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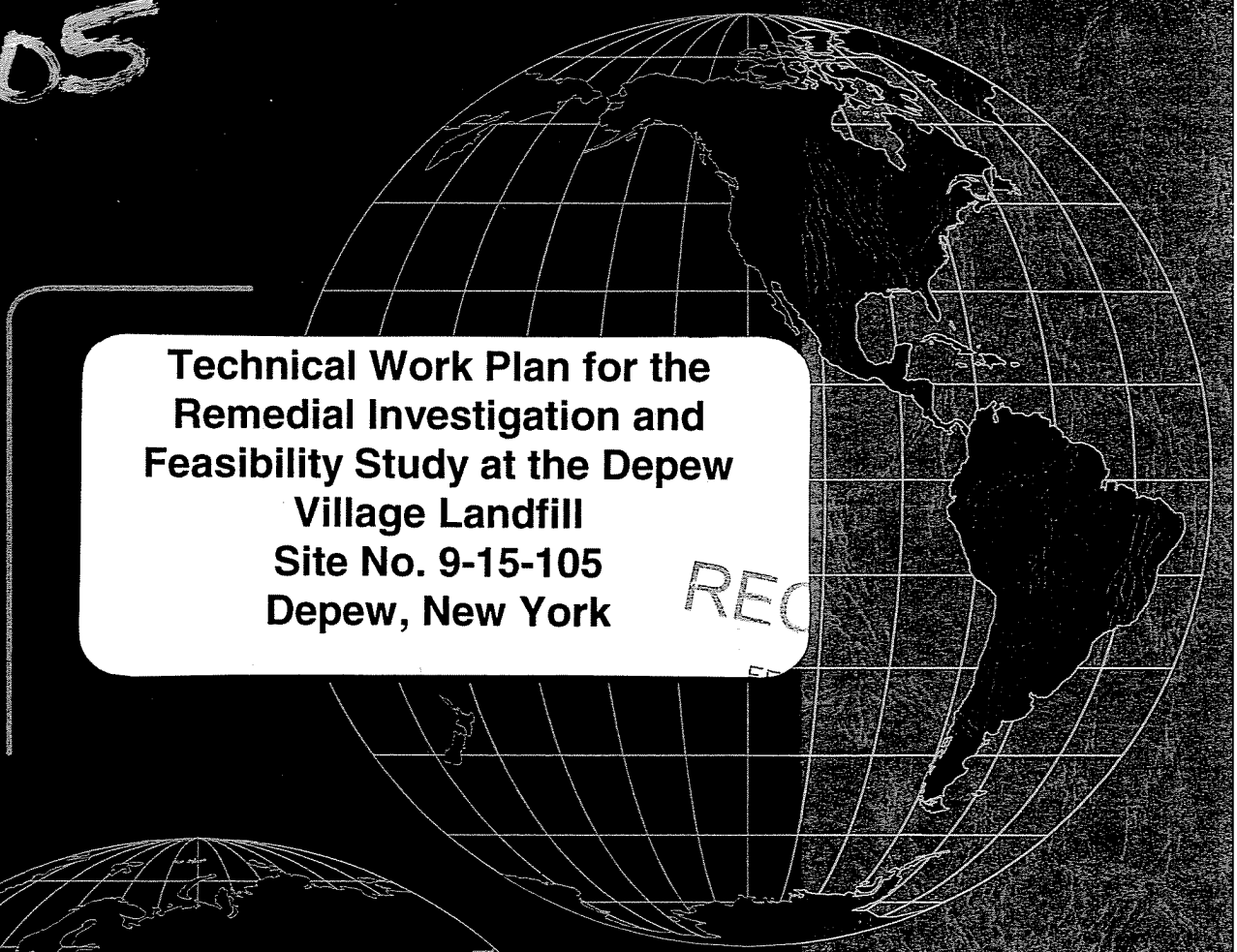

Technical Work Plan for the Remedial Investigation and Feasibility Study at the Depew Village Landfill Site No. 9-15-105 Depew, New York

REC

ecology and environment engineering, p.c.

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December 2005

Prepared for:

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List of Acronyms

ADR	Automatic Data Review
BGS	below ground surface
°C	degrees Celsius
CAMP	Community Air Monitoring Program
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	chain-of-custody
CSM	conceptual site model
DER	Division of Environmental Remediation
DO	dissolved oxygen
DOT	United States Department of Transportation
DPT	Direct-push Technology
DUSR	Data Usability Summary Report
EDD	electronic data deliverable
EEEPC	Ecology and Environment Engineering, P.C.
EPA	United States Environmental Protection Agency
FID	flame ionization detector
FS	feasibility study
FTL	field team leader
FWRIA	Fish and Wildlife Resources Impact Analysis
GIS	geographic information system

List of Acronyms (Cont.)

GRP	oxygen reduction potential
HASP	Health and Safety Plan
HHERA	Human Health Exposure Risk Assessment
IDW	investigation-derived waste
IRM	interim remedial measure
mL	milliliter
MS/MSD	matrix spike/matrix spike duplicate
NAD	North American Datum
NGVD	National Geodetic Vertical Datum
NTU	nephelometric turbidity unit
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
ORF	overflow retention facility
ORP	oxygen reduction potential
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PID	photoionization detector
PM_{10}	particulate matter of 10 microns or less
PP	Priority Pollutant
PPE	personal protective equipment
PRAP	Proposed Remedial Action Plan
PVC	polyvinyl chloride
QA	quality assurance

List of Acronyms (Cont.)

QAPP	Quality Assurance Project Plan
QC	quality control
RAO	remedial action objective
RBC	risk-based concentration
RI	Remedial Investigation
SCG	Standards, Criteria, and Guidelines
SI	site investigation
SVOC	semivolatile organic compound
TAGM	Technical Administrative Guidance Memorandum
TAL	Target Analyte List
TBC	to be considered
TCL	Target Compound List
TCLP	toxicity characteristic leaching procedure
USACE	United States Army Corps of Engineers
VCP	voluntary cleanup program
VOA	volatile organic analysis
VOC	volatile organic compound
yd^3	cubic yard

1 Introduction

Pursuant to Work Assignment No. D003493-59 accepted on September 19, 2005, Ecology and Environment Engineering, P.C. (EEEPC) has prepared this work plan on behalf of the New York State Department of Environmental Conservation (NYSDEC), Division of Environmental Remediation (DER), for remedial investigation (RI)/feasibility study (FS) services at the Depew Village Landfill site (Site No. 9-15-105), located off of Rutherford Road in the village of Depew, Erie County, New York (see Figure 1-1).

The objectives of the RI/FS are to:

- Define the nature and three-dimensional extent of contamination on and around the Depew Village Landfill site;
- Define the risks associated with the contamination;
- Evaluate site remediation alternatives; and
- Provide sufficient information for NYSDEC to develop a Proposed Remedial Action Plan (PRAP) and issue a Record of Decision (ROD).

To meet these project objectives, the RI/FS described herein has been designed in accordance with NYSDEC Technical Administrative Guidance Memorandum (TAGM) number HWR-89-4025, "Guidelines for Remedial Investigations/ Feasibility Studies," and TAGM number HWR-90-4030, "Selection of Remedial Actions at Inactive Hazardous Waste Sites."

Source: NYS GIS Clearinghouse, 2002

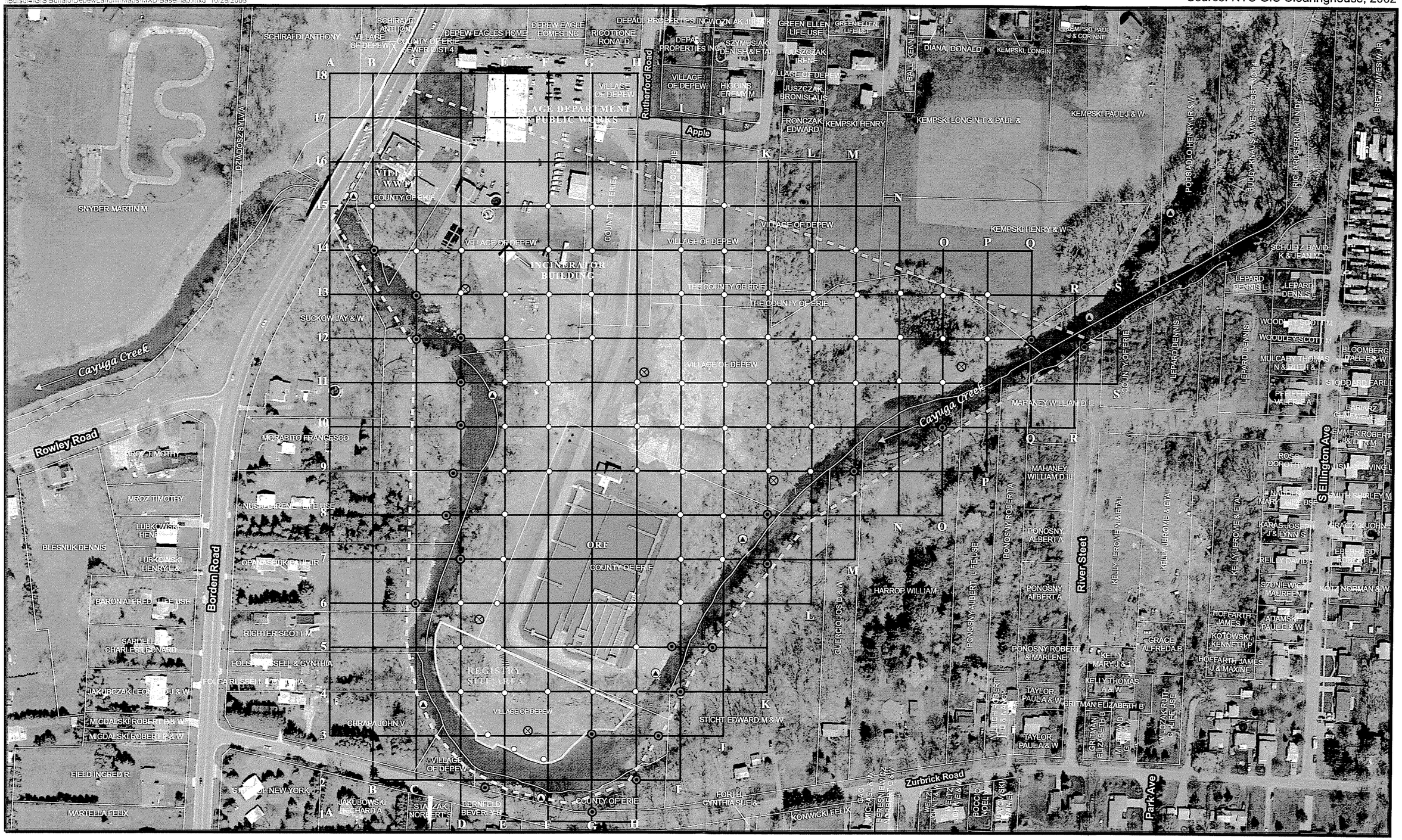


Figure 1-1
Proposed Sampling Locations
Depew Village Landfill, Site No. 915105
Depew, New York

2 Background Information

2.1 Site Description

2.1.1 Site Location

The Depew Village Landfill site is located in the village of Depew, Erie County, New York. The names "Depew DPW/Cayuga Creek" site and "Zurbrick Road" were utilized when this site was in the Voluntary Cleanup Program and during the United States Army Corps of Engineers (USACE) activities at the site, respectively. The site has been listed previously (in the 1980s) and is currently listed on the NYSDEC Registry of Hazardous Waste Sites as the "Depew Village Landfill," HW No. 915105; this name will be utilized for work under this RI/FS program.

The portion of the Depew Village Landfill labeled in the early 1980s as Site No. 915105, consists of approximately 1.3 acres located on a peninsula of an oxbow of Cayuga Creek. The peninsula encompasses the southern tip of the former landfill area. It is bounded on the south, east, and west by Cayuga Creek, and on the north by the Overflow Retention Facility (ORF) for Erie County Sewer District No. 4. Across Cayuga Creek to the south of the landfill lies Zurbrick Road (see Figure 1-1).

The exact dimensions of the entire Depew Village Landfill are not known. Consequently, the study area for this RI/FS extends up to and includes some abutting properties (see Figure 1-1). It contains the registry site itself, and extends north to the Village of Depew Department of Public Works parking lot, which abuts Rutherford Road. The northern study area boundary extends east and passes along a tree line that abuts mowed fields to the north, and continues east to the Cayuga Creek. The western, southern, and eastern study area boundaries follow the southern shore of Cayuga Creek. A narrow strip of land along the southern bank of Cayuga Creek, paralleling the peninsula shoreline, and extending up to Borden Road, is also included.

Approximately 20% of the study area is covered by buildings, roads, or the ORF unit. Most of the remaining area is covered by unmanaged brush and trees.

2.1.2 Site Geology

The site is underlain by Devonian-aged Onondaga Limestone. Bedrock was encountered in test pits excavated in the Registry portion of the site (see Figure 1-1) at approximately 7.5 feet to 13 feet below ground surface (BGS). Bedrock around the ORF lies at a depth of approximately 25 feet BGS. Groundwater was encountered in the area around the ORF at depths of 8 to 15 feet BGS.

The limestone bedrock is generally fractured and jointed. It is overlain by a silty, clayey till unit which in turn is overlain by lenses of alluvial sand and gravel deposits from Cayuga Creek. During an investigation of the registry site conducted in 2003, fill material was typically encountered at approximately 2.0 feet BGS, and ranged from 1 inch to 12 inches thick. The fill consisted of black ash residue, glass, metal, and other typical municipal solid waste. Most all fill material encountered in this area of the site had been processed through the incinerator once located on site. Fill material was generally covered by brown, silty loam topsoil with organic detritus, course to fine gravel and medium to fine sand, varying in thickness. Permeability was found to vary across the site due to the heterogeneous nature of the fill and to the different types of sediments present. Some perched water, believed to be trapped in the fill material, was also encountered during the previous investigation. Surface water runoff from the site was determined to be radial to the south, west, and east towards Cayuga Creek.

The creek is a Class C surface water, which meanders through the area. Class C surface waters are not used as potable water sources, but can be used for fishing. Most of the site is located within a 100-year floodplain. Stream bank erosion is evident on both shores of the creek in the site study area.

2.2 Site History

The Depew Village Landfill was operated by the Village of Depew between 1940 and 1961. As previously noted, the exact dimensions of the landfill are not known. It is believed to have originally consisted of approximately 20 acres. During operation, it received approximately 10,000 tons per year of municipal waste. In addition to bulk waste, municipal waste was also reportedly incinerated on the site; the resulting ash was disposed at the landfill. Spent foundry sand from Dresser Industries was reportedly utilized at one time as daily cover material at the landfill. In 1983 Erie County acquired 14.5 acres from the Village of Depew, including the registry area for the ORF project. During ORF construction activities, approximately 60,000 cubic yards (yds^3) of waste were removed from the middle of the peninsula and disposed of in the BFI landfill in Tonawanda, New York. Subsequent to ORF construction, the Village of Depew re-acquired approximately 9.5 acres of the 14.5 acres sold to Erie County; the County retained the 5 acres on which the ORF is located. This 9.5-acre re-acquired property includes the registry site, as well as much of the RI/FS study area.

In 2001, the Village of Depew contracted with the USACE to perform a stream bank stabilization project on a section of Cayuga Creek abutted by Zurbrick Road

(see Figure 1-1). USACE completed preliminary planning and was excavating soils on the creek's north side (within the registry site area) when fill material was noticed. Ensuing sampling and analysis of soils from this fill area indicated high total lead concentrations, as well as exceedances of the United States Environmental Protection Agency's (USEPA's) toxicity characteristic leaching procedure (TCLP) regulatory limits for lead. This resulted in classification of the fill material as hazardous waste. USACE operations were suspended based on hazardous waste findings together with the requirements of a "Project Cooperation Agreement" with New York State (NYS).

With the determination of hazardous waste presence at the site, NYSDEC offered the Village of Depew entry into the Voluntary Cleanup Program. A Voluntary Cleanup Agreement (VCP) was executed in October 2002, with the site designated as Depew DPW/Cayuga Creek Site, VCP No. V00609-9. The village hired PanAmerican Environmental, Inc., and their teaming partner URS Corporation, Inc., as consultants to conduct a site investigation (SI). The work plan for an SI/remedial program was approved by NYSDEC in May 2003. Field work was conducted at the site in June 2003, with preliminary results reported in July 2003. The investigation revealed that the vertical and areal extent of metals contamination was more widespread than was anticipated by the Village of Depew. In August 2003, NYSDEC, New York State Department of Health (NYSDOH), the Village of Depew, and their consultants met and discussed the investigation results, future site requirements, and the village's options under the VCP.

In July 2004, the village of Depew opted out of the VCP and the Voluntary Cleanup Agreement was formally terminated. The listing package for this site was circulated and the site was re-listed in the New York State Registry of Inactive Hazardous Waste Sites as a Class 2 site. In addition, a DER referral was made for the site to conduct a remedial investigation/feasibility study under the state Superfund program.

The following is a chronological site history:

- Approximately 1983: The site is listed as a Class 2a site in the Registry of Inactive Hazardous Waste Sites.

- March 1983: A site investigation of subsurface conditions is completed by Drill & Test, Inc., and Krehbiel Associates, for Erie County Sewer District No. 4 in conjunction with the overflow retention facility construction. No laboratory analysis was conducted.

- 1985: The Erie County Department of Environment and Planning prepares a "Hazardous Waste Site Profile Report," which concludes that no hazardous material was land filled at the site.

- January 1988: A Phase I Investigation is completed by Engineering-Science for NYSDEC. This report recommends conducting a Phase II investigation of the site.

- October 1990: NYSDEC de-lists the site from the Registry of Inactive Hazardous Waste Disposal Sites, based upon the determination that no hazardous wastes have been identified at the site.

- Fall 2001: USACE analytical results of site fill material indicate high total lead concentrations and exceedances of the TCLP regulatory limits for leachable lead, resulting in classification of the material as hazardous.

- June 2004: The SI/Remedial Report prepared by PanAmerican Environmental, Inc., for the Village of Depew under the VCP is finalized and released. This report confirms that past total lead concentrations and TCLP results exceed regulatory criteria. It also indicates that metals contamination may be fairly extensive at the site. Data from four surface and six subsurface soil samples analyzed for semivolatile organic compounds (SVOCs) indicate low polynuclear aromatic hydrocarbon (PAH) concentrations are also present at the site.

2.3 Conceptual Site Model

Based on existing geologic data collected from previous site studies, as well as analytical data, the study area can be regarded as an unlined, heterogeneous fill body containing a lead-enriched matrix overlain by permeable soils and underlain by either permeable sediments or bedrock. Neither the stratigraphic position nor the horizontal extent of this lead-enriched matrix has yet been determined. With no top liner over the landfill, meteoric water is expected to be infiltrating into the fill and leaching the lead out of the fill as it migrates downward to the top of bedrock. Groundwater is then expected to flow radially from the landfill/bedrock interface out to Cayuga Creek. In addition, leachate seeps are flowing out of the fill and downward across the fill slope adjacent to Cayuga Creek, ultimately flowing into the creek. Groundwater may also be entering bedrock fractures, although the competency of the bedrock is not known.

3 Remedial Investigation and Feasibility Study Tasks

The tasks and requirements of this work assignment are specified in Schedule 1 of EEEPC's contract D003493, *Work Element II - Phased Remedial Investigation/Feasibility Study*. The following is a summary of the work assignment scope.

3.1 Task 1: Work Plan

3.1.1 Work Plan Development

3.1.1.1 Scope of Work Development

EEEPC reviewed site records and conducted a site visit with NYSDEC's project manager on October 6, 2005. After reviewing this existing site documentation and conducting further background research, EEEPC held discussions with NYSDEC regarding the draft work scope. NYSDEC subsequently provided copies of additional site reports prepared by other consultants.

3.1.1.2 Background Research

EEEPC reviewed available reports from previous site investigation activities including:

- PanAmerican Environmental, Inc. and URS Consultants, 2003, *Site Investigation/Remedial Report, Zurbrick Road Site, Depew, New York*;
- Engineering-Science and Dames & Moore, 1988, *Engineering Investigations at Inactive Hazardous Waste Sites in the State of New York, Phase I Investigations, Village of Depew Landfill, Site No. 91510*;
- Erie County D.E.P., 1985, *Hazardous Waste Site Profile Report for Village of Depew, 315 Borden Road, Depew, Site # 91510*;
- PanAmerican Environmental, Inc. and URS Consultants, 2003, *Work Plan for Site Investigation/Remedial Program, Zurbrick Road Site, Depew, New York*; and
- Drill & Test, Inc., 1983, Figure from *Site of Investigation Overflow Retention Facility, Erie County Sewer District No. 4, Depew, New York.*

In addition, historical topographic maps were also reviewed. This data assisted in the selection of site investigation sample locations. The following document source were also consulted:

- Erie County Sewer Department reports and record drawings for the ORF;
- Published and unpublished reports on local geology and hydrogeology;
- Flood control, erosion control, climatological data; and
- The Erie County Soil Survey.

Based upon the review, a preliminary site base map was created showing the locations of past and present site facilities (see Figure 1-1).

3.1.1.3 Health and Safety Plan Preparation

A site-specific health and safety plan (HASP) pertaining to this investigation was prepared. It is included in Appendix A of this work plan. This plan also includes an underground utility location review, as well as implementation of the Community Air Monitoring Program (CAMP), which is provided in Appendix C.

3.1.1.4 Quality Assurance Project Plan Preparation

EEEPC has a master Quality Assurance Program Plan that was approved by NYSDEC under previous site investigation projects under this contract. EEEPC is in the process of updating this master Quality Assurance Program Plan and will submit it for review under separate cover. A project-specific Quality Assurance Project Plan (QAPP) was prepared and is included in Appendix B.

3.1.1.5 Base Map Development

A site base map was created for the work plan using site figures contained within the historical data reports and the geographic information system (GIS)–based aerial image provided by NYSDEC with the work assignment. In addition, a property ownership data obtained from Erie County was also used. Following completion of the field sampling program, a field survey of the horizontal and vertical positions of the sample points, as well as other site features will be performed by a subcontracted surveyor, Popli Consulting Engineers and Surveyors. An updated base map showing actual sample locations will be presented in the RI report.

3.2 Field Investigation

The RI proposed for the Depew Village Landfill Site will include an investigation of surface soils, subsurface soils, groundwater, surface water and sediment. It will also include an ecological risk assessment and a Health and Environmental Exposure Risk Assessment (HEERA). Fieldwork will be led by an EEEPC field team leader (FTL). Weather and field conditions permitting, the field program will begin with surface water and sediment sampling, followed by surface soil sampling.

Subsurface soil sampling, groundwater well installation, and groundwater sampling will follow.

Laboratory analysis of environmental samples will be performed by Chemtech, Inc., (Chemtech) which is certified by the Environmental Laboratory Accreditation Program of NYS. Table 3-1 summarizes the proposed sampling and analysis for each medium. Tables 3-2 and 3-3 list sample containers, preservatives, and holding times. The complete analyte list is presented in the site-specific QAPP (Appendix B). Analytical data will be presented in the final report.

Table 3-1 Proposed Chemical Analysis, Depew Village Landfill Site Remedial Investigation, Depew, New York

Analysis	Method	Number of Field Samples	Field Duplicates	QA/QC Samples		MS	MSD	Total Number of Samples
				Trip Blanks	Rinsate Blank			
Hand-Auger Surface/Subsurface Soil								
TCL VOCs	SW8260	2	0	1	0	0	0	3
TCL SVOCs	SW8270	2	0	0	0	0	0	2
TCL PCBs	SW 8082	2	0	0	0	0	0	2
TAL Metals (+Mercury)	SW 6010B/7471A	2	0	0	0	0	0	2
PP Metals	SW6010/7471	27	2	0	0	0	0	29
Geoprobe Borehole Subsurface Soils								
TCL VOCs	SW8260	4	1	2	0	1	1	9
TCL SVOCs	SW8270	4	1	0	0	1	1	8
TCL PCBs	SW 8082	4	1	0	0	1	1	8
TAL Metals (+Mercury)	SW 6010B/7471A	4	1	0	0	1	1	8
PP Metals	SW6010/7471	108	6	0	2	0	0	116
TCLP Lead	SW6010	10	1	0	0	1	1	13
Groundwater Wells/Open Core Holes, Round 1								
TCL VOCs	SW8260	8	1	2	0	1	1	13
TCL SVOCs	SW8270	8	1	0	0	1	1	11
TCL PCBs	SW 8082	8	1	0	0	1	1	11
Total TAL Metals (+Mercury)	SW 6010B/7470	8	1	0	0	1	1	11
Dissolved TAL Metals (+Mercury)	SW 6010B/7470	8	1	0	0	1	1	11
Filter Blank	SW 6010B/7470	1	0	0	0	0	0	1
Groundwater Wells Round 2								
TCL VOCs	SW8260	6	1	2	0	1	1	11
TCL SVOCs	SW8270	6	1	0	0	1	1	9
TCL PCBs	SW 8082	6	1	0	0	1	1	9
Total TAL Metals (+Mercury)	SW 6010B/7470	6	1	0	0	1	1	9
Dissolved TAL Metals (+Mercury)	SW 6010B/7470	6	1	0	0	1	1	9
Filter Blank	SW 6010B/7470	1	0	0	0	0	0	1
Surface Water								
TCL VOCs	SW8260	3	1	1	0	1	1	7
TCL SVOCs	SW8270	3	1	0	0	1	1	6
TCL Pesticides/PCBs	SW 8081/8082	3	1	0	0	1	1	6

Table 3-1 Proposed Chemical Analysis, Depew Village Landfill Site Remedial Investigation, Depew, New York

Analysis	Method	Number of Field Samples	Field Duplicates	QA/QC Samples: Trip Blanks	QA/QC Samples: Rinsate Blank	MS	MSD	Total Number of Samples
Total TAL Metals (+Mercury)	SW 6010B/7470	10	1	0	1	1	1	13
Sediment								
TCL VOCs	SW8260	3	1	1	0	1	1	7
TCL SVOCs	SW8270	3	1	0	0	1	1	6
TCL Pesticides/PCBs	SW 8081/8082	3	1	0	0	1	1	6
TAL Metals (+Mercury)	SW 6010B/7471	10	1	0	0	1	1	13
TOC	Lloyd Kahn	10	1	0	0	1	1	13
IDW Soil Pre-Disposal Analysis								
TCLP VOCs	SW1311/8260B	1	0	0	0	0	0	1
TCLP SVOCs	SW1311/8270C	1	0	0	0	0	0	1
TCLP Pesticides/Herbicides	SW1311/8081A/ 8751A	1	0	0	0	0	0	1
TCLP Metals	SW1311/6010B/ 7471A	1	0	0	0	0	0	1

Notes: Analytical methods reference the most current United States Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) Statement of Work (SOW). The general quality assurance and reporting requirements must follow the NYSDEC Analytical Services Protocol, June 2000.

Key:

MS = Matrix spike.
MSD = Matrix spike duplicate.
PCB = Polychlorinated biphenyl.
PP = Priority Pollutant.
QA = Quality Assurance.
QC = Quality Control.
SVOC = semivolatile organic compound.
TAL = Target Analyte List.
TCL = Target Compound List.
TCLP = Toxicity Characteristic Leaching Procedure.
TOC = Total organic carbon.

Table 3-2 Sampling Containers, Volumes, Preservation, and Holding Times for Soil and Sediment Samples

Parameter	Method	Containers for Solid Samples	Preservation[a]	Holding Time[a]
TCL VOCs	SW8260	Two 40-mL prepared VOC with DI water and stir bar, and one 40-mL prepared VOC with methanol	Cool to 4°C[b]	1 day[b]
Metals (PP and TAL)/ Mercury, and held for TCLP	SW6010B/7471	One 8-oz. glass jar	Cool to 4°C	26 days for mercury, 180 days for all other metals; TCLP extraction[c] must occur within holding times
Extractable Organics (SVOCs, Pesticides, PCBs)	SW8270, SW8081, SW8082	One 8-oz. glass jar	Cool to 4°C	5 days for extraction, 40 days for analysis

Table 3-2 Sampling Containers, Volumes, Preservation, and Holding Times for Soil and Sediment Samples

Parameter	Method	Containers for Solid Samples	Preservation[a]	Holding Time[a]
TOC	Lloyd Kahn	One 4-oz. glass jar	Cool to 4°C	26 days
TCLP Lead only	SW1311/6010B	One 4-oz. glass jar	Cool to 4°C	180 days for TCLP extraction[c]
TCLP VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals, and Mercury; reactivity, corrosivity, ignitability	SW1311 (followed by 8260B, 8270C, 8081B/8082B, 8151A, 6010C/7471A); SW Chapter 7	One 8-oz. glass jar	Cool to 4°C	14 days for TCLP extraction[c]

[a] All samples to be cooled to 4°C. Holding times are based on verified times of sample receipt and are consistent with NYSDEC requirements.

[b] VOCs for soil samples will be collected into prepared DI water and methanol vials. The laboratory will analyze within one day of receipt or freeze the DI water preserved samples at <7°C for up to 10 days. Aliquots in methanol-preserved vials will be analyzed within 10 days.

[c] Holding time for TCLP extraction is based on collection date. Leachate must be analyzed within methods holding times for parameter analysis.

Key:

°C = Degrees Celsius.
DI = Deionized.
mL = Milliliter.
oz. = Ounce.
PCB = Polychlorinated biphenyl.
PP = Priority Pollutant.
TAL = Target Analyte List.
TCL = Target Compound List.
TCLP = Toxicity Characteristic Leaching Procedure.
TOC = Total organic carbon.
SVOC = Semivolatile organic compound.
VOC = Volatile organic compounds.

Table 3-3 Sample Containers, Volumes, Preservation, and Holding Times for Aqueous Samples

Parameter	Method	Containers for Aqueous Samples	Preservation[a]	Holding Time[a]
TCL VOCs – Low Concentration	SW8260	Three 40-mL glass vials with septa	Cool to 4°C	5 days
TAL Metals/ Mercury	SW6010/7470	One 500-mL HDPE bottle	HNO_3 pH< 2	26 days for mercury, 180 days for metals
Dissolved TAL Metals/ Mercury	SW6010/7470	One 500-mL HDPE bottle	Filtration followed by HNO_3 pH< 2	26 days for mercury, 180 days for metals
Extractable Organics (SVOCs, Pesticide, PCBs)	SW8270, SW8081, SW8082	Five 1-L amber glass with septa per analysis	Cool to 4°C	5 days for extraction, 40 days for analysis

Table 3-3 Sample Containers, Volumes, Preservation, and Holding Times for Aqueous Samples

Parameter	Method	Containers for Aqueous Samples	Preservation[a]	Holding Time[a]

[a] All samples to be cooled to 4°C. Holding times are based on verified times of sample receipt and are consistent with NYSDEC requirements.

Key:

°C = Degrees Celsius.
HDPE = High-density polyethylene.
L = Liter.
mL = Milliliter.
PCB = Polychlorinated biphenyl.
SVOC = Semivolatile organic compound.
TAL = Target Analyte List.
TCL = Target Compound List.
VOC = Volatile organic compounds.

All field activities are expected to be conducted by personnel wearing Level D personal protective equipment (PPE). However, field team members will maintain Level C PPE on site, and will use it, should the need arise.

3.2.1 Mobilization

This task includes all preparation and pre-fieldwork activities including:

- Administrative and General Mobilization Tasks. Efforts to be conducted under this task include subcontract preparation, subcontractor HASP review, scheduling, and equipment rental and purchase; and

- Underground Utility Notification. EEEPC will contact the Underground Facilities Protection Organization five days in advance of any subsurface field investigation activities to alert them that our subsurface investigation will take place. Once utilities on site have been marked, EEEPC will modify any subsurface exploration points to be certain that none are within 25 feet of any underground or overhead utility location. EEEPC will also coordinate the marking of water, sewer, and other utilities associated with the ORF and the DPW, with Erie County Sewer District Number 4 and the Village of Depew . The Sewer District Manager and DPW Superintendent will be contacted to arrange this activity at least five days in advance

3.2.2 Grid Establishment

Prior to the EEEPC field team collecting samples, the subcontracted surveyor, Popli Consulting Engineers and Surveyors, will set out a survey grid over the study area portion at which soil sample collection is proposed (see Figure 1-1). The grid will have a 100-foot internodal spacing, with grid nodes marked by 2-foot long wooden laths labeled alpha-numerically.

3.2.3 Surface/Subsurface Soil Sampling Via Hand Auger

The purpose of the hand auger soil sampling program is to assess the potential for direct contact exposure and subsurface conditions in areas that can not be investigated using a direct-push technology (DPT) power tool such as a Geoprobe. Reasons for hand augering include terrain limitations of the locations, such as at those

sample points located along the Zurbrick Road hillside; and avoidance of traversing private property, such as the sample locations west of the study area. As illustrated in Figure 1-1, most hand-augered points will be located at survey grid nodes. A tape measure will be used to identify the position of sample points not located on grid nodes.

At each hand-auger location, one soil sample will be collected from the 0- to 2-inch depth interval. The field team will then use a hand auger to penetrate to a depth of 24 inches below native ground surface. A second soil sample will be collected from within the 3-inch to 24-inch depth interval if ash, fill, or soil discoloration is encountered.

For cost estimating purposes, it is assumed that a second sample will be collected at 20% of the 24 hand auger locations, yielding a total of 29 soil samples. In addition, duplicate samples will also be collected in the field at a rate of 5% (one per 20 field samples). Matrix spike/matrix spike duplicate (MS/MSD) samples also will be collected at a rate of 5% (see Table 3-1).

