City of Watertown
Former Ogilvie Foods Site #C623028
148 North Pleasant Street
Watertown, New York 13601

Interim Remedial Action Work Plan

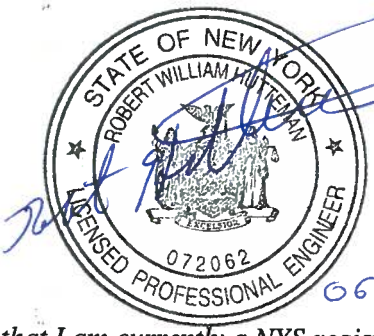
Prepared For:

City of Watertown
245 Washington Street
Watertown, New York 13601

Prepared By:

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

175 Sully's Trail, Suite 202
Pittsford, New York 14534



I, Robert Hutteman, P.E., certify that I am currently a NYS registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

June 2014

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ATTACHMENTS

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1.0 Introduction

Lu Engineers has prepared this Interim Remedial Action Work Plan (RAWP) on behalf of the City of Watertown for the Former Ogilvie Foods Site #C623028 (the 'Site') located at 148 North Pleasant Street. This work plan was prepared for submission to the New York State Department of Environmental Conservation (NYSDEC) as a supplement to the approved conceptual *Remedial Work Plan*, dated September 2012.

The City of Watertown (the 'City') was awarded federal funding through the United States Environmental Protection Agency (EPA) Brownfield Cleanup Program for remediation of petroleum (and possibly other hazardous materials) at the former Ogilvie Foods location. The City plans to redevelop the Site as residential housing, consistent with surrounding property uses.

As requested by NYSDEC, additional investigation (aka, Pre-Remedial Design Investigation) was performed in October 2012 to further investigate existing conditions and fill data gaps from previous investigations. This work plan contains a summary of the additional investigation findings, a summary of the cleanup alternatives analysis and selected remedy, technical plans and bid specifications.

1.1 Site Description

The Former Ogilvie Foods Site is located at 148 North Pleasant Street, between N. Pleasant Street and California Avenue, in the City of Watertown, Jefferson County, New York (Figure 1). The Site consists of approximately 4.2 acres including tax parcels 6-15-119 and 6-15-116, owned by the City of Watertown.

Former buildings associated with dairy processing operations were demolished in 2003 and the Site is currently undeveloped. The majority of the Site is covered with crushed stone. The northern portion of the property was formerly a railroad right-of-way and is now an overgrown drainage ditch. Surrounding properties are single and multi-family residences.

The configuration of the Site is shown on the attached Sample Location Plan (Figure 2).

1.2 Site History

The history of the Ogilvie Site reveals that the property was used for dairy operations for over 60 years. The eastern portion of the property was occupied by the National Biscuit Company from the early 1900s until approximately 1960. Ogilvie Foods, Inc. (a subsidiary of Borden, Inc.) closed whey production operations at the site in the late 1990s. The buildings were demolished in 2003 after being condemned by the City. At that time, several chemical and milk product bulk storage tanks were reportedly removed. Building slabs, foundations, and basements were left in place. After demolition, the site

was covered with large crushed stone ("shot rock") to limit trespassing, help prevent vegetation growth, and allow water to drain more quickly.

A rail line also ran across the northern portion of the property beginning in the late 1800s. The former rail bed is now an overgrown drainage ditch.

In the winter of 2011, City of Watertown DPW crews discovered a tank inside an underground concrete vault while exploring the Site for former building foundations. Discovery of the tank was reported to NYSDEC and assigned Spill #1010788. This tank remains at the Site and according to historical records it is likely that at least one more tank is present on the property. Both of these tanks reportedly held fuel oil with a capacity of 10,000 gallons and were closed in-place in 1989.

1.3 Previous Site Investigations

Previous investigations completed at the Site have been documented in the following reports:

- *Phase I Environmental Site Assessment, Former Ogilvie Foods, 148 N. Pleasant Street, Watertown, NY 13601*, prepared by; GYMO, January 2005. (Text of report attached)

- *Phase II Environmental Site Assessment, Former Ogilvie Foods, 148 N. Pleasant Street, Watertown, NY 13601*, prepared by; GYMO, March 2005. (Attached)

- *Subsurface Investigation for the Purpose of Identifying Petroleum Contaminated Area, NYSDEC Spill # 04-13251, Ogilvie Foods, 148 N. Pleasant Street, Watertown, NY 13601,* prepared by; GYMO, April 14, 2006. (Attached)

<u>Phase I Environmental Site Assessment- 2005</u>
A Phase I Environmental Site Assessment (ESA) was completed by GYMO in January 2005, in accordance with ASTM *Standard Practice for Environmental Site Assessments E 1527-00.* The report indicates the former presence of four (4) 10,000-gallon underground storage tanks (USTs) used for fuel oil. The tanks were reportedly closed prior to April 1991. There were also three (3) registered aboveground chemical bulk storage tanks: 5,000-gallon and 500-gallon sodium hydroxide tanks, and a 500-gallon ammonium hydroxide tank. The tanks were reportedly removed prior to demolition.

<u>Phase II Environmental Site Assessment- 2005</u>
A Phase II ESA was completed by GYMO in March 2005. The investigation focused on the east side of the property, near California Avenue. A total of twenty-one (21) soil borings (B-1 through B-21) were installed to a depth of 12 feet or refusal, at the locations shown on Figure 2. Evidence of petroleum contamination (i.e., PID readings, odors, staining) was noted in several soil borings located near the former building foundation closest to California Avenue. These findings were reported to NYSDEC and assigned

Spill #04-13251. One soil sample (B-17, 7-8 ft.) collected from the California Avenue right-of-way near the corner of a former building foundation was submitted for lab analysis. All compounds detected were below Unrestricted Use Soil Cleanup Objectives (SCOs), with the exception of xylene (302 ppb). Laboratory results are summarized in Table 1. A water sample was collected from boring B-13, within the California Avenue right-of-way, using a Geoprobe Screen Point 15 retractable screen sampling probe. The water sample was non-detect for VOCs and SVOCs (EPA Method 8260 and 8270).

Subsurface Investigation- 2006

In March 2006, GYMO performed an additional "Subsurface Investigation for the Purpose of Identifying Petroleum Contaminated Area". The additional investigation included excavation of sixteen (16) test pits (001 through 016) located across the Site. Test pit locations are shown on Figure 2. A total of five (5) soil samples were collected from the test pits and submitted for lab analysis of VOCs (EPA Method 8021) and SVOCs (EPA Method 8270); and one (1) shallow soil sample was submitted for analysis of metals. All results were below Unrestricted Use SCOs, with the exception of copper (54 ppm) detected slightly above the Unrestricted Use SCO of 50 ppm in shallow soil collected from the former railroad bed (Sample 103C). The report recommended excavation and disposal of approximately 1,500 tons of petroleum impacted soil on the eastern side of the property.

Analytical results for compounds detected during previous investigations are summarized in Table 1. Data are compared to the soil cleanup objectives listed in Title 6 of the New York Codes, Rules, and Regulations (NYCRR), Subpart 375-6.8 for Unrestricted Use and Residential Use. No groundwater monitoring wells were installed at the Site during previous investigations.

Test Excavations- 2011

In addition to the investigations described above, twenty-one (21) test excavations were completed by Bernier & Carr Associates for the Neighbors of Watertown in early 2011. Test excavation locations are shown on Figure 2. The intent of the exploratory excavations was to provide an estimate for removal of the remaining building slabs and foundations in preparation for Site redevelopment. Test excavation B-10 confirmed the location of a UST. Soil with petroleum odors was noted at location B-17. No soil samples were collected from the excavations.

1.4 Contemplated Use

The Site is currently undeveloped and zoned for light industry. Proposed future use is for residential housing along North Pleasant Street and California Avenue, and passive recreational (e.g., walking trail/green space) within the former railroad right-of-way and central portion of the Site. This will require a zoning change from industrial to residential. The City of Watertown is the governing body for zoning changes. Local residents and the Neighbors of Watertown support the contemplated use of the Site.

2.0 Summary of Pre-Remedial Investigation Findings

In October 2012, Lu Engineers completed additional test excavations and surface soil sampling as outlined in the approved *Remedial Work Plan* (Lu Engineers, September 2012). Field activities and sample results are summarized below.

2.1 Surface Soil Sampling

A total of nine (9) surface soil samples (SS-01 through SS-09) were collected from along the northern portion of the Site, in the area of the former rail bed, and other areas of accessible surface soil. Sample locations were logged with GPS and mapped on Figure 2. Surface Soil Sample Log Sheets are included in Appendix A. Samples were submitted to Test America, Inc. for analysis of the following parameters:

- SVOCs – EPA Method 8270
- TAL Metals
- Polychlorinated Biphenyls (PCBs) – EPA Method 8082
- Pesticides – EPA Method 8081

Lab results are summarized in Table 2. Contaminant concentrations were compared to NYSDEC Soil Cleanup Objectives (SCOs) in 6 NYCRR Part 375-6.8. Residential Use SCOs are most applicable to future use of the Site. Analytical results are summarized as follows:

- Polynuclear aromatic hyrdrocarbons (PAHs) were detected above Residential Use SCOs at SS-02 and SS-03 in the former railroad alignment, and at SS-09 on the western edge of the Site. PAHs are byproducts of coal combustion and are commonly found in urban fill material.
- Arsenic was detected at 23.1 ppm, above the Residential Use SCO of 16 ppm, at SS-02. This is also likely attributed to former railroad operations, as arsenic was historically used in herbicides.

Additional surface and subsurface soil sampling is warranted to delineate the extent of PAHs in the vicinity of SS-09.

Additional surface soil samples SS-10, SS-11, and SS-12 were collected on April 24, 2014 to delineate surface soil contaminants at SS-09 (see Figure 2). Samples were submitted to Test America, Inc. for analysis of SVOCs (EPA Method 8270) and TAL Metals. Lab results are shown on Table 2. The estimated area of PAH-impacted surface soil is depicted on Figure 2.

2.2 Additional Sub-Surface Investigation

The objective of the additional sub-surface investigation was to confirm the findings of previous investigations, locate a suspected additional UST, and aid in the development of a remedial design plan. A total of ten (10) additional test pit excavations (TP-01 through TP-10) were completed at locations shown on Figure 2.

Test pit excavations were performed on October 11, 2012 by Bach Environmental, Inc., with oversight by a Lu Engineers' geologist. Test pit depths varied from 6 to 11 feet below grade. Bedrock was encountered at approximately 9.5 feet below grade on the western portion of the Site (TP-04); a hard till layer was encountered on the eastern and southern areas of the Site at depths ranging from 6 to 10 feet below grade. No groundwater was observed in the test excavations.

Soils were characterized and screened for VOCs with a photoionization detector (PID) and recorded on test pit logs (Appendix A). Elevated PID readings were observed in soils from TP-06 through TP-10, in the area of known petroleum contamination. The highest PID readings (up to 230 ppm) were noted in TP-6 and TP-10, along the former building footer wall. Grey staining and petroleum odors were also noted.

Soil samples were collected from TP-02, TP-04, TP-05 through TP-08, and TP-10 for laboratory analysis of the following parameters:

- VOCs – EPA Method 8260
- SVOCs base/neutrals – EPA Method 8270
- TAL Metals

Soil samples collected in the petroleum-impacted area (TP-06 through TP-10) were obtained from discrete depth intervals based on PID readings. Soil samples from test pits with no evidence of contamination (TP-04 and TP-05) were collected from a larger depth interval to be representative of subsurface soils encountered throughout the test excavation. Sample depths are shown on Table 2. Excavated material was backfilled in the test pits after field screening and sampling was completed.

Lab results are summarized in Table 2. Only one compound was detected above Residential Use SCOs in subsurface soil:

- Benzo(k)fluoranthene (a PAH) was detected at 3.7 ppm, above the Residential Use SCO of 1 ppm, in TP-06.

Low levels of benzene, ethylbenzene, and xylene were also detected in the TP-06 sample, below applicable Residential Use SCOs. Soil in the vicinity of TP-06 exhibits a weathered fuel oil odor and grey staining, mainly along the concrete footer wall, at a depth of approximately 4 to 9 feet below grade. The source of this petroleum contamination is unknown, but may be attributed to former storage tanks. The extent of petroleum-impacted soil appears to be smaller than the area defined in previous

investigations. Based on the results of this additional investigation, the approximate extent of subsurface soil exceeding Residential Use SCOs is shown on Figure 2.

2.2.1 Underground Storage Tank (UST) Evaluation

Test pits TP-01, TP-02, and TP-03 were completed to evaluate subsurface conditions surrounding the known UST in the central portion of the Site (Figure 2). TP-01 uncovered the UST, which measures 34 feet long and 8 feet in diameter. The tank is filled with flowable fill. Three suction lines run north from the UST, toward the former boiler room. Apparent fill and vent lines were uncovered west of the UST and terminated in the vicinity of TP-03. PID readings up to 400 ppm were recorded inside the piping, but no measurable product was observed.

Test pit TP-02 was excavated at the north end of the UST to a depth of approximately 8 feet below grade. Perched water with black tar-like globbules was encountered at approximately 4 feet below grade. No elevated PID readings or odors were observed in soil beneath the end of the UST. A soil sample was collected for analysis from 8 to 9 feet below grade at TP-02. No compounds were detected above Unrestricted or Residential Use SCOs.

No indication of a suspected second 10,000-gallon UST was found during the test pit investigation. Based on these findings, no significant petroleum impacts are expected in the vicinity of the existing UST at location TP-01.

2.2.2 Waste Characterization Sampling

Waste characterization analyses (paint filter test, flashpoint/ignitability) were performed on the soil sample collected from TP-06. The soil sample was determined to be non-hazardous for waste disposal purposes. No tank contents were sampled since the UST was found to be closed in-place and filled with flowable fill.

The groundwater investigation and survey tasks described in the conceptual *Remedial Work Plan* (Lu Engineers, September 2012) will be completed after the concrete slab/foundation demolition, UST removal, and soil removal work.

3.0 Analysis of Brownfield Cleanup Alternatives

Subsequent to the pre-remedial design investigation, an *Analysis of Brownfield Cleanup Alternatives* (ABCA) report, dated January 2014, was prepared by Lu Engineers (Appendix B). The ABCA was prepared to meet USEPA requirements and provide an evaluation of the remedial alternatives considered for the Site. The factors considered during the selection of the remedy are those listed in 6NYCRR Part 375-1.8.

The components of the proposed selected remedy are:

- Excavation and off-Site disposal of approximately 250 to 300 tons of non-hazardous petroleum-impacted soil from the eastern portion of the Site;
- Removal of two 10,000-gallon closed-in-place USTs;
- Additional sampling to delineate area of PAH-impacted surface soil on the western portion of the Site;
- Excavation and off-Site disposal of non-hazardous PAH-impacted soil to meet Residential Use SCOs;
- Placement of clean on-Site cover material (i.e., shot rock) to prevent contact with PAH and metal-contaminated surface soils within the former railroad right-of-way;
- Groundwater monitoring; and
- Institutional controls (i.e., deed restrictions).

It is proposed that the westernmost portion of the former railroad right-of-way will be redeveloped for future residential use. The remainder of the former railroad right-of-way will be retained by the City of Watertown for potential use as a paved or gravel walking trail. Remediation of impacted soil within this portion of the railroad right-of-way can be addressed by placement of clean cover material and institutional controls.

4.0 Scope of Work

The major tasks and elements associated with this Work Plan are described in detail within this section. The remedial work will be completed in conjunction with planned concrete slab and foundation removal work to maximize use of equipment and resources at the Site.

4.1 Site Preparation and Control

Remedial work will be performed by Bach Environmental, Inc., a contractor selected through a competitive bid process in accordance with City of Watertown procurement requirements. The remedial activities will be observed by Lu Engineers. Bach

Environmental will be responsible for coordinating a utility stakeout for identification and clearance of Site utilities prior to commencement of work.

Permits

A General Permit for work in the right-of-way will be obtained from the City of Watertown Engineering Department prior to start of work. No road closures are anticipated during the project.

Utility Decommissioning

The storm water drainage system on the west side of the Site (Figure 3) will be decommissioned during the project. This will include removal of two catch basins and plugging remaining storm sewer piping.

The sanitary sewer is cut and capped at the manhole location shown on Figure 3. The three remaining on-Site manholes will be removed during asphalt removal. All other utilities were reportedly decommissioned prior to building demolition.

Site Security

Work areas will be secured with temporary construction fencing at the end of each day, as necessary. Access to the Site will be limited to staff, workers, and pertinent agencies involved with the project only. The public will not be permitted to enter within the work area.

Traffic Control and Truck Routes

Truck entrance and exits are shown on Fig. 3. Trucks will be prohibited from stopping and idling outside the project site. Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during site remediation.

Shot Rock Removal

Existing shot rock cover will be re-used as on-Site backfill to the extent practicable. Shot rock will also be used as cover material within the former railroad right-of-way ditch, as described in Section 4.9. Excess shot rock will be removed from the Site by the subcontractor for appropriate off-Site disposal and/or re-use.

4.2 Erosion and Sediment Control

Silt fence shall be installed up-gradient of the drainage ditch, as shown on Figure 3, in accordance with *SPDES General Permit for Stormwater Discharges from Construction Activity (Permit No. GP-0-10-001*) requirements. Initial clearing and earth disturbance shall be minimized until the sediment control measures have been installed.

Installation of the silt fence will be completed prior to the stripping of any concrete or asphalt that may expose underlying soil. The silt fence will be periodically inspected and cleaned, as necessary, during the project.

When activities temporarily cease during construction, exposed soils shall be stabilized by seed, mulch or other appropriate measures as soon as possible, but in no case more than 14 days after construction activity has ceased. Following initial soil disturbance or re-disturbance, permanent or temporary, stabilization shall be completed within 14 days or as soon as possible.

4.3 Additional Test Pits

The objective of the additional test pits is to: (1) investigate previously unknown former UST locations on the eastern portion of the Site; (2) delineate the extent of PAH-impacted soil on the western portion of the Site; (3) investigate areas of fill along the former railroad right-of-way; and (4) locate the suspected second 10,000-gallon UST in the central portion of the Site. Proposed test pit locations TP-11 through TP-22 are shown on Figure 2. Additional test pits will be excavated in the central portion of the Site to locate the suspected 10,000-gallon UST and characterize sub-slab soils (see Section 4.6).

It is anticipated that the test pits can be completed in two days. Lu Engineers will observe and screen soils with a MiniRAE 3000, or equivalent, PID. Observations and PID readings will be recorded on Test Pit Logs.

It is estimated up to two samples will be collected from TP-13 for SVOC analysis (EPA Method 8270) to delineate the vertical extent of PAH impacts. Sample depth will be determined by the field team leader based on soil observations.

Soil samples may be collected from TP-11 and/or TP-12 if elevated PID readings or other evidence of contamination is encountered. Samples would be analyzed for VOCs (EPA Method 8260 + STARS) and SVOCs (EPA Method 8270 + STARS).

Excavated material that does not exhibit evidence of gross contamination (e.g., elevated PID readings, strong odors) will be backfilled after field screening and sampling is complete. Test pit soils exhibiting evidence of gross contamination will be staged on-Site and covered with polyethylene sheeting pending waste characterization/re-use sampling.

4.4 Additional Surface Soil Sampling

Three additional surface soil samples (SS-13 through SS-15) are proposed to delineate PAH impacts within the former railroad right-of-way, as shown on Figure 2. These samples will be analyzed for SVOCs (EPA Method 8270) and RCRA Metals.

SS-13 will be collected from 0 to 2-inches below the vegetative cover. Samples will be collected from the 0 to 2-inch and 2 to 6-inch depth intervals at SS-14 and SS-15 since they are located in planned residential areas, as required by NYSDOH.

4.5 Building Slab and Foundation Demolition

Remaining surface concrete, building foundations/footers, and asphalt will be removed from the areas shown on Figure 3. Concrete demolition will be completed by a contractor selected by the City of Watertown through a competitive bid process, as outlined in the *Specifications and Contract Documents for Former Ogilvie Foods BCP Site #C623028; Foundation Demolition, Tanks and Soil Removal, and Monitoring Well Installation* (Lu Engineers, March 25, 2014).

Concrete pieces will be staged on-Site and disposed off-Site as non-hazardous hard fill. If the concrete footer in the petroleum-impacted area (see Figure 2) exhibits evidence of contamination (staining, elevated PID readings, etc), it will be segregated and staged on plastic sheeting pending waste characterization.

Concrete slabs and foundations in the central portion of the Site will remain in-place, with perforations to allow for proper drainage.

4.6 Sub-Slab Soil Sampling

Lu Engineers will observe and screen sub-slab soils during concrete demolition with a MiniRAE 3000, or equivalent, PID to assess possible petroleum impacts to sub-slab soils. Additional test pits will be excavated to characterize sub-slab soils for residential re-use, as requested by NYSDEC.

Approximate locations of proposed test pits TP-14 through TP-18 are shown on Figure 2. Test pit depths will vary depending on location and characteristics observed, to depth of 15 feet below grade or bedrock. Sub-slab sampling locations are subject to change based on field observations and Site features encountered during slab demolition.

Soil samples will be analyzed for VOCs, SVOCs, and TAL Metals, as described in the QAPP (Appendix C).

4.7 UST Removal

One known 10,000-gallon UST that was closed in-place with flowable fill (K-Crete) and a second suspected 10,000-gallon closed in-place UST will be exposed, emptied of K-Crete, cleaned, and disposed/recycled in accordance with NYSDEC protocols in DER-10 Section 5.5, Petroleum Bulk Storage (PBS) regulations in 6 NYCRR Part 613.9, and other applicable regulations. Any remaining connecting lines will also be disconnected and removed.

The tank removal and closure will be performed by the contractor with oversight by Lu Engineers. Lu Engineers will provide a description in the field notes and photographic documentation of the tank and piping condition for the report. The City will submit a NYSDEC PBS Application modification with the actual tank removal date.

Closure Samples

Once the tank(s) are removed, soil conditions will be evaluated for evidence of contamination. Grossly impacted soil is not anticipated based on investigation findings to date. Lu Engineers will examine the tank pit for any physical evidence of contamination and screen the sidewalls and excavation floor along transects no more than 5 feet apart. Closure samples from suspected areas of the greatest contamination (if any) will be collected to verify remaining soil conditions, in accordance with NYSDEC DER-10 Section 5.5(c).

Soil samples will be analyzed (with Category B deliverables) as specified in the QAPP (Appendix C). Analytical results will be evaluated with respect to 6 NYCRR Part 375 SCOs for Residential Use.

Backfill

Clean on-Site material (i.e., shot rock) will be used as backfill to the extent practicable. Additional backfill material from a NYSDEC-approved source will be used as necessary to fill the void left by removing the tank(s). Imported materials will be from approved sources that meet requirements set forth in Section 5.4(e) of DER-10.

4.8 Soil Removal and Disposal

Surface soil on the western portion of the Site, in the vicinity of SS-09 and SS-02, and sub-surface soil on the eastern portion of the Site in the vicinity of TP-06 exceeding Residential Use SCOs will be removed for off-Site disposal.

4.8.1 Petroleum-Impacted Soil Removal and Disposal

Petroleum-impacted soil will be removed from the approximate area shown on Figure 2, mainly along the concrete footer wall from a depth of approximately 4 to 9 feet below grade. An estimated volume of 200 cubic yards (300 tons) of petroleum-impacted soil above Residential Use SCOs in the vicinity of TP-06 will be removed and disposed off-Site at a permitted landfill.

Lu Engineers will observe and screen soils with a MiniRAE 3000 (or equivalent) PID to assess petroleum impacts. Based on previous test pit investigation data and analytical results, it is anticipated that soils from 4 to 9 feet below grade will be removed for off-Site disposal.

A waste characterization sample collected from TP-06 indicated the soil is non-hazardous for disposal purposes. The excavation contractor will be responsible

for loading, transporting, and disposing of non-hazardous contaminated soils, concrete, and asphalt generated during the project.

It is anticipated that petroleum-impacted soil will be excavated and loaded directly into trucks for off-Site transportation and disposal. Alternatively, materials may be temporarily staged on plastic sheeting adjacent to the removal area. The contractor will be directed to prevent spillage of soils during transfer efforts to the extent possible. Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site soil tracking. Temporary roads may be established on-Site using existing shot rock to minimize tracking of soil.

Confirmatory Soil Sampling
Confirmatory soil samples will be collected in accordance with NYSDEC protocols in DER-10, which call for one bottom sample and four sidewall samples based on an excavation size of 130 feet in perimeter. Soil samples will be analyzed for VOCs and SVOCs (with Category B Deliverables) as specified in the QAPP (Appendix C). Analytical results will be evaluated with respect to 6 NYCRR Part 375 Residential Use SCOs.

The excavation will be backfilled and compacted to grade with clean material from an approved source that meets requirements set forth in DER-10 Section 5.4(e). On-Site shot rock may be used in the bottom of the excavation, below a depth of 4 feet.

4.8.2 PAH-Impacted Soil Removal

The extent of PAH-impacted surface soil to be removed will be determined by results of the additional surface soil sampling described in Section 4.4 above. Soil exceeding Residential Use SCOs in 6 NYCRR Part 375 will be excavated for off-Site disposal. For estimation purposes, it is assumed that an area of approximately 2,275 square feet will be removed to a depth of one foot below grade. Based on these dimensions, it is estimated that a total volume of approximately 85 cubic yards (57 tons) will be removed for off-Site disposal at a permitted landfill.

A demarcation layer will be placed at the bottom of the excavation to identify the extent of removal. Excavated surface soils will be staged on plastic sheeting pending confirmatory soil sample results.

Confirmatory Sampling
Confirmatory soil samples will be collected in accordance with NYSDEC protocols in DER-10, which call for one bottom sample and sidewall samples. Soil samples will be analyzed for SVOCs (with Category B Deliverables) as specified in the QAPP (Appendix C). Confirmatory samples within the former railroad right-of-way will additionally be analyzed for RCRA Metals. Analytical

results will be evaluated with respect to 6 NYCRR Part 375 Residential Use SCOs. Expedited turnaround time for laboratory results is expected. If the analytical results show an exceedance of the SCOs for the Site, then additional soil removal will be completed followed by confirmatory sampling.

Transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks placarded. Appropriate shipping documents will be prepared for each waste shipment. Copies of disposal documentation will be maintained and available for on-Site review. Documentation from the disposal facility verifying the weight of each shipment will be obtained by the excavation contractor and provided to Lu Engineers and the City of Watertown as soon as possible.

4.9 Placement of Cover Material in Former Railroad Right-of-Way

A minimum of one-foot clean cover material (i.e., on-Site shot rock) will be placed within the former railroad right-of-way, in the approximate location shown on Figure 2 and Figure 3. The purpose of the cover material is to prevent direct contact with impacted surface soil and prevent off-Site migration via erosion during storm events.

4.10 Dust and Vapor Monitoring and Mitigation Procedures

Fugitive dust migration will be visually assessed during all work activities, and reasonable dust suppression techniques (i.e., water spray) will be used during site activities that may generate fugitive dust, such as demolition of concrete.

Air monitoring for particulate matter will be performed continuously at locations upwind and downwind of the exclusion zone, as specified in the Community Air Monitoring Plan (CAMP) – Appendix D-1.

Work zone air monitoring will be conducted during petroleum-contaminated soil removal and handling activities using a MiniRAE 3000 (or equivalent) PID to ensure that workers are not exposed to elevated concentrations of VOCs. Air monitoring will be conducted in accordance with the HASP (Appendix D).

4.11 Decontamination Procedures

Decontamination will be performed in accordance with NYSDEC-approved procedures. Sampling methods and equipment have been chosen to minimize decontamination requirements and prevent the possibility of cross-contamination and ensure compliance with the QAPP (Appendix C).

Prior to exiting the Site, transport vehicles will be decontaminated via dry methods. Construction of a decontamination pad is not deemed necessary since efforts will be made to unload, use and load transport equipment in a manner that prevents contact of the

vehicles with impacted materials. Adherence to these procedures will help to ensure that decontamination will not be necessary. During truck loading, polyethylene sheeting or tarps may be used to prevent unnecessary tracking of wastes through the Site and during transport.

To further eliminate the tracking of contaminated soils, drivers will follow designated truck routes to contain traffic within a limited area. If materials accumulate outside the excavation and staging areas, they will be addressed to the satisfaction of the field team leader. If any Site soil/fill material is tracked or spilled onto an off-Site roadway, it will be cleaned up immediately.

4.12 Site Restoration

Once impacted soils have been excavated and confirmatory sampling has been completed, the excavations will be backfilled with clean soil that meets the requirements set forth in DER-10, Section 5.4(e) and Appendix 5. Imported backfill material will be approved by NYSDEC prior to delivery.

To the extent practicable, backfill will be placed in one-foot lifts and returned to existing grade with a minimum of 4 inches topsoil cover material, grass seed, and mulch as specified in the bid documents.

4.13 Monitoring Well Installation, Development, and Sampling

The installation of five (5) groundwater monitoring wells is proposed for obtaining samples and establishment of Site hydrogeology. Approximate monitoring well locations are indicated on the Site Plan (Figure 2). Actual well locations will be determined based on findings of the test pit investigation, Site features, and at the discretion of the field team leader with approval from NYSDEC.

Monitoring Well Installation

Monitoring well installation will be performed by a qualified and licensed drilling subcontractor, under the supervision of a Lu Engineers geologist. Borings will be advanced using 4.25 ID hollow-stem augers and continuous split spoon samples will be collected at each boring. All split-spoon samples will be logged by a geologist and recorded for reference. Field screening measurements of VOCs from soil split-spoon samples will be performed using a MiniRAE 3000 PID meter. Representative soil samples will be collected from borings indicating elevated PID readings or other evidence of contamination.

Borings will be advanced approximately five (5) feet into groundwater. It is assumed that bedrock drilling will be necessary at this Site, and that the depth to groundwater is less than 25 feet. All monitoring wells will be constructed according to the following specifications.

- 10 feet of 2-inch Schedule 40 polyvinyl chloride (PVC) machine-slotted screen (0.010-inch slot) installed from the bottom of the boring up to 5 feet above the top of the water table to account for potential seasonal water level fluctuations.
- Two-inch ID Schedule 40 PVC riser casing will be used to complete the wells to grade.
- A sand filter pack composed of chemically inert, coarse-grained sand will be placed from the bottom of the boring to 1 to 2 feet above the top of the screen.
- A 2-foot thick bentonite seal will be placed above the sand, followed by Portland cement/5% bentonite mixture to the surface.
- The wells will be completed with locking, protective steel casings set in concrete drainage pads. Flush-mounted completions will be used in paved areas. Vented PVC well caps will be placed on each well upon completion.

Well construction logs will be completed for all monitoring well installations.

Based on the results of previous investigations, it is anticipated that drill cuttings and water generated during drilling will be not require off-site disposal. Investigation-derived wastes exhibiting evidence of gross contamination (i.e., elevated PID readings, sheen, strong odor) will be containerized and staged on-site. Final disposal of soils and water will be dependent on the results of the soil and groundwater analyses to be conducted during this investigation.

Split-spoons will be appropriately decontaminated prior to each use. Decontamination will involve these three steps:

1. Removal of gross debris;
2. Washing with an Alconox solution; and
3. A triple rinse with clean water.

Well Development

After construction of each well is complete, the wells will be developed using submersible pumps. Well development will consist of gentle surging followed by purging in order to draw sediments out of the sand pack and into the well for removal. Development will continue until turbidity of the discharge is 50 nephelometric turbidity units (NTU) or less, or the well is purged dry. All field instrument measurements made during development will be recorded on Well Development Logs. Development will occur no sooner than 48 hours after well installation.

Development water with no evidence of contamination will be discharged to the ground surface, allowing for infiltration in the area of the monitoring well. Purged water exhibiting evidence of gross contamination (i.e., elevated PID readings, sheen, strong odor) will be containerized and staged on-site. Final disposal of soils and water will be

dependent on the results of the soil and groundwater analyses to be conducted during this investigation.

Groundwater Sampling

Groundwater monitoring wells will be sampled no sooner than one week after development is completed in order to allow the wells to recover with groundwater representative of the underlying soil in the vicinity of the wells. Prior to sampling, the water level at each well will be measured, using an electronic water level indicator, with reference to the casing elevation and recorded.

