INTERIM REMEDIAL MEASURES WORK PLAN

1000 Turk Hill Road
Monroe County
Fairport, New York

March 27, 2019

Prepared for:

New Coleman Holdings Inc.

Prepared by:

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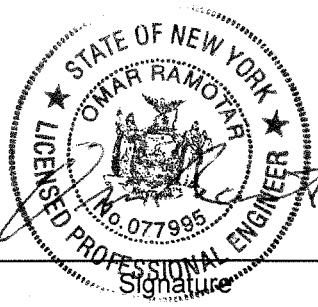
Certification

I, Omar Ramotar, certify that I am currently a NYS-registered professional engineer and that this Interim Remedial Measure Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation and the Consent Orders between the State of New York and New Coleman Holdings Inc. dated March 26, 2014.



Omar Ramotar, P.E.
NYS Professional Engineer #077995

3/27/19
Date

Signature

List of Key Acronyms

Acronym	Definition
BLS	Below Land Surface
CAMP	Community Air Monitoring Plan
CVOC	Chlorinated Volatile Organic Compound
DER	Division of Environmental Remediation
ESC	Erosion and Sediment Control
FS	Feasibility Study
HASP	Health and Safety Plan
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCB	Polychlorinated Biphenyl
PDI	Pre-Design Investigation
PPE	Personal Protective Equipment
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
SCO	Soil Cleanup Objective
SOE	Support of Excavation
SVOC	Semi-volatile Organic Compound
SWPPP	Stormwater Pollution Prevention Plan
TCL	Target Compound List
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

1. Introduction

On behalf of New Coleman Holdings Inc. (New Coleman), Roux Environmental Engineering and Geology, D.P.C. (hereafter referred to as Roux) have prepared this Interim Remedial Measures (IRM) Work Plan for the property located at 1000 Turk Hill Road, Fairport, Monroe County, New York (Site). The Site location is shown on Figure 1. The Site is enrolled in the New York State Department of Environmental Conservation (NYSDEC) Inactive Hazardous Waste Disposal Site (Superfund) Program (Site No. 828161) as a Class 2 Site.

A Feasibility Study (FS) dated October 2018 was previously prepared by Roux for the Site. The FS identified two remedial actions to address impacts to soil and groundwater at the Site:

1. Excavation and offsite disposal of soils impacted by chlorinated volatile organic compounds (CVOCs) and;
2. Chemical injections to remediate CVOC impacts in groundwater.

A Remedial Action Work Plan (RAWP) will be prepared to detail all remedial tasks required to address CVOC impacts at the Site. As directed by the NYSDEC, New Coleman will proceed with the excavation of CVOC-impacted soil in the area of monitoring well MW-9S (hereafter referred to as the 'source area'). Performance of this IRM will remediate the source area while the final Site remediation documents and citizen participation activities are ongoing. All work conducted at the Site is in accordance with the Order on Consent (Index No. B8-0823-14-01) between NYSDEC and New Coleman, dated March 26, 2014.

1.1 Objectives and Scope

The objective of this IRM is to complete the excavation and offsite disposal of soil containing elevated concentrations of CVOCs within the source area defined in Section 3.2. This IRM Work Plan has been prepared in accordance with the NYSDEC Division of Environmental Remediation (DER) guidance document titled, "DER-10, Technical Guidance for Site Investigation and Remediation" (NYSDEC, 2010), and the Inactive Hazardous Waste Disposal Site Program regulation (6 NYCRR Section 375-1.10).

This IRM Work Plan focuses on the removal of CVOC-impacted soil within the source area. Further impacts previously identified at the Site and evaluated in the FS will be addressed as part of the final remedy to be described in the RAWP.

2. Site History and Description

2.1 Site Description

The Site is located at 1000 Turk Hill Road, Fairport, Monroe County, New York, and is bounded by Turk Hill Road (west), the New York State Canal System (successor to the Erie Canal, hereafter referred to as the Canal) (north and east), and residential properties (south). The Site is approximately 7.86 acres in size and is currently improved with three buildings that are leased to multiple tenants and utilized for various commercial and industrial purposes. The buildings are designated Buildings 1 through 3, as shown on Figure 2. The buildings are surrounded with asphalt parking and landscaping. A two-acre area located in the southern portion of the Site is currently wooded and not improved with buildings or asphalt.

2.2 Site History

The Site was improved with the existing three buildings in the late 1890s/early 1900s by Cobbs Cannery, a food processing and canning company. Various additions and modifications to these buildings have occurred since that time. Canning operations continued until 1923 when Crosman Arms (Crosman) acquired the Site. Crosman operated the Site as a BB gun manufacturing facility until 1984. Crosman's manufacturing operations included machine coating, plating, cooling, painting, and degreasing. Between 1909 and 1931 the Rochester, Syracuse, and Eastern Railroad operated an electric Trolley line that passed through the southern portion of the Site. In 1984, the Site was divided into a multi-tenant commercial park referred to as Turk Hill Park.

The historical operations at the Site were influenced by the presence of the adjacent Canal. Construction of the Canal began in 1817 and moved westward reaching Bushnell's Basin by 1821, which is located approximately four miles west of the Site. During the construction of the Canal, soils were excavated and piled on the sides to form a walkway(s) known as a towpath. The completion of the Canal fostered economic and industrial growth in Monroe County and in general throughout upstate New York. By the 1830s, hundreds of barges operated on the Canal, mostly moving raw materials, coal, and finished goods to and from various industrial facilities located along the length of the Canal. The Canal remains in operation today for both recreational and commercial purposes.

3. Summary of Environmental Conditions

This section presents background information related to the environmental conditions that are applicable to this IRM Work Plan. The remedial investigation (RI) was completed between September 2015 and January 2018 by Aptim on behalf of New Coleman. The NYSDEC accepted and approved the Conceptual Site Model presented in Aptim's 2018 Final Remedial Investigation Report on August 2, 2018. Roux completed additional pre-design investigation (PDI) sampling in November 2018 to characterize and further delineate the source area identified during the RI. The PDI sampling results were summarized in Roux's January 18, 2019 letter to the NYSDEC (Appendix A).

Additional background information related to the Site can be found in the Final Remedial Investigation Report (Aptim 2018), Feasibility Study (Roux 2018), and multiple publicly-available reports previously submitted to the NYSDEC.

3.1 Site Hydrogeologic Conditions

The Site elevation ranges from approximately 468 feet to 512 feet relative to the North American Vertical Datum of 1988. The 1972 United States Department of Agriculture Soil Conservation Service's Soil Survey of Monroe County indicated that the Site is comprised of Ontario Loam, which is a portion of the Halsey soil series, and has moderate permeability and medium acidic soil reaction characteristics. The Site is located within the Lake Erie-Ontario Basin physiographic province of New York, which is underlain by sedimentary rocks consisting mostly of shale and limestone (1987 Geologic Map of New York State).

The Canal is located on the northern border of the Site and generally flows eastward during its operating season. Operation of the Canal and its impact on groundwater flow are discussed further in Section 3.1.2. Regional groundwater flow in the vicinity of the Site is generally northward and westward towards the Irondequoit Bay and Lake Ontario. The hydrogeologic conditions described below are based upon the collective results of prior investigations.

3.1.1 Site Stratigraphy

Based on information gathered from previous investigations (by others) and a review of the construction techniques used to build the Canal, fill materials originating from the Canal construction are located onsite near the shoreline of the Canal. Other portions of the Site have also reportedly been filled with soil, rock, and/or sediments that were excavated from the Canal. This fill material is likely co-mingled with native soils and is of similar lithology to native soils making distinction between those lithologic units difficult. Overburden consists of a single unit comprised primarily of sand and silty sand with smaller zones of clay, silt, gravel, and some organic soils in landscaped and other unimproved areas. The overburden unit generally extends from grade or from below pavement and/or building slabs to bedrock (approximately 13 feet below land surface [bls] in the source area). The depth to bedrock varies across the Site between approximately 10 and 27 feet bls. The variability in overburden thickness was generally consistent with changes in surface elevation and the depth to bedrock generally correlates with these changes in overburden thickness. The bedrock surface is relatively flat with some variability in elevation and weathering thickness.

The shallow bedrock encountered in borings installed during previous investigations was predominantly brown to reddish-brown and green to grey weathered shale. A clear transition from weathered to competent bedrock was not observed in the samples collected. This condition is typical of relatively soft, stratified

sedimentary bedrock, as these types of rock are more easily fractured and/or penetrated by the drilling equipment. Based on the drill auger refusals at depths between approximately 20 to 38 feet bls observed during previous investigations, these depths were assumed to represent the top of competent bedrock.

3.1.2 Groundwater Elevation and Flow Patterns

The Canal is located along the northern and eastern borders of the Site and generally flows eastward during the operating season. The easterly flow is generated as operational water is fed into the Canal from the Niagara River in Tonawanda, New York. This water is used to assure an adequate supply is available to operate the various locks in the Canal system, such as those located just west of the Site in Pittsford, New York. The New York State Canal Corporation operates the Canal on a seasonal basis during the warmer months of the year (generally between mid-May and mid-October). The Canal is seasonally drained each year beginning in early November and is then pumped down so that little water remains in the Canal by December 1 of each year. The low water level state continues until April when the Canal is refilled with water and is eventually opened to marine traffic. Figures 3 and 4 show the groundwater elevation contours across the Site during low and high water-level conditions within the canal, respectively.

Excluding MW-12S, the potentiometric surface is relatively flat across the Site when the Canal is full (high groundwater events). The potentiometric surface is also relatively flat when the Canal is drained (low groundwater events), with isolated areas of elevated groundwater levels. Most of the shallow overburden wells are dry during low groundwater events; however, levels observed in monitoring wells MW-2S, MW-4S, MW-9S, and MW-28S have been recorded at two to ten feet higher than in adjacent wells and in the Canal. Heterogeneities in weathered bedrock permeability, elevation, and topography are likely factors in the water-level variations. Based on these observations, the predominant influence on groundwater elevation, flow direction, and gradient, is the elevation of surface water in the Canal.

3.2 Source Area Soil Quality

During the performance of the RI by APTIM, 109 soil samples were collected from across the Site and sampled for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. A review of soil quality data indicated that the primary contaminants of concern in soil are CVOCs, which are limited to an area around SB/MW-9S (i.e., the source area); the reported area of a former waste oil underground storage tank (UST). This IRM Work Plan is limited to discussions of VOCs within the source area. Within the source area the concentrations of trichloroethene (TCE) and its degradation product cis-1,2-dichloroethene (cis-1,2-DCE) exceeded the Site-specific soil cleanup objectives (SCOs) defined in the FS. The vertical and horizontal extent of the source area was further delineated during a Pre-Design Investigation (PDI) by Roux in November 2018. In addition to delineation samples, an *in-situ* waste characterization sample was also collected. Results of the November 2018 PDI are summarized in the approved January 18, 2019 letter to the NYSDEC provided in Appendix A.

The soil sample results for VOCs within the source area compared to the Site-specific SCOs are provided in Table 1. Soil sample locations and the results of the PDI are presented on Figure 5.

4. Proposed Scope of Work

The scope of work for the IRM consists of the tasks listed below, which are further discussed in the subsequent Sections:

- Mobilization and worksite preparation;
- Excavation of soil within the source area;
- Excavation dewatering, as necessary;
- Offsite disposal of excavated material;
- Backfilling of the excavation with clean fill meeting the NYSDEC Unrestricted Use SCOs; and
- Site restoration and demobilization.

4.1 Permitting

Any federal, state, or local permits and licenses required for the work will be obtained prior to mobilization. The permit conditions will be complied with and copies of the permits will be maintained at the Site during the source area excavation.

4.2 Health and Safety

All IRM construction activities will be performed in a manner consistent with 29 CFR 1910 and 1926. All workers onsite will operate under the Site-specific Health and Safety Plan (HASP) provided in Appendix B. The Site-specific HASP will be readily-available at all times while performing the work detailed in this IRM Work Plan. During all phases of work at the Site, health and safety conditions will be monitored and the HASP will be enforced by Roux's onsite Health and Safety Officer. General Site conditions will be monitored for safety hazards and appropriate action taken to correct all unsafe conditions or behaviors observed.

4.3 Community Air Monitoring and Dust/Odor Control

Dust (suspended particulate matter) and odor/vapor control will be implemented during the IRM excavation in accordance with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (CAMP) (Appendix C). All excavations, stockpiles, and all other work areas shall be maintained to minimize dust that may cause a hazard or nuisance to others. Dust will be monitored in accordance with the requirements of the HASP and the CAMP. Based on the results of the monitoring, if necessary, the following measures required to reduce dust concentrations to the required levels shall be implemented:

- Applying water on roads in and adjacent to the construction area;
- Misting equipment and excavation faces;
- Spraying water (using an atomizer) on buckets during excavation and dumping;
- Hauling materials in tarped or lined containers;
- Reducing speed of vehicles moving through the construction area;
- Covering excavated material stockpiles and/or portions of the stockpile, as necessary, throughout the day and after excavation activities cease each day; and/or
- Stopping work.

Odor/vapor control will be implemented if necessary to reduce emissions of nuisance odors and excess concentrations of VOCs both onsite and offsite. Specific odor control methods to be used will include the direct loading of excavated soils into trucks for offsite disposal and utilizing odor suppressant misting or foam application equipment when necessary to reduce odors and vapors. Work will be halted if these methods are not effective until new techniques can be implemented. NYSDEC and NYSDOH will be notified of any odor complaints received or any exceedances of the CAMP action limits.

4.4 Mobilization and Site Preparation

Upon mobilization to the Site, all temporary utilities and temporary facilities will be set up, as required. Additional mobilization and Site preparation activities will include, but are not limited to:

- Utility mark-outs through New York State One Call (DigSafe);
- Mobilization of equipment to the work area;
- Setup of staging areas to support the excavation work;
- Removal of vegetation or debris that is within the limits of the work area; and
- Removal of pavement to access the soils to be excavated.

4.5 Stormwater Management and Erosion Control

Erosion and sediment control (ESC) measures will be implemented in accordance with the latest edition of the NYSDEC document titled New York Standards and Specification for Erosion and Sediment Control. ESC measures for control of stormwater will be installed prior to the implementation of the remedy and will be maintained throughout the duration of all IRM construction activities, as appropriate. ESC measures, including hay bales and/or silt fences, and protection of any stormwater drains will be implemented to control sediment around the disturbed area and other work areas, as required. Other ESC measures will be used, as necessary, to control stormwater run-off and surface water from entering or exiting excavations, in accordance with ESC requirements. The proposed disturbance area is less than one acre, so a Stormwater Pollution Prevention Plan (SWPPP) is not required. However, if there are changes to the excavation extent, the need for a SWPPP will be reevaluated.

4.6 Support of Excavation

The excavation contractor will provide a support of excavation (SOE) design prepared by a qualified New York State-Licensed Professional Engineer prior to mobilization to the Site. The design will incorporate the required lateral extent and depth of the excavation. Based on the PDI results, the extent of the excavation and SOE system will be approximately 26 feet wide by 28 feet long and extend to between 11 and 13 feet bls. The extent of excavation is shown on Figure 6. The SOE will consist of a shoring system capable of supporting the excavation to a depth of 11 feet bls (i.e., to the groundwater table during high water-table conditions) at the perimeter and 13 feet bls in the central excavation area as shown on Figure 6. The design will incorporate the surcharge loads of the excavation equipment to be used, the adjacent structures, and other pertinent Site-specific conditions.

4.7 Excavation

Based on the previous investigations conducted at the Site, the extent of the source area containing CVOC-impacted soil is confined to an approximate 26 feet wide by 28 feet long area immediately east of Building 3.

The proposed excavation area is shown on Figure 6. This excavation will extend to approximately 11 feet bls (i.e., approximately to the groundwater table during high water table conditions). A central portion of the excavation will extend to 13 feet bls (i.e., approximately top of bedrock). The volume of soil to be excavated and removed from the Site will be approximately 320 cubic yards. No confirmation soil samples will be collected as the extent of the required excavation was previously delineated during the PDI. The results of the PDI soil sampling will be used to document and confirm the effectiveness of the remedial excavation. Soils and groundwater below the groundwater table will be remediated via chemical injections to be detailed in the pending RAWP. The final extents and depth of the excavation will be documented on an as-built survey.

Soil within the source area was initially characterized for disposal purposes during the PDI. Additional characterization work will be performed prior to implementation of the IRM Work Plan. Both waste characterization sampling events are being performed in accordance with DER-10, the selected disposal facility requirements, and NYSDEC electronic correspondences dated on October 25, 2018 and February 14, 2019 (Appendix D). Based on the results of the *in-situ* waste characterization samples, the identified non-hazardous and hazardous soils shall be segregated and managed accordingly. All excavated material will be disposed of offsite at a permitted facility in accordance with all applicable regulations.

4.8 Dewatering

Based upon the groundwater investigation and monitoring performed at the Site and the seasonal draining of the adjacent Canal, the IRM excavation will be performed between the months of November and April to complete the excavation work during low-water conditions. This will keep dewatering and handling of saturated soil to a minimum. If dewatering is required, the water will be pumped from the open excavation to an onsite storage tank pending characterization and offsite disposal at a permitted facility. If drying or stabilization of material to be excavated is required, it will be done *in-situ* by mechanically blending Portland cement and/or an approved alternate with the soil to be excavated.

4.9 Temporary Staging and Stockpiling

All non-hazardous impacted materials are to be either direct-loaded for offsite disposal or stockpiled in a lined and covered storage area. All hazardous materials are to be segregated and handled separately and will be either direct-loaded for offsite disposal or stockpiled in a lined and covered storage area. The proposed location for the stockpiles is the adjacent paved parking lot area onsite. Note that the location of this stockpile area may be modified depending on approval by, and in coordination with, the Site owner. Stockpiles will be routinely inspected, and damaged sheeting covers will be promptly replaced. Soil stockpiles will be contained within lined berm, silt fence, or hay bales. Impacted materials removed from below the water table will be dewatered and stabilized prior to transport offsite, as necessary. Stormwater collected from the stockpile berm will be combined with other construction wastewater and handled as described in Section 4.8.

4.10 Traffic Control

Traffic control procedures will be implemented during the work. The excavation area will occupy a portion of an active parking lot. Therefore, a portion of the parking lot will be temporarily closed during execution of the work. The closed are will include the excavation area, support area and stockpile area(s), as necessary.

4.11 Offsite Disposal and Equipment Decontamination

All impacted soil excavated from the Site and other remediation-derived waste will be transported and disposed of in accordance with all applicable federal, state, and local regulations at an appropriate waste disposal facility. The remediation-derived wastes that will be generated during the construction activities are expected to include, but are not limited to:

- Excavated soils and demolition debris;
- Personal protective equipment (PPE);
- Construction wastewater from excavation dewatering (as necessary); and
- Decontamination water.

Haul vehicles for bulk soil will be secured with appropriate covers prior to exiting the construction area to prevent a release of waste. PPE generated during the implementation of the remedy will be consolidated and stored in appropriate bulk containers and temporarily staged at a designated waste storage area. Any full or partially-filled containers will be appropriately labeled.

Construction wastewater generated onsite, if any, will be addressed as described in Section 4.8.

4.12 Backfill

When excavation is complete, the area will be backfilled and compacted using clean offsite fill meeting the backfill and cover soil quality standards established in 6NYCRR Subpart 375-6.7(d). The backfill will be free of extraneous debris or solid waste. Common fill will be used as backfill except for those portions of the excavation below the water table or immediately below pavement (e.g., within six inches). For portions of the excavation below the water table (below approximately 11 feet bls) or immediately below asphalt pavement, high-permeability backfill materials (e.g., crushed stone) will be used to provide a stable base for the common fill material placed above the water table. Approximately 12 inches of top soil will be used to restore landscaped areas, along with common organic mulch. All offsite fill will be certified clean by the procedures described below.

Analysis of samples of offsite backfill will be performed in accordance with the sampling frequency and procedures detailed in NYSDEC DER-10, unless materials exempted from the sampling requirements are utilized. If backfill material sampling is performed, analysis for the following parameters will be required:

- Target Compound List (TCL) VOCs by United States Environmental Protection Agency (USEPA) Method 8260;
- TCL SVOCs by USEPA Method 8270;
- Target Analyte List (TAL) Metals by USEPA Method 6010;
- Total mercury by USEPA Method 7471;
- Hexavalent chromium by USEPA Method 7196;
- Total cyanide by USEPA Method 9010C/9021B;
- 1,4-dioxane by USEPA Method 8270 SIM;
- Per-and polyfluoroalkyl substances (PFAS) by Modified USEPA Method;
- Herbicides by USEPA Method 8151; and

- Pesticides and PCBs by USEPA Methods 8081/8082, respectively.

The sources of the offsite fill will be documented by the supplier, including the location where the fill was obtained and a brief history of the site that was the source of the fill. Former industrial properties or sites with known or suspected environmental impacts will not be considered as sources for offsite fill material. Gravel or crushed stone materials originating from a virgin source and containing less than 10 percent by weight material that will pass through a size 80 sieve will not require sampling as exempted by NYSDEC DER-10.

4.13 Site Restoration

After backfilling activities are complete, the work area will be returned as close to original conditions as is practical (e.g., asphalt paving, landscaping). Crushed stone or gravel, as used for backfilling below the groundwater table, will also be used as a sub-base material immediately below the asphalt pavement prior to restoration of the excavation area (approximately six-inches thick). Once Site restoration activities have been completed, all temporary work zone barriers, soil erosion and sedimentation controls, and remedial construction equipment will be removed. All equipment will be decontaminated in the established onsite decontamination area prior to removal from the Site. An as-built Site survey will be completed following completion of backfill to document final grades and conditions, as well as to confirm backfill volumes and restoration materials.

5. Schedule

The implementation of this IRM Work Plan is anticipated to begin in March 2019 and will require approximately four weeks to complete, pending receipt of permits and Site access.

An IRM Construction Completion Report (CCR) will be prepared in accordance with the requirements of DER-10, subdivision 5.8(b)-(d). The IRM CCR will be completed and submitted to the NYSDEC within 90 days following completion of IRM excavation activities.

6. References

Aptim, 2018. Aptim Environmental & Infrastructure, Inc., Final Remedial Investigation Report, Turk Hill Park Site, 1000 Turk Hill Road, Fairport, Monroe County, New York, June 2018.

NYSDEC, 2006. 6 NYCRR Part 375 Environmental Remediation Programs, Subparts 375-1 to 375-4 and 375-6, Effective December 14, 2008.

NYSDEC, 2010. DER-10 Technical Guidance for Site Investigation and Remediation, May 2010.

Roux, 2018. Roux Environmental Engineering and Geology, D.P.C., Feasibility Study October 22, 2018.

Roux, 2019. Roux Environmental Engineering and Geology, D.P.C., Soil Remediation Area Delineation Result Letter, January 18, 2019.

TABLE

Summary of Volatile Organic Compounds in Soil

Notes Utilized Throughout Tables	
Soil Tables	
J -	Estimated value
U -	Indicates that the compound was analyzed for but not detected
ft bls -	Feet below land surface
DUP -	Duplicate sample
NA -	Compound was not analyzed for by laboratory
ND -	Not detected
mg/kg -	Milligrams per kilogram
su -	Standard units
NYSDEC -	New York State Department of Environmental Conservation
SCO -	Soil Cleanup Objectives
--	No SCO available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Commercial SCO	
Red data indicates that parameter was detected above the Site-Specific Standards that differ from the Part 375 Commercial SCO	
TCLP Tables	
mg/L -	Milligrams per liter
USEPA -	United States Environmental Protection Agency
TCLP -	Toxicity Characteristic Leaching Procedure
USEPA Regulatory Levels - United States Environmental Protection	
	Agency Limits for RCRA Characteristic Waste for Toxicity
RCRA -	Resource Conservation and Recovery Act
Bold -	Parameter was detected above USEPA Regulatory Levels

Table 1. Summary of Volatile Organic Compounds in Soil Within the Source Area, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	Sample Designation:	RXSB-1	RXSB-2	RXSB-3	RXSB-3	RXSB-4	RXSB-4
				Sample Date:	11/13/2018	11/13/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
				Sample Depth (ft bls):	8.5 - 10.5	8 - 10	8 - 10	8 - 10	7.5 - 9.5	7.5 - 9.5
				Test Type:	DILUTION1	DILUTION1	DILUTION1	INITIAL	DILUTION1	INITIAL
1,1,1,2-Tetrachloroethane	--	--	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
1,1,1-Trichloroethane	500	500	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
1,1,2,2-Tetrachloroethane	--	--	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
1,1,2-Trichloroethane	--	--	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
1,1-Dichloroethane	240	240	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
1,1-Dichloroethene	500	500	mg/kg		3.5 U	140 U	2.8 U	0.019	0.31 U	0.001 U
1,1-Dichloropropene	--	--	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
1,2,3-Trichlorobenzene	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
1,2,3-Trichloropropane	--	--	mg/kg		7 U	280 U	3.1 J	0.0018 U	0.34 J	0.002 U
1,2,4,5-Tetramethylbenzene	--	--	mg/kg		3.2 J	280 U	14	0.16	6.5	0.22
1,2,4-Trichlorobenzene	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
1,2,4-Trimethylbenzene	190	190	mg/kg		60	**360**	**370**	NA	93	NA
1,2-Dibromoethane	--	--	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
1,2-Dichlorobenzene	500	500	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
1,2-Dichloroethane	30	30	mg/kg		3.5 U	140 U	2.8 U	0.00073 J	0.31 U	0.001 U
1,2-Dichloroethene (total)	--	--	mg/kg		800 J	5300	18	NA	0.31 U	0.0085
1,2-Dichloropropane	--	--	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
1,3,5-Trimethylbenzene	190	190	mg/kg		15	80 J	84	NA	8.2	NA
1,3-Dichlorobenzene	280	280	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
1,3-Dichloropropane	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
1,3-Dichloropropene	--	--	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
1,4-Dichlorobenzene	130	130	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
1,4-Diethylbenzene	--	--	mg/kg		19	91 J	100	NA	31	NA
1,4-Dioxane	130	130	mg/kg		350 U	14000 U	280 U	0.088 U	31 U	0.1 U
2,2-Dichloropropane	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
2-Butanone (MEK)	500	500	mg/kg		35 U	1400 U	28 U	0.0088 U	3.1 U	0.01 U
2-Hexanone	--	--	mg/kg		35 U	1400 U	28 U	0.0088 U	3.1 U	0.01 U
4-Ethyltoluene	--	--	mg/kg		24	140 J	110	NA	16	NA
4-Methyl-2-pentanone (MIBK)	--	--	mg/kg		35 U	1400 U	28 U	0.0088 U	3.1 U	0.01 U
Acetone	500	500	mg/kg		35 U	1400 U	28 U	0.066	3.1 U	0.028
Acrylonitrile	--	--	mg/kg		14 U	560 U	11 U	0.0035 U	1.2 U	0.004 U
Benzene	44	44	mg/kg		1.7 U	70 U	1.4 U	0.00049	0.16 U	0.0005 U
Bromobenzene	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Bromochloromethane	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Bromodichloromethane	--	--	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
Bromoform	--	--	mg/kg		14 U	560 U	11 U	0.0035 U	1.2 U	0.004 U

Table 1. Summary of Volatile Organic Compounds in Soil Within the Source Area, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	Sample Designation:	RXSB-1	RXSB-2	RXSB-3	RXSB-3	RXSB-4	RXSB-4
				Sample Date:	11/13/2018	11/13/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
				Sample Depth (ft bls):	8.5 - 10.5	8 - 10	8 - 10	8 - 10	7.5 - 9.5	7.5 - 9.5
				Test Type:	DILUTION1	DILUTION1	DILUTION1	INITIAL	DILUTION1	INITIAL
Bromomethane	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Carbon disulfide	--	--	mg/kg		35 U	1400 U	28 U	0.0088 U	3.1 U	0.01 U
Carbon tetrachloride	22	22	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
Chlorobenzene	500	500	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
Chloroethane	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Chloroform	350	350	mg/kg		0.5 J	210 U	4.2 U	0.00048 J	0.47 U	0.00036 J
Chloromethane	--	--	mg/kg		14 U	560 U	11 U	0.0035 U	1.2 U	0.004 U
cis-1,2-Dichloroethene	500	0.25	mg/kg		**800**	**5300**	18	NA	0.31 U	0.0085
cis-1,3-Dichloropropene	--	--	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
Dibromochloromethane	--	--	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
Dibromochloropropane	--	--	mg/kg		10 U	420 U	8.4 U	0.0026 U	0.94 U	0.003 U
Dibromomethane	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Dichlorodifluoromethane	--	--	mg/kg		35 U	1400 U	28 U	0.0088 U	3.1 U	0.01 U
Diethyl Ether	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Ethylbenzene	390	390	mg/kg		1.3 J	140 U	3.7	0.096	0.35	0.034
Hexachlorobutadiene	--	--	mg/kg		14 U	560 U	11 U	0.0035 U	1.2 U	0.004 U
Isopropylbenzene	--	--	mg/kg		1.9 J	140 U	7.3	0.11	1.7	0.089
m+p-Xylene	--	--	mg/kg		4.5 J	280 U	17	0.46	0.73	0.084
Methylene chloride	500	500	mg/kg		17 U	700 U	14 U	0.0044 U	1.6 U	0.005 U
MTBE	500	500	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Naphthalene	500	500	mg/kg		4.8 J	560 U	10 J	0.13	0.25 J	0.0035 J
n-Butylbenzene	500	500	mg/kg		6.9	30 J	35	NA	16	NA
n-Propylbenzene	500	500	mg/kg		6.4	33 J	25	0.25	6.8	0.27
o-Chlorotoluene	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
o-Xylene	--	--	mg/kg		3.8	140 U	13	0.34	0.99	0.094
p-Chlorotoluene	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
p-Isopropyltoluene	--	--	mg/kg		4.6	22 J	27	NA	11	0.28
sec-Butylbenzene	500	500	mg/kg		4.7	20 J	22	0.23	10	0.3
Styrene	--	--	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
tert-Butylbenzene	500	500	mg/kg		0.64 J	280 U	2 J	0.023	0.72	0.026
Tetrachloroethene	150	150	mg/kg		1.7 U	70 U	1.4 U	0.0021	0.16 U	0.0005 U
Toluene	500	500	mg/kg		3.5 U	140 U	2.8 U	0.039	0.31 U	0.001 U
trans-1,2-Dichloroethene	500	500	mg/kg		1.4 J	210 U	4.2 U	0.012	0.47 U	0.0015 U
trans-1,3-Dichloropropene	--	--	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
trans-1,4-Dichloro-2-butene	--	--	mg/kg		17 U	700 U	14 U	0.0044 U	1.6 U	0.005 U
Trichloroethene	200	0.47	mg/kg		14	**21000**	1.4 U	0.0007	0.16 U	0.0063

Table 1. Summary of Volatile Organic Compounds in Soil Within the Source Area, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	**Sample Designation:**	RXSB-1	RXSB-2	RXSB-3	RXSB-3	RXSB-4	RXSB-4
				Sample Date:	11/13/2018	11/13/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
				Sample Depth (ft bls):	8.5 - 10.5	8 - 10	8 - 10	8 - 10	7.5 - 9.5	7.5 - 9.5
				Test Type:	DILUTION1	DILUTION1	DILUTION1	INITIAL	DILUTION1	INITIAL
Trichlorofluoromethane	--	--	mg/kg		14 U	560 U	11 U	0.0035 U	1.2 U	0.004 U
Vinyl acetate	--	--	mg/kg		35 U	1400 U	28 U	0.0088 U	3.1 U	0.01 U
Vinyl chloride	13	13	mg/kg		3.5 U	140 U	2.8 U	NA	0.31 U	0.00068 J
Xylenes (total)	500	500	mg/kg		8.3 J	140 U	30	0.8	1.7	0.18

Table 1. Summary of Volatile Organic Compounds in Soil Within the Source Area, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	Sample Designation:	RXSB-5	RXSB-5	RXSB-6	RXSB-6	RXSB-7	RXSB-9 DUP
				Sample Date:	11/13/2018	11/13/2018	11/12/2018	11/12/2018	11/12/2018	11/13/2018
				Sample Depth (ft bls):	8 - 10	8 - 10	8 - 10	8 - 10	8 - 10	1 - 5
				Test Type:	DILUTION1	DILUTION2	DILUTION1	DILUTION2	DILUTION1	DILUTION1
1,1,1,2-Tetrachloroethane	--	--	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
1,1,1-Trichloroethane	500	500	mg/kg		0.57 U	NA	0.54 J	NA	0.53 U	0.64 U
1,1,2,2-Tetrachloroethane	--	--	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
1,1,2-Trichloroethane	--	--	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
1,1-Dichloroethane	240	240	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
1,1-Dichloroethene	500	500	mg/kg		1.6	NA	1.3	NA	1.1 U	1.3 U
1,1-Dichloropropene	--	--	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
1,2,3-Trichlorobenzene	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,2,3-Trichloropropane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,2,4,5-Tetramethylbenzene	--	--	mg/kg		42	NA	37	NA	17	14
1,2,4-Trichlorobenzene	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,2,4-Trimethylbenzene	190	190	mg/kg		**290**	NA	NA	**340**	140	**220**
1,2-Dibromoethane	--	--	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
1,2-Dichlorobenzene	500	500	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,2-Dichloroethane	30	30	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
1,2-Dichloroethene (total)	--	--	mg/kg		NA	1800	NA	2100	43	55 J
1,2-Dichloropropane	--	--	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
1,3,5-Trimethylbenzene	190	190	mg/kg		85	NA	80	NA	23	70
1,3-Dichlorobenzene	280	280	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,3-Dichloropropane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,3-Dichloropropene	--	--	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
1,4-Dichlorobenzene	130	130	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,4-Diethylbenzene	--	--	mg/kg		97	NA	88	NA	38	100
1,4-Dioxane	130	130	mg/kg		110 U	NA	110 U	NA	110 U	130 U
2,2-Dichloropropane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
2-Butanone (MEK)	500	500	mg/kg		11 U	NA	11 U	NA	11 U	13 U
2-Hexanone	--	--	mg/kg		11 U	NA	11 U	NA	11 U	13 U
4-Ethyltoluene	--	--	mg/kg		110	NA	110	NA	37	69
4-Methyl-2-pentanone (MIBK)	--	--	mg/kg		11 U	NA	11 U	NA	11 U	13 U
Acetone	500	500	mg/kg		11 U	NA	11 U	NA	11 U	13 U
Acrylonitrile	--	--	mg/kg		4.5 U	NA	4.4 U	NA	4.2 U	5.1 U
Benzene	44	44	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
Bromobenzene	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Bromochloromethane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Bromodichloromethane	--	--	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
Bromoform	--	--	mg/kg		4.5 U	NA	4.4 U	NA	4.2 U	5.1 U

Table 1. Summary of Volatile Organic Compounds in Soil Within the Source Area, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	Sample Designation:	RXSB-5	RXSB-5	RXSB-6	RXSB-6	RXSB-7	RXSB-9 DUP
				Sample Date:	11/13/2018	11/13/2018	11/12/2018	11/12/2018	11/12/2018	11/13/2018
				Sample Depth (ft bls):	8 - 10	8 - 10	8 - 10	8 - 10	8 - 10	1 - 5
				Test Type:	DILUTION1	DILUTION2	DILUTION1	DILUTION2	DILUTION1	DILUTION1
Bromomethane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Carbon disulfide	--	--	mg/kg		11 U	NA	11 U	NA	11 U	13 U
Carbon tetrachloride	22	22	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
Chlorobenzene	500	500	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
Chloroethane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Chloroform	350	350	mg/kg		1.7 U	NA	1.7 U	NA	1.6 U	1.9 U
Chloromethane	--	--	mg/kg		4.5 U	NA	4.4 U	NA	4.2 U	5.1 U
cis-1,2-Dichloroethene	500	0.25	mg/kg		NA	**1800**	NA	**2100**	43	55
cis-1,3-Dichloropropene	--	--	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
Dibromochloromethane	--	--	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
Dibromochloropropane	--	--	mg/kg		3.4 U	NA	3.3 U	NA	3.2 U	3.9 U
Dibromomethane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Dichlorodifluoromethane	--	--	mg/kg		11 U	NA	11 U	NA	11 U	13 U
Diethyl Ether	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Ethylbenzene	390	390	mg/kg		5.6	NA	5.9	NA	0.82 J	1 J
Hexachlorobutadiene	--	--	mg/kg		4.5 U	NA	4.4 U	NA	4.2 U	5.1 U
Isopropylbenzene	--	--	mg/kg		8.3	NA	8.6	NA	2	2.3
m+p-Xylene	--	--	mg/kg		22	NA	25	NA	4.3	6.7
Methylene chloride	500	500	mg/kg		5.7 U	NA	5.6 U	NA	5.3 U	6.4 U
MTBE	500	500	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Naphthalene	500	500	mg/kg		20	NA	9.9	NA	1.9 J	6
n-Butylbenzene	500	500	mg/kg		28	NA	29	NA	13	12
n-Propylbenzene	500	500	mg/kg		24	NA	27	NA	7.6	7.7
o-Chlorotoluene	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
o-Xylene	--	--	mg/kg		18	NA	18	NA	3.3	9.7
p-Chlorotoluene	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
p-Isopropyltoluene	--	--	mg/kg		27	NA	24	NA	11	22
sec-Butylbenzene	500	500	mg/kg		20	NA	22	NA	8.6	10
Styrene	--	--	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
tert-Butylbenzene	500	500	mg/kg		3	NA	2 J	NA	2.1 U	1.6 J
Tetrachloroethene	150	150	mg/kg		1.6	NA	10	NA	0.53 U	0.64 U
Toluene	500	500	mg/kg		1.9	NA	6	NA	1.1 U	1.3 U
trans-1,2-Dichloroethene	500	500	mg/kg		6.2	NA	4.1	NA	1.6 U	0.38 J
trans-1,3-Dichloropropene	--	--	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
trans-1,4-Dichloro-2-butene	--	--	mg/kg		5.7 U	NA	5.6 U	NA	5.3 U	6.4 U
Trichloroethene	200	0.47	mg/kg		3.1	NA	NA	**5900**	140	0.64 U

Table 1. Summary of Volatile Organic Compounds in Soil Within the Source Area, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	**Sample Designation:**	RXSB-5	RXSB-5	RXSB-6	RXSB-6	RXSB-7	RXSB-9 DUP
				Sample Date:	11/13/2018	11/13/2018	11/12/2018	11/12/2018	11/12/2018	11/13/2018
				Sample Depth (ft bls):	8 - 10	8 - 10	8 - 10	8 - 10	8 - 10	1 - 5
				Test Type:	DILUTION1	DILUTION2	DILUTION1	DILUTION2	DILUTION1	DILUTION1
Trichlorofluoromethane	--	--	mg/kg		4.5 U	NA	4.4 U	NA	4.2 U	5.1 U
Vinyl acetate	--	--	mg/kg		11 U	NA	11 U	NA	11 U	13 U
Vinyl chloride	13	13	mg/kg		3.2	NA	1.8	NA	1.1 U	3.7
Xylenes (total)	500	500	mg/kg		40	NA	43	NA	7.6	16

Table 1. Summary of Volatile Organic Compounds in Soil Within the Source Area, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	Sample Designation:	RXSB-9	RXSB-9	RXSB-9	RXSB-10	RXSB-11
				Sample Date:	11/13/2018	11/13/2018	11/13/2018	11/13/2018	11/13/2018
				Sample Depth (ft bls):	1 - 5	1 - 5	5 - 13	8 - 10	8 - 10
				Test Type:	DILUTION1	DILUTION2	DILUTION1	DILUTION1	DILUTION1
1,1,1,2-Tetrachloroethane	--	--	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
1,1,1-Trichloroethane	500	500	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
1,1,2,2-Tetrachloroethane	--	--	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
1,1,2-Trichloroethane	--	--	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
1,1-Dichloroethane	240	240	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
1,1-Dichloroethene	500	500	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
1,1-Dichloropropene	--	--	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
1,2,3-Trichlorobenzene	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,2,3-Trichloropropane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,2,4,5-Tetramethylbenzene	--	--	mg/kg		12	NA	580 U	13	7.1
1,2,4-Trichlorobenzene	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,2,4-Trimethylbenzene	190	190	mg/kg		NA	**280**	**920**	70	62
1,2-Dibromoethane	--	--	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
1,2-Dichlorobenzene	500	500	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,2-Dichloroethane	30	30	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
1,2-Dichloroethene (total)	--	--	mg/kg		63 J	NA	10000	1.5	0.49 U
1,2-Dichloropropane	--	--	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
1,3,5-Trimethylbenzene	190	190	mg/kg		65	NA	**200 J**	17	13
1,3-Dichlorobenzene	280	280	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,3-Dichloropropane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,3-Dichloropropene	--	--	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
1,4-Dichlorobenzene	130	130	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,4-Diethylbenzene	--	--	mg/kg		100	NA	240 J	32	17
1,4-Dioxane	130	130	mg/kg		63 U	NA	29000 U	65 U	49 U
2,2-Dichloropropane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
2-Butanone (MEK)	500	500	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
2-Hexanone	--	--	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
4-Ethyltoluene	--	--	mg/kg		74	NA	350 J	21	18
4-Methyl-2-pentanone (MIBK)	--	--	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
Acetone	500	500	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
Acrylonitrile	--	--	mg/kg		2.5 U	NA	1200 U	2.6 U	2 U
Benzene	44	44	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
Bromobenzene	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Bromochloromethane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Bromodichloromethane	--	--	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
Bromoform	--	--	mg/kg		2.5 U	NA	1200 U	2.6 U	2 U

Table 1. Summary of Volatile Organic Compounds in Soil Within the Source Area, 1000 Turk Hill Road, Fairport, New York

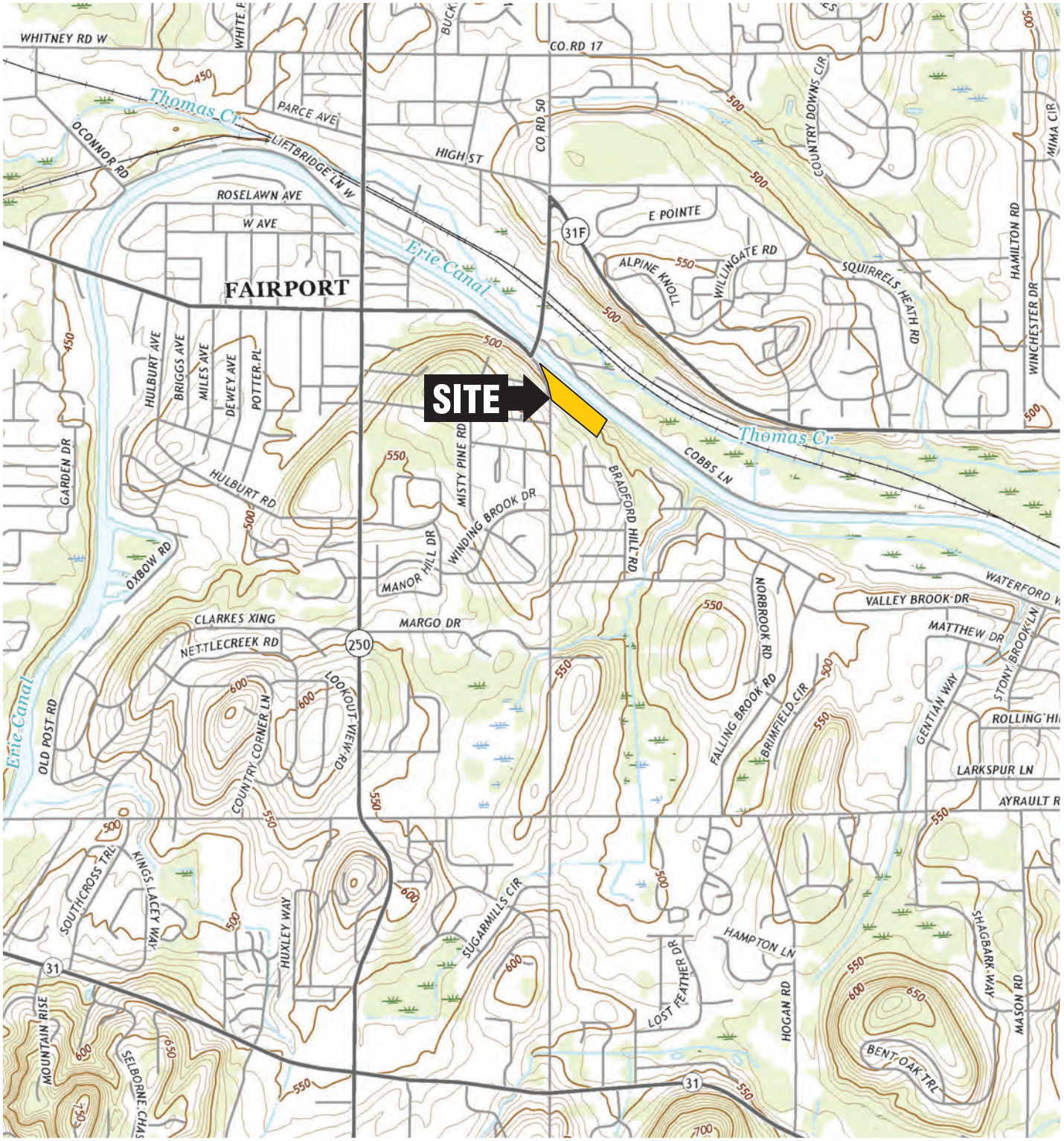
Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	Sample Designation:	RXSB-9	RXSB-9	RXSB-9	RXSB-10	RXSB-11
				Sample Date:	11/13/2018	11/13/2018	11/13/2018	11/13/2018	11/13/2018
				Sample Depth (ft bls):	1 - 5	1 - 5	5 - 13	8 - 10	8 - 10
				Test Type:	DILUTION1	DILUTION2	DILUTION1	DILUTION1	DILUTION1
Bromomethane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Carbon disulfide	--	--	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
Carbon tetrachloride	22	22	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
Chlorobenzene	500	500	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
Chloroethane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Chloroform	350	350	mg/kg		0.95 U	NA	44 J	0.98 U	0.74 U
Chloromethane	--	--	mg/kg		2.5 U	NA	1200 U	2.6 U	2 U
cis-1,2-Dichloroethene	500	0.25	mg/kg		63	NA	**10000**	1.5	0.49 U
cis-1,3-Dichloropropene	--	--	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
Dibromochloromethane	--	--	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
Dibromochloropropane	--	--	mg/kg		1.9 U	NA	870 U	2 U	1.5 U
Dibromomethane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Dichlorodifluoromethane	--	--	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
Diethyl Ether	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Ethylbenzene	390	390	mg/kg		1.1	NA	290 U	0.4 J	0.52
Hexachlorobutadiene	--	--	mg/kg		2.5 U	NA	1200 U	2.6 U	2 U
Isopropylbenzene	--	--	mg/kg		2.4	NA	290 U	1.3	1.2
m+p-Xylene	--	--	mg/kg		6.8	NA	580 U	1.6	2.6
Methylene chloride	500	500	mg/kg		3.2 U	NA	1400 U	3.3 U	2.5 U
MTBE	500	500	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Naphthalene	500	500	mg/kg		5.6	NA	1200 U	1.4 J	1.2 J
n-Butylbenzene	500	500	mg/kg		14	NA	79 J	11	5.5
n-Propylbenzene	500	500	mg/kg		9.4	NA	79 J	5.1	4.1
o-Chlorotoluene	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
o-Xylene	--	--	mg/kg		10	NA	290 U	1.4	2.1
p-Chlorotoluene	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
p-Isopropyltoluene	--	--	mg/kg		21	NA	60 J	7.6	4.4
sec-Butylbenzene	500	500	mg/kg		10	NA	57 J	6.8	3.8
Styrene	--	--	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
tert-Butylbenzene	500	500	mg/kg		1.4	NA	580 U	0.47 J	0.27 J
Tetrachloroethene	150	150	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
Toluene	500	500	mg/kg		0.5 J	NA	290 U	0.65 U	0.49 U
trans-1,2-Dichloroethene	500	500	mg/kg		0.41 J	NA	430 U	0.98 U	0.74 U
trans-1,3-Dichloropropene	--	--	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
trans-1,4-Dichloro-2-butene	--	--	mg/kg		3.2 U	NA	1400 U	3.3 U	2.5 U
Trichloroethene	200	0.47	mg/kg		0.32 U	NA	**62000**	0.33 U	0.25 U

Table 1. Summary of Volatile Organic Compounds in Soil Within the Source Area, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	**Sample Designation:**	RXSB-9	RXSB-9	RXSB-9	RXSB-10	RXSB-11
				Sample Date:	11/13/2018	11/13/2018	11/13/2018	11/13/2018	11/13/2018
				Sample Depth (ft bls):	1 - 5	1 - 5	5 - 13	8 - 10	8 - 10
				Test Type:	DILUTION1	DILUTION2	DILUTION1	DILUTION1	DILUTION1
Trichlorofluoromethane	--	--	mg/kg		2.5 U	NA	1200 U	2.6 U	2 U
Vinyl acetate	--	--	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
Vinyl chloride	13	13	mg/kg		3.3	NA	290 U	0.65 U	0.49 U
Xylenes (total)	500	500	mg/kg		17	NA	290 U	3	4.7

FIGURES

1. Site Location Map
2. Site Plan
3. Groundwater Table Elevations – Low Water Conditions (March 2017)
4. Groundwater Table Elevations – High Water Conditions (August 2017)
5. Pre-Design Investigation Results
6. Proposed Remedial Excavation



QUADRANGLE LOCATION

SOURCE:
USGS; 2016, Fairport, NY
7.5 Minute Topographic Quadrangle

N

0 2000'

Title:

SITE PLAN

1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:

NEW COLEMAN HOLDINGS INC.

ROUX

Compiled by: C.B.	Date: 01NOV18	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	1
Project Mgr.: C.B.	Project No.: 3113.0001Y000	
File: 3113.0001Y109.01.CDR		

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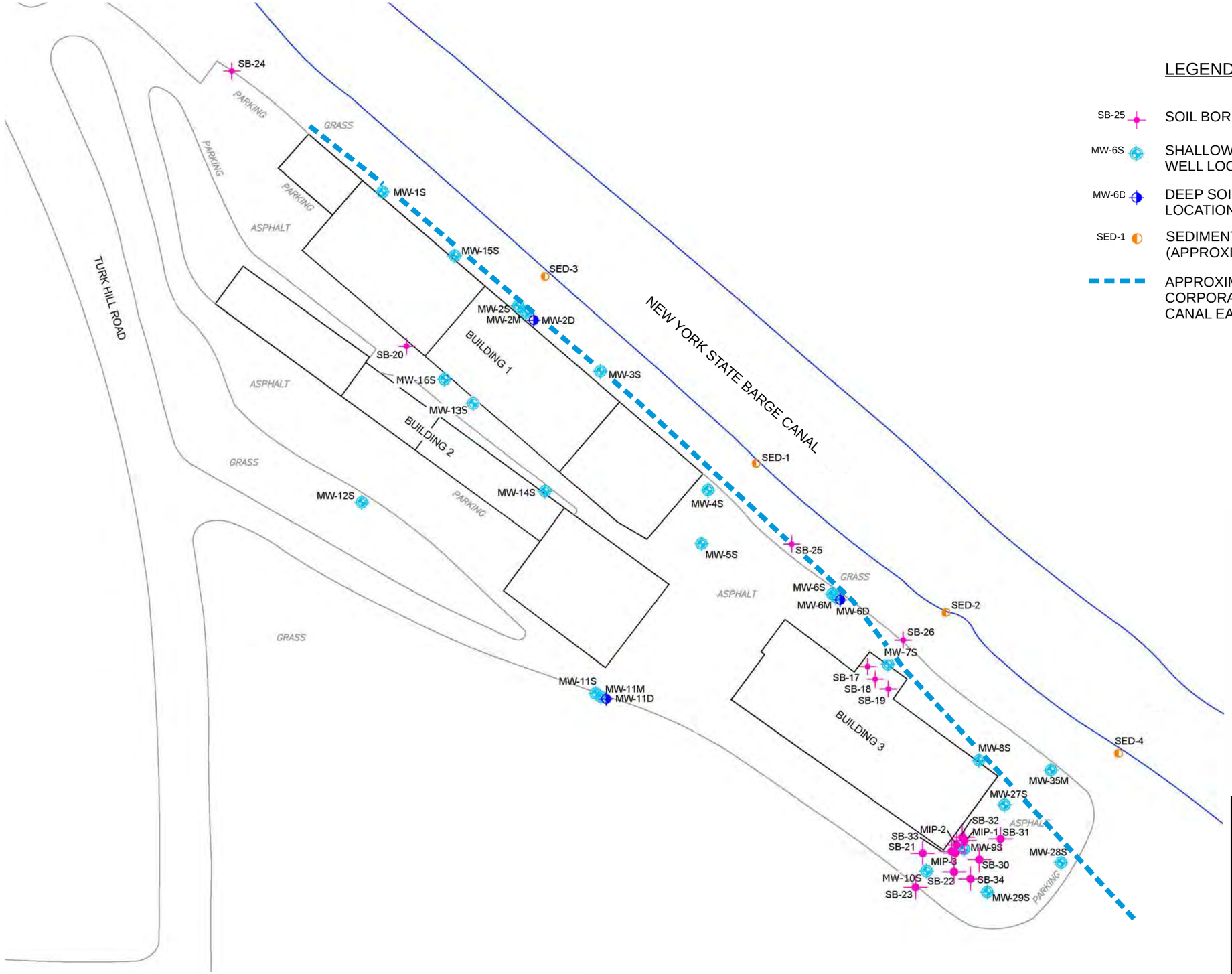


LEGEND

- SB-25 — SOIL BORING LOCATION AND DESIGNATION
- MW-6S — SHALLOW / MEDIUM SOIL BORING/MONITORING WELL LOCATION AND DESIGNATION
- MW-6D — DEEP SOIL BORING / MONITORING WELL LOCATION AND DESIGNATION
- SED-1 — SEDIMENT SAMPLE LOCATION AND DESIGNATION (APPROXIMATE)
- APPROXIMATE LOCATION OF NEW YORK STATE CANAL CORPORATION “BLUE LINE” INDICATING EXTENT OF CANAL EASEMENT

N

80’ 0’ 80’

SOURCE:
BASE MAP AND LOCATIONS OF BORINGS, MONITORING WELLS, AND SEDIMENT SAMPLES BASED ON DRAWING NUMBER 152918-B5 (APTIM ENVIRONMENTAL AND INFRASTRUCTURE, INC., JANUARY 30, 2018).

