118
Williamson NY 14589
3155899330

Bill to:
THATCHER COMPANY OF NEW YORK
4135 ROUTE 104
PO BOX 118
Williamson NY 14589
3155899330

04/15/2021

Terminal: JMS

BOL: 655489

PRO: 8866188

Plts	HM	Qty	Unit	Loose Pcs	Description	Cls	Wgt	Shipping Name	Len	Wth	Hgt	Add'l Des
1		0			SODIUM THIOSULFATE		2057		0 INS	0 INS	0 INS	
0		0			CONS# 866 727 4776		0		0 INS	0 INS	0 INS	
0		0			MUST DELIVERY A ON 4/16		0		0 INS	0 INS	0 INS	
0		0			DELIVERY DATE: 04-16-2021		0		0 INS	0 INS	0 INS	
1	0	0		0			2057	SHRINK WRAP INTACT Y or N.				

SPECIAL INSTRUCTIONS:, GUARANTEED DELIVERY, GUARANTEED DELIVERY BY NOON, HOT RUSH (NEXT DAY DELIVERY), LIFTGATE DELIVERY

Consignee Name Printed: _____

Date: _____ Driver: _____ Consignee: _____

☐ Private Residence / Residential Area

Arrive: _____ Start Unload: _____ Finish Unload: _____

Print Date:04/16/2021 07:04:SS

PRO#: 8866188

APPENDIX C

NYSDEC Jamestown - Former C&B Dry Cleaners
2241 Washington Street, Jamestown, NY

DATE: 4/12/21
Weather: 60 Cloudy, SHOWERS
GES Oversight: PM
START AT 1320

Daily GES Monitoring Readings

NA

Chemical Trucks	License Plate	Weight Certificate Info	Gallons/Tanker	% from Ticket?
Tanker #1 Info				
Tanker #2 Info				

Four (4) Times Daily Checks for Chemical Surfacing

NA

		Any Visible Purple Chemical?			
Check #	Time:	Creek?	General ground surface?	Monitoring Wells?	Boreholes ?
1					
2					
3					
4					

Document any surfacing observed and actions taken to neutralize:

CAMP Monitoring - *Document every HOUR during drilling work*

		PID	Dust Mtr
Location of Upwind Meter:	WEST	Pine ID#:	038648 85301 52011
Location of Downwind Meter:	EAST	Pine ID#:	8536 16240

Time:	Upwind Dust	Upwind PID	Downwind Dust	Downwind PID
1400	0.004	0.0	0.004	0.0
END AT	1430			

Dust – mg/m³
PID – ppm

Action levels: - Downwind dust is 100 ug/m³ > upwind for 15 min
- Downwind PID is 15 ppm > upwind for 15 min

Observation Well Readings:

Well ID	DTW	Well Diameter	Color of Water?	ORP	pH	Conductivity	°C Temp
~~PMW-1~~ CPZ-8	6.62	1"	clear	162.8	7.01	.440	10.1
PMW-2	7.62	2"	clear	184.0	7.04	1.260	7.3
PMW-3	4.13	2"	clear	186.4	6.99	1.611	5.3
PMW-4	6.95	2"	clear	-202.1	7.16	1.344	7.5
MW-5	7.41	2"	clear	198.7	7.23	198.2	6.4
MW-1	NL	1"	—	----	----	----	----
MW-2	5.88	2"	BROWN	----	----	----	----
MW-3	NL	—	—	----	----	----	----
MW-4	5.77	2"	clear	----	----	----	----
CPBA-101	6.27	1"	Clear	----	----	----	----
CPBZ-110	5.51	1"	Clear	----	----	----	----

- Collect Observation Well Readings Daily

-Day 1 (4/12): Baseline Monitoring

- All other days - monitor at the END of the day.

Check water color by pulling a bailer.

Use DEDICATED bailers per well for the entire job.

Decon interface probe and YSI with water/liquinox and drum.

Targets: 5% Sodium Permanganate
6 points completed per day
1,300 gallons TOTAL per point
650 gallons to the 10-15' interval
650 gallons to the 5-10' interval

*****Drilling Rods need to be decon'd and water containerized before rods leave the site!***

Notes:

NYSDEC Jamestown - Former C&B Dry Cleaners
2241 Washington Street, Jamestown, NY

DATE: 4/13/21
Weather: 48, cloudy
GES Oversight: RM

Daily GES Monitoring Readings

Chemical Trucks

	License Plate	Weight Certificate Info	Gallons Tanker	% from Ticket?
Tanker #1 Info MAING	22477E	34,250	3,400	4.5-5.4
Tanker #2 Info MAING	21664D	32805	~3,300	5%

CAMP Monitoring - *Document every HOUR during drilling work*

		PID	Dust Mtr
Location of Upwind Meter:	Pine ID#:		
Location of Downwind Meter:	Pine ID#:		

Time:	Upwind Dust	Upwind PID	Downwind Dust	Downwind PID

NR
No exceedance

Action levels: - Downwind dust is 100 ug/m³ > upwind for 15 min
- Downwind PID is 15 ppm > upwind for 15 min

Four (4) Times Daily Checks for Chemical Surfacing

		Any Visible Purple Chemical?			
Check #	Time:	Creek?	General ground surface?	Monitoring Wells?	Boreholes ?
1	1000	N	N	N	N
2	1130	N	N	N	N
3	1200	N	N	N	N
4	1315	N	~~N~~	Y	Y

Document any surfacing observed and actions taken to neutralize:

IB-203, IB-211 overheated for 5-9' injection

Observation Well Readings:

Well ID	DTW	Well Diameter	Color of Water?	mV ORP	pH	mS/cm Conductivity	Temp
~~PMW-1~~ P2108	6.70	2"	Brown	235.8	7.09	0.553	11.2
PMW-2	3.62	2"	Clear	253.1	7.10	1.234	12.6
PMW-3	4.13	2"	Clear	247.7	7.20	1.118	11.9
PMW-4	—	2"	—	—	—	—	—
MW-5	5.97	2"	Dark Purple				
MW-1	—	1"	—	----	----	----	----
MW-2	5.69	1"	light ~~Brown~~ Brown	----	----	----	----
MW-3	—	1"	—	----	----	----	----
MW-4	4.95	1"	light Purple	----	----	----	----
CPBA-101	—	1"	—	----	----	----	----
CPBZ-110		1"	—	----	----	----	----

- Collect Observation Well Readings Daily
-Day 1 (4/12): Baseline Monitoring
- All other days - monitor at the END of the day.