Low-flow purging and sampling methods will be utilized to obtain an accurate representation of groundwater quality in the vicinity of the wells. Variable speed peristaltic pumps (i.e., Geopump) with ¼" polyethylene tubing will be used for collection of water samples. The following parameters will be measured in the field during sample collection using field testing equipment:

- Dissolved oxygen
- Oxidation/reduction potential
- pH
- Conductivity
- Temperature
- Turbidity

Once these parameters have stabilized, a sample will be collected from each well for analysis of VOCs (EPA 8260+STARS) and SVOCs (EPA 8270+STARS).

It is assumed that purge water generated during sampling activities will not need to be containerized.

4.14 Site Survey

A survey of the Site will be performed by a NYS Licensed Surveyor (provided by City of Watertown) to identify property boundaries and existing features including all monitoring wells. A base map of the Site will be produced using the NAD 83 UTM Zone 18 (NYTM) coordinate system to show locations of all sample points. After the installation of monitoring wells, an instrument survey will be performed and the top of the inner casing determined to 0.01 foot by a NYS Licensed Surveyor and at least one other permanent object (i.e., property corner markers, corners of buildings, etc.) in the vicinity of the wells. All other sample locations will be mapped, by Lu Engineers, using a hand-held global positioning system (GPS) unit capable of achieving sub-meter accuracy.

5.0 Quality Assurance/Quality Control

A Quality Assurance Project Plan (QAPP) detailing quality assurance/quality control procedures that will be adhered to during this project is included in Appendix C.

Samples will be obtained, handled and characterized in accordance with the most recent NYSDEC Analytical Services Protocol (ASP) methods. Once obtained, samples will be immediately labeled and stored on ice in a cooler. Analytical work will be performed by an appropriately qualified NYSDOH Environmental Laboratory Approval Program (ELAP) accredited laboratory. All chain of custody requirements will be strictly adhered to for designated analyses.

A listing of anticipated samples, analytes, methods, and QA/QC samples to be collected during this project is included in the attached QAPP (Appendix C).

6.0 Health and Safety Protocols

A Site-Specific Health and Safety Plan (HASP), Appendix D, was prepared for the project in accordance with applicable general industry and construction standards of the Federal Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, as well as any other Federal, State or local applicable statutes or regulations. The HASP will be adhered to by all personnel involved in the investigation.

Monitoring of the work area and screening of soil and groundwater will be conducted throughout the duration of field activities to assure the safety of on-Site workers.

A written Community Air Monitoring Plan (CAMP) was prepared in accordance with the requirements of the Environmental Bond Act. This Plan will be followed during all Site activities. The CAMP for Site work is attached as Appendix D-1.

Professional personnel entering the Site will have current OSHA HazWOPER Certifications.

7.0 Project Organization

Lu Engineers has established a project team for the Former Ogilvie Foods Site whose collective qualifications and experience are strongly suited for successful completion of the project. The personnel for this project are anticipated as follows:

Gregory L. Andrus, CHMM	Project Director
Laura Neubauer, CHMM	Project Manager/Field Team Leader
Eric Detweiler	Geologist/Site Safety Officer
Laura Neubauer, CHMM	Quality Assurance Officer (QAO)

Subcontractors

Environmental Remediation Contractor	Bach Environmental, Inc.
Analytical Laboratory	Test America, Inc.
Data Validation	TBD

8.0 Reporting and Schedule

A Remedial Action Report will be prepared upon completion of cleanup activities, in accordance with Section 5.8 of DER-10.

A project schedule that includes the anticipated fieldwork and report submission, is included in Appendix E.

9.0 Institutional Controls

Institutional controls will be implemented to limit use of Site groundwater and potential exposure to surface soils within the former railroad right-of-way. Upon completion of remedial activities, an environmental easement describing these controls will be submitted to NYSDEC for approval. The final easement and survey map will be filed at the County Clerk's Office.

Tables

Former Ogilvie Foods Site (#C623028)
City of Watertown
Summary of Un-Validated Analytical Results

Table 1 - Previous Investigation Results

Detected Parameters	Unrestricted Use[3]	Residential Use[4]	B-17	101	102	103	104	105	106
		Date Sampled:	3/21/2005	3/9/2006	3/9/2006	3/9/2006	3/9/2006	3/9/2006	3/9/2006
STARS VOCs- 8021[1]									
m/p-Xylenes	-	-	302	ND	ND		ND	ND	ND
n-Propylbenzene	**3,900**	**100,000**	509	ND	ND		ND	ND	ND
1,3,5-Trimethylbenzene	**8,400**	**47,000**	360	ND	ND		ND	ND	ND
1,2,4-Trimethylbenzene	**3,600**	**47,000**	1960	ND	ND		ND	ND	ND
sec-Butylbenzene	**11,000**	**100,000**	320	ND	ND		ND	ND	ND
p-Isopropyltoluene	-	-	117	ND	ND		ND	ND	ND
n-Butylbenzene	**12,000**	**100,000**	1550	ND	ND		ND	ND	ND
Naphthalene	**12,000**	**100,000**	1118	ND	ND		ND	ND	ND
Total Xylenes	**260**	**100,000**	**302**	ND	ND		ND	ND	ND
SVOCs- 8270[1]									
Naphthalene	**12,000**	**100,000**	1075	ND	ND		ND	ND	ND
Fluorene	**30,000**	**100,000**	480	ND	ND		ND	ND	ND
Phenanthrene	**100,000**	**100,000**	1075	ND	ND		ND	130	ND
Fluoranthene	**100,000**	**100,000**	ND	124	ND		ND	227	272
Pyrene	**100,000**	**100,000**	ND	129	ND		ND	173	262
Benzo(a)anthracene	**1,000**	**1,000**	ND	ND	ND		ND	ND	138
Chrysene	**1,000**	**1,000**	ND	ND	ND		ND	127	156
Benzo(b)fluoranthene	**1,000**	**1,000**	ND	ND	ND		ND	ND	116
Benzo(k)fluoranthene	**800**	**1,000**	ND	ND	ND		ND	ND	129
Benzo(a)pyrene	**1,000**	**1,000**	ND	ND	ND		ND	127	133
Indeno(1,2,3-cd)pyrene	**500**	**500**	ND	ND	ND		ND	150	ND
Benzo(ghi)perylene	**100,000**	**100,000**	ND	ND	ND		ND	186	ND
METALS[2]									
Arsenic	**13**	**16**		ND	1.9	5.2	ND	ND	
Chromium (total)	**30**	**36**		4.8	6.2	8.2	2.7	5.4	
Copper	**50**	**270**		5.7	5.5	**54**	3.2	8.4	
Lead	**63**	**400**		5.0	8.0	30	3.2	22	
Mercury	**0.18**	**0.81**		ND	ND	0.11	ND	0.06	
Nickel	**30**	**140**		4.9	3.9	6.6	2.5	5.5	
Selenium	**3.9**	**36**		ND	0.52	0.32	ND	ND	
Zinc	**109**	**2,200**		19	14	64	8.4	32	

1- Results presented in parts per billion (ppb)

2- Results presented in parts per million (ppm)

3- NYSDEC Unrestricted Use Soil Cleanup Objectives [6 NYCRR Part 375-6.8(a)]

4- NYSDEC Residential Use Soil Cleanup Objectives [6 NYCRR Part 375-6.8(b)]

Former Ogilvie Foods Site (#C623028))
City of Watertown
Summary of Un-Validated Analytical Results

Table 2 - Surface Soil Results

Detected Parameters	Residential Use[4]	Restricted-Residential Use[4]	Commercial Use[3]	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	SS-07	SS-08	SS-09	SS-10	SS-11	SS-12
EPA 8270- Semi-Volatile Organics[1]															
2-METHYLNAPHTHALENE	-	-	-	U	U	U	U	U	U	U	U	140 J	33 J	U	
ACENAPHTHYLENE	**100000**	**100000**	**500000**	U	U	310 J	U	U	24 J	U	U	720 J	150 J	U	24 J
ANTHRACENE	**100000**	**100000**	**500000**	U	130 J	230 J	U	U	69 J	U	U	310 J	120 J	U	
BENZO(A)ANTHRACENE	**1,000**	**1,000**	**5,600**	140 J	980 J	2100 J	29 J	100 J	320 J	100 J	390 J	1700 J	U	65 J	
BENZO(A)PYRENE	**1,000**	**1,000**	**1,000**	78 JB	940 JB	1900 JB	26 JB	90 JB	240 JB	46 JB	320 JB	2100 JB	830 J	U	180 J
BENZO(B)FLUORANTHENE	**1000**	**1000**	**1,000**	100 JB	1300 JB	2900 JB	35 JB	130 JB	290 JB	66 JB	380 JB	2800 JB	1200 J	U	250 J
BENZO(G,H,I)PERYLENE	**100000**	**100000**	**500,000**	64 JB	680 JB	1200 JB	23 JB	92 JB	170 JB	51 JB	260 JB	1100 JB	740 JB	U	260 JB
BENZO(K)FLUORANTHENE	**1,000**	**3,900**	**56,000**	190 JB	1200 JB	1500 JB	42 JB	190 JB	290 JB	180 JB	770 JB	1300 JB	340 J	U	140 J
BIS(2-ETHYLHEXYL)PHTHALATE	-	-	-	U	U	U	U	U	U	U	3400 J*	U	U	U	
CARBAZOLE	-	-	-	U	U	U	U	U	77 J		U	U	52 J	U	
CHRYSENE	**1,000**	**3,900**	**56,000**	150 JB	1100 JB	2300 JB	27 JB	100 JB	370 JB	120 JB	370 JB	1800 JB	970 J	U	180 J
DIBENZ(A,H)ANTHRACENE	**330**	**330**	**560**	57 JB	320 JB	510 JB	12 JB	54 JB	120 JB	48 JB	180 JB	420 JB	260 J	U	
FLUORANTHENE	**100,000**	**100,000**	**500,000**	100 J	1700 J	3900 J	30 J	83 J	500 J	49 J	330 J	2600 J	1200 J	U	250 J
INDENO(1,2,3-C,D)PYRENE	**500**	**500**	**5,600**	66 JB	640 JB	1300 JB	19 JB	77 JB	170 JB	53 JB	250 JB	990 JB	710 J	U	
NAPHTHALENE	**100000**	**100000**	**500000**	U	U	U	U	U	U	U	U	200 J	U	U	
PHENANTHRENE	**100,000**	**100,000**	**500,000**	48 J	960 J	1500 J	9.1 J	27 J	320 J	U	150 J	1100 J	420 J	U	99 J
PYRENE	**100,000**	**100,000**	**500,000**	100 J	1500 J	3300 J	30 J	84 J	430 J	52 J	320 J	2400 J	1500 J	13 J	320 J
Metals[2]															
ALUMINUM	-	-	-	2230	5020	5450	2620	3050	6630	1490	4940	4720	6680	1080	U
ARSENIC	**16**	**16**	**16**	5.5	23.1	6.3	0.93 J	1.1 J	5.1	0.59 J	3.2	4.8	5.2	0.57 J	U
BARIUM	**350**	**400**	**400**	19.8	60.2	58.7	27.2	24.7	69.6	11.8	56.8	52.9	70.4	16.8	U
BERYLLIUM	**14**	**72**	**590**	0.18 J	0.48	0.49	0.16 J	0.22	0.50	0.099 J	0.42	0.44	0.58	0.059 J	U
CADMIUM	**2.5**	**4.3**	**9.3**	0.30	0.53	0.41	0.078 J	0.12 J	0.35	0.083 J	0.46	0.43	0.35	0.076 J	U
CALCIUM	-	-	-	230000 B	36700 B	68200 B	308000 B	246000 B	8130 B	305000 B	68400 B	112000 B	5250 B	313000 B	89.5 B
CHROMIUM, TOTAL	**36**	**180**	**1500**	5.5	16.2	10.2	3.9	5.2	8.9	2.6	7.8	9.1	12	2.3	U
COBALT	-	-	-	2.2	4.7	4.5	2.0	2.6	4.0	1.0	3.6	4.5	5.2	0.97	U
COPPER	**270**	**270**	**270**	6.8	25.9	40.9	3.8	6.4	13.8	2.3	11.9	40.0	31.7	2.7	U
IRON	-	-	-	5070 B	11300 B	12600 B	4980 B	5950 B	9990 B	3500 B	10500 B	11700 B	15600 B	2700 B	1.2 JB
LEAD	**400**	**400**	**1000**	21.7	48.3	40.8	2.0	14.9	43.0	2.5	63.1	119	127	8.6	U
MAGNESIUM	-	-	-	4490	5310	3330	9360	5460	2020	15100	5330	3580	2370	3650	U
MANGANESE	**2000**	**2000**	**10000**	265 B	350 B	455 B	341 B	325 B	465 B	688 B	363 B	259 B	266 B	236 B	U
NICKEL	**140**	**310**	**310**	6.4	23.3	11.6	5.0	6.4	8.3	2.6 J	7.8	10.5	12.4	3.1 J	U
POTASSIUM	-	-	-	784	909	631	672	942	602	416	753	1090	1520	548	U
SELENIUM	**36**	**180**	**1500**	0.70 J	U	0.81 J	U	U	1.1 J	0.44 J	0.85 J	1.0 J	0.71 J	0.93 J	U
SODIUM	-	-	-	101 JB	87.6 JB	93.4 JB	160 B	136 JB	66.2 JB	95.2 JB	81.8 JB	137 JB	113 J	105 J	U
VANADIUM	-	-	-	10.5	66.9	28.5	7.8	8.3	22.2	6.1	17.1	15.9	18.7	2.9	U
ZINC	**2200**	**10000**	**10000**	30.1	150	74.2	14.3	28.4	57.7	7.0	75.0	82.1	87 B	12.7 B	U
MERCURY	**0.81**	**0.81**	**2.8**	0.12	0.066	0.23	U	0.0094 J	0.10	0.0095	0.063	0.12	0.24	U	0.13
EPA 8082 - PCBs[1]															
PCB-1016 (AROCLOR 1016)	**1,000**	**1,000**	**1,000**	U	63 J	U	U	U	U	U	U	U			
EPA 8081 - Pesticides[1]															
4,4'-DDT	**1,700**	**7,900**	**47,000**	U	40 J	51 J	U	U	U	U	U	U			
DIELDRIN	**39**	**200**	**1,400**	U	U	U	U	U	U	8.9 J	U	U			

1 - values presented in micrograms per kilogram (ug/Kg).

2 - values presented in milligrams per kilogram (mg/kg)

3 - 6 NYCRR Part 375-6.8 - Table 375-6.8(a): Unrestricted Use Soil Cleanup Objectives

4 - 6 NYCRR Part 375-6.8 - Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

U- Not detected above reporting limit

J- value is estimated

B- compound detected in associated blank

Value Exceeds Residential Use SCOs
Value Exceeds Restricted-Residential Use SCOs
Value Exceeds Commercial Use SCOs

Former Ogilvie Foods Site (#C623028)
City of Watertown
Summary of Un-Validated Analytical Results

Table 3 - Sub-Surface Soil Samples

Detected Parameters[1]	Residential Use[3]	TP-02 (8-9')	TP-04 (2-9.5')	TP-05 (1-10')	TP-06 (5.5-6')	TP-07 (4-5')	TP-08 (5-6')	TP-10 (3-5')
Sample Date:		10/11/12	10/11/12	10/11/12	10/11/12	10/11/12	10/11/12	10/11/12
EPA 8260 - Volatile Organics								
2-BUTANONE (MEK)	**100,000**	U	U	U	U	U	U	45 J
ACETONE	**100,000**	10 J	16 J	U	52 J	U	6.3 J	53 J
BENZENE	**2,900**	U	U	U	87	U	U	U
CYCLOHEXANE	**-**	U	U	U	200	U	U	U
ETHYLBENZENE	**30,000**	U	U	U	22 J	U	U	U
ISOPROPYLBENZENE	**-**	U	U	U	360	34 J	11	110
METHYLCYCLOHEXANE	**-**	U	U	U	380	U	U	U
TRICHLOROTHENE	**10,000**	2.1 J	1.6 J	1.3 J	U	U	U	U
XYLENE (MIXED)	**100,000**	U	U	U	640	U	4.9 J	U
EPA 8270 - Semi-Volatile Organics								
2-METHYLNAPHTHALENE	**-**	U	U	U	26,000	11000	1200 J	
ACENAPHTHENE	**100,000**	U	U	U	U	3400 J	U	
ACENAPHTHYLENE	**100,000**	U	U	U	U	1500 J	U	
ACETOPHENONE	**-**	U	U	U	2500 J	2800 J	U	
ANTHRACENE	**100,000**	U	U	U	U	1400 J	U	
BENZO(A)ANTHRACENE	**1,000**	U	U	U	U	420 J	U	
BENZO(A)PYRENE	**1,000**	8.4 JB	7.4 JB	11 JB	U	140 JB	U	
BENZO(B)FLUORANTHENE	**1,000**	9.6 JB	11 JB	14 JB	710 JB	180 JB	110 JB	
BENZO(G,H,I)PERYLENE	**100,000**	10 JB	8.9 JB	10 JB	750 JB	77 JB	U	
BENZO(K)FLUORANTHENE	**1,000**	37 JB	39 JB	37 JB	3700 JB	720 JB	630 JB	
BIPHENYL (DIPHENYL)	**-**	U	U	U	2600 J	3100 J	230 J	
CHRYSENE	**1,000**	9.4 JB	10 JB	13 JB	1000 JB	550 JB	170 JB	
DIBENZ(A,H)ANTHRACENE	**330**	9.5 JB	9.0 JB	3.3 JB	U	110 JB	U	
FLUORANTHENE	**100,000**	4.6 J	5.8 J	11 J	450 J	410 J	U	
FLUORENE	**100,000**	U	U	U	2900 J	6800	430 J	
INDENO(1,2,3-C,D)PYRENE	**500**	10 JB	11 JB	9.5 JB	U	150 JB	U	
NAPHTHALENE	**100,000**	U	U	U	5200 J	U	U	
N-NITROSODIPHENYLAMINE	**-**	U	U	U	U	12000	U	
PHENANTHRENE	**100,000**	5.3 J	U	8.1 J	6500 J	16000	960 J	
PYRENE	**100,000**	5.6 J	U	10 J	770 J	910 J	110 J	
Metals[2]								
ALUMINUM	**-**	3170	7920	6570	5910	1750	3340	
ARSENIC	**16**	1.5 J	2.5	1.5 J	1.8 J	1.1 J	1.2 J	
BARIUM	**350**	54.2	68.6	55.7	77.3	17.8	56.3	
BERYLLIUM	**14**	0.25	0.70	0.42	0.45	0.14 J	0.26	
CADMIUM	**2.5**	0.14 J	0.39	0.16 J	0.17 J	0.058 J	0.065 J	
CALCIUM	**-**	59700 B	8990 B	52700 B	41400 B	33100 B	71600 B	
CHROMIUM, TOTAL	**36**	4.4	11.4	7.7	8.7	3.0	5.2	
COBALT	**-**	2.6	5.2	3.3	3.7	1.6	2.9	
COPPER	**270**	5.2	8.3	5.0	11.0	3.2	4.7	
IRON	**-**	5750 B	12200 B	8420 B	13200 B	3600 B	6440 B	
LEAD	**400**	9.1	7.4	7.1	12.9	2.2	3.1	
MAGNESIUM	**-**	8430	2390	4250	9410	5860	11100	
MANGANESE	**2000**	239 B	551 B	283 B	545 B	145 B	278 B	
NICKEL	**140**	4.8	10.7	6.3 J	7.5	2.9 J	5.3	
POTASSIUM	**-**	818	707	655	807	419	850	
SELENIUM	**36**	U	0.61 J	0.67 J	U	U	U	
SODIUM	**-**	124 JB	53.0 JB	66.9 JB	229 B	146 JB	158 B	
VANADIUM	**-**	9.3	19.6	14.3	16.2	5.4	10.5	
ZINC	**2200**	29.2	37.7	19.9	31.1	8.8	13.1	
MERCURY	**0.81**	0.076	0.069	0.028	0.037	U	U	

1 - values presented in micrograms per kilogram (ug/Kg).

2 - values presented in milligrams per kilogram (mg/kg)

3 - 6 NYCRR Part 375-6.8 - Table 375-6.8(a): Unrestricted Use Soil Cleanup Objectives

4 - 6 NYCRR Part 375-6.8 - Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

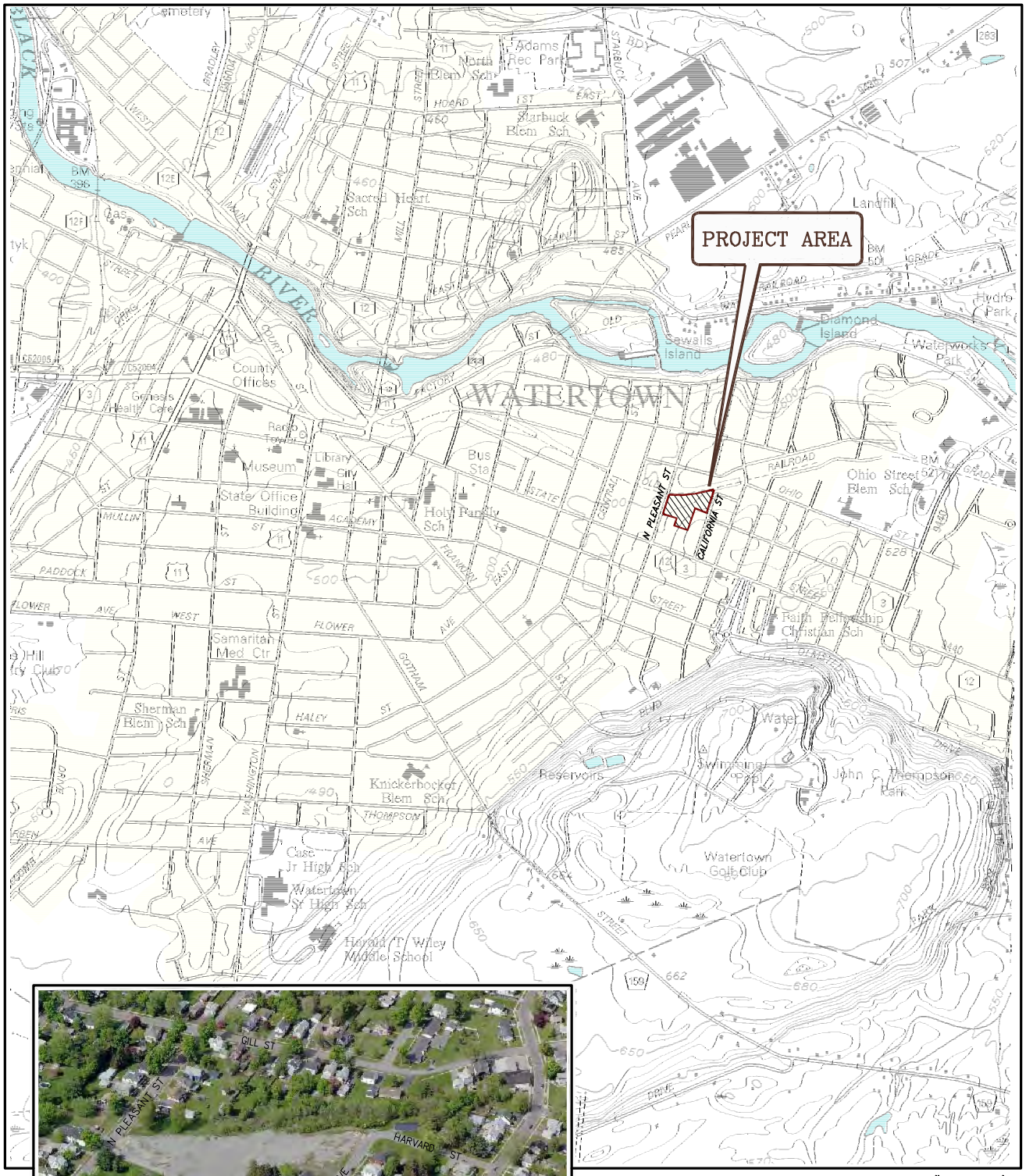
U- not detected above reporting limit

J- value is estimated

B- compound detected in associated blank

Value Exceeds Residential Use SCOs

Figures



Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

FIGURE 1. SITE LOCATION MAP

CITY OF WATERTOWN

148 PLEASANT STREET NORTH (fmr. Ogilvie Foods)
WATERTOWN | JEFFERSON COUNTY | NEW YORK

Lu P.N. 34211

DATE:	JANUARY 2012
SCALE:	1:24,000
DRAWN BY:	DLS

MAP SOURCE: NYS DOT RASTER QUADRANGLE; WATERTOWN / NEW YORK, JEFFERSON COUNTY
DOT EDITION DATE: 1996 / USGS CONTOUR DATE: 1959

Benzo(b)flouranthene:1,300 ppb
Benzo(k)flouranthene: 1,200 ppb
Chrysene: 1,100 ppb
Indeno(1,2,3-cd)pyrene: 640 ppb
Arsenic: 23.1 ppm

Benzo(a)pyrene: 1,900 ppb
Benzo(b)flouranthene: 2,900 ppb
Dibenz(a,h)Anthracene: 510 ppb
Indeno(1,2,3-cd)pyrene: 1,300 ppb

Benzo(a)anthracene: 1,700 ppb
Benzo(a)pyrene: 2,100 ppb
Benzo(b)flouranthene: 2,800 ppb
Benzo(k)flouranthene: 1,300 ppb
Chrysene: 1,800 ppb
Flouranthene: 420 ppb
Indeno(1,2,3-cd)pyrene: 990 ppb

Benzo(b)fluoranthene: 1,200 ppb
Indeno(1,2,3-cd)pyrene: 710 ppb

Benzo(k)flouranthene: 3,700 ppb

PLEASANT STREET NORTH
Former Railroad Right-Of-Way
CALIFORNIA AVENUE
COLUMBIA ST

TP-01 TP-02 TP-03 TP-04 TP-05 TP-06 TP-07 TP-08 TP-09 TP-10 TP-11 TP-12 TP-13 TP-14 TP-15 TP-16 TP-17 TP-18 TP-19 TP-20 TP-21 TP-22
SS-01 SS-02 SS-03 SS-04 SS-05 SS-06 SS-07 SS-08 SS-09 SS-10 SS-11 SS-12 SS-13 SS-14 SS-15
MW-1 MW-2 MW-3 MW-4 MW-5
B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8 B-9 B-10 B-11 B-12 B-13 B-14 B-15 B-16 B-17 B-18 B-19 B-20 B-21
001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 101 102 103 104 105 106

Legend

- Proposed Well
- TAXparcelEDIT
- GYMO Soil Boring (March 2005)
- GYMO Test Pit (March 2006)
- DPW Test Pit (2011)
- Proposed Surface Soil Sample
- Proposed Test Pit
- Surface Soil Sample
- Test Pits 10/2012
- Anticipated area of PAH impacted surface soil for off-site disposal
- Anticipated area of petroleum impacted soil for off-site disposal
- Site Boundary
- Proposed Tax Parcels
- Former Building Footprint
- Appriximate area to be covered with shot rock (min 1 ft)

Exceeds Residential Use SCO's
Exceeds Restricted-Residential Use SCO's
Exceeds Commercial Use SCO's

N W E S
0 20 40 80
Feet

DATE: FEBRUARY 2014
SCALE: 1 inch = 60 feet
DRAWN/CHECKED: JB/SMK/LMN
DATA SOURCE:
NYS GIS CLEARINGHOUSE
2011 ONEFT 4 BAND GENTRAL ZONE INDEX ORTHOIMAGERY

FIGURE 2 - SAMPLE LOCATION PLAN
FORMER OGILVIE FOODS SITE # C623028
148 PLEASANT STREET NORTH
WATERTOWN, JEFFERSON COUNTY, NY

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Document Path: J:\Projects\34200 Watertown\34211 Ogilvie Site\Env\GIS\Map Documents\FIG. 2 Site Plan 11-6-13.mxd

Former Railroad Right-Of-Way

ENTIRE CONCRETE SLAB, FOUNDATION, AND FOOTER (ENTIRE FOOTPRINT) TO BE DEMOLISHED, CRUSHED INTO MANAGEABLE PIECES AND REMOVED OR REUSED AS BACKFILL.

REMOVE 3 SANITARY MANHOLES

CUT AND CAP STORM SEWER

Exit

Entrance

REMOVE 2 CATCHBASINS

ASPHALT TO BE REMOVED

APPROX. LOCATION OF FORMER HOUSE FOUNDATION & BASEMENT TO BE REMOVED

UST TO BE REMOVED 10,000-GALLON CLOSED IN-PLACE

ENTIRE CONCRETE SLAB, FOUNDATION, AND FOOTER (ENTIRE FOOTPRINT) TO BE DEMOLISHED, CRUSHED INTO MANAGEABLE PIECES AND REMOVED OR REUSED AS BACKFILL.

B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8 B-9 B-10 B-11 B-12 B-13 B-14 B-15 B-16 B-17 B-18 B-19 B-20 B-21

PLEASANT STREET NORTH

CALIFORNIA AVENUE

COLUMBIA ST

Legend

- Slab Perforation
- SiltFence
- Asphalt
- Concrete
- Appriximate area to be covered with shot rock (min 2 ft)
- DPW Test Pit (2011)
- Site Boundary
- Proposed Tax Parcels
- Tax Parcel Line
- UST

N W E S

0 25 50 100
Feet

DATE: FEBRUARY 2014

SCALE: 1 inch = 60 feet

DRAWN/CHECKED: JB/SMK/LMN

DATA SOURCE:
NYS GIS CLEARINGHOUSE
2011 ONEFT 4 BAND CENTRAL ZONE INDEX ORTHOIMAGERY

FIGURE 3 - SLAB & FOUNDATION REMOVAL PLAN
FORMER OGILVIE FOODS SITE # C623028
148 PLEASANT STREET NORTH
WATERTOWN, JEFFERSON COUNTY, NY

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Document Path: J:\Projects\34200 Watertown\34211 Ogilvie Site\Env\GIS\Map Documents\FIG. 3 Site Plan 1-29-14.mxd

Appendix A –
Surface Soil & Test Pit Logs

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Surface Soil Sample Log

Project: Fmr. Ogilvie Foods Site Lu Project No.: 34211 Date: 10/11/12

Weather: partly sunny Temp.: 40° Field Engineer/Geologist: LMN

SAMPLE ID: SS-01 @ 10:45

Equipment Used: SS Spoon

Surface Cover: grass

Depth	PID Reading	Description
0-6"	—	dk. brown topsoil w/ organics sand silt + gravel; loose, dry

Remarks: SVOCs, Metals, PCBs, Pest. analysis

SAMPLE ID: SS-02/SS-02D @ 12:00

Equipment Used: SS trowel

Surface Cover: weeds, shot rock

Depth	PID Reading	Description
0-6"	—	dk. brown topsoil w/ organics FILL: Sand, silt + gravel; loose, dry, pieces of glass? brick

Remarks:

Lu Engineers

Surface Soil Sample Log

Project: Fmr. Ogilvie Foods Site Lu Project No.: 34211 Date: 10/11/12

Weather: partly sunny Temp.: 45° Field Engineer/Geologist: LN

SAMPLE ID: SS-03 @ 13:30

Equipment Used: SS spoon

Surface Cover: weeds / grass

Depth	PID Reading	Description
0-6"	—	dk. brown topsoil w/ organics. silt, sand + gravel, moist some cinders

Remarks: _____

SAMPLE ID: SS-04 @ 13:45

Equipment Used: SS spoon

Surface Cover: weeds, gravel, wood chips

Depth	PID Reading	Description
0-6"	—	dk brown topsoil w/ mulch. & light brown sand + gravel fill below, loose, dry.