Title:

SITE PLAN

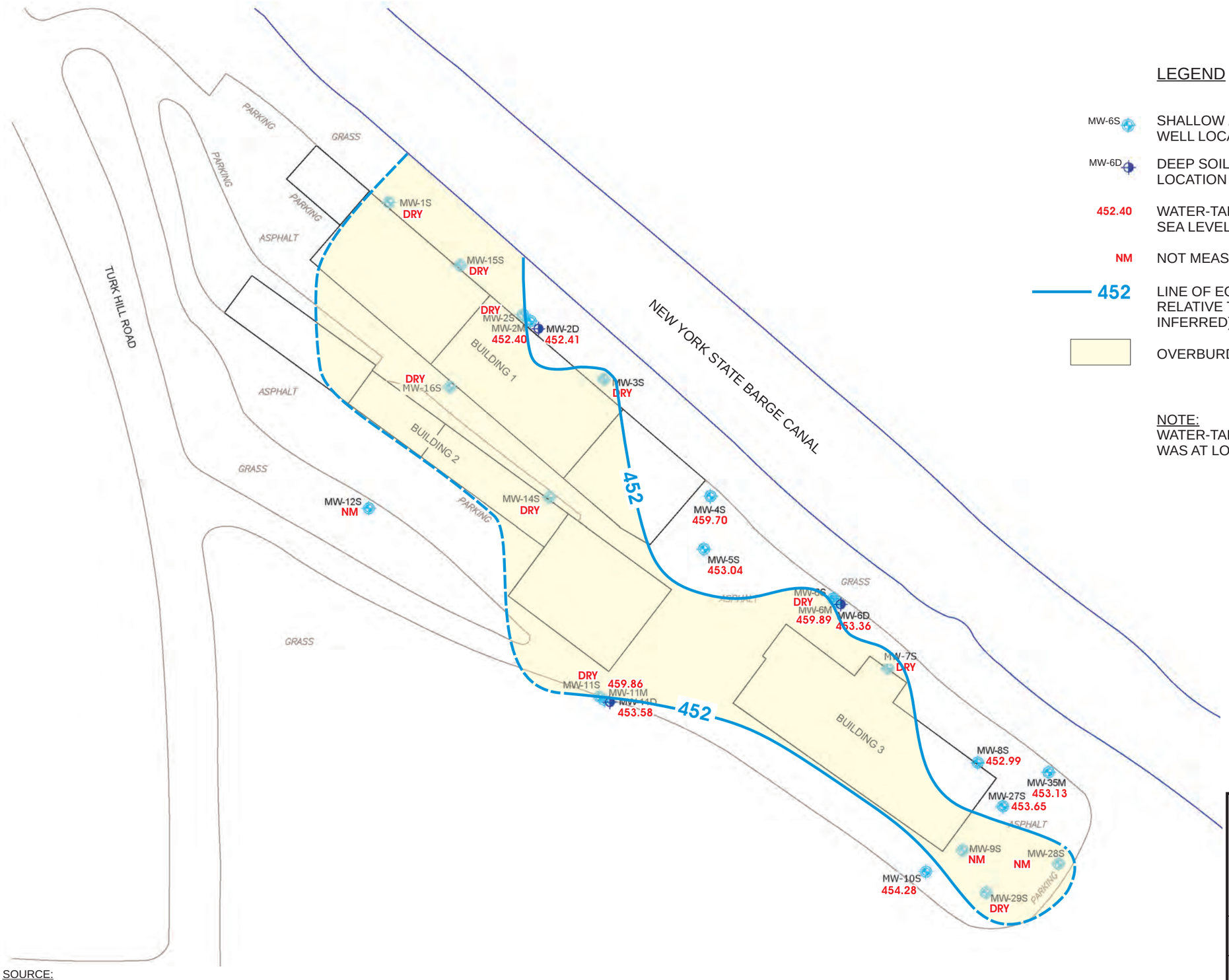
1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:
NEW COLEMAN HOLDINGS INC.

ROUX

Compiled by: C.B.	Date: 22FEB19	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	2
Project Mgr.: C.B.	Project No.: 3113.0001Y000	
File: 3113.0001Y109.02.CDR		

\3113\Y0001\Y1063113.0001Y109.02.CDR



LEGEND

MW-6S	SHALLOW / MEDIUM SOIL BORING/MONITORING WELL LOCATION AND DESIGNATION
MW-6D	DEEP SOIL BORING / MONITORING WELL LOCATION AND DESIGNATION
452.40	WATER-TABLE ELEVATION, IN FEET RELATIVE TO MEAN SEA LEVEL (MARCH 5, 2017 TO MARCH 7, 2017)
NM	NOT MEASURED
452	LINE OF EQUAL WATER-TABLE ELEVATION, IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE INFERRED) (MARCH 5, 2017 TO MARCH 7, 2017)
	OVERBURDEN NOT SATURATED (DRY)

NOTE:
WATER-TABLE MEASURED WHEN BARGE CANAL WAS AT LOW WATER.

N

80’ 0’ 80’

SOURCE:
BASE MAP AND LOCATIONS OF BORINGS, MONITORING WELLS, AND SEDIMENT SAMPLES BASED ON DRAWING NUMBER 152918-B5 (APTIM ENVIRONMENTAL AND INFRASTRUCTURE, INC., JANUARY 30, 2018).

Title:

GROUNDWATER TABLE ELEVATIONS LOW WATER CONDITIONS (MARCH 2017)

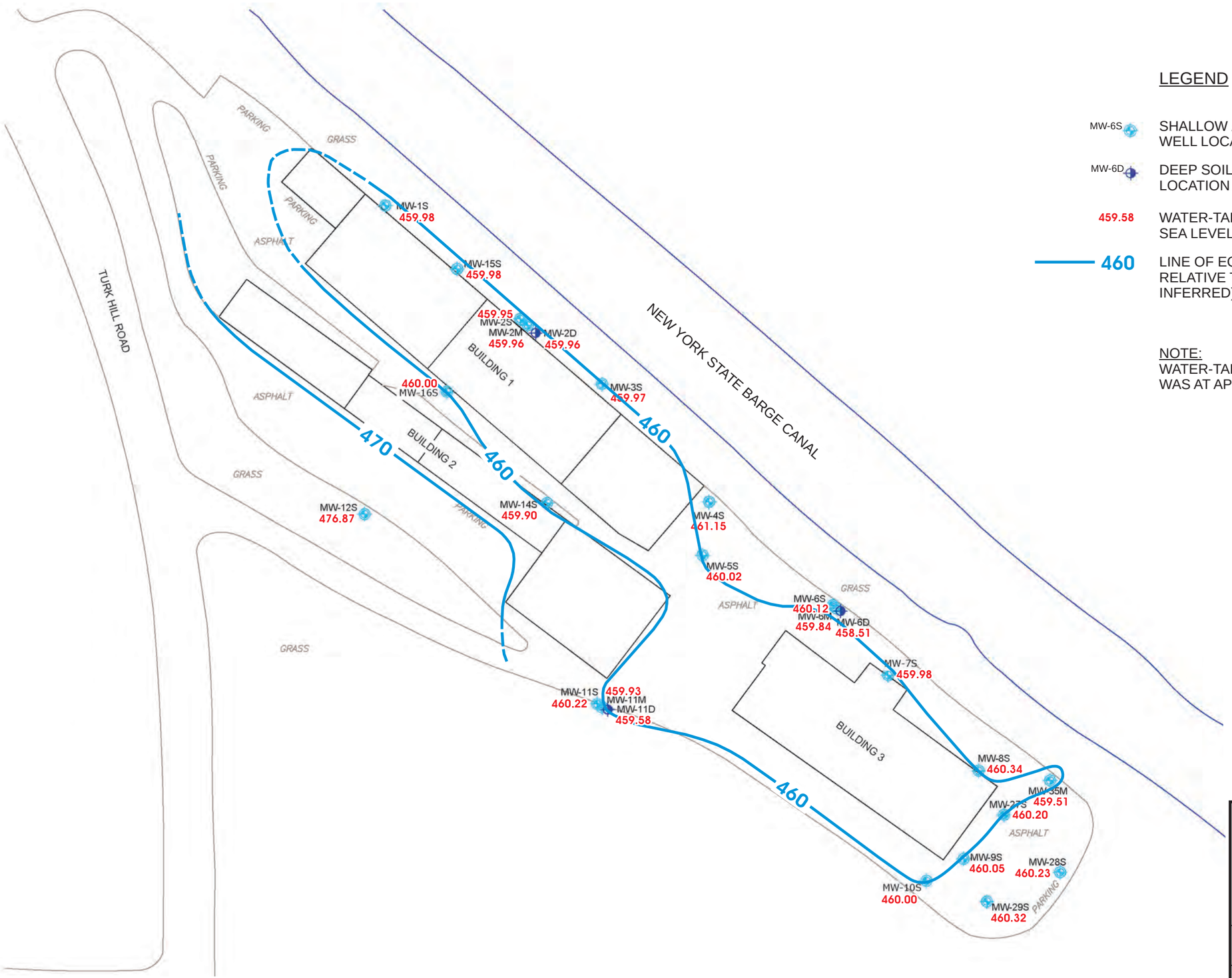
1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:
NEW COLEMAN HOLDINGS INC.

ROUX

Compiled by: C.B.	Date: 01NOV18	FIGURE 3
Prepared by: B.H.C.	Scale: AS SHOWN	
Project Mgr.: C.B.	Project No.: 3113.0001Y000	
File: 3113.0001Y109.02.CDR		

\3113\Y0001\Y106\3113.0001Y109.02.CDR



LEGEND

MW-6S — SHALLOW / MEDIUM SOIL BORING/MONITORING WELL LOCATION AND DESIGNATION

MW-6D — DEEP SOIL BORING / MONITORING WELL LOCATION AND DESIGNATION

459.58 — WATER-TABLE ELEVATION, IN FEET RELATIVE TO MEAN SEA LEVEL (AUGUST 7, 2017 TO AUGUST 11, 2017)

460 — LINE OF EQUAL WATER-TABLE ELEVATION, IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE INFERRED) (AUGUST 7, 2017 TO AUGUST 11, 2017)

NOTE:
WATER-TABLE MEASURED WHEN BARGE CANAL WAS AT APPROXIMATELY MEDIUM HIGH WATER.

N

80’ 0’ 80’

SOURCE:
BASE MAP AND LOCATIONS OF BORINGS, MONITORING WELLS, AND SEDIMENT SAMPLES BASED ON DRAWING NUMBER 152918-B5 (APTIM ENVIRONMENTAL AND INFRASTRUCTURE, INC., JANUARY 30, 2018).

Title:

GROUNDWATER TABLE ELEVATIONS HIGH WATER CONDITIONS (AUGUST 2017)

1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:
NEW COLEMAN HOLDINGS INC.

ROUX

Compiled by: C.B.	Date: 01NOV18	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	4
Project Mgr.: C.B.	Project No.: 3113.0001Y000	
File: 3113.0001Y109.02.CDR		

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SOIL BORING AND MONITORING WELL VALUES			
NAME	NORTHING	EASTING	ELEVATION
MW–27S	1129666.72	1456425.87	467.37
MW–29S	1129598.27	1456412.48	469.99
RXSB–1	1129634.38	1456390.82	471.16
RXSB–2	1129637.65	1456398.40	470.40
RXSB–3	1129626.75	1456400.10	470.37
RXSB–4	1129625.04	1456389.33	470.51
RXSB–5	1129636.46	1456387.87	471.31
RXSB–6	1129640.94	1456400.22	470.38
RXSB–7	1129624.59	1456402.68	470.32
RXSB–8	1129622.09	1456387.16	470.51
RXWC–1 & RXSB–9	1129633.16	1456395.03	470.46
RXSB–10	1129648.23	1456405.55	470.62
RXSB–11	1129621.96	1456406.41	470.27
SB/MW–8S	1129701.30	1456405.74	467.24
SB/MW–9S	1129631.55	1456393.95	470.51

RXSB-9	11/13/18	11/13/18	11/13/18	11/13/18
Depth (ft bls)	1 - 5	1 - 5	1 - 5 DUP	5 - 13
Test Type	DILUTION1	DILUTION2	DILUTION1	DILUTION1
VOCs				
1,2,4-Trimethylbenzene	NA	**280**	**220**	**920**
1,3,5-Trimethylbenzene	NE	NA	NE	**200 J**
cis-1,2-Dichloroethene	**63**	NA	**55**	**10000**
Trichloroethene	ND	NA	ND	**62000**

RXSB-10	11/13/18
Depth (ft bls)	8 - 10
Test Type	DILUTION1
VOCs	
cis-1,2-Dichloroethene	**1.5**

RXSB-6	11/12/18	11/12/18
Depth (ft bls)	8 - 10	8 - 10
Test Type	DILUTION1	DILUTION2
VOCs		
1,2,4-Trimethylbenzene	NA	**340**
cis-1,2-Dichloroethene	NA	**2100**
Trichloroethene	NA	**5900**

RXSB-5	11/13/18	11/13/18
Depth (ft bls)	8 - 10	8 - 10
Test Type	DILUTION1	DILUTION2
VOCs		
1,2,4-Trimethylbenzene	**290**	NA
cis-1,2-Dichloroethene	NA	**1800**
Trichloroethene	**3.1**	NA

RXSB-1	11/13/18
Depth (ft bls)	8.5 - 10.5
Test Type	DILUTION1
VOCs	
cis-1,2-Dichloroethene	**800**
Trichloroethene	**14**

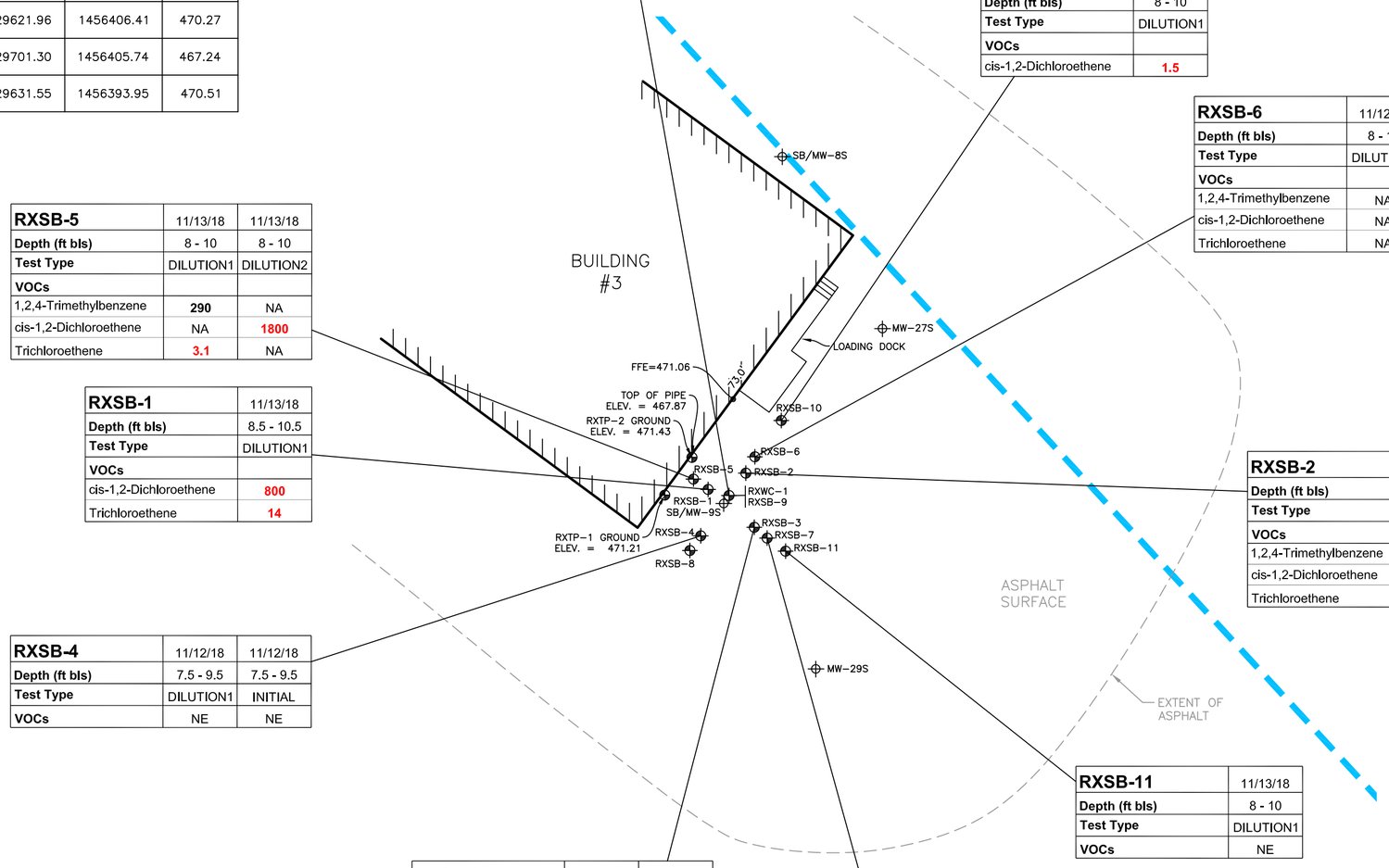
RXSB-4	11/12/18	11/12/18
Depth (ft bls)	7.5 - 9.5	7.5 - 9.5
Test Type	DILUTION1	INITIAL
VOCs	NE	NE

RXSB-2	11/13/18
Depth (ft bls)	8 - 10
Test Type	DILUTION1
VOCs	
1,2,4-Trimethylbenzene	**360**
cis-1,2-Dichloroethene	**5300**
Trichloroethene	**21000**

RXSB-11	11/13/18
Depth (ft bls)	8 - 10
Test Type	DILUTION1
VOCs	NE

RXSB-3	11/12/18	11/12/18
Depth (ft bls)	8 - 10	8 - 10
Test Type	DILUTION1	INITIAL
VOCs		
1,2,4-Trimethylbenzene	**370**	NA
cis-1,2-Dichloroethene	**18**	NA

RXSB-7	11/12/18
Depth (ft bls)	8 - 10
Test Type	DILUTION1
VOCs	
cis-1,2-Dichloroethene	**43**
Trichloroethene	**140**



LEGEND

- MW–8S ⊕ MONITORING WELL LOCATION AND DESIGNATION
- RXSB–1 ⊕ SOIL BORING LOCATION AND DESIGNATION
- RXTP–1 ⊕ TEST PIT LOCATION AND DESIGNATION
- ELEV. ELEVATION
- FFE FIRST FLOOR ELEVATION
- APPROXIMATE LOCATION OF NEW YORK STATE CANAL CORPORATION "BLUE LINE" INDICATING EXTENT OF CANAL EASEMENT

TYPICAL DATA BOX INFORMATION

SAMPLE ID# → RXSB-2	11/13/18 ← SAMPLE DATE
Depth (ft bls)	8 - 10 ← SAMPLE DEPTH
Test Type	DILUTION1
VOCs	
ANALYTES → 1,2,4-Trimethylbenzene	**360** ← CONCENTRATION (mg/kg)
cis-1,2-Dichloroethene	**5300**
Trichloroethene	**21000**

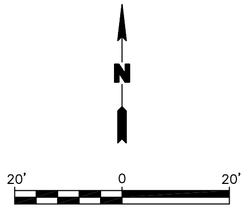
Parameter (Concentrations in mg/kg)	Standards* (mg/kg)
VOCs	
1,2,4-Trimethylbenzene	190
1,3,5-Trimethylbenzene	190
cis-1,2-Dichloroethene	0.25
Trichloroethene	0.47

Concentrations in mg/kg

mg/kg – Milligrams per kilogram
* – Site–Specific Standards
J – Estimated value
DUP – Duplicate Sample
VOCs – Volatile Organic Compounds
NE – No exceedance
ND – No detection
NA – Not analyzed for by laboratory
ft bls – Feet below land surface

GENERAL NOTES:

1. HORIZONTAL CONTROL IS REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM (NAD83), WESTERN ZONE, US SURVEY FEET, AS PROVIDED BY ROUX ASSOCIATES, INC.
2. VERTICAL CONTROL IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS PROVIDED BY ROUX ASSOCIATES, INC.
3. TOPOGRAPHIC INFORMATION SHOWN HEREON WAS GATHERED BY WENDEL ON NOVEMBER 13, 2018.



Title:

PRE-DESIGN INVESTIGATION RESULTS

1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:

NEW COLEMAN HOLDINGS, INC.

ROUX

Compiled by: C.B.	Date: 22FEB19
Prepared by: B.H.C.	Scale: AS SHOWN
Project Mgr: C.B.	Project: 3113.0001Y000
File: 3113.0001Y109.03.DWG	

FIGURE 5

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SOIL BORING AND MONITORING WELL VALUES			
NAME	NORTHING	EASTING	ELEVATION
MW-27S	1129666.72	1456425.87	467.37
MW-29S	1129598.27	1456412.48	469.99
RXSB-1	1129634.38	1456390.82	471.16
RXSB-2	1129637.65	1456398.40	470.40
RXSB-3	1129626.75	1456400.10	470.37
RXSB-4	1129625.04	1456389.33	470.51
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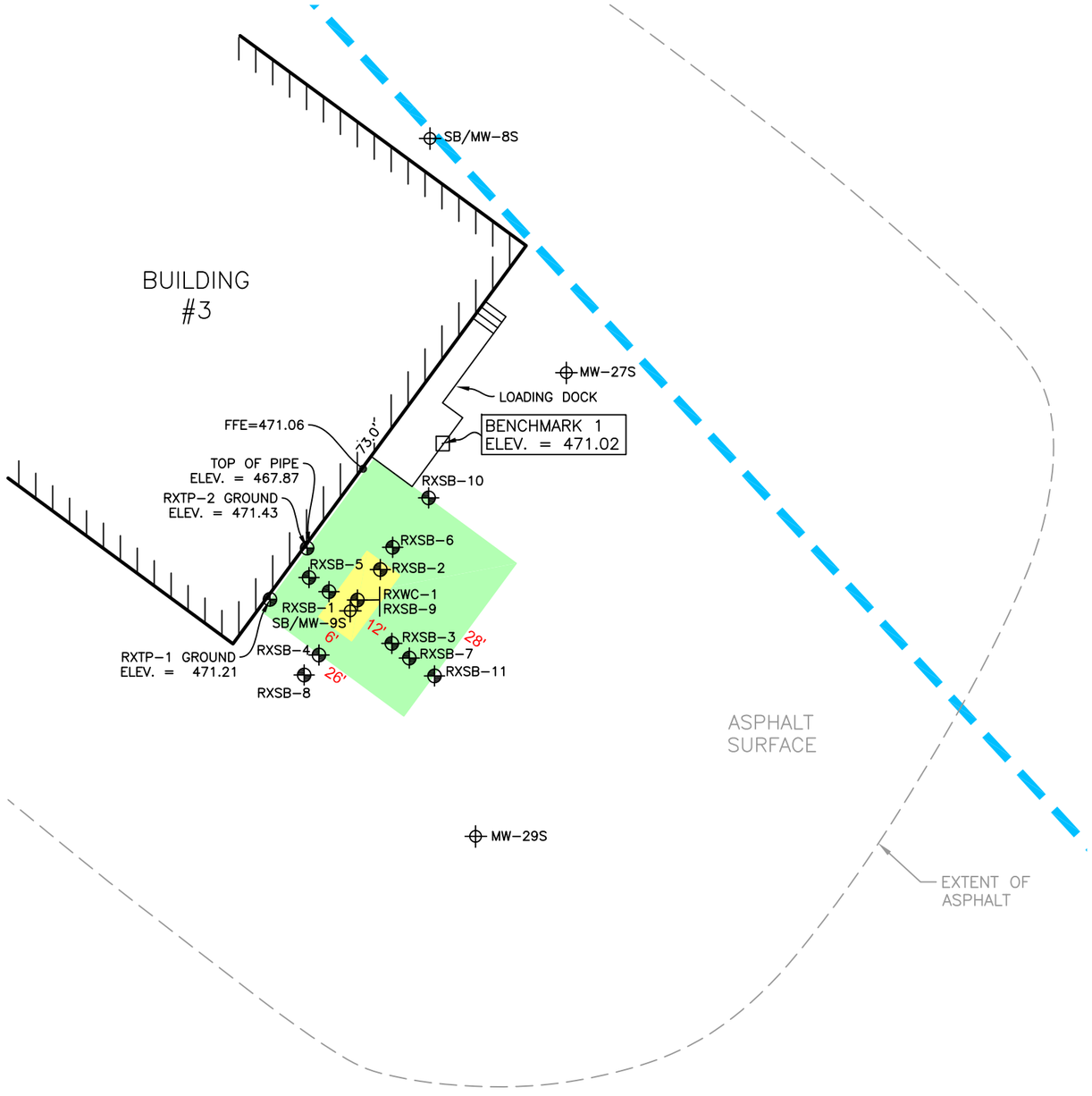
RXSB-8	1129622.09	1456387.16	470.51
RXWC-1 & RXSB-9	1129633.16	1456395.03	470.46
RXSB-10	1129648.23	1456405.55	470.62
RXSB-11	1129621.96	1456406.41	470.27
SB/MW-8S	1129701.30	1456405.74	467.24
SB/MW-9S	1129631.55	1456393.95	470.51

GENERAL NOTES:

1. HORIZONTAL CONTROL IS REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM (NAD83), WESTERN ZONE, US SURVEY FEET, AS PROVIDED BY ROUX ASSOCIATES, INC.
2. VERTICAL CONTROL IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS PROVIDED BY ROUX ASSOCIATES, INC.
3. TOPOGRAPHIC INFORMATION SHOWN HEREON WAS GATHERED BY WENDEL ON NOVEMBER 13, 2018.



LEGEND

- MW-8S — MONITORING WELL LOCATION AND DESIGNATION
- RXSB-1 — SOIL BORING LOCATION AND DESIGNATION
- RXTP-1 — TEST PIT LOCATION AND DESIGNATION
- ELEV. — ELEVATION
- FFE — FIRST FLOOR ELEVATION
- 26' — EXCAVATION SIDEWALL LENGTH (FEET)
- PROPOSED REMEDIAL EXCAVATION TO ELEVATION +459.50 (APPROXIMATELY 11 FEET BELOW LAND SURFACE/ SHALLOW GROUNDWATER TABLE).
- PROPOSED REMEDIAL EXCAVATION TO ELEVATION +457.50 (APPROXIMATELY 13 FEET BELOW LAND SURFACE/TOP OF BEDROCK).
- APPROXIMATE LOCATION OF NEW YORK STATE CANAL CORPORATION "BLUE LINE" INDICATING EXTENT OF CANAL EASEMENT

N

20' 0 20'

Title:

PROPOSED REMEDIAL EXCAVATION

1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:

NEW COLEMAN HOLDINGS, INC.

ROUX

Compiled by: C.B.	Date: 22FEB19	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	6
Project Mgr: C.B.	Project: 3113.0001Y000	
File: 3113.0001Y109.03.DWG		

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APPENDICES

A. Soil Remediation Area Delineation Results, January 18, 2019 letter to NYSDEC

B. Health and Safety Plan

C. Community Air Monitoring Plan

D. NYSDEC Electronic Correspondence

APPENDIX A

Soil Remediation Area Delineation Results,
January 18, 2019 letter to NYSDEC

ROUX

January 18, 2019

Todd Caffoe, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 8
6272 East Avon-Lima Road
Avon, New York 14414

Re: Soil Remediation Area Delineation Results
1000 Turk Hill Road, Fairport, New York
NYSDEC Site ID No. 828161

Dear Mr. Caffoe:

On behalf of New Coleman Holdings, Inc., (New Coleman), Roux Environmental Engineering and Geology, D.P.C. (Roux) has prepared this letter summarizing the results of the Soil Remediation Area delineation soil sampling completed at 1000 Turk Hill Road, Fairport, New York (the Site). The results of this investigation were intended to supplement those developed during the Remedial Investigation (RI) previously performed at the Site by Aptim. The Remedial Investigation Report (Aptim, 2018) identified an area of impacted soil located east of Building 3 at the Site (Soil Remediation Area). In an email dated September 25, 2018, the New York State Department of Environmental Conservation (NYSDEC) requested that the NYSDEC Part 375 Protection of Groundwater Soil Cleanup Objectives (SCOs) be applied as the soil remediation standards for trichloroethylene (TCE) and its degradation product, cis-1,2-dichloroethene (DCE) for this Site. The NYSDEC Part 375 Commercial Use SCOs are to be applied for all other analytes. The combination of these two sets of cleanup objectives are referred to as the Site-specific SCOs. Roux prepared a plan to delineate the lateral extent of soil exceeding the Site-specific SCOs within the Soil Remediation Area by installing soil borings and collecting soil samples. These soil samples will also serve as the perimeter end-point confirmation samples for the Soil Remediation Area when the excavation is completed. The Soil Remediation Area delineation soil boring and sampling plan was summarized in an email from Roux to the NYSDEC dated November 6, 2018.

The delineation plan included the installation of eight soil borings (RXSB-1 through RXSB-8) and one waste characterization soil boring (RXSB-9). Two additional soil borings (RXSB-10 and RXSB-11) were added based on field conditions and observations made during completion of the initial soil borings. The soil borings were positioned in a radial pattern around monitoring well MW-9s where the highest concentrations of TCE and DCE were detected during the RI. This pattern is intended to delineate a rectangular excavation area extending outward from MW-9s to the extent required to remove soils exceeding the Site-specific SCOs.

The soil borings were installed at the Site in November 2018 by Trec Environmental, Inc. (Trec) under the oversight of Roux, using a Geoprobe™ drill-rig. The soil samples were collected using five-foot macro cores driven to refusal on bedrock (ranging from 12 to 13 feet below grade). The first five feet of soil and/or pavement was evacuated using hand tools and a vacuum excavator for utility clearance purposes. One sample was collected and analyzed for volatile organic compounds (VOCs) from each soil boring except for RXSB-8, which was not analyzed as little evidence of impact were observed in the adjacent soil boring RXSB-4. Additional analytes were collected from soil boring RXSB-9 for waste characterization purposes. The locations and designations, including a summary of the analytical results, are provided on Figure 1 (attached). Analytical results are summarized in Tables 1 through 9 (attached). Descriptions of

209 Shafter Street ■ Islandia, New York 11749 ■ +1.631.232.2600 ■ www.rouxinc.com
California ■ Illinois ■ Massachusetts ■ New Jersey ■ New York ■ Texas

the soil lithology and other observations made during installation of the soil borings are provided in the attached Soil Boring Logs.

In addition to the soil borings, Trec completed two test pits adjacent to the east wall of Building 3 to measure the foundation depth of Building 3. One test pit (RXTP-1) was installed to approximately four feet below grade and was terminated due to rainwater/snowmelt entering the test pit. The second test pit (RXTP-2) was completed to approximately six feet below grade. The Building 3 exterior wall extended to the terminal depth of each test pit and the concrete footing was not encountered in either test pit. Additional test pits may be performed prior to beginning the remedial excavation to confirm the building foundation construction and depth. No samples were collected from the test pits.

A review of the soil analytical results (Table 1) indicated the following:

- TCE and DCE at concentrations exceeding the Site-specific SCOs in seven of the nine delineation samples (RXSB-1 through RXSB-3, RXSB-5 through RXSB-7, and RDSB-10), and the waste characterization sample collected from RXSB-9.
- 1,2,4-trimethylbenzene at concentrations exceeding the Site-specific SCOs in the soil samples from four delineation soil borings including RXSB-2, RXSB-3, RXSB-5, and RXSB-6, and the waste characterization sample collected from RXSB-9.
- The sample from RXSB-9 also contained 1,3,5-trimethylbenzene at a concentration exceeding the Site-specific SCOs.
- Soil samples collected closest to Monitoring Well MW-9S had the highest concentrations of VOCs and the concentrations diminished in samples collected at greater distances from MW-9S.

As shown on Figure 1, samples from the soil borings farthest from Monitoring Well MW-9S did not exceed the Site-specific SCOs on the southwest side (RXSB-4), southeast side (RXSB-11), but exceeded the Site-specific SCOs to the northeast side (RXSB-10 with a concentration of 1.5 mg/kg of DCE compared to the SCO of 0.25 mg/kg). Based on the results of the sample from RXSB-5, soils exceeding the Site-specific SCOs extend up to the east wall of Building 3 on the northwest side of MW-9S.

Based on our review of these results and the Site conditions, we propose a remedial excavation that will extend from as close as practicable to the east wall of Building 3, southeastward to RXSB-11, and laterally from RXSB-4 to RXSB-1. This excavation will extend to an elevation of +459.50 feet relative to NAVD 88 (approximately 11 feet below land surface [ft bls]) at the location of MW-9S, or approximately to the groundwater table during high water table conditions. A central portion of the excavation will extend to elevation +457.50 feet relative to NAVD 88 (i.e.13 ft bls to the top of bedrock) in the area of MW-9S and soil boring RXSB-9. This deeper central portion of the excavation will remove grossly-impacted soil in the area around Monitoring Well MW-9S. Excavating to these extents and depths will result in removing most of the soil exceeding the Site-specific SCOs without undermining the foundation of Building 3 and will minimize disturbance of the building occupants to the extent practical.

Although the soil sample from RXSB-10 (on the northeast side of the proposed excavation) contained DCE at a concentration exceeding the Site-specific SCOs, TCE (the parent compound and primary source contaminant) was not detected in the sample. These results indicated that soils in this area do not contain source material and are impacted by degradation products from the source area migrating northeastward during periods of groundwater fluctuation associated with the filling and draining of the adjacent Canal. The source material in groundwater and soil near and below the water table will be remediated during the groundwater remediation phase via in situ chemical treatment injections that were proposed by Roux for this area. Extending the excavation further northeastward will require demolition of the loading dock attached to Building 3 and will increase the risks to the building structure and result in additional disturbance of the building occupants. Therefore, Roux has proposed the remedial excavation be performed to the extents and depths shown on the attached Figure 2.

If this proposed remedial excavation plan is acceptable to the NYSDEC, Roux will prepare and submit a Soil Interim Remedial Measure (IRM) Work Plan for your review.

If you have any questions or comments, please contact me at 631-630-2330 or cbattista@rouxinc.com.

Sincerely,

ROUX ENVIRONMENTAL ENGINEERING AND GEOLOGY, D.P.C.

Christopher Battista, P.G.
Senior Construction Manager

Nathan Epler, Ph.D., P.G.
Principal Hydrogeologist

Attachment

cc: Anthony Perretta, NYSDOH
Steve Russo, Esq., Greenberg Traurig, LLP
Ben Moshier, New Coleman Holdings, Inc.
Timothy Martin, New Coleman Holdings, Inc.
Omar Ramotar, P.E., Roux Environmental Engineering and Geology, D.P.C.

Notes Utilized Throughout Tables	
Soil Tables	
J -	Estimated value
U -	Indicates that the compound was analyzed for but not detected
ft bls -	Feet below land surface
DUP -	Duplicate sample
NA -	Compound was not analyzed for by laboratory
ND -	Not detected
mg/kg -	Milligrams per kilogram
su -	Standard units
NYSDEC -	New York State Department of Environmental Conservation
SCO -	Soil Cleanup Objectives
--	No SCO available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Commercial SCO	
Red data indicates that parameter was detected above the Site-Specific Standards that differ from the Part 375 Commercial SCO	
TCLP Tables	
mg/L -	Milligrams per liter
USEPA -	United States Environmental Protection Agency
TCLP -	Toxicity Characteristic Leaching Procedure
USEPA Regulatory Levels - United States Environmental Protection	
	Agency Limits for RCRA Characteristic Waste for Toxicity
RCRA -	Resource Conservation and Recovery Act
Bold -	Parameter was detected above USEPA Regulatory Levels

Table 1. Summary of Volatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	Sample Designation:	RXSB-1	RXSB-2	RXSB-3	RXSB-3	RXSB-4	RXSB-4
				Sample Date:	11/13/2018	11/13/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
				Sample Depth (ft bls):	8.5 - 10.5	8 - 10	8 - 10	8 - 10	7.5 - 9.5	7.5 - 9.5
				Test Type:	DILUTION1	DILUTION1	DILUTION1	INITIAL	DILUTION1	INITIAL
1,1,1,2-Tetrachloroethane	--	--	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
1,1,1-Trichloroethane	500	500	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
1,1,2,2-Tetrachloroethane	--	--	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
1,1,2-Trichloroethane	--	--	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
1,1-Dichloroethane	240	240	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
1,1-Dichloroethene	500	500	mg/kg		3.5 U	140 U	2.8 U	0.019	0.31 U	0.001 U
1,1-Dichloropropene	--	--	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
1,2,3-Trichlorobenzene	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
1,2,3-Trichloropropane	--	--	mg/kg		7 U	280 U	3.1 J	0.0018 U	0.34 J	0.002 U
1,2,4,5-Tetramethylbenzene	--	--	mg/kg		3.2 J	280 U	14	0.16	6.5	0.22
1,2,4-Trichlorobenzene	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
1,2,4-Trimethylbenzene	190	190	mg/kg		60	**360**	**370**	NA	93	NA
1,2-Dibromoethane	--	--	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
1,2-Dichlorobenzene	500	500	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
1,2-Dichloroethane	30	30	mg/kg		3.5 U	140 U	2.8 U	0.00073 J	0.31 U	0.001 U
1,2-Dichloroethene (total)	--	--	mg/kg		800 J	5300	18	NA	0.31 U	0.0085
1,2-Dichloropropane	--	--	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
1,3,5-Trimethylbenzene	190	190	mg/kg		15	80 J	84	NA	8.2	NA
1,3-Dichlorobenzene	280	280	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
1,3-Dichloropropane	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
1,3-Dichloropropene	--	--	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
1,4-Dichlorobenzene	130	130	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
1,4-Diethylbenzene	--	--	mg/kg		19	91 J	100	NA	31	NA
1,4-Dioxane	130	130	mg/kg		350 U	14000 U	280 U	0.088 U	31 U	0.1 U
2,2-Dichloropropane	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
2-Butanone (MEK)	500	500	mg/kg		35 U	1400 U	28 U	0.0088 U	3.1 U	0.01 U
2-Hexanone	--	--	mg/kg		35 U	1400 U	28 U	0.0088 U	3.1 U	0.01 U
4-Ethyltoluene	--	--	mg/kg		24	140 J	110	NA	16	NA
4-Methyl-2-pentanone (MIBK)	--	--	mg/kg		35 U	1400 U	28 U	0.0088 U	3.1 U	0.01 U
Acetone	500	500	mg/kg		35 U	1400 U	28 U	0.066	3.1 U	0.028
Acrylonitrile	--	--	mg/kg		14 U	560 U	11 U	0.0035 U	1.2 U	0.004 U
Benzene	44	44	mg/kg		1.7 U	70 U	1.4 U	0.00049	0.16 U	0.0005 U
Bromobenzene	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Bromochloromethane	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Bromodichloromethane	--	--	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
Bromoform	--	--	mg/kg		14 U	560 U	11 U	0.0035 U	1.2 U	0.004 U

Table 1. Summary of Volatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	**Sample Designation:**	RXSB-1	RXSB-2	RXSB-3	RXSB-3	RXSB-4	RXSB-4
				Sample Date:	11/13/2018	11/13/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
				Sample Depth (ft bls):	8.5 - 10.5	8 - 10	8 - 10	8 - 10	7.5 - 9.5	7.5 - 9.5
				Test Type:	DILUTION1	DILUTION1	DILUTION1	INITIAL	DILUTION1	INITIAL
Bromomethane	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Carbon disulfide	--	--	mg/kg		35 U	1400 U	28 U	0.0088 U	3.1 U	0.01 U
Carbon tetrachloride	22	22	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
Chlorobenzene	500	500	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
Chloroethane	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Chloroform	350	350	mg/kg		0.5 J	210 U	4.2 U	0.00048 J	0.47 U	0.00036 J
Chloromethane	--	--	mg/kg		14 U	560 U	11 U	0.0035 U	1.2 U	0.004 U
cis-1,2-Dichloroethene	500	0.25	mg/kg		**800**	**5300**	18	NA	0.31 U	0.0085
cis-1,3-Dichloropropene	--	--	mg/kg		1.7 U	70 U	1.4 U	0.00044 U	0.16 U	0.0005 U
Dibromochloromethane	--	--	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
Dibromochloropropane	--	--	mg/kg		10 U	420 U	8.4 U	0.0026 U	0.94 U	0.003 U
Dibromomethane	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Dichlorodifluoromethane	--	--	mg/kg		35 U	1400 U	28 U	0.0088 U	3.1 U	0.01 U
Diethyl Ether	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Ethylbenzene	390	390	mg/kg		1.3 J	140 U	3.7	0.096	0.35	0.034
Hexachlorobutadiene	--	--	mg/kg		14 U	560 U	11 U	0.0035 U	1.2 U	0.004 U
Isopropylbenzene	--	--	mg/kg		1.9 J	140 U	7.3	0.11	1.7	0.089
m+p-Xylene	--	--	mg/kg		4.5 J	280 U	17	0.46	0.73	0.084
Methylene chloride	500	500	mg/kg		17 U	700 U	14 U	0.0044 U	1.6 U	0.005 U
MTBE	500	500	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
Naphthalene	500	500	mg/kg		4.8 J	560 U	10 J	0.13	0.25 J	0.0035 J
n-Butylbenzene	500	500	mg/kg		6.9	30 J	35	NA	16	NA
n-Propylbenzene	500	500	mg/kg		6.4	33 J	25	0.25	6.8	0.27
o-Chlorotoluene	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
o-Xylene	--	--	mg/kg		3.8	140 U	13	0.34	0.99	0.094
p-Chlorotoluene	--	--	mg/kg		7 U	280 U	5.6 U	0.0018 U	0.62 U	0.002 U
p-Isopropyltoluene	--	--	mg/kg		4.6	22 J	27	NA	11	0.28
sec-Butylbenzene	500	500	mg/kg		4.7	20 J	22	0.23	10	0.3
Styrene	--	--	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
tert-Butylbenzene	500	500	mg/kg		0.64 J	280 U	2 J	0.023	0.72	0.026
Tetrachloroethene	150	150	mg/kg		1.7 U	70 U	1.4 U	0.0021	0.16 U	0.0005 U
Toluene	500	500	mg/kg		3.5 U	140 U	2.8 U	0.039	0.31 U	0.001 U
trans-1,2-Dichloroethene	500	500	mg/kg		1.4 J	210 U	4.2 U	0.012	0.47 U	0.0015 U
trans-1,3-Dichloropropene	--	--	mg/kg		3.5 U	140 U	2.8 U	0.00088 U	0.31 U	0.001 U
trans-1,4-Dichloro-2-butene	--	--	mg/kg		17 U	700 U	14 U	0.0044 U	1.6 U	0.005 U
Trichloroethene	200	0.47	mg/kg		14	**21000**	1.4 U	0.0007	0.16 U	0.0063

Table 1. Summary of Volatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	**Sample Designation:**	RXSB-1	RXSB-2	RXSB-3	RXSB-3	RXSB-4	RXSB-4
				Sample Date:	11/13/2018	11/13/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
				Sample Depth (ft bls):	8.5 - 10.5	8 - 10	8 - 10	8 - 10	7.5 - 9.5	7.5 - 9.5
				Test Type:	DILUTION1	DILUTION1	DILUTION1	INITIAL	DILUTION1	INITIAL
Trichlorofluoromethane	--	--	mg/kg		14 U	560 U	11 U	0.0035 U	1.2 U	0.004 U
Vinyl acetate	--	--	mg/kg		35 U	1400 U	28 U	0.0088 U	3.1 U	0.01 U
Vinyl chloride	13	13	mg/kg		3.5 U	140 U	2.8 U	NA	0.31 U	0.00068 J
Xylenes (total)	500	500	mg/kg		8.3 J	140 U	30	0.8	1.7	0.18

Table 1. Summary of Volatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	Sample Designation: / Sample Date: / Sample Depth (ft bls): / Test Type:	RXSB-5 11/13/2018 8 - 10 DILUTION1	RXSB-5 11/13/2018 8 - 10 DILUTION2	RXSB-6 11/12/2018 8 - 10 DILUTION1	RXSB-6 11/12/2018 8 - 10 DILUTION2	RXSB-7 11/12/2018 8 - 10 DILUTION1	RXSB-9 DUP 11/13/2018 1 - 5 DILUTION1
1,1,1,2-Tetrachloroethane	--	--	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
1,1,1-Trichloroethane	500	500	mg/kg		0.57 U	NA	0.54 J	NA	0.53 U	0.64 U
1,1,2,2-Tetrachloroethane	--	--	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
1,1,2-Trichloroethane	--	--	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
1,1-Dichloroethane	240	240	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
1,1-Dichloroethene	500	500	mg/kg		1.6	NA	1.3	NA	1.1 U	1.3 U
1,1-Dichloropropene	--	--	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
1,2,3-Trichlorobenzene	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,2,3-Trichloropropane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,2,4,5-Tetramethylbenzene	--	--	mg/kg		42	NA	37	NA	17	14
1,2,4-Trichlorobenzene	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,2,4-Trimethylbenzene	190	190	mg/kg		**290**	NA	NA	**340**	140	**220**
1,2-Dibromoethane	--	--	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
1,2-Dichlorobenzene	500	500	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,2-Dichloroethane	30	30	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
1,2-Dichloroethene (total)	--	--	mg/kg		NA	1800	NA	2100	43	55 J
1,2-Dichloropropane	--	--	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
1,3,5-Trimethylbenzene	190	190	mg/kg		85	NA	80	NA	23	70
1,3-Dichlorobenzene	280	280	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,3-Dichloropropane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,3-Dichloropropene	--	--	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
1,4-Dichlorobenzene	130	130	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
1,4-Diethylbenzene	--	--	mg/kg		97	NA	88	NA	38	100
1,4-Dioxane	130	130	mg/kg		110 U	NA	110 U	NA	110 U	130 U
2,2-Dichloropropane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
2-Butanone (MEK)	500	500	mg/kg		11 U	NA	11 U	NA	11 U	13 U
2-Hexanone	--	--	mg/kg		11 U	NA	11 U	NA	11 U	13 U
4-Ethyltoluene	--	--	mg/kg		110	NA	110	NA	37	69
4-Methyl-2-pentanone (MIBK)	--	--	mg/kg		11 U	NA	11 U	NA	11 U	13 U
Acetone	500	500	mg/kg		11 U	NA	11 U	NA	11 U	13 U
Acrylonitrile	--	--	mg/kg		4.5 U	NA	4.4 U	NA	4.2 U	5.1 U
Benzene	44	44	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
Bromobenzene	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Bromochloromethane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Bromodichloromethane	--	--	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
Bromoform	--	--	mg/kg		4.5 U	NA	4.4 U	NA	4.2 U	5.1 U

Table 1. Summary of Volatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	Sample Designation:	RXSB-5	RXSB-5	RXSB-6	RXSB-6	RXSB-7	RXSB-9 DUP
				Sample Date:	11/13/2018	11/13/2018	11/12/2018	11/12/2018	11/12/2018	11/13/2018
				Sample Depth (ft bls):	8 - 10	8 - 10	8 - 10	8 - 10	8 - 10	1 - 5
				Test Type:	DILUTION1	DILUTION2	DILUTION1	DILUTION2	DILUTION1	DILUTION1
Bromomethane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Carbon disulfide	--	--	mg/kg		11 U	NA	11 U	NA	11 U	13 U
Carbon tetrachloride	22	22	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
Chlorobenzene	500	500	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
Chloroethane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Chloroform	350	350	mg/kg		1.7 U	NA	1.7 U	NA	1.6 U	1.9 U
Chloromethane	--	--	mg/kg		4.5 U	NA	4.4 U	NA	4.2 U	5.1 U
cis-1,2-Dichloroethene	500	0.25	mg/kg		NA	**1800**	NA	**2100**	43	55
cis-1,3-Dichloropropene	--	--	mg/kg		0.57 U	NA	0.56 U	NA	0.53 U	0.64 U
Dibromochloromethane	--	--	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
Dibromochloropropane	--	--	mg/kg		3.4 U	NA	3.3 U	NA	3.2 U	3.9 U
Dibromomethane	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Dichlorodifluoromethane	--	--	mg/kg		11 U	NA	11 U	NA	11 U	13 U
Diethyl Ether	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Ethylbenzene	390	390	mg/kg		5.6	NA	5.9	NA	0.82 J	1 J
Hexachlorobutadiene	--	--	mg/kg		4.5 U	NA	4.4 U	NA	4.2 U	5.1 U
Isopropylbenzene	--	--	mg/kg		8.3	NA	8.6	NA	2	2.3
m+p-Xylene	--	--	mg/kg		22	NA	25	NA	4.3	6.7
Methylene chloride	500	500	mg/kg		5.7 U	NA	5.6 U	NA	5.3 U	6.4 U
MTBE	500	500	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
Naphthalene	500	500	mg/kg		20	NA	9.9	NA	1.9 J	6
n-Butylbenzene	500	500	mg/kg		28	NA	29	NA	13	12
n-Propylbenzene	500	500	mg/kg		24	NA	27	NA	7.6	7.7
o-Chlorotoluene	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
o-Xylene	--	--	mg/kg		18	NA	18	NA	3.3	9.7
p-Chlorotoluene	--	--	mg/kg		2.3 U	NA	2.2 U	NA	2.1 U	2.6 U
p-Isopropyltoluene	--	--	mg/kg		27	NA	24	NA	11	22
sec-Butylbenzene	500	500	mg/kg		20	NA	22	NA	8.6	10
Styrene	--	--	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
tert-Butylbenzene	500	500	mg/kg		3	NA	2 J	NA	2.1 U	1.6 J
Tetrachloroethene	150	150	mg/kg		1.6	NA	10	NA	0.53 U	0.64 U
Toluene	500	500	mg/kg		1.9	NA	6	NA	1.1 U	1.3 U
trans-1,2-Dichloroethene	500	500	mg/kg		6.2	NA	4.1	NA	1.6 U	0.38 J
trans-1,3-Dichloropropene	--	--	mg/kg		1.1 U	NA	1.1 U	NA	1.1 U	1.3 U
trans-1,4-Dichloro-2-butene	--	--	mg/kg		5.7 U	NA	5.6 U	NA	5.3 U	6.4 U
Trichloroethene	200	0.47	mg/kg		3.1	NA	NA	**5900**	140	0.64 U

Table 1. Summary of Volatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	**Sample Designation:**	RXSB-5	RXSB-5	RXSB-6	RXSB-6	RXSB-7	RXSB-9 DUP
				Sample Date:	11/13/2018	11/13/2018	11/12/2018	11/12/2018	11/12/2018	11/13/2018
				Sample Depth (ft bls):	8 - 10	8 - 10	8 - 10	8 - 10	8 - 10	1 - 5
				Test Type:	DILUTION1	DILUTION2	DILUTION1	DILUTION2	DILUTION1	DILUTION1
Trichlorofluoromethane	--	--	mg/kg		4.5 U	NA	4.4 U	NA	4.2 U	5.1 U
Vinyl acetate	--	--	mg/kg		11 U	NA	11 U	NA	11 U	13 U
Vinyl chloride	13	13	mg/kg		3.2	NA	1.8	NA	1.1 U	3.7
Xylenes (total)	500	500	mg/kg		40	NA	43	NA	7.6	16

Table 1. Summary of Volatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	Sample Designation:	RXSB-9	RXSB-9	RXSB-9	RXSB-10	RXSB-11
				Sample Date:	11/13/2018	11/13/2018	11/13/2018	11/13/2018	11/13/2018
				Sample Depth (ft bls):	1 - 5	1 - 5	5 - 13	8 - 10	8 - 10
				Test Type:	DILUTION1	DILUTION2	DILUTION1	DILUTION1	DILUTION1
1,1,1,2-Tetrachloroethane	--	--	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
1,1,1-Trichloroethane	500	500	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
1,1,2,2-Tetrachloroethane	--	--	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
1,1,2-Trichloroethane	--	--	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
1,1-Dichloroethane	240	240	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
1,1-Dichloroethene	500	500	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
1,1-Dichloropropene	--	--	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
1,2,3-Trichlorobenzene	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,2,3-Trichloropropane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,2,4,5-Tetramethylbenzene	--	--	mg/kg		12	NA	580 U	13	7.1
1,2,4-Trichlorobenzene	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,2,4-Trimethylbenzene	190	190	mg/kg		NA	**280**	**920**	70	62
1,2-Dibromoethane	--	--	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
1,2-Dichlorobenzene	500	500	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,2-Dichloroethane	30	30	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
1,2-Dichloroethene (total)	--	--	mg/kg		63 J	NA	10000	1.5	0.49 U
1,2-Dichloropropane	--	--	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
1,3,5-Trimethylbenzene	190	190	mg/kg		65	NA	**200 J**	17	13
1,3-Dichlorobenzene	280	280	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,3-Dichloropropane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,3-Dichloropropene	--	--	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
1,4-Dichlorobenzene	130	130	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
1,4-Diethylbenzene	--	--	mg/kg		100	NA	240 J	32	17
1,4-Dioxane	130	130	mg/kg		63 U	NA	29000 U	65 U	49 U
2,2-Dichloropropane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
2-Butanone (MEK)	500	500	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
2-Hexanone	--	--	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
4-Ethyltoluene	--	--	mg/kg		74	NA	350 J	21	18
4-Methyl-2-pentanone (MIBK)	--	--	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
Acetone	500	500	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
Acrylonitrile	--	--	mg/kg		2.5 U	NA	1200 U	2.6 U	2 U
Benzene	44	44	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
Bromobenzene	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Bromochloromethane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Bromodichloromethane	--	--	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
Bromoform	--	--	mg/kg		2.5 U	NA	1200 U	2.6 U	2 U