Check water color by pulling a bailer.
Use DEDICATED bailers per well for the entire job.
Decon interface probe and YSI with water/liquinox and drum.

Targets: 5% Sodium Permanganate
6 points completed per day
1,300 gallons TOTAL per point
650 gallons to the 10-15' interval
650 gallons to the 5-10' interval

*****Drilling Rods need to be decon'd and water containerized before rods leave the site!***

Notes:
- Did not collect water quality data from MW-5 due to presence of injection in the well.

NYSDEC Jamestown - Former C&B Dry Cleaners
2241 Washington Street, Jamestown, NY

DATE: 4/14/21
Weather: 50, cloudy, sunny
GES Oversight: PM

Daily GES Monitoring Readings

Chemical Trucks TRAILER

	License Plate	Weight Certificate Info	Gallons Tanker	% from Ticket?
Tanker #1 Info	324796	34240	3,149	5%
Tanker #2 Info	216140	32,580	3300	5%

CAMP Monitoring - *Document every HOUR during drilling work*

		PID	Dust Mtr
Location of Upwind Meter:	West	0.8698	0.31131
Location of Downwind Meter:	East	2757	35564

Time:	Upwind Dust	Upwind PID	Downwind Dust (mg/m³)	Downwind PID
0730	0.020	0.0	0.028	0.0
0830	0.010	0.0	0.015	0.1
0930	0.007	0.0	0.013	0.2
SHUT DOWN AT 0935 - LEAK IN SUCTION HOSE				
1500	0.002	0.1	0.001	0.0
1600	0.003	0.2	0.001	0.0

Action levels: - Downwind dust is 100 ug/m³ > upwind for 15 min
- Downwind PID is 15 ppm > upwind for 15 min

Four (4) Times Daily Checks for Chemical Surfacing

		Any Visible Purple Chemical?			
Check #	Time:	Creek?	General ground surface?	Monitoring Wells?	Boreholes ?
1	0930	N	N	N	N
2	1020	Y- SEDIMENT	Y	N	N
3	1200	Y- NO PURPLE	Y	N	N
4	1430	N	N	N	N
	1600	N	N	N	N

Document any surfacing observed and actions taken to neutralize:
SEDIMENT WATER WITH PERMACO FROM FLUSHING OUT OF SEDIMENT
NEAR IB-213, 214 PREVIOUS LOCATIONS

Observation Well Readings:

Well ID	DTW	Well Diameter	Color of Water?	mV ORP	pH	mS/cm Conductivity	(°C) Temp
~~PMW-1~~ PMW-3	6.67	1"	Brown, turbid	561.9	7.19	0.585	11.7
~~PMW-2~~	4.03	2"	Clear	531.2	7.37	1.307	8.4
~~PMW-3~~ PMW-2	3.65	2"	Clear	450.7	7.16	1.226	10.5
PMW-4	6.83	2"	Clear	147.0	7.01	1.421	8.1
MW-5	7.36	2"	Red/Purple	504.2	7.26	0.678	10.0
MW-1	—	1"	—	----	----	----	----
MW-2	5.88	2"	red/Purple	592.5	6.39	2.658	9.1
MW-3	—	1"	—	----	----	----	----
MW-4	5.24	2"	red/Purple	600.2	7.30	1.193	8.5
CPBA-101	5.69	1"	red/Purple	278.4	7.23	1.368	9.3
CPBZ-110	5.42	1"	Brown, light turbidity	307.5	7.22	1.236	9.5

- Collect Observation Well Readings Daily

-Day 1 (4/12): Baseline Monitoring

- All other days - monitor at the END of the day.

Check water color by pulling a bailer.

Use DEDICATED bailers per well for the entire job.

Decon interface probe and YSI with water/liquinox and drum.

Targets: 5% Sodium Permanganate
6 points completed per day
1,300 gallons TOTAL per point
650 gallons to the 10-15' interval
650 gallons to the 5-10' interval

*****Drilling Rods need to be decon'd and water containerized before rods leave the site!***

Notes: MW-5 bent, used micro bailer to retrieve water

NYSDEC Jamestown - Former C&B Dry Cleaners
2241 Washington Street, Jamestown, NY

DATE: 4/15/21
Weather: 34°, SNOWING
GES Oversight: BN

Daily GES Monitoring Readings

Chemical Trucks

	License Plate	Weight Certificate Info	Gallons Tanker	% from Ticket?
Tanker #1 Info 08AM	2247976	30,080	3,494	5%
Tanker #2 Info 150	2166140	25,580	2,970	5%

Four (4) Times Daily Checks for Chemical Surfacing

Check #	Time:	Any Visible Purple Chemical? Creek?	General ground surface?	Monitoring Wells?	Boreholes ?
1	0730	Y - NEUTRALIZED	N	N	N
2	1100	Y	Y - 18-248	N	N
3	1430	Y	N	N	N
4					

Document any surfacing observed and actions taken to neutralize:

- PURPLE WATER FROM ABANDONED BUILDING
- DAYLIGHTING IN THE CREEK, NORTH OF 18-248

CAMP Monitoring - *Document every HOUR during drilling work*

Location of Upwind Meter: WEST PARKING LOT — PID Pine ID#: 036694 — Dust Mtr 031151
Location of Downwind Meter: EAST — PID Pine ID#: 275773 — Dust Mtr 35864

