ALSY MANUFACTURING, INC. SITE

NASSAU COUNTY

HICKSVILLE, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: 1-30-027

USEPA ID # 110001576296

Prepared for:

New York State Department of Environmental Conservation
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Albany, New York

Prepared by:

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Work Assignment No. D007620-45

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

SEPTEMBER 2020

CERTIFICATION STATEMENT

I, Matthew DeVinney, certify that I am currently a NYS Registered Professional Engineer and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Matthew R DeVinney P.E.

10-1-20 DATE

ALSY MANUFACTURING, INC. SITE
NASSAU COUNTY
HICKSVILLE, NEW YORK

SITE MANAGEMENT PLAN

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List of Acronyms

ASP	Analytical Services Protocol
BGS	Below Ground Surface
CAMP	Community Air Monitoring Plan
C&D	Construction and Demolition
CFR	Code of Federal Regulation
COC	Certificate of Completion
D&B	D&B Engineers and Architects, P.C.
DER	Division of Environmental Remediation
DW	Dry Well
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
HASP	Health and Safety Plan
IC	Institutional Control
MACTEC	MACTEC Engineering and Consulting, P.C.
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
PPB	Parts Per Billion
PPB	Parts Per Million
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAO	Summary Abatement Order
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-Slab Depressurization System
SVI	Soil Vapor Intrusion

SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TAGM	Technical and Administrative Guidance Memorandum
TCL	Target Compound List
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Alsy Manufacturing, Inc. site (herein referred to as the "Site"), as well as the inspections, monitoring, maintenance, and reporting activities required by this Site Management Plan (SMP):

Site Identification:	**NYSDEC Site Registry No. 130027, Alsy Manufacturing, Inc.**
Institutional Controls:	1. The property may be used for commercial or industrial use.
	2. Groundwater and soil vapor monitoring must be performed as defined in this SMP.
	3. Data and information pertinent to site management of the controlled property must be reported at the frequency and in a manner defined in this SMP.
	4. On-site and off-site environmental monitoring devices including groundwater monitoring wells must be protected and replaced as necessary to ensure the devices function in the manner specified in this SMP.
	5. The property may not be used for a higher level of use, such as unrestricted, residential or restricted-residential use without additional remediation and amendment of the Environmental Notice, as approved by the NYSDEC; all future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP.
	6. The use of the groundwater underlying the property is prohibited without treatment rendering it safe for its intended use,
	7. The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries (legal description) in the Environmental Notice, and any potential impacts that are identified must be monitored or mitigated; vegetable gardens and farming, including livestock and dairy farming, on the property are prohibited.

	8. The Site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that controls employed at the controlled property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC and nothing has occurred that impairs the ability of the controls to protect public health and the environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such controlled property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted every five years, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.
	9. All ECs must be inspected at a frequency and in a manner defined in the SMP.
Engineering Controls:	1. Sub-Slab Depressurization Systems 2. Paving System

Inspections:	**Frequency**
1. Site wide inspections	Annually
2. Paving System	Annually
Monitoring:	
1. Groundwater Monitoring Wells	Annually
Maintenance:	
1. Paving System	As needed
Reporting:	
1. Inspection/Site Management Report	Annually
2. Periodic Review Report	Every five years, or as otherwise determined by the Department

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 Introduction

This Site Management Plan (SMP) is a required element of the remedial program for the Alsy Manufacturing, Inc. Site (hereinafter referred to as the "Site") under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program Site No. 130027 which is administered by New York State Department of Environmental Conservation (NYSDEC). The Site was remediated by the NYSDEC with funds allocated under the New York State Superfund Program (Work Assignment No. D004444-21) in accordance with the Record of Decision (ROD), dated March 2005.

1.1.1 General

The Alsy Manufacturing, Inc. Site is located in an urban area of Hicksville, Nassau County, New York (see Figure 1-1). The Surrey Corporation and Surrey Company entered into an Order on Consent on March 28, 1995 with the NYSDEC to remediate the Site. A figure showing the site location and boundaries of this site is provided in Appendix A. The boundaries of the Site are more fully described in the metes and bounds site description that is part of the Environmental Notice recorded April 29, 2013, provided in Appendix K.

After completion of the remedial work described in the remedial design (MACTEC Engineering and Consulting, P.C. [MACTEC], July 2009) and ROD, some contamination was left in the subsurface at the Site, which is hereafter referred to as "remaining contamination". Institutional and Engineering Controls (ICs and ECs) have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Notice granted to the NYSDEC, and recorded with the Nassau County Clerk, requires compliance with this SMP and all ECs and ICs placed on the site.

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D&B ENGINEERS AND ARCHITECTS, P.C.

ALSY MANUFACTURING, INC. SITE
HICKSVILLE, NEW YORK

SITE LOCATION MAP

FIGURE 1-1

This SMP was prepared to manage remaining contamination at the site until the Environmental Notice is extinguished in accordance with Environmental Conservation Law (ECL) Article 71, Title 36. All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by D&B Engineers and Architects, P.C. (D&B), on behalf of NYSDEC (Work Assignment No. D007620-45) in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the ROD for the Site.

1.1.2 Purpose

The Site contains contamination left after completion of the remedial action. ECs have been incorporated into the Site remedy to control exposure to remaining contamination during the use of the Site to ensure protection of public health and the environment. An Environmental Notice filed by the NYSDEC and recorded with the Nassau County Clerk, requires compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the Environmental Notice for contamination that remains at the Site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the Environmental Notice. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the Site after completion of the Remedial Action, including: (1) implementation and management of all ECs/ICs; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (5) defining criteria for termination of treatment system operations..

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of site monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual for complex systems).

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Notice. Failure to properly implement the SMP is a violation of the Environmental Notice, which is grounds for revocation of the Certificate of Completion (COC); and
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375, and thereby subject to applicable penalties.

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in Appendix D of this SMP.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. In accordance with the Environmental Notice for the site, the NYSDEC will provide a notice of any approved changes to the SMP and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of 6NYCRR Part 375 and/or Environmental Conservation Law.
- 7-day advance notice of any field activity associated with the remedial program.
- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1-1 below includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix D.

Table 1-1: Notifications*

Name	Contact Information
Robert Strang, Assistant Engineer NYSDEC Project Manager	(518) 402-8642 robert.strang@dec.ny.gov
Kelly Lewandowski NYSDEC Site Control	(518) 402-9553 kelly.lewandowski@dec.ny.gov
Walter Parish NYSDEC Regional HW Engineer	(631) 444-0240 walter.parish@dec.ny.gov
Jacquelyn Nealon NYSDOH Project Manager	(518) 402-7860 jacquelyn.nealon@health.ny.gov

* Note: Notifications are subject to change and will be updated, as necessary.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The Alsy Manufacturing, Inc. Site is located at 270 and 280 Duffy Avenue approximately 4,000 feet east of the Wantagh Parkway in an urban area of Hicksville, Nassau County, New York and consists of two tax parcels identified as Section 11 Block G and Lots 148 and 191 on the Nassau County Tax Map. The Site occupies approximately four-acres of land and is bounded by the Long Island Railroad and a construction and demolition (C&D) debris recycler to the north, Duffy Avenue and residential properties to the south, and active and abandoned industrial/commercial properties to the east and west. There are five other inactive hazardous waste disposal sites within a one-half mile radius of the Alsy Manufacturing, Inc. Site. The Site is also less than one mile east of the New Cassel Industrial Area, which contains numerous Inactive Hazardous Waste Disposal Sites.

The Site is currently occupied by two one-story commercial buildings. One building is located at 270 Duffy Avenue and one building is located at 280 Duffy Avenue. Both buildings are surrounded by paved parking areas. A layout of the Site is presented in Appendix A - Figure 2 .

2.2 Physical Setting

2.2.1 Geology and Hydrogeology

The Site's surface is covered, primarily, by either buildings or asphalt pavement. Beneath the Site are two water bearing geologic units, the Upper Glacial Aquifer, and the Magothy Aquifer. The Upper Glacial Aquifer (UGA) consists of Upper Pleistocene deposits of poorly sorted sands and gravel found from the surface to a depth of approximately 80 feet below ground surface (bgs). The UGA is an unconfined aquifer. Beneath the UGA lies the Magothy consisting of finer sands, silt and small amounts of clay. The upper surface of the Magothy formation is found approximately 100 feet bgs in this area. In this area the UGA and the Magothy are in direct hydraulic connection. Depth to groundwater was approximately 57 feet bgs in the area of the Site in 2002 and

groundwater flows in a south/southeast direction. Both the UGA and Magothy have been designated as sole-source aquifers and are protected under state and federal legislation.

A groundwater flow figure is shown in Appendix A - Figure 7.

2.3 Site History

Prior to 1975, Metalab, a laboratory furniture manufacturer, operated at the Site. Alsy Manufacturing, Inc. (Alsy) manufactured electric lamps and lamp shades at this facility from 1975 through 1991. Since 1991, the Site has been leased to various tenants for non-manufacturing commercial-type uses. Alsy's manufacturing processes included bronze plating, electroplating, and antiquing. Waste materials that were generated included metal plating waste, wastewater treatment sludge, paint thinner, acidic paint stripper, alkaline paint stripper, and 1,1,1-trichloroethane.

Alsy was issued a State Pollutant Discharge Elimination System (SPDES) permit in 1977 for two separate on-site wastewater discharge points, one of which received industrial discharges consisting of copper, nickel, zinc, and cyanide. The other discharge point received sanitary wastes.

Between 1977 and 1983, Alsy repeatedly violated the discharge limitations for its 1977 SPDES permits. In addition, sampling revealed disposal of unauthorized metals and volatile organic compounds (VOCs).

Between February and August 1984, joint inspection by the NYSDEC and the Nassau County Department of Health (NCDH) found violations, including four non-permitted discharge points. Behind the building, three leaching pools, several discharge pipes, and two trenches were reported to contain metals and VOC contamination. The areas where the waste disposal occurred were contaminated primarily by heavy metals. In 1984, Alsy's consultant confirmed the existence of five additional leaching pools and three dry wells at the Site. In November 1984, Alsy's consultant sampled standing water from behind the building, water from catch basin CB-3 (formerly LP-3, now identified as DW-3) and water from septic pools 1 and 2. Analytical results

revealed concentrations of nickel and copper in CB-3 and copper in the standing water above the permitted discharge limit.

In April 1985, the NYSDEC issued a Summary Abatement Order (SAO) for cessation of discharges not in compliance with permits and for cleanup of the leaching pools. In response to the SAO, several leaching pools, catch basins, and soil piles behind the building were sampled. Results showed elevated concentrations of zinc, nickel, aluminum and copper.

In May 1985, NYSDEC sampling also revealed elevated concentrations of several metals (including aluminum, arsenic, cadmium, chromium, copper, iron, lead, magnesium, nickel, and zinc) and VOCs (including toluene, xylenes, ethylbenzene, 1,1,1 -trichloroethane, and methylene chloride) in the catch basins and leaching pools at the Site.

Between May and November 1985, contaminated leaching pools were reportedly pumped out and sludge was removed from these pools and disposed of off-site.

In 1987, the NYSDEC first listed the Site as a Class 2a site in the Registry of Inactive Hazardous Waste Disposal Sites in New York (the Registry). Class 2a is a temporary classification assigned to a site that has inadequate and/or insufficient data for inclusion in any of the other classifications.

Prior to 1987, five monitoring wells were installed on-site. In January 1987, groundwater from two on-site monitoring wells located behind (north of) the building was sampled. Several VOCs, including 1,1-dichloroethane, 1,1,1-trichloroethane, trichloroethene, and tetrachloroethene were detected at concentrations exceeding groundwater standards. Metals, including arsenic, chromium, copper, and lead were also found exceeding drinking water standards.

In 1987, two additional groundwater monitoring wells were installed on-site. In June 1987, sampling activities were conducted on-site by the United States Environmental Protection Agency (USEPA). Groundwater samples collected from monitoring wells GW-1 and GW-2 (which no longer exists) showed elevated concentrations of metals (aluminum, arsenic, barium, copper, lead,

magnesium, manganese, mercury, nickel, vanadium, and zinc) and VOCs (1,l-dichloroethane, tetrachloroethene, 1,1,1-trichloroethane and trichloroethene). Soil, sediment, and liquid samples from soil and leaching pools at the northern portion of the Site showed elevated concentrations of several metals (arsenic, cadmium, chromium, copper, iron, nickel, and zinc).

In June 1987, a Phase I Investigation Report was issued by NYSDEC.

Between April 1988 and June 1989, existing groundwater monitoring wells GW- 1 and GW-2 were sampled and eight additional on-site monitoring wells were installed and sampled. Sample results showed elevated concentrations of 1,1,1-trichloroethane, trichloroethene, tetrachloroethene, dichloroethene, vinyl chloride, and methylene chloride as well as arsenic, barium, cadmium, chromium, lead, and mercury in groundwater. Soil samples from the bottom of three cleaned leaching pools showed no significant contamination.

In 1990, the NYSDEC listed the Site as a Class 2 site in the Registry. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

Between 1996 and 2003, the following Remedial Investigation (RI) activities were performed at the Site in several stages:

- Completion of a ground penetrating radar survey to identify subsurface structures;
- Completion of 45 soil borings throughout the Site to collect soil, groundwater and soil gas samples;
- Collection of five soil samples from a soil berm along the northern property line;
- Groundwater sampling at two depths at each of three off-site locations to profile groundwater along an east-west transect;
- Installation of seven new on-site monitoring wells and one new off-site monitoring well;
- Collection of indoor air samples at several locations within the main site buildings;

- Collection of soil and groundwater samples from subsurface structures not previously sampled;
- Collection of groundwater samples from all new and existing monitoring wells; and
- A well search was performed to identify all public, industrial, and private supply wells.

Results of the RI identified metals as the contaminant of concern in soil at the Site. The metals which exceeded standards, criteria, and guidance (SCGs) values included arsenic, beryllium, cadmium, chromium, copper, mercury, nickel, selenium, and zinc. VOCs and metals were identified as the contaminants of concern in groundwater at the Site. The VOCs which exceeded SCG values included 1,1,1-trichloroethane, tetrachloroethene, and 1,2-dichloroethene. The metals which exceeded SCGs values in groundwater included antimony, nickel, and zinc. Additionally, 1,1,1-trichloroethane, tetrachloroethene and methylene chloride were detected in the soil vapor samples. 1,1,1- Trichloroethane, tetrachloroethene and methylene chloride were detected in soil gas beneath the site building, and methylene chloride was detected soil gas outside the building footprint. Indoor air was sampled for 1,1,1-trichloroethane and trichloroethene using compound specific colorimetric tubes. Neither of these two compounds was detected in indoor air above the detection limits of the colorimetric tubes.

In December 2003, ERM prepared a Feasibility Study Report for the Site. The report evaluated the following alternatives:

- Alternative I: No action.
- Alternative II: Continued Commercial Use with Source Removal/Stormwater Control and Groundwater Monitoring.
- Alternative III: Excavation and off-site disposal of soil exceeding the NYSDEC RSCO guidelines to a depth of 15 ft, Source Removal/Stormwater Control and Active Groundwater Remediation.

Based on the evaluation, Alternative II was recommended as the preferred remedial action for the Site as it is a permanent remedy as defined by 6NYCRR Part 375 and by the NYSDEC FS

TAGM, there are no significant short-term effects or implement ability concerns associated with the construction and operation and it was also the most cost effective.

A Record of Decision was issued by NYSDEC in March 2005 and presented the selected remedy for the Site to protect human health and the environment. Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Site and the criteria identified for evaluation of alternatives, the NYSDEC selected targeted source soil removal from dry wells DW-1, DW-2 and DW-4, engineering controls to limit infiltration and direct contact, including the insrtallation of new storm water management systems, groundwater monitoring, implementation of institutional controls and the development and implementation of a Site Management Plan.

On behalf of NYSDEC, MACTEC performed a pre-design investigation at the Site in October 2006. The following investigation activities were performed:

- Direct push soil borings in the source area to design a soil removal action;
- Groundwater profiling south of the Site to determine proper locations for off-site groundwater monitoring wells; and
- Soil vapor investigation to verify on-site shallow soil vapor concentrations.

The results of the soil investigation were used to refine the limit of soil excavation in the remedial design. Results of the groundwater investigation were used to determine the depth of off-site groundwater monitoring wells. The soil vapor investigation concluded that off-site soil vapor remedial action was not warranted.

2.3.1 Summary of Remedial Investigation Findings

The following narrative provides a brief remedial investigation timeline summary gathered from available project records to document key investigative milestones for the Site.

The RI was performed to characterize the nature and extent of contamination at the Site. The results of the RI are described in detail in the following reports:

- "Remedial Investigation Report", Volume 1 of 2, December 1997, Prepared by Surrey Corporation and Surrey Company.
- "Remedial Investigation Report", Volume 2 of 2, December 1997, Prepared by Surrey Corporation and Surrey Company.
- "Supplemental Remedial Investigation Report", December 1997, Prepared by Surrey Corporation and Surrey Company.

Generally, the RI determined that discharges of metal plating wastes directly to the ground surface and to dry wells contaminated the soil and groundwater at the Site. Several on-site dry wells (DW-1, DW-2, and DW-4) were identified as source areas. The RI also determined that relatively high concentrations of site contaminants were present in on- and off-site groundwater.

Below is a summary of pre-remediation site conditions relative to contaminants and contaminant concentrations.

2.3.1.1 – Soil

For the RI, the analytical results were compared to the soil cleanup objectives presented in NYSDEC TAGM 94-4046 (January 1994). The only surface soil that was sampled during the 1996 sampling event was from an unpaved berm along the northern property line. Some or all of this berm was reportedly created from surface soil which was previously located in an area in which waste was reportedly disposed directly to the ground surface. Nickel was detected at concentrations up to 487 parts per million (ppm), zinc was detected at concentrations up to 231 ppm, and copper was detected at concentrations up to 288 ppm. Other inorganics were not detected at concentrations significantly above SCGs.

Extensive sampling of subsurface soil was performed across the Site in two- to four-foot intervals from grade to 46 feet bgs during the 1996 sampling event. Sampling depths in and around several leaching pools extended to 50 feet bgs.

The material disposed of at the Site was known to include metals (inorganics) and VOCs. The results of the RI demonstrated that metals were the only contaminants of concern in the soil. There were no VOCs detected at concentrations exceeding SCGs in the 127 subsurface soil samples. Inorganics were detected at concentrations exceeding SCGs in subsurface soil in the areas of the Site where waste was historically disposed. The inorganics which exceeded SCGs in the subsurface soil include arsenic, beryllium, cadmium, chromium, copper, mercury, nickel, selenium, and zinc.

Contaminated soil was found in an abandoned dry well (DW-4) during the 2001 sampling event. Samples collected and analyzed from soil boring number ERM-2 (inside DW-4) visually and analytically confirmed that the soil was contaminated due to disposal of metal plating waste to this former dry well. This contaminated soil exhibited high concentrations of metals, particularly nickel. Total nickel concentrations as high as 106,000 ppm were found.

The following table presents a summary of contaminant concentrations detected in soil samples collected as part of the investigation activities at the Site relative to SCGs. Appendix A - Figures 3, 4, 5, and 6 identify sample locations and analytical results.

NATURE AND EXTENT OF SOIL CONTAMINATION
1996 – 2003

Media	Contaminants of Concern	Concentration Range Detected (ppm)	SCG (ppm)	Frequency of Exceeding SCG
Surface Soil Inorganic Compounds	Aluminum	9,450 – 13,300	SB	N/A
	Arsenic	10 – 14	7.5 or SB	5 of 5
	Beryllium	0.30 – 0.42	0.16 or SB	5 of 5
	Cadmium	0.35 – 1.5	1 or SB	2 of 5
	Chromium	15 – 53	10 or SB	5 of 5
	Copper	26 – 288	25 or SB	5 of 5
	Manganese	174 – 258	SB	N/A
	Mercury	0.20 – 0.27	0.1	5 of 5
	Nickel	10 – 487	13 or SB	4 of 5
	Zinc	44 -231	20 or SB	5 of 5

Media	Contaminants of Concern	Concentration Range Detected (ppm)	SCG (ppm)	Frequency of Exceeding SCG
Subsurface Soil Inorganic Compounds	Antimony	ND – 3.4	SB	N/A
	Arsenic	ND – 197	7.5 or SB	7 of 121
	Beryllium	0.05 – 0.74	0.16 or SB	7 or 19
	Cadmium	ND – 2.2	1 or SB	1 of 121
	Chromium	1.2 – 83.8	10 or SB	22 of 121
	Copper	0.85 – 1,050	25 or SB	14 of 120
	Lead	0.52 – 1,400	SB	N/A
	Manganese	24 – 229	SB	N/A
	Mercury	ND – 0.54	0.1	5 of 20
	Nickel	0.60 – 106,000	13 or SB	44 or 147
	Selenium	ND – 63	2 or SB	1 of 20
	Silver	ND – 0.52	SB	N/A
	Thallium	ND – 1.5	SB	N/A
	Zinc	2.4 – 1,890	20 or SB	20 or 120

ppm – parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil, and mg/L in water
SCGs – standards, criteria, and guidance values (NYSDEC TAGM 4046)
ND – Not Detected
N/A – Not Applicable
SB – Site Background

2.3.1.2 – Site-Related Groundwater

Groundwater contamination is a concern at the Site. The Site is located above a sole-source aquifer. The Site is also upgradient of public potable water supply wells which supply the Hicksville Water District.

Several VOCs were detected at concentrations exceeding SCGs. l,l,l-Trichloroethane was detected at concentrations up to 12 parts per billion (ppb). Tetrachloroethene was detected at concentrations up to 9 ppb. 1,2-Dichloroethene was detected at concentrations up to 5.3 ppb. No other VOCs were detected at concentrations exceeding SCGs. No SVOCs were detected at concentrations exceeding SCGs.

In unfiltered groundwater samples, the following inorganics exceeded SCGs: antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, manganese, nickel, selenium, thallium, and zinc. In filtered groundwater samples, the following inorganics were found to exceed SCGs: antimony, lead, manganese, nickel, and thallium. The inorganic exceedances which were found in unfiltered groundwater but not filtered or low-flow samples were attributed to high turbidity in the groundwater.

Of the remaining metals, manganese was detected in many of the samples. Manganese, however, is naturally occurring and not related to manufacturing processes on-site. It was also detected in groundwater samples which are considered to be upgradient and background.

Lead was detected in 2 of 39 filtered samples. These samples were in locations considered to represent background groundwater. Thallium was detected in a small number of samples in areas considered to be upgradient or background locations. Lead and thallium are not considered to be site related.

Nickel was detected in groundwater at high concentrations and in many sample locations both on- and off-site. Nickel was detected at concentrations up to 8,660 ppb on-site and 3,580 ppb off-site.

The following table presents a summary of contaminant concentrations detected in groundwater collected as part of the investigation activities relative to SCGs. Appendix A - Figure 8 identifies sample locations and nickel exceedances.

NATURE AND EXTENT OF GROUNDWATER CONTAMINATION
1996 – 2003

Groundwater	Contaminants of Concern	Concentration Range Detected (ppb)	SCG (ppb)	Frequency of Exceeding SCG
Volatile Organic Compounds (Profiling)	1,1,1-Trichloroethane	ND – 12.0	5	3 or 51
	Tetrachloroethene	ND – 8.4	5	2 of 45

Groundwater	Contaminants of Concern	Concentration Range Detected (ppb)	SCG (ppb)	Frequency of Exceeding SCG
Volatile Organic Compounds (Shallow)	1,1,1-Trichloroethane	ND – 8.6	5	2 of 32
	Tetrachloroethene	ND – 9	5	1 of 30
	1,2-Dichloroethene	ND – 5.3	5	1 of 30
Inorganic Compounds (Total Profiling)	Antimony	ND – 64	3	4 of 8
	Arsenic	ND – 165	25	24 of 39
	Beryllium	0.48 – 5.9	3	3 of 8
	Cadmium	ND – 23	5	4 of 39
	Chromium	35 – 4,430	50	38 of 39
	Copper	32 – 2,600	200	22 of 39
	Lead	3.5 – 222	25	28 of 39
	Manganese	299 – 6,040	300	5 of 8
	Nickel	3.1 – 1,210	100	20 of 45
Inorganic Compounds (Total Profiling)	Selenium	ND – 40	10	2 of 8
	Thallium	ND – 44	0.5	6 of 8
	Zinc	7.7 – 6,010	2,000	12 of 45
Inorganic Compounds (Dissolved Profiling)	Antimony	ND – 7.1	3	2 of 8
	Lead	ND – 51	25	2 of 39
	Manganese	302 – 4,030	300	8 of 8
	Nickel	ND – 3,580	100	3 of 46
	Thallium	ND – 14	0.5	3 of 8
Inorganic Compounds (Total Shallow)	Antimony	ND - 61	3	1 of 13
	Arsenic	ND – 284	25	17 of 29
	Barium	99 – 1,480	1,000	1 of 13
	Beryllium	ND – 6	3	1 of 13
	Chromium	ND – 992	50	21 of 29
	Copper	6.1 – 975	200	9 of 28
	Lead	ND – 266	25	20 of 29
	Manganese	20 – 7,640	300	11 of 13
	Nickel	ND – 8,770	100	20 of 33
	Thallium	ND – 21	0.5	5 of 13

Groundwater	Contaminants of Concern	Concentration Range Detected (ppb)	SCG (ppb)	Frequency of Exceeding SCG
Inorganic Compounds (Dissolved Shallow)	Manganese	1.8 – 7,060	300	9 of 13
	Nickel	ND – 8,660	100	7 of 34
	Thallium	ND – 20	0.5	1 of 13

ppb – parts per billion, which is equivalent to micrograms per liter ug/L in water
SCGs- standards, criteria, and guidance values
ND – Not Detected

2.3.1.3 – Site-Related Soil Vapor Intrusion

Soil gas was sampled in 1996 at two depths at each of 15 locations around the Site, including five locations beneath the building at 270 Duffy Avenue. Beneath the building, 1,1,1-trichloroethane was detected at concentrations up to 6,200 micrograms per cubic meter of air (µg/m^3). Tetrachloroethene was detected at concentrations up to 2,200 µg/m^3. Methylene chloride was detected at concentrations up to 3,200 µg/m^3. Methylene chloride was detected in samples, at concentrations up to 1,000 µg/m^3, collected outside the building footprint.

Indoor air was sampled in 1996 for 1,1,l-trichloroethane and trichloroethene. These two compounds were included in historical discharge permits. The sampling was conducted using compound specific colorimetric tubes. Neither of these two compounds was detected in indoor air above the detection limits of the colorimetric tubes.

To address on-site exposures related to soil vapor, two sub-slab depressurization systems (SSDSs) were installed at the Site in 2009. One SSDS was installed at 270 Duffy Avenue (SSDS-1) and one SSDS was installed at 280 Duffy Avenue (SSDS-2). At the time of installation, the 280 Duffy Avenue housed a business that used trichloroethene as well as other VOCs as part of furniture refinishing work. Since the business used chlorinated solvents, the SSDS was not activated at 280 Duffy Avenue.

Following installation of the systems, five system performance vapor samples were collected from the SSDS at 270 Duffy Avenue in December 2009. In addition, five corresponding indoor air samples were also collected.

Seven VOCs were detected in a majority of the system performance vapor samples including 1,1,1-trichloroethane, acetone, ethanol, tetrahydrofuran, tetrachloroethene, trichloroethene, and toluene. 1,1,1-Trichloroethane was detected at four of the five locations with concentrations ranging from 23 to 387 µg/m^3. Acetone was detected at all five locations with concentrations ranging from 5.9 to 16 µg/m^3. Ethanol was detected at all five locations with concentrations ranging from 9 to 65 µg/m^3. Tetrahydrofuran was detected at all five locations with concentrations ranging from 14 to 30.7 µg/m^3. Tetrachloroethene was detected at all five locations with concentrations ranging from 2.9 to 63 µg/m^3. Trichloroethene was detected at all five locations with concentrations ranging from 1.1 to 18 µg/m^3. Toluene was detected at all five locations with concentrations ranging from 3.8 to 6.4 µg/m^3.

One indoor air sample (RSL-16) exceeded the NYSDOH Air Guideline value for trichloroethene (10 µg/m^3). 1,1,1-trichloroethane concentrations ranged from non-detect to 9.8 µg/m^3. Acetone concentrations ranged from 5.7 to 57.5 µg/m^3. Ethanol concentrations ranged from 4.3 to 328 µg/m^3. Tetrahydrofuran concentrations ranged from non-detect to 19 µg/m^3. Tetrachloroethene concentrations ranged from non-detect to 10 µg/m^3. Trichloroethene concentrations ranged from non-detect to 10 µg/m^3. Toluene concentrations ranged from 2 to 23 µg/m^3.

The following table presents a summary of contaminant concentrations detected in soil vapor/indoor air collected as part of the investigation activities relative to SCGs.

NATURE AND EXTENT OF SOIL VAPOR/INDOOR AIR CONTAMINATION
1996-2010

Soil Vapor/Indoor Air	Contaminants of Concern	Concentration Range Detected (µg/m^3)	SCG (µg/m^3)	Frequency of Exceeding SCG
Volatile Organic Compounds (Soil Vapor)	Methylene Chloride	800 – 3,200	60	N/A
	1,1,1-Trichloroethane	23 – 6,200	N/A	N/A
	Tetrachloroethane	2.9 – 2,200	N/A	N/A
	Acetone	5.9 – 16	N/A	N/A
	Ethanol	9 – 65	N/A	N/A
	Tetrahydrofuran	14 – 30.7	N/A	N/A
	Trichloroethene	1.1 – 2,200	N/A	N/A
	Toluene	3.8 – 6.4	N/A	N/A
Volatile Organic Compounds (Indoor Air Quality)	1,1,1-Trichloroethane	ND – 9.8	N/A	N/A
	Tetrachloroethane	ND – 10	100	N/A
	Acetone	5.7 – 57.5	N/A	N/A
	Ethanol	4.3 – 328	N/A	N/A
	Tetrahydrofuran	ND – 19	N/A	N/A
	Trichloroethene	ND – 10	5	1 of 5
	Toluene	2 – 23	N/A	N/A

µg/m^3 – micrograms per cubic meter
ND – Not Detected
N/A – Not Applicable

2.3.2 Summary of Remedial Actions

The Site was remediated in accordance with the NYSDEC-approved remedial design dated July 2009. Remediation was initiated in January 2010. The following is a summary of the remedial actions performed at the Site by the NYSDEC.

1. Excavation and off-site disposal of subsurface soil exhibiting VOCs and metals concentrations greater than the commercial SCOs listed in NYSDEC 6 NYCRR Part 375 Table 375-6.8(b) to a depth of approximately 25 feet bgs;

2. Installation of two separate subsurface stormwater management systems and related piping to control roof drainage and parking lot runoff on-site and to reduce infiltration of precipitation near the former contaminated areas;

3. Backfilling of excavated areas with clean fill material; and,

4. Paving of excavated areas with asphalt to prevent exposure to remaining contamination.

Remedial activities were completed at the Site in July 2010. Record drawings are presented in Appendix B.

To address on-site exposures related to soil vapor, the Site owner installed two sub-slab depressurization systems (SSDSs) at the Site in 2009. One SSDS was installed at 270 Duffy Avenue (SSDS-1) and one SSDS was installed at 280 Duffy Avenue (SSDS-2).

2.3.2.1 Removal of Contaminated Materials from the Site

Dry Well Liquid

A total of 10,000 gallons of standing liquid was pumped from three on-site dry wells (DW-1, DW-2, and DW-3) and disposed of at Nassau County's Bay Park Scavenger Waste Disposal Facility. Sediment in the structures was also removed and transferred to the area of proposed subsurface stormwater management system SSMS-1B/2. The sediment was removed off-site during excavation of the dry wells.

DW-2 Soil Excavation

Approximately 660 tons of contaminated soil was excavated from an area centered on dry well DW-2 having the approximate dimensions of 16 feet wide by 16 feet long and extending to a maximum depth of 26 feet below grade surface. The material was excavated using a slide rail shoring system and track mounted excavators. The excavated material was transported to 110 Sand Company Clean Fill Disposal Site in Melville, New York for disposal.

Excavation endpoint samples were collected from the bottom and sidewalls of the excavation and analyzed for metals (including mercury and cyanide), VOCs, SPLP nickel, total nickel, and SVOCs. Analytical results are discussed in Section 2.6.1. The excavation was backfilled with recycled concrete aggregate obtained from Empire Sand and Stone Corporation in Westbury, New York.

DW-1/DW-4 Soil Excavation

Prior to excavating dry wells DW-1 and DW-4, a foundation wall shoring system was installed to support the 270 Duffy Avenue building foundation. The system included two helical piles installed to a depth of approximately 15 feet deep which in turn supported a steel beam fastened to the foundation.

Approximately 640 tons of contaminated soil was excavated from an area around drywells DW-1 and DW-4 having the approximate dimensions of 17 feet wide by 33 feet long and extending to a maximum depth of 25 feet below grade surface. The material was excavated using a wood lagging and steel whaler box shoring system and track mounted excavators. The excavated material was transported to 110 Sand Company Clean Fill Disposal Site in Melville, New York for disposal.

Excavation endpoint samples were collected from the bottom and sidewalls of the excavation and analyzed for metals (including mercury and cyanide), VOCs, SPLP nickel, total nickel, and SVOCs. Analytical results are discussed in Section 2.6.1. The excavation was backfilled with recycled concrete aggregate obtained from Empire Sand and Stone Corporation in Westbury, New York.

Subsurface Stormwater Management System Installation

Two separate subsurface stormwater management systems and related stormwater structures and piping were installed to control roof drainage and parking lot runoff on-site. One 72 chamber and one 56 chamber subsurface stormwater management systems were installed.

Additionally, four pre-cast concrete storm drain manholes and one pre-cast concrete catch basin were also installed. Subsurface stormwater management system SSMS-1B/2 was installed at the eastern half of the Site to accommodate roof drainage from the 270 Duffy Avenue Building. Subsurface stormwater management system SSMS-1A was installed at the western and north central part of the Site for parking lot runoff.

Approximately 780 tons of soil was excavated to install subsurface stormwater management system SSMS-1A and approximately 850 tons of soil was excavated to install subsurface stormwater management system SSMS-1B/2. The excavated material was transported to 110 Sand Company Clean Fill Disposal Site in Melville, New York for disposal.

Site Restoration

Upon completion of the work, excavated areas and portions of the existing parking lot were paved and striped. The limit of the pavement at the north and east of the Site coincided with the limit of the temporary fence. The limit of pavement at the west of the Site was competent pavement several feet east of the property line, and the limit of pavement at the south of the Site was the 270 Duffy Avenue Building.

New Groundwater Monitoring Wells

Two monitoring wells (MW-1 and MW-2) were installed at an off-site location. Monitoring well MW-1 was installed within the right-of-way on the south side of Border Street in front of the 11 Border Street property. Monitoring well MW-2 was installed within the right-of-way on the south side of Border Street in front of the vacant lot east of the 11 Border Street property. Monitoring well locations are shown on Figure 2-1.

L:\3153(Alsy)\Wells.mxd (MAB 04-26-12)

D&B ENGINEERS AND ARCHITECTS, P.C.

ALSY MANUFACTURING, INC. SITE
HICKSVILLE, NEW YORK

MONITORING WELL LOCATION MAP

FIGURE 2-1

2.3.2.2 Site-Related Treatment Systems

No long-term treatment systems were installed as part of the Site soil or groundwater remedy, other than the SSDSs installed and managed by the Site owner at 270 and 280 Duffy Avenue Buildings.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the ROD dated March 2005 are as follows:

- Eliminate, to the extent practicable, exposures of persons at or around the site to inorganics (metals) in contaminated soil and groundwater.
- Eliminate, to the extent practicable, the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standard.
- Eliminate, to the extent practicable, the release of VOC contaminants from subsurface soil under buildings into indoor air through soil vapor.
- Attain, to the extent practicable, ambient groundwater quality standards.
- Attain, to the extent practicable, soil TAGM values.

2.5 Remaining Contamination

2.5.1 Soil

The potential exists for residual contamination within the subsurface at the Site. Post-excavation confirmatory samples were collected following soil removal activities to document the effectiveness of the remedial action and the remaining contaminant concentrations. No VOCs (except acetone, a common laboratory contaminant) or SVOCs were detected in any of the post-excavation soil samples. Several metals including chromium, copper, lead, manganese, nickel, and zinc were detected in the soil samples. A summary of total nickel analytical results is presented in the table below. Analytical results are presented in Appendix C.