Table 1. Summary of Volatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	Sample Designation:	RXSB-9	RXSB-9	RXSB-9	RXSB-10	RXSB-11
				Sample Date:	11/13/2018	11/13/2018	11/13/2018	11/13/2018	11/13/2018
				Sample Depth (ft bls):	1 - 5	1 - 5	5 - 13	8 - 10	8 - 10
				Test Type:	DILUTION1	DILUTION2	DILUTION1	DILUTION1	DILUTION1
Bromomethane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Carbon disulfide	--	--	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
Carbon tetrachloride	22	22	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
Chlorobenzene	500	500	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
Chloroethane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Chloroform	350	350	mg/kg		0.95 U	NA	44 J	0.98 U	0.74 U
Chloromethane	--	--	mg/kg		2.5 U	NA	1200 U	2.6 U	2 U
cis-1,2-Dichloroethene	500	0.25	mg/kg		63	NA	**10000**	1.5	0.49 U
cis-1,3-Dichloropropene	--	--	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
Dibromochloromethane	--	--	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
Dibromochloropropane	--	--	mg/kg		1.9 U	NA	870 U	2 U	1.5 U
Dibromomethane	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Dichlorodifluoromethane	--	--	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
Diethyl Ether	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Ethylbenzene	390	390	mg/kg		1.1	NA	290 U	0.4 J	0.52
Hexachlorobutadiene	--	--	mg/kg		2.5 U	NA	1200 U	2.6 U	2 U
Isopropylbenzene	--	--	mg/kg		2.4	NA	290 U	1.3	1.2
m+p-Xylene	--	--	mg/kg		6.8	NA	580 U	1.6	2.6
Methylene chloride	500	500	mg/kg		3.2 U	NA	1400 U	3.3 U	2.5 U
MTBE	500	500	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
Naphthalene	500	500	mg/kg		5.6	NA	1200 U	1.4 J	1.2 J
n-Butylbenzene	500	500	mg/kg		14	NA	79 J	11	5.5
n-Propylbenzene	500	500	mg/kg		9.4	NA	79 J	5.1	4.1
o-Chlorotoluene	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
o-Xylene	--	--	mg/kg		10	NA	290 U	1.4	2.1
p-Chlorotoluene	--	--	mg/kg		1.3 U	NA	580 U	1.3 U	0.99 U
p-Isopropyltoluene	--	--	mg/kg		21	NA	60 J	7.6	4.4
sec-Butylbenzene	500	500	mg/kg		10	NA	57 J	6.8	3.8
Styrene	--	--	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
tert-Butylbenzene	500	500	mg/kg		1.4	NA	580 U	0.47 J	0.27 J
Tetrachloroethene	150	150	mg/kg		0.32 U	NA	140 U	0.33 U	0.25 U
Toluene	500	500	mg/kg		0.5 J	NA	290 U	0.65 U	0.49 U
trans-1,2-Dichloroethene	500	500	mg/kg		0.41 J	NA	430 U	0.98 U	0.74 U
trans-1,3-Dichloropropene	--	--	mg/kg		0.63 U	NA	290 U	0.65 U	0.49 U
trans-1,4-Dichloro-2-butene	--	--	mg/kg		3.2 U	NA	1400 U	3.3 U	2.5 U
Trichloroethene	200	0.47	mg/kg		0.32 U	NA	**62000**	0.33 U	0.25 U

Table 1. Summary of Volatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Site-Specific Standards	Units	**Sample Designation:**	RXSB-9	RXSB-9	RXSB-9	RXSB-10	RXSB-11
				Sample Date:	11/13/2018	11/13/2018	11/13/2018	11/13/2018	11/13/2018
				Sample Depth (ft bls):	1 - 5	1 - 5	5 - 13	8 - 10	8 - 10
				Test Type:	DILUTION1	DILUTION2	DILUTION1	DILUTION1	DILUTION1
Trichlorofluoromethane	--	--	mg/kg		2.5 U	NA	1200 U	2.6 U	2 U
Vinyl acetate	--	--	mg/kg		6.3 U	NA	2900 U	6.5 U	4.9 U
Vinyl chloride	13	13	mg/kg		3.3	NA	290 U	0.65 U	0.49 U
Xylenes (total)	500	500	mg/kg		17	NA	290 U	3	4.7

Table 2. Summary of Semivolatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Units	**Sample Designation:**	RXSB-9	RXSB-9
			Sample Date:	11/13/2018	11/13/2018
			Sample Depth (ft bls):	1 - 5	5 - 13
			Test Type:	DILUTION1	DILUTION1
1,1'-Biphenyl	--	mg/kg		2.2 U	11 U
1,2,4,5-Tetrachlorobenzene	--	mg/kg		0.98 U	4.9 U
1,2,4-Trichlorobenzene	--	mg/kg		0.98 U	4.9 U
1,2-Dichlorobenzene	500	mg/kg		0.98 U	4.9 U
1,3-Dichlorobenzene	280	mg/kg		0.98 U	4.9 U
1,4-Dichlorobenzene	130	mg/kg		0.98 U	4.9 U
2,4,5-Trichlorophenol	--	mg/kg		0.98 U	4.9 U
2,4,6-Trichlorophenol	--	mg/kg		0.58 U	3 U
2,4-Dichlorophenol	--	mg/kg		0.88 U	4.4 U
2,4-Dimethylphenol	--	mg/kg		0.98 U	4.9 U
2,4-Dinitrophenol	--	mg/kg		4.7 U	24 U
2,4-Dinitrotoluene	--	mg/kg		0.98 U	4.9 U
2,6-Dinitrotoluene	--	mg/kg		0.98 U	4.9 U
2-Chloronaphthalene	--	mg/kg		0.98 U	4.9 U
2-Chlorophenol	--	mg/kg		0.98 U	4.9 U
2-Methylnaphthalene	--	mg/kg		0.16 J	1.2 J
2-Methylphenol	500	mg/kg		0.98 U	4.9 U
2-Nitroaniline	--	mg/kg		0.98 U	4.9 U
2-Nitrophenol	--	mg/kg		2.1 U	11 U
3&4-Methylphenol	500	mg/kg		1.4 U	7.1 U
3,3'-Dichlorobenzidine	--	mg/kg		0.98 U	4.9 U
3-Nitroaniline	--	mg/kg		0.98 U	4.9 U
4,6-Dinitro-2-methylphenol	--	mg/kg		2.5 U	13 U
4-Bromophenyl phenyl ether	--	mg/kg		0.98 U	4.9 U
4-Chloro-3-methylphenol	--	mg/kg		0.98 U	8.6
4-Chloroaniline	--	mg/kg		0.98 U	4.9 U
4-Chlorophenyl phenyl ether	--	mg/kg		0.98 U	4.9 U
4-Nitroaniline	--	mg/kg		0.98 U	4.9 U
4-Nitrophenol	--	mg/kg		1.4 U	6.9 U
Acenaphthene	500	mg/kg		0.78 U	4 U
Acenaphthylene	500	mg/kg		0.78 U	4 U
Acetophenone	--	mg/kg		0.98 U	28
Anthracene	500	mg/kg		0.58 U	3 U
Benzo[a]anthracene	5.6	mg/kg		0.58 U	3 U
Benzo[a]pyrene	1	mg/kg		0.78 U	4 U
Benzo[b]fluoranthene	5.6	mg/kg		0.58 U	3 U

Table 2. Summary of Semivolatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Units	**Sample Designation:**	RXSB-9	RXSB-9
			Sample Date:	11/13/2018	11/13/2018
			Sample Depth (ft bls):	1 - 5	5 - 13
			Test Type:	DILUTION1	DILUTION1
Benzo[g,h,i]perylene	500	mg/kg		0.78 U	4 U
Benzo[k]fluoranthene	56	mg/kg		0.58 U	3 U
Benzoic Acid	--	mg/kg		3.2 U	16 U
Benzyl Alcohol	--	mg/kg		0.98 U	4.9 U
Bis(2-chloro-1-methylethyl)ether	--	mg/kg		1.2 U	5.9 U
Bis(2-chloroethoxy)methane	--	mg/kg		1 U	5.3 U
Bis(2-chloroethyl) ether	--	mg/kg		0.88 U	4.4 U
Bis(2-ethylhexyl) phthalate	--	mg/kg		0.98 U	2.3 J
Butylbenzyl phthalate	--	mg/kg		0.98 U	4.9 U
Carbazole	--	mg/kg		0.98 U	4.9 U
Chrysene	56	mg/kg		0.58 U	0.93 J
Dibenzo[a,h]anthracene	0.56	mg/kg		0.58 U	3 U
Dibenzofuran	350	mg/kg		0.98 U	4.9 U
Diethyl phthalate	--	mg/kg		0.98 U	4.9 U
Dimethyl phthalate	--	mg/kg		0.98 U	4.9 U
Di-n-butyl phthalate	--	mg/kg		0.98 U	4.9 U
Di-n-octyl phthalate	--	mg/kg		0.98 U	4.9 U
Fluoranthene	500	mg/kg		0.58 U	3 U
Fluorene	500	mg/kg		0.98 U	0.5 J
Hexachlorobenzene	6	mg/kg		0.58 U	3 U
Hexachlorobutadiene	--	mg/kg		0.98 U	4.9 U
Hexachlorocyclopentadiene	--	mg/kg		2.8 U	14 U
Hexachloroethane	--	mg/kg		0.78 U	4 U
Indeno[1,2,3-cd]pyrene	5.6	mg/kg		0.78 U	4 U
Isophorone	--	mg/kg		0.88 U	4.4 U
Naphthalene	500	mg/kg		0.83 J	6.1
Nitrobenzene	--	mg/kg		0.88 U	4.4 U
n-Nitrosodi-n-propylamine	--	mg/kg		0.98 U	4.9 U
n-Nitrosodiphenylamine	--	mg/kg		0.78 U	4 U
Pentachlorophenol	6.7	mg/kg		0.78 U	4 U
Phenanthrene	500	mg/kg		0.19 J	2.8 J
Phenol	500	mg/kg		0.98 U	4.9 U
Pyrene	500	mg/kg		0.1 J	0.87 J

Table 3. Summary of Metals in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Units	**Sample Designation:**	RXSB-9	RXSB-9
			Sample Date:	11/13/2018	11/13/2018
			Sample Depth (ft bls):	1 - 5	5 - 13
			Test Type:	INITIAL	INITIAL
Aluminum	--	mg/kg		4680	2060
Antimony	--	mg/kg		0.551 J	2.41 J
Arsenic	16	mg/kg		2.7	4.65
Barium	400	mg/kg		39.2	32.7
Beryllium	590	mg/kg		0.243 J	0.075 J
Cadmium	9.3	mg/kg		0.374 J	2.2
Calcium	--	mg/kg		11200	162000
Chromium, Hexavalent	400	mg/kg		0.964 U	0.372 J
Chromium	1500	mg/kg		9.72	38.2
Cobalt	--	mg/kg		3.61	6.26
Copper	270	mg/kg		30.2	**5710**
Cyanide	27	mg/kg		1.1 U	1.2 U
Iron	--	mg/kg		10400	34600
Lead	1000	mg/kg		69.6	455
Magnesium	--	mg/kg		4200	12200
Manganese	10000	mg/kg		375	607
Mercury	2.8	mg/kg		0.085	0.416
Nickel	310	mg/kg		7.98	24.6
Potassium	--	mg/kg		419	323
Selenium	1500	mg/kg		1.87 U	0.550 J
Silver	1500	mg/kg		0.935 U	0.672 J
Sodium	--	mg/kg		284	218
Thallium	--	mg/kg		1.87 U	1.86 U
Vanadium	--	mg/kg		13.5	8.93
Zinc	10000	mg/kg		77.2	2890

Table 4. Summary of Polychorinated Biphenyls in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Units	**Sample Designation:**	RXSB-9	RXSB-9
			Sample Date:	11/13/2018	11/13/2018
			Sample Depth (ft bls):	1 - 5	5 - 13
			Test Type:	_D	DILUTION1
Aroclor-1016	--	mg/kg		0.195 U	0.199 U
Aroclor-1221	--	mg/kg		0.195 U	0.199 U
Aroclor-1232	--	mg/kg		0.195 U	0.199 U
Aroclor-1242	--	mg/kg		0.195 U	0.199 U
Aroclor-1248	--	mg/kg		0.195 U	0.199 U
Aroclor-1254	--	mg/kg		0.195 U	0.199 U
Aroclor-1260	--	mg/kg		0.195 U	0.199 U
Aroclor-1262	--	mg/kg		0.195 U	0.199 U
Aroclor-1268	--	mg/kg		0.195 U	0.199 U
PCBs, Total	1	mg/kg		0.195 U	0.199 U

Table 5. Summary of Pesticides and Herbicides in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Units	**Sample Designation:** RXSB-9 **Sample Date:** 11/13/2018 **Sample Depth (ft bls):** 1 - 5 **Test Type:** INITIAL	RXSB-9 11/13/2018 5 - 13 DILUTION1	RXSB-9 11/13/2018 5 - 13 INITIAL
2,4,5-T	--	mg/kg	0.2 U	NA	0.197 U
2,4,5-TP	500	mg/kg	0.2 U	NA	0.197 U
2,4-D	--	mg/kg	0.2 U	NA	0.197 U
4,4'-DDD	92	mg/kg	0.00188 U	0.0188 U	NA
4,4'-DDE	62	mg/kg	0.00188 U	0.0188 U	NA
4,4'-DDT	47	mg/kg	0.00352 U	0.0352 U	NA
Aldrin	0.68	mg/kg	0.00188 U	0.0188 U	NA
alpha-BHC	3.4	mg/kg	0.000781 U	0.00782 U	NA
alpha-Chlordane	24	mg/kg	0.00234 U	0.0235 U	NA
beta-BHC	3	mg/kg	0.00188 U	0.0188 U	NA
Chlordane	--	mg/kg	0.0152 U	0.152 U	NA
delta-BHC	500	mg/kg	0.00188 U	0.0188 U	NA
Dieldrin	1.4	mg/kg	0.00117 U	0.0117 U	NA
Endosulfan I	200	mg/kg	0.00188 U	0.0188 U	NA
Endosulfan II	200	mg/kg	0.00188 U	0.0188 U	NA
Endosulfan sulfate	200	mg/kg	0.000781 U	0.00782 U	NA
Endrin aldehyde	--	mg/kg	0.00234 U	0.0235 U	NA
Endrin ketone	--	mg/kg	0.00188 U	0.0188 U	NA
Endrin	89	mg/kg	0.000781 U	0.00782 U	NA
gamma-BHC (Lindane)	9.2	mg/kg	0.000781 U	0.00782 U	NA
gamma-Chlordane	--	mg/kg	0.00234 U	0.0235 U	NA
Heptachlor epoxide	--	mg/kg	0.00352 U	0.0352 U	NA
Heptachlor	15	mg/kg	0.000938 U	0.00938 U	NA
Methoxychlor	--	mg/kg	0.00352 U	0.0352 U	NA
Toxaphene	--	mg/kg	0.0352 U	0.352 U	NA

Table 6. Summary of General Chemistry in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Commercial SCO	Units	**Sample Designation:**	RXSB-1	RXSB-2	RXSB-3	RXSB-4	RXSB-5	RXSB-6	RXSB-7
			Sample Date:	11/13/2018	11/13/2018	11/12/2018	11/12/2018	11/13/2018	11/12/2018	11/12/2018
			Sample Depth (ft bls):	8.5 - 10.5	8 - 10	8 - 10	7.5 - 9.5	8 - 10	8 - 10	8 - 10
			Test Type:	INITIAL	INITIAL	INITIAL	INITIAL	INITIAL	INITIAL	INITIAL
Cyanide Reactivity	--	mg/kg		NA	NA	NA	NA	NA	NA	NA
Ignitability	--	none		NA	NA	NA	NA	NA	NA	NA
Paint Filter Test	--	none		NA	NA	NA	NA	NA	NA	NA
pH	--	su		NA	NA	NA	NA	NA	NA	NA
Sulfide Reactivity	--	mg/kg		NA	NA	NA	NA	NA	NA	NA
Total Solids	--	percent		80	82.5	85.8	84.8	85.2	87.5	87.4

Table 6. Summary of General Chemistry in Soil, 1000 Turk Hill Road, Fairport, New York

RXSB-9 DUP 11/13/2018 1 - 5 INITIAL	RXSB-9 11/13/2018 1 - 5 INITIAL	RXSB-9 11/13/2018 5 - 13 INITIAL	RXSB-10 11/13/2018 8 - 10 INITIAL	RXSB-11 11/13/2018 8 - 10 INITIAL
NA	10 U	10 U	NA	NA
NA	0 U	0 U	NA	NA
NA	ND	ND	NA	NA
NA	7.3	6.8	NA	NA
NA	10 U	10 U	NA	NA
80.9	83	83.3	81.2	88.5

Table 7. Summary of TCLP Volatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	RXSB-9 11/13/2018 1 - 5
1,1-Dichloroethene	0.7		0.0048 J
1,2-Dichloroethane	0.5		0.005 U
1,4-Dichlorobenzene	7.5		0.025 U
2-Butanone (MEK)	200		0.05 U
Benzene	0.5		0.005 U
Carbon tetrachloride	0.5		0.005 U
Chlorobenzene	100		0.005 U
Chloroform	6		0.0075 U
Tetrachloroethene	0.7		0.005 U
Trichloroethene	0.5		0.0018 J
Vinyl chloride	0.2		**0.25**

Table 8. Summary of TCLP Semivolatile Organic Compounds in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	**Sample Designation:**	RXSB-9	RXSB-9
		Sample Date:	11/13/2018	11/13/2018
		Sample Depth (ft bls):	1 - 5	5 - 13
2,4,5-Trichlorophenol	400		0.025 U	0.025 U
2,4,6-Trichlorophenol	2		0.025 U	0.025 U
2,4-Dinitrotoluene	0.13		0.025 U	0.025 U
2-Methylphenol	200		0.025 U	0.025 U
3&4-Methylphenol	200		0.025 U	0.017 J
Hexachlorobenzene	0.13		0.01 U	0.01 U
Hexachlorobutadiene	0.5		0.01 U	0.01 U
Hexachloroethane	3		0.01 U	0.01 U
Nitrobenzene	2		0.01 U	0.01 U
Pentachlorophenol	100		0.05 U	0.05 U
Pyridine	5		0.018 U	0.018 U

Table 9. Summary of TCLP Metals in Soil, 1000 Turk Hill Road, Fairport, New York

Parameter (Concentrations in mg/L)	USEPA Regulatory Levels (mg/L)	**Sample Designation:**	RXSB-9	RXSB-9
		Sample Date:	11/13/2018	11/13/2018
		Sample Depth (ft bls):	1 - 5	5 - 13
Arsenic	5		0.040 J	0.030 J
Barium	100		0.414 J	0.124 J
Cadmium	1		0.1 U	0.1 U
Chromium	5		0.2 U	0.2 U
Lead	5		0.032 J	0.030 J
Mercury	0.2		0.0002 U	0.0002 U
Selenium	1		0.5 U	0.5 U
Silver	5		0.1 U	0.1 U

SOIL BORING AND MONITORING WELL VALUES			
NAME	NORTHING	EASTING	ELEVATION
MW-27S	1129666.72	1456425.87	467.37
MW-29S	1129598.27	1456412.48	469.99
RXSB-1	1129634.38	1456390.82	471.16
RXSB-2	1129637.65	1456398.40	470.40
RXSB-3	1129626.75	1456400.10	470.37
RXSB-4	1129625.04	1456389.33	470.51
RXSB-5	1129636.46	1456387.87	471.31
RXSB-6	1129640.94	1456400.22	470.38
RXSB-7	1129624.59	1456402.68	470.32
RXSB-8	1129622.09	1456387.16	470.51
RXWC-1 & RXSB-9	1129633.16	1456395.03	470.46
RXSB-10	1129648.23	1456405.55	470.62
RXSB-11	1129621.96	1456406.41	470.27
SB/MW-8S	1129701.30	1456405.74	467.24
SB/MW-9S	1129631.55	1456393.95	470.51

RXSB-9	11/13/18	11/13/18	11/13/18	11/13/18
Depth (ft bls)	1 - 5	1 - 5	1 - 5 DUP	5 - 13
Test Type	DILUTION1	DILUTION2	DILUTION1	DILUTION1
VOCs				
1,2,4-Trimethylbenzene	NA	**280**	**220**	**920**
1,3,5-Trimethylbenzene	NE	NA	NE	**200 J**
cis-1,2-Dichloroethene	**63**	NA	**55**	**10000**
Trichloroethene	ND	NA	ND	**62000**

RXSB-10	11/13/18
Depth (ft bls)	8 - 10
Test Type	DILUTION1
VOCs	
cis-1,2-Dichloroethene	**1.5**

RXSB-5	11/13/18	11/13/18
Depth (ft bls)	8 - 10	8 - 10
Test Type	DILUTION1	DILUTION2
VOCs		
1,2,4-Trimethylbenzene	**290**	NA
cis-1,2-Dichloroethene	NA	**1800**
Trichloroethene	**3.1**	NA

RXSB-6	11/12/18	11/12/18
Depth (ft bls)	8 - 10	8 - 10
Test Type	DILUTION1	DILUTION2
VOCs		
1,2,4-Trimethylbenzene	NA	**340**
cis-1,2-Dichloroethene	NA	**2100**
Trichloroethene	NA	**5900**

RXSB-1	11/13/18
Depth (ft bls)	8.5 - 10.5
Test Type	DILUTION1
VOCs	
cis-1,2-Dichloroethene	**800**
Trichloroethene	**14**

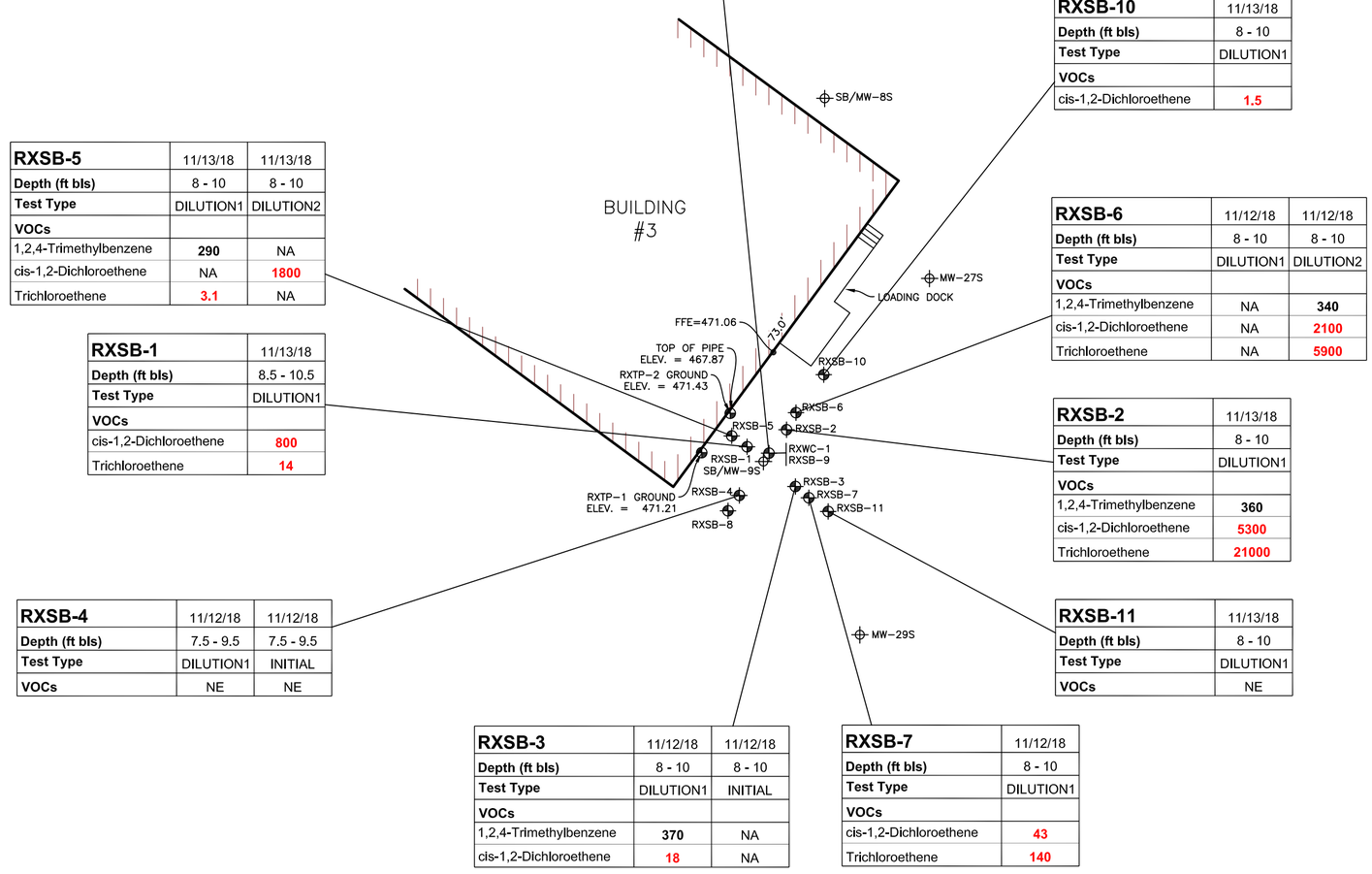
RXSB-2	11/13/18
Depth (ft bls)	8 - 10
Test Type	DILUTION1
VOCs	
1,2,4-Trimethylbenzene	**360**
cis-1,2-Dichloroethene	**5300**
Trichloroethene	**21000**

RXSB-4	11/12/18	11/12/18
Depth (ft bls)	7.5 - 9.5	7.5 - 9.5
Test Type	DILUTION1	INITIAL
VOCs	NE	NE

RXSB-11	11/13/18
Depth (ft bls)	8 - 10
Test Type	DILUTION1
VOCs	NE

RXSB-3	11/12/18	11/12/18
Depth (ft bls)	8 - 10	8 - 10
Test Type	DILUTION1	INITIAL
VOCs		
1,2,4-Trimethylbenzene	**370**	NA
cis-1,2-Dichloroethene	**18**	NA

RXSB-7	11/12/18
Depth (ft bls)	8 - 10
Test Type	DILUTION1
VOCs	
cis-1,2-Dichloroethene	**43**
Trichloroethene	**140**



LEGEND

MW-8S ⊕	MONITORING WELL LOCATION AND DESIGNATION
RXSB-1 ⊕	SOIL BORING LOCATION AND DESIGNATION
RXTP-1 ⊕	TEST PIT LOCATION AND DESIGNATION
ELEV.	ELEVATION
FFE	FIRST FLOOR ELEVATION

TYPICAL DATA BOX INFORMATION

SAMPLE ID# →	**RXSB-2**	11/13/18 ← SAMPLE DATE
	Depth (ft bls)	8 - 10 ← SAMPLE DEPTH
	Test Type	DILUTION1
	VOCs	
ANALYTES →	1,2,4-Trimethylbenzene	**360**
	cis-1,2-Dichloroethene	**5300**
	Trichloroethene	**21000**

CONCENTRATION (mg/kg)

Parameter (Concentrations in mg/kg)	Standards* (mg/kg)
VOCs	
1,2,4-Trimethylbenzene	190
1,3,5-Trimethylbenzene	190
cis-1,2-Dichloroethene	0.25
Trichloroethene	0.47

Concentrations in mg/kg

mg/kg – Milligrams per kilogram
* – Site-Specific Standards
J – Estimated value
DUP – Duplicate Sample
VOCs – Volatile Organic Compounds
NE – No exceedance
ND – No detection
NA – Not analyzed for by laboratory
ft bls – Feet below land surface

GENERAL NOTES:

1. HORIZONTAL CONTROL IS REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM (NAD83), WESTERN ZONE, US SURVEY FEET, AS PROVIDED BY ROUX ASSOCIATES, INC.
2. VERTICAL CONTROL IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS PROVIDED BY ROUX ASSOCIATES, INC.
3. TOPOGRAPHIC INFORMATION SHOWN HEREON WAS GATHERED BY WENDEL ON NOVEMBER 13, 2018.

N

20' 0 20'

Title:

PRE-DESIGN INVESTIGATION RESULTS

1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:

NEW COLEMAN HOLDINGS, INC.

ROUX	Compiled by: C.B.	Date: 07JAN19	FIGURE 1
	Prepared by: B.H.C.	Scale: AS SHOWN	
	Project Mgr: C.B.	Project: 3113.0001Y000	
	File: 3113.0001Y115.01.DWG		

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SOIL BORING AND MONITORING WELL VALUES			
NAME	NORTHING	EASTING	ELEVATION
MW-27S	1129666.72	1456425.87	467.37
MW-29S	1129598.27	1456412.48	469.99
RXSB-1	1129634.38	1456390.82	471.16
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RXSB-3	1129626.75	1456400.10	470.37
RXSB-4	1129625.04	1456389.33	470.51
RXSB-5	1129636.46	1456387.87	471.31
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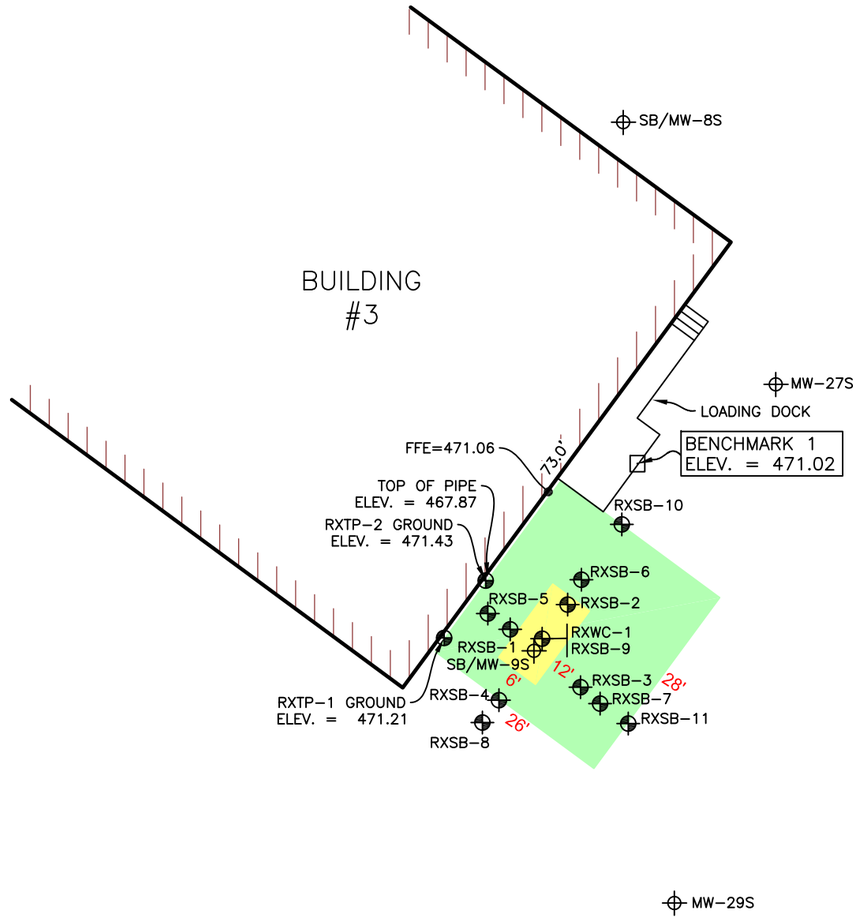
RXSB-8	1129622.09	1456387.16	470.51
RXWC-1 & RXSB-9	1129633.16	1456395.03	470.46
RXSB-10	1129648.23	1456405.55	470.62
RXSB-11	1129621.96	1456406.41	470.27
SB/MW-8S	1129701.30	1456405.74	467.24
SB/MW-9S	1129631.55	1456393.95	470.51



LEGEND

MW-8S ⊕	MONITORING WELL LOCATION AND DESIGNATION
RXSB-1 ⊕	SOIL BORING LOCATION AND DESIGNATION
RXTP-1 ◔	TEST PIT LOCATION AND DESIGNATION
ELEV.	ELEVATION
FFE	FIRST FLOOR ELEVATION
26'	EXCAVATION SIDEWALL LENGTH (FEET)
	PROPOSED REMEDIAL EXCAVATION TO ELEVATION +459.50 (APPROXIMATELY 11 FEET BELOW LAND SURFACE/ SHALLOW GROUNDWATER TABLE).
	PROPOSED REMEDIAL EXCAVATION TO ELEVATION +457.50 (APPROXIMATELY 13 FEET BELOW LAND SURFACE/TOP OF BEDROCK).

N

20' 0 20'

GENERAL NOTES:

1. HORIZONTAL CONTROL IS REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM (NAD83), WESTERN ZONE, US SURVEY FEET, AS PROVIDED BY ROUX ASSOCIATES, INC.
2. VERTICAL CONTROL IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS PROVIDED BY ROUX ASSOCIATES, INC.
3. TOPOGRAPHIC INFORMATION SHOWN HEREON WAS GATHERED BY WENDEL ON NOVEMBER 13, 2018.

Title:

PROPOSED REMEDIAL EXCAVATION

1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:

NEW COLEMAN HOLDINGS, INC.

ROUX

Compiled by: C.B.	Date: 07JAN19	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	2
Project Mgr: C.B.	Project: 3113.0001Y000	
File: 3113.0001Y115.01.DWG		

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ATTACHMENT

Soil Boring Logs

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

209 Shafter Street
Islandia, NY 11749
Telephone: (631) 232-2600
Fax: (631) 232-9898

SOIL BORING LOG

WELL NO.	LATITUDE	LONGITUDE		
RXSB-1	**1129634.38**	**1456390.82**		
PROJECT NO./NAME		LOCATION		
3113.0001Y000 / Turk Hill PDI		**1000 Turk Hill Rd**		
APPROVED BY	LOGGED BY	**Fairport, New York**		
C. Battista	**M. Smith**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
TREC / Jim Agar		**Building 3 - East Parking Lot**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
/	**2-inches**	**66 DT / Geoprobe**	**2" Macro-Core**	**11/12/18-11/13/18**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
471.16(FT.)	**Not Measured**	**Sand**		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Soil at grade. Dark brown silty CLAY and organic material (roots), trace coarse sand. Dry.		284.5	Odor.
		Gray to dark brown silty CLAY and Gravel. Wet.		256.7	Odor.
5					Precleared to 5' bls.
		Dark brown silty fine SAND and Gravel. Moist.		202.0	Slight odor.
				507.3	Slight odor.
		Brown silty CLAY, trace gravel. Moist.		260.3	Slight odor.
10					
	▽ GROUND WATER LEVEL	Brown silty fine SAND, trace gravel. Wet.		189.7	Odor.
		Dark brown silty fine SAND and Clay, trace gravel. Wet.		89.7	Slight odor.
		Gray to green weathered BEDROCK. Dry.		0	No odor.
15					

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

209 Shafter Street
Islandia, NY 11749
Telephone: (631) 232-2600
Fax: (631) 232-9898

SOIL BORING LOG

WELL NO.	LATITUDE	LONGITUDE		
RXSB-10	**1129648.23**	**1456405.55**		
PROJECT NO./NAME		LOCATION		
3113.0001Y000 / Turk Hill PDI		**1000 Turk Hill Rd**		
APPROVED BY	LOGGED BY	**Fairport, New York**		
C. Battista	**M. Smith**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
TREC / Jim Agar		**Building 3 - East Parking Lot**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
/	**2-inches**	**66 DT / Geoprobe**	**2" Macro-Core**	**11/13/18-11/13/18**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
470.62(FT.)	**Not Measured**	**Sand**		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Asphalt.			
		Brown silty fine SAND and gravel. Dry.		20.5	
		Dark brown silty CLAY and Sand, trace gravel. Dry.		273.5	Odor.
5					5
					Precleared to 6' bls.
		Brown silty fine SAND and Gravel and trace clay. Dry.		45.1	
		Brown silty fine SAND and Gravel and trace clay. Moist.		314.8	
10	▽ GROUND WATER LEVEL				10
		Dark brown silty CLAY. Wet.		243.9	Slight odor.
		Dark brown silty CLAY and some Sand. Wet.		243.8	Slight odor.
		Gray to green weathered BEDROCK. Dry.		0.0	
15					15

BORING/FEET 3113.0001Y000.GPJ ROUX.GDT 1/8/19

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

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Islandia, NY 11749
Telephone: (631) 232-2600
Fax: (631) 232-9898

SOIL BORING LOG

WELL NO.	LATITUDE	LONGITUDE
RXSB-11	**1129621.96**	**1456406.41**

PROJECT NO./NAME	LOCATION
3113.0001Y000 / Turk Hill PDI	**1000 Turk Hill Rd**
APPROVED BY: **C. Battista** / LOGGED BY: **M. Smith**	**Fairport, New York**
DRILLING CONTRACTOR/DRILLER: **TREC / Jim Agar**	GEOGRAPHIC AREA: **Building 3 - East Parking Lot**

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
/	**2-inches**	**66 DT / Geoprobe**	**2" Macro-Core**	**11/13/18-11/13/18**

LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL
470.27(FT.)	**Not Measured**	**Sand**

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Asphalt.			
		Brown silty fine SAND and GRAVEL. Wet.		0.0	
		Dark brown silty CLAY. Moist.		0.0	
		Brown silty fine SAND and Gravel, trace clay. Moist.		0.0	
5					Precleared to 5' bls.
		Brown silty fine SAND and GRAVEL. Moist.		383.4	Slight odor.
				305.1	Slight odor.
10	▽ GROUND WATER LEVEL	Brown silty CLAY and some Sand and Gravel. Wet.		369.0	Slight odor.
		Brown silty fine SAND and CLAY. Wet.		49.7	Slight odor.
		Gray to green weathered BEDROCK. Dry.		0.0	
15					

BORING/FEET 3113.0001Y000.GPJ ROUX.GDT 1/8/19

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

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Islandia, NY 11749
Telephone: (631) 232-2600
Fax: (631) 232-9898

SOIL BORING LOG

WELL NO.	LATITUDE	LONGITUDE
RXSB-2	**1129637.65**	**1456398.4**

PROJECT NO./NAME	LOCATION
3113.0001Y000 / Turk Hill PDI	**1000 Turk Hill Rd**
APPROVED BY: **C. Battista** / LOGGED BY: **M. Smith**	**Fairport, New York**
DRILLING CONTRACTOR/DRILLER: **TREC / Jim Agar**	GEOGRAPHIC AREA: **Building 3 - East Parking Lot**

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
/	**2-inches**	**66 DT / Geoprobe**	**2" Macro-Core**	**11/12/18-11/13/18**

LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL
470.40(FT.)	**Not Measured**	**Sand**

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Soil at grade. Dark brown silty CLAY and organic material (roots), trace gravel. Dry.		233.6	Odor.
		Gray to dark brown silty CLAY and Gravel. Wet.		273.1	Odor.
5					Precleared to 5' bls.
		Dark brown silty fine SAND and Gravel. Moist.		5.4	Slight odor.
				415.4	Odor.
		Dark brown silty CLAY, trace gravel. Moist.		376.5	Odor.
10					
	▽ GROUND WATER LEVEL	Brown silty fine SAND and Gravel. Wet.		460.2	Slight odor.
		Brown silty fine SAND and Clay and Gravel. Wet.		189.3	Slight odor.
		Gray to green weathered BEDROCK. Dry.		0.0	
15					

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

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Islandia, NY 11749
Telephone: (631) 232-2600
Fax: (631) 232-9898

SOIL BORING LOG

WELL NO.	LATITUDE	LONGITUDE		
RXSB-3	**1129626.75**	**1456400.1**		
PROJECT NO./NAME		LOCATION		
3113.0001Y000 / Turk Hill PDI		**1000 Turk Hill Rd**		
APPROVED BY	LOGGED BY	**Fairport, New York**		
C. Battista	**M. Smith**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
TREC / Jim Agar		**Building 3 - East Parking Lot**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
/	**2-inches**	**66 DT / Geoprobe**	**2" Macro-Core**	**11/12/18-11/12/18**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
470.37(FT.)	**Not Measured**	**Sand**		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Asphalt at grade.			
		RCA base for asphalt.			
		Brown silty fine SAND and Gravel. Dry.		0.0	
		Brown silty CLAY and Gravel. Moist at 4.5' bls.		0.0	
5					Precleared to 5' bls.
		Brown to gray silty CLAY, trace fine Sand. Moist.		60.0	
				81.8	Slight odor.
10					
		Brown silty fine SAND and medium to coarse Sand. Moist.		56.5	Slight odor.
	▽ GROUND WATER LEVEL	Dark brown silty fine SAND and medium to coarse Sand and Gravel. Wet.		58.5	Slight odor
		Gray weathered BEDROCK. Dry.		0.0	
15					

BORING/FEET 3113.0001Y000.GPJ ROUX.GDT 1/8/19

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

209 Shafter Street
Islandia, NY 11749
Telephone: (631) 232-2600
Fax: (631) 232-9898

SOIL BORING LOG

WELL NO.	LATITUDE	LONGITUDE		
RXSB-4	**1129625.04**	**1456389.33**		
PROJECT NO./NAME		LOCATION		
3113.0001Y000 / Turk Hill PDI		**1000 Turk Hill Rd**		
APPROVED BY	LOGGED BY	**Fairport, New York**		
C. Battista	**M. Smith**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
TREC / Jim Agar		**Building 3 - East Parking Lot**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
/	**2-inches**	**66 DT / Geoprobe**	**2" Macro-Core**	**11/12/18-11/12/18**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
470.51(FT.)	**Not Measured**	**Sand**		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Soil at grade. Brown silty fine SAND and Gravel. Dry.		120.7	Slight odor.
		Brown silty CLAY, trace Gravel. Dry.		99.8	Odor.
		Brown silty fine SAND, trace Gravel. Dry.		0.7	
		Gray silty CLAY and Gravel. Wet.		181.4	Odor.
5					Precleared to 5' bls. 5
		Dark brown to gray silty fine SAND and Clay, trace gravel. Moist.		55.4	Slight odor.
		Brown silty fine SAND and some Clay. Moist.		73.5	Odor.
10					10
	▽ GROUND WATER LEVEL	Brown silty fine SAND and Gravel. Wet.		44.6	Slight odor.
		Weathered bedrock. Dry.		0.0	
15					15

BORING/FEET 3113.0001Y000.GPJ ROUX.GDT 1/8/19

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SOIL BORING LOG

WELL NO.	LATITUDE	LONGITUDE
RXSB-5	**1129636.46**	**1456387.87**

PROJECT NO./NAME	LOCATION
3113.0001Y000 / Turk Hill PDI	**1000 Turk Hill Rd**
APPROVED BY: **C. Battista** / LOGGED BY: **M. Smith**	**Fairport, New York**
DRILLING CONTRACTOR/DRILLER: **TREC / Jim Agar**	GEOGRAPHIC AREA: **Building 3 - East Parking Lot**

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
/	**2-inches**	**66 DT / Geoprobe**	**2" Macro-Core**	**11/12/18-11/13/18**

LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL
471.31(FT.)	**Not Measured**	**Sand**

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Soil at grade. Dark brown silty CLAY, trace coarse sand and organic material (roots). Dry.		43.1	Slight odor.
		Dark brown silty CLAY, trace coarse sand. Dry.		84.4	Odor.
		Dark brown silty CLAY and light brown fine Sand. Dry.		79.4	Odor.
5					Precleared to 5' bls. 5
		Brown silty fine SAND, trace clay. Dry.		87.6	Slight odor.
		Dark brown silty fine SAND, trace clay. Moist.		288.0	Slight odor.
10					10
		Dark brown silty CLAY. Moist.		149.0	Slight odor.
		Brown silty fine SAND, trace coarse sand and Gravel. Wet.		136.5	Odor.
	▽ GROUND WATER LEVEL	Brown silty fine SAND, trace clay. Wet.		187.7	Slight odor.
		Gray to green weathered BEDROCK. Dry.		0.0	
15					15

BORING/FEET 3113.0001Y000.GPJ ROUX.GDT 1/8/19

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

209 Shafter Street
Islandia, NY 11749
Telephone: (631) 232-2600
Fax: (631) 232-9898

SOIL BORING LOG

WELL NO.	LATITUDE	LONGITUDE
RXSB-6	**1129640.94**	**1456400.22**

PROJECT NO./NAME	LOCATION
3113.0001Y000 / Turk Hill PDI	**1000 Turk Hill Rd**
APPROVED BY: **C. Battista** / LOGGED BY: **M. Smith**	**Fairport, New York**
DRILLING CONTRACTOR/DRILLER: **TREC / Jim Agar**	GEOGRAPHIC AREA: **Building 3 - East Parking Lot**

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
/	**2-inches**	**66 DT / Geoprobe**	**2" Macro-Core**	**11/12/18-11/12/18**

LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL
470.38(FT.)	**Not Measured**	**Sand**

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Soil at grade. Dark brown silty CLAY and organic material (roots), trace coarse sand. Dry.		192.7	Odor.
		Dark brown silty CLAY and light brown fine SAND. Dry.		58.5	Odor.
5					Precleared to 5' bls.
		Dark brown silty CLAY, trace fine sand. Moist.		451.1	Odor.
		Brown silty fine SAND. Moist.		66.7	Odor.
10	▽ GROUND WATER LEVEL	Dark brown silty CLAY. Wet.		56.2	Odor.
		Brown silty fine SAND, trace gravel. Wet.		57.8	Odor.
		Brown silty fine SAND, some Clay. Wet.		55.4	Odor.
15		Gray to green weathered BEDROCK. Dry.		0.0	

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SOIL BORING LOG

WELL NO.	LATITUDE	LONGITUDE
RXSB-7	**1129624.59**	**1456402.68**

PROJECT NO./NAME	LOCATION
3113.0001Y000 / Turk Hill PDI	**1000 Turk Hill Rd**
APPROVED BY / LOGGED BY	**Fairport, New York**
C. Battista / **M. Smith**	

DRILLING CONTRACTOR/DRILLER	GEOGRAPHIC AREA
TREC / Jim Agar	**Building 3 - East Parking Lot**

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
/	**2-inches**	**66 DT / Geoprobe**	**2" Macro-Core**	**11/12/18-11/12/18**

LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL
470.32(FT.)	**Not Measured**	**Sand**

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Asphalt at grade.			
		RCA base for asphalt.			
		Brown silty fine SAND and Gravel. Dry.		0.0	
		Brown silty fine SAND, trace Gravel. Dry.		0.8	
5					Precleared to 5' bls.
		Brown silty CLAY and some coarse Sand. Moist.		371.6	Odor.
				388.0	
10	▽ GROUND WATER LEVEL			39.1	
		Brown silty CLAY and some fine and coarse Sand. Moist.		48.2	Odor
		Gray weathered BEDROCK. Dry.		0.0	
15					

BORING/FEET 3113.0001Y000.GPJ ROUX.GDT 1/8/19

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Fax: (631) 232-9898

SOIL BORING LOG

WELL NO.	LATITUDE	LONGITUDE		
RXSB-8	**1129622.09**	**1456387.16**		
PROJECT NO./NAME		LOCATION		
3113.0001Y000 / Turk Hill PDI		**1000 Turk Hill Rd**		
APPROVED BY	LOGGED BY	**Fairport, New York**		
C. Battista	**M. Smith**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
TREC / Jim Agar		**Building 3 - East Parking Lot**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
/	**2-inches**	**66 DT / Geoprobe**	**2" Macro-Core**	**11/12/18-11/13/18**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
470.51(FT.)	**Not Measured**	**Sand**		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Soil at grade. Dark brown loamy SILT, top soil. Dry.			
		Brown silty fine SAND and Gravel. Dry.		1.8	
		Brown silty fine SAND and coarse Sand. Dry.		0.9	
5		Brown silty fine SAND and Clay, trace gravel. Dry.		0.0	Precleared to 5' bls.
		Brown silty fine SAND, trace clay and gravel. Moist.		39.5	
		Brown CLAY.		5.1	
10	▽ GROUND WATER LEVEL	Dark brown silty fine SAND, trace clay. Wet.		0.0	
				1.4	
		Gray to green weathered BEDROCK. Dry.		0.0	
15					

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Environmental Consulting & Management

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Islandia, NY 11749
Telephone: (631) 232-2600
Fax: (631) 232-9898

SOIL BORING LOG

WELL NO.	LATITUDE	LONGITUDE
RXSB-9 WC	**1129633.16**	**1456395.03**

PROJECT NO./NAME	LOCATION
3113.0001Y000 / Turk Hill PDI	**1000 Turk Hill Rd**
APPROVED BY: **C. Battista** / LOGGED BY: **M. Smith**	**Fairport, New York**
DRILLING CONTRACTOR/DRILLER: **TREC / Jim Agar**	GEOGRAPHIC AREA: **Building 3 - East Parking Lot**

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
/	**2-inches**	**66 DT / Geoprobe**	**2" Macro-Core**	**11/13/18-11/13/18**

LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL
470.46(FT.)	**Not Measured**	**Sand**

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Soil at grade. Dark brown silty CLAY and organic material (roots). Dry.			
		Brown silty CLAY, trace gravel. Dry.			
5					Precleared to 5' bls.
		Brown silty fine SAND and GRAVEL. Moist.		474.4	Slight odor.
				403.5	Odor.
10	GROUND WATER LEVEL	Black stained silty CLAY. Wet.		505.1	Odor.
				488.1	Odor.
		Gray to green weathered BEDROCK. Dry.		0.0	
15					

BORING/FEET 3113.0001Y000.GPJ ROUX.GDT 1/8/19

APPENDIX B

Health and Safety Plan

Health and Safety Plan

1000 Turk Hill Road
Monroe County
Fairport, New York

November 7, 2018

Prepared for:

New Coleman Holdings, LLC

Prepared by:

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

3113.0001Y.110/CV

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Site-Specific Emergency Information

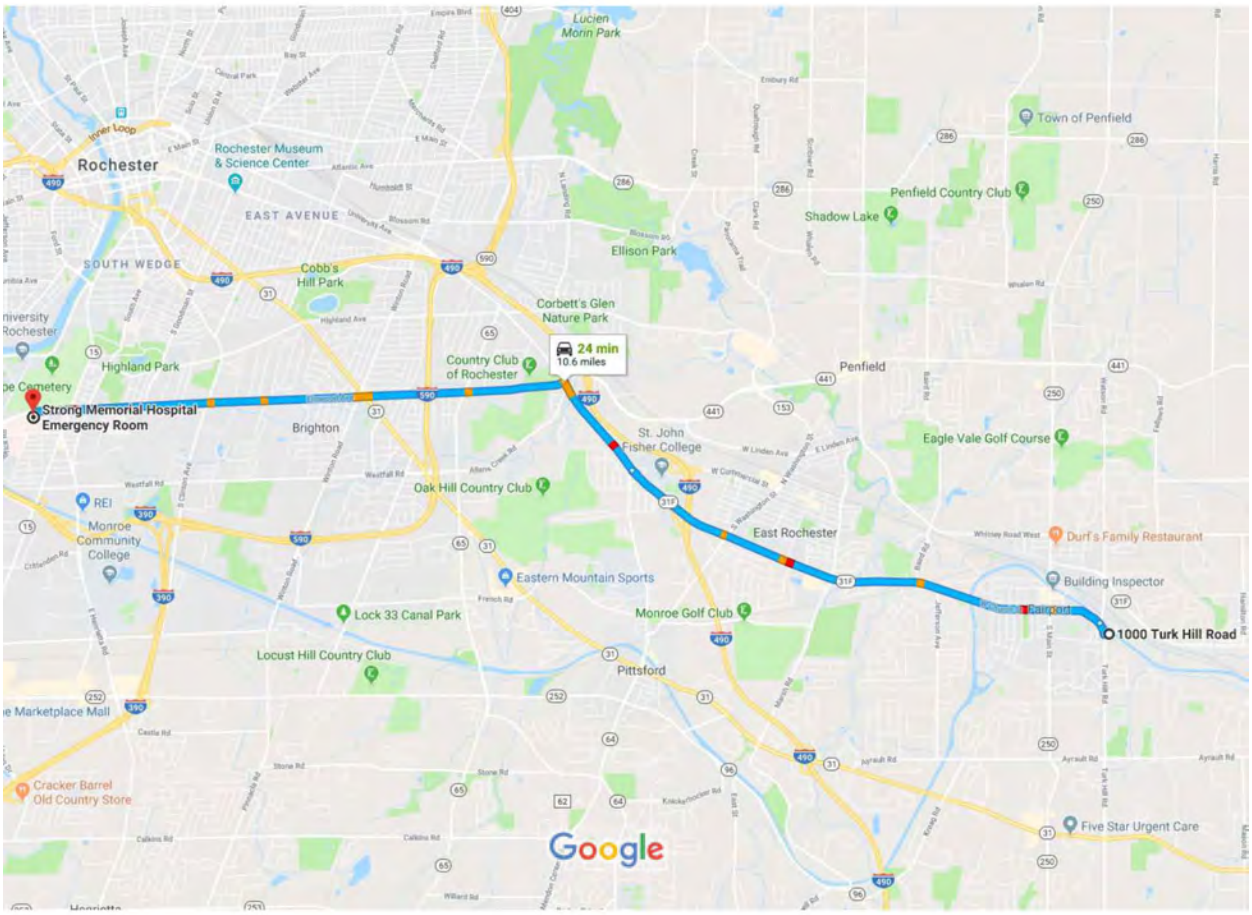
Emergency Phone Numbers

Most emergency services can be obtained by calling **911**. Where 911 service is not available, use the telephone numbers provided in the below table. The following is a master emergency phone list for use by the project management personnel. A more condensed version of the emergency numbers listed below will be posted throughout project work areas. Emergencies encountered on the site will be responded to by a combination of off-site emergency services and site personnel.