Time:	Upwind Dust	Upwind PID	Downwind Dust	Downwind PID
START @	1200		NORTH SIDE	RECHARGING
1215	0.011	0.0	0.013	0.0
1320	0.04	0.0	0.06	0.0
1400	0.05	0.1	0.05	0.0

NO CAMPS RMNG DUE WET

Action levels: - Downwind dust is 100 ug/m³ > upwind for 15 min
- Downwind PID is 15 ppm > upwind for 15 min

Observation Well Readings:

CBPZ-108

Well ID	DTW	Well Diameter	Color of Water?	(mV) ORP	pH	(mS/cm) Conductivity	(°C) Temp
~~PMW-1~~	6.62	~~2"~~ 1"	Brown, turbid	593.4	7.21	0.655	8.2
PMW-2	3.53	2"	Clear	553.0	7.11	1.242	10.0
PMW-3	3.98	2"	Clear	532.6	7.17	1.350	8.0
PMW-4	6.79	2"	Clear	427.4	6.55	1.377	7.5
MW-5	6.48	2"	Red/Purple	600.9	7.55	0.906	7.2
~~MW-1~~		1"		----	----	----	----
MW-2	5.88	1"	Red/Purple	616.2	7.12	2.845	9.0
~~MW-3~~		1"		----	----	----	----
MW-4	5.18	1"	~~Red~~ Red/Purple	587.1	7.25	10.10	8.6
CPBA-101	5.95	1"	Red/Purple	662.1	6.79	12.633	8.2
CPBZ-110	5.38	1"	Red/Purple	636.2	6.92	4.946	8.0

- *Collect Observation Well Readings Daily*
- *Day 1 (4/12): Baseline Monitoring*
- *All other days - monitor at the END of the day.*

Check water color by pulling a bailer.

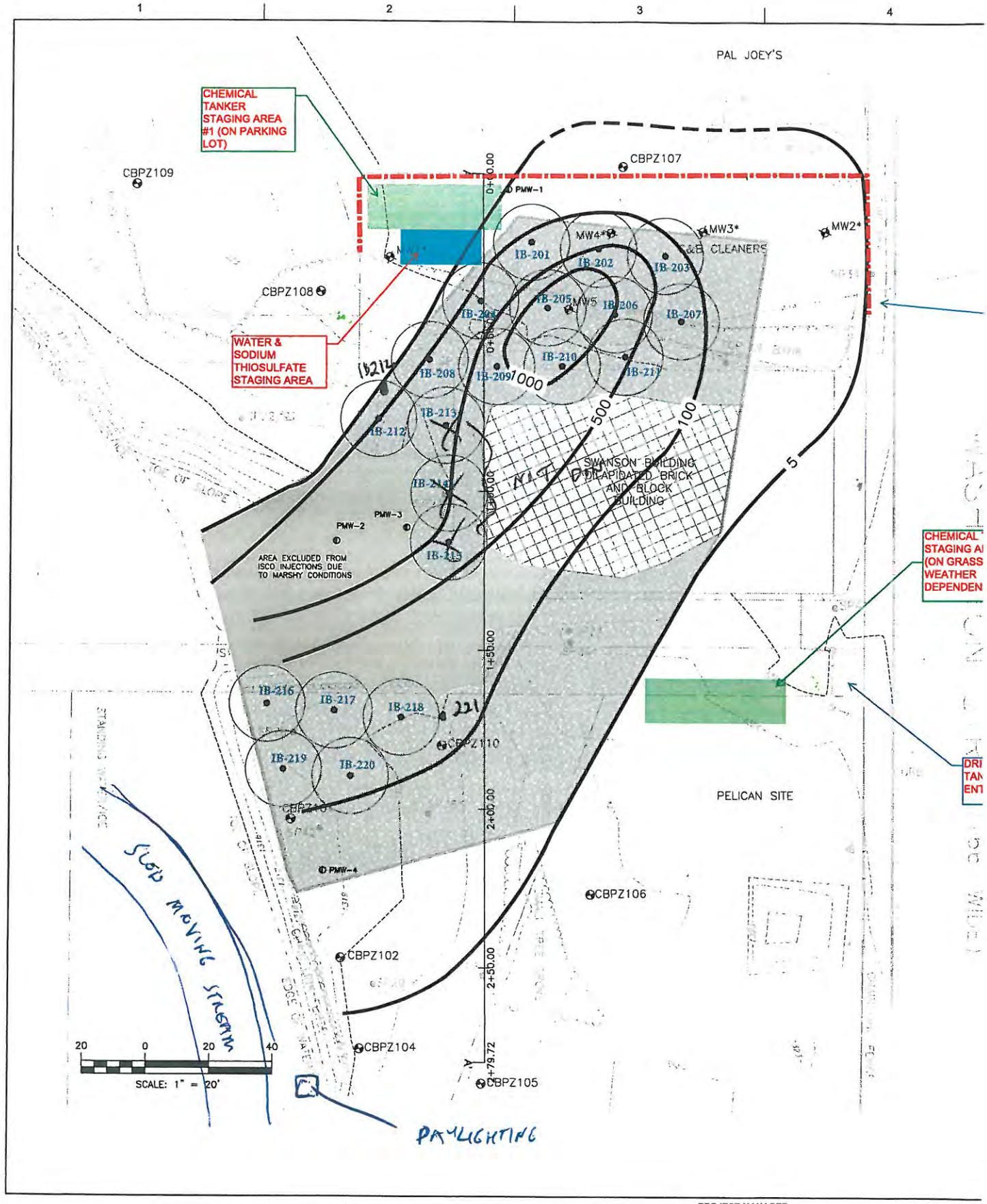
Use DEDICATED bailers per well for the entire job.