Remarks: _____

Lu Engineers

Surface Soil Sample Log

Project: Fmr. Ogilvie Foods Site Lu Project No.: 34211 Date: 10/11/12

Weather: rain Temp.: ° F Field Engineer/Geologist: LN

SAMPLE ID: SS-05 @ 15:45

Equipment Used: SS spoon

Surface Cover: grass

Depth	PID Reading	Description
0-6"	—	dk. brown topsoil + gravel sand + gravel, loose, dry - FILL

Remarks:

SAMPLE ID: SS-06 @ 17:10

Equipment Used: SS spoon

Surface Cover: weeds

Depth	PID Reading	Description
0-6"	—	~~sand + gravel~~ (LN) DK. brown topsoil w/ organics silt + sand; moist; loose

Remarks: SS-06MS / SS-06MSD

Lu Engineers

Surface Soil Sample Log

Project: Fmr. Ogilvie Foods Site Lu Project No.: 34211 Date: 10/11/12

Weather: rain Temp.: 50s Field Engineer/Geologist: LN

SAMPLE ID: SS-07 @ 17:30

Equipment Used: SS spoon

Surface Cover: grass

Depth	PID Reading	Description
0-6"	—	dk brown topsoil w/ organics silty sand, some gravel; loose, dry

Remarks: _____

SAMPLE ID: _____

Equipment Used: _____

Surface Cover: _____

Depth	PID Reading	Description

Remarks: _____

Lu Engineers

Surface Soil Sample Log

Project: Fmr. Ogilvie Foods Site Lu Project No.: 34211 Date: 10/11/12

Weather: overcast Temp.: ° Field Engineer/Geologist: LN

SAMPLE ID: SS-08 @ 14:55

Equipment Used: SS trowel

Surface Cover: grass

Depth	PID Reading	Description
0-6"	—	dk brown topsoil w/organics dk. brown silt, sand, little gravel, loose, dry

Remarks:

SAMPLE ID: SS-09 @ 14:30

Equipment Used: SS trowel

Surface Cover: grass

Depth	PID Reading	Description
0-6"	—	dk brown topsoil w/organics Fill: Sand + gravel, few cobble-sized rocks, coal pieces, debris, trash, loose, dry.

Remarks:

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Surface Soil Sample Log

Project: Ogilvie Foods BCP Lu Project No.: 34211-01 Date: 4/24/14

Weather: Sunny Temp.: 48 ° Field Engineer/Geologist: LMN

SAMPLE ID: SS-10

Equipment Used: SS trowel

Surface Cover: grass

Depth	PID Reading	Description
0-6"	–	DK. brown topsoil w/organics; moist. few pieces of plastic

Remarks: collect 2x 4oz. jars for metals + SVOCs @ 13:15

SAMPLE ID: SS-12

Equipment Used: SS spoon

Surface Cover: grass + pine needles

Depth	PID Reading	Description
0-6"	–	DK. brown topsoil w/ organics; trace plastic

Remarks: collect 2x 4 oz. jars for metals + SVOCs @ 13:20

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Surface Soil Sample Log

Project: Ogilvie Foods BCP Lu Project No.: 34211-01 Date: 4/24/14

Weather: Sunny Temp.: 48 ° Field Engineer/Geologist: LMN

SAMPLE ID: SS-11

Equipment Used: SS spoon

Surface Cover: grass + gravel

Depth	PID Reading	Description
0-6"	–	sand + gravel FILL material, loose. (fmr. house location)

Remarks: Collect 2x 4 oz. jars for metals + SVOCs @13:45

SAMPLE ID: _____

Equipment Used: _____

Surface Cover: _____

Depth	PID Reading	Description

Remarks: _____

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Test Pit Log

Test Pit No. TP-01

Equipment Used: CAT 312CL EXCAVATOR

Weather: Overcast Temp.: 46°

Field Engineer/Geologist: ED

Test Pit Dimensions: 35' (Length) x 10' (Width) x 2' (Depth)

Project: Former Ogilvie Foods Site

Lu Project No.: 34211

Date: 10/11/12

Depth	PID Reading	Description
0-2' (to top of UST)	0	blasted rock (limestone); tank bedding sand

Comments

- [x] No rock encountered; or
- [ ] Rock encountered at _____ feet
- [ ] Perch/Seepage water encountered at _____ feet
- [x] No groundwater encountered; or
- [ ] Ground water encountered at _____ feet

Remarks: Uncover top of 12,000 gal +/- UST (Tank measures 34'L x 8' diam.); no shallow impacts observed; 3 pipes to tank on NW side of brick floor, center of site (1½", 2½", 3" diam); 1½" pipe has little water/product mix, smells like moth balls, no measurable quantity (< 1 gal) with PID readings to 400 ppm in pipe; Tank oriented N-S; pipes terminate 20' NW of tank @ former exterior wall; tank filled w/ flowable fill (closed in place in 1989, 34' long; 3 suction lines trend north toward likely former boiler room)

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Test Pit Log

Test Pit No. TP-02

Equipment Used: CAT 312 CL Excavator

Weather: Overcast Temp.: 46°

Field Engineer/Geologist: ED

Test Pit Dimensions: 15' (Length) x 12' (Width) x 8' (Depth)

Project: Former Ogilvie Foods Site

Lu Project No.: 34211

Date: 10/11/12

Depth	PID Reading	Description
0-2'	0	brown cmf SAND, with brick & Stone FILL; dry
2-8'	0	grey-brown SILT w/mf Sand, some cmf Gravel; moist-saturated (@ north end of tank is pocket of 1"-minus crushed stone) Saturated 4-8' bgs

Comments

- [x] No rock encountered; or
- [ ] Rock encountered at _____ feet
- [x] Perch/Seepage water encountered at 3.5-4 feet
- [ ] No groundwater encountered; or
- [ ] Ground water encountered at _____ feet

Remarks: Perched water in crushed stone @ north end of tank; black (tan) Creosote-type "globules" floating on water, no sheen or odor; water runs into excavation rapidly; NO elevated PID readings; Screen and sample soil @ base of tank (8-9' bgs) for analysis

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Test Pit Log

Test Pit No. TP-03

Equipment Used: CAT 312 CL Excavator

Weather: Overcast Temp.: 48°

Field Engineer/Geologist: ED

Test Pit Dimensions: 15' (Length) x 8' (Width) x 9.5' (Depth)

Project: Former Ogilvie Foods Site

Lu Project No.: 34211

Date: 10/11/12

Depth	PID Reading	Description
0-3'	0	Concrete over light brown SILT with mf Sand, some cmf Gravel, dry FILL
3-7'	0	asphalt at 3' underlain by SILT and f Sand, light brown, some cmf Gravel, moist FILL
7-9.5	0	grey SILT with f Sand, moist (similar to 3-7', different color)

Comments

- [x] No rock encountered; or
- [ ] Rock encountered at _____ feet
- [ ] Perch/Seepage water encountered at _____ feet
- [x] No groundwater encountered; or
- [ ] Ground water encountered at _____ feet

Remarks: _____

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Test Pit Log

Test Pit No. TP04

Project: Former Ogilvie Foods Site

Equipment Used: CAT 312cL Excavator

Lu Project No.: 34211

Weather: overcast Temp.: 48 °

Date: 10/11/12

Field Engineer/Geologist: ED

Test Pit Dimensions: 15' (Length) x 4' (Width) x 9.5' (Depth)

Depth	PID Reading	Description
0-0.75'	0	brown SILT and cmf Gravel base beneath asphalt
0.75'-4'	0	light to dark brown SILT; some mf Sand, little mf Gravel, moist, Fe mottling
4-9.5'	0	olive green-brown SILT w/ mf Sand, some cmf Gravel, moist

Comments

- ☐ No rock encountered; or
- ☒ Rock encountered at 9.5' feet
- ☐ Perch/Seepage water encountered at _____ feet
- ☒ No groundwater encountered; or
- ☐ Ground water encountered at _____ feet

Remarks: wet @ 6' bgs but not on top of bedrock (confining layer)
Collect soil sample (VOCs @ 9.5'; composite 2-9.5' for SVOCs, metals)

Lu Engineers

Test Pit Log

Test Pit No. TP-05

Equipment Used: CAT 312 CL Excavator

Weather: overcast Temp.: 48°

Field Engineer/Geologist: ED

Test Pit Dimensions: 16' (Length) x 4' (Width) x 10' (Depth)

Project: Fmr. Ogilvie Foods Site

Lu Project No.: 34211

Date: 10/11/12

Depth	PID Reading	Description
0-1'	0	shot rock over asphalt
1'-5'	0	light brown silty mf SAND; some cmf Gravel, moist; Fe mottling (3-4' olive green SILT w/ f sand)
5'-10'	0	very dense grey-brown SILT w/ f sand; cmf Gravel (some) dry

Comments

- [x] No rock encountered; or
- [ ] Rock encountered at _____ feet
- [x] Perch/Seepage water encountered at 4.5-5 feet
- [x] No groundwater encountered; or
- [ ] Ground water encountered at _____ feet

Remarks: Excavated in southern "parking" area

Collect soil sample - VOC @ 5' (grab), SVOCs & metals 1-10' (comp)

10' - very difficult digging, stop excavation

Lu Engineers

Test Pit Log

Test Pit No. TP06

Project: Fmr. Ogilvie Foods Site

Equipment Used: CAT 312 CL Excavator

Lu Project No.: 34211

Weather: light rain Temp.: 50 °

Date: 10/11/12

Field Engineer/Geologist: ED

Test Pit Dimensions: 17' (Length) x 5' (Width) x 10' (Depth)

Depth	PID Reading	Description
0--5.5	up to 207 ppm	SILT w/ mf sand, cmf Gravel; moist grey-black discoloration, strong petrol odor
5.5 - 11'	75-150 ppm	very dense grey TILL - SILT and f sand, moist; strong petrol odor

Comments

- [x] No rock encountered; or
- [ ] Rock encountered at _____ feet
- [x] Perch/Seepage water encountered at 5-6 feet
- [ ] No groundwater encountered; or
- [ ] Ground water encountered at _____ feet

Remarks: Bottom of footer @ corner = 5.5-6'; PID readings @ 8' = 132 ppm @ 9.5' readings = 75-150 ppm

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Test Pit Log

Test Pit No. TP-07

Project: Fmr. Ogilvie Foods Site

Equipment Used: CAT 312 CL Excavator

Lu Project No.: 34211

Weather: light rain Temp.: 50 °

Date: 10/11/12

Field Engineer/Geologist: ED

Test Pit Dimensions: 10' (Length) x 4' (Width) x 6.5' (Depth)

Depth	PID Reading	Description
0-1'	0	Med. brown SILT / cmf Sand / cmf Gravel FILL
1-4'	1.3-28	silty CLAY; olive-grey-brown;
4-5'	50-124	black discoloration; mf SAND, some silt; saturated
5-6'	12-64	Hard pan TILL; grey SILT w/f Sand; cmf Gravel

Comments

- [x] No rock encountered; or
- [ ] Rock encountered at _____ feet
- [x] Perch/Seepage water encountered at 4-5' feet
- [x] No groundwater encountered; or
- [ ] Ground water encountered at _____ feet

Remarks:

PID readings on staining @ 4-5' = 50-124 ppm

Collect sample from 4-5' (96 ppm)

Lu Engineers

Test Pit Log

Test Pit No. TP08

Project: Fmr. Ogilvie Foods Site

Equipment Used: CAT 312 CL Excavator

Lu Project No.: 34211

Weather: light rain Temp.: 50 °

Date: 10/11/12

Field Engineer/Geologist: ED

Test Pit Dimensions: 12' (Length) x 4' (Width) x 8.5' (Depth)

Depth	PID Reading	Description
0-1'	0	dark brown loam (silty) topsoil moist
1-5'	2.8-36'	orange-brown SILT; little f Sand, moist
5-8.5'	56-170	grey SILT; littlef Sand, cmf Gravel; moist; petrol odor (TILL, HARD)

Comments

- [x] No rock encountered; or
- [ ] Rock encountered at _____ feet
- [x] Perch/Seepage water encountered at 4-5 feet
- [x] No groundwater encountered; or
- [ ] Ground water encountered at _____ feet

Remarks: Collect sample @ bottom of footer (5') 107 ppm PID; At 8.5' = 107 ppm PID

Lu Engineers

Test Pit Log

Test Pit No. TP-09

Project: Fmr. Ogilvie Foods Site

Equipment Used: CAT 312 cL Excavator

Lu Project No.: 34211

Weather: light rain Temp.: 50°

Date: 10/11/12

Field Engineer/Geologist: ED

Test Pit Dimensions: 10' (Length) x 5' (Width) x 11' (Depth)

Depth	PID Reading	Description
0-6'	0.8-4.7	brown SILT; little mf Sand, little cmf Gravel, moist
6-8	10-67 ppm	light grey discoloration on eastern ½ of excavation (contam. pinches out); still SILT; little f sand, moist
8-11	0	@ south of contam. by 5'; soft brown SILT, little f Sand, moist

Comments

- [x] No rock encountered; or
- [ ] Rock encountered at _____ feet
- [ ] Perch/Seepage water encountered at _____ feet
- [x] No groundwater encountered; or
- [ ] Ground water encountered at _____ feet

Remarks: Peak PID @ 6-8' = 67 ppm

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Test Pit Log

Test Pit No. TP-10

Equipment Used: CAT 312 CL Excavator

Weather: light rain Temp.: 50 °

Field Engineer/Geologist: ED

Test Pit Dimensions: 10' (Length) x 4' (Width) x 8.5' (Depth)

Project: Fmr. Ogilvie Foods Site

Lu Project No.: 34211

Date: 10/11/12

Depth	PID Reading	Description
0-3'	0-3.6	dark brown to orange brown SILT; little mf sand; moist no odor
3-5'	50-230	charcoal grey discoloration; wet; SILT; little clay (wet 3.5-5')
5-8.5'	227-22.8	grey-brown SILT and f Sand TILL; some cmf Gravel; moist

Comments

- [x] No rock encountered; or
- [ ] Rock encountered at _____ feet
- [x] Perch/Seepage water encountered at 3.5-5.5 feet
- [x] No groundwater encountered; or
- [ ] Ground water encountered at _____ feet

Remarks:

At, 8.5' ≠ 23 ppm; collect soil sample from 3-5' (worst case) w/ PID readings to 227 ppm

Appendix B –
Analysis of Brownfield Cleanup Alternatives

ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES

USEPA Brownfield Grant Cleanup Project
Former Ogilvie Foods Site
Watertown, New York

USEPA Assistance ID No. BF97211311

Prepared For:

City of Watertown
245 Washington Street
Watertown, New York 13601

Prepared By:

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

175 Sully's Trail, Suite 202
Pittsford, New York 14534

February 2014

1.0 INTRODUCTION & BACKGROUND

Lu Engineers has prepared this Analysis of Brownfields Cleanup Alternatives (ABCA) report, on behalf of the City of Watertown (City), as a requirement of the Environmental Protection Agency (EPA) Brownfield Cleanup Grant for the Former Ogilvie Foods Site located at 146 North Pleasant Street, Watertown, New York (the "Site").

Cleanup of the Site includes development and implementation of a Remedial Action Work Plan (RAWP) for remediation of petroleum (and possibly other hazardous materials) at the Former Ogilvie Foods Site. The remedial measures in the RAWP will be consistent with the proposed future use of the Site, and may need to be tailored to a Site-specific detailed redevelopment plan if one is identified by the City during the course of the project. Cleanup activities will be performed under a Brownfield Cleanup Agreement between the City and the New York State Department of Environmental Conservation (NYSDEC). The cleanup will be performed under the oversight of the NYSDEC Region 6 Division of Environmental Remediation. Mr. Peter Ouderkirk is the Project Manager for NYSDEC Region 6.

This ABCA report includes the following:

- Information about characteristics of the Site and the contamination previously documented on the Site (e.g., identification of contaminants, potential exposure pathways, sources of contamination, applicable or relevant and appropriate laws or standards, etc.);

- Information and analysis of several potential cleanup alternatives considered for remediating the Site, including "No-Action" as an alternative;

- A discussion of the proposed scope and factors considered in evaluating and selecting a recommended cleanup method (long and short-term effectiveness, implementability, duration, estimated costs, etc.).

- Determination whether land use restrictions, controls, or limitations (e.g., institutional controls, engineering controls) will be required.

1.1 Site Description

The Former Ogilvie Foods Site is located at 148 North Pleasant Street, between N. Pleasant Street and California Avenue, in the City of Watertown, Jefferson County, New York (Figure 1). The Site consists of approximately 4.2 acres including tax parcels 6-15-119 and 6-15-116, owned by the City of Watertown.

Former buildings associated with dairy processing operations were demolished in 2003 and the Site is currently undeveloped. The majority of the Site is covered with crushed stone. The northern portion of the property was formerly a railroad right-of-way and is now an overgrown drainage ditch. Surrounding properties are single and multi-family residences.

The configuration of the Site is shown on the attached Site Plan (Figure 2).

1.2 Site Land Use History

Historic research related to the Ogilvie Site reveals that the property was used for dairy operations for over 60 years. The eastern portion of the property was occupied by the National Biscuit Company from the early 1900s until approximately 1960. Ogilvie Foods, Inc. (a subsidiary of Borden, Inc.) closed whey production operations at the site in the late 1990s. The buildings were demolished in 2003 after being condemned by the City. Building slabs, foundations, and basements were left in place. After demolition, the Site was covered with large crushed stone ("shot rock") to limit trespassing, help prevent vegetation growth, and allow water to drain more quickly.

A rail line also ran across the northern portion of the property beginning in the late 1800s. The former rail bed is now an overgrown drainage ditch.

In the winter of 2011, City of Watertown DPW crews discovered a tank inside an underground concrete vault while exploring the Site for former building foundations. Discovery of the tank was reported to NYSDEC. This tank remains at the Site and according to historical records it is likely that at least one more tank is present on the property. Both of these tanks reportedly held fuel oil with a capacity of 10,000 gallons and were closed in-place in 1989.

1.3 Environmental Conditions

Previous investigations completed at the Site have been documented in the following reports:

- *Phase I Environmental Site Assessment, Former Ogilvie Foods, 148 N. Pleasant Street, Watertown, NY 13601*, prepared by; GYMO, January 2005. (Text of report attached)

- *Phase II Environmental Site Assessment, Former Ogilvie Foods, 148 N. Pleasant Street, Watertown, NY 13601*, prepared by; GYMO, March 2005. (Attached)

- *Subsurface Investigation for the Purpose of Identifying Petroleum Contaminated Area, NYSDEC Spill # 04-13251, Ogilvie Foods, 148 N. Pleasant Street, Watertown, NY 13601*, prepared by; GYMO, April 14, 2006. (Attached)

<u>Phase I Environmental Site Assessment- 2005</u>
A Phase I Environmental Site Assessment (ESA) was completed by GYMO in January 2005. The report indicates the former presence of four (4) 10,000-gallon underground storage tanks (USTs) used for fuel oil storage. The tanks were reportedly closed prior to April 1991. There were also three (3) registered aboveground chemical bulk storage tanks including: 5,000-gallon and 500-gallon sodium hydroxide tanks, and a 500-gallon ammonium hydroxide tank. The tanks were reportedly removed prior to demolition in 2003.

Phase II Environmental Site Assessment- 2005

A Phase II ESA was completed by GYMO in March 2005. The investigation focused on the east side of the property, near California Avenue. A total of twenty-one (21) soil borings were installed to a depth of 12 feet or refusal. Evidence of petroleum contamination (i.e., PID readings, odors, staining) was noted in several soil borings located near the former building foundation closest to California Avenue. These findings were reported to NYSDEC and assigned Spill #04-13251. One soil sample collected from the California Avenue right-of-way near the corner of a former building foundation was submitted for lab analysis. All compounds detected were below Unrestricted Use Soil Cleanup Objectives (SCOs), with the exception of xylene (302 ppb) detected above the Unrestricted Use SCO of 260 ppb. A water sample was collected from a boring within the California Avenue right-of-way, using a Geoprobe® Screen Point 15 retractable screen sampling probe. The water sample was non-detect for VOCs and SVOCs (EPA Method 8260 and 8270).

Subsurface Investigation- 2006

In March 2006, GYMO performed an additional "Subsurface Investigation for the Purpose of Identifying Petroleum Contaminated Area". The additional investigation included excavation of sixteen (16) test pits located across the Site. A total of five (5) soil samples were collected from the test pits and submitted for lab analysis of VOCs (EPA Method 8021) and SVOCs (EPA Method 8270); and one (1) shallow soil sample was submitted for analysis of metals. All results were below Unrestricted Use SCOs, with the exception of copper (54 ppm) detected slightly above the Unrestricted Use SCO of 50 ppm in shallow soil collected from the former railroad bed. The report recommended excavation and disposal of approximately 1,500 tons of petroleum impacted soil on the eastern side of the property.

Previous investigation sample locations and analytical results are more fully described in the RAWP. No groundwater monitoring wells were installed at the Site during previous investigations.

Test Excavations- 2011

In addition to the investigations described above, twenty-one (21) test excavations were completed by the City's Department of Public Works for the Neighbors of Watertown in early 2011. The intent of the exploratory excavations was to provide an estimate for removal of the remaining building slabs and foundations in preparation for proposed Site redevelopment. A test excavation near the center of the Site identified the location of a UST. The City reported the tank to NYSDEC and Spill #1010788 was assigned.

No soil samples were collected during the 2011 excavations.

Pre-Remedial Investigation- 2012

In October 2012, Lu Engineers completed additional test excavations and surface soil sampling as outlined in the approved *Remedial Work Plan* (Lu Engineers, September 2012). Sample locations are shown on Figure 2. Findings of this additional investigation are summarized below.

- Polynuclear aromatic hyrdrocarbons (PAHs) were detected above Residential Use SCOs at SS-02 and SS-03 in the former railroad alignment, and at SS-09 on the western edge of

the Site. PAHs are byproducts of coal combustion and are commonly found in urban fill material. The full extent of PAH contamination in surface soils on the western edge of the Site has not been fully defined. Additional sampling will be completed during the proposed slab demolition to delineate the extent of impacted surface soils in this area.

- Arsenic was detected at 23.1 ppm, above the Residential Use SCO of 16 ppm, at SS-02. This is likely attributed to former railroad operations, as arsenic was historically used in herbicides.
- Only one compound was detected above Residential Use SCOs in subsurface soil: Benzo(k)fluoranthene (a PAH) was detected at 3.7 ppm, above the Residential Use SCO of 1 ppm, in TP-06.
- Soil in the vicinity of TP-06 exhibits a weathered fuel oil odor and grey staining, mainly along the concrete footer wall, at a depth of approximately 4 to 9 feet below grade. The source of this petroleum contamination is unknown, but may be attributed to former storage tanks. The extent of petroleum-impacted soil appears to be smaller than the area defined in previous investigations.
- No subsurface impacts were observed in soil sampled adjacent to the existing UST, which is closed-in-place with flowable fill. Location of the second suspected UST is still unknown.

In summary, the identified sources of contamination are: PAHs and arsenic in surface soils within the former railroad right-of-way and on the western edge of the Site; and petroleum-impacted subsurface soil along a former building footer on the eastern portion of the Site. No groundwater has been encountered during investigations conducted at the Site. Based on findings to date, no significant groundwater impacts are anticipated.

1.4 Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the Site. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: (1) a contaminant source, (2) contaminant release and transport mechanisms, (3) a point of exposure, (4) a route of exposure, and (5) a receptor population. An exposure pathway is complete when all five elements exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

There are no confirmed complete pathways that are known to exist either on-site or off-site at this time. Public water serves the area; therefore, ingestion of potentially contaminated groundwater is unlikely. The following receptor populations potentially may be exposed to Site contaminants in the future:

- Future Site workers or future occupants in contact with PAHs and metals in surface and subsurface soils during excavation/construction activities; and
- Future Site occupants may be exposed to contaminants via inhalation from soil vapor intrusion (SVI) into future buildings.

Since this property may be redeveloped for residential housing in the future, potential exposure pathways require remediation and/or engineering/institutional controls. Potential exposure during the remedial work will be managed with a Health and Safety Plan (HASP).

1.5 Proposed Future Use of Site & Adjoining Properties

The Site is currently undeveloped and zoned for light industry. Proposed future use is for residential housing, consistent with surrounding land uses. This will require a zoning change to residential. The City of Watertown is the governing body for zoning changes. Local residents and the Neighbors of Watertown support the contemplated use of the Site.

Detailed development plans for the Site have not yet been prepared. Adjacent properties are mainly single family homes. It is anticipated that the redevelopment of the Site will include subdivision for single-family residential parcels along N. Pleasant Street and California Ave.

2.0 REMEDIAL GOALS, OBJECTIVES AND EVALUATION CRITERIA

Remedial goals, objectives, and evaluation criteria are provided in this Section.

2.1 Selection of Cleanup Goals

The applicable Standards, Criteria, and Guidelines (SCGs) for the Site are identified below:

Soil: Generally, impacted soil will be remediated to the Recommended Soil Cleanup Objectives (SCOs) in 6 NYCRR Part 375-6(b) for Residential Use. The former railroad right-of-way is planned to be subdivided from the Site and will remain as open space in future redevelopment plans. This portion of the Site will be remediated to Commercial Use SCOs.

Groundwater: Potential groundwater contamination will be evaluated using NYSDEC *Technical and Operational Guidance Series 1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* (TOGS 1.1.1) dated June 1998.

Soil Gas Vapors: All structures at the Site have been demolished; therefore, no soil gas sampling is anticipated. However, if soil gas sampling becomes necessary, evaluation of post-remedial soil gas sampling results will be based on provisions set forth in the Human Health Risk Assessment guidelines outlined in NYSDEC DER-10 and/or the New York State Department of Health (NYSDOH) *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York* dated October 2006.

2.2 Remedial Objectives

Although contaminant levels do not pose a significant threat to local residents, the environmental condition of the Site presents a barrier to redevelopment. Remediation is necessary to develop the Site consistent with the objectives of the City of Watertown. The following remedial goals are anticipated for the Site.

1. Remove and dispose of two 10,000-gallon closed-in-place USTs and associated piping; and any petroleum impacted soil surrounding the USTs (not anticipated).
2. Remove and dispose of PAH-contaminated surface soil from the western edge of the Site to allow for future residential re-use.
3. Placement of clean cover material to prevent contact with PAH and metal-contaminated surface soils within the former railroad right-of-way.
4. Remove and dispose of petroleum-impacted soil on the eastern portion of the Site to allow for future residential re-use.

2.3 Evaluation Criteria

The objective of the ABCA is to evaluate the technical feasibility and costs associated with different remedial alternatives for the Site. Technical feasibility of remedial alternatives is also evaluated relative to the physical Site constraints, soil cleanup objectives, and future Site use. Remedial alternatives will have to satisfy the following criteria in order to be considered technically feasible:

- Protection of Human Health and the Environment
- Compliance with SCGs
- Short-term Effectiveness & Impacts
- Long-term Effectiveness & Permanence
- Reduction of Toxicity, Mobility, and/or Volume of Contaminants
- Implementability
- Land Use

Only remedial alternatives that meet the criteria listed above will be evaluated for cost effectiveness.

3.0 ANALYSIS OF CLEANUP ALTERNATIVES

The ABCA focuses on remediation of PAH and metal contamination in surface soils and petroleum-impacted sub-surface soil at the Site. The cleanup alternatives for the Site evaluated by Lu Engineers and the City in the screening process included:

- Alternative #1 - No Action
- Alternative #2 –Surface and Subsurface Soil Removal with Off-Site Disposal
- Alternative #3 –Surface Soil Removal with Off-Site Disposal plus Soil Vapor Extraction

For each of the three alternatives identified above, it is assumed the former railroad right-of-way will be subdivided from the Site and not redeveloped for future residential use. Remediation of impacted soil within the railroad right-of-way can be addressed by institutional controls, placement of clean cover material to prevent direct contact with surface soils, and implementation of a Soil Management Plan to address potential disturbances.

Alternatives were evaluated based on technical feasibility for the contaminant types, consistency with the remedial objectives, generation of regulated or hazardous wastes, risks to Site workers, and cost effectiveness.

Listed below is a summary of each of the three alternatives evaluated.

3.1 Cleanup Alternative #1 - No Action

The No Action alternative does not include any active remedial actions, and leaves the Site in its current condition. This alternative does not significantly reduce toxicity, mobility or volume of contamination, would not meet SCGs, and therefore would not be protective of the environment or human health if impacted media is disturbed during redevelopment. Under this alternative, some limited natural attenuation of contamination may occur in portions of the Site to reduce contaminant concentrations over very long periods of time; however, the timeframe, degree and extent of natural attenuation would be unknown and difficult to quantify.

Under this alternative, redevelopment of the Site may encounter contamination above SCGs, and thus have the potential to expose construction workers and the public to contaminants. If remedial actions and/or institutional and engineering controls are not developed and properly implemented, potential migration of contaminants off-site may occur under this alternative. Therefore, while the No Action alternative is the least costly alternative, it does not appear to be protective of human health or the environment, will not meet SCGs, and will limit or restrict redevelopment and use of the Site.

3.2 Cleanup Alternative #2 –Surface and Subsurface Soil Removal with Off-Site Disposal

The Soil Removal and Disposal alternative includes the excavation of petroleum impacted soil and fill materials present on the eastern portion of the Site, between an approximate depth of 4 to 9 feet below ground surface (bgs), and removal of PAH-impacted surface soil on the western portion of the Site (see Figure 2). The petroleum-impacted area is approximately 1,000 square feet (Petroleum-Impacted Area). The average thickness of petroleum-impacted soil is estimated at 5 feet. It is anticipated that approximately 250 to 300 tons of non-hazardous petroleum-impacted soil will be removed from the Site for disposal at an approved off-Site landfill. On-Site treatment of impacted soil was determined to be impractical based on proposed future use of the Site as residential housing and proximity of neighboring residential parcels.

The extent of PAH-impacted surface soil on the western portion of the Site is not fully known at this time. Additional surface and subsurface soil sampling would be required to delineate the removal area prior to implementation of any remedial action. Based on information obtained to date, it is estimated that an area of approximately 625 square feet, with an average thickness of one foot, will be removed for off-Site disposal as non-hazardous regulated waste.

Groundwater is not expected to be encountered during soil removal activities. Post-removal confirmatory soil samples would be collected in order to ensure that the soil removal has adequately met SCGs (i.e., Residential Use SCOs). During the soil removal work, air monitoring would be performed as specified in a HASP and a CAMP to ensure that off-site receptors will not be impacted by vapors, odors, or particulates.

After the removal of impacted soils, monitoring of Site groundwater will be conducted in order to evaluate groundwater quality. Groundwater impacts are not expected, based on observations and information obtained to date.

Total costs for the Excavation and Off-site Disposal alternative are estimated to be approximately $70,000. Since equipment and personnel will be mobilized to the Site for demolition of the remaining building slabs, a portion of the soil removal costs can be saved through strategic planning. Excavation of impacted soil will be necessary for removal of building footers along California Avenue, thus making the soil removal alternative even more desirable.

Excavation and Off-site Disposal is a well-established cleanup alternative for petroleum and PAH-impacted soils. This alternative is easily implemented, permanently removes the greatest amount of contaminant volume and mass, reduces toxicity and mobility of contaminants, can be completed in a relatively short period of time, and is cost competitive with other remedial alternatives.

3.3 Cleanup Alternative #3 – Surface Soil Removal with Off-Site Disposal plus Soil Vapor Extraction

Cleanup Alternative #3 includes removal and off-Site disposal of PAH-impacted surface soils as described in Alternative #2; and installation of a soil vapor extraction system (SVES) to treat subsurface petroleum-impacted soil. The SVES consists of a series of perforated pipes connected to a blower/fan and operating under a vacuum to collect or extract the VOCs and vapors from the contaminated subsurface media. The system would consist of a series of vapor extraction wells installed in the petroleum-impacted area and would be operated for approximately one to three years until asymptotic conditions are documented.

The estimated cost range to implement this alternative is approximately $80,000.

Several factors would limit the applicability, effectiveness, and desirability of this alterative. Site soils contain relatively low permeability glacial till. These conditions will likely limit the overall effectiveness of SVE process (i.e., reduction in the radius of influence). Heterogeneous fill materials at the Site (i.e., fill material around former building foundations, etc.) may lead to channeling of the SVES creating preferential pathways, which may result in contamination left in-place that will not meet SCGs. SVESs require the discharge or emission of VOCs to atmospheric air, which can produce nuisance odors and noise from the SVES equipment. This process would require a longer timeframe than Alternative #2.