Two samples will be submitted for full target compound list (TCL) organic analysis (volatile organic compounds (VOCs), SVOCs, polychlorinated biphenyls (PCBs), and pesticides. Those two samples will also be submitted for Target Analyte List (TAL) metals analysis. All other samples will be submitted for a Priority Pollutant (PP) metals analysis only (see Table 3-1).

The samples will be collected using the equipment and procedures described below.

Equipment and Supplies

- 100-foot or longer tape measure;
- Brunton compass;
- Pin survey flags or wooden stakes;
- Hand auger with sleeves and T-handle
- Dedicated stainless-steel spoons or trowels;
- Disposable plastic bowls and stainless-steel bowls or pans;
- Appropriate sample containers (see Table 3-2); and
- Coolers with ice.

Soil Sampling Procedures

- Collect surface soil samples using dedicated, precleaned, stainless-steel spoons or trowels from a depth of 0 to 2 inches. If vegetation is present (e.g., grass, weeds), remove vegetation and sample the top 3 inches of soil immediately under the vegetation.

- Place the surface soil in a dedicated plastic bowl, mix thoroughly, and remove all stones and vegetative debris.

- Fill the appropriate sample container (see Table 3-1).

- Use a pre-cleaned hand auger equipped with a soil collection tube, or equivalent device to collect soil samples from the 3-inch to 24-inch depth interval.

- Use a photoionization detector (PID) meter to measure organic vapors in the sample. If the sample is selected for full TCL analysis, place a portion of the soil yielding the highest PID readings directly into the volatile organic analysis (VOA) sample jars without homogenization. Place the remainder of the soil from the desired sample interval into a dedicated stainless-steel mixing bowl, mix thoroughly, and remove all stones and vegetative debris.

- Fill the appropriate sample container (see Table 3-1).

- Label the sample container and place it on ice in a cooler. Record the sample location, date, time, and any noteworthy field conditions prevailing at the sample location, such as stressed vegetation and any prominent waste in the immediate sample area; and soil characteristics of the core samples.

- If the sample was not collected at a grid point, place a wooden stake or pin flag back at the sample location center point. Use the Brunton compass and table measure to identify the new sample location using a grid node as a reference.

Samples will be labeled, packaged, and shipped according to procedures outlined in Section 3.2.10. Decontamination shall be performed as described in Section 3.2.13, while investigation-derived waste (IDW) shall be managed as described in Section 3.2.14

3.2.4 Subsurface Soil Sampling via DPT

A subsurface soil investigation will be conducted to define the vertical and horizontal position of the lead-enriched fill, and assess the overall subsurface soil conditions. As previously noted, a sample grid having an internodal spacing of 100 feet will be established over the study area (see Figure 1-1). At approximately 80 nodes, a soil core hole will be installed using a track-mounted DPT unit

such as Geoprobe to gather subsurface soil samples. One continuous soil core will be collected in 4-foot increments from grade to bedrock at each grid node.

Historical data shows the contaminants of interest (metals) are concentrated in ash layers. Therefore, one sample will be collected from each distinct ash or non-native fill layer encountered within each core hole, yielding up to 80 ash samples. If an ash layer is not present, the following sample selection process will be applied:

- If an ash layer is not encountered, a soil sample of the uppermost non-native soil encountered will be collected; and
- If neither ash nor non-native soil is encountered, then a soil sample will be collected from a prominent, distinct soil horizon. It is anticipated that over the course of all core hole sampling, all major soil horizons will eventually be sampled.

Based on historical sampling data, it is also assumed that multiple, distinct ash layers will be encountered in approximately 20% of the core locations, yielding an additional 16 soil samples. In addition, soils from the groundwater interface shall also be collected at 10% of all core hole locations, yielding eight additional samples.

Human exposure is a concern in the northern part of the study area where workers are often present. At eight locations having a high potential for pedestrian exposure, in addition to the subsurface soil sampling, the top 3 inches from the first core (the surface soil) also will be submitted for analysis. Nodes from which a surface soil sample shall be collected will be determined in the field. Table 3-4 summarizes the sampling rationale and quantity.

Table 3-4 Core Hole Soil Sample Quantity Summary

Sample Rationale	Expected Sample Quantity
Ash, fill, or primary subsurface soil	80
Second ash or fill layer	16
Groundwater interface soil beneath ash layers	8
Surface soil samples	8
Total Core Hole Sample Quantity (without QA/QC samples)	**112**

Key:

QA/QC = Quality assurance/quality control.

All but four of the 112 core hole subsurface soil samples will be submitted for PP metals analysis. Four of the soil samples will be submitted for full TCL/TAL analysis. To the extent possible, these samples should be collected from different

soil and fill horizons to help characterize the site. They should also be distributed around the site to build an overall understanding of prevailing soil conditions.

Custody forms must be marked to store soil samples until further notice. Receipt of pending PP metals data, ten of the subsurface soil samples will be submitted for TCLP lead analysis.

If groundwater is encountered in any core hole, the field team shall use a water level indicator to obtain a depth to groundwater as measured from the native ground surface. Groundwater monitoring wells will be installed at six core hole locations (see Section 3.2.6). In addition, a groundwater sample will be collected from two core hole locations in which a well is not constructed. These locations will be selected at the field team's discretion during the field program. Groundwater sampling from core holes shall be conducted as described in Section 3.2.6.3.

Soil coring initially will be performed in Level D PPE. Continuous air monitoring will be performed throughout all subsurface investigation activities. If ambient air quality conditions exceed action levels for Level D protection (see the HASP in Appendix A), the crew will evacuate the area and fieldwork will be temporarily shut down while the crews obtain Level C PPE in order to continue coring activities.

In addition to monitoring for organic vapors, dust monitoring also will be performed per the procedure and protocol described in the CAMP (see Appendix C). This program monitors for fugitive dust emissions that could be of concern for residential exposure downwind of site investigation activities.

Equipment and Supplies

- Standard or digital camera;
- PID or flame ionization detector (FID);
- Two dust monitors for particulate matter of 10 microns or less (PM_{10});
- Precleaned stainless-steel spoons;
- Dedicated plastic and stainless-steel bowls;
- 100-foot measuring tape;
- Geotechnical logbook;
- Appropriate sample containers (see Table 3-2); and
- Coolers with ice.

Soil Boring Sampling Procedures

- Set up and begin a CAMP as described in Appendix C.
- Subcontracted drilling firm shall collect the soil core from grade to bedrock.
- Following extraction of each sample core, subcontractor shall place the core sampler on a sheet of plastic and cut open the acetate liner, exposing the soil core. Use a stainless-steel spoon to penetrate into the soil and scan the core with a PID or FID to evaluate the presence and concentration of organic vapors. Record readings and a description of the soil core in the drilling log notebook.
- For those locations at which a sample is to be submitted for TCL organics, first collect the sample portion to be submitted for VOC analysis. Place the sample portion directly into the sample appropriate VOC sample container(s). Collect the remaining appropriate sample volume and place directly into a stainless-steel bowl. Mix thoroughly, removing all stones and debris.
- For samples selected only for PP metals analysis, using a dedicated stainless-steel spoon, place the selected soil from the acetate sleeve into a dedicated plastic mixing bowl. Mix thoroughly, removing all stones and debris.

  NOTE: Note on the custody form for all metals analyses that the sample volumes for metals analysis are to be held at the lab pending further notice. This is because selection of the samples to be submitted for TCLP lead analysis will be based on TAL or PP metals data.
- Fill appropriate sample container(s) (see Table 3-2). Place the sample in a cooler maintained with ice at 4°C;
- Record the lithologic description and air monitoring equipment readings in the geotechnical logbook.
- The drilling subcontractor shall backfill each core hole with soil cuttings to a depth of 12 inches from ground surface. At core locations installed in open soils or lawns, the driller shall backfill the top 12-inch to 6-inch depth interval using bentonite chips. Bentonite shall be hydrated using tap water, then the top 6 inches of the core hole shall be filled using clean sand. The top 6 inches of soil cores installed in asphalt shall be backfilled with asphalt patch.
- Label, package, and ship samples according to procedures described in Section 3.2.10; and

- Decontaminate the down-hole coring equipment according to the procedures described in Section 3.2.13. IDW shall be managed as described in Section 3.2.14.

3.2.5 Borehole Sampling and Groundwater Monitoring Well Installation

3.2.5.1 Borehole Subsurface Soil Sampling

Six groundwater monitoring wells will be installed under this RI; one each at six of the 80 core hole locations described above. Separate subsurface soil sampling at groundwater monitoring well locations will not be conducted for this effort.

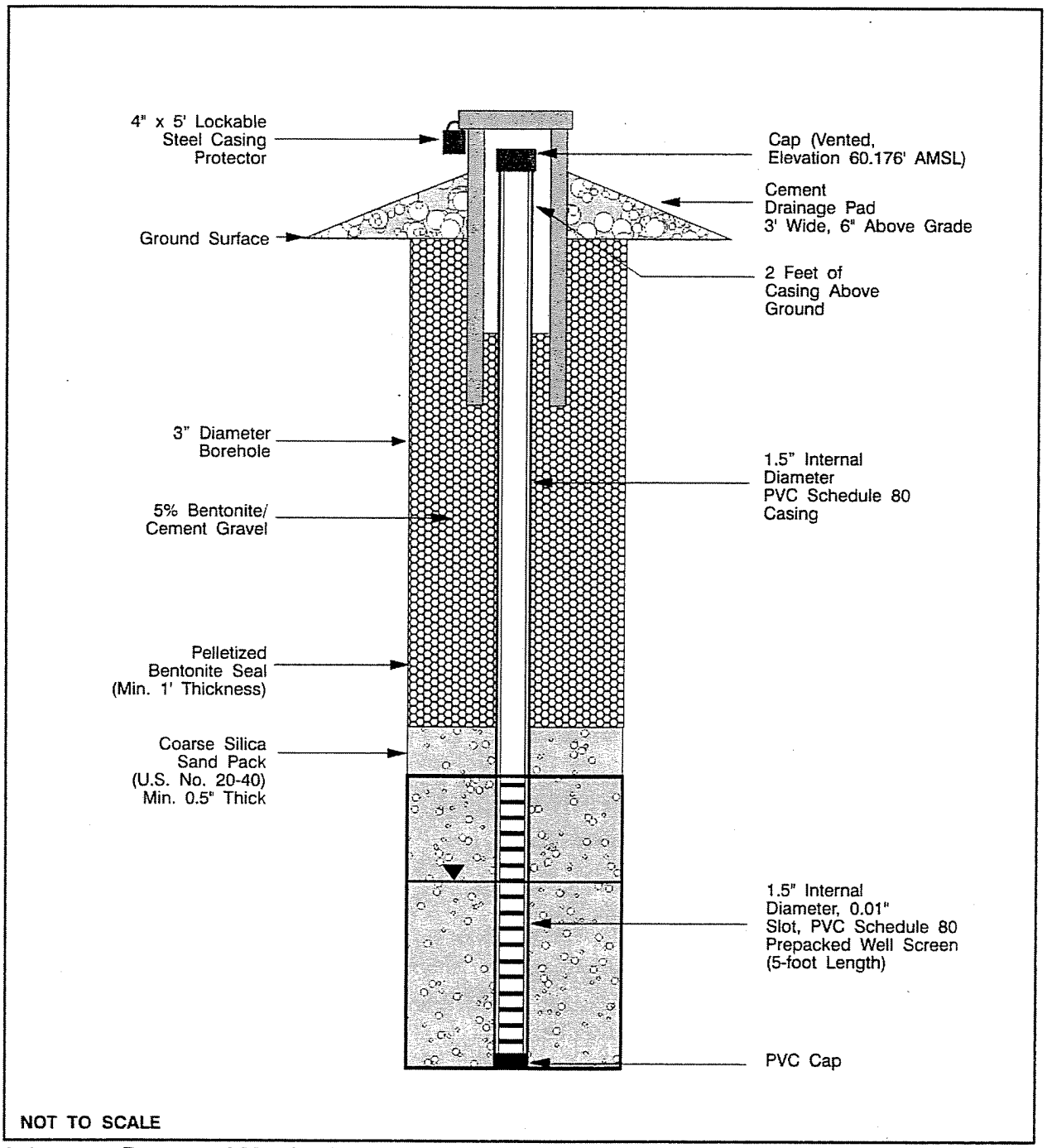
3.2.5.2 Groundwater Monitoring Well Installation

As noted above, six permanent monitoring wells will be installed at the site. Figure 1-1 shows their approximate position; however, they will actually be installed at six of the 80 core hole locations on the site grid. The purpose of the monitoring wells is to assess the subsurface soil conditions and groundwater quality around the perimeter of the landfill, adjacent to the Cayuga Creek. At least one of these wells will be installed upgradient of the fill area.

Monitoring Well Installation

An alternative approach to conventional auger drilling for groundwater monitoring well borehole installation will be used on this site. Monitoring well boreholes will be drilled to the top of bedrock using the Macrocore sampling system. If this approach does not prove to be successful, the drilling subcontractor, C & W Environmental, Inc., shall use the conventional auger drilling approach to construct the borehole.

Each groundwater monitoring well will be constructed using a either a 5-foot or a 10-foot segment (two 5-foot segments connected together) of pre-packed well screen having a 0.10-inch slot size, followed by 1.5-inch inner diameter Schedule 40 PVC riser to a height of 2 feet above grade. A threaded PVC cap will be placed on the bottom of the screen. All PVC connections will be flush-threaded. A 2-foot sand pack of No. 3 Q-rok sand (or equivalent size) will be installed on top of the prepacked screen and will be followed by a 2-foot-thick pelletized bentonite seal. A 5% bentonite/cement grout mix will then be installed to grade. A minimum respite of one half hour is required between hydration of the bentonite and installation of the grout mix. Each well will be fitted with a locking steel protective casing. Follow the setting of the grout, a 2-foot square anti-percolation pad will be constructed around each well. All well protective casings may be painted bright yellow with a non-solvent/metal based paint, following construction. At least one weep hole will be drilled in the steel casing 1-inch above the top at the anti-percolation pad. Figure 3-1 illustrates the proposed well construction.



3-1 Proposed Monitoring Well Construction

3.2.5.3 Monitoring Well Development

After well construction is complete, but no sooner than 24 hours after grout placement, the wells will be developed. Well development will be performed using the equipment and procedures described below. Development water from the wells will be handled according to the methodology described in Section 3.2.14.

Equipment and Supplies

- PID or FID;
- Electronic water level indicator graduated to 0.01 foot;
- Submersible whale pump, or equivalent, equipped with new discharge tubing;
- Battery to operate pump;
- pH/temperature/conductivity meter;
- Turbidity meter; and
- Geotechnical logbook.

Procedures

- Slowly lower the electronic water level probe of the instrument until the indicator light illuminates and/or the alarm sounds and record the depth to water from a marked reference point in EEEPC's geotechnical logbook on the well development form;
- Lower the probe to the bottom of the well casing and read the total depth of the well from a marked reference point on the well casing. Record this depth in EEEPC's geotechnical logbook on the well development form;
- Calculate the volume of water in the well using the formula provided on the well development form (i.e., a 1.5-inch well contains 0.092 gallon per foot of water);
- Decontaminate the water level indicator;
- Connect the whale pump to a segment of discharge tubing, and lower the pump into the well. Place the end of the discharge tubing into an empty 5-gallon bucket;
- Pump water from the screened zone of the well. Pumping will occur at the maximum flow rate that will not draw the water down to the pump. Slowly move the pump to different depth intervals within the screen;

- Record the temperature, pH, conductivity, and turbidity on the well development form at least every 10 minutes, or at the removal of each well volume;
- Continue well development until pH, specific conductance, and temperature have stabilized over three consecutive readings and turbidity of the discharge is 50 nephelometric turbidity units (NTUs) or less;
- If pH, specific conductance, and temperature have stabilized but the turbidity goal of 50 NTUs has not been met, well development will be considered complete after two hours of purging; and
- Decontaminate the pump and the meters prior to use at the next location.

3.2.6 Groundwater Monitoring Well Sampling

3.2.6.1 Water Level Survey

One new stream staffing gauge (consisting of tenth-foot markings, and extending to a height of approximately 4 feet above the water level) will be installed close to the shore of the Cayuga Creek. The exact location of this gauge will be selected during the field program. Once the new wells have been properly developed, static groundwater level measurements will be collected from the six new groundwater monitoring wells and the newly installed stream gauge in a single day.

Equipment

- Electronic water level indicator graduated to 0.01 foot.

Procedures

- Decontaminate the electronic water level probe;
- Slowly lower the electronic water level probe of the instrument until the indicator light illuminates and/or the alarm sounds;
- Pull the probe above the water surface and repeat the measurement;
- Read the depth to water from a marked reference point on the well casing or surface water marker; record the depth in EEEPC's geotechnical logbook; and
- Decontaminate any part of the water level indicator that was submerged by triple rinsing with deionized water prior to use at the next location.

3.2.6.2 Groundwater Sample Collection from Groundwater Wells

Two rounds of groundwater samples will be collected from the six groundwater monitoring wells installed under this investigation. The new wells will be sam-

pled no sooner than 24 hours after development is complete in order to allow the wells to recover and enable natural groundwater flow conditions to return in the immediate vicinity of the well. All groundwater samples will be submitted for the analyses listed in Table 3-1. Groundwater sampling will be performed using the equipment and procedures described below. Purged water will be managed in the same manner as the development water (see Section 3.2.14).

Equipment

- Electronic water level indicator graduated to 0.01 foot;
- Whale pump or equivalent submersible pump equipped with new discharge tubing and disposable polyethylene bailers;
- pH, temperature, specific conductance, oxidation/reduction potential (ORP), dissolved oxygen (DO), and turbidity meters;
- Geotechnical logbook;
- Appropriate sample containers (see Table 3-3); and
- A cooler with ice; and
- A field filtering device.

Procedures

- Decontaminate the water level probe;
- Slowly lower the electronic water level probe of the instrument until the indicator light illuminates and/or the alarm sounds and record in the logbook the depth to water from a marked reference point on the top of the well casing;
- Lower the probe to the bottom of the well casing and record the total depth of the well from a marked reference point in the logbook;
- Calculate the volume of water in the well using the formula provided on the well development form contained in the geotechnical logbook (i.e., a 1.5-inch well contains 0.092 gallon per foot of water);
- Slowly begin to pump water from the well at a uniform rate;
- Record the initial temperature, pH, conductivity, and turbidity in the logbook;
- Begin to purge three to five times the volume of water standing in the well casing;

- Record the temperature, pH, conductivity, and turbidity at least every 10 minutes, or at the removal of each well volume;
- Purge until pH, specific conductance, and temperature have stabilized over three consecutive readings, turbidity of the discharge is 50 NTUs or less, and at least three well volumes have been removed;
- If 50 NTUs cannot be obtained after five well volumes have been removed, return within 24 hours with a disposable polyethylene bailer to collect the sample volumes for all analytical parameters;
- Fill appropriate sample containers;
- Using the metals filter, filter the extra 1-liter volume of water, and containerize the filtrate in the appropriate sample container for TAL metals analysis.
- Pump deionized water through a clean metals filter and submit it for TAL metals analysis. This will become the field method blank.
- Placed samples in a cooler maintained with ice at 4°C upon collection;
- Record the sample ORP, DO, pH, temperature, and specific conductance; and
- Package and ship the samples to the laboratory in accordance with the procedures specified in Section 3.2.10.

3.2.6.3 Groundwater Sample Collection from Open Core Holes

At the field team's discretion, groundwater samples will be collected from two core holes. Generally, these two additional groundwater samples should be collected on the northwest or east sides of the ORF, if possible. The sampling approach varies significantly as there is no development or purging. Rather, groundwater is collected via use of a bailer, a described in Section 3.2.6.2. Field chemistry readings are obtained using the same approach as described in Section 3.2.6.2

Since the core hole groundwater samples can only be collected during coring, a second round of groundwater samples will not be collected from the core holes.

3.2.7 Surface Water and Sediment Sampling

Surface water and sediment samples will be collected from eight locations along Cayuga Creek. Additionally, if surface water pond locations are found on site, surface water/sediment sample pairs will be collected from two such locations. All locations will be selected by the EEEPC project manager and the NYSDEC project manager. At the beginning of the field program, these persons will mark each surface water/sediment sampling location using pin flags. Figure 1-1 shows

the proposed Cayuga Creek surface water/sediment sample locations; actual locations will be determined in the field. The two surface water sample locations east and northeast of the site, on the Cayuga Creek, are intended as upstream background locations. The ponded surface water/sediment sample locations will be identified during the sample marking process and are not noted on Figure 1-1.

The purposes of this sampling effort are:

- To assess the ambient environmental quality of surface waters and sediments in Cayuga Creek and on site; and
- To evaluate the actual and potential for dispersion of the site contamination into the environment, primarily Cayuga Creek, through natural drainage and erosion.

Water and sediment samples will be submitted for the analyses listed in Table 3-1.

3.2.7.1 Surface Water Sampling Methodology

Surface water samples will be collected at the same locations as the sediment samples. They will be collected first, followed by sediment sample collection, to minimize turbidity. The Cayuga Creek sample location sequence will start at the most downgradient point and progress upstream so as not to prevent the sampling process from adversely impacting the collection of future samples. Ponded surface water locations will be sampled following creek sampling. Equipment and sampling procedures are described below.

Equipment and Supplies

- pH, temperature, specific conductance, ORP, DO, and turbidity meters;
- Dedicated stainless-steel or glass beakers (500 milliliter [mL] minimum volume), or 8-ounce glass jars;
- Appropriate sample containers and sample preservation solutions (see Table 3-3); and
- A cooler with ice.

Surface Water Sampling Procedures

- Submerge a decontaminated beaker, glass jar, or the appropriate sample container into the water. If a beaker or glass jar is used, slowly pour the contents into the appropriate sample containers;
- Add preservatives (if necessary) as indicated in Table 3-3 and label the sample containers as specified in Section 3.2.10;

- Measure pH, temperature, specific conductance, ORP, DO, and turbidity from another (unpreserved) aliquot;
- Place samples in a cooler maintained with ice at 4 °C; and
- Label, package, and ship samples in accordance with the procedure specified in Section 3.2.10.

3.2.7.2 Sediment Sampling Methodology

Equipment

- Dedicated stainless-steel spoons;
- Dedicated disposable plastic and stainless-steel mixing bowls;
- Appropriate sample containers (see Table 3-3); and
- A cooler with ice.

Sediment Sampling Procedures

- For the seven locations where just PP metals are to be analyzed, collect sample volume and place it directly into a plastic mixing bowl. Mix the sample portions thoroughly, removing all stones and debris, and fill the appropriate sample containers (see Table 3-2);
- For the three locations where TCL organics and TAL metals are to be analyzed, collect the sample volume to be submitted for VOA analysis first. Place the VOA sample volume directly into the sample containers without homogenization.
- Collect sufficient sample volumes for the remaining analyses using a disposable stainless-steel spoon or trowel. Place this volume directly into a dedicated stainless-steel mixing bowl. Mix the sample portions thoroughly, removing all stones and debris, and fill the appropriate sample containers (see Table 3-2);
- For samples to be submitted for analyses other than for VOCs, decant excess liquid from each sample container as necessary and secure jar lid;
- Upon collection, place the samples in a cooler maintained with ice at 4°C; and
- Label, package, and ship samples in accordance with the procedure specified in Section 3.2.10.

3.2.7.3 Stream Data Collection

The field team shall also collect the following creek physical characteristic data to help understand how runoff from the site affects environmental quality:

- **Water Depth.** Read at sample locations using a carpenter's rigid steel tape measure or a water level indicator;
- **Substrate Composition.** Describe the material comprising the substrate in all parts of the stream (both shores, middle stream, and on Zurbrick Road banking). This may require using a sediment core sampler or a shovel to dig into the substrate in some places.
- **Water Flow Rate.** Estimate using a float and timer, or contact the local New York State Fish and Wildlife Service office to obtain pre-existing data. If such data is not available, a flow meter shall be used. Flow rate measurements shall be read in at three stream cross sections: the east, south, and west sides of the site.
- **Streambed Morphology.** Describe morphology, including characteristics and configuration of the Cayuga Creek streambed exposed bedrock and the transport and deposition of sediments occurring along the eastern, southern, and western creek segments of the site study area.
- **Other Significant Characteristics.** Record any other significant stream characteristics observed, such as the presence of leachate outbreaks along the stream banks, presence of oil sheens or discoloration, or visible fill presence.

3.2.8 Site Survey

Popli Consulting Engineers and Surveyors of Penfield, New York, will perform the site survey. Surveying will include:

- Horizontal locations and vertical elevations of the sample grid nodes, installed prior to soil sampling via DPT;
- Horizontal locations and vertical elevations of the six groundwater monitoring wells installed under this RI/FS. This will include the ground elevation and the elevation of the inner PVC riser of each monitoring well;
- Horizontal and vertical elevations of one stream staffing gauge installed close to the Cayuga Creek shore line in water measuring 2 feet deep or less;
- Horizontal and vertical elevations of all surface water/sediment sample locations; and

- The horizontal position of key site features such as the site roads, manholes, and the ORF perimeter.

Vertical control will be established to the nearest ±0.1 foot for all ground surface elevations. Monitoring well inner casing elevations require a control accuracy of +0.05 foot and will be reported to the nearest 0.01 foot. Elevations will be determined relative to a National Geodetic Vertical Datum (NGVD) station monument or NYS-approved monument. A reference to an existing NGVD or NYS monument may exist from previous efforts conducted at the site. If a monument does not exist within proximity to the site such that it cannot be referenced within one day's effort, a reference elevation will be assigned based upon on-site feature elevations reported in earlier studies.

Coordinates will be given in the State Plane East Zone (feet), North American Datum (NAD) 1983 to an accuracy of ±0.5 foot. If horizontal control is not available, local control shall be established using building corner coordinates derived from georeferenced aerial images available from the NYS GIS Clearinghouse and a site benchmark installed at the site by the surveyor.

Survey data will be used to develop an updated site base map; a copy of which will be presented in the RI report.

3.2.9 Air Monitoring

The site safety officer will perform air monitoring during intrusive site activities (subsurface soil borings and monitoring well installations) to characterize airborne contaminant concentrations including dust, organic vapors, and explosive gases. Air monitoring will be conducted for the protection of site workers and the community and to characterize environmental samples. The HASP (see Appendix A) specifies the monitoring equipment to be used for contaminants of interest and the frequency with which the monitoring will be performed. The CAMP contained in Appendix C provides further detail on the dust monitoring.

Action levels for each organic vapor, oxygen, and explosive gas monitoring instrument are also detailed in the HASP. Organic vapor concentrations will be measured in the workers' breathing zone air. Oxygen-deficient and combustible atmospheres will not be monitored at the workers' breathing zone. Instead, these monitors will be positioned at a location (e.g., at the top of the boreholes) that will measure a worst-case contaminant level and will provide the earliest possible warning that a hazardous condition may form.

Air monitoring at this site also consists of real-time monitoring for particulate matter at the upwind and downwind perimeter of each designated work area during ground intrusive activities via power tools, which for this RI consists of all activities to be conducted using a DPT device. The purpose of this program is to provide a measure of protection for the downwind community and receptors from

potential airborne contaminant releases as a direct result of remedial work activities. This program is also designed to confirm that site assessment activities did not spread contamination away from the site through the air. Since dust is not generated by damp, moist, or wet soils, this dust monitoring will not be conducted during rain events or when soil conditions do not generate dust. This program is detailed in the CAMP presented in Appendix C.

3.2.10 Sample Containerization, Preservation, Labeling, Packaging, and Shipping

Sample Containers and Preservation

The volumes and containers for soil and water samples as well as sample preservation and holding time requirements are presented in Tables 3-2 and 3-3. Prewashed sample containers will be provided by the analytical laboratory and prepared in accordance with EPA bottle-washing procedures.

Water sample preservation will consist of using pre-preserved sample containers for sample portions to be submitted for any metals analysis. Soil and water samples will be stored on ice pending delivery to the analytical laboratory.

Sample Labeling

All samples will be assigned a unique sample identifier (see QAPP in Appendix B). Labels for each sample container will contain the sample identifier, date of sample collection, analytical parameters, and type of preservation used. The sampler will initial any change in the label information prepared prior to sample collection.

Sample Packaging and Shipping

Soil and water sample containers will be placed inside sealed plastic bags as a precaution against cross-contamination caused by sample container leakage or breakage. They will be placed in coolers in such a manner as to eliminate the chance of breakage during shipment and ice in plastic bags will be placed in the coolers to keep the samples at 4°C throughout shipment. A temperature blank consisting of a 40-mL VOA vial half full of water shall be added to each cooler being shipped.

Sample shipment will be performed in strict accordance with all applicable United States Department of Transportation (DOT) regulations. The samples will be picked up and delivered to the subcontracted laboratory by laboratory personnel. Arrangements will be made with the subcontracted laboratory's project manager for samples that are to be delivered to a laboratory on a weekend so that holding times are not compromised. The shipping address is as follows:

CHEMTECH
284 Sheffield Street
Mountainside, New Jersey 07092

Phone: 908-789-8900
Fax: 908-789-8922

Sample Custody

A sample is considered to be in custody under the following conditions:

- The sample is directly in one's possession;
- The sample is clearly in one's view;
- The sample is placed in a locked location; or
- The sample is in a designated secure area.

In order to demonstrate that the samples and coolers have not been tampered with during shipment, adhesive custody seals will be used. The custody seals will be placed across the cooler lids in such a manner that they will be visibly disturbed upon opening the cooler. The seals will be signed or initialed and dated by field personnel at the time they are affixed to the cooler.

Documentation of sample chain of custody (COC) is necessary to demonstrate that the integrity of the samples has not been compromised between collection and delivery to the laboratory. A COC record will accompany each sample cooler to document the transfer of custody from the field to the laboratory. All information requested in the COC record will be completed. One copy of the COC form will be retained by the sampler and placed in the project records file. The remaining pages will be sealed in a plastic bag and placed inside the cooler. Upon receipt at the laboratory, the COC forms will be completed. It is the responsibility of the subcontracted laboratory to document the condition of custody seals and sample integrity upon receipt.

3.2.11 Analytical Program

Table 3-1 provides a summary of sampling and analysis for the Depew Village Landfill site. The laboratory will follow the NYSDEC Analytical Services Protocol (ASP) of June 2000 (or as updated July 2005 when implemented) for all analytical methods, quality assurance (QA)/quality control (QC), holding times, and reporting requirements except as noted below. Laboratory data will be reported with full data package (Level B) and standard laboratory electronic data deliverable (EDD) consistent with the Automatic Data Review (ADR) program. For PP metals for boreholes, the laboratory will provide a reduced data package (sample results and QC summary forms with no raw data). Sample analytical results will undergo electronic data processing and review for usability by EEEPC. Data for IDW soil and water disposal will not be reviewed. The data reviews (both hard copy and electronic) will follow the NYSDEC Guidance for the Development of Data Usability Summary Reports (DUSRs), June 1999. Electronic data will be

reviewed and validated by the ADR program. Project-specific qualifiers and data review requirements are listed in Appendix B.

3.2.12 Field Quality Control Samples

Table 3-1 provides a summary of field QC samples to be collected for the investigation. Field QC samples include field duplicates, trip blanks, rinsate blanks, and additional volume for laboratory MS/MSD analyses. Field duplicates will be collected from both aqueous and solid samples at a frequency of one per 20 samples. Rinsate blanks will be collected from any non-dedicated or non-disposable sampling equipment. Rinsate blanks will be collected by passing deionized water over the equipment after decontamination is completed. One rinsate blank will be collected from each non-dedicated equipment item for every 20 samples collected. The only non-dedicated equipment planned for use during this investigation are sample mixing bowls. Additional details pertaining to field QC requirements are included in the QAPP in Appendix B.

Assessment of the metals filters used will be conducted by collecting one filter blank sample per batch of filters used. This will be collected by flowing deionized water through a filter, collecting the filtrate, and submitting it for TAL metals analysis.

3.2.13 Decontamination Procedures

All 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. All intrusive and groundwater sampling equipment will be decontaminated before and after each location is drilled and sampled. Special attention will be given to all down-hole tooling, which will be decontaminated prior to and following each use. Decontamination of large equipment will consist of the following:

- Removal of foreign matter; and
- High-pressure steam cleaning.

The following alternative procedure will be used for smaller equipment and may also be employed for down-hole tooling:

- Initially remove all foreign matter;
- Scrub with brushes in Alconox solution;
- Rinse with deionized water; and
- Allow to air dry.

A temporary decontamination area will be established on site using heavy plastic sheeting as a pad. The primary purpose of the pad will be to decontaminate down-hole tooling and DPT units. Fluids generated during decontamination will be handled according to procedures described in Section 3.2.14.

3.2.14 Investigation-derived Waste Management

The following types of IDW are expected to be generated: soil cuttings from soil coring, decontamination water from soil and groundwater sampling, groundwater from well development and purging, and spent PPE. Waste streams will be segregated to the maximum extent possible.

In order to minimize the generation of drummed waste, IDW will be handled in the following manner:

- **Soil cuttings from boreholes:** As much soil cutting volume as possible will be used as backfill at each core hole. However, only soils considered to be non-contaminated (i.e., based on color, odor, instrument readings) will be used as backfill. Remaining cuttings that are considered non-contaminated will be spread on site; however, remaining cuttings that are believed to be potentially contaminated material will be drummed;

- **Development and purge waters from monitoring wells:** These waters will be monitored for organic vapor presence using a PID. If organic vapors are not emitted and there is no visible sheen on the water surface, waters will be discharged on site. Development water exhibiting a sheen or emitting PID readings at concentrations above background will be containerized.