Decon interface probe and YSI with water, liquinox and drum.

Targets: 5% Sodium Permanganate
6 points completed per day
1,300 gallons TOTAL per point
650 gallons to the 10-15' interval
650 gallons to the 5-10' interval

***Drilling Rods need to be decon'd and water containerized before rods leave the site!*

Notes:



NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

HDR

ISSUE	DATE	DESCRIPTION
0	4/2019	RE-INJECTION WORK PLAN

PROJECT MANAGER	E. ZIMMERMAN
PROJECT NUMBER	10050422

NYSDEC Jamestown 4/12/21

PAGE 1 OF 1 ISCO - DAY 1 Si, Cloudy

0935 - PM on site.

0930 - Tom (HDR) on site.

1030 - Pat Colvin (GCI) on site

1100 - Joshua Dougherty (GCI) on site

- Collect Background readings

- Mark out all injection point locations

1220 - PM crew on site

Mobilize to site

Set up dust monitors at W & E side of the lot.

1330 - Advance IB-203 to 15' BGS 3' screen

Set IW-211 to 15' BGS, 3' screen

Set IB-210 to 15' BGS, 3' screen,

Set IB-202 to 15' BGS, 3' screen.

Set IB-201 to 15' BGS, 3' screen

Set IB-205 to 15 BGS, 3' scr

1530 - Mixing ISCO Purple # PNA5730 with 4 totes of water, 1 drum of Jell Thoroughly.

1600 - Mixing oxidizer

NYSDEC Jamestown 4/13/21

PAGE 1 of ISCO - DAY 2

0640 - PM, PM crew on site.

Held HSE meeting.

0700 - Josh (GCI) Tom (HDR) on site

0800 - Kuhake training on site with the chemical

- Inject into IB-201, 202, 203, 206, 210, 211

Progressing at over 120 PSI, no flow.

Pull all screens, clean clogs and reset at 15' BGS.

- Continue injection.

1130 - Finish tanker #1.

Tanker #2 on site.

Switch to #2, resume injection.

1400 - Finish injecting tanker #2

Rinse all lines with 100 gal of potable water.

1500 - Josh (GCI) offsite.

NYSDEC JAMESTOWN 4/14/21

PAGE 1 OF 2 1360 DAY 3 60°, SE

0640 - PM, PN ON SITE

0700 SANDY/A (LCES EATON) - ON SITE

0715 - TOM HDR ONSITE.

0800 - TANKER #1 ONSITE

SET UP INJECTION @ IB-207, 206, 204

208, 212, 209

SET AT 15' BGS, 3' SCREENS

0920 - START INJECTION

ALL SCREENS CHECKED OK, EXCEPT IB-204

PULL, CLEAN AND RESET

IB-212 SET AT 14', CLAY AT 15'

0930 - ALL AIR'S CHECK AND RUNNING

- END DRILLING, SHUT OFF ONSITE GENS

1030 - INFLUENCE FROM BASEMENT

PURPLE WATER STOPPING OUT OF THE

SW CORNER OPENING

- NOTIFY GB, DEC

1100 - START DOWN, PAUSE INJECTION, SHUT OFF GEN

1310 - RESUME INJECTION AT IB-206, 207 ONLY

PUMP THRU MOBS TO 5' BGS.

1430 - EMPTY 1ST TANKER

RINSE AND MOVE EQUIPMENT TO

IB-216 → 220.

- DONMAR (CES) ON SITE

NYSDEC JAMESTOWN 4/14/21

PAGE 2 OF 2

1530 - START INJECTING 2ND TANKER

AT IB-216, 217, 218, 219, 220

AT 12-15'

- BUILD BERM AT THE BASEMENT

SEEPAGE SPOT.

- INSTALLED ANOTHER DAYLIGHTING FROM

OUTSIDE THE BUILDING.

- BASEMENT IS FILLED WITH PURPLE WATER

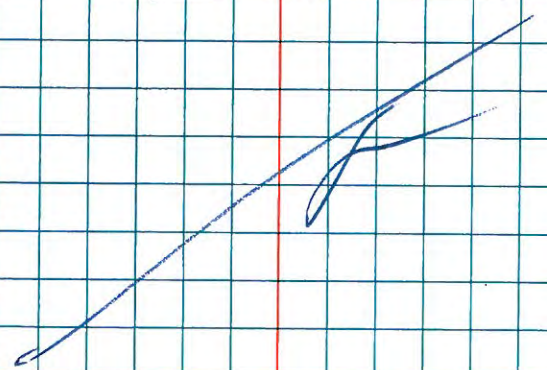
1735 - FINISH TANKER #2

1740 - TANKER #2 OFFSITE

RINSE LINES

CLEAN UP

1815 - PM, PN OFFSITE.



NYSDOT JAMESTOWN

PAGE 1 OF 1

4/15/21

ISC – DAY 4

39°, RAIN SHOWERS

0645 – PM ON SITE

– DOMINO (GOS) PM CREW ON SITE,
HELD HSI MEETING

– INJECT INTO IB-216 THROUGH 220
GOT PRESSURE TO INCREASE 221
JUST NEXT OF PZ-112,

– INJECT GOS GEN INTO IB-221
BETWEEN 9-15'

1200 – FINISH INJECTING AT SOUTH SIDE
MOVE TO NORTH SIDE

– INJECT @ 3000 PSI INTO IB-207, 206
204, 205, 209, 212.

– DAYLIGHTING AT PROPOSED IB-213 LOCATION
INFLUENCED BY IB-212, MOVE
212 10 FT NORTH AND SET @ 9-12'.