Redevelopment of the property would be limited while the SVES is operating since the SVES requires a small building or sheds to house the working components of the system. Access to the Site would be required for periodic operation, maintenance and monitoring throughout the cleanup process, which may impede or limit redevelopment options. There are also long-term monitoring costs associated with the SVES.

4.0 RECOMMENDED CLEANUP ALTERNATIVE

Alternative #1 (No Action) will not remediate contamination at the Site, will not meet SCGs, and will limit or prohibit redevelopment activities.

Alternative #2 (Soil Removal and Disposal) is a proven remedial option and is protective of human health and the environment. This alternative permanently removes the greatest amount of contaminant mass and volume, which in turn will immediately reduce contaminant toxicity and mobility. Soil Excavation and Disposal can be implemented in a relatively short period of time which will facilitate redevelopment and reuse of the Site. The Removal and Off-site Disposal alternative physically removes the primary source of contamination and has the greatest potential to meet soil SCGs.

Alternatives #3 does not include the excavation and removal of subsurface petroleum-impacted soils and instead employs a Soil Vapor Extraction System (SVES). While this alternative is a proven remedial option, protective of human health and the environment, the effectiveness of the

option may be limited by subsurface and/or other physical Site conditions. In addition, this alternative requires a longer timeframe than the Soil Removal and Disposal Alternative. The effectiveness of the SVES may be limited by the presence of low permeability glacial till, heterogeneous fill material, and lack of a surface barrier allowing short-circuiting of vacuum influence. These conditions would potentially leave portions of the petroleum-impacted source area untreated and result in pockets of contamination left in-place. The uncertainty of the effectiveness of Alternative #3 could necessitate that additional remedial measures be completed increasing the final cost of Site remediation.

In conclusion, based on the location and extent of contamination, the remedial objectives and the intended future use of the Site, Alternative #2 – Soil Removal and Off-site Disposal is recommended.

Soil removal and off-site disposal is a proven remedial alternative that can immediately and permanently removed significant contaminant mass and volume, and can effectively remove petroleum-contaminated soils. Alternative #2 reduces toxicity, mobility and volume of contamination, should meet SCGs, and therefore would be protective of the environment and human health, while facilitating future redevelopment of the Site.

Appendix C –
Quality Assurance Project Plan

Former Ogilvie Foods Site C623028
145 N. Pleasant Street
City of Watertown
Jefferson County, New York

Quality Assurance Project Plan

Prepared For:

City of Watertown
245 Washington Street
Watertown, New York 13601

Prepared By:

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

175 Sully's Trail, Suite 202
Pittsford, New York 14534

September 2012
(revised June 2014)

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1.0 Introduction

This Quality Assurance Project Plan (QAPP) was prepared in accordance with the New York State Department of Environmental Conservation (NYSDEC) *DER-10 Technical Guidance for Site Investigation and Remediation* (May 3, 2010) for 145 N. Pleasant Street, Watertown, New York. This QAPP provides quality assurance/quality control (QA/QC) protocols and guidance that are to be followed when implementing the Interim Remedial Action Work Plan (RAWP) for the Site to ensure that data of a known and acceptable precision and accuracy are generated.

The QAPP also provides a summary of the project, identifies personnel responsibilities, and provides procedures to be used during sampling of environmental media, other field activities, and the analytical laboratory testing of samples.

1.1 Project Scope and Objective

The QAPP applies to the aspects of the project associated with the collection of field data, laboratory testing of field samples and QA/QC samples, and evaluation of the quality of data that is generated. The scope of work is described in the RAWP Section 4.0. In general, the project objective is to remove contaminant sources including: two closed in-place underground storage tanks (USTs); petroleum-impacted soils; and impacted surface soil to allow for residential use and a walking trail/green space. Confirmatory soil samples will be collected to determine the effectiveness of the remedial work in meeting the NYSDEC Part 375 soil cleanup objectives (SCOs).

Residential Use SCOs will apply to proposed single-family parcels along N. Pleasant Street and California Avenue, as shown on Figure 2. The former railroad right-of-way and central portion of the Site are planned for future use as a walking trail/green space; therefore, Commercial Use SCOs are most applicable. Impacted surface soils within the former railroad right-of-way that are not located within the proposed residential subdivision, shall be addressed by placement of clean cover material and implementation of a Site Management Plan (SMP) and institutional controls (i.e., environmental easement) to limit future use of that portion of the Site.

1.2 Glossary of QAPP Terms

QA terms and definitions are presented in this section, as required by DER-10 Section 2.4(d).

1. "Alteration" means altering a sample collected for analysis in any way other than by adding a preservative, such as nitric acid to lower pH. Examples of alteration include, but are not limited to: filtering, settling and decanting, centrifuging and decanting and acid extracting.

2. “Analytical Services Protocol” or "ASP" means DEC’s compilation of approved EPA laboratory methods for sample preparation, analysis and data handling procedures.

3. “Correlation sample” means a sample taken, when using a field-testing technology, to be analyzed by an ELAP-certified laboratory to determine the correlation between the laboratory and field analytical results.

4. "Effective solubility" means the theoretical aqueous solubility of an organic constituent in groundwater that is in chemical equilibrium with a separate-phase (NAPL) mixed product (product containing several organic chemicals). The effective solubility of a particular organic chemical can be estimated by multiplying its mole fraction in the product mixture by its pure-phase solubility.

5. “Environmental Laboratory Accreditation Program” or “ELAP” means a program conducted by the NYSDOH which certifies environmental laboratories through on-site inspections and evaluation of principles of credentials and proficiency testing. Information regarding ELAP is available at the NYSDOH Wadsworth Laboratory website .

6. "Filtration" means the filtering of a groundwater or surface water sample, collected for metals analysis, at the time of collection and prior to preservation. Filtering includes but is not limited to the use of any membrane, fabric, paper or other filter medium, irrespective of pore size, to remove particulates from suspension.

7. “Final delineation sample” means a sample taken to make a decision regarding the extent of contamination at a site during the investigation and the design of the remedy or confirmation/documentation sampling during remedial construction, which is to be analyzed by an ELAP-certified laboratory.

8. “Intermediate sample” means a sample taken during the investigation or remediation process that will be followed by another sampling event to confirm that remediation was successful or to confirm that the extent of contamination has been defined to below a level of concern.

9. "Method detection limit" or "MDL" means the minimum concentration of a substance that can be measured and reported with a 99 percent confidence that the analyte concentration is greater than zero and is determined from the analysis of a sample in a given matrix containing the analyte.

10. “Minimum reporting limit” means the lowest concentration at which an analyte can be detected and which can be reported with a reasonable degree of accuracy. It is the lowest concentration that can be measured, a lab-specific number, developed from minimum detection limits, and is also referred to as the practical quantitation limit (PQL).

11. “Nephelometric Turbidity Unit” or "NTU" is the unit by which turbidity in a sample is measured.

12. "Preservation" means preventing the degradation of a sample due to precipitation, biological action, or other physical/chemical processes between the time of sample collection and analysis. The most common examples involve refrigeration at 4 degrees Celsius and lowering sample pH by the addition of acid to keep dissolved metals in solution or to reduce the biodegradation of dissolved organic analytes. Final DER-10 Page 53 of 226 Technical Guidance for Site Investigation and Remediation May 2010.

13. "Target analyte list" or "TAL" means the list of inorganic compounds/elements designated for analysis as contained in the version of the *EPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, Multi-Concentration* in effect as of the date on which the laboratory is performing the analysis. For the purpose of this chapter, a Target Analyte List scan means the analysis of a sample for Target Analyte List compounds/elements.

14. "Targeted compound" means a contaminant for which a specific analytical method is designed to detect that potential contaminant both qualitatively and quantitatively.

15. "Target compound list plus 30" or "TCL+30" means the list of organic compounds designated for analysis (TCL) as contained in the version of the EPA *Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration* in effect as of the date on which the laboratory is performing the analysis, and up to 30 non-targeted organic compounds (plus 30) as detected by gas chromatography/mass spectroscopy (GC/MS) analysis.

16. "Tentatively identified compound or TIC" means a chemical compound that is not on the target compound list but is detected in a sample analyzed by a GC/MS analytical method. TICs are only possible with methods using mass spectrometry as the detection technique. The compound is tentatively identified using a mass spectral instrumental electronic library search and the concentration of the compound estimated.

17. "Well development" means the application of energy to a newly installed well to establish a good hydraulic connection between the well and the surrounding formation. During development, fine-grained formation material that may have infiltrated the sand pack and/or well during installation is removed, allowing water from the formation to enter the well without becoming turbid and unrepresentative of groundwater in the formation.

2.0 Project Organization and Responsibility

Project organization and tentative personnel to implement the work are outlined in this section of the QAPP.

2.1 City Project Manager

Mr. Andrew Nichols will serve as the City of Watertown Project Manager on this project. Mr. Nichols will review project documents, assist in key decisions as they relate to various components of the project, etc., as deemed necessary by the City.

2.2 Lu Engineers Organization

Lu Engineers will provide environmental consulting, engineering, and oversight for the project.

Project Director
The project director for this project will be Gregory Andrus, CHMM. As project director, Mr. Andrus will have overall responsibility for ensuring that the project meets client objectives and Lu Engineers' quality standards. In addition, the project director will be responsible for technical quality control and project oversight and will provide the project manager with access to upper management.

Project Manager
The project manager for this project will be Laura Neubauer, CHMM. As project manager, she will be responsible for implementing the project and will have the authority to commit the resources necessary to meet project objectives and requirements. The project manager's primary function is to ensure that technical, financial, and scheduling objectives are achieved. The project manager will provide the major point of contact and control for matters concerning the project.

Quality Assurance Officer (QAO)
The QA officer responsible for QA/QC on this project is Laura Neubauer, CHMM. The QAO may conduct audits of the operations at the Site to ensure that work is being performed in accordance with the QAPP.

Technical Staff
The technical staff (team members) for this project will be drawn from Lu Engineers pool of resources. The technical team staff will be utilized to gather and analyze data and to prepare various task reports and support materials. All of the designated technical team members are experienced professionals who possess the degree of specialization, training and technical competence required to effectively and efficiently perform the required work.

2.3 Analytical Laboratory

Test America, Inc. (Test America) of Amherst, New York will provide analytical services for the project. Test America is a NYSDOH Environmental Laboratory Approval Program (ELAP)-certified analytical laboratory (ELAP ID 10026). A copy of Test America's Statement of Qualifications is available upon request.

The laboratory Project Manager for this project is Lisa Shaffer.

The laboratory QA Manager is Brad Prinzi.

2.4 Data Validation Staff

All environmental data will be validated in accordance with the USEPA Region 2, Data Validation SOPs for SW-846 methods. The third party data validation staff is to be determined, based on availability and cost.

Data validation will include technical specialists who remain independent of the laboratory and project management. The staff will independently validate analytical data to assess and summarize their accuracy, precision, and reliability and determine their usability. The staff will also perform audits and document the historical record of project activities, including any factors affecting data usability, such as data discrepancies and deviations from standard practices.

3.0 Quality Assurance/Quality Control

As part of this work plan, QA/QC protocol and procedures have been developed and are described below. The objective of the QA/QC protocol and procedures is to ensure that the information, data, and decisions associated with this project are technically sound and properly documented. These QA/QC protocol and procedures will be modified in supplemental work plans when deemed appropriate.

3.1 Operation and Calibration of On-Site Monitoring Equipment

The on-site monitoring equipment includes volatile organic compound (VOC) monitors, particulate monitors, electronic water level indicators, water quality meters, and GPS units. Operation and calibration of monitoring equipment anticipated for use during the project are discussed below.

3.1.1 VOC Monitoring Equipment

Real-time monitoring for VOCs will be conducted to evaluate the nature and extent of petroleum discharges at that Site and to monitor worker breathing zone air as noted in the HASP. The primary field instrument for monitoring VOCs will be a photoionization detector (PID). It is anticipated that a MiniRAE 3000 PID equipped with a 10.6 eV lamp will be used during this project. An accredited firm/testing laboratory will calibrate the equipment on a yearly basis. During fieldwork, the PID will be calibrated on a daily basis in accordance with the manufacturer's specifications. Isobutylene gas will be used to calibrate the PID prior to

use and as necessary during fieldwork. Daily PID calibrations will be recorded in the field logbook.

3.1.2 Particulate Monitoring Equipment

Particulate monitoring will be conducted during intrusive activities as noted in the Community Air Monitoring Plan (CAMP) portion of the HASP. It is anticipated that the particulate air monitoring will be conducted using a DataRAM (or equivalent) real-time aerosol monitor particulate meter. An accredited firm/testing laboratory will calibrate the equipment on a yearly basis. During fieldwork, the particulate meter will be regularly calibrated in accordance with the manufacturer's specifications.

3.1.3 Miscellaneous Field Monitoring Equipment

Several other types of field monitoring equipment will be used during the project, including:

- An electronic static water level indicator;
- A YSI Professional Plus water quality meter that measures pH, specific conductivity, temperature, dissolved oxygen, and oxygen-reduction potential; and
- A LaMotte 2020e turbidity meter.

These meters will be calibrated, operated, and maintained in accordance with the manufacturer's recommendations.

3.2 Surface Soil Sampling

Surface soil samples will be collected from locations indicated on the sample location map. Samples will be obtained with a pre-cleaned stainless steel trowel or spoon and transferred to the appropriate clean glass containers. Sufficient sample volume (as specified by the laboratory) will be collected to fill the sample bottles. All tools to be used will be decontaminated according to procedures outlined in Section 4.0 prior to usage.

Any observable physical characteristics of the soil as it is being sampled (e.g., color, odor, physical state) will be recorded on Surface Soil Sample Logs.

3.3 General Soil Screening and Logging

During subsurface investigation, a Lu Engineers field team member will document visual observations, screen the soils with a PID, collect selected samples for laboratory analysis, photograph the field work, and prepare the appropriate field logs to document pertinent information. Pertinent information will be recorded on test pit logs and boring/well logs, and will include:

- Date, location identification, and project identification;
- Name of individual completing the log;
- Name of contractor;
- Equipment make and model, and auger size;
- Drilling methods used;

- Depths recorded in feet and fractions thereof referenced to ground surface;
- Standard penetration test (ASTM D-1586) blow counts;
- Sample depth interval and % recovered;
- Description of soil type using the Unified Soil Classification System or NYSDOT Soil Control Procedure STP-2 "An Engineering Description of Soils, Visual-Manual Procedure";
- Depth of water encountered;
- Well specifications (materials, screened interval, etc); and
- PID screening results of soil samples.

Logs for wells advanced into bedrock will also include pertinent information pertaining to the following characteristic noted on the bedrock cores:

- Bedrock type and lithology;
- Core Recovery Calculations and Rock Quality Determinations (RQDs);
- Bedrock field strength, color, and texture;
- Bedrock degree of decomposition, weathering, and disintegration;
- Bedrock fracture types (e.g., vertical, lateral, diagonal, mechanical), density, and fracture infilling; and
- The anticipated formation name.

3.4 Well Development

After completion of the wells, but not sooner than 48 hours after grouting is completed, development will be accomplished using submersible pumps. No dispersing agents, acids, disinfectants, or other additives will be used during development nor be introduced into the well at any other time. During development, water will be removed throughout the entire water column by periodically lowering and raising the pump intake.

Well development will consist of gentle surging followed by pumping the well to remove sediments from the well screen and surrounding formation. In a case where considerable drill water is lost to the formation during drilling, an attempt to remove a volume of water greater than the volume lost will be made. If this is not feasible, a greater amount of time between development and groundwater sampling will be allotted.

The development process will continue until clarity (goal of <50 NTUs) of the discharge is achieved, the well is purged dry repeatedly, or for a maximum of two hours. Pertinent information from development activities will be recorded on Well Development Field Forms.

3.5 Low-Flow Groundwater Purging and Sampling

Prior to purging and sampling, static water level measurements will be taken from each well using a Solinst water level meter, or similar instrument. The presence and thickness of any light non-aqueous phase liquids (LNAPL) will be noted in the field logbook.

A portable peristaltic pump (i.e., Geopump) connected to new disposable polyethylene tubing will be used for collection of groundwater samples. The tubing will be lowered into the well and

positioned at or slightly above the mid-point of the well screen. Care will be taken to install and lower the tubing slowly in order to minimize disturbance of the water column.

A pumping rate of less than 500 ml/min will be selected. The water level in the well will be measured and the pump rate will be adjusted until the drawdown is stabilized. The water level in the well will be measured periodically using an electronic water level meter to ensure optimum flow rate for purging and sampling.

When the water level in the well has stabilized (i.e., goal of <0.3 feet of drawdown once stabilized), water quality parameters will be monitored at a frequency of 3-5 minutes with a YSI Professional Plus (or equivalent) water quality meter using an in-line flow-through cell. Turbidity will be measured with a LaMotte 2020e (or equivalent) turbidity meter. Water quality indicator parameters will be considered stabilized after three consecutive readings for each of the following parameters are achieved:

- pH (± 0.1)
- specific conductance (± 3%)
- dissolved oxygen (± 10%)
- oxidation-reduction potential (± 10 mV)
- temperature (± 10%)
- turbidity (± 10%, when turbidity is greater than 10 NTUs)

Following stabilization of water quality parameters, the flow-through cell will be disconnected and a groundwater sample will be collected from the tubing. The pumping rate during sampling will remain at the established purge rate or it may be adjusted downward to minimize aeration. A pumping rate below 250 ml/min will be used when collecting VOC samples.

Field observations, water quality parameters, and other pertinent information obtained during sampling will be recorded on Low-Flow Groundwater Sampling Field Records.

3.6 Field QC Samples

Various types of field QC samples are used to check the cleanliness and effectiveness of field handling methods. They are analyzed in the laboratory as samples, and their purpose is to assess the sampling and transport procedures as possible sources of sample contamination and document overall sampling and analytical precision.

- **Trip Blanks** are similar to field blanks with the exception that they are not exposed to field conditions. Their analytical results give the overall level of contamination from everything except ambient field conditions. Trip blanks are prepared at the lab prior to the sampling event and shipped with the sample bottles. Trip blanks are prepared by adding organic-free water to a 40-ml VOA vial. One trip blank will be used with every batch of water samples shipped for volatile organic analysis. Each trip blank will be transported to the sampling location, handled like a sample, and returned to the laboratory for analysis without being opened in the field.
- **Field Equipment/Rinseate Blanks** are blank samples designed to demonstrate that sampling equipment has been properly prepared and cleaned before field use and that

cleaning procedures between samples are sufficient to minimize cross-contamination. Rinseate blanks are prepared by passing analyte-free water over sampling equipment and analyzing the samples for all applicable parameters. If a sampling team is familiar with a particular site, its members may be able to predict which areas or samples are likely to have the highest concentration of contaminants. Unless other constraints apply, these samples should be taken last to avoid excessive contamination of sampling equipment. Rinseate blanks are not required if dedicated sampling equipment is used for sample collection.

Field QC samples and the frequency of analysis for this project are summarized in Table 1.

4.0 Equipment Decontamination Procedures

All decontamination will be performed in accordance with USEPA Region 2 decontamination procedures. Sampling methods and equipment have been chosen to minimize decontamination requirements and prevent the possibility of cross-contamination. All drilling equipment will be decontaminated prior to drilling, after drilling each boring/monitoring well, and after the completion of all drilling. Special attention will be given to the drilling assembly, augers, split-spoons, and PVC casing. Split-spoons will be decontaminated prior to and following each use.

Split-spoons, other non-disposable sampling equipment, and stainless steel spoons will be decontaminated using the following procedure:

- Alconox/tap water wash
- Tap water rinse
- Deionized/distilled water rinse
- Air dry

During periods of transportation and non-use, all decontaminated sampling equipment should be wrapped in aluminum foil.

One field rinsate blank will be collected for each type of equipment requiring decontamination.

All drill cuttings and water generated during drilling and monitoring well installation will remain on-site. It is anticipated that decontamination fluids may be discharged to the ground surface, allowing for infiltration. Construction of a decon pad is not anticipated, based on previous sampling results.

5.0 Sample Handling and Custody Requirements

This section describes procedures for sample handling and chain-of-custody to be followed by Lu Engineers sampling personnel and the analytical laboratory. The purpose of these procedures is to ensure that the integrity of the samples is maintained during their collection, transportation, storage, and analysis. All chain-of-custody requirements comply with SOPs indicated in EPA sample-handling protocols, described in the EPA QAPP guidance and Contract Laboratory Protocols.

Sample identification documents will be carefully prepared so that sample identification and chain-of-custody can be maintained and sample disposition controlled. Sample identification documents include field notebooks, sample labels, custody seals, chain-of-custody records, and laboratory sample log-in and tracking forms.

The primary objective of the chain-of-custody procedures is to provide an accurate written record that can be used to trace the possession and handling of a sample from the moment of its collection through it analyses. A sample is in custody if it is:

- In someone's physical possession;
- In someone's view;
- Locked up; or
- Kept in a secured area that is restricted to authorized personnel.

5.1 Sample Containers and Preservation

New laboratory-grade sample containers obtained from a reliable supplier will be provided by the analytical laboratory. All containers provided by the laboratory are precleaned (Level 1), with Certificates of Analysis available for each bottle type. Certifications of Analysis provided by the vendor are kept on file by the laboratory.

All samples will be stored on ice pending delivery to the laboratory. A list of preservatives and holding times for each type of analysis is included in the following table.

Table 5.1
Sample Preservation and Holding Times

Sample Matrix	Analysis	Container Type and Size	Preservation	Holding Time
Soil	VOC	2-4 oz. wide mouth glass jar with Teflon-lined cap	Cool to 4°C; minimize headspace	14 days
	SVOC	2-4 oz. amber wide mouth glass jar with Teflon-lined cap	Cool to 4°C	14 days
	Metals	glass	Cool to 4°C	6 months
Groundwater	VOC	3 - 40-ml.glass vial with Teflon-lined cap	Cool to 4°C; minimize headspace	14 days
	SVOC	2 - ½ L Amber Glass Jars with Teflon-lined cap	Cool to 4°C;	7 days
	Metals	40-ml. polyethylene or glass	HNO_3 to a pH <2	6 months

* Holding times are based on verified time of sample receipt

Sample preservation will be verified at the lab just prior to extraction, digestion, and/or analysis and the pH will be recorded in the extraction/digestion logbook. The pH may be checked upon arrival, if desired. If the samples are improperly preserved, a QA/QC discrepancy form will be submitted to the lab manager and QA coordinator for appropriate follow-up action (i.e., evaluation of the data during the data validation process and, if necessary, additional instruction of personnel regarding proper procedures).

5.2 Sample Identification

All containers of samples collected by Lu Engineers from the project will be identified using a format identified in the field on a label affixed to the sample container (labels are to be covered with clear tape). Generally, the format will include the following.

- Two letters identifying the type of sample:

  TP- test pit soil sample
  MW- groundwater sample
  WB- well boring soil sample
  SS- surface soil sample

  Or, for confirmatory soil samples and reuse samples, a location designation:

  USTWall, USTFloor, Wall, Floor, Pile, etc.
- Two numbers identifying a sample location;
- Additional letters identifying special parameters, if applicable.

  D – Field Duplicate
  MS – Matrix Spike
  MD- Matrix Spike Duplicate
- For surface soil samples, the depth interval below ground surface in inches.

Example: SS-14D_2-6 is a duplicate soil sample collected from surface soil location SS-14 at a depth of 2-6 in. below vegetative cover.

Example: USTWall-02 is the second confirmatory sidewall sample collected from a tank pit.

Each sample will be sealed and labeled immediately after collection. To minimize handling of sample containers, labels may be filled out prior to sample collection. The sample label will be filled out using waterproof ink and will be firmly affixed to the sample containers and protected with Mylar tape. The sample label will give the sample number, the date of the collection, analysis required, and pH and preservation, if appropriate.

5.3 Field Custody Procedures

- Sample bottles must be obtained pre-cleaned from the laboratory or directly from an approved retail source. All containers will be prepared in a manner consistent with the NYSDEC ASP 1991 bottle-washing procedures. Coolers or boxes containing cleaned bottles should be sealed with a custody tape seal during transport to the field or while in storage prior to use.
- All containers will have assigned lot numbers to ensure traceability through the supplier.
- As few persons as possible should handle samples.
- The sample collector is personally responsible for the care and custody of samples collected until the samples are relinquished to another person or dispatched properly under chain-of-custody rules.
- The sample collector will record sample data in the field notebook.
- The project manager will determine whether proper custody procedures were followed during the fieldwork and decide if additional samples are required.

5.3.1 Custody Seals

Custody seals are preprinted adhesive-backed seals with security slots designed to break if the seals are disturbed. A custody seal is placed over the cap of individual sample bottles by the sampling technician. Sample shipping containers (coolers, cardboard boxed, etc., as appropriate) are sealed in as many places as necessary to ensure security. Seals must be signed and dated before use. Strapping tape should be placed around the lid to ensure that seals are not accidentally broken during shipment and in a manner that allows easy removal by laboratory personnel. On receipt at the laboratory, the custodian must check (and certify, by completing logbook entries) that seals on boxes and bottles are intact.

5.3.2 Chain-of-Custody Record

The chain-of-custody record must be fully completed in duplicate, using black carbon paper where possible, by the field technician who has been designated by the project manager as responsible for sample shipment to the appropriate laboratory for analysis. In addition, if samples are known to require rapid turnaround in the laboratory because of project time constraints or analytical concerns (e.g., extraction time or sample retention period limitations,

etc.), the person completing the chain-of-custody record should note these constraints in the "Remarks" section of the custody record.

5.4 Sample Handling, Packaging and Shipping

The transportation and handling of samples must be accomplished in a manner that not only protects the integrity of the sample but also prevents any detrimental effects due to the possible hazardous nature of samples. Regulations for packaging, marking, labeling, and shipping hazardous materials are promulgated by the United States Department of Transportation (DOT) in the Code of Federal Regulations, 49 CFR 171 through 177.

5.4.1 Sample Packaging

Samples must be packaged carefully to avoid breakage or cross-contamination and must be shipped to the laboratory at proper temperatures. The following sample packaging requirements will be followed:

- Sample bottle lids must never be mixed. All sample lids must stay with the original containers.
- The sample bottle should never be completely filled except for VOA bottles. At a minimum, a 10% void space should be left in the bottle to allow for expansion.
- All sample bottles must be sealed around the neck or the jar lid with clear tape. Any custody seals should be affixed prior to sealing the bottle.
- All sample bottles shall be placed in plastic Zip-lock bags to minimize contact with inert packing material, unless foam inserts are used.
- Foam inserts should be used as inert packing material when shipping low hazard water samples via a common carrier to the laboratory.
- Low-hazard environmental samples are to be cooled. "Blue ice" or some other artificial icing material, or ice placed in plastic bags, may be used. Ice will not be used as a substitute for packing material.
- A duplicate custody record must be placed in a plastic bag and taped to the inside of the cooler lid. Custody seals are affixed to the sample cooler.

5.4.2 Shipping Containers

Environmental samples will be properly packaged and labeled for transport and dispatched for analysis to the appropriate subcontracted laboratory. A separate chain-of-custody record must be prepared for each container. The following requirements for marking and labeling of shipping containers will be observed:

- Use abbreviations only where specified;
- The words "This End Up" or "This Side Up" must be clearly printed on the top of the outer package. Upward-pointing arrows should be placed on the sides of the package. The words "Laboratory Samples" should also be printed on the top of the package; and

- After a container has been closed, two custody seals are placed on the container—one on the front and one on the back. The seals are protected from accidental damage by placing strapping tape over them.

Field personnel will make timely arrangements for transportation of samples to the laboratory. When custody is relinquished to a shipper, field personnel will telephone the laboratory custodian to inform him of the expected time of arrival of the sample shipment and to advise him of any time constraints on sample analysis.

5.4.3 Shipping Procedures

- The coolers in which the samples are packed must be accompanied by a chain-of-custody record. When transferring samples, the individuals relinquishing and receiving them must sign, date, and note the time on the record. This record documents sample custody transfer.
- Samples must be dispatched to the laboratory for analysis with a separate chain-of-custody record accompanying each shipment. Shipping containers must be sealed with custody seals for shipment to the laboratory. The method of shipment, name of courier, and other pertinent information are entered in the "Remarks" section of the chain-of-custody record.
- All shipments must be accompanied by the chain-of-custody record identifying their contents. The original record accompanies the shipment, and the yellow copy is retained by the site team leader.
- If sent by mail, the package is registered with return receipt requested. If sent by common carrier, a bill of lading is used. Freight bills, Postal Service receipts, and bills of lading are retained as part of the permanent documentation.
- Samples must be shipped to the analytical laboratory within 24 to 48 hours from the time of collection.

5.5 Laboratory Custody Procedures

The designated sample custodian at the laboratory will be responsible for maintaining the chain-of-custody for samples received at the lab. Among other things, the custodian must adhere to the following basic requirements:

- When the sample arrives at the lab, the custodian will complete a Cooler Receipt & Preservation Form for each cooler/package container.
- Upon receipt, the coolers are examined for the presence and condition of custody seals, locks, shipping papers, etc. Shipping labels are removed and placed on scrap paper and added to the receiving paper work. The custodian then completes the chain-of-custody record by signing and recording the date and time the package is opened.
- Acceptance criteria for cooler temperature is 0-6^{o}C. If a cooler exhibits a temperature outside this range, the anomalies are noted on the Cooler Receipt & Preservation Form.

- The custodian will then unload the samples from the cooler(s)/container(s), assign an identification number to each sample container, and affix a barcode label to each sample container for logging in and out of the LIMS system.

Adherence to this procedure will ensure that all samples can be referenced in the computer tracking system. All sample control and chain-of-custody procedures applicable to the analytical laboratory are presented in laboratory SOPs available for review.

6.0 Analytical Quality Assurance/Quality Control

All laboratory analyses will be performed by Test America, Inc., an accredited and appropriately (NYSDEC ELAP CLP) certified analytical laboratory.

Method detection limits are determined according to procedures outlined in 40 CFR Part 136, Appendix B or EPA CLP. General analytical detection limits are usually determined by the lowest point on the curve. Detection limits are determined at least annually for all appropriate analytical methods. A listing of the laboratory's method detection limits is available upon request.

6.1 Quality Control Samples

Laboratory QC consists of analysis of laboratory blanks, duplicates, spikes, standards, and QC check samples as appropriate to the methodology. These laboratory QC samples are described below.

6.1.1 Laboratory Blanks

Three types of laboratory blanks, one or more of which will be utilized depending on the analysis are described below:

- Method blanks consist of analyte-free water and are subjected to every step of the analytical procedure to determine possible contamination.
- Reagent blanks are similar to method blanks but incorporate only one of the preparation reagents in the analysis. When a method blank indicates significant contamination, one or more reagent blanks are analyzed to determine the source.
- Calibration blanks consist of pure reagent matrix and are used to zero an instrument's response, thus establishing the baseline.

6.1.2 Calibration Standards

A calibration standard may be prepared in the laboratory by dissolving a known amount of a pure compound in an appropriate matrix. The final concentration calculated from the known quantities is the true value of the standard. The results obtained from these standards are used to generate a standard curve and thereby quantitate the compound in the environmental sample. A minimum of three calibration standards will be used to generate a standard curve for all analyses.

6.1.3 Reference Standard

A reference standard is prepared in the same manner as a calibration standard but from a different source. Reference standards may be obtained from the EPA. The final concentration calculated from the known quantities is the "true" value of the standard. The important difference in a reference standard is that it is not carried through the same process used for the environmental samples, but is analyzed without digestion or extraction. A reference standard result is used to validate an existing concentration calibration standard file or calibration curve.

6.1.4 Spike Sample

A spike sample is prepared by adding to an environmental sample (before extraction or digestion) a known amount of pure compound of the same type that is to be assayed for in the environmental sample. Spikes are added at one to 10 times the expected sample concentration or approximately 10 times the method detection limit. These spikes simulate the background and interferences found in the actual samples, and the calculated percent recovery of the spike is taken as a measure of the accuracy of the total analytical method.

A blank spike is the same as a spike sample except the spike is added to analyte-free water. The blank spike is used to determine whether the sample preparation and analysis are under control.