- **Decontamination waters:** These waters will be monitored for organic vapor presence using a PID. If organic vapors are not emitted and there is no visible sheen on the water surface, they will be discharged on site. Decontamination water exhibiting a sheen or emitting PID readings at concentrations above background will be containerized.

- **Used PPE:** Unless field screening indicates that PPE and other solid wastes are contaminated to the level that they can not be disposed of as non-hazardous waste, this material will be double-bagged and disposed of off site as non-regulated solid waste.

Wastes requiring containerization will be placed in DOT-approved 55-gallon drums and stored on site pending analysis and disposal. Drums will be staged on wooden pallets and covered with a plastic tarp. All drums containing IDW will be labeled as to their contents, the site name, location where the material was generated, and date the waste was generated. One composite soil sample has been budgeted for TCLP VOCs, SVOCs, pesticides, metals, and TCL PCBs. Drummed aqueous IDW will be submitted for TAL VOC, SVOC, PCB, pesticide, and TAL metals analyses. Pending the results of the analyses, drummed soils and water

may be released on site or may require off-site disposal. Costs for drum disposal are not included in this work scope because they can not be determined until after waste characterization has been completed. If off-site disposal is necessary, EEEPC will prepare a work scope change to adjust the project budget. EEEPC will then coordinate this drum hauling with the NYSDEC project manager to ensure that NYSDEC is available to sign the waste shipping manifest(s), as legally NYSDEC is the waste generator.

3.2.15 Preliminary Data Evaluation and Interim Remedial Measures (IRMs) Recommendations

During the field investigation, EEEPC will frequently evaluate the information and data obtained. Based on these evaluations, EEEPC may make recommendations to the NYSDEC project manager to conduct interim remedial measures (IRMs) which may be appropriate for the site.

3.3 RI Report

EEEPC will publish a draft and final RI report consisting of the site background data compiled during the investigation, investigation procedures undertaken, data gathered, and data interpretation. The draft report will also discuss any additional activities which are required to adequately define the site contamination. This document will also include a photo log that documents site activities and findings, as well as groundwater monitoring well soil boring logs. All analytical data will be reviewed by an EEEPC data validator who will prepare DUSRs for all analytical data based on the ADR tables. DUSRs for all laboratory chemical analytical data will also be included in the report. The report will also present the Fish and Wildlife Resources Impact Analysis (FWRIA) Step IIA findings, as well as the HEERA. The final RI report will be submitted to NYSDEC in electronic format on a compact disk. The disk will contain a single searchable PDF file and will contain all report appendices, volumes, plans, and drawings together. Non-text based documents may be submitted in their native formats on the file.

An updated conceptual site model representing site dynamics for sources, affected media, release mechanisms, and potential contamination pathways and receptors will be developed. The analytical data will be screened against New York State Standards, Criteria, and Guidelines (SCGs) or other guidance to be considered (TBC). This shall include *Determination of Soil Cleanup Objectives and Cleanup Levels* (NYSDEC TAGM 4046) for subsurface soils; NYSDEC Class GA and Class C, Ambient Water Quality Standards and Guidance Values for groundwater and surface water, respectively; NYSDEC, Division of Fish, Wildlife, and Marine Resources, Technical Guidance for Screening Contaminated Sediments; and EPA Region III Risk-Based Concentration (RBC) tables. For air sample results, EPA Region III RBCs for air and/or other guidance to be discussed with New York State Department of Health (NYSDOH) and NYSDEC at the time of reporting will be used for comparison. The initial screening will serve to evaluate potential

exposure risks to humans. Based on the comparison, a qualitative evaluation of potential risk will be presented.

3.4 Health and Environmental Exposure Risk Assessment

EEEPC will generate a HEERA using the information gathered during the RI that documents whether conditions at the site pose an actual or potential risk to human health and provides data and information useful for evaluating remedial alternatives. Based on the results of previous investigations, it is expected that lead will pose the greatest human health exposure risk at the site.

Site conditions and analytical data obtained from previous reports and upcoming sampling programs will be used to develop a conceptual site model (CSM) for the site. A CSM represents site dynamics for sources, affected media, release mechanisms, potential contamination pathways, and receptors at the site. A complete exposure pathway requires:

- A source and mechanism for contaminant release;
- A transport medium;
- A point of environment contact; and
- A route of exposure to a receptor (e.g., ingestion, dermal contact) at a point of contact.

CSMs illustrating potential exposure pathways and receptors will be presented as a box and arrow diagram with associated text. Complete exposure pathways identified in the CSM will be further evaluated in a screening level risk assessment.

Based on previous investigations at the site, affected media may include soil (surface and subsurface), groundwater, surface water, and/or sediment. The analytical data from these media will be screened against NYS SCGs or other guidance TBC. This shall include but not be limited to the *Determination of Soil Cleanup Objectives and Cleanup Levels* (NYSDEC TAGM 4046) for soils; NYSDEC Ambient Water Quality Standards and Guidance Values for groundwater and surface water; NYSDEC Sediment Criteria; and EPA RBC tables. If applicable, other appropriate guidance will be identified through discussions with NYSDOH and NYSDEC. Other factors which will be considered in the screening process for contaminants which exceed the SCGs are chemical toxicity, mobility, and environmental persistence. Site contaminant concentrations that exceed applicable screening levels will be retained as compounds of potential concern.

Based on the CSM and the list of compounds of potential concern, a recommendation for further action will be made. The recommendation may conclude no further human health risk assessment is needed, additional site information is re-

quired, or further risk evaluation is warranted through a quantitative risk assessment. Costs have not been included for a quantitative human health risk assessment because it is unknown at this time whether it will be needed.

3.5 Fish and Wildlife Resources Impact Analysis

EEEPC will conduct a Fish and Wildlife Resource Impact Analysis through Step IIA using the information gathered during the RI that: (1) documents whether conditions at the site pose an actual or potential ecological risk; (2) identifies the contaminants that pose any actual or potential ecological risk; and (3) provides data and information useful for evaluating remedial alternatives. EEEPC will follow the guidance set forth in the *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites* (NYSDEC 1994) under Step I - Site Description (Section A [Site Maps]; Section B [Description of Fish and Wildlife Resources]; and Section C [Description of Fish and Wildlife Resource Values]) and under Step II - Contaminant-Specific Impact Assessment (Section A [Pathway Analysis], as applicable and appropriate, based on the findings of the RI. . The remaining Step II efforts, including Section B [Criteria-Specific Analysis]; and Section C [Toxic Effect Analysis]), will not be conducted under this work scope. It is expected that the FWRIA will be completed in collaboration with the NYSDEC Division of Fish and Wildlife - Bureau of Habitat.

Since this site is located approximately 1.5 miles upstream of two other sites on which FWRIAs have been conducted, data from these studies pertaining will be used to the extent applicable.

3.6 Feasibility Study

This task includes the development of an FS to meet NYSDEC goals to be protective of human health and the environment. The FS will be conducted generally based upon guidance by NYSDEC and EPA for RI/FS work (NYSDEC Final TAGM No. 4044, *Accelerated Remedial Actions at Class 2, Non-RCRA Regulated Landfills* (1992); NYSDEC Final TAGM No. 4030, *Selection of Remedial Actions at Inactive Hazardous Waste Sites*, and EPA, *Guidance for Conducting Remedial Investigations and Feasibility Studies* under the Comprehensive Environmental Response, Compensation and Liability Act [CERCLA]). Preparation of one draft and one final submission are assumed in the cost estimate.

The process to be followed for the FS will be:

- Development of Remedial Alternatives/Technologies Identification;
- Screening of alternatives;
- Detailed analysis of alternatives/Draft FS Report; and
- Final FS Report, Recommendation, and PRAP Support.

Each component is discussed in the following subsections.

3.6.1 Development of Remedial Alternatives/Technologies Identification

In order to develop remedial alternatives appropriate to address concerns at the site, remedial action objectives (RAOs) will be identified with the objective to protect human health and the environment and address the contaminants of concern, exposure routes and receptor(s), and proposed cleanup goals.

The first step in the FS process is to determine which areas may require remediation. This is accomplished by first developing proposed cleanup goals set for each media based on media-specific receptors and exposure routes. For this project, proposed cleanup goals will be based on NYS SCGs or other guidance TBC.

Once the proposed cleanup goals have been established, the area and subsequent media volumes requiring remediation will be determined by comparing RI analytical data to the proposed cleanup goals. Remedial alternatives and technologies, including general response actions (i.e., such as treatment, containment, or disposal) will then be identified and evaluated to meet these proposed cleanup goals.

3.6.2 Screening of Alternatives

The alternatives developed in Section 3.6.1 will be screened against the criteria of effectiveness, implementation, and cost to select the most appropriate alternatives for detailed alternative development. Past performance (i.e., demonstrated technology) and operating reliability will also be considered. The initial list of remedial alternatives and the screened list, along with discussion and justifications, will be submitted in the form of a Preliminary Screening of Alternatives Report to the NYSDEC Project Manager for review. After department review, EEEPC will meet with NYSDEC project representatives to assess the process and examine the alternatives that passed the screening.

3.6.3 Detailed Analysis of Alternatives/Draft FS Report

Based on the technology screening in Section 3.6.2, each alternative will be fully evaluated both individually and comparatively based on the following eight criteria:

- Overall protection of human health and the environment;
- Compliance with SCGs and TBCs (as appropriate);
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, and volume;

- Short-term impacts and effectiveness;
- Implementability and technical reliability;
- Community acceptance; and,
- Cost.

Based on the evaluation in the detailed analysis, EEEPC will develop a Draft FS report for the Department's review.

3.6.4 Final Feasibility Report, Recommendations, and PRAP Support

Upon review of the Draft FS report by NYSDEC, EEEPC will develop a Final FS. Under separate cover, EEEPC will make a recommendation of a preferred alternative that fulfills the requirements of 6 NYCRR Part 375, and is consistent with the National Contingency Plan. EEEPC will also develop a conceptual plan comprised of a written description with associated figures for implementing the preferred alternative. Engineered drawings are not included in the conceptual plan. EEEPC will also provide selected additional data and analysis, limited to available information, as necessary for NYSDEC to prepare a Proposed Remedial Action Plan (PRAP) for the site.

3.7 Public Participation

EEEPC will participate in the community involvement process. It is anticipated that the extent of EEEPC's involvement with this process will be limited to providing technical support at a public participation meetings, establishing document repositories, developing a mailing list, and assisting NYSDEC with preparation of two fact sheets.

A complete Citizen Participation Plan activities is provided in Appendix D.

4 Schedule

The project schedule is presented in Table 4-1.

Table 4-1

Depew Village Landfill - Site 9-15-105
RI/FS Work Assignment
Preliminary Project Schedule With Milestones

Issuance of a Work Assignment	9/15/2005	
Acknowledge Receipt of WA	9/26/2005	10 days after WA issuance
Site Visit	10/6/2005	Approx. 3 weeks after WA issuance
Scoping Session	10/6/2005	Within 30 days after WA issuance
Submit Draft RI/FS Work Plan*	11/9/2005	Approx 30 days after site visit
NYSDEC Comments on Draft RI/FS Work Plan	11/30/2005	3 weeks after receipt
Submit Final RI/FS Work Plan	12/28/2005	2 weeks after NYSDEC comments
Issue Notice to Proceed (NTP)*	1/2/2006	1 week after Final Work Plan Approval
Submit IRM recommendation based on investigation data	3/6/2006	2 months after NTP (or when deemed necessary)
Submit Draft Remedial Investigation Report**	6/5/2006	4 months after NTP
NYSDEC Comments on Draft RI Report	7/2/2006	4 weeks after receipt of Draft RI report
Submit Final RI Report*	7/16/2006	2 weeks after NYSDEC Comments
Approval of RI Report	7/26/2006	1 week after receipt of Final RI Report
Submit Preliminary Screening of Alternatives*	8/26/2006	4 weeks after RI Report Approval
NYSDEC Comments on Alternatives Screening	9/16/2006	3 weeks after receipt of Alternatives Screening
Submit Draft FS Report**	10/13/2006	4 weeks after NYSDEC Comments
NYSDEC Comments on Draft FS Report	11/11/2006	4 weeks after receipt of Draft FS Report
Submit Final RI/FS Report*	12/1/2006	2 weeks after NYSDEC Comments
NYSDEC issues PRAP	1/3/2006	4 weeks after receipt of Final RI/FS Report FS Report
PRAP Public Meeting	1/20/2007	3 weeks after PRAP issued
NYSDEC issues ROD*	4/21/2007	90 days after PRAP issued

5 Staffing Plan

EEEPC proposes the following primary staffing plan for completion of this work assignment:

Contract Manager: David Albers, P.E.; Civil Engineer
Project Manager: Jon Nickerson, CHMM; Geologist

Task 1: Work Plan

Jon Nickerson: Preparation of work plan
Marcia Meredith Galloway: Preparation of site-specific QAPP
Brian Cervi: Preparation of site-specific HASP
David Albers, P.E. and Gene Florentino, P.G.: Document review, costing, and schedule development

Task 2: Site Characterization

Brian Cervi and/or Stephanie Reynolds-Smith: Field Team Leaders, Project Geologists
Andrew Francisco, Jim Mays, or Larry Roedl: Field Assistant/Site Safety Officer
Marcia Meredith Galloway: Quality Assurance Officer
Jon Nickerson, CHMM; Brian Cervi; Carl Mach; Carl Stineman: Primary Report Authors
David Albers, P.E., and Gene Florentino, P.G.: Report Review

Task 3: FS Report

Shawn Gardner, and Gary Klawinski: Primary Report Authors
David Albers, P.E., and Gene Florentino, P.G.: Report Review

Personnel biographies will be provided upon request.

6 References

Ecology and Environment, Inc., 2005, *Draft Quality Assurance Project Plan (QAPP) for New York State Department of Environmental Conservation Superfund Projects*, Lancaster, New York.

New York State, 2001, Statewide Digital Orthoimagery Program, 2001, Annual Lot.

NYSDEC, 2000, *Draft DER-10 Technical Guidance for Site Investigation and Remediation*, prepared by the Division of Environmental Remediation, Albany, New York.

_____, 1998, Division of Water Technical and Operational Guidance Series (1.1.1): Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Division of Water, Albany, New York.

_____, 1994, *Technical and Administrative Guidance Memorandum (TAGM) No. 4046, Determination of Soil Cleanup Objectives and Soil Cleanup Levels*, prepared by M.J. O'Toole, Jr., Division of Hazardous Waste Remediation, NYSDEC, Albany, New York.

_____, 1992, *Technical and Administrative Guidance Memorandum (TAGM) No. 4044, /Accelerated Remedial Actions at Class 2, Non-RCRA Regulated Landfills*, prepared by M.J. O'Toole, Jr., Division of Hazardous Waste Remediation, NYSDEC, Albany, New York.

A Site-specific Health and Safety Plan

Revision 4
April 2005

ecology and environment, inc.

SITE-SPECIFIC
HEALTH AND SAFETY PLAN

Project: Depew Village Landfill RI/FS

Project No.: 000699.NV33

TDD/PAN No.: n/a

Project Location: Borden Road, Depew, NY

Proposed Date of Field Activities: January - February, 2006

Project Director: G. Florentino

Project Manager: Jon Nickerson

Prepared by: J. Nickerson Date Prepared: October, 2005

Approved by: Jon Florentino Date Approved: 10-31-05

1. INTRODUCTION

1.1 POLICY

It is Ecology and Environment Engineering, P.C.'s (EEEPC's) policy to ensure the health and safety of its employees, the public, and the environment during the performance of work it conducts. This site-specific health and safety plan (SHASP) establishes the procedures and requirements to ensure the health and safety of EEEPC employees for the above-named project. EEEPC's overall safety and health program is described in *Corporate Health and Safety Program for Toxic and Hazardous Substances* (CHSP). After reading this plan, applicable EEEPC employees shall read and sign EEEPC's Site-Specific Health and Safety Plan Acceptance form.

This SHASP has been developed for the sole use of EEEPC employees and is not intended for use by firms not participating in EEEPC's training and health and safety programs. Subcontractors are responsible for developing and providing their own safety plans.

This SHASP has been prepared to meet the following applicable regulatory requirements and guidance:

Applicable Regulation/Guidance
29 CFR 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER)
Other:

1.2 SCOPE OF WORK

Description of Work: Conduct a remedial investigation of the Depew Village Landfill site, including installation of soil borings, groundwater monitoring wells, surface soil sampling, sediment and surface water sampling, and air monitoring.

Equipment/Supplies: Attachment 1 contains a checklist of equipment and supplies that will be needed for this work.

The following is a description of each numbered task:

Task Number	Task Description
01	Surface soil sampling via hand auger
02	Surface water and sediment sampling
03	Geoprobing
04	Groundwater monitoring well installation
05	Groundwater monitoring well sampling

1.3 SITE DESCRIPTION

Site Map: A site map or sketch is attached at the end of this plan.

Site History/Description (see project work plan for detailed description): The Depew Village Landfill received municipal waste as well as foundry waste from approximately 1940 through 1961. The core site consists of a 1.3-acre parcel located on an ox-bow bend of the Cayuga creek. The RI/FS study area includes this area, as well as the area to the north, a portion of which includes a storm water overflow retention facility.

Is the site currently in operation?

The landfill is no longer operated. The ORF is operated, and vehicles actively enter and exit from the north end of the study area.

Locations of Contaminants/Wastes: Landfill materials primarily exist in the southern end of the site; however, they are suspected to also exist in the peripheral areas bordering Cayuga Creek. Neither the vertical nor the horizontal position of the lead-enriched matrix with the landfill has been defined.

Types and Characteristics of Contaminants/Wastes:

☐ Liquid	X Solid	☐ Sludge	☐ Gas/Vapor
☐ Flammable/Ignitable	☐ Volatile	☐ Corrosive	☐ Acutely Toxic
☐ Explosive	☐ Reactive	☐ Carcinogenic	☐ Radioactive
☐ Medical/Pathogenic	Other: _____		

2. ORGANIZATION AND RESPONSIBILITIES

EEEPC team personnel shall have on-site responsibilities as described in EEEPC's standard operating procedure (SOP) for Site Entry Procedures (GENTECH 2.2). The project team, including qualified alternates, is identified below.

Name	Site Role/Responsibility
Stephanie Reynolds Smith or Brian Cervi	Task Manager
Jim Mays or Andy Francisco	Site Safety Officer

3. TRAINING

Prior to work, EEEPC team personnel shall have received training as indicated below. As applicable, personnel shall have read the project work plan, sampling and analysis plan, and/or quality assurance project plan prior to project work.

Training	Required
40-Hour OSHA HAZWOPER Initial Training and Annual Refresher (29 CFR 1910.120)	X
Annual First Aid/CPR	X
Hazard Communication (29 CFR 1910.1200)	X

Training	Required
40-Hour Radiation Protection Procedures and Investigative Methods	
8-Hour General Radiation Health and Safety	
Radiation Refresher	
DOT and Biannual Refresher	X
Other:	

4. MEDICAL SURVEILLANCE

4.1 MEDICAL SURVEILLANCE PROGRAM

EEEPC field personnel shall actively participate in EEEPC's medical surveillance program as described in the CHSP and shall have received, within the past year, an appropriate physical examination and health rating.

EEEPC's health and safety record (HSR) form will be maintained on site by each EEEPC employee for the duration of his or her work. EEEPC employees should inform the site safety officer (SSO) of any allergies, medical conditions, or similar situations that are relevant to the safe conduct of the work to which this SHASP applies.

Is there a concern for radiation at the site? ☐ Yes X No
If no, go to 5.1.

4.2 RADIATION EXPOSURE

4.2.1 External Dosimetry

Thermoluminescent Dosimeter (TLD) Badges: TLD badges are to be worn by all EEEPC field personnel on certain required sites.

Pocket Dosimeters: _____

_____

Other: _____

_____

4.2.2 Internal Dosimetry

☐ Whole body count ☐ Bioassay ☐ Other

Requirements: _____

_____

4.2.3 Radiation Dose

Dose Limits: EEEPC's radiation dose limits are stated in the CHSP. Implementation of these dose limits may be designated on a site-specific basis.

Site-Specific Dose Limits: _____

ALARA Policy: Radiation doses to EEEPC personnel shall be maintained as low as reasonably achievable (ALARA), taking into account the work objective, state of technology available, economics of improvements in dose reduction with respect to overall health and safety, and other societal and socioeconomic considerations.

5. SITE CONTROL

5.1 SITE LAYOUT AND WORK ZONES

Site Work Zones: Refer to the map or site sketch, attached at the end of this plan, for designated work zones.

Site Access Requirements and Special Considerations: Site access is only through the gate entry located at the north end of the site. This gate can be accessed either by Village or County personnel. EEEPC has been given permission by the Village to have the gate remain open after hours, with the requirement that the EEEPC team will close the gate at the end of each day they are on site.

Illumination Requirements: All site work will be conducted during daylight hours; therefore, artificial illumination at the site is not a concern.

Sanitary Facilities (e.g., toilet, shower, potable water): Field team can use sanitary facilities at the Village's Department of Public Works buildings, located on site.

On-site Communications: Team leader shall be equipped with a cellular telephone. Telephone service is also available at the Village Public works buildings.

Other Site-Control Requirements: Lock gate when leaving if field team is the last one out.

5.2 SAFE WORK PRACTICES

Daily Safety Meeting: A daily safety meeting will be conducted for all EEEPC personnel and documented on the Daily Safety Meeting Record form or in the field logbook. The information and data obtained from applicable site characterization and analysis will be addressed in the safety meetings and also used to update this SHASP, as necessary.

Work Limitations: Work shall be limited to a maximum of 12 hours per day. If 12 consecutive days are worked, at least one day off shall be provided before work is resumed. Work will be conducted in daylight hours unless prior approval is obtained and the illumination requirements in 29 CFR 1910.120(m) are satisfied.

Weather Limitations: Work shall not be conducted during electrical storms. Work conducted in other inclement weather (e.g., rain, snow) will be approved by project management and the regional safety coordinator or designee.

Other Work Limitations: Cold stress is a concern for work during winter months. Slip/trip/fall hazards a concern due to site terrain and possible presence of ice.

Buddy System: Field work will be conducted in pairs of team members according to the buddy system.

Line of Sight: Each field team member shall remain in the line of sight and within verbal communication of at least one other team member.

Eating, Drinking, and Smoking: Eating, drinking, smoking, and the use of tobacco products shall be prohibited in the exclusion and contamination reduction areas, at a minimum, and shall only be permitted in designated areas.

Contamination Avoidance: Field personnel shall avoid unnecessary contamination of personnel, equipment, and materials to the extent practicable.

Sample Handling: Protective gloves of a type designated in Section 7 will be worn when containerized samples are handled for labeling, packaging, transportation, and other purposes.

Other Safe Work Practices: Watch for slip/trip/fall hazards in wooded areas of the site. Watch for vehicle traffic when working at the north end of the site, near any buildings or driveways.

6. HAZARD EVALUATION AND CONTROL

6.1 PHYSICAL HAZARD EVALUATION AND CONTROL

Potential physical hazards and their applicable control measures are described in the following table for each task.

Hazard	Task Number	Hazard Control Measures
Biological (flora, fauna, etc.)	All, in summer time	▪ Potential hazard: Poison Ivy ▪ Establish site-specific procedures for working around identified hazards. ▪ Other:
Cold Stress	All tasks, if conducted in winter or during rainy weather	▪ Provide warm break area and adequate breaks. ▪ Provide warm noncaffeinated beverages. ▪ Promote cold stress awareness. ▪ See *Cold Stress Prevention and Treatment* (attached at the end of this plan if cold stress is a potential hazard).
Compressed Gas Cylinders	n/a	▪ Use caution when moving or storing cylinders. ▪ A cylinder is a projectile hazard if it is damaged or its neck is broken. ▪ Store cylinders upright and secure them by chains or other means. ▪ Other:
Confined Space	n/a	▪ Ensure compliance with 29 CFR 1910.146. ▪ See SOP for Confined Space Entry. Additional documentation is required. ▪ Other:

Hazard	Task Number	Hazard Control Measures
Drilling	03, 04	▪ See SOP for Health and Safety on Drilling Rig Operations. Additional documentation may be required. ▪ Landfill caps will not be penetrated without prior discussions with corporate health and safety staff. ▪ Other:
Drums and Containers	n/a	▪ Ensure compliance with 29 CFR 1910.120(j). ▪ Consider unlabeled drums or containers to contain hazardous substances and handle accordingly until the contents are identified. ▪ Inspect drums or containers and assure integrity prior to handling. ▪ Move drums or containers only as necessary; use caution and warn nearby personnel of potential hazards. ▪ Open, sample, and/or move drums or containers in accordance with established procedures; use approved drum/container-handling equipment. ▪ Other:
Electrical	03, 04	▪ Ensure compliance with 29 CFR 1910 Subparts J and S. ▪ Locate and mark energized lines. ▪ De-energize lines as necessary. ▪ Ground all electrical circuits. ▪ Guard or isolate temporary wiring to prevent accidental contact. ▪ Evaluate potential areas of high moisture or standing water and define special electrical needs. ▪ Other:
Excavation and Trenching	n/a	▪ Ensure that excavations comply with and personnel are informed of the requirements of 29 CFR 1926 Subpart P. ▪ Ensure that any required sloping or shoring systems are approved as per 29 CFR 1926 Subpart P. ▪ Identify special personal protective equipment (PPE) (see Section 7) and monitoring (see Section 8) needs if personnel are required to enter approved excavated areas or trenches. ▪ Maintain line of sight between equipment operators and personnel in excavations/trenches. Such personnel are prohibited from working in close proximity to operating machinery. ▪ Suspend or shut down operations at signs of cave in, excessive water, defective shoring, changing weather, or unacceptable monitoring results. ▪ Other:

Hazard	Task Number	Hazard Control Measures
Fire and Explosion	3, 4	▪ Inform personnel of the location(s) of potential fire/explosion hazards. ▪ Establish site-specific procedures for working around flammables. ▪ Ensure that appropriate fire suppression equipment and systems are available and in good working order. ▪ Define requirements for intrinsically safe equipment. ▪ Identify special monitoring needs (see Section 8). ▪ Remove ignition sources from flammable atmospheres. ▪ Coordinate with local fire-fighting groups regarding potential fire/explosion situations. ▪ Establish contingency plans and review daily with team members. ▪ Other:
Heat Stress	All tasks, if conducted when ambient temperatures exceed 75F.	▪ Provide cool break area and adequate breaks. ▪ Provide cool noncaffeinated beverages. ▪ Promote heat stress awareness. ▪ Use active cooling devices (e.g., cooling vests) where specified. ▪ See *Heat Stress Prevention and Treatment* (attached at the end of this plan if heat stress is a potential hazard).
Heavy Equipment Operation	03 and 04n/a	▪ 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 (Section 7) and monitoring (Section 8) needs. ▪ Ensure that field personnel do not work in close proximity to operating equipment. ▪ Ensure that lifting capacities, load limits, etc., are not exceeded. ▪ Other:
Heights (Scaffolding, Ladders, etc.)	n/a	▪ Ensure compliance with applicable subparts of 29 CFR 1910. ▪ Identify special PPE needs (e.g., lanyards, safety nets, etc.) ▪ Other:
Noise	03 and 04	▪ Establish noise level standards for on-site equipment/operations. ▪ Inform personnel of hearing protection requirements (Section 7). ▪ Define site-specific requirements for noise monitoring (Section 8). ▪ Other:
Overhead Obstructions	3, 4	▪ Wear hard hat. ▪ Other:

Hazard	Task Number	Hazard Control Measures
Power Tools	n/a	▪ Ensure compliance with 29 CFR 1910 Subpart P. ▪ Other:
Sunburn	All tasks, if conducted during bright sun, in any season	▪ Apply sunscreen. ▪ Wear hats/caps and long sleeves. ▪ Other:
Utility Lines	3, 4	▪ Identify/locate existing utilities prior to work. ▪ Ensure that overhead utility lines are at least 25 feet away from project activities. ▪ Contact utilities to confirm locations, as necessary. ▪ Other:
Weather Extremes	All tasks, especially if conducted during the winter or summer months	▪ Potential hazards: ▪ Establish site-specific contingencies for severe weather situations. ▪ Provide for frequent weather broadcasts. ▪ Weatherize safety gear, as necessary (e.g., ensure eye wash units cannot freeze, etc.). ▪ Identify special PPE (Section 7) needs. ▪ Discontinue work during severe weather. ▪ Other:
Other:		▪ ▪
Other:		▪ ▪

6.2 CHEMICAL HAZARD EVALUATION AND CONTROL

6.2.1 Chemical Hazard Evaluation

Potential chemical hazards are described by task number in Table 6-1. Hazard Evaluation Sheets for major known contaminants are attached at the end of this plan.

Table 6-1

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)
All	Arsenic	0.010 mg/m3	0.002 mg/m3	0.01	Yes	Inhalation, skin absorption, skin and/or eye contract, ingestion	Ulceration of nasal septum, gastrointestinal disturbances, peripheral neuropath, respiratory irritation,	n/a	None	None
All	Lead	0.050 mg/m3	0.01 mg/m3	0.05 mg/m3	Yes	Inhalation, ingestion, eye and/or skin contact	Weakness, exhaustion, eye irritation, hypotension	n/a	None	None
All	Cadmium	0.005 mg/m3	LFC	.01 mg/m3	No	Inhalation, Ingestion	Difficulty breathing; headache, chills, muscle aches, nausea, vomiting, diarrhea, loss of sense of smell	n/a	None	None
All	Nickel	---	0.015 mg/m3	---	Yes	Inhalation, ingestion, eye and/or skin contact	Sensitization dermatitis, allergic asthma, pneumonitis	n/a	None	None
All	Phenol	5 ppm	5 ppm	5 ppm	Yes	Inhalation, skin absorption, ingestion, skin and/or eye contact.	Irritation eyes, nose, throat; anorexia, weight loss; lassitude (weakness, exhaustion), muscle ache, pain; dark urine; cyanosis; liver, kidney damage; skin burns; dermatitis; ochronosis; tremor, convulsions, twitching	.05 Ppm Tar-like	545	8.5

Note: Use an asterisk (*) to indicate known or suspected carcinogens.

6.2.2 Chemical Hazard Control

An appropriate combination of engineering/administrative controls, work practices, and PPE shall be used to reduce and maintain employee exposures to a level at or below published exposure levels (see Section 6.2.1).

Applicable Engineering/Administrative Control Measures: Establish personal decontamination area within site gates; bag all PPE; site visitors not allowed into study area without wearing proper protection.

PPE: See Section 7.

6.3 RADIOLOGICAL HAZARD EVALUATION AND CONTROL

6.3.1 Radiological Hazard Evaluation

Potential radiological hazards are described below by task number. Hazard Evaluation Sheets for major known contaminants are attached at the end of this plan.

Task Number	Radionuclide	DAC (μCi/ml)	Route(s) of Exposure	Major Radiation(s)	Energy(s) (MeV)	Half-Life

6.3.2 Radiological Hazard Control

Engineering/administrative controls and work practices shall be instituted to reduce and maintain employee exposures to a level at or below the permissible exposure/dose limits (see Sections 4.2.3 and 6.3.1). Whenever engineering/administrative controls and work practices are not feasible or effective, any reasonable combination of engineering/administrative controls, work practices, and PPE shall be used to reduce and maintain employee exposures to a level at or below permissible exposure/dose limits.

Applicable Engineering/Administrative Control Measures: _____

_____

PPE: See Section 7.

7. LEVEL OF PROTECTION AND PERSONAL PROTECTIVE EQUIPMENT

7.1 LEVEL OF PROTECTION

The following levels of protection (LOPs) have been selected for each work task based on an evaluation of the potential or known hazards, the routes of potential hazard, and the performance specifications of the PPE. On-site monitoring results and other information obtained from on-site activities will be used to modify these LOPs and the PPE, as necessary, to ensure sufficient personnel protection. The authorized LOP and PPE shall only be changed with the approval of the regional safety coordinator or designee. Level A is not included below because Level A activities, which are performed infrequently, will require special planning and addenda to this SHASP.

Task Number	B	C	D	Modifications Allowed
1		(X)	X	
2		(X)	X	
3		(X)	X	
4		(X)	X	
5		(X)	X	

Note: Use "X" for initial levels of protection. Use "(X)" to indicate levels of protection that may be used as site conditions warrant.

7.2 PERSONAL PROTECTIVE EQUIPMENT

The PPE selected for each task is indicated below. EEEPC's PPE program complies with 29 CFR 1910.120 and 29 CFR 1910 Subpart I and is described in detail in the CHSP. Refer to 29 CFR 1910 for the minimum PPE required for each LOP.

PPE	Task Number/LOP					
	1	2	3	4	5	6
Full-face APR			(X)	(X)		
PAPR						
Cartridges:						
P100						
GMC-P100			(X)	(X)		
GME-P100						
Other:						
Positive-pressure, full-face SCBA						
Spare air tanks (Grade D air)						
Positive-pressure, full-face, supplied-air system						
Cascade system (Grade D air)						
Manifold system						
5-Minute escape mask						
Safety glasses	X	X	X	X	X	
Monogoggles						
Coveralls/clothing						

PPE	Task Number/LOP					
	1	2	3	4	5	6
Protective clothing:						
Tyvek	(X)	(X)	(X)	(X)	(X)	
Saranex		(X)				
Other:						
Splash apron						
Inner gloves:						
Cotton						
Nitrile						
Latex	X	X	X	X	X	
Other:						
Outer gloves:						
Viton						
Rubber						
Neoprene	(X)	(X)	(X)	(X)	(X)	
Nitrile						
Other:						
Work gloves	(X)	(X)	(X)	(X)	(X)	
Safety boots (as per ANSI Z41)	X	X	X	X	X	
Neoprene safety boots (as per ANSI Z41)	(X)	(X)	(X)	(X)	(X)	
Boot covers (type: _____)	(X)	X	(X)	(X)	(X)	
Hearing protection (type: _____)			X	X		
Hard hat	X	X	X	X	X	
Face shield						
Other:						
Other:						

8. HEALTH AND SAFETY MONITORING

Health and safety monitoring will be conducted to ensure proper selection of engineering/administrative controls, work practices, and/or PPE so that employees are not exposed to hazardous substances at levels that exceed permissible exposure/dose limits or published exposure levels. Health and safety monitoring will be conducted using the instruments, frequency, and action levels described in Table 8-1. Health and safety monitoring instruments shall have been appropriately calibrated and/or performance-checked prior to use.