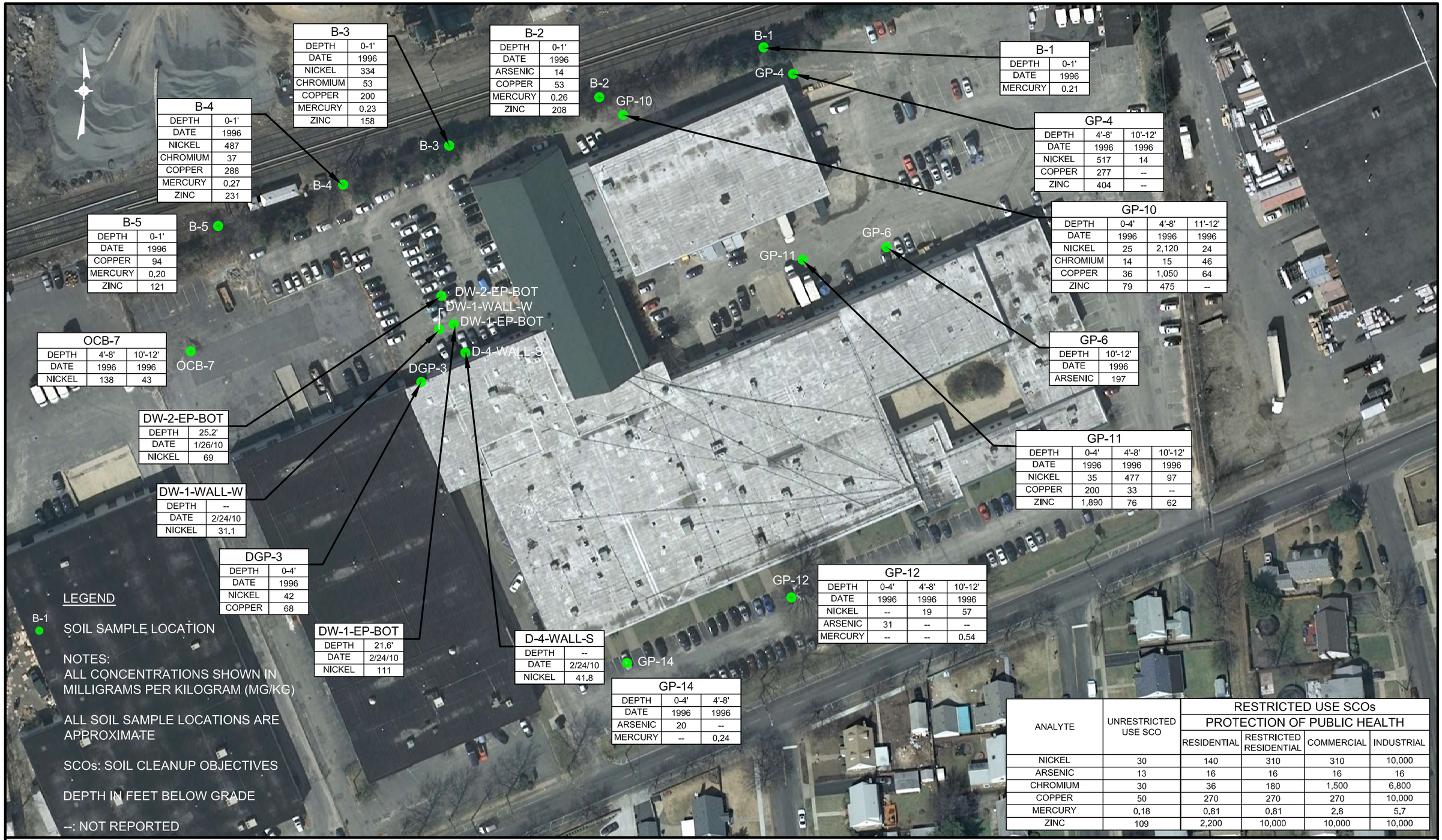
POST-EXCAVATION SOIL SAMPLE RESULTS

TOTAL NICKEL

Sample Location	Sample Depth (feet below grade)	Nickel Concentration (mg/kg)	Commercial Use Soil Clean Up Objective (mg/kg)	Industrial Use Soil Clean Up Objective (mg/kg)
DW-1-EP-BOT	21.6	111	310	10,000
DW-1-WALL-N	---	17.7	310	10,000
DW-1-WALL-S	---	NS	310	10,000
DW-1-WALL-E	---	ND	310	10,000
DW-1-WALL-W	---	31.1	310	10,000
DW-2-EP-BOT	25.2	69	310	10,000
DW-2-WALL-N	---	21.7	310	10,000
DW-2-WALL-S	---	17.7	310	10,000
DW-2-WALL-E	---	23.5	310	10,000
DW-2-WALL-W	---	24.5	310	10,000
DW-4-EP-BOT	24.9	27.3	310	10,000
DW-4-WALL-N	---	NS	310	10,000
DW-4-WALL-S	---	41.8	310	10,000
DW-4-WALL-E	---	ND	310	10,000
DW-4-WALL-W	---	12.1	310	10,000

--- - Not reported
NS – No Sidewall
ND – Not Detected

Figure 2-2 summarizes remaining soil contaminant concentrations relative to unrestricted, residential, restricted-residential, commercial, and industrial use soil cleanup objectives.



ANALYTE	UNRESTRICTED USE SCO	RESTRICTED USE SCOs PROTECTION OF PUBLIC HEALTH			
		RESIDENTIAL	RESTRICTED RESIDENTIAL	COMMERCIAL	INDUSTRIAL
NICKEL	30	140	310	310	10,000
ARSENIC	13	16	16	16	16
CHROMIUM	30	36	180	1,500	6,800
COPPER	50	270	270	270	10,000
MERCURY	0.18	0.81	0.81	2.8	5.7
ZINC	109	2,200	10,000	10,000	10,000

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ALSY MANUFACTURING, INC. SITE
HICKSVILLE, NEW YORK

SOIL SAMPLE EXCEEDANCES

SCALE: 1"=80'

FIGURE 2-2

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2.5.2 Groundwater

Pre-remediation groundwater monitoring was performed the week of January 18, 2010 and post-remediation groundwater monitoring was performed the week of April 5, 2010. Groundwater samples were collected from eight on-site monitoring wells (ERM-1, LMS-4, AMS-2, MW-3, LMS-3, LMS-5, AMS-1 and LMS-1) and one off-site monitoring well (ERM-3). Groundwater samples were analyzed for VOCs and total and dissolved nickel and zinc. A summary of nickel, zinc and toluene analytical results are presented in table below.

COMPARISON OF TOTAL NICKEL, TOTAL ZINC, AND TOLUENE CONCENTRATIONS IN GROUNDWATER

Well ID	Pre-Remediation Total Ni (µg/L)	Post-Remediation Total Ni (µg/L)	Pre-Remediation Total Zn (µg/L)	Post-Remediation Total Zn (µg/L)	Pre-Remediation Toluene (µg/L)	Post-Remediation Toluene (µg/L)
Class GA GW Standard	100	100	2000	2000	5	5
LMS-1	ND	ND	33.4	ND	ND	ND
LMS-3	ND	ND	32.0	ND	ND	7.4
LMS-4	815	779	398	343	ND	38
LMS-5	ND	ND	53.2	ND	ND	3
ERM-1	ND	921	62.9	12.5	ND	12
ERM-3	2,980	2,560	30.2	ND	ND	4
AMS-1	ND	ND	49.0	114	ND	ND
AMS-2	1,210	2,140	313	202	ND	3
MW-3	ND	ND	50	18.9	ND	5

µg/L – micrograms per liter
ND – Not Detected

Exceeds Class GA Groundwater Standard

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 Introduction

3.1.1 General

Remedial activities at the Site were conducted in accordance with the NYSDEC-approved remedial design for the Alsy Manufacturing, Inc. (July 2009) Site. A summary of the remedial strategies and EC/ICs implemented at the Site are as follows.

Since remaining contamination exists at the Site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC.

3.1.2 Purpose

This plan provides:

- A description of all IC/ECs on the site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Notice;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the Excavation Work Plan (EWP) (as provided in Appendix E) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and,
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs is required by the ROD to: (1) implement, maintain and monitor EC systems; (2) prevent future exposure to remaining contamination; and (3) limit the use and development of the site to commercial or industrial uses only. Adherence to these ICs on the site is required by the Environmental Notice and will be implemented under this SMP. ICs identified in the Environmental Notice may not be discontinued without an amendment to or extinguishment of the Environmental Notice. The IC boundaries are shown on Figure 2 in Appendix A. These ICs are:

- Compliance with the Environmental Notice by the property owner with all elements of this SMP;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs on the controlled property must be inspected and certified at a frequency and in a manner defined in the SMP;
- Groundwater and soil vapor monitoring must be performed as defined in this SMP;
- Data and information pertinent to site management of the controlled property must be reported at the frequency and in a manner defined in this SMP; and,
- On-site and off-site environmental monitoring devices including groundwater monitoring wells must be protected and replaced as necessary to ensure the devices function in the manner specified in this SMP.

ICs may not be discontinued without an amendment to or extinguishment of the Environmental Notice.

The Site has a series of ICs in the form of site restrictions. Adherence to these ICs is required by the Environmental Notice. Site restrictions that apply to the controlled property are:

- The property may only be used for commercial or industrial use provided that the long-term ECs/ICs included in this SMP are employed;

- The property may not be used for a higher level of use, such as unrestricted, residential or restricted-residential use without additional remediation and amendment of the Environmental Notice, as approved by the NYSDEC;

- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP;

- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for its intended use;

- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on the legal description in the Environmental Notice and any potential impacts that are identified must be monitored or mitigated;

- Vegetable gardens and farming, including livestock and dairy farming, on the property are prohibited; and,

- Site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that controls employed at the controlled property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC and nothing has occurred that impairs the ability of the controls to protect public health and the environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such controlled property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted every five years, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

3.2.1 Excavation Plan

Any future intrusive work that will encounter or disturb the remaining contamination will be performed in compliance with the excavation plan included in Appendix E. Intrusive work must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Site. A sample NYSDEC-approved HASP that includes a CAMP is attached as Appendix H to this SMP that is in current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable federal, state and local regulations. Based on future changes to state and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section 1.0 of the excavation plan. Any intrusive work will be performed in compliance with the excavation plan, HASP and CAMP, and will be included

in the periodic inspection and certification reports submitted under the Site Management Reporting Plan.

The Site owner and associated parties preparing the remedial documents submitted to the state, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, and for structures that may be affected by excavations.

The Site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

3.2.2 Soil Vapor Intrusion Evaluation

Prior to the construction of any new buildings at the Site, an SVI evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation. This mitigation system will include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation.

SVI sampling results, evaluations, and follow-up actions will also be summarized in the next Periodic Review Report.

3.3 Engineering Controls

3.3.1 Engineering Control Systems

Paving System

To prevent exposure to remaining contamination and infiltration to potentially contaminated soils specific areas where contaminated soils were not excavated were covered by a paving system consisting of asphalt which acts as a soil cap system. The Excavation Work Plan that appears in Appendix E outlines the actions required in the event this system in breached, penetrated, or temporarily removed and any potential underlying contamination is disturbed.

Sub-Slab Depressurization Systems

To address on-site exposure to soil vapor, sub-slab depressurization systems were installed at the Site in 2009 by the Site owner. One SSDS was installed at 270 Duffy Avenue (SSDS-1) and one SSDS was installed at 280 Duffy Avenue (SSDS-2). The Site owner is responsible for site management activities involving the inspection, monitoring, maintenance, and operation of the SSDS systems.

3.3.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

Specific remediation goals, as specified in the ROD, are to eliminate or reduce to the extent practicable:

- Exposures of persons at or around the Site to inorganics (metals) in contaminated soil and groundwater;
- The release of contaminants for soil into groundwater that may create exceedances of groundwater quality standards; and
- The release of VOC contaminants from subsurface soil under buildings into indoor air through soil vapor.

Further, the remediation goals for the Site include attaining to the extent practicable:

- Ambient groundwater quality standards;
- NYSDEC 6 NYCRR Part 375 Soil Cleanup Objectives; and
- Applicable soil vapor and/or indoor air criteria specified in NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

3.4 Contingency Plan

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

3.4.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to the NYSDEC Division of Environmental Remediation. These emergency contact lists must be maintained in an easily accessible location at the Site.

TABLE 3-1: EMERGENCY CONTACT NUMBERS

Organization	Telephone Number
Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3-day notice required for utility mark-out)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline:	(800) 457-7362
NYSDEC Project Manager – Robert Strang	(518) 402-8642

Contact numbers are subject to change and should be updates as necessary

3.4.2 Map and Directions to Nearest Health Facility

Site Location: 270 Duffy Avenue, Hicksville, New York

Nearest Hospital Name: Plainview Hospital (Northwell Health)

Hospital Location: 888 Old Country Road, Plainview, New York

Hospital Telephone: (516) 719-2336

Directions to the Hospital: Proceed east on Duffy Avenue towards Mead Avenue; turn right onto Mead Avenue; turn left onto W Old Country Road); turn left onto Kalda Lane to Plainview Hospital;

Total Distance: 3.8 miles

Total Estimated Time: 12 minutes

3.4.3 Response Procedures

As appropriate, the fire department and other emergency response groups will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan. The list will be made readily available to all personnel involved with the site management activities specified in this SMP.

4.0 MONITORING AND SAMPLING PLAN

4.1 Introduction

4.1.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of site management for the site are included in the Quality Assurance Project Plan provided in Appendix G.

4.1.2 Purpose and Schedule

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standard;
- Assessing achievement of the remedial performance criteria;
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;

- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and,
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

Monitoring of the performance of the remedy and overall reduction in contamination on-site and off-site will be conducted at a frequency determined by NYSDEC. Trends in contaminant levels will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in Table 4-1 below and outlined in detail in Sections 4.3 and 4.4 below.

Table 4-1: Monitoring Schedule

Monitoring Program	Frequency	Matrix	Analysis
Groundwater	Annually	Water	TCL VOCs + 10 – 8260B TAL Metals – 6010B/7470A Cyanide – 9010B

4.2 Site – Wide Inspection

Site-wide inspections will be performed periodically or at a minimum of once per year. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix I – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that site records are up to date.

Inspections of all remedial components installed at the site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Notice;
- Achievement of remedial performance criteria; and
- If site records are complete and up to date; and

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the site, verbal notice to the NYSDEC must be given by noon of the following day. In addition, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the site by a qualified environmental professional, as determined by the NYSDEC. Written confirmation must be provided to the NYSDEC within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

4.2.1 Inspections and Notifications

Periodic inspections of remedial components installed at the Site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted periodically, independent of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Notice;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If site records are complete and up to date; and,
- Changes, or needed changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 4.0). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 7.0).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the Site will be conducted within 5 days of the event by a qualified environmental professional (as determined by NYSDEC).

4.3 Sub-Slab Depressurization System Inspection

Inspections of the SSDS systems at 270 Duffy Avenue (SSDS-1) and 280 Duffy Avenue (SSDS-2) will be controlled by Site owner under a separate SMP prepared by the owner.

4.4 Pavement System Inspection

Visual observation of the pavement system will be conducted annually to evaluate and document its physical condition. NYSDEC shall be notified of any unauthorized excavations in or any damage to the paving system that may result in exposure of the underlying potentially contaminated soils.

4.5 Media Monitoring and Sampling

4.5.1 Groundwater Monitoring

Groundwater monitoring will be performed periodically to assess the performance of the remedy. The existing network of monitoring wells will be used to monitor both upgradient and downgradient groundwater conditions at the Site. The network of on-site and off-site wells is shown on Figure 2-1. Table 4-2 summarizes monitoring well construction details. Boring/Well Construction Logs are included in Appendix F of this document.

The groundwater flow direction beneath the Site is to the south/southeast. Initially, the following monitoring wells will be sampled and analyzed for the parameters outlined above on Table 4-1: on-site wells LMS-1, LMS-3, LMS-4, LMS-5, ERM-1, AMS-1, AMS-2, and MW-3; and off-site wells MW-1, MW-2, and ERM-3.

The sampling frequency and monitoring points may be modified by NYSDEC. The SMP will be modified as needed to reflect changes in sampling plans approved by NYSDEC. Deliverables for the groundwater monitoring program are specified below.

The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

TABLE 4-2
ALSY MANUFACTURING, INC. SITE
SITE MANAGEMENT PLAN
MONITORING WELL CONSTRUCTION DETAILS

Well ID	Date Installed	Well Diameter (inches)	Well Material	Total Depth (feet)	Screened Formation	Screen			Elevation (feet above mean above sea level)				Location	
						Top (feet bgs)	Bottom (feet bgs)	Length (feet)	Casing Top	Ground Surface	Screen Top	Screen Bottom	Longitude	Latitude
AMS-1	----	----	----	----	----	----	----	----	130.99	----	----	----	-73.54232574	40.76254999
AMS-2	5/18/1998	4	PVC	72.5	Overburden	57.50	72.50	15.0	131.41	----	----	----	-73.54158487	40.76227253
ERM-1	9/5/2001	4	PVC	70.0	Overburden	59.30	69.30	10.0	131.77	132.24	72.94	62.94	-73.54171967	40.76338852
ERM-3	1/6/2003	4	PVC	73.0	Overburden	62.00	72.00	10.0	131.45	131.74	69.74	59.74	-73.54163458	40.76194653
LMS-1	9/4/1996	2	PVC	76.0	Overburden	65.00	75.00	10.0	132.97	----	----	----	-73.54057777	40.76403366
LMS-2	9/5/1996	2	PVC	76.0	Overburden	60.00	75.00	15.0	133.58	----	----	----	-73.53985117	40.76370214
LMS-3	9/6/1996	2	PVC	76.0	Overburden	60.00	75.00	15.0	132.56	----	----	----	-73.54009778	40.76276895
LMS-4	9/9/1993	2	PVC	76.0	Overburden	60.00	75.00	15.0	133.23	----	----	----	-73.54177570	40.76300872
LMS-5	9/10/1996	2	PVC	76.0	Overburden	60.00	75.00	15.0	132.84	----	----	----	-73.54201816	40.76371078
MW-1	4/23/2010	2	PVC	131.0	Overburden	110.00	130.00	20.0	129.26	129.53	19.53	-0.47	-73.54091730	40.76037580
MW-2	4/23/2010	2	PVC	91.0	Overburden	70.00	90.00	20.0	129.67	129.9	59.9	39.9	-73.54111008	40.76033415
MW-3	5/19/1998	4	PVC	74.0	Overburden	59.00	74.00	15.0	----	----	----	----	-73.54095514	40.76251389

Notes:
Construction details based on information from MACTEC Engineering and Consulting, P.C.; Lawler, Matusky & Skelly Engineers LP; ERM Group, Inc.; and, Roux Associates, Inc. boring logs
All monitoring well location coordinates are approximate
----- - Unknown
PVC - Polyvinvyl chloride
bgs - below ground surface

4.5.1.1 Sampling Protocol

In order to evaluate the groundwater flow direction at the Site, groundwater level gauging will be performed. Prior to sampling, water levels will be obtained from monitoring wells. The indicator probe will be gradually lowered into the well until the probe has reached water. The water level will then be obtained by measuring the depth from this point to the top of the well's inner casing or surveyed reference mark. The water level measurement will be recorded to the nearest 0.01 foot. Total depth of the well will then be measured from the top of the well's inner casing or surveyed reference mark to the bottom of the well. The total well depth measurements will be to the nearest 0.1 foot.

Prior to sampling, each well will be prepared as needed for the sample collection method. Samples should be collected after field parameters stabilize, or volume targets are achieved. Field parameters, including pH, conductivity, turbidity, and temperature should be monitored during the groundwater sampling events using a water quality instrument.

After preparing the well, groundwater samples will be collected using NYSDEC approved procedures. The groundwater samples will be transferred directly to the appropriate laboratory supplied sample container(s). Sample containers will be properly labeled at the time of sample collection and proper chain of custody procedures will be followed. One matrix spike/matrix spike duplicate will be collected and analyzed for each round of sampling. One trip blank will accompany each shipment of aqueous samples requiring VOC analysis.

All sampling activities will be recorded in a field book and associated sampling log as provided in Appendix I – Site Management Forms. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network.

Detailed sample collection and analytical procedures are discussed in the Quality Assurance Project Plan (QAPP in Appendix G).

4.6 Monitoring Quality Assurance/Quality Control

All sampling and analyses will be performed in accordance with the requirements of the QAPP prepared for the Site (Appendix G). Main components of the QAPP include:

- QA/QC objectives for data measurement;
- Sampling program:
  - Sampling containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
  - Sample holding times will be in accordance with the NYSDEC Analytical Services Protocol requirements.
  - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected, as necessary.
- Sampling tracking and custody;
- Calibration procedures:
  - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
  - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.
- Analytical procedures;
- Results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and checks;
- QA performance and system audits;
- Preventative maintenance procedures and schedules; and,
- Corrective action measures.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

Site operations and maintenance for the Alsy Manufacturing Site includes maintenance of the following components:

- Monitoring Wells
- Paving System

5.2 Maintenance of the Paving System

If the paving system is breached or damaged, then the asphalt shall be repaired to prevent infiltration and any exposure to the underlying potentially impacted soil.

5.3 Maintenance of Monitoring Wells

If biofouling or silt accumulation occurs in the monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable and the NYSDEC determines that replacement is necessary. Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair, decommissioning or replacement of monitoring wells. Any repair, decommissioning or replacement will be documented in the subsequent Periodic Review Report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's documented entitled "CP:43 Groundwater Monitoring Well Decommissioning Policy", dated November 2009. Wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

No vulnerability assessments have been performed at the site to date. The components at the site, i.e., monitoring wells and SSDS, are not very vulnerable to extreme weather events. The Site is located in an area of minimal flooding. As such, there is no significant potential for flooding at the Site in the instance of a severe weather even. Currently, Site drainage consists of surface run-off and collection in the on-site retention basins and infiltration. The Site, including the retention basins, will be inspected at a minimum annually and after any significant weather event to evaluate the condition of the system.

This section provides a summary of vulnerability assessments that will be conducted for the site during periodic assessments, and briefly summarizes the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the SMP provides a summary of any

green remediation evaluations to be completed for the site during site management, and as reported in the Periodic Review Report (PRR).

Waste Generation

Monitoring, maintenance, and reporting activities associated with the site management results in material consumption and the generation of waste. A summary of the current material consumption and waste generation activities for the Site are summarized below:

- Personal protective equipment associated with groundwater sampling, such as disposable gloves, etc.
- Polyethylene tubing for groundwater sampling events.
- Packaging material and ice used to pack and preserve samples to be submitted for laboratory analysis.
- Paper and office supplies associated with Site logs, monitoring logs and report preparation.
- Purge water is containerized in the event that evidence of significant contamination is present (e.g. strong odors, sheen, product). Containerizing will depend on the condition of the water. If there are no odors, sheen, or product, purge water can be disposed of by discharging to the ground.

Fossil Fuel Usage

Site management activities do not directly use fossil fuels; however, fossil fuels are indirectly used during the completion of monitoring activities associated with the sampling and operation of the SSDSs. Indirect fossil fuel use results from completion of the following Site related activities:

- Transportation to and from the Site for sampling and site inspections.
- Off-site transportation and shipment of samples collected for laboratory analysis.
- Disposal of waste generated at the Site.

- Electricity for operating the SSDSs.

6.2.1 Timing of Green Remediation Evaluations

For major remedial system components, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System Optimization (RSO), or at any time that the Project Manager feels appropriate, e.g. during significant maintenance events or in conjunction with storm recovery activities.

Modifications resulting from green remediation evaluations will be routinely implemented and scheduled to occur during planned/routine operation and maintenance activities. Reporting of these modifications will be presented in the PRR.

6.2.2 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to conduct site inspections and/or collect samples and shipping samples to a laboratory for analyses have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

6.2.3 Metrics and Reporting

As discussed in Section 7.0 and as shown in Appendix L – Green Remediation Metrics, information on energy usage, solid waste generation, transportation and shipping, water usage and land use and ecosystems will be recorded to facilitate and document consistent implementation of green remediation during site management and to identify corresponding benefits; a set of metrics has been developed

6.3 Remedial System Optimization

A Remedial Site Optimization (RSO) study will be conducted any time that the NYSDEC or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. The RSO study will follow the format of the Remedial System Optimization Table of Contents provided in Appendix M. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;
- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- Site conditions change due to development, change of use, change in groundwater use, etc.;
- There is an anticipated transfer of the site management to another remedial party or agency; and
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

7.1.1 Inspection Forms, Sampling Data, and Maintenance Reports

All site-wide inspection and monitoring event field notes will be recorded in a field log book. All applicable field inspection and monitoring notes and other records, including all media sampling data, generated for the Site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 7-1 and summarized in the Periodic Review Report

Table 7-1: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Inspection/Site Management Report	Annually
Periodic Review Report	Every five years, or as otherwise determined by the Department

*The frequency of events will be conducted as specified until otherwise approved by the NYSDEC.

All interim monitoring/inspections reports (to be prepared on an as-needed basis) will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc.);

- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link http://www.dec.ny.gov/chemical/62440.html.

7.1.2 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented; and,
- The site remedy continues to be protective of public health and the environment.

7.2 Periodic Review Report

A Periodic Review Report will be submitted to the Department every five (5) years. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix K. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of

each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment, and certification of all ECs/ICs required by the remedy for the Site;
- Results of the required annual site inspections;
- All applicable site management forms and other records generated for the site during the reporting period in the NYSDEC-approved electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format; and
- A site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;
  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
  - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan; and
  - Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.
  - The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

After the last inspection of the reporting period, a qualified environmental professional will prepare the following certification:

"*For each institutional or engineering control identified for the site, I certify that all of the following statements are true:*

- *The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the site is compliant with the environmental notice;*
- *The engineering control systems are performing as designed and are effective;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and*
- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section

210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative] for the site."

The signed certification will be included in the Periodic Review Report.

In the event that reconstructive engineering efforts (i.e., engineering control modifications) are performed during any given reporting period, a Professional Engineer licensed to practice in New York State will be required to certify that such efforts were performed in conformance with requirements set forth herein. Additionally, at the request of the NYSDEC a Professional Engineer licensed to practice in New York State will prepare the above certification.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

7.4 Remedial Site Optimization Report

In the event that an RSO is to be performed (see Section 6.3), upon completion of an RSO, an RSO report must be submitted to the Department for approval. The RSO report will document the research/ investigation and data gathering that was conducted, evaluate the results and facts obtained, present a revised conceptual site model and present recommendations. RSO recommendations are to be implemented upon approval from the NYSDEC. Additional work plans, design documents, HASPs etc., may still be required to implement the recommendations, based upon the actions that need to be taken. A final engineering report and update to the SMP may also be required.

The RSO report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located, Site Control and the NYSDOH Bureau of Environmental Exposure Investigation.

7.5 Monitoring Report Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be subject to approval by NYSDEC and submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. The report will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., groundwater, vapor, etc.);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. The monitoring and inspection program Periodic Review Report is currently on a 5-year cycle, but this frequency is subject to modification by NYSDEC. Sampling and site inspections will generally occur more frequently than the PRR cycle.

8.0 REFERENCES

MACTEC, 2010. Final Engineering Report, Alsy Manufacturing, Inc. Site No. 1-30-027. December 2010.

6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation".

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).

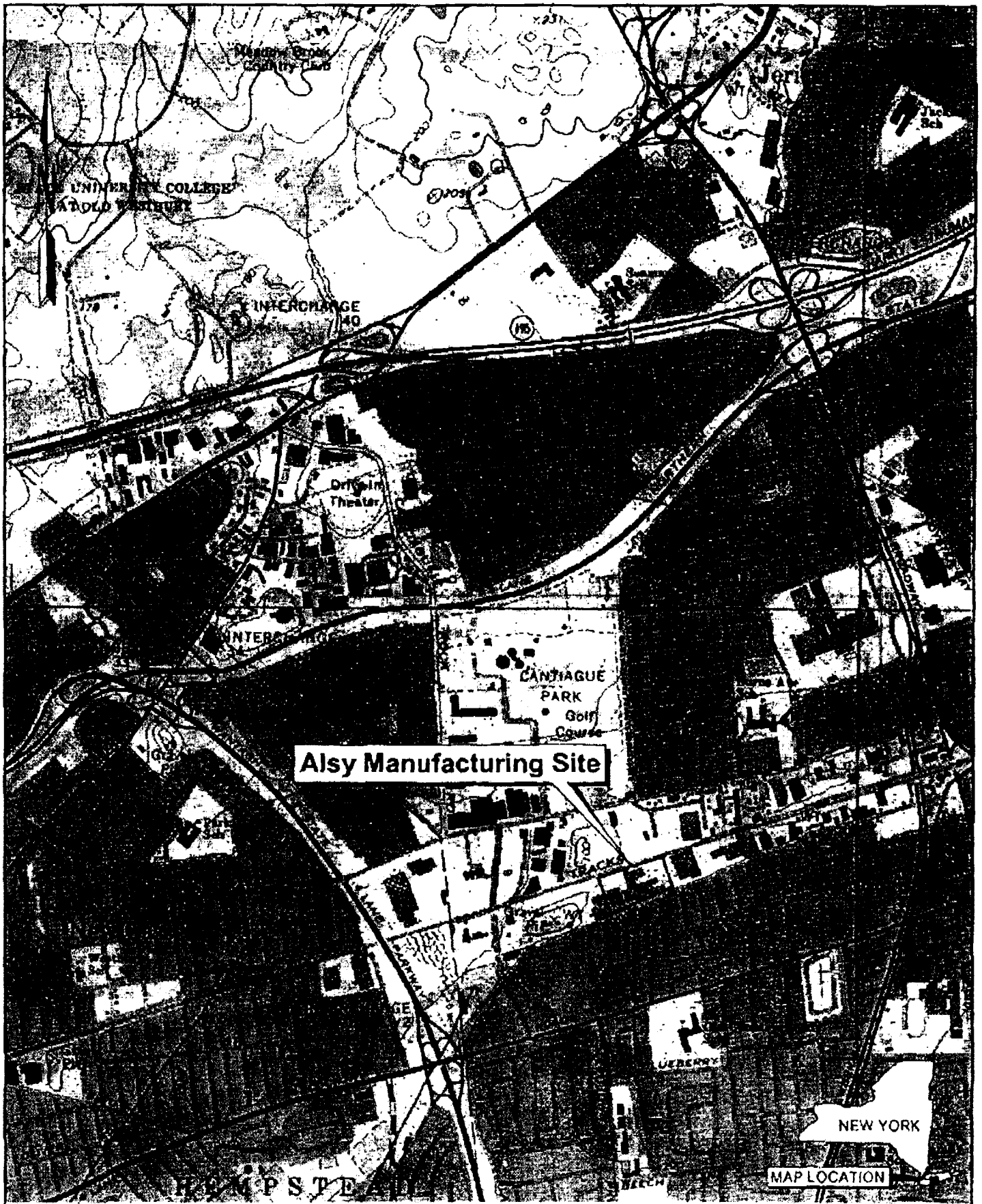
NYSDEC, 2005. Record of Decision, Alsy Manufacturing, Inc. Site, Hicksville, Nassau County, New York, Site Number 1-30-027. March 2005.

Roux Associates, Inc., Vapor Intrusion Mitigation Work Plan, 270-280 Duffy LLC, Alsy Manufacturing Facility, Site ID #130027, Hicksville, Nassau County, February 7, 2006.

Roux Associates, Inc., Revised Vapor Intrusion Mitigation Work Plan, 270-280 Duffy LLC, Alsy Manufacturing Facility, Site ID #130027, Hicksville, Nassau County, August 24, 2006.

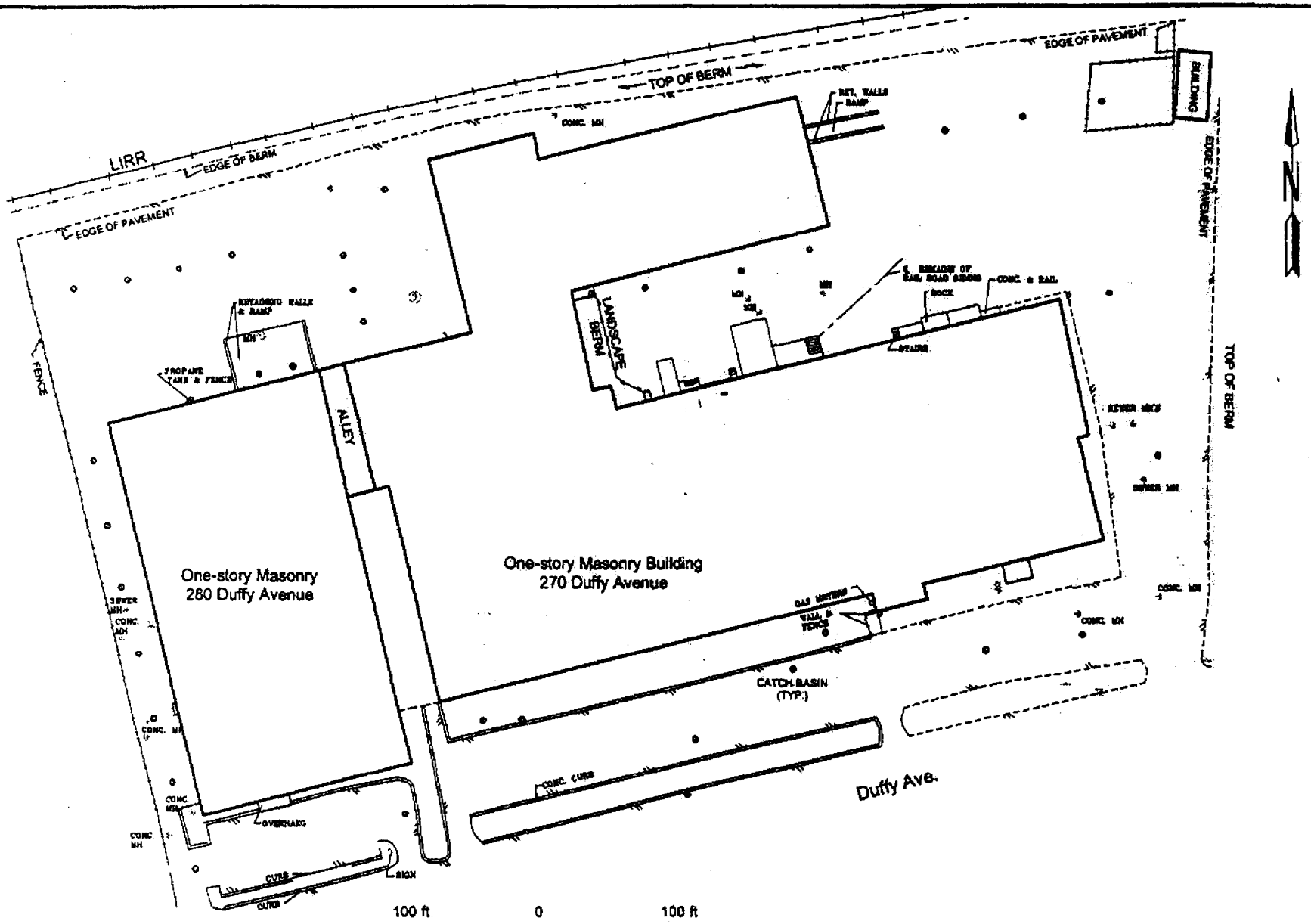
APPENDIX A

FIGURES



Map source: USGS 7.5-minute series quadrangle, Hicksville, NY, 1967, photorevised 1979.

LMS Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	Site Location Alsy Manufacturing - Oyster Bay, New York	Figure 1



Map source:
Affiates & Deborah Lee King, L.S., 1996.