6.1.5 Surrogate Standard

A surrogate is prepared by adding a known amount of pure compound to the environmental sample; the compound selected is not one expected to be found in the sample, but is similar in nature to the compound of interest. Surrogate compounds are added to the sample prior to extraction or digestion. Surrogate spike concentrations indicate the percent recovery of the analytes and, therefore, the efficiency of the methodology.

6.1.6 Internal Standard

Internal standards are similar to surrogate standards in chemical composition but are used to quantify the concentration of analytes sampled based on the relative response factor. Internal standards are added to the environmental sample just prior to instrumental analysis.

6.1.7 Laboratory Duplicate or Matrix Spike Duplicate

Laboratory duplicates are aliquots of the same sample that are split prior to analysis and treated exactly the same throughout the analytical method. Spikes and duplicates for the batch are normally aliquots of the same sample. For organics, spikes are added at approximately 10 times the method detection limit. The RPD between the values of the matrix spike and matrix spike duplicate for organics or between the original and the duplicate for inorganics is taken as a measure of the precision of the analytical method.

In general, the tolerance limit for RPDs between laboratory duplicates should not exceed 20% for validation in homogeneous samples.

6.1.8 Check Standard/Samples

Inorganic and organic check standards or samples are prepared with reference standards or are available from the EPA. They are used as a means of evaluating analytical techniques of the analyst. Check standards or samples are subjected to the entire sample procedure, including extraction, digestion, etc., as appropriate for the analytical method utilized. The check standard or sample can provide information on the accuracy of the analytical method independent of various sample matrices.

6.2 Laboratory Instrumentation

Laboratory capabilities will be demonstrated initially for instrument and reagent/standards performance as well as accuracy and precision of analytical methodology. A discussion of reagent/standard procedures and brief descriptions of calibration procedures for major instrument types follow.

All standards are obtained directly from EPA or through a reliable commercial supplier with a proven record for quality standards. All commercially supplied standards will be traceable to EPA or NIST reference standards and appropriate documentation will be obtained from the supplier. In cases where documentation is not available, the laboratory will analyze the standard and compare the results to a known EPA-supplied or previous NIST-traceable standard.

All sections of the laboratory will have SOP for standard and reagent procedures to document specific standard receipt, documentation, and preparation activities. In general, the individual SOPs incorporate the following items:

- Documentation and labeling of date received, lot number, date opened, and expiration date;
- Documentation of traceability;
- Preparation, storage, and labeling of stock and working solutions; and
- Establishing and documenting expiration dates and disposal of unusable standards.

Each laboratory instrument will be labeled clearly with a unique identifier that relates to all laboratory calibration documentation. Laboratory SOPs and calibration procedures are detailed in the laboratory's Quality Assurance Manual, available upon request.

7.0 Data Reporting and Validation

Laboratory test results will be reported in NYSDEC Analytical Services Protocol (ASP) Category B deliverable reports. In addition, analytical results will be provided using the NYSDEC's Electronic Data Deliverable (EDD) Format and the EQUIS Data Processor (EDP).

7.1 Category B Data Package

All analytical data will be reported by the laboratory with NYSDEC ASP Category B deliverables. The Category B data package includes:

1. A detailed summary of the report contents and any quality control outliers or corrective actions taken.
2. Chain of Custody documentation
3. Sample Information including: date collected, date extracted, date analyzed, and analytical methods.
4. Data (including raw data) for:
   - samples
   - laboratory duplicates
   - method blanks
   - spikes and spike duplicates
   - surrogate recoveries
   - internal standard recoveries
   - calibrations
   - any other applicable QC data
5. Method detection limits and/or instrument detection limits
6. Run logs, standard preparation logs, and sample preparation logs
7. Percent solids (where applicable).

7.2 Quality Assurance Reports

For the laboratory, a general QA report summarizing problems encountered throughout the laboratory effort, including sample custody, analyses, and reporting, is provided to Lu Engineers' project QA management by the QA coordinator. This report identifies areas of concern and possible resolutions in an effort to ensure data quality.

Upon completion of a project sampling effort, analytical and QC data will be included in a comprehensive report that summarizes the work and provides a data evaluation. A discussion of the validity of the results in the context of QA/QC procedures will be made, as well as a summation of all QA/QC activity.

Serious analytical or sampling problems will be reported to NYSDEC. Time and type of corrective action, if needed, will depend on the severity of the problem and relative overall project importance. Corrective actions may include altering procedures in the field, conducting

an audit, or modifying laboratory protocol. All corrective actions will be implemented after notification and approval of NYSDEC.

In addition to the laboratory report narrative, QA data validation reports that include any contractual requirements will also be provided to NYSDEC. These QA reports will be submitted with the analytical data, on a monthly basis, or at the conclusion of the project.

7.3 Data Validation and Usability

Prior to the submission of the report to NYSDEC, all data will be evaluated for precision, accuracy, and completeness.

QA/QC requirements from both methodology and company protocols will be strictly adhered to during sampling and analytical work. All data generated will be reviewed by comparing and interpreting results from instrumental responses, retention time, determination of percent recovery of spiked samples or blanks, and reproducibility of duplicate sample results. All calculations and data manipulations are included in the appropriate methodology references. Control charts and calibration curves will be used to review the data and identify outlying results.

7.3.1 Data Validation

A third-party validator will be responsible for an independent review of all analytical work performed under the NYSDEC ASP-CLP protocol. The functions will be to assess and summarize the quality and reliability of the data for the purpose of determining its usability and to document for the historical record of each site any factors affecting data usability, such as discrepancies, poor laboratory practices, and site locations that are difficult to analyze. The data validator will be responsible for determining completeness and compliance. Lu Engineers' QA officer will be responsible for determining data usability and overseeing the work of the data validator.

Information available to the data validator and the QA officer for performance of these functions include the NYSDEC ASP Category B data package, information from the sampling team regarding field conditions and field QA samples, chain-of-custody and shipping forms. The data package is designed to provide all necessary documentation to verify compliance with NYSDEC ASP CLP protocol and the accuracy and reliability of the reported results.

The laboratory will deliver the data package to the project QA coordinator for processing prior to submission to the data validator. The project QA coordinator will review the report for immediate problems, summarize the data for in-house use, and process the work order for the third-party data-validation subcontract within five working days.

In order to effectively review the data package, the data validator will obtain a general overview of each case. This includes the exact number of samples, their assigned numbers, and their matrix. The data validator will deliver the data validation report within 30 days of receipt of the data package.

If a problem arises between the data validator and the laboratory, the data validator must submit written questions to the laboratory. The laboratory will be required to respond in writing within 10 working days to correct any deficiencies. If the data validator does not receive a written response from the laboratory within the specified time period, the data in question shall be considered noncompliant.

Sampling locations will be obtained from the sampling records, such as the chain-of-custody forms. This information is necessary for preparation of the data summary, evaluation of adherence to sample holding times, discussion of matrix problems, and discussion of contaminants detected in the samples.

The following is a brief outline of the data validation process:

- Compilation of all samples with the dates of sampling, laboratory receipt, and analysis;
- Compilation of all QC samples, such as field blanks, field duplicates, MS/MSD samples, laboratory blanks, and laboratory replicates;
- Review of chain-of-custody documents for completeness and correctness;
- Review of laboratory analytical procedure and instrument performance criteria;
- Qualification of data outside acceptable QC criteria ranges;
- Preparation of a memorandum summarizing any problems encountered and the potential effects on data usability;
- Preparation of a data summary, including validated results, with sample matrix, location, and identification; and
- Tabulation of field duplicates, laboratory replicate, and blank results.

Copies of all data validation and usability reports, as well as all data summary packages, will be provided to the NYSDEC project manager. In addition, copies of all analytical raw data will be provided to NYSDEC upon request.

7.3.2 Data Usability

A Data Usability Summary Report (DUSR) will be provided after review and evaluation of the analytical data package. The DUSR will contain required elements listed in Appendix 2B of *DER-10 Technical Guidance for Site Investigation and Remediation*.

The DUSR will include a description of the samples and analytical procedures used. Any data deficiencies, protocol deviations, or quality control problems will be discussed as to their effect on data results. The report will also include any suggestions for resampling or reanalysis.

TABLE C-1
SAMPLING AND ANALYSIS SUMMARY

Sample Type	Sample Location	Analytical Parameter	Analytical Method	Reporting Level	# Field Samples	Field Duplicates	Blanks		MS/MSD	Total
							Equip	Trip		
Surface soils	SS-13 through SS-15	SVOC RCRA Metals	8270 6010B	Category B	**5**	**1**	**1**		**1/1**	**9**
Subsurface Soils	Test Pits TP-11 through TP-22	TCL VOC, SVOC, RCRA Metals (see work plan)	8260, 8270 6010B		**11**	**1**			**1/1**	**14**
	Staged soil piles (for reuse)	TCL VOC, SVOC	8260, 8270		**TBD**	**-**	**-**	**-**	**-**	**TBD**
	Staged soil piles (for disposal)	TCL VOC, SVOC, RCRA Metals, paint filter test, flashpoint	8260, 8270, 6010C/7471B, 9095A, 1010	Category A	**TBD**	**-**	**-**	**-**	**-**	**TBD**
	Confirmatory Samples	TCL VOC, SVOC RCRA Metals (see work plan)	8260, 8270 6010B	Category B	**20**	**1**			**1/1**	**23**
Groundwater	MW-1 through MW-5	TCL VOC, SVOC	8260, 8270		**5**	**1**		**1**	**1/1**	**9**

Appendix C-1 –
Laboratory Detection & Reporting Limits

8260C - Water

Analytes	CAS #	Limits	Units	Limit Type
1,1,1,2-Tetrachloroethane	630-20-6	1.0	ug/L	RL
1,1,1-Trichloroethane	71-55-6	1.0	ug/L	RL
1,1,2,2-Tetrachloroethane	79-34-5	1.0	ug/L	RL
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	1.0	ug/L	RL
1,1,2-Trichloroethane	79-00-5	1.0	ug/L	RL
1,1-Dichloroethane	75-34-3	1.0	ug/L	RL
1,1-Dichloroethene	75-35-4	1.0	ug/L	RL
1,1-Dichloropropene	563-58-6	1.0	ug/L	RL
1,1-Dimethoxyethane	534-15-6	5.0	ug/L	RL
1,2,3-Trichlorobenzene	87-61-6	1.0	ug/L	RL
1,2,3-Trichloropropane	96-18-4	1.0	ug/L	RL
1,2,3-Trimethylbenzene	526-73-8	1.0	ug/L	RL
1,2,4-Trichlorobenzene	120-82-1	1.0	ug/L	RL
1,2,4-Trimethylbenzene	95-63-6	1.0	ug/L	RL
1,2-Dibromo-3-Chloropropane	96-12-8	1.0	ug/L	RL
1,2-Dichlorobenzene	95-50-1	1.0	ug/L	RL
1,2-Dichloroethane	107-06-2	1.0	ug/L	RL
1,2-Dichloroethene, Total	540-59-0	2.0	ug/L	RL
1,2-Dichloropropane	78-87-5	1.0	ug/L	RL
1,3,5-Trichlorobenzene	108-70-3	1.0	ug/L	RL
1,3,5-Trimethylbenzene	108-67-8	1.0	ug/L	RL
1,3-Dichlorobenzene	541-73-1	1.0	ug/L	RL
1,3-Dichloropropane	142-28-9	1.0	ug/L	RL
1,3-Dichloropropene, Total	542-75-6	2.0	ug/L	RL
1,4-Dichlorobenzene	106-46-7	1.0	ug/L	RL
1,4-Difluorobenzene	540-36-3	1.0	ug/L	RL
1,4-Dioxane	123-91-1	40	ug/L	RL
2,2-Dichloropropane	594-20-7	1.0	ug/L	RL
2-Butanone (MEK)	78-93-3	10	ug/L	RL
2-Chloro-1,3-butadiene	126-99-8	1.0	ug/L	RL
2-Chlorobenzotrifluoride	88-16-4	1.0	ug/L	RL
2-Chloroethyl vinyl ether	110-75-8	5.0	ug/L	RL
2-Chlorotoluene	95-49-8	1.0	ug/L	RL
2-Hexanone	591-78-6	5.0	ug/L	RL
2-Methyl-2-propanol	75-65-0	10	ug/L	RL
2-Methylthiophene	554-14-3	1.0	ug/L	RL
4-Chlorotoluene	106-43-4	1.0	ug/L	RL
4-Isopropyltoluene	99-87-6	1.0	ug/L	RL

4-Methyl-2-pentanone (MIBK)	108-10-1	5.0	ug/L	RL
Acetone	67-64-1	10	ug/L	RL
Acetonitrile	75-05-8	15	ug/L	RL
Acrolein	107-02-8	20	ug/L	RL
Acrylonitrile	107-13-1	5.0	ug/L	RL
Benzene	71-43-2	1.0	ug/L	RL
Bromobenzene	108-86-1	1.0	ug/L	RL
Bromoform	75-25-2	1.0	ug/L	RL
Bromomethane	74-83-9	1.0	ug/L	RL
Carbon disulfide	75-15-0	1.0	ug/L	RL
Carbon tetrachloride	56-23-5	1.0	ug/L	RL
Chlorobenzene	108-90-7	1.0	ug/L	RL
Chlorobromomethane	74-97-5	1.0	ug/L	RL
Chlorodibromomethane	124-48-1	1.0	ug/L	RL
Chlorodifluoromethane	75-45-6	1.0	ug/L	RL
Chloroethane	75-00-3	1.0	ug/L	RL
Chloroform	67-66-3	1.0	ug/L	RL
Chloromethane	74-87-3	1.0	ug/L	RL
cis-1,2-Dichloroethene	156-59-2	1.0	ug/L	RL
Cyclohexane	110-82-7	1.0	ug/L	RL
Cyclohexanone	108-94-1	10	ug/L	RL
Dibromomethane	74-95-3	1.0	ug/L	RL
Dichlorobromomethane	75-27-4	1.0	ug/L	RL
Dichlorodifluoromethane	75-71-8	1.0	ug/L	RL
Dichlorofluoromethane	75-43-4	1.0	ug/L	RL
Dicyclopentadiene	77-73-6	1.0	ug/L	RL
Epichlorohydrin	106-89-8	20	ug/L	RL
Ethyl acetate	141-78-6	1.0	ug/L	RL
Ethyl ether	60-29-7	1.0	ug/L	RL
Ethyl methacrylate	97-63-2	1.0	ug/L	RL
Ethylbenzene	100-41-4	1.0	ug/L	RL
Ethylene Dibromide	106-93-4	1.0	ug/L	RL
Halothane	151-67-7	1.0	ug/L	RL
Hexachlorobutadiene	87-68-3	1.0	ug/L	RL
Hexane	110-54-3	10	ug/L	RL
Iodomethane	74-88-4	1.0	ug/L	RL
Isobutyl alcohol	78-83-1	25	ug/L	RL
Isopropyl alcohol	67-63-0	10	ug/L	RL
Isopropyl ether	108-20-3	1.0	ug/L	RL
Isopropylbenzene	98-82-8	1.0	ug/L	RL

Methacrylonitrile	126-98-7	5	ug/L	RL
Methyl acetate	79-20-9	2.5	ug/L	RL
Methyl methacrylate	80-62-6	1.0	ug/L	RL
Methyl tert-butyl ether	1634-04-4	1.0	ug/L	RL
Methylcyclohexane	108-87-2	1.0	ug/L	RL
Methylene Chloride	75-09-2	1.0	ug/L	RL
m-Xylene & p-Xylene	179601-23-1	2.0	ug/L	RL
Naphthalene	91-20-3	1.0	ug/L	RL
n-Butanol	71-36-3	40	ug/L	RL
n-Butylbenzene	104-51-8	1.0	ug/L	RL
n-Heptane	142-82-5	20	ug/L	RL
N-Propylbenzene	103-65-1	1.0	ug/L	RL
o-Xylene	95-47-6	1.0	ug/L	RL
Pentachloroethane	76-01-7	1.0	ug/L	RL
Propionitrile	107-12-0	10	ug/L	RL
sec-Butylbenzene	135-98-8	1.0	ug/L	RL
Tetrachloroethene	127-18-4	1.0	ug/L	RL
Tetrahydrofuran	109-99-9	5.0	ug/L	RL
Toluene	108-88-3	1.0	ug/L	RL
Total BTEX	STL00431	2.0	ug/L	RL
trans-1,2-Dichloroethene	156-60-5	1.0	ug/L	RL
trans-1,3-Dichloropropene	10061-02-6	1.0	ug/L	RL
trans-1,4-Dichloro-2-butene	110-57-6	1.0	ug/L	RL
Trichloroethene	79-01-6	1.0	ug/L	RL
Trichlorofluoromethane	75-69-4	1.0	ug/L	RL
Vinyl acetate	108-05-4	5.0	ug/L	RL
Vinyl chloride	75-01-4	1.0	ug/L	RL
Xylenes, Total	1330-20-7	2.0	ug/L	RL
cis-1,3-Dichloropropene	10061-01-5	1.0	ug/L	RL
Styrene	100-42-5	1.0	ug/L	RL
3-Chloro-1-propene	107-05-1	1.0	ug/L	RL
tert-Butylbenzene	98-06-6	1.0	ug/L	RL
2-Nitropropane	79-46-9	2.0	ug/L	RL
3-Chlorobenzotrifluoride	98-15-7	1.0	ug/L	RL
3-Chlorotoluene	108-41-8	1.0	ug/L	RL
3-Methylthiophene	616-44-4	1.0	ug/L	RL
4-Chlorobenzotrifluoride	98-56-6	1.0	ug/L	RL
Tert-amyl methyl ether	994-05-8	1.0	ug/L	RL
Tert-butyl ethyl ether	637-92-3	1.0	ug/L	RL
Butadiene	106-99-0	5.0	ug/L	RL

1-Chlorohexane	544-10-5	5.0	ug/L	RL
2-Methylnaphthalene	91-57-6	5.0	ug/L	RL
Benzyl chloride	100-44-7	5.0	ug/L	RL
Ethanol	64-17-5	50.0	ug/L	RL
Ethyl acrylate	140-88-5	5.0	ug/L	RL
Isooctane	540-84-1	5.0	ug/L	RL
t-Amyl alcohol	75-85-4	5.0	ug/L	RL
n-Butyl acetate	123-86-4	5.0	ug/L	RL

8260C - Water

Analytes	CAS #	Limits	Units	Limit Type
1,1,1,2-Tetrachloroethane	630-20-6	0.35	ug/L	MDL
1,1,1-Trichloroethane	71-55-6	0.82	ug/L	MDL
1,1,2,2-Tetrachloroethane	79-34-5	0.21	ug/L	MDL
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.31	ug/L	MDL
1,1,2-Trichloroethane	79-00-5	0.23	ug/L	MDL
1,1-Dichloroethane	75-34-3	0.38	ug/L	MDL
1,1-Dichloroethene	75-35-4	0.29	ug/L	MDL
1,1-Dichloropropene	563-58-6	0.72	ug/L	MDL
1,1-Dimethoxyethane	534-15-6	1.6	ug/L	MDL
1,2,3-Trichlorobenzene	87-61-6	0.41	ug/L	MDL
1,2,3-Trichloropropane	96-18-4	0.89	ug/L	MDL
1,2,3-Trimethylbenzene	526-73-8	0.26	ug/L	MDL
1,2,4-Trichlorobenzene	120-82-1	0.41	ug/L	MDL
1,2,4-Trimethylbenzene	95-63-6	0.75	ug/L	MDL
1,2-Dibromo-3-Chloropropane	96-12-8	0.39	ug/L	MDL
1,2-Dichlorobenzene	95-50-1	0.79	ug/L	MDL
1,2-Dichloroethane	107-06-2	0.21	ug/L	MDL
1,2-Dichloroethene, Total	540-59-0	0.81	ug/L	MDL
1,2-Dichloropropane	78-87-5	0.72	ug/L	MDL
1,3,5-Trichlorobenzene	108-70-3	0.23	ug/L	MDL
1,3,5-Trimethylbenzene	108-67-8	0.77	ug/L	MDL
1,3-Dichlorobenzene	541-73-1	0.78	ug/L	MDL
1,3-Dichloropropane	142-28-9	0.75	ug/L	MDL
1,3-Dichloropropene, Total	542-75-6	0.72	ug/L	MDL
1,4-Dichlorobenzene	106-46-7	0.84	ug/L	MDL
1,4-Difluorobenzene	540-36-3	0.09	ug/L	MDL
1,4-Dioxane	123-91-1	9.32	ug/L	MDL
2,2-Dichloropropane	594-20-7	0.40	ug/L	MDL
2-Butanone (MEK)	78-93-3	1.32	ug/L	MDL
2-Chloro-1,3-butadiene	126-99-8	0.49	ug/L	MDL
2-Chlorobenzotrifluoride	88-16-4	0.50	ug/L	MDL
2-Chloroethyl vinyl ether	110-75-8	0.96	ug/L	MDL
2-Chlorotoluene	95-49-8	0.86	ug/L	MDL
2-Hexanone	591-78-6	1.24	ug/L	MDL
2-Methyl-2-propanol	75-65-0	3.3	ug/L	MDL
2-Methylthiophene	554-14-3	0.44	ug/L	MDL
4-Chlorotoluene	106-43-4	0.84	ug/L	MDL
4-Isopropyltoluene	99-87-6	0.31	ug/L	MDL

4-Methyl-2-pentanone (MIBK)	108-10-1	2.1	ug/L	MDL
Acetone	67-64-1	3.0	ug/L	MDL
Acetonitrile	75-05-8	4.9	ug/L	MDL
Acrolein	107-02-8	0.91	ug/L	MDL
Acrylonitrile	107-13-1	0.83	ug/L	MDL
Benzene	71-43-2	0.41	ug/L	MDL
Bromobenzene	108-86-1	0.80	ug/L	MDL
Bromoform	75-25-2	0.26	ug/L	MDL
Bromomethane	74-83-9	0.69	ug/L	MDL
Carbon disulfide	75-15-0	0.19	ug/L	MDL
Carbon tetrachloride	56-23-5	0.27	ug/L	MDL
Chlorobenzene	108-90-7	0.75	ug/L	MDL
Chlorobromomethane	74-97-5	0.87	ug/L	MDL
Chlorodibromomethane	124-48-1	0.32	ug/L	MDL
Chlorodifluoromethane	75-45-6	0.26	ug/L	MDL
Chloroethane	75-00-3	0.32	ug/L	MDL
Chloroform	67-66-3	0.34	ug/L	MDL
Chloromethane	74-87-3	0.35	ug/L	MDL
cis-1,2-Dichloroethene	156-59-2	0.81	ug/L	MDL
Cyclohexane	110-82-7	0.18	ug/L	MDL
Cyclohexanone	108-94-1	5.2	ug/L	MDL
Dibromomethane	74-95-3	0.41	ug/L	MDL
Dichlorobromomethane	75-27-4	0.39	ug/L	MDL
Dichlorodifluoromethane	75-71-8	0.68	ug/L	MDL
Dichlorofluoromethane	75-43-4	0.34	ug/L	MDL
Dicyclopentadiene	77-73-6	0.22	ug/L	MDL
Epichlorohydrin	106-89-8	8.4	ug/L	MDL
Ethyl acetate	141-78-6	0.66	ug/L	MDL
Ethyl ether	60-29-7	0.72	ug/L	MDL
Ethyl methacrylate	97-63-2	0.59	ug/L	MDL
Ethylbenzene	100-41-4	0.74	ug/L	MDL
Ethylene Dibromide	106-93-4	0.73	ug/L	MDL
Halothane	151-67-7	1.0	ug/L	MDL
Hexachlorobutadiene	87-68-3	0.28	ug/L	MDL
Hexane	110-54-3	0.40	ug/L	MDL
Iodomethane	74-88-4	0.30	ug/L	MDL
Isobutyl alcohol	78-83-1	4.8	ug/L	MDL
Isopropyl alcohol	67-63-0	1.7	ug/L	MDL
Isopropyl ether	108-20-3	0.59	ug/L	MDL
Isopropylbenzene	98-82-8	0.79	ug/L	MDL

Methacrylonitrile	126-98-7	0.69	ug/L	MDL
Methyl acetate	79-20-9	0.50	ug/L	MDL
Methyl methacrylate	80-62-6	0.61	ug/L	MDL
Methyl tert-butyl ether	1634-04-4	0.16	ug/L	MDL
Methylcyclohexane	108-87-2	0.16	ug/L	MDL
Methylene Chloride	75-09-2	0.44	ug/L	MDL
m-Xylene & p-Xylene	179601-23-1	0.66	ug/L	MDL
Naphthalene	91-20-3	0.43	ug/L	MDL
n-Butanol	71-36-3	8.85	ug/L	MDL
n-Butylbenzene	104-51-8	0.64	ug/L	MDL
n-Heptane	142-82-5	0.42	ug/L	MDL
N-Propylbenzene	103-65-1	0.69	ug/L	MDL
o-Xylene	95-47-6	0.76	ug/L	MDL
Pentachloroethane	76-01-7	0.34	ug/L	MDL
Propionitrile	107-12-0	5.8	ug/L	MDL
sec-Butylbenzene	135-98-8	0.75	ug/L	MDL
Tetrachloroethene	127-18-4	0.36	ug/L	MDL
Tetrahydrofuran	109-99-9	1.25	ug/L	MDL
Toluene	108-88-3	0.51	ug/L	MDL
Total BTEX	STL00431	1.0	ug/L	MDL
trans-1,2-Dichloroethene	156-60-5	0.90	ug/L	MDL
trans-1,3-Dichloropropene	10061-02-6	0.37	ug/L	MDL
trans-1,4-Dichloro-2-butene	110-57-6	0.22	ug/L	MDL
Trichloroethene	79-01-6	0.46	ug/L	MDL
Trichlorofluoromethane	75-69-4	0.88	ug/L	MDL
Vinyl acetate	108-05-4	0.85	ug/L	MDL
Vinyl chloride	75-01-4	0.90	ug/L	MDL
Xylenes, Total	1330-20-7	0.66	ug/L	MDL
cis-1,3-Dichloropropene	10061-01-5	0.36	ug/L	MDL
Styrene	100-42-5	0.73	ug/L	MDL
3-Chloro-1-propene	107-05-1	0.44	ug/L	MDL
tert-Butylbenzene	98-06-6	0.81	ug/L	MDL
2-Nitropropane	79-46-9	0.48	ug/L	MDL
3-Chlorobenzotrifluoride	98-15-7	0.49	ug/L	MDL
3-Chlorotoluene	108-41-8	0.45	ug/L	MDL
3-Methylthiophene	616-44-4	0.53	ug/L	MDL
4-Chlorobenzotrifluoride	98-56-6	0.21	ug/L	MDL
Tert-amyl methyl ether	994-05-8	0.27	ug/L	MDL
Tert-butyl ethyl ether	637-92-3	.294	ug/L	MDL
Butadiene	106-99-0	0.28	ug/L	MDL

1-Chlorohexane	544-10-5	0.2	ug/L	MDL
2-Methylnaphthalene	91-57-6	0.37	ug/L	MDL
Benzyl chloride	100-44-7	0.43	ug/L	MDL
Ethanol	64-17-5	34.3	ug/L	MDL
Ethyl acrylate	140-88-5	0.24	ug/L	MDL
Isooctane	540-84-1	0.23	ug/L	MDL
t-Amyl alcohol	75-85-4	2.3	ug/L	MDL
n-Butyl acetate	123-86-4	5.0	ug/L	MDL

8260C - Solid

Analytes	CAS #	Limits	Units	Limit Type
1,1,1,2-Tetrachloroethane	630-20-6	5	ug/Kg	RL
1,1,1-Trichloroethane	71-55-6	5	ug/Kg	RL
1,1,2,2-Tetrachloroethane	79-34-5	5	ug/Kg	RL
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	5	ug/Kg	RL
1,1,2-Trichloroethane	79-00-5	5	ug/Kg	RL
1,1-Dichloroethane	75-34-3	5	ug/Kg	RL
1,1-Dichloroethene	75-35-4	5	ug/Kg	RL
1,1-Dichloropropene	563-58-6	5	ug/Kg	RL
1,1-Dimethoxyethane	534-15-6	25	ug/Kg	RL
1,2,3-Trichlorobenzene	87-61-6	5	ug/Kg	RL
1,2,3-Trichloropropane	96-18-4	5	ug/Kg	RL
1,2,3-Trimethylbenzene	526-73-8	5	ug/Kg	RL
1,2,4-Trichlorobenzene	120-82-1	5	ug/Kg	RL
1,2,4-Trimethylbenzene	95-63-6	5	ug/Kg	RL
1,2-Dibromo-3-Chloropropane	96-12-8	5	ug/Kg	RL
1,2-Dichlorobenzene	95-50-1	5	ug/Kg	RL
1,2-Dichloroethane	107-06-2	5	ug/Kg	RL
1,2-Dichloroethene, Total	540-59-0	10	ug/Kg	RL
1,2-Dichloropropane	78-87-5	5	ug/Kg	RL
1,3,5-Trichlorobenzene	108-70-3	5	ug/Kg	RL
1,3,5-Trimethylbenzene	108-67-8	5	ug/Kg	RL
1,3-Dichlorobenzene	541-73-1	5	ug/Kg	RL
1,3-Dichloropropane	142-28-9	5	ug/Kg	RL
1,3-Dichloropropene, Total	542-75-6	5	ug/Kg	RL
1,4-Dichlorobenzene	106-46-7	5	ug/Kg	RL
1,4-Difluorobenzene	540-36-3	5	ug/Kg	RL
1,4-Dioxane	123-91-1	100	ug/Kg	RL
2,2-Dichloropropane	594-20-7	5	ug/Kg	RL
2-Butanone (MEK)	78-93-3	25	ug/Kg	RL
2-Chloro-1,3-butadiene	126-99-8	5	ug/Kg	RL
2-Chlorobenzotrifluoride	88-16-4	5	ug/Kg	RL
2-Chloroethyl vinyl ether	110-75-8	10	ug/Kg	RL
2-Chlorotoluene	95-49-8	5	ug/Kg	RL
2-Hexanone	591-78-6	25	ug/Kg	RL
2-Methyl-2-propanol	75-65-0	50	ug/Kg	RL
2-Methylthiophene	554-14-3	5	ug/Kg	RL
4-Chlorotoluene	106-43-4	5	ug/Kg	RL
4-Isopropyltoluene	99-87-6	5	ug/Kg	RL

4-Methyl-2-pentanone (MIBK)	108-10-1	25	ug/Kg	RL
Acetone	67-64-1	25	ug/Kg	RL
Acetonitrile	75-05-8	50	ug/Kg	RL
Acrolein	107-02-8	25	ug/Kg	RL
Acrylonitrile	107-13-1	25	ug/Kg	RL
Benzene	71-43-2	5	ug/Kg	RL
Bromobenzene	108-86-1	5	ug/Kg	RL
Bromoform	75-25-2	5	ug/Kg	RL
Bromomethane	74-83-9	5	ug/Kg	RL
Carbon disulfide	75-15-0	5	ug/Kg	RL
Carbon tetrachloride	56-23-5	5	ug/Kg	RL
Chlorobenzene	108-90-7	5	ug/Kg	RL
Chlorobromomethane	74-97-5	5	ug/Kg	RL
Chlorodibromomethane	124-48-1	5	ug/Kg	RL
Chlorodifluoromethane	75-45-6	5	ug/Kg	RL
Chloroethane	75-00-3	5	ug/Kg	RL
Chloroform	67-66-3	5	ug/Kg	RL
Chloromethane	74-87-3	5	ug/Kg	RL
cis-1,2-Dichloroethene	156-59-2	5	ug/Kg	RL
Cyclohexane	110-82-7	5	ug/Kg	RL
Cyclohexanone	108-94-1	50	ug/Kg	RL
Dibromomethane	74-95-3	5	ug/Kg	RL
Dichlorobromomethane	75-27-4	5	ug/Kg	RL
Dichlorodifluoromethane	75-71-8	5	ug/Kg	RL
Dichlorofluoromethane	75-43-4	5	ug/Kg	RL
Dicyclopentadiene	77-73-6	5	ug/Kg	RL
Epichlorohydrin	106-89-8	100	ug/Kg	RL
Ethyl acetate	141-78-6	5	ug/Kg	RL
Ethyl ether	60-29-7	25	ug/Kg	RL
Ethyl methacrylate	97-63-2	5	ug/Kg	RL
Ethylbenzene	100-41-4	5	ug/Kg	RL
Ethylene Dibromide	106-93-4	5	ug/Kg	RL
Halothane	151-67-7	5.0	ug/Kg	RL
Hexachlorobutadiene	87-68-3	5	ug/Kg	RL
Hexane	110-54-3	50	ug/Kg	RL
Iodomethane	74-88-4	5	ug/Kg	RL
Isobutyl alcohol	78-83-1	200	ug/Kg	RL
Isopropyl alcohol	67-63-0	5	ug/Kg	RL
Isopropyl ether	108-20-3	5	ug/Kg	RL
Isopropylbenzene	98-82-8	5	ug/Kg	RL