9. DECONTAMINATION PROCEDURES

All equipment, materials, and personnel will be evaluated for contamination upon leaving the exclusion area. Equipment and materials will be decontaminated and/or disposed and personnel will be decontaminated, as necessary. Decontamination will be performed in the contamination reduction area or any designated area such that the exposure of uncontaminated employees, equipment, and materials will be minimized. Specific procedures are described below.

Equipment/Material Decontamination Procedures (specified by work plan): Most all sampling equipment is either dedicated, or does not contact the site ground. Stainless-steel homogenization bowls: Use TSP and water solution to decontaminate.

Ventilation: All decontamination procedures will be conducted in a well-ventilated area.

Personnel Decontamination Procedures: Use PPE. Use alcohol wipes to clean hands and face following on-site activities. Wash hands before eating.

PPE Requirements for Personnel Performing Decontamination: Level D.

Personnel Decontamination in General: Following appropriate decontamination procedures, all field personnel will wash their hands and face with soap and potable water. Personnel should shower at the end of each work shift.

Disposition of Disposable PPE: Disposable PPE must be rendered unusable and disposed as indicated in the work plan.

Disposition of Decontamination Wastes (e.g., dry wastes, decontamination fluids, etc.):

- **Soil cuttings from boreholes:** As much soil cutting volume as possible will be used as backfill at each core hole. However, only soils considered to be non-contaminated (i.e., based on color, odor, instrument readings) will be used as backfill. Remaining cuttings that are considered non-contaminated will be spread on site; however, remaining cuttings that are believed to be potentially contaminated material will be drummed;

- **Development and purge waters from monitoring wells:** These waters will be monitored for organic vapor presence using a PID. If organic vapors are not emitted and there is no visible sheen on the water surface, waters will be discharged on site. Development water exhibiting a sheen or emitting PID readings at concentrations above background will be containerized.

- **Decontamination waters:** These waters will be monitored for organic vapor presence using a PID. If organic vapors are not emitted and there is no visible sheen on the water surface, they will be discharged on site. Decontamination water exhibiting a sheen or emitting PID readings at concentrations above background will be containerized.

- **Used PPE:** Unless field screening indicates that PPE and other solid wastes are contaminated to the level that they can not be disposed of as non-hazardous waste, this material will be double-bagged and disposed of off site as non-regulated solid waste.

Table 8-1

HEALTH AND SAFETY MONITORING

Instrument	Task Number	Contaminant(s)	Monitoring Location	Monitoring Frequency	Action Levels[a]	
x PID (e.g., HNu IS-101) □ FID (e.g., OVA 128-GC) □ TVA	3,4	Phenol/VOCs	Breathing zone, split spoon or sample tube	Continuous for BZ; sample spoons when opened	**Unknown Vapors** Background to 1 ppm above background: Level D 1 to 5 ppm above background: Level C 5 to 500 ppm above background: Level B >500 ppm above background: Level A	**Contaminant-Specific**
Oxygen Meter/Explosimeter	3,4,	Methane	Breathing zone, downhole	Continuous for top of borehole and for downwind of test pits during excavation	**Oxygen** <19.5% or >22.0%: Evacuate area; eliminate ignition sources; reassess conditions. 19.5 to 22.0%: Continue work in accordance with action levels for other instruments.	**Explosivity** ≤10% LEL: Continue work in accordance with action levels for other instruments; monitor continuously for combustible atmospheres. >10% LEL: Evacuate area; eliminate ignition sources; reassess conditions.
Radiation Alert Monitor (Rad-mini or RAM-4)	3,4	Unknown radioactive presence	Breathing zone, split spoon or sample tube	Continuous for BZ; sample spoons when opened, and during pit excavation	<0.1 mR/hr: Continue work in accordance with action levels for other instruments. ≥0.1 mR/hr: Evacuate area; reassess work plan and contact radiation safety specialist.	
Mini-Ram Particulate Monitor	3, 4	Particulates	Upwind and downwind of probe	Continuous	**General/Unknown** Evaluate health and safety measures when dust levels exceed 2.5 milligrams per cubic meter.	**Contaminant-Specific**

Table 8-1

HEALTH AND SAFETY MONITORING

Instrument	Task Number	Contaminant(s)	Monitoring Location	Monitoring Frequency	Action Levels[a]
HCN/H2S (Monitox)	3,4	Cyanide gas and hydrogen sulfide	Breathing zone, split spoon or sample tube collected at northwest corner of, by POTW	Continuous for BZ; sample spoons when opened, and during pit excavation	≥4 ppm: Leave area and consult with SSO.
Draeger Colorimetric Tubes					**Tube** **Action Level** **Action**
Air Monitor/Sampler Type:_____ Sampling medium: _____					**Action Level** **Action**
Personal Sampling Pump Type:_____ Sampling medium: _____					**Action Level** **Action**
Micro R Meter					<2 mR/hr: Continue work in accordance with action levels for other instruments. 2 to 5 mR/hr: In conjunction with a radiation safety specialist, continue work and perform stay-time calculations to ensure compliance with dose limits and ALARA policy. >5 mR/hr: Evacuate area to reassess work plan and evaluate options to maintain personnel exposures ALARA and within dose limits.
Ion Chamber					See micro R meter action levels above.

Table 8-1

HEALTH AND SAFETY MONITORING

Instrument	Task Number	Contaminant(s)	Monitoring Location	Monitoring Frequency	Action Levels[a]
Radiation Survey Ratemeter/Scaler with External Detector(s)					**Detector . Action Level Action**
Noise Dosimeter (Sound Level Meter)					≤85 decibels as measured using the A-weighed network (dBa): Use hearing protection if exposure will be sustained throughout work shift. >85 dBA: Use hearing protection. >120 dBA: Leave area and consult with safety personnel.
Other:					
Other:					

[a] Unless stated otherwise, airborne contaminant concentrations are measured as a time-weighted average in the worker's breathing zone. Acceptable concentrations for known airborne contaminants will be determined based on OSHA/NIOSH/ACGIH and/or NRC exposure limits. As a guideline, 1/2 the PEL/REL/TLV, whichever is lower should be used.

10. EMERGENCY RESPONSE

This section contains additional information pertaining to on-site emergency response and does not duplicate pertinent emergency response information contained in earlier sections of this plan (e.g., site layout, monitoring equipment, etc.). Emergency response procedures will be rehearsed regularly, as applicable, during project activities.

10.1 EMERGENCY RESPONSIBILITIES

All Personnel: All personnel shall be alert to the possibility of an on-site emergency; report potential or actual emergency situations to the team leader and SSO; and notify appropriate emergency resources, as necessary.

Team Leader: The team leader will determine the emergency actions to be performed by EEEPC personnel and will direct these actions. The team leader also will ensure that applicable incidents are reported to appropriate EEEPC and client project personnel and government agencies.

SSO: The SSO will recommend health/safety and protective measures appropriate to the emergency.

Other: _____

10.2 LOCAL AND SITE RESOURCES (including phone numbers)

Ambulance: 911

Hospital: St. Joseph's Hospital, Harlem Road, Cheektowaga

Directions to Hospital (map attached at the end of this plan): Depart site via waste plant entrance (Rutherford Road). Turn left (west) onto Broadway. Proceed to Dick Road. Turn right (north) on Dick Road. Follow Genesee Street. Turn left on Genessee. Follow to Harlem Road. Turn left on Harlem. Hospital is on left.

Poison Control: 878-7654 or 1-800222-1222

Police Department: 911

Fire Department: 911

Client Contact: Mr. Randy Hough: 518/402-9475

Site Contact: John Wojcik, Superintendent, Village of Depew

On-Site Telephone Number: Team will have a cell phone. Village DPW office on site: 716/683-5700

Cellular Telephone Number: TBD

Radios Available: No

Other: John Wojcik's cell number: 716/912-5288

10.3 EEEPC EMERGENCY CONTACTS

EEEPC Emergency Operations Center (24 Hours): 716/684-8060

Corporate Health and Safety Director, Dr. Paul Jonmaire:	716/684-8060 (office) 716/655-1260 (home)
Regional Office Contact: Tom Siener	716/662-4740 (home) 716/684-8060 (office)

Other:

a. EEEPC Emergency Response Center:	716/684-8940
b. Corporate Health and Safety Director, Dr. Paul Jonmaire:	716/684-8060 (office) 716/655-1260 (home)
c. Assistant Corporate Safety Director, Tom Siener:	716/684-8060 (office) 716/662-4740 (home)

10.4 OTHER EMERGENCY RESPONSE PROCEDURES

On-Site Evacuation Signal/Alarm (must be audible and perceptible above ambient noise and light levels): Sound horn of site vehicle 3 times

On-Site Assembly Area: At site entry gate.

Emergency Egress Route to Get Off Site: Take any appropriate path to the site entry gates.

Off-Site Assembly Area: at the wastewater treatment plant parking area north of the site.

Preferred Means of Reporting Emergencies: Use of cellular telephones.

Site Security and Control: In an emergency situation, personnel will attempt to secure the affected area and control site access.

Emergency Decontamination Procedures: Remove all PPE. If boots are soiled, leave them on site. Use alcohol wipes to wash down face and hands.

PPE: Personnel will don appropriate PPE when responding to an emergency situation. The SSO and Section 7 of this plan will provide guidance regarding appropriate PPE.

Emergency Equipment: Appropriate emergency equipment is listed in Attachment 1. Adequate supplies of this equipment shall be maintained in the support area or other approved work location.

Incident Reporting Procedures: Report to Randy Hough, Jon Nickerson, Paul Jonmaire.

ATTACHMENT 1
EQUIPMENT/SUPPLIES CHECKLIST

INSTRUMENTATION	No.	EMERGENCY EQUIPMENT	No.
OVA		First aid kit	1
Thermal desorber		Stretcher	
O2/explosimeter w/cal. Kit	1	Portable eye wash	
Photovac tip		Blood pressure monitor	
HNu (probe: _____eV)	1	Fire blanket	
Magnetometer		Fire extinguisher	1
Pipe locator	1	Thermometer (medical)	
Weather station		Spill kit	
Draeger tube kit (tubes: _____)			
Brunton compass			
Real-time cyanide monitor	1		
Real-time H_2S monitor	1		
Heat stress monitor			
Noise equipment		**DECONTAMINATION EQUIPMENT**	
Personal sampling pumps and supplies		Wash tubs	
MiniRam dust monitor (Use PM10 monitor)	2	Buckets	1
Mercury monitor		Scrub brushes	2
Spare batteries (type: _____)		Pressurized sprayer	1
		Spray bottle	2
		Detergent (type: TSP)	
RADIATION EQUIPMENT/SUPPLIES		Solvent (type: _____)	
Documentation forms		Plastic sheeting	3
Portable ratemeter		Tarps and poles	
Scaler/ratemeter		Trash bags	box
1" NaI gamma probe		Trash cans	
2" NaI gamma probe		Masking tape	
ZnS alpha probe		Duct tape	2

ATTACHMENT 1 EQUIPMENT/SUPPLIES CHECKLIST			
GM pancake probe		Paper towels	6
Tungsten-shielded GM probe		Face mask	
Micro R meter		Face mask sanitizer	14
Ion chamber		Step ladders	
Alert monitor		Distilled water	10
Pocket dosimeter		Deionized water	
Dosimeter charger			
Radiation warning tape			
Radiation decontamination supplies			
Spare batteries (type: _____)			
SAMPLING EQUIPMENT		**MISCELLANEOUS (Cont.)**	
8-oz. bottles		Gatorade or equivalent	X
Half-gallon bottles		Tables	
VOA bottles		Chairs	
String		Weather radio	
Hand bailers	8	Two-way radios	
Thieving rods with bulbs		Binoculars	
Spoons	24	Megaphone	
Knives		Cooling vest	
Filter paper			
Bottle labels			
Hand Auger	1		
		SHIPPING EQUIPMENT	
		Coolers	x
MISCELLANEOUS		Paint cans with lids, 7 clips each	
Pump		Vermiculite	

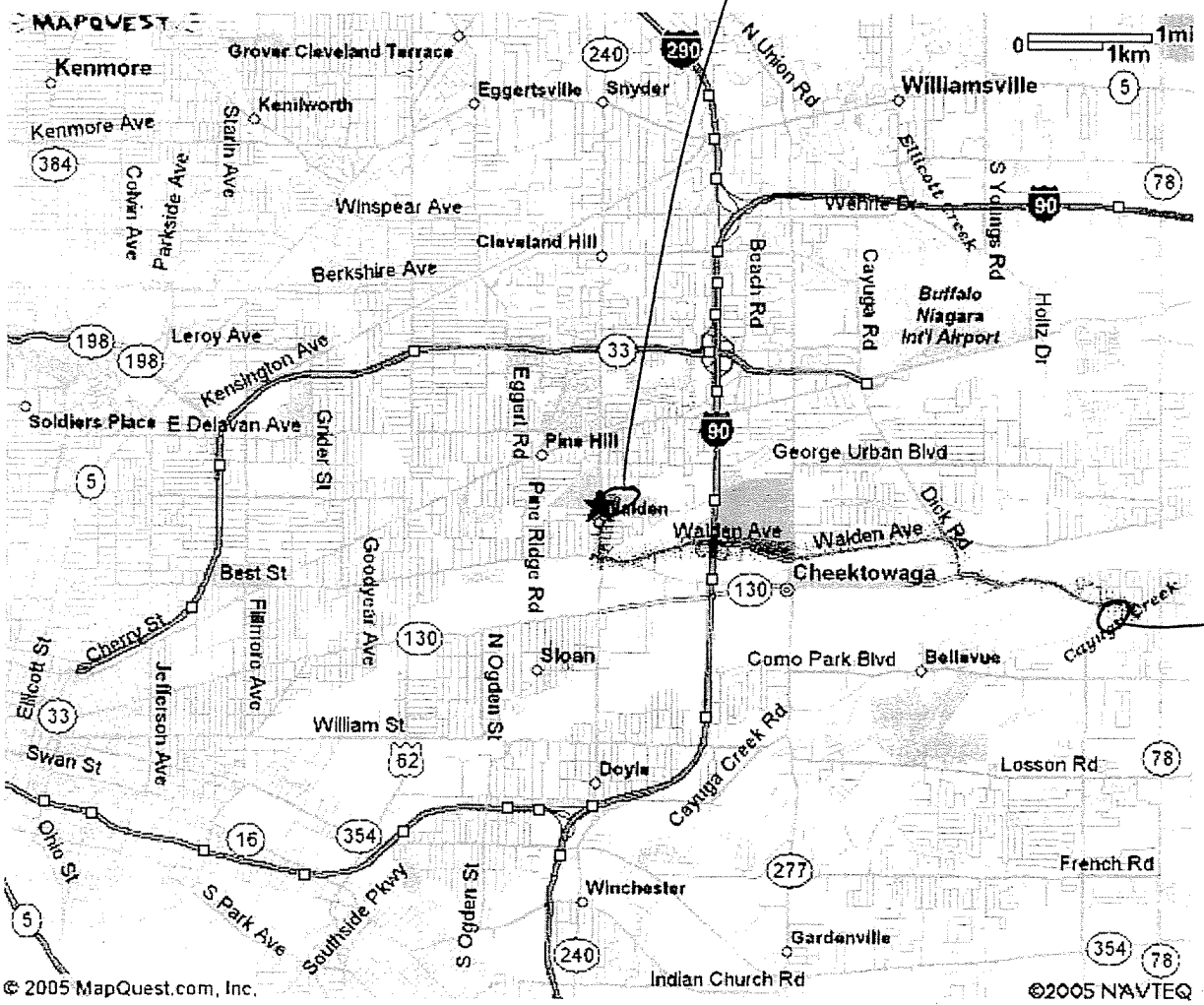
ATTACHMENT 1 EQUIPMENT/SUPPLIES CHECKLIST			
Surveyor's tape	1	Shipping labels	
100' Fiberglass tape	2	DOT labels:	
300' Nylon rope		"Up"	
Nylon string		"Danger"	
Surveying flags		"Inside Container Complies ..."	
Camera	1	Hazard Group	
Film		Strapping tape	
Bung wrench		Baggies	x
Soil auger		Custody seals	
Pick		Chain-of-custody forms	x
Shovel	1	Express shipment forms	x
Catalytic heater		Clear packing tape	x
Propane gas		Permanent markers	x
Banner tape			
Surveying meter stick			
Chaining pins and ring			
Logbooks (___X__ large, _____ small)	3		
Required MSDSs			
Intrinsically safe flashlight	1		
Potable water			

MAPQUEST

2605 Harlem Rd
Cheektowaga NY
14225-4018 US

St. Joseph's Hospital

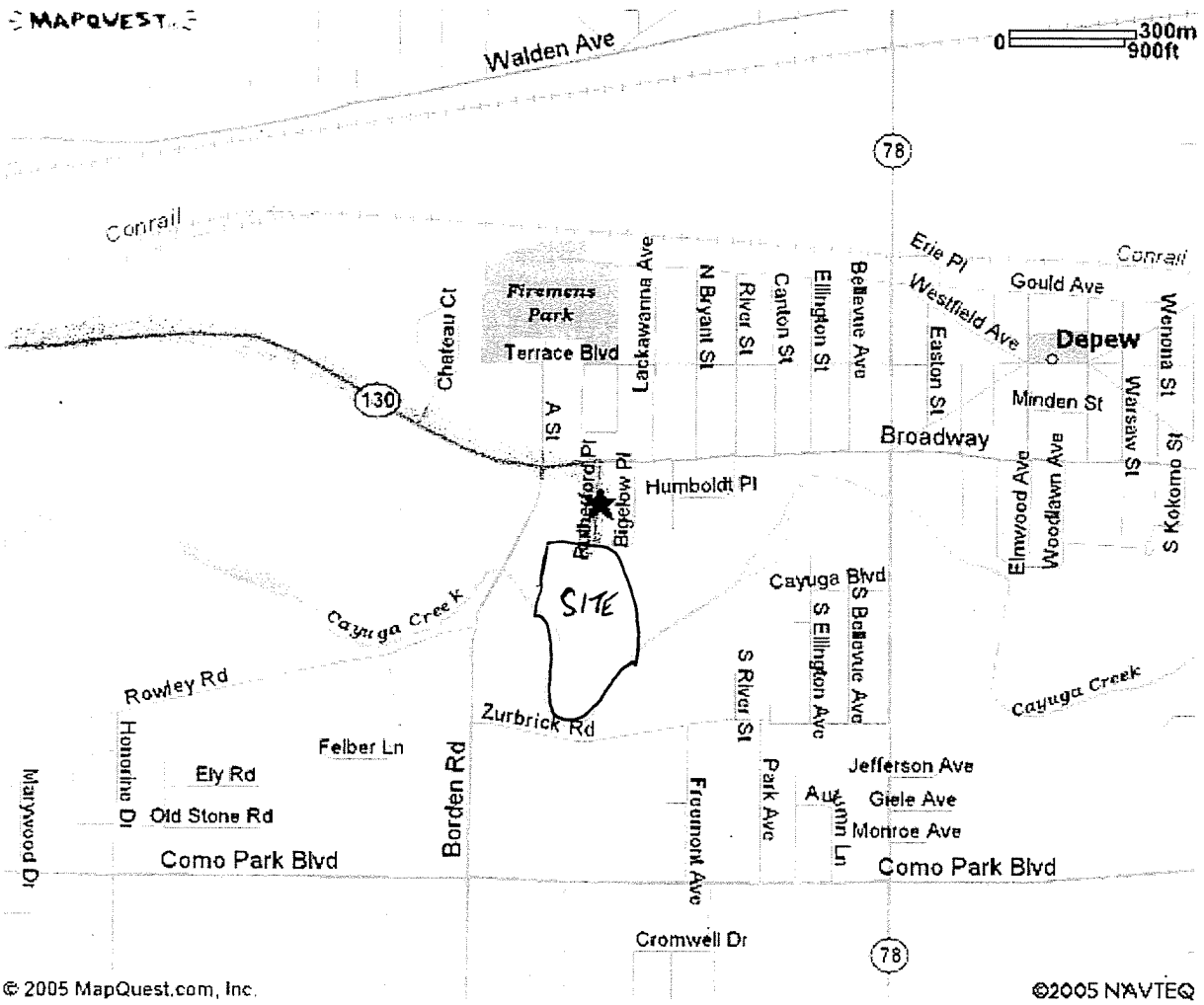
Notes:



MAPQUEST

[200-299] Rutherford Pl
Depew NY
14043 US

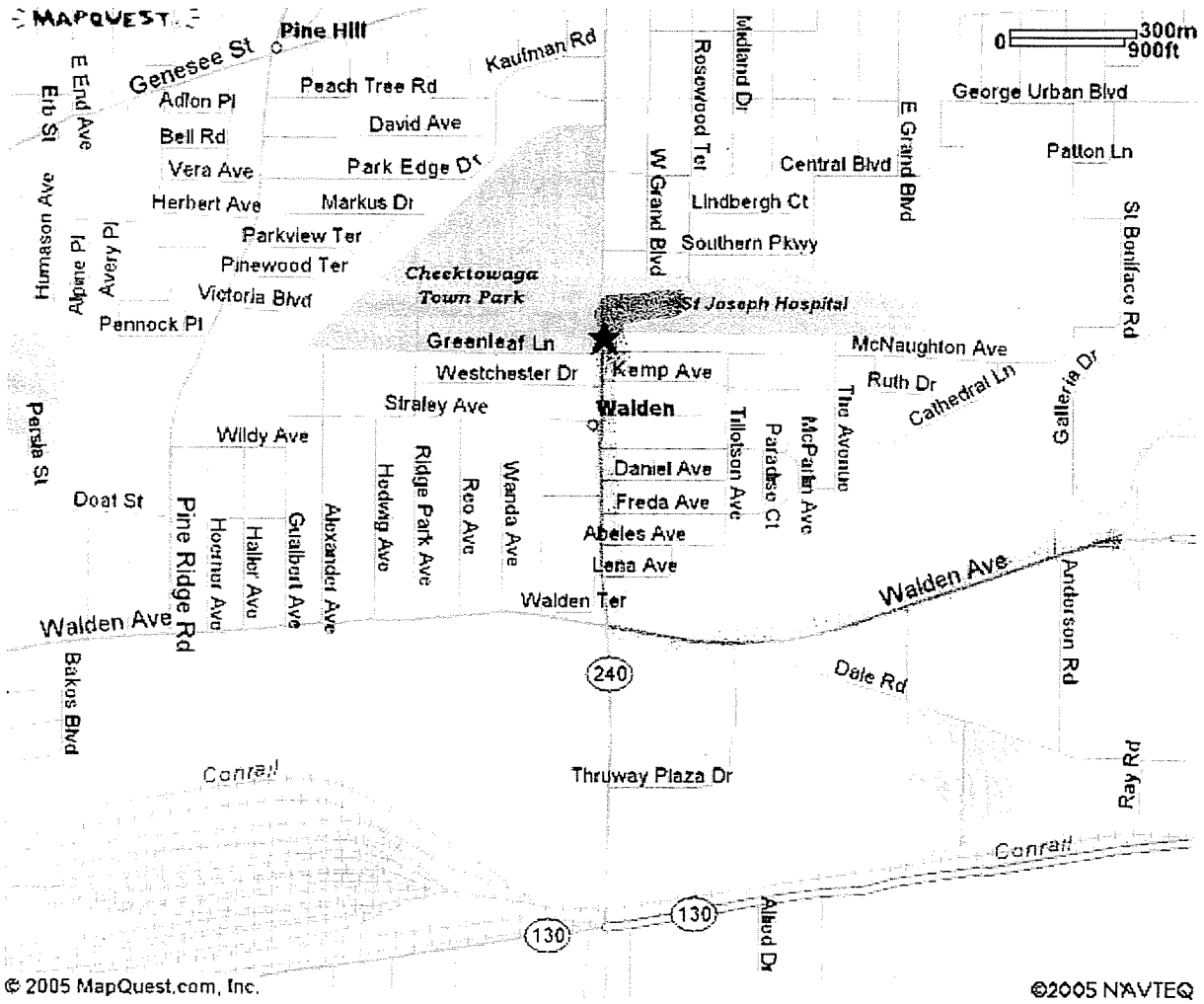
Notes:



MAPQUEST

2605 Harlem Rd
Cheektowaga NY
14225-4018 US

Notes:



NIOSH Pocket Guide to Chemical Hazards

Hydrogen sulfide

CAS 7783-06-4

H_2S

RTECS MX1225000

Synonyms & Trade Names
Hydrosulfuric acid, Sewer gas, Sulfuretted hydrogen

DOT ID & Guide
1053 117

Exposure Limits

NIOSH REL: C 10 ppm (15 mg/m^3) [10-minute]

OSHA PEL†: C 20 ppm 50 ppm [10-minute maximum peak]

IDLH 100 ppm See: 7783064

Conversion 1 ppm = 1.40 mg/m^3

Physical Description
Colorless gas with a strong odor of rotten eggs. [Note: Sense of smell becomes rapidly fatigued & can NOT be relied upon to warn of the continuous presence of H_2S. Shipped as a liquefied compressed gas.]

MW: 34.1	BP: -77°F	FRZ: -122°F	Sol: 0.4%
VP: 17.6 atm	IP: 10.46 eV	RGasD: 1.19	
Fl.P: NA (Gas)	UEL: 44.0%	LEL: 4.0%	

Flammable Gas

Incompatibilities & Reactivities
Strong oxidizers, strong nitric acid, metals

Measurement Methods
NIOSH 6013; OSHA ID141
See: NMAM or OSHA Methods

Personal Protection & Sanitation
Skin: Frostbite
Eyes: Frostbite
Wash skin: No recommendation
Remove: When wet (flammable)
Change: No recommendation
Provide: Frostbite

First Aid (See procedures)
Eye: Frostbite
Skin: Frostbite
Breathing: Respiratory support

Important additional information about respirator selection
Respirator Recommendations NIOSH
Up to 100 ppm: (APF = 25) Any powered, air-purifying respirator with cartridge(s) providing protection against the compound of concern/(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern/(APF = 10) Any supplied-air respirator*/(APF = 50) Any self-contained breathing apparatus with a full facepiece
Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, skin and/or eye contact

Symptoms Irritation eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, lassitude (weakness, exhaustion), irritability, insomnia; gastrointestinal disturbance; liquid: frostbite

Target Organs Eyes, respiratory system, central nervous system

See also: INTRODUCTION See ICSC CARD: 0165 See MEDICAL TESTS: 0119

NIOSH Pocket Guide to Chemical Hazards

Arsenic (inorganic compounds, as As)

CAS 7440-38-2 (metal)

As (metal)

RTECS CG0525000 (metal)

Synonyms & Trade Names
Arsenic metal: Arsenia
Other synonyms vary depending upon the specific As compound.
[Note: OSHA considers "Inorganic Arsenic" to mean copper acetoarsenite & all inorganic compounds containing arsenic except ARSINE.]

DOT ID & Guide
1558 152 (metal)
1562 152 (dust)

Exposure Limits

NIOSH REL: Ca C 0.002 mg/m^3 [15-minute] See Appendix A

OSHA PEL: [1910.1018] TWA 0.010 mg/m^3

IDLH Ca [5 mg/m^3 (as As)] See: 7440382

Conversion

Physical Description
Metal: Silver-gray or tin-white, brittle, odorless solid.

MW: 74.9	BP: Sublimes	MLT: 1135°F (Sublimes)	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: 5.73 (metal)
Fl.P: NA	UEL: NA	LEL: NA	

Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame.

Incompatibilities & Reactivities
Strong oxidizers, bromine azide [Note: Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.]

Measurement Methods
NIOSH 7300, 7900; OSHA ID105
See: NMAM or OSHA Methods

Personal Protection & Sanitation
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated/Daily
Remove: When wet or contaminated
Change: Daily
Provide: Eyewash, Quick drench

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Soap wash immediately
Breathing: Respiratory support
Swallow: Medical attention immediately

Important additional information about respirator selection
Respirator Recommendations NIOSH
At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted acid gas canister having a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, skin absorption, skin and/or eye contact ingestion

Symptoms Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin, [potential occupational carcinogen]

Target Organs Liver, kidneys, skin, lungs, lymphatic system

Cancer Site [lung & lymphatic cancer]

See also: INTRODUCTION See ICSC CARD: 0013 See MEDICAL TESTS: 0017

NIOSH Pocket Guide to Chemical Hazards

Cadmium dust (as Cd)

CAS 7440-43-9 (metal)

Cd (metal)

RTECS EU9800000 (metal)

Synonyms & Trade Names
Cadmium metal: Cadmium
Other synonyms vary depending upon the specific cadmium compound.

DOT ID & Guide
2570 154 (compounds)

Exposure Limits

NIOSH REL*: Ca See Appendix A [*Note: The REL applies to all Cadmium compounds (as Cd).]

OSHA PEL*: [1910.1027] TWA 0.005 mg/m^3 [*Note: The PEL applies to all Cadmium compounds (as Cd).]

IDLH Ca [9 mg/m^3 (as Cd)] See: IDLH INDEX

Conversion

Physical Description
Metal: Silver-white, blue-tinged lustrous, odorless solid.

MW: 112.4	BP: 1409°F	MLT: 610°F	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: 8.65 (metal)
Fl.P: NA	UEL: NA	LEL: NA	

Metal: Noncombustible Solid in bulk form, but will burn in powder form.

Incompatibilities & Reactivities
Strong oxidizers; elemental sulfur, selenium & tellurium

Measurement Methods
NIOSH 7048; OSHA ID121, ID125G, ID189, ID206
See: NMAM or OSHA Methods

Personal Protection & Sanitation
Skin: No recommendation
Eyes: No recommendation
Wash skin: Daily
Remove: No recommendation
Change: Daily

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Soap wash
Breathing: Respiratory support
Swallow: Medical attention immediately

Important additional information about respirator selection
Respirator Recommendations NIOSH
At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape: (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, ingestion

Symptoms Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]

Target Organs respiratory system, kidneys, prostate, blood

Cancer Site [prostatic & lung cancer]

See also: INTRODUCTION See ICSC CARD: 0020 See MEDICAL TESTS: 0035

NIOSH Pocket Guide to Chemical Hazards

Lead	**CAS** 7439-92-1
Pb	**RTECS** OF7525000
Synonyms & Trade Names Lead metal, Plumbum	**DOT ID & Guide**

Exposure Limits	NIOSH REL*: TWA 0.050 mg/m^3 See Appendix C [*Note: The REL also applies to other lead compounds (as Pb) -- see Appendix C.]
	OSHA PEL*: [1910.1025] TWA 0.050 mg/m^3 See Appendix C [*Note: The PEL also applies to other lead compounds (as Pb) -- see Appendix C.]

IDLH 100 mg/m^3 (as Pb) See: 7439921	**Conversion**

Physical Description
A heavy, ductile, soft, gray solid.

MW: 207.2	BP: 3164°F	MLT: 621°F	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: 11.34
Fl.P: NA	UEL: NA	LEL: NA	

Noncombustible Solid in bulk form.

Incompatibilities & Reactivities
Strong oxidizers, hydrogen peroxide, acids

Measurement Methods
NIOSH 7082, 7105, 7300, 7700, 7701, 7702, 9100, 9105; OSHA ID121, ID125G, ID206
See: NMAM or OSHA Methods

Personal Protection & Sanitation Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: Daily Remove: When wet or contaminated Change: Daily	**First Aid** (See procedures) Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Important additional information about respirator selection
Respirator Recommendations NIOSH/OSHA
Up to 0.5 mg/m^3: (APF = 10) Any air-purifying respirator with a high-efficiency particulate filter/(APF = 10) Any supplied-air respirator
Up to 1.25 mg/m^3: (APF = 25) Any supplied-air respirator operated in a continuous-flow mode/(APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter
Up to 2.5 mg/m^3: (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode/(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter/(APF = 50) Any self-contained breathing apparatus with a full facepiece/(APF = 50) Any supplied-air respirator with a full facepiece
Up to 50 mg/m^3: (APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode
Up to 100 mg/m^3: (APF = 2000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape: (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation

eyes; hypotension
Target Organs Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue
See also: INTRODUCTION See ICSC CARD: 0052 See MEDICAL TESTS: 0127

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NIOSH Pocket Guide to Chemical Hazards

Nickel metal and other compounds (as Ni)

CAS 7440-02-0 (Metal)

Ni (Metal)

RTECS QR5950000 (Metal)

Synonyms & Trade Names
Nickel metal: Elemental nickel, Nickel catalyst
Synonyms of other nickel compounds vary depending upon the specific compound.

DOT ID & Guide

Exposure Limits

NIOSH REL*: Ca TWA 0.015 mg/m^3 See Appendix A [*Note: The REL does not apply to Nickel carbonyl.]

OSHA PEL*†: TWA 1 mg/m^3 [*Note: The PEL does not apply to Nickel carbonyl.]

IDLH Ca [10 mg/m^3 (as Ni)] See: 7440020

Conversion

Physical Description
Metal: Lustrous, silvery, odorless solid.