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Lawler, Matusky & Skelly Engineers LLP
One Blue Hill Plaza • Pearl River, New York 10965
ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS

Site Sketch

Alsy Manufacturing - Oyster Bay, New York

Figure 2

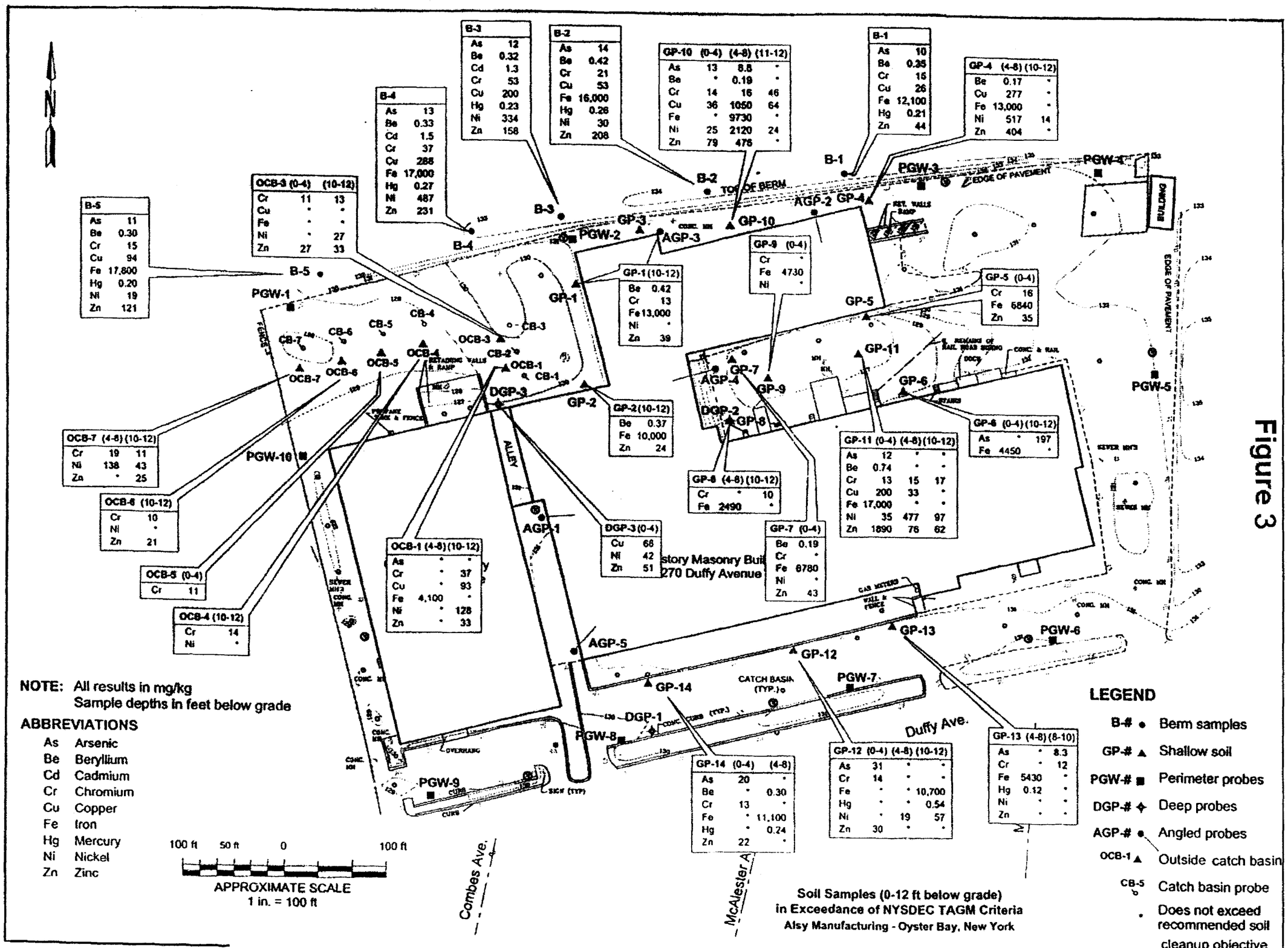

B-3
As 12
Be 0.32
Cd 1.3
Cr 53
Cu 200
Hg 0.23
Ni 334
Zn 158
B-2
As 14
Be 0.42
Cr 21
Cu 53
Fe 16,000
Hg 0.26
Ni 30
Zn 208
GP-10 (0-4) (4-8) (11-12)
As 13 8.8 *
Be * 0.19 *
Cr 14 16 46
Cu 36 1050 64
Fe * 9730 *
Ni 25 2120 24
Zn 79 478 *
B-1
As 10
Be 0.35
Cr 15
Cu 26
Fe 12,100
Hg 0.21
Zn 44
GP-4 (4-8) (10-12)
Be 0.17 *
Cu 277 *
Fe 13,000 *
Ni 517 14
Zn 404 *
B-4
As 13
Be 0.33
Cd 1.5
Cr 37
Cu 288
Fe 17,000
Hg 0.27
Ni 487
Zn 231
OCB-3 (0-4) (10-12)
Cr 11 13
Cu * *
Fe * *
Ni * 27
Zn 27 33
B-5
As 11
Be 0.30
Cr 15
Cu 94
Fe 17,800
Hg 0.20
Ni 19
Zn 121
GP-1 (10-12)
Be 0.42
Cr 13
Fe 13,000
Ni *
Zn 39
GP-9 (0-4)
Cr *
Fe 4730
Ni *
GP-5 (0-4)
Cr 16
Fe 6840
Zn 35
OCB-7 (4-8) (10-12)
Cr 19 11
Ni 138 43
Zn * 25
OCB-6 (10-12)
Cr 10
Ni *
Zn 21
OCB-5 (0-4)
Cr 11
OCB-4 (10-12)
Cr 14
Ni *
GP-2 (10-12)
Be 0.37
Fe 10,000
Zn 24
GP-8 (4-8) (10-12)
Cr * 10
Fe 2490
GP-11 (0-4) (4-8) (10-12)
As 12 * *
Be 0.74 * *
Cr 13 15 17
Cu 200 33 *
Fe 17,000 * *
Ni 35 477 97
Zn 1890 76 62
GP-6 (0-4) (10-12)
As * 197
Fe 4450 *
OCB-1 (4-8) (10-12)
As * *
Cr * 37
Cu * 93
Fe 4,100 *
Ni * 128
Zn * 33
DGP-3 (0-4)
Cu 66
Ni 42
Zn 51
GP-7 (0-4)
Be 0.19
Cr *
Fe 8780
Ni *
Zn 43
GP-14 (0-4) (4-8)
As 20 *
Be * 0.30
Cr 13 *
Fe * 11,100
Hg * 0.24
Zn 22 *
GP-12 (0-4) (4-8) (10-12)
As 31 * *
Cr 14 * *
Fe * * 10,700
Hg * * 0.54
Ni * 19 57
Zn 30 * *
GP-13 (4-8) (8-10)
As * 8.3
Cr * 12
Fe 5430 *
Hg 0.12 *
Ni * *
Zn * *
B-1
B-2
B-3
B-4
B-5
GP-1
GP-2
GP-3
GP-4
GP-5
GP-6
GP-7
GP-8
GP-9
GP-10
GP-11
GP-12
GP-13
GP-14
AGP-1
AGP-2
AGP-3
AGP-4
AGP-5
DGP-1
DGP-2
DGP-3
PGW-1
PGW-2
PGW-3
PGW-4
PGW-5
PGW-6
PGW-7
PGW-8
PGW-9
PGW-10
CB-1
CB-2
CB-3
CB-4
CB-5
CB-6
CB-7
OCB-1
OCB-3
OCB-4
OCB-5
OCB-6
OCB-7
TOP OF BERM
EDGE OF PAVEMENT
RET. WALLS & RAMP
BUILDING
CONC. & RAIL
STAIRS
CATCH BASIN (TYP.)
OVERHANG
CONC. CURB (TYP.)
SIGN (TYP)
ALLEY
Duffy Ave.
Combes Ave.
McAlester Ave.
270 Duffy Avenue
story Masonry Buil
NOTE: All results in mg/kg
Sample depths in feet below grade
ABBREVIATIONS
As Arsenic
Be Beryllium
Cd Cadmium
Cr Chromium
Cu Copper
Fe Iron
Hg Mercury
Ni Nickel
Zn Zinc
100 ft 50 ft 0 100 ft
APPROXIMATE SCALE
1 in. = 100 ft
LEGEND
B-# Berm samples
GP-# Shallow soil
PGW-# Perimeter probes
DGP-# Deep probes
AGP-# Angled probes
OCB-1 Outside catch basin
CB-5 Catch basin probe
* Does not exceed recommended soil cleanup objective
Soil Samples (0-12 ft below grade)
in Exceedance of NYSDEC TAGM Criteria
Alsy Manufacturing - Oyster Bay, New York

Figure 3

NOTE: All results in mg/kg
Sample depths in feet below grade

LEGEND

- B-# ● Berm samples
- GP-# ▲ Shallow soil
- PGW-# ■ Perimeter probes
- DGP-# ✦ Deep probes
- AGP-# ● Angled probes
- OCB-1 ▲ Outside catch basin
- CB-5 Catch basin probe
- * Does not exceed recommended soil cleanup objective

GP-10 (22-24)	
As	*
Be	*
Cr	*
Cu	72
Fe	*
Ni	22
Zn	*

CB-3 (20-24)	
Cr	10
Ni	38
Zn	28

GP-3 (34-36)	
Ni	13

OCB-3 (22-24)(34-36)(44-46)			
Cr	*	*	*
Cu	*	30	46
Fe	2050	*	*
Ni	29	22	23
Zn	*	*	*

GP-1 (34-36)	
Be	*
Cr	17
Fe	*
Ni	*
Zn	*

GP-9 (12-14) (34-36)		
Cr	11	17
Fe	*	*
Ni	30	*

GP-5 (34-36)	
Cr	17
Fe	*
Zn	*

CB-2 (20-24)	
Cu	128
Ni	226
Zn	27

CB-1 (20-24)	
Cu	97
Ni	177

DGP-3 (44-46)	
Cu	35
Ni	28
Zn	19

GP-7 (34-36)	
Be	*
Cr	24
Fe	*
Ni	14
Zn	*

OCB-6 (22-24)	
Cr	*
Ni	14
Zn	*

OCB-1 (22-24) (34-36) (44-46)			
As	*	*	9.4
Cr	*	*	26
Cu	*	*	84
Fe	*	*	*
Ni	23	31	45
Zn	*	*	37

OCB-4 (22-24) (36-38) (44-46)			
Cr	*	*	*
Ni	14	15	30

GP-13 (22-24) (36-38)		
As	*	*
Cr	*	22
Fe	*	*
Hg	*	*
Ni	*	22
Zn	20	*

Soil Samples (12 ft below grade and greater) in Exceedance of NYSDEC TAGM Criteria
Alsy Manufacturing - Oyster Bay, New York

100 ft 50 ft 0 100 ft

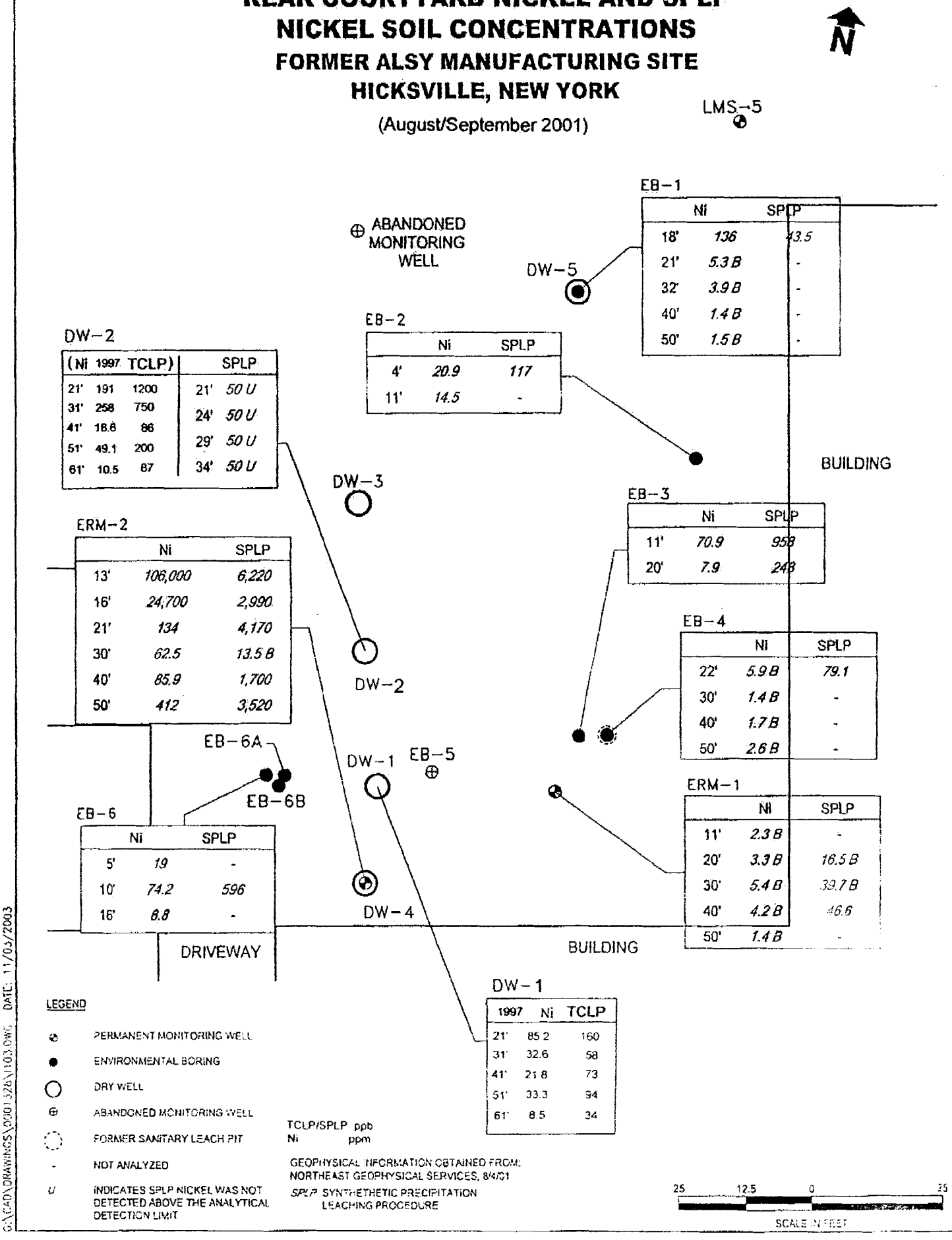
APPROXIMATE SCALE
1 in. = 100 ft

ABBREVIATIONS

As	Arsenic
Be	Beryllium
Cd	Cadmium
Cr	Chromium
Cu	Copper
Fe	Iron
Hg	Mercury
Ni	Nickel
Zn	Zinc

Figure 4

FIGURE 5
REAR COURTYARD NICKEL AND SPLP NICKEL SOIL CONCENTRATIONS
FORMER ALSY MANUFACTURING SITE
HICKSVILLE, NEW YORK
(August/September 2001)



G:\CAD\DRAWINGS\0501328\1103.DWG DATE: 11/03/2003

MLB/11-03-03

ERM, INC.

Figure 6
Rear Courtyard Soil Samples Exceeding the NYSDEC RSCO Guidelines for Inorganics
Former Alsy Manufacturing Site
Hicksville, NY

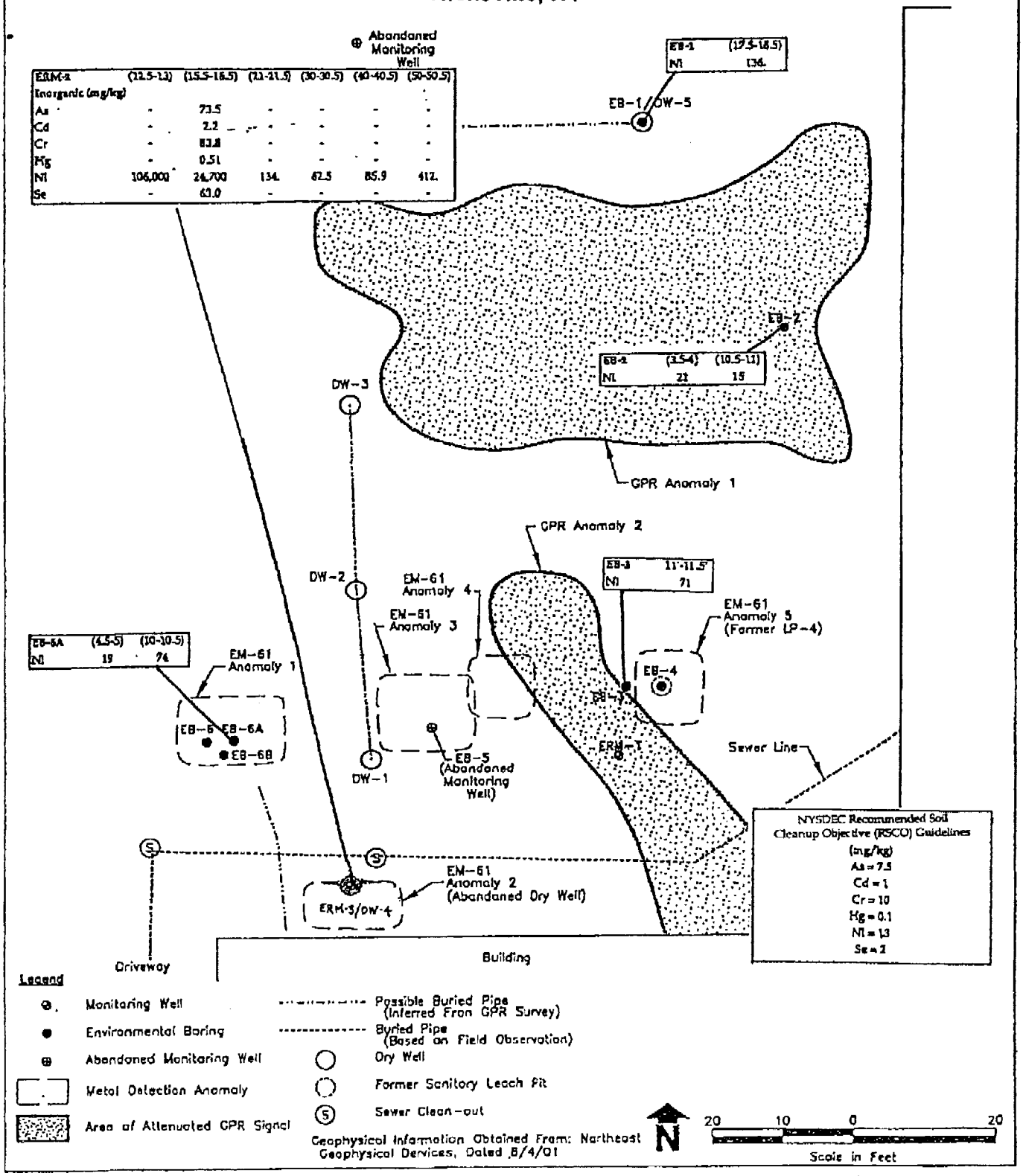
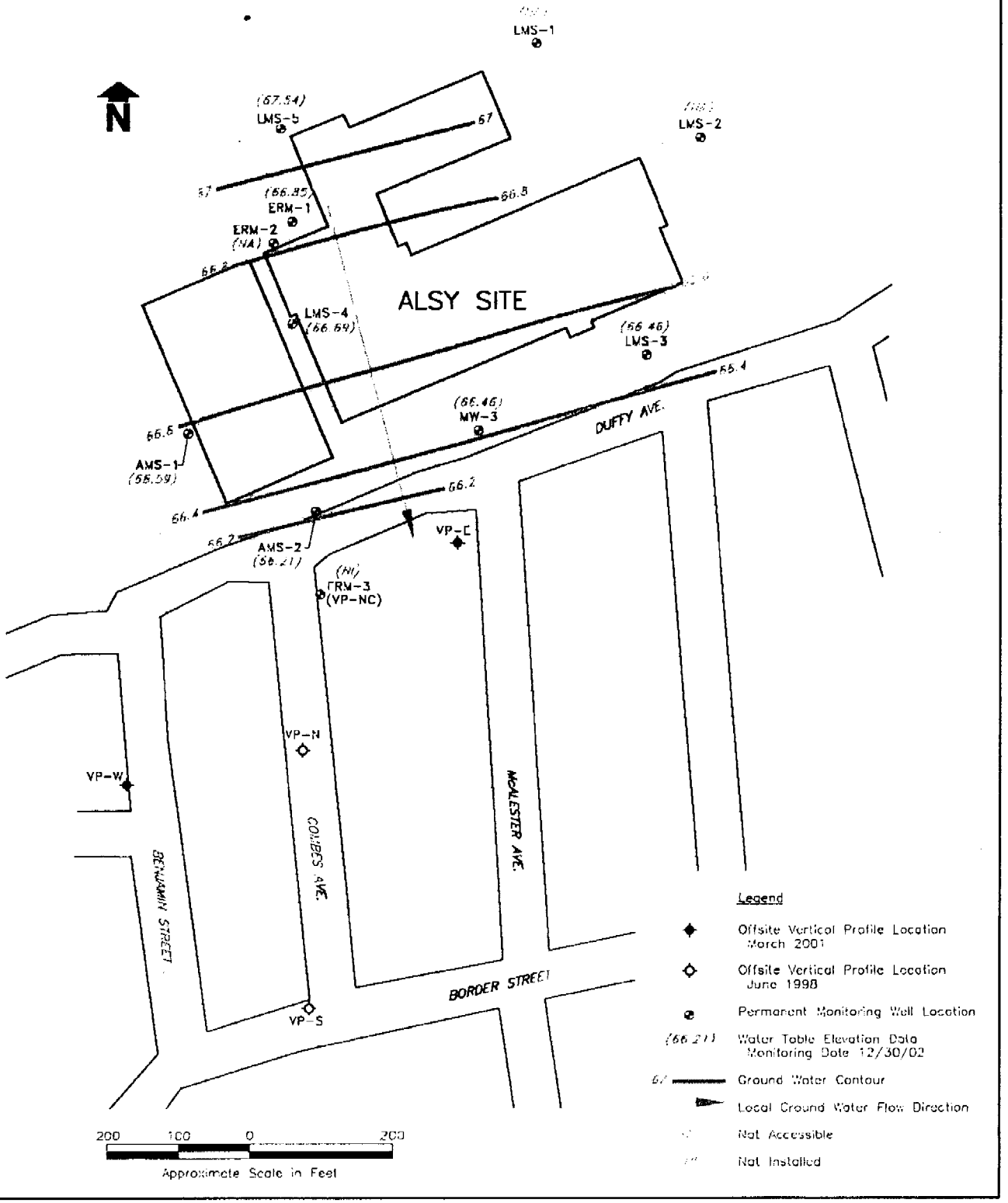


Figure 7
Ground Water Elevations and Flow Map
30 December 2002
Former Alsy Manufacturing Site
Hicksville, New York



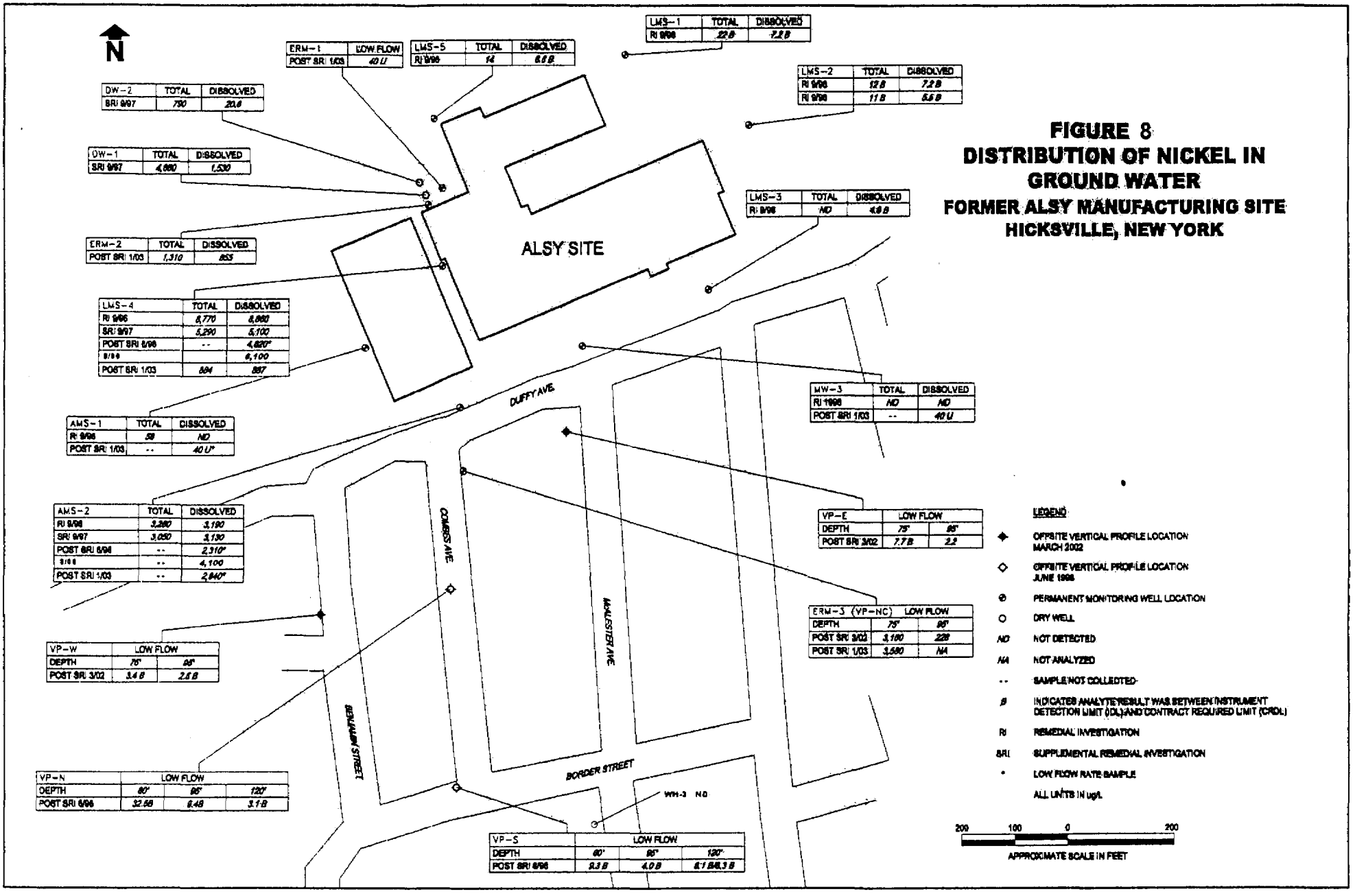


FIGURE 8
DISTRIBUTION OF NICKEL IN GROUND WATER
FORMER ALSY MANUFACTURING SITE
HICKSVILLE, NEW YORK

APPENDIX B

RECORD DRAWINGS

TAX LOT: 11-G-148

270 DUFFY AVE

TAX LOT: 11-G-191

280 DUFFY AVE

PROPERTY LINE

CURB

BOLLARDS

WALL

MH

CBFI

PAVEMENT REMOVED WITHIN LIMIT OF PAVEMENT SAWCUT

PER MACTEC FIELD NOTES: SLOPED ROOF ROOF DRAIN DOWNSPOUT OUTLETTING AS SURFACE WATER (TYP OF 3)

DW-3 (EXISTING CATCHBASIN)

PER MACTEC FIELD NOTES, 4' WIDE EXCAVATION FOR PIPE BETWEEN DW-2 AND DW-3. BOTTOM OF PIPE EXCAVATION ELEVATION APPROX. 126.7'

DW-2-WALL-N

131.3 +107.9 109.0+ 131.3

TEST PIT CHAR-01

DW-2 EXCAVATION LIMIT SURVEYED 1-27-10

DW-2-WALL-W + 106.1 DW-2-EP-BOT DW-2-WALL-E

+108.4 109.7+

131.4 DW-2-WALL-S 131.5

PER MACTEC FIELD NOTES, 4' WIDE EXCAVATION FOR PIPE BETWEEN DW-1 AND DW-2. BOTTOM OF PIPE EXCAVATION ELEVATION APPROX. 126.7'

DW-1-WALL-N

131.5 131.5

TEST PIT CHAR-02 +116.2 114.0+

DW-1-WALL-W 109.9+ DW-1-WALL-E

MW ERM-1

DW-1-EP-BOT

DW-1 EXCAVATION LIMIT (SEE NOTE 5) SURVEYED 2-24-10

SECTION OF EXISTING SANITARY SEWER PIPE REMOVED DURING EXCAVATION

+115.2 113.2+

131.7 131.8

131.8 131.9

+109.7 108.7+

CO S DW-4-EP-BOT S S S S

DW-4-WALL-W + 106.9 DW-4-WALL-E

TEST PIT CHAR-03

108.7 DW-4-WALL-S 107.6

132.4 TEST PIT 132.4

DW-4 EXCAVATION LIMIT (SEE NOTE 5) SURVEYED 2-24-10

TEST PIT (APPROX. LOCATION)

APPROX LOCATION OF SANITARY SEWER PER MACTEC FIELD NOTES

BUILDING

ROOF BREAKLINE

I-BEAM W21x50 (21' LONG) (APPROX. LOCATION)

SD

HELICAL PILES (TYP OF 4) (APPROX. LOCATION)

EXISTING FLAT ROOF ROOF DRAIN OUTLETED ADJACENT TO DW-4 (OUTLET PIPE REMOVED) INV AT BUILDING FACE PER MACTEC FIELD NOTES=129.5'

EXISTING FLAT ROOF ROOF DRAIN OUTLETED TO DW-1 (OUTLET PIPE REMOVED) BEND AT BUILDING INV PER MACTEC FIELD NOTES=134.16

BUILDING

BUILDING

SCALE

10 5 0 10 FT.

LEGEND

CHAR-XX	WASTE CHARACTERIZATION SOIL SAMPLE
DW-X-WALL-X	POST-EXCAVATION SIDEWALL SOIL SAMPLE (APPROX. LOCATION)
DW-X-EP-BOT	END POINT, BOTTOM SOIL SAMPLE (APPROX. LOCATION)
+131.3	POST-EXCAVATION SPOT ELEVATION
CO	SANITARY SEWER CLEANOUT
S	EXISTING SANITARY SEWER PIPE
SD	EXISTING STORM DRAIN/ROOF DRAIN
CBFI	CATCH BASIN FIELD INLET
MW	MONITORING WELL

NOTES:

1. HORIZONTAL DATUM: NAD 83, LONG ISLAND ZONE FROM GPS OBSERVATIONS.
2. VERTICAL DATUM: NAVD 88 FROM GPS OBSERVATIONS.
3. SAMPLE LOCATIONS, TEST PITS, AND SHEETING/SHORING SYSTEM ARE ESTIMATED FROM HORIZON ENVIRONMENTAL SERVICES (HES) FIELD DRAWINGS. NOT SURVEYED AND NOT CERTIFIED TO BY YEC, INC.
4. SURVEY OF EXCAVATION LIMITS AND ELEVATIONS CONDUCTED BY YEC, INC.
5. STEEL SOLDIER PILES AND WOOD LAGGING USED IN THE SHORING SYSTEM AT DW-1/DW-4 WERE CUT OFF BETWEEN 5 AND 9 FEET BELOW GROUND SURFACE AND LEFT IN PLACE.
6. DW-1, DW-2 AND DW-4 WERE DEMOLISHED AND REMOVED DURING EXCAVATION AND REMOVAL OF CONTAMINATED SOIL DELINEATED BY THE EXCAVATION LIMITS SHOWN.
7. MONITORING WELL ERM-2 WAS ABANDONED IN ACCORDANCE WITH APPLICABLE NEW YORK STATE REGULATIONS.
8. REFERENCES TO MACTEC SHALL MEAN MACTEC ENGINEERING AND CONSULTING, PC, RESIDENT ENGINEER REPRESENTING THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) FOR THE CONSTRUCTION OF THE REMEDIAL DESIGN.
9. REFERENCES TO HES SHALL MEAN HORIZON ENVIRONMENTAL SERVICES, INC., NYSDEC CONTRACTOR FOR THE CONSTRUCTION OF THE REMEDIAL DESIGN.
10. REFER TO THE "FINAL ENGINEERING REPORT, ALSY MANUFACTURING, SITE NO. 130027", PREPARED FOR THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION BY MACTEC ENGINEERING AND CONSULTING, PC, DATED NOVEMBER 2010 FOR ADDITIONAL INFORMATION AND SUPPORTING DOCUMENTATION ON THE CONSTRUCTION OF THE REMEDIAL DESIGN.
11. YEC, INC. SHALL BE RESPONSIBLE ONLY FOR THE INFORMATION WHICH WAS ACTUALLY FIELD SURVEYED BY YEC, INC. PERSONNEL. ALL OTHER INFORMATION IS SHOWN AT THE REQUEST OF HORIZON ENVIRONMENTAL SERVICES, INC. FROM INFORMATION SUPPLIED BY MACTEC ENGINEERING AND CONSULTING, PC AND/OR HORIZON ENVIRONMENTAL SERVICES, INC. THIS INFORMATION IS NOT CERTIFIED TO BY YEC, INC. AND YEC, INC. IS NOT RESPONSIBLE FOR ITS ACCURACY AND/OR CORRECTNESS.

REVISIONS

YEC, INC.

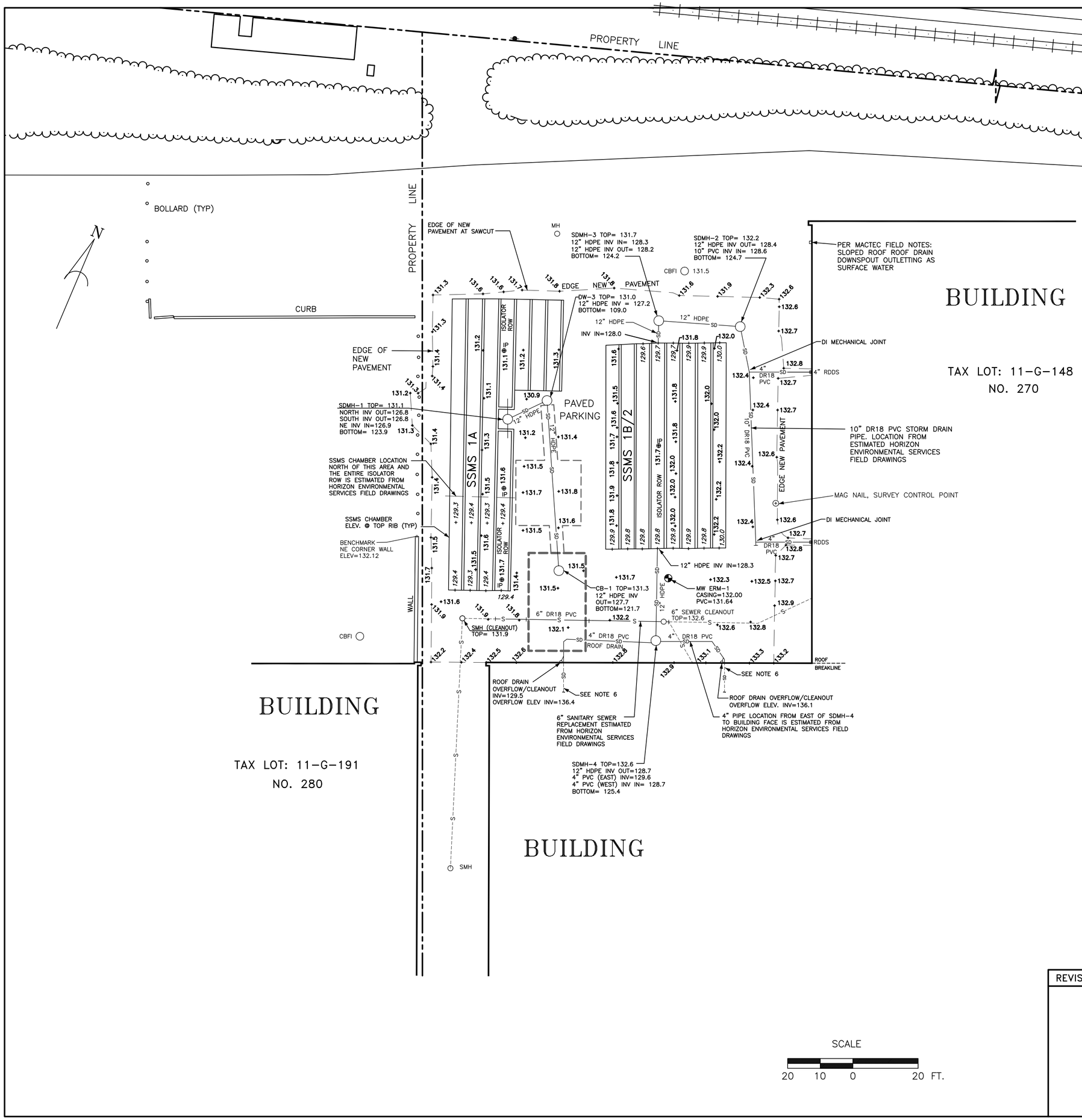
VALLEY COTTAGE NEW YORK

REMEDIAL DESIGN RECORD DRAWING
DEMOLITION AND EXCAVATION PLAN

FORMER ALSY MANUFACTURING SITE

HICKSVILLE, NEW YORK

DATE:	JOB NO:	DRAWN BY:	CHECKED BY:	DRAWING:
NOV 29, 2010	A0355	MBW	DRS/MACTEC	RD-1



LEGEND

- IP ○ SSMS ISOLATOR ROW INSPECTION PORT
- 131.0 + FINAL GRADE SPOT ELEVATION
- 129.0 + TOP OF SUBSURFACE STORMWATER MANAGEMENT SYSTEM (SSMS) UNIT ELEVATION
- MW ◒ MONITORING WELL
- RDDS □ ROOF DRAIN DOWN SPOUT
- ○ ROOF DRAIN OVERFLOW/CLEANOUT
- CBFI ◯ CATCH BASIN FIELD INLET
- SD —— NEW STORM DRAIN PIPE
- SD - - - - EXISTING STORM DRAIN PIPE
- S —— NEW SANITARY SEWER PIPE
- S - - - - EXISTING SANITARY SEWER PIPE
- — — — — LIMIT OF CONTAMINATED SOIL EXCAVATION AREA
- ▬ ▬ ▬ ▬ STEEL SOLDIER PILES AND WOOD LAGGING SHORING SYSTEM AT LIMIT OF EXCAVATION, BETWEEN 5 AND 9 FEET BELOW GROUND SURFACE

NOTES:

1. HORIZONTAL DATUM: NAD 83, LONG ISLAND ZONE FROM GPS OBSERVATIONS.
2. VERTICAL DATUM: NAVD 88 FROM GPS OBSERVATIONS.
3. SSMS CHAMBERS AND 12" HDPE FROM SDMH-4 AND SDMH-3 SURVEYED ON MARCH 24, 2010.
4. AS-BUILT FIELD SURVEY COMPLETED BY YEC, INC. ON APRIL 28, 2010.
5. EXCAVATION AREA BACKFILLED WITH RECYCLED CONCRETE AGGREGATE (RCA).
6. EXISTING FLAT-ROOF ROOF DRAIN CONNECTED TO SSMS 1B/2. ROOF DRAIN OVERFLOW/CLEANOUT INSTALLED AT EACH CONNECTION IN ACCORDANCE WITH THE REQUIREMENTS OF FIELD ORDER NO. 1.
7. REFERENCES TO MACTEC SHALL MEAN MACTEC ENGINEERING AND CONSULTING, PC, RESIDENT ENGINEER REPRESENTING THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) FOR THE CONSTRUCTION OF THE REMEDIAL DESIGN.
8. REFERENCES TO HES SHALL MEAN HORIZON ENVIRONMENTAL SERVICES, INC., NYSDEC CONTRACTOR FOR THE CONSTRUCTION OF THE REMEDIAL DESIGN.
9. REFER TO THE "FINAL ENGINEERING REPORT, ALSY MANUFACTURING, SITE NO. 130027", PREPARED FOR THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION BY MACTEC ENGINEERING AND CONSULTING, PC, DATED NOVEMBER 2010 FOR ADDITIONAL INFORMATION AND SUPPORTING DOCUMENTATION ON THE CONSTRUCTION OF THE REMEDIAL DESIGN.
10. YEC, INC. SHALL BE RESPONSIBLE ONLY FOR THE INFORMATION WHICH WAS ACTUALLY FIELD SURVEYED BY YEC, INC. PERSONNEL. ALL OTHER INFORMATION IS SHOWN AT THE REQUEST OF HORIZON ENVIRONMENTAL SERVICES, INC. FROM INFORMATION SUPPLIED BY MACTEC ENGINEERING AND CONSULTING, PC AND/OR HORIZON ENVIRONMENTAL SERVICES, INC. THIS INFORMATION IS NOT CERTIFIED TO BY YEC, INC. AND YEC, INC. IS NOT RESPONSIBLE FOR ITS ACCURACY AND/OR CORRECTNESS.

SCALE

20 10 0 20 FT.

REVISIONS

YEC, INC.

VALLEY COTTAGE NEW YORK

REMEDIAL DESIGN RECORD DRAWING
FINAL CONDITIONS PLAN

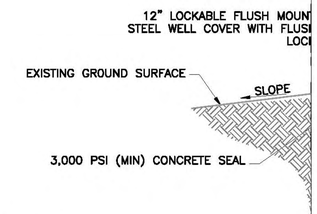
FORMER ALSY MANUFACTURING SITE

HICKSVILLE, NEW YORK

DATE:	JOB NO:	DRAWN BY:	CHECKED BY:	DRAWING:
NOV 29, 2010	A0355	MBW	DRS/MACTEC	RD-2

MAP SOURCE: GIS COLOR ORTHO IMAGE OF NASSAU COUNTY N.Y.
FILE: I_11100216_06_04750_COL_2004

SITE PLAN



LEGEND:

MW–1	MONITORING WELL LOCATION
SB–1	TEMPORARY BOREHOLE LOCATION (APPROXIMATE)

ABBREVIATIONS:

DIA	DIAMETER
ID	IDENTIFICATION
MIN	MINIMUM
PVC	POLYVINYL CHLORIDE
PSI	POUNDS PER SQUARE INCH
BGS	BELOW GROUND SURFACE

NOTES:

1. DRAWING SOURCE: "GROUNDWATER MONITORING PLAN AND DETAIL," REMEDIAL DESIGN, FORMER ALSY MANUFACTURING SITE, NYSDEC SITE NUMBER 1–30–027, DRAWING C–104, REVISION 0, DATED 06/15/09, PREPARED FOR THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION BY MACTEC ENGINEERING AND CONSULTING, PC.
2. HORIZONTAL DATUM: NAD 83, LONG ISLAND ZONE FROM GPS OBSERVATIONS.
3. VERTICAL DATUM: NAVD 88 FROM GPS OBSERVATIONS.
4. MONITORING WELLS SURVEYED BY YEC, INC. ON JUNE 1, 2010.
5. TEMPORARY BOREHOLE LOCATION APPROXIMATE FROM FIELD OBSERVATIONS BY HORIZON ENVIRONMENTAL SERVICES.
6. MONITORING WELL CONSTRUCTION INFORMATION AS SHOWN ON MONITORING WELL DETAIL PROVIDED BY MACTEC ENGINEERING AND CONSULTING, PC – NOT A DESIGN BY YEC, INC.
7. REFERENCES TO MACTEC SHALL MEAN MACTEC ENGINEERING AND CONSULTING, PC, RESIDENT ENGINEER REPRESENTING THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) FOR THE CONSTRUCTION OF THE REMEDIAL DESIGN.
8. REFERENCES TO HES SHALL MEAN HORIZON ENVIRONMENTAL SERVICES, INC., NYSDEC CONTRACTOR FOR THE CONSTRUCTION OF THE REMEDIAL DESIGN.
9. REFER TO THE "FINAL ENGINEERING REPORT, ALSY MANUFACTURING, SITE NO. 130027" PREPARED FOR THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION BY MACTEC ENGINEERING AND CONSULTING, PC, DATED NOVEMBER 2010 FOR ADDITIONAL INFORMATION AND SUPPORTING DOCUMENTATION ON THE CONSTRUCTION OF THE REMEDIAL DESIGN.
10. YEC, INC SHALL BE RESPONSIBLE ONLY FOR THE INFORMATION WHICH WAS ACTUALLY FIELD SURVEYED BY YEC, INC FIELD PERSONNEL. ALL OTHER INFORMATION IS SHOWN AT THE REQUEST OF HORIZON ENVIRONMENTAL SERVICES, INC. FROM INFORMATION SUPPLIED BY MACTEC ENGINEERING AND CONSULTING, PC AND/OR HORIZON ENVIRONMENTAL SERVICES, INC. THIS INFORMATION IS NOT CERTIFIED TO BY YEC, INC AND YEC, INC. IS NOT RESPONSIBLE FOR ITS ACCURACY AND/OR CORRECTNESS.