1700 – END INJECTION

– CONTINUE TO NEUTRALIZE STRUCTURE DAYLIGHTING

1715 – PARENTE WELL OPERATE

1830 – PM OFFSITE,

NYSDOT JAMESTOWN

PAGE 1 OF 1

4/16/21

36°, SHOWERS

0700 – PM ON SITE

– DOMINO (GOS), TOM (NOE) ON SITE

– PN ON SITE.

– BEGIN CLEAN UP, REMOVE OF EQUIPMENT

– NEUTRALIZED STRUCTURE PURPLE SHOT

0800 – DOMINO OFFSITE

– PN STORM WARNING / BEGINNING EQUIPING

1000 – PAT WENT TO SITE
HELD HSI MEETING

– INJECT @ 150 PSI OF 3%
SODIUM THIOSULFATE INTO STRUCTURE
AT THE SOUTHERN BUILDING.

– REMOVE REST OF SITE GAS ORGAN
AND SET AT THE SOUTH SIDE, LOCK
GATE., DRIVERS OFFSITE

1245 – PM OFFSITE.

– KEEP NEUTRALIZE DAYLIGHTING

APPENDIX D

UPWIND LOCATION

Instrument Name	DustTrak II	
Model Number		8530
Serial Number		8530152011
Firmware Version		3.7
Calibration Date		5/15/2015
Test Name	MANUAL_001	
Test Start Time		12:19:49 PM
Test Start Date		4/12/2021
Test Length [D:H:M]		0:01:02
Test Interval [M:S]		1:00
Mass Average [mg/m3]		0.004
Mass Minimum [mg/m3]		0.002
Mass Maximum [mg/m3]		0.054
Mass TWA [mg/m3]		0.001
Photometric User Cal		1
Flow User Cal		0
Errors		
Number of Samples		62

Elapsed Time [s]	Mass [mg/m3]	Alarms	Errors
60	0.054		
120	0.005		
180	0.004		
240	0.004		
300	0.003		
360	0.003		
420	0.003		
480	0.003		
540	0.004		
600	0.004		
660	0.004		
720	0.004		
780	0.004		
840	0.004		
900	0.004		
960	0.003		
1020	0.003		
1080	0.003		
1140	0.003		
1200	0.004		
1260	0.003		
1320	0.004		
1380	0.003		
1440	0.002		
1500	0.003		
1560	0.003		
1620	0.003		

1680	0.003
1740	0.003
1800	0.003
1860	0.003
1920	0.003
1980	0.003
2040	0.003
2100	0.003
2160	0.003
2220	0.003
2280	0.003
2340	0.004
2400	0.004
2460	0.004
2520	0.004
2580	0.003
2640	0.003
2700	0.003
2760	0.005
2820	0.005
2880	0.004
2940	0.004
3000	0.004
3060	0.004
3120	0.004
3180	0.004
3240	0.004
3300	0.004
3360	0.003
3420	0.003
3480	0.003
3540	0.003
3600	0.003
3660	0.003
3720	0.002

Instrument Name	DustTrak II	
Model Number		8530
Serial Number		8530152011
Firmware Version		3.7
Calibration Date		5/15/2015
Test Name	MANUAL_002	
Test Start Time		6:05:52 AM
Test Start Date		4/14/2021
Test Length [D:H:M]		0:02:21
Test Interval [M:S]		1:00
Mass Average [mg/m3]		0.012
Mass Minimum [mg/m3]		0.006
Mass Maximum [mg/m3]		0.033
Mass TWA [mg/m3]		0.004
Photometric User Cal		1
Flow User Cal		0
Errors		
Number of Samples		141

Elapsed Time [s]	Mass [mg/m3]	Alarms	Errors
60	0.033		
120	0.021		
180	0.02		
240	0.021		
300	0.021		
360	0.02		
420	0.02		
480	0.019		
540	0.02		
600	0.019		
660	0.018		
720	0.017		
780	0.018		
840	0.017		
900	0.018		
960	0.017		
1020	0.018		
1080	0.02		
1140	0.019		
1200	0.019		
1260	0.019		
1320	0.02		
1380	0.02		
1440	0.019		
1500	0.019		
1560	0.019		
1620	0.019		

1680	0.019
1740	0.018
1800	0.018
1860	0.018
1920	0.017
1980	0.017
2040	0.017
2100	0.017
2160	0.016
2220	0.015
2280	0.015
2340	0.014
2400	0.014
2460	0.015
2520	0.015
2580	0.015
2640	0.015
2700	0.014
2760	0.014
2820	0.014
2880	0.014
2940	0.014
3000	0.014
3060	0.013
3120	0.014
3180	0.014
3240	0.014
3300	0.014
3360	0.014
3420	0.014
3480	0.013
3540	0.013
3600	0.013
3660	0.013
3720	0.013
3780	0.013
3840	0.012
3900	0.012
3960	0.012
4020	0.012
4080	0.012
4140	0.012
4200	0.011
4260	0.011
4320	0.011
4380	0.011
4440	0.011

4500	0.011
4560	0.011
4620	0.01
4680	0.01
4740	0.009
4800	0.009
4860	0.009
4920	0.009
4980	0.009
5040	0.009
5100	0.009
5160	0.009
5220	0.009
5280	0.009
5340	0.009
5400	0.009
5460	0.009
5520	0.008
5580	0.008
5640	0.009
5700	0.008
5760	0.008
5820	0.008
5880	0.008
5940	0.008
6000	0.008
6060	0.007
6120	0.007
6180	0.007
6240	0.007
6300	0.007
6360	0.007
6420	0.007
6480	0.007
6540	0.008
6600	0.007
6660	0.007
6720	0.007
6780	0.007
6840	0.007
6900	0.007
6960	0.007
7020	0.007
7080	0.007
7140	0.007
7200	0.007
7260	0.007

7320	0.007
7380	0.007
7440	0.006
7500	0.006
7560	0.007
7620	0.007
7680	0.007
7740	0.006
7800	0.006
7860	0.006
7920	0.006
7980	0.007
8040	0.007
8100	0.007
8160	0.007
8220	0.007
8280	0.006
8340	0.006
8400	0.007
8460	0.006