MW: 58.7	BP: 5139°F	MLT: 2831°F	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: 8.90 (Metal)
Fl.P: NA	UEL: NA	LEL: NA	

Metal: Combustible Solid; nickel sponge catalyst may ignite SPONTANEOUSLY in air.

Incompatibilities & Reactivities
Strong acids, sulfur, selenium, wood & other combustibles, nickel nitrate

Measurement Methods
NIOSH 7300; OSHA ID121, ID125G
See: NMAM or OSHA Methods

Personal Protection & Sanitation
Skin: Prevent skin contact
Eyes: No recommendation
Wash skin: When contaminated/Daily
Remove: When wet or contaminated
Change: Daily

First Aid (See procedures)

Skin: Water flush immediately
Breathing: Respiratory support
Swallow: Medical attention immediately

Important additional information about respirator selection
Respirator Recommendations NIOSH
At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape: (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms Sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]

Target Organs Nasal cavities, lungs, skin

Cancer Site [lung and nasal cancer]

See also: INTRODUCTION See ICSC CARD: 0062 See MEDICAL TESTS: 0156

APPENDIX A—NIOSH Potential Occupational Carcinogens

New Policy

For the past 20 plus years, NIOSH has subscribed to a carcinogen policy that was published in 1976 by Edward J. Fairchild, I Director for Cincinnati Operations, which called for "no detectable exposure levels for proven carcinogenic substances" (Anna York Academy of Sciences, 271:200-207, 1976). This was in response to a generic OSHA rulemaking on carcinogens. Becau in science and in approaches to risk assessment and risk management, NIOSH has adopted a more inclusive policy. NIOSH i exposure limits (RELs) will be based on risk evaluations using human or animal health effects data, and on an assessment of be feasibly achieved by engineering controls and measured by analytical techniques. To the extent feasible, NIOSH will proje effect exposure, but also exposure levels at which there may be residual risks. This policy applies to all workplace hazards, in carcinogens, and is responsive to Section 20(a)(3) of the Occupational Safety and Health Act of 1970, which charges NIOSH exposure levels that are safe for various periods of employment, including but not limited to the exposure levels at which no e suffer impaired health or functional capacities or diminished life expectancy as a result of his work experience."

The effect of this new policy will be the development, whenever possible, of quantitative RELs that are based on human and/c well as on the consideration of technological feasibility for controlling workplace exposures to the REL. Under the old policy, F carcinogens were non-quantitative values labeled "lowest feasible concentration (LFC)." [Note: There are a few exceptions to carcinogens (e.g., RELs for asbestos, formaldehyde, benzene, and ethylene oxide are quantitative values based primarily on of detection or technological feasibility). Also, in 1989, NIOSH adopted several quantitative RELs for carcinogens from OSHA' exposure limit (PEL) update.]

Under the new policy, NIOSH will also recommend the complete range of respirators (as determined by the NIOSH Respirato for carcinogens with quantitative RELs. In this way, respirators will be consistently recommended regardless of whether a sub carcinogen or a non-carcinogen.

Old Policy

In the past, NIOSH identified numerous substances that should be treated as potential occupational carcinogens even though have identified them as such. In determining their carcinogenicity, NIOSH used the OSHA classification outlined in 29 CFR 19 states in part:

> Potential occupational carcinogen means any substance, or combination or mixture of substances, which causes an ir incidence of benign and/or malignant neoplasms, or a substantial decrease in the latency period between exposure ar of neoplasms in humans or in one or more experimental mammalian species as the result of any oral, respiratory or de exposure, or any other exposure which results in the induction of tumors at a site other than the site of administration. definition also includes any substance which is metabolized into one or more potential occupational carcinogens by m

When thresholds for carcinogens that would protect 100% of the population had not been identified, NIOSH usually recommei occupational exposures to

carcinogens be limited to the lowest feasible concentration. To ensure maximum protection from carcinogens through the use protection, NIOSH also recommended that only the most reliable and protective respirators be used. These respirators includ contained breathing apparatus (SCBA) that has a full facepiece and is operated in a positive-pressure mode, or (2) a supplied that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxilia operated in a pressure-demand or other positive-pressure mode.

Recommendations to be Revised

The RELs and respirator recommendations for carcinogens listed in this edition of the *Pocket Guide* still reflect the old policy. RELs and respirator recommendations that reflect the new policy will be included in future editions.

APPENDIX B—Thirteen OSHA-Regulated Carcinogens

Without establishing PELs, OSHA promulgated standards in 1974 to regulate the industrial use of 13 chemicals identified as p occupational carcinogens.

- 2-acetylaminofluorene
- 4-aminodiphenyl

- benzidine
- bis-chloromethyl ether
- 3,3'-dichlorobenzidine
- 4-dimethylaminoazobenzene
- ethyleneimine
- methyl chloromethyl ether
- alpha-naphthylamine
- beta-naphthylamine
- 4-nitrobiphenyl
- N-nitrosodimethylamine
- beta-propiolactone

Exposures of workers to these 13 chemicals are to be controlled through the required use of engineering controls, work practi personal protective equipment, including respirators. See 29 CFR 1910.1003-1910.1016 for specific details of these requirem

Respirator selections in the Pocket Guide are based on NIOSH policy, which considers the 13 chemicals to be potential occu carcinogens.

APPENDIX C—Supplementary Exposure Limits

Aldehydes (Low-Molecular-Weight)

Exposure to acetaldehyde has produced nasal tumors in rats and laryngeal tumors in hamsters, and exposure to malonaldeh produced thyroid gland and pancreatic islet cell tumors in rats. NIOSH therefore recommends that acetaldehyde and malonal considered potential occupational carcinogens in conformance with the OSHA carcinogen policy.

Testing has not been completed to determine the carcinogenicity of acrolein, butyraldehyde (CAS#: 123-72-8), crotonaldehyd glutaraldehyde, glyoxal (CAS#: 107-22-2), paraformaldehyde (CAS#: 30525-89-4), propiolaldehyde (CAS#: 624-67-9), propio (CAS#: 123-38-6), and n-valeraldehyde, nine related low-molecular-weight-aldehydes.

However, the limited studies to date indicate that these substances have chemical reactivity and mutagenicity similar to aceta malonaldehyde. Therefore, NIOSH recommends that careful consideration should be given to reducing exposures to these ni aldehydes.

Further information can be found in the "NIOSH Current Intelligence Bulletin 55: Carcinogenicity of Acetaldehyde and Malonal Mutagenicity of Related Low-Molecular-Weight Aldehydes" [DHHS (NIOSH) Publication No. 91-112.]

NIOSH Pocket Guide to Chemical Hazards

Phenol

CAS 108-95-2

C_6H_5OH

RTECS SJ3325000

Synonyms & Trade Names
Carbolic acid, Hydroxybenzene, Monohydroxybenzene, Phenyl alcohol, Phenyl hydroxide

DOT ID & Guide
1671 153 (solid)
2312 153 (molten)
2821 153 (solution)

Exposure Limits

NIOSH REL: TWA 5 ppm (19 mg/m^3) C 15.6 ppm (60 mg/m^3) [15-minute] [skin]

OSHA PEL: TWA 5 ppm (19 mg/m^3) [skin]

IDLH 250 ppm See: 108952

Conversion 1 ppm = 3.85 mg/m^3

Physical Description
Colorless to light-pink, crystalline solid with a sweet, acrid odor. [Note: Phenol liquefies by mixing with about 8% water.]

MW: 94.1	BP: 359°F	MLT: 109°F	Sol(77°F): 9%
VP: 0.4 mmHg	IP: 8.50 eV		Sp.Gr: 1.06
Fl.P: 175°F	UEL: 8.6%	LEL: 1.8%	

Combustible Solid

Incompatibilities & Reactivities
Strong oxidizers, calcium hypochlorite, aluminum chloride, acids

Measurement Methods
NIOSH 2546; OSHA 32
See: NMAM or OSHA Methods

Personal Protection & Sanitation
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet or contaminated
Change: Daily
Provide: Eyewash, Quick drench

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Soap wash immediately
Breathing: Respiratory support
Swallow: Medical attention immediately

Important additional information about respirator selection
Respirator Recommendations NIOSH/OSHA
Up to 50 ppm: (APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s) in combination with a dust and mist filter/(APF = 10) Any supplied-air respirator
Up to 125 ppm: (APF = 25) Any supplied-air respirator operated in a continuous-flow mode/(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s) in combination with a dust and mist filter
Up to 250 ppm: (APF = 50) Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s) in combination with a high-efficiency particulate filter/(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having a high-efficiency particulate filter/(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and organic vapor cartridge(s) in combination with a high-efficiency particulate filter/(APF = 50) Any self-contained breathing apparatus with a full facepiece/(APF = 50) Any supplied-air respirator with a full facepiece
Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms Irritation eyes, nose, throat; anorexia, weight loss; lassitude (weakness, exhaustion), muscle ache, pain; dark urine; cyanosis; liver, kidney damage; skin burns; dermatitis; ochronosis; tremor, convulsions, twitching

Target Organs Eyes, skin, respiratory system, liver, kidneys

See also: INTRODUCTION See ICSC CARD: 0070 See MEDICAL TESTS: 0182

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NIOSH Pocket Guide to Chemical Hazards

Coal tar pitch volatiles

CAS 65996-93-2

RTECS GF8655000

Synonyms & Trade Names
Synonyms vary depending upon the specific compound (e.g., pyrene, phenanthrene, acridine, chrysene, anthracene & benzo(a) pyrene). [Note: NIOSH considers coal tar, coal tar pitch, and creosote to be coal tar products.]

DOT ID & Guide

Exposure Limits

NIOSH REL: Ca TWA 0.1 mg/m^3 (cyclohexane-extractable fraction) See Appendix A See Appendix C

OSHA PEL: TWA 0.2 mg/m^3 (benzene-soluble fraction) [1910.1002] See Appendix C

IDLH Ca [80 mg/m^3] See: 65996932

Conversion

Physical Description
Black or dark-brown amorphous residue.

Properties vary depending upon the specific compound.			

Combustible Solids

Incompatibilities & Reactivities
Strong oxidizers

Measurement Methods
OSHA 58
See: NMAM or OSHA Methods

Personal Protection & Sanitation
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: No recommendation
Change: Daily

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Soap wash immediately
Breathing: Respiratory support
Swallow: Medical attention immediately

Important additional information about respirator selection
Respirator Recommendations NIOSH
At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, skin and/or eye contact

Symptoms Dermatitis, bronchitis, [potential occupational carcinogen]

Target Organs respiratory system, skin, bladder, kidneys

Cancer Site [lung, kidney & skin cancer]

See also: INTRODUCTION See ICSC CARD: 1415 See MEDICAL TESTS: 0054

B Site-specific Quality Assurance Project Plan (QAPP)

Site-Specific Quality Assurance Project Plan (QAPP) Remedial Investigation and Feasibility Study at the Depew Village Landfill Site No. 9-15-105 Depew, New York

December 2005

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 Broadway
Albany, New York 12233

NYSDEC Project Manager	Date	EEEPC Project Manager	Date
NYSDEC QA Officer	Date	EEEPC QA Officer	Date

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List of Acronyms

ADR	Automatic Data Review
ASP	Analytical Services Protocol
DER	Division of Environmental Remediation
DUSR	Data Usability Summary Report
EDD	electronic data deliverable
EEEPC	Ecology and Environment Engineering, P.C.
FS	feasibility study
NYSDEC	New York State Department of Environmental Conservation
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RI	remedial investigation
SOW	Scope of Work

1 Project Management

This site-specific Quality Assurance Project Plan (QAPP) has been prepared by Ecology and Environment Engineering, P.C. (EEEPC) for the New York State Department of Environmental Conservation (NYSDEC), Division of Environmental Remediation (DER), under Work Assignment No. D003493-59 accepted on September 19, 2005. The site-specific QAPP is for remedial investigation (RI)/feasibility study (FS) services at the Depew Village Landfill site (Site No. 9-15-105), located off of Rutherford Road in the village of Depew, Erie County, New York. EEEPC personnel will implement this site-specific QAPP for all activities conducted for the Depew Village Landfill site.

This QAPP has been prepared as part of the work plan for the project and is an addendum to the master NYSDEC QAPP (E & E 2004). This addendum documents changes, modifications, or new procedures and practices to be used that are applicable to activities anticipated under this investigation. This site-specific QAPP is formatted to address the four major sections listed in the master Quality Assurance Program Plan: Project Management, Data Generation and Acquisition, Assessment and Oversight, and Data Validation and Usability. The information provided only covers deviations or new procedures for implementing the project. Any subsection that is not changed is not included in this QAPP. General tables with site-specific information have been added to this QAPP for easier review of site-specific requirements.

1.1 Project Organization

The project team for this site is listed below on Table B1-1.

1.2 Problem Definition/Background

The problem and background for this work assignment are defined in Section 2 of the work plan.

Table B1-1 Project Organization, Depew Village Landfill Site

Key Team Member	Contact Name and Telephone
NYSDEC Project Manager	Randy Hough 518-402-9475
NYSDEC QA Officer	Tim LeBarron 518-402-9549
EEEPC Program Manager	David Albers 716-684-8060
EEEPC QA Officer	Marcia Meredith Galloway 716-684-8060
EEEPC Project Manager	Jon Nickerson 716-684-8060
EEEPC Field Team Leader	Brian Cervi 716-684-8060
EEEPC Project Chemist	Rebecca Humphrey 716-684-8060
Laboratory	Tim Rutka, Project Manager CHEMTECH 284 Sheffield Street Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-8922 Email: Tim@Chemtech.net
NYSDOH Oversight	Matt Forcucci 716/847-4385

1.3 Project Description

The specific scope of work (SOW) for the current activities is defined in the work plan, Section 3, and includes the following areas:

- Problem(s) to be resolved;
- Direct and indirect measurements required;
- Applicable technical or regulatory quality assurance/quality control (QA/QC) standards or criteria;
- Any special resources (e.g., personnel or equipment) needed for the site;
- Scope and schedule of the project deliverables; and
- Any special assessment or oversight procedures necessary to verify site-specific quality objectives are met.

1.4 Quality Objectives and Criteria

General quality objectives and performance criteria for NYSDEC projects are applicable to this project. These general objectives can be found in the master NYSDEC Quality Assurance Program Plan.

1.5 Special Training/Certification

There are no site-specific training requirements for this work assignment.

1.6 Documents and Records

Sample identification will be the same as the master Quality Assurance Program Plan with the exception that the three-letter sample prefix is not required and the following matrix codes will be used:

- CH = Corehole subsurface soil;
- MW= Monitoring well groundwater;
- SS = Surface soil;
- SB = Subsurface soil;
- SW = Surface water; and
- SD = Sediment.

The sample prefix for this site will be "DL."

The laboratory will provide a hard-copy deliverable that contains the information specified for NYSDEC Analytical Services Protocol (ASP) Category B. Electronic data must be provided in accordance the standard laboratory electronic data deliverable (EDD) format for the Automatic Data Review (ADR) program. EEEPC will use only the electronic data for evaluation and reporting. The laboratory must certify that the electronic data match the hard copy reported for each package.

The following records and reports will be produced as part of this project:

- Work plan;
- Site-specific Health and Safety Plan;
- Site-specific QAPP;
- Field logbook;
- Geotechnical logbooks;
- Chain-of-custody form;
- Laboratory data package – Category B;

- Data usability summary report (DUSR);
- Draft report; and
- Final report.

2 Data Generation and Acquisition

The samples and analytical methods planned for this site are provided on Table 3-1 of the work plan. Table B2-1 lists all analyses that may be performed for this project. Laboratory target compounds, reporting limits, and current control limits have been entered into the ADR program. Printouts of these limits are provided in Attachment A for the soil and water methods listed on Table B2-1. All additional QC information pertaining to the methods can be found in NYSDEC's ASP (June 2000).

Table B2-1 Required Analytical Methods for the Depew Village Landfill Site

Method Number	Description
SW8260, 8270, 8081, and 8082	Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides and polychlorinated biphenyls (PCBs)
SW6010,7470/71	Target Analyte List (TAL) or Priority Pollutant (PP) Metals/Mercury
SW1311/6010	Toxicity Characteristic Leaching Procedure (TCLP) Lead
Lloyd Kahn	Total organic carbon
Investigation Derived Waste Parameters	
SW 1311	TCLP Extraction
SW 8260, 8270, 8081, and 8151	TCLP VOCs, SVOCs, pesticides and herbicides

The collection of field QC samples follows the master Quality Assurance Program Plan and is summarized on Table B2-2.

Table B2-2 Field Quality Control Guidelines, NYSDEC Projects

QC Sample	Description
Field Duplicate	One per matrix per 20 samples for each analysis.
Field Equipment Blank	One per equipment set per day for each analysis. Only equipment sets that are subject to decontamination require equipment blanks. Dedicated or disposal equipment does not require an equipment blank.
Trip Blank	One per shipment for each cooler in which samples for VOC analysis are shipped. Trip blanks are analyzed for all VOC methods designated for samples. Trip blanks are shipped only for aqueous matrices.
Filter Blank	One per batch of filters used. Preserve with HNO_3 to pH<2 following collection

Key:

VOC = Volatile organic compound.

The laboratory QC sample requirements follow the master Quality Assurance Program Plan and are summarized on Table B2-3.

Table B2-3 Laboratory Quality Control Sample Guidelines, NYSDEC Projects

QC Sample	Description
MB	One per matrix per preparation batch for each analysis.
MSB	One per matrix per preparation batch for each analysis. The MSB must contain all target analytes of concern at the site or as specified by the CLP method.
Surrogate Spikes	All samples analyzed for organic methods.
MS/MSD	One per matrix per SDG for each analysis. The spike solution must contain a broad range of the analytes of concern at the site or as specified by the CLP method. The overall frequency of MS/MSD on project samples must be at least one set per 20 samples.
MS/MD	One per matrix per SDG for TAL metals and general chemistry methods. The spike solution must contain a broad range of analytes of concern at the site or as specified by the CLP method. The overall frequency of MS/MD on the project samples must be at least one set per 20 samples.

Key:

CLP = Contract Laboratory Program.
MB = Method Blank.
MS/MD = Matrix Spike/Matrix Duplicate.
MS/MSD = Matrix Spike/Matrix Spike Duplicate.
MSB = Matrix Spike Blank.
SDG = Sample Delivery Group.
TAL = Target Analyze List

3 Assessment and Oversight

EEEPC's assessment and oversight procedures for the project activities are the same as the master Quality Assurance Program Plan. There are no additional procedures to meet the quality objectives for these work assignment activities.

3.1 Assessment and Response Actions

Planned assessment activities for these work assignment activities are as follows:

Field Audits

No field audits are planned.

Field Inspections

The EEEPC project manager will conduct at least one site visit for the purpose of inspecting the activities of all personnel including subcontractors and subconsultants.

Laboratory Audits

A laboratory audit of the Chemtech Corporation was conducted in March 2005 by EEEPC to verify laboratory capabilities prior to contract award. No project-specific audits are planned.

3.2 Reports to Management

The reports to management are specified the same as in the master Quality Assurance Program Plan. No additional reports are required for this project.

4 Data Validation and Usability

EEEPC will implement the general procedures for data validation and usability described in the master Quality Assurance Program Plan for data validation activities.

4.1 Data Review, Validation, and Verification Requirements

There are no additional data review criteria for this project. The laboratory is responsible for reviewing data in accordance with their approved QA manual. These procedures are approved as part of the New York State certification process.

EEEPC will process all electronic data through the ADR. Specifications for EDD are provided in Attachment B. Sample analysis results for the site characterization will undergo electronic data processing and review for usability by EEEPC. EEEPC will determine any deviations from the Quality Control Program Plan limits and assign qualifiers based on guidelines identified in the master Quality Control Program Plan. Data for investigation-derived waste soil and water disposal will not be reviewed. The data reviews both hard copy and electronic will follow the NYSDEC Guidance for the Development of DUSRs, June 1999.

4.2 Verification and Validation Methods

Data validation requirements are the same as specified in the master Quality Assurance Program Plan.

4.3 Reconciliation with User Requirements

The data assessment procedures listed in the master Quality Assurance Program Plan are applicable to this project. There are no additional data assessment procedures.

A Method Target Compounds, Reporting Limits, and Quality Control Limits

Project Reporting Limits and QC Criteria

Project Depew Landfill RI

Method: 415.1_LK **SO** Total Organic Carbon by Lloyd Kahn

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
Total Organic Carbon	ADR-04-005	100	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20

Method: 6010B **AQ** Metals by Inductively Coupled Plasma-Atomic Emission

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
ALUMINUM	7429-90-5	200	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
ANTIMONY	7440-36-0	50	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
ARSENIC	7440-38-2	10	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
BARIUM	7440-39-3	50	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
BERYLLIUM	7440-41-7	4	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
CADMIUM	7440-43-9	5	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
CALCIUM	7440-70-2	1000	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
CHROMIUM	7440-47-3	10	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
COBALT	7440-48-4	50	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
COPPER	7440-50-8	10	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
IRON	7439-89-6	100	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
LEAD	7439-92-1	3	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
MAGNESIUM	7439-95-4	1000	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
MANGANESE	7439-96-5	10	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
NICKEL	7440-02-0	20	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
POTASSIUM	7440-09-7	1000	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
SELENIUM	7782-49-2	30	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
SILVER	7440-22-4	10	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
SODIUM	7440-23-5	1000	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
THALLIUM	7440-28-0	10	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20

VANADIUM	7440-62-2	10	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
ZINC	7440-66-6	20	PQL	ug/L	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20

Method: 6010B **SO** Metals by Inductively Coupled Plasma-Atomic Emission

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
ALUMINUM	7429-90-5	5	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
ANTIMONY	7440-36-0	2	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
ARSENIC	7440-38-2	1	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
BARIUM	7440-39-3	2	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
BERYLLIUM	7440-41-7	0.4	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
CADMIUM	7440-43-9	0.5	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
CALCIUM	7440-70-2	100	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
CHROMIUM	7440-47-3	0.5	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
COBALT	7440-48-4	1	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
COPPER	7440-50-8	5	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
IRON	7439-89-6	10	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
LEAD	7439-92-1	0.3	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
MAGNESIUM	7439-95-4	50	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
MANGANESE	7439-96-5	0.5	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
NICKEL	7440-02-0	2	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
POTASSIUM	7440-09-7	100	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
SELENIUM	7782-49-2	3	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
SILVER	7440-22-4	0.5	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
SODIUM	7440-23-5	100	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
THALLIUM	7440-28-0	1	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
VANADIUM	7440-62-2	1	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20
ZINC	7440-66-6	2	PQL	mg/Kg	80.00	120.00	20.00	Percent	80.00	120.00	20.00	Percent	20

Project Depew Landfill RI

Method: 7470A **AQ** Mercury in Liquid Waste by Manual Cold Vapor Technique

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
MERCURY	7439-97-6	0.2	PQL	ug/L	80.00	124.00	20.00	Percent	80.00	124.00	20.00	Percent	20

Method: 7471A **SO** Mercury in Solid or Semi-solid Waste by Manual Cold Vapor Technique

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
MERCURY	7439-97-6	0.01	PQL	mg/Kg	89.00	118.00	20.00	Percent	89.00	118.00	20.00	Percent	20

Method: 8081A **AQ** Organochlorine Pesticides by GC using ECD

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
4,4'-DDD	72-54-8	0.05	PQL	ug/L	66.00	154.00	20.00	Percent	66.00	154.00	20.00	Percent	20
4,4'-DDE	72-55-9	0.05	PQL	ug/L	72.00	140.00	20.00	Percent	72.00	140.00	20.00	Percent	20
4,4'-DDT	50-29-3	0.2	PQL	ug/L	69.00	139.00	20.00	Percent	69.00	139.00	20.00	Percent	20
ALDRIN	309-00-2	0.05	PQL	ug/L	71.00	129.00	20.00	Percent	71.00	129.00	20.00	Percent	20
ALPHA-BHC	319-84-6	0.05	PQL	ug/L	66.00	142.00	20.00	Percent	66.00	142.00	20.00	Percent	20
ALPHA-CHLORDANE	5103-71-9	0.05	PQL	ug/L	64.00	152.00	20.00	Percent	64.00	152.00	20.00	Percent	20
BETA-BHC	319-85-7	0.2	PQL	ug/L	63.00	129.00	20.00	Percent	63.00	129.00	20.00	Percent	20
DELTA-BHC	319-86-8	0.05	PQL	ug/L	67.00	149.00	20.00	Percent	67.00	149.00	20.00	Percent	20
DIELDRIN	60-57-1	0.05	PQL	ug/L	78.00	134.00	20.00	Percent	78.00	134.00	20.00	Percent	20
ENDOSULFAN I	959-98-8	0.05	PQL	ug/L	69.00	143.00	20.00	Percent	69.00	143.00	20.00	Percent	20
ENDOSULFAN II	33213-65-9	0.05	PQL	ug/L	70.00	130.00	20.00	Percent	70.00	130.00	20.00	Percent	20
ENDOSULFAN SULFATE	1031-07-8	0.05	PQL	ug/L	63.00	133.00	20.00	Percent	63.00	133.00	20.00	Percent	20
ENDRIN	72-20-8	0.05	PQL	ug/L	70.00	118.00	20.00	Percent	70.00	118.00	20.00	Percent	20
ENDRIN ALDEHYDE	7421-93-4	0.05	PQL	ug/L	74.00	150.00	20.00	Percent	74.00	150.00	20.00	Percent	20
ENDRIN KETONE	53494-70-5	0.05	PQL	ug/L	65.00	147.00	20.00	Percent	65.00	147.00	20.00	Percent	20
GAMMA-BHC	58-89-9	0.05	PQL	ug/L	68.00	136.00	20.00	Percent	68.00	136.00	20.00	Percent	20
GAMMA-CHLORDANE	5103-74-2	0.05	PQL	ug/L	73.00	135.00	20.00	Percent	73.00	135.00	20.00	Percent	20

HEPTACHLOR	76-44-8	0.05	PQL	ug/L	77.00	131.00	20.00	Percent	77.00	131.00	20.00	Percent	20
HEPTACHLOR EPOXIDE	1024-57-3	0.05	PQL	ug/L	72.00	132.00	20.00	Percent	72.00	132.00	20.00	Percent	20
METHOXYCHLOR	72-43-5	0.50	PQL	ug/L	70.00	126.00	20.00	Percent	70.00	126.00	20.00	Percent	20
TOXAPHENE	8001-35-2	0.5	PQL	ug/L	40.00	160.00	20.00	Percent	40.00	160.00	20.00	Percent	20

Surrogates

Method: 8081A AQ

Analyte Name	*Client Analyte ID*	*Surrogate Lower*	*Surrogate Upper*	*Surrogate Units*
DECACHLOROBIPHENYL	2051-24-3	70	130	Percent
TETRACHLORO-M-XYLENE	877-09-8	70	130	Percent

Method: 8081A SO Organochlorine Pesticides by GC using ECD

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
4,4'-DDD	72-54-8	3	PQL	ug/Kg	52.00	127.00	20.00	Percent	52.00	127.00	20.00	Percent	20
4,4'-DDE	72-55-9	3	PQL	ug/Kg	74.00	124.00	20.00	Percent	74.00	124.00	20.00	Percent	20
4,4'-DDT	50-29-3	3	PQL	ug/Kg	53.00	184.00	20.00	Percent	53.00	184.00	20.00	Percent	20
ALDRIN	309-00-2	3	PQL	ug/Kg	50.00	123.00	20.00	Percent	50.00	123.00	20.00	Percent	20
ALPHA-BHC	319-84-6	3	PQL	ug/Kg	51.00	129.00	20.00	Percent	51.00	129.00	20.00	Percent	20
ALPHA-CHLORDANE	5103-71-9	3	PQL	ug/Kg	55.00	134.00	20.00	Percent	55.00	134.00	20.00	Percent	20
BETA-BHC	319-85-7	3	PQL	ug/Kg	59.00	132.00	20.00	Percent	59.00	132.00	20.00	Percent	20
DELTA-BHC	319-86-8	3	PQL	ug/Kg	49.00	117.00	20.00	Percent	49.00	117.00	20.00	Percent	20
DIELDRIN	60-57-1	3	PQL	ug/Kg	57.00	138.00	20.00	Percent	57.00	138.00	20.00	Percent	20
ENDOSULFAN I	959-98-8	3	PQL	ug/Kg	56.00	133.00	20.00	Percent	56.00	133.00	20.00	Percent	20
ENDOSULFAN II	33213-65-9	3	PQL	ug/Kg	57.00	131.00	20.00	Percent	57.00	131.00	20.00	Percent	20
ENDOSULFAN SULFATE	1031-07-8	3	PQL	ug/Kg	58.00	128.00	20.00	Percent	58.00	128.00	20.00	Percent	20
ENDRIN	72-20-8	3	PQL	ug/Kg	54.00	129.00	20.00	Percent	54.00	129.00	20.00	Percent	20
ENDRIN ALDEHYDE	7421-93-4	3	PQL	ug/Kg	58.00	137.00	20.00	Percent	58.00	137.00	20.00	Percent	20
ENDRIN KETONE	53494-70-5	3	PQL	ug/Kg	48.00	136.00	20.00	Percent	48.00	136.00	20.00	Percent	20
GAMMA-BHC	58-89-9	3	PQL	ug/Kg	53.00	125.00	20.00	Percent	53.00	125.00	20.00	Percent	20
GAMMA-CHLORDANE	5103-74-2	3	PQL	ug/Kg	58.00	132.00	20.00	Percent	58.00	132.00	20.00	Percent	20
HEPTACHLOR	76-44-8	3	PQL	ug/Kg	56.00	129.00	20.00	Percent	56.00	129.00	20.00	Percent	20

HEPTACHLOR EPOXIDE	1024-57-3	3	PQL	ug/Kg	58.00	125.00	20.00	Percent	58.00	125.00	20.00	Percent	20
METHOXYCHLOR	72-43-5	3	PQL	ug/Kg	63.00	165.00	20.00	Percent	63.00	165.00	20.00	Percent	20
TOXAPHENE	8001-35-2	17	PQL	ug/Kg	60.00	140.00	20.00	Percent	60.00	140.00	20.00	Percent	20

Surrogates

Method: 8081A SO

Analyte Name	*Client Analyte ID*	*Surrogate Lower*	*Surrogate Upper*	*Surrogate Units*
DECACHLOROBIPHENYL	2051-24-3	70	130	Percent
TETRACHLORO-M-XYLENE	877-09-8	70	130	Percent

Method: 8082 AQ Polychlorinated Biphenyls (PCBs) by GC using ECD

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
AROCLOR 1016	12674-11-2	0.5	PQL	ug/L	61.00	148.00	20.00	Percent	61.00	148.00	20.00	Percent	20
AROCLOR 1221	11104-28-2	0.5	PQL	ug/L				Percent				Percent	20
AROCLOR 1232	11141-16-5	0.5	PQL	ug/L				Percent				Percent	20
AROCLOR 1242	53469-21-9	0.5	PQL	ug/L				Percent				Percent	20
AROCLOR 1248	12672-29-6	0.5	PQL	ug/L				Percent				Percent	20
AROCLOR 1254	11097-69-1	0.5	PQL	ug/L				Percent				Percent	20
AROCLOR 1260	11096-82-5	0.5	PQL	ug/L	60.00	134.00	20.00	Percent	60.00	134.00	20.00	Percent	20

Surrogates

Method: 8082 AQ

Analyte Name	*Client Analyte ID*	*Surrogate Lower*	*Surrogate Upper*	*Surrogate Units*
DECACHLOROBIPHENYL	2051-24-3	70	130	Percent
TETRACHLORO-M-XYLENE	877-09-8	70	130	Percent

Method: 8082 SO Polychlorinated Biphenyls (PCBs) by GC using ECD

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
AROCLOR 1016	12674-11-2	17	PQL	ug/Kg	55.00	128.00	20.00	Percent	55.00	128.00	20.00	Percent	20

AROCLOR 1221	11104-28-2	17	PQL	ug/Kg					Percent				Percent	20
AROCLOR 1232	11141-16-5	17	PQL	ug/Kg					Percent				Percent	20
AROCLOR 1242	53469-21-9	17	PQL	ug/Kg					Percent				Percent	20
AROCLOR 1248	12672-29-6	17	PQL	ug/Kg					Percent				Percent	20
AROCLOR 1254	11097-69-1	17	PQL	ug/Kg					Percent				Percent	20
AROCLOR 1260	11096-82-5	17	PQL	ug/Kg	58.00	140.00	20.00		Percent	58.00	140.00	20.00	Percent	20

Surrogates

Method: 8082 SO

Analyte Name	*Client Analyte ID*	*Surrogate Lower*	*Surrogate Upper*	*Surrogate Units*
DECACHLOROBIPHENYL	2051-24-3	58	125	Percent
TETRACHLORO-M-XYLENE	877-09-8	50	132	Percent