Emergency Contact Information			
Site Personnel			
Title	**Contact**		**Telephone**
Project Manager (PM)	Christopher Battista		(516) 250-0382
Site Health and Safety Officer (SHSO)	Levi Curnutte		(631) 630-2371
Site Supervisor	TBD		N/A
SHSO Alternate			
Outside Assistance			
Agency	**Contact**	**Telephone**	**Address/Location**
Ambulance/EMS	Perinton Volunteer Ambulance	585-223-4150 or 911	1400 Turk Hill Road, Fairport, New York 14450
Police	Fairport Police Department	585-223-1740 or 911	31 South Main Street, Fairport, New York 14450
Fire	Fairport Fire Department – Station 1	585-223-9220 or 911	27 East Church Street, Fairport, New York 14450

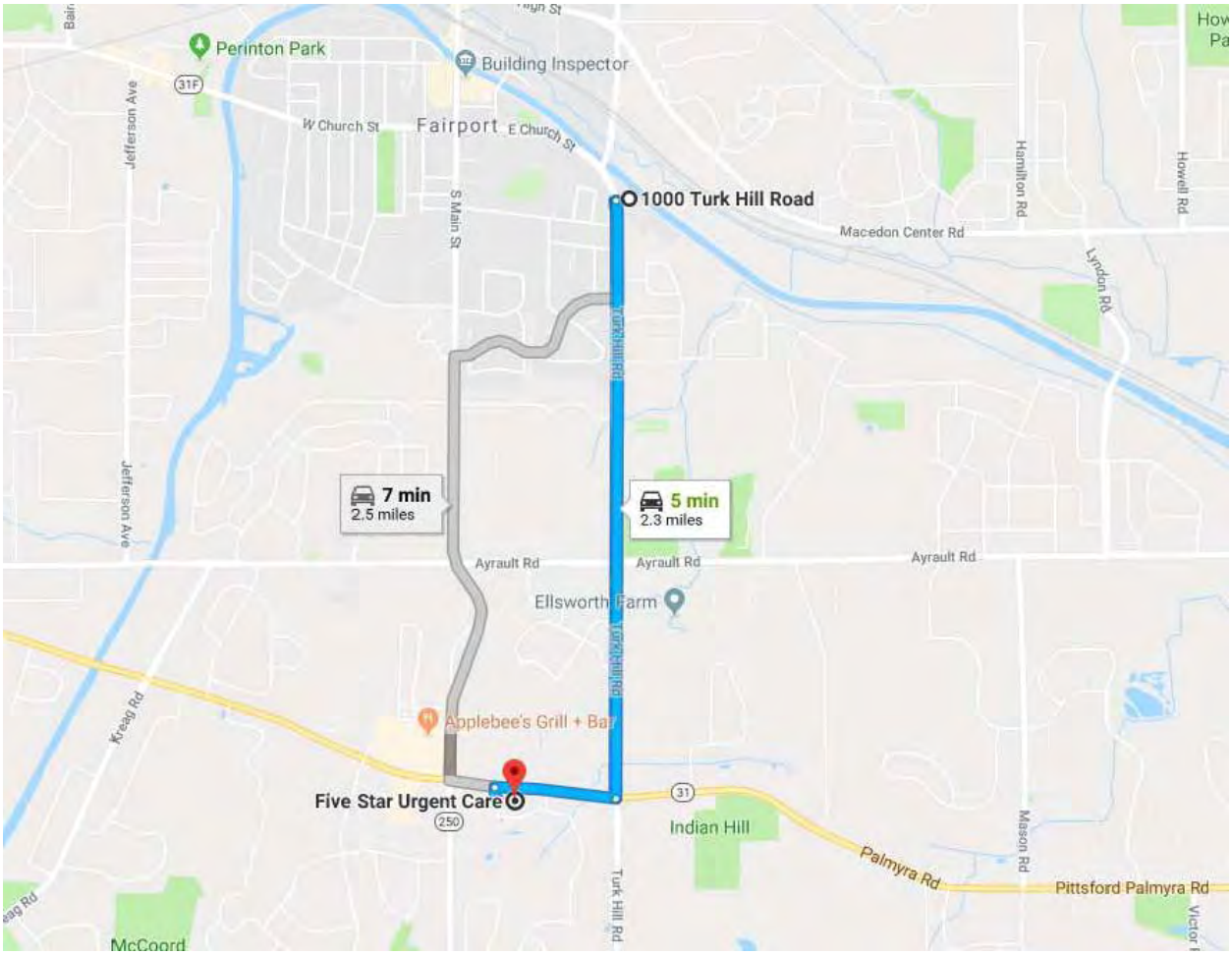
Route to Strong Memorial Hospital Emergency Room

1. Turn right out of the Site onto Turk Hill Road (turns into East Church Street/Route 31F).
2. Take East Church Street west approximately 12 miles (turns into East Avenue/Route 96).
3. Turn left onto Elmwood Avenue (Route 87).
4. Take Elmwood Avenue approximately 10 miles west to Strong Memorial Hospital. Follow signs to Emergency Room.



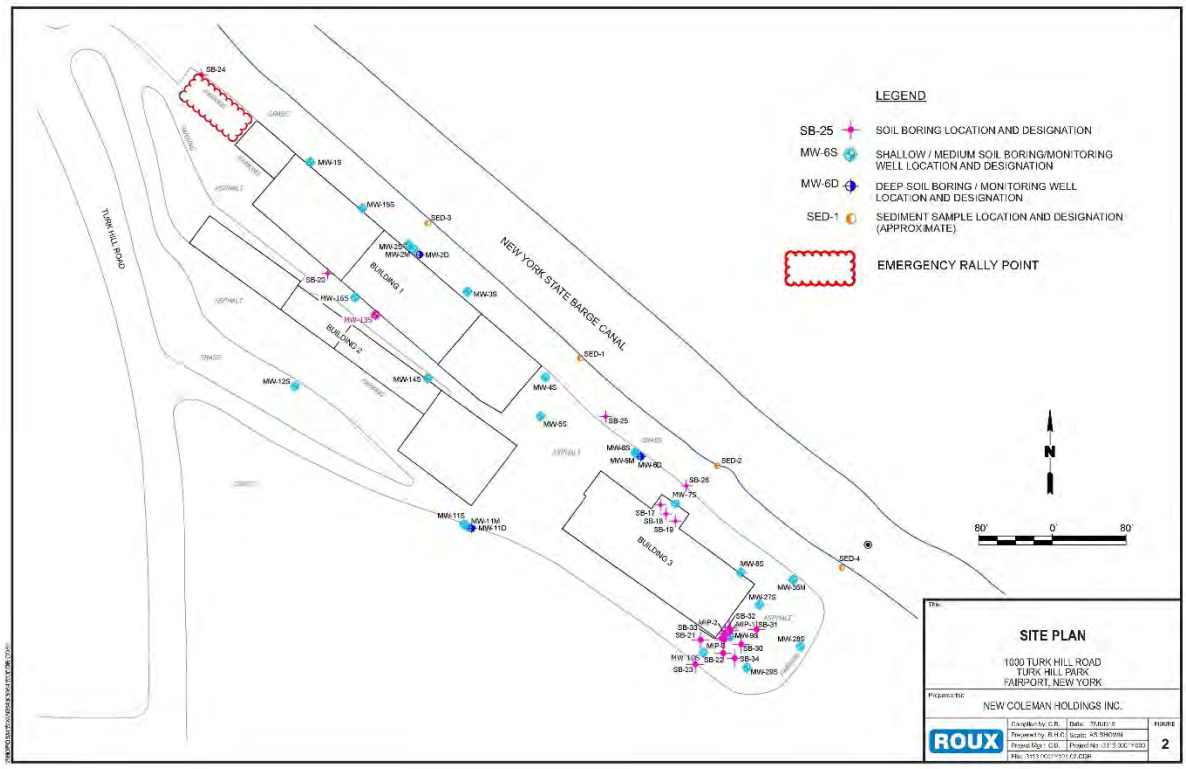
Route to Five Star Urgent Care

1. Turn Left out of the Site onto Turk Hill Road.
2. Take Turk Hill Road south approximately three miles.
3. Turn right onto Pittsford Palmyra Road (Hwy 31).
4. Take Pittsford Palmyra Road approximately one-half mile and turn left onto Courtney Drive.
5. Take first left to parking area of Five Star Urgent Care.



Site Emergency Response – Rally Point

1. Shut down all engines and operating equipment if safe to do so.
2. Exit any Site building or work area and walk northwest towards the Rally Point.
3. The Rally Point is located in the northernmost parking area just inside the north Site entrance.
4. Assemble at this location and account for all personnel onsite.
5. Wait for emergency responders to arrive.



1. Introduction

This site-specific Health and Safety Plan (HASP) has been prepared by Roux Associates, Inc. (Roux) for use during the sampling and remedial activities being performed by Roux at the New Coleman Holdings Inc. Turk Hill Park ("the Site"), located at 1000 Turk Hill Road in Fairport, New York (see Figure 1). These activities fall within the scope of operations covered by the Occupational Safety and Health Administration (OSHA) standards promulgated at 29 CFR 1910.120 and 29 CFR 1926.65, both commonly referred to as the Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard. In accordance with the HAZWOPER Standard, this site-specific HASP was prepared to address the safety and health hazards associated with the sampling and remedial activities being performed at the Site by Roux and to provide requirements and procedures for the protection of Roux employees, subcontractor personnel, government oversight personnel, Site personnel, and the general public. It also addresses client- and Site-specific requirements for health and safety.

Implementation of this HASP is the joint responsibilities of the project manager, the site health and safety officer, and all field staff, with assistance from the project principal and the office health and safety manager. Mr. Christopher Battista is the project manager. The site health and safety officer and site supervisor will be determined at each phase of the project.

1.1 Roles and Responsibilities

Overall Roles and Responsibilities (R&Rs) of Roux personnel are provided in Roux's Policies and Procedures Manual. Only those R&Rs specific to HASP requirements are listed below.

Project Manager (PM)
The PM has responsibility and authority to direct all work operations. The PM coordinates safety and health functions with the Site Health and Safety Officer (SHSO), has the authority to oversee and monitor the performance of the SHSO, and bears ultimate responsibility for the proper implementation of this HASP. The specific duties of the PM are:

- preparing and coordinating the site work plan;
- providing site supervisor(s) with work assignments and overseeing their performance; Coordinating safety and health efforts with the SSHO;
- ensuring effective emergency response through coordination with the Emergency Response Coordinator (ERC);
- serving as primary site liaison with public agencies and officials and site contractors.

Site Health and Safety Officer (SHSO)
The SHSO has full responsibility and authority to develop and implement this HASP and to verify compliance. The SHSO reports to the Project Manager. The SHSO is on site or readily accessible to the site during all work operations and has the authority to halt site work if unsafe conditions are detected. The specific responsibilities of the SHSO include:

- managing the safety and health functions on this site;
- serving as the site's point of contact for safety and health matters;
- ensuring site monitoring, worker training, and effective selection and use of PPE;
- assessing site conditions for unsafe acts and conditions and providing corrective action;

- assisting the preparation and review of this HASP;
- maintaining effective safety and health records as described in this HASP; and
- coordinating with the Site Supervisor(s) and others as necessary for safety and health efforts.

Site Supervisor

The Site Supervisor is responsible for field operations and reports to the Project Manager (PM). The Site Supervisor ensures the implementation of the HASP requirements and procedures in the field. The specific responsibilities of the Site Supervisor include:

- executing the work plan and schedule as detailed by the PM;
- coordination with the SHSO on safety and health; and
- ensuring site work compliance with the requirements of this HASP.

Site Workers

Site workers are responsible for complying with this HASP, using the proper PPE, reporting unsafe acts and conditions, and following the work and safety and health instructions of the Project Manager (PM), SHSO, and Site Supervisor.

2. Background

The Site is enrolled in the New York State Department of Environmental Conservation (NYSDEC) Inactive Hazardous Waste Disposal Site (Superfund) Program (Site No. 828161). The Site is currently operating as a commercial park owned by a private third-party (Turk Hill Park, LLC). The Site formerly operated as a food processor and cannery from 1886 to 1923 and then as a BB gun manufacturing facility (Crosman Arms) from 1923 to 1980. The Site was enrolled in the NYSDEC Superfund program due to impacts to soil and groundwater resulting from historical releases of chlorinated solvents, primarily trichloroethylene (TCE) and cist-1,2-dichloroethylene (DCE).

Relevant background information is provided below, including a general description of the Site; a brief review of the Site's history with respect to hazardous material use, handling, and/or storage; and a review of known and potential releases of hazardous substances at the Site.

2.1 Site Description

The Site is located at 1000 Turk Hill Road, Fairport, Monroe Country, New York, and is bounded by Turk Hill Road (north and south), the Erie Canal (east), and residential properties (south). The Site is approximately 7.86 acres and is currently improved with three buildings that are leased to multiple tenants and utilized for various commercial and industrial purposes. The buildings are designated Building 1 through 3, as shown on Figure 3. The buildings are surrounded with asphalt parking and landscaping, and a two-acre area located in the southern portion of the Site, which is currently wooded and not improved with buildings or asphalt.

2.2 Site History

The Site was improved with the existing three buildings in the late 1890s/early 1900s by Cobbs Canary, a food processing and canning company. Canning operations continued until the 1950s when Crosman Arms (Crosman) acquired the Site. Crossman operated the Site as a BB gun manufacturing facility until 1984. Crosman's manufacturing operations included machine coating, plating operations, cooling, painting, and degreasing. In 1984, the Site was divided into the multi-tenant commercial park referred to as Turk Hill Park.

Various environmental investigations were conducted at the Site beginning in 1990 through 2017. During these investigations contaminated soil was identified in the subsurface beneath Building 1. This portion of Building 1 was demolished in 2004 to remove the observed contamination and a new building was constructed and completed in 2006. Subsequent investigations identified impacts to soil east of Building 3 and impacts to groundwater throughout the eastern portion of the Site. Impacts to soil vapor were also identified in the areas of Building 1 and Building 3.

2.3 Known and Potential Releases of Hazardous Substances at the Site

A spill had previously occurred in the area of the former waste oil tank southeast of Building 3 when the waste oil tank was being removed. To date, high concentrations of CVOCs are present in soil and groundwater in this area.

3. Scope of Work

The initial Scope of Work will include a subcontractor performing monthly monitoring of the ten individual sub-slab depressurization systems (SSDSs) previously installed at the Site. The monitoring will include one partial day Site inspections per month to observe the SSDSs operation, collect vacuum measurements from the existing manometers and identify any potential damage or repairs required. Additionally, mowing/brush clearing events will be performed, as necessary to maintain the footpath access behind Building 1 to the SSDS blowers located along the rear of the building.

The pre-design investigation (PDI) and remedial excavation will be performed at the Site. The PDI will involve drilling and collecting soil samples and groundwater samples. The remedial activities will involve constructing a shored pit southeast of Building 3, excavating soils impacted by CVOCs from this area, and transported offsite for disposal. Clean fill will be imported to backfill the excavation. After completion of the excavation, in-situ chemical; groundwater treatment events will be conducted across the Site.

Non-routine activities that may be performed by Roux personnel include the following:

- Soil Boring and Sampling;
- Monitoring Well Installation and Sampling;
- Soil Vapor Sampling; and
- Repairs or upgrades to the existing SSDS's at the Site.

If there are any changes with the scope a revision of the HASP will be required to address any new hazards.

4. Site Control

This site control program is designed to reduce the spread of hazardous substances from contaminated areas to clean areas, to identify and isolate contaminated areas of the site, to facilitate emergency evacuation and medical care, to prevent unauthorized entry to the site, and to deter vandalism and theft.

4.1 Site Map

A map of this site, showing site boundaries, designated work zones, and points of entry and exit is provided in Figure 3.

4.2 Site Access

Access to the site is restricted to reduce the potential for exposure to its safety and health hazards. During hours of site operation, site entry and exit is authorized only at the points identified in Figure 3. Entry and exit at these points is controlled by the following: The Scotland Company (The Site Property Manager) and the Various Tenants in each building space. When the site is not operating, access to the site is controlled by the following: the property manager.

4.3 Buddy System

While working in the Exclusion Zone, site workers use the buddy system. The buddy system means that personnel work in pairs and stay in close visual contact to be able to observe one another and summon rapid assistance in case of an emergency. The responsibilities of workers using the buddy system include:

- Remaining in close visual contact with partner;
- Providing partner with assistance as needed or requested;
- Observing partner for signs of heat stress or other difficulties;
- Periodically checking the integrity of partner's PPE; and
- Notifying the site manager or other site personnel if emergency assistance is needed.

This section is not applicable to various tasks as follows:

- SSDS monitoring, operation and maintenance;
- Monitoring well gauging and sampling; and
- Site inspections, onsite meetings and collecting field measurements.

4.4 Site Communications

The following communication equipment is used to support on-site communication: mobile phones, walkie-talkies, visual hand signals.

A current list of emergency contact numbers is posted in the following locations: worker vehicle/truck, and herein.

4.5 Site Work Zones

This site is divided into three (3) major zones, described below and shown in Figure 3. These zones are characterized by presence or absence of biological and chemical hazards and the activities performed within

them. Zone boundaries are clearly marked at all times and the flow of personnel among the zones is controlled. The site is monitored for changing conditions that may warrant adjustment of zone boundaries. Zone boundaries are adjusted as necessary to protect personnel and clean areas. Whenever boundaries are adjusted, zone markings are also changed and workers are immediately notified of the change.

Exclusion Zone

The area where contamination exists is the Exclusion Zone (EZ). All areas where excavation and handling of contaminated materials take place are considered the EZ. This zone will be clearly delineated by orange high visibility fencing. Safety tape may be used as a secondary delineation within the EZ. The zone delineation markings may be opened in areas for varying lengths of time to accommodate equipment operation or specific construction activities. The SHSO may establish more than one EZ where different levels of protection may be employed or where different hazards exist. Personnel are not allowed in the EZ without:

- A buddy (co-worker)
- Required minimum level PPE
- Medical Authorization
- Training certification
- Requirement to be in the zone

Contamination Reduction Zone

A Contamination Reduction Zone (CRZ) is established between the exclusion zone and the support zone. The CRZ contains the Contamination Reduction Corridor (CRC) and provides an area for decontamination of personnel and equipment. The CRZ will be used for general Site entry and egress in addition to access for heavy equipment and emergency support services. Personnel are not allowed in the CRZ without:

- A buddy (co-worker)
- Appropriate PPE
- Medical authorization
- Training certification
- Requirement to be in the zone

Support Zone

The Support Zone (SZ) is an uncontaminated area that will be the field support area for the Site operations. Appropriate sanitary facilities and safety equipment will be located in this zone. Potentially contaminated personnel or materials are not allowed in this zone. The only exception will be appropriately packaged/decontaminated and labeled samples.

5. Job Hazard Evaluation

Roux's work at the Site is expected to entail a variety of physical, chemical, and biological hazards, all of which must be sufficiently managed to allow the work to be performed safely. Some of the hazards are Site-specific, i.e., they are associated with the nature, physical characteristics, and/or routine operation of the Site itself, while others are activity-specific, i.e., they are associated with (or arise from) the particular activity being performed. The various hazards can be grouped into the following categories:

Caught/Crushed – the potential to become caught in, under, between, or by an object or parts of an object, such as equipment with parts that open and close or move up and down ("pinch points") or equipment that rotates, and the accompanying potential to have body parts cut, mangled, or crushed thereby.

Contact – the potential to be struck by or against moving or stationary objects that can cause physical injury, such as heavy machinery, overhead piping, moving vehicles, falling objects, and equipment (including tools and hand-held equipment) or infrastructure with the ability to cut or impale.

Energy Sources – the potential for bodily harm associated with energy sources, most notably electricity, but also including latent energy sources such as compressed air and equipment under tension (which when released could cause injurious contact or a fall).

Ergonomics – the potential for musculoskeletal injury associated with lifting/carrying, pushing/pulling, bending, reaching, and other physical activity attributable to poor body position/mechanics, repetitive motion, and/or vibration.

Exposure – the potential for injury/illness due to physical, chemical, or biological exposures in the work environment, including but not limited to temperature extremes, solar radiation, and noise (physical), chemical splashes and hazardous atmospheres (chemical), and animal/insect bites and poisonous plants (biological).

Falls – the potential to slip or trip and thus fall or drop a load, resulting in bodily injury to oneself or others

The foregoing is intended to provide Roux employees with a general awareness of the hazards involved with Site work. A more detailed review of the potential hazards associated with each specific activity planned for the Site (or ongoing activity, as the case may be) is provided in the activity-specific Job Safety Analysis (JSA) forms in Appendix A. As can be seen in the JSA forms, the hazards are identified by category per the above, and specific measures designed to mitigate/manage those hazards are also identified. In preparing the JSA forms, all categories of hazards were considered, and all anticipated potential hazards were identified to the extent possible based on the experience of the personnel preparing and reviewing the JSA forms. However, there is always the possibility for an unanticipated hazard to arise, potentially as condition change over the course of the workday. Roux personnel must maintain a continual awareness of potential hazards in the work zone, regardless of whether the hazard is identified in the JSA form. Particular attention should be paid to hazards associated with exposure to hazardous substances (see Table 1 for a listing of the hazardous substances most likely to be encountered in environmental media at the Site) and to Site personnel being located "in the line of fire" with respect to moving equipment, pinch points, and latent energy, e.g., being located or having body parts located within the swing radius of an excavator, between two sections of pipe being connected, below a piece of suspended equipment, or adjacent to a compressed air line.

5.1 Employee Notification of Hazards and Overall Site Information Program

The information in the JSAs and safety data sheets is made available to all employees and subcontractors who could be affected by it prior to the time they begin their work activities. Modifications to JSAs are communicated during routine pre-work briefings.

6. Emergency Response Plan

This emergency response plan details actions to be taken in the event of site emergencies. The PM and SHSO is responsible for the implementation of emergency response procedures onsite. The SHSO/PM provides specific direction for emergency action based upon information available regarding the incident and response capabilities and initiates emergency procedures and notification of appropriate authorities. In the event of an emergency, site personnel are evacuated and do not participate in emergency response activities, response is facilitated through external emergency services.

6.1 Emergency Response

The SHSO, after investigating the incident and relevant information, shall determine the level of response required for containment, rescue and medical care. Limited on-site emergency response activities could occur therefore the SHSO is responsible for notifying external emergency response agencies. The SHSO provides relevant information to the responding organizations, including but not limited to the hazards associated with the emergency incident, potential containment problems, and missing site personnel.

6.2 Emergency Alerting and Evacuation

If evacuation notice is given, site workers leave the worksite, if possible, by way of the nearest exit. Appropriate primary and alternate evacuation routes and assembly areas have been identified and are shown on the Emergency Response Site Map Figure 4. The routes and assembly area will be determined by conditions at the time of the evacuation based on wind direction, the location of the hazard source, and other factors as determined by SHSO/PM.

Personnel exiting the site gather at a designated assembly point. To determine that everyone has successfully exited the site, personnel will be accounted for at the assembly site. If any worker cannot be accounted for, notification is given to so that appropriate action can be initiated. Subcontractors on this site have coordinated their emergency response plans to ensure that these plans are compatible and potential emergencies are recognized, alarm systems are clearly understood, and evacuation routes are accessible to all personnel relying upon them.

6.3 Emergency Medical Treatment and First Aid

In the event of a work-related injury or illness, employees are required to follow procedures outlined below. All work-place injury and illness situations require Roux's Project and Corporate Management Team to be notified when an injury / illness incident occurs, and communication with the contracted Occupational Health Care Management Provider, AllOne Health, is initiated. The Injury/Illness Notification Flowchart is provided below and within Roux's Incident Investigation and Reporting program included as Appendix D.

If onsite personnel require any medical treatment, the following steps will be taken:

a. Notify Roux's Project and Corporate Management Team for any work-related injury and/or illness occurrence, and communicate with the contracted Occupational Health Care Management Provider, AllOne Health, immediately following the notifications provided above.

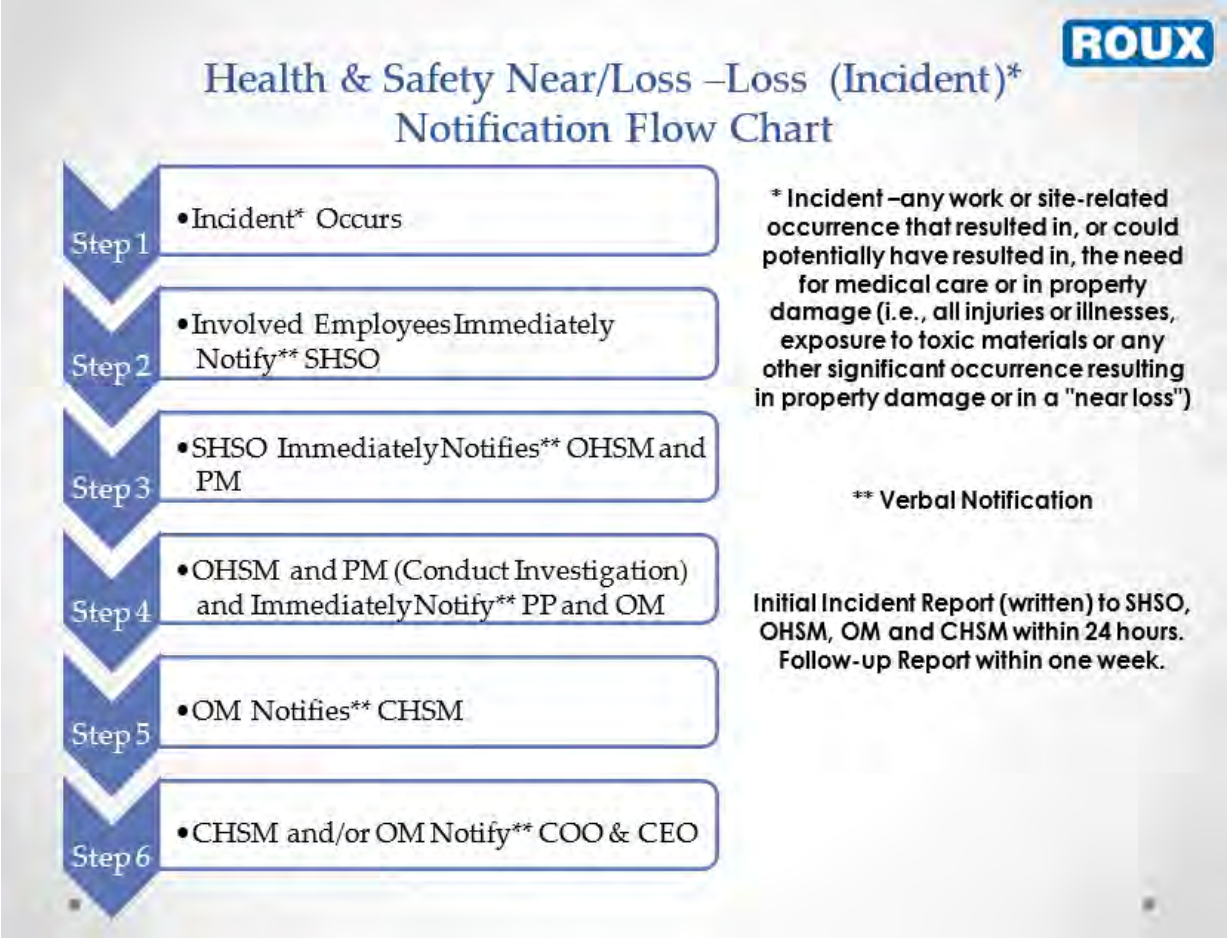
b. Based on discussions with the Project Team, Corporate Management and the AOH evaluation, if medical attention beyond onsite First Aid is warranted, transport the injured / ill person (IP) to the Urgent Care Center, or notify the Fire Department or Ambulance Emergency service and request an ambulance or transport the victim to the hospital, and continue communications with Corporate

Management Team. An Urgent Care/Hospital Route map with location to Five Start Urgent Care is included is included as Figure 5 and Figure 6.

c. Decontaminate to the extent possible prior to administration of first aid or movement to medical or emergency facilities.

d. First aid medical support will be provided by onsite personnel trained and certified in First Aid, Cardio Pulmonary Resuscitation (CPR), Automatic External Defibrillation (AED), and Blood-Borne Pathogens (BBP) Awareness, until relieved by emergency medical services (EMS).

e. The SHSO and Project Manager will perform a Loss Investigation (LI) and the Project Team will complete the final Loss Report. If a Roux employee is involved in a vehicular incident, the employee must also complete the Acord Automobile Loss Notice.



6.4 Adverse Weather Conditions

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

- Potential for heat stress and heat-related injuries.
- Potential for cold stress and cold-related injuries.
- Treacherous weather-related conditions.
- Limited visibility.

- Electrical storm potential.

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

6.5 Electrical Storm Guidelines

In the event that lightning and/or thunder are observed while working onsite, all onsite activities shall stop and personnel shall seek proper shelter (e.g., substantial building, enclosed vehicle, etc.). Work shall not resume until the threat of lighting has subsided and no lightning or thunder has been observed for 30 minutes. If the possibility of lightning is forecast for the day, advise the onsite personnel on the risks and proper procedure at the pre-work safety briefing. Continuously monitor for changing weather conditions and allow enough time to properly stop work if lightning is forecast.

7. Safety Procedures

This section of the HASP presents the specific safety procedures to be implemented during Roux's activities at the Site in order to protect the health and safety of various on-site personnel. Minimum OSHA-mandated procedures are presented first, followed by client- and Site-specific procedures. Lastly, activity-specific procedures are discussed. These Site- and activity-specific procedures supplement the general safety procedures included in Roux's Corporate Health and Safety Manual, which also must be followed in their entirely.

7.1 Training

At a minimum, Site personnel who will perform work in areas where there exists the potential for toxic exposure will be health and safety-trained prior to performing work on site per OSHA 29 CFR 1910.120(e) and 29 CFR 1926.65(e). More specifically, all Roux, subcontractor, and other personnel engaged in sampling and remedial activities at the Site and who are exposed or potentially exposed to hazardous substances, health hazards, or safety hazards must have received at a minimum the 40 hour initial HAZWOPER training consistent with the requirements of 29CFR 1910.120(e)(3)(i) training and a minimum of 3 days' actual field experience under the direct supervision of a trained experienced supervisor, plus 8 hours of refresher training on an annual basis. Depending on tasks performed, less training may be permitted. Evidence of such training must be maintained at the Site at all times. Furthermore, all on-site management and supervisory personnel directly responsible for or who supervise the employees engaged in Site remedial operations, must have received an additional 8 hours of specialized training at the time of job assignment on topics including, but not limited to, the employer's safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazard monitoring procedure and techniques, plus 8 hours of refresher training on an annual basis.

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

7.2 Site-Specific Safety Briefings for Visitors

A site-specific briefing is provided to all site visitors who enter this site beyond the site entry point. For visitors, the site-specific briefing provides information about site hazards, the site lay-out including work zones and places of refuge, the emergency alarm system and emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

7.3 HASP Information and Site-Specific Briefings for Workers

Site personnel review this HASP and are provided a site-specific tailgate briefing prior to the commencement of work to ensure that employees are familiar with this HASP and the information and requirements it contains as well as relevant JSAs. Additional briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during ongoing site characterization and analysis. Conditions for which we schedule additional briefings include, but are not limited to: changes in site conditions, changes in the work schedule/plan, newly discovered hazards, and incidents occurring during site work.

7.4 Medical Surveillance

The medical surveillance section of the Health and Safety Plan describes how worker health status is monitored at this site. Medical surveillance is used when there is the potential for worker exposure to hazardous substance at levels above OSHA permissible exposure limits or other published limits. The purpose of a medical surveillance program is to medically monitor worker health to ensure that personnel are not adversely affected by site hazards. The provisions for medical surveillance at this site are based on the site characterization and job hazard analysis found in Section 4 of this HASP and are consistent with OSHA requirements in 29 CFR 1910.120(f) and the following substance-specific requirements:

- Lead;
- TCE;
- DCE; and
- Vinyl Chloride

7.4.1 Site Medical Surveillance Program

Medical surveillance requirements are based on a worker's potential for exposure as determined by the site characterization and job hazard analysis documented in Section 4 and JSAs within Appendix A of this HASP and in compliance with the requirements of 29 CFR 1910.120(f)(2). Based on site information and use of direct reading instruments, limited use of respirators (less than 30 days per year), and the absence of an employee-staffed HAZMAT team, a limited medical surveillance program is required and implemented at this site. The medical surveillance program provides that:

1. Workers assigned to tasks requiring the use of respirators receive medical examinations in accordance with 29 CFR 1910.134(e) to ensure they are physically capable to perform the work and use the equipment.
2. If a worker is injured, becomes ill, or develops signs or symptoms of possible over-exposure to hazardous substance or health hazards, medical examinations are provided to that worker as soon as possible after the occurrence and as required by the attending physician.
3. These medical examinations and procedures are performed by or under the supervision of a licensed physician and are provided to workers free of cost, without loss of pay, and at a reasonable time and place. In addition, the need to implement a more comprehensive medical surveillance program will be re-evaluated after any apparent over-exposure.

7.4.2 Medical Recordkeeping Procedures

Medical recordkeeping procedures are consistent with the requirements of 29 CFR 1910.1020 and are described in the company's overall safety and health program. A copy of that program is available at our Islandia, NY office.

The following items are maintained in worker medical records:

- Respirator fit test and selection
- Physician's medical opinion of fitness for duty (pre-placement, periodic, termination)
- Physician's medical opinion of fitness for respirator protection (pre-placement, periodic)
- Exposure monitoring results

7.4.3 Program Review

The medical program is reviewed to ensure its effectiveness. The Corporate Health and Safety Manager in coordination with the Human Resources Director is responsible for this review. At minimum, this review consists of:

- Review of accident and injury records and medical records to determine whether the causes of accidents and illness were promptly investigated and whether corrective measures were taken wherever possible;
- Evaluation of the appropriateness of required medical tests based on site exposures; and
- Review of emergency treatment procedures and emergency contacts list to ensure they were site-specific, effective, and current.

7.5 Personnel Protection

Site safety and health hazards are eliminated or reduced to the greatest extent possible through engineering controls and work practices. Where hazards are still present, a combination of engineering controls, work practices and PPE are used to protect employees. Appropriate personal protective equipment (PPE) shall be worn by Site personnel when there is a potential exposure to chemical hazards or physical hazards (e.g., falling objects, flying particles, sharp edges, electricity and noise), as determined by the SHSO. The level of personal protection, type and kind of equipment selected will depend on the hazardous conditions and in some cases cost, availability, compatibility with other equipment, and performance. An accurate assessment of all these factors will be made before work can be safely executed.

Roux maintains a comprehensive written PPE program that addresses proper PPE selection, use, maintenance, storage, fit and inspection. PPE to be used at the Site will meet the appropriate American National Standards Institute (ANSI) standards and the following OSHA (General Industry) standards for minimum PPE requirements.

The minimum level of PPE for entry onto the Site is Level D. The following equipment shall be worn:

- Work uniform (long pants, sleeved shirt)
- Hard hat
- Steel or composite toe work boots
- Safety Glasses (must comply with one of the following ANSI/ISEA Z87.1-2010, ANSI Z87.1-2003, ANSI Z87.1-2003)
- Boot Covers (as needed)
- Hearing Protection (as needed)
- High visibility clothing (shirt/vest)
- Hand Protection (e.g., minimum cut resistance meeting ANSI 105-2000 Level 2)

Note that jewelry shall be removed or appropriately secured to prevent it from becoming caught in rotating equipment or unexpectedly snagged on a fixed object. (e.g., wrist watches bracelets, rings, chains and necklaces, open earrings). Do not wear loose clothing and all shoulder length hair should be tied back.

Site specific PPE ensembles and materials are identified within task specific JSAs located within **Appendix A**, and any upgrades or downgrades of the level of protection (i.e., not specified in the JSA) must

be immediately communicated to all Roux personnel and subcontractors as applicable. PPE is used in accordance with manufacturer's recommendations.

7.6 Monitoring

An air monitoring program is important to the safety of on- and off-Site personnel. A preliminary survey, to establish background conditions in the immediate sampling area, may be made prior to the initiation of Site work including, but not limited to, monitoring wind direction and approximate temperature during all invasive site activities. This survey will be conducted with the appropriate air monitoring instrument(s) as warranted by the field activity. Once this survey has been complete, any change in the type of PPE will be determined.

Air monitoring may be performed to verify that the proper level of equipment is used and to determine if increased protection or work stoppage is required. The following equipment may be used to monitor conditions:

- Photoionization Detector (PID); or
- Five Gas Monitor with PID, Lower Explosion Limit (LEL), Oxygen Meter, Carbon Monoxide (CO) and Hydrogen Sulfide (H_2S).

Monitoring equipment will be calibrated in accordance with applicable regulatory requirements and manufacturer specifications.

Below are monitoring action levels for Site-specific chemicals of concern. In the event that PID readings above the thresholds identified below are sustained for 5 minutes in the breathing zone, worker protection will require upgrading following notification to the OHSM and applicable parties (e.g., client, board of health, regulators, etc.).

OVM/Multi-gas Meter Action Levels

Action Levels for Respiratory Protection	
OVM Reading in Breathing Zone (ppm)	
<5	No Action
≥5 - <25	Level C
≥25	Cease Field Operations
Multi-gas Reading in Breathing Zone (%)	
LEL ≥2	Cease Field Operations
O_2 <19.5 or >21.5	Cease Field Operations

7.7 Tailgate Safety Meetings

A designated Site worker will provide daily safety briefings (e.g., tailgate meetings) including, but not limited to, the following scenarios:

- When new operations are to be conducted;
- Whenever changes in work practices must be implemented; and
- When new conditions are identified and/or information becomes available.

Daily safety briefings shall be recorded on the Roux Daily Tailgate Health and Safety Meeting Log/Daily Site Safety Checklist, and all completed forms will become a part of the project file.

7.8 Spill Containment

Spill containment equipment and procedures should, at a minimum, meet the requirements of the facility's Spill Prevention, Control and Countermeasure Plan, if applicable. Otherwise, spill containment equipment and procedures must be considered depending on the task including, but no limited to, chemical/product transfer points and handling.

7.8.1 Initial Spill Notification and Response

Any worker who discovers a hazardous substance spill will immediately notify Mr. Christopher Battista/Senior Construction Manager. The worker will, to his/her best ability, report the hazardous substance involved, the location of the spill, the estimated quantity of material spilled, the direction/flow of the spill material, related fire/explosion incidents, and any associated injuries without compromising their own safety.

7.8.2 Spill Evaluation and Response

Mr. Christopher Battista/Senior Construction Manager is responsible for evaluating spills and determining the appropriate response. When this evaluation is being made, the spill area will be isolated and demarcated to the extent possible. If necessary to protect nearby community members, notification of the appropriate authorities is made by the PM as appropriate. On-site response is limited to small spills (e.g., <10 gallons), large spills require external emergency responders who will be contacted by the SHSO.

7.9 Decontamination

The decontamination section of the HASP describes how personnel and equipment are decontaminated when they leave the Exclusion Zone. This section also describes how residual waste from decontamination processes is disposed. The site decontamination procedures are designed to achieve an orderly, controlled removal or neutralization of contaminants that may accumulate on personnel or equipment. These procedures minimize worker contact with contaminants and protect against the transfer of contaminants to clean areas of the site and off-site. They also extend the useful life of PPE by reducing the amount of time that contaminants contact and can permeate PPE surfaces. Decontamination is facilitated within the contamination reduction zone at this site.

7.9.1 Decontamination Procedures for Personnel and PPE

The following are general decontamination procedures established and implemented at this site.

1. Decontamination is required for all workers exiting a contaminated area. Personnel may re-enter the Support Zone only after undergoing the decontamination procedures described below in the next section.
2. Protective clothing is decontaminated, cleaned, laundered, maintained and/or replaced as needed to ensure its effectiveness.
3. PPE used at this site that requires maintenance or parts replacement is decontaminated prior to repairs; or
4. PPE used at this site is decontaminated or prepared for disposal on the premises. Personnel who handle contaminated equipment have been trained in the proper means to do so to avoid hazardous exposure.

5. This site uses an off-site laundry for decontamination of PPE. The site has informed that facility of the hazards associated with contaminated PPE from this site.
6. The site requires and trains workers that if their permeable clothing is splashed or becomes wetted with a hazardous substance, they will immediately exit the work zone, perform applicable decontamination procedures, shower, and change into uncontaminated clothing.
7. Procedures for disposal of decontamination waste meet applicable local, State, and Federal regulations.

7.9.2 Decontamination Procedures for Equipment

All tools, equipment, and machinery from the Exclusion Zone or CRZ are decontaminated in the CRZ prior to removal to the Support Zone. Equipment decontamination procedures are designed to minimize the potential for hazardous skin or inhalation exposure and to avoid cross-contamination and chemical incompatibilities.

General Equipment Decontamination Procedures:

1. Decontamination is required for all equipment exiting a contaminated area. Equipment may re-enter the Support Zone only after undergoing the equipment decontamination procedures.
2. Vehicles that travel regularly between the contaminated and clean areas of the site are carefully decontaminated each time they exit the Exclusion Zone and the effectiveness of that decontamination is monitored to reduce the likelihood that contamination will be spread to other parts of the site.
3. Particular attention is given to decontaminating tires, scoops, and other parts of heavy equipment that are directly exposed to contaminants and contaminated soil.

The following items may be used to decontaminate equipment:

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

7.9.3 Monitoring the Effectiveness of Decontamination Procedures

Visual examination and sampling are used to evaluate the effectiveness of decontamination procedures. Visual examination is used to ensure that procedures are implemented as described and that they appear to control the spread of contaminants under changing site conditions. Visual examination is also used to inspect for signs of residual contamination or for contaminant permeation of PPE.

Personnel who work in contaminated areas of the site, either the Contamination Reduction Zone (CRZ) or the Exclusion Zone, are trained in the principles and practices of decontamination described in this section of the HASP and in related SOPs. If site procedures are changed as a result of inspection and monitoring, all affected employees are notified of these changes.

7.10 Confined Space Entry

Confined space entry is not expected to be performed at this Site.

The following is a list of the safety requirements for confined space entry at the Site:

- **ROUX PERSONNEL ARE NOT AUTHORIZED TO ENTER AN OSHA PERMIT REQUIRED CONFINED SPACE;**
- Currently the scope of work **DOES NOT** require personnel to enter permitted confined space for this project; and
- Any changes to the field activities that may necessitate confined space entry will be reported to the Project Principal and OHSM.

Confined space is defined as any space, depression, or enclosure that:

- Has limited opening for entry and egress;
- Is large enough for and employee to enter and perform assigned work; and
- Is not intended for continuous occupancy.

A permit required confined space is one that meets the definition of a confined space and has one or more of the following characteristics:

- May contain or produce life-threatening atmospheres due to oxygen deficiency the presence of toxic, flammable, or corrosive contaminants;
- Contains a material that has the potential for engulfment;
- Has an internal configuration that may cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section; and
- Contains any other serious safety or health hazards.

Although Roux personnel will not perform confined space entry, it is expected that subcontractors performing cleaning and mitigation and/or remedial measures activities may be required to enter structures that are considered to be a permit required confined space. Permitting of the confined space as well as hazard mitigation for entry will be completed by the subcontractor in accordance with 1910.146.

7.11 Client and Site-Specific

In addition to the OSHA-specific procedures discussed above, there may be client and site-specific safety procedures that must be adhered to during the performance of remedial activities at the Site.

7.12 Unusual or Significant Risks

Field activities that appear to have unusual or significant risks that cannot be adequately managed with existing risk tools such as LPS, HASPs, traffic safety plans, work permits, design and O&M practices, equipment HAZOPS or other safety tools must be referred to the CHSM to help with the assessment and management of the associated potential safety risks. Examples include the use of explosives for demolition, use of firearms to control wildlife, rappelling, demolition over water, etc.

7.13 Activity-Specific

In addition to the general hazards discussed above, there are activity-specific hazards associated with each work activity planned for the Site. An activity-specific JSA has been completed for each of the activities planned for the Site. JSAs are provided in **Appendix A**. In the event that new work activities or tasks are planned, JSAs will be developed and implemented prior to performing the new activities. In the absence of a JSA, the personnel performing work must prepare a field JSA and receive clearance from a designated competent safety official prior to performing any task with significant risk. In emergency situations where time is critical SPSAs will be utilized to identify the task, associated hazards and mitigative actions to take. For lower risk activities (as deemed by the discretion of a Competent Person) where a JSA is determined to not be needed, the individual(s) conducting the activities must perform SPSAs prior to and during the work.

8. Field Team Review

Each person performing work at or visiting this site shall sign this section after site-specific training is completed and before being permitted to access the CRZ or Exclusion Zone.

I have read and understand this Site-Specific Health and Safety Plan. I will comply with the provision contained therein.

Site/Project: Turk Hill Park, 1000 Turk Hill Road, Fairport, New York.

Name Printed	Signature	Date
Thalassa Sodre		
Matthew Smith		

9. Approvals

By their signature, the undersigned certify that this HASP is approved and will be utilized at the Turk Hill Park Facility.