Methacrylonitrile	126-98-7	15	ug/Kg	RL
Methyl acetate	79-20-9	5	ug/Kg	RL
Methyl methacrylate	80-62-6	5	ug/Kg	RL
Methyl tert-butyl ether	1634-04-4	5	ug/Kg	RL
Methylcyclohexane	108-87-2	5	ug/Kg	RL
Methylene Chloride	75-09-2	5	ug/Kg	RL
m-Xylene & p-Xylene	179601-23-1	10	ug/Kg	RL
Naphthalene	91-20-3	5	ug/Kg	RL
n-Butanol	71-36-3	50	ug/Kg	RL
n-Butylbenzene	104-51-8	5	ug/Kg	RL
n-Heptane	142-82-5	100	ug/Kg	RL
N-Propylbenzene	103-65-1	5	ug/Kg	RL
o-Xylene	95-47-6	5	ug/Kg	RL
Pentachloroethane	76-01-7	5	ug/Kg	RL
Propionitrile	107-12-0	50	ug/Kg	RL
sec-Butylbenzene	135-98-8	5	ug/Kg	RL
Tetrachloroethene	127-18-4	5	ug/Kg	RL
Tetrahydrofuran	109-99-9	10	ug/Kg	RL
Toluene	108-88-3	5	ug/Kg	RL
Total BTEX	STL00431	10	ug/Kg	RL
trans-1,2-Dichloroethene	156-60-5	5	ug/Kg	RL
trans-1,3-Dichloropropene	10061-02-6	5	ug/Kg	RL
trans-1,4-Dichloro-2-butene	110-57-6	5	ug/Kg	RL
Trichloroethene	79-01-6	5	ug/Kg	RL
Trichlorofluoromethane	75-69-4	5	ug/Kg	RL
Vinyl acetate	108-05-4	10	ug/Kg	RL
Vinyl chloride	75-01-4	5	ug/Kg	RL
Xylenes, Total	1330-20-7	10	ug/Kg	RL
cis-1,3-Dichloropropene	10061-01-5	5	ug/Kg	RL
Styrene	100-42-5	5	ug/Kg	RL
3-Chloro-1-propene	107-05-1	5	ug/Kg	RL
tert-Butylbenzene	98-06-6	5	ug/Kg	RL
2-Nitropropane	79-46-9	10	ug/Kg	RL
3-Chlorobenzotrifluoride	98-15-7	5	ug/Kg	RL
3-Chlorotoluene	108-41-8	5	ug/Kg	RL
3-Methylthiophene	616-44-4	5	ug/Kg	RL
4-Chlorobenzotrifluoride	98-56-6	5	ug/Kg	RL
Tert-amyl methyl ether	994-05-8	5	ug/Kg	RL
Tert-butyl ethyl ether	637-92-3	5	ug/Kg	RL
Butadiene	106-99-0	5.0	ug/Kg	RL

1-Chlorohexane	544-10-5	5.0	ug/Kg	RL
2-Methylnaphthalene	91-57-6	5.0	ug/Kg	RL
Benzyl chloride	100-44-7	5.0	ug/Kg	RL
Ethanol	64-17-5	5.0	ug/Kg	RL
Ethyl acrylate	140-88-5	5.0	ug/Kg	RL
Isooctane	540-84-1	5.0	ug/Kg	RL
t-Amyl alcohol	75-85-4	5.0	ug/Kg	RL
n-Butyl acetate	123-86-4	5.0	ug/Kg	RL

8260C - Solid

Analytes	CAS #	Limits	Units	Limit Type
1,1,1,2-Tetrachloroethane	630-20-6	0.5	ug/Kg	MDL
1,1,1-Trichloroethane	71-55-6	0.363	ug/Kg	MDL
1,1,2,2-Tetrachloroethane	79-34-5	0.811	ug/Kg	MDL
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	1.14	ug/Kg	MDL
1,1,2-Trichloroethane	79-00-5	0.65	ug/Kg	MDL
1,1-Dichloroethane	75-34-3	0.61	ug/Kg	MDL
1,1-Dichloroethene	75-35-4	0.612	ug/Kg	MDL
1,1-Dichloropropene	563-58-6	0.71	ug/Kg	MDL
1,1-Dimethoxyethane	534-15-6	3.45	ug/Kg	MDL
1,2,3-Trichlorobenzene	87-61-6	0.531	ug/Kg	MDL
1,2,3-Trichloropropane	96-18-4	0.509	ug/Kg	MDL
1,2,3-Trimethylbenzene	526-73-8	1.02	ug/Kg	MDL
1,2,4-Trichlorobenzene	120-82-1	0.304	ug/Kg	MDL
1,2,4-Trimethylbenzene	95-63-6	0.96	ug/Kg	MDL
1,2-Dibromo-3-Chloropropane	96-12-8	2.5	ug/Kg	MDL
1,2-Dichlorobenzene	95-50-1	0.391	ug/Kg	MDL
1,2-Dichloroethane	107-06-2	0.251	ug/Kg	MDL
1,2-Dichloroethene, Total	540-59-0	2.62	ug/Kg	MDL
1,2-Dichloropropane	78-87-5	2.5	ug/Kg	MDL
1,3,5-Trichlorobenzene	108-70-3	0.38	ug/Kg	MDL
1,3,5-Trimethylbenzene	108-67-8	0.322	ug/Kg	MDL
1,3-Dichlorobenzene	541-73-1	0.257	ug/Kg	MDL
1,3-Dichloropropane	142-28-9	0.3	ug/Kg	MDL
1,3-Dichloropropene, Total	542-75-6	2.2	ug/Kg	MDL
1,4-Dichlorobenzene	106-46-7	0.7	ug/Kg	MDL
1,4-Difluorobenzene	540-36-3	1	ug/Kg	MDL
1,4-Dioxane	123-91-1	21.8	ug/Kg	MDL
2,2-Dichloropropane	594-20-7	0.85	ug/Kg	MDL
2-Butanone (MEK)	78-93-3	1.83	ug/Kg	MDL
2-Chloro-1,3-butadiene	126-99-8	3.1	ug/Kg	MDL
2-Chlorobenzotrifluoride	88-16-4	0.18	ug/Kg	MDL
2-Chloroethyl vinyl ether	110-75-8	2.5	ug/Kg	MDL
2-Chlorotoluene	95-49-8	0.328	ug/Kg	MDL
2-Hexanone	591-78-6	2.5	ug/Kg	MDL
2-Methyl-2-propanol	75-65-0	16.9	ug/Kg	MDL
2-Methylthiophene	554-14-3	2	ug/Kg	MDL
4-Chlorotoluene	106-43-4	0.59	ug/Kg	MDL
4-Isopropyltoluene	99-87-6	0.401	ug/Kg	MDL

4-Methyl-2-pentanone (MIBK)	108-10-1	1.64	ug/Kg	MDL
Acetone	67-64-1	4.21	ug/Kg	MDL
Acetonitrile	75-05-8	6.11	ug/Kg	MDL
Acrolein	107-02-8	7.9	ug/Kg	MDL
Acrylonitrile	107-13-1	4.48	ug/Kg	MDL
Benzene	71-43-2	0.245	ug/Kg	MDL
Bromobenzene	108-86-1	0.88	ug/Kg	MDL
Bromoform	75-25-2	2.5	ug/Kg	MDL
Bromomethane	74-83-9	0.45	ug/Kg	MDL
Carbon disulfide	75-15-0	2.5	ug/Kg	MDL
Carbon tetrachloride	56-23-5	0.484	ug/Kg	MDL
Chlorobenzene	108-90-7	0.66	ug/Kg	MDL
Chlorobromomethane	74-97-5	0.361	ug/Kg	MDL
Chlorodibromomethane	124-48-1	0.64	ug/Kg	MDL
Chlorodifluoromethane	75-45-6	0.37	ug/Kg	MDL
Chloroethane	75-00-3	1.13	ug/Kg	MDL
Chloroform	67-66-3	0.309	ug/Kg	MDL
Chloromethane	74-87-3	0.302	ug/Kg	MDL
cis-1,2-Dichloroethene	156-59-2	0.64	ug/Kg	MDL
Cyclohexane	110-82-7	0.7	ug/Kg	MDL
Cyclohexanone	108-94-1	18	ug/Kg	MDL
Dibromomethane	74-95-3	0.515	ug/Kg	MDL
Dichlorobromomethane	75-27-4	0.67	ug/Kg	MDL
Dichlorodifluoromethane	75-71-8	0.413	ug/Kg	MDL
Dichlorofluoromethane	75-43-4	0.463	ug/Kg	MDL
Dicyclopentadiene	77-73-6	2.3	ug/Kg	MDL
Epichlorohydrin	106-89-8	12	ug/Kg	MDL
Ethyl acetate	141-78-6	0.348	ug/Kg	MDL
Ethyl ether	60-29-7	2.1	ug/Kg	MDL
Ethyl methacrylate	97-63-2	1.71	ug/Kg	MDL
Ethylbenzene	100-41-4	0.345	ug/Kg	MDL
Ethylene Dibromide	106-93-4	0.642	ug/Kg	MDL
Halothane	151-67-7	5.0	ug/Kg	MDL
Hexachlorobutadiene	87-68-3	0.586	ug/Kg	MDL
Hexane	110-54-3	2.9	ug/Kg	MDL
Iodomethane	74-88-4	0.243	ug/Kg	MDL
Isobutyl alcohol	78-83-1	40.4	ug/Kg	MDL
Isopropyl alcohol	67-63-0	2	ug/Kg	MDL
Isopropyl ether	108-20-3	2.5	ug/Kg	MDL
Isopropylbenzene	98-82-8	0.754	ug/Kg	MDL

Methacrylonitrile	126-98-7	1.84	ug/Kg	MDL
Methyl acetate	79-20-9	3.02	ug/Kg	MDL
Methyl methacrylate	80-62-6	0.365	ug/Kg	MDL
Methyl tert-butyl ether	1634-04-4	0.491	ug/Kg	MDL
Methylcyclohexane	108-87-2	0.76	ug/Kg	MDL
Methylene Chloride	75-09-2	2.3	ug/Kg	MDL
m-Xylene & p-Xylene	179601-23-1	0.84	ug/Kg	MDL
Naphthalene	91-20-3	0.67	ug/Kg	MDL
n-Butanol	71-36-3	1.61	ug/Kg	MDL
n-Butylbenzene	104-51-8	0.435	ug/Kg	MDL
n-Heptane	142-82-5	2.7	ug/Kg	MDL
N-Propylbenzene	103-65-1	0.4	ug/Kg	MDL
o-Xylene	95-47-6	0.653	ug/Kg	MDL
Pentachloroethane	76-01-7	2	ug/Kg	MDL
Propionitrile	107-12-0	28	ug/Kg	MDL
sec-Butylbenzene	135-98-8	0.435	ug/Kg	MDL
Tetrachloroethene	127-18-4	0.671	ug/Kg	MDL
Tetrahydrofuran	109-99-9	2.9	ug/Kg	MDL
Toluene	108-88-3	0.378	ug/Kg	MDL
Total BTEX	STL00431	5.0	ug/Kg	MDL
trans-1,2-Dichloroethene	156-60-5	0.516	ug/Kg	MDL
trans-1,3-Dichloropropene	10061-02-6	2.2	ug/Kg	MDL
trans-1,4-Dichloro-2-butene	110-57-6	1.13	ug/Kg	MDL
Trichloroethene	79-01-6	1.1	ug/Kg	MDL
Trichlorofluoromethane	75-69-4	0.473	ug/Kg	MDL
Vinyl acetate	108-05-4	2.51	ug/Kg	MDL
Vinyl chloride	75-01-4	0.61	ug/Kg	MDL
Xylenes, Total	1330-20-7	0.84	ug/Kg	MDL
cis-1,3-Dichloropropene	10061-01-5	0.72	ug/Kg	MDL
Styrene	100-42-5	0.25	ug/Kg	MDL
3-Chloro-1-propene	107-05-1	2.4	ug/Kg	MDL
tert-Butylbenzene	98-06-6	0.52	ug/Kg	MDL
2-Nitropropane	79-46-9	1.07	ug/Kg	MDL
3-Chlorobenzotrifluoride	98-15-7	2.0	ug/Kg	MDL
3-Chlorotoluene	108-41-8	2.3	ug/Kg	MDL
3-Methylthiophene	616-44-4	2	ug/Kg	MDL
4-Chlorobenzotrifluoride	98-56-6	2.0	ug/Kg	MDL
Tert-amyl methyl ether	994-05-8	1.28	ug/Kg	MDL
Tert-butyl ethyl ether	637-92-3	2.2	ug/Kg	MDL
Butadiene	106-99-0	0.1	ug/Kg	MDL

1-Chlorohexane	544-10-5	0.1	ug/Kg	MDL
2-Methylnaphthalene	91-57-6	0.1	ug/Kg	MDL
Benzyl chloride	100-44-7	0.608	ug/Kg	MDL
Ethanol	64-17-5	0.1	ug/Kg	MDL
Ethyl acrylate	140-88-5	0.1	ug/Kg	MDL
Isooctane	540-84-1	0.1	ug/Kg	MDL
t-Amyl alcohol	75-85-4	0.1	ug/Kg	MDL
n-Butyl acetate	123-86-4	5.0	ug/Kg	MDL

8270D -Water

Analytes	CAS #	Limits	Units	Limit Type
1,1'-Biphenyl	92-52-4	5	ug/L	RL
1,2,4,5-Tetrachlorobenzene	95-94-3	5	ug/L	RL
1,2,4-Trichlorobenzene	120-82-1	10	ug/L	RL
1,2-Dichlorobenzene	95-50-1	10	ug/L	RL
1,2-Diphenylhydrazine	122-66-7	10	ug/L	RL
1,3,5-Trinitrobenzene	99-35-4	10	ug/L	RL
1,3-Dichlorobenzene	541-73-1	10	ug/L	RL
1,3-Dinitrobenzene	99-65-0	20	ug/L	RL
1,4-Dichlorobenzene	106-46-7	10	ug/L	RL
1,4-Dinitrobenzene	100-25-4	10	ug/L	RL
1,4-Dioxane	123-91-1	10	ug/L	RL
1,4-Naphthoquinone	130-15-4	10	ug/L	RL
1-Naphthylamine	134-32-7	10	ug/L	RL
2,2'-oxybis[1-chloropropane]	108-60-1	5	ug/L	RL
2,3,4,6-Tetrachlorophenol	58-90-2	5	ug/L	RL
2,4,5-Trichlorophenol	95-95-4	5	ug/L	RL
2,4,6-Trichlorophenol	88-06-2	5	ug/L	RL
2,4-Dichlorophenol	120-83-2	5	ug/L	RL
2,4-Dimethylphenol	105-67-9	5	ug/L	RL
2,4-Dinitrophenol	51-28-5	10	ug/L	RL
2,4-Dinitrotoluene	121-14-2	5	ug/L	RL
2,6-Dichlorophenol	87-65-0	10	ug/L	RL
2,6-Dichloropyridine	2402-78-0	10	ug/L	RL
2,6-Dinitrotoluene	606-20-2	5	ug/L	RL
2-Acetylaminofluorene	53-96-3	10	ug/L	RL
2-Chloronaphthalene	91-58-7	5	ug/L	RL
2-Chlorophenol	95-57-8	5	ug/L	RL
2-Chloropyridine	109-09-1	10	ug/L	RL
2-Methylnaphthalene	91-57-6	5	ug/L	RL
2-Methylphenol	95-48-7	5	ug/L	RL
2-Naphthylamine	91-59-8	10	ug/L	RL
2-Nitroaniline	88-74-4	10	ug/L	RL
2-Nitrophenol	88-75-5	5	ug/L	RL
2-Picoline	109-06-8	80	ug/L	RL
2-Toluidine	95-53-4	10	ug/L	RL
3 & 4 Methylphenol	15831-10-4	10	ug/L	RL
3,3'-Dichlorobenzidine	91-94-1	5	ug/L	RL
3,3'-Dimethylbenzidine	119-93-7	40	ug/L	RL

3-Chloropyridine	626-60-8	10	ug/L	RL
3-Methylcholanthrene	56-49-5	10	ug/L	RL
3-Methylphenol	108-39-4	10	ug/L	RL
3-Nitroaniline	99-09-2	10	ug/L	RL
4,6-Dinitro-2-methylphenol	534-52-1	10	ug/L	RL
4-Aminobiphenyl	92-67-1	10	ug/L	RL
4-Bromophenyl phenyl ether	101-55-3	5	ug/L	RL
4-Chloro-3-methylphenol	59-50-7	5	ug/L	RL
4-Chloroaniline	106-47-8	5	ug/L	RL
4-Chlorophenyl phenyl ether	7005-72-3	5	ug/L	RL
4-Chloropyridine	626-61-9	10	ug/L	RL
4-Methylphenol	106-44-5	10	ug/L	RL
4-Nitroaniline	100-01-6	10	ug/L	RL
4-Nitrophenol	100-02-7	10	ug/L	RL
4-Nitroquinoline-1-oxide	56-57-5	10	ug/L	RL
7,12-Dimethylbenz(a)anthracene	57-97-6	10	ug/L	RL
Acenaphthene	83-32-9	5	ug/L	RL
Acenaphthylene	208-96-8	5	ug/L	RL
Acetophenone	98-86-2	5	ug/L	RL
Alachlor	15972-60-8	10	ug/L	RL
alpha,alpha-Dimethyl phenethylamine	122-09-8	100	ug/L	RL
Alpha-Terpineol	98-55-5	10	ug/L	RL
Aniline	62-53-3	10	ug/L	RL
Anthracene	120-12-7	5	ug/L	RL
Aramite, Total	140-57-8	20	ug/L	RL
Atrazine	1912-24-9	5	ug/L	RL
Benzaldehyde	100-52-7	5	ug/L	RL
Benzidine	92-87-5	80	ug/L	RL
Benzo[a]anthracene	56-55-3	5	ug/L	RL
Benzo[a]pyrene	50-32-8	5	ug/L	RL
Benzo[b]fluoranthene	205-99-2	5	ug/L	RL
Benzo[g,h,i]perylene	191-24-2	5	ug/L	RL
Benzo[k]fluoranthene	207-08-9	5	ug/L	RL
Benzoic acid	65-85-0	150	ug/L	RL
Benzyl alcohol	100-51-6	20	ug/L	RL
Bis(2-chloroethoxy)methane	111-91-1	5	ug/L	RL
Bis(2-chloroethyl)ether	111-44-4	5	ug/L	RL
Bis(2-ethylhexyl) phthalate	117-81-7	5	ug/L	RL
Butyl benzyl phthalate	85-68-7	5	ug/L	RL
Caprolactam	105-60-2	5	ug/L	RL

Carbazole	86-74-8	5	ug/L	RL
Chrysene	218-01-9	5	ug/L	RL
Diallate	2303-16-4	10	ug/L	RL
Dibenz(a,h)anthracene	53-70-3	5	ug/L	RL
Dibenzofuran	132-64-9	10	ug/L	RL
Diethyl phthalate	84-66-2	5	ug/L	RL
Dimethoate	60-51-5	10	ug/L	RL
Dimethyl phthalate	131-11-3	5	ug/L	RL
Dimethylformamide	68-12-2	20	ug/L	RL
Di-n-butyl phthalate	84-74-2	5	ug/L	RL
Di-n-octyl phthalate	117-84-0	5	ug/L	RL
Dinoseb	88-85-7	10	ug/L	RL
Diphenylamine	122-39-4	10	ug/L	RL
Disulfoton	298-04-4	10	ug/L	RL
Chlorobenzilate	510-15-6	20	ug/L	RL
Ethyl methanesulfonate	62-50-0	10	ug/L	RL
Famphur	52-85-7	40	ug/L	RL
Fluoranthene	206-44-0	5	ug/L	RL
Fluorene	86-73-7	5	ug/L	RL
Hexachlorobenzene	118-74-1	5	ug/L	RL
Hexachlorobutadiene	87-68-3	5	ug/L	RL
Hexachlorocyclopentadiene	77-47-4	5	ug/L	RL
Hexachloroethane	67-72-1	5	ug/L	RL
Hexachlorophene	70-30-4	310	ug/L	RL
Hexachloropropene	1888-71-7	10	ug/L	RL
Indeno[1,2,3-cd]pyrene	193-39-5	5	ug/L	RL
Isodrin	465-73-6	10	ug/L	RL
Isophorone	78-59-1	5	ug/L	RL
Isosafrole	120-58-1	10	ug/L	RL
Kepone	143-50-0	50	ug/L	RL
Methapyrilene	91-80-5	50	ug/L	RL
Methyl methanesulfonate	66-27-3	10	ug/L	RL
Methyl parathion	298-00-0	10	ug/L	RL
Naphthalene	91-20-3	5	ug/L	RL
Nitrobenzene	98-95-3	5	ug/L	RL
N-Nitro-o-toluidine	99-55-8	10	ug/L	RL
N-Nitrosodiethylamine	55-18-5	10	ug/L	RL
N-Nitrosodimethylamine	62-75-9	10	ug/L	RL
N-Nitrosodi-n-butylamine	924-16-3	10	ug/L	RL
N-Nitrosodi-n-propylamine	621-64-7	5	ug/L	RL

N-Nitrosodiphenylamine	86-30-6	5	ug/L	RL
N-Nitrosomethylethylamine	10595-95-6	10	ug/L	RL
N-Nitrosomorpholine	59-89-2	10	ug/L	RL
N-Nitrosopiperidine	100-75-4	10	ug/L	RL
N-Nitrosopyrrolidine	930-55-2	10	ug/L	RL
o,o',o''-Triethylphosphorothioate	126-68-1	10	ug/L	RL
Ethyl Parathion	56-38-2	10	ug/L	RL
p-Dimethylamino azobenzene	60-11-7	10	ug/L	RL
Pentachlorobenzene	608-93-5	10	ug/L	RL
Pentachloroethane	76-01-7	10	ug/L	RL
Pentachloronitrobenzene	82-68-8	10	ug/L	RL
Pentachlorophenol	87-86-5	10	ug/L	RL
Phenacetin	62-44-2	10	ug/L	RL
Phenanthrene	85-01-8	5	ug/L	RL
Phenol	108-95-2	5	ug/L	RL
Phorate	298-02-2	10	ug/L	RL
Phthalic anhydride	85-44-9	500	ug/L	RL
p-Phenylene diamine	106-50-3	800	ug/L	RL
Pronamide	23950-58-5	10	ug/L	RL
Pyrene	129-00-0	5	ug/L	RL
Pyridine	110-86-1	25	ug/L	RL
Quinoline	91-22-5	10	ug/L	RL
Safrole, Total	94-59-7	10	ug/L	RL
Simazine	122-34-9	10	ug/L	RL
Sulfotepp	3689-24-5	10	ug/L	RL
Thionazin	297-97-2	10	ug/L	RL
Tributyl phosphate	126-73-8	10	ug/L	RL
1,3,5-Trichlorobenzene	108-70-3		ug/L	RL
Total Cresols	STL00160	20	ug/L	RL
Dibenzo[a,e]pyrene	192-65-4	10	ug/L	RL
Tricresyl phosphate	1330-78-5	10	ug/L	RL
2-Chloroaniline	95-51-2	10	ug/L	RL
4-Methylbenzenamine	106-49-0	10	ug/L	RL
N-Methylaniline	100-61-8	100	ug/L	RL
Azobenzene	103-33-3	10	ug/L	RL
1-Methylcyclopentanol	1462-03-9	100	ug/L	RL
Chlorobenzotrifluoride N.O.S	52181-51-8	100	ug/L	RL
Chlorotoluene N.O.S	25168-05-2	100	ug/L	RL
p-Fluoroaniline	371-40-4	10	ug/L	RL
Tetraethyl lead	78-00-2	10	ug/L	RL

Lidocaine	137-58-6	5.0	ug/L	RL
Dicyclohexylamine	101-83-7	10	ug/L	RL
Anthraquinone	84-65-1	10	ug/L	RL
1-Hydroxyanthraquinone	129-43-1	20	ug/L	RL
Benzeneacetonitrile	140-29-4	100	ug/L	RL
n,n'-Dimethylacetamide	127-19-5	100	ug/L	RL
1,4-Dihydroxyanthraquinone	81-64-1	40	ug/L	RL
1-Chloronaphthalene	90-13-1	5	ug/L	RL
1-Methylnaphthalene	90-12-0	5	ug/L	RL
2,4-Toluene diamine	95-80-7	1	ug/L	RL
4,4'-Methylene bis(2-chloroaniline)	101-14-4	5	ug/L	RL
6-Methylchrysene	1705-85-7	5	ug/L	RL
7H-Dibenzo[c,g]carbazole	194-59-2	1	ug/L	RL
Acrylamide	79-06-1	5	ug/L	RL
Benzo[j]fluoranthene	205-82-3	1	ug/L	RL
Dibenz(a,i)pyrene	189-55-9	1	ug/L	RL
Dibenz[a,h]acridine	226-36-8	1	ug/L	RL
Dibenz[a,j]acridine	224-42-0	1	ug/L	RL
Dibenzo[a,h]pyrene	189-64-0	1	ug/L	RL
EPH Adjustment 1	STL00935	5	ug/L	RL
n,n'-Dimethylaniline	121-69-7	5	ug/L	RL
Octachlorostyrene	29082-74-4	5	ug/L	RL
Phenylmercaptan	108-98-5	5	ug/L	RL
Triethyl amine	121-44-8	5	ug/L	RL
Hexadecane	544-76-3	5	ug/L	RL
Indene	95-13-6	5	ug/L	RL
9-Octadecenamide	301-02-0	100	ug/L	RL
2,3,5,6-Tetrachlorophenol	935-95-5	5	ug/L	RL
n-Decane	124-18-5	5	ug/L	RL
n-Octadecane	593-45-3	5	ug/L	RL

8270D - Water

Analytes	CAS #	Limits	Units	Limit Type
1,1'-Biphenyl	92-52-4	0.653	ug/L	MDL
1,2,4,5-Tetrachlorobenzene	95-94-3	0.58	ug/L	MDL
1,2,4-Trichlorobenzene	120-82-1	0.44	ug/L	MDL
1,2-Dichlorobenzene	95-50-1	0.4	ug/L	MDL
1,2-Diphenylhydrazine	122-66-7	0.35	ug/L	MDL
1,3,5-Trinitrobenzene	99-35-4	2.5	ug/L	MDL
1,3-Dichlorobenzene	541-73-1	0.48	ug/L	MDL
1,3-Dinitrobenzene	99-65-0	0.82	ug/L	MDL
1,4-Dichlorobenzene	106-46-7	0.46	ug/L	MDL
1,4-Dinitrobenzene	100-25-4	0.71	ug/L	MDL
1,4-Dioxane	123-91-1	1.1	ug/L	MDL
1,4-Naphthoquinone	130-15-4	0.24327	ug/L	MDL
1-Naphthylamine	134-32-7	1.3	ug/L	MDL
2,2'-oxybis[1-chloropropane]	108-60-1	0.52	ug/L	MDL
2,3,4,6-Tetrachlorophenol	58-90-2	0.32	ug/L	MDL
2,4,5-Trichlorophenol	95-95-4	0.48	ug/L	MDL
2,4,6-Trichlorophenol	88-06-2	0.61	ug/L	MDL
2,4-Dichlorophenol	120-83-2	0.51	ug/L	MDL
2,4-Dimethylphenol	105-67-9	0.5	ug/L	MDL
2,4-Dinitrophenol	51-28-5	2.22	ug/L	MDL
2,4-Dinitrotoluene	121-14-2	0.447	ug/L	MDL
2,6-Dichlorophenol	87-65-0	0.46	ug/L	MDL
2,6-Dichloropyridine	2402-78-0	1.6	ug/L	MDL
2,6-Dinitrotoluene	606-20-2	0.4	ug/L	MDL
2-Acetylaminofluorene	53-96-3	2.3	ug/L	MDL
2-Chloronaphthalene	91-58-7	0.46	ug/L	MDL
2-Chlorophenol	95-57-8	0.53	ug/L	MDL
2-Chloropyridine	109-09-1	2.2155	ug/L	MDL
2-Methylnaphthalene	91-57-6	0.6	ug/L	MDL
2-Methylphenol	95-48-7	0.4	ug/L	MDL
2-Naphthylamine	91-59-8	2.5	ug/L	MDL
2-Nitroaniline	88-74-4	0.42	ug/L	MDL
2-Nitrophenol	88-75-5	0.48	ug/L	MDL
2-Picoline	109-06-8	1.4	ug/L	MDL
2-Toluidine	95-53-4	1.48	ug/L	MDL
3 & 4 Methylphenol	15831-10-4	0.36	ug/L	MDL
3,3'-Dichlorobenzidine	91-94-1	0.4	ug/L	MDL
3,3'-Dimethylbenzidine	119-93-7	2.5	ug/L	MDL

3-Chloropyridine	626-60-8	1.39	ug/L	MDL
3-Methylcholanthrene	56-49-5	2.5	ug/L	MDL
3-Methylphenol	108-39-4	0.4	ug/L	MDL
3-Nitroaniline	99-09-2	0.48	ug/L	MDL
4,6-Dinitro-2-methylphenol	534-52-1	2.2	ug/L	MDL
4-Aminobiphenyl	92-67-1	0.81	ug/L	MDL
4-Bromophenyl phenyl ether	101-55-3	0.45	ug/L	MDL
4-Chloro-3-methylphenol	59-50-7	0.45	ug/L	MDL
4-Chloroaniline	106-47-8	0.59	ug/L	MDL
4-Chlorophenyl phenyl ether	7005-72-3	0.35	ug/L	MDL
4-Chloropyridine	626-61-9	1.15725	ug/L	MDL
4-Methylphenol	106-44-5	0.36	ug/L	MDL
4-Nitroaniline	100-01-6	0.25	ug/L	MDL
4-Nitrophenol	100-02-7	1.52	ug/L	MDL
4-Nitroquinoline-1-oxide	56-57-5	2.5	ug/L	MDL
7,12-Dimethylbenz(a)anthracene	57-97-6	0.62	ug/L	MDL
Acenaphthene	83-32-9	0.41	ug/L	MDL
Acenaphthylene	208-96-8	0.38	ug/L	MDL
Acetophenone	98-86-2	0.54	ug/L	MDL
Alachlor	15972-60-8	0.63457	ug/L	MDL
alpha,alpha-Dimethyl phenethylamine	122-09-8	0.49	ug/L	MDL
Alpha-Terpineol	98-55-5	1.44138	ug/L	MDL
Aniline	62-53-3	0.61	ug/L	MDL
Anthracene	120-12-7	0.28	ug/L	MDL
Aramite, Total	140-57-8	1.6	ug/L	MDL
Atrazine	1912-24-9	0.46	ug/L	MDL
Benzaldehyde	100-52-7	0.267	ug/L	MDL
Benzidine	92-87-5	2.2	ug/L	MDL
Benzo[a]anthracene	56-55-3	0.36	ug/L	MDL
Benzo[a]pyrene	50-32-8	0.47	ug/L	MDL
Benzo[b]fluoranthene	205-99-2	0.34	ug/L	MDL
Benzo[g,h,i]perylene	191-24-2	0.35	ug/L	MDL
Benzo[k]fluoranthene	207-08-9	0.73	ug/L	MDL
Benzoic acid	65-85-0	100	ug/L	MDL
Benzyl alcohol	100-51-6	0.44	ug/L	MDL
Bis(2-chloroethoxy)methane	111-91-1	0.35	ug/L	MDL
Bis(2-chloroethyl)ether	111-44-4	0.4	ug/L	MDL
Bis(2-ethylhexyl) phthalate	117-81-7	1.8	ug/L	MDL
Butyl benzyl phthalate	85-68-7	0.42	ug/L	MDL
Caprolactam	105-60-2	2.2	ug/L	MDL