Method: 8260B AQ Volatile Organic Compounds by GC/MS

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
1,1,1-TRICHLOROETHANE	71-55-6	1	PQL	ug/L	77.00	126.00	20.00	Percent	77.00	126.00	20.00	Percent	20
1,1,2,2-TETRACHLOROETHANE	79-34-5	1	PQL	ug/L	52.00	111.00	20.00	Percent	52.00	111.00	20.00	Percent	20
1,1,2-Trichloro-1,2,2-trichloroethane	76-13-1	1	PQL	ug/L	75.00	130.00	20.00	Percent	75.00	130.00	20.00	Percent	20
1,1,2-TRICHLOROETHANE	79-00-5	1	PQL	ug/L	83.00	130.00	20.00	Percent	83.00	130.00	20.00	Percent	20
1,1-DICHLOROETHANE	75-34-3	1	PQL	ug/L	74.00	122.00	20.00	Percent	74.00	122.00	20.00	Percent	20
1,1-DICHLOROETHENE	75-35-4	1	PQL	ug/L	70.00	140.00	20.00	Percent	70.00	140.00	20.00	Percent	20
1,2,3-TRICHLOROBENZENE	87-61-6	1	PQL	ug/L	77.20	115.80	20.00	Percent	77.20	115.80	20.00	Percent	20
1,2,4-TRICHLOROBENZENE	120-82-1	1	PQL	ug/L	78.30	111.90	20.00	Percent	78.30	111.90	20.00	Percent	20
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	1	PQL	ug/L	56.20	127.20	20.00	Percent	56.20	127.20	20.00	Percent	20
1,2-DIBROMOETHANE	106-93-4	1	PQL	ug/L	76.40	132.50	20.00	Percent	76.40	132.50	20.00	Percent	20
1,2-DICHLOROBENZENE	95-50-1	1	PQL	ug/L	79.10	113.30	20.00	Percent	79.10	113.30	20.00	Percent	0
1,2-DICHLOROETHANE	107-06-2	1	PQL	ug/L	77.00	130.00	20.00	Percent	77.00	130.00	20.00	Percent	20
1,2-DICHLOROPROPANE	78-87-5	1	PQL	ug/L	81.00	123.00	20.00	Percent	81.00	123.00	20.00	Percent	20
1,3-DICHLOROBENZENE	541-73-1	1	PQL	ug/L	74.30	111.10	20.00	Percent	74.30	111.10	20.00	Percent	20
1,4-DICHLOROBENZENE	106-46-7	1	PQL	ug/L	76.60	111.30	20.00	Percent	76.60	111.30	20.00	Percent	20
1,4-DIOXANE	123-91-1	5	PQL	ug/L	20.00	150.00	20.00	Percent	20.00	150.00	20.00	Percent	0

2-BUTANONE	78-93-3	1	PQL	ug/L	37.00	159.00	20.00	Percent	37.00	159.00	20.00	Percent	20
2-HEXANONE	591-78-6	1	PQL	ug/L	31.00	147.00	20.00	Percent	31.00	147.00	20.00	Percent	20
4-METHYL-2-PENTANONE	108-10-1	1	PQL	ug/L	61.00	144.00	20.00	Percent	61.00	144.00	20.00	Percent	20
ACETONE	67-64-1	5	PQL	ug/L	20.00	150.00	20.00	Percent	20.00	150.00	20.00	Percent	20
BENZENE	71-43-2	1	PQL	ug/L	79.00	130.00	20.00	Percent	79.00	130.00	20.00	Percent	20
BROMOCHLOROMETHANE	74-97-5	1	PQL	ug/L	41.10	150.00	20.00	Percent	41.10	150.00	20.00	Percent	20
BROMODICHLOROMETHANE	75-27-4	1	PQL	ug/L	80.00	126.00	20.00	Percent	80.00	126.00	20.00	Percent	20
BROMOFORM	75-25-2	1	PQL	ug/L	66.00	127.00	20.00	Percent	66.00	127.00	20.00	Percent	20
BROMOMETHANE	74-83-9	1	PQL	ug/L	75.00	173.00	20.00	Percent	75.00	173.00	20.00	Percent	20
CARBON DISULFIDE	75-15-0	1	PQL	ug/L	43.00	153.00	20.00	Percent	43.00	153.00	20.00	Percent	20
CARBON TETRACHLORIDE	56-23-5	1	PQL	ug/L	75.00	128.00	20.00	Percent	75.00	128.00	20.00	Percent	20
CHLOROBENZENE	108-90-7	1	PQL	ug/L	79.00	121.00	20.00	Percent	79.00	121.00	20.00	Percent	20
CHLOROETHANE	75-00-3	1	PQL	ug/L	71.00	150.00	20.00	Percent	71.00	150.00	20.00	Percent	20
CHLOROFORM	67-66-3	1	PQL	ug/L	78.00	125.00	20.00	Percent	78.00	125.00	20.00	Percent	20
CHLOROMETHANE	74-87-3	1	PQL	ug/L	74.00	146.00	20.00	Percent	74.00	146.00	20.00	Percent	20
CIS-1,2-DICHLOROETHENE	156-59-2	1	PQL	ug/L	76.00	127.00	20.00	Percent	76.00	127.00	20.00	Percent	20
CIS-1,3-DICHLOROPROPENE	10061-01-5	1	PQL	ug/L	70.00	117.00	20.00	Percent	70.00	117.00	20.00	Percent	20
Cyclohexane	110-82-7	1	PQL	ug/L	72.20	129.80	20.00	Percent	72.20	129.80	20.00	Percent	0
DIBROMOCHLOROMETHANE	124-48-1	1	PQL	ug/L	71.00	124.00	20.00	Percent	71.00	124.00	20.00	Percent	20
DICHLORODIFLUOROMETHANE	75-71-8	1	PQL	ug/L	74.50	136.60	20.00	Percent	74.50	136.60	20.00	Percent	20
ETHYLBENZENE	100-41-4	1	PQL	ug/L	82.00	124.00	20.00	Percent	82.00	124.00	20.00	Percent	20
ISOPROPYLBENZENE	98-82-8	1	PQL	ug/L	76.50	116.70	20.00	Percent	76.50	116.70	20.00	Percent	20
m/p-Xylenes	136777-61-2	1	PQL	ug/L	80.20	126.10	20.00	Percent	80.20	126.10	20.00	Percent	0
Methyl Acetate	79-20-9	1	PQL	ug/L	37.70	150.00	20.00	Percent	37.70	150.00	20.00	Percent	0
METHYL TERT-BUTYL ETHER	1634-04-4	1	PQL	ug/L	71.70	127.40	20.00	Percent	71.70	127.40	20.00	Percent	20
METHYLCYCLOHEXANE	108-87-2	1	PQL	ug/L	76.50	118.20	20.00	Percent	76.50	118.20	20.00	Percent	0
METHYLENE CHLORIDE	75-09-2	1	PQL	ug/L	77.00	128.00	20.00	Percent	77.00	128.00	20.00	Percent	20
O-XYLENE	95-47-6	1	PQL	ug/L	84.00	127.00	20.00	Percent	84.00	127.00	20.00	Percent	20
STYRENE	100-42-5	1	PQL	ug/L	80.00	129.00	20.00	Percent	80.00	129.00	20.00	Percent	20
TETRACHLOROETHENE	127-18-4	1	PQL	ug/L	26.00	150.00	20.00	Percent	26.00	150.00	20.00	Percent	20
TOLUENE	108-88-3	1	PQL	ug/L	81.00	133.00	20.00	Percent	81.00	133.00	20.00	Percent	20
TRANS-1,2-DICHLOROETHENE	156-60-5	1	PQL	ug/L	71.00	137.00	20.00	Percent	71.00	137.00	20.00	Percent	20
TRANS-1,3-DICHLOROPROPENE	10061-02-6	1	PQL	ug/L	67.00	113.00	20.00	Percent	67.00	113.00	20.00	Percent	20

TRICHLOROETHENE	79-01-6	1	PQL	ug/L	69.00	153.00	20.00	Percent	69.00	153.00	20.00	Percent	20
TRICHLOROFLUOROMETHANE	75-69-4	1	PQL	ug/L	68.60	152.70	20.00	Percent	68.60	152.70	20.00	Percent	20
VINYL CHLORIDE	75-01-4	1	PQL	ug/L	76.00	136.00	20.00	Percent	76.00	136.00	20.00	Percent	20

Surrogates

Method: 8260B AQ

Analyte Name	*Client Analyte ID*	*Surrogate Lower*	*Surrogate Upper*	*Surrogate Units*
1,2-DICHLOROETHANE-D4	17060-07-0	70	130	Percent
4-BROMOFLUOROBENZENE	460-00-4	86	115	Percent
DIBROMOFLUOROMETHANE	1868-53-7	70	130	Percent
TOLUENE-D8	2037-26-5	70	130	Percent

Method: 8260B SO Volatile Organic Compounds by GC/MS

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
1,1,1-TRICHLOROETHANE	71-55-6	5	PQL	ug/Kg	75.90	129.60	20.00	Percent	75.90	129.60	20.00	Percent	20
1,1,2,2-TETRACHLOROETHANE	79-34-5	5	PQL	ug/Kg	72.40	141.70	20.00	Percent	72.40	141.70	20.00	Percent	20
1,1,2-Trichloro-1,2,2-trichloroethane	76-13-1	5	PQL	ug/Kg	84.70	150.00	20.00	Percent	84.70	150.00	20.00	Percent	20
1,1,2-TRICHLOROETHANE	79-00-5	5	PQL	ug/Kg	80.30	131.30	20.00	Percent	80.30	131.30	20.00	Percent	20
1,1-DICHLOROETHANE	75-34-3	5	PQL	ug/Kg	76.60	138.70	20.00	Percent	76.60	138.70	20.00	Percent	20
1,1-DICHLOROETHENE	75-35-4	5	PQL	ug/Kg	82.30	154.20	20.00	Percent	82.30	154.20	20.00	Percent	20
1,2,3-TRICHLOROBENZENE	87-61-6	5	PQL	ug/Kg	66.00	156.90	20.00	Percent	66.00	156.90	20.00	Percent	20
1,2,4-TRICHLOROBENZENE	120-82-1	5	PQL	ug/Kg	67.10	154.90	20.00	Percent	67.10	154.90	20.00	Percent	20
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	5	PQL	ug/Kg	65.90	131.70	20.00	Percent	65.90	131.70	20.00	Percent	20
1,2-DIBROMOETHANE	106-93-4	5	PQL	ug/Kg	77.30	132.00	20.00	Percent	77.30	132.00	20.00	Percent	20
1,2-DICHLOROBENZENE	95-50-1	5	PQL	ug/Kg	76.80	138.60	20.00	Percent	76.80	138.60	20.00	Percent	20
1,2-DICHLOROETHANE	107-06-2	5	PQL	ug/Kg	81.50	136.20	20.00	Percent	81.50	136.20	20.00	Percent	20
1,2-DICHLOROPROPANE	78-87-5	5	PQL	ug/Kg	82.60	138.90	20.00	Percent	82.60	138.90	20.00	Percent	20
1,3-DICHLOROBENZENE	541-73-1	5	PQL	ug/Kg	73.10	146.80	20.00	Percent	73.10	146.80	20.00	Percent	20
1,4-DICHLOROBENZENE	106-46-7	5	PQL	ug/Kg	78.60	136.70	20.00	Percent	78.60	136.70	20.00	Percent	20
1,4-DIOXANE	123-91-1	5	PQL	ug/Kg	20.00	150.00	20.00	Percent	20.00	150.00	20.00	Percent	20
2-BUTANONE	78-93-3	25	PQL	ug/Kg	52.70	155.80	20.00	Percent	52.70	155.80	20.00	Percent	20

2-HEXANONE	591-78-6	25	PQL	ug/Kg	71.70	150.00	20.00	Percent	71.70	150.00	20.00	Percent	20
4-METHYL-2-PENTANONE	108-10-1	25	PQL	ug/Kg	74.40	150.00	20.00	Percent	74.40	150.00	20.00	Percent	20
ACETONE	67-64-1	25	PQL	ug/Kg	55.50	175.70	20.00	Percent	55.50	175.70	20.00	Percent	20
BENZENE	71-43-2	5	PQL	ug/Kg	83.30	135.10	20.00	Percent	83.30	135.10	20.00	Percent	20
BROMOCHLOROMETHANE	74-97-5	5	PQL	ug/Kg	41.10	159.20	20.00	Percent	41.10	159.20	20.00	Percent	20
BROMODICHLOROMETHANE	75-27-4	5	PQL	ug/Kg	41.10	159.20	20.00	Percent	41.10	159.20	20.00	Percent	20
BROMOFORM	75-25-2	5	PQL	ug/Kg	68.80	125.10	20.00	Percent	68.80	125.10	20.00	Percent	20
BROMOMETHANE	74-83-9	5	PQL	ug/Kg	59.20	135.70	20.00	Percent	59.20	135.70	20.00	Percent	20
CARBON DISULFIDE	75-15-0	5	PQL	ug/Kg	51.30	147.60	20.00	Percent	51.30	147.60	20.00	Percent	20
CARBON TETRACHLORIDE	56-23-5	5	PQL	ug/Kg	78.80	137.60	20.00	Percent	78.80	137.60	20.00	Percent	20
CHLOROBENZENE	108-90-7	5	PQL	ug/Kg	80.30	141.10	20.00	Percent	80.30	141.10	20.00	Percent	20
CHLOROETHANE	75-00-3	5	PQL	ug/Kg	66.00	122.50	20.00	Percent	66.00	122.50	20.00	Percent	20
CHLOROFORM	67-66-3	5	PQL	ug/Kg	72.90	138.00	20.00	Percent	72.90	138.00	20.00	Percent	20
CHLOROMETHANE	74-87-3	5	PQL	ug/Kg	51.60	127.70	20.00	Percent	51.60	127.70	20.00	Percent	20
CIS-1,2-DICHLOROETHENE	156-59-2	5	PQL	ug/Kg	74.70	124.90	20.00	Percent	74.70	124.90	20.00	Percent	20
CIS-1,3-DICHLOROPROPENE	10061-01-5	5	PQL	ug/Kg	79.70	136.90	20.00	Percent	79.70	136.90	20.00	Percent	20
Cyclohexane	110-82-7	5	PQL	ug/Kg	72.00	136.80	20.00	Percent	72.00	136.80	20.00	Percent	20
DIBROMOCHLOROMETHANE	124-48-1	5	PQL	ug/Kg	76.00	128.90	20.00	Percent	76.00	128.90	20.00	Percent	20
DICHLORODIFLUOROMETHANE	75-71-8	5	PQL	ug/Kg	54.80	131.50	20.00	Percent	54.80	131.50	20.00	Percent	20
ETHYLBENZENE	100-41-4	5	PQL	ug/Kg	81.50	138.70	20.00	Percent	81.50	138.70	20.00	Percent	20
ISOPROPYLBENZENE	98-82-8	5	PQL	ug/Kg	79.60	144.70	20.00	Percent	79.60	144.70	20.00	Percent	20
m/p-Xylenes	136777-61-2	10	PQL	ug/Kg	80.80	143.10	20.00	Percent	80.80	143.10	20.00	Percent	20
Methyl Acetate	79-20-9	5	PQL	ug/Kg	36.70	150.00	20.00	Percent	36.70	150.00	20.00	Percent	20
METHYL TERT-BUTYL ETHER	1634-04-4	5	PQL	ug/Kg	74.20	148.60	20.00	Percent	74.20	148.60	20.00	Percent	20
METHYLCYCLOHEXANE	108-87-2	5	PQL	ug/Kg	71.10	138.60	20.00	Percent	71.10	138.60	20.00	Percent	20
METHYLENE CHLORIDE	75-09-2	5	PQL	ug/Kg	37.40	150.00	20.00	Percent	37.40	150.00	20.00	Percent	20
O-XYLENE	95-47-6	5	PQL	ug/Kg	79.00	143.50	20.00	Percent	79.00	143.50	20.00	Percent	20
STYRENE	100-42-5	5	PQL	ug/Kg	79.70	146.30	20.00	Percent	79.70	146.30	20.00	Percent	20
TETRACHLOROETHENE	127-18-4	5	PQL	ug/Kg	67.80	144.80	20.00	Percent	67.80	144.80	20.00	Percent	20
TOLUENE	108-88-3	5	PQL	ug/Kg	78.50	140.30	20.00	Percent	78.50	140.30	20.00	Percent	20
TRANS-1,2-DICHLOROETHENE	156-60-5	5	PQL	ug/Kg	71.40	150.00	20.00	Percent	71.40	150.00	20.00	Percent	20
TRANS-1,3-DICHLOROPROPENE	10061-02-6	5	PQL	ug/Kg	81.80	139.40	20.00	Percent	81.80	139.40	20.00	Percent	20
TRICHLOROETHENE	79-01-6	5	PQL	ug/Kg	81.00	128.90	20.00	Percent	81.00	128.90	20.00	Percent	20

TRICHLOROFLUOROMETHANE	75-69-4	5	PQL	ug/Kg	77.40	140.00	20.00	Percent	77.40	140.00	20.00	Percent	20
VINYL CHLORIDE	75-01-4	5	PQL	ug/kg	60.20	129.20	20.00	Percent	60.20	129.20	20.00	Percent	20

Surrogates

Method: 8260B SO

Analyte Name	*Client Analyte ID*	*Surrogate Lower*	*Surrogate Upper*	*Surrogate Units*
1,2-DICHLOROETHANE-D4	17060-07-0	75	125	Percent
4-Bromofluorobenzene	460-00-4	75	125	Percent
DIBROMOFLUOROMETHANE	1868-53-7	75	125	Percent
TOLUENE-D8	2037-26-5	75	125	Percent

Method: 8270C AQ Semi-Volatile Organic Compounds by GC/MS

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
1,1'-Biphenyl	92-52-4	10	PQL	ug/L	70.00	130.00	20.00	Percent	70.00	130.00	20.00	Percent	20
1,2,4,5-TETRACHLOROBENZENE	95-94-3	10	PQL	ug/L				Percent				Percent	20
1,2,4-TRICHLOROBENZENE	120-82-1	10	PQL	ug/L	41.00	104.00	20.00	Percent	41.00	104.00	20.00	Percent	20
2,2-oxybis(1-Chloropropane)	108-60-1	10	PQL	ug/L	44.00	99.00	20.00	Percent	44.00	99.00	20.00	Percent	20
2,3,4,6-TETRACHLOROPHENOL	58-90-2	10	PQL	ug/L				Percent				Percent	20
2,4,5-TRICHLOROPHENOL	95-95-4	10	PQL	ug/L	43.00	102.00	20.00	Percent	43.00	102.00	20.00	Percent	20
2,4,6-TRICHLOROPHENOL	88-06-2	10	PQL	ug/L	45.00	99.00	20.00	Percent	45.00	99.00	20.00	Percent	20
2,4-DICHLOROPHENOL	120-83-2	10	PQL	ug/L	50.00	94.00	20.00	Percent	50.00	94.00	20.00	Percent	20
2,4-DIMETHYLPHENOL	105-67-9	10	PQL	ug/L	44.00	97.00	20.00	Percent	44.00	97.00	20.00	Percent	20
2,4-DINITROPHENOL	51-28-5	10	PQL	ug/L	20.00	112.00	20.00	Percent	20.00	112.00	20.00	Percent	20
2,4-DINITROTOLUENE	121-14-2	10	PQL	ug/L	57.00	103.00	20.00	Percent	57.00	103.00	20.00	Percent	20
2,6-DINITROTOLUENE	606-20-2	10	PQL	ug/L	60.00	103.00	20.00	Percent	60.00	103.00	20.00	Percent	20
2-CHLORONAPHTHALENE	91-58-7	10	PQL	ug/L	56.00	103.00	20.00	Percent	56.00	103.00	20.00	Percent	20
2-CHLOROPHENOL	95-57-8	10	PQL	ug/L	45.00	87.00	20.00	Percent	45.00	87.00	20.00	Percent	20
2-METHYLNAPHTHALENE	91-57-6	10	PQL	ug/L	56.00	104.00	20.00	Percent	56.00	104.00	20.00	Percent	20
2-METHYLPHENOL	95-48-7	10	PQL	ug/L	28.00	89.00	20.00	Percent	28.00	89.00	20.00	Percent	20
2-NITROANILINE	88-74-4	10	PQL	ug/L	55.00	113.00	20.00	Percent	55.00	113.00	20.00	Percent	20
2-NITROPHENOL	88-75-5	10	PQL	ug/L	50.00	105.00	20.00	Percent	50.00	105.00	20.00	Percent	20

3,3'-DICHLOROBENZIDINE	91-94-1	10	PQL	ug/L	33.00	121.00	20.00	Percent	33.00	121.00	20.00	Percent	20
3-NITROANILINE	99-09-2	10	PQL	ug/L	25.00	96.00	20.00	Percent	25.00	96.00	20.00	Percent	20
4,6-DINITRO-2-METHYLPHENOL	534-52-1	10	PQL	ug/L	35.00	105.00	20.00	Percent	35.00	105.00	20.00	Percent	20
4-BROMOPHENYL PHENYL ETHER	101-55-3	10	PQL	ug/L	60.00	110.00	20.00	Percent	60.00	110.00	20.00	Percent	20
4-CHLORO-3-METHYLPHENOL	59-50-7	10	PQL	ug/L	39.00	101.00	20.00	Percent	39.00	101.00	20.00	Percent	20
4-CHLOROANILINE	106-47-8	10	PQL	ug/L	20.00	84.00	20.00	Percent	20.00	84.00	20.00	Percent	20
4-CHLOROPHENYL PHENYL ETHER	7005-72-3	10	PQL	ug/L	45.00	105.00	20.00	Percent	45.00	105.00	20.00	Percent	20
4-METHYLPHENOL	106-44-5	10	PQL	ug/L	35.00	110.00	20.00	Percent	35.00	110.00	20.00	Percent	20
4-NITROANILINE	100-01-6	10	PQL	ug/L	41.00	126.00	20.00	Percent	41.00	126.00	20.00	Percent	20
4-NITROPHENOL	100-02-7	10	PQL	ug/L	20.00	115.00	20.00	Percent	20.00	115.00	20.00	Percent	20
ACENAPHTHENE	83-32-9	10	PQL	ug/L	56.00	104.00	20.00	Percent	56.00	104.00	20.00	Percent	20
ACENAPHTHYLENE	208-96-8	10	PQL	ug/L	60.00	98.00	20.00	Percent	60.00	98.00	20.00	Percent	20
ACETOPHENONE	98-86-2	10	PQL	ug/L	70.00	130.00	20.00	Percent	70.00	130.00	20.00	Percent	20
ANTHRACENE	120-12-7	10	PQL	ug/L	60.00	110.00	20.00	Percent	60.00	110.00	20.00	Percent	20
ATRAZINE	1912-24-9	10	PQL	ug/L	70.00	130.00	20.00	Percent	70.00	130.00	20.00	Percent	20
BENZALDEHYDE	100-52-7	10	PQL	ug/L	70.00	130.00	20.00	Percent	70.00	130.00	20.00	Percent	20
BENZO(A)ANTHRACENE	56-55-3	10	PQL	ug/L	60.00	105.00	20.00	Percent	60.00	105.00	20.00	Percent	20
BENZO(A)PYRENE	50-32-8	10	PQL	ug/L	58.00	102.00	20.00	Percent	58.00	102.00	20.00	Percent	20
BENZO(B)FLUORANTHENE	205-99-2	10	PQL	ug/L	49.00	116.00	20.00	Percent	49.00	116.00	20.00	Percent	20
BENZO(G,H,I)PERYLENE	191-24-2	10	PQL	ug/L	42.00	121.00	20.00	Percent	42.00	121.00	20.00	Percent	20
BENZO(K)FLUORANTHENE	207-08-9	10	PQL	ug/L	52.00	111.00	20.00	Percent	52.00	111.00	20.00	Percent	20
BIS(2-CHLOROETHOXY)METHANE	111-91-1	10	PQL	ug/L	65.00	100.00	20.00	Percent	65.00	100.00	20.00	Percent	20
BIS(2-CHLOROETHYL) ETHER	111-44-4	10	PQL	ug/L	47.00	94.00	20.00	Percent	47.00	94.00	20.00	Percent	20
BIS(2-ETHYLHEXYL) PHTHALATE	117-81-7	10	PQL	ug/L	58.00	123.00	20.00	Percent	58.00	123.00	20.00	Percent	20
BUTYLBENZYL PHTHALATE	85-68-7	10	PQL	ug/L	57.00	115.00	20.00	Percent	57.00	115.00	20.00	Percent	20
Caprolactam	105-60-2	10	PQL	ug/L	70.00	130.00	20.00	Percent	70.00	130.00	20.00	Percent	20
CARBAZOLE	86-74-8	10	PQL	ug/L	70.00	130.00	20.00	Percent	70.00	130.00	20.00	Percent	20
CHRYSENE	218-01-9	10	PQL	ug/L	57.00	108.00	20.00	Percent	57.00	108.00	20.00	Percent	20
DIBENZ(A,H)ANTHRACENE	53-70-3	10	PQL	ug/L	53.00	127.00	20.00	Percent	53.00	127.00	20.00	Percent	20
DIBENZOFURAN	132-64-9	10	PQL	ug/L	50.00	130.00	20.00	Percent	50.00	130.00	20.00	Percent	20
DIETHYL PHTHALATE	84-66-2	10	PQL	ug/L	58.00	103.00	20.00	Percent	58.00	103.00	20.00	Percent	20
DIMETHYL PHTHALATE	131-11-3	10	PQL	ug/L	58.00	105.00	20.00	Percent	58.00	105.00	20.00	Percent	20
DI-N-BUTYL PHTHALATE	84-74-2	10	PQL	ug/L	58.00	103.00	20.00	Percent	58.00	103.00	20.00	Percent	20

DI-N-OCTYL PHTHALATE	117-84-0	10	PQL	ug/L	66.00	124.00	20.00	Percent	66.00	124.00	20.00	Percent	20
FLUORANTHENE	206-44-0	10	PQL	ug/L	60.00	110.00	20.00	Percent	60.00	110.00	20.00	Percent	20
FLUORENE	86-73-7	10	PQL	ug/L	61.00	104.00	20.00	Percent	61.00	104.00	20.00	Percent	20
HEXACHLOROBENZENE	118-74-1	10	PQL	ug/L	56.00	110.00	20.00	Percent	56.00	110.00	20.00	Percent	20
HEXACHLOROBUTADIENE	87-68-3	10	PQL	ug/L	44.00	103.00	20.00	Percent	44.00	103.00	20.00	Percent	20
HEXACHLOROCYCLOPENTADIENE	77-47-4	10	PQL	ug/L	20.00	100.00	20.00	Percent	20.00	100.00	20.00	Percent	20
HEXACHLOROETHANE	67-72-1	10	PQL	ug/L	38.00	104.00	20.00	Percent	38.00	104.00	20.00	Percent	20
INDENO(1,2,3-CD)PYRENE	193-39-5	10	PQL	ug/L	35.00	127.00	20.00	Percent	35.00	127.00	20.00	Percent	20
ISOPHORONE	78-59-1	10	PQL	ug/L	57.00	99.00	20.00	Percent	57.00	99.00	20.00	Percent	20
NAPHTHALENE	91-20-3	10	PQL	ug/L	57.00	99.00	20.00	Percent	57.00	99.00	20.00	Percent	20
NITROBENZENE	98-95-3	10	PQL	ug/L	51.00	100.00	20.00	Percent	51.00	100.00	20.00	Percent	20
N-NITROSO-DI-N-PROPYLAMINE	621-64-7	10	PQL	ug/L	48.00	96.00	20.00	Percent	48.00	96.00	20.00	Percent	20
N-NITROSODIPHENYLAMINE	86-30-6	10	PQL	ug/L	70.00	130.00	20.00	Percent	70.00	130.00	20.00	Percent	20
PENTACHLOROPHENOL	87-86-5	25	PQL	ug/L	20.00	125.00	20.00	Percent	20.00	125.00	20.00	Percent	20
PHENANTHRENE	85-01-8	10	PQL	ug/L	60.00	110.00	20.00	Percent	60.00	110.00	20.00	Percent	20
PHENOL	108-95-2	10	PQL	ug/L	18.00	37.00	20.00	Percent	18.00	37.00	20.00	Percent	20
PYRENE	129-00-0	10	PQL	ug/L	50.00	110.00	20.00	Percent	50.00	110.00	20.00	Percent	20

Surrogates

Method: 8270C AQ

Analyte Name	*Client Analyte ID*	*Surrogate Lower*	*Surrogate Upper*	*Surrogate Units*
2,4,6-TRIBROMOPHENOL	118-79-6	45	135	Percent
2-FLUOROBIPHENYL	321-60-8	60	120	Percent
2-FLUOROPHENOL	367-12-4	45	135	Percent
NITROBENZENE-D5	20810-28-0	60	120	Percent
PHENOL-D5	4165-62-2	60	120	Percent
TERPHENYL-D14	98904-43-9	60	120	Percent

Method: 8270C SO Semi-Volatile Organic Compounds by GC/MS

Analyte Name	*Client Analyte ID*	*RL*	*RL Type*	*RL Units*	*MS Lower*	*MS Upper*	*MS RPD*	*MS Units*	*LCS Lower*	*LCS Upper*	*LCS RPD*	*LCS Units*	*Lab Dup*
1,1'-Biphenyl	92-52-4	330	PQL	ug/Kg	20.00	150.00	20.00	Percent	20.00	150.00	20.00	Percent	20

1,2,4,5-TETRACHLOROBENZENE	95-94-3	330	PQL	ug/Kg				Percent				Percent	20
1,2,4-TRICHLOROBENZENE	120-82-1	330	PQL	ug/Kg	42.00	98.00	20.00	Percent	42.00	98.00	20.00	Percent	20
2,2-oxybis(1-Chloropropane)	108-60-1	330	PQL	ug/Kg	44.00	99.00	20.00	Percent	44.00	99.00	20.00	Percent	20
2,3,4,6-TETRACHLOROPHENOL	58-90-2	330	PQL	ug/Kg				Percent				Percent	20
2,4,5-TRICHLOROPHENOL	95-95-4	800	PQL	ug/Kg	55.00	105.00	20.00	Percent	55.00	105.00	20.00	Percent	20
2,4,6-TRICHLOROPHENOL	88-06-2	330	PQL	ug/Kg	50.00	112.00	20.00	Percent	50.00	112.00	20.00	Percent	20
2,4-DICHLOROPHENOL	120-83-2	330	PQL	ug/Kg	55.00	109.00	20.00	Percent	55.00	109.00	20.00	Percent	20
2,4-DIMETHYLPHENOL	105-67-9	330	PQL	ug/Kg	47.00	109.00	20.00	Percent	47.00	109.00	20.00	Percent	20
2,4-DINITROPHENOL	51-28-5	830	PQL	ug/Kg	26.00	131.00	20.00	Percent	26.00	131.00	20.00	Percent	20
2,4-DINITROTOLUENE	121-14-2	330	PQL	ug/Kg	56.00	104.00	20.00	Percent	56.00	104.00	20.00	Percent	20
2,6-DINITROTOLUENE	606-20-2	330	PQL	ug/Kg	49.00	116.00	20.00	Percent	49.00	116.00	20.00	Percent	20
2-CHLORONAPHTHALENE	91-58-7	330	PQL	ug/Kg	50.00	113.00	20.00	Percent	50.00	113.00	20.00	Percent	20
2-CHLOROPHENOL	95-57-8	330	PQL	ug/Kg	52.00	107.00	20.00	Percent	52.00	107.00	20.00	Percent	20
2-METHYLNAPHTHALENE	91-57-6	330	PQL	ug/Kg	49.00	115.00	20.00	Percent	49.00	115.00	20.00	Percent	20
2-METHYLPHENOL	95-48-7	330	PQL	ug/Kg	50.00	100.00	20.00	Percent	50.00	100.00	20.00	Percent	20
2-NITROANILINE	88-74-4	800	PQL	ug/Kg	52.00	110.00	20.00	Percent	52.00	110.00	20.00	Percent	20
2-NITROPHENOL	88-75-5	330	PQL	ug/Kg	52.00	116.00	20.00	Percent	52.00	116.00	20.00	Percent	20
3,3'-DICHLOROBENZIDINE	91-94-1	330	PQL	ug/Kg	31.00	111.00	20.00	Percent	31.00	111.00	20.00	Percent	20
3-NITROANILINE	99-09-2	800	PQL	ug/Kg	27.00	88.00	20.00	Percent	27.00	88.00	20.00	Percent	20
4,6-DINITRO-2-METHYLPHENOL	534-52-1	330	PQL	ug/Kg	35.00	105.00	20.00	Percent	35.00	105.00	20.00	Percent	20
4-BROMOPHENYL PHENYL ETHER	101-55-3	330	PQL	ug/Kg	53.00	113.00	20.00	Percent	53.00	113.00	20.00	Percent	20
4-CHLORO-3-METHYLPHENOL	59-50-7	330	PQL	ug/Kg	60.00	100.00	20.00	Percent	60.00	100.00	20.00	Percent	20
4-CHLOROANILINE	106-47-8	330	PQL	ug/Kg	15.00	92.00	20.00	Percent	15.00	92.00	20.00	Percent	20
4-CHLOROPHENYL PHENYL ETHER	7005-72-3	330	PQL	ug/Kg	37.00	127.00	20.00	Percent	37.00	127.00	20.00	Percent	20
4-METHYLPHENOL	106-44-5	330	PQL	ug/Kg	30.00	106.00	20.00	Percent	30.00	106.00	20.00	Percent	20
4-NITROANILINE	100-01-6	800	PQL	ug/Kg	41.00	115.00	20.00	Percent	41.00	115.00	20.00	Percent	20
4-NITROPHENOL	100-02-7	800	PQL	ug/Kg	45.00	95.00	20.00	Percent	45.00	95.00	20.00	Percent	20
ACENAPHTHENE	83-32-9	330	PQL	ug/Kg	65.00	100.00	20.00	Percent	65.00	100.00	20.00	Percent	20
ACENAPHTHYLENE	208-96-8	330	PQL	ug/Kg	52.00	107.00	20.00	Percent	52.00	107.00	20.00	Percent	20
ACETOPHENONE	98-86-2	330	PQL	ug/Kg	20.00	150.00	20.00	Percent	20.00	150.00	20.00	Percent	20
ANTHRACENE	120-12-7	330	PQL	ug/Kg	54.00	108.00	20.00	Percent	54.00	108.00	20.00	Percent	20
ATRAZINE	1912-24-9	330	PQL	ug/Kg	37.00	122.00	20.00	Percent	37.00	122.00	20.00	Percent	20
BENZALDEHYDE	100-52-7	330	PQL	ug/Kg	20.00	150.00	20.00	Percent	20.00	150.00	20.00	Percent	20