N/A – Site Health and Safety Officer (see field team above)	Date
Levi Curnutte - Office Health and Safety Manager (for high risk projects: Brian Hobbs, CIH, CSP – Corporate Health and Safety Manager)	Date
Christopher Battista – Project Manager	Date
Nathan Epler – Project Principal	Date

TABLE

1. Toxicological Properties of Hazardous Substances Present at the Site

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 1000 Turk Hill Road, Fairport, NY

Compound	CAS #	EMBSI OEL	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Acenaphthene	83-32-9	None established	None established	None established	None established	None established	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system	Eyes, skin, respiratory system	Brown solid
Acetone	67-64-1	None established	TWA 250 ppm STEL 500 ppm	TWA 250 ppm (590 mg/m^3)	TWA 1000 ppm (2400 mg/m^3)	2500 ppm [10%LEL]	inhalation, ingestion, skin and/or eye contact	Irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a fragrant, mint-like odor BP: 133°F Fl.P: 0°F UEL: 12.8% LEL: 2.5% Class IB Flammable Liquid
Anthracene (Coal Tar Pitch Volatiles)	65996-93-2	None established	TWA 0.2 mg/m^3	Ca TWA 0.1 mg/m^3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m^3 (benzene-soluble fraction)	Ca [80 mg/m^3]	inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue. Combustible Solids
Antimony	7440-36-0	None established	TWA 0.5 mg/m^3	TWA 0.5 mg/m^3	TWA 0.5 mg/m^3	50 mg/m^3 (as Sb)	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, mouth; cough; dizziness; headache; nausea, vomiting, diarrhea; stomach cramps; insomnia; anorexia; unable to smell properly	Eyes, skin, respiratory system, cardiovascular system	Silver-white, lustrous, hard, brittle solid; scale-like crystals; or a dark-gray, lustrous powder. BP: 2975°F
Arsenic (inorganic)	7440-38-2 (metal)	None established	TWA 0.01 mg/m3	Ca C 0.002 mg/m3 [15-min]	TWA 0.010 mg/m3	Ca [5 mg/m3 (as As)]	Inhalation; ingestion; skin absorption; skin and/or eye contact	Ulceration of nasal septum, dermatitis, GI disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin, [potential occupational carcinogen]	Liver, kidneys, skin, lungs, lymphatic sys	Metal: sliver-gray or tin-white, brittle, odorless solid BP: sublimes
Asphalt fumes	8052-42-4	None established	TWA 0.5 mg/m^3(fumes)	Ca C 5 mg/m3 [15 min]	None established	Ca [IDLH value has not been determined]	Skin absorption; inhalation; skin and/or eye contact	Irritation eyes, respiratory system	Eyes, respiratory system	Black or dark brown cement-like substance Combustible solid
Barium	7440-39-3	None established	TWA 0.5 mg/m3	None established	TWA 0.5 mg/m3	None established	Inhalation, ingestion, skin contact	Irritation skin, respiratory system, digestive system	Skin, eyes, respiratory system	Yellow white powder BP: 1640 C
Benzene	71-43-2	TWA 0.5 ppm STEL 1 ppm	TWA 0.5 ppm STEL 2.5 ppm	Ca TWA 0.1 ppm STEL 1 ppm	TWA 1 ppm ST 5 ppm	Ca [500 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen]	Eyes, skin, respiratory system, blood, central nervous system, bone marrow	Colorless to light yellow liquid with an aromatic odor [Note: Solid below 42 °F] BP: 176°F Fl.Pt. = 12°F LEL: 1.2% UEL: 7.8% Class B Flammable liquid
Benz[a]anthracene	56-55-3	None established	None established [skin cancer]	None established	None established	None established	Inhalation; ingestion; skin absorption; skin and/or eye contact	Irritation eyes, skin, respiratory system, CNS; skin cancer	Skin	Pale Yellow crystal, solid BP: 438 C
Benzo[a]pyrene	50-32-8	None established	None established [cancer]	TWA 0.1 mg/m3	TWA 0.2 mg/m3	None established	Inhalation; ingestion; skin absorption; skin and/or eye contact	POISON. This material is an experimental carcinogen, mutagen, tumorigen, neoplastigen and teratogen. It is a probable carcinogen in humans and a known human mutagen. IARC Group 2A carcinogen. It is believed to cause bladder, skin and lung cancer. Exposure to it may damage the developing fetus. May cause reproductive damage. Skin, respiratory and eye irritant or burns.	Skin, eye, bladder, lung, reproductive	Yellow crystals or powder [found in cigarette smoke, coal tar, fuel exhaust gas and in many other sources] BP: 495 C
Benzo[b]fluoranthene	205-99-2	None established	None established [cancer]	TWA 0.1 mg/m3	TWA 0.2 mg/m3	None established	Inhalation; ingestion; skin and/or eye contact	No data were identified on the toxicity of benzo[b]fluoranthene to humans. Based on results of studies in animals, IARC concluded that benzo[b]fluoranthene is possibly carcinogenic to humans	Respiratory system, skin, bladder, kidneys	Off-white to tan powder
Benzo[k]fluoranthene	207-08-9	None established	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory tract, gastrointestinal; fatal if swallowed, inhaled, absorbed through the skin; vomiting, nausea, diarrhea	Lungs, respiratory system	Yellow crystals BP: 480 C
Beryllium	7440-41-7 (metal)	None established	TWA 0.00005 mg/m^3	Ca C 0.0005 mg/m^3	TWA 0.002 mg/m^3 C 0.005 mg/m^3 (30 minutes) with a maximum peak of 0.025 mg/m^3	Ca [4 mg/m^3 (as Be)]	inhalation, skin and/or eye contact	Berylliosis (chronic exposure): anorexia, weight loss, lassitude (weakness, exhaustion), chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency; irritation eyes; dermatitis; [potential occupational carcinogen]	Eyes, skin, respiratory system	Metal: A hard, brittle, gray-white solid. BP: 4532°F
Bis(2-ethylhexyl) phthalate (Di(2-ethylhexyl)phthalate)	117-81-7	None established	TWA 5 mg/m^3	TWA 5 mg/m^3 STEL 10 mg/m3 (do not exceed during any 15-minute work period)	TWA 5 mg/m^3	None established	inhalation, skin and/or eye contact	Irritation eyes, skin, nose, throat; affect the nervous system and liver; damage to male reproductive glands	Eyes, skin, nose, respiratory system, nervous system, reproductive system, liver	Colorless to light colored, thick liquid with slight odor
Butane	106-97-8	None established	STEL 1000 ppm	TWA 800 ppm (1900 mg/m^3)	None established	None established	inhalation, skin and/or eye contact (liquid)	Drowsiness, narcosis, asphyxia; liquid: frostbite	central nervous system	Colorless gas with a gasoline-like or natural gas odor. BP: 31°F UEL: 8.4% LEL: 1.6% Flammable Gas
2-Butanone (Methyl Ethyl Ketone or MEK)	78-93-3	None established	TWA 200 ppm (590 mg/m^3) STEL 300 ppm (885 mg/m^3)	TWA 200 ppm (590 mg/m^3) STEL 300 ppm (885 mg/m^3)	TWA 200 ppm (590 mg/m^3)	3000 ppm	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose; headache; dizziness; vomiting; dermatitis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a moderately sharp, fragrant, mint- or acetone-like odor. BP: 175°F Fl.P: 16°F UEL(200°F): 11.4% LEL(200°F): 1.4% Class IB Flammable Liquid

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 1000 Turk Hill Road, Fairport, NY

Compound	CAS #	EMBSI OEL	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
n-Butylbenzene	104-51-8	None established	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; CNS depression, lung damage; nausea, vomiting, headache, dizziness, weakness, loss of coordination, blurred vision, drowsiness, confusion, disorientation	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a sweet odor BP: 183 C Fl.P: 59 C UEL: 5.8% LEL: 0.8%
sec-Butylbenzene	135-98-8	None established	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, upper airway; central nervous system, headache, dizziness; gastrointestinal disturbance	Respiratory system, central nervous system, eyes, skin;	Colorless liquid BP: 344°F Fl.P: 126 °F UEL: 6.9% LEL: 0.8% Combustible liquid
tert-Butylbenzene	98-06-6	None established	None established	None established	None established	None established	inhalation, skin absorption, ingestion,	Eye and respiratory irritant; CNS depression; liver or kidney damage	Respiratory system, central nervous system, eyes, liver, kidney	Colorless liquid with an aromatic odor BP: 168 - 169 C Fl.P: 34 C UEL:5.6 % LEL: 0.8 %
Cadmium	7440-43-9 (metal)	None established	TWA 0.01 mg/m^3	Ca	TWA 0.005 mg/m^3	Ca [9 mg/m^3 (as Cd)]	inhalation, ingestion	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]	respiratory system, kidneys, prostate, blood	Metal: Silver-white, blue-tinged lustrous, odorless solid. BP: 1409°F
Carbon Disulfide	75-15-0	None established	TWA 1 ppm	TWA 1 ppm (3 mg/m^3) STEL 10 ppm (30 mg/m^3) [skin]	TWA 20 ppm C 30 ppm 100 ppm (30-minute maximum peak)	500 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Dizziness, headache, poor sleep, lassitude (weakness, exhaustion), anxiety, anorexia, weight loss; psychosis; polyneuropathy; Parkinson-like syndrome; ocular changes; coronary heart disease; gastritis; kidney, liver injury; eye, skin burns; dermatitis; reproductive effects	central nervous system, peripheral nervous system, cardiovascular system, eyes, kidneys, liver, skin, reproductive system	Colorless to faint-yellow liquid with a sweet ether-like odor. BP: 116°F Fl.P: -22°F UEL: 50.0% LEL: 1.3% Class IB Flammable Liquid
Carbon Monoxide	630-08-0	None established	TWA 25 ppm	TWA 35 ppm C 200 ppm	TWA 50 ppm	1,200 ppm	inhalation	Carboxyhemogloemia	Blood	Colorless, odorless gas
Chlorobenzene	108-90-7	None established	TWA 10 ppm	None established	TWA 75 ppm (350 mg/m^3)	1000 ppm	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose; drowsiness, incoordination; central nervous system depression; in animals: liver, lung, kidney injury	Eyes, skin, respiratory system, central nervous system, liver	Colorless liquid with an almond-like odor BP: 270°F Fl.P: 82°F UEL: 9.6% LEL: 1.3%
Chloroethane (Ethyl Chloride)	75-00-3	None established	TWA 100ppm	Handle with caution in the workplace	TWA 1000 ppm (2600 mg/m^3)	3800 ppm [10%LEL]	inhalation, skin absorption (liquid), ingestion (liquid), skin and/or eye contact	Incoordination, inebriation; abdominal cramps; cardiac arrhythmias, cardiac arrest; liver, kidney damage	Liver, kidneys, respiratory system, cardiovascular system, central nervous system	Colorless gas or liquid (below 54°F) with a pungent, ether-like odor. BP: 54°F Fl.P: NA (Gas) -58°F (Liquid) UEL: 15.4% LEL: 3.8% Flammable Gas
Chloroform	67-66-3	None established	TWA 10 ppm	Ca STEL 2 ppm (9.78 mg/m^3) [60-minute]	C 50 ppm (240 mg/m^3)	Ca [500 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; dizziness, mental dullness, nausea, confusion; headache, lassitude (weakness, exhaustion); anesthesia; enlarged liver; [potential occupational carcinogen]	Liver, kidneys, heart, eyes, skin, central nervous system	Colorless liquid with a pleasant odor BP: 143°F
Chromium	7440-47-3	None established	TWA 0.5 mg/m^3 (metal and Cr III compounds) TWA 0.05 mg/m^3 (water-soluble Cr VI compounds) TWA 0.01 mg/m^3 (insoluble Cr IV compounds)	TWA 0.5 mg/m^3	TWA 1 mg/m^3	250 mg/m^3 (as Cr)	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; lung fibrosis (histologic)	Eyes, skin, respiratory system	Blue-white to steel-gray, lustrous, brittle, hard, odorless solid. BP: 4788°F
Chrysene; Phenanthrene; Pyrene; Coal tar pitch volatiles	65996-93-2	None established	TWA 0.2 mg/m3	Ca TWA 0.1 mg/m^3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m^3 (benzene-soluble fraction)	Ca [80 mg/m^3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue. Combustible Solids
Coal Tar Pitch Volatiles; Chrysene; Phenanthrene; Pyrene	65996-93-2	None established	TWA 0.2 mg/m^3	Ca TWA 0.1 mg/m^3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m^3 (benzene-soluble fraction)	Ca [80 mg/m^3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue. Combustible Solids
Copper	7440-50-8	None established	TWA 0.2mg/m^3 (fume) 1 mg/m^3 (dusts and mists)	TWA 1 mg/m^3	TWA 1 mg/m^3	100 mg/m^3 (as Cu)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, respiratory system; cough, dyspnea (breathing difficulty), wheezing	Eyes, skin, respiratory system, liver, kidneys (increase(d) risk with Wilson's disease)	Noncombustible Solid in bulk form, but powdered form may ignite. BP: 4703°F
Crude Oil	8002-05-9	None established	None established	TWA 350 mg/m3	None established	1100 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system; lung damage; dermatitis; central nervous system effects	central nervous system	Viscous clear, yellow, brown, greenish black liquid, strong hydrocarbon and sulfur (rotten egg) odor when containing H2S. BP: 30 -1000°F Fl.Pt.: -40°F LEL: 3% UEL: 12.5% Flammable liquid and vapor
1,2-Dichlorobenzene	95-50-1	None established	TWA 25 ppm STEL 50 ppm	C 50 ppm (300 mg/m^3)	C 50 ppm (300 mg/m^3)	200 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; liver, kidney damage; skin blisters	Eyes, skin, respiratory system, liver, kidneys	Colorless to pale-yellow liquid with a pleasant, aromatic odor. [herbicide] BP: 357°F Fl.P: 151°F UEL: 9.2% LEL: 2.2% Class IIIA Combustible Liquid
1,4-Dichlorobenzene	106-46-7	None established	TWA 10 ppm	Ca	TWA 75 ppm (450 mg/m^3)	Ca [150 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Eye irritation, swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; in animals: liver, kidney injury; [potential occupational carcinogen]	Liver, respiratory system, eyes, kidneys, skin	Colorless or white crystalline solid with a mothball-like odor. [insecticide] BP: 345°F Fl.P: 150°F LEL: 2.5% Combustible Solid

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 1000 Turk Hill Road, Fairport, NY

Compound	CAS #	EMBSI OEL	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
1,1-Dichloroethane	75-34-3	None established	TWA 100 ppm	TWA 100 ppm (400 mg/m^3)	TWA 100 ppm (400 mg/m^3)	3000 ppm	inhalation, ingestion, skin and/or eye contact	Irritation skin; central nervous system depression; liver, kidney, lung damage	Skin, liver, kidneys, lungs, central nervous system	Colorless, oily liquid with a chloroform-like odor. BP: 135°F Fl.P: 2°F UEL: 11.4% LEL: 5.4%
1,2-Dichloroethane (Ethylene Dichloride)	107-06-2	None established	TWA 10 ppm	Ca TWA 1 ppm (4 mg/m^3) STEL 2 ppm (8 mg/m^3)	TWA 50 ppm C 100 ppm 200 ppm [5-minute maximum peak in any 3 hours]	Ca [50 ppm]	inhalation, ingestion, skin absorption, skin and/or eye contact	Irritation eyes, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; [potential occupational carcinogen]	Eyes, skin, kidneys, liver, central nervous system, cardiovascular system	Colorless liquid with a pleasant, chloroform-like odor. [Note: Decomposes slowly, becomes acidic & darkens in color.] BP: 182°F Fl.P: 56°F UEL: 16% LEL: 6.2% Class IB Flammable Liquid
1,2-Dichloroethene (total)	540-59-0	None established	TWA 200 ppm	TWA 200 ppm (790 mg/m^3)	TWA 200 ppm (790 mg/m^3)	1000 ppm	inhalation, ingestion, skin and/or eye contact	Irritation eyes, respiratory system; central nervous system depression	Eyes, respiratory system, central nervous system	Colorless liquid (usually a mixture of the cis & trans isomers) with a slightly acrid, chloroform-like odor BP: 118-140°F Fl.P: 36-39°F UEL: 12.8% LEL: 5.6% Class IB Flammable Liquid
cis-1,2-Dichloroethene	156-59-2	None established	TWA 200 ppm	TWA 200 ppm	TWA 200 ppm	None established	inhalation, skin absorption, ingestion	Harmful if swallowed, inhaled, or absorbed through skin. Irritant. Narcotic. Suspected carcinogen	Skin	Colorless liquid BP: 60 C Fl.P: 4 C UEL: 12.8% LEL: 9.7 %
trans-1,2-Dichloroethene	156-60-5	None established	TWA 200 ppm	None established	TWA 200 ppm STEL 250 ppm (skin)	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Narcotic. Irritation eyes, skin, respiratory tract, mucous membrane; CNS depression.	Respiratory tract, mucous membrane, eyes, skin, CNS	Colorless liquid with a fruity pleasant odor BP: 48°C Fl.P 6C UEL: 12.8% LEL: 9.7%
Dibenzo[a,h]anthracene	53-70-3	None established	None established	None established	None established	None established	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin	Eyes, skin; skin photosensitization.	Colorless crystalline powder BP: 524°C
Diesel Fuel #2	68476-34-6	TWA 200 mg/m3 (vapor) TWA 5 mg/m3 (stable aerosol)	TWA 100 mg/m^3; Skin notation	None established	Designated as an OSHA Select Carcinogen	None established	ingestion, skin and/or eye contact	Kidney damage; potential lung damage; suspected carcinogen; irritation of eyes, skin, respiratory tract; dizziness, headache, nausea; chemical pneumonitis (from aspiration of liquid); dry, red skin; irritant contact dermatitis; eye redness, pain.	Eyes, skin, kidneys	Clear yellow brown combustible liquid; floats on water; distinct diesel petroleum hydrocarbon odor. BP: 356-716°F Fl.P: 154.4-165.2°F LEL: 0.6% UEL: 7.0%
2,4-Dimethylphenol	105-67-9	None established	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system, mouth, throat, stomach; dizziness, weakness, fatigue, nausea, headache; systemic damage; moderate to severe eye injury.	Skin, CVS, eyes, CNS	Clear, colorless liquid with a faint ether or chloroform-like odor BP: 178°F
Duosol	78207-03-1	None established	None established	None established	None established	None established	ingestion, skin and/or eye contact	Irritation eyes, skin; Dermatitis	Eyes, skin	White solid with alcohol odor
Ethylbenzene	100-41-4	TWA 87 mg/m+C80	TWA 20 ppm	TWA 100 ppm (435 mg/m^3) STEL 125 ppm (545 mg/m^3)	TWA 100 ppm (435 mg/m^3)	800 ppm [10%LEL]	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eyes, skin, respiratory system, central nervous system	Colorless liquid with an aromatic odor. BP: 277°F Fl.P: 55°F UEL: 6.7% LEL: 0.8% Class IB Flammable Liquid
Fluoranthene	206-44-0	None established	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; possible burns; heart and liver injury, pulmonary edema, respiratory arrest, gastrointestinal disturbances.	Heart, liver, lungs.	Yellow needles.
Fluorene	86-73-7	None established	None established	None established	None established	None established	inhalation, ingestion, skin and/or eye contact	Irritation skin, digestive tract	Skin	White crystals BP: 563°F
Fuel Oil #2	68476-30-2	None established	TWA 100 mg/m3; Skin notation	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; CNS effects; nausea, vomiting, headache, cramping, dizziness, weakness, loss of coordination,, drowsiness; kidney, liver damage	Eyes, skin, CNS	Clear or yellow to red oily liquid, kerosene-like odor BP: 347 - 689 °F UEL:5-6% LEL: 0.7-1.0%
Furfural	98-01-1	None established	TWA 2 ppm	None established	TWA 5 ppm (20 mg/m^3) [skin]	100 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, upper respiratory system; headache; dermatitis	Eyes, skin, respiratory system	Colorless to amber liquid with an almond-like odor. BP: 323°F Fl.P: 140°F UEL: 19.3% LEL: 2.1% Class IIIA Combustible Liquid
Gasoline	8006-61-9	TWA 100 ppm STEL 200 ppm	TWA 300 ppm STEL 500 ppm	Carcinogen	None established	Ca [IDLH value has not been determined]	Skin absorption; inhalation; ingestion; skin and/or eye contact	Eyes and skin irritation, mucous membrane; dermatitis; headache; listlessness, blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis; possible liver, kidney damage [Potential occupational carcinogen]	Eyes, skin, respiratory system, CNS, Liver, Kidneys	Clear liquid with a characteristic odor, aromatic Fl.Pt. = -45°F LEL = 1.4% UEL = 7.6% Class 1B Flammable Liquid

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 1000 Turk Hill Road, Fairport, NY

Compound	CAS #	EMBSI OEL	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Hexachlorobutadiene	87-68-3	None established	TWA 0.02 ppm	Ca TWA 0.02 ppm (0.24 mg/m^3) [skin]	None established	Ca [N.D.]	inhalation, skin absorption, ingestion, skin and/or eye contact	In animals: irritation eyes, skin, respiratory system; kidney damage; [potential occupational carcinogen]	Eyes, skin, respiratory system, kidneys	Clear, colorless liquid with a mild, turpentine-like odor. BP: 419°F
Hydrogen Sulfide	7783-06-4	TWA 5 ppm STEL 10 ppm	TWA 1 ppm STEL 5 ppm	C 10 ppm (15 mg/m^3) [10-minute]	C 20 ppm 50 ppm [10-minute maximum peak]	100 ppm	inhalation, skin and/or eye contact	Irritation eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, lassitude (weakness, exhaustion), irritability, insomnia; gastrointestinal disturbance; liquid frostbite	Eyes, respiratory system, central nervous system	Colorless gas with a strong odor of rotten eggs. BP: -77°F UEL: 44.0% LEL: 4.0% Flammable Gas
Indeno[1,2,3-cd]pyrene	193-39-5	None established	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; possible human carcinogen (skin); weakness; affect liver, lung tissue, renal tissue; impairment of blood forming tissue	Skin	Fluorescent green-yellow crystalline solid BP: 536 C
Isopropylbenzene (Cumene)	98-82-8	None established	TWA 50 ppm	TWA 50 ppm (245 mg/m^3) [skin]	TWA 50 ppm (245 mg/m^3) [skin]	900 ppm [10%LEL]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; dermatitis; headache, narcosis, coma	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a sharp, penetrating, aromatic odor. BP: 306°F Fl.P: 96°F UEL: 6.5% LEL: 0.9%
p-Isopropyltoluene	99-87-6	None established	None established	None established	None established	None established	inhalation, skin absorption, eye contact	Irritation skin	CNS, skin	Colorless, clear liquid, sweetish aromatic odor BP: 350.8°F Class III Flammable liquid
Kerosene	8008-20-6	TWA 200 mg/m3 (vapor) TWA 5 mg/m3 (stable aerosol)	TWA 200 mg/m^3	TWA 100 mg/m^3	None established	IDLH value has not been determined	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eyes, skin, respiratory system, central nervous system	Colorless to yellowish, oily liquid with a strong characteristic odor. BP: 347-617°F Fl.P: 100-162°F UEL: 5% LEL: 0.7% Class II Combustible Liquid
Lead (inorganic)	7439-92-1	None established	TWA 0.05 mg/m^3	TWA (8-hour) 0.050 mg/m^3	TWA 0.050 mg/m^3	100 mg/m^3 (as Pb)	inhalation, ingestion, skin and/or eye contact	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension	Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue	A heavy, ductile, soft, gray solid. BP: 3164°F Noncombustible Solid in bulk form
Manganese	7439-96-5 (metal)	None established	TWA 0.02 mg/m^3	TWA 1 mg/m^3 STEL 3 mg/m^3	C 5 mg/m^3	500 mg/m^3 (as Mn)	inhalation, ingestion	Manganism; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever; low-back pain; vomiting; malaise (vague feeling of discomfort); lassitude (weakness, exhaustion); kidney damage	respiratory system, central nervous system, blood, kidneys	A lustrous, brittle, silvery solid. BP: 3564°F
Mercury (organo) alkyl compounds (as Hg)	7439-97-6	None established	TWA 0.01 mg/m^3 STEL 0.03 mg/m^3 [skin]	TWA 0.01 mg/m^3 STEL 0.03 mg/m^3 [skin]	TWA 0.01 mg/m^3 C 0.04 mg/m^3	2 mg/m^3 (as Hg)	inhalation, skin absorption, ingestion, skin and/or eye contact	Paresthesia; ataxia, dysarthria; vision, hearing disturbance; spasticity, jerking limbs; dizziness; salivation; lacrimation (discharge of tears); nausea, vomiting, diarrhea, constipation; skin burns; emotional disturbance; kidney injury; possible teratogenic effects	Eyes, skin, central nervous system, peripheral nervous system, kidneys	Appearance and odor vary depending upon the specific (organo) alkyl mercury compound
Mercury compounds [except (organo) alkyls] (as Hg) Mercury	7439-97-6	None established	TWA 0.025 mg/m^3 (elemental and inorganic forms)	Hg Vapor: TWA 0.05 mg/m^3 [skin] Other: C 0.1 mg/m3 [skin]	TWA 0.1 mg/m^3	10 mg/m^3 (as Hg)	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria	Eyes, skin, respiratory system, central nervous system, kidneys	Metal: Silver-white, heavy, odorless liquid. [Note: "Other" Hg compounds include all inorganic & aryl Hg compounds except (organo) alkyls.] BP: 674°F
Methyl Ethyl Ketone or MEK (2-Butanone)	78-93-3	None established	TWA 200 ppm STEL 300 ppm	TWA 200 ppm (590 mg/m^3) STEL 300 ppm (885 mg/m^3)	TWA 200 ppm (590 mg/m^3)	3000 ppm	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose; headache; dizziness; vomiting; dermatitis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a moderately sharp, fragrant, mint- or acetone-like odor. BP: 175°F Fl.P: 16°F UEL(200°F): 11.4% LEL(200°F): 1.4% Class IB Flammable Liquid
Methyl tert-butyl ether (MTBE)	1634-04-4	None established	TWA 50 ppm	No established REL	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, mucous membrane, respiratory; dizziness, nausea, headache, intoxication	Eyes, skin, mucous membrane, respiratory system, central nervous system	Colorless liquid BP: 55.2 C
Methylene Chloride (Dichloromethane)	75-09-2	None established	TWA 50 ppm, A3 - suspected human carcinogen	Ca	TWA 25 ppm STEL 125 ppm	Ca [2300 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; lassitude (weakness, exhaustion), drowsiness, dizziness; numbness, tingle limbs; nausea; [potential occupational carcinogen]	Eyes, skin, cardiovascular system, central nervous system	Colorless liquid with a chloroform-like odor BP: 104°F UEL: 23% LEL: 13%
Naphtha (Rubber Solvent)	8030-30-6	327 ppm	None established	TWA 100 ppm (400 mg/m^3)	TWA 100 ppm (400 mg/m^3)	1000 ppm [10%LEL]	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose; dizziness, drowsiness; dermatitis; in animals: liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Reddish-brown, mobile liquid with an aromatic odor BP: 320-428°F Fl.P: 100-109°F Class II Combustible Liquid
Naphthalene	91-20-3	TWA 52 mg/m3	TWA 10 ppm [skin]	TWA 10 ppm (50 mg/m^3) STEL 15 ppm (75 mg/m^3)	TWA 10 ppm (50 mg/m^3)	250 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage	Eyes, skin, blood, liver, kidneys, central nervous system	Colorless to brown solid with an odor of mothballs. BP: 424°F Fl.P: 174°F UEL: 5.9% LEL: 0.9%

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 1000 Turk Hill Road, Fairport, NY

Compound	CAS #	EMBSI OEL	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Nickel	7440-02-0 (Metal)	None established	TWA 1.5 mg/m^3 (elemental) TWA 0.1 mg/m^3 (soluble inorganic compounds) TWA 0.2 mg/m^3 (insoluble inorganic compounds) TWA 0.1 mg/m^3 (Nickel subsulfide)	Ca TWA 0.015 mg/m^3	TWA 1 mg/m^3	Ca [10 mg/m^3 (as Ni)]	inhalation, ingestion, skin and/or eye contact	Sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Nasal cavities, lungs, skin	Metal: Lustrous, silvery, odorless solid. BP: 5139°F
Nitrobenzene	98-95-3	None established	TWA 1 ppm	TWA 1 ppm (5 mg/m^3) [skin]	TWA 1 ppm (5 mg/m^3) [skin]	200 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; anoxia; dermatitis; anemia; methemoglobinemia; in animals: liver, kidney damage; testicular effects	Eyes, skin, blood, liver, kidneys, cardiovascular system, reproductive system	Yellow, oily liquid with a pungent odor like paste shoe polish. BP: 411°F Fl.P: 190°F LEL(200°F): 1.8%
Petroleum hydrocarbons(Petroleum distillates)	8002-05-9	None established	None established	TWA 350 mg/m^3 C 1800 mg/m^3 [15 min]	TWA 500 ppm (2000 mg/m^3)	1,100 [10% LEL]	Inhalation; ingestion; skin and/or eye contact	Irritation eyes, skin, nose, throat; dizziness, drowsiness, headache, nausea; dried/cracked skin; chemical pneumonitis	CNS, eyes, respiratory system, skin	Colorless liquid with a gasoline or kerosene-like odor BP: 86-460°F Fl. Pt = -40 to -86°F UEL: 5.9% LEL: 1.1% Flammable liquid
Phenol	108-95-2	None established	TWA 5 ppm [skin]	TWA 5 ppm (19 mg/m^3) C 15.6 ppm (60 mg/m^3) [15-minute] [skin]	TWA 5 ppm (19 mg/m^3) [skin]	250 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose, throat; anorexia, weight loss; lassitude (weakness, exhaustion), muscle ache, pain; dark urine; cyanosis; liver, kidney damage; skin burns; dermatitis; ochronosis; tremor, convulsions, twitching	Eyes, skin, respiratory system, liver, kidneys	Colorless to light-pink, crystalline solid with a sweet, acrid odor. BP: 359°F UEL: 8.6% LEL: 1.8%
Polychlorinated Biphenyls (PCBs) (Chlorodiphenyl (42% Chlorine))	53469-21-9	None established	TWA 1 mg/m^3	Ca TWA 0.001 mg/m^3	0.5 mg/m^3	5 ppm	Dermal; inhalation; ingestion; skin and/or eye contact	Irritation eyes; chloracne; liver damage; reproductive effects; [potential occupational carcinogen]	Eyes, skin, liver, respiratory system	Colorless to light-colored, viscous liquid, hydrocarbon odor, BP: 617 - 734°F, non-flammable, LEL: NA, UEL: NA
n-Propylbenzene	103-65-1	None established	None established	None established	None established	None established	inhalation, ingestion, skin and/or eye contact	Harmful if swallowed, Irritation eyes, skin, digestive tract, respiratory tract, central nervous system	Eyes, skin, central nervous system, respiratory system	colorless or light yellow liquid BP: 159 C Fl.P: 47 C UEL: 6% LEL: 0.8%
Selenium	7782-49-2	None established	TWA 0.2 mg/m^3	TWA 0.2 mg/m^3	TWA 0.2 mg/m^3	1 mg/m^3 (as Se)	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste; garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; in animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage	Eyes, skin, respiratory system, liver, kidneys, blood, spleen	Amorphous or crystalline, red to gray solid. [Note: Occurs as an impurity in most sulfide ores.] BP: 1265°F
Silver	7440-22-4 (metal)	None established	TWA 0.1 mg/m^3 (metal, dust, fume) TWA 0.01 mg/m^3 (Soluble compounds, as Ag)	TWA 0.01 mg/m^3	TWA 0.01 mg/m^3	10 mg/m^3 (as Ag)	inhalation, ingestion, skin and/or eye contact	Blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance	Nasal septum, skin, eyes	Metal: White, lustrous solid BP: 3632°F
Slop Oil	69029-75-0	None established	None established	None established	None established	None established	Inhalation; ingestion	Irritation eyes, skin, gastrointestinal tract	Eyes, skin, gastrointestinal tract	Clear light to dark amber liquid, with mild hydrocarbon odor. BP: >500°F Fl.P : 250°F
Sulfuric Acid	7664-93-9	None established	TWA 0.2 mg/m^3	TWA 1 mg/m^3	TWA 1 mg/m^3	15 mg/m^3	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatis; dental erosion; eye, skin burns; dermatitis	Eyes, skin, respiratory system, teeth	Colorless to dark-brown, oily, odorless liquid. BP: 554°F Noncombustible Liquid
Tetrachloroethene	127-18-4	None established	TWA 25 ppm STEL 100 ppm listed as A3, animal carcinogen	Ca Minimize workplace exposure concentrations	TWA 100 ppm C 200 ppm (for 5 minutes in any 3-hour period), with a maximum peak of 300 ppm	Ca [150 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]	Eyes, skin, respiratory system, liver, kidneys, central nervous system	Colorless liquid with a mild, chloroform-like odor. BP: 250°F Noncombustible Liquid
Tetraethyl lead	78-00-2	None established	TWA 0.1 mg/m^3 [skin]	TWA 0.075 mg/m^3	TWA 0.075 mg/m^3	40 mg/m^3	CNS impair	Irritation to eyes, skin; dizziness, incoordination, headache, drowsiness; kidney damage	CNS, card./vasc. System, kidneys, eyes	Colorless liquid; MW: 323.5, BP: 228°F, FLP: 200 °F, LEL: 1.8%, VP: 0.2 mmHg, SG: 1.65
Tetramethyl lead	75-74-1	None established	TWA 0.1 mg/m^3 [skin]	TWA 0.075 mg/m^3	TWA 0.075 mg/m^3	40 mg/m3	CNS impair	Irritation to eyes, skin; dizziness, incoordination, headache, drowsiness; kidney damage	CNS, card./vasc. System, kidneys	Colorless liquid; MW: 267.3, BP: 212°F, FLP: 100 °F, VP: 23 mmHg, SG: 2.00
Toluene	108-88-3	TWA 75 mg.m3	TWA 20 ppm	TWA 100 ppm (375 mg/m^3) STEL 150 ppm (560 mg/m^3)	TWA 200 ppm C 300 ppm 500 ppm (10-minute maximum peak)	500 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Colorless liquid with a sweet, pungent, benzene-like odor. BP: 232°F Fl.P: 40°F UEL: 7.1% LEL: 1.1% Class IB Flammable Liquid
1,1,1-Trichloroethane (Methyl Chloroform)	71-55-6	None established	TWA 350 ppm STEL 450 ppm	C 350 ppm (1900 mg/m^3) [15-minute]	TWA 350 ppm (1900 mg/m^3)	700 ppm	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage	Eyes, skin, central nervous system, cardiovascular system, liver	Colorless liquid with a mild, chloroform-like odor. BP: 165°F UEL: 12.5% LEL: 7.5%
1,1,2-Trichloroethane	79-00-5	None established	TWA 10 ppm [skin]	Ca TWA 10 ppm (45 mg/m^3) [skin]	TWA 10 ppm (45 mg/m^3) [skin]	Ca [100 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; central nervous system depression; liver, kidney damage; dermatitis; [potential occupational carcinogen]	Eyes, respiratory system, central nervous system, liver, kidneys	Colorless liquid with a sweet, chloroform-like odor. BP: 237°F UEL: 15.5% LEL: 6%
Trichloroethene	79-01-6	None established	TWA 10 ppm STEL 25 ppm	Ca	TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)	Ca [1000 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]	Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system	Colorless liquid (unless dyed blue) with a chloroform-like odor. BP: 189°F UEL(77°F): 10.5% LEL(77°F): 8%

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 1000 Turk Hill Road, Fairport, NY

Compound	CAS #	EMBSI OEL	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
1,2,4-Trimethylbenzene	95-63-6	TWA 100 mg/m3	TWA 25 ppm	TWA 25 ppm (125mg/m^3)	None established	N.D.	Inhalation; ingestion; skin and/or eye contact	Eye, skin, nose, and throat, resp syst irritation; bronchitis; hypochromic anemia; headache, drowsiness, weakness, dizziness, nausea, incoordination, vomit, confusion; chemical pneumonitis	Eyes, skin, resp sys, CNS, blood	Clear, colorless liquid with a distinctive, aromatic odor BP: 337°F FL.P: 112°F UEL: 6.4% LEL: 0.9% Class II Flammable liquid
1,2,4-Trimethylbenzene	95-63-6	None established	TWA 25 ppm	TWA 25 ppm (125 mg/m^3)	None established	N.D.	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, fatigue, dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eyes, skin, respiratory system, central nervous system, blood	Clear, colorless liquid with a distinctive, aromatic odor. BP: 337°F Fl.P: 112°F UEL: 6.4% LEL: 0.9% Class II Flammable Liquid
1,3,5-Trimethylbenzene	108-67-8	None established	TWA 25 ppm	TWA 25 ppm (125mg/m^3)	None established	N.D.	Inhalation; ingestion; skin and/or eye contact	Eye, skin, nose, and throat, resp syst irritation; bronchitis; hypochromic anemia; headache, drowsiness, weakness, dizziness, nausea, incoordination, vomit, confusion; chemical pneumonitis	Eyes, skin, resp sys, CNS, blood	Clear, colorless liquid with a distinctive, aromatic odor BP: 329°F FL.P: 122°F Class II Flammable liquid
1,3,5-Trimethylbenzene	108-67-8	None established	TWA 25 ppm	TWA 25 ppm (125 mg/m^3)	None established	N.D	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion chemical pneumonitis (aspiration liquid)	Eyes, skin, respiratory system, central nervous system, blood	Clear, colorless liquid with a distinctive, aromatic odor. BP: 329°F Fl.P: 122°F Class II Flammable Liquid
Vinyl Chloride	75-01-4	None established	TWA 1 ppm	Carcinogen	TWA 1 ppm C 5 ppm [15-minute]	Ca [IDLH value has not been determined]	inhalation, skin, and/or eye contact (liquid)	Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen]	Liver, central nervous system, blood, respiratory system, lymphatic system	Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations. BP: 7°F UEL: 33.0% LEL: 3.6% Flammable Gas
Xylene (m, o & p isomers)	108-38-3, 95-47-6, 106-42-3	TWA 100 ppm	TWA 100 ppm STEL 150 ppm	TWA 100 ppm (435 mg/m^3)	TWA 100 ppm (435 mg/m^3)	900 ppm	Skin absorption, inhalation, ingestion, skin, and/or eye contact	Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis	Eyes, skin, respiratory system, central nervous system, gastrointestinal tract, blood, liver, kidneys	Colorless liquid with an aromatic odor BP: 282°F, 292°F, 281°F Fl. Pt. 82°F, 90°F, 81°F LEL: 1.1%, 0.9%, 1.1% UEL: 7.0%, 6.7%, 7.0% Class C Flammable Liquid
Zinc Oxide	1314-13-2	None established	TWA 2 mg/m3 STEL 10 mg/m^3	None established	TWA 10 mg/m3 (for zinc oxide fume)	None established	skin and/or eye contact, inhalation, ingestion	Irritation eyes, skin, respiratory tract; gastrointestinal disturbances	Eyes, skin, respiratory system,	Bluish gray solid BP: 1664.6°F Flammable

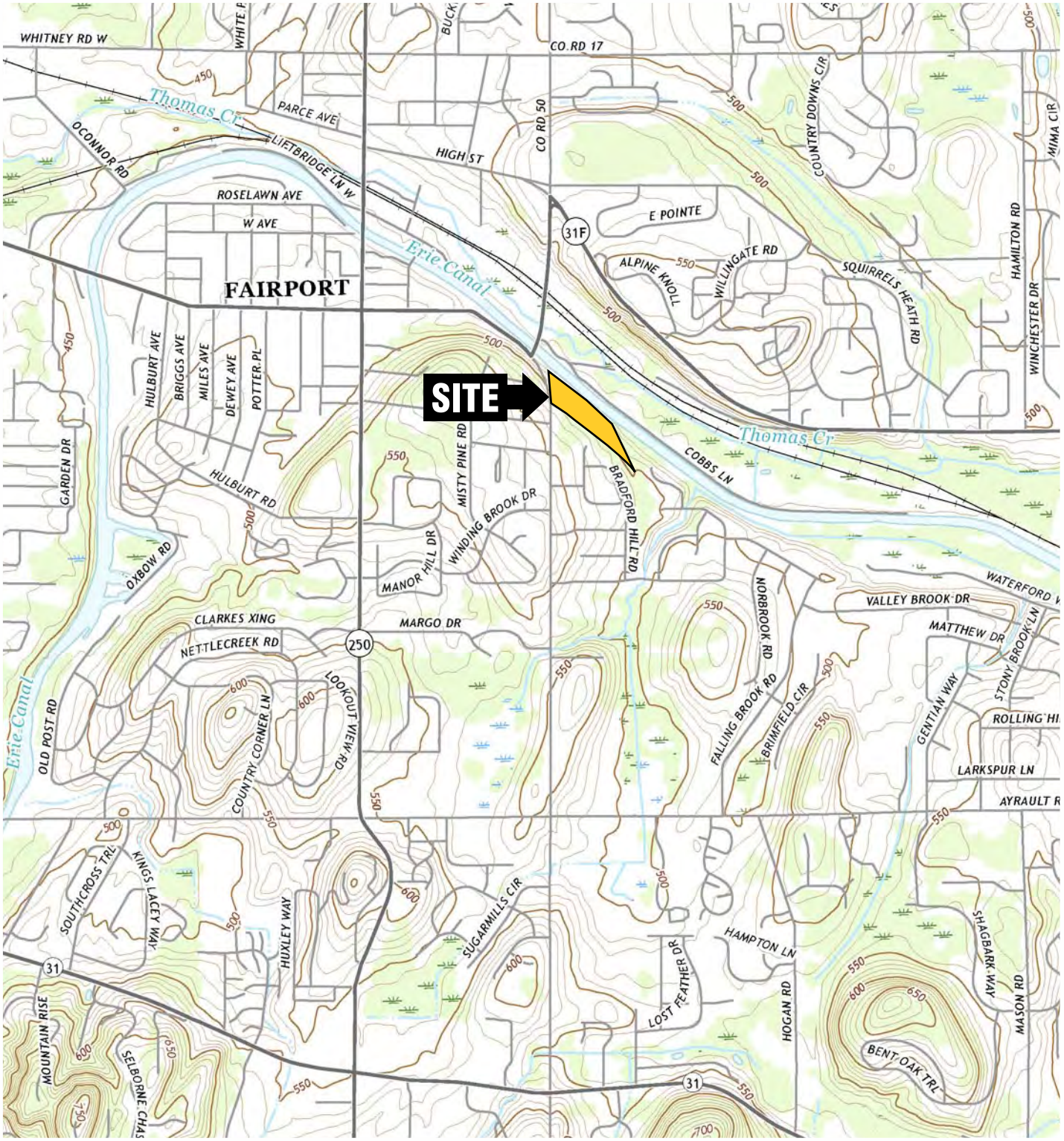
References

U.S. Department of Labor. 1990. OSHA Regulated Hazardous Substances, industrial Exposure and Control Technologies Government Institutes, Inc.
Hawley's Condensed Chemical Dictionary, Sax, N. Van Nostrand and Reinhold Company, 11th Edition, 1987.
Proctor, N.H., J.P. Hughes and M.L. Fischman, 1989. Chemical Hazards of the Workplace. Van Nostrand Reinhold. New York.
Sax, N.I. and R.J. Lewis. 1989. Dangerous Properties of Industrial Materials. 7th Edition. Van Nostrand Reinhold. New York.
2018 TLVs® and BEIs®, American Conference of Industrial Hygienists

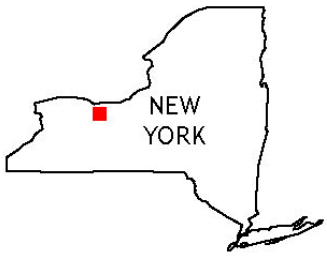
Abbreviations:

ACGIH – American Conference of Governmental Industrial Hygienists.
BP – boiling point at 1 atmosphere, °F
C – Ceiling, is a concentration that should not be exceeded during and part of the working exposure.
CAS# - Chemical Abstracts Service registry number which is unique for each chemical.
Ft Pt. – Flash point
IDLH - Immediately Dangerous to Life and Health concentrations represent the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.
LEL – Lower explosive (flammable) limit in air, % by volume (at room temperature)
mg/m^3 – Milligrams of substance per cubic meter of air
NIOSH - National Institute for Occupational Safety and Health.
OSHA – Occupational Safety and Health Administration
PEL - OSHA Permissible Exposure Limit (usually) a time weighted average concentration that must not be exceeded during any 8 hour work shift of a 40 hr work week.
ppm – parts per million
REL – NIOSH Recommended Limit indicated a time weighted average concentration that must not be exceeded during any 10 hour work shift of a 40 hr work week
SG - Specific Gravity
STEL – Short-term exposure limit (ST)
TLV - ACGIH Threshold Limit Values (usually 8 hour time weighted average concentrations).
TWA – 8-hour, time-weighted average
UEL – Upper explosive (flammable) limit in air, % by volume (at room temperature)
VP - Vapor Pressure

FIGURES



QUADRANGLE LOCATION



SOURCE:
USGS; 2016, Fairport, NY
7.5 Minute Topographic Quadrangle

Title:

SITE LOCATION MAP

1000 TURK HILL ROAD TURK HILL
PARK FAIRPORT, NEW YORK

Prepared for:

NEW COLEMAN HOLDINGS INC.

ROUX

Compiled by: C.B.	Date: 08NOV18	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	1
Project Mgr.: C.B.	Project No.: 3113.0001Y000	
File: 3113.0001Y110.01.CDR		

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LEGEND

SITE BOUNDARY

300’ 0 300’

Title:

SITE SETTING

1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:

NEW COLEMAN HOLDINGS INC.

ROUX

Compiled by: C.B.	Date: 08NOV18	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	2
Project Mgr.: C.B.	Project No.: 3113.0001Y000	
File: 3113.0001Y110.02.CDR		

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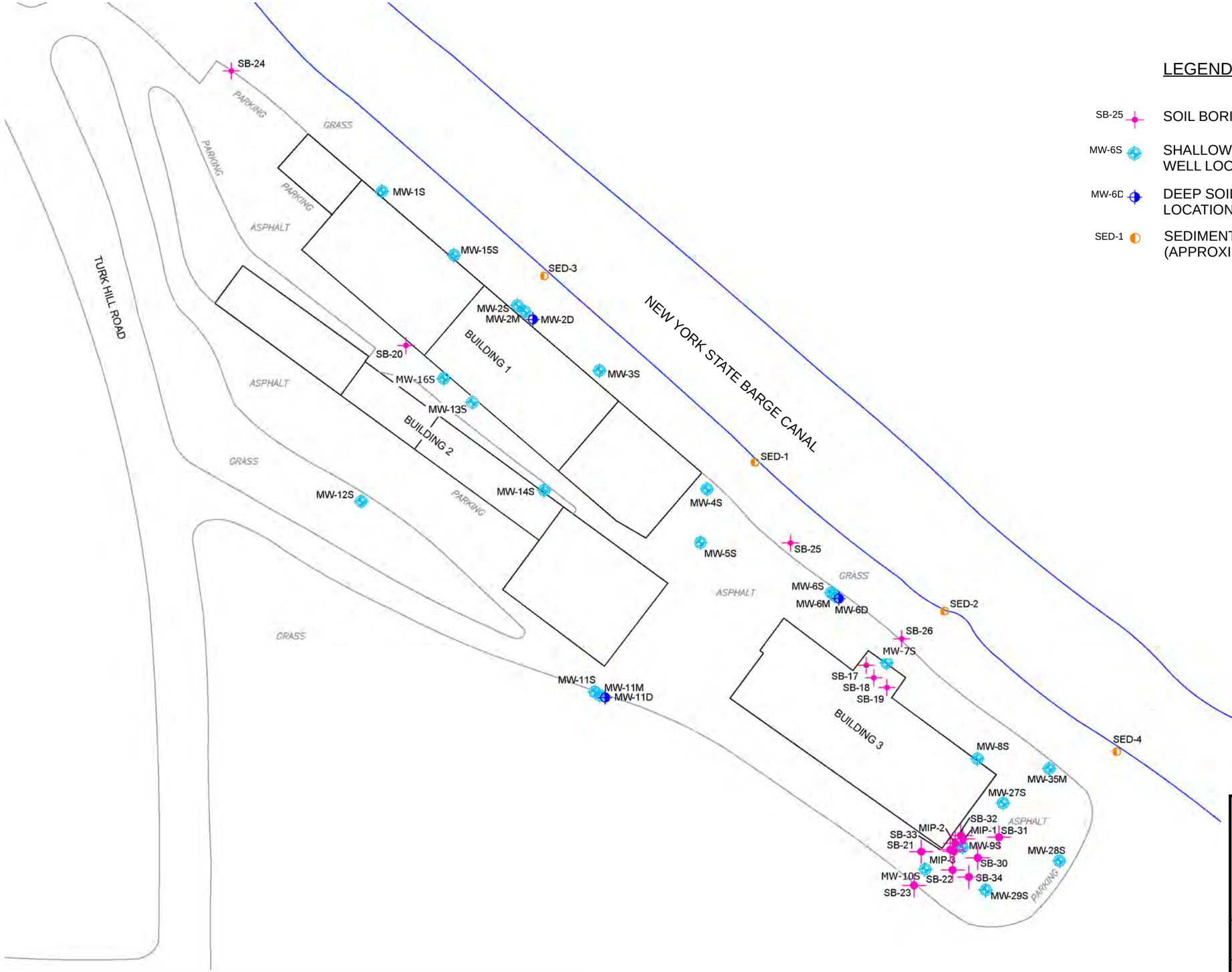

LEGEND

- SB-25 — SOIL BORING LOCATION AND DESIGNATION
- MW-6S — SHALLOW / MEDIUM SOIL BORING/MONITORING WELL LOCATION AND DESIGNATION
- MW-6D — DEEP SOIL BORING / MONITORING WELL LOCATION AND DESIGNATION
- SED-1 — SEDIMENT SAMPLE LOCATION AND DESIGNATION (APPROXIMATE)

SOURCE:
BASE MAP AND LOCATIONS OF BORINGS, MONITORING WELLS, AND SEDIMENT SAMPLES BASED ON DRAWING NUMBER 152918-B5 (APTIM ENVIRONMENTAL AND INFRASTRUCTURE, INC., JANUARY 30, 2018).

Title:

SITE PLAN

1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:

NEW COLEMAN HOLDINGS INC.

ROUX

Compiled by: C.B.	Date: 08NOV18	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	3
Project Mgr.: C.B.	Project No.: 3113.0001Y000	
File: 3113.0001Y110.02.CDR		

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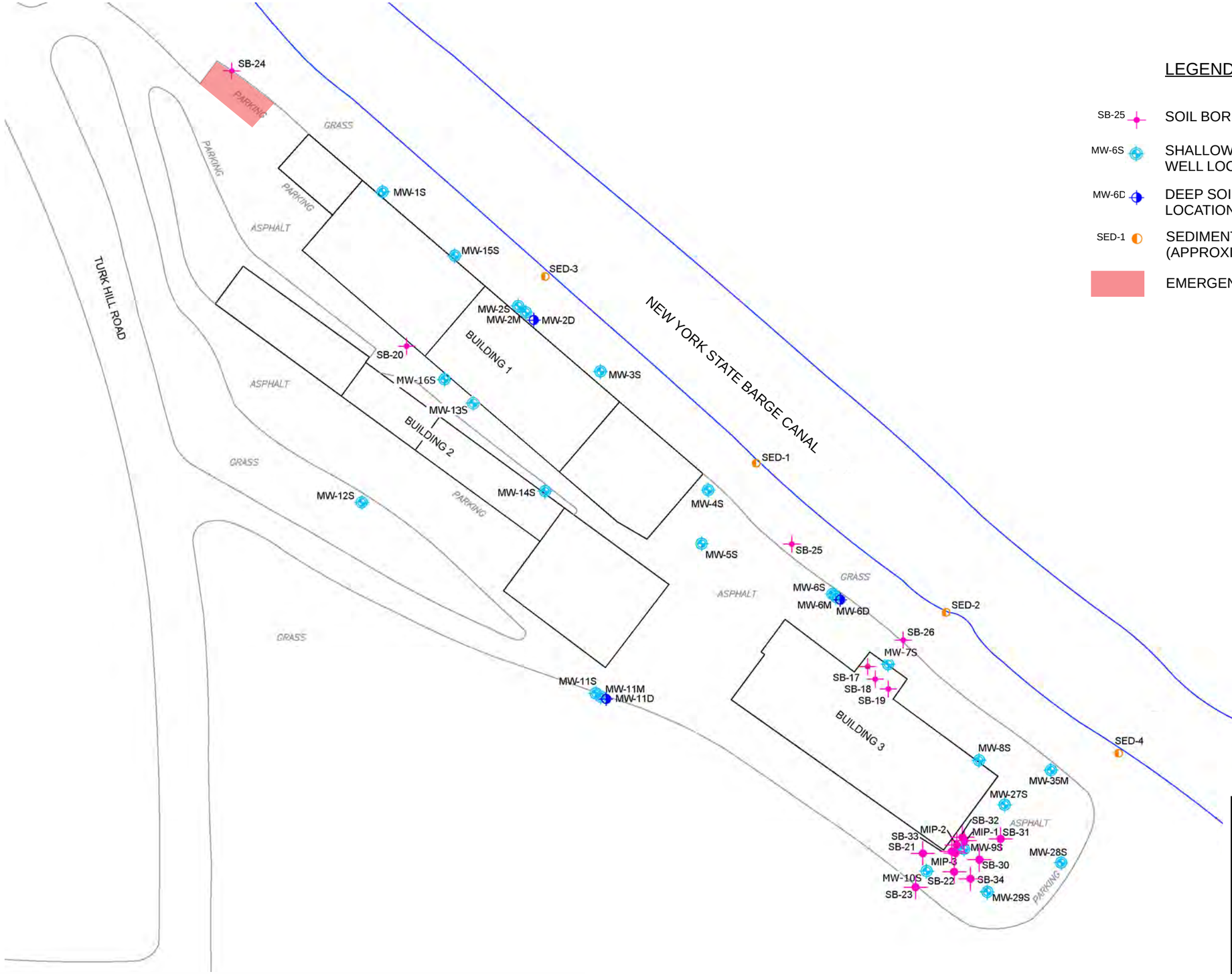

LEGEND

- SB-25 — SOIL BORING LOCATION AND DESIGNATION
- MW-6S — SHALLOW / MEDIUM SOIL BORING/MONITORING WELL LOCATION AND DESIGNATION
- MW-6D — DEEP SOIL BORING / MONITORING WELL LOCATION AND DESIGNATION
- SED-1 — SEDIMENT SAMPLE LOCATION AND DESIGNATION (APPROXIMATE)
- EMERGENCY RALLY POINT

SOURCE:
BASE MAP AND LOCATIONS OF BORINGS, MONITORING WELLS, AND SEDIMENT SAMPLES BASED ON DRAWING NUMBER 152918-B5 (APTIM ENVIRONMENTAL AND INFRASTRUCTURE, INC., JANUARY 30, 2018).

Title:

EMERGENCY RESPONSE SITE PLAN

1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:

NEW COLEMAN HOLDINGS INC.

ROUX

Compiled by: C.B.	Date: 08NOV18	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	4
Project Mgr.: C.B.	Project No.: 3113.0001Y000	
File: 3113.0001Y110.02.CDR		

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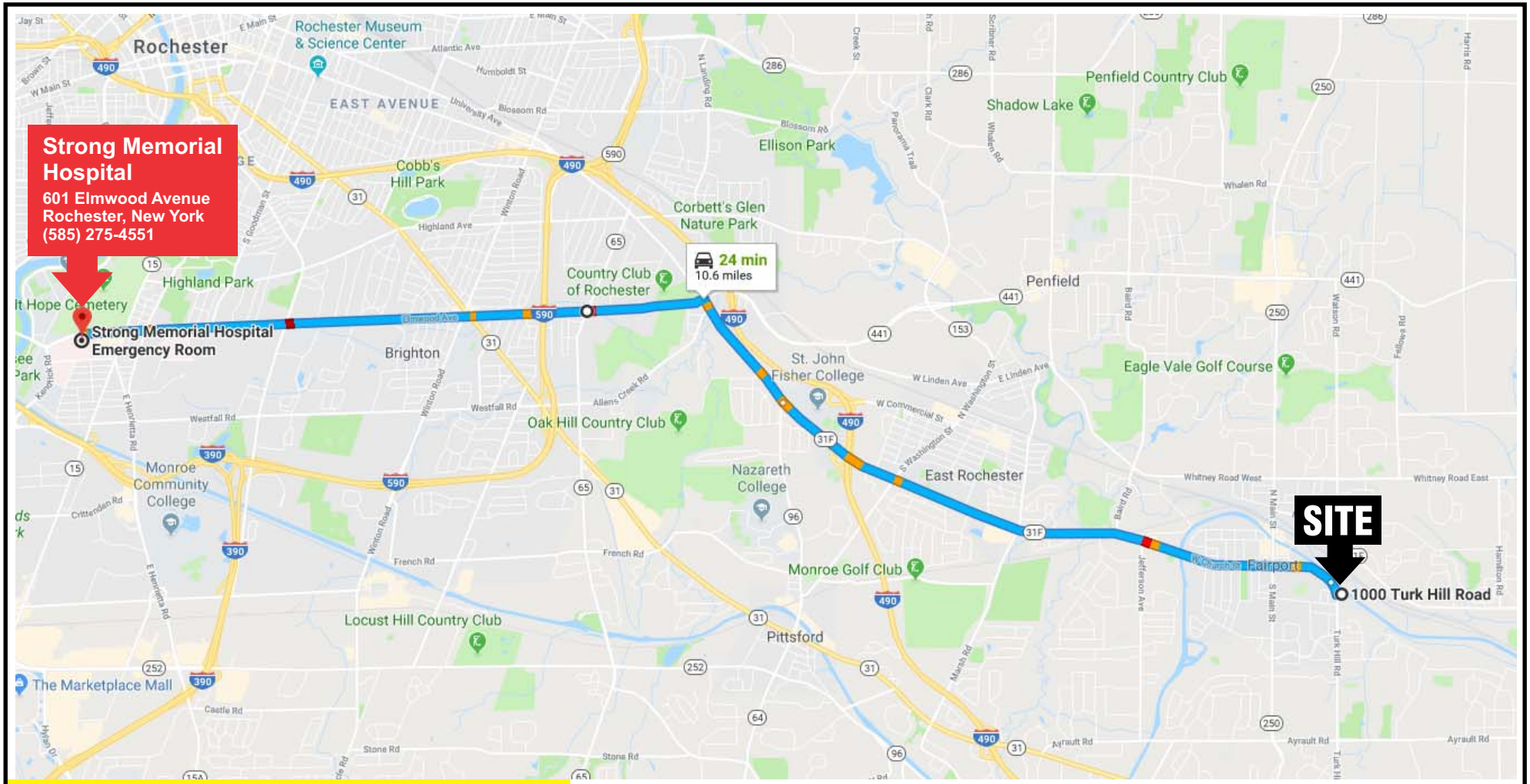

DIRECTIONS TO HOSPITAL

- Turn right out of the Site onto Turk Hill Road (turns into East Church Street/Route 31F).
- Take East Church Street west approximately 12 miles (turns into East Avenue/Route 96).
- Turn left onto Elmwood Avenue (Route 87).
- Take Elmwood Avenue approximately 10 miles west to Strong Memorial Hospital.
- Follow signs to Emergency Room.

N

1 mile 0 1 mile

Title:

ROUTE TO HOSPITAL MAP

1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:

NEW COLEMAN HOLDINGS INC.