WELL ELEVATION TABLE

WELL ID	NORTHING COORDINATE	EASTING COORDINATE	TOP OF CASING ELEVATION (FT)	TOP OF PVC ELEVATION (FT)
MW–1	216606.14	1111399.83	129.53	129.26
MW–2	216621.20	1111464.84	129.90	129.67

APPENDIX C

ANALYTICAL RESULTS

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Mar-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-1 EP-Bot
Lab Order:	U1003017	**Collection Date:**	2/24/2010 2:10:00 PM
Project:	Alsy Project		
Lab ID:	U1003017-001	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	0.439	0.0317		mg/L-dry	1	3/10/2010 10:46:13 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	111	6.34		mg/Kg-dry	1	3/10/2010 11:45:21 PM
PERCENT MOISTURE				**PMOIST**		Analyst: **BY**
Percent Moisture	5.44	0.00100		wt%	1	3/3/2010

Approved By: _____ **Date:** _____

Qualifiers:	#	Accreditation not offered by NYS DOH for this parameter	*	Low Level
	**	Value exceeds Maximum Contaminant Value	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	Q	Outlying QC recoveries were associated with this parameter	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Mar-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-4 EP-Bot
Lab Order:	U1003017	**Collection Date:**	2/24/2010 3:00:00 PM
Project:	Alsy Project		
Lab ID:	U1003017-002	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	ND	0.0311		mg/L-dry	1	3/10/2010 10:50:30 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	27.3	6.22		mg/Kg-dry	1	3/10/2010 11:49:35 PM
PERCENT MOISTURE				**PMOIST**		Analyst: **BY**
Percent Moisture	3.59	0.00100		wt%	1	3/3/2010

Approved By: _____ **Date:** _____

Qualifiers:

#	Accreditation not offered by NYS DOH for this parameter	*	Low Level
**	Value exceeds Maximum Contaminant Value	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
Q	Outlying QC recoveries were associated with this parameter	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Mar-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-1-Wall-N
Lab Order:	U1003017	**Collection Date:**	2/24/2010 1:50:00 PM
Project:	Alsy Project		
Lab ID:	U1003017-003	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	0.0619	0.0306		mg/L-dry	1	3/10/2010 10:54:45 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	17.7	6.13		mg/Kg-dry	1	3/10/2010 11:53:49 PM
PERCENT MOISTURE				**PMOIST**		Analyst: **BY**
Percent Moisture	2.11	0.00100		wt%	1	3/3/2010

Approved By: _____ **Date:** _____

Qualifiers:

#	Accreditation not offered by NYS DOH for this parameter	*	Low Level
**	Value exceeds Maximum Contaminant Value	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
Q	Outlying QC recoveries were associated with this parameter	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Mar-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-1-Wall-E
Lab Order:	U1003017	**Collection Date:**	2/24/2010 1:52:00 PM
Project:	Alsy Project		
Lab ID:	U1003017-004	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	ND	0.0309		mg/L-dry	1	3/10/2010 10:59:02 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	ND	6.17		mg/Kg-dry	1	3/10/2010 11:58:03 PM
PERCENT MOISTURE				**PMOIST**		Analyst: **BY**
Percent Moisture	2.81	0.00100		wt%	1	3/3/2010

Approved By: _____ **Date:** _____

Qualifiers:

#	Accreditation not offered by NYS DOH for this parameter	*	Low Level
**	Value exceeds Maximum Contaminant Value	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
Q	Outlying QC recoveries were associated with this parameter	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Mar-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-1-Wall-W
Lab Order:	U1003017	**Collection Date:**	2/24/2010 1:54:00 PM
Project:	Alsy Project		
Lab ID:	U1003017-005	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	0.0665	0.0309		mg/L-dry	1	3/10/2010 11:03:20 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	31.1	6.18		mg/Kg-dry	1	3/11/2010 12:02:18 AM
PERCENT MOISTURE				**PMOIST**		Analyst: **BY**
Percent Moisture	2.84	0.00100		wt%	1	3/3/2010

Approved By: _____ **Date:** _____

Qualifiers:

#	Accreditation not offered by NYS DOH for this parameter	*	Low Level
**	Value exceeds Maximum Contaminant Value	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
Q	Outlying QC recoveries were associated with this parameter	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Mar-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-4-Wall-S
Lab Order:	U1003017	**Collection Date:**	2/24/2010 2:45:00 PM
Project:	Alsy Project		
Lab ID:	U1003017-006	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	0.0738	0.0311		mg/L-dry	1	3/10/2010 11:07:37 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	41.8	6.22		mg/Kg-dry	1	3/11/2010 12:06:33 AM
PERCENT MOISTURE				**PMOIST**		Analyst: **BY**
Percent Moisture	3.53	0.00100		wt%	1	3/3/2010

Approved By: _____ **Date:** _____

Qualifiers:

#	Accreditation not offered by NYS DOH for this parameter	*	Low Level
**	Value exceeds Maximum Contaminant Value	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
Q	Outlying QC recoveries were associated with this parameter	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Mar-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-4-Wall-E
Lab Order:	U1003017	**Collection Date:**	2/24/2010 2:47:00 PM
Project:	Alsy Project		
Lab ID:	U1003017-007	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	ND	0.0311		mg/L-dry	1	3/10/2010 11:11:54 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	ND	6.21		mg/Kg-dry	1	3/11/2010 12:10:48 AM
PERCENT MOISTURE				**PMOIST**		Analyst: **BY**
Percent Moisture	3.38	0.00100		wt%	1	3/3/2010

Approved By: _____ **Date:** _____

Qualifiers:

#	Accreditation not offered by NYS DOH for this parameter	*	Low Level
**	Value exceeds Maximum Contaminant Value	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
Q	Outlying QC recoveries were associated with this parameter	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Mar-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-4-Wall-W
Lab Order:	U1003017	**Collection Date:**	2/24/2010 2:49:00 PM
Project:	Alsy Project		
Lab ID:	U1003017-008	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	ND	0.0308		mg/L-dry	1	3/10/2010 11:16:12 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	12.1	6.15		mg/Kg-dry	1	3/11/2010 12:15:03 AM
PERCENT MOISTURE				**PMOIST**		Analyst: **BY**
Percent Moisture	2.49	0.00100		wt%	1	3/3/2010

Approved By: _____ **Date:** _____

Qualifiers:

#	Accreditation not offered by NYS DOH for this parameter	*	Low Level
**	Value exceeds Maximum Contaminant Value	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
Q	Outlying QC recoveries were associated with this parameter	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Feb-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-2 EP-Bot
Lab Order:	U1001439	**Collection Date:**	1/26/2010 1:13:00 PM
Project:	Alsy Project		
Lab ID:	U1001439-003	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	0.131	0.0300		mg/L	1	2/9/2010 8:06:13 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	69.0	6.82		mg/Kg-dry	1	2/9/2010 9:11:31 PM
PERCENT MOISTURE				**PMOIST**		Analyst: **KEL**
Percent Moisture	12.1	0.00100		wt%	1	1/29/2010

Approved By: _____ **Date:** _____

Qualifiers:	*	Low Level	**	Value exceeds Maximum Contaminant Value
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Feb-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-2-Wall-N
Lab Order:	U1001439	**Collection Date:**	1/27/2010 3:35:00 PM
Project:	Alsy Project		
Lab ID:	U1001439-004	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	ND	0.0300		mg/L	1	2/9/2010 8:11:44 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	21.7	6.19		mg/Kg-dry	1	2/9/2010 9:16:58 PM
PERCENT MOISTURE				**PMOIST**		Analyst: **BY**
Percent Moisture	3.12	0.00100		wt%	1	1/30/2010

Approved By: _____ **Date:** _____

Qualifiers:	*	Low Level	**	Value exceeds Maximum Contaminant Value
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Feb-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-2-Wall -S
Lab Order:	U1001439	**Collection Date:**	1/27/2010 3:37:00 PM
Project:	Alsy Project		
Lab ID:	U1001439-005	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	0.0330	0.0300		mg/L	1	2/9/2010 8:17:15 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	17.7	6.20		mg/Kg-dry	1	2/9/2010 9:22:24 PM
PERCENT MOISTURE				**PMOIST**		Analyst: **BY**
Percent Moisture	3.20	0.00100		wt%	1	1/30/2010

Approved By: _____ **Date:** _____

Qualifiers:	*	Low Level	**	Value exceeds Maximum Contaminant Value
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Feb-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-2-Wall-E
Lab Order:	U1001439	**Collection Date:**	1/27/2010 3:42:00 PM
Project:	Alsy Project		
Lab ID:	U1001439-006	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	ND	0.0300		mg/L-dry	1	2/9/2010 8:22:47 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	23.5	6.30		mg/Kg-dry	1	2/9/2010 9:27:51 PM
PERCENT MOISTURE				**PMOIST**		Analyst: **BY**
Percent Moisture	4.71	0.00100		wt%	1	1/30/2010

Approved By: _____ **Date:** _____

Qualifiers:	*	Low Level	**	Value exceeds Maximum Contaminant Value
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Analytical Report

Date: *12-Feb-10*

CLIENT:	Horizon Environmental Services	**Client Sample ID:**	DW-2-Wall-W
Lab Order:	U1001439	**Collection Date:**	1/27/2010 3:50:00 PM
Project:	Alsy Project		
Lab ID:	U1001439-007	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, SPLP LEACHED				**1312_M**	**(E200.7)**	Analyst: **LJ**
Nickel	0.026	0.0300	J	mg/L-dry	1	2/9/2010 8:28:16 PM
ICP METALS, TOTAL ASP				**6010B-ASP**	**(SW3050B)**	Analyst: **LJ**
Nickel	24.5	6.24		mg/Kg-dry	1	2/9/2010 9:33:19 PM
PERCENT MOISTURE				**PMOIST**		Analyst: **BY**
Percent Moisture	3.92	0.00100		wt%	1	1/30/2010

Approved By: _____ **Date:** _____

Qualifiers:	*	Low Level	**	Value exceeds Maximum Contaminant Value
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

APPENDIX D

LIST OF SITE CONTACTS

APPENDIX D – LIST OF SITE CONTACTS

Name	Phone/Email Address
Robbin Petrella, Project Manager D&B Engineers and Architects, P.C.	(516) 364-9890 rpetrella@db-eng.com
Robert Strang, EIT NYSDEC Project Manager	(518) 402-9813 robert.strang@dec.ny.gov
Walter Parish NYSDEC Regional HW Engineer	(631) 402-8642 walter.parish@dec.ny.gov
Kelly Lewandowski NYSDEC Site Control	(518) 402-9553 kelly.lewandowski@dec.ny.gov
Jacquelyn Nealon NYSDOH Project Manager	(518) 402-7860 jacquelyn.nealon@health.ny.gov

APPENDIX E

EXCAVATION WORK PLAN

APPENDIX E – EXCAVATION WORK PLAN (EWP)

1.0 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the NYSDEC. Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix D.

Table 1: Notifications*

Robert Strang, Engineer in Training Project Manager: NYSDEC	(518) 402-8642 robert.strang@dec.ny.gov
Kelly Lewandowski NYSDEC Site Control	(518) 402-9553 kelly.lewandowski@dec.ny.gov
Walter Parish NYSDEC Regional HW Engineer	(631) 444-0240 walter.parish@dec.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format;

- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2.0 SOIL SCREENING METHODS

Visual, of factory and instrument-based (e.g. photoionization detector) soil screening will be performed by a qualified environmental professional during all excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil.

3.0 SOIL STAGING METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC.

4.0 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

5.0 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the Site. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Truck transport routes will be identified that limit transport through residential areas and past sensitive sites; use city-mapped truck routes; prohibit off-site queuing of trucks entering the facility; limit total distance to major highways; and promote safety in accessing to highways.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site. Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development. Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

6.0 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State and Federal regulations. If disposal of material from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e., hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D debris recovery facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled consistent with 6NYCRR Parts 360, 361, 362, 363, 364 and 365. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State C&D debris recovery facility (6NYCRR Subpart 361-5 registered or permitted facility).

7.0 MATERIALS REUSE ON-SITE

All soil designated for reuse on-site will be sampled at a frequency of one sample per 500 cubic yards of soil. All samples will be grab samples which are representative of the soil for reuse. The criteria established by the NYSDEC for soil reuse is presented below.

ON-SITE SOIL REUSE CRITERIA

Soil on the Site Meets:	Reuse on the Site:
Unrestricted soil SCG	Without restrictions
Meets the applicable use-based and groundwater protection SCG and where appropriate protection of ecological resources soil SCGs for a site with an IC & SMP	In the soil cover/cap or as backfill within the area of the site subject to the IC
Meet site-specific background soil levels	Without restrictions (Does not apply to sites in the BCP)
Site-specific cleanup goals for subsurface soil	Placement below the soil cover/cap within the area of the site subject to the IC

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

8.0 FLUIDS MANAGEMENT

All liquids to be removed from the site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, and will be managed off-site, unless prior approval is obtained from NYSDEC.

Discharge of water generated during large-scale construction activities to surface waters (i.e., a local pond, stream, or river) will be performed under a SPDES permit.

9.0 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the remedial design. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the remaining

contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated SMP.

10.0 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

11.0 STORMWATER POLLUTION PREVENTION

A Stormwater Pollution Prevention Plan (SWPPP) will be required for all intrusive work done on the Site. At a minimum, the SWPPP shall include:

- Potential sources of pollution which may be reasonably expected to affect the quality of stormwater discharge from the Site.
- Description of practices which will be used to reduce the pollutants in stormwater discharge from the Site.

- Compliance with terms of the New York State permit for stormwater discharge.

The SWPPP is required to ensure the prevention of contamination of surrounding surface waters and groundwater as a result of stormwater runoff.

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

12.0 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment, and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report.

13.0 COMMUNITY AIR MONITORING PLAN

The air in the vicinity of all locations where intrusive work will be performed shall be monitored for volatile organic compounds, and airborne particulates (dust) in accordance with NYSDEC DER-10 and New York State Department of Health (NYSDOH) generic Community Air Monitoring Plan (CAMP).

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

14.0 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis will include limiting exposure of high-odor contaminants. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls,

including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

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

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

15.0 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

16.0 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

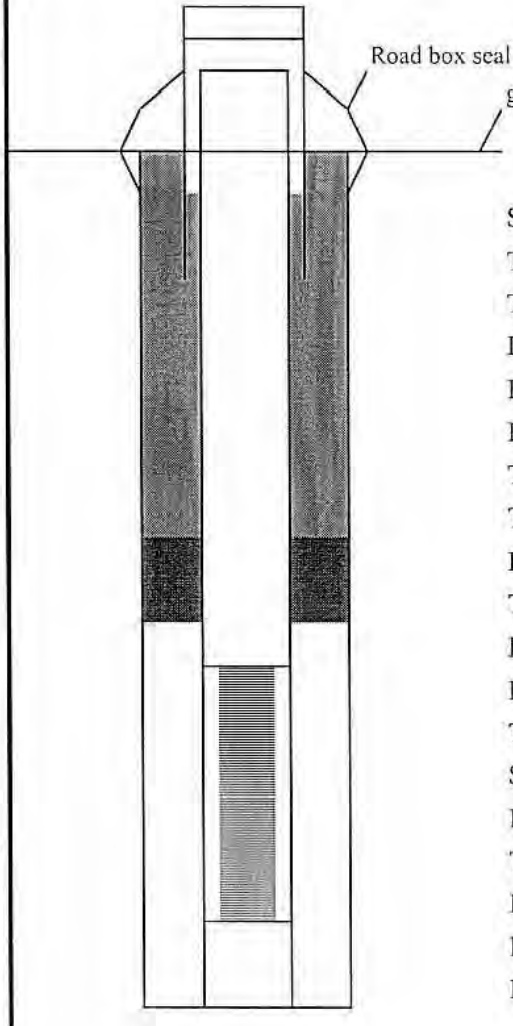
APPENDIX F

MONITORING WELL CONSTRUCTION LOGS

MACTEC Engineering & Consulting, Inc.

MONITORING WELL DIAGRAM

Project Name:	ALS4	**Boring No:**	MW-1
Date Installed:	4-23-10	**Contractor:**	ADT
Project No.:	361208210	**Drilling Method:**	HSA
Field Geologist:	P. Muller	**Development Method:**	check valve



Stick-up of Casing Above Ground Surface: —

Type of Surface Seal/Other Protection: concrete

Type of Surface Casing: aluminum / steel

ID of Surface Casing: 8"

Diameter of Borehole: 7"

Riser Pipe ID: 2"

Type of Riser Pipe: PVC

Type of Backfill: Cement / bentonite grout

Depth of Top Seal: 105'

Type of Seal: Bentonite

Depth of Top of Sand: 107'

Depth of Top of Screen: 110'

Type of Screen: PVC

Slot Size x Length: 0.010" x 20'

ID of Screen: 2"

Type of Sandpack: #1 Sand

Depth of Bottom of Screen: 130'

Depth of Sediment Sump with Plug: 130'

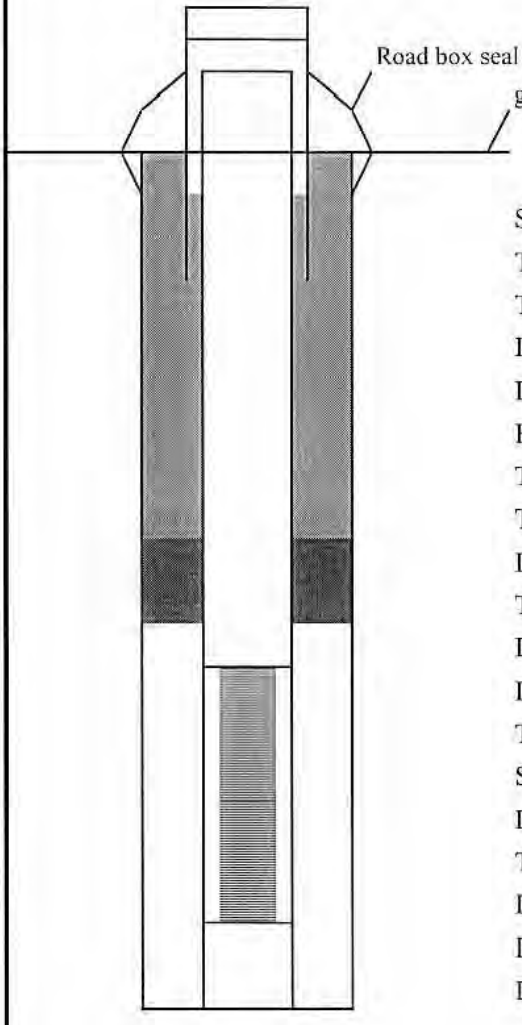
Depth of Bottom of Borehole: ~~114'~~ 131'

PJM

MACTEC Engineering & Consulting, Inc.

MONITORING WELL DIAGRAM

Project Name:	Alsy	**Boring No:**	MW-2
Date Installed:	4-23-10	**Contractor:**	ADT
Project No.:	361208Z101	**Drilling Method:**	HSA
Field Geologist:	P. Muller	**Development Method:**	check valve



Stick-up of Casing Above Ground Surface: —

Type of Surface Seal/Other Protection: concrete

Type of Surface Casing: Aluminum / steel

ID of Surface Casing: 8"

Diameter of Borehole: 7"

Riser Pipe ID: 2"

Type of Riser Pipe: PVC

Type of Backfill: cement/bentonite grout

Depth of Top Seal: 64.5

Type of Seal: Bentonite

Depth of Top of Sand: (PJM) ~~67.5~~ 66.5

Depth of Top of Screen: 70'

Type of Screen: PVC

Slot Size x Length: 0.010" x 20'

ID of Screen: 2"

Type of Sandpack: #1 Sand

Depth of Bottom of Screen: 90'

Depth of Sediment Sump with Plug: 90'

Depth of Bottom of Borehole: ~~90~~ 91'

(PJM)

ROUX ASSOCIATES INC — GEOLOGIC LOG

Study No. _____ Date _____
Project ALSY
Client ALSY Manufacturing
Page 1 Of 3
Logged By J. Day
Well No. GW-6 (MW-3)
Loc. _____
M.P. Elevation _____
Drilling Started 5/18/88 Ended 5/19/88
Driller Parratt-Wolff
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 8
Final Depth (ft.) 74
Casing Diam. (in.) 4
Casing Length (ft.) 58.2
Screen Setting (ft.) 74-59
Screen Slot & Type 20, PVC
Well Status Monitoring

G W READINGS (1)

Date	DTW MP (2)	Elev. W.T.

SAMPLER

Type Split Spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

Elev. (1)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft)	SAMPLE DESCRIPTION
			0-0.5'				
		.45	0.5-2'	2,8,11			Asphalt and traprock. Black gravel and gray loam.
		1.15	5-6.5'	9,28,30		5	Orange medium to coarse sand; some gravel; no odor; no staining.
		.9	10-11.5'	8,18,22		10	Orange medium to coarse sand; little gravel; no odor; no staining.
		1	15-16.5'	35,25,50		15	Orange medium to coarse sand; some gravel; slight odor: no staining.
		.9	20-21.5'	9,15,14		20	Orange medium to coarse sand; little gravel; no staining; slight odor.
		1.35	25-26.5'	15,20,35		25	Orange medium to coarse sand; some gravel; moist.
		1.3	30-31.5'	16,24,26		30	Orange medium sand; little coarse sand and gravel: no odor; no staining: moist.

REMARKS: (1) In feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS

ROUX ASSOCIATES

GEOLOGIC LOG

Study No. _____ Date _____
Project ALSY
Client ALSY Manufacturing
Page 2 Of 3
Logged By J. Day
Well No. GW-6 (MW-3)
Loc. _____
M.P. Elevation _____
Drilling Started 5/18/88 Ended 5/19/88
Driller Parratt-Wolff
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in) 8
Final Depth (ft) 74
Casing Diam. (in.) 4
Casing Length (ft) 58.2
Screen Setting (ft) 74-59
Screen Slot & Type .20 PVC
Well Status MONITORING

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type SPLIT SPOON
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

Elev. (1)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft)	SAMPLE DESCRIPTION
		1.25	35-36.5'	8,11,18		35	Tan medium to coarse sand; little fine sand; trace gravel; no odor; no staining.
		1.35	40-41.5'	16,18,19		40	Top 0.85' orange medium sand; little coarse sand; trace gravel; no odor; no staining; bottom 0.5' tan medium to coarse sand; little gravel; no odor; no staining; dry.
		1.2	45-46.5'	13,16,16		45	Orange medium to coarse sand; little gravel; trace fine sand; no odor; no staining; moist.
		1.35	50-51.5	6,12,16		50	Tan fine to medium sand; trace coarse sand and gravel; no odor; no staining; moist.
		1.55	55-56.5'	11,18,24		55	Tan fine to coarse sand; little gravel; no odor; iron staining; moist.
		1.55	60-61.5'	18,19,18		60	Same as above; bottom 0.5' is wet.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

ROUX ASSOCIATES

GEOLOGIC LOG

Study No. _____ Date _____
Project ALSY
Client ALSY MANUFACTURING
Page 3 Of 3
Logged By JEFF DAY
Well No. GW-6 (MW-3)
Loc. _____
M.P. Elevation _____
Drilling Started 05/18/88 Ended 05/19/88
Driller PARRATT-WOLFF
Type Of Rig HOLLOW STEM AUGER

WELL DATA

Hole Diam. (in.) 8
Final Depth (ft.) 74
Casing Diam. (in.) 4
Casing Length (ft.) 58.2
Screen Setting (ft.) 74-59
Screen Slot & Type 20 PVC
Well Status MONITORING

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type SPLIT SPOON
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

Elev. (1)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
		1.6	65-66.5'	6,16,40		65	Tan medium to coarse sand; trace gravel; no odor; no staining; wet.
		NR	70-71.5'	8,10,16		70	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

ROUX ASSOCIATES INC — GEOLOGIC LOG

Study No. _____ Date _____
Project ALSY
Client ALSY MANUFACTURING
Page 1 Of 1
Logged By JEFF DAY
Well No. GW-5 (AMS-2)
Loc. _____
M.P. Elevation _____
Drilling Started 05/18/88 Ended SAME
Driller PARRATT-WOLFF
Type Of Rig HOLLOW STEM AUGER

WELL DATA

Hole Diam. (in) 8
Final Depth (ft) 72.5
Casing Diam. (in) 4
Casing Length (ft) 57.5
Screen Setting (ft) 57.5-72.5
Screen Slot & Type 20 PVC
Well Status MONITORING

G W READINGS(1)

Date	DTW MP (2)	Elev. W.T.

SAMPLER

Type _____
Hammer _____ lb.
Fall _____ in.

DEVELOPMENT

Elev. (1)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft)	SAMPLE DESCRIPTION
							See log of GW-6

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

ERM Inc.

475 Park Avenue South, New York, NY 10016

ERM

BORING LOG

Boring Number
ERM-1

Project:	Project Number:	Date & Time Started:	Date & Time Completed:
ALSY, Hicksville, NY	AA401.13.01	09/04/01 , 0823	09/04/01 , 1020
Drilling Company:	**Foreman:**	**Bit Size:**	**Core Barrel:**
Delta Well and Pump, Inc.	Conrad Streble	$3^1/_4$-inch and $6^1/_4$-inch HSA	NA
Drilling Equipment	**Method:**	**Elevation & Datum**	**Completion Depth / Rock Depth**
Failing F-10	Hollow Stem Auger	N.A.	70-feet / Not Encountered
Sampler(s)	**Hammer / Drop**	**Geologist(s)**	
2-inch Outer Diameter Split Spoon	140 lb / 30-inches	Cathy Weber	

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	PID Reading (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
	LOCATION:				SURFACE DESCRIPTION:	
0	Downgradient of former LP-4				Asphalt Pavement	
1					Cuttings are fill material: Brown m-c SAND, some f-c rounded to sub-rounded gravel	Start: 0823
2						
3						
4					Drill to 10-feet	
5						
6						
7						
8						
9						
10						Drill to 10-feet
11	26	0.9	NA	12 22	Tan f-m SAND, trace f-m sub-rounded to sub-angular gravel, trace crushed stone, trace silt, no staining (dry)	SAMPLE: 10.5 - 11' Time: 0836 Analysis: Ni
12				31 37		
13						
14						
15						
16						
17						
18						
19						
20						

Signature: _____ Date: _____

NA = Not recorded/available

ERM Inc.

475 Park Avenue South, New York, NY 10016

BORING LOG

ERM

Boring Number
ERM-1

Project:	Project Number:	Date:
ALSY, Hicksville, NY	AA401.13.01	09/04/01

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	PID Reading (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
21	27, 28	1.0	NA	6 16 19 24	Tan f-m SAND, trace f-m sub-rounded to sub-angular gravel, trace crushed stone, trace silt, no odor, no stain (dry)	Drill to 20-feet SAMPLE: 20 - 21' Time: 0856 Analysis: Ni, SPLP Ni Note: Duplicate (28)
22						
23						
24						
25						
26						
27						
28						
29						
30						Drill to 30-feet
31	29, 30	1.2	NA	10 11 10 18	Tan f-m SAND, trace fine gravel, trace silt, no odor, no staining (moist) Orange-tan colored from 4 to 8-inches	SAMPLE: 30 - 31' Time: 0929 Analysis: Ni, SPLP Ni Note: MS/MSD sample (30)
32						
33						
34						
35						
36						
37						
38						
39						
40						Drill to 40-feet
41	31	1.5	NA	11 16 19 26	Brown f-m SAND, trace fine sub-rounded gravel, trace silt, no odor (moist) Brownish-gray at 41-41.5'	SAMPLE: 41 - 41.5' Time: 0939 Analysis: Ni
42						
43						
44						
45						

Signature: _____ Date: _____

NA = Not recorded/available

ERM Inc.

475 Park Avenue South, New York, NY 10016

BORING LOG

Boring Number
ERM-1

Project:	Project Number:	Date:
ALSY, Hicksville, NY	AA401.13.01	09/04/01

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	PID Reading (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
46						
47						
48						
49						
50						Drill to 50-feet
51	32	1.7'	NA	13 15 21 26	Orangish-brown f-m SAND, trace f-m sub-rounded to sub-angular gravel, no odor, reddish-brown iron staining at 50.5' (moist)	SAMPLE: 51 - 51.5' Time: 0952 Analysis: Ni
52						
53						
54						
55						
56						
57						
58						
59						
60						Drill to 60-feet
▽ 61	--	1.5	NA	6 8 14 22	Light-brown f-m SAND, trace fine sub-rounded to rounded gravel, no odor, slight iron staining at 61' (moist, wet at 61')	
62						
63						
64						
65						
66						
67						
68						Drill to 68-feet
69	--	2.0	NA	20 10 9 19	1' Light-brown gravelly f-c SAND, gravel is sub-rounded to sub-angular 1' Light-brown f-m SAND, trace silt, trace iron staining (wet)	Complete boring at 1020 to 70' bgs Pull 3 1/4-inch augers and drill out hole with 6 1/4-inch augers to install 4-inch PVC monitoring well.
70						

Signature: _____ Date: _____

NA = Not recorded/available

ERM Inc.

475 Park Avenue South, New York, NY 10016

ERM

BORING LOG

Boring Number: ERM-2

Project:	Project Number:	Date & Time Started:	Date & Time Completed:
ALSY, Hicksville, NY	AA401.13.01	08/28/01 , 0850	08/28/01 , 1410
Drilling Company:	**Foreman:**	**Bit Size:**	**Core Barrel:**
Delta Well and Pump, Inc.	Mike Pellegreno	$3^1/_4$-inch and $6^1/_4$-inch HSA	NA
Drilling Equipment	**Method:**	**Elevation & Datum**	**Completion Depth / Rock Depth**
Failing F-10	Hollow Stem Auger	N.A.	70-feet / Not Encountered
Sampler(s)	**Hammer / Drop**	**Geologist(s)**	
2-inch Outer Diameter Split Spoon	140 lb / 30-inches	Cathy Weber	

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	PID Reading (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
0	LOCATION: Through former drywell				SURFACE DESCRIPTION: Asphalt pavement	
1–5			0		Cuttings: Brown f-c SAND, some f-c gravel no staining (dry)	Start: 0850 Slight volatile odor Note: PID readings from a 10.6 eV Microtip PID Drill to 5-feet
6–7		0.6	0	1 1 1 2	0.25' Brown f-c SAND, trace f-m gravel 0.3' Light-brown f-c SAND, trace f-m gravel (dry)	slight odor Drill to 7-feet
8–9		0.4	0	12 5 2 2	Light-brown f-c SAND, trace f-m gravel (dry) no staining	slight odor Drill to 9-feet
10–11		NR	0	1/24"	No recovery	Drill to 11-feet
12–13	2	1.6	0	WOR/ 24"	0.3' Greenish-brown SILT (sludge-like) 0.6' Black with brown and green striations SILT 0.7' Bright green SILT (sludge-like) (moist)	sludge-like material, very soft SAMPLE: 12.5 - 13' Time: 1115 Analysis: Ni, SPLP Ni
14–15		1.2	0	1 1 2 2	Brown-gray SILT, trace clay (wet) trace fibers, slight green staining at bottom 0.3'	Drill to 13-feet slight odor Drill to 15-feet
16–17	3, 8	1.7	0	2 3 4 3	1.4' Brown-gray SILT, trace clay 0.3' Light-brown m-c SAND, trace fine gravel (moist-wet)	Green staining and white striations at 16-feet SAMPLE: 15 - 16.5' slight odor Time: 1145 Drill to 17' Analysis: VOC, SVOC
18–19		1.4	0	3 3 4 5	1' Grayish-brown SILT, trace clay, slight green staining 0.4' Light-brown coarse SAND, trace fine gravel (moist)	slight odor RCRA Metal Ni, SPLP Ni Drill to 19-feet
20–21		0.7	0	5 5 7 8	0.35' Grayish-brown SILT, trace clay, trace green staining (possible fall through material) (moist-wet) 0.35' Light-brown coarse SAND, trace f-m gravel, no staining (moist)	slight odor

Signature: _____ Date: _____

NA = Not recorded/available

ERM Inc.

475 Park Avenue South, New York, NY 10016

BORING LOG

Boring Number
ERM-2

Project:	Project Number:	Date:
ALSY, Hicksville, NY	AA401.13.01	8/28/01

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	PID Reading (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
22	4	1.5	0	6 8 11 11	slough on top 0.8' Light-brown coarse SAND, trace f-m gravel, no staining (moist)	Drill to 21-feet SAMPLE: 21 - 21.5' Time: 1215 Analysis: Ni, SPLP Ni
23						
24						
25						
26						
27						
28						
29						
30						Drill to 30-feet
31	5	0.9	0	6 8 11 11	Light-brown m-c SAND, trace gravel, no staining (moist-dry)	no odor SAMPLE: 30 - 30.5' Time: 1315 Analysis: Ni, SPLP Ni
32						
33						
34						
35						
36						
37						
38						
39						
40						Drill to 40-feet
41	6	0.9	0	16 56 42 28	Light-brown m-c SAND, trace fine gravel, no staining (moist-dry)	slight odor SAMPLE: 40 40.5' Time: 1330 Analysis: Ni, SPLP Ni
42						
43						
44						
45						

Page _____ of _____ Signature: _____ Date: _____

NA = Not recorded/available

ERM Inc.

475 Park Avenue South, New York, NY 10016

BORING LOG

Boring Number
ERM-2

Project:	Project Number:	Date:
ALSY, Hicksville, NY	AA401.13.01	8/28/01

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	PID Reading (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
46						
47						
48						
49						
50						Drill to 50-feet At 50-feet the driller noted an odor over the top of the hole. The PID read 0 ppm (10.6 eV PID does not detect chlorinated volatile organic compounds) SAMPLE: 50 - 50.5' Time: 1340 Analysis: Ni, SPLP Ni
51	7	0.5	0	15 32 41 53	Light-brown m-c SAND, trace f-m gravel, no staining (moist-dry)	
52						
53						
54						
55						
56						
57						
58						
59						
60						Drill to 60-feet no odor
▽ 61	--	1.9	0	6 7 7 8	Light-brown medium SAND, trace coarse sand (top moist, bottom 1.5' wet)	
62						
63						
64						
65						
66						EOB: 1410
67						Complete boring at 1410 to 70' bgs Pull 3 1/4-inch augers and drill out hole with 6 1/4-inch augers to install 4-inch PVC monitoring well. Drilled out hole with 6 1/4-inch augers on 08/29/01.
68						
69						
70						

Signature: _____ Date: _____

NA = Not recorded/available

ERM, INC.

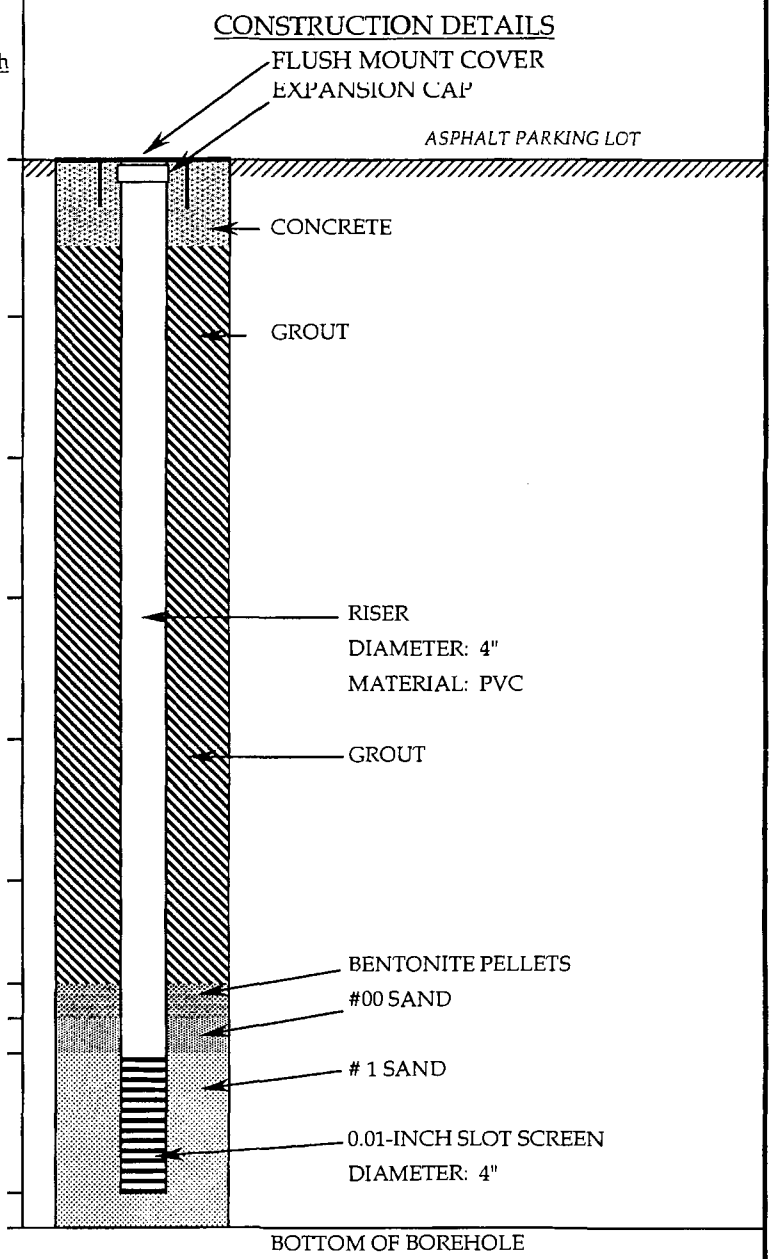
WELL : ERM-1

855 Springdale Drive, Exton, PA 19341

MONITORING WELL CONSTRUCTION

Project Name & Location	Project No.	Water Level(s) (ft below top of PVC casing)			Site Elevation Datum
FORMER ALSY SITE	AA401.13				--
Drilling Company	Foreman			Level	Ground Elevation
Delta Well and Pump, Inc.	Conrad Streble	Date	Time	(feet)	132.24
Surveyor					Top of Protective Steel Cap Elevation
GEOD Corporation, Newfoundland, NJ		9/5/01	11:00	61.6'	Flush
Date and Time of Completion	Geologist				Top of Riser Pipe Elevation
9/5/01	C. Weber				131.77

Generalized Soil Description	*Elevation	**Depth
	0.0	0.0
Asphalt at surface		
		10.0
		20.0
Brownish-tan f-m SAND, trace f-m sub-rounded to sub-angular gravel, trace silt		30.0
		40.0
		50.0
		56.0
		58.0
		59.3
Light-brown gravelly f-c SAND		69.3
		70.0



REMARKS DTW RECORDED FROM TOP OF PVC RISER

* Elevation (feet) above mean sea level unless noted

** Depth in feet below grade

ERM, INC.