Carbazole	86-74-8	0.3	ug/L	MDL
Chrysene	218-01-9	0.33	ug/L	MDL
Diallate	2303-16-4	2.5	ug/L	MDL
Dibenz(a,h)anthracene	53-70-3	0.42	ug/L	MDL
Dibenzofuran	132-64-9	0.51	ug/L	MDL
Diethyl phthalate	84-66-2	0.22	ug/L	MDL
Dimethoate	60-51-5	0.54	ug/L	MDL
Dimethyl phthalate	131-11-3	0.36	ug/L	MDL
Dimethylformamide	68-12-2	1.7	ug/L	MDL
Di-n-butyl phthalate	84-74-2	0.31	ug/L	MDL
Di-n-octyl phthalate	117-84-0	0.47	ug/L	MDL
Dinoseb	88-85-7	2.93619	ug/L	MDL
Diphenylamine	122-39-4	0.82	ug/L	MDL
Disulfoton	298-04-4	0.42	ug/L	MDL
Chlorobenzilate	510-15-6	0.67	ug/L	MDL
Ethyl methanesulfonate	62-50-0	0.39	ug/L	MDL
Famphur	52-85-7	1.9	ug/L	MDL
Fluoranthene	206-44-0	0.4	ug/L	MDL
Fluorene	86-73-7	0.36	ug/L	MDL
Hexachlorobenzene	118-74-1	0.51	ug/L	MDL
Hexachlorobutadiene	87-68-3	0.68	ug/L	MDL
Hexachlorocyclopentadiene	77-47-4	0.59	ug/L	MDL
Hexachloroethane	67-72-1	0.59	ug/L	MDL
Hexachlorophene	70-30-4	128.5657	ug/L	MDL
Hexachloropropene	1888-71-7	2.5	ug/L	MDL
Indeno[1,2,3-cd]pyrene	193-39-5	0.47	ug/L	MDL
Isodrin	465-73-6	0.18	ug/L	MDL
Isophorone	78-59-1	0.43	ug/L	MDL
Isosafrole	120-58-1	0.58	ug/L	MDL
Kepone	143-50-0	1.8	ug/L	MDL
Methapyrilene	91-80-5	1.8	ug/L	MDL
Methyl methanesulfonate	66-27-3	2.5	ug/L	MDL
Methyl parathion	298-00-0	0.37025	ug/L	MDL
Naphthalene	91-20-3	0.76	ug/L	MDL
Nitrobenzene	98-95-3	0.29	ug/L	MDL
N-Nitro-o-toluidine	99-55-8	0.65594	ug/L	MDL
N-Nitrosodiethylamine	55-18-5	0.36	ug/L	MDL
N-Nitrosodimethylamine	62-75-9	2.2	ug/L	MDL
N-Nitrosodi-n-butylamine	924-16-3	0.6	ug/L	MDL
N-Nitrosodi-n-propylamine	621-64-7	0.54	ug/L	MDL

N-Nitrosodiphenylamine	86-30-6	0.51	ug/L	MDL
N-Nitrosomethylethylamine	10595-95-6	2.5	ug/L	MDL
N-Nitrosomorpholine	59-89-2	2.5	ug/L	MDL
N-Nitrosopiperidine	100-75-4	2.5	ug/L	MDL
N-Nitrosopyrrolidine	930-55-2	2.5	ug/L	MDL
o,o',o''-Triethylphosphorothioate	126-68-1	0.43	ug/L	MDL
Ethyl Parathion	56-38-2	0.64	ug/L	MDL
p-Dimethylamino azobenzene	60-11-7	0.75	ug/L	MDL
Pentachlorobenzene	608-93-5	0.53	ug/L	MDL
Pentachloroethane	76-01-7	0.47	ug/L	MDL
Pentachloronitrobenzene	82-68-8	2.5	ug/L	MDL
Pentachlorophenol	87-86-5	2.2	ug/L	MDL
Phenacetin	62-44-2	0.61	ug/L	MDL
Phenanthrene	85-01-8	0.44	ug/L	MDL
Phenol	108-95-2	0.39	ug/L	MDL
Phorate	298-02-2	0.5	ug/L	MDL
Phthalic anhydride	85-44-9	55.8	ug/L	MDL
p-Phenylene diamine	106-50-3	200	ug/L	MDL
Pronamide	23950-58-5	2.5	ug/L	MDL
Pyrene	129-00-0	0.34	ug/L	MDL
Pyridine	110-86-1	0.41	ug/L	MDL
Quinoline	91-22-5	1.74154	ug/L	MDL
Safrole, Total	94-59-7	0.46	ug/L	MDL
Simazine	122-34-9	1.4	ug/L	MDL
Sulfotepp	3689-24-5	0.64	ug/L	MDL
Thionazin	297-97-2	0.38	ug/L	MDL
Tributyl phosphate	126-73-8	0.339	ug/L	MDL
Total Cresols	STL00160	0.4	ug/L	MDL
Dibenzo[a,e]pyrene	192-65-4	1.5	ug/L	MDL
Tricresyl phosphate	1330-78-5	1.8	ug/L	MDL
2-Chloroaniline	95-51-2	1.17	ug/L	MDL
4-Methylbenzenamine	106-49-0	1.08	ug/L	MDL
N-Methylaniline	100-61-8	10	ug/L	MDL
Azobenzene	103-33-3	0.35	ug/L	MDL
1-Methylcyclopentanol	1462-03-9	14.05	ug/L	MDL
Chlorobenzotrifluoride N.O.S	52181-51-8	10	ug/L	MDL
Chlorotoluene N.O.S	25168-05-2	10	ug/L	MDL
p-Fluoroaniline	371-40-4	0.84	ug/L	MDL
Tetraethyl lead	78-00-2	2	ug/L	MDL
Lidocaine	137-58-6	0.60	ug/L	MDL

Dicyclohexylamine	101-83-7	1.4	ug/L	MDL
Anthraquinone	84-65-1	5	ug/L	MDL
1-Hydroxyanthraquinone	129-43-1	8	ug/L	MDL
Benzeneacetonitrile	140-29-4	10.39	ug/L	MDL
n,n'-Dimethylacetamide	127-19-5	25	ug/L	MDL
1,4-Dihydroxyanthraquinone	81-64-1	11.8	ug/L	MDL
1-Chloronaphthalene	90-13-1	5	ug/L	MDL
1-Methylnaphthalene	90-12-0	5	ug/L	MDL
2,4-Toluene diamine	95-80-7	1	ug/L	MDL
4,4'-Methylene bis(2-chloroaniline)	101-14-4	5	ug/L	MDL
6-Methylchrysene	1705-85-7	5	ug/L	MDL
7H-Dibenzo[c,g]carbazole	194-59-2	1	ug/L	MDL
Acrylamide	79-06-1	5	ug/L	MDL
Benzo[j]fluoranthene	205-82-3	1	ug/L	MDL
Dibenz(a,i)pyrene	189-55-9	1	ug/L	MDL
Dibenz[a,h]acridine	226-36-8	1	ug/L	MDL
Dibenz[a,j]acridine	224-42-0	1	ug/L	MDL
Dibenzo[a,h]pyrene	189-64-0	1	ug/L	MDL
EPH Adjustment 1	STL00935	5	ug/L	MDL
n,n'-Dimethylaniline	121-69-7	5	ug/L	MDL
Octachlorostyrene	29082-74-4	5	ug/L	MDL
Phenylmercaptan	108-98-5	5	ug/L	MDL
Triethyl amine	121-44-8	5	ug/L	MDL
Hexadecane	544-76-3	5	ug/L	MDL
Indene	95-13-6	5	ug/L	MDL
9-Octadecenamide	301-02-0	31.2	ug/L	MDL
2,3,5,6-Tetrachlorophenol	935-95-5	5	ug/L	MDL
n-Decane	124-18-5	5	ug/L	MDL
n-Octadecane	593-45-3	5	ug/L	MDL

8270D - Solid

Analytes	CAS #	Limits	Units	Limit Type
1,1'-Biphenyl	92-52-4	170	ug/Kg	RL
1,2,4,5-Tetrachlorobenzene	95-94-3	170	ug/Kg	RL
1,2,4-Trichlorobenzene	120-82-1	330	ug/Kg	RL
1,2-Dichlorobenzene	95-50-1	330	ug/Kg	RL
1,2-Diphenylhydrazine	122-66-7	330	ug/Kg	RL
1,3,5-Trinitrobenzene	99-35-4	330	ug/Kg	RL
1,3-Dichlorobenzene	541-73-1	330	ug/Kg	RL
1,3-Dinitrobenzene	99-65-0	330	ug/Kg	RL
1,4-Dichlorobenzene	106-46-7	330	ug/Kg	RL
1,4-Dinitrobenzene	100-25-4	330	ug/Kg	RL
1,4-Dioxane	123-91-1	200	ug/Kg	RL
1,4-Naphthoquinone	130-15-4	330	ug/Kg	RL
1-Naphthylamine	134-32-7	330	ug/Kg	RL
2,2'-oxybis[1-chloropropane]	108-60-1	170	ug/Kg	RL
2,3,4,6-Tetrachlorophenol	58-90-2	170	ug/Kg	RL
2,4,5-Trichlorophenol	95-95-4	170	ug/Kg	RL
2,4,6-Trichlorophenol	88-06-2	170	ug/Kg	RL
2,4-Dichlorophenol	120-83-2	170	ug/Kg	RL
2,4-Dimethylphenol	105-67-9	170	ug/Kg	RL
2,4-Dinitrophenol	51-28-5	330	ug/Kg	RL
2,4-Dinitrotoluene	121-14-2	170	ug/Kg	RL
2,6-Dichlorophenol	87-65-0	330	ug/Kg	RL
2,6-Dinitrotoluene	606-20-2	170	ug/Kg	RL
2-Acetylaminofluorene	53-96-3	330	ug/Kg	RL
2-Chloronaphthalene	91-58-7	170	ug/Kg	RL
2-Chlorophenol	95-57-8	170	ug/Kg	RL
2-Methylnaphthalene	91-57-6	170	ug/Kg	RL
2-Methylphenol	95-48-7	170	ug/Kg	RL
2-Naphthylamine	91-59-8	330	ug/Kg	RL
2-Nitroaniline	88-74-4	330	ug/Kg	RL
2-Nitrophenol	88-75-5	170	ug/Kg	RL
2-Picoline	109-06-8	330	ug/Kg	RL
2-Toluidine	95-53-4	330	ug/Kg	RL
3 & 4 Methylphenol	15831-10-4	330	ug/Kg	RL
3,3'-Dichlorobenzidine	91-94-1	170	ug/Kg	RL
3,3'-Dimethylbenzidine	119-93-7	330	ug/Kg	RL
3-Methylcholanthrene	56-49-5	330	ug/Kg	RL
3-Methylphenol	108-39-4	330	ug/Kg	RL

3-Nitroaniline	99-09-2	330	ug/Kg	RL
4,6-Dinitro-2-methylphenol	534-52-1	330	ug/Kg	RL
4-Aminobiphenyl	92-67-1	330	ug/Kg	RL
4-Bromophenyl phenyl ether	101-55-3	170	ug/Kg	RL
4-Chloro-3-methylphenol	59-50-7	170	ug/Kg	RL
4-Chloroaniline	106-47-8	170	ug/Kg	RL
4-Chlorophenyl phenyl ether	7005-72-3	170	ug/Kg	RL
4-Methylphenol	106-44-5	330	ug/Kg	RL
4-Nitroaniline	100-01-6	330	ug/Kg	RL
4-Nitrophenol	100-02-7	330	ug/Kg	RL
4-Nitroquinoline-1-oxide	56-57-5	660	ug/Kg	RL
7,12-Dimethylbenz(a)anthracene	57-97-6	330	ug/Kg	RL
Acenaphthene	83-32-9	170	ug/Kg	RL
Acenaphthylene	208-96-8	170	ug/Kg	RL
Acetophenone	98-86-2	170	ug/Kg	RL
Alachlor	15972-60-8	330	ug/Kg	RL
alpha,alpha-Dimethyl phenethylamine	122-09-8	330	ug/Kg	RL
Alpha-Terpineol	98-55-5	330	ug/Kg	RL
Aniline	62-53-3	330	ug/Kg	RL
Anthracene	120-12-7	170	ug/Kg	RL
Aramite, Total	140-57-8	330	ug/Kg	RL
Atrazine	1912-24-9	170	ug/Kg	RL
Benzaldehyde	100-52-7	170	ug/Kg	RL
Benzidine	92-87-5	5000	ug/Kg	RL
Benzo[a]anthracene	56-55-3	170	ug/Kg	RL
Benzo[a]pyrene	50-32-8	170	ug/Kg	RL
Benzo[b]fluoranthene	205-99-2	170	ug/Kg	RL
Benzo[g,h,i]perylene	191-24-2	170	ug/Kg	RL
Benzo[k]fluoranthene	207-08-9	170	ug/Kg	RL
Benzoic acid	65-85-0	4800	ug/Kg	RL
Benzyl alcohol	100-51-6	330	ug/Kg	RL
Bis(2-chloroethoxy)methane	111-91-1	170	ug/Kg	RL
Bis(2-chloroethyl)ether	111-44-4	170	ug/Kg	RL
Bis(2-ethylhexyl) phthalate	117-81-7	170	ug/Kg	RL
Butyl benzyl phthalate	85-68-7	170	ug/Kg	RL
Caprolactam	105-60-2	170	ug/Kg	RL
Carbazole	86-74-8	170	ug/Kg	RL
Chrysene	218-01-9	170	ug/Kg	RL
Diallate	2303-16-4	330	ug/Kg	RL
Dibenz(a,h)anthracene	53-70-3	170	ug/Kg	RL

Dibenzofuran	132-64-9	170	ug/Kg	RL
Diethyl phthalate	84-66-2	170	ug/Kg	RL
Dimethoate	60-51-5	330	ug/Kg	RL
Dimethyl phthalate	131-11-3	170	ug/Kg	RL
Dimethylformamide	68-12-2	660	ug/Kg	RL
Di-n-butyl phthalate	84-74-2	170	ug/Kg	RL
Di-n-octyl phthalate	117-84-0	170	ug/Kg	RL
Dinoseb	88-85-7	330	ug/Kg	RL
Diphenylamine	122-39-4	330	ug/Kg	RL
Disulfoton	298-04-4	330	ug/Kg	RL
Chlorobenzilate	510-15-6	330	ug/Kg	RL
Ethyl methanesulfonate	62-50-0	330	ug/Kg	RL
Famphur	52-85-7	660	ug/Kg	RL
Fluoranthene	206-44-0	170	ug/Kg	RL
Fluorene	86-73-7	170	ug/Kg	RL
Hexachlorobenzene	118-74-1	170	ug/Kg	RL
Hexachlorobutadiene	87-68-3	170	ug/Kg	RL
Hexachlorocyclopentadiene	77-47-4	170	ug/Kg	RL
Hexachloroethane	67-72-1	170	ug/Kg	RL
Hexachlorophene	70-30-4	3300	ug/Kg	RL
Hexachloropropene	1888-71-7	330	ug/Kg	RL
Indeno[1,2,3-cd]pyrene	193-39-5	170	ug/Kg	RL
Isodrin	465-73-6	330	ug/Kg	RL
Isophorone	78-59-1	170	ug/Kg	RL
Isosafrole	120-58-1	330	ug/Kg	RL
Kepone	143-50-0	660	ug/Kg	RL
Methapyrilene	91-80-5	1500	ug/Kg	RL
Methyl methanesulfonate	66-27-3	330	ug/Kg	RL
Methyl parathion	298-00-0	330	ug/Kg	RL
Naphthalene	91-20-3	170	ug/Kg	RL
Nitrobenzene	98-95-3	170	ug/Kg	RL
N-Nitro-o-toluidine	99-55-8	330	ug/Kg	RL
N-Nitrosodiethylamine	55-18-5	330	ug/Kg	RL
N-Nitrosodimethylamine	62-75-9	330	ug/Kg	RL
N-Nitrosodi-n-butylamine	924-16-3	330	ug/Kg	RL
N-Nitrosodi-n-propylamine	621-64-7	170	ug/Kg	RL
N-Nitrosodiphenylamine	86-30-6	170	ug/Kg	RL
N-Nitrosomethylethylamine	10595-95-6	330	ug/Kg	RL
N-Nitrosomorpholine	59-89-2	330	ug/Kg	RL
N-Nitrosopiperidine	100-75-4	330	ug/Kg	RL

N-Nitrosopyrrolidine	930-55-2	330	ug/Kg	RL
o,o',o''-Triethylphosphorothioate	126-68-1	330	ug/Kg	RL
Ethyl Parathion	56-38-2	330	ug/Kg	RL
p-Dimethylamino azobenzene	60-11-7	330	ug/Kg	RL
Pentachlorobenzene	608-93-5	330	ug/Kg	RL
Pentachloroethane	76-01-7	330	ug/Kg	RL
Pentachloronitrobenzene	82-68-8	330	ug/Kg	RL
Pentachlorophenol	87-86-5	330	ug/Kg	RL
Phenacetin	62-44-2	330	ug/Kg	RL
Phenanthrene	85-01-8	170	ug/Kg	RL
Phenol	108-95-2	170	ug/Kg	RL
Phorate	298-02-2	330	ug/Kg	RL
Phthalic anhydride	85-44-9	10000	ug/Kg	RL
p-Phenylene diamine	106-50-3	800	ug/Kg	RL
Pronamide	23950-58-5	330	ug/Kg	RL
Pyrene	129-00-0	170	ug/Kg	RL
Pyridine	110-86-1	330	ug/Kg	RL
Quinoline	91-22-5	330	ug/Kg	RL
Safrole, Total	94-59-7	330	ug/Kg	RL
Simazine	122-34-9	330	ug/Kg	RL
Sulfotepp	3689-24-5	330	ug/Kg	RL
Thionazin	297-97-2	330	ug/Kg	RL
Tributyl phosphate	126-73-8	330	ug/Kg	RL
Total Cresols	STL00160	330	ug/Kg	RL
Dibenzo[a,e]pyrene	192-65-4	330	ug/Kg	RL
2-Chloroaniline	95-51-2	330	ug/Kg	RL
4-Methylbenzenamine	106-49-0	330	ug/Kg	RL
Azobenzene	103-33-3	330	ug/Kg	RL
Tetraethyl lead	78-00-2	1000	ug/Kg	RL
Dicyclohexylamine	101-83-7	170	ug/Kg	RL
Anthraquinone	84-65-1	330	ug/Kg	RL
1-Hydroxyanthraquinone	129-43-1	660	ug/Kg	RL
1,4-Dihydroxyanthraquinone	81-64-1	660	ug/Kg	RL
1-Chloronaphthalene	90-13-1	170	ug/Kg	RL
1-Methylnaphthalene	90-12-0	170	ug/Kg	RL
4,4'-Methylene bis(2-chloroaniline)	101-14-4	170	ug/Kg	RL
6-Methylchrysene	1705-85-7	170	ug/Kg	RL
Acrylamide	79-06-1	170	ug/Kg	RL
Dibenz[a,h]acridine	226-36-8	170	ug/Kg	RL
EPH Adjustment 1	STL00935	170	ug/Kg	RL

n,n'-Dimethylaniline	121-69-7	170	ug/Kg	RL
Octachlorostyrene	29082-74-4	330	ug/Kg	RL
Phenylmercaptan	108-98-5	5	ug/Kg	RL
Triethyl amine	121-44-8	330	ug/Kg	RL
Hexadecane	544-76-3	170	ug/Kg	RL
Indene	95-13-6	5	ug/Kg	RL
9-Octadecenamide	301-02-0	3300	ug/Kg	RL
2,3,5,6-Tetrachlorophenol	935-95-5	170	ug/Kg	RL
n-Decane	124-18-5	170	ug/Kg	RL
n-Octadecane	593-45-3	170	ug/Kg	RL

8270D - Solid

Analytes	CAS #	Limits	Units	Limit Type
1,1'-Biphenyl	92-52-4	10.51428	ug/Kg	MDL
1,2,4,5-Tetrachlorobenzene	95-94-3	15.4161	ug/Kg	MDL
1,2,4-Trichlorobenzene	120-82-1	4.83173	ug/Kg	MDL
1,2-Dichlorobenzene	95-50-1	3.2332	ug/Kg	MDL
1,2-Diphenylhydrazine	122-66-7	39.94439	ug/Kg	MDL
1,3,5-Trinitrobenzene	99-35-4	13.7	ug/Kg	MDL
1,3-Dichlorobenzene	541-73-1	3.01917	ug/Kg	MDL
1,3-Dinitrobenzene	99-65-0	11	ug/Kg	MDL
1,4-Dichlorobenzene	106-46-7	2.22304	ug/Kg	MDL
1,4-Dinitrobenzene	100-25-4	330	ug/Kg	MDL
1,4-Dioxane	123-91-1	37.57771	ug/Kg	MDL
1,4-Naphthoquinone	130-15-4	8.11	ug/Kg	MDL
1-Naphthylamine	134-32-7	200	ug/Kg	MDL
2,2'-oxybis[1-chloropropane]	108-60-1	17.64	ug/Kg	MDL
2,3,4,6-Tetrachlorophenol	58-90-2	170	ug/Kg	MDL
2,4,5-Trichlorophenol	95-95-4	36.8149	ug/Kg	MDL
2,4,6-Trichlorophenol	88-06-2	11.13659	ug/Kg	MDL
2,4-Dichlorophenol	120-83-2	8.84975	ug/Kg	MDL
2,4-Dimethylphenol	105-67-9	45.59644	ug/Kg	MDL
2,4-Dinitrophenol	51-28-5	59.06137	ug/Kg	MDL
2,4-Dinitrotoluene	121-14-2	26.13436	ug/Kg	MDL
2,6-Dichlorophenol	87-65-0	330	ug/Kg	MDL
2,6-Dinitrotoluene	606-20-2	41.30373	ug/Kg	MDL
2-Acetylaminofluorene	53-96-3	19.5	ug/Kg	MDL
2-Chloronaphthalene	91-58-7	11.32611	ug/Kg	MDL
2-Chlorophenol	95-57-8	8.59328	ug/Kg	MDL
2-Methylnaphthalene	91-57-6	2.04484	ug/Kg	MDL
2-Methylphenol	95-48-7	5.19098	ug/Kg	MDL
2-Naphthylamine	91-59-8	22.1	ug/Kg	MDL
2-Nitroaniline	88-74-4	54.14509	ug/Kg	MDL
2-Nitrophenol	88-75-5	7.71638	ug/Kg	MDL
2-Picoline	109-06-8	330	ug/Kg	MDL
2-Toluidine	95-53-4	68.9	ug/Kg	MDL
3 & 4 Methylphenol	15831-10-4	9.4	ug/Kg	MDL
3,3'-Dichlorobenzidine	91-94-1	148	ug/Kg	MDL
3,3'-Dimethylbenzidine	119-93-7	40.7	ug/Kg	MDL
3-Methylcholanthrene	56-49-5	29.9	ug/Kg	MDL
3-Methylphenol	108-39-4	9.4	ug/Kg	MDL

3-Nitroaniline	99-09-2	38.81322	ug/Kg	MDL
4,6-Dinitro-2-methylphenol	534-52-1	58.29008	ug/Kg	MDL
4-Aminobiphenyl	92-67-1	16	ug/Kg	MDL
4-Bromophenyl phenyl ether	101-55-3	53.70538	ug/Kg	MDL
4-Chloro-3-methylphenol	59-50-7	6.94446	ug/Kg	MDL
4-Chloroaniline	106-47-8	49.54531	ug/Kg	MDL
4-Chlorophenyl phenyl ether	7005-72-3	3.59842	ug/Kg	MDL
4-Methylphenol	106-44-5	9.4	ug/Kg	MDL
4-Nitroaniline	100-01-6	18.8558	ug/Kg	MDL
4-Nitrophenol	100-02-7	40.91715	ug/Kg	MDL
4-Nitroquinoline-1-oxide	56-57-5	660	ug/Kg	MDL
7,12-Dimethylbenz(a)anthracene	57-97-6	17.4	ug/Kg	MDL
Acenaphthene	83-32-9	1.98418	ug/Kg	MDL
Acenaphthylene	208-96-8	1.38072	ug/Kg	MDL
Acetophenone	98-86-2	8.66305	ug/Kg	MDL
Alachlor	15972-60-8	330	ug/Kg	MDL
alpha,alpha-Dimethyl phenethylamine	122-09-8	330	ug/Kg	MDL
Alpha-Terpineol	98-55-5	330	ug/Kg	MDL
Aniline	62-53-3	92.43626	ug/Kg	MDL
Anthracene	120-12-7	4.32194	ug/Kg	MDL
Aramite, Total	140-57-8	330	ug/Kg	MDL
Atrazine	1912-24-9	7.51146	ug/Kg	MDL
Benzaldehyde	100-52-7	18.51196	ug/Kg	MDL
Benzidine	92-87-5	2119.585	ug/Kg	MDL
Benzo[a]anthracene	56-55-3	2.91388	ug/Kg	MDL
Benzo[a]pyrene	50-32-8	4.06861	ug/Kg	MDL
Benzo[b]fluoranthene	205-99-2	3.27501	ug/Kg	MDL
Benzo[g,h,i]perylene	191-24-2	2.02566	ug/Kg	MDL
Benzo[k]fluoranthene	207-08-9	1.85814	ug/Kg	MDL
Benzoic acid	65-85-0	242.611	ug/Kg	MDL
Benzyl alcohol	100-51-6	8.06808	ug/Kg	MDL
Bis(2-chloroethoxy)methane	111-91-1	9.18259	ug/Kg	MDL
Bis(2-chloroethyl)ether	111-44-4	14.57441	ug/Kg	MDL
Bis(2-ethylhexyl) phthalate	117-81-7	54.38616	ug/Kg	MDL
Butyl benzyl phthalate	85-68-7	45.32835	ug/Kg	MDL
Caprolactam	105-60-2	73.02415	ug/Kg	MDL
Carbazole	86-74-8	1.95306	ug/Kg	MDL
Chrysene	218-01-9	1.68779	ug/Kg	MDL
Diallate	2303-16-4	8.9	ug/Kg	MDL
Dibenz(a,h)anthracene	53-70-3	1.98543	ug/Kg	MDL

Dibenzofuran	132-64-9	1.75662	ug/Kg	MDL
Diethyl phthalate	84-66-2	5.09952	ug/Kg	MDL
Dimethoate	60-51-5	11.4	ug/Kg	MDL
Dimethyl phthalate	131-11-3	4.40366	ug/Kg	MDL
Dimethylformamide	68-12-2	75	ug/Kg	MDL
Di-n-butyl phthalate	84-74-2	58.34917	ug/Kg	MDL
Di-n-octyl phthalate	117-84-0	3.94792	ug/Kg	MDL
Dinoseb	88-85-7	330	ug/Kg	MDL
Diphenylamine	122-39-4	330	ug/Kg	MDL
Disulfoton	298-04-4	12.4	ug/Kg	MDL
Chlorobenzilate	510-15-6	16.88	ug/Kg	MDL
Ethyl methanesulfonate	62-50-0	46.1	ug/Kg	MDL
Famphur	52-85-7	30.9	ug/Kg	MDL
Fluoranthene	206-44-0	2.44588	ug/Kg	MDL
Fluorene	86-73-7	3.88915	ug/Kg	MDL
Hexachlorobenzene	118-74-1	8.38584	ug/Kg	MDL
Hexachlorobutadiene	87-68-3	8.63759	ug/Kg	MDL
Hexachlorocyclopentadiene	77-47-4	51.03698	ug/Kg	MDL
Hexachloroethane	67-72-1	13.06357	ug/Kg	MDL
Hexachlorophene	70-30-4	3300	ug/Kg	MDL
Hexachloropropene	1888-71-7	19.4	ug/Kg	MDL
Indeno[1,2,3-cd]pyrene	193-39-5	4.66924	ug/Kg	MDL
Isodrin	465-73-6	31	ug/Kg	MDL
Isophorone	78-59-1	8.43613	ug/Kg	MDL
Isosafrole	120-58-1	27	ug/Kg	MDL
Kepone	143-50-0	49.2	ug/Kg	MDL
Methapyrilene	91-80-5	1000	ug/Kg	MDL
Methyl methanesulfonate	66-27-3	104	ug/Kg	MDL
Methyl parathion	298-00-0	12.4	ug/Kg	MDL
Naphthalene	91-20-3	2.80953	ug/Kg	MDL
Nitrobenzene	98-95-3	7.48254	ug/Kg	MDL
N-Nitro-o-toluidine	99-55-8	21.9	ug/Kg	MDL
N-Nitrosodiethylamine	55-18-5	31.8	ug/Kg	MDL
N-Nitrosodimethylamine	62-75-9	12	ug/Kg	MDL
N-Nitrosodi-n-butylamine	924-16-3	25.2	ug/Kg	MDL
N-Nitrosodi-n-propylamine	621-64-7	13.36969	ug/Kg	MDL
N-Nitrosodiphenylamine	86-30-6	9.22816	ug/Kg	MDL
N-Nitrosomethylethylamine	10595-95-6	31.9	ug/Kg	MDL
N-Nitrosomorpholine	59-89-2	330	ug/Kg	MDL
N-Nitrosopiperidine	100-75-4	45.7	ug/Kg	MDL

N-Nitrosopyrrolidine	930-55-2	24.8	ug/Kg	MDL
o,o',o''-Triethylphosphorothioate	126-68-1	11.2	ug/Kg	MDL
Ethyl Parathion	56-38-2	9.2	ug/Kg	MDL
p-Dimethylamino azobenzene	60-11-7	33.5	ug/Kg	MDL
Pentachlorobenzene	608-93-5	38.9	ug/Kg	MDL
Pentachloroethane	76-01-7	83.3	ug/Kg	MDL
Pentachloronitrobenzene	82-68-8	34.4	ug/Kg	MDL
Pentachlorophenol	87-86-5	57.89626	ug/Kg	MDL
Phenacetin	62-44-2	27.6	ug/Kg	MDL
Phenanthrene	85-01-8	3.54216	ug/Kg	MDL
Phenol	108-95-2	17.76801	ug/Kg	MDL
Phorate	298-02-2	66.5	ug/Kg	MDL
Phthalic anhydride	85-44-9	772	ug/Kg	MDL
p-Phenylene diamine	106-50-3	200	ug/Kg	MDL
Pronamide	23950-58-5	7.71	ug/Kg	MDL
Pyrene	129-00-0	1.09282	ug/Kg	MDL
Pyridine	110-86-1	94.98963	ug/Kg	MDL
Quinoline	91-22-5	24	ug/Kg	MDL
Safrole, Total	94-59-7	18.3	ug/Kg	MDL
Simazine	122-34-9	330	ug/Kg	MDL
Sulfotepp	3689-24-5	330	ug/Kg	MDL
Thionazin	297-97-2	10.1	ug/Kg	MDL
Tributyl phosphate	126-73-8	330	ug/Kg	MDL
Dibenzo[a,e]pyrene	192-65-4	330	ug/Kg	MDL
2-Chloroaniline	95-51-2	29.5	ug/Kg	MDL
4-Methylbenzenamine	106-49-0	165	ug/Kg	MDL
Azobenzene	103-33-3	330	ug/Kg	MDL
Tetraethyl lead	78-00-2	161.7227	ug/Kg	MDL
Dicyclohexylamine	101-83-7	170	ug/Kg	MDL
Anthraquinone	84-65-1	150	ug/Kg	MDL
1-Hydroxyanthraquinone	129-43-1	250	ug/Kg	MDL
1,4-Dihydroxyanthraquinone	81-64-1	112	ug/Kg	MDL
1-Chloronaphthalene	90-13-1	170	ug/Kg	MDL
1-Methylnaphthalene	90-12-0	170	ug/Kg	MDL
4,4'-Methylene bis(2-chloroaniline)	101-14-4	170	ug/Kg	MDL
6-Methylchrysene	1705-85-7	5	ug/Kg	MDL
Acrylamide	79-06-1	170	ug/Kg	MDL
Dibenz[a,h]acridine	226-36-8	170	ug/Kg	MDL
EPH Adjustment 1	STL00935	170	ug/Kg	MDL
n,n'-Dimethylaniline	121-69-7	170	ug/Kg	MDL

Octachlorostyrene	29082-74-4	330	ug/Kg	MDL
Phenylmercaptan	108-98-5	5	ug/Kg	MDL
Triethyl amine	121-44-8	170	ug/Kg	MDL
Hexadecane	544-76-3	170	ug/Kg	MDL
Indene	95-13-6	5	ug/Kg	MDL
9-Octadecenamide	301-02-0	817	ug/Kg	MDL
2,3,5,6-Tetrachlorophenol	935-95-5	170	ug/Kg	MDL
n-Decane	124-18-5	170	ug/Kg	MDL
n-Octadecane	593-45-3	170	ug/Kg	MDL

Appendix D –

Health & Safety Plan / Community Air Monitoring Plan

City of Watertown
Former Ogilvie Foods BCP Site #C623028
148 North Pleasant Street
Watertown, New York 13601

Health and Safety Plan

Prepared For:

City of Watertown
245 Washington Street
Watertown, New York 13601

Prepared By:

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

175 Sully's Trail, Suite 202
Pittsford, New York 14534

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Lu Engineers
Site Safety Plan

A. GENERAL INFORMATION

Project Title: Former Ogilvie Foods Site Lu Project No. 34211
Jefferson County, New York
Remedial Work Plan

Project Manager: Laura M. Neubauer, CHMM Project Director: Gregory L. Andrus, CHMM

Location: Former Ogilvie Foods Site, 148 N. Pleasant St.
City of Watertown, Jefferson County, New York

Prepared by: Laura M. Neubauer, CHMM Date Prepared: February 27, 2014
Date Revised:

Approved by: Gregory L. Andrus, CHMM Date Approved:

Site Safety Officer Review: Date Reviewed:

Scope/Objective of Work:

- Task 1: Additional Test Pits
- Task 2: Additional Surface and Subsurface Soil Sampling
- Task 3: Building Slab and Foundation Demolition
- Task 4: Underground storage tank (UST) removal
- Task 5: Contaminated Soil Removal
- Task 6: Monitoring Well Installation & Sampling

Proposed Date of Field Activities: Summer 2014

Background Information: [X] Complete [ ] Preliminary

Overall Chemical Hazard: [ ] Serious [ ] Moderate
[X] Low [ ] Unknown

Overall Physical Hazard: [ ] Serious [ ] Moderate
[X] Low [ ] Unknown

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

[ ] Liquid [X] Solid [ ] Sludge [X] Gas/Vapor

Characteristic(s):

[X] Flammable/Ignitable [X] Volatile [ ] Corrosive [ ] Acutely Toxic
[ ] Explosive (moderate) [ ] Reactive [X] Carcinogen [ ] Radioactive
Other: _____

Physical Hazards:

[X] Overhead [ ] Confined Space [X] Below Grade [X] Trip/Fall
[X] Puncture [ ] Burn [X] Cut [ ] Splash
[X] Noise [X] Other: Heat Stress/Cold Stress

Site History/Description and Unusual Features:

The Former Ogilvie Foods Site is a 4.2-acre property located at 148 North Pleasant Street, between N. Pleasant Street and California Avenue, in the City of Watertown, Jefferson County, New York. The Site was used for dairy operations for over 60 years. The eastern portion of the property was occupied by the National Biscuit Company from the early 1900s until approximately 1960. Ogilvie Foods, Inc. (a subsidiary of Borden, Inc.) closed whey production operations at the site in the late 1990s. The buildings were demolished in 2003 after being condemned by the City of Watertown. At that time, several chemical and milk product bulk storage tanks were reportedly removed. Building slabs, foundations, and basements were left in place. After demolition, the site was covered with large crushed stone to limit trespassing, help prevent vegetation growth, and allow water to drain more quickly. A rail line also ran across the northern portion of the property beginning in the late 1800s. The former rail bed is now an overgrown drainage ditch.