Instrument Name	DustTrak II	
Model Number		8530
Serial Number		8530152011
Firmware Version		3.7
Calibration Date		5/15/2015
Test Name	MANUAL_003	
Test Start Time		2:03:12 PM
Test Start Date		4/14/2021
Test Length [D:H:M]		0:00:59
Test Interval [M:S]		1:00
Mass Average [mg/m3]		0.004
Mass Minimum [mg/m3]		0.002
Mass Maximum [mg/m3]		0.015
Mass TWA [mg/m3]		0
Photometric User Cal		1
Flow User Cal		0
Errors		
Number of Samples		59

Elapsed Time [s]	Mass [mg/m3]	Alarms	Errors
60	0.002		
120	0.002		
180	0.003		
240	0.002		
300	0.002		
360	0.002		
420	0.002		
480	0.002		
540	0.002		
600	0.003		
660	0.003		
720	0.003		
780	0.003		
840	0.003		
900	0.003		
960	0.004		
1020	0.005		
1080	0.004		
1140	0.004		
1200	0.015		
1260	0.007		
1320	0.004		
1380	0.004		
1440	0.004		
1500	0.004		
1560	0.004		
1620	0.004		

1680	0.003
1740	0.007
1800	0.004
1860	0.004
1920	0.004
1980	0.004
2040	0.004
2100	0.004
2160	0.004
2220	0.004
2280	0.004
2340	0.004
2400	0.004
2460	0.004
2520	0.004
2580	0.004
2640	0.004
2700	0.004
2760	0.004
2820	0.004
2880	0.004
2940	0.004
3000	0.004
3060	0.004
3120	0.004
3180	0.004
3240	0.003
3300	0.003
3360	0.003
3420	0.003
3480	0.003
3540	0.003

Instrument Name	DustTrak II	
Model Number		8530
Serial Number		8530152011
Firmware Version		3.7
Calibration Date		5/15/2015
Test Name	MANUAL_004	
Test Start Time		11:02:49 AM
Test Start Date		4/15/2021
Test Length [D:H:M]		0:03:31
Test Interval [M:S]		1:00
Mass Average [mg/m3]		0.008
Mass Minimum [mg/m3]		0.003
Mass Maximum [mg/m3]		0.047
Mass TWA [mg/m3]		0.004
Photometric User Cal		1
Flow User Cal		0
Errors		
Number of Samples		211

Elapsed Time [s]	Mass [mg/m3]	Alarms	Errors
60	0.047		
120	0.017		
180	0.014		
240	0.013		
300	0.014		
360	0.017		
420	0.015		
480	0.013		
540	0.013		
600	0.012		
660	0.012		
720	0.012		
780	0.011		
840	0.011		
900	0.011		
960	0.012		
1020	0.011		
1080	0.011		
1140	0.011		
1200	0.01		
1260	0.012		
1320	0.01		
1380	0.009		
1440	0.009		
1500	0.01		
1560	0.01		
1620	0.008		

1680	0.008
1740	0.008
1800	0.008
1860	0.009
1920	0.008
1980	0.009
2040	0.009
2100	0.009
2160	0.01
2220	0.009
2280	0.009
2340	0.009
2400	0.009
2460	0.009
2520	0.009
2580	0.009
2640	0.008
2700	0.008
2760	0.008
2820	0.008
2880	0.008
2940	0.009
3000	0.008
3060	0.008
3120	0.008
3180	0.008
3240	0.008
3300	0.008
3360	0.009
3420	0.008
3480	0.007
3540	0.007
3600	0.008
3660	0.009
3720	0.007
3780	0.008
3840	0.015
3900	0.01
3960	0.007
4020	0.008
4080	0.007
4140	0.008
4200	0.008
4260	0.008
4320	0.007
4380	0.007
4440	0.008

4500	0.008
4560	0.008
4620	0.008
4680	0.007
4740	0.007
4800	0.007
4860	0.008
4920	0.007
4980	0.008
5040	0.008
5100	0.01
5160	0.008
5220	0.009
5280	0.008
5340	0.008
5400	0.009
5460	0.009
5520	0.008
5580	0.009
5640	0.009
5700	0.008
5760	0.009
5820	0.009
5880	0.008
5940	0.008
6000	0.008
6060	0.008
6120	0.009
6180	0.011
6240	0.011
6300	0.01
6360	0.01
6420	0.009
6480	0.009
6540	0.009
6600	0.009
6660	0.009
6720	0.009
6780	0.01
6840	0.009
6900	0.009
6960	0.01
7020	0.01
7080	0.01
7140	0.01
7200	0.009
7260	0.009

7320	0.01
7380	0.013
7440	0.01
7500	0.009
7560	0.009
7620	0.009
7680	0.009
7740	0.01
7800	0.01
7860	0.01
7920	0.011
7980	0.009
8040	0.009
8100	0.008
8160	0.008
8220	0.008
8280	0.008
8340	0.007
8400	0.007
8460	0.007
8520	0.008
8580	0.007
8640	0.007
8700	0.006
8760	0.006
8820	0.006
8880	0.006
8940	0.006
9000	0.006
9060	0.006
9120	0.005
9180	0.005
9240	0.005
9300	0.005
9360	0.005
9420	0.005
9480	0.006
9540	0.006
9600	0.005
9660	0.005
9720	0.005
9780	0.006
9840	0.005
9900	0.005
9960	0.005
10020	0.005
10080	0.005