BENZO(A)ANTHRACENE	56-55-3	330	PQL	ug/Kg	60.00	100.00	20.00	Percent	60.00	100.00	20.00	Percent	20
BENZO(A)PYRENE	50-32-8	330	PQL	ug/Kg	58.00	102.00	20.00	Percent	58.00	102.00	20.00	Percent	20
BENZO(B)FLUORANTHENE	205-99-2	330	PQL	ug/Kg	42.00	126.00	20.00	Percent	42.00	126.00	20.00	Percent	20
BENZO(G,H,I)PERYLENE	191-24-2	330	PQL	ug/Kg	39.00	130.00	20.00	Percent	39.00	130.00	20.00	Percent	20
BENZO(K)FLUORANTHENE	207-08-9	330	PQL	ug/Kg	43.00	125.00	20.00	Percent	43.00	125.00	20.00	Percent	20
BIS(2-CHLOROETHOXY)METHANE	111-91-1	330	PQL	ug/Kg	51.00	111.00	20.00	Percent	51.00	111.00	20.00	Percent	20
BIS(2-CHLOROETHYL) ETHER	111-44-4	330	PQL	ug/Kg	37.00	114.00	20.00	Percent	37.00	114.00	20.00	Percent	20
BIS(2-ETHYLHEXYL) PHTHALATE	117-81-7	330	PQL	ug/Kg	54.00	124.00	20.00	Percent	54.00	124.00	20.00	Percent	20
BUTYLBENZYL PHTHALATE	85-68-7	330	PQL	ug/Kg	55.00	120.00	20.00	Percent	55.00	120.00	20.00	Percent	20
Caprolactam	105-60-2	330	PQL	ug/Kg	20.00	150.00	20.00	Percent	20.00	150.00	20.00	Percent	20
CARBAZOLE	86-74-8	330	PQL	ug/kg	54.00	117.00	20.00	Percent	54.00	117.00	20.00	Percent	20
CHRYSENE	218-01-9	330	PQL	ug/Kg	51.00	115.00	20.00	Percent	51.00	115.00	20.00	Percent	20
DIBENZ(A,H)ANTHRACENE	53-70-3	330	PQL	ug/Kg	41.00	130.00	20.00	Percent	41.00	130.00	20.00	Percent	20
DIBENZOFURAN	132-64-9	330	PQL	ug/Kg	52.00	113.00	20.00	Percent	52.00	113.00	20.00	Percent	20
DIETHYL PHTHALATE	84-66-2	330	PQL	ug/Kg	49.00	115.00	20.00	Percent	49.00	115.00	20.00	Percent	20
DIMETHYL PHTHALATE	131-11-3	330	PQL	ug/Kg	45.00	122.00	20.00	Percent	45.00	122.00	20.00	Percent	20
DI-N-BUTYL PHTHALATE	84-74-2	330	PQL	ug/Kg	52.00	112.00	20.00	Percent	52.00	112.00	20.00	Percent	20
DI-N-OCTYL PHTHALATE	117-84-0	330	PQL	ug/Kg	53.00	122.00	20.00	Percent	53.00	122.00	20.00	Percent	20
FLUORANTHENE	206-44-0	330	PQL	ug/Kg	55.00	105.00	20.00	Percent	55.00	105.00	20.00	Percent	20
FLUORENE	86-73-7	330	PQL	ug/Kg	47.00	117.00	20.00	Percent	47.00	117.00	20.00	Percent	20
HEXACHLOROBENZENE	118-74-1	330	PQL	ug/Kg	48.00	118.00	20.00	Percent	48.00	118.00	20.00	Percent	20
HEXACHLOROBUTADIENE	87-68-3	330	PQL	ug/Kg	50.00	150.00	20.00	Percent	50.00	150.00	20.00	Percent	20
HEXACHLOROCYCLOPENTADIENE	77-47-4	330	PQL	ug/Kg	20.00	107.00	20.00	Percent	20.00	107.00	20.00	Percent	20
HEXACHLOROETHANE	67-72-1	330	PQL	ug/Kg	43.00	101.00	20.00	Percent	43.00	101.00	20.00	Percent	20
INDENO(1,2,3-CD)PYRENE	193-39-5	330	PQL	ug/Kg	42.00	124.00	20.00	Percent	42.00	124.00	20.00	Percent	20
ISOPHORONE	78-59-1	330	PQL	ug/Kg	48.00	111.00	20.00	Percent	48.00	111.00	20.00	Percent	20
NAPHTHALENE	91-20-3	330	PQL	ug/Kg	34.00	120.00	20.00	Percent	34.00	120.00	20.00	Percent	20
NITROBENZENE	98-95-3	330	PQL	ug/Kg	50.00	109.00	20.00	Percent	50.00	109.00	20.00	Percent	20
N-NITROSO-DI-N-PROPYLAMINE	621-64-7	330	PQL	ug/Kg	63.00	97.00	20.00	Percent	63.00	97.00	20.00	Percent	20
N-NITROSODIPHENYLAMINE	86-30-6	330	PQL	ug/Kg	55.00	120.00	20.00	Percent	55.00	120.00	20.00	Percent	20
PENTACHLOROPHENOL	87-86-5	800	PQL	ug/Kg	33.00	111.00	20.00	Percent	33.00	111.00	20.00	Percent	20
PHENANTHRENE	85-01-8	330	PQL	ug/Kg	50.00	119.00	20.00	Percent	50.00	119.00	20.00	Percent	20
PHENOL	108-95-2	330	PQL	ug/Kg	42.00	105.00	20.00	Percent	42.00	105.00	20.00	Percent	20

PYRENE	129-00-0	330	PQL	ug/Kg	49.00	120.00	20.00	Percent	49.00	120.00	20.00	Percent	20

Surrogates

Method: 8270C SO

Analyte Name	*Client Analyte ID*	*Surrogate Lower*	*Surrogate Upper*	*Surrogate Units*
2,4,6-TRIBROMOPHENOL	118-79-6	19	122	Percent
2-FLUOROBIPHENYL	321-60-8	30	116	Percent
2-FLUOROPHENOL	367-12-4	25	121	Percent
NITROBENZENE-D5	20810-28-0	23	120	Percent
PHENOL-D5	4165-62-2	24	113	Percent
TERPHENYL-D14	98904-43-9	18	137	Percent

B Specifications for Electronic Data Deliverables

ADR Electronic Data Deliverable (EDD) File Specifications

The ADR EDD consists of three separate, comma-delimited ASCII text files or Excel CSV files (two, if instrument calibration information is not required by the project). Each file corresponds to a table in the ADR application. These tables are identified as the Analytical Results Table (A1), Laboratory Instrument Table (A2), and Sample Analysis Table (A3). Each file follows the naming convention of using the Laboratory Reporting Batch ID (SDG Number or some other identifier for the EDD) followed by the table identifier (A1, A2, or A3), and then a ".txt" or ".csv" extension. For example, the EDD file names for a laboratory reporting batch identified as SDG001 that includes instrument calibration data would be as follows.

SDG001A1.txt or SDG001A1.csv
SDG001A2.txt or SDG001A2.csv (A2 file is optional)
SDG001A3.txt or SDG001A3.csv

Analytical Results Table (A1 File)

The Analytical Results table contains analytical results and related information on an analyte level for field samples and associated laboratory quality control samples (excluding calibrations and tunes). Field QC blanks and laboratory method blanks must report a result record for each analyte reported within a method. The method target analyte list is matrix dependent and specified in the project library. Laboratory control samples (LCS and LCSD) and matrix spike samples (MS and MSD) must report a result record for every analyte specified as a spiked analyte in the project library. The project library is a reference table ADR uses for both EDD error checking and automated data review. The project library is populated with information from the project QAPP. Refer to the User Manual for detailed information on project libraries. Table 1 in this document lists all field names and their descriptions for the Analytical Results Table (A1).

Laboratory Instrument Table (A2 File)

The Laboratory Instrument table contains results and related information on an analyte level for instrument initial calibration standards, initial calibration verification standards, continuing calibration standards, and GC/MS tunes. A record must exist for each target analyte reported in a method (specified in the project library), for every calibration type (the field named QCType) associated to samples reported in the EDD. Initial calibrations, initial calibration verifications, and associated samples are linked to each other using a unique Run Batch ID for every distinct initial calibration within a method. Continuing calibrations and associated samples are linked to each other using a unique Analysis Batch ID for every distinct continuing calibration within a method. GC/MS tunes are linked to initial and continuing calibrations (and hence samples) using the Run Batch and Analysis Batch IDs respectively. The Laboratory Instrument Table (A2) is optional. Depending on the level of validation required by the data user, the Laboratory Instrument table may not be requested in the deliverable. Table 2 in this document lists field names and descriptions for the Laboratory Instrument Table (A2).

Sample Analysis Table (A3 File)

The Sample Analysis table contains information on a sample level for field samples and laboratory quality control analyses (excluding calibrations and tunes). A sample record exists for each sample/method/matrix/analysis type combination. Table 3 in this document lists field names and descriptions for the Sample Analysis Table (A3).

EDD Field Properties

Tables 1, 2, and 3 in this document specify the EDD field properties for each file. These include the field name and sequence, field name description, data type and length for each field, and whether or not a particular field requires a standard field. Field elements in the EDD must be sequenced according to the order they appear in Tables 1, 2, and 3. For example, in the Analytical Result table (the A1 file), the field "ClientSampleID" will always be the first piece of information to start a new line of data (or database record), followed by the fields "LabAnalysisRefMethodID", "AnalysisType", and so on.

Table 4 in this document lists standard values for those fields that hold standard values. Required field constraints depend on the combination of sample, matrix, method, analyte type, and calibration or QC type information reported in a record. Tables 5 through 9 in this document indicate required fields for each EDD file (table) according to the method category, matrix, analyte type, sample, and QC or calibration type reported in a record.

When creating an EDD as a text file, use the ASCII character set in a file of lines terminated by a carriage return and line feed. No characters are allowed after the carriage return and line feed. Enclose each data set in double quotes (") and separate each field by a comma (comma delimited). Data fields with no information (null) may be represented by two consecutive commas. For example, in the Sample Analysis table, since the "Collected", "ShippingBatchID", and "Temperature" fields do not apply to laboratory generated QA/QC samples, the record for a Laboratory Control Sample by Method 8270C would be entered as follows. Note that the first two fields ("ProjectNumber" and "ProjectName") are omitted in this example.

...“LCSW100598”,,”AQ”,”LCSW100598”,”LCS”,,”8270C”,... (and so on)

Do not pad fields with leading or trailing spaces if a field is populated with less than the maximum allowed number of characters. In the above example, although the "MatrixID" field can accommodate up to 10 characters, only 2 characters were entered in this field.

The EDD can be constructed within Excel and saved as .csv file for import into the application. Be sure to format all cells as text beforehand, otherwise Excel will reformat entered values in some cases.

Table 1
Field Descriptions for the Analytical Results Table (A1 file)

Contains laboratory test results and related information for field and QC samples (excluding instrument calibrations) on an analyte level for environmental chemistry including radiochemistry

Field Name	Field Name Description	Field Type	Field Length	Standard Value List
ClientSampleID	Client or contractor's identifier for a field sample as reported on the chain-of-custody If a sample is analyzed as a laboratory duplicate, matrix spike, or matrix spike duplicate, append suffixes DUP, MS and MSD respectively to the Client Sample ID with no intervening spaces or hyphens (i.e. MW01DUP, MW01MS, and MW01MSD). For Method Blanks, LCS, and LCSD enter the unique LaboratorySampleID into this field Do not append suffixes to the ClientSampleID for dilutions, reanalyses, or re-extracts (the AnalysisType field is used for this distinction). For example, MW01DL and MW01RE are not allowed Parent sample records must exist for each MS and MSD. If an MS/MSD is shared between two EDDs, records for the MS/MSD and its parent sample must exist in the Analytical Results table for both EDDs.	Text	25	NO
LabAnalysisRefMethodID	Laboratory reference method ID. The method ID may be an EPA Method number or a Lab Identifier for a method such as a SOP Number, however; method ID is specified by the project. The method ID must be entered into the standard list.	Text	25	YES (specified in project plan)
AnalysisType	Defines the analysis type (i.e., Dilution, Reanalysis, etc.). This field provides distinction for sample result records when multiple analyses are submitted for the same sample, method, and matrix; for example dilutions, re-analyses, and re-extracts.	Text	10	YES (See Table 4)
LabSampleID	Laboratory tracking number for field samples and lab generated QC samples such as method blank, LCS, and LCSD. There are no restrictions for the LabSampleID except for field length and that the LabSampleID must be distinct for a given field sample or lab QC sample and method. Suffixes may be applied to the LabSampleID to designate dilutions, reanalysis, etc.	Text	25	NO
LabID	Identification of the laboratory performing the analyses.	Text	7	NO
ClientAnalyteID	CAS Number or unique client identifier for an analyte or isotope. If a CAS Number is not available, use a unique identifier provided by the client or contractor. The ClientAnalyteID for a particular target analyte or isotope should be specified by the project and must exist in the standard value tables for Analytes. For the LCS, LCSD, MS, and MSD, it is only necessary to report the compounds designated as spikes in the library (and surrogates for organic methods.) For TICs from GC/MS analyses, enter the retention time in decimal minutes as the Client Analyte ID.	Text	12	YES (specified by project)

Table 1
Field Descriptions for the Analytical Results Table (A1 file)

Contains laboratory test results and related information for field and QC samples (excluding instrument calibrations) on an analyte level for environmental chemistry including radiochemistry

Field Name	Field Name Description	Field Type	Field Length	Standard Value List
AnalyteName	Chemical name for the analyte or isotope. The project specifies how an analyte or isotope is named. The analyte name must be associated to a ClientAnalyteID in the standard values table for Analytes (excluding compounds designated as TIC's).	Numeric	60	YES (specified by project)
Result	Result value for the analyte or isotope. Entries must be numeric. For non-detects of target analytes or isotopes and spikes, do not enter "ND" or leave this field blank. If an analyte or spike was not detected, enter the reporting limit value corrected for dilution and percent moisture as applicable. Do not enter "0"	Text	10	NO
ResultUnits	The units defining how the values in the Result, DetectionLimit, and ReportingLimit fields are expressed. For radiochemistry this also includes how the value in the Error field is expressed.	Text	10	YES (specified by project in the library)
LabQualifiers	A string of single letter result qualifiers assigned by the lab based on client-defined rules and values. The "U" Lab Qualifier must be entered for all non-detects. Other pertinent lab qualifiers may be entered with the "U" qualifier. Order is insignificant. Lab qualifiers other than those listed in the standard values table may be used. If so, these must be added to the standard value table in the application.	Text	7	YES (See Table 4)
DetectionLimit	For radiochemistry methods, the minimum detectable activity for the isotope being measured. For all other methods: The minimum detection limit value for the analyte being measured.	Numeric	10	NO
DetectionLimitType	Specifies the type of detection limit (i.e., MDA, MDL, IDL, etc.).	Text	10	YES (See Table 4)
RetentionTime or Error	For radiochemistry methods only, enter the 2 Sigma Counting Error. The units for error are entered in the ResultUnits field. For GC/MS methods only, enter the time expressed in decimal minutes between injection and detection for GC/MS TICs only For target analytes in all other methods, leave this field blank. Note: GC retention times are not evaluated at this time.	Text	5	NO
AnalyteType	Defines the type of result, such as tracer, surrogate, spike, or target compound.	Text	7	YES (See Table 4)
PercentRecovery	For radiochemistry methods: The tracer yield, if applicable. For all other analytical methods: The percent recovery value of a spiked compound or surrogate. If the spike or surrogate was not recovered because of dilution, enter "DIL". If a spike or surrogate was not recovered because of matrix interference, enter "INT". If a spike or surrogate was not recovered because it was not added to the sample, enter "NS".	Numeric	5	NO

Table 1
Field Descriptions for the Analytical Results Table (A1 file)

Contains laboratory test results and related information for field and QC samples (excluding instrument calibrations) on an analyte level for environmental chemistry including radiochemistry

Field Name	Field Name Description	Field Type	Field Length	Standard Value List
RelativePercentDifference	The relative percent difference (RPD) of two QC results, such as MS/MSD, LCS/LCSD, and Laboratory Duplicates. Report RPD in Laboratory Duplicate, LCSD, and MSD records only.	Numeric	5	NO
ReportingLimit	Reporting limit value for the measured analyte or isotope Factor in the dilution factor and percent moisture correction, if applicable. The Reporting Limit for each analyte and matrix in a given method is specified in the project library or QAPP.	Numeric	10	NO
ReportingLimitType	Specifies the type of reporting limit (i.e., CRQL, PQL, SQL, RDL, etc). The Reporting Limit Type for each method and matrix is specified in the project library or QAPP.	Text	10	YES (specified by the project)
ReportableResult	This field indicates whether or not the laboratory chooses an individual analyte or isotope result as reportable. Enter "YES" if the result is reportable. Enter "NO" if the result is not reportable. This field applies to target analytes only. If only one analysis is submitted for a particular sample and method, enter "YES" for all target compounds (where Analyte Type = TRG). For GC/MS methods enter yes for tentatively identified compounds (where Analyte Type = TIC). If two or more analyses are submitted for a particular sample and method (i.e. initial analysis, reanalysis and/or dilutions), enter "YES" from only <u>one</u> of the analyses for each target compound. For example: a sample was run a second time at dilution because benzene exceeded the calibration range in the initial, undiluted analysis. All target analytes are reported in each analysis. For the initial analysis, (Analysis Type = RES), enter "NO" for benzene and enter "YES" for all other compounds. For the diluted analysis (Analysis Type = DL), enter "YES" for benzene and enter "NO" for all other compounds. For TICs (Analyte Type = TIC), if more than one analysis is submitted for a particular sample and method, choose only one of the analyses where Reportable Result = YES for <u>all</u> TICs. For example, a sample was run a second time because one or more target compounds exceeded the calibration range in the undiluted analysis. Choose a particular analysis and enter "YES" for all TICS. In the other analysis enter "NO" for all TICs. Note that it is not necessary to report the full target analyte list for the initial result, dilution, re-analysis, or re-extraction. However, each target analyte must be reported YES once and once only in the case of multiple analyses for a given sample, method, and matrix. In the case of organics, all surrogates must be reported for all analyses submitted for a given sample, method, and, matrix.	Text	3	YES (See Table 4)

Table 2
Field Descriptions for the Laboratory Instrument Table (A2 file)

Contains related to laboratory instrument calibration on an analyte level and GC/MS Tune information. This table is optional depending on project requirements. Do not report Table A2 for radiochemistry methods.

Field Name	Field Name Description	Field Type	Field Length	Standard Value List
InstrumentID	Laboratory instrument identification.	Text	15	NO
QCType	Type of instrument QC (i.e., Instrument_Performance_Check or type of calibration standard).	Text	10	YES (See Table 4)
Analyzed	Analysis date/time for BFB, DFTPP, initial calibration verification standards, calibration verification standards, and continuing calibration standards. For the initial calibration, enter date and time of the last standard analyzed. Also, see comments about initial calibrations in the Alternate_Lab_Analysis_ID field name description.	Date/ Time	*	NO
AlternateLab_AnalysisID	Common laboratory identification used for standards (i.e., VOA STD50, CCAL100, BFB50, etc). For initial calibration, enter ICAL. Information from the initial calibration is entered as one record for each analyte that summarizes the results of the initial calibration (i.e. %RSD, correlation coefficient, and avg RF). Records are not entered for each individual standard within the initial calibration.	Text	12	NO
LabAnalysisID	Unique identification of the raw data electronic file associated with the calibration standard or tune (i.e., 9812101MS.DV). Leave this field blank for the initial calibration. See comments about initial calibrations in the Alternate_Lab_Analysis_ID field description. This field is only applicable where an electronic instrument file is created as part of the analysis.	Text	15	NO
LabAnalysisRefMethodID	Laboratory reference method ID (i.e., 8260B, 8270C, 6010B, etc.). The method ID is specified by the project. The LabAnalysisRefMethodID must be in the standard value list for Method IDs.	Text	25	YES (specified by the project)
ClientAnalyteID	CAS number or unique client identifier for an analyte. If a CAS number is not available, use a unique identifier provided by the client. The unique identifier for a particular analyte should be specified by the project and must exist in the standard value list for ClientAnalyteID. Records for each calibration must report the full target analyte list including surrogates as applicable. The target analyte list is specified for each method and matrix in the project	Text	12	YES (specified by the project)
AnalyteName	The chemical name for the analyte. The project specifies how an analyte is named. The AnalyteName must be associated to a ClientAnalyteID in the standard values.	Text	60	YES (specified by the project)

Table 2
Field Descriptions for the Laboratory Instrument Table (A2 file)

Contains related to laboratory instrument calibration on an analyte level and GC/MS Tune information. This table is optional depending on project requirements. Do not report Table A2 for radiochemistry methods.

Field Name	Field Name Description	Field Type	Field Length	Standard Value List
RunBatch	Unique identifier for a batch of analyses performed on one instrument under the control of one initial calibration and initial calibration verification. The Run Batch ID links both the initial calibration and initial calibration verification to subsequently analyzed and associated continuing calibrations, field samples, and QC analyses. For GC/MS methods, the Run_Batch ID also links a BFB or DFTPP tune and the initial calibration and initial calibration verification standards to associated samples and method QC analyses. A new and unique Run Batch ID must be used with every new initial calibration.	Text	12	NO
AnalysisBatch	Unique laboratory identifier for a batch of analyses performed on one instrument and under the control of a continuing calibration or continuing calibration verification. The Analysis Batch ID links the continuing calibration or calibration verification to subsequently analyzed and associated field sample and QC analyses. For GC/MS methods, the Analysis Batch ID also links the BFB or DFTPP tune. A new and unique Analysis Batch ID must be used with every new continuing calibration or continuing calibration verification. For GC methods, only report opening standards, do not include closing standards (unless the closing standard functions as the opening standard for a subsequent set of analyses, in which case a new and unique Analysis Batch ID is assigned). When dual or confirmation columns/detectors are used, enter results from the primary column/detector only (this is similar to CLP Pesticide reporting).	Text	12	NO
LabReportingBatch	Unique laboratory identifier for a batch of samples including associated calibrations and method QC, reported as a group by the lab (i.e., lab work order #, log-in #, or SDG). Links all instrument calibrations, samples, and method QC reported as a group or SDG.	Text	12	NO
PercentRelativeStandard Deviation	The standard deviation relative to the mean used to evaluate initial calibration linearity. Organic methods may use either %RSD or Correlation Coefficient. If applicable, enter the %RSD. Leave this field blank if the Correlation Coefficient is used.	Numeric	5	NO
CorrelationCoefficient	The correlation coefficient resulting from linear regression of the initial calibration. For metals by ICAP, enter '1.0' if a two-point initial calibration was analyzed. Organic methods may use either %RSD or Correlation Coefficient. If applicable, enter the Correlation Coefficient. Leave this field blank if the %RSD is used	Numeric	5	NO
RelativeResponseFactor	This field applies to GC/MS only. For continuing calibration enter the relative response factor. For initial calibration enter the <u>average</u> relative response factor. Refer to comments about initial calibration records in the field description for Alternate_Lab_Analysis_ID.	Numeric	5	NO

Table 2
Field Descriptions for the Laboratory Instrument Table (A2 file)

Contains related to laboratory instrument calibration on an analyte level and GC/MS Tune information. This table is optional depending on project requirements. Do not report Table A2 for radiochemistry methods.

Field Name	Field Name Description	Field Type	Field Length	Standard Value List
Percent_Difference (or Percent Recovery)	For organic methods, this field is the difference between 2 measured values expressed as a percentage. If %RSD is reported, enter the % difference between the average response factor of the initial calibration (IC) and the response factor of the initial calibration verification (ICV) or continuing calibration (CCV). If correlation coefficient is used, enter the % difference between the true value and the measured value. The Percent_Difference is expressed as a negative or positive value. Do not express Percent_Difference as an absolute value. Use a negative value if the CCV or ICV response factor is less than the IC average response factor or, in the case of correlation coefficient, the CCV or ICV measured value is less than the true value. Use a positive value if the CCV or ICV response factor is greater than the IC average response factor, or in the case of correlation coefficient, the CCV or ICV measured value is greater than the true value. For inorganic methods, this field is the recovery of an analyte expressed relative to the true amount (i.e., %R for a metal in the continuing calibration or initial calibration verification by Method 6010B).	Numeric	5	NO
PeakID01	Identifies individual m/z ions for GC/MS tuning compounds. For BFB enter 50, for DFTPP enter 51.	Numeric	10	NO
PercentRatio01	For BFB enter the relative percent abundance of m/z 50 measured relative to the raw abundance of m/z 95. For DFTPP enter the relative percent abundance of m/z 51 measured relative to the raw abundance of m/z 198.	Numeric	10	NO
PeakID02	Identifies individual m/z ions for GC/MS tuning compounds. For BFB enter 75, for DFTPP enter 68.	Numeric	10	NO
PercentRatio02	For BFB enter the relative percent abundance of m/z 75 measured relative to the raw abundance of m/z 95. For DFTPP enter the relative percent abundance of m/z 68 measured relative to the raw abundance of m/z 69.	Numeric	10	NO
PeakID03	Identifies individual m/z ions for GC/MS tuning compounds. For BFB enter 95, for DFTPP enter 69.	Numeric	10	NO
PercentRatio03	For BFB enter the ion abundance of m/z 95 as 100 percent. For DFTPP enter the relative percent abundance of m/z 69 measured relative to the raw abundance of m/z 198.	Numeric	10	NO
PeakID04	Identifies individual m/z ions for GC/MS tuning compounds. For BFB enter 96, for DFTPP enter 70.	Numeric	10	NO

Table 2
Field Descriptions for the Laboratory Instrument Table (A2 file)

Contains related to laboratory instrument calibration on an analyte level and GC/MS Tune information. This table is optional depending on project requirements. Do not report Table A2 for radiochemistry methods.

Field Name	Field Name Description	Field Type	Field Length	Standard Value List
PercentRatio04	For BFB enter the relative percent abundance of m/z 96 measured relative to the raw abundance of m/z 95. For DFTPP enter the relative percent abundance of m/z 70 measured relative to the raw abundance of m/z 69	Numeric	10	NO
PeakID05	Identifies individual m/z ions for GC/MS tuning compounds. For BFB enter 173, for DFTPP enter 127.	Numeric	10	NO
PercentRatio05	For BFB enter the relative percent abundance of m/z 173 measured relative to the raw abundance of m/z 174. For DFTPP enter the relative percent abundance of m/z 127 measured relative to the raw abundance of m/z 198	Numeric	10	NO
PeakID06	Identifies individual m/z ions for GC/MS tuning compounds. For BFB enter 174, for DFTPP enter 197.	Numeric	10	NO
PercentRatio06	For BFB enter the relative percent abundance of m/z 174 measured relative to the raw abundance of m/z 95. For DFTPP enter the relative percent abundance of m/z 197 measured relative to the raw abundance of m/z 198.	Numeric	10	NO
PeakID07	Identifies individual m/z ions for GC/MS tuning compounds. For BFB enter 175, for DFTPP enter 198.	Numeric	10	NO
PercentRatio07	For BFB enter the relative percent abundance of m/z 175 measured relative to the raw abundance of m/z 174. For DFTPP enter the ion abundance of m/z 198 as 100 percent.	Numeric	10	NO
PeakID08	Identifies individual m/z ions for GC/MS tuning compounds. For BFB enter 176, for DFTPP enter 199.	Numeric	10	NO
PercentRatio08	For BFB enter the relative percent abundance of m/z 176 measured relative to the raw abundance of m/z 174. For DFTPP enter the relative percent abundance of m/z 199 measured relative to the raw abundance of m/z 198.	Numeric	10	NO
PeakID09	Identifies individual m/z ions for GC/MS tuning compounds. For BFB enter 177, for DFTPP enter 275.	Numeric	10	NO
PercentRatio09	For BFB enter the relative percent abundance of m/z 177 measured relative to the raw abundance of m/z 176. For DFTPP enter the relative percent abundance of m/z 275 measured relative to the raw abundance of m/z 198.	Numeric	10	NO
PeakID10	Identifies individual m/z ions for GC/MS tuning compounds. For BFB leave blank, for DFTPP enter 365.	Numeric	10	NO

Table 2
Field Descriptions for the Laboratory Instrument Table (A2 file)

Contains related to laboratory instrument calibration on an analyte level and GC/MS Tune information. This table is optional depending on project requirements. Do not report Table A2 for radiochemistry methods.

Field Name	Field Name Description	Field Type	Field Length	Standard Value List?
PercentRatio10	For BFB leave blank. For DFTPP enter the relative percent abundance of m/z 365 measured relative to the raw abundance of m/z 198.	Numeric	10	NO
PeakID11	Identifies individual m/z ions for GC/MS tuning compounds. For BFB leave blank, for DFTPP enter 441.	Numeric	10	NO
PercentRatio11	For BFB leave blank. For DFTPP the percent abundance of m/z 441 measured relative to the raw abundance of m/z 443	Numeric	10	NO
PeakID12	Identifies individual m/z ions for GC/MS tuning compounds. For BFB leave blank, for DFTPP enter 442.	Numeric	10	NO
PercentRatio12	For BFB leave blank. For DFTPP enter the relative percent abundance of m/z 442 measured relative to the raw abundance of m/z 198.	Numeric	10	NO
PeakID13	Identifies individual m/z ions for GC/MS tuning compounds. For BFB leave blank, for DFTPP enter 443.	Numeric	10	NO
PercentRatio13	For BFB leave blank. For DFTPP enter the relative percent abundance of m/z 443 measured relative to the raw abundance of m/z 442.	Numeric	10	NO

* Date/time format is: MM/DD/YYYY hh:mm where MM = month, DD = day, YYYY = four digits of the year, hh = hour in 24 hour format, and mm = minutes.