ROUX

Compiled by: C.B.	Date: 09NOV18
Prepared by: B.H.C.	Scale: AS SHOWN
Project Mgr.: C.B.	Project No.: 3113.0001Y000
File: 3113.0001Y110.03.CDR	

FIGURE 5

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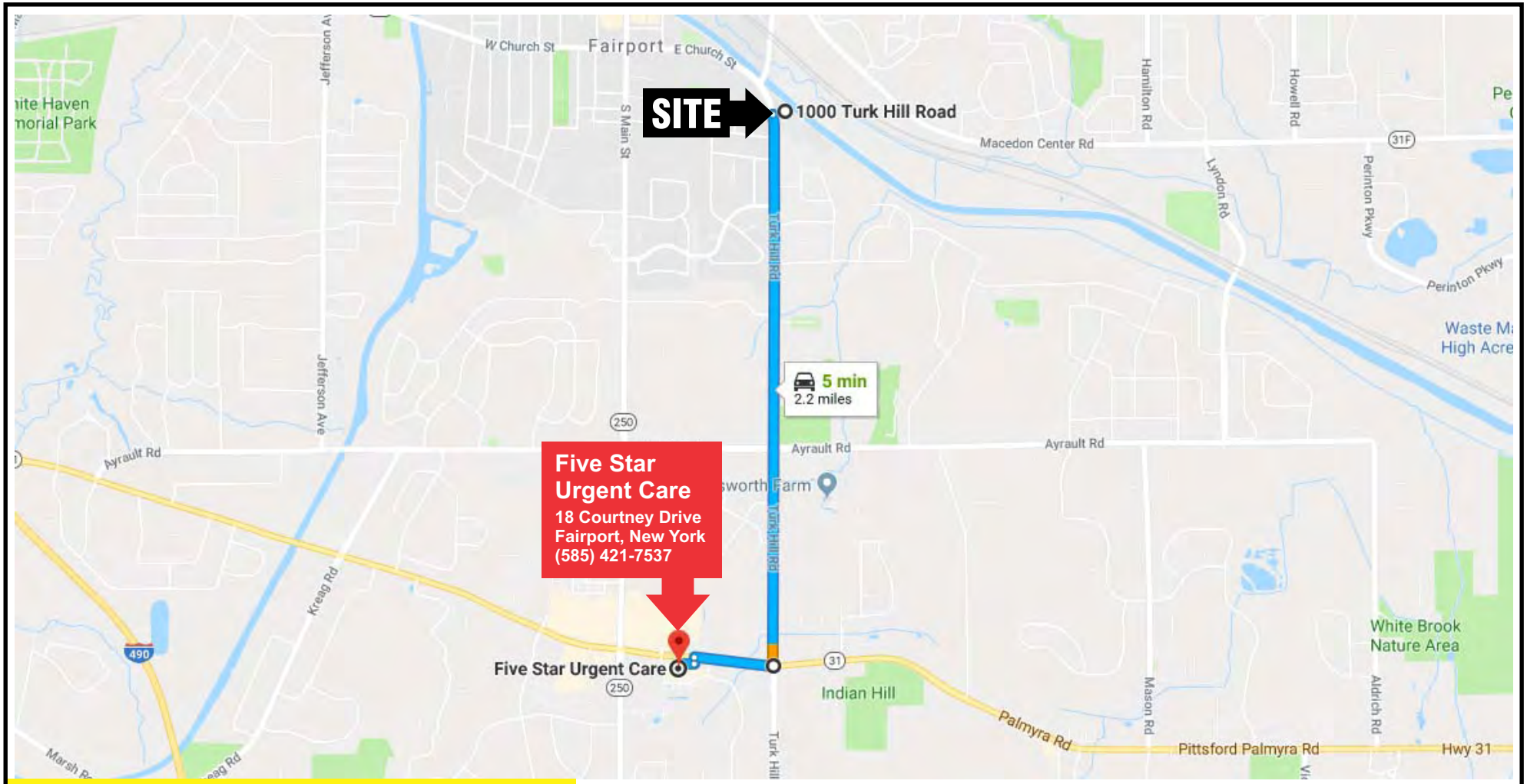
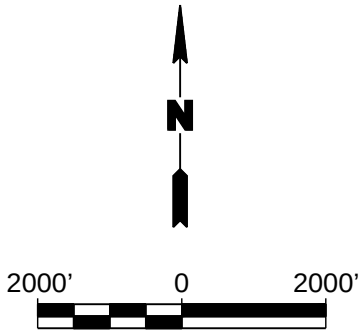


DIRECTIONS TO URGENT CARE

- Turn Left out of the Site onto Turk Hill Road.
- Take Turk Hill Road south approximately three miles.
- Turn right onto Pittsford Palmyra Road (Hwy 31).
- Take Pittsford Palmyra Road approximately one-half mile and turn left onto Courtney Drive.
- Take first left to parking area of Five Star Urgent Care.



Title:

ROUTE TO URGENT CARE

1000 TURK HILL ROAD
TURK HILL PARK
FAIRPORT, NEW YORK

Prepared for:

NEW COLEMAN HOLDINGS INC.

ROUX

Compiled by: C.B.	Date: 09NOV18	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	6
Project Mgr.: C.B.	Project No.: 3113.0001Y000	
File: 3113.0001Y110.03.CDR		

APPENDICES

A. Job Safety Analysis (JSA) Forms
B. SDSs for Chemicals Used
C. Incident Investigation and Reporting Program
D. Heavy Equipment Exclusion Zone Policy
E. Subsurface Utility Clearance Management Program
F. Personal Protective Equipment Management Program

APPENDIX A

Job Safety Analysis (JSA) Forms

JOB SAFETY ANALYSIS	Ctrl. No. GEN-003	DATE 8/6/2018	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Construction - Excavation**	**Backfilling Excavation & Compaction**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
David Kaiser	Project Engineer	Brian Hobbs	Corporate Health & Safety Manager
Edward Lacina	Senior Construction Manager		

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Leather/ cut-resistant level 2
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER _____
☐ LIFELINE / BODY HARNESS	☒ HEARING PROTECTION	☒ PPE CLOTHING: reflective DOT approved safety	
☒ SAFETY GLASSES	☒ SAFETY TOE BOOTS		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Payloader, Backhoe, Dump Trucks, Mechanical gas powered tampers, Excavator with hydraulic tamper. APR when tamping if dust present. Two-way radios.

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs.

EXCLUSION ZONE: A 10' minimum exclusion zone will be maintained around excavator, backhoe, tampers, and dump trucks.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Pre-construction meeting: Review proposed excavation locations	**1a. CONTACT:** Potential for contact with subsurface utilities and above ground utilities	1a. Call state 811 for mark out service and one call ticket. 1a. Obtain private utility mark out service as necessary. 1a. Review and mark proposed excavations w/white paint. 1a. Identify all "Critical" zones. A Critical zone is any area within 10 feet of any operating utility. 1a. **Complete subsurface clearance checklist.** 1a. Soft dig must be conducted within 2 lateral feet of any suspected underground utility. 1a. Protection of aboveground utilities identified as being located within the work zone must be coordinated w/ client and utility owner.
2. Secure Work Area	**2a. CONTACT:** Potential for personnel to enter the work area. Potential for equipment to contact, or crush personnel. **2b. EXERTION:** Potential for muscle strain or tear while installing traffic cones and barrel	2a. Ensure work area is secure and inform others of work activity. Establish a heavy equipment exclusion zone (HEEZ) using 42" traffic cones, barrels & snow fencing or telescoping poles. Use of flag persons to maintain clear traffic and to minimize motorist confusion during set-up of new traffic pattern. HEEZ to include tip/swing radius of equipment. 2a. Dump Truck/Excavator/Payloader/Backhoe equipment to be set-up by personnel who are familiar with machinery. Spotters shall be in place for all equipment. and to control access to the HEEZ 2a. Truck wheels are chocked when driver is not in truck and engine shut off. 2a. Personnel shall stay out of the exclusion zone (10' minimum or greater than the equipment boom) while equipment is maneuvering. 2b. Keep back straight, keep load close to the body and bend knees while lifting and working. If over 50 lbs., use 2 or more laborers for lifting or use of equipment.

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

[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards; Energy Source – electricity, pressure, compression/tension.

[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

ROUX

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

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

[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards; Energy Source – electricity, pressure, compression/tension.

[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

JOB SAFETY ANALYSIS	Ctrl. No. GEN-006	DATE 8/6/2018	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY:	WORK TYPE:	WORK ACTIVITY (Description):	
Generic	**Drilling**	**Direct Push Soil Borings / Well Installation**	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**
Timothy Zei	Project Hydrogeologist	Raymond Olson	Staff Assistant Geologist
		Christine Pietrzyk	Office Health & Safety Manager
		Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION: (as needed) ☒ SAFETY SHOES: Composite-toe or steel toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing, Long Sleeve Shirt	☒ GLOVES: Leather, Nitrile and cut resistant ☒ OTHER: Insect Repellant, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Geoprobe or Truck-Mounted Direct Push Drill Rig, Hand Tools, Photoionization Detector, Multi-Gas Meter (or equivalent), Macrocore liners, Liner Opening Tool, 20 lb. Type ABC Fire Extinguisher, 42" Cones & Flags, "Work Area" Signs, Water

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ) – All non-essential personnel will maintain a distance of 10 feet from drilling equipment while equipment is moving/engaged

"SHOW ME YOUR HANDS"
Driller and helper should show that hands are clear from controls and moving parts

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilization of drilling rig (ensure the Subsurface Clearance Protocol and Drill Rig Checklist are completed)	**1a. CONTACT:** Equipment/property damage.	1a. The drill rig's tower/derrick will be lowered and secured prior to mobilization. 1a. A spotter should be utilized while moving the drill rig. If personnel move into the path of the drill rig, the drill rig will be stopped until the path is again clear. Use a spotter for all required backing operations. 1a. Set-up the work area and position equipment in a manner that eliminates or reduces the need for backing of support trucks and trailers. 1a. When backing up truck rig with an attached trailer use a second spotter if there is tight clearance simultaneously on multiple sides of the equipment or if turning angles limit driver visibility. 1a. Inspect the driving path for uneven terrain. Level or avoid if needed. 1a. Drill rig should have a minimum **exclusion zone of 10 feet** for non-essential personnel (i.e., driller helper, geologist) when the rig is moving/ in operation.
	1b. FALL: Slip/trip/fall hazards.	1b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 1b. Do not climb over stored materials/equipment; walk around. Practice good housekeeping. 1b. Use established pathways and walk on stable, secure ground.
	1c. CONTACT: Crushing from roll-over.	1c Geoprobe should cross all hills/obstructions head on with the mast down to reduce risk of roll-over.
2. Raising tower/derrick of drill rig	**2a. CONTACT:** Overhead hazards.	2a. Prior to raising the tower/derrick, the area above the drilling rig will be inspected for wires, tree limbs, piping, or other structures, that could come in contact with the rig's tower and/or drilling rods or tools. 2a. Maintain a safe distance of 10' from overhead structures.
	2b. CONTACT: Pinch Points/Amputation Points when raising the rig and instability of rig	2b. Inspect the equipment prior to use and avoid pinch/amputation points. 2b. Lower outriggers to ensure stability prior to raising rig tower/derrick. 2b. If the rig needs to be mounted, be sure to use three points of contact.
3. Advancement of drilling equipment and well installation	**3a. CONTACT:** Flying debris	3a. Be aware of and avoid potential lines of fire and wear required PPE such as eye, ear, and hand protection.
	3b. EXPOSURE: Noise and dust.	3b. Wet borehole area with sprayer to minimize dust. 3b. Stand upwind and keep body away from rig. 3b. Dust mask should be worn if conditions warrant. 3b. Wear hearing protection when the drill rig is in operation.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

ROUX

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Advancement of drilling equipment and well installation (Continued)	**3a. CONTACT:** Flying debris **3b. EXPOSURE:** Noise and dust. **3c. FALL:** Slip/trip/fall hazards. **3d. CAUGHT:** Limb/extremity pinching; abrasion/crushing. **3e. CONTACT:** Equipment imbalance during advancement of drill equipment. **3f. EXPOSURE:** Inhalation of contamination/vapors. **3g. EXERTION:** Potential for muscle strain/injury while lifting and installing well casings, lifting sand bags, and/or lifting rods.	3c. Contain drill cuttings and drilling water to prevent fall hazards from developing in work area. 3c. See 1b. 3d. Ensure all Emergency Safety Stop buttons function properly. 3d. Always wear leather gloves when making connections and using hand tools; wear cut-resistant (i.e., Kevlar) gloves when handling cutting tools. 3d. Inspect the equipment prior to use for potential pinch/amputation points. Keep hands away from pinch/amputation points and use of tools is preferable compared to fingers and hands. 3d. Inspect drill head for worn surface or missing teeth; replace if damaged or blunt. 3d. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body. 3d. All non-essential personnel should stay away from the immediate work area; position body out of the line-of-fire of equipment. 3d. Drillers and helpers will understand and use the "Show Me Your Hands" Policy. 3d. Spinning rods/casing have an **exclusion zone of 10 feet** while in operation. 3e. Drillers will advance the borehole with caution to avoid causing the rig to become imbalanced and/or tip. 3e. The blocking and leveling devices used to secure the rig will be inspected by drillers and Roux personnel regularly to see if shifting has occurred. 3e. In addition, personnel and equipment that are non-essential to the advancement of the borehole will be positioned away from the rig at a distance that is at least as far as the boom is high (**minimum exclusion zone of 10 feet**). 3f. Monitor ambient air for dangerous conditions using a calibrated photoionization detector (PID) to periodically monitor the breathing zone of the work area. 3f. If a reading of >5ppm is recorded, the Roux field personnel must temporarily cease work, instruct all Site personnel to step away from the area of elevated readings and inform the Roux PM of the condition. The Roux PM will then recommend additional precautions in accordance with the site specific health and safety plan. 3f. Use a multi-gas meter to monitor ambient air for dangerous conditions (i.e. unsafe levels of carbon monoxide when drilling indoors or the presence of explosive vapors). 3g. Keep back straight and bend at the knees. 3g. Utilize team lifting for objects over 50lbs. 3g. Use mechanical lifting device for odd shaped objects.
4. Remove sample liner.	**4a. EXERTION:** Potential for muscle strain/injury while removing liner from probe rod. **4b. CONTACT:** Pinch points and cuts **4c. EXPOSURE:** Inhalation and/or dermal contact with contaminants.	4a Utilize team lifting for objects over 50lbs. 4a. Use hydraulic liner extruder if available. 4b. Place liner on sturdy surface when opening. 4b. Don cut-resistant gloves and use appropriate liner cutter when opening liners. 4b. Always cut away from the body. 4c. Wear chemical-resistant disposable gloves when handling liners. 4c. See 3e.
5. Decontaminate equipment.	**5a. EXPOSURE/CONTACT**: To contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, vapors). **5b. EXPOSURE:** To chemicals in cleaning solution including ammonia.	5a. Wear chemical-resistant disposable gloves and safety glasses. 5a. Contain decontamination water so that it does not spill. 5a. Use an absorbent pad to clean spills, if necessary. 5a. Spray equipment from side angle, not straight on, to avoid backsplash. 5a. See 3b. 5b. See 4a. Review SDS to ensure appropriate precautions are taken and understood.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-011	DATE: 8/6/2018	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**Construction - Excavation**	**Excavation / Trenching**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
David Kaiser	Senior Engineer	Brian Hobbs	Corporate Health & Safety Manager
Ian Holst	Senior Engineer		

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Leather or cut resistant
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☒ LONG SLEEVED SHIRT	☒ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective vest or high visibility long sleeved clothing	
☐ LIFELINE / BODY HARNESS	☒ SAFETY SHOES: Steel-toe boots		
☒ SAFETY GLASSES			

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Jackhammer, Excavator, Backhoe, Hand Tools, Photoionization Detector, barrels, 42" traffic cones, snow fencing, telescoping poles, temporary chain link fence, ladders, shovels, digging bars, power tools (cut-off saw), Two-way radios, Sheeting, Trench box, Retractable lanyard, Harness

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): A 10-foot exclusion zone will be maintained around equipment in motion and outside the swing/tip radius.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Pre-Clearance Protocol.	**1a. CONTACT:** Damage to underground utility.	1a. Confirm that (if applicable) "Call Before You Dig" and local utility companies were contacted prior to trenching in order to confirm utility mark outs. Must have a case # before digging.
	1b. ENERGY SOURCE/CONTACT: Property damage; Pressurized water mains may cause lacerations or broken bones. Pressurized gas mains may explode causing serious injury, or death. Underground electric may cause severe burns, shock, or death.	1b. Pre-clearing of the trenching location must be conducted to a minimum of 5 vertical feet below the ground surface (10 feet minimum for Critical Zone) using hand tools (shovel and non-metallic dig bar) prior to trenching. Supervisor should be contacted to discuss appropriate pre-clearing depth. Complete subsurface clearance checklist.
	1c. FALL: Slip, Trip or Fall may cause muscle strains or tears, abrasions, lacerations, or broken bones.	1c. Be aware of the conditions when walking or loading equipment and working. Walk within established pathway avoiding uneven surfaces. Remove potential slip/trip/fall hazards.
2. Set up work zone.	**2a. CONTACT/CAUGHT:** Cuts/lacerations from equipment. Broken bones from contact by vehicle.	2a. Isolate work area from hazards with cones, barricades, and snow fencing, telescoping poles or temporary chain link fence. Utilize a flag person when necessary (i.e., third party traffic in area). Install traffic signs in roadways and for detours. Spotters will maintain and enforce exclusion zone.
	2b. FALL: Slip, Trip or Fall may cause muscle strains or tears, abrasions, lacerations, or broken bones.	2b. See 1c.

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ROUX

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Trenching Activity.	**3a. CONTACT:** Serious injury including broken bones, muscle strains or tears, and possibly death due to contact with machine.	3a. Spotter(s) required for all heavy equipment operation. No worker shall be allowed inside the exclusion zone or along the trench/excavation area while any equipment is in operation. A minimum exclusion zone greater than the length of the equipment boom must be established. Workers only allowed in exclusion zone if the operator is in "Hands Off "mode. Operator will not operate equipment until worker is out of exclusion zone. Spotters and operators will have radios for communication, when either loses sight of one another, and/or in case of emergency.
	3b. FALL: Slip, Trip or Fall may cause muscle strains or tears, abrasions, lacerations, or broken bones	3b. Any trench/excavation deeper than 3' must have a ladder within 25' of any worker in the excavation. At least 3'(rungs) of the ladder shall be above the top of the excavation. All spoil piles shall be maintained 2' minimum from edge of excavation. 3b. Any trench/excavation deeper than 6' must have fall protection, retractable lanyard for ladder use, and 42" high guardrails along the edge of the trench/excavation.
	3c. EXPOSURE: Noise, Dust, Concrete- Asphalt, petroleum hydrocarbon vapors may cause damage to ears and lungs	3c. Air monitoring using a calibrated photoionization detector (PID) will be used to monitor the breathing zone of the work area. If a reading of >5ppm is recorded, the oversight personnel must temporarily cease work and instruct all Site personnel to step away from the area of elevated readings.
4. Setting Trench protections if necessary.	**4a. CAUGHT:** Injury due to contact with failed trench, may include muscle strains or tears, abrasions or lacerations, broken bones and possibly death.	4a. To prevent cave-ins and avoid caught by/between, excavations over 4' in depth, unless working in stable rock, shall have engineer approved shoring, sheeting or trench box. Top of protection shall be at least 2' above top of excavation.
	4b. CONTACT/CAUGHT: Injury due to rigging activities and entering exclusion zone during lifting and/or transport of shoring/trench box/material may include muscle strains or tears, abrasions or lacerations, broken bones and possibly death.	4b. Use only inspected rigging with 2, 3 or 4 lift points; wear cut-resistant gloves. Rigging to be hooked up to factory installed hook up points on equipment. Control load with non-conductive tag lines with workers out of exclusion zone. Don't stand underneath suspended load; wear steel toed boots and hard hat.
	4c. FALL: Possible injury due to fall into excavation may include muscle strains or tears, abrasions or lacerations, or broken bones.	4c. Shoring to be set and sides will be backfilled to avoid fall hazards before workers are allowed to enter area. Operator will be in "HANDS OFF" mode before workers enter work area to unhook rigging. An inspected ladder extending 3' above top of the shoring will be used to enter and exit the shoring. Workers will use three points of contact when using the ladder.
5. Secure/Leave Site. If backfilling, see excavation backfilling and compaction JSA for potential hazards and critical actions.	**5a. FALL:** Potential Slip, Trip or Fall - may cause muscle strains or tears, abrasions or lacerations, or broken bones.	5a. See 1c. 5a. All open excavations must be backfilled or secured prior to departure with steel plates, orange construction fence or temporary chain link fencing.

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JOB SAFETY ANALYSIS Ctrl. No. GEN-013	DATE 8/6/2018	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE:	WORK ACTIVITY (Description):
Generic	**Gauging and Sampling**	**Gauging and Sampling**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Brandon Tufano	Staff Geologist	Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☒ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☐ HEARING PROTECTION ☒ SAFETY SHOES: Composite-toe or steel toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	☒ GLOVES: Leather, Nitrile and cut resistant ☒ OTHER: Knee pads, Insect Repellant, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

42-inch Safety Cones, Caution Tape, Interface Probe and/or Water Level Meter, 20-lb., Type ABC Fire Extinguisher, Buckets. Tools as needed: Socket Wrench, Screw Driver, Crow Bar, Mallet, and Wire Brush.

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilization to monitoring well(s).	**1a. FALL:** Personal injury from slip/trip/fall due to uneven terrain and/or obstructions.	1a. Inspect pathway and plan for most suitable designated pathway prior to mobilization. 1a. Use established pathways, walk and/or drive on stable, secure ground and avoid steep hills or uneven terrain. 1a. If working near open water with an unguarded edge, wear life vest.
	1b. CONTACT: With traffic/third parties.	1b. Identify potential traffic sources and delineate work area with 42-inch traffic safety cones. Position vehicle to protect against oncoming traffic. Use caution tape to provide a more visible delineation of the work area if necessary. 1b. Wear appropriate PPE including high visibility clothing or reflective vest. 1b. Face traffic, maintain eye contact with oncoming vehicles, and establish a safe exit route.
	1c. EXERTION: Muscle strain from lifting equipment	1c. Use proper lifting techniques when handling/moving equipment; bend knees and keep back straight. 4c. Use mechanical assistance or team lifting techniques when equipment is 50 lbs. or heavier. 4c. Make multiple trips to carry equipment.
	1d. EXPOSURE: To biological hazards.	1d. Inspect work area for bees and insects. 1d. Use insect/tick repellent as necessary.
2. Open/close well.	**2a. EXERTION:** Muscle strain.	2a. Use proper lifting techniques; keep back straight, lift with legs and bend knees when reaching to open/close well.
	2b. CAUGHT: Pinch/crush points associated with removing/replacing manholes and working with hand tools.	2b. Wear leather gloves or cut resistant gloves when working with well cover and hand tools. 2b. Use proper tools (ratchet and pry bar for well cover) and inspect before use. 2b. Do not put fingers under well cover.
	2c. CAUGHT: Pinch points associated with placing J-plug back onto PVC pipe.	2c. See 2b. 2c. Keep fingers out of line-of-fire when securing cap.
	2d. EXPOSURE: To potential hazardous vapors.	2d. No open flames/heat sources. 2d. To minimize exposure to vapors, allow well to vent after opening it and before sampling activities begin. 2d. Stand up-wind, if possible, to avoid inhaling vapors.
3. Gauge well.	**3a. CONTACT:** With contamination (e.g. contaminated groundwater).	3a. Wear chemical-resistant disposable gloves (over cut-resistant gloves) and safety glasses when gauging well. 3a. Insert and remove probe slowly to avoid splashing. 3a. Use an absorbent pad to clean probe.
	3b. CONTACT: With traffic.	3b. See 1b.

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ROUX

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
4. Purge and sample well	**4a. EXPOSURE/CONTACT:** To contamination (e.g., SPH, contaminated groundwater, vapors) and/or sample preservatives.	4a. Open and fill sample jars slowly to avoid splashing and contact with preservatives. 4a. Wear cut-resistant gloves and chemical-resistant disposable gloves when sampling. 4a. Fill sample containers over purge container to avoid spilling water onto the ground. 4a. Use an absorbent pad to clean spills. 4a. When using a bailer to purge a well, pull the bailer slowly from the well to avoid splash hazards. 4a. When sampling or purging the water using a bailer, pour out water slowly to reduce the potential for splash hazards with groundwater. 4a. When using a tubing valve always remove the valve slowly after sample collection to release any pressure and avoid pressurized splash hazards. 4a. When collecting a groundwater sample always point sampling apparatus (tubing, bailer, etc.) away from face and body.
	4b. CONTACT: Personal injury from cuts, abrasions, or punctures by glassware or sharp objects.	4b. To avoid spills or breakage, place sample ware on even surface. 4b. Do not over tighten caps on glass sample ware. 4b. Wear chemical-resistant nitrile disposable gloves over cut-resistant (i.e., Kevlar) gloves when sampling and handling glassware (i.e., VOA vials) or when using cutting tools.
	4c. EXERTION: Muscle strain while carrying equipment.	4c. Use proper lifting techniques when handling/moving equipment, bend knees and keep back straight. 4c. Use mechanical assistance or team lifting techniques when equipment is 50 lbs. or heavier. 4c. Make multiple trips to carry equipment.
	4d. CONTACT: With traffic.	4d. See 1b.
	4e. CONTACT: Pinch points with groundwater pump components (i.e., wheel, line, clamps).	4e. Wear leather gloves when working with groundwater pumps. 4e. Never place hands on or near pinch points such as the wheel, clamps or other moving parts during pump operations. 4e. Use the correct mechanisms, such as a pump reel, to lower pump into well. 4e. Never attempt to manually stop any moving part of equipment including hose reels and/or tubing.
	4f. EXERTION: Muscle strain from repetitive motion of bailing and sampling a well.	4f. See 4c. 4f. Include a stretch break when repetitive motions are part of the task.
5. Management of purge water.	**5a. EXPOSURE/CONTACT:** To contamination (e.g., SPH, contaminated groundwater, vapors).	5a. Do not overfill container and pour liquids slowly so that they do not splash. 5a. Properly dispose of used materials/PPE in appropriate container in designated storage area.
	5b. EXERTION: Muscle strain from lifting/carrying and moving containers.	5b. Use proper lifting techniques when lifting / carrying or moving container(s) (see 4c.). 5b. Do not overfill container(s).
6. Decontaminate equipment.	**6a. EXPOSURE/CONTACT:** To contamination (e.g., SPH, contaminated groundwater, vapors).	6a. Work on the upwind side, where possible, of decon area. 6a. Wear chemical-resistant disposable gloves and safety glasses. 6a. Use an absorbent pad to clean spills.
	6b. CAUGHT: Pinch points associated with handling hand tools	6b. See 2b. 6b. Inspect hand tools for sharp edges before decontaminating.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-015	DATE: 8/6/2018	☐NEW ☒REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Site Recon**	**Mobilization/Demobilization**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Rebecca Lowy	Staff Assistant Geologist	Brian Hobbs	Corporate Health & Safety Manager
Tally Sodre	OHSM		

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION (as needed) ☒ SAFETY SHOES: Steel Toe or composite toe	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest of high-visibility clothing; long sleeve shirt; long pants	☒ GLOVES: Leather, nitrile, and cut resistant (as needed) ☐ OTHER

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Required Equipment: Varies

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): A 10-foot exclusion zone will be maintained around equipment in use..

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilize/demobilize and establish work area	**1a. FALL:** Slip/trips/falls from obstructions, uneven terrain, weather conditions, heavy loads, and/or poor housekeeping.	1a. Use 3 points-of-contact/ensure secure footing when entering and exiting vehicle. 1a. Inspect walking path for uneven terrain, steep hills, obstructions, and/or weather-related hazards (i.e., ice, snow, and puddles) prior to mobilizing equipment. Use established pathways. Walk on stable/secure ground. 1a. Do not climb over stored materials/equipment; walk around. Practice good housekeeping; organize and store equipment neatly in one area at its lowest potential energy. 1a. Wear boots with adequate treads. 1a. Delineate unsafe areas with 42” cones, caution tape and/or flagging.
	1b. CONTACT: Personal injury and/or property damage caused by being struck by Site traffic or equipment used in Site activities.	1b. Observe and maintain the posted speed limits. 1b. When first arriving onsite, park vehicles in designated parking space and/or out of the way locations. Use parking brake on all vehicles and tire chocks on work trucks and trailers. 1b. Check in with Site Manager/Supervisor to ensure coordination with other Site activities and to discuss any special hazards. Ensure that short-service employees (SSE) are identified. 1b. Identify potential traffic sources. 1b. Wear PPE including high visibility clothing or reflective vest. 1b. Use a spotter while moving work vehicles; plan ahead to avoid backing whenever possible. 1b. Maintain a minimum 10’ exclusion zone when vehicles are in motion. When backing up truck rig with an attached trailer use a second spotter if there is tight clearance simultaneously on multiple sides of the equipment or if turning angles limit driver-to-spotter visibility. 1b. Delineate work area with 42” cones, flags, caution tape, and/or other barriers. 1b. Position “Work Area” signs at Site entrances, if possible, or at either side of work area.

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ROUX

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
		1b. Position largest vehicle to protect against oncoming traffic. 1b. Face traffic, maintain eye contact with oncoming vehicles, use a spotter, and establish a safe exit route. 1b. Observe potential overhead and ground surface features that may interfere with moving equipment. Clear the path of physical hazards prior to initiating mobilization.
	1c. CAUGHT: Personal injury from pinch points and being in line-of-fire of vehicle and/or equipment.	1c. Make sure driver has engaged parking brake and placed wheel chocks in a position to prevent movement. Be sure that vehicle is parked in front/down gradient (positioned to best block oncoming traffic) of work area. 1c. Wear leather gloves when handling any tools or equipment. Wear cut-resistant gloves (Kevlar or similar) when handling sharp objects/cutting tools/glass. 1c. Keep body parts away from line-of-fire of equipment. 1c. Always carry tools by the handles and/or designated carrier. Ensure sharp-edged tools are sheathed/secure. 1c. Remove any loose jewelry. Avoid wearing loose clothing and/or ensure loose clothing is secure. 1c. Secure all items on the equipment, tighten up any items or features that have potential to shift or break during mobilization.
	1d. OVEREXERTION: Muscle strains while lifting/carrying equipment.	1d. Use body positioning and lifting techniques that avoid muscle strain; keep back straight, lift with legs, turn with whole body, keep load close to body, and never reach with a load. 1d. Ensure that loads are balanced. Use assistance (mechanical or additional person) to carry equipment that is either unwieldy or over 50 lbs.
	1e. EXPOSURE: Personal injury from exposure to biological and environmental hazards.	1e. Inspect area to avoid contact with biological hazards (i.e. poisonous plants, stinging insects, ticks, etc.). 1e. Wear long sleeved clothes treated with Permethrin, apply insect repellant containing DEET to exposed skin, and inspect clothes and skin for ticks during and after work. 1e. Apply sunscreen (SPF 15+) if exposure to sun for 30 minutes or more is expected.
	1f. EXPOSURE: Weather related injuries.	1f. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, nausea, rapid and shallow breathing). Take breaks in cool places and hydrate as needed. 1f. Watch for cold stress symptoms (severe shivering, slowing of body movement, weakness, stumbling or inability to walk, collapse). Take breaks in warm areas as needed. 1f. Wear clothing appropriate for weather and temperature conditions (e.g., rain jackets, snow pants, multiple layers). 1f. If lightning is observed, wait 30 minutes in a sheltered location (car is acceptable) before resuming work.
	1g. EXPOSURE: Personal injury from noise hazards.	1g. Wear hearing protection if sound levels exceed 85 dBA (if you must raise your voice for normal conversation).

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

JOB SAFETYANALYSIS Ctrl. No. GEN-020	DATE: 8/6/2018	☐NEW ☒REVISED	PAGE 1 of 2

JSA TYPE CATEGORY: **GENERIC**	WORK TYPE: **Gauging & Sampling**	WORK ACTIVITY (Description): **Soil Sampling**	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**
MaryBeth Lyons	Project Scientist	Brian Hobbs	Corporate Health and Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES ☒ FLAME RESISTANT CLOTHING (as needed)	☐ GOGGLES ☐ FACE SHIELD: ☒ HEARING PROTECTION: (as needed) ☒ SAFETY SHOES: Composite-toe or steel toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	☒ GLOVES: Leather, Nitrile and cut resistant ☒ OTHER: Insect repellant, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Recommended Equipment: 42" traffic cones, caution tape, trowel

COMMITMENT TO SAFETY - All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs.

EXCLUSION ZONE (EZ): A 10-foot exclusion zone will be maintained around moving equipment, if present.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Secure location	**1a. CONTACT:** Personnel and vehicular traffic may enter the work area.	1a. If in an area with foot or vehicle traffic, delineate the work area with 42" traffic cones and/or caution tape to prevent exposure to traffic and inform others of work activity. 1a. Wear reflective vest and/or high visibility clothing. 1a. Face the direction of any vehicular traffic. Position vehicle to protect worker from traffic. 1a. Communicate work activity with adjacent work areas
	1b. FALL: Tripping/falling due to uneven terrain or entry/exit from excavations.	1b. Inspect pathways and work area for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions. 1b. Use established pathways and walk on stable, secure ground. 1b. Stage equipment and tools in a convenient, stable, and orderly manner. Store equipment at lowest potential energy. 1b. Roux employees should stay 5 feet from in-progress excavations and trenches. Should entry to an excavation be required (when stabilization is complete), ladders must be employed for steep embankments, excavations, pits, and trenches.
	1c. EXPOSURE: Exposure to sun and excessive heat, possibly causing sunburn, heat exhaustion or heat stroke. Exposure to cold temperatures possibly causing cold stress. Skin burn as a result of fire, if applicable. Exposure to explosive vapors due to tank farm operations. Exposure to airborne dust due to high wind speeds. Biological hazards - ticks, bees/wasps, poison ivy, thorns, insects, etc.	1c. Wear sunscreen with an SPF 15 or greater whenever 30 minutes or more of exposure is expected. 1c. Use a tent to shade the work area from direct sunlight particularly when warm temperatures are expected. 1c. Be aware of the location of all Site personnel. 1c. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). 1c. Watch for cold stress symptoms (severe shivering, slowing of body movement, weakness, stumbling or inability to walk, collapse). 1c. Take breaks for rest and water as necessary. Move to an area that is well shaded or a climate controlled area (i.e., car, site trailer, etc.). 1c. No open flames/heat sources. 1c. Flame retardant clothing must be worn when specified by Site policy. 1c. Cell phones should be disabled when specified by Site policy. 1c. Pre-treat field clothing with Permethrin prior to site visit to kill ticks and insects. 1c. Wear long sleeved shirts and tuck in (or tape) pant legs into socks or boots to prevent ticks from reaching skin. 1c. Spray insect repellant containing DEET on exposed skin when working in overgrown areas of the Site. 1c. Inspect area to avoid contact with biological hazards. 1c. Wear cut-resistant gloves when handling branches, shrubs, etc. that may lie within the walking path. 1c. Wear spoggles if the average wind speeds are above 15 mph. 1c. Personnel shall examine themselves and co-worker's outer clothing for ticks periodically when onsite. 1c. If skin comes in contact with poison ivy, wash skin thoroughly with soap and water. If rash persists after washing, immediately notify your supervisor, the OM and OHSM for possible consultation with a physician at an approved Occupational Health Clinic.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

ROUX

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
2. Collect Soil Sample	**2a. CONTACT:** Personal injury from pinch points, cuts, and abrasions from sampling equipment tools, and material within soil sample. Personal injury from contact with moving equipment while sampling. Personal injury from contact with glass sample jars.	2a. Wear cut-resistant (i.e., Kevlar) gloves under chemical-resistant (nitrile) disposable gloves when handling soil samples and sampling jars. 2a. Where possible, use trowel or equivalent tool to avoid contact with soil. 2a. If sampling from bucket of heavy equipment, ensure all equipment is off and operator utilizes the “show me your hands” policy. 2a. See 1a.
	2b. EXPOSURE: Exposure to contamination (impacted soil) and/or lab preservatives.	2b. Wear chemical-resistant (nitrile) disposable gloves over cut resistant gloves to protect hands when handling samples; use containment material or plastic sheeting to protect surrounding areas. 2b. Wear safety glasses to protect eyes from dust or air-borne contaminants that may results from disturbing the soil. 2b. Where possible, remain upgradient from sample location if collecting soil sample from stockpile, drill rig, etc. to avoid breathing contaminant vapors, if they are present. 2b. When collecting soil sample from hand auger, put large zip lock bag over entire auger to prevent spillage of soil on to the ground. 2b. Open sample jars slowly and fill carefully to avoid contact with preservatives.
	2c. EXERTION: Exertion due to repetitive motion and ergonomics.	2c. Utilize a table or raised surface for soil sampling if multiple soil samples are going to be taken to minimize repetitive bending motion.
3. Decontaminate equipment	**3a. EXPOSURE/CONTACT:** Contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated vapors and/or soil).	3a. Wear chemical-resistant (nitrile) disposable gloves and safety glasses. 3a. Use an absorbent pad to clean spills. 3a. Properly dispose of used materials/PPE in provided drums in designated drum storage area. 3a. Remain upwind of sample and avoid breathing contaminant vapors, if they are present.
	3b. EXPOSURE: Chemicals in cleaning solution including ammonia.	3b. Wear chemical-resistant (nitrile) disposable gloves and safety glasses. 3b. Work on the upwind side of decontamination area. 3b. Use an absorbent pad to clean spills. 3b. Properly dispose of used materials/PPE in provided drums in designated drum storage area. Ensure that all drums are properly labeled and secured.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

JOB SAFETY ANALYSIS	Ctrl. No. GEN-023	DATE: 8/6/2018	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)	
Generic	**Construction**	**Spotting Heavy Machinery**	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**
Levi Curnutte	Project Scientist	Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ Particulate Respirator	☒ GLOVES: Cut resistant / leather
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER:
☒ LONG SLEEVED SHIRT	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective clothing	
☐ LIFELINE / BODY HARNESS	☒ SAFETY SHOES: Steel-/Composite-toe boots/shoes		
☒ SAFETY GLASSES			

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Heavy Machinery (i.e. excavator, payloader, truck, forklift, etc.)

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): A 10-foot exclusion zone will be maintained around heavy equipment. Larger equipment with an increased operating or tip-over radius may need a larger exclusion zone. This should be defined prior to operating each piece of equipment

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Prepare for machine activity.	**1a. CONTACT:** Obstructions in the work area may create contact hazards from machinery.	1a. Cordon off the work area with safety barrels/cones and a rigid barrier (snow fence, traffic bar, etc.). Communicate that only necessary personnel should be in the work area. Spotter and equipment operator shall enforce the **10-ft (exclusion zone) EZ.** Operator will not operate but shall remain in the hands-off mode while personnel are within the exclusion zone.
	1b. Fall : Slip/Trip/Fall	1b. Ensure that work area is flat, level and clear of any obstructions or debris before setting up work zone.
2. Spotting.	**2a. CONTACT:** Machine or load contact with personnel, property, or machinery.	2a. Discuss the specifics of the work with the operator and be clear about any hand signals that will be used. Clearly discuss the limits of the assigned work area and the machine's Exclusion Zone. Maintain Exclusion Zone. The Exclusion Zone shall be delineated by using 42-inch traffic cones/barrels and a fixed rigid barrier. 2a. The Minimum Heavy Equipment Exclusion zone is 10ft. if it is a larger piece of equipment or has an increased swing or tip-over radius the exclusion zone will need to be increased to accommodate the full range of motion. 2a. Both the spotter and equipment operators shall have 2-way radios/cellular devices on their persons to ensure audible communication in the event any changes or new hazards may arise. 2a. All workers should stay outside of the Exclusion Zone of all equipment unless operator is stopped and in "Hands Off" mode. **(This includes the spotter unless an exception has been established in the Site-specific JSA).** If the Exclusion Zone must be reduced due to work area restrictions then the spotter and operator shall enforce the reduced Exclusion Zone. 2a. Spotters must make eye contact with the machine operator or all movement ceases until visual contact can be reestablished. 2a. Spotter shall keep an eye out for any issues with the machine the operator may not see and communicate with other work crews and spotters on behalf of the operator. 2a. If the spotter needs to take a break, he must find a replacement before leaving or have the machine stop operations. **No heavy equipment shall operate without a spotter under any circumstances.** 2a. Wear fluorescent clothing/safety vest.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
	2b. FALL: Slip/Trip/Fall	2b. Look where walking to identify and avoid slip/trip/fall hazards. Avoid icy and/or wet surfaces. Remove obstacles if possible. 2b. Use designated walkways during spotting whenever possible.
	2c. CAUGHT: Caught between machinery and nearby objects.	2c. **Maintain Exclusion Zone.** Do not stand between large, loose or fixed objects or structures and the machinery while it is in motion. Keep in sight of operator at all times while being aware of surrounding structures.
	2d. EXPOSURE: Inhalation of exhaust from machinery.	2d. The spotter will position him/herself upwind of the working machinery, when possible. Spotter will also inform others working within the vicinity of the EZ of proper positioning, if applicable.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-025	DATE: 8/6/2018	☐ NEW ☒ REVISED	PAGE 1 of 1

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**General**	**Trucking**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Lauren Dolginko	Project Geologist	Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Leather or cut resistant
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LONG SLEEVED SHIRT	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective vest or high visibility long sleeved clothing	
☐ LIFELINE / BODY HARNESS	☒ SAFETY SHOES: Steel-toe boots		
☒ SAFETY GLASSES			

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Heavy equipment (i.e. trucks)

COMMITMENT TO SAFETY- All personnel onsite will actively participate in Hazard recognition and mitigation throughout the day by verbalizing SPSAs.

EXCLUSION ZONE: A 10' minimum exclusion zone will be maintained around excavator, backhoe, dump trucks and other heavy equipment.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Set up work zone.	**1a. CONTACT:** Personal injury/property damage caused by obstruction/vehicle.	1a. Establish work zone for manifesting/paperwork by communicating with workers before task begins. Maintain a **10 ft Exclusion Zone (EZ)** around all heavy equipment.
2. Loading of truck.	**2a. CONTACT:** Rolling Vehicle could cause bodily harm. **2b. CONTACT:** Machine or load may crush personnel, property or machinery. **2c. CONTACT:** Load shifting during travel.	2a. All commercial vehicles without an operator must have their engines off and wheels chocked. Truck and loading area should be on level ground. 2b. All machines (Excavator, Lull, Backhoe) must have a spotter. Spotter must communicate contact hazards such as other personnel in the work area, objects in the machine's blind spot, and overhead lines to the operator. Spotter and operator should have 2-way radios or established hand signals to communicate when needed. 2b. Loads must not be swung over other vehicles or personnel. 2b. Maintain **10ft EZ** around all equipment. 2c. Secure all loads prior to moving the truck with chains or straps or cribbing. 2c. Any loose soil or debris should be cleaned off truck sides prior to truck mobilization. 2c. All truck beds must be secured prior to traveling.
3. Dumping loads.	**3a. CONTACT:** Truck may flip sideways or backwards.	3a. All workers must stay behind and away from the side of trucks that are dumping to avoid contact with the truck potentially tipping sideways or backwards. EZ must be maintained equal to the height of bed while lifted.
4. Exchanging paperwork with truck driver.	**4a. CONTACT/CAUGHT:** Broken bones from contact by vehicle. **4b. FALL:** Slip, Trip or Fall may cause muscle strains or tears, abrasions or lacerations, or broken bones.	4a. Truck driver should exit truck with proper PPE and enter the established work zone to complete paperwork. If Site-specific safety prohibits drivers from exiting the truck, wait until truck is finished loading, with engine turned off, before approaching truck. 4a. Always establish eye contact with driver prior to approaching truck. 4a. Confirm sides of truck have been cleaned/brushed off prior to approaching truck. 4b. Survey walking route to identify slip/trip/fall hazards. Avoid icy/wet surfaces. Remove slip/trip/fall hazards if present. 4b. Communicate with driver and spotter prior to approaching truck. Maintain a **10 ft EZ** around all heavy equipment.

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APPENDIX B

SDSs for Chemicals Used

a division of KOBAYASHI

August 19. 2014

Last Revision: August / 19 / 2014

Safety Data Sheet

Section 1 . Product and Company Identification

Product Name	: Grabber Hand Warmers, Foot Warmers, Insole Foot Warmers, Toe Warmers, Body Warmers, Adhesive Body Warmers, and Survival Heat
Synonyms:	Air Activated heating pads in protective film- various sizes.
Company Name	: Grabber, Inc.,
Contact:	Quality Assurance Department
Address:	245 Kraft Drive, Dalton GA 30721
TEL	: 706-226-1800

Section 2. Hazard Identification

Hazardous properties	: Hazard is low when used under normal conditions.
Appearance and odor:	Odorless, solid power.
Physical or chemical hazards	: Hazard is low when used under normal conditions.

Section 3. Composition, Ingredients

Substance / Mixture	: Mixture
Common Name	: Warming Sheet（Air-activated heat pad）
Harmful Substances	: No appreciable hazardous substances present. Main ingredients: Charcoal, iron powder.

Section 4 . First-aid Measures

IF ON SKIN	: Wash with soap and rinse thoroughly with water.
IF IN EYES	: Do not rub affected eyes. Rinse eyes with running water for at least 15 minutes.
IF SWALLOWED	: Rinse mouth thoroughly with water.

Always consult a physician if the abnormal condition persists after taking the measures mentioned above.

Section 5 . Fire-extinguishing Measures

Extinguishing agent	: Sand, dry chemical powder, carbon dioxide, foam, etc.
Extinguishing procedure	: Extinguish the fire by spraying or applying the extinguishing agent directly to the origin of the fire. If at all possible, approach the fire and apply the

agent from the windward side of the fire.

Protective equipment : Wear protective equipment appropriate to the condition of the fire (gloves, goggles, masks, etc.)

Section 6. Accidental Release Measures

Personal precautions : To prevent contact with the skin ventilate the air and personal protective equipment such as rubber gloves.

Environmental precautions : Exercise caution to prevent the substance from being released into rivers, etc., and adversely affecting the environment.

Method of removal : If the contents of an air-activated heat pad leaks, sweep it up and place the substance in a container filled with water.

Prevention of a secondary accident : Make sure to remove anything from the vicinity that may contribute to a secondary fire. Carry out additional fire retardant applications as necessary and do not walk on the released material.

Section 7. Handling and Storage

Safe handling : Do not use for any unintended purpose.

Storage : Store the substance away from direct sunlight and high temperatures or humidity.

Other : Comply with all applicable laws and regulations including the Fire Defense Law and the Industrial Safety and Health Law.

Section 8. Exposure Control and Personal Protection

Technical measures : Not established.

Control concentration and threshold limits : Not established

Section 9. Physical and Chemical Properties

Form	: Flat structure
Color	: White (contents are black)
Odor	: No odor
p H	: Unmeasurable
Flash point	: --
Specific gravity (d20/20)	: --
Solubility (20℃)	: --

Section 10. Stability and Reactivity

Stability : Stable under normal conditions.

Reactivity : No specific reactivity.

Section 11. Toxicological Information

Oral toxicity	: LD_{50}＞2000mg/kg（oral, rat）
Eye irritation	: No information
Skin irritation	: Slight to moderate irritation (rabbit, 24 hour occlusive test)

Section １２. Ecological Information

No data

Section １３. Disposal Considerations

Waste from residue, container, packaging	: Dispose in accordance with national and local laws and regulations.

Section１４. Transportation Information

Domestic	Land	: Comply with a method of transportation specified in Fire Defense Law, Industrial Safety and Health Law
	Sea	: Comply with a method of transportation specified in Ship Safety Act.
	Air	: Comply with a method of transportation specified in Civil Aeronautics Act.
International		: Comply with rules specified in IATA for air transportation and IMDG for sea transportation.
United Nations		: N/A
UN Code		: N/A

Section１５. Applicable Rules & Regulations

Fire Defense Law	: N/A
Industrial Safety and Health Act	: N/A
PRTR Law	: N/A
Poisonous and Deleterious Substances Control Act	: N/A

Section１６. Other Information

References	: MSDS from component manufacturers

This Safety Data Sheet (SDS) was prepared based on the latest documents, information and data available at the time of preparation and may be revised if any new findings are obtained in the future.

The precautions stated in this SDS apply to normal conditions of use. Whenever the product is used under special conditions, it is the responsibility of the user to take proper safety measures.

ITEM: 5BB83 - Lens Cleaner 16 oz.

MSDS: B9077 **ORDER: 0097834866** **LP NUMBER: UCN9009428**

MATERIAL SAFETY DATA SHEET (MSDS)

This MSDS should be attached or kept with the respective product with which it is associated.

IAL SAFETY DATA SHEET - B9077

Associated Grainger Items
5BB78, 5BB79, 5BB80, 5BB81, 5BB82, 5BB83, 5BB84, 2LBC6, 1AV39, 4T932, 4T933 4T937, 9AJ35, 9AJ37, 5XR77, 8A171, 8A679, 8AX10, 8NDP9, 8VU95, 8XYL0, 8XYL1 9TXN0

BAUSCH & LOMB(TM)

MATERIAL SAFETY DATA SHEET

SIGHT SAVERS BRAND ANTI-FOG LIQUID

EFFECTIVE DATE: 3/25/09

SUPERSEDES: 8/26/05

SECTION 1: IDENTIFICATION

PRODUCT:

PRODUCT NAME: SIGHT SAVERS BRAND ANTI-FOG LIQUID

PRODUCT DESCRIPTION: DILUTE SOLVENT AND SURFACTANT SOLUTION

PRODUCT CODE(S):
24, 25, 25S, 68, 69, 1200, 1200T, 8563P, 8565, 8569, 8570, 143060, 8568P

INTENDED USE: CLEANING AGENT FOR GLASS AND PLASTIC LENSES

COMPANY IDENTIFICATION:
BAUSCH & LOMB, INCORPORATED
1400 N. GOODMAN STREET
ROCHESTER, NEW YORK 14609

FOR INFORMATION: 1-800-553-5340

EMERGENCY TELEPHONE NUMBER:
24-HOUR EMERGENCY: 1-800-535-5053

SECTION 2: HAZARD(S) IDENTIFICATION

CLASSIFICATION:
FLAMMABLE LIQUID; CATEGORY 3
EYE IRRITATION; CATEGORY 2A

LABELING:

PICTOGRAMS:
FLAMMABLE
HEALTH HAZARDS OF LOWER SEVERITY

SIGNAL WORD: WARNING

HAZARD STATEMENTS:
FLAMMABLE LIQUID AND VAPOR
CAUSES SERIOUS EYE IRRITATION

PRECAUTIONARY STATEMENTS:
KEEP AWAY FROM IGNITION SOURCES SUCH AS HEAT/SPARKS/OPEN FLAMES - NO SMOKING

NOT FOR USE ON CONTACT LENSES

STORE IN A COOL, WELL-VENTILATED PLACE

USE ONLY IN ACCORDANCE WITH LABEL INSTRUCTIONS.

AVOID RELEASE TO THE ENVIRONMENT.

KEEP OUT OF REACH OF CHILDREN

POTENTIAL HEALTH EFFECTS:

EYE: AVOID CONTACT WITH THE EYE. MAY CAUSE SEVERE EYE IRRITATION.

SKIN:
FREQUENT OR PROLONGED CONTACT WITH SKIN OR MUCOUS MEMBRANES MAY CAUSE IRRITATION OR DRYNESS.

INGESTION:
NOT EXPECTED TO BE AN EXPOSURE ROUTE. HOWEVER, MAY CAUSE GASTRIC AND INTESTINAL IRRITATION IF INGESTED.

INHALATION:
NOT EXPECTED TO BE A SIGNIFICANT EXPOSURE ROUTE. VAPOR OR MIST MAY BE IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.

CHRONIC HEALTH EFFECTS: NONE IDENTIFIED.

CARCINOGENICITY:
NTP: NA
IARC: (CAS# 67-63-0) GROUP 3, NOT CLASSIFIABLE FOR HUMAN.
OSHA: NA

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

CAS #	CHEMICAL IDENTITIY	CONCENTRATION, % W/W	EINECS / ELINCS #
67-63-0	ISOPROPYL ALCOHOL	12	200-661-7
34590-94-8	DIPROPYLENE GLYCOL METHYL ETHER	2	252-104-2
MIXTURE	SILICONE	PROPRIETARY	NA
151-21-3	SODIUM LAURYL SULFATE	PROPRIETARY	205-788-1
NA	PERFUME	PROPRIETARY	NA
2586-60-9	CALCOMINE BRILLANT VIOLET	PROPRIETARY	NA
7732-18-5	PURIFIED WATER	PROPRIETARY	231-791-2

SECTION 4: FIRST AID MEASURES

INHALATION:
NORMAL USE OF THIS PRODUCT DOES NOT POSE AN INHALATION HAZARD. HOWEVER, SHOULD RESPIRATORY TRACT IRRITATION DEVELOP,DISCONTINUE USE AND REMOVE TO FRESH AIR. GET MEDICAL ATTENTION IF IRRITATION OR OTHER SYMPTOMS DEVELOP OR PERSIST.

SKIN CONTACT:
SHOULD IRRITATION DEVELOP, DISCONTINUE USE. WASH AFFECTED SKIN THOROUGHLY WITH SOAP AND WATER. GET MEDICAL ATTENTION IF IRRITATION OR OTHER SYMPTOMS DEVELOP OR PERSIST.

EYE CONTACT:
HOLD EYELIDS APART AND FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION.

INGESTION:
IF SWALLOWED, DO NOT INDUCE VOMITING. SEEK MEDICAL ATTENTION IMMEDIATELY.

NOTE TO PHYSICIAN:
MATERIAL IF INGESTED MAY BE ASPIRATED INTO THE LUNGS AND CAN CAUSE CHEMICAL PNEUMONITIS. TREAT APPROPRIATELY.

SECTION 5: FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA:
CARBON DIOXIDE, DRY CHEMICAL POWDER, APPROPRIATE FOAM OR WATER FOG.