10140	0.005
10200	0.005
10260	0.005
10320	0.006
10380	0.006
10440	0.007
10500	0.007
10560	0.007
10620	0.005
10680	0.008
10740	0.006
10800	0.008
10860	0.005
10920	0.005
10980	0.005
11040	0.005
11100	0.005
11160	0.005
11220	0.004
11280	0.004
11340	0.005
11400	0.005
11460	0.005
11520	0.006
11580	0.005
11640	0.004
11700	0.004
11760	0.004
11820	0.004
11880	0.004
11940	0.012
12000	0.011
12060	0.005
12120	0.004
12180	0.003
12240	0.003
12300	0.003
12360	0.004
12420	0.003
12480	0.003
12540	0.003
12600	0.003
12660	0.003

DOWNWIND LOCATION

Instrument Name	DustTrak II
Model Number	8530
Serial Number	8530162404
Firmware Version	3.7
Calibration Date	6/10/2016
Test Name	MANUAL_001
Test Start Time	12:22:03 PM
Test Start Date	4/12/2021
Test Length [D:H:M]	0:01:00
Test Interval [M:S]	1:00
Mass Average [mg/m3]	0.006
Mass Minimum [mg/m3]	0.003
Mass Maximum [mg/m3]	0.022
Mass TWA [mg/m3]	0.001
Photometric User Cal	1
Flow User Cal	0
Errors	
Number of Samples	60

Elapsed Time [s]	Mass [mg/m3]	Alarms	Errors
60	0.022		
120	0.01		
180	0.007		
240	0.006		
300	0.005		
360	0.006		
420	0.006		
480	0.006		
540	0.008		
600	0.006		
660	0.005		
720	0.004		
780	0.006		
840	0.013		
900	0.006		
960	0.004		
1020	0.004		
1080	0.014		
1140	0.016		
1200	0.007		
1260	0.005		
1320	0.006		
1380	0.007		
1440	0.004		
1500	0.005		
1560	0.004		
1620	0.006		

1680	0.008
1740	0.005
1800	0.004
1860	0.006
1920	0.005
1980	0.008
2040	0.006
2100	0.005
2160	0.005
2220	0.011
2280	0.008
2340	0.005
2400	0.005
2460	0.005
2520	0.004
2580	0.004
2640	0.007
2700	0.005
2760	0.004
2820	0.006
2880	0.006
2940	0.005
3000	0.005
3060	0.006
3120	0.006
3180	0.006
3240	0.005
3300	0.006
3360	0.005
3420	0.005
3480	0.005
3540	0.005
3600	0.003

Instrument Name	DustTrak II	
Model Number		8530
Serial Number		8530162404
Firmware Version		3.7
Calibration Date		6/10/2016
Test Name	MANUAL_002	
Test Start Time		6:07:29 AM
Test Start Date		4/14/2021
Test Length [D:H:M]		0:02:21
Test Interval [M:S]		1:00
Mass Average [mg/m3]		0.019
Mass Minimum [mg/m3]		0.012
Mass Maximum [mg/m3]		0.037
Mass TWA [mg/m3]		0.005
Photometric User Cal		1
Flow User Cal		0
Errors		
Number of Samples		141

Elapsed Time [s]	Mass [mg/m3]	Alarms	Errors
60	0.025		
120	0.025		
180	0.025		
240	0.026		
300	0.03		
360	0.029		
420	0.026		
480	0.026		
540	0.025		
600	0.023		
660	0.023		
720	0.025		
780	0.022		
840	0.024		
900	0.023		
960	0.027		
1020	0.033		
1080	0.034		
1140	0.026		
1200	0.027		
1260	0.026		
1320	0.023		
1380	0.023		
1440	0.023		
1500	0.022		
1560	0.023		
1620	0.023		

1680	0.023
1740	0.022
1800	0.022
1860	0.021
1920	0.022
1980	0.022
2040	0.021
2100	0.021
2160	0.021
2220	0.02
2280	0.02
2340	0.02
2400	0.02
2460	0.021
2520	0.02
2580	0.02
2640	0.02
2700	0.019
2760	0.02
2820	0.02
2880	0.02
2940	0.02
3000	0.019
3060	0.019
3120	0.019
3180	0.022
3240	0.02
3300	0.019
3360	0.019
3420	0.019
3480	0.019
3540	0.018
3600	0.018
3660	0.019
3720	0.02
3780	0.019
3840	0.019
3900	0.019
3960	0.026
4020	0.023
4080	0.019
4140	0.019
4200	0.019
4260	0.02
4320	0.018
4380	0.017
4440	0.017

4500	0.016
4560	0.016
4620	0.015
4680	0.015
4740	0.015
4800	0.015
4860	0.015
4920	0.015
4980	0.016
5040	0.015
5100	0.015
5160	0.014
5220	0.016
5280	0.018
5340	0.02
5400	0.015
5460	0.014
5520	0.013
5580	0.013
5640	0.012
5700	0.012
5760	0.012
5820	0.012
5880	0.013
5940	0.012
6000	0.012
6060	0.016
6120	0.012
6180	0.012
6240	0.012
6300	0.012
6360	0.012
6420	0.035
6480	0.017
6540	0.014
6600	0.016
6660	0.015
6720	0.018
6780	0.037
6840	0.013
6900	0.014
6960	0.013
7020	0.017
7080	0.015
7140	0.014
7200	0.013
7260	0.015

7320	0.014
7380	0.012
7440	0.015
7500	0.014
7560	0.013
7620	0.012
7680	0.013
7740	0.017
7800	0.023
7860	0.013
7920	0.013
7980	0.013
8040	0.013
8100	0.014
8160	0.015
8220	0.017
8280	0.013
8340	0.014
8400	0.014
8460	0.014

Instrument Name	DustTrak II	
Model Number		8530
Serial Number		8530162404
Firmware Version		3.7
Calibration Date		6/10/2016
Test Name	MANUAL_003	
Test Start Time		2:04:23 PM
Test Start Date		4/14/2021
Test Length [D:H:M]		0:00:55
Test Interval [M:S]		1:00
Mass Average [mg/m3]		0.01
Mass Minimum [mg/m3]		0.005
Mass Maximum [mg/m3]		0.021
Mass TWA [mg/m3]		0.001
Photometric User Cal		1
Flow User Cal		0
Errors		
Number of Samples		55