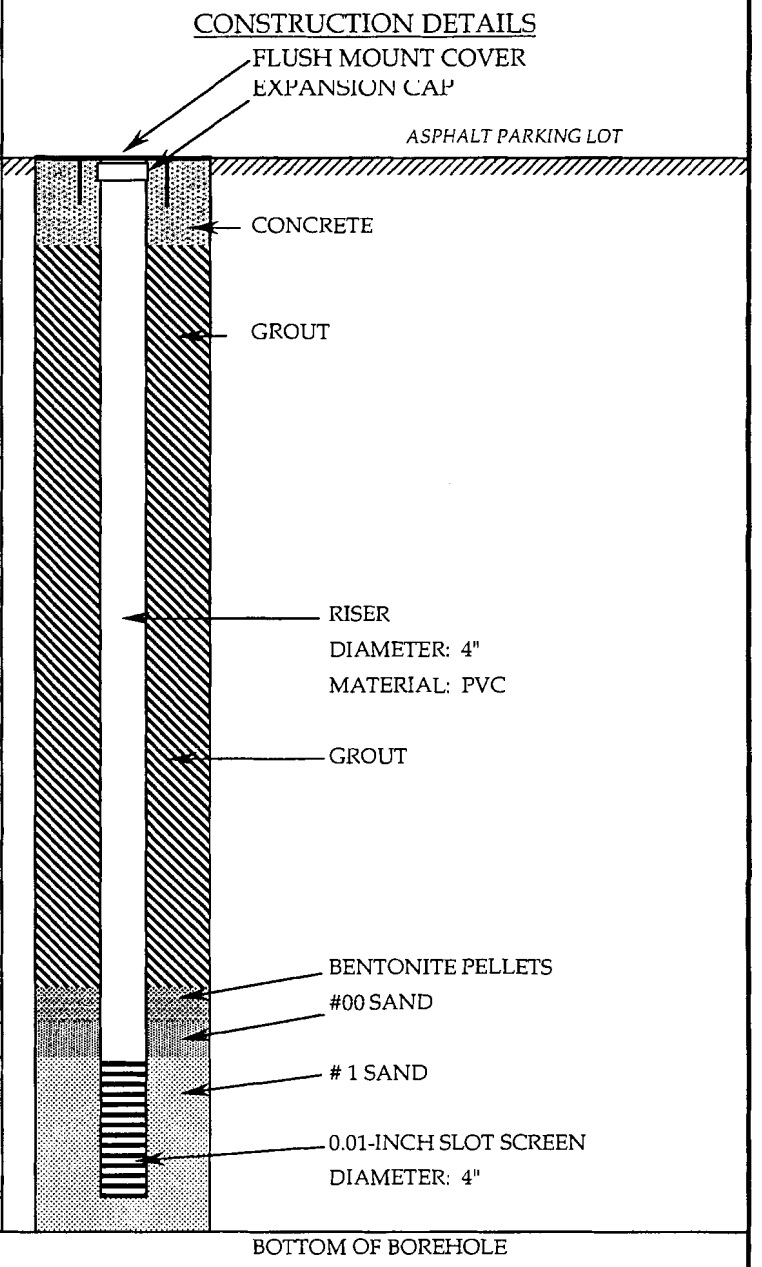
WELL : ERM-2

855 Springdale Drive, Exton, PA 19341

MONITORING WELL CONSTRUCTION

Project Name & Location	Project No.	Water Level(s) (ft below top of PVC casing)			Site Elevation Datum
FORMER ALSY SITE	AA401.13				--
Drilling Company	Foreman			Level	Ground Elevation
Delta Well and Pump, Inc.	Mike Pellegreno	Date	Time	(feet)	132.34
Surveyor					Top of Protective Steel Cap Elevation
GEOD Corporation, Newfoundland, NJ		8/29/01	1515	61.50	Flush
Date and Time of Completion	Geologist				Top of Riser Pipe Elevation
8/29/01 1330	C. Weber				131.83

Generalized Soil Description	*Elevation	**Depth
	0.0	0.0
Asphalt at surface		
Light-brown f-c SAND, trace f-m gravel		10.0
Greenish-brown SILT (sludge-like)		20.0
		30.0
		40.0
Light-brown f-c SAND, trace f-m gravel		50.0
		54.0
		57.0
		59.0
Light-brown gravelly f-c SAND		69.0
		70.0



REMARKS DTW RECORDED FROM TOP OF PVC RISER

* Elevation (feet) above mean sea level unless noted

** Depth in feet below grade

ERM, INC.

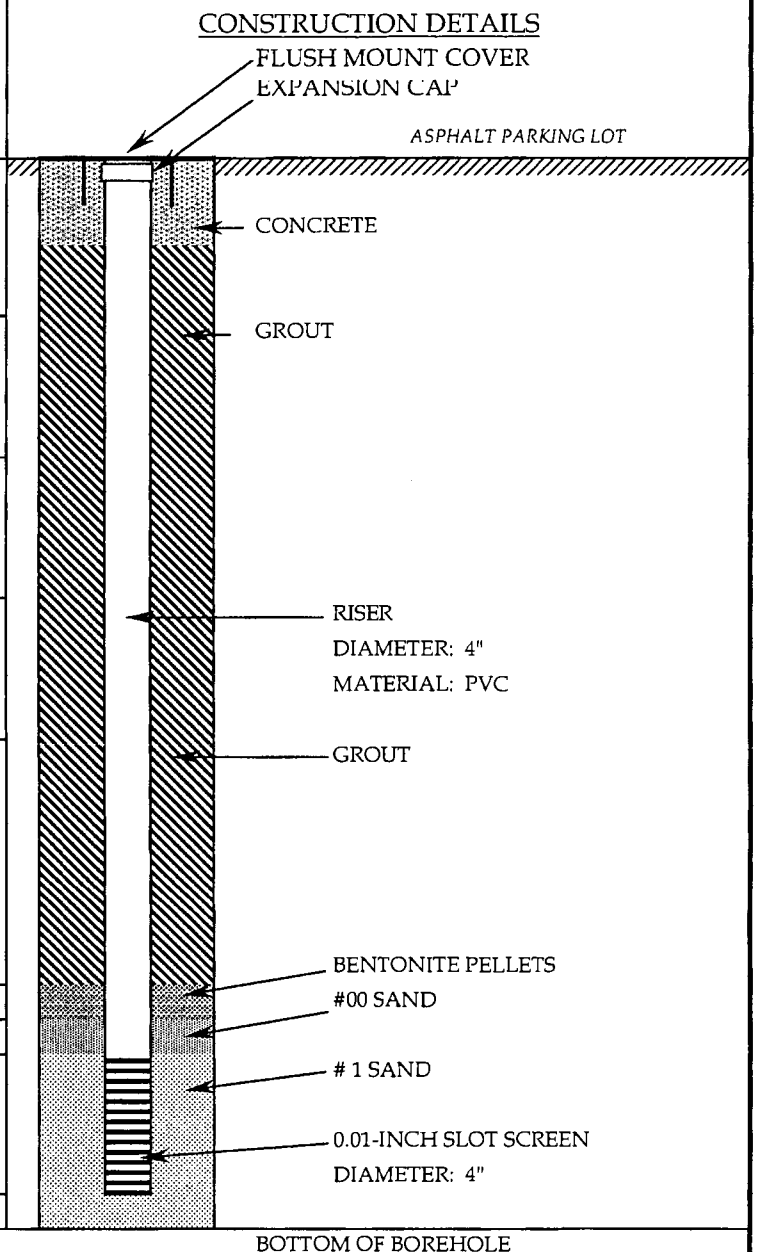
WELL : ERM-3

855 Springdale Drive, Exton, PA 19341

MONITORING WELL CONSTRUCTION

Project Name & Location	Project No.	Water Level(s) (ft below top of PVC casing)			Site Elevation Datum
FORMER ALSY SITE	1328				--
Drilling Company	Foreman	Date	Time	Level (feet)	Ground Elevation
Delta Well and Pump, Inc.	Mike Pellegreno				131.74
Surveyor		1/6/03	0905	65.22	Top of Protective Steel Cap Elevation
GEOD Corporation, Newfoundland, NJ					Flush
Date and Time of Completion	Geologist				Top of Riser Pipe Elevation
1/3/03 1000	C. Weber				131.45

Generalized Soil Description	*Elevation	**Depth
	0.0	0.0
Grass at surface		
		10.0
		20.0
		30.0
		40.0
Light-brown f-c SAND, trace f-m gravel		
		59.0
		61.0
		63.0
		72.0
		73.0



REMARKS DTW RECORDED FROM TOP OF PVC RISER

Split spoon samples were not collected, lithology information based upon cutting observations.

* Elevation (feet) above mean sea level unless noted

** Depth in feet below grade

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-1

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D.
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 3-4 September 1996
Surface Elevation:
Depth to Water: 63
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	PID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION	LITHOLOGY	WELL DIAGRAM
							and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%		
6	SS-1	0.8	17 21 30 46			DRY	0.0-4.0" Tan-orange sand and coarse gravel. 4.0-4.5" Large gravel fragment. 4.5-8.0" Tan, medium grained sand. No odor.		
12	SS-2	0.8	3 8 16 22				Tan-orange medium-coarse grained sand and coarse-very coarse gravel. Large gravel fragment in shoe. No odor.		
16	SS-3	1.5	5 8 16 18				0.0-6.0" Tan-orange medium-coarse grained sand and coarse gravel. 6.0-1.5' Tan, medium grained sand. No odor.		2" Sched. 40 PVC Riser Portland Cement

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-1

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D. ____
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 3-4 September 1996
Surface Elevation: ____
Depth to Water: 63
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	PID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION	LITHOLOGY	WELL DIAGRAM
							and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%		
22	SS-4		10 11 16 16			DRY	Tan-orange, coarse-very coarse grained sand and coarse gravel. No odor.		2" Sched. 40 PVC Riser Portland Cement
24									
26	SS-5		10 10 14 9				Tan-orange, coarse-very coarse grained sand and coarse gravel.		
28									
30									
32	SS-6	2.0	8 11 17 23				0.0-1.0 Tan-orange, coarse grained sand and gravel. 1.0-2.0 Tan, coarse grained sand and gravel.		
34									
36	SS-7		18 17 15 14				Tan-orange, coarse grained sand and gravel.		
38									
40									

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-1

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D.
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 3-4 September 1996
Surface Elevation:
Depth to Water: 63
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	PID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION	LITHOLOGY	WELL DIAGRAM
							and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%		
42	SS-8	0.0	15 17 19 22				No recovery.		
44									
46	SS-9	1.5	15 12 8 7			DRY	Tan-orange, medium-coarse grained sand and coarse gravel. No odor.		
48									
50									
52	SS-10	1.5	18 20 22 24				0.0-2.0" Very coarse gravel. 2.0-1.5' Tan, medium grained sand and medium-coarse gravel. Tip of spoon damp.		
54									
56	SS-11	1.0	7 7 16 20			DAMP	Tan, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		
58									
60									

2" Sched. 40 PVC Riser
Portland Cement

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-1

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D.
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 3-4 September 1996
Surface Elevation:
Depth to Water: 63
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	PID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION	LITHOLOGY	WELL DIAGRAM
							and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%		
62	SS-12	1.0	8 21 22 42			DAMP	Tan, medium-coarse grained sand, some coarse gravel. No odor.		2" Sched. 40 PVC Riser; Bentonite
64									
66	SS-13	1.0	8 6 4 4				Water at 63 ft. Tan, coarse-very coarse grained sand and coarse-very coarse gravel.		
68	SS-14	1.0	18 20 22 23			WET	Tan, coarse-very coarse sand and coarse-very coarse gravel, some medium grained sand.		2" Sched. 40 PVC 10 Slot Screen; #2 Morie Sand
70	SS-15	2.0	10 10 12 14				Tan, very coarse grained sand and coarse gravel.		
72	SS-16	0.2	18 22 26 45				Tan, very coarse grained sand, trace gravel.		
74	SS-17	0.2	16 18 22 36				Tan, very coarse grained sand, trace gravel.		
76							EOB at 76 ft. Well set at 75 ft.		
78									
80									

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-2

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D. ____
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 4-5 September 1996
Surface Elevation: ____
Depth to Water: 63
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	FID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION	LITHOLOGY	WELL DIAGRAM
							and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%		
6	SS-1	0.6	100/6			DRY	Poor recovery, spoon bouncing. Very coarse quartz gravel, some coarse grained sand.		
12	SS-2	1.0	6 7 8 11				Trace silt (slough), tan-orange, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		
16	SS-3	1.0	20 31 19 17				0.0-0.4 Tan-orange, medium-coarse grained sand and coarse gravel. 0.4-0.6 Quartz gravel and muscovite schist. 0.6-1.0 Tan-orange, medium-coarse grained sand and coarse gravel.		

2" Sched. 40 PVC Riser
Portland Cement

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-2

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D. ____
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 4-5 September 1996
Surface Elevation: ____
Depth to Water: 63
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	PID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION (and = 35-50%; some = 20-35%; little = 10-20%; trace = 0-10%; f = fine; m = medium; c = coarse)	LITHOLOGY	WELL DIAGRAM
22	SS-4	1.5	20 12 12 12			DRY	Tan-orange, coarse-very coarse grained sand and coarse gravel. No odor.		2" Sched. 40 PVC Riser; Portland Cement
24									
26	SS-5	1.5	12 9 11 9				Tan-orange, coarse-very coarse grained sand and coarse gravel. No odor.		
28									
30									
32	SS-6	1.5	14 8 8 14				Tan, medium-coarse grained sand and coarse gravel. No odor.		
34									
36	SS-7		13 11 9 16				Tan-orange, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		
38									
40									

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-2

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D. ____
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 4-5 September 1996
Surface Elevation: ____
Depth to Water: 63
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	PID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION	LITHOLOGY	WELL DIAGRAM
							and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%		
42	SS-8		7 9 14 11			DRY	Tan, coarse-very coarse grained sand and coarse gravel. No odor.		2" Sched. 40 PVC Riser
44									
46	SS-9		9 11 14 17				Tan, medium-coarse grained sand and coarse gravel. No odor.		
48									
50									
52	SS-10	0.2	9 7 11 9				Coarse-very coarse grained sand and very coarse gravel.		
54									
56	SS-11	1.0	9 10 15 17				Medium-coarse grained sand and gravel.		Portland Cement Bentonite
58									
60									

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-2

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D. ____
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 4-5 September 1996
Surface Elevation: ____
Depth to Water: 63
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	FID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION (and = 35-50%; some = 20-35%; little = 10-20%; trace = 0-10%; f = fine; m = medium; c = coarse)	LITHOLOGY	WELL DIAGRAM
62	SS-12	1.0	10, 10, 11, 12			DRY	Light tan, medium grained sand, fluffy. No odor.		
64									
66	SS-13	1.0	7, 8, 9, 7				Light tan, medium-coarse grained sand, micaceous.		
68	SS-14	2.0	4, 6, 4, 2			WET	Light tan, coarse-very coarse micaceous sand and coarse-very coarse gravel.		
70	SS-15	0.0					No recovery.		
72	SS-16	0.4	18, 10, 10, 12				Tan, medium-coarse grained sand and medium gravel.		
74	SS-17	1.0	16, 6, 8, 10, 11				0.0-0.4 Tan, medium grained sand. 0.4-1.0' Tan coarse grained sand and medium gravel.		
76							EOB at 76 ft. Well set at 75 ft.		
78									
80									

WELL DIAGRAM: 2" Sched. 40 PVC 10 Slot Screen; #2 Morie Sand

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-3

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D.
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 5-6 September 1996
Surface Elevation:
Depth to Water: 62
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	PID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION	LITHOLOGY	WELL DIAGRAM
							and = 35-50% some = 20-35% little = 10-20% trace = 0-10% f = fine m = medium c = coarse		
6	SS-1	1.0	12 12 17 27			DRY	0.0-0.2 Dark brown silt and gravel. 0.2-1.0 Tan, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		
12	SS-2	1.0	21 27 29 34				Tan-orange, very coarse grained sand and very coarse gravel. No odor.		
16	SS-3	0.8	12 17 30 28				Brown, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		

2" Sched. 40 PVC Riser
Portland Cement

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-3

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D.
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 5-6 September 1996
Surface Elevation:
Depth to Water: 62
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	PID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION (and = 35-50%; some = 20-35%; little = 10-20%; trace = 0-10%; f = fine; m = medium; c = coarse)	LITHOLOGY	WELL DIAGRAM
22	SS-4	1.0	21 19 18 12			DRY	Tan-orange, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		2" Sched. 40 PVC Riser; Portland Cement
24									
26	SS-5	1.0	12 15 17 18				Tan-orange, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		
28									
30									
32	SS-6	1.0	21 19 17 11				Light tan, coarse-very coarse grained sand and coarse-very coarse gravel. Large muscovite schist fragment at 0.8 ft. No odor.		
34									
36	SS-7	1.0	10 11 12 14				Tan-orange, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		
38									
40									

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-3

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D. ____
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 5-6 September 1996
Surface Elevation: ____
Depth to Water: 62
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	FID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION	LITHOLOGY	WELL DIAGRAM
							and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%		
42	SS-8	0.2	6 8 7 11			DRY	Tan-orange, coarse-very coarse grained sand and coarse quartz gravel. No odor.		2" Sched. 40 PVC Riser
44									
46	SS-9	0.3	10 14 6 8				0.0-0.2 Tan-orange, very coarse grained sand and very coarse gravel. 0.2-0.3 Large muscovite schist fragment. No odor.		Portland Cement
48									
50									
52	SS-10	1.0	17 14 8 8				Tan-orange, coarse-very coarse grained sand and coarse gravel. No odor.		
54									
56	SS-11	1.5	6 8 15 10				0.0-0.6 Tan-orange coarse grained sand and coarse gravel. 0.6-0.7 Reddish-orange, very coarse grained sand and coarse gravel. 0.7-1.5 Tan, coarse grained sand and coarse gravel.		Bentonite
58									
60									

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-3

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D. ____
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 5-6 September 1996
Surface Elevation: ____
Depth to Water: 62
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	FID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION (and = 35-50%; some = 20-35%; little = 10-20%; trace = 0-10%; f = fine; m = medium; c = coarse)	LITHOLOGY	WELL DIAGRAM
62	SS-12	1.5	9, 16, 8, 10			DRY	0.0-1.4 Tan, medium-coarse grained sand and coarse gravel. 1.4-1.5 Tan, coarse gravel, WET.		
64	SS-13	1.0	10, 12, 11, 11				0.0-0.8 Tan, medium-coarse grained sand and coarse gravel. 0.8-1.0 Coarse-very coarse grained sand and coarse-very coarse gravel.		
66	SS-14		10, 10, 7, 6				Tan, coarse-very coarse sand and coarse gravel.		
68	SS-15	2.0	10, 11, 27, 21			WET	Tan, coarse-very coarse grained sand and coarse-very coarse gravel.		
70	SS-16	1.5	10, 12, 13, 12				Tan, coarse-very coarse grained sand and coarse gravel, some medium grained sand.		
72	SS-17	0.4	18, 12, 12, 10				Tan, coarse-very coarse grained sand and coarse-very coarse gravel.		
74	SS-18	0.6	10, 10, 9, 8				Tan, coarse-very coarse grained sand and coarse-very coarse gravel.		
76							EOB at 75 ft, augered to 76 ft. Well set at 75 ft.		2" Sched. 40 PVC 10 Slot Screen; #2 Morie Sand
78									
80									

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-4

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D.
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 6-9 September 1996
Surface Elevation:
Depth to Water: 63
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	FID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION	LITHOLOGY	WELL DIAGRAM
							and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%		
2									
4									
6	SS-1	1.0	10 21 30 44			DRY	0.0-0.2 Black-brown silt and brick fragments (slough). 0.2-1.0 Tan, medium-coarse-very coarse grained sand and very coarse gravel. No odor.		
8									
10									
12	SS-2	0.4	15 16 10 12				Tan-brown, coarse-very coarse grained sand and coarse-very coarse gravel. Large pieces of quartz gravel in shoe. No odor.		
14									
16	SS-3	1.0	22 20 21 19				Tan, very coarse grained sand and coarse-very coarse gravel. No odor.		
18									
20									

2" Sched. 40 PVC Riser
Portland Cement

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-4

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D.
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 6-9 September 1996
Surface Elevation:
Depth to Water: 63
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	PID READING	FID READING	MOISTURE	GEOLOGIC DESCRIPTION (and = 35-50%; some = 20-35%; little = 10-20%; trace = 0-10%; f = fine; m = medium; c = coarse)	LITHOLOGY	WELL DIAGRAM
22	SS-4	0.0	100/6				Rock in shoe, no recovery.		2" Sched. 40 PVC Riser; Portland Cement
24									
26	SS-5	1.5	14 14 16 18				Tan, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		
28									
30						DRY			
32	SS-6	1.5	14 11 18 10				Tan, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		
34									
36	SS-7	1.5	24 11 10 10				Tan, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		
38									
40									

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

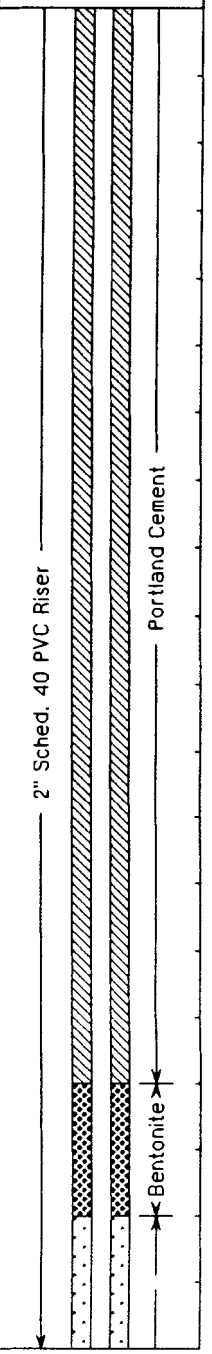
BORING I.D.: LMS-4

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D.
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 6-9 September 1996
Surface Elevation:
Depth to Water: 63
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	PID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION	LITHOLOGY
							and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%	
42	SS-8	1.5	11 14 15 18				Tan, coarse-very coarse grained sand and coarse-very coarse gravel, some medium sand, some large lithic fragments. No odor.	
44								
46	SS-9	1.5	10 14 15 17				Tan, medium grained sand, some fine gravel, fluffy. No odor.	
48								
50						DRY		
52	SS-10	1.0	9 7 12 14				Tan, medium grained sand, trace fine gravel, fluffy. No odor.	
54								
56	SS-11	1.0	11 14 16 18				Tan, medium grained sand. No odor.	
58								
60								

WELL DIAGRAM



TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

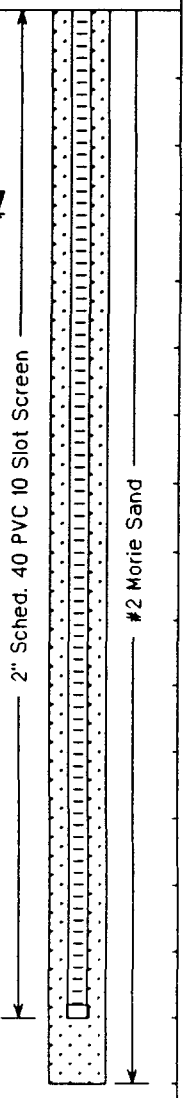
BORING I.D.: LMS-4

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D. ____
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 6-9 September 1996
Surface Elevation: ____
Depth to Water: 63
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	FID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION (and = 35-50%; some = 20-35%; little = 10-20%; trace = 0-10%; f = fine; m = medium; c = coarse)	LITHOLOGY
62	SS-12	1.0	8, 12, 13, 10			DRY	Tan, medium grained, micaceous sand, last 2.0" WET.	
64	SS-13	1.0	14, 13, 15, 12				Tan, medium grained sand, some coarse gravel.	
66	SS-14	1.0	6, 4, 4, 6				Tan, medium-coarse grained sand and coarse gravel.	
68	SS-15	2.0	12, 11, 14, 16				0.0-1.8 Tan, coarse-very coarse grained sand and coarse gravel. 1.8-2.0 Tan, fine-medium grained sand.	
70	SS-16	2.0	6, 7, 5, 9			WET	0.0-1.0 Tan, coarse-very coarse grained sand and coarse-very coarse gravel. 1.0-2.0 Tan, medium grained sand, some fine grained sand.	
72	SS-17		7, 12, 11, 13				Tan, coarse-very coarse grained sand, some medium grained sand and coarse gravel.	
74	SS-18	0.8	12, 14, 16, 20				Tan, coarse-very coarse grained sand and coarse-very coarse gravel.	
76							EOB at 75 ft, augered to 76 ft. Well set at 75 ft.	
78								
80								

WELL DIAGRAM



TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

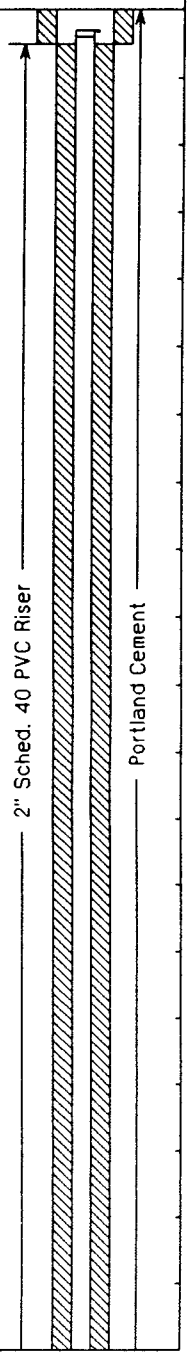
BORING I.D.: LMS-5

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D. ____
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 9-10 September 1996
Surface Elevation: ____
Depth to Water: 62.8
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	FID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION	LITHOLOGY
							and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%	
6	SS-1	1.0	10 22 100/18			DRY	0.0-0.4 Dark brown, silty topsoil and tan clay. 0.4-1.0 Tan, coarse-very coarse grained sand and coarse gravel. No odor.	
12	SS-2	1.5	6 16 22 34				0.0-0.2 Tan, gravelly silt 0.2-0.4 Tan-orange very coarse grained sand and very coarse gravel 0.4-1.5 Tan, sandy silt, some coarse gravel, tight.	
16	SS-3	0.6	15 18 16 10				0.0-0.2 Micaceous schist fragment. 0.2-0.6 Tan, coarse-very coarse grained sand and very coarse gravel. Schist fragment in shoe.	

WELL DIAGRAM



TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

BORING I.D.: LMS-5

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D. ____
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 9-10 September 1996
Surface Elevation: ____
Depth to Water: 62.8
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	PID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION (and = 35-50%; some = 20-35%; little = 10-20%; trace = 0-10%; f = fine; m = medium; c = coarse)	LITHOLOGY	WELL DIAGRAM
22	SS-4	1.0	15, 17, 20, 22				0.0-0.6 Tan-orange, coarse-very coarse grained sand and coarse-very coarse gravel. 0.6-1.0 Tan-orange, medium grained sand.		
24									
26	SS-5	1.5	12, 15, 12, 9				Tan-orange, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		
28									
30						DRY			
32	SS-6	0.6	12, 11, 10, 12				Tan-orange, coarse-very coarse grained sand and coarse-very coarse gravel. Large quartz gravel in shoe. No odor.		
34									
36	SS-7	0.8	6, 12, 10, 7				Tan-orange, coarse-very coarse grained sand and coarse-very coarse gravel. No odor.		
38									
40									

WELL DIAGRAM: 2" Sched. 40 PVC Riser; Portland Cement

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: ALSY Manufacturing

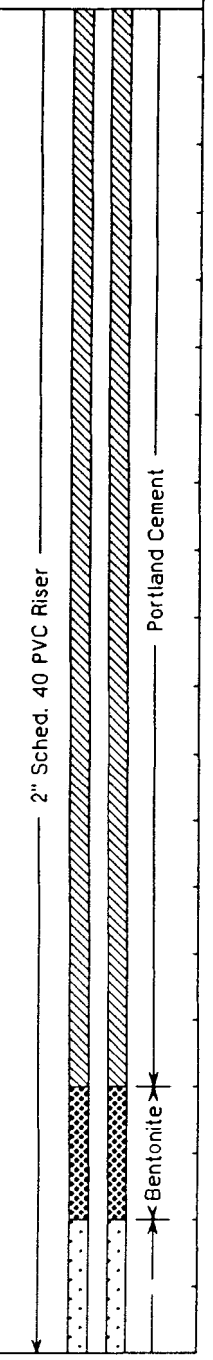
BORING I.D.: LMS-5

Site Location: Hicksville, NY
Job Number: 698-001
Client: Surrey Company
NYSDEC Site I.D.
Boring Location: Monitoring Well #1
Geologist: Jennifer Morse

Drilling Co.: ADT
Drilling Method: HSA
Date Begin/End: 9-10 September 1996
Surface Elevation:
Depth to Water: 62.8
Total Depth: 76

DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	PID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION	LITHOLOGY
							and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%	
42	SS-8	0.0	16 18 17 15				No recovery, large schist fragment in shoe.	
44								
46	SS-9	1.0	10 14 11 13				Tan, medium grained sand, and coarse-very coarse gravel, some coarse grained sand.	
48								
50						DRY		
52	SS-10		21 27 20 18				Tan-orange, coarse grained sand and coarse-very coarse gravel.	
54								
56	SS-11		16 17 10 11				Tan-orange, coarse-very coarse grained sand and coarse gravel.	
58								
60								

WELL DIAGRAM



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DEPTH (FT)	SPLIT-SPOON	RECOVERY	BLOWS/6 INCHES	FID READING	PID READING	MOISTURE	GEOLOGIC DESCRIPTION (and = 35-50%; some = 20-35%; little = 10-20%; trace = 0-10%; f = fine; m = medium; c = coarse)	LITHOLOGY	WELL DIAGRAM
62	SS-12	1.0	14 16 18 24			DRY	Tan, coarse grained sand, some fine-coarse gravel.		2" Sched. 40 PVC 10 Slot Screen; #2 Morie Sand
64	SS-13	1.0	10 10 9 8				Tan, coarse grained sand, some coarse gravel.		
66	SS-14	1.0	4 6 5 5				Tan, coarse grained sand some coarse gravel.		
68	SS-15	2.0	10 15 12 13				Tan, coarse-very coarse grained sand and coarse-very coarse gravel.		
70	SS-16	1.0	4 6 7 9			WET	Tan, coarse-very coarse grained sand and coarse-very coarse gravel.		
72	SS-17	2.0	6 7 9 14				Tan, coarse-very coarse grained sand.		
74	SS-18	0.8	10 9 7 8				Tan, coarse-very coarse grained sand.		
76							EOB at 75 ft, augered to 76 ft. Well set at 75 ft.		
78									
80									

APPENDIX G

QUALITY ASSURANCE WORK PLAN

APPENDIX G - QUALITY ASSURANCE PROJECT PLAN

1.0 INTRODUCTION

1.1 Project Identification

Project Name:	Alsy Manufacturing, Inc. Site
Project Requested By:	New York State Department of Environmental Conservation (NYSDEC)
Project Manager:	To Be Determined
Quality Assurance Officer:	To Be Determined
Field Operations Manager:	To Be Determined

1.2 Objective and Scope

Site management is the final phase of remediation at the Alsy Manufacturing, Inc. Site and will continue until the remedial action objectives (RAOs) for the project are met and the site is closed out. The purpose of the Site Management Plan (SMP) is to describe the measures for monitoring and documenting the effectiveness of the remedial action in achieving site RAOs, both short-term and long-term.

The purpose of this Quality Assurance Project Plan (QAPP) is to develop and describe the detailed sample collection and analytical procedures that will ensure high quality, valid data for use in the SMP.

2.0 DATA USAGE

Data generated from the monitoring program will be used to evaluate the performance and effectiveness of the remedial action to ensure that the remedy meets the RAOs for the site.

2.1 Analytical Methods

Environmental sample analysis conducted at the Alsy Manufacturing, Inc. Site as part of the monitoring program will be performed in accordance with the NYSDEC 2005 Analytical Services Protocol (ASP) or latest revision. The groundwater samples will be analyzed for all or part of the Target Compound List (TCL) +10 volatile organic compounds (VOCs) and Target Analyte List (TAL) metals including cyanide.

Table 2-1 presents a summary of the analyses/sample fractions to be analyzed together with the sample location, type of sample, sample matrix, number of samples, type of sample container, method of sample preservation, holding time and analytical method.

2.2 Data Quality Requirements and Assessments

Data quality requirements and assessments are provided in the NYSDEC ASP, which includes the detection limit for each analyte and sample matrix. Note that the quantification limits, estimated accuracy, accuracy protocol, estimated precision and precision protocol are determined by the laboratory and will be in conformance with the requirements of the NYSDEC ASP (latest revision), where applicable. Table 2-2 presents a summary of the data quality requirements.

In addition to meeting the requirements provided in the NYSDEC ASP, the data must also be useful in evaluating the effectiveness of the remedial action. Data obtained during the monitoring program will be compared to Standards, Criteria, Guidance (SCGs) identified in the remedial action objectives. The SCGs to be utilized include:

Table 2-1

ALSY MANUFACTURING, INC. SITE
SUMMARY OF MONITORING PARAMETERS

Sample Location	Sample Type	Sample Matrix	Sample Fraction	Container Type/Size/No.	Sample Preservation	Maximum Holding Time*	Analytical Method
Monitoring Wells	Grab	Groundwater	Volatile Organics	Glass, clear/ 40 mL/3 ICHEM 300 series or equivalent	Cool to 4°C	7 days after VTSR for analysis	2005 NYSDEC ASP, by Method 8260
	Grab	Groundwater	Metals	Plastic, clear/ 1 L/1 ICHEM 300 series or equivalent	HNO^3 to pH<2 Cool to 4°C	26 days for Hg analysis, 6 months for analysis of others	2005 NYSDEC ASP, by Method 6010A/7470A
	Grab	Groundwater	Cyanide	Plastic, clear/ 1 L/1 ICHEM 300 series or equivalent	NAOH to pH<2 Cool to 4°C	12 days for analysis	2005 NYSDEC ASP, by Method 9010B

VTSR - Verified Time of Sample Receipt at the laboratory
*Holding times based on NYSDEC ASP

Table 2-2

ALSY MANUFACTURING, INC. SITE
DATA QUALITY REQUIREMENTS

Parameter	Sample Matrix	CRDL* (ug/l)	Estimated Accuracy	Accuracy Protocol**	Estimated Precision	Precision Protocol**
Volatile Organics	Liquid	10	0.87 – 1.18 ug/l	Vol. IV, Part XIX, Method 8260B, Table 7	0.11 – 0.84 ug/l	Vol. IV, Part XIX, Method 8260B, Table 7
Metals	Liquid	0.2-5000 0.2-5000	---	Vol. III, Part XIV, Method 200.7***, Table 4	---	Vol. III, Part XIV, Method 200.7, Table 4
Cyanide	Liquid	10 10	85%-102% of recovery	Vol. III, Part XIV, Method 335.2, Subpart 10	+/-0.005-+0.094 mg/l	Vol. III, Part XIV, Method 335.2, Subpart 10

*Contract Required Detection Limits - units are ug/l for liquid samples, ug/kg for solid samples.
** Reference: NYSDEC 7/05 ASP.
*** If trace ICP is not used, then SW-846 Methods for:

Metal	Method
Selenium	7740
Lead	7421
Thallium	7841
Mercury	7470
Arsenic	7060

Table 2-2 (Continued)

ALSY MANUFACTURING, INC. SITE
DATA QUALITY REQUIREMENTS
OBJECTIVES FOR PRECISION, ACCURACY, AND COMPLETENESS

Matrix/Parameter	Precision (%)	Accuracy (%)
Groundwater		
VOCs(a)	See Table 2-2a	See Table 2-2a
Metals(b)(c)	± 25%	75-125

NOTES:

(a) Accuracy will be determined as percent recovery of surrogate spike compounds and matrix spike compounds. Surrogate and matrix spike compounds for VOCs are listed in Table 2-2a. Precision will be estimated as the relative standard deviation of the percent recoveries per matrix.
(b) Accuracy will be determined as percent recovery of matrix spikes when appropriate or the percent recovery of a QC sample when spiking is inappropriate. Precision will be determined as relative percent difference of matrix spike duplicates samples, or duplicate samples if spiking is inappropriate.
(c) Precision will be determined as the average percent difference for replicate samples. Accuracy will be determined as the percent recovery of matrix spike samples or laboratory control samples, as appropriate.

Source: 2005 NYSDEC ASP

Table 2-2a

ALSY MANUFACTURING, INC. SITE
DATA QUALITY REQUIREMENTS
ACCURACY REQUIREMENTS FOR VOCs

	Spike Recovery Limits (%) Water
Surrogate Compound	
Toluene-d8	88-110
4-Bromofluorobenzene	86-115
1,2,Dichlorethane-d4	76-114
Matrix Spike Compound	
1,1-Dichloroethene	61-145
Trichloroethane	71-120
Chlorobenzene	75-130
Toluene	76-125
Benzene	76-127

Source: NYSDEC ASP

Matrix	SCG
Groundwater and Surface Water	NYSDEC Division of Water – Technical and Guidance Series (TOGS) (1.1.1) – Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, dated June 1998.
Surface and Subsurface Soil, Sediment and Sludge	NYSDEC 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives, effective December 14, 2006. **AND** NYSDEC Commissioner Policy CP-51 on Soil Cleanup Guidance, effective December 3, 2010.
Air	NYSDEC DAR-1, Guidelines for the Control of Toxic Ambient Air Contaminants, dated November 1997* and Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006.

*Including Complete and HAP Listings, AGCs, SGCs and Air Quality Standards for DAR-1 Software Program.

The methods of analysis will be in accordance with the NYSDEC ASP. Specific analytical procedures and laboratory quality assurance/quality control (QA/QC) descriptions are not included in this QAPP, but will be available upon request from the laboratory selected to perform the analysis. The laboratory will be a New York Department of Health (NYSDOH) Environmental Laboratory Approved Program (ELAP) certified for organic analyses and inorganic analysis.

2.2.1 Data Representativeness

Representative samples will be collected as follows:

- Groundwater (Monitoring Well) – Samples will be collected with a decontaminated low-flow pump after field measurements (pH, conductivity, temperature, dissolved oxygen and turbidity) have stabilized.
- Equipment Calibration – Field equipment used for air monitoring will be calibrated daily before use according to the manufacturer's procedures.

- Equipment Decontamination – Non-dedicated sampling equipment will be decontaminated prior to use at each location according to the NYSDEC approved procedures described in Section 5.0 of the QAPP.

2.2.2 Data Comparability

All data will be presented in the units designated by the methods specified by the NYSDOH ELAP certified laboratory and the NYSDEC ASP. In addition, sample locations, collection procedures and analytical methods from earlier studies will be evaluated for comparability with current procedures/methods.