Table 3
Field Description for the Sample Analysis (A3 file)

This table contains information related to analyses of field samples and laboratory QC samples (excluding calibrations and tunes) on a sample level for environmental chemical analyses including radiochemistry

Field Name	Field Name Description	Field Type	Field Length	Standard Value List
ProjectNumber	Project number assigned by the client.	Text	30	YES (specified by project)
ProjectName	Project name assigned by the client.	Text	90	YES (specified by project)
ClientSampleID	Client or contractor's identifier for a field sample If a sample is analyzed as a laboratory duplicate, matrix spike, or matrix spike duplicate, append suffixes DUP, MS and MSD respectively to the Client Sample ID with no intervening spaces or hyphens (i.e. MW01DUP, MW01MS, and MW01MSD). For Method Blanks, LCS, and LCSD enter the unique LaboratorySampleID into this field Do not append suffixes to the ClientSampleID for dilutions, reanalyses, or re-extracts (the Analysis_Type field is used for this distinction). For example, MW01DL and MW01RE are not allowed Parent sample records must exist for each MS and MSD. If an MS/MSD is shared between two EDDs, records for the MS/MSD and its parent sample must exist in the Sample Analysis table for both EDDs.	Text	25	NO
Collected	For radiochemistry methods the Date of sample collection. Refer to the date format for radiochemistry methods at the end of this table. For all other methods the Date and Time of sample collection. Refer to the date/time format at the end of this table. Leave this field blank for Method Blank, LCS, and LCSD	Date/ Time	16*	NO
MatrixID	Sample matrix (i.e., AQ, SO, etc.)	Text	10	YES (See Table 4)
LabSampleID	Laboratory tracking number for field samples and lab generated QC samples such as method blank, LCS, and LCSD. There are no restrictions for the LabSampleID except field length and that the LabSampleID must be unique for a given field sample or lab QC sample and method.	Text	25	NO
QCType	This record identifies the type of quality control sample QC (i.e., Duplicate, LCS, Method Blank, MS, or MSD). For regular samples, leave this field blank.	Text	10	YES (See Table 4)
ShippingBatchID	Unique identifier assigned to a cooler or shipping container used to transport client or field samples. Links all samples to a cooler or shipping container. No entry for method blanks, LCS, and LCSD. This field is optional.	Text	25	NO
Temperature	Temperature (in centigrade degrees) of the sample as received. This field is not required for radiochemistry methods.	Numeric	10	NO

Table 3
Field Description for the Sample Analysis (A3 file)

This table contains information related to analyses of field samples and laboratory QC samples (excluding calibrations and tunes) on a sample level for environmental chemical analyses including radiochemistry

Field Name	Field Name Description	Field Type	Field Length	Standard Value List
LabAnalysisRefMethodID	Laboratory reference method ID. The method ID may be an EPA Method number or laboratory identifier for a method such as a SOP number, however; values used for Laboratory Method IDs are specified by the project and must in the in standard value list for method IDs.	Text	25	YES (Specified by the project)
PreparationType	Preparation Method Number (i.e., 3010A, 3510C, 3550C, 5030B, etc.) For analytical procedures that do not have a specific preparation method number, use "Gen Prep".	Text	25	YES (See Table 4)
AnalysisType	Defines the type of analysis such as initial analysis, dilution, re-analysis, etc. This field provides distinction for sample records when multiple analyses are submitted for the same sample, method, and matrix, for example: dilutions, re-analyses, and re-extracts.	Text	10	YES (See Table 4)
Prepared	For radiochemistry leave this field blank. For all other methods enter the date and time of sample preparation or extraction. Refer to the date/time format at the end of this table.	Date/ Time	16*	NO
Analyzed	For radiochemistry methods the date of sample analysis. Refer to the date format for radiochemistry methods at the end of this table. For all other methods the date and time of sample analysis. Refer to the date and time format at the end of this table.	Date/ Time	*	NO
LabID	Identification of the laboratory performing the analysis.	Text	7	NO
QCLevel	The level of laboratory QC associated with the analysis reported in the EDD. If only the Analytical Results Table (A1) and the Sample Analysis Table (A3) information are submitted for the sample, enter "COA". If the Laboratory Instrument Table (A2) information is also submitted for the sample, enter "COCAL"	Text	6	YES (See Table 4)
ResultBasis	Indicates whether results associated with this sample records are reported as wet or percent moisture corrected. This field is only required for soils and sediments. Enter "WET" if results are not corrected for percent moisture. Enter "DRY" if percent moisture correction is applied to results.	Text	3	YES (See Table 4)
TotalOrDissolved	This field indicates if the results related to this sample record are reported as a total or dissolved fraction. This field is only required for metal methods. For all other methods leave this field blank.	Text	3	YES (See Table 4)
Dilution	Dilution of the sample aliquot. Enter "1" for method blanks, LCS, and LCSD, or if the field samples was analyzed without dilution.	Numeric	10	NO
HandlingType	Indicates the type of leaching procedure, if applicable (i.e., SPLP, TCLP, WET). Leave this field blank if the sample analysis was not performed on a leachate.	Text	10	YES (See Table 4)

Table 3
Field Description for the Sample Analysis (A3 file)

This table contains information related to analyses of field samples and laboratory QC samples (excluding calibrations and tunes) on a sample level for environmental chemical analyses including radiochemistry

Field Name	Field Name Description	Field Type	Field Length	Standard Value List
HandlingBatch	Unique laboratory identifier for a batch of samples prepared together in a leaching procedure (i.e., SPLP, TCLP, or WET preparation). The HandlingBatch links samples with leaching blanks. Leave this field blank if the sample analysis was <u>not</u> performed on a leachate	Text	12	NO
LeachateDate	Date and time of leaching procedure (i.e., date for SPLP, TCLP, or WET preparation). Refer to the date and time format at the end of this table. Leave this field blank if the sample analysis was <u>not</u> performed on a leachate	Date /Time	16*	NO
Percent_Moisture	Percent of sample composed of water. Enter for soil and sediment samples only.	Numeric	10	NO
MethodBatch	Unique laboratory identifier for a batch of samples of similar matrices analyzed by one method and treated as a group for matrix spike, matrix spike duplicate, or laboratory duplicate association The method batch links the matrix spike and/or matrix spike duplicate or laboratory duplicates to associated samples. Note, the MethodBatch association may coincide with the PreparationBatch association. The MethodBatch is specifically used to link the MS/MSD and/or DUP to associated samples.	Text	12	NO
PreparationBatch	Unique laboratory identifier for a batch of samples prepared together for analysis by one method and treated as a group for method blank, LCS and LCSD association. The PreparationBatch links method blanks and laboratory control samples (blank spikes) to associated samples. Note, the PreparationBatch association may coincide with the MethodBatch association but the PreparationBatch specifically links the Method Blank and LCS to associated samples.	Text	12	NO
RunBatch	<u>For radiochemistry methods leave this field blank.</u> <u>For all other methods</u> the RunBatch is the unique identifier for a batch of analyses performed on one instrument under the control of one initial calibration and initial calibration verification. The RunBatch links both the initial calibration and initial calibration verification to subsequently analyzed and associated continuing calibrations, field samples, and QC analyses. For GC/MS methods, the RunBatch also links a BFB or DFTPP tune. A distinct RunBatch must used with every new initial calibration within a method The value entered in this field links a particular sample/method/analysis type record to a set of associated initial calibration and initial calibration verification records from Table A2. This field is only required if the A2 table is included with the EDD.	Text	12	NO

Table 3
Field Description for the Sample Analysis (A3 file)

This table contains information related to analyses of field samples and laboratory QC samples (excluding calibrations and tunes) on a sample level for environmental chemical analyses including radiochemistry

Field Name	Field Name Description	Field Type	Field Length	Standard Value List*
AnalysisBatch	For radiochemistry methods leave this field blank. For all other methods the AnalysisBatch is the unique identifier for a batch of analyses performed on one instrument and under the control of a continuing calibration or continuing calibration verification. The AnalysisBatch links the continuing calibration or calibration verification to subsequently analyzed and associated field sample and QC analyses. For GC/MS methods, the AnalysisBatch also links the BFB or DFTPP tune. A distinct AnalysisBatch must be used with every new continuing calibration or continuing calibration verification within a method The value entered in this field links a particular sample/method/analysis type record to a set of associated continuing calibration records in the Laboratory Instrument table. This field is only required if the A2 table is included with the EDD.	Text	12	NO
LabReportingBatch	Unique laboratory identifier for the EDD. This is equivalent to the sample delivery group, lab work number, login ID, etc. The LabReportingBatch links all records in the EDD reported as one group. The value entered in this field must be the same in all records.	Text	12	NO
LabReceipt	Date and time the sample was received in the lab. A time value of 00:00 may be entered. Refer to the date/time format at the end of this table.	Date/ Time	16*	
LabReported	Date and time hard copy reported delivered by the lab. A time value of 00:00 may be entered. Refer to the date/time format at the end of this table.	Date/ Time	16*	

* For radiochemistry methods format Date as MM/DD/YYYY (where MM = two digit month, DD = two digit day, and YYYY = four digit year)

For all other methods format Date and Time as MM/DD/YYYY hh:mm YYYY (where MM = two digit month, DD = two digit day, and YYYY = four digit year, hh = hour in 24 hour format, and mm = minutes)

Table 4
Standard Value List

FieldName	StandardValue	StandardValueDescription
Analysis_Type	DL	Dilution of the original sample
	DL2	Second dilution of the original sample
	DL3	Third dilution of the original sample
	DL4	Fourth dilution of the original sample
	RE	Reanalysis/re-extraction of sample
	RE2	Second reanalysis/re-extraction of sample
	RE3	Third reanalysis/re-extraction of sample
	RE4	Fourth reanalysis/re-extraction of the original sample
	RES	The initial or original sample.
Analyte_Name	Refer to QAPP and Project Library	Analyte names are specified by the project and entered into the library for each method and matrix. Analyte Names used in project libraries must first exist in the standard value table. The same holds true for the ClientAnalyteID
Analyte_Type	IS	Internal standard as defined per CLP usage
	SPK	Spiked analyte
	SURR	Surrogate as defined as per CLP usage
	TIC	Tentatively identified compound for GC/MS analysis
	TRG	Target compound
Detection_Limit_Type [1]	CRDL	Contract required detection limit
	IDL	Instrument detection limit
	MDA	Minimum detectable activity
	MDL	Method detection limit
Handling_Type [2]	WET	Wet leaching procedure
	SPLP	Synthetic Precipitation Leaching Procedure
	TCLP	Toxicity Characteristic Leaching Procedure
Lab_Analysis_Ref_Method_ID	Refer to QAPP and Project Library	Method IDs are specified by the project and entered into the library. Methods used in project libraries must first exist in the standard value table
Lab_Qualifiers [3]	*	INORG: Duplicate analysis was not within control limits
	*	ORG: Surrogate values outside of contract required QC limits
	+	INORG: Correlation coefficient for the method of standard additions (MSA) was less than 0.995
	A	ORG: Tentatively identified compound (TIC) was a suspected aldol-condensation product
	B	INORG: Value less than contract required detection limit, but greater than or equal to instrument detection limit
	B	ORG: Compound is found in the associated blank as well as in the sample
	C	ORG: Analyte presence confirmed by GC/MS
	D	Result from an analysis at a secondary dilution factor
	E	INORG: Reported value was estimated because of the presence of interference
	E	ORG: Concentrations exceed the calibration range of the instrument
	H	Analysis performed outside method or client-specified holding time requirement
	J	Estimated value
	M	INORG: Duplicate injection precision was not met
	N	INORG: Spiked sample recovery was not within control limits
	N	ORG: Presumptive evidence of a compound
	P	ORG: Difference between results from two GC columns unacceptable (>25% Difference)
	S	Reported value was determined by the method of standard additions (MSA)
	U	Compound was analyzed for, but not detected. Analyte result was below the Reporting Limit.
	W	INORG: Post digestion spike was out of control limits
	X	Reserved for a lab-defined data qualifier
	Y	Reserved for a lab-defined data qualifier
	Z	Reserved for a lab-defined data qualifier
Matrix_ID	AIR	Air
	AQ	Water
	ASH	Ash

Table 4
Standard Value List

FieldName	StandardValue	StandardValueDescription
Matrix_ID (continued)	BIOTA	Biological matter
	FILTER	Filter
	LIQUID	Non-aqueous liquid
	OIL	Oil
	SED	Sediment
	SLUDGE	Sludge
	SO	Soil
	SOLID	Non-soil/sediment solid
	TISSUE	Tissue
	WASTE	Waste
	WIPE	Wipe
Preparation_Type [4]	3005A	Acid Digestion of Waters for Total Recoverable or Dissolved Metals by FLAA or ICP
	3010A	Acid of Aqueous Samples and Extracts for Total Metals by FLAA or ICP
	3015	Microwave Assisted Acid Digestion of Aqueous Samples and Extracts
	3020A	Acid Digestion of Aqueous Samples and Extracts for Total Metals by GFAA
	3031	Acid Digestion of Oils for Metals Analysis by AA or ICP
	3050B	Acid Digestion of Sediments, Sludges, and Soils
	3051	Microwave Assisted Acid Digestion of Sediments, Sludges, Soils and Oils
	3052	Microwave Assisted Acid Digestion of Siliceous and Organically Based Matrices
	3060A	Alkaline Digestion for Hexavalent Chromium
	3510C	Separatory Funnel Liquid-Liquid Extraction
	3520C	Continuous Liquid-Liquid Extraction
	3535	Solid Phase Extraction
	3540C	Soxhlet Extraction
	3541	Automated Soxhlet Extraction
	3545	Pressurized Fluid Extraction
	3550B	Ultrasonic Extraction
	3560	Supercritical Fluid Extraction of Total Recoverable Petroleum Hydrocarbons
	5030B	Purge and Trap for Aqueous Samples
	5035	Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples
	7470A	Acid digestion of waters for Mercury analysis
	7471A	Acid digestion of soils and solids for Mercury analysis
	Gen Prep	Generic preparation type when a preparation method ID does not exist (used mostly for general chemistry methods)
QC_Level	COA	Certificate of Analysis (accuracy and precision, no calibration)
	COACAL	Certificate of Analysis (accuracy and precision including calibration)
QC_Type	MB	Analytical control consisting of all reagents and standards that is carried through the entire procedure (Method Blank)
	CV	(Calibration Verification) Analytical standard run at a specified frequency to verify the calibration of the analytical system
	CCV	(Continuing Calibration Verification) Analytical standard run every 12 hours to verify the calibration of the GC/MS system
	DUP	A second aliquot of a sample that is treated the same as the original aliquot to determine the precision of the method
	IC	(Initial Calibration) Analysis of analytical standards for a series of different specified concentrations
	ICV	(Initial Calibration Verification) Analytical standard run at a specified frequency to verify the accuracy of the initial calibration of the analytical system
	IPC	(Instrument Performance Check) Analysis of DFTPP or BFB to evaluate the performance of the GC/MS system
	LCS	(Laboratory Control Sample) A control sample of known composition
	LCSD	(Laboratory Control Sample Duplicate) A duplicate control sample of known composition
	MS	(Matrix Spike) Aliquot of a matrix spiked with known quantities and subjected to the entire analytical procedure to measure recovery
	MSD	(Matrix Spike Duplicate) A second aliquot of the same matrix as the matrix spike that is spiked in order to determine the precision of the method
Reporting_Limit_Type [1]	CRDL	Contract- required detection limit
	CRQL	Contract- required quantitation limit

Table 4
Standard Value List

Field Name	Standard Value	Standard Value Description
Reporting_Limit_Type (continued)	PQL	Practical quantitation limit
	SQL	Sample quantitation limit
	RDL	Reportable detection limit
Result_Basis	DRY	Result was calculated on a dry weight basis
	WET	Result was calculated on a wet weight basis
Result_Units [5]	ug/L	Micrograms per liter
	mg/L	Milligrams per liter
	ug/Kg	Micrograms per kilogram
	mg/Kg	Milligrams per kilogram
	pg/L	Picograms per liter
	ng/Kg	Nanograms per kilogram
Total_Or_Dissolved	DIS	Dissolved
	TOT	Total

1 **Additional Detection Limit Types and Reporting Limit Types may be used. These must be added to the application standard values.**
2 **Additional Handling Types (leachate procedures) may be used. These must be added to the application standard values**
3 **Additional Lab Qualifiers may be used, or listed Lab Qualifiers may be used in a different manner than described in this table. New lab qualifiers must be added to the application standard value tables. NOTE: The "U" Lab Qualifier must be used for all non-detects.**
4 **Additional Preparation Types may be used. These must be added to the application standard value tables.**
5 **Additional Result Units may be used. The project library specifies the reporting limit used for each method and matrix**

Note: if new standard values are used then these standard values must be entered in the software standard values for both the lab and contractor. The application will automatically update the standard values tables if an importing library contains standard values (method, client analyte ID, and analyte name) that do not exist in the software importing the new library.

Table 5
Required Fields in the Analytical Results Table for GC/MS, GC, and HPLC Methods

	GC/MS Methods			GC and HPLC Methods		
Field	Regular Sample*	MS/MSD	Method Blank LCS/LCSD	Regular Sample*	MS/MSD	Method Blank LCS/LCSD
Client_Sample_ID	X	X	X	X	X	X
Lab_Analysis_Ref_Method_ID	X	X	X	X	X	X
Analysis_Type	X	X	X	X	X	X
Lab_Sample_ID	X	X	X	X	X	X
Lab_ID	X	X	X	X	X	X
Client_Analyte_ID	X	X	X	X	X	X
Analyte_Name	X	X	X	X	X	X
Result	X	X	X	X	X	X
Result_Units	X	X	X	X	X	X
Lab_Qualifiers	Q	Q	Q	Q	Q	Q
Detection Limit	X	X	X	X	X	X
Detection_Limit_Type	X	X	X	X	X	X
Retention_Time	T		T			
Analyte_Type	X	X	X	X	X	X
Percent_Recovery	S	R	R	S	R	R
Relative_Percent_Difference		D	D		D	D
Reporting_Limit	X	X	X	X	X	X
Reporting_Limit_Type	X	X	X	X	X	X
Reportable_Result	X	X	X	X	X	X

Key

- X Required Field
- D Required field for spiked compounds in the LCSD and MSD only
- Q Required field if laboratory has qualified result. The "U" qualifier MUST be entered if the result is non-detect.
- R Required field if Analyte_Type = "SPK" or "SURR"
- S Required field for surrogate compounds only
- T Required field for tentatively identified compounds by GC/MS only
- * Also includes Equipment Blanks, Field Blanks, and Trip Blanks

Table 6
Required Fields in the Analytical Results Table for ICAP, AA, and IC Methods

	ICAP and AA Methods			IC and Wet Chemistry Methods		
Field	Regular Sample*	Sample Duplicate MS/MSD	Method Blank LCS/LCSD	Regular Sample*	Sample Duplicate MS/MSD	Method Blank LCS/LCSD
Client_Sample_ID	X	X	X	X	X	X
Lab_Analysis_Ref_Method_ID	X	X	X	X	X	X
Analysis_Type	X	X	X	X	X	X
Lab_Sample_ID	X	X	X	X	X	X
Lab_ID	X	X	X	X	X	X
Client_Analyte_ID	X	X	X	X	X	X
Analyte_Name	X	X	X	X	X	X
Result	X	X	X	X	X	X
Result_Units	X	X	X	X	X	X
Lab_Qualifiers	Q	Q	Q	Q	Q	Q
Detection Limit	X	X	X	X	X	X
Detection_Limit_Type	X	X	X	X	X	X
Retention_Time						
Analyte_Type	X	X	X	X	X	X
Percent_Recovery		S	S		S	S
Relative_Percent_Difference		R	R		R	R
Reporting_Limit	X	X	X	X	X	X
Reporting_Limit_Type	X	X	X	X	X	X
Reportable_Result	X	X	X	X	X	X

Key

X Required field
Q Required field if laboratory has qualified result. The "U" qualifier MUST be entered if the result is non-detect
R Required field for spiked compounds in LCSD or MSD, or target compounds in the Sample Duplicate only
S Required field if Analyte_Type = "SPK"
* Also includes Trip Blanks, Equipment Blanks, and Field Blanks

Table 7
Required Fields in the Laboratory Instrument Table

	GC/MS Tunes		Initial Calibration				Initial Calibration Verification				Calibration Verification Continuing Calibration
Field	VOA	SVOA	GC/MS	GC/HPLC	ICP/AA	IC*	GC/MS	GC/HPLC	ICP/AA	IC*	ALL METHODS
Instrument_ID	X	X	X	X	X	X	X	X	X	X	X
QC_Type	X	X	X	X	X	X	X	X	X	X	X
Analyzed	X	X	X	X	X	X	X	X	X	X	X
Alternate_Lab_Analysis_ID	X	X	X	X	X	X	X	X	X	X	X
Lab_Analysis_ID	X	X					X	X	X	X	X
Lab_Analysis_Ref_Method_ID	X	X	X	X	X	X	X	X	X	X	X
Client_Analyte_ID	X	X	X	X	X	X	X	X	X	X	X
Analyte_Name	X	X	X	X	X	X	X	X	X	X	X
Run_Batch	X	X	X	X	X	X	X	X	X	X	X
Analysis_Batch	C	C									X
Lab_Reporting_Batch	X	X	X	X	X	X	X	X	X	X	X
Percent_Relative_Standard_Deviation			X	X							
Correlation_Coefficient			B	B	X	X					
Relative_Response_Factor			X				X				M
Percent_Difference							X	X	X	X	X
Peak_ID_01	X	X									
Percent_Ratio_01	X	X									
Peak_ID_02	X	X									
Percent_Ratio_02	X	X									
Peak_ID_03	X	X									
Percent_Ratio_03	X	X									
Peak_ID_04	X	X									
Percent_Ratio_04	X	X									
Peak_ID_05	X	X									
Percent_Ratio_05	X	X									
Peak_ID_06	X	X									
Percent_Ratio_06	X	X									
Peak_ID_07	X	X									
Percent_Ratio_07	X	X									
Peak_ID_08	X	X									
Percent_Ratio_08	X	X									
Peak_ID_09	X	X									
Percent_Ratio_09	X	X									
Peak_ID_10		X									
Percent_Ratio_10		X									
Peak_ID_11		X									
Percent_Ratio_11		X									
Peak_ID_12		X									
Percent_Ratio_12		X									
Peak_ID_13		X									
Percent_Ratio_13		X									

Key

X Required field (some fields are not applicable to some General (Wet) Chemistry tests)

B Required field if reporting best fit

C Required field if BFB or DFTPP associated with a continuing calibration only

M Required field for GC/MS continuing calibration only

*IC includes Ion Chromatography and Classical or Wet Chemistry methods. Methods such as pH, Conductivity, and others do not use traditional calibration procedures, ; therefore, some fields marked as a required field under the "IC" column do not apply for these methods.

Table 8
Required Fields in the Sample Analysis Table

	GC, GC/MS, HPLC Methods		ICAP and AA Methods		IC and Wet Chemistry Methods	
Field	Method Blanks, LCS/LCSD	Regular Samples, Sample Duplicate, MS/MSD	Method Blanks, LCS/LCSD	Regular Samples, Sample Duplicate, MS/MSD	Method Blanks, LCS/LCSD	Regular Samples, Sample Duplicate, MS/MSD
Client_Sample_ID	X	X	X	X	X	X
Collected		X		X		X
Matrix_ID	X	X	X	X	X	X
Lab_Sample_ID	X	X	X	X	X	X
QC_Type	X	Q	X	Q	X	X
Shipping_Batch_ID		X		X		X
Temperature		X				X
Lab_Analysis_Ref_Method_ID	X	X	X	X	X	X
Preparation_Type	X	X	X	X	X	X
Analysis_Type	X	X	X	X	X	X
Prepared	A	A	X	X	N	N
Analyzed	X	X	X	X	X	X
Lab_ID	X	X	X	X	X	X
QC_Level	X	X	X	X	X	X
Results_Basis		S		S		S
Total_Or_Dissolved			W	W		
Dilution	X	X	X	X	X	X
Handling_Type	L	L	L	L	L	L
Handling_Batch	L	L	L	L	L	L
Leachate_Date	L	L	L	L	L	L
Percent Moisture		S		S		S
Method_Batch	X	X	X	X	X	X
Preparation_Batch	X	X	X	X	X	X
Run_Batch	C	C	C	C	C	C
Analysis_Batch	C	C	C	C	C	C
Lab_Reporting_Batch	X	X	X	X	X	X
Lab_Receipt		X		X		X
Lab_Reported	X	X	X	X	X	X

Key

- X Required field
- A Required field for samples prepared by methanol extraction
- C Required field if Instrument Calibration Table (A2) is included in EDD
- L Required field if analysis performed on SPLP, TCLP, or WET extracts
- N Required field only for samples that require preparation before analysis
- Q Required field for Sample Duplicate, MS, and MSD only
- S Required field if "Matrix_ID" = "SO" or "SED"
- W Required field for aqueous samples only
- * Includes Trip Blanks, Equipment Blanks, and Field Blanks

Sample Receipt File

This table contains information related to the receipt of field samples.

The file should be a comma-delimited ASCII text file or Excel CSV file (csv preferable). The naming convention should be as follows, laboratory reporting batch ID (SDG) followed by SR (sample receipt) with the extension of .txt or .csv. For example:

SDG001SR.csv

Field Name	Field Name Description	Field Type	Field Length	Standard Value List
LabID	Laboratory Identifier	Text	20	Yes
ProjectNumber	Project number assigned by the client	Text	30	Yes
ProjectName	Project name assigned by the client	Text	90	Yes
ClientSampleID	Client or contractor's identifier for a field sample	Text	25	No
Collected	Date and Time of sample collection. Refer to date/time format at the end of this table.	Date/ Time	16*	No
MatrixID	Sample matrix (i.e. AQ, SO, etc.)	Text	10	Yes
LabSampleID	Laboratory tracking number for field samples. Must be unique for a given field sample.	Text	25	No
ShippingBatchID	Unique identifier assigned to a cooler or shipping container used to transport client or filed samples. Links all samples to a cooler or shipping container. (optional)	Text	25	No
Temperature	Temperature (in centigrade degrees) of the samples as received.	Numeric	10	No
LabReceipt	Date and time the sample was received in the lab. A time value of 00:00 may be entered. Refer to the date/time format at the end of this table.	Date/ Time	16*	No
LabAnalysisRefMethodID	Laboratory reference method ID. The method ID may be an EPA Method number or laboratory identifier for a method such as a SOP number, however; values used for Laboratory Method IDs are specified by the project and must be in the standard value list for method IDs.	Text	25	Yes (project specific See QAPP and Project Library)
PreparationType	Preparation Method Number (i.e. 3010A,3510C, 3550C, 5030B, etc.) For analytical procedures that do not have a specific preparation method number, use "Gen Prep".	Text	25	Yes

* For radiochemistry only samples format Date as MM/DD/YYYY (where MM= two digit month, DD = two digit day, and YYYY = four digit year).

For all other samples format Date and Time as MM/DD/YYYY hh:mm (where MM = two digit month, DD = two digit day, YYYY = four digit year, hh = hour in 24 hour format, and mm = minutes).

Contact: Rebecca Humphrey at 716-684-8060 or rhumphrey@ene.com .

Valid Values:

MatrixID

StandardValue	Standard Value Description
AIR	Air
AQ	Water
ASH	Ash
BIOTA	Biological matter
FILTER	Filter
LIQUID	Identifiable non-aqeous liquid.
OIL	Oil
SED	Sediment
SLUDGE	Sludge
SO	Soil
SOLID	Identifiable non-soil solid, or unidentifiable solid
TISSUE	Tissue
WASTE	Waste
WIPE	Wipe

LabID
Contact Rebecca Humphrey

ProjectNumber
Refer to ADR project library or Contact Rebecca Humphrey

ProjectName
Refer to ADR project library or Contact Rebecca Humphrey

LabAnalysisRefMethodID
Refer to ADR project library or Contact Rebecca Humphrey

PreparationType

Standard Value	Standard Value Description
3005A	Acid Digestion of Waters for Total Recoverable or Dissolved Metals by FLAA or ICP
3010A	Acid Digestion of Aqueous Samples and Extracts for Total Metals by FLAA or ICP
3015	Microwave Assisted Acid Digestion of Aqueous Samples and Extracts
3020A	Acid Digestion of Aqueous Samples and Extracts for Total Metals by GFAA
3031	Acid Digestion of Oils for Metals Analysis by AA or ICP
3050B	Acid Digestion of Sediments, Sludges, and Soils
3051	Microwave Assisted Acid Digestion of Sediments, Sludges, Soils and Oils
3052	Microwave Assisted Acid Digestion of Siliceous and Organically Based Matrices
3060A	Alkaline Digestion for Hexavalent Chromium
3510B	Separatory Funnel Liquid-Liquid Extraction
3510C	Separatory Funnel Liquid-Liquid Extraction
3520C	Continuous Liquid-Liquid Extraction
3535	Solid Phase Extraction
3540C	Soxhlet Extraction
3541	Automated Soxhlet Extraction
3545	Pressurized Fluid Extraction

Sample Receipt File

Standard Value	Standard Value Description
3550B	Ultrasonic Extraction
3560	Supercritical Fluid Extraction of Total Recoverable Petroleum Hydrocarbons
5030B	Purge and Trap for Aqueous Samples
5035	Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples
7470A	Acid digestion of waters for Mercury analysis
7471A	Acid digestion of soils and solids for Mercury analysis
8015B	Shake out
8151A	8151A
8330	Extraction and cleanup for Method 8330
9045	Preparation of soils for pH measurement
9056	Preparation of soils and waters for Method 9056
Gen Prep	Generic preparation type when a preparation method ID does not exist (used mostly for general chemistry methods)

C Community Air Monitoring Plan

Community Air Monitoring Plan
Depew Village Landfill Site
Village of Depew, New York

The air monitoring program for this site consists of real-time monitoring for particulate matter and volatile organic compounds (VOCs). Particulate matter will be monitored at the upwind and downwind perimeter of each designated work area during all ground-intrusive activities. VOC monitoring will also be conducted at the point of intrusive activity. Intrusive activities are ones which disturb subsurface soils and potentially expose them to wind. Wind can create dust if the soil is dry and the activity is not being conducted during a rain event; and it can will VOC vapors out of the immediate source are regardless of precipitation.

This program is intended to provide a measure of protection for the downwind community and receptors from potential airborne contaminant releases and VOC releases as a direct result of site assessment activities. This program is also designed to confirm that site assessment activities did not spread contamination away from the site through the air. All site personnel must be prepared to respond and act quickly in the event of an emergency or accidental contaminant release. Emergency preparedness and response procedures will aid in protecting site workers and the surrounding environment. Preplanning measures will include employee training and safe work practices to avoid personal injury or exposure.

All air particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter smaller than 10 micrometers in size (designated as PM_{10}), over a period of 15 minutes and have an audible alarm to signal an event where an established action level is exceeded. Particulate matter shall be monitored at the upwind and downwind perimeter of the work area on a periodic basis during the intrusive activities mentioned above. If downwind PM_{10} concentrations exceed 100 micrograms per cubic meter ($\mu g/m^3$) above the upwind perimeter of the exclusion zone (background) for a 15-minute period, then dust suppression techniques outlined in the Particulate Emission Response Plan below must be implemented to minimize the potential for particulate migration.

All VOC monitoring will be conducted using real-time air monitoring equipment at the point of intrusion (primarily boreholes). Air monitoring of air at the top of the borehole will be monitoring continuously via an oxygen meter and an explosive gas meter. The breathing zone will be monitoring for VOC presence every time a soil core is removed from a boring. If the ambient air conditions have an oxygen level that is less than 19% or greater than 22%, or if a lower explosive limit of 5% (of the calibration gas) is reached, then the drilling will be temporarily abandoned and the area will be allowed to ventilate. VOC readings of ambient air shall not exceed 5 parts per million (ppm). VOC reading of ambient air and soil cores will be recorded throughout the field program. If elevated VOC readings are sustained, collection of upwind and downwind perimeter VOC readings will be considered.

Particulate Emission Response Plan

- If the ambient air concentration of particulate matter exceeds 100 $\mu g/m^3$ above background at the downwind perimeter of the work area for a 15-minute period, dust suppression techniques will be implemented to minimize the potential for particulate migration.

- If the downwind PM_{10} levels are greater than 100 $\mu g/m^3$ over background but less than 150 $\mu g/m^3$ over background at the downwind perimeter of the work area, work activities may continue provided the PM_{10} concentrations remain below the 150 $\mu g/m^3$ threshold and no airborne dust is observed leaving the work area.

- If the downwind PM_{10} levels are above 150 $\mu g/m^3$ at the perimeter of the work area or if airborne dust is observed leaving the work area, all work activities must stop. When work shutdown occurs, work activities and dust suppression techniques will be re-evaluated in an effort to minimize the potential for particulate migration. Work may resume once additional or renewed dust suppression measures or controls are successful in reducing downwind PM_{10} concentrations remain below the 150 $\mu g/m^3$ threshold.

Potential Dust Suppression Techniques

- Sufficiently wetting particulate source areas with clean potable water. Use a portable water tank or a water tank truck to store the water close to the dust source on site.

VOC Emission Response Plan

- If the ambient air concentration of VOCs exceeds 5 ppm above background at the downwind site perimeter, the intrusive work at the area will be stopped and the work area will be allowed to ventilate. Work at that location may be rescheduled to take place during a time when wind has a minimal speed of 5 mph, or it may be continued expeditiously, with continuous VOC monitoring at the site perimeter. EEEPC will confer with the New York State Department of Health (NYSDOH) site contact prior to continuing with any additional intrusive site activities at the VOC source area.

D Citizen Participation Plan

Introduction

The Citizen Participation (CP) program provides a means to create open communication and mutual trust between the community, New York State Department of Environmental Conservation (NYSDEC), and other regulatory agencies. Citizen input will aid NYSDEC in the selection of a remedial alternative that is cost-effective, environmentally sound, and has widespread public acceptance. The CP program will include the following components:

- Preparation and distribution of one fact sheet discussing remedial investigation activities;
- Establishment of two repositories for site-related plans and reports;
- Preparation and posting of one set of announcements regarding the convening of a public meeting; and
- Holding one public meeting to present the draft reports and solicit comments.

Each item is discussed in further detail in Sections 1 and 2.

1.0 Citizen Participation Program Elements

1.1 Task 1: First Fact Sheet Preparation

An initial fact sheet will be developed before the start of field investigations to inform the community of upcoming site activities. The fact sheet will include discussions regarding the purpose and objectives of the site characterization (SC), the site's background and history, a site map, and a description of SC field investigations to be conducted. The fact sheet will be produced by NYSDEC, with Ecology and Environment Engineering, P.C. (EEEPC) providing some input.

1.2 Task 2: Repository Establishment

EEEPC will establish two document repositories for this project. Relevant documents, including fact sheets, a technical work plan, and the site report (when completed) will be made available for public viewing at this location. The Village municipal building and the Depew Library branch are being considered, as they are both relatively nearby to the areas residents.

1.3 Task 3: Contact List Development

EEEPC will develop and provide to NYSDEC a contact list relevant to the site. NYSDEC will use this for mailing meeting notices and fact sheets, as well as other pertinent documents. Initially, this list will include:

- Commercial business located within 0.5 mile of the site;
- Adjacent landowners;
- Other interested parties, such as Village of Depew;

- Local elected officials (city, county, and state); and
- Other government agencies, including the New York State Department of Health and Rensselaer County Health Department.

This contact list can be expanded as necessary during the project.

1.4 Task 4: Second Fact Sheet Preparation

Upon completion of the Proposed Remedial Action Plan (PRAP), NYSDEC may choose to prepare and distribute a second fact sheet. This fact sheet will present findings and conclusions of the remedial investigation/feasibility study (RI/FS), and will note that the reports are available for public comment at listed public repositories. If prepared, NYSDEC will distribute to recipients of the first fact sheet, plus any additional parties requesting the information.

1.5 Task 5: Preparation and Announcement of the Public Meeting

A public meeting will held following completion of the RI/FS and PRAP. The meeting announcement will contain the following information: the date, time, and location of the public meeting; the purpose of the meeting; identification of the report repository; the contact person(s); and the topics to be discussed. The announcement will be mailed with, or included on, the second fact sheet. It will be developed by NYSDEC with EEEPC's input. Announcements will be sent to those on the contact list developed in CP Task 3.

1.6 Task 6: Public Meeting

A public meeting will be conducted upon completion of the PRAP. The purpose of the meeting will be to inform the community of the purpose for, and results of, the RI/FS. In addition, the remedial alternatives evaluated to address site contamination found during the RI/FS will be presented in a brief, summary manner. The PRAP will be available to the public for a comment period, and NYSDEC will account for the comments received when finalizing the remedial alternative selection.

2.0 Public Inquiries

The EEEPC Project Manager will be the principal point of contact during the project. He will rely mainly on the fact sheet as a standard set of facts to be released to the public. If inquiries are made of the EEEPC staff by the public on site, EEEPC will distribute the fact sheet. If additional inquiries on topics not addressed by the fact sheet are made by the same party during fieldwork or at any other time, EEEPC will direct these questions to the NYSDEC Project Manager.