In the winter of 2011, City of Watertown Department of Public Works crews discovered a tank inside an underground concrete vault while exploring the Site for former building foundations. Discovery of the tank was reported to New York State Department of Environmental Conservation (NYSDEC) and assigned Spill #1010788. This tank remains at the Site and according to historical records it is likely that at least one more tank is present on the property. Both of these tanks reportedly held fuel oil with a capacity of 10,000 gallons and were closed in-place in 1989.

A focused Pre-Remedial Design Investigation was conducted in October 2012 to better characterize impacted soil/fill and assist with development of remedial design plans.

Locations of Chemicals/Wastes: Soil

Estimated Volume of Chemicals/Wastes: Estimated 300 tons petroleum-contaminated soil and 50 tons polynuclear aromatic hydrocarbon (PAH)-contaminated surface soil.

Site Currently in Operation: [ ] Yes [X] No [ ] Not Applicable

C. HAZARD EVALUATION

PHYSICAL HAZARD EVALUATION:		
TASK	**HAZARD(S)**	**HAZARD PREVENTION**
Tasks 1 through 6	Heat stress exposure	Implement heat stress management techniques such as shifting work hours, increasing fluid intake, and monitoring employees**. See Appendix D-1.**
	Weather Extremes	Establish site-specific contingencies for severe weather situations. Discontinue work in severe weather.
	Slip/ tripping/ fall	Observe terrain and be aware of the dangers of machete, while walking to minimize slips and falls. Steel-toed boots provide additional support and stability. Use adequate lighting. Inspect Site and mark existing hazards.
	Noise	Engineering controls will be used to the extent possible. Hearing protection will be made available to all workers on site. Earplugs to be worn during drilling.
	General physical hazards associated with drilling and excavating operations.	Steel-toed boots required at all times while working on Site. Keep distance from equipment. Wear high-visibility clothing and/or vests.
	Heavy Equipment Operation	Define equipment routes, traffic patterns, and site-specific safety measures. Ensure that operators are properly trained and equipment has been properly inspected and maintained. Verify back-up alarms. Ensure that ground spotters are assigned and informed of proper hand signals and communication protocols. Identify special PPE and monitoring needs. Ensure that field personnel do not work in close proximity to operating equipment. Ensure that lifting capacities, load limits, etc., are not exceeded. Overhead obstructions and falling objects.
	Overhead Hazards/ Falling Objects	Wear hard hat. Identify overhead hazards prior to each task. Overhead hazards will be identified prior to each task (i.e., inspecting drill rig mast, building structure). Hard hats will be required for each task that poses an overhead hazard.
	Contact with or inhalation of contaminants, potentially in high concentration in soil.	To minimize exposure to chemical contaminants, a thorough review of suspected contaminants should be completed and implementation of an adequate protection program.
	Native wildlife presents the possibility of insect bites and associated diseases.	Avoid wildlife when possible. Use insect repellant.
	Power Tools	Ensure compliance with 29 CFR 1910 Subpart P.
	Utility Lines	Identify/locate existing utilities prior to work. Ensure overhead utility lines are at least 25 feet away from project activities. Contact utilities to confirm locations, as necessary.

Physical Hazard Evaluation: Basic health and safety protection (steel-toed boots, work clothes) will be worn by all personnel at all times. Any allergies should be reported to the Site Safety Officer prior to the start of the project.

CHEMICAL HAZARD EVALUATION

Task Number	Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	FID/PID	
		PEL	REL	TLV					Relative Response	Ioniz. Poten. (eV)
1 through 6	Benzene*	1 ppm 5 ppm STEL	0.1 ppm 1 ppm STEL	500 ppm	Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, nose, respiratory system; headache, nausea, dizziness, drowsiness, unconsciousness, harmful, fatal if aspirated into lungs	Colorless to light yellow liquid, sweet aromatic odor	200	9.25
1 through 6	Xylene(s)	100 ppm	100 ppm	900 ppm	Y	Inh, Ing, Abs, Con	Irritation to eyes, nose, throat, skin; nausea, vomiting, headache, ringing in ears, severe breathing difficulties (that may be delayed in onset), substernal pain, coughing hoarseness, dizziness, excited, burning in mouth, stomach, dermatitis (removes oils from skin), corneal burns	Colorless liquid, aromatic odor (solid below 56 F	230	8.44
1,2,5	PAHs (as coal tar pitch)	0.2 mg/m^3	0.1 mg/m^3	80 mg/m^3	Y	Inh, Ing, Con, Abs	Irritation to eyes, skin, digestive tract, respiratory tract (prevent contact to skin and eyes)	Yellow to green	---	---
3	Arsenic*	0.010 mg/m^3	0.002 mg/m^3	5 mg/m^3	Y	Inh, Ing, Abs, Con	Coughing, irritation to eyes, nose, throat, respiratory tract, inflammation of mucous membranes, dyspnea (labored breathing), cyanosis, and rales (rattle breathing), vomiting	Odorless/silver gray or tin white brittle (metal, inorganic), also can be in solution (clear & odorless)	---	---

KEY:

PEL = Permissible Exposure Limit
REL = Recommended Exposure Limit
--- = Information not available
TLV = Threshold Limit Value(ACGIH)
Inh = Inhalation
Ing = Ingestion
mg/m^3 = Milligrams per cubic meter
* = Chemical is a known or suspected carcinogen
Abs = Skin Absorption
Con = Skin and/or eye Contact
ppm = Parts per million
sk = Skin notation

D. SITE SAFETY WORK PLAN

Site Control: Site is covered with stone to prevent contact with soil. Open excavations and/or tank pits will be securely fenced at the end of each work day.

Perimeter Identified? [Y] **Site Secured? [N]**

Work Areas Designated? [Y] **Zone(s) of contamination identified? [Y]**

Anticipated Level of Protection (cross-reference task numbers in Section C):

A	B	C	D
		Available	X

All Site work will be performed at Level D (steel-toed boots, work clothes, gloves) unless monitoring indicates otherwise. Gloves will be worn if contact with contaminated soil, sediment, or water is anticipated.

If conditions are encountered that require Level C PPE, the work will be temporarily suspended and the Site will be evaluated to limit exposure prior to implementing Level C PPE.

Air Monitoring*:

Contaminant	Monitoring Device	Frequency
Organic Vapors	MiniRAE 3000 PID	Continuous
Particulates	TSI Dust Trak (or equivalent)	Continuous

*Continuous perimeter air monitoring for VOCs and particulates will be performed during intrusive activities and is described in the NYSDOH Generic Community Air Monitoring Plan (CAMP), included as Appendix D-2.

Lu Engineers will also conduct continuous air monitoring of worker breathing zone air during excavation in areas of concern. If action levels are exceeded during excavation, appropriate precautions will be taken.

VOCs

VOCs in worker's breathing zone air will be monitored with a PID during activities that have the potential to disturb contaminated materials to aid in determining if respiratory protection and /or vapor suppression is necessary. This ensures that respiratory protection is adequate to protect personnel from the chemicals they may be exposed to. Readings will be recorded in the Site logbook.

Action Levels:
PID readings of **>5 ppm to 10 ppm** above background in the breathing zone, sustained for greater than 1 minute,
Action: Hault work activities and move away from the vapor source. Consider vapor suppression actions. If PID readings drop to within 5 ppm above background, work may resume with continuous air monitoring.

PID readings of **10 ppm to <25 ppm** above background at breathing zone, sustained for greater than 1 minute,
Action: Stop work and consider upgrade to Level C protection.

PID readings of **>25 ppm** above background at breathing zone, sustained for greater than 1 minute,
Action: Stop work.

All air monitoring results as well as wind direction and speed (estimates) will be documented in the site-specific log book and/or log sheets.

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc.:
Specified in work plan.

Personnel Decon Protocol: Soap, water, and paper towels or baby wipes will be available for all personnel and will be used before eating, drinking or leaving the site. Personnel will shower upon return to home or hotel. Disposable PPE will be double bagged and disposed of in a sanitary waste dumpster.

Special Site Equipment, Facilities or Procedures
(Sanitary Facilities and Lighting Must Meet 29CFR 1910.120): A restroom and bottled water are available for use on Site.

Site Entry Procedures and Special Considerations: Entry to the Site should be limited to authorized personnel during field work activities.

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements:
All work will be completed during daylights hours. Severe inclement weather may be cause to suspend outdoor activities. Heavy equipment will not be used during electrical storms.

Investigation Derived Material (i.e., Expendables, Decon Waste, Cuttings) Disposal:
Specified in work plan.

Sampling Handling Procedures Including Protective Wear: All sample handling will be performed while wearing nitrile gloves. To minimize hazards to lab personnel, sample volumes will be no larger than necessary, and the outside of all sample containers will be wiped clean prior to shipment.

Accident and Injury Reporting: Any work-related incident, accident, injury, illness, exposure, or property loss must be reported to the Lu Engineers project manager. This includes:

- Accident, injury, illness, or exposure of an employee;
- Injury of a subcontractor;
- Damage, loss, or theft of property, and/or
- Any motor vehicle accident regardless of fault, which involves a company vehicle, rental vehicle, or personal vehicle while employee is acting in the course of employment.

E. TRAINING REQUIREMENTS

All personnel conducting field activities on site are required to have completed training sessions in accordance with Occupational Safety and Health Administration (OSHA) for Parts 1926 and 1910 (Title 29 Code of Federal Regulations [CFR] Part 1926.65 and Part 1910.120 - Hazardous Waste Operations and Emergency Response- 'HazWOPER'). This training shall consist of a minimum of 40 hours of instruction off-site and three days of actual field experience under the direct supervision of a trained, experienced supervisor. Each employer will maintain documentation stating that its on-site personnel have complied with this regulation.

In addition, all personnel will have reviewed this HASP and received a site-specific health and safety briefing prior to participating in field work.

All visitors entering the work area must review the HASP and be equipped with the proper PPE. All site personnel and visitors shall sign the last page of the HASP as an acknowledgement that they have read and understand the Site health and safety requirements.

Medical Surveillance Requirements: All Lu Engineers field staff who engage in onsite activities for 30 days or more per year participate in a medical monitoring program and have completed applicable training per 29CFR 1910.120. Respiratory protection program meets requirements of 29CFR 1910.134.

F. EMERGENCY INFORMATION

LOCAL RESOURCES

Ambulance:	911
Hospital Emergency Room:	Samaritan Medical Center (315) 785-4000
	830 Washington Street, Watertown, New York
Poison Control Center:	911
Police (include local, county sheriff, state):	911
Fire Department:	911
Airport:	N/A
Laboratory:	Test America: 118 Boss Rd., Syracuse, NY 13211 (315) 431-0171

SITE RESOURCES

Site Emergency Evaluation Alarm Method:	Sound vehicle horn.
Water Supply Source:	Gallons of water will be available in vehicles
Telephone Location, Number:	None available
Cellular Phone, if Available:	Onsite cell # TBD
Radio:	TBD
Other:	TBD

EMERGENCY ROUTES

Note: Field team must know route(s) prior to start of work.

Directions from the site to Strong Memorial Hospital (map on following page):
Head northwest on Columbia Street toward Pleasant Street North (207 ft). Turn left onto Pleasant Street North (0.1 miles). Take first right onto State Street (0.2 miles). Take the 3rd left Onto Rutland Street South (0.2 miles). Take the 2nd right onto Academy Street (289 feet). Take the 1st left onto Flower Avenue East (0.9 miles). Turn left onto Sherman Street and arrive at the Samaritan Medical Center.

On-site Assembly Area: At Site entry point.

Off-site Assembly Area: Columbia Street and North Pleasant Street.

Emergency egress routes to get off-Site: Northeast to Harvard Street or south/southwest to Columbia Street.

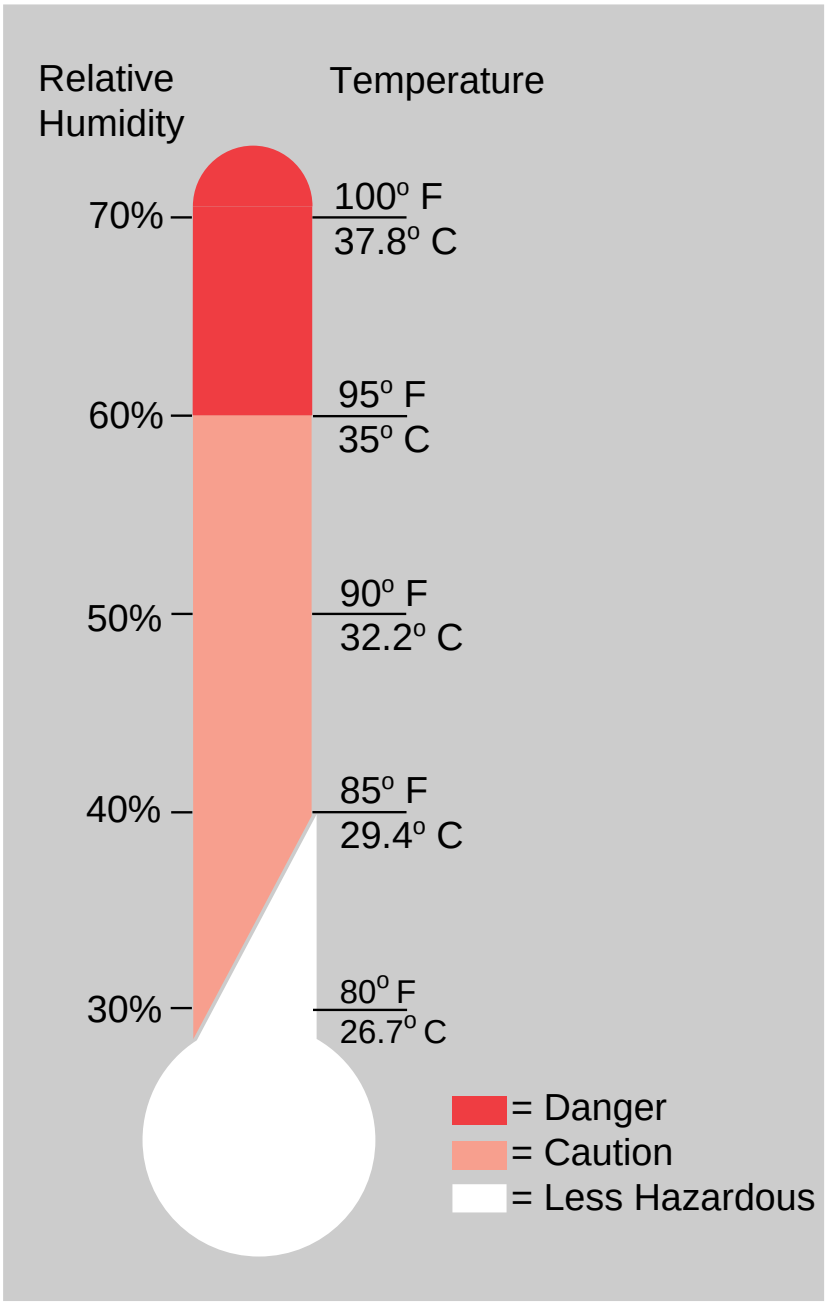
APPENDIX D-1

HEAT STRESS EXPOSURE

THE HEAT EQUATION

HIGH TEMPERATURE + HIGH HUMIDITY + PHYSICAL WORK = HEAT ILLNESS

When the body is unable to cool itself through sweating, **serious** heat illnesses may occur. The most severe heat-induced illnesses are **heat exhaustion** and **heat stroke**. If actions are not taken to treat heat exhaustion, the illness could progress to heat stroke and possible **death**.



U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 3154
1998

HEAT EXHAUSTION

What Happens to the Body:

HEADACHES, DIZZINESS/LIGHT HEADEDNESS, WEAKNESS, MOOD CHANGES (irritable, or confused/can't think straight), FEELING SICK TO YOUR STOMACH, VOMITING/THROWING UP, DECREASED and DARK COLORED URINE, FAINTING/PASSING OUT, and PALE CLAMMY SKIN.

What Should Be Done:

- Move the person to a cool shaded area to rest. Don't leave the person alone. If the person is dizzy or light headed, lay them on their back and raise their legs about 6-8 inches. If the person is sick to their stomach lay them on their side.
- Loosen and remove any heavy clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if they are not feeling sick to their stomach.
- Try to cool the person by fanning them. Cool the skin with a cool spray mist of water or wet cloth.
- If the person does not feel better in a few minutes call for emergency help (Ambulance or Call 911).

(If heat exhaustion is not treated, the illness may advance to heat stroke.)

HEAT STROKE—A MEDICAL EMERGENCY

What Happens to the Body:

DRY PALE SKIN (no sweating), HOT RED SKIN (looks like a sunburn), MOOD CHANGES (irritable, confused/not making any sense), SEIZURES/FITS, and COLLAPSE/PASSED OUT (will not respond).

What Should Be Done:

- Call for emergency help (Ambulance or Call 911).
- Move the person to a cool shaded area. Don't leave the person alone. Lay them on their back and if the person is having seizures/fits remove any objects close to them so they won't strike against them. If the person is sick to their stomach lay them on their side.
- Remove any heavy and outer clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if they are alert enough to drink anything and not feeling sick to their stomach.
- Try to cool the person by fanning them. Cool the skin with a cool spray mist of water, wet cloth, or wet sheet.
- If ice is available, place ice packs under the arm pits and groin area.

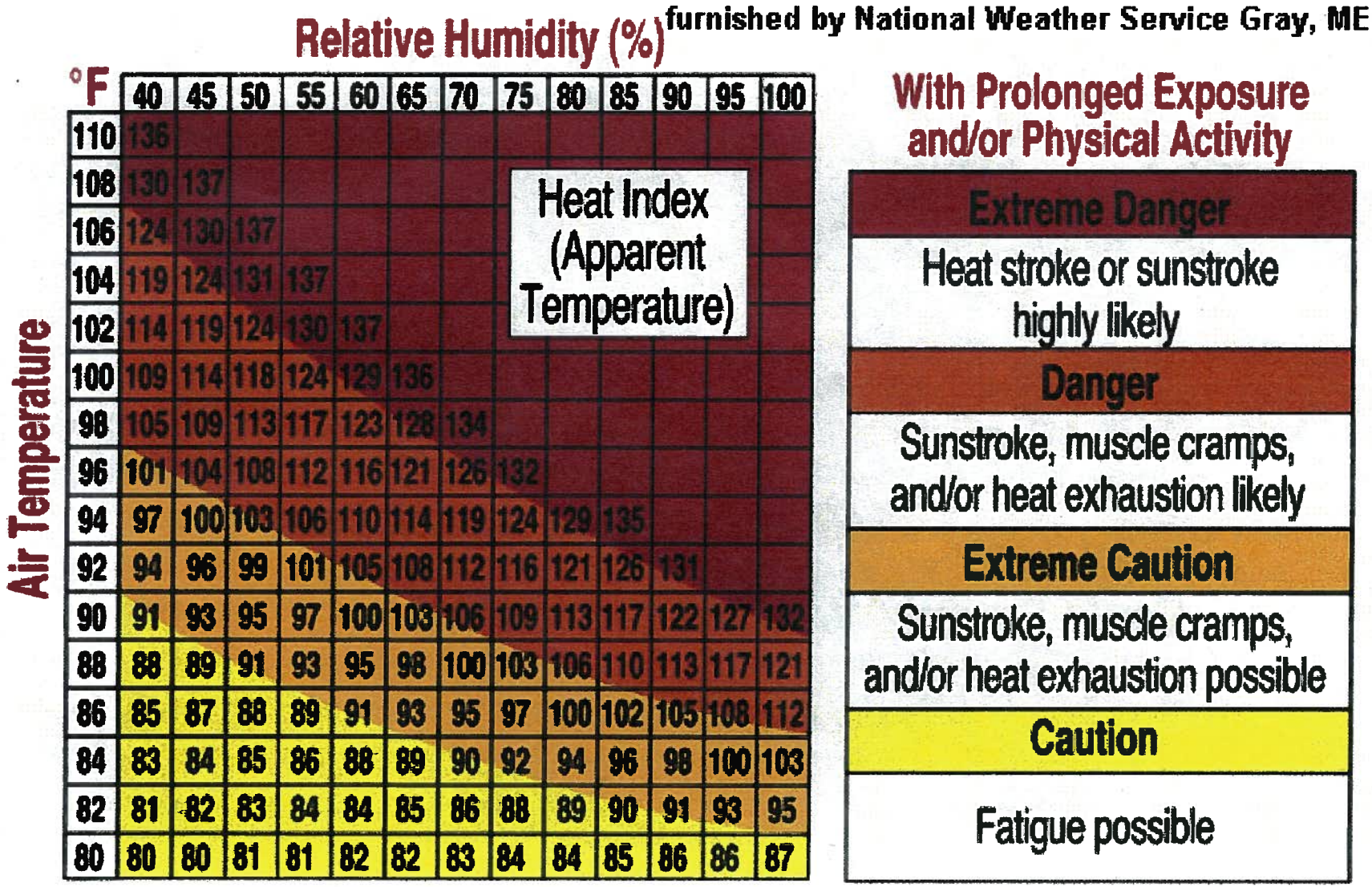
How to Protect Workers

- Learn the signs and symptoms of heat-induced illnesses and what to do to help the worker.
- Train the workforce about heat-induced illnesses.
- Perform the heaviest work in the coolest part of the day.
- Slowly build up tolerance to the heat and the work activity (usually takes up to 2 weeks).
- Use the buddy system (work in pairs).
- Drink plenty of cool water (one small cup every 15-20 minutes)
- Wear light, loose-fitting, breathable (like cotton) clothing.
- . Take frequent short breaks in cool shaded areas (allow your body to cool down).
- Avoid eating large meals before working in hot environments.
- Avoid caffeine and alcoholic beverages (these beverages make the body lose water and increase the risk for heat illnesses).

Workers Are at Increased Risk When

- They take certain medication (check with your doctor, nurse, or pharmacy and ask if any medicines you are taking affect you when working in hot environments).
- They have had a heat-induced illness in the past.
- They wear personal protective equipment (like respirators or suits).

furnished by National Weather Service Gray, ME



APPENDIX D-2

NYSDOH Generic Community Air Monitoring Plan

New York State Department of Health
Generic Community Air Monitoring Plan

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 volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

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. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

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.

- 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.

- 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.

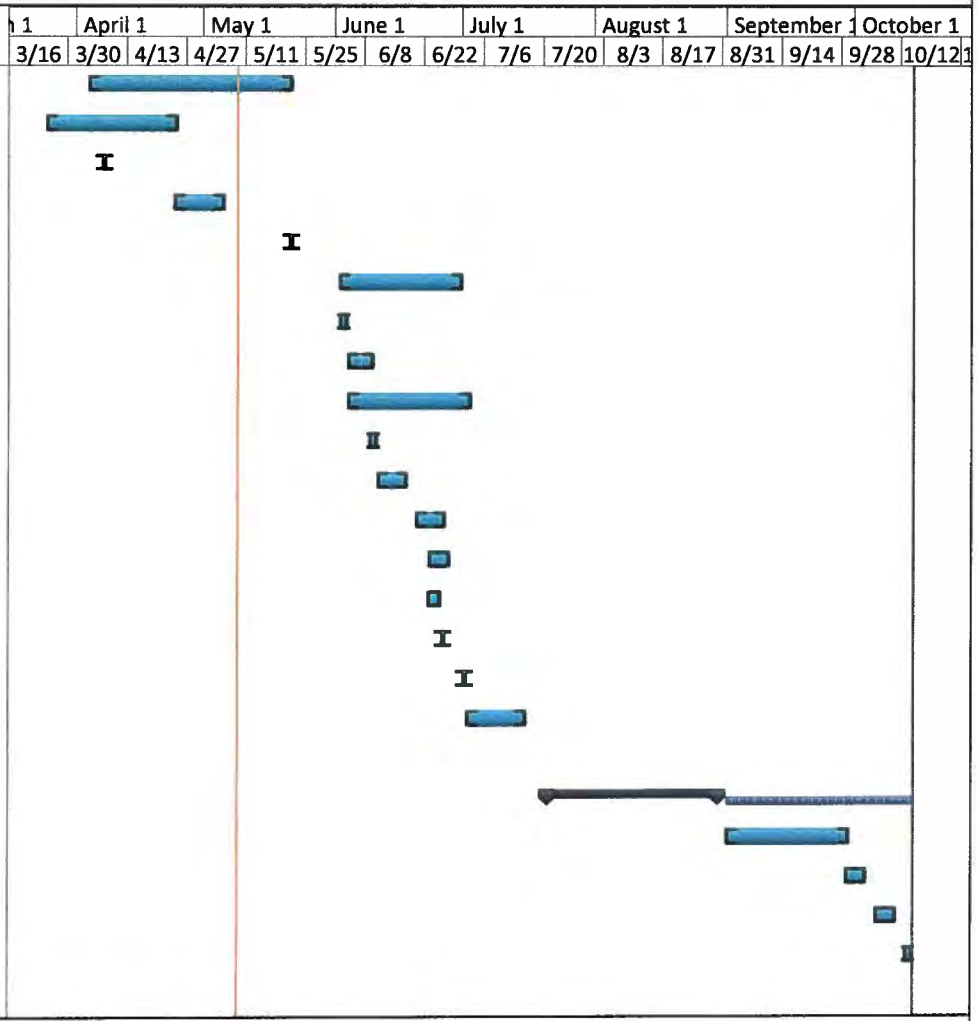
All readings must be recorded and be available for State (DEC and DOH) personnel to review.

Source: DRAFT DER-10 Technical Guidance for Site Investigation and Remediation, December 2002- Appendix 1A

Appendix E –
Estimated Project Schedule

Former Ogilvie Foods BCP Site #C632028
City of Watertown
Estimated Remedial Action Schedule

ID	Task Name	Duration	Start	Finish
1	Remedial Action Work Plan Approval	34 days	Fri 4/4/14	Wed 5/21/14
2	Bid period	23 days	Tue 3/25/14	Thu 4/24/14
3	Pre-Bid Meeting	1 day	Mon 4/7/14	Mon 4/7/14
4	Contractor Selection	8 days	Thu 4/24/14	Mon 5/5/14
5	Citizen Participation Fact Sheet Mailing	1 day	Wed 5/21/14	Wed 5/21/14
6	**Remedial Field Work**	21 days	Mon 6/2/14	Mon 6/30/14
7	Test Pits & Additional Soil Sampling	2 days	Mon 6/2/14	Tue 6/3/14
8	Lab Analysis	4 days	Wed 6/4/14	Mon 6/9/14
9	Building Slab and Foundation Demolition	21 days	Wed 6/4/14	Wed 7/2/14
10	Underground Storage Tank Removal	2 days	Mon 6/9/14	Tue 6/10/14
11	Contaiminated Soil Removal and Disposal	5 days	Wed 6/11/14	Tue 6/17/14
12	Lab Analysis	5 days	Fri 6/20/14	Thu 6/26/14
13	Site Restoration	5 days	Mon 6/23/14	Fri 6/27/14
14	**Monitoring Well Installation**	3 days	Mon 6/23/14	Wed 6/25/14
15	Monitoring well development	1 day	Thu 6/26/14	Thu 6/26/14
16	Monitoring well sampling	1 day	Tue 7/1/14	Tue 7/1/14
17	Lab Analysis	10 days	Wed 7/2/14	Tue 7/15/14
18	**Site Survey**		TBD	TBD
19	**Remedial Action Report Preparation**	**30 days**	**Mon 7/21/14**	**Fri 8/29/14**
20	Agency Reviews	21 days	Mon 9/1/14	Mon 9/29/14
21	Revise Report	5 days	Mon 9/29/14	Fri 10/3/14
22	Agency Review	5 days	Mon 10/6/14	Fri 10/10/14
23	Finalize Report	2 days	Mon 10/13/14	Tue 10/14/14
24	Easement Filing		TBD	TBD



Project: Schedule
Date: Fri 5/9/14

Task	External Milestone	Manual Summary Rollup
Split	Inactive Task	Manual Summary
Milestone	Inactive Milestone	Start-only
Summary	Inactive Summary	Finish-only
Project Summary	Manual Task	Deadline
External Tasks	Duration-only	Progress