2.2.3 Data Completeness

The acceptability of 100% of the data is desired as a goal for the project. The acceptability of less than 100% complete data, meeting all QA/QC protocols/standards, will be evaluated on a case-by-case basis.

3.0 SAMPLING AND ANALYSES

3.1 Trip Blanks (Travel Blanks)

The primary purpose of this type of blank is to detect additional sources of contamination that might potentially influence contaminant values reported in actual samples both quantitatively and qualitatively. The following have been identified as potential sources of contamination:

- Laboratory reagent water
- Sample containers
- Cross contamination in shipment
- Ambient air or contact with analytical instrumentation during preparation and analysis at the laboratory
- Laboratory reagents used in analytical procedures

A trip blank consists of a set of 40 ml sample vials filled at the laboratory with laboratory demonstrated analyte free water. Trip blanks should be handled, transported and analyzed in the same manner as the samples acquired that day, except that the sample containers themselves are not opened in the field. Rather, they just travel with the sample cooler. Trip blanks must accompany samples at a rate of one per shipment. The temperature of the trip blanks must be maintained at 4°C while on-site and during shipment. Trip blanks must return to the laboratory with the same set of bottles they accompanied in the field.

The purpose of a trip blank is to control sample container preparation and blank water quality as well as sample handling. Thus, the trip blank travels to the site with the empty sample container, and back from the site with the collected samples, in an effort to simulate sample handling conditions. Contaminated trip blanks may indicate inadequate bottle cleaning or blank water of questionable quality. Trip blanks are implemented only when collecting water samples, and analyzed for VOCs only.

3.2 Field Blank (Field Rinsate Blank)/Equipment BlanK

Field blanks are samples of water used for field decontamination purposes. Specifically, field blanks will include potable, site-supplied water used in decontamination activities and laboratory-supplied, reagent-grade, deionized water used for the final rinse in decontamination activities. Based upon discussions with the NYSDEC, field blanks will not be required for field activities in which dedicated, disposable sampling equipment (for example, bailers or sterile scoops) are being utilized for sample collection. However, an equipment blank is required when non-disposable equipment such as a split spoon is utilized since it will be decontaminated on-site after each use. Equipment blanks will be collected at a rate of one per day and analyzed for the same parameters as that of the samples collected with that equipment. The equipment blank will be collected by pouring laboratory supplied deionized water over/through the decontaminated equipment early in the field effort to assess the quality of the potable water supply used in decontamination activities.

3.3 Matrix Spikes/Matrix Spike Duplicates and Spiked Blanks

Matrix spike samples and blanks are quality control procedures, consistent with NYSDEC ASP specifications, used by the laboratory as part of its internal Quality Assurance/Quality Control program. The matrix and matrix spike duplicates are aliquots of a designated sample (water or soil) which are spiked with known quantities of specified compounds. They are used to evaluate the matrix effect of the sample upon the analytical methodology as well as to determine the precision of the analytical method used. A matrix spike blank is an aliquot of analyte-free water, prepared in the laboratory, and spiked with the same solution used to spike the MS and MSD. The MSB is subjected to the same analytical procedure as the MS/MSD and used to indicate the appropriateness of the spiking solution by calculating the spike compound recoveries. The procedure and frequency regarding the MS, MSD and MSB are defined in the NYSDEC ASP.

3.4 Method Blanks

A method blank is an aliquot of laboratory water or soil which is spiked with the same internal and surrogate compounds as the samples. Its purpose is to define and determine the level of laboratory background contamination. Frequency, procedure and maximum laboratory containment concentration limits are specified in the NYSDEC ASP as follows:

The laboratory shall prepare and analyze one laboratory reagent blank (method blank) for each group of samples of a similar matrix (for water or soil samples), extracted by a similar method (separatory funnel, continuous liquid extraction or sonication) and a similar concentration level (for volatile and semivolatile soil samples only) for the following, whichever is most frequent:

- Each case of field samples received; or
- Each 20 samples in a case, including matrix spikes and reanalyses; or
- Each 7 calendar day period during which field samples in a case were received (said period beginning with the receipt of the first sample in that sample delivery group); or
- Whenever samples are extracted.

Volatile analysis requires one method blank for each 12-hour time period when volatile target compounds are analyzed.

Semivolatile and pesticide method blanks shall be carried through the entire analytical process from extraction to final GC/MS or GC/EC analysis, including all protocol performance/ delivery requirements.

4.0 DETAILED SAMPLING PROCEDURES

Groundwater will be the only type of environmental sample collected as part of the current monitoring program for the Alsy Manufacturing, Inc. Site. Sample locations will be collected from 11 existing monitoring wells. Actual locations are described in SMP.

The materials involved in aqueous sample collection are critical to the collection of high-quality monitoring information, particularly where the analyses of volatile, pH-sensitive or reduced chemical constituents are of interest. Low-flow sampling techniques will be used for the groundwater sampling program. The appropriate sampling equipment will be utilized including a low-flow pump, controller and dedicated tubing.

There will be several steps taken after the transfer of the water sample into the sample container that are necessary to properly complete collection activities. Once the sample is transferred into the appropriate container, the container will be capped and, if necessary, the outside of the container will be wiped with a clean paper towel to remove excess sampling material. The container will not be submerged in water in an effort to clean it. Rather, if necessary, a clean paper towel moistened with distilled/deionized water will be used.

The sample container will then be properly labeled. Information such as sample number, location, collection time and sample description will be recorded in the field logbook. Associated forms (e.g., Chain of Custody forms) will then be completed and will stay with the sample. The samples will be packaged in a manner that will allow the appropriate storage temperature (4°C) to be maintained during shipment to the laboratory.

Table 4-1

ALSY MANUFACTURING, INC. SITE
MONITORING PROGRAM
SAMPLING MATRIX

Program Element	Environmental Media	Sample Type/Depth	Number of Samples	Equipment	Sample Analyses
Monitoring Well Sampling (1 Round)	Water	Groundwater/Screened Interval	11	Low-flow controller, pump, and dedicated tubing.	TCL VOCs, TAL Metals, and Cyanide
Trip Blanks	Water	Laboratory provided distilled water.	1*	Sample supplied by laboratory.	TCL VOCs.
Matrix Spike/ Matrix Spike Duplicates	Water	Groundwater and surface water (split of sample).	1**	Low-flow controller, pump, and dedicated tubing.	TCL VOCs, TAL Metals, and Cyanide
Field Blanks	Water	Potable, site-supplied water used in decontamination activities and laboratory-supplied, reagent-grade, deionized water used for the final rinse.	1***	Submersible Pump	TCL VOCs, TAL Metals, and Cyanide

*One trip blank will accompany each shipment of aqueous samples requiring volatile organic compound analysis.
**One MS/MSD for each media for every 20 samples collected or one every two weeks if fewer than 20 samples.
***Equipment blanks will be collected at a rate of one per day and analyzed for the same parameters as that of the samples collected with that equipment.

4.1 Sample Identification

All samples collected will be labeled with a sample identification code that is compatible with the NYSDEC EQuIS format. The code will identify the site, sample location, sample matrix and series of numbers for sample locations with more than one sample. Samples will be labeled according to the following system:

Site: - Site name (i.e., Hazardous Waste "HW")

Sample Location: - Monitoring Well "MW"

Sample Matrix (as listed in NYSDEC EQuIS reference values):

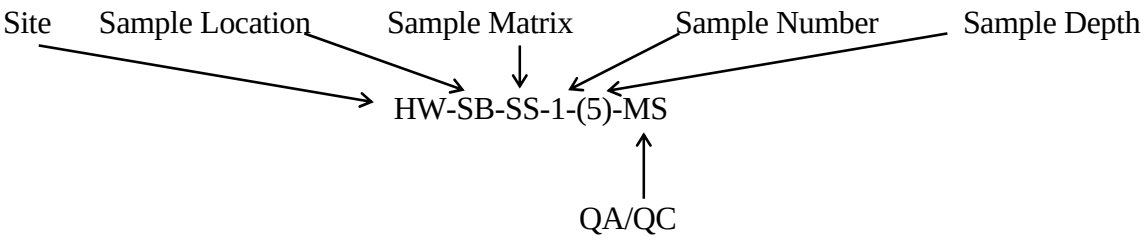
- WG – Groundwater

Sample Number: - For circumstances where more than one sample of the same type and/or from the same location will be collected, a consecutive sample number will be assigned. When more than one sample is collected from a borehole in a sampling round at different depths, the depth will be indicated on the sample container and in the field log book.

Quality Assurance/
Quality Control (QA/QC):

- Matrix Spike "MS"
- Matrix spike duplicate "MSD"
- Field Blank "FB"
- Trip Blank "TB"

Based upon the above sample identification procedures, an example of a sample label may be:



4.2 Sample Preservation, Handling and Shipment

All analytical samples will be placed in the appropriate sample containers as specified in the NYSDEC ASP. The holding time criteria identified for the individual methods of the ASP will be followed.

Prior to packaging any sample for shipment, the sample containers will be checked for proper identification and compared to the field logbook for accuracy. The samples will then be wrapped with a cushioning material. Sample containers will be placed in a cooler with ice immediately after sample collection and maintained at 4°C throughout the duration of the sampling event and subsequent shipment to and storage at the analytical laboratory until analysis.

All necessary documentation required to accompany the sample during shipment will be placed in a sealed plastic bag and taped to the underside of the cooler lid. The cooler will then be sealed with packaging tape and custody seals will be placed in such a manner that any opening of the cooler prior to arrival at the laboratory can be detected.

All samples will be shipped to ensure laboratory receipt within 48 hours of sample collection in accordance with NYSDEC requirements. The laboratory will be notified prior to the shipment of the samples.

4.3 Groundwater (Monitoring Well)

- Be certain that the sample location is noted in the field logbook.

- Measure the depth of water and total depth using a decontaminated water level indicator and compute the volume of standing water in the well.

- Groundwater sampling will be conducted in accordance with USEPA Low-Flow Sampling Protocol (USEPA, 1998). Groundwater in the well will be purged with a submersible or peristaltic pump prior to sampling at a rate suitable to minimize drawdown. Field parameters including pH, conductivity, temperature, dissolved oxygen and turbidity will be measured.

- The volume of water removed from each monitoring well will be dependent upon the time required for stabilization of the field parameters. In general, the well will be considered stabilized for sample collection when field parameters have stabilized for three consecutive readings as follows:

pH	+/- 0.1 standard units;
Conductivity	+/- 3 percent;
Turbidity	+/- 10 percent.

- When the field parameters have stabilized, the volume of water purged will be recorded, and groundwater in the monitoring well will be sampled through the pump at the same flow rate used to purge the well.

- Remove the laboratory precleaned sample containers from sample cooler, label container with an indelible marker, fill out Sample Information Record and Chain of Custody Form.

- Obtain a sample by using the tubing associated with the submersible or peristaltic pump.

- Samples for volatile organic analyses, will have no air space in the sample vial prior to sealing. This is done by filling the vial such that there is a meniscus on top. Carefully, slide the septum, Teflon® side down, onto the top of the vial and cap the vial. Check for bubbles by turning the vial upside down and tapping it lightly. If bubbles appear, reopen the vial, remove the septum and add more sample (or resample). Replace the septum, recap and check for bubbles. Continue until vial is bubble-free.

- Return sample container to sample cooler.

5.0 DECONTAMINATION PROCEDURES

All field sampling equipment should be sterile and dedicated to a particular sampling point. In instances where this is not possible, a field cleaning (decontamination) procedure will be used in order to reduce the chances of cross-contamination between sample locations. A decontamination station will be established for all field activities. This will be an area located away from the suspected source of contamination so as not to adversely impact the decontamination procedure, but close enough to the sampling area to keep equipment handling to a minimum.

5.1 Field Decontamination Procedures

All non-disposable equipment will be decontaminated at appropriate intervals (e.g., prior to initial use, prior to moving to a new sampling location and prior to leaving the Site). Different decontamination procedures are used for various types of equipment that perform the field activities as discussed below. When using field decontamination, it is advisable to start sampling in the area of the site with the lowest contaminant probability and proceed through to the areas of highest suspected contamination.

5.2 Decontamination Procedure for Drilling/Test Trench/Pit Equipment

All equipment such as drill rigs, backhoes and other mobile equipment should receive an initial cleaning prior to use at the site. The equipment will then be decontaminated prior to leaving the site and each time it returns on-site. Unless otherwise specified and approved, all wash/rinse solutions should be collected and contained on-site.

After the initial washing, cleaning may be reduced to those areas that are in close proximity to materials being sampled. Drill rig items such as auger flights, drill rods, and drill bits are to be cleaned in between sample locations.

Drilling equipment will be decontaminated in the following manner:

- Scrub all surfaces thoroughly with non-residual nonionic anionic detergent (such as Alconox) and tap water using a brush to remove particulate matter or surface film. This is necessary in order to remove any solids buildup on the back of the rig, auger flights, drill rods, drilling head, etc. Any loose paint chips, paint flakes and rust must also be removed.

- Steam clean (212°F).

Also, following the general cleaning procedures described above, all downhole/drilling items, such as split spoon samplers, or any other item of equipment which will come in direct contact with a sample during drilling will be decontaminated by steam cleaning.

5.3 Decontamination Procedure for Sampling Equipment

Teflon, PVC, polyethylene, polystyrene and stainless steel sampling equipment decontamination procedures will be the following:

- Wash thoroughly with non-residual nonionic anionic detergent (such as Alconox) and clean potable tap water using a brush to remove particulate matter or surface film.

- Rinse thoroughly with tap water.

- Rinse thoroughly with distilled water.

- Rinse in a well-ventilated area with methanol (pesticide grade) and air dry.

- Rinse thoroughly with distilled water and air dry.

- Wrap completely in clean aluminum foil with dull side against the equipment. For small sampling items, such as scoops, decontamination will take place over a drum specifically used for this purpose.

The first step, a soap and water wash, is to remove all visible particulate matter and residual oils and grease. This is followed by a tap water rinse and a distilled/deionized water rinse to remove the detergent. Next, a high purity solvent rinse is designated for trace organics removal. Methanol has been chosen because it is not an analyte of concern in the TCL. The solvent must be allowed to evaporate and then a final distilled/deionized water rinse is performed. This rinse removes any

residual traces of the solvent. The aluminum wrap protects the equipment and keeps it clean until it is used at another sampling location.

5.4 Decontamination Procedure for Well Casing/Screen and Development/Purging Equipment

Field cleaning of well casings and screens should consist of a manual scrubbing to remove foreign material and steam cleaning, inside and out, until all traces of oil and grease are removed. If pre-cleaned certified well casings and screens can be obtained from the manufacturer this would also be acceptable. This material should then be stored in such a manner so as to preserve it in this condition. Special attention to threaded joints may be necessary to remove cutting oil or weld burn residues.

Materials and equipment that will be used within the monitoring well casings for the purposes of well development and purging shall also be decontaminated.

The submersible pump will be decontaminated by the following procedures:

- Place pump in a water solution of a nonionic anionic surfactant solution (Alconox) solution and wash the outside of the pump with a scrub brush.
- Pump approximately five gallons of the wash solution through the pump.
- Place pump in bucket of clean water and pump out five gallons of water.
- Wipe down the cable with deionized water and a paper towel.

6.0 LABORATORY SAMPLE CUSTODY PROCEDURES

A NYSDOH ELAP certified laboratory meeting the requirements for sample custody procedures including cleaning and handling sample containers and analytical equipment will be used. The laboratory's standard operating procedures will be available upon request.

7.0 FIELD MANAGEMENT DOCUMENTATION

Proper management and documentation of field activities is essential to ensure that all necessary work is conducted in accordance with the monitoring plan and QAPP in an efficient and high-quality manner. Field management procedures include following proper chain of custody procedures to track a sample from collection through analysis, noting when and how samples are to be composited (if required), preparing a Location Sketch, completing Sample Information Record Forms, Chain of Custody Forms and Boring, Well and Test Pit Construction Logs, maintaining a daily Field Log Book, preparing Daily Field Activity Reports, and completing Field Change Forms. Copies of each of these forms are provided in Appendix A. Proper completion of these forms and the field log book are necessary to support the consequent actions that may result from the sample analysis. This documentation will support that the evidence was gathered and handled properly.

7.1 Location Sketch

Each sampling point shall have its own location sketch (found in Appendix A) with permanent references, to the maximum extent practicable.

7.2 Sample Information Record

At each sampling location, the Sample Information Record Form is filled out and maintained including, but not limited to, the following information:

- Site name
- Sample crew
- Sample location
- Field sample identification number
- Date
- Time of sample collection

- Weather conditions
- Temperature
- Sample matrix
- Method of sample collection and any factor that may affect its quality adversely
- Well information (groundwater only)
- Field test results
- Constituents sampled
- Remarks (Sample Information)

7.3 Chain of Custody

The Chain of Custody (COC) is initiated at the laboratory with bottle preparation and shipment to the site. The COC remains with the sample at all times and bears the name of the person assuming responsibility for the samples. This person is tasked with ensuring secure and appropriate handling of the bottles and samples. When the form is complete, it should indicate that there were no lapses in sample accountability.

A sample is considered to be in an individual's custody if any of the following conditions are met:

- It is in the individual's physical possession, or
- It is in the individual's view after being in his or her physical possession, or
- It is secured by the individual so that no one can tamper with it, or
- The individual puts it in a designated and identified secure area.

In general, Chain of Custody Forms are provided by the laboratory contracted to perform the analytical services. At a minimum, the following information shall be provided on these forms:

- Project name and address
- Project number
- Sample identification number
- Date
- Time
- Sample location
- Sample type
- Analysis requested
- Number of containers and volume taken
- Remarks
- Type of waste
- Sampler(s) name(s) and signature(s)
- Spaces for relinquished by/received by signature and date/time.

For this particular study, forms provided by the laboratory will be utilized. A copy of this form is contained in Appendix A.

The Chain of Custody Form is filled out and signed by the person performing the sampling. The original of the form travels with the sample and is signed and dated each time the sample is relinquished to another party, until it reaches the laboratory or analysis is completed. The field sampler keeps one copy and a copy is retained for the project file. The sample container must also be labeled with an indelible marker with a minimum of the following information:

- Sample number
- Analysis to be performed
- Date of collection
- Compositing information

A copy of the completed form is returned by the laboratory with the analytical results.

7.4 Split Samples

Whenever samples are being split with another party, a Receipt for Samples Form must be completed and signed. A copy of this form can be found in Appendix A. A copy of the COC Form will accompany this form. The present work plan does not provide for split samples.

7.5 Field Log Book

Field log books must be bound and should have consecutively numbered, water resistant pages. All pertinent information regarding the site and sampling procedures must be documented. Notations should be made in log book fashion, noting the time and date of all entries. Information recorded in this notebook should include, but not be limited to, the following:

The first page of the log contains the following information:

- Project name and address
- Name, address and phone number of field contact
- Waste generator and address, if different from above
- Type of process (if known), generating waste
- Type of waste
- Suspected waste composition, including concentrations

Daily entries are made for the following information:

- Purpose of sampling
- Location of sampling point

- Number(s) and volume(s) of sample(s) taken
- Description of sampling point and sampling methodology
- Date and time of collection, arrival and departure
- Collector's sample identification number(s)
- Sample distribution and method of storage and transportation
- References, such as sketches of the sampling site or photographs of sample collection
- Field observations, including results of field analyses (e.g., pH, temperature, specific conductance), water levels, drilling logs, and organic vapor and dust readings
- Signature of personnel responsible for completing log entries.

7.6 Daily Field Activity Report

At the end of each day of field work, the Field Operations Manager, or designee, completes this form noting personnel on-site and summarizing the work performed that day, equipment, materials and supplies used, results of field analyses, problems and resolutions. This form is then signed and is subject to review. A copy of the Daily Field Activity Report form is contained in Appendix A.

7.7 Field Changes and Corrective Actions

Whenever there is a required or recommended investigation/sampling change or correction, a Field Change Form must be completed by the Field Operations Manager and NYSDEC on-site supervisor, and approved by the Engineers and NYSDEC Project Managers.

8.0 CALIBRATION PROCEDURES AND PREVENTATIVE MAINTENANCE

The following information regarding equipment will be maintained for the project:

- Equipment calibration and operating procedures which will include provisions for documentation of frequency, conditions, standards and records reflecting the calibration procedures, methods of usage and repair history of the measurement system. Calibration of field equipment will be done daily at the sampling site so that any background contamination can be taken into consideration and the instrument calibrated accordingly.

- Critical spare parts, necessary tools and manuals will be on hand to facilitate equipment maintenance and repair.

Calibration procedures and preventive maintenance, in accordance with the NYSDEC ASP, for laboratory equipment are contained in the laboratory's standard operating procedures and are available upon request.

9.0 PERFORMANCE OF FIELD AUDITS

During field activities, the QA/QC officer may accompany sampling personnel into the field to verify that the site sampling program is being properly implemented and to detect and define problems so that corrective action can be taken. All findings will be documented and provided to the Field Operations Manager. A copy of the Field Audit form is in Appendix A.

10.0 CONTROL AND DISPOSAL OF CONTAMINATED MATERIAL

During construction and sampling of the monitoring wells and borings installed during the site maintenance, possible contaminated waste, soil and water may be generated from drill cuttings, drilling fluids, decontamination water, development water and purge water.

10.1 Decontamination Fluids

It is anticipated that decontamination fluids will be generated during steam cleaning activities, which will be collected in New York State Department of Transportation (NYSDOT) approved 55-gallon drums. The drums will be labeled as investigation-derived wastewater and temporarily stored in a secure area pending characterization and proper disposal.

10.2 Drill Cuttings

It is presumed that all drill cuttings generated during soil boring and monitoring well installation activities are contaminated. Therefore, all drill cuttings will be managed in accordance with DER-10 as follows: contained in NYSDOT approved 55-gallon drums or stored on protective sheeting and covered with protective sheeting if cuttings remain on the ground of the day, as stipulated in the site specific work plan. The soil may also be disposed on site within that borehole that it was generated within 12 inches of the surface (24 inches if the site is residential). If the soil is drummed it will be segregated by drill location as is practical. The drums will be labeled as investigation-derived waste soil from corresponding borings or source area and temporarily stored in a secure area pending characterization and proper disposal.

10.3 Development and Purge Water

It is anticipated that development and purge water will be collected in NYSDOT approved 55-gallon drums. Groundwater from several monitoring wells maybe combined provided they are associated with the same disposal site and aquifer. The drums will be labeled as investigation-

derived wastewater and temporarily stored in a secure area pending characterization and proper disposal.

10.4 Personal Protective Equipment

Personal protective equipment (PPE) will be placed in 55–gallon drums or roll-off containers and secured on-site for proper disposal.

10.5 Dedicated Sampling Equipment

In general, all soiled dedicated sampling equipment will be placed in 55-gallon drums or roll-off containers and secured on-site for disposal.

11.0 DOCUMENTATION, DATA REDUCTION AND REPORTING

A NYSDOH ELAP certified laboratory meeting requirements for documentation, data reduction and reporting will be used. All data will be cataloged according to sampling locations and sample identification nomenclature which is described in Section 4.0 of the QAPP. The laboratory analysis will be reported in the NYSDEC ASP Category B deliverable format. The laboratory will be providing an electronic data deliverable (EDD) for each data set in the most current NYSDEC EQuIS format.

NYSDEC "Sample Identification and Analytical Requirement Summary" and "Sample Preparation and Analysis Summary" forms (for VOA Analysis, B/N-A Analysis, Pesticides/PCB Analysis and Inorganic Analysis) will be completed and included with each data package. These forms are contained in Appendix B. The sample tracking forms are required and supplied by the NYSDEC ASP.

12.0 DATA VALIDATION

Data validation will be performed in order to define and document analytical data quality in accordance with NYSDEC requirements that investigation data must be of known and acceptable quality. The analytical and validation processes will be conducted in conformance with the NYSDEC 2005 ASP and NYSDEC DER-10.

Because the NYSDEC ASP is based on the USEPA CLP, the USEPA Functional Guidelines for Evaluating Organics Analyses for the Contract Laboratory Program (CLP) will assist in formulating standard operating procedures (SOPs) for the data validation process. The data validation process will ensure that all analytical requirements specific to the QA/QC plan are followed. Procedures will address validation of Routine Analytical Services (RAS) results based on the NYSDEC ASP Target Compound List and Target Analyte List for standard sample matrices.

The data validation process will provide an informed assessment of the laboratory's performance based upon contractual requirements and applicable analytical criteria. The report generated as a result of the data validation process will provide a base upon which the usefulness of the data can be evaluated by the end user of the analytical results. The overall level of effort and specific data validation procedure to be used will be equivalent to a "100% validation" of all data in any given data package.

"Qualified" analytical results for any one field sample will be established and presented based on the results of specific QC samples and procedures associated with its sample analysis group or batch. Precision Accuracy criteria (i.e., QC acceptance limits) will be used in determining the need for qualifying data. Where test data have been reduced by the laboratory, the method of reduction will be discussed in the report. Reduction of laboratory measurements and laboratory reporting of analytical parameters will be verified in accordance with the procedures specified in the NYSDEC and USEPA program documents for each analytical method (i.e., recreate laboratory calculations and data reporting in accordance with the method specific procedure).

The standard operating guideline manuals for any specific analytical methodology required will specify documentation needs and technical criteria and will be taken into consideration in the validation process. Copies of the complete data package and the data validation report, including laboratory result data report sheets, with any qualifiers deemed appropriate by the data reviewer, and supplementary field QC sample result summary statement, will be provided with the site periodic review report.

The following is a description of the two-phased approach to data validation which will be used for this investigation. The first phase is called checklisting and the second phase is the analytical quality review, with the former being a subset of the latter.

- Checklisting - The data package will be checked for correct submission of the contract required deliverables, correct transcription from the raw data to the required deliverable summary forms and proper calculation of a number of parameters.

- Analytical Data Review – The data package will be closely examined to recreate the analytical process and verify that proper and acceptable analytical techniques have been performed. Additionally, overall data quality and laboratory performance will be evaluated by applying the appropriate data quality criteria to the data to reflect conformance with the specified, accepted QA/QC standards and contractual requirements.

At the completion of the data validation, a Data Usability Summary Report (DUSR) will be prepared.

If the NYSDEC decides that a complete validation is not required, a DUSR will be prepared. The DUSR is prepared by reviewing and evaluating the analytical data. The parameters to be evaluated in reference to compliance with analytical method protocols include all chain-of-custody forms, holding times, raw data (instrument print out data and chromatograms), calibrations, blanks, spikes, controls, surrogate recoveries, duplicates and sample data. If available, field sampling notes should also be reviewed and any quality control problems should be evaluated as to their effect on the usability of the sample data.

The DUSR shall describe the samples and analysis parameters reviewed. Data deficiencies, analytical protocol deviations and quality control problems shall be described and their effect on data discussed.

Resampling and reanalysis recommendations will be made, if necessary. Data qualifications are documented for each sample analyte following the NYSDEC ASP 7/05 guidelines.

13.0 PERFORMANCE AND SYSTEM AUDITS

A NYSDOH ELAP certified laboratory which has satisfactorily completed performance audits and performance evaluation samples shall be used.

14.0 CORRECTIVE ACTION

A NYSDOH ELAP certified laboratory shall meet the requirements for corrective action protocols, including sample "clean up" to attempt to eliminate/mitigate "matrix interference."

The 2005 NYSDEC ASP includes both mandatory and optional sample cleanup and extractions methods. Cleanup is required by the 2005 NYSDEC ASP in order to meet contract required detection limits. There are several optional cleanup and extraction methods noted in the 2005 NYSDEC ASP. These include: florisil column cleanup, silica gel column cleanup, acid-base partition, steam distillation and sulfuric acid cleanup for PCB analysis.

High levels of matrix interference may be present in waste, soil and sediment samples. This interference may prevent the achievement of ASP detection limits if no target compounds are found. In order to avoid unnecessary dilutions, the optional cleanup methods noted in the 2005 NYSDEC ASP will be required to be performed by the laboratory as necessary.

It should be noted, that if these optional cleanup and extraction methods are requested by NYSDEC, holding time requirements should not be exceeded due to negligence of the laboratory. However, subsequent to selection of the analytical laboratory for this project, a meeting will be scheduled among representatives of the NYSDEC, the Engineer and the laboratory to discuss these issues and establish procedures to ensure good and timely communications among all parties.

D&B ENGINEERS AND ARCHITECTS, P.C.		DATE:
		REPORT NO.
		PAGE NO.
		PROJECT NO.

DAILY FIELD ACTIVITY REPORT

PROJECT _____

LOCATION _____

ATTACHMENTS _____

WEATHER	TIME	TEMP.	PRECIP.	WIND (MPH)	WIND (DIR)

SITE CONDITIONS:

WORK GOAL FOR DAY:

PERSONNEL ON SITE:

NAME	AFFILIATION	ARRIVAL TIME	DEPART TIME

EQUIPMENT ON SITE:

TYPE	MODEL	TYPE	MODEL

HEALTH & SAFETY:

PPE REQUIRED: ☐ ☐ ☐ ☐ **HASP?**

SITE SAFETY OFFICER:

H & S NOTES:

D&B ENGINEERS AND ARCHITECTS, P.C.		**DATE:**
		REPORT NO.
		PAGE NO.
		PROJECT NO.

DAILY FIELD ACTIVITY REPORT

DESCRIPTION OF WORK PERFORMED AND OBSERVED

D&B ENGINEERS AND ARCHITECTS, P.C.		**DATE:**
		REPORT NO.
		PAGE NO.
		PROJECT NO.

DAILY FIELD ACTIVITY REPORT

PREPARED BY (OBSERVER)	**REVIEWED BY**
PRINT NAME:	PRINT NAME:
SIGNATURE:	SIGNATURE:
☐ **ADDITIONAL SHEETS USED**	
☐ emailed draft / final to NYSDEC – date:	☐ hardcopy to NYSDEC – date:

FIELD OBSERVATION LOG
GROUNDWATER SAMPLING RECORD

SITE _____ DATE _____

WELL ID: _____ Time On-site: _____ Time Off-site: _____
SAMPLERS: _____

Depth of well (feet from top of casing/riser)..... _____ Depth to ____/____of screen
Initial static water level (feet from top of casing/riser)..... _____ top / bottom

Purging Method

Airlift	____	Centrifugal	___
Bailer	____	Pos. Displ.	___
Peristaltic Pump (dedicated tubing)	____	Disposable Bladder Pump (Low Flow)	___

Well Volume Calculation:
2 in. casing: _____ft. of water x 0.16 = _____ gallons
3 in. casing: _____ft. of water x 0.36 = _____ gallons
6 in. casing: _____ft. of water x 1.47 = _____ gallons

volume of water removed:
_____ gal. >3 volumes: yes ____ no ____ purged dry? yes ____ no ____

Field Tests

Time	Purge Rate (ml/min)	Depth to Water (ft)	pH [+/-0.1 units]	Temp (c°) [3%]	Spec. Cond. (ms/cm) [3%]	Turbidity (NTUs) [10% >5 NTU]	DO (mg/l) [10% >0.5mg/l]	ORP (mv) [+/- 10]

Purge Volume: Purging Time:
Purge Rate (gph):

Sampling
Time of Sample Collection: _____

Method:		Analyses:	
____	Stainless steel bailer	____	USEPA Method 8260C TCL VOCs
____	Teflon bailer	____	
____	Pos. Disp. Pump	____	
____	Disposable bailer	____	
X	Dedicated pump and tubing	____	

Observations
Well Observations: _____
Weather/Temperature: _____
Sample description: _____
Free Product? yes ____ no ____ describe _____
Sheen? yes ____ no ____ describe _____
Odor? yes ____ no ____ describe _____

D&B ENGINEERS AND ARCHITECTS, P.C.

SITE NAME: SITE ID.:

INSPECTOR:

MONITORING WELL FIELD INSPECTION LOG

DATE/TIME:

WEll ID.:

	YES	NO
WELL VISIBLE? (If not, provide directions below)		

WELL COORDINATES? NYTM X_____ NYTM Y_____

PDOP Reading from Trimble Pathfinder:_____ Satelites:_____

GPS Method (circle) Trimble And/Or Magellan

	YES	NO
WELL I.D. VISIBLE?		
WELL LOCATION MATCH SITE MAP? (if not, sketch actual location on back).....		

WELL I.D. AS IT APPEARS ON PROTECTIVE CASING OR WELL: .....

	YES	NO
SURFACE SEAL PRESENT?		
SURFACE SEAL COMPETENT? (If cracked, heaved etc., describe below)		
PROTECTIVE CASING IN GOOD CONDITION? (If damaged, describe below)		

HEADSPACE READING (ppm) AND INSTRUMENT USED.....

TYPE OF PROTECTIVE CASING AND HEIGHT OF STICKUP IN FEET (If applicable)

PROTECTIVE CASING MATERIAL TYPE: .....

MEASURE PROTECTIVE CASING INSIDE DIAMETER (Inches): .....

	YES	NO
LOCK PRESENT?		
LOCK FUNCTIONAL?		
DID YOU REPLACE THE LOCK?		
IS THERE EVIDENCE THAT THE WELL IS DOUBLE CASED? (If yes,describe below)		
WELL MEASURING POINT VISIBLE?		

MEASURE WELL DEPTH FROM MEASURING POINT (Feet): .....

MEASURE DEPTH TO WATER FROM MEASURING POINT (Feet): .....

MEASURE WELL DIAMETER (Inches): .....

WELL CASING MATERIAL: .....

PHYSICAL CONDITION OF VISIBLE WELL CASING: .....

ATTACH ID MARKER (if well ID is confirmed) and IDENTIFY MARKER TYPE .....

PROXIMITY TO UNDERGROUND OR OVERHEAD UTILITIES.....

DESCRIBE ACCESS TO WELL: (Include accessibility to truck mounted rig, natural obstructions, overhead power lines, proximity to permanent structures, etc.); ADD SKETCH OF LOCATION ON BACK, IF NECESSARY.

DESCRIBE WELL SETTING (For example, located in a field, in a playground, on pavement, in a garden, etc.) AND ASSESS THE TYPE OF RESTORATION REQUIRED.