HAZARDOUS COMBUSTION PRODUCTS:
DURING A FIRE, IRRITATING AND HIGHLY TOXIC GASES MAY BE GENERATED BY THERMAL DECOMPOSITION OR COMBUSTION.

SPECIAL FIRE FIGHTING INSTRUCTIONS:
AS IN ANY FIRE, WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE GEAR TO PREVENT CONTACT WITH SKIN AND EYES.

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:
WEAR SUITABLE PROTECTIVE EYEWEAR, CLOTHING, RESPIRATORY PROTECTION, RUBBER BOOTS AND RUBBER GLOVES. SHUT OFF ALL SOURCES OF IGNITION. EVACUATE IMMEDIATE AREA. ENSURE ADEQUATE VENTILATION. REFER TO SECTIONS 7 AND 8.

ENVIRONMENTAL PRECAUTIONS:
PREVENT SPILLED MATERIAL FROM ENTERING STORM SEWERS OR DRAINS, WATERWAYS, AND CONTACT WITH SOIL.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP:
ISOLATE HAZARD AREA. PREVENT FROM ENTERING DRAINS AND SEWERS. COVER WITH VERMICULITE OR OTHER SUITABLE INERT MATERIAL, PICK UP AND PLACE IN CLOSED CONTAINERS. TRANSPORT OUTDOORS AND HOLD FOR WASTE DISPOSAL. VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

REFER TO SECTION 13 FOR APPROPRIATE DISPOSAL PROCEDURES.

SECTION 7: HANDLING AND STORAGE

HANDLING:
AVOID CONTACT WITH EYES. AVOID PROLONGED OR REPEATED EXPOSURE TO SKIN OR MUCOUS MEMBRANES, AND BREATHING MISTS/VAPORS. USE IN A WELL VENTILATED AREA, AWAY FROM ALL IGNITION SOURCES. WASH THOROUGHLY WITH SOAP AND WATER AFTER HANDLING.

STORAGE:
STORE PRODUCT AT ROOM TEMPERATURE, IN A WELL VENTILATED PLACE. DISCARD APPROPRIATELY IF PACKAGE INTEGRITY IS COMPROMISED.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

CONTROL PARAMETERS:

CAS #	COMPONENT NAME	OCCUPATIONAL EXPOSURE LIMITS / GUIDELINES					
		OSHA PEL		ACGIH TLV		NIOSH	
		TWA	/STEL	TWA	/STEL	TWA	/STEL
67-63-0	ISOPROPYL ALCOHOL	400	NE	200	400	400	500
34590-94-8	DIPROPYLENE GLYCOL METHYL ETHER	100	150	100	150	100	150
151-21-3	SODIUM LAURYL SULFATE	NE	NE	NE	NE	NE	NE
MIXTURE	SILICONE	NE	NE	NE	NE	NE	NE
NA	PERFUME	NE	NE	NE	NE	NE	NE
2586-60-9	CALCOMINE BRILLANT VIOLET	NE	NE	NE	NE	NE	NE
7732-18-5	PURIFIED WATER	NE	NE	NE	NE	NE	NE

CAS #	COMPONENT	OCCUPATIONAL EXPOSURE LIMITS / GUIDELINES		UNITS
		IRELAND	HSE	

		TWA	/STEL	TWA	/STEL	
67-63-0	ISOPROPYL ALCOHOL	400	500	400	500	PPM
34590-94-8	DIPROPYLENE GLYCOL METHYL ETHER	50	100	50	NE	PPM
1-3	SODIUM LAURYL SULFATE	NE	NE	NE	NE	NA
MIXTURE	SILICONE	NE	NE	NE	NE	NA
NA	PERFUME	NE	NE	NE	NE	NA
2586-60-9	CALCOMINE BRILLANT VIOLET	NE	NE	NE	NE	NA
7732-18-5	PURIFIED WATER	NE	NE	NE	NE	NA

N/E: NOT ESTABLISHED

OSHA: OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION

TWA: 8-HOUR TIME-WEIGHTED AVERAGE

PPM: PARTS PER MILLION

N/A: NOT APPLICABLE

STEL: SHORT-TERM EXPOSURE LIMIT

ACGIH: AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS

C: CEILING LIMIT

NIOSH: NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY & HEALTH

REL: RECOMMENDED EXPOSURE LIMIT

NOTE:
LIMITS/STANDARDS SHOWN FOR GUIDANCE ONLY. FOLLOW APPLICABLE REGULATIONS.

ENGINEERING CONTROLS:
USE WITH GOOD GENERAL VENTILATION. NO SPECIAL CONTROLS REQUIRED.

RESPIRATORY PROTECTION:
NO SPECIAL CONTROLS OR PERSONAL PROTECTION REQUIRED UNDER CONDITIONS OF INTENDED USE.

IN THE EVENT OF A SPILL, A NIOSH-CERTIFIED AIR-PURIFYING RESPIRATOR WITH ORGANIC VAPOR CARTRIDGES MAY BE PERMISSIBLE UNDER CERTAIN CIRCUMSTANCES WHERE AIRBORNE CONCENTRATIONS ARE EXPECTED TO EXCEED EXPOSURE LIMITS AND WHEN ADEQUATE OXYGEN IS PRESENT. USE A POSITIVE PRESSURE AIR-SUPPLIED RESPIRATOR IF THERE IS ANY POTENTIAL FOR AN UNCONTROLLED RELEASE OR ANY OTHER CIRCUMSTANCES WHERE AIR PURIFYING RESPIRATORS MAY NOT PROVIDE ADEQUATE PROTECTION.

EYE PROTECTION:
AVOID CONTACT WITH THE EYE. NO SPECIAL CONTROLS OR PERSONAL PROTECTION REQUIRED UNDER CONDITIONS OF INTENDED USE.

IN THE EVENT OF A SPILL, APPROPRIATE EYE PROTECTION SHOULD BE WORN.

SKIN PROTECTION:
NO SPECIAL CONTROLS OR PERSONAL PROTECTION REQUIRED UNDER CONDITIONS OF INTENDED USE.

IN THE EVENT OF A SPILL, USE RUBBER GLOVES.

ADDITIONAL PROTECTIVE CLOTHING & EQUIPMENT: NA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: LIQUID

COLOR: PURPLE

ODOR: SLIGHT ALCOHOL ODOR

ODOR THRESHOLD: NOT DETERMINED

pH-VALUE: 7

MELTING POINT: NOT APPLICABLE

FREEZING POINT: 0 DEG. C (32 DEG. F)

INITIAL BOILING POINT: 100 DEG. C (212 DEG F)

FLASH POINT: 40.6 DEG. C (105 DEG. F) ASTM METHOD D3828-98

EVAPORATION RATE: NOT DETERMINED

FLAMMABILITY (SOLID, GAS): FLAMMABLE

EXPLOSION LIMITS: NOT DETERMINED

VAPOR PRESSURE: 30 MM @ 77 DEG. F

VAPOR DENSITY: NOT DETERMINED

SPECIFIC GRAVITY (H2O=1): 1.0

SOLUBILITY: SOLUBLE IN WATER

PARTITION COEFFICIENT: NOT APPLICABLE

AUTO-IGNITION TEMPERATURE: NOT DETERMINED

DECOMPOSITION TEMPERATURE: NOT DETERMINED

VISCOSITY: NOT DETERMINED

SECTION 10: STABILITY AND REACTIVITY

REACTIVITY: NO KNOWN HAZARDS.

CHEMICAL STABILITY: STABLE UNDER NORMAL CONDITIONS.

POSSIBILITY OF HAZARDOUS REACTIONS: NONE ARE KNOWN.

CONDITIONS TO AVOID: HEAT, SOURCES OF IGNITION.

INCOMPATIBLE MATERIALS:
CAUSTICS, STRONG ACIDS, ALKANOLAMINES, STRONG OXIDIZING AGENTS, AND CHLORINATED COMPOUNDS.

HAZARDOUS DECOMPOSITION: NONE KNOWN

SECTION 11: TOXICOLOGICAL INFORMATION

RTECS NO.: NT8050000

ISOPROPYL ALCOHOL:

TOXICITY DATA:

ORL-RAT:
LD50: 5045 MG/KG

IHL-RAT:
LC50: 16000 PPM/8H

SKN-RBT:
LD50: 12800 MG/KG

IRRITATION DATA:
EYE-RBT: 100 MG SEV
SKN-RBT: 500 MG (MILD)

RTECS NO.: JM1575000

DIPROPYLENE GLYCOL METHYL ETHER:

TOXICITY DATA:

ORL-RAT:
LD50: 5400 (MICRO)L/KG

IRRITATION DATA:
EYE-RBT: 500 MG/24H (MILD)
SKN-RBT: 500 MG (MILD)

RTECS NO.: WT1050000

SODIUM LAURYL SULFATE:

TOXICITY DATA:

ORL-RAT:
LD50: 1288 MG/KG

IRRITATION DATA:
EYE-RBT: 100 MG/24H (MODERATE)
SKN-RBT: 50 MG/24H (MILD)

RTECS NO.: QK1420000

CALCOMINE BRILLANT VIOLET:

TOXICITY DATA:

ORL-RAT:
TDLO: 1125 MG/KG/71W

NOTE:
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12: ECOLOGICAL INFORMATION

NO SPECIFIC ECOLOGICAL DATA ARE AVAILABLE FOR THIS PRODUCT.

SECTION 13: DISPOSAL CONSIDERATIONS

ALL DISPOSAL METHODS MUST BE IN COMPLIANCE WITH ALL FEDERAL, STATE/PROVINCIAL AND LOCAL LAWS AND REGULATIONS. REGULATIONS MAY VARY IN DIFFERENT LOCATIONS. WASTE CHARACTERIZATIONS AND COMPLIANCE WITH APPLICABLE LAWS ARE THE SOLE RESPONSIBILITY OF THE WASTE GENERATOR.

SECTION 14: TRANSPORT INFORMATION

	US DOT	IATA	IMO	RID/ADR
SHIPPING NAME	CONSUMER COMMODITY	CONSUMER COMMODITY	ALCOHOL, N.O.S. (CONTAINS ISOPROPANOL)	NO INFORMATION AVAILABLE
HAZARD CLASS	ORM-D	9	3	
UN NUMBER	NA	8000	1987	
PACKAGE GROUP	NA	910 (PACKAGING INST.)	III, LIMITED QUANTITY, F.P. 40.5 C CC	

CANADIAN TDG

SHIPPING NAME	NO INFORMATION AVAILABLE
HAZARD CLASS	
UN NUMBER	

Five Part Reactive Gas Mixture:
Hydrogen Sulfide / Carbon Monoxide / Methane / Oxygen / Nitrogen

1. Chemical Product and Company Identification

SpecAir Specialty Gases, Chemicals & Technology
22 Albiston Way
Auburn, ME
04210

TELEPHONE NUMBER: 800-292-6218
FAX NUMBER: 207-777-6215
E-MAIL: Info@SpecAir.com

24-HOUR EMERGENCY NUMBER: 1-800-535-5053

PRODUCT NAME: Five Part Reactive Gas Mixture
CHEMICAL NAME: Methane, Carbon Monoxide, Hydrogen Sulfide, Oxygen in Nitrogen
COMMON NAMES/ SYNONYMS: None
TDG (Canada) CLASSIFICATION: 2.2
WHIMIS CLASSIFICATION: A

2. Composition / Information on Ingredients

	% VOLUME	PEL-OSHA2	TLV-ACGIH3	LD50 OR LC50 Route/Species
Hydrogen Sulfide Formula: H2S CAS: 7783-06-4 RTECS#: MX1225000	0.0005% to 0.01% 5 PPM to 100 PPM	20 PPM Ceiling Concentration	10 PPM TWA 15 PPM STEL	LC50 712 PPM Inhalation/Rat 1 Hr.
Methane Formula: CH4 CAS: 0074-82-8 RTECS#: TX2275000	0.0001% to 2.5%	None Established	None Established Simple Asphyxiant	Not Available
Carbon Monoxide Formula: CO CAS: 0630-08-0 RTECS#: FG3500000	0.0001% to 0.1%	TWA 50 PPM	25 PPM TWA	LC50 1807 PPM / 4 Hr. (Rat)
Oxygen Formula: O2 CAS: 7782-44-7 RTECS#: RS206000	2.0% to 23%	None	None	Not Available
Nitrogen Formula: N2 CAS: 7727-37-9 RTECS#: QW9700000	74.39% to 98.0%	None Established	None Established Simple Asphyxiant	Not Available

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

This product is a colorless gas, which has a rotten-egg odor. The odor cannot be relied on as an adequate warning of the presence of this product, because olfactory fatigue occurs after over-exposure to hydrogen sulfide. Hydrogen sulfide and carbon monoxide are toxic to humans in relatively low concentrations. Over-exposure can cause skin or eye irritation, nausea, dizziness, headaches, collapse, unconsciousness, coma, and death.

ROUTE OF ENTRY:

Skin Contact	Skin Absorption	Eye Contact	Inhalation	Ingestion
Yes	No	Yes	Yes	No

CARCINOGENICITY:

NTP: No

IARC: No

OSHA: No

EYE EFFECTS:
Hydrogen sulfide can cause eyes to become scratchy, irritated and even teary. Above 50 ppm of hydrogen sulfide, there is an intense tearing blurring of vision, and pain when looking at light.

SKIN EFFECTS:
Over-exposure to carbon monoxide can be indicated by the lips and fingernails turning bright red. High concentrations of hydrogen sulfide may also be irritating to the skin.

INGESTION EFFECTS:
Ingestion unlikely. Gas at room temperature.

INHALATION EFFECTS:
Due to the small size of this cylinder, no unusual heath effects from over-exposure are anticipated under routine circumstances of use. Over-exposure to hydrogen sulfide can cause dizziness, headache, and nausea. At 12- 16% Oxygen, breathing and pulse rate is increased, muscular coordination is slightly disturbed.

NFPA Hazard Codes

Health:	4
Flammability:	0
Reactivity:	0

HMIS Hazard Codes

Health:	4
Flammability:	0
Reactivity:	0

Rating System

0=	No Hazard
1=	Slight Hazard
2=	Moderate Hazard
3=	Serious Hazard
4=	Severe Hazard

4. FIRST AID MEASURES

EYES:
PERSONS WITH POTENTIAL EXPOSURE SHOULD NOT WEAR CONTACT LENSES. Flush contaminated eyes with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes. Seek immediate medical attention.

SKIN:
Remove contaminated clothing as rapidly as possible. Flush affected area with copious quantities of water. Seek immediate medical attention.

INGESTION:
Contact Poison Control. Seek Medical Attention

INHALATION:
PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASED OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED THE SELF-CONTAINED BREATHING APPARATUS. Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. If breathing has stopped administer artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.

5. FIRE-FIGHTING MEASURES

These containers hold gas under pressure, with no liquid phase. If involved in a major fire, they should be sprayed with water to avoid pressure increases, otherwise pressures will rise and ultimately they may distort or burst to release the contents. The gases will not add significantly to the fire, but containers or fragments may be projected considerable distances - thereby hampering firefighting efforts.

6. ACCIDENTAL RELEASE MEASURES

In terms of weight, these containers hold very little contents, such that any accidental release by puncturing etc. will be of no practical concern.

7. HANDLING AND STORAGE

Suck back of water into the container must be prevented. Do not allow back feed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Use only in well-ventilated areas. Do not heat cylinder by any means to increase rate of product from the cylinder. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Use adequate ventilation for extended use of gas.

9. PHYSICAL AND CHEMICAL PROPERTIES

PARAMETER:	VALUE:
Physical state	: Gas
Evaporation point	: N/A
pH	: N/A
Odor and appearance	: Colorless gas with a rotten-egg odor

10. STABILITY AND REACTIVITY

Stable under normal conditions. Expected shelf life 12 months.

11. TOXICOLOGICAL INFORMATION

This gas mixture contains components that may cause embryo toxic effects in humans; however, due to the small size of the cylinder no toxicological damage is anticipated.

12. ECOLOGICAL INFORMATION

No ecological damage is expected to be caused by this product.

13. DISPOSAL INFORMATION

Do not discharge into any place where its accumulation could be dangerous. Used containers are acceptable for disposal in the normal waste stream as long as the cylinder is empty and valve removed or cylinder wall is punctured; but SpecAir Specialty Gases encourages the consumer to return cylinders back to manufacturer.

14. TRANSPORT INFORMATION

	United States DOT	Canada TDG
Proper Shipping Name:	Compressed Gas N.O.S. (Hydrogen Sulfide, Nitrogen)	Compressed Gas N.O.S. (Hydrogen Sulfide, Nitrogen)
Hazard Class:	2.2	2.2
Identification Number:	UN1956	UN1956
Shipping Label:	Non-Flammable Gas	Non-Flammable Gas

15. REGULATORY INFORMATION

The components of this product are listed under the accident prevention provisions of section 112(r) of the Clean Air Act (CAA) with a threshold quantity (TQ) of 10,000 pounds each.

16. OTHER INFORMATION

This MSDS has been prepared in accordance with the Chemicals (Hazard Information and Packaging for Supply (Amendment) Regulation 1996. The information is based on the best knowledge of SpecAir Specialty Gases and its advisors and is given in good faith, but we cannot guarantee its accuracy, reliability or completeness and therefore disclaim any liability for loss or damage arising out of use of this data. Since conditions of use are outside the control of the Company and its advisors we disclaim any liability for loss or damage when the product is used for other purposes than it is intended.

23.5%;Methane, 0.0005-2.5%;Carbon Monoxide, 0.0005-1.0%; Hydrogen Sulfide, 0.001-0.025%

SYNONYMS: Not Applicable
CHEMICAL FAMILY NAME: Not Applicable
FORMULA: Not Applicable
Document Number: 50018

Note: The Material Safety Data Sheet is for this gas mixture supplied in cylinders with 33 cubic feet (935 liters) or less gas capacity (DOT - 39 cylinders). This MSDS has been developed for various gas mixtures with the composition of components within the ranges listed in Section 2 (Composition and Information on Ingredients). Refer to the product label for information on the actual composition of the product.

PRODUCT USE:	Calibration of Monitoring and Research Equipment
SUPPLIER/MANUFACTURER'S NAME:	CALGAZ
ADDRESS:	821 Chesapeake Drive Cambridge, MD 21613
EMERGENCY PHONE:	CHEMTREC: 1-800-424-9300
BUSINESS PHONE:	1-410-228-6400
General MSDS Information	1-713/868-0440
Fax on Demand:	1-800/231-1366

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA		NIOSH	OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	ppm
Oxygen	7782-44-7	0.0015 - 23.5%	There are no specific exposure limits for Oxygen. Oxygen levels should be maintained above 19.5%.					
Methane	74-82-8	0.0005 - 2.5%	There are no specific exposure limits for Methane. Methane is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					
Hydrogen Sulfide	7783-06-4	0.001- 0.025 %	10 (NIC = 5)	15	10 (Vacated 1989 PEL)	20 (ceiling); 50 (ceiling, 10 min. peak once per 8-hour shift 15 (vacated 1989 PEL)	100	NIOSH REL: STEL = 10 (ceiling) 10 minutes DFG-MAKs: TWA = 10 PEAK = 2•MAK, 10 min., momentary value
Carbon Monoxide	630-08-0	0.0005 - 1.0%	25	NE	50 35 (Vacated 1989 PEL)	200 [ceiling] (Vacated 1989 PEL)	1200	NIOSH RELS: TWA = 35 STEL = 200 (ceiling) DFG MAKs: TWA = 30 PEAK = 2•MAK, 15 min., average value DFG MAK Pregnancy Risk Classification: B
Nitrogen	7727-37-9	Balance	There are no specific exposure limits for Nitrogen. Nitrogen is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					

NE = Not Established. NIC = Notice of Intended Change See Section 16 for Definitions of Terms Used.
NOTE (1): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This gas mixture has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This gas mixture is a colorless gas which has a rotten-egg odor (due to the presence of Hydrogen Sulfide). The odor cannot be relied on as an adequate warning of the presence of this gas mixture, because olfactory fatigue occurs after over-exposure to Hydrogen Sulfide. Hydrogen Sulfide and Carbon Monoxide (another component of this gas mixture) are toxic to humans in relatively low concentrations. Over-exposure to this gas mixture can cause skin or eye irritation, nausea, dizziness, headaches, collapse, unconsciousness, coma, and death. Additionally, releases of this gas mixture may produce oxygen-deficient atmospheres (especially in small confined spaces or other poorly-ventilated environments); individuals in such atmospheres may be asphyxiated.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: The most significant route of over-exposure for this gas mixture is by inhalation.

INHALATION: Due to the small size of an individual cylinder of this gas mixture, no unusual health effects from over-exposure to the product are anticipated under routine circumstances of use. A potential health hazard associated with this gas mixture is the potential of inhalation of Hydrogen Sulfide, a component of this gas mixture. Such over-exposures may occur if this gas mixture is used in a confined space or other poorly-ventilated area. Over-exposures to Hydrogen Sulfide can cause dizziness, headache, and nausea. Over-exposure to this gas could result in respiratory arrest, coma, or unconsciousness, due to the presence of Hydrogen Sulfide. Continuous inhalation of low concentrations of Hydrogen Sulfide may cause olfactory fatigue, so that the odor is no longer an effective warning of the presence of this gas. A summary of exposure concentrations and observed effects are as follows:

CONCENTRATION OF HYDROGEN SULFIDE	OBSERVED EFFECT
0.3-30 ppm	Odor is unpleasant.
50 ppm	Eye irritation. Dryness and irritation of nose, throat.
Slightly higher than 50 ppm	Irritation of the respiratory system.
100-150 ppm	Temporary loss of smell.
200-250 ppm	Headache, vomiting nausea. Prolonged exposure may lead to lung damage. Exposures of 4-8 hours can be fatal.
300-500	Swifter onset of symptoms. Death occurs in 1-4 hours.
500 ppm	Headache, excitement, staggering, and stomach ache after brief exposure. Death occurs within 0.5 - 1 hour of exposure.
> 600 ppm	Rapid onset of unconsciousness, coma, death.
> 1000 ppm	Immediate respiratory arrest.
NOTE:	This gas mixture contains a maximum of 250 ppm Hydrogen Sulfide. The higher concentration values

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH HAZARD	(BLUE)	3
FLAMMABILITY HAZARD	(RED)	0
PHYSICAL HAZARD	(YELLOW)	0

PROTECTIVE EQUIPMENT

EYES	RESPIRATORY	HANDS	BODY
See Section 8			

For Routine Industrial Use and Handling Applications

CARBON MONOXIDE	OBSERVED EFFECT
All exposure levels:	Over-exposure to Carbon Monoxide can be indicated by the lips and fingernails turning bright red.
200 ppm:	Slight symptoms (i.e. headache) after several hours of exposure.
400 ppm:	Headache and discomfort experienced within 2-3 hours of exposure.
1,000 -2000 ppm:	Within 30 minutes, slight palpitations of the heart occurs. Within 1.5 hours, there is a tendency to stagger.
200-2500 ppm:	Within 2 hours, there is mental confusion, headaches, and nausea. Unconsciousness within 30 minutes.
>2500 ppm:	Potential for collapse and death before warning symptoms.

Additionally, if mixtures of this gas mixture contain less than 19.5% Oxygen and are released in a small, poorly ventilated area (i.e. an enclosed or confined space), an oxygen-deficient environment may occur. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows:

CONCENTRATION OF OXYGEN	OBSERVED EFFECT
12-16% Oxygen:	Breathing and pulse rate increased, muscular coordination slightly disturbed.
10-14% Oxygen:	Emotional upset, abnormal fatigue, disturbed respiration.
6-10% Oxygen:	Nausea, vomiting, collapse, or loss of consciousness.
Below 6%:	Convulsive movements, possible respiratory collapse, and death.

SKIN and EYE CONTACT: Hydrogen Sulfide, a component of this gas mixture, may be irritating to the skin. Inflammation and irritation of the eyes can occur at very low airborne concentration of Hydrogen Sulfide (less than 10 ppm). Exposure over several hours may result in "gas eyes" or "sore eyes" with symptoms of scratchiness, irritation, tearing and burning. Above 50 ppm of Hydrogen Sulfide, there is an intense tearing, blurring of vision, and pain when looking at light. Over-exposed individuals may see rings around bright lights. Most symptoms disappear when exposure ceases. However, in serious cases, the eye can be permanently damaged.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Over-exposure to this gas mixture may cause the following health effects:

ACUTE: Due to the small size of the individual cylinder of this gas mixture, no unusual health effects from exposure to the product are anticipated under routine circumstances of use. However the Hydrogen Sulfide and Carbon Monoxide components of this gas mixture are toxic to humans. Over-exposure to this gas mixture can cause nausea, dizziness, headaches, collapse, unconsciousness, coma, and death. Due to the presence of Hydrogen Sulfide, over-exposures to this gas mixture can also irritate the skin and eyes; severe eye contamination can result in blindness.

CHRONIC: Severe over-exposures to the Hydrogen Sulfide component of this gas mixture, which do not result in death, may cause long-term symptoms such as memory loss, paralysis of facial muscles, or nerve tissue damage. In serious cases of over-exposure, the eyes can be permanently damaged. Skin disorders and respiratory conditions may be aggravated by repeated over-exposures to this gas product. Refer to Section 11 (Toxicology Information) for additional information on the components of this gas mixture. Chronic exposure to oxygen-deficient atmospheres (below 18% oxygen in air) may affect the heart and nervous system.

TARGET ORGANS: ACUTE: Respiratory system, blood system, central nervous system effects, cardiovascular system, skin, eyes. CHRONIC: Neurological system, reproductive system, eyes.

4. FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS GAS MIXTURE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus must be worn. Victim(s) who experience any adverse effect after over-exposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

No unusual health effects are anticipated after exposure to this gas mixture, due to the small cylinder size. If any adverse symptom develops after over-exposure to this gas mixture, remove victim(s) to fresh air as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation if necessary.

SKIN EXPOSURE: If irritation of the skin develops after exposure to this gas mixture, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek immediate medical attention.

EYE EXPOSURE: If irritation of the eye develops after exposure to this gas mixture, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing respiratory conditions may be aggravated by over-exposure to this gas mixture. Carbon Monoxide, a component of this gas mixture, can aggravate some diseases of the cardiovascular system, such as coronary artery disease and angina pectoris. Because of the presence of Hydrogen Sulfide, eye disorders or skin problems may be aggravated by over-exposure to this gas mixture.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate over-exposure. Hyperbaric oxygen is the most efficient antidote to Carbon Monoxide poisoning, the optimum range being 2-2.5 atm. A special mask, or, preferably, a compression chamber to utilize oxygen at these pressures is required. Avoid administering stimulant drugs. Be observant for initial signs of pulmonary edema in the event of severe inhalation over-exposures.

5. FIRE-FIGHTING MEASURES

FLASH POINT: Not applicable.

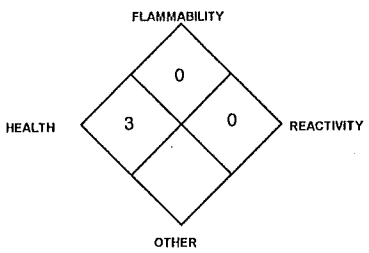
AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

NFPA RATING



FIRE EXTINGUISHING MATERIALS: Non-flammable gas mixture. Use extinguishing media appropriate for surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This gas mixture contains toxic gases, Hydrogen Sulfide and Carbon Monoxide, and presents an health hazard to firefighters. This gas mixture is not flammable; however, containers, when involved in fire, may rupture or burst in the heat of the fire.

Explosion Sensitivity to Mechanical Impact: Not Sensitive.

Explosion Sensitivity to Static Discharge: Not Sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES

LEAK RESPONSE: Due to the small size and content of the cylinder, an accidental release of this gas mixture presents significantly less risk of over-exposure to Hydrogen Sulfide and Carbon Monoxide, the toxic components of this gas mixture, and other safety hazards related to the remaining components of this gas mixture, than a similar release from a larger cylinder. However, as with any chemical release, extreme caution must be used during emergency response procedures. In the event of a release in which the atmosphere is unknown, and in which other chemicals are potentially involved, evacuate immediate area. Such releases should be responded to by trained personnel using pre-planned

deficiency. Do not attempt to repair, adjust, or in any other way modify cylinders containing a gas mixture with Hydrogen Sulfide or Carbon Monoxide. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Eye wash stations/safety showers should be near areas where this gas mixture is used or stored. All work operations should be monitored in such a way that emergency personnel can be immediately contacted in the event of a release. All work practices should minimize releases of Hydrogen Sulfide and Carbon Monoxide-containing gas mixtures.

STORAGE AND HANDLING PRACTICES: Cylinders should be firmly secured to prevent falling or being knocked-over. Cylinders must be protected from the environment, and preferably kept at room temperature (approximately 21°C (70°F). Cylinders should be stored in dry, well-ventilated areas, away from sources of heat, ignition, and direct sunlight. Protect cylinders against physical damage. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time. These cylinders are not refillable. **WARNING! Do not refill DOT 39 cylinders. To do so may cause personal injury or property damage.**

SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS: WARNING! Compressed gases can present significant safety hazards. During cylinder use, use equipment designed for these specific cylinders. Ensure all lines and equipment are rated for proper service pressure.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Always use product in areas where adequate ventilation is provided.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: No special ventilation systems or engineering controls are needed under normal circumstances of use. As with all chemicals, use this gas mixture in well-ventilated areas. If this gas mixture is used in a poorly-ventilated area, install automatic monitoring equipment to detect the levels of Oxygen, Hydrogen Sulfide, and Carbon Monoxide.

RESPIRATORY PROTECTION: No special respiratory protection is required under normal circumstances of use. Use supplied air respiratory protection if the levels of components exceeds exposure limits presented in Section 2 (Composition and Information of Ingredients) and Oxygen levels are below 19.5%, or unknown, during emergency response to a release of this gas mixture. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. Oxygen levels below 19.16.33% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998). The following NIOSH respiratory protection recommendations for Hydrogen Sulfide and Carbon Monoxide are provided for further information.

NIOSH/OSHA RECOMMENDATIONS FOR HYDROGEN SULFIDE CONCENTRATIONS IN AIR:

Up to 100 ppm:	Powered air-purifying respirator with cartridge(s) to protect against hydrogen sulfide; gas mask with canister to protect against hydrogen sulfide; or SAR; or full-facepiece SCBA.
Emergency or Planned Entry into Unknown Concentration or IDLH Conditions:	Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.
Escape:	Gas mask with canister to protect against hydrogen sulfide; or escape-type SCBA
NOTE:	The IDLH concentration for Hydrogen Sulfide is 100 ppm.

NIOSH/OSHA RECOMMENDATIONS FOR CARBON MONOXIDE CONCENTRATIONS IN AIR:

Up to 350 ppm	Supplied Air Respirator (SAR)
Up to 875 ppm	Supplied Air Respirator (SAR) operated in a continuous flow mode.
Up to 1200 ppm	Gas mask with canister to protect against carbon monoxide; or full-facepiece SCBA; or full-facepiece Supplied Air Respirator (SAR).
Emergency or Planned Entry into Unknown Concentration or IDLH Conditions:	Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece Supplied Air Respirator (SAR) with an auxiliary positive pressure SCBA.
Escape:	Gas mask with canister to protect against carbon monoxide; or escape-type SCBA. **NOTE**: End of Service Life Indicator (ESLI) required for gas masks.
NOTE:	The IDLH concentration for Carbon Monoxide is 1200 ppm.

EYE PROTECTION: Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards.

HAND PROTECTION: Wear leather gloves when handling cylinders. Chemically resistant gloves should be worn when using this gas mixture. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

BODY PROTECTION: No special protection is needed under normal circumstances of use. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136.

9. PHYSICAL and CHEMICAL PROPERTIES

The following information is for Nitrogen, the main component of this gas mixture.

GAS DENSITY @ 32°F (0°C) and 1 atm: .072 lbs/ ft^3 (1.153 kg/m^3)

FREEZING/MELTING POINT @ 10 psig: -345.8°F (-210°C)

SPECIFIC GRAVITY (air = 1) @ 70°F (21.1°C): 0.906

SOLUBILITY IN WATER vol/vol @ 32°F (0°C) and 1 atm: 0.023

EVAPORATION RATE (nBuAc = 1): Not applicable.

VAPOR PRESSURE @ 70°F (21.1°C) (psig): Not applicable.

COEFFICIENT WATER/OIL DISTRIBUTION: Not applicable.

BOILING POINT: -320.4°F (-195.8°C)

pH: Not applicable.

MOLECULAR WEIGHT: 28.01

EXPANSION RATIO: Not applicable.

SPECIFIC VOLUME (ft^3/lb): 13.8

The following information is for this gas mixture.

ODOR THRESHOLD: 0.13 ppm (Hydrogen Sulfide)

APPEARANCE AND COLOR: This gas mixture is a colorless gas which has an rotten egg-like odor, due to the presence of Hydrogen Sulfide.

HOW TO DETECT THIS SUBSTANCE (warning properties): Continuous inhalation of low concentrations of this gas mixture may cause olfactory fatigue, due to the presence of Hydrogen Sulfide, so the odor is not a good warning property of a release of this gas mixture. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation. Wet lead acetate paper can be used for leak detection. The paper turns black in the presence of Hydrogen Sulfide. Cadmium chloride solutions can also be used. Cadmium solutions will turn yellow upon contact with Hydrogen Sulfide.

10. STABILITY and REACTIVITY

STABILITY: Normally stable in gaseous state.

DECOMPOSITION PRODUCTS: The thermal decomposition products of Methane include carbon oxides. The decomposition products of Hydrogen Sulfide include water and sulfur oxides. The other components of this gas mixture do not decompose, per se, but can react with other compounds in the heat of a fire.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Titanium will burn in Nitrogen (the main component of this gas mixture). Lithium reacts slowly with Nitrogen at ambient temperatures. Components of this gas mixture (Hydrogen Sulfide, Methane) are also incompatible with strong oxidizers (i.e. chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride). Carbon Monoxide is mildly corrosive to

LC_{50} (Inhalation-Rat) 1807 ppm/4 hours
LC_{50} (Inhalation-Mouse) 2444 ppm/4 hours
LC_{50} (Inhalation-Guinea Pig) 5718 ppm/4 hours
LC_{50} (Inhalation-wild bird species) 1334 ppm
LCLo (Inhalation-Human) 4 mg/m^3/12 hours: Behavioral: coma; Vascular: BP lowering not characterized in autonomic section; Blood: methemoglobinemia-carboxyhemoglobin
LCLo (Inhalation-Man) 4000 ppm/30 minutes
LCLo (Inhalation-Human) 5000 ppm/5 minutes
LCLo (Inhalation-Dog) 4000 ppm/46 minutes
LCLo (Inhalation-Rabbit) 4000 ppm
LCLo (Inhalation-Mammal-species unspecified) 5000 ppm/5 minutes
TCLo (Inhalation-Human) 600 mg/m^3/10 minutes: Behavioral: headache
TCLo (Inhalation-Man) 650 ppm/45 minutes: Blood: methemoglobinemia-carboxyhemoglobin; Behavioral: changes in psychophysiological tests
TCLo (Inhalation-Rat) 1800 ppm/1 hour/14 days-intermittent: Cardiac: other changes
TCLo (Inhalation-Rat) 30 mg/m^3/8 hours/10 weeks-intermittent: Brain and Coverings: other degenerative changes; Behavioral: muscle contraction or spasticity
TCLo (Inhalation-Rat) 96 ppm/24 hours/90 days-continuous: Blood: pigmented or nucleated red blood cells, other changes
TCLo (Inhalation-Rat) 250 ppm/5 hours/20 days-intermittent: Blood :pigmented or nucleated red blood cells, changes in other cell count (unspecified), changes in erythrocyte (RBC) count
TDLo (Subcutaneous-Rat) 5983 mg/kg/18 weeks-intermittent: Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol)
TCLo (Inhalation-Monkey) 200 ppm/24 hours/90 days-continuous: Blood: pigmented or nucleated red blood cells, other changes
TCLo (Inhalation-Rabbit) 200 mg/m^3/3 hours/13 weeks-intermittent: Brain and Coverings: other degenerative changes; Cardiac: other changes; Blood: hemorrhage
TCLo (Inhalation-Guinea Pig) 200 mg/m^3/5 hours/30 weeks-continuous: Cardiac: arrhythmias (including changes in conduction), EKG changes not diagnostic of specified effects, pulse rate increase, without fall in BP
red blood cells, other changes
TCLo (Inhalation-Rat) 75 ppm/24 hours: female 0-20 day(s) after conception: Reproductive: Maternal Effects: other effects; Effects on Newborn: behavioral
TCLo (Inhalation-Rat) 150 ppm/24 hours: female 1-22 day(s) after conception: Reproductive: Specific Developmental Abnormalities: cardiovascular (circulatory) system
TCLo (Inhalation-Rat) 150 ppm/24 hours: female 1-22 day(s) after conception: Reproductive: Effects on Newborn: growth statistics (e.g.%, reduced weight gain), behavioral
TCLo (Inhalation-Rat) 1 mg/m^3/24 hours: female 72 day(s) pre-mating: Reproductive: Maternal Effects: menstrual cycle changes or disorders, parturition; Fertility: female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated)
TCLo (Inhalation-Rat) 150 ppm/24 hours: female 0-20 day(s) after conception: Reproductive: Effects on Newborn: behavioral
TCLo (Inhalation-Rat) 75 ppm/24 hours: female 0-20 day(s) after conception: Reproductive: Specific Developmental Abnormalities: immune and reticuloendothelial system
TCLo (Inhalation-Mouse) 65 ppm/24 hours: female 7-18 day(s) after conception: Reproductive: Effects on Newborn: behavioral
TCLo (Inhalation-Mouse) 250 ppm/7 hours: female 6-15 day(s) after conception: Reproductive: Fertility: post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants); Specific Developmental Abnormalities: musculoskeletal system
TCLo (Inhalation-Mouse) 125 ppm/24 hours: female 7-18 day(s) after conception: Reproductive: Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus)
TCLo (Inhalation-Mouse) 8 pph/1 hour: female 8 day(s) after conception: Reproductive: Fertility: litter size (e.g. # fetuses per litter; measured before birth); Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus), fetal death
Effects on Newborn: stillbirth, viability index (e.g., # alive at day 4 per # born alive)
Micronucleus Test (Inhalation-Mouse)1500 ppm/10 minutes
Sister Chromatid Exchange (Inhalation-Mouse) 2500 ppm/10 minutes

HYDROGEN SULFIDE:

LC_{50} (Inhalation-Rat) 444 ppm: Lungs, Thorax, or Respiration: other changes; Gastrointestinal: hypermotility, diarrhea; Kidney, Ureter, Bladder: urine volume increased
LC_{50} (Inhalation-Mouse) 634 ppm/1 hour
LCLo (Inhalation-Human) 600 ppm/30 minutes
LCLo (Inhalation-Man) 5700 µg/kg: Behavioral: coma; Lungs, Thorax, or Respiration: chronic pulmonary edema
LCLo (Inhalation-Human) 800 ppm/5 minutes
LCLo (Inhalation-Mammal-species unspecified) 800 ppm/5 minutes
TCLo (Inhalation-Rat) 30 ppm/6 hours/10 weeks-intermittent: Sense Organs and Special Senses (Olfaction): olfactory nerve change, effect, not otherwise specified
TCLo (Inhalation-Rat) 1200 mg/m^3/2 hours/5 days-intermittent: Brain and Coverings: other degenerative changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: true cholinesterase
TCLo (Inhalation-Rat) 100 ppm/8 hours/5 weeks-intermittent: Brain and Coverings: other degenerative changes; Lungs, Thorax, or Respiration: other changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: cytochrome oxidases (including oxidative phosphorylation)
TCLo (Inhalation-Rat) 80 ppm/6 hours/90 days-intermittent: Brain and Coverings: changes in brain weight; Nutritional and Gross Metabolic: weight loss or decreased weight gain
TCLo (Inhalation-Rat) 20 ppm: female 6-22 day(s) after conception lactating female 21 day(s) post-birth: Reproductive: Effects on Newborn: physical
TCLo (Inhalation-Mouse) 80 ppm/6 hours/90 days-intermittent: Nutritional and Gross Metabolic: weight loss or decreased weight gain; Related to Chronic Data: death
TCLo (Inhalation-Rabbit) 40 mg/m^3/5 hours/30 weeks-intermittent: Sense Organs and Special Senses (Eye): conjunctive irritation

SUSPECTED CANCER AGENT: The components of this gas mixture are not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and IARC; therefore, they are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: This gas mixture is irritating to the eyes, and may be irritating to the skin.

SENSITIZATION OF PRODUCT: The components of this gas mixture are not known to be skin or respiratory sensitizers.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this gas mixture on the human reproductive system.

Mutagenicity: The components of this gas mixture are not reported to cause mutagenic effects in humans.

REPRODUCTIVE TOXICITY INFORMATION (continued):

Embryotoxicity: This gas mixture contains components that may cause embryotoxic effects in humans; however, due to the small total amount of the components, embryotoxic effects are not expected to occur.

Teratogenicity: This gas mixture is not expected to cause teratogenic effects in humans due to the small cylinder size and small total amount of all components. The Carbon Monoxide component of this gas mixture which exists up to 1%, can cause teratogenic effects in humans. Severe exposure to Carbon Monoxide during pregnancy has caused adverse effects and the death of the fetus. In general, maternal symptoms are an indicator of the potential risk to the fetus since Carbon Monoxide is toxic to the mother before it is toxic to the fetus.

Reproductive Toxicity: The components of this gas mixture are not reported to cause adverse reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

BIOLOGICAL EXPOSURE INDICES (BEIs): Biological Exposure Indices (BEIs) have been determined for components of this gas mixture, as follows:

CHEMICAL DETERMINANT	SAMPLING TIME	BEI
CARBON MONOXIDE • Carboxyhemoglobin in blood • Carbon monoxide in end-exhaled air	 • End of shift • End of shift	 • 3.5% of hemoglobin • 20 ppm

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: The gas will be dissipated rapidly in well-ventilated areas. The following environmental data are applicable to the components of this gas mixture.

CARBON MONOXIDE:

Atmospheric Fate: A photochemical model was used to quantify the sensitivity of the tropospheric oxidants ozone (O_3) and OH to changes in methane (CH_4), Carbon Monoxide (CO), and NO emissions and to perturbations in climate and stratospheric chemistry. In most cases, increased CH_4 and CO emissions will suppress OH (negative coefficients) in increased O_3 (positive coefficients) except in areas where NO and O_3 influenced by pollution are sufficient to increased OH. In most regions, NO, CO, and CH_4 emission increased will suppress OH and increased O_3, but these trends may be opposed by stratospheric O3 depletion and climate change.

HYDROGEN SULFIDE:

Water Solubility = 1 g/242 mL at 20°C.

high H_2S concentrations. The interactions of these organisms form part of the global sulfur cycle.

Bioconcentration: Does not have bioaccumulation or food chain contamination potential.

NITROGEN: Water Solubility = 2.4 volumes Nitrogen/100 volumes water at 0°C; 1.6 volumes Nitrogen/100 volumes water at 20°C.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: No evidence is currently available on this gas mixture's effects on plant and animal life. Hydrogen Sulfide and Carbon Monoxide, components of this gas mixture, can be deadly to exposed animal life, producing symptoms similar to those experienced by humans. This gas mixture may also be harmful to plant life.

EFFECT OF CHEMICAL ON AQUATIC LIFE: No evidence is currently available on this gas mixture's effects on aquatic life. The presence of more than a trace of the Carbon Monoxide component of this gas mixture is a hazard to fish. The following aquatic toxicity data are available for the Hydrogen Sulfide component of this gas mixture:

HYDROGEN SULFIDE:

- LC_{50} (*Asellus* arthropods) 96 hours = 0.111 mg/L
- LC_{50} (*Crangon* arthropods) 96 hours = 1.07 mg/L
- LC_{50} (*Gammarus* arthropods) 96 hours = 0.84 mg/L
- LC_{50} (Ephemera) 96 hours = 0.316 mg/L
- LC_{50} (Inhalation-Flies) > 960 minutes = 380 mg/m^3
- LC_{50} (Inhalation-Flies) 7 minutes = 1,500 mg/m^3
- LC_{50},F (bluegill, eggs) 72 hours = 0.0190 mg/L

HYDROGEN SULFIDE (continued):

- LC_{50},F (bluegill, 35-day-old fry) 96 hours = 0.0131 mg/L
- LC_{50},F (bluegill, juveniles) 96 hours = 0.0478 mg/L
- LC_{50},F (bluegill, adults) 96 hours = 0.0448 mg/L
- LC_{50},F (fathead minnows) 96 hours = 0.0071-0.55 mg/L
- LC_{50},F (bluegill) 96 hours = 0.0090-0.0140 mg/L
- LC_{50},F (brook trout) 96 hours = 0.0216-0.0308 mg/L
- Toxic (goldfish) = 100 mg/L

HYDROGEN SULFIDE (continued):

- Lethal (goldfish) 96 hours = 10 mg/L
- Toxic (carp) 24 hours = 3.3 mg/L
- Toxic (goldfish) 24 hours = 4.3 mg/L
- Toxic (sunfish) 1 hour = 4.9 to 5.3 mg/L
- Toxic (goldfish) 200 hours = 5 mg/L
- Toxic (minnows) 24 hours = 5-6 mg/L
- Toxic (carp) 24 hours = 6-25 mg/L
- Toxic (trout) 15 minutes = 10 mg/L
- Toxic (goldfish) 24 hours = 25 mg/L
- Toxic (tench) 3 hours = 100 mg/L
- MATC,F (fathead minnows) 0.0037 mg/L
- MATC,F (bluegill) 0.0004 mg/L
- MATC,F (brook trout) 0.055 mg/L

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Cylinders with undesired residual product may be safely vented outdoors with the proper regulator. For further information, refer to Section 16 (Other Information).

14. TRANSPORTATION INFORMATION

THIS GAS MIXTURE IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME: Compressed gases, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.

HAZARD CLASS NUMBER and DESCRIPTION: 2.2 (Non-Flammable Gas)

UN IDENTIFICATION NUMBER: UN 1956

PACKING GROUP: Not Applicable

DOT LABEL(S) REQUIRED: Non-Flammable Gas

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 126

U.S. DEPARTMENT OF TRANSPORTATION INFORMATION (continued):

MARINE POLLUTANT: The components of this gas mixture are not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B).

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

Note: DOT 39 Cylinders ship in a strong outer carton (overpack). Pertinent shipping information goes on the outside of the overpack. DOT 39 Cylinders do not have transportation information on the cylinder itself.

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This gas mixture is considered as Dangerous Goods, per regulations of Transport Canada.

PROPER SHIPPING NAME: Compressed gases, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.

HAZARD CLASS NUMBER and DESCRIPTION: 2.2 (Non-Flammable Gas)

UN IDENTIFICATION NUMBER: UN 1956

PACKING GROUP: Not Applicable

HAZARD LABEL: Class 2.2 (Non-Flammable Gas)

SPECIAL PROVISIONS: None

EXPLOSIVE LIMIT AND LIMITED QUANTITY INDEX: 0.12

ERAP INDEX: 3000

PASSENGER CARRYING SHIP INDEX: Forbidden

PASSENGER CARRYING ROAD VEHICLE OR PASSENGER CARRYING RAILWAY VEHICLE INDEX: Forbidden

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 126

NOTE: Shipment of compressed gas cylinders via Public Passenger Road Vehicle is a violation of Canadian law (Transport Canada Transportation of Dangerous Goods Act, 1992).

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: This gas mixture is subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

CHEMICAL NAME	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Hydrogen Sulfide	YES	YES	YES

U.S. SARA THRESHOLD PLANNING QUANTITY: Hydrogen Sulfide = 500 lb (227 kg)

U.S. TSCA INVENTORY STATUS: The components of this gas mixture are listed on the TSCA Inventory.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Hydrogen Sulfide = 100 lb (45 kg)

OTHER U.S. FEDERAL REGULATIONS:

- Hydrogen Sulfide and Carbon Monoxide are subject to the reporting requirements of CFR 29 1910.1000.
- Hydrogen Sulfide and Methane are subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for each of these gases is 10,000 pounds and so this mixture will not be affected by the regulation.
- Depending on specific operations involving the use of this gas mixture, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Hydrogen Sulfide is listed in Appendix A of this regulation. The Threshold Quantity for Hydrogen Sulfide under this regulation is 1500 lbs (and so one cylinder of this gas mixture will not be affected by this regulation)

Florida - Substance List: Oxygen, Carbon Monoxide, Hydrogen Sulfide
Illinois - Toxic Substance List: Carbon Monoxide, Methane, Hydrogen Sulfide.
Kansas - Section 302/313 List: No.
Massachusetts - Substance List: Oxygen, Carbon Monoxide, Hydrogen Sulfide, Methane.
Substance List: Oxygen, Carbon Monoxide, Nitrogen, Methane.
North Dakota - List of Hazardous Chemicals, Reportable Quantities: Hydrogen Sulfide.
Texas - Hazardous Substance List: Hydrogen Sulfide.
West Virginia - Hazardous Substance List: Hydrogen Sulfide.
Wisconsin - Toxic and Hazardous Substances: Hydrogen Sulfide

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): The Carbon Monoxide component of this gas mixture is on the California Proposition 65 lists. WARNING! This gas mixture contains a compound known to the State of California to cause birth defects or other reproductive harm.

ADDITIONAL CANADIAN REGULATIONS:
CANADIAN DSL/NDSL INVENTORY STATUS: The components of this gas mixture are listed on the DSL Inventory.
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: The components of this gas mixture are not on the CEPA Priorities Substances Lists.
CANADIAN WHMIS CLASSIFICATION: This gas mixture is categorized as a Controlled Product, Hazard Classes A and D2A, as per the Controlled Product Regulations.

16. OTHER INFORMATION

INFORMATION ABOUT DOT-39 NRC (Non-Refillable Cylinder) PRODUCTS

DOT 39 cylinders ship as hazardous materials when full. Once the cylinders are relieved of pressure (empty) they are not considered hazardous material or waste. Residual gas in this type of cylinder is not an issue because toxic gas mixtures are prohibited. Calibration gas mixtures typically packaged in these cylinders are Nonflammable n.o.s., UN 1956. A small percentage of calibration gases packaged in DOT 39 cylinders are flammable or oxidizing gas mixtures.

For disposal of used DOT-39 cylinders, it is acceptable to place them in a landfill if local laws permit. Their disposal is no different than that employed with other DOT containers such as spray paint cans, household aerosols, or disposable cylinders of propane (for camping, torch etc.). When feasible, we recommended recycling for scrap metal content. CALGAZ will do this for any customer that wishes to return cylinders to us prepaid. All that is required is a phone call to make arrangements so we may anticipate arrival. Scrapping cylinders involves some preparation before the metal dealer may accept them. We perform this operation as a service to valued customers who want to participate.

MIXTURES: When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information about the handling of compressed gases can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102. Telephone: (703) 412-0900.

P-1	*"Safe Handling of Compressed Gases in Containers"*
AV-1	*"Safe Handling and Storage of Compressed Gases"*
	"Handbook of Compressed Gases"

PREPARED BY: CHEMICAL SAFETY ASSOCIATES, Inc.
PO Box 3519, La Mesa, CA 91944-3519
619/670-0609

Fax on Demand: 1-800/231-1366

AIR LIQUIDE

APPENDIX C

Incident Investigation and Reporting Program

INCIDENT INVESTIGATION AND REPORTING MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY MANAGER	**:**	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	**:**	**07/18**
REVISION NUMBER	**:**	**4**

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Appendix A – Accident Report and Investigation Form

Appendix B – Lessons Learned Form

Appendix C – Injury Illness Reporting Flow Chart

1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux") has instituted the following management program for reporting Environmental Health and Safety (EHS) incidents and near losses, investigation and correcting the causes of incidents, tracking incidents and corrective actions taken, and sharing the cause and corrective actions with Roux personnel. These practices and procedures establish a method to track progress and improvements to the company EHS performance.

2. SCOPE AND APPLICABILITY

These procedures apply to all Roux employees. Employees are required to follow these procedures for all incidents involving Roux personnel, or other personnel (e.g., subcontractors) working for Roux, regardless of the specific work activity or work location.

This program is intended, in part, to fulfill the Occupational Safety and Health Administration (OSHA) occupational injury and illness reporting and recording requirements cited in the Code of Federal Regulations (CFR) at 29 CFR 1904.

3. RESPONSIBILITIES

It shall be the responsibility of all Roux employees to report all incidents as soon as possible to the PM (or Administrative Manager for office-related incidents), SHSO, OHSM and OM, regardless of severity. Additionally, the following positions have specific responsibilities for implementing this specific SOP.

3.1 Corporate Health and Safety Manager (CHSM)

- The CHSM has the responsibility of ensuring that a system is in place for reporting, investigation, correction, and communicating of EHS incidents and near losses.
- The CHSM has the overall responsibility of implementing and communicating the contents of this program to Office Health and Safety Managers (OHSMs).
- The CHSM will review all incidents and corrective actions taken. The CHSM will provide a summary of serious incidents to the Board of Directors.
- The CHSM will communicate learnings from incidents and corrective actions taken to all personnel, through quarterly communications.
- The CHSM will periodically review and evaluate the effectiveness of this procedure.

3.2 Office Manager (OM)

- The OM will designate the individual to serve as the OHSM responsibility for ensuring that requirements in this procedure are met.
- The OM will ensure that sufficient resources are allocated to fulfill the requirements of this procedure.
- The OM will conduct final review of all incident reports prepared under this procedure.