Elapsed Time [s]	Mass [mg/m3]	Alarms	Errors
60	0.011		
120	0.014		
180	0.008		
240	0.005		
300	0.007		
360	0.021		
420	0.01		
480	0.005		
540	0.005		
600	0.007		
660	0.006		
720	0.012		
780	0.007		
840	0.006		
900	0.005		
960	0.01		
1020	0.008		
1080	0.012		
1140	0.007		
1200	0.02		
1260	0.01		
1320	0.008		
1380	0.009		
1440	0.019		
1500	0.012		
1560	0.013		
1620	0.016		

1680	0.012
1740	0.01
1800	0.016
1860	0.007
1920	0.01
1980	0.013
2040	0.01
2100	0.012
2160	0.008
2220	0.006
2280	0.007
2340	0.02
2400	0.009
2460	0.006
2520	0.009
2580	0.007
2640	0.006
2700	0.007
2760	0.009
2820	0.008
2880	0.009
2940	0.007
3000	0.01
3060	0.008
3120	0.014
3180	0.008
3240	0.009
3300	0.011

Instrument Name	DustTrak II	
Model Number		8530
Serial Number		8530162404
Firmware Version		3.7
Calibration Date		6/10/2016
Test Name	MANUAL_004	
Test Start Time		11:04:19 AM
Test Start Date		4/15/2021
Test Length [D:H:M]		0:03:33
Test Interval [M:S]		1:00
Mass Average [mg/m3]		0.009
Mass Minimum [mg/m3]		0.004
Mass Maximum [mg/m3]		0.042
Mass TWA [mg/m3]		0.004
Photometric User Cal		1
Flow User Cal		0
Errors		
Number of Samples		213

Elapsed Time [s]	Mass [mg/m3]	Alarms	Errors
60	0.016		
120	0.013		
180	0.012		
240	0.013		
300	0.013		
360	0.013		
420	0.013		
480	0.012		
540	0.012		
600	0.012		
660	0.012		
720	0.012		
780	0.011		
840	0.011		
900	0.011		
960	0.011		
1020	0.011		
1080	0.011		
1140	0.01		
1200	0.011		
1260	0.01		
1320	0.011		
1380	0.01		
1440	0.01		
1500	0.009		
1560	0.009		
1620	0.009		

1680	0.009
1740	0.009
1800	0.009
1860	0.009
1920	0.009
1980	0.01
2040	0.01
2100	0.009
2160	0.009
2220	0.009
2280	0.01
2340	0.009
2400	0.009
2460	0.009
2520	0.009
2580	0.009
2640	0.008
2700	0.008
2760	0.008
2820	0.009
2880	0.008
2940	0.008
3000	0.008
3060	0.008
3120	0.008
3180	0.008
3240	0.008
3300	0.008
3360	0.008
3420	0.007
3480	0.007
3540	0.008
3600	0.008
3660	0.008
3720	0.008
3780	0.01
3840	0.008
3900	0.008
3960	0.008
4020	0.008
4080	0.008
4140	0.007
4200	0.008
4260	0.007
4320	0.008
4380	0.008
4440	0.008

4500	0.008
4560	0.008
4620	0.008
4680	0.007
4740	0.007
4800	0.007
4860	0.007
4920	0.007
4980	0.008
5040	0.008
5100	0.008
5160	0.008
5220	0.008
5280	0.008
5340	0.009
5400	0.008
5460	0.008
5520	0.008
5580	0.009
5640	0.009
5700	0.009
5760	0.009
5820	0.008
5880	0.008
5940	0.008
6000	0.008
6060	0.009
6120	0.011
6180	0.009
6240	0.009
6300	0.009
6360	0.009
6420	0.009
6480	0.009
6540	0.009
6600	0.009
6660	0.009
6720	0.009
6780	0.009
6840	0.01
6900	0.009
6960	0.01
7020	0.01
7080	0.01
7140	0.009
7200	0.009
7260	0.01

7320	0.01
7380	0.009
7440	0.009
7500	0.009
7560	0.009
7620	0.012
7680	0.009
7740	0.009
7800	0.009
7860	0.01
7920	0.009
7980	0.008
8040	0.008
8100	0.008
8160	0.008
8220	0.008
8280	0.007
8340	0.007
8400	0.007
8460	0.007
8520	0.007
8580	0.007
8640	0.007
8700	0.007
8760	0.007
8820	0.007
8880	0.006
8940	0.006
9000	0.006
9060	0.006
9120	0.005
9180	0.005
9240	0.005
9300	0.005
9360	0.007
9420	0.006
9480	0.007
9540	0.006
9600	0.009
9660	0.006
9720	0.006
9780	0.007
9840	0.042
9900	0.012
9960	0.015
10020	0.009
10080	0.009

10140	0.012
10200	0.012
10260	0.013
10320	0.01
10380	0.01
10440	0.009
10500	0.008
10560	0.007
10620	0.007
10680	0.008
10740	0.008
10800	0.007
10860	0.007
10920	0.008
10980	0.008
11040	0.006
11100	0.007
11160	0.006
11220	0.007
11280	0.006
11340	0.008
11400	0.008
11460	0.009
11520	0.008
11580	0.007
11640	0.012
11700	0.005
11760	0.005
11820	0.007
11880	0.005
11940	0.006
12000	0.005
12060	0.005
12120	0.006
12180	0.005
12240	0.006
12300	0.007
12360	0.005
12420	0.004
12480	0.004
12540	0.004
12600	0.004
12660	0.005
12720	0.005
12780	0.004

Appendix G

Institutional Controls Documentation

(Placeholder)