IDENTIFY ANY NEARBY POTENTIAL SOURCES OF CONTAMINATION, IF PRESENT (e.g. Gas station, salt pile, etc.):

REMARKS:

Sketch

FIELD CHANGE FORM

Project Name:_____

Project Number:_____ Field Change Number:_____

Location: _____ Date:_____

Field Activity Description:_____

Reason for Change:_____

Recommended Disposition:_____

_____ _____
Field Operations Officer (D&B Consulting Engineers) (Signature) Date

Disposition:_____

_____ _____
On-site Supervisor (NYSDEC) (Signature) Date

Distribution: Project Manager (D&B) Others as Required:_____
Project Manager (NYSDEC) _____
Field Operations Officer _____
On-site Supervisor (NYSDEC) _____

FIELD AUDIT FORM

Site: _____ Date: _____

Persons On-site: _____ QA/QC Officer Conducting Audit: _____

_____ Project: _____

_____

1. Is safety equipment in use (hardhats, respirators, gloves etc.): YES NO

2. Is a decontamination station, equipment and supplies on-site and in working order:

Methanol	YES	NO
Alconox	YES	NO
D.I. Water	YES	NO
Scrub Brushes	YES	NO
Steam Cleaner	YES	NO

Comments: _____

_____

_____

3. Is the decontamination pad set up so water is contained: YES NO

Comments: _____

_____

_____

4. Is the site/investigation areas secured (fence, markers, etc.) or otherwise in accordance with project requirements: YES NO

Comments: _____

_____

_____

FIELD AUDIT FORM
(continued)

5. Is contaminated material properly stored and in a secure area or otherwise in accordance with project requirements: YES NO
   Are the drums of waste (water, soil, ppe) labeled properly: YES NO

   Comments: _____

   _____

   _____

6. Are field forms filled out properly, legibly and timely:

Field Log Book	YES	NO
Chain of Custody	YES	NO
Equipment Calibration Log	YES	NO
Daily Field Activity Report	YES	NO
Location Sketch	YES	NO
Sample Information Record	YES	NO
Equipment Usage Form	YES	NO
Boring Logs	YES	NO

   Comments: _____

   _____

   _____

7. Is the proper sampling and field measurement equipment, including calibration supplies on-site: YES NO

   Comments: _____

   _____

   _____

FIELD AUDIT FORM
(continued)

8. Are there adequate sample containers, including deionized water for QA/QC:

Field Blanks	YES	NO
Trip Blanks	YES	NO

Comments: _____

_____

_____

9. Is the equipment decontaminated in accordance with project requirements:

Sampling equipment	YES	NO
Construction equipment	YES	NO

Comments: _____

_____

_____

10. Is field measurement equipment calibrated:

Daily	YES	NO
Properly	YES	NO

Comments: _____

_____

_____

11. Are samples collected and labeled properly: YES NO

Comments: _____

_____

_____

FIELD AUDIT FORM
(continued)

12. Are samples stored at 4°C: YES NO

Comments: _____

_____

_____

13. Are coolers properly sealed and packed for shipment including Chain of Custody taped to underside of lid: YES NO

Comments: _____

_____

_____

14. Is a copy of the Field Investigation Work Plan available on-site: YES NO

Comments: _____

_____

_____

15. Is a copy of each equipment manual on-site: YES NO

Comments: _____

_____

_____

16. Is a copy of the QA/QC Plan available on-site: YES NO

Comments: _____

_____

_____

FIELD AUDIT FORM
(continued)

17. Are investigation personnel familiar with the Work Plan and QA/QC Plan: YES NO

Comments: _____

_____

_____

18. Are quality control samples taken:

Trip Blanks	YES	NO
Field Blanks	YES	NO

19. Are samples shipped in a timely and appropriate manner: YES NO

Comments: _____

_____

_____

20. Has the laboratory been contacted regarding planned shipment of samples: YES NO

Comments: _____

_____

_____

21. Certification - Based upon my audit at the above project, I hereby certify/do not certify compliance with QA/QC requirements for the project:

_____ _____

Dated Signed

FIELD AUDIT FORM
(continued)

General Comments: _____

_____

_____

_____

APPENDIX B

NYSDEC SAMPLE IDENTIFICATION, PREPARATION AND ANALYSIS SUMMARY FORMS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FORM S-I

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

NYSDEC Sample ID/Code	Laboratory Sample ID/Code	Analytical Requirements					
		VOA GC/MS (Method #)	BNA GC/MS (Method #)	VOA GC (Method #)	Pest PCBs (Method #)	Metals (Method #)	Other (Method #)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FORM S-IIa

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FORM S-IIb

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FORM S-IIc

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE/PCB
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FORM S-III

SAMPLE PREPARATION AND ANALYSIS SUMMARY
MISCELLANEOUS ORGANIC
ANALYSES

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	Dil/Conc Factor

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FORM S-IV

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

Laboratory Sample ID	Matrix	Metals Requested	Date Rec'd at Lab	Date Digested	Date Analyzed

APPENDIX C

TARGET COMPOUND AND TARGET ANALYTE LISTS

Volatiles Target Compound List (TCL) and Contract Required Quantitation Limits (CRQL) for Aqueous Samples

	Volatile Analyte	CAS Number	Trace Water By SIM (µg/L)	Trace Level Water (µg/L)	Low Level Water (µg/L)
1.	Dichlorodifluoromethane	75-71-8		0.50	5.0
2.	Chloromethane	74-87-3		0.50	5.0
3.	Vinyl Chloride	75-01-4		0.50	5.0
4.	Bromomethane	74-83-9		0.50	5.0
5.	Chloroethane	75-00-3		0.50	5.0
6.	Trichlorofluoromethane	75-69-4		0.50	5.0
7.	1,1-Dichloroethene	75-35-4		0.50	5.0
8.	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		0.50	5.0
9.	Acetone	67-64-1		5.0	10.0
10.	Carbon Disulfide	75-15-0		0.50	5.0
11.	Methyl Acetate	79-20-9		0.50	5.0
12.	Methylene chloride	75-09-2		0.50	5.0
13.	trans-1,2-Dichloroethene	156-60-5		0.50	5.0
14.	Methyl tert-Butyl Ether	1634-04-4		0.50	5.0
15.	1,1-Dichloroethane	75-34-3		0.50	5.0
16.	cis-1,2-Dichloroethene	156-59-2		0.50	5.0
17.	2-Butanone	78-93-3		5.0	10.0
18.	Bromochloromethane	74-97-5		0.50	5.0
19.	Chloroform	67-66-3		0.50	5.0
20.	1,1,1-Trichloroethane	71-55-6		0.50	5.0
21.	Cyclohexane	110-82-7		0.50	5.0
22.	Carbon tetrachloride	56-23-5		0.50	5.0
23.	Benzene	71-43-2		0.50	5.0
24.	1,2-Dichloroethane	107-06-2		0.50	5.0
25.	1,4-Dioxane	123-91-1	1.0	25	125
26.	Trichloroethane	79-01-6		0.50	5.0

Volatiles Target Compound List (TCL) and Contract Required Quantitation Limits (CRQL) for Aqueous Samples (Continued)

	Volatile Analyte	CAS Number	Trace Water By SIM (µg/L)	Trace Level Water (µg/L)	Low Level Water (µg/L)
27.	Methylcyclohexane	108-87-2		0.50	5.0
28.	1,2-Dichloropropane	78-87-5		0.50	5.0
29.	Bromodichloromethane	75-27-4		0.50	5.0
30.	cis-1,3-Dichloropropene	10061-01-5		0.50	5.0
31.	4-methyl-2-pentanone	108-10-1		5.0	10.0
32.	Toluene	108-88-3		0.50	5.0
33.	Trans-1,3-Dichloropropene	10061-02-6		0.50	5.0
34.	1,1,2-Trichloroethane	79-00-5		0.50	5.0
35.	Tetrachloroethene	127-18-4		0.50	5.0
36.	2-Hexanone	591-78-6		5.0	10.0
37.	Dibromochloromethane	124-48-1		0.50	5.0
38.	1,2-Dibromoethane	106-93-4	0.05	0.50	5.0
39.	Chlorobenzene	108-90-7		0.50	5.0
40.	Ethylbenzene	100-41-4		0.50	5.0
41.	Xylenes (Total)	1330-20-7		0.50	5.0
42.	Styrene	100-42-5		0.50	5.0
43.	Bromoform	75-25-2		0.50	5.0
44.	Isopropylbenzene	98-82-8		0.50	5.0
45.	1,1,2,2-Tetrachloroethane	79-34-5		0.50	5.0
46.	1,3-Dichlorobenzene	541-73-1		0.50	5.0
47.	1,4-Dichlorobenzene	106-46-7		0.50	5.0
48.	1,2-Dichlorobenzene	95-50-1		0.50	5.0
49.	1,2-Dibromo-3-chloropropane	96-12-8	0.05	0.50	5.0
50.	1,2,4-Trichlorobenzene	120-82-1		0.50	5.0
51.	1,2,3-Trichlorobenzene	87-61-6		0.50	5.0

Semivolatiles Target Compound List (TCL) and Contract Required Quantitation Limits (CRQL) for Aqueous Samples

	Semivolatile Analyte	CAS Number	Low Water By SIM[1] (µg/L)	Water (µg/L)
1.	Benzaldehyde	100-52-7		5.0
2.	Phenol	108-95-2	0.10	5.0
3.	Bis-(2-chlorothyl) ether	111-44-4		5.0
4.	2-Chlorophenol	95-57-8	0.10	5.0
5.	2-Methylphenol	95-48-7	0.10	5.0
6.	2,2'-Oxybis (1-chloropropane)[3]	108-60-1		5.0
7.	Acetophenone	98-86-2		5.0
8.	4-Methylphenol	106-44-5	0.10	5.0
9.	N-Nitroso-di-n-propylamine	621-64-7		5.0
10.	Hexachloroethane	67-72-1		5.0
11.	Nitrobenzene	98-95-3		5.0
12.	Isophorone	78-59-1		5.0
13.	2-Nitrophenol	88-75-5	0.10	5.0
14.	2,4-Dimethylphenol	105-67-9	0.10	5.0
15.	Bis (2-chloroethoxy) methane	111-91-1		5.0
16.	2,4-Dichlorophenol	120-83-2	0.10	5.0
17.	Naphthalene	91-20-3	0.10	5.0
18.	4-Chloroaniline	106-47-8		5.0
19.	Hexachlorobutadiene	87-68-3		5.0
20.	Caprolactam	105-60-2		5.0
21.	4-Chloro-3-methylphenol	59-50-7	0.10	5.0
22.	2-Methylnaphthalene	91-57-6		5.0
23.	Hexachlorocyclopentadiene	77-47-4		5.0
24.	2,4,6-Trichlorophenol	88-06-2	0.10	5.0
25.	2,4,5-Trichlorophenol[4]	95-95-4	0.20	10.0
26.	1,1'-Biphenyl	92-52-4		5.0
27.	2-Chloronaphthalene	91-58-7		5.0

Semivolatiles Target Compound List (TCL) and Contract Required Quantitation Limits (CRQL) for Aqueous Samples (Continued)

	Semivolatile Analyte	CAS Number	Low Water By SIM[1] (µg/L)	Water (µg/L)
28.	2-Nitroaniline[4]	88-74-4		10.0
29.	Dimethylphthalate	131-11-3		5.0
30.	2,6-Dinitrotoluene	606-20-2		5.0
31.	Acenaphthylene	208-96-8	0.10	5.0
32.	3-Nitroaniline[4]	99-09-2		10.0
33.	Acenaphthene	83-32-9	0.10	5.0
34.	2,4-Dinitrophenol[4]	51-28-5	0.20	10.0
35.	4-Nitrophenol[4]	100-02-7	0.20	10.0
36.	Dibenzofuran	132-64-9		5.0
37.	2,4-Dinitrotoluene	121-14-2		5.0
38.	Diethylphthalate	84-66-2		5.0
39.	Fluorene	86-73-7	0.10	5.0
40.	4-Chlorophenyl-phenyl ether	7005-72-3		5.0
41.	4-Nitroaniline[4]	100-01-6		10.0
42.	4,6-Dinitro-2-methylphenol[4]	534-52-1	0.20	10.0
43.	N-Nitrosodiphenylamine	86-30-6		5.0
44.	1,2,4,5-Tetrachlorobenzene	95-34-3		5.0
45.	4-Bromophenyl-phenylether	101-55-3		5.0
46.	Hexachlorobenzene	100-52-7		5.0
47.	Atrazine	108-95-2	0.10	5.0
48.	Pentachlorophenol	111-44-4	0.20	10.0
49.	Phenanthrene	95-57-8	0.10	5.0
50.	Anthracene	95-48-7	0.10	5.0
51.	Carbazole	108-60-1		5.0
52.	Di-n-butylphthalate	98-86-2		5.0

Semivolatiles Target Compound List (TCL) and Contract Required Quantitation Limits (CRQL) for Aqueous Samples (Continued)

	Semivolatile Analyte	CAS Number	Low Water By SIM[1] (µg/L)	Water (µg/L)
53.	Fluoroanthene	106-44-5	0.10	5.0
54.	Pyrene	621-64-7		5.0
55.	Butylbenzylphthalate	67-72-1		5.0
56.	3,3'-Dichlorobenzidine	98-95-3		5.0
57.	Benzo (a) anthracene	78-59-1		5.0
58.	Chrysene	88-75-5	0.10	5.0
59.	Bis (2-ethylhexyl) phthalate	105-67-9	0.10	5.0
60.	Di-n-octylphthalate	111-91-1		5.0
61.	Benzo (b) fluoranthene	120-83-2	0.10	5.0
62.	Benzo (k) fluoranthene	91-20-3	0.10	5.0
63.	Benzo (a) pyrene	106-47-8		5.0
64.	Indeno (1,2,3-cd) pyrene	87-68-3		5.0
65.	Benzo (a,h) anthracene	105-60-2		5.0
66.	Benzo (g,h,i) perylene	59-50-7	0.10	5.0

Semivolatile Notes

[1] CRQLs for optional analysis of water and soil samples using SIM (Selected Ion Monitoring) techniques for PAHs and phenols.

[2] Denotes soil, sediment, tissue, or mixed phase samples.

[3] Previously known as bis (2-Chloroisoproply) ether.

[4] Seven semivolatile compounds are calibrated using only a four point initial calibration, eliminating the lowest standard. Therefore, the CRQL values for these eight compounds are 2 times higher for all matrices and levels.

Pesticide Target Compound List (TCL) and Contract Required Quantitation Limits (CRQL) For Aqueous and Solid Samples

	Pesticide Analyte	CAS Number	Water (µg/L)	Solids[1] (µg/Kg)
1.	alpha-BHC	319-84-6	0.050	1.7
2.	beta-BHC	319-85-7	0.050	1.7
3.	delta-BHC	319-86-8	0.050	1.7
4.	gamma-BHC (Lindane)	58-89-9	0.050	1.7
5.	Heptachlor	76-44-8	0.050	1.7
6.	Aldrin	309-00-2	0.050	1.7
7.	Heptachlor epoxide[2]	1024-57-3	0.050	1.7
8.	Endosulfan I	959-98-8	0.050	1.7
9.	Dieldrin	60-57-1	0.10	3.3
10.	4,4'-DDE	72-55-9	0.10	3.3
11.	Endrin	72-20-8	0.10	3.3
12.	Endosulfan II	33213-65-9	0.10	3.3
13.	4,4'-DDD	72-54-8	0.10	3.3
14.	Endosulfan sulfate	1031-07-8	0.10	3.3
15.	4,4'-DDT	50-29-3	0.10	3.3
16.	Methoxychlor	72-43-5	0.10	3.3
17.	Endrin ketone	53494-70-5	0.10	3.3
18.	Endrin aldehyde	7421-93-4	0.10	3.3
19.	alpha-Chlordane	5103-71-9	0.050	1.7
20.	gamma-Chlordane	5103-74-2	0.050	1.7
21.	Toxaphene	8001-35-2	5.0	34

Pesticide Notes

[1] There is no differentiation between the preparation of low and medium soil samples in this method for the analysis of pesticides.

[2] Only the exo-epoxy isomer (isomer B) of heptachlor epoxide is reported on the data reporting forms (Exhibit B).

PCB Aroclor Target Compound List (TCL) and Contract Required Quantitation Limits (CRQL) For Aqueous and Solid Samples

	Aroclor Analyte	CAS Number	Water (µg/L)	Solids[1] (µg/Kg)
1.	Arochlor-1016	12674-11-2	1.0	33
2.	Arochlor-1221	11104-28-2	1.0	33
3.	Arochlor-1232	11141-16-5	1.0	33
4.	Arochlor-1242	53469-21-9	1.0	33
5.	Arochlor-1248	12672-29-6	1.0	33
6.	Arochlor-1254	11097-69-1	1.0	33
7.	Arochlor-1260	11096-82-5	1.0	33
8.	Arochlor-1262	37324-23-5	1.0	33
9.	Arochlor-1268	11100-14-4	1.0	33

Aroclor PCB Notes

[1] There is no differentiation between the preparation of low and medium soil samples in this method for the analysis of Aroclor PCBs.

Inorganic Target Compound List (TCL) and Contract Required Quantitation Limits (CRQLs) For Aqueous and Solid Samples

	Analyte	CAS Number	ICP-AES[1] CRQL for Water (µg/L)	ICP-AES[1] CRQL for Solids (mg/Kg)	ICP-MS[1] for Water (µg/L)
1.	Aluminum	7429-90-5	200	40	30
2.	Antimony	7440-36-0	60	12	2
3.	Arsenic	7440-38-2	15	3	1
4.	Barium	7440-39-3	200	40	10
5.	Beryllium	7440-41-7	5	1	1
6.	Cadmium	7440-43-9	5	1	1
7	Calcium	7440-70-2	5000	1000	--
8.	Chromium	7440-47-3	10	2	2
9.	Cobalt	7440-48-4	50	10	0.5
10.	Copper	7440-50-8	25	5	2
11.	Iron	7439-89-6	100	20	--
12.	Lead	7439-92-1	10	2	1
13.	Magnesium	7439-95-4	5000	1000	--
14.	Manganese	7439-96-5	15	3	0.5
15.	Mercury[2]	7439-97-6	0.2	0.1	--
16.	Nickel	7440-02-0	40	8	1
17.	Potassium	7440-09-7	5000	1000	--
18.	Selenium	7782-49-2	35	7	5
19.	Silver	7440-22-4	10	2	1
20.	Sodium	7440-23-5	5000	1000	--
21.	Thallium	7440-28-0	25	5	1
22.	Vanadium	7440-62-2	50	10	1
23.	Zinc	7440-66-6	60	12	1
24.	Cyanide[2]	57-12-5	10	1	--

Inorganic Notes

[1] Any analytical method specified in Exhibit D, may be utilized as long as the documented instrument or method detection limits (IDLs or MDLs) are less than one half the Contract Required Quantitation Level (CRQL) requirements. Higher quantitation levels may only be used in the following circumstance:

If the sample concentration exceeds five times the quantitation limit of the instrument or method in use, the value may be reported even though the instrument or method detection limit may not equal the Contract Required Quantitation Limit. This is illustrated in the example below:

For lead:
Method in use = ICP
Instrument Detection Limit (IDL) = 40
Sample concentration = 220
Contract Required Quantitation Level (CRQL) = 3

The value of 220 may be reported even though instrument detection limit is greater than Contract Required Quantitation Limit. The instrument or method detection limit must be documented as described in Exhibit E.

[2] Mercury is analyzed by cold vapor atomic absorption. Cyanide is analyzed by colorimetry/spectrophotometry.

APPENDIX H

HEALTH AND SAFETY PLAN

APPENDIX H

EXHIBIT 11

SITE-SPECIFIC INFORMATION

The following site-specific information will be filled out by project personnel for each site and will be posted on-site:

Site Name:	Alsy Manufacturing 3150–45A
Address:	270 and 280 Duffy Avenue, Hicksville,
	Nassau County, New York 11801
Telephone:	N/A
Date of HASP Preparation:	
Dates of Field Investigation:	
Entry Objectives:	

	Name	Phone
Site Organizational Structure:		
Project Director:		
Project Manager:		
HSO:		
FOM/Alternate HSO:		
Field team staff:		
Subcontractors:		

Medical Assistance	
Physician:	
Hospital:	Nassau University Medical Center
Address:	2201 Hempstead Turnpike, East Meadow, NY 11554

EXHIBIT 11 (continued)

SITE-SPECIFIC INFORMATION

Emergency Telephone: (516) 572-0123

Directions: Head west toward Duffy Ave
Turn Right onto Duffy Ave
Use the left lane to turn right onto Old Country Rd
Turn left onto Carman Ave Ext
Continue onto Carman Ave
Turn left at Dofena Ln

See attach a route to hospital

Emergency Telephones

Agent/Facility	Telephone	Emergency No.
EMS - Ambulance		911
Police Department		911
Fire Department		911
Hospital	(516) 572-0123	
Poison Control Center	1-800-222-1222	211

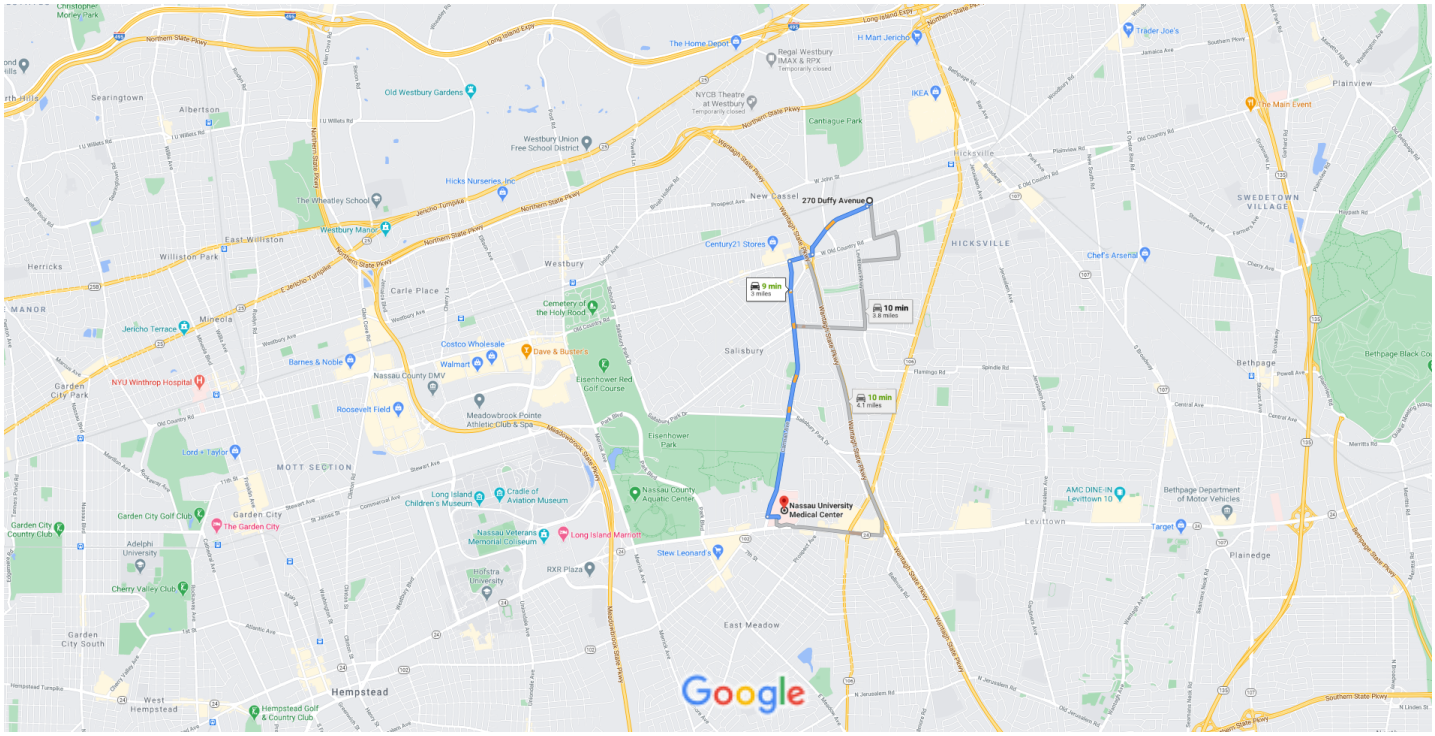
Additional site related information (may include special hazards, site control, waste storage and disposal, PPE, decon area location, special engineering controls, etc.).

Secure limits of work area and install traffic control/pedestrian protection devices per the Technical Scope of Work, work permits, and applicable federal, state and local laws, rules and regulations.

Google Maps

270 Duffy Ave, Hicksville, NY 11801 to Nassau University Medical Center

Drive 3.0 miles, 9 min



Map data ©2020 Google 2000 ft

270 Duffy Ave

Hicksville, NY 11801

1. Head west toward Duffy Ave
   253 ft
2. Turn right onto Duffy Ave
   0.6 mi
3. Use the left lane to turn right onto Old Country Rd
   0.2 mi
4. Turn left onto Carman Ave Ext
   0.2 mi
5. Continue onto Carman Ave
   1.8 mi
6. Turn left at Dofena Ln
   499 ft

Nassau University Medical Center

2201 Hempstead Turnpike, East Meadow, NY 11554

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan

New York State Department of Environmental Conservation

Generic Health and Safety Plan

Prepared for:

New York State Department of Environmental Conservation

Standby Engineering Contract

April 2011

Prepared by:

D&B Engineers and Architects

GENERIC HEALTH AND SAFETY PLAN

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STANDBY ENGINEERING CONTRACT

Prepared by:

D&B/TRC JOINT VENTURE
WOODBURY, NEW YORK

APRIL 2011

CERTIFICATION

This Health and Safety Plan (HASP) has been prepared under the supervision of, and has been reviewed by, a Certified Industrial Hygienist (CIH) certified by the American Board of Industrial Hygiene.

(Bruce Groves, CIH)
ABIH No. Cert # 2224

HEALTH AND SAFETY PLAN

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1.0 INTRODUCTION

1.1 General

This Health and Safety Plan (HASP) is prepared to meet the requirements contained in 29 CFR §1910.120 and §1926, NIOSH/OSHA/USCG/USEPA Guidance Manual for Hazardous Waste Site Activities (NIOSH No. 85-115), USEPA "Standard Operating Safety Guides," and Superfund Amendments and Reauthorization Act (SARA), Title I, Section 126. The HASP addresses activities associated with field investigations conducted at New York State Department of Environmental Conservation (NYSDEC) Superfund sites. Compliance with the HASP is required of all on-site personnel entering and/or conducting investigation activities at the site. Personnel conducting activities at the sites will be subject to the requirements of this HASP and accountable to the authorities having jurisdiction at the site. Site-specific information regarding health and safety will be included in a site-specific work plan, if required.

1.2 Purpose and Scope of the HASP

This HASP sets forth the requirements for on-site health and safety supervision, air monitoring, medical monitoring, personal protective equipment, controls, safe work practices and proper decontamination in order to ensure health and safety during activities associated with field investigation in the restricted zones of a site.

1.3 Site Description

The sites covered under this plan include a wide variety of active and inactive commercial and industrial facilities. Specific information pertaining to each site will be provided in a site-specific work plan, if required.

2.0 PERSONNEL ORGANIZATION AND RESPONSIBILITIES

Investigation of sites will require the interaction of contractors, site facility operators and technical specialists, both on-site and off-site. The project team will comprise representatives of the New York State Department of Environmental Conservation (NYSDEC), Dvirka and Bartilucci Consulting Engineers (D&B), the environmental consultant and various contractors.

2.1 Project Director

The Project Director will have overall responsibility for implementation of the corporate and site-specific Health and Safety Plan, if required, and the supervision and monitoring of employees and contractors.

2.2 Project Manager

The Project Manager will assure that all elements of this HASP are implemented where applicable and that all project staff are protected and working in a safe manner.

2.3 Health and Safety Officer (HSO)

The HSO will be responsible for preparation of the site-specific HASP, if required, and has the final authority to resolve health and safety issues at the site. The HSO has overall responsibility for ensuring that the policies and procedures of this HASP are implemented.

The HSO will provide regular support for all health and safety activities, including recommendations for upgrading or downgrading the level of personal protection, as needed.

The HSO will be on-site as needed during the field investigation. The HSO has the authority to stop work at any time unsafe work conditions are present. Any potentially hazardous condition posing a risk beyond the defined role or mission is anticipated to require the HSO to consult with the Field Operations Manager (FOM) and Project Director.

The HSO will be a Certified Hazardous Materials Manager (CHMM), Certified Safety Professional (CSP), Certified Industrial Hygienist (CIH) or designee, and will be available off-site on an as-needed basis to provide technical support to the FOM. Any decisions requiring use or selection of personal protection equipment (PPE), or monitoring devices other than those in the HASP, will be approved by the HSO or designee.

2.4 Field Operations Manager and Alternate HSO

The FOM, or designee, will serve as the Alternative HSO and will be responsible for conducting the work and for assuring that the work is conducted in accordance with the requirements of the HASP. The FOM will be on-site as needed during the field investigation and will manage all day-to-day activities of all parties on the site.

The FOM will be responsible for implementing safety precautions and procedures during all investigation phases, and has final authority to resolve health and safety issues at the site when the HSO is not on-site.

2.5 Physician

A physician will be responsible for all medical review, diagnosis and certification of all site personnel. An on-call physician will be available for each investigation designated in the site-specific work plan, if required.

2.6 General Health and Safety Requirements for all Employees

The following general health and safety requirements will apply to all persons working at the site:

- All persons working on the investigation team will read, sign and become familiar with the HASP (a copy of the Health and Safety Plan Review Acknowledgment Form is provided in Exhibit 1). If any information is unclear, the reader will contact the

HSO for clarification prior to any field work. A copy of the plan will be available for review through the Project Manager, FOM or designee.

- No one will be allowed in active investigation areas without the prior knowledge and approval of the HSO, Project Manager or FOM. All active areas that could pose a potential threat to health and safety will be designated with warning tape or other measures to prevent access by other site personnel or the public.

- Sufficient backup personnel will be available for all site activities. At a minimum, two persons will be present at any location during investigation activities.

- All personnel involved in the investigation at the site will notify the HSO, Project Manager or FOM of any unsafe conditions or activities.

- Standard hygiene practices will be implemented, such as no smoking, eating or drinking during site investigation work activities. A thorough washing of hands and face prior to smoking, eating or drinking will be conducted.

- Workers will avoid unnecessary contamination, such as walking through, sitting on, leaning on or kneeling in areas that are known or suspected to be contaminated.

- All site personnel will observe their partners for any signs of adverse effects associated with the work activity, and will inform their partner or supervisor of any unusual signs or symptoms that they are experiencing themselves.

3.0 HAZARD ASSESSMENT AND RISK ANALYSIS

3.1 Potential Health Hazards

The general hazard potential at hazardous waste sites is characterized in Table 3-1. The primary concern at these sites is to protect workers from potential exposure to contaminated soil, vapors, dust, groundwater and other contaminated materials when conducting the field investigation. In addition to the chemical hazards, physical, biological, radiological and underground hazards may also exist. These hazards are identified on Table 3-2 and are discussed below.

3.1.1 Health Hazard Identification

A list of the chemical contaminants that are commonly found at hazardous waste sites is found in Table 3-2. These chemical contaminants may be present, along with other compounds, at levels which, upon release and contact, may result in concentrations approaching the OSHA Permissible Exposure Limits (PELs). There may also be chemicals or mixtures of chemicals for which no information at the time of preparation of this HASP have been identified. Workers should be observant of any unplanned occurrences (unusual odor, soil colorations, etc.).

3.1.2 Health Hazard Evaluation

The primary potential health hazards of concern to workers from contaminants are from the inhalation of vapors and dusts, and skin exposure to corrosive substances or skin absorptive poisons. Potential for these exposures exist when conducting field programs using various investigation techniques.

Table 3-1

SUMMARY OF CHARACTERISTICS AND HEALTH HAZARDS

Type of site	Active and inactive commercial and industrial facilities
Apparent hazard	Low-moderate (in general)
Potential source	Contaminated surface and subsurface soil, groundwater, wastewater, drainage water, surface water, sediment and sanitary waste/sludge
Contamination characteristics	Toxic, corrosive, flammable
Form of hazards	Dust, liquids, vapors
Routes of exposure	Inhalation, ingestion, dermal contact

Table 3-2

SUMMARY OF POTENTIAL HAZARDS

CHEMICAL HAZARDS	Volatile organic compounds
	Semivolatile organic compounds
	Pesticides
	PCBs
	Metals
	Cyanide
PHYSICAL HAZARDS	Noise
	Slips, trips, falls
	Deteriorated overhead surfaces
	Heavy equipment traffic
	Heat or cold stress
	Striking and struck by (heavy equipment)
BIOLOGICAL HAZARDS	Pigeon droppings
	Rabies carrying animals (rats, raccoons, etc.)
	Poisonous snakes (weather dependent)
	Stinging insects (weather dependent)
	Poisonous plants (weather dependent)
ELECTRICAL HAZARDS	Overhead or underground power lines
	Lightning
	Electrical equipment
FIRE/EXPLOSION HAZARDS	Combustible gas
OXYGEN DEFICIENCY	Working in confined spaces
RADIATION HAZARDS	Wastes
UNDERGROUND HAZARDS	Contaminated media
	Gas lines
	Water lines
	Sewer/storm lines
	Electrical lines
	Telecommunication lines

During work on-site, air monitoring will be performed in accordance with Section 7.2 – Air Monitoring. OSHA PELs and American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV) may be exceeded during investigation activities. A list of PELs and Health Hazards of Typical Contaminants of Concern are listed on Table 3-3. This list must be updated based on site specific contaminants of concern in the site specific Health and Safety Plan. The activities to be performed during typical site investigations are summarized in Table 3-4. Air monitoring will be performed during the implementation of these activities. Further discussion of air monitoring is provided in Section 7.2 and in the event of the potential exposure, personal protective equipment requirements are provided in Section 5.

3.1.3 Potential Exposures

Potentially contaminated samples include soil, groundwater, wastewater, sludge, storm water, surface water and sediment. The expected risk of exposure to these chemicals would be from inhalation, ingestion, skin or eye contact with volatile compounds, contaminated dusts, etc. Potential exposures can be mitigated through appropriate investigation procedures, work practices, air monitoring and personal protective equipment. Duration and frequency of exposure will be short and intermittent over a period of several weeks. All personnel related to the investigation will keep upwind of all soil disturbances and sampling activities, when possible. In addition, splashing of liquids and generation of dust should be minimized by employing careful handling practices.

3.1.4 Physical and Biological Hazards

Anticipated potential physical hazards from routine investigative work are low to moderate, but still require consideration due to their ability to cause injury. Workers may encounter sharp objects, pinch points or unsecured footing. Improper or careless use of sampling, drilling and excavation equipment increases the risks of accidents from underground and overhead utilities, and operation of the equipment. When working around machinery, there

Table 3-3

PERMISSIBLE EXPOSURE LIMITS AND HEALTH HAZARDS OF CONTAMINANTS OF CONCERN

Chemical	OSHA Permissible Exposure Limits	Primary Health Hazard (Target Organs)
Acetone	1,000 ppm, IDLH 2,500 ppm	Eyes, skin, respiratory system (RS), central nervous system (CNS)
Benzene	1 ppm, IDLH 500 ppm	Eyes, skin, RS, blood, CNS, bone marrow
Chlorobenzene	100 ppm, IDLH 1000 ppm	Eyes, skin, liver, RS, CNS
1,1-Dichloroethene	100 ppm, IDLH 3000 ppm	Skin, liver, lungs, kidneys, CNS
1,2-Dichloroethene	200 ppm, IDLH 1000 ppm	Eyes, RS, CNS
Chloroform	TLV 10 ppm, C 50 ppm	Eyes, skin, liver, Reproductive System
1,1,2-Trichloroethane	10 ppm, IDLH 100 ppm	Eyes, RS, liver, kidneys, CNS
1,1-Dichloroethylene	None (carcinogen)	Eyes, skin, blood, liver, kidneys, CNS
Trichloroethene	100 ppm, IDLH 1000 ppm	Eyes, skin, RS, heart, liver, CNS
Tetrachloroethene (Perchloroethene)	100 ppm, C 200 ppm	Eyes, RS, skin, liver, kidneys, CNS
1,1,1-Trichloroethane	350 ppm, IDLH 700 ppm	Eyes, skin, CNS, cardiovascular system (CVS), liver
Ethylbenzene	100 ppm, IDLH 800 ppm	Eyes, skin, RS, CNS
1,4-Dichlorobenzene	75 ppm, IDLH 150 ppm	Eyes, RS, liver, kidneys, skin
1,3-Dichlorobenzene	Not listed	Not listed
Ethene	Not listed	Not listed
Methane	Not listed	Not listed
Methylene Chloride	25 ppm, IDLH 2300 ppm	Eyes, skin, CVS, CNS
Toluene	200 ppm, IDLH 500 ppm	Eyes, skin, RS, CNS, liver, kidneys
Vinyl Chloride	1 ppm, C 5 ppm	Liver, CNS, blood, RS, lymphatic system

C - Ceiling Limit
IDLH - Immediately Dangerous to Life and Health
ST - Short Term Exposure Limit

Table 3-3 (continued)

PERMISSIBLE EXPOSURE LIMITS AND HEALTH HAZARDS OF CONTAMINANTS OF CONCERN

Chemical	OSHA Permissible Exposure Limits	Primary Health Hazard (Target Organs)
Benzene	1 ppm, ST* 5 ppm	Eyes, skin, respiratory system (RS), blood, central nervous system (CNS), bone marrow
Toluene	200 ppm C**300 ppm	Eyes, skin, RS, CNS, liver, kidneys
Ethylbenzene	100 ppm	Eyes, skin, RS, CNS
Xylene	100 ppm	Eyes, skin, RS, CNS, gastrointestinal (GI) tract, blood, liver, kidneys
Naphthalene	10 ppm	Eyes, skin, blood, liver, kidneys, CNS
Fluoranthene	0.2 mg/m^3	No specific hazard listed
Coal Tar Pitch (phenanthrene, anthracene, pyrene, chrysene and benzo(a)pyrene)	0.2 mg/m^3	RS, skin, bladder, kidneys
Arsenic	0.010 mg/m^3	Liver, kidneys, skin, lungs, lymphatic system
Barium	0.5 mg/m^3	Eyes, nose, throat, lungs, heart and GI tract
Cadmium	0.005 mg/m^3	RS, kidneys, prostate, blood
Chromium	0.5 mg/m^3	Eyes, skin, RS
Lead	0.050 mg/m^3	Eyes, GI tract, CNS, kidneys, blood, gingival tissue
Mercury	C**0.1 mg/m^3	Eyes, skin, RS, CNS, kidney
Selenium	0.2 mg/m^3	Eyes, skin, RS, liver, kidneys, blood, spleen
Silver	0.01 mg/m^3	Nasal septum, skin, eyes
PCBs	0.5 mg/m^3 (skin)	Skin, eyes, liver, reproductive system
Hydrogen Cyanide	10 ppm (11 mg/m^3)	CNS, CVS, thyroid, blood
Cyanide (potassium or sodium cyanide, as CN)	5.0 mg/m^3	Heart, eyes, nose, throat, skin

ST - Short Term Exposure Limit
C - Ceiling Limit

Table 3-4

ACTIVITIES TO BE PERFORMED DURING INVESTIGATIONS

Soil vapor sampling
Dry well, storm water drainage system and on-site sanitary system sampling
Test pit excavation
Surface soil sampling
Borehole construction and subsurface soil sampling
Monitoring well construction
Groundwater sampling
Surface water and surface water sediment sampling
Ambient air sampling

are also potential electrical hazards. In addition, workers may be exposed to poison ivy, stinging and biting insects, ticks and vermin. Personnel working at sites should take precautions against possible deer tick bites. Deer ticks are carrier of spirochete (borrelia bergdorfii) which causes Lyme Disease that can be transmitted to humans when bitten. To prevent tick bites, personnel should wear long pants made of light-colored, tightly woven cloth; tuck pant legs inside of socks; use an insect repellant; check themselves frequently and wash themselves thoroughly at the end of each day. Heat/cold stress, sunlight and UV radiation, and biological hazards are also potential hazards. Refer to Exhibit 6 for heat/cold stress guidelines.

Open excavations, pits, trenches, drill pit, sanitary system and other confined spaces as defined in 29 CFR 1910.14b(c)(1) and 29 CFR 1910.14b(d)(2) also represent hazards and under no circumstances will they be entered unless written procedures are in place for confined space entry. D&B's corporate confined space entry procedure is provided as Exhibit 2. Anyone performing confined space operations has received the necessary training. Oxygen content, flammable gasses or vapors and toxic air contaminants monitoring must be performed in accordance with Exhibit 2.

3.1.5 Radiological Hazards

Humans receive a continuous exposure to ionizing radiation that results from natural sources such as cosmic radiation from outer space and from radioactive materials in the earth and materials both around and within the body. This is referred to as "background radiation" and is part of the normal environment. The degree of injury inflicted on an individual by radiation exposure depends on such factors as the total dose, the rate at which the dose is received, the kind of radiation as well as the body parts receiving it.

Extensive work has been performed in an attempt to relate radiation dose to resulting damage. Based upon all the studies performed "maximum permissible levels" of exposure have been established which denote the radiation dose that can be tolerated with little chance of later development of adverse effects. A Geiger counter will be utilized as a screening tool to ensure that no source other than natural radioactive materials or background levels are present on-site.

Readings indicative of elevated radioactive activity will be cause to assess the current levels of personnel protective equipment and determine their adequacy. The HSO will be consulted immediately if investigative activities result in elevated Geiger counter readings.

3.2 Activity Safety and Health Hazard Analysis

Field activities for hazardous waste sites will include collecting samples from various locations and environmental media using techniques including:

- Soil vapor sampling;
- Dry well, storm water drainage system and on-site sanitary system sampling;
- Test pit excavation;
- Direct push sampling;
- Surface soil sampling;
- Borehole construction and subsurface soil sampling;
- Monitoring well construction;
- Groundwater sampling;
- Surface water and surface water sediment sampling; and
- Ambient air sampling.

Potential safety risks will vary with the specific activity and equipment used, and with the sampling sites themselves. When any new data is collected, potential health and safety hazards will be evaluated with respect to the current and planned activities at the site. All sampling work in which the potential hazards have not been identified may require additional precautions to assure protection against potential hazards. Any modifications of the investigation work plan will require evaluation to determine if the existing Health and Safety Plan is adequate in protecting on-site investigators.

With the installation of groundwater monitoring wells and soil borings, soil and groundwater sampling, test pit excavations, and dry well, storm water drainage system and sanitary system sampling during the investigation, some safety risks inherent with these activities may be expected. There is the potential for mechanical and physical "struck-by" hazards associated with the equipment and sampling activities. There are also potential electrical hazards from underground lines, overhead lines and use of electrical equipment and tools. The location of all underground utilities must be determined in areas where subsurface investigation is to be performed. Utility companies will be contacted to provide "mark-outs" on and off site at all investigation locations prior to initiation of subsurface activities. The property owner will also be contacted to determine utility locations on site. When conducting work inside structures, machinery lockout/tagout must be performed. A Lockout/Tagout Program has been established to protect employees from injuries that could result from the unexpected or unplanned start-up or movement of machinery or equipment during maintenance, installation, adjustment or servicing operations. This policy sets forth procedures which will be used to ensure that employees are provided with the information and equipment they need to perform these tasks safely. Exhibit 4 provides lockout/tagout procedures.

With regard to projects where excavating and trenching operations are being undertaken, personnel shall not enter the excavation for collection of a sample. D&B's corporate excavation trenching operations guidelines are provided as Exhibit 3.

The direct handling of contaminated drums, containers or concentrated/pure chemicals is not expected during the investigation. In the event that such materials are encountered during the field program, the operation will cease and uncovered drums which have been damaged will be immediately covered with soil to minimize release of volatile compounds. This condition will be recorded and reported to NYSDEC, and the field team will be instructed to secure the area until health and safety risks are properly assessed and the course of further action is determined.