3.3 Office Health and Safety Manager (OHSM)

- It is the responsibility of the OHSM to review draft incident reports and assist the OM in finalizing reports of all accidents, illnesses and incidents related to work activity, and to assist the SHSO when necessary.

- The OHSM may not approve a site-specific HASP unless the HASP includes incident reporting procedures and forms.
- The OHSM will suggest and implement corrective actions to prevent the same type of incident from re-occurring.
- The OHSM will keep all incident reports, corrective action taken, and follow-up forms on file. The OHSM will provide copies of all final reports and forms to the CHSM within one week of the incident. If a serious incident occurs, the CHSM will be notified as soon as possible.
- The occurrence of a serious incident will trigger an EHS audit by the OHSM.

3.4 Project Manager (PM)

- It shall be the PM's responsibility to promptly correct any deficiencies that were determined to cause or contribute to the incident investigated.
- If a site-specific HASP is not utilized, the PM must ensure that field personnel have copies of the Roux Accident Reporting and Investigation Forms.
- The PM has the responsibility of ensuring that the SHSO and other field personnel understand the need for timely incident reporting.
- In the event of an incident, the PM will determine the root cause of the incident with the assistance of the SHSO and/or OHSM. The PM should provide input as to corrective preventative measures.

3.5 Site Health and Safety Officer (SHSO)

- The SHSO shall provide the details of the incident to the OHSM, PM and OM. The OM or his delegate will provide additional notifications, such as, in the event of a work-related motor vehicle accident, to include Roux Legal.
- It is the SHSO's responsibility to immediately notify the OHSM and the PM when any incident occurs. Such notification should take place immediately following the completion of any emergency actions required by the HASP.
- The SHSO should provide input as to corrective preventative measures.
- The SHSO must ensure that corrective actions proposed by the OHSM or OM are carried out.

3.6 All Personnel

- All personnel are responsible for reporting and describing the details of any incident in which they are involved to the SHSO and PM. Such notification should take place immediately following the completion of any emergency actions required by the HASP and after the loss and before the scene is disturbed or vehicles moved.

4. PROCEDURE

4.1 Incident Investigation

On receiving a report of incident (or "near-loss") occurrence from a Roux employee, the SHSO or OHSM shall immediately investigate the circumstances and shall make appropriate recommendations to prevent recurrence. The Incident Report form can be found in **Appendix A**, and "near loss" Roux Lessons Learned form can be found in **Appendix B**. The OHSM may participate in the investigation of more serious accidents and incidents that occur on-site. The Corporate Health and Safety Manager (CHSM) shall also be immediately notified by telephone on occurrence of a serious accident or incident. At the CHSM's discretion, he may also participate in the investigation.

4.2 Incident Report

Details of the incident shall be documented using the Accident Report and Investigation Forms (Appendix A) within twenty-four (24) hours of the incident and shall be distributed to the SHSO, the OHSM, PM, OM and the CHSM. The CHSM will update OSHA Forms 301 and the 300 log when necessary.

Appendix A – Accident Report and Investigation Form

☐ **Roux Environmental Engineering and Geology, D.P.C.**
☐ **Roux Associates, Inc.** ☐ **Remedial Engineering, P.C.**

ACCIDENT REPORT

Brian Hobbs, Corporate Health and Safety Manager
Cell: (631) 807-0193; Office: (631) 630-2416

PART 1: ADMINISTRATIVE INFORMATION

Project #: _____
Project Name: _____
Project Location (street address/city/state)**:**
_____
_____
Client Corporate Name / Contact / Address / Phone #:
_____
_____
_____
_____
_____

Immediate Verbal Notifications Given To:

Corporate Health & Safety	☐Yes	☐No
Office Health & Safety	☐Yes	☐No
Office Manager	☐Yes	☐No
Project Principal	☐Yes	☐No
Project Manager	☐Yes	☐No
Client Contact	☐Yes	☐No

REPORT STATUS (time due):
☐ Initial (24 hr) ☐ Final (5-10 days)
Date: _____ Date: _____

Accident Report Delivered To:

Corporate Health & Safety	☐Yes	☐No
Office Health & Safety	☐Yes	☐No
Office Manager	☐Yes	☐No
Project Principal	☐Yes	☐No
Project Manager	☐Yes	☐No

REPORT TYPE: ☐ Loss ☐ Near Loss Estimated Costs: $ _____

OSHA CASE # Assigned by Corporate Health & Safety if Applicable:

Corporate Health & Safety Confirmed Final Accident Report
☐Yes ☐No

DATE OF INCIDENT: _____

TIME INCIDENT OCCURRED: _____ ☐AM ☐PM

INCIDENT LOCATION – City, State, and Country (If outside U.S.A.)
_____

INCIDENT TYPES: (Select most appropriate if Loss occurred.)
From lists below, please select the option that best categories the incident. When selecting an injury or illness, also indicate the severity level.

☐**INJURY** ☐**ILLNESS**

----------**Severity Level**----------

☐Fatality ☐First Aid ☐Medical
☐Restricted Work ☐Lost Time ☐Treatment

OTHER INCIDENT TYPES

☐Spill / Release
Material involved:_____
Quantity (U.S. Gallons): _____
☐Misdirected Waste ☐Consent Order ☐NOV
☐Property Damage ☐Exceedance
☐Motor Vehicle ☐Fine / Penalty

ACTIVITY TYPE (Check most appropriate one.)

☐Decommissioning	☐Geoprobe	☐Sampling
☐Demolition	☐Motor Vehicle	☐System Start-up
☐Dewatering	☐Operations/ Maintenance	☐Trenching
☐Drilling		☐AST/UST Removal
☐Excavation	☐Pump/Pilot Test	☐Other_____
☐Gauging	☐Rigging/Lifting	

INJURY TYPE (Check all applicable.)

☐Abrasion	☐Occupational Illness
☐Amputation	☐Puncture
☐Burn	☐Rash
☐Cold/Heat Stress	☐Repetitive Motion
☐Inflammation	☐Sprain/Strain
☐Laceration	☐Other_____

BODY PART AFFECTED (Check all applicable.)

☐Respiratory	☐Shoulder	☐Face
☐Neck	☐Arm	☐Leg
☐Chest	☐Wrist	☐Knee
☐Abdomen	☐Hand/Fingers	☐Ankle
☐Groin	☐Eye	☐Foot/Toes
☐Back	☐Head	☐Other_____

I. PERSON(S) DIRECTLY / INDIRECTLY INVOLVED IN INCIDENT (Attach additional information as necessary/applicable.)

Name/Phone # of Each Person Directly/Indirectly Involved in Incident:	Designate: Roux/Remedial Employee Roux/Remedial Subcontractor Client Employee Client Contractor Third Party	As applicable, Current Occupation; Yrs in Current Occupation; Current Position; and Yrs in Current Position:	As applicable, Employer Name; Address; and Phone #:	As applicable, Supervisor Name; and Phone #:
1)				
2)				

II. PERSONS INJURED IN INCIDENT (Attach additional information as necessary/applicable.)

Name/Phone # of Each Person Injured in Incident:	Designate: Roux/Remedial Employee Roux/Remedial Subcontractor Client Employee Client Contractor Third Party	As applicable, Current Occupation; Yrs in Current Occupation; Current Position; and Yrs in Current Position:	As applicable, Employer Name; Address; and Phone #:	As applicable, Supervisor Name; and Phone #:	Description of Injury:
1)					
2)					

III. PROPERTY DAMAGED IN INCIDENT (Attach additional information as necessary/applicable.)

Property Damaged:	Property Location:	Owner Name, Address & Phone #:	Description of Damage:	Estimated Cost:
1)				
2)				$

IV. WITNESSES TO INCIDENT (Attach additional information as necessary/applicable.)

Witness Name:	Address:	Phone #:
1)		
2)		

PART 2: WHAT HAPPENED AND INCIDENT DETAILS

PROVIDE FACTUAL DESCRIPTION OF INCIDENT (e.g., describe loss/near loss, injury, response / treatment).

I. AUTHORITIES/GOVERNMENTAL AGENCIES NOTIFIED (Attach additional information as necessary/applicable.)

Authority/Agency Notified:	Name/Phone #/Fax # of Person Notified:	Address of Person Notified:	Date & Time of Notification:	Exact Information Reported/Provided:

II. PUBLIC RESPONSES TO INCIDENT (if applicable)

Response/Inquiry By: (check one)	Entity Name:	Name/Phone # of Respondent/ Inquirer:	Address of Entity/Person:	Date & Time of Response/Inquiry:
☐Newspaper ☐Television ☐Community Group ☐Neighbors ☐Other _____				

Describe Response/Inquiry:

Roux/Remedial Response:

(Check all that apply.) (Attach photos, drawings, etc. to help illustrate the incident.)
ATTACHED INFORMATION: ☐Photo ☐Sketches ☐Vehicle Acord Form ☐Police Report ☐Other

Name(s) of person(s) who prepared Initial and Final Report:	**Title(s):**	**Phone number(s):**

PART 3: INVESTIGATION TEAM ANALYSIS

CONCLUSION: WHY IT HAPPENED (LIST CAUSAL FACTORS AND CORRESPONDING ROOT CAUSES)

(Root Causes: Lack of knowledge or skill, Doing the task according to procedures or acceptable practices takes more time or effort, Short-cuts or not following acceptable practices is reinforced or tolerated, Not following procedures or acceptable practices did not result in an accident, Lack of or inadequate procedures, Inadequate communications of expectations regarding procedures or acceptable practices, Inadequate tools or equipment, External Factors)

ROOT CAUSE(S) AND SOLUTION(S): HOW TO PREVENT INCIDENT FROM RECURRING

PERSONAL FACTORS:

A. LACK OF SKILL OR KNOWLEDGE

B. DOING THE JOB ACCORDING TO PROCEDURES OR ACCEPTABLE PRACTICES TAKES MORE TIME OR EFFORT

C. SHORT-CUTTING PROCEDURES OR ACCEPTABLE PRACTICES IS POSITIVELY REINFORCED OR TOLERATED

D. IN PAST, DID NOT FOLLOW PROCEDURES OR ACCEPTABLE PRACTICES AND NO INCIDENT OCCURRED

JOB FACTORS:

E. LACK OF OR INADEQUATE PROCEDURES

F. INADEQUATE COMMUNICATION OF EXPECTATIONS REGARDING PROCEDURES OR ACCEPTABLE STANDARDS

G. INADEQUATE TOOLS OR EQUIPMENT (available, maintained, etc.)

CAUSAL FACTOR / BEHAVIOR / CONDITION	ROOT CAUSE	SOLUTION(S) [Must Match Root Cause(s)]		PERSON RESPONSIBLE	AGREED DUE DATE	ACTUAL COMPLETION DATE
		#	Solution(s)			

INVESTIGATION TEAM:

PRINT NAME	JOB POSITION	DATE	SIGNATURE

QUALITY REVIEW Correct root cause(s) identified? Do root cause(s) and solution(s) match? Are solution(s) feasible / maintainable?

Name: **Job Title:**

PART 4: Date Solutions were Implemented & Validated (Were Solutions Effective?)			
Date	**Solution**	**Verifier / Validator Name and Job Title**	**Details** (of I & V performed)

Appendix B - Lessons Learned Form

HEALTH & SAFETY LESSONS LEARNED
ROUX REPORT FORM

☐ **Roux Environmental Engineering and Geology, D.P.C.**
☐ **Roux Associates, Inc.** ☐ **Remedial Engineering, P.C.**

(Check applicable company name)

PART 1: ADMINISTRATIVE INFORMATION	
Office: ☐ New York ☐ Massachusetts ☐ New Jersey ☐ Illinois ☐ CA - Los Angeles ☐ CA - Oakland	
Project Manager:	**Project Principal:**
Project Name:	**Project Location:**

PART 2: LESSONS LEARNED INCIDENT DETAILS			
Date\Time Occurred (MM/DD/YYYY HH:MM)**:**		**Date\Time Submitted** (MM/DD/YYYY HH:MM)**:**	
LESSONS LEARNED INCIDENT TYPE - What could have happened? - Select all that apply (1-7)			
1. ☐ Fire / Explosion 2. ☐ Injury / Illness	3. ☐ Security (e.g, theft, trespassing, vandalism)	4. ☐ Environmental (spill, permit exceedance, etc.) 5. ☐ Transportation of personnel (vehicle accident)	6. ☐ Property/Equipment Damage 7. ☐ Business Interruption
Event Leading to Potential Injury/Illness:			
Job Task*:		**Equipment Involved*:**	

WHAT HAPPENED? Do not include individuals' names. Ensure photos, sketches, etc. are not personally identifiable unless written consent has been obtained.
Summary (1-2 sentences. Provide brief description of the incident. Provide facts only, no speculation or opinion)**:**
Incident Details (Brief factual details of what, where, when; include photos, sketches, etc. as attachments)**:**
Immediate Corrective Actions Taken:

I

SERIOUS INJURY OR FATALITY (SIF): **IF AN ACTUAL SIF, USE EXISTING ROUX ACCIDENT REPORTING FORM**
Could this have resulted in a SIF? ☐ **Yes** ☐ **No**
A potential SIF is defined as likely to have caused an injury resulting in significant physical body damage with probable long term and/or life altering complications.

INCIDENT INVOLVED:			
Roux Employee: ☐ **Yes** ☐ **No** **Subcontractor Company Name:**			
INVESTIGATION TEAM			
NAME	**JOB TITLE**	**NAME**	**JOB TITLE**

PART 3: INCIDENT INVESTIGATION FINDINGS AND REPORT QUALITY REVIEW
Date Investigation Team Assigned (mm/dd/yyyy):
INVESTIGATION SUMMARY: Determine from list below what behaviors and/or conditions may have contributed to the H&S Lessons Learned Incident. Then, use the "Multiple-Why Technique" for each of these behaviors/conditions; provide a narrative for each that explains how the associated Root Cause(s) was determined. Do not include individuals' names.

ROOT CAUSES: HOW TO REDUCE POSSIBILITY OF INCIDENT RECURRING
Selection of RCs and solutions reflects the analysis of investigation team. It is not meant as a legally binding conclusion as to causal factors and/or solutions.

PERSONAL FACTORS:

A. LACK OF SKILL OR KNOWLEDGE

B. DOING THE JOB ACCORDING TO PROCEDURES OR ACCEPTABLE PRACTICES TAKES MORE TIME OR EFFORT

C. SHORT-CUTTING PROCEDURES OR ACCEPTABLE PRACTICES IS POSITIVELY REINFORCED OR TOLERATED

D. IN PAST, DID NOT FOLLOW PROCEDURES OR ACCEPTABLE PRACTICES AND NO INCIDENT OCCURRED

JOB FACTORS:

E. LACK OF OR INADEQUATE PROCEDURES

F. INADEQUATE COMMUNICATION OF EXPECTATIONS REGARDING PROCEDURES OR ACCEPTABLE STANDARDS

G. INADEQUATE TOOLS OR EQUIPMENT (available, maintained, etc.)

Behavior / Condition	Root Cause	Solution(s) (Must Match Root Cause)	Person Responsible for Completion	Completion Target Date	Completion Actual Date

QUALITY REVIEW Correct root cause(s) identified? Do root cause(s) and solution(s) match? Are solution(s) feasible / maintainable?

Name: **Job Title:**

PART 4: Date Solutions were Implemented & Validated (Were Solutions Effective?)			
Date	**Solution**	**Verifier / Validator Name and Job Title**	**Details** (of I & V performed)

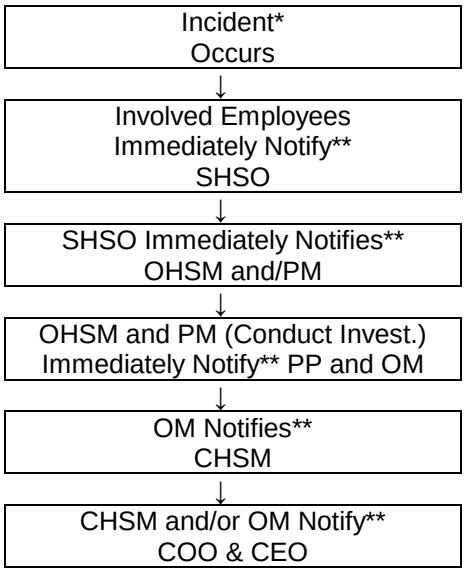
JOB TASK - Select the most appropriate one (primary job associated with incident-related work activity, avoid "Other" if possible)			
1. Carbon Change	7. Gauging	12. Pavement Cutting	18. System Startup
2. Construction	8. Geoprobe / Direct Push	13. Pump Test	19. UST Removal exposure and
3. Demolition	9. Mobil Remediation (includes vacuum event and chemical injection)	14. Sampling	20. Waste Management
4. Dewatering	10. NAPL Recovery	15. Site Visit / Survey	21. Well Abandonment
5. Drilling (well install)	11. O&M (remediation system)	16. Subsurface	22. Other:
6. Excavation /		17. System Install	

EQUIPMENT INVOLVED THAT CONTRIBUTED TO H&S LESSONS LEARNED - Select all that apply

1. Air Stripper
2. API Separator
3. Automobile
4. Boom Material
5. Bulldozer
6. Cable
7. Carbon Drum / Vessel
8. Chain Block
9. Compressor, Air
10. Control Panel (local)
11. Crane (mobile)
12. Drill Rig
13. Drilling Equipment, Vacuum
14. Drum, Vertical
15. Dump Truck
16. Electric Heater
17. Electrical Power Supply
18. Engine, Combustion
19. Equipment Safety Grounding
20. Excavator / Power Shovel
21. Exclusion Zone Equipment
22 Fan / Blower
23 Fencing
24 Filter
25. Fire Extinguisher
26. Forklift
27. Front End Loader
28. Grader
29. Hammer
30. Knife
31. Non-Powered Equipment
32. Powered Equipment
33. Drill
34. Grinder
35. Hydraulic Torque Wrench
36. Powered Saw
37. Impact Wrench
38. Saw
39. Screwdriver
40. Shears
41. Shovel
42. Snip
43. Wrench
44. Hoist
45, Hook/Clamp/Buckle, etc.
46. Jack
47. Ladder, Extension
48. Ladder, Platform
49. Ladder, Step
50. Lock Out / Tag Out
51. Maintenance Tool, General
52. Manifold
53, Manlift/Basket/Cherry Picker
54. Motor, Electric
55. Oxidizer
56. Pallet
57. Piping
58. Piping, Hose
59. Piping, Injection/Mixing Point
60. Hydrojet
61. Centrifugal Pump
62. Diaphragm Pump
63. Reciprocating Pump
64. Regenerative Pump
65. Rotary Pump
66. Transfer Pump
67. Submersible Pump
68. Face Shield
69. Fall Protection
70. Gloves
71. Hard Hat / Helmet
72. Hearing Protection
73. Respiratory PPE (Chemical)
74. Respiratory PPE (Particulate)
75. Safety Glasses
76. Safety Goggles
77. Safety Shoes / Boots
78. Safety Vest / Clothing
79. Rope
80. Bailer
81. Geoprobe
82. Hand Auger
83. PID
84. Multi-Gas Meter
85. Sample Container
86. Split-Spoon Sampler
87. Sling
88. Snow Blower
89. Snow Plow
90. Space Heater
91. Air Sparging System
92. Carbon Treatment Sys
93. Chemical Oxidation Sy
94. Dual Phase Product Recovery System
95. Groundwater Pump and Treat System
96. POET System
97. Shed or Trailer
98. Vapor Extraction Syst
99. Vapor-Phase Treatme System
100. Other System, Type:
101. Surge Tank
102. Underground Tank
103. Telemetry System
104. Testing Devices
105. Tractor Trailer
106. Truck, Flatbed
107. Truck, Pickup
108. Truck, Tank Truck
109. Truck, Vacuum
110. Safety Valve
111. Block Valve
112. Extraction Well
113. Monitoring Well
114. Recovery Well
115. Winch
116. Wire Rope
117. No Equipment Involv
118. MPT – Traffic Contr Devices
118. Not in List (describe)

Appendix C – Injury Illness Reporting Flow Chart

Health & Safety Near/Loss – Loss (Incident)*
Notification Flow Chart



* Incident – any work or site-related occurrence that resulted in, or could potentially have resulted in, the need for medical care or in property damage (i.e., all injuries or illnesses, exposure to toxic materials or any other significant occurrence resulting in property damage or in a "near loss")

** Verbal Notification

Initial Incident Report (written) to SHSO, OHSM, OM and CHSM within 24 hours
Follow-up Report within one week.

APPENDIX D

Heavy Equipment Exclusion Zone Policy

HEAVY EQUIPMENT EXCLUSION ZONE MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY MANAGER	**:**	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	**:**	**07/18**
REVISION NUMBER	**:**	**1**

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1. PURPOSE

The purpose of the Exclusion Zone Management Program is to establish the minimum clearance distance that must be maintained between workers and heavy equipment while equipment is in operation (i.e., engaged or moving). The intent is to have no personnel or equipment entering the Exclusion Zone while the equipment is in operation or moving to ensure that Roux and Subcontractor employees are not unnecessarily exposed to the hazards of the equipment.

2. SCOPE AND APPLICABILITY

This Management Program applies to all Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux") employees and their subcontractors who are performing field work and are potentially exposed to heavy equipment. For the purpose of this program, heavy equipment includes, but is not necessarily limited to: excavation equipment, drill rigs, vacuum trucks, forklifts, lull telehandlers, man lifts, bobcats, delivery trucks, etc.

3. PROCEDURES

As specified in the following sections of this Program, an Exclusion Zones must be established and maintained during activities involving the movement/operation of heavy equipment. The Exclusion Zone requirements apply to all personnel on the site but are primarily focused on those personnel who are required to be working in the vicinity of the equipment. The exclusion zone is in effect when heavy equipment is moving or engaged (ex. movement of an arm or bucket of an excavator, rotation of an auger, lifting of a load with a forklift, raising/lowering of a man lift, etc.).

1. The Exclusion Zone must meet the following minimum requirements:
   - A minimum distance of 10 feet from all heavy equipment and loads being moved by the equipment;
   - Greater than the swing/reach radius of any moving part on the heavy equipment (i.e., for large equipment this may mean an exclusion zone distance larger than 20 feet);
   - Greater than the tip-over distance of the heavy equipment; and
   - Greater than the radius of blind spots.

   The size of the Exclusion Zone will need to be determined on a task-specific basis considering the size of the heavy equipment in use and the task being performed. Prior to all heavy equipment operations, the Exclusion Zone(s) distance must be specifically identified in the Job Safety Analysis (JSA).
2. The spotter (or another individual) should be assigned responsibility for enforcing the Exclusion Zone. The spotter should be positioned immediately outside of the Exclusion Zone within a clear line of sight of the equipment operator. The spotter must signal the operator to stop work if anyone or anything has the potential to enter or compromise the Exclusion Zone. The operator should stop work if the spotter is not within his/her line of sight. If multiple pieces of equipment are being used, each piece of equipment must have its own Exclusion Zone and spotter. For large excavation and demolition projects the spotter should be in constant radio contact (not cell phone) with the machine driver.
3. If an individual must enter the Exclusion Zone, the designated Spotter must signal the Equipment Operator to stop the equipment. Once the equipment is no longer moving (ex. movement of an arm of an excavator is STOPPED, lifting of a load with a forklift STOPPED, raising/lowering of a man lift is

STOPPED, etc.), the operator must DISENGAGE THE CONTROLS and STOP and SIGNAL BY "SHOWING HIS HANDS". This signal will indicate that it is safe for the personnel to enter the limits of the Exclusion Zone to perform the required activity. The equipment must remain completely stopped/disengaged until all personnel have exited the limits of the Exclusion Zone and the designated Spotter has signaled by "SHOWING HIS HANDS" to the Equipment Operator that it is safe to resume operations.

4. When entering the limits of the Exclusion Zone, personnel must at a minimum:
   - Establish eye contact with the operator and approach the heavy equipment in a manner that is in direct line of sight to the Equipment Operator;
   - Never walk under any suspended loads or raised booms/arms of the heavy equipment; and
   - Identify a travel path that is free of Slip/Trip/Fall hazards.
5. The Exclusion Zone should be delineated using cones with orange snow fence or solid poles between the cones, barrels, tape or other measures. For work in rights-of-way rigid barriers, such as Jersey barriers or temporary chain link fence should be used. For certain types of wide-spread or moving/mobile equipment operations, such delineation may not be practicable around pieces of equipment or individual work areas. In such instances, it is expected that the entire operation will be within a larger secure work area or that additional means will be utilized to ensure security of the work zone.

All subcontractors who provide heavy equipment operations to field projects must implement a program that meets or exceeds the expectations described above as well as any additional requirements that may be required on a client or site-specific basis.

3.1 Exceptions

It is recognized that certain heavy equipment activities may require personnel to work within the limits of the Exclusion Zone as specified in this program. Such activities may include certain excavation clearance tasks, drill crew activities or construction tasks. However, any such activity must be pre-planned with emphasis on limiting the amount and potential exposure of any activity required within the zone. The critical safety steps to mitigate the hazards associated with working within the Exclusion Zone must be defined in the JSA and potentially other project-specific plans (i.e., critical lift plans, etc.), and approved by the Roux Project Principal and client representative, if required, prior to implementation.

4. TRAINING

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

APPENDIX E

Subsurface Utility Clearance Management Program

SUBSURFACE UTILITY CLEARANCE MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY MANAGER	**:**	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	**:**	**07/18**
REVISION NUMBER	**:**	**1**

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APPENDICES

1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux") has instituted the following program for completing proper utility mark-outs and for conducting subsurface clearance activities. This establishes a method to ensure, to the greatest extent possible, that utilities have been identified and contact and/or damage to underground utilities and other subsurface structures will be avoided.

2. SCOPE AND APPLICABILITY

The Subsurface Utility Clearance Management Program applies to all Roux employees, its contractors and subcontractors. Employees are expected to follow this program for all intrusive work involving Roux or other personnel (e.g., contractors/subcontractors) working for Roux unless the client's requirements are more stringent. Deviation from the program regardless of the specific work activity or work location must be pre-approved based on client's site knowledge, site experience and client's willingness for the use of this program. Any and all exceptions shall be documented and pre-approved by the Project Principal and the Office Manager.

3. PROCEDURES

3.1 Before Intrusive Activities

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

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

- Ensure the Mark-out / Stake-out Request Information Sheet (or one-call report) is complete and accurate for the site including address and cross streets and review for missing utilities. (Note: utility mark-out organizations do not have contracts with all utilities and it is often necessary to contact certain utilities separately such as the local water and sewer authorities).
- Have written confirmation prior to mobilizing to the site that the firm or Roux personnel performing the intrusive activity has correctly completed the mark-out notification process including requesting mark-outs, waiting for mark-outs to be applied to ground surfaces at the site, and receiving written confirmation of findings (via fax or email) from utility operators for all known or suspected utilities in the proposed area of intrusive activity, and provided utility owner written confirmation to Roux personnel for review and project files documentation.
- Do not begin any intrusive activity until all utilities mark-out has been completed (i.e., did all utilities mark-out the site?) and any unresolved mark-out issues are finalized. Perform a site walk to review the existing utilities and determine if said utilities have been located by the utility locators.

  (Note: The Tolerance Zone is defined as two feet plus half of the diameter or half of the greatest dimension (for elliptical sewers, duct banks and other non-cylindrical utilities) of a utility and two feet from the outside edge of any subsurface structure.)
- Install Pre-Clearance exploratory test holes (e.g., hand-dug test holes or other soft digging techniques) for the first 5-ft below land surface (BLS) at each location prior to conducting mechanized intrusive activities. The size of the pre-clearance exploratory test hole should be at a minimum twice the diameter of any downhole tool or boring device. (Note: Pre-Clearance exploratory test holes should be defined in the SOW/proposal provided to the client to prevent project delays and to allow adequate time for PM and PP to evaluate alternative approaches for the project. Alternative approaches will need to be pre-approved by the OM.

- For excavations, all utilities need to be marked and then exposed by hand following the protocols in this program. Pre-clearing for excavations may be performed by the "moat" technique (i.e., soft digging around the perimeter). In these cases, dig in small lifts (<12" for first 5 feet) using a dedicated spotter.) For Tolerance Zone work, unless otherwise agreed upon with the Utility Operator, work within the tolerance zone requires verification by means of hand-dug test holes performed to expose the utility. Once structures have been verified a minimum clearance of two feet must be maintained between the utility and any powered equipment.
- In addition, the following activities should be conducted:
  - Review the work scope to be performed with the site owner/tenant to determine if it may impact any utilities;
  - Attempt to procure any utility maps or historic drawings of subsurface conditions of the site;
  - **Determine the need for utility owner companies to be contacted or to have their representatives on site**;
  - Where mark-outs terminate at the property boundary, consider the use of private utility locating / GPR / geophysical-type services which may be helpful in locating utilities. Use of private utility locating firms, however, does not eliminate the legal requirement for the Excavator firm to submit a request for Public Utility Mark-outs. Also, the information provided by the service may be inaccurate and unable to locate subsurface utilities and structures in urban areas, landfills, urban fill areas and below reinforced slabs, etc. They should not be relied upon as the only means of performing utility clearance;
  - Documented description of the dig site which is included in the projects Health and Safety Plan (HASP) and one call report will be maintained in the field and distributed amongst Roux personnel its contractors and subcontractors; and
  - Documentation of the actual placement of mark outs in the field shall be collected using dated pictures, videos and/or sketches with distance from markings to fixed objects. All documentation shall be maintained within the project file.

3.2 During Intrusive Activities

The PM, field team lead or personnel performing oversight is to:

- Ensure the mark-out remains valid. (In certain states there are limits regarding the duration of time after the mark-out was applied to the ground surface work can be started or interrupted.) Additionally, the mark-outs must be maintained, documented, and in many cases refreshed periodically to be considered valid, this will be accomplished through calls to the one call center.
- Ensure intrusive activities are only performed within the safe boundaries of the mark-out as detailed in the One-Call Report.
- Halt all work if intrusive activities have resulted in discovery of an unmarked utility. Roux personnel shall notify the facility owner/operator and the one call center. All incidents such as this will be reported as per Roux Incident Investigation and Reporting Management Program.
- Halt all work if intrusive activities must take place outside of the safe boundaries of a mark-out and only proceed after new mark-outs are performed.
- Halt the intrusive activities and immediately consult with the PP if an unmarked utility is encountered.
- Completing any subsurface utility clearance incident reports that are necessary.

- If a utility cannot be found as marked Roux personnel shall notify the facility owner/operator directly or through the one call center. Following notification, the excavation may continue, unless otherwise specified in state law.
- Contractors/subcontractors must contact the one-call center to refresh the ticket when the excavation continues past the life of the ticket. Ticket life shall be dictated by state law however at a maximum ticket life shall not exceed 20 working days.

3.3 Stop Work Authority

Each Roux employee has Stop Work Authority which he or she will execute upon determination of any imminent safety hazard, emergency situation, or other potentially dangerous situation, such as hazardous weather conditions. This Stop Work Authority includes subsurface clearance issues such as the adequacy of a mark-out or identification during intrusive operations of an unexpected underground utility. Authorization to proceed with work will be issued by the PM/PP after such action is reviewed and resolved. The PM will initiate and execute all management notifications and contact with emergency facilities and personnel when this action is appropriate.

Appendix A - Definitions

Intrusive Work Activities	All activities such as digging or scraping the surface, including but not limited to, excavation, test pitting or trenching, soil vapor sampling or the installation of soil borings, soil vapor monitoring points and wells, or monitoring wells, and drilling within the basement slab of a recently demolished building.
Mark-out / Stake Out	The process of contracting with a competent and qualified company to confirm the presence or absence of underground utilities and structures. This process will clearly mark-out and delineate utilities that are identified so that intrusive work activities can be performed without causing disturbance or damage to the subsurface utilities and structures. After utility mark-outs are completed the soft digging will be completed prior to intrusive work.
Tolerance Zone	Defined as two feet on either side of the designated centerline of an identified utility, plus half of the diameter or half of the greatest dimension (for elliptical sewers, duct backs and other non-cylindrical utilities) of that utility and two feet from the outside edge of any subsurface structure.
Structure	For the purpose of this program a structure is defined as any underground feature that may a present potential source(s) of energy such as, but not limited to, utility vaults, bunkers, piping, electrical boxes, wires, conduits, culverts, utility lines, underground tanks and ducts.
Soft Digging	The safest way to remove material from unknown obstructions or services is by using tools such as a vactor or air knife, non-mechanical tools, or hand tools. The methods are clean and non-evasive and used for uncovering and exposing buried services, excavating and for providing a quick method of soil removal from sensitive areas.
Verification	Exploratory test-hole dug with hand tools within the Tolerance Zone to expose and verify the location, type, size, direction-of-run and depth of a utility or subsurface structure. Vacuum excavation (soft dig) methods can further facilitate exposure of a subsurface utility and accurately provide its location and identification prior to intrusive work approaching the Tolerance Zone.

Appendix B - Example of Completed One Call Report

Example Completed One-Call Report

New York 811

Send To: C_EMAIL Seq No: 744

Ticket No: 133451007 ROUTINE

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

State: NY County: QUEENS Place: QUEENS
Dig Street: 46TH AVE Address:
Nearest Intersecting Street: VERNON BLVD
Second Intersecting Street: 11TH ST

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

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

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

Remarks:

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

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

Additional Operators Notified:
ATTNY01 AT&T CORPORATION (903)753-3145
CEQ CONSOLIDATED EDISON CO. OF N.Y (800)778-9140
MCINY01 MCI (800)289-3427
PANYNJ01 PORT AUTHORITY OF NY & NJ (201)595-4841
VZQ VERIZON COMMUNICATIONS (516)297-1602

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

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

Appendix C - Roux Subsurface Utility Clearance Checklist

Roux Subsurface Utility Clearance Checklist ***Date of Revision – 12/3/14***

Work site set-up and work execution

ACTIVITY	Yes	No	N/A	COMMENTS INCLUDING JUSTIFICATION IF RESPONSE IS NO OR NOT APPLICABLE
Daily site safety meeting conducted, SPSAs performed, JSAs reviewed, appropriate work permits obtained.				
HASP is available and reviewed by site workers / visitors.				
Subsurface Utility Clearance Procedure has been reviewed with all site workers.				
Work area secured; traffic control established as needed. Emergency shut-off switch located. Fire extinguishers / other safety equipment available as needed.				
Utility mark-outs (public / private) clear and visible. Provide Excavator's Stake-Out Reference Number / Request Date / Time.				
Tolerance zone work identified.				
Work execution plan reviewed and adhered to (ground disturbance methods, clearance depths, any special utility protection requirements, or any other execution requirements; especially for Tolerance Zone work).				
Verbal endorsement received from Roux PM for any required field deviations to work execution plan.				

<u>Key reminders for execution</u>:

The Subsurface Utility Clearance Protocol should be referenced to determine all requirements while executing subsurface work. The bullet points below are intended as general reminders only and should not be solely relied upon.

- Tolerance zone is defined as two feet plus half of the diameter or half of the greatest dimension (for elliptical sewers, duct banks and other non-cylindrical utilities) of a utility and two feet from the outside of any subsurface structure.
- Install Pre-Clearance exploratory test holes (e.g., hand-dug test holes or vacuum excavation) must be performed for the first five feet below land surface (BLS) at each location prior to conducting mechanized intrusive activities. The size of the pre-clearance exploratory test hole should be at a minimum twice the diameter of any downhole tool or boring device. (Note: Pre-clearance exploratory test holes should be defined in the SOW/proposal provided to the client to prevent project delays and to allow adequate time for PM and PP to evaluate alternative approaches for the project. Alternate approaches will need to be pre-approved by the OM.
- For excavations, all utilities need to be marked and then exposed by hand following the protocols in this program. Pre-clearing for excavations may be performed by the "moat" technique (i.e., soft

digging around the perimeter). In these cases, dig in small lifts (<12" for first five feet) using a dedicated spotter.) For Tolerance Zone work, unless otherwise agreed upon with the Utility Operator, work within the tolerance zone requires verification by means of hand-dug test holes to expose the utility. Once structures have been verified a minimum clearance of two feet must be maintained between the utility and any powered equipment.

Appendix D - Utility Verification/Site Walkthrough Record

Employee Name: _____

Date: _____

Instructions: For each utility suspected at the job site, indicate location on the job site, approximate burial depth, and means of detecting the utility. Leave blank if that utility is not believed to be present.

Utility	Description of Utility Location Identified Onsite	Approx. Depth (bls)	Method / Instrumentation used to determine Utility Location	Utility Owner Response (Date/Time)	Mark Out Indicates (Clear / Conflict)
Electrical Lines					
Gas Lines					
Pipelines					
Steam Lines					
Water Lines					
Sanitary and Stormwater Sewer lines					
Pressured Air-Lines					
Tank Vent Lines					
Fiber Optic Lines					
Underground Storage Tanks					
Phone Lines/ Other					

* bls - below land surface

Site Sketch Showing Utilities:

Other Comments / Findings:

Completed by: _____

Signature: _____ Date: _____

APPENDIX F

Personal Protective Equipment Management Program

PERSONAL PROTECTIVE EQUIPMENT MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY MANAGER	**:**	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	**:**	**07/18**
REVISION NUMBER	**:**	**3**

TABLE OF CONTENTS

1. PURPOSE

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

2. SCOPE AND APPLICABILITY

These guidelines apply to all PPE selection decisions to be made in implementing the Roux program. The foundations for this program are the numerous Occupational Health and Safety Administration (OSHA) standards related to PPE cited in 29 CFR 1910 Subpart I, 29 CFR 1926 Subpart E, and the hazardous environment work employee protection requirements under the OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) standard at 29 CFR 1910.120 and 1926.65. To ensure hazard assessments are documented the levels of protection, types of protection and tasks requiring protection are covered in site-specific Health and Safety Plans (HASPs) and Job Safety Analyses (JSAs).

3. PROCEDURES

Due to the varied nature of site activities and the different potential hazards associated with different sites, several aspects must be considered when selecting PPE. The following text describes PPE selection logic and provides guidelines and requirements for the appropriate selection and use of PPE.

3.1 Introduction

To harm the body, chemicals must first gain entrance. The intact skin and the respiratory tract are usually the first body tissues attacked by chemical contaminants. These tissues provide barriers to some chemicals but in many cases, are damaged themselves or are highly permeable by certain chemical compounds. Personal protective equipment therefore is used to minimize or eliminate chemical compounds coming into contact with these first barrier tissues.

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

3.2 Types of PPE

The type and selection of PPE must meet certain general criteria and requirements as required under OSHA 29 CFR 1910.132 and 1926.95. In addition to these general requirements, specific requirements and specifications exist for some types of PPE that form the basis of the protective clothing scheme. Following is a list of the common types of specific PPE and the specific requirements for the PPE type, where applicable:

1. Hard Hats - Regulated by 29 CFR 1910.135 and 1926.100; and, specified in ANSI Z89.1.

2. Face Shields and Safety Glasses - Regulated by 29 CFR 1910.133 and 1926.102; and, specified in ANSI Z87.1.
3. Respiratory Protection - Regulated by 29 CFR 1910.134 and 1926.103.
4. Hand Protection - Not specifically regulated.
5. Foot Protection - Regulated by 29 CFR 1910.136 and 1926.96; and, specified in ANSI Z41.1.
6. Protective Clothing (e.g., fully encapsulated suits, aprons) - Not specifically regulated.

3.3 Protective Clothing Selection Criteria

3.3.1 Chemicals Present

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

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

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

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

3.3.2 Concentration of the Chemical(s)

One of the major criteria for selecting protective material is the concentration of the chemical(s) in air, liquid, and/or solid state. Airborne and liquid chemical concentrations should be compared to the OSHA standards and/or American Conference of Governmental Industrial Hygienists (ACGIH) and National Institute for Occupational Safety and Health (NIOSH) guidelines to determine the level of skin or other absorptive surface (e.g., eyes) protection needed. While these standards are not designed specifically for skin exposed directly to the liquid, they may provide skin designations indicative of chemicals known to have significant skin or dermal absorption effects. For example, airborne levels of PCB on-site may be

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

3.3.3 Physical State

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

3.3.4 Length of Exposure

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

3.3.5 Abrasion

When selecting protective clothing, the job the employee is engaged in must be taken into consideration. Persons moving drums or performing other manual tasks may require added protection for their hands, lower chest and thighs. The use of leather gloves and a heavy apron over the other normal protective clothing will help prevent damage to the normal PPE and thus reduce worker exposures.

3.3.6 Dexterity

Although protection from skin and inhalation hazards is the primary concern when selecting PPE, the ability to perform the assigned task must be maintained. For example, personnel cannot be expected to perform work that requires fine dexterity if they must wear a thick glove. Therefore, the PPE selection process must consider the task being performed and provide PPE alternatives or techniques that allow dexterity to be maintained while still protecting the worker (e.g., wearing tight latex gloves over more bulky hand protection to increase dexterity).

3.3.7 Ability to Decontaminate

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

3.3.8 Climactic Conditions

The human body works best with few restraints from clothing. Protective clothing adds a burden by adding weight and restricting movement as well as preventing the natural cooling process. In severe situations, a modified work program must be used.

Some materials act differently when they are very hot and very cold. For example, PVC becomes almost brittle in very cold temperatures. If there are any questions about the stability of the protective materials under different conditions, the manufacturer should be contacted.

3.3.9 Work Load

Like climactic conditions, the type of work activity may affect work duration and the ability or personnel to perform certain tasks. Similarly, the amount of protective materials a person wears will affect their ability to perform certain tasks. For example, a person in a total encapsulating suit, even at 72 ^{o}F, cannot work for more than a short period of time without requiring a break.

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

3.4 Types of Protective Materials

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

3.5 Protection Levels

3.5.1 Level A Protection

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

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

- sites at which sealed drums of unknown materials must be opened;
- total atmospheric readings on the Photoionization Detector (PID), Flame Ionization Detector (FID), and similar instruments indicate 500 to 1,000 ppm of unidentified substances; and
- extremely hazardous substances (e.g., cyanide compounds, concentrated pesticides, Department of Transportation Poison "A" materials, suspected carcinogens and infectious substances) are known or suspected to be present and skin contact is possible.

The following items constitute Level A protection:

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

3.5.2 Level B Protection

Level B protection is utilized when the highest level of respiratory protection is needed but hazardous material exposure to the few unprotected areas of the body is unlikely.

The following conditions suggest a need for Level B protection:

- the type and atmospheric concentration of toxic substances have been identified and they require the highest level of respiratory protection;
- IDLH atmospheres where the substance or concentration in the air does not present a severe skin hazard;
- the type and concentrations of toxic substances do not meet the selection criteria permitting the use of air purifying respirators; and
- it is highly unlikely that the work being done will generate high concentrations of vapors, gases or particulates, or splashes of materials that will affect the skin of personnel.

Personal protective equipment for Level B includes:

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

3.5.3 Level C Protection

Level C protection is utilized when both skin and respiratory hazards are well defined and the criteria for the use of negative pressure respirators have been fulfilled (i.e., known contaminants and contaminant concentrations, acceptable oxygen levels, approved filter/cartridge available, known cartridge service life, etc.). Level C protection may require carrying an emergency escape respirator during certain initial entry and site reconnaissance situations, or when applicable thereafter.

Personal protective equipment for Level C typically includes:

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

3.5.4 Level D Protection

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

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

3.5.5 Level E Protection

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

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

3.5.6 Additional Considerations

Field work will contain a variety of situations due to chemicals in various concentrations and combinations. These situations may be partially ameliorated by following the work practices listed below:

1. Some sort of foot protection is needed on a site. If the ground to be worked on is contaminated with liquid and it is necessary to walk in the chemicals, some sort of protective "booties" can be worn over the boots. This cuts down on decontamination requirements. They are designed with soles to help prevent them from slipping around. If non-liquids are to be encountered, a Tyvek™ bootie could be used. If the ground contains any sharp objects, the advantage of booties is questionable. Boots should be worn with either cotton or wool socks to help absorb the perspiration.

2. If the site situation requires the use of hard hats, chin straps should be used if a person will be stooping over where his/her hat may fall off. Respirator straps should not be placed over the hard hats. This will affect the fit of the respirator.

   Some types of protective materials conduct heat and cold readily. In cold conditions, natural material clothing should be worn under the protective clothing. Protective clothing should be removed prior to allowing a person "to get warm". Applying heat, such as a space heater, to the outside of the protective clothing may drive the contaminants through. In hot weather, under clothing will absorb sweat. It is recommended that workers use all cotton undergarments.

3. Body protection should be worn and taped to prevent anything from running into the top of the boot. Gloves should be worn and taped to prevent substances from entering the top of the glove. Duct tape is preferred, but masking tape can be used. When aprons are used, they should be taped across the back for added protection. However, this should be done in such a way that the person has mobility.

4. Atmospheric conditions such as precipitation, temperature, wind direction, wind velocity, and pressure determine the behavior of contaminants in air or the potential for volatile material getting into the air. These parameters should be considered in determining the need for and the level of protection.

5. A program must be established for periodic monitoring of the air during site operations. Without an air monitoring program, any changes would go undetected and might jeopardize response personnel. Monitoring can be done with various types of air pumps and filtering devices followed by analysis of the filtration media; personnel dosimeters; and periodic walk-throughs by personnel carrying real-time survey instruments.

6. For operations in the exclusion zone, different levels of protection may be selected, and various types of chemical-resistant clothing may be worn. This selection should be based on the job function, reason for being in the area, and the potential for skin contact with, or inhalation of, the chemicals present.

7. Escape masks must be readily available when levels of respiratory protection do not include a SCBA and the possibility of an IDLH atmosphere exists. Their use can be made on a case-by-case basis. Escape masks could be strategically located at the site in areas that have higher possibilities of vapors, gases or particulates.

APPENDIX C

Community Air Monitoring Plan

Appendix B
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

APPENDIX D

NYSDEC Electronic Correspondence

From:	Christopher Battista
To:	Caffoe, Todd (DEC)
Cc:	Tally Sodre; Nathan Epler; Omar Ramotar; Perretta, Anthony C (HEALTH)
Subject:	Turk Hill Park - Site No. 828161 - Soil Borings and Test Pits
Date:	Thursday, October 25, 2018 7:08:41 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.jpg F7_3113.0001Y106.03.p.pdf

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Todd,

As we discussed earlier this week, Roux will be performing approximately nine soil borings and two test pits at the Turk Hill Park Site in mid-November. This work will be performed in order to obtain delineation/end-point samples need to identify the exact limits of the required "hot-spot" excavation in the area of monitoring well MW-9S and provide for the design of the excavation support system. We are anticipating performing this work in Mid-November. Community Air Monitoring and health and safety air monitoring will be performed during all ground-intrusive activities. I will update you when the exact dates have been scheduled with our drilling subcontractor. Provided below is a general summary of the work to be performed:

- Two test pits will be excavated along the foundation of Building 3 using a vacuum excavator. The test pits will be between 3 and five feet wide and extend to approximately five feet below land surface. Field measurements, observations and photos will be collected from the building footing in the exposed areas. No samples will be collected from the test pits.

- Approximately eight soil borings (RXSB-1 through RXSB-8) will be advanced around the perimeter of the proposed excavation. One additional soil boring (RXSB-9) will be located near the center of the excavation area adjacent to MW-9S. The soil boring locations and designations are shown on the attached Figure. Each soil boring will be cleared using hand tools and/or vacuum excavator to five feet below land surface before completing the each boring with a Geoprobe drill rig.

- The proposed remedial excavation is anticipated to measure approximately 15 feet wide by 15 feet long and is centered on MW-9S. Soil borings RXSB-1 through RXSB-4 will be installed on each respective side of this excavation based on the proposed excavation dimensions. Soil borings RXSB-5 through RXSB-8 will be installed approximately two to three feet outward (based on field conditions) from each respective side of the proposed excavation.

- Soil borings RXSB-1 through RXSB-8 will be advanced from land surface to the proposed terminal depth of the remedial excavation (i.e., 15 feet bls). Sidewall confirmation/delineation samples will be collected from the two-foot interval immediately above the groundwater table (based on high water elevation within the canal) from borings RXSB-1 through RXSB-8 or the two-foot interval above the water table showing the highest degree of potential impact (based on olfactory evidence and screening with a PID). Each confirmation/delineation sample will be submitted for VOCs analysis via USEPA Method 8260. Samples from soil borings RXSB-5 through RXSB-8 will be submitted to the laboratory

on hold pending the results of the samples from soil borings RXSB-1 through RXSB-4. If no exceedances of the Site-Specific SCOs are detected in the samples from borings RXSB-1 through RXSB-4, the samples from RXSB-5 through RXSB-8 will be discarded. If exceedances of the Site-Specific SCOs are detected in one or more samples from RXSB-1 through RXSB-4 the corresponding sample(s) from borings RXSB-5 through RXSB-8 will be analyzed.

- Excavation bottom samples are not anticipated as the remedial excavation is expected to extend to the top of bedrock.

- The results of soil samples analyzed will be used to confirm the required lateral extents of the proposed remedial excavation area and serve as end-point confirmation samples once the excavation is completed to those extents. This will be necessary due to the required excavation support system (assumed to be steel beam and plate or pre-engineered steel slide rail system) which will make it difficult and/or unsafe to collect confirmation samples from within the excavation itself.

- Soil boring RXSB-9 will be advanced from land surface to the proposed terminal depth of the remedial excavation (i.e., 15 feet bls). Two composite soil samples (with grab samples for VOCs) will be collected from RXSB-9 for waste characterization purposes. The first sample will be collected from the just below the paved surface to five feet bls. The second sample will be collected from five ft. bls to approximately 15 feet bls. Additionally, one confirmation soil sample will be collected from the two-foot interval below the proposed excavation bottom, if unconsolidated soils are present (not anticipated based on the RI soil borings performed in this area). Each waste characterization sample will be analyzed for the parameters required by the potential disposal facility(s) as detailed below. If an end-point confirmation sample is collected from RXSB-9 (bottom) it will be submitted for VOCs analysis only.

The two *in-situ* waste characterization samples collected from RXSB-9 be analyzed for parameters typically required by soil disposal facilities, including, but not limited to:

- Target Compound List (TCL) VOCs and VOCs via the Toxicity Characteristic Leachate Procedure (TCLP);
- TCL semi-volatile organic compounds (SVOCs) and TCLP SVOCs;
- Target Analyte List (TAL) Metals and TCLP Metals;
- Pesticides and Herbicides;
- Cyanide and Hexavalent Chromium;
- Polychlorinated Biphenyls (PCBs);
- Corrosivity, ignitability, and reactivity; and
- Paint Filter Test.

All results from these soil borings and test pits including tabulated analytical data, soil boring logs, figures showing the sample locations and a detailed discussion of the test pit observations will be provided in the Soil IRM Completion Report to be finalized within 90 days of completing the Soil IRM.

Please feel free to contact me any time if you have any questions or require additional information.

Regards,

Chris.

Christopher Battista, P.G. – NY | Senior Construction Manager
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From:	Christopher Battista
To:	Caffoe, Todd (DEC)
Cc:	Tally Sodre; Nathan Epler; Omar Ramotar; Perretta, Anthony C (HEALTH)
Subject:	Turk Hill Park - Site No. 828161 - Waste Characterization Soil Borings and Test Pit
Date:	Thursday, February 14, 2019 4:19:53 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.jpg

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Todd,

Thanks for your time earlier. As we discussed, Roux would like to perform approximately seven soil borings and one test pit at the Turk Hill Park Site on February 25 and 26, 2019. This work will be performed in order to obtain additional soil waste characterization data for the soils to be disposed from the proposed "hot-spot" excavation in the area of monitoring well MW-9S. Additionally, a small test pit will be excavated adjacent to Building 3 to futher evaluate the building's foundation depth and construction. Trec Environmental will be performing the test pitting and soil boring work under oversight by Roux. Community Air Monitoring and health and safety air monitoring will be performed during all ground-intrusive activities. Provided below is a general summary of the work to be performed:

- One test pit will be excavated along the foundation of Building 3 using a mini-excavator. The test pit will be approximately 4 feet long and 3 feet wide and extend to approximately 13 feet below land surface. A small trench shield will be used for excavation support. Field measurements, observations and photos will be collected from the building footing in the exposed areas. No samples will be collected from the test pit. The test pit will be backfilled with the excavated material.

- Seven soil borings (RXSB-12 through RXSB-18) will be advanced within the proposed excavation area. Each soil boring will be cleared using hand tools and/or vacuum excavator to five feet below land surface before completing the boring to approximately 13-feet below grade (e.g., the top of bedrock) with a Geoprobe drill rig.

- Two soil samples will be collected form each of soil borings RXSB-2 through RXSB-18 for VOCs and TCLP VOCs analysis. These samples will be used to delineate the area of hazardous waste near the center of the "Hot Spot" so that it may be segregated and disposed accordingly. Additionally, one additional composite sample will be collected from each of soil borings RXSB-17 and RXSB-18 and submitted for the following analysis:

    - TCL semi-volatile organic compounds (SVOCs) and TCLP SVOCs;
    - Target Analyte List (TAL) Metals and TCLP Metals;
    - Pesticides and Herbicides;
    - Cyanide and Hexavalent Chromium;
    - Polychlorinated Biphenyls (PCBs);

- Corrosivity, ignitability, and reactivity; and
- Paint Filter Test.

Please let us know if NYSDEC or NYSDOH has any questions, concerns or objections related to our performing the work summarized above.

Analytical results from these soil borings will be provided in the Soil IRM Completion Report to be finalized within 90 days of completing the Soil IRM.

Please feel free to contact me any time if you have any questions or require additional information.

Regards,

Chris.

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