The activities to be conducted at hazardous waste sites typically represent low to moderate health risk relative to the potential to encounter contaminated material. The risk

associated with safety hazards is also low to moderate. Potential levels of airborne contaminants may dictate use of appropriate personal protective equipment as deemed necessary by the HSO.

Initial work will be conducted in Level D personal protection. Monitoring equipment to be used includes: portable PID/FID, and combustible gas, oxygen, hydrogen sulfide indicator and Geiger counter. Additional instrumentation and sampling systems may be utilized if deemed necessary by the HSO or designee. The HSO or designee may modify these requirements as deemed necessary.

Proper wearing of protective equipment and employment of stringent personal hygiene practices should reduce potential health hazards.

Restricting access of on-site personnel to all equipment operations, maintaining safe distances from equipment and wearing proper safety equipment will reduce risk of injuries.

4.0 TRAINING REQUIREMENTS

4.1 General Health and Safety Training

All on-site personnel assigned to or regularly entering areas of the site other than the Support Zone (once established) will be trained in accordance with 29 CFR 1910.120. This training will be required for personnel performing or supervising work; for health, safety, security, or administrative purposes; for maintenance; or for any other site related function.

The training will include a minimum of 40 hours of general health and safety training meeting the requirements of 29 CFR 1910.120(e)(3)(i), and 8-hour annual refresher training. All management and supervisory personnel on-site must have received an additional 8 hours of training in accordance with 29 CFR 1910.120(e)(4). Instructors providing the training must meet the criteria outlined in 29 CFR 1910.120(e)(5). Documentation of all such training will be made available to the HSO, HSO designee or FOM before any person will be allowed to enter any potentially contaminated area (namely, the Exclusion Zone or the Contaminant Reduction Zone - see Section 8.0 for further discussion of Work Zones). Visitors who will enter the exclusion and contamination reduction zones must meet the training requirements listed above.

4.2 Site-Specific Training

All site personnel will attend a site-specific training meeting and will become familiar with the HASP and site-specific information, and certify their understanding of this plan (see Exhibit 1). This meeting will include, at a minimum, discussion in the following areas:

- Site specific hazard analysis (chemical/physical hazards);
- Standard safety operating procedures;
- Personal hygiene;
- Safety equipment to be used;
- Personal protective equipment to be worn, including care, use and proper fitting;

- Decontamination procedures;
- Areas of restricted access and prohibitions in work areas;
- Emergency procedures and plans;
- On-site and off-site communications;
- Hazardous materials handling procedures;
- Air monitoring instrumentation use and calibration;
- Hazardous materials recognition; and
- The "Buddy System" to be used at the site.

Visitors entering the Exclusion and Contaminant Reduction Zones will also be briefed on similar information. This briefing will be conducted by the HSO or the FOM/Alternate HSO. Abbreviated awareness briefings for visitors who remain in the Support Zone will also be provided by the HSO, HSO designee or FOM.

Documentation of training for all on-site personnel will be included in the site-specific HASP or provided to the HSO prior to commitment of field activities. Personnel who have not successfully completed the required training will not be permitted to enter the Exclusion Zone or the Contaminant Reduction Zone.

New employees involved in hazardous activities will be indoctrinated by the HSO prior to entering the site to work. All training requirements will be completed by a new employee prior to indoctrination. Indoctrination will be comprised of the site-specific refresher briefing, the task/operation safety and health risk analysis and accident prevention plan.

5.0 PERSONAL PROTECTIVE EQUIPMENT

5.1 General

All on-site personnel will be issued appropriate personal protective equipment (PPE). All PPE is to be used properly and protective clothing is to be kept clean and well maintained. The HSO or designee will maintain constant communication with the Project Director when conducting air monitoring as discussed in Section 7.2 and consult the Project Director with regard to "action levels" at which the specified minimum levels of protection are either upgraded or downgraded based upon air monitoring results and direct contact potential. Action levels are described in Section 7.2 The HSO or designee has the authority to require the use of additional equipment, if necessary, for specific operations, or may tailor PPE specifications to best fit the hazard control requirements as appropriate.

5.2 General Site Safety Equipment Requirements

The following is the basic work uniform and will be worn primarily outside the Exclusion Zone and the Contaminant Reduction Zone at the site. Equipment includes:

- Coveralls - (optional, may be disposable type);
- Boots/shoes - (OSHA compliant construction footwear);
- Hard hat with splash shield, if needed - ANSI approved; and
- Gloves (optional).

5.3 Level D Protection

Level D protection will be initially worn in the Exclusion Zone and Contaminant Reduction Zone during intrusive sampling and investigative activities. Equipment includes:

- Coveralls - One or two piece disposable suit, tyvek or equivalent;

- Gloves - Outer (neoprene, nitrile, or equivalent); Inner (nitrile);
- Boots - Outer (vulcanized rubber or equivalent); Inner (steel toe and shank) or equivalent combination (ANSI approved);
- Safety glasses or goggles (ANSI approved);
- Hard hat with splash shield, if needed (ANSI approved); and
- Hearing protection (if work is near heavy or noisy equipment).

5.4 Level C Protection

Level C protection will be selected when a modified level of respiratory protection is needed. Selection will be made when air monitoring results for the site or individual work areas exceed the action level criteria as described in Section 7.2 of this HASP. Equipment includes:

- Respirators - Full facepiece, air purifying respirator with combination organic vapor and particulate (P100) air cartridges (OSHA/NIOSH approved);
- Coveralls- Hooded one or two piece chemical resistant suit, PE - Tyvek or equivalent (modification of protective suits may be made upon the approval of the HSO);
- Gloves - Outer (nitrile or equivalent); Inner (nitrile);
- Boots - Outer (neoprene or equivalent), Inner (steel toe and shank) or equivalent combination (ANSI approved);
- Two-way radio communications (for remote operations);
- Hard hat with splash shield (ANSI approved); and
- Hearing protection (if work is near heavy or noisy equipment).

5.5 Level B Protection

Level B protection requires full chemical resistant clothing with a full facepiece SCBA or supplied air respirator. Generally, this level of protection is generally not expected for investigations at hazardous waste sites. However, provision will be made to have this equipment available should its use be determined to be required based on all monitoring as performed in

accordance with Section 7.2 of this HASP. Investigation activities which may result in this level of protection being required will not be implemented until the equipment has been transported to the site. The HSO will be notified should air monitoring indicate this level of protection is required. The use of Level B protection will only be implemented when sufficiently trained personnel (minimum of two) are available on-site.

5.6 Confined Spaces

Under no circumstances will confined spaces be entered unless discussed with the Project Director and HSO, and the site-specific HASP is prepared to incorporate additional safety requirements, and all personnel are trained appropriately to deal with confined space hazards. D&B's corporate confined space entry procedure is provided as Exhibit 2.

5.7 Standing Orders

5.7.1 Eye Protection

Prescription lens inserts will be provided or personal contact lenses may be used for full-face respirators. All eye and face protection will conform to OSHA 1910.133.

5.7.2 Respiratory Protection

Programs for respiratory protection will conform to OSHA 1910.134 and ANSI Z88.2-1980. A respiratory program addressing respirator care and cleaning is described in Exhibit 5.

5.7.3 Respirator Fit-testing

Personnel unable to pass a fit-test will not engage in any investigation activities that will require level C or higher protection.

5.7.4 Respirator Maintenance and Repair

Each respirator will be individually assigned and not interchanged between workers without cleaning and sanitizing. Cartridges/canisters and filters will be changed daily or upon breakthrough, whichever occurs first. If breakthrough occurs, a reevaluation by the HSO of the protection level will be made. A procedure for assuring periodic cleaning, maintenance, and change of filters will be followed by each respirator wearer. This procedure is described in Exhibit 5.

5.7.5 Head Protection

A hard hat will be worn by all personnel. All head protection will conform to the requirements in OSHA 1910.135.

5.7.6 Reuse and Retirement of PPE

All non-disposable Level D or C personal protective equipment worn on-site will be decontaminated before being reissued. The FOM, HSO or designee is responsible for ensuring all non-disposable personal protective equipment is decontaminated before being reissued. Disposable PPE will be properly disposed of according to NYSDEC requirements and regulations.

5.7.7 Foot Protection

All safety boots will conform to OSHA 1910.136.

5.7.8 Noise Protection

Power equipment may generate excessive noise levels (in excess of 85 decibels). Proper ear protection will be provided and used in accordance with OSHA 1926.52.

6.0 MEDICAL SURVEILLANCE

All on-site personnel involved in hazardous waste operations will have satisfactorily completed a comprehensive medical examination prior to the initiation of investigation activities at the site. Medical examinations are required for any and all personnel entering Exclusion or Contamination Reduction Zones.

Medical examinations are not required for people making periodic deliveries provided they do not enter Exclusion or Contamination Reduction Zones.

The date of physical examination of each site worker will be documented. A specific Medical Data Sheet for each individual will be filed with the HSO or designee prior to commencing operations and with the Project Manager.

All personnel who will enter the Exclusion Zone or the Contaminant Reduction Zone will be provided with medical surveillance at the start of their employment (entrance examination) and at the end of the on-site personnel's employment (exit examination). Medical surveillance protocol is the physician's responsibility, but will meet the requirements of OSHA Standard 29 CFR 1910.120 for all personnel. The protocol will be selected by the physician. Additional clinical tests may be included at the discretion of the attending physician performing the medical examination. Non-scheduled medical exams may be conducted as determined necessary by the physician, but will be conducted:

- After acute exposure to any toxic or hazardous material.
- At the discretion of the Project Director and/or the physician, when an employee has been exposed to potentially dangerous levels of toxic or hazardous materials.
- At the discretion of the Project Director and/or the physician, and at the request of an employee with demonstrated symptoms of exposure to toxic or hazardous materials.

In addition to non-scheduled exams, any medical, biological or radiological monitoring required by an OSHA standard when OSHA Action Levels are exceeded will be performed.

Companies contracted to perform work on-site in the Exclusion Zone or Contaminant Reduction Zone will provide equivalent medical surveillance to their on-site personnel and supply documentation to that effect.

6.1 Documentation and Record Keeping

The examining physician will notify the Project Director in writing that the individual has received a medical examination and advise as to any specific limitations upon such individual's ability to work at the project site, which were identified as a result of the examination. Appropriate action will be taken in light of the advice given pursuant to this paragraph.

The ability of on-site personnel to wear respiratory protection during hazardous waste activities will be certified by the physician. Cardiopulmonary system examination and pulmonary function testing are minimum requirements.

The physician will maintain and provide access for employees to his medical surveillance records according to OSHA requirement 29 CFR 1910.120.

7.0 ENVIRONMENTAL AND PERSONAL MONITORING PROGRAM

7.1 General

In order to protect site workers from harmful levels of airborne toxic materials, potentially explosive gases, or excessively cold conditions, regular environmental and personnel monitoring will be accomplished to document exposures and to decide when to increase protective measures.

7.2 Air Monitoring

Particular phases of work will require the utilization of specific air monitoring equipment to detect relative levels of contaminants or identify unknown environments.

Air monitoring will be conducted by the HSO, FOM or designee for the express purpose of safeguarding the health and welfare of site workers and the general public residing in the vicinity of the site.

7.2.1 Air Monitoring Instrumentation

On-site air monitoring will be performed using the following direct reading instruments:

- Portable photo ionization device (PID) for the detection of organic vapors
- Portable combustible gas/oxygen/hydrogen sulfide detector will be available for determining lower explosive limits, oxygen and hydrogen sulfide levels in any identified confined spaces. Under no circumstances will confined spaces be entered unless discussed with the Project Director, the HASP is revised to incorporate additional safety requirements and all personnel are trained appropriately to deal with confined space hazards.
- Geiger counter for detecting radiological contamination (if appropriate)
- Colorometric detector tubes for detecting specific contaminants.
- Respirable dust monitor(s) will be used to monitor particulate emissions.

All monitoring and surveillance equipment will be operated, maintained and calibrated each working day in accordance with the manufacturer's instructions and quality assurance procedures. Organic vapor monitoring will be conducted by trained field staff prior to, during and following sampling, and disturbance of soils or sediments at a sampling site. Should contamination levels indicate high hazard potential, the HSO will review monitoring procedures and results.

A daily air monitoring form or entries in a daily log book will be used to record monitoring data. (See Exhibit 6.)

Instruction and calibration manuals for the proper use of these, as well as other field instrumentation, will be provided as a separate document available for use at the site.

Monitoring and surveillance equipment can be impacted by cold weather, communication transmissions and possibly high voltage electrical transmission wires and other interferences. Any unusual meter responses will be noted on the air monitoring form and a diagnosis of potential influencing factors made to determine and eliminate the cause.

7.2.2 Air Monitoring Locations and Action Level Criteria

The primary areas to be monitored during the site investigation are the work zones established around sampling, drilling or excavation locations. Air monitoring protocols for each area will differ, since target populations, contaminant concentrations and atmospheric conditions will vary. Monitoring will be conducted within these work zones and at the site perimeter.

Air monitoring conducted at the sampling locales will focus on workers' breathing zones and may include personal breathing zone samples. Air monitoring just outside of these locations will consist of instruments attempting to quantify the types and degrees of emissions originating from sampling sites.

7.2.2.1 - Duration, Frequency and Protocol

Monitoring will be conducted daily or as deemed necessary by the HSO or designee during all activities in the Exclusion Zone, particularly during intrusive activities. The HSO or designee may modify the work zone sampling frequency upon review of previously analyzed work zone samples.

7.2.2.2 - Background Air Monitoring

Background monitoring for contaminants will be conducted at the upwind perimeter of the Exclusion Zone prior to allowing workers to enter the Exclusion Zone. Monitoring will occur continuously, or at the discretion of the HSO or designee, downwind and crosswind while work is occurring in the Exclusion Zone. Data will be annotated in the Air Monitoring Form for that day. Indoor air quality monitoring will also be conducted when working inside.

Changes in wind direction will require reassessment of air monitoring locations. Wind directions may be determined with the aid of a wind sock (if appropriate). Levels of contaminants that warrant use of respiratory protection by site workers may require initiation of site perimeter and personal sampling as deemed necessary by the HSO or designee.

7.2.2.3 - Exclusion Zone Air Monitoring

Air monitoring conducted in the Exclusion Zone will focus on real time measurement of toxic compounds that pose inhalation hazards, levels of flammable compounds for explosive hazards, and oxygen deficient atmospheres. A summary of the action levels are provided in Table 7-1.

Table 7-1

ACTION LEVELS FOR INVESTIGATIONS

Action Level	Action To Be Taken
PID	
Background	**Level D** (See Section 5.3)
Background to 5 units* above background in breathing zone, and no vinyl chloride or benzene present.	Halt work, evacuate area and allow area to ventilate prior to resuming work. Should levels persist, upgrade to **Level C** protection (See Section 5.4) if required upon approval by HSO and FOM.
Greater than 5 units* above background in breathing zone, and no vinyl chloride or benzene present.	Halt work, evacuate work area and allow area to ventilate prior to resuming work. Should levels persist, contact FOM and upgrade to **Level B** (See Section 5.5) protection if required upon approval by HSO and FOM.
DRAEGER COLORIMETRIC TUBE	
Positive color change for vinyl chloride or benzene ≤ 0.5 ppm	Halt work, evacuate area and allow area to ventilate prior to resuming work. Contact FOM. If levels persist, upgrade to **Level C** protection if required upon approval by HSO and FOM.
Vinyl chloride or benzene 0.5 - 1.0 ppm	Halt work, evacuate area and allow area to ventilate prior to resuming work. Contact FOM. If levels persist, upgrade to **Level B** protection if required upon approval by HSO and FOM.
Vinyl chloride or benzene > 1 ppm	Shut down work activities. Monitor site to check for off-site migration.
COMBUSTIBLE GAS METER	
Greater than 10% Lower Explosive Limit (LEL)	Halt work, evacuate area and allow area to ventilate to below 10% LEL prior to resuming work. Notify FOM.
OXYGEN	
Less than 20.5%	Continuous monitoring. Consider engineering controls.
Less than 19.5%	Evacuate work area. Institute ventilation and engineering controls. Maintain site conditions for at least 15 minutes before proceeding. Notify FOM.

* Units equal total ionizable organic/inorganic vapors and gases.
** Reading sustained for 1 minute (60 seconds) or longer.

Table 7-1 (continued)

ACTION LEVELS FOR INVESTIGATIONS

Action Level	Action To Be Taken
OXYGEN (continued)	
Greater than 22%	Continuous monitoring and identify combustion sources.
Greater than 23.5%	Evacuate and institute engineering controls as necessary before proceeding. Explosive condition may be present. Notify FOM.
HYDROGEN SULFIDE	
Less than 10 ppm at breathing zone	**Level D** and continuous monitoring.
Above 10 ppm at breathing zone	Halt work, evacuate area and allow area to ventilate to below 10 ppm. If levels persist, upgrade to **Level B** protection if required upon approval by HSO and FOM.
GEIGER COUNTER	
Above background	Halt work, evacuate work area and confer with HSO
DUST MONITOR	
Respirable dust >100 ug/m^3 above BKGD	Implement dust suppression techniques to reduce dust levels
Respirable dust >150 ug/m^3	Monitoring upwind background levels and implement dust suppression techniques. If levels persist, halt work, contact HSO and FOM. Work can only resumed if control measures can be implemented to remedy the situation.

* Units equal total ionizable organic/inorganic vapors and gases.
** Reading sustained for 1 minute (60 seconds) or longer.

Vapor Emission

If the ambient air concentration of total organic vapors exceeds 5 ppm (or 5 units) above background at the perimeter of the Exclusion Zone, work at that location will be stopped, and the area evacuated until a review of work procedures, air monitoring needs, and use of appropriate respiratory protection and equipment is performed by the HSO or FOM. In addition, downwind monitoring at the site perimeter will be performed to determine whether off-site contaminant migration is occurring. Work will proceed only after review and approval by the HSO or FOM, and the appropriate corrective action is taken or level of protection established. More frequent intervals of monitoring will be conducted as directed by the HSO, including Draeger tube screening for specific contaminants.

If the organic vapor level decreases to below 5 ppm (5 units), and vinyl chloride and benzene are not present, activities can resume, but more frequent intervals of monitoring, as directed by the HSO, must be conducted and must include monitoring for vinyl chloride and benzene. If the organic vapor levels are greater then 5 ppm but less than 25 ppm over background at the perimeter of the Exclusion Zone, activities can resume provided Level B protection is worn and the area is monitored for vinyl chloride until levels fall below background.

If the organic vapor level is above 25 ppm at the perimeter of the Exclusion Zone, work activities must be shut down. When work shutdown occurs, downwind air monitoring as directed by the HSO will be implemented to ensure that vapor emissions do not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

7.2.2.4 - Community Air Monitoring Plan

Air monitoring for volatile organic compounds will be accomplished at the upwind and downwind perimeter of the Exclusion Zone to document real time levels of contaminants which might be moving off-site. The plan must include the following:

- VOCs will be monitored at the downwind perimeter of the Exclusion Zone daily at 2-hour intervals. If total organic vapor levels exceed 5 ppm above background, activities must be halted and monitoring continued under the provisions of Major Vapor Emission Response Plan (see below). All readings must be recorded and be available for NYSDEC and New York State Department of Health (NYSDOH) personnel to review.

Major Vapor Emission

If organic levels greater than 5 ppm (or 5 units) above background are identified 200 feet downwind from the Exclusion Zone or half the distance to the nearest residential or commercial property, whichever is less, all work activities must be halted.

If, following cessation of the work activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind, or half the distance to the nearest residential or commercial property from the Exclusion Zone, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (10-foot zone).

If either of the following criteria are exceeded in the 20-foot zone, then the Major Vapor Emission Response Plan will be implemented:

- Organic vapor levels approaching 5 ppm above background for a period of more than 30 minutes; or
- Organic vapor levels greater than 10 ppm above background for any time period.

Major Vapor Emission Response Plan

Upon activation, the following actions will be undertaken:

1. The local emergency response will be immediately contacted by the HSO and advised of the situation.

2. Frequent air monitoring will be conducted at 30 minute intervals within the 20 foot zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the HSO.

3. All emergency contacts will go into effect as appropriate.

Off-Site Migration Procedures

The same procedures and protocols practiced by on-site workers will aid in preventing any potential adverse conditions with respect to areas adjacent to the site. That is, these procedures are designed to assist in eliminating or minimizing the potential for extensive off-site migration. In the unlikely event that such migration occurs, the following notification procedures and work procedures are listed below:

1. Notification of local police, fire and rescue personnel advising them of the remedial investigation activities and the schedule of events on-site.

2. Immediate notification of NYSDEC, NYSDOH and local officials in the event of a threatening hazardous condition that may effect the health and safety of on-site workers and the surrounding community.

3. Decontamination procedures for equipment to prevent off-site migration of contaminants.

4. Use of a flame or photo ionization detector to monitor volatile organic vapors and potential off-site migration of contaminants.

5. Wetting down the ground surface or using clean cover material or calcium chloride to suppress particulate dust in the event that dust levels in the air of the work area are exceeded.

General visual observation will also be used during all intrusive activities to identify airborne releases (vapors, smoke, etc.), changes in the coloration of excavated materials, changes to the structural integrity of the surface or mechanical integrity of the equipment. Should such conditions be noticed or encountered, work will be halted, and the area evacuated until such time the FOM can be contacted and specific procedures for characterizing and handling the hazard can be developed.

The HSO or designee will observe site conditions daily with special attention to the aforementioned conditions. Depending on site conditions, additional personal protection measures will be implemented during the course of site work.

7.2.3 Heat/Cold Stress Monitoring

Heat/cold stress guidelines are described in detail in Exhibit 7.

7.3 Quality Assurance and Control

All monitoring instruments will be protected from surface contamination during use to allow easy decontamination. All instrumentation will be calibrated before and after use, and operational checks conducted periodically in the field over the duration of the day's field activities.

The following data will be recorded by the HSO or designee on the Air Monitoring Data form (Exhibit 3):

- Date and time of monitoring;
- Air monitoring location;
- Instrument, model number, serial number;
- Calibration/background levels; and
- Results of monitoring.

Interpretation of the data and any further recommendations will be made by the HSO or designee.

Air monitoring results will be provided verbally to the FOM following each site scan that indicates volatile organic vapor concentrations in excess of the action levels. Results will then be documented in writing and provided to the FOM by the end of that work day.

8.0 SITE CONTROL MEASURES

8.1 Work Zones

Site investigations will be subject to the designation of work zones. The Restricted Zone (RZ) will be identified as the area within which all project operations take place. At each sampling site, three work areas will be established: the Exclusion Zone (EZ), Contaminant Reduction Zone (CRZ) and Support Zone (SZ). Only authorized personnel will be allowed in the RZ. Typically, a 5-foot wide (or distance determined by the HSO or FOM) strip of land bordering the EZ is considered the CRZ. In addition to this strip of land, a specially demarcated area that connects the decontamination area to the CRZ is treated as an extension of the CRZ. All other areas inside the restricted area that are not an active Exclusion or Contaminant Reduction Zone are treated as a Support Zone.

8.1.1 Exclusion Zone

The Exclusion Zone includes the intrusive activities and isolates the area of contaminant generation, and restricts (to the extent possible) the spread of contamination from active areas of the site to support areas and off-site locations. This area will encompass all intrusive work. The Exclusion Zone is demarcated by the Hot Line (i.e., a tape or rope line or physical barrier). Personnel entering the Exclusion Zone must:

- Enter through a controlled access point (the Contaminant Reduction Zone);
- Wear the prescribed level of protection; and
- Be authorized to enter the Exclusion Zone.

Personnel, equipment and materials exiting the Exclusion Zone will be subject to decontamination in the containment reduction zone. Equipment and materials (e.g., drill rods) will be decontaminated at decontamination facilities.

Specific access for emergency services to areas of specific site operations will be established by the HSO prior to commencing any operation. The delineated area of the Exclusion Zone may vary with task.

8.1.2 Contaminant Reduction Zone

The extent and configuration of the CRZ will be at the discretion of the HSO or FOM. Certain safety equipment (e.g., emergency eye wash, fire extinguisher and first aid kit) will be located near the sampling location.

The level of protection to be used for decontamination will typically be Level D. However, the HSO will determine appropriate levels of protection based upon air monitoring readings, and visual inspection of personnel and equipment operations in the Exclusion Zone. Equipment operators (e.g., truck drivers) physically performing tasks outside the EZ may be exempt from this requirement as approved by the HSO or FOM. Personnel shall remove all personal protective equipment in the CRZ.

8.1.3 Support Zone

Equipment and materials, paperwork, MSDS, emergency equipment and communications equipment will be stored in the Support Zone. A log of all persons entering the site will be maintained by the FOM.

8.2 Operations Start-Up

No personnel will be positioned downwind of Exclusion Zone during intrusive activities and sampling, if possible.

8.3 Buddy System

All on-site personnel will utilize a buddy system when any task performed at the site requires:

- Personnel to assist in performing an activity;
- Intrusive work performed in the Exclusion Zone;
- Use of protective clothing; and
- Communication between the Exclusion Zone and outside the Exclusion Zone.

The FOM, HSO or designee will enforce the buddy system and has the authority to modify the criteria stated above to deal with changing site-specific and environmental conditions.

In order to ensure that help will be provided in an emergency, all on-site personnel will be in line-of-sight contact or in communication with the HSO or FOM when working in the Exclusion Zone.

8.4 Site Communications Plan

- Internal communications on-site should be instituted prior to initiating any task in the Exclusion Zone.
- Internal communications will be used by on-site supervisory personnel.
- The FOM, HSO or designee will ensure that all site personnel are trained to use internal communications to:
  - alert personnel on-site of emergencies;
  - pass along safety information (such as for heat stress, cold stress control, or rest period time, etc.);
  - changes in work scope, scheduling or sequencing of operations; and
  - maintain site control (such as notification of vandalism, intruders or violations of HASP protocol).

- Verbal communications and hand signals will be used for all tasks associated with the project. However, for those tasks performed in Level D or Level C, radio communications may be used.

- Any Exclusion Zone work activity being performed out of the line of sight may require use of radio communications.

- Air horns will be positioned at any Exclusion Zone work area to be used for emergency response only. The HSO or designee will designate air horn blast sequences for identification of work location, type of emergency and need for evacuation of all personnel.

- Wind direction indicators will be installed such that a line-of-sight is maintained with all personnel in all work zones. The HSO or designee will designate specific locations for wind direction indicators.

- All moving machinery, bulldozers, cranes, dump trucks, etc. will have working backup alarms.

- External communications (outside the site) will be maintained and used to coordinate emergency response, report to management and maintain contact with essential off-site personnel.

- All on-site personnel will be informed of external communications hardware (such as telephone, etc.) and the necessary telephone numbers to contact in the event of an emergency situation (fire, police, ambulance, etc.).

- All emergency numbers will be available at the site (see the site specific work plan for listing of important telephone numbers).

- Appropriate action will be taken should any hazardous environmental condition be observed on site. These conditions and the appropriate action to be taken will be as follows:

Observation	Potential Hazard	Action
Muddy condition	Personnel slip, equipment instability	Monitor work until condition improves
Lightning	Electrocution	Stop work until condition subsides
Horn blasts or other notification by site personnel	Site emergency	Stop work - evacuate to van or trailer - follow emergency notification procedures
Personal injury	Other personnel may be affected	Follow emergency notification procedures
Personal fatigue	Cold stress	Follow cold stress guidelines

Observation	Potential Hazard	Action
Windy condition	Overhead hazards, visual impairment	Stop work until condition subsides

8.5 Medical Assistance and General Emergency Procedures

Site-specific information regarding medical assistance and emergency numbers will be listed in the site-specific HASP. Emergency medical information for substances potentially present on-site will be addressed, if known.

8.5.1 General Emergency Procedures

The following standard emergency procedures will be used by on-site personnel. The HSO or designee will be notified of any on-site emergencies and will be responsible for ensuring that the appropriate procedures are followed.

- Personnel Injury: Personnel holding a current first aid/CPR certification shall administer first aid and/or CPR, if appropriate. Arrange for medical attention.
- Fire/Explosion: Alert the fire department. Personnel will move a safe distance from the involved area.

8.6 Safe Work Practices

Workers will adhere to established safe work practices for their respective specialties. The need to exercise caution in the performance of specific work tasks is made more acute due to:

- Physical, chemical and toxicological properties of contaminated material present;
- Other types of hazards present, such as heavy equipment, falling objects, loss of balance or tripping;
- Weather restrictions;

- Restricted mobility and reduced peripheral vision caused by the protective gear itself;
- Need to maintain the integrity of the protective gear; and/or
- Increased difficulty in communicating caused by respirators.

Work at the site will be conducted according to established protocols and guidelines for the safety and health of all involved. Among the most important of these principles are the following:

8.6.1 General

- In any unknown situation, always assume the worst conditions and plan responses accordingly.
- Because no personal protective equipment is 100 percent effective, all personnel must minimize contact with contaminated materials. Plan work areas, decontamination areas and procedures accordingly.
- Smoking, eating, chewing gum or tobacco, or drinking in the Contaminant Reduction Zone and the Exclusion Zone will not be allowed. Oral ingestion of contaminants is the second most likely means of introducing toxic substances into the body (inhalation is the first).
- Work breaks should be planned to prevent stress related accidents or fatigue related to wearing protective gear.
- Medicine and alcohol can increase the effects from exposure to toxic chemicals and cold stress. Prescribed drugs should not be taken if working in the Contaminant Reduction Zone or Exclusion Zone, unless approval has been given by the physician. Alcoholic beverage consumption will be prohibited on the site.
- Personnel must be observant of not only one's own immediate surrounding, but also those of others. Everyone will be working under constraints; therefore, a team effort is needed to notice and warn of impending dangerous situations. Extra precautions are necessary when working near heavy equipment and while utilizing personal protective gear because vision, hearing and communication will be restricted.
- All facial hair that interferes with the respirator facepiece fit, must be removed prior to donning a respirator for all tasks requiring Level C or Level B protection.

- Personnel must be aware that chemical contaminants may mimic or enhance symptoms of other illnesses or intoxication. Avoid use of alcohol or working while ill during the duration of task assignment.

8.6.2 Site Personnel

- All personnel at the site will be identified to the HSO and FOM.
- All personnel operating in respective work zones will dress according to the protection levels set forth in this HASP.
- No red head wooden matches or lighters of any kind will be allowed in the Contaminant Reduction Zone or Exclusion Zone.
- All personnel will notify the HSO or FOM of any unusual occurrences that might effect the overall safe operation of the site.
- Any time a fire extinguisher is used, personnel will notify the HSO or FOM of what took place.
- All injuries and accidents will be immediately reported to the HSO or FOM and the appropriate reports filed.

8.6.3 Traffic Safety Rules

- Any vehicles that will not be involved in the site operations will be secured and the motor shut down.
- Only personnel assigned to this remedial investigation will be allowed to enter the site. Any other people, whether from OSHA, USEPA or vendors supplying equipment, etc., will have to be met prior to entering the site.
- At no time will any equipment be allowed to block any access road. If in the moving of equipment, a temporary blockage will exist, that equipment will have an operator available to move that equipment.
- The locations of all fire fighting equipment, valves, hydrants, hose storage places and fire extinguishers will be indicated to all personnel so that they will not be inadvertently blocked at any time.
- Project personnel may be required to wear safety vests when working on or adjacent to roadways and must comply with all applicable rules and regulations for traffic safety.

8.6.4 Equipment Safety Rules

- Proper loading and operation of trucks on-site will be maintained in accordance with DOT requirements covering such items as grounding, placarding, driver qualifications and the use of wheel locks.

- Operation of heavy construction equipment will be in accordance with OSHA regulations 29 CFR 1910 and 1926.

- All equipment that is brought on-site will be available for inspection by the HSO.

- The HSO, or designee, will assign protective equipment to all site personnel and this equipment will be made available for inspection at anytime.

- All equipment will be installed with appropriate equipment guards and engineering controls. These include rollover protective structures.

- Safe distances will be maintained when working around heavy equipment.

- All equipment and tools to be operated in potentially explosive environments will be intrinsically safe and not capable of sparking or be pneumatically or hydraulically driven. Portable electric tools and appliances can be used where there is no potential for flammable or explosive conditions use three-wire grounded extension cords to prevent electric shocks. Ground fault interrupters will be used as well.

- With hydraulic power tools, fire-resistant fluid that is capable of retaining its operating characteristics at the most extreme temperatures will be used.

- Cutting or welding operations will not be carried out without the approval of the HSO and FOM.

- At the start of each work day and on a weekly basis, inspection of brakes, hydraulic lines, light signals, fire extinguishers, fluid levels, steering, and splash protection will be made by the equipment operators.

- All non-essential personnel will be kept out of the work area.

- Loose-fitting clothing, loose long hair and wearing of jewelry around moving machinery will be prohibited.

- Cabs will be free of all non-essential items and all loose items will be secured.

- The rated load capacity of a vehicle will not be exceeded.

- Dust control measures will be employed to prevent the movement of dust from contaminated areas to clean areas. The method employed will be determined and reviewed by the HSO and the FOM.

- Equipment operators will report to their supervisor(s) any abnormalities such as equipment failure, oozing liquids, unusual odors, etc.

- When an equipment operator must negotiate in tight quarters, a second person will be used to ensure adequate clearance.

- A signalman will be used to direct backing as necessary.

- Refueling will be done in safe areas. Engines will not be fueled while vehicle is running. Ignition sources near a fuel area will be prohibited.

- All blades and buckets will be lowered to the ground and parking brakes set before shutting off the vehicles.

- An ongoing maintenance program for all tools and equipment will be implemented by the responsible subcontractor equipment supervisor. All tools and moving equipment will be regularly inspected to ensure that parts are secured and intact with no evidence of cracks or areas of weakness, that the equipment turns smoothly with no evidence of wobble, and that it is operating according to manufacturer's specifications.

- Tools will be stored in clean, secure areas so that they will not be damaged, lost or stolen.

- All heavy equipment that is used in the Exclusion Zone will be kept in that zone until the investigation is complete or the equipment is decontaminated. Equipment will be completely decontaminated before moving it into the Support Zone.

8.6.5 Drilling and Excavation and Equipment Safety Rules

Drill rig and excavator operation, maintenance and safety will be the responsibilities of the drill rig/excavator operator.

8.6.6 Electrical Safety

Electrical hazards can exist at sites because of downed power lines, contact with subsurface utilities or improper use of electrical equipment. The presence of underground electric lines will be checked before any digging or excavating is undertaken. When using cranes

or material handlers, care will be taken that the machinery does not come in contact with any energized lines. Equipment must maintain the following distances from energized overhead power lines:

- 10 feet up to 50 kV
- 10 feet plus 4 inches for every 10 kV over 50 kV

The following should be used for protecting personnel from electrical shocks:

- Ground equipment
- Double-insulating tools
- Over-current devices such as fuses and circuit breakers
- Ground fault circuit interrupter
- Tools and flexible cords will be inspected for damage that could lead to shock

8.6.7 Daily Housekeeping

The site and all work zones will be kept in an orderly fashion and the site is to be left safe and secure upon completion of each day's work.

8.6.8 Site Personnel Conduct

- All site personnel will conduct themselves properly and in accordance with generally accepted good work practice.
- At all times, the HSO will monitor all safe operations at the site. Any operation not within the scope of the HASP will be discussed fully before that operation begins.

9.0 PERSONAL HYGIENE AND DECONTAMINATION

9.1 General

- All personnel performing or supervising remedial work within a hazardous work area, or exposed or subject to exposure to hazardous chemical vapors, liquids or contaminated solids, will observe and adhere to the personal hygiene-related provisions of this section.

- Any personnel found to be repeatedly disregarding the personal hygiene-related provisions of the HASP will be barred from the site by the HSO.

- All on-site personnel will wear personal protective equipment as required at all times whenever entering the Exclusion Zone or the Decontamination Area.

- Personal hygiene and decontamination facilities, in accordance with OSHA 29 CFR 1910.120 (N), will be provided on-site, when necessary, and include the following:

  - Storage and disposal containers for used disposable outerwear.

  - Hand washing facilities.

  - An uncontaminated lunch area.

  - An uncontaminated rest/break area.

  - Chemical toilet, if no other facilities are located on-site.

- All personnel must enter and leave the work site through the facilities. The portable chemical toilet (if required), if possible, will be located in the Support Zone.

- The personal hygiene and decontamination facilities will be provided so that any personnel leaving the Exclusion Zone may perform decontamination, safely remove all protective outer clothing, and wash face and hands.

- Decontamination will be performed prior to taking breaks, eating lunch or leaving the work site.

- All site personnel will be given orientation training to the use and operation of the personal hygiene and decontamination facilities.

9.2 Contamination Prevention

To minimize contact with contaminated substances and lessen the potential for contamination, the following will be adhered to:

- Personnel will make every effort not to walk through any areas of obvious contamination (i.e., liquids, discolored surfaces, smoke/vapor clouds, etc.).
- Personnel will not kneel or sit on the ground in the Exclusion Zone and/or the Decontamination Area.

9.3 Personal Hygiene Policy

- Smoking and chewing tobacco will be prohibited except in a designated break area.
- Eating and drinking will be prohibited except in the designated lunch or break area.
- All outer protective clothing (e.g., chemically protective suits, gloves, and boots) will be removed and personnel will thoroughly cleanse their hands and other exposed areas before entering the break or lunch area.
- Drinking of replacement fluids will be permitted in a designated area outside the Exclusion Zone. Personnel will, as a minimum, remove outer and inner gloves, respirator and coverall top, and wash hands prior to drinking replacement fluids.
- All personnel should change into fresh clothing after each working period or shift. Showering is mandatory upon return to each individual's rest place.

9.4 Personnel Decontamination Procedures

Decontamination procedures are followed by all personnel leaving the Exclusion Zone. Generalized procedures for decontamination follow. All procedures apply for Level C personal protection, however for Level D only steps 2, 3, and 8 apply. The HSO may modify these procedures based on site conditions.

Step 1 Drop tools, monitors, samples, and trash at designated drop stations (i.e., plastic containers or drop sheets).

Step 2 Scrub outer boots and outer gloves with decon solution or detergent and water. Rinse with water.

Step 3 Remove tape from outer boots (if applicable) and remove boots and discard tape in disposal container. Place boots on boot rack.

Step 4 Remove tape from outer gloves (if applicable) and remove only outer gloves and discard in disposal container.

Step 5 This is the last step in the decontamination procedure if the worker has left the Exclusion Zone to exchange the cartridges on his/her air purifying respirator. The cartridges should be exchanged, new outer gloves and boot covers donned, the joints taped, if necessary, and the worker returns to duty.

Step 6 Remove outer garments and discard in disposal container. New outer garments will be issued at the beginning of each work day or as deemed necessary by the HSO.

Step 7 Remove respirator and place or hang in the designated area.

Step 8 Remove inner gloves and discard in disposal container.

Note: Disposable items (i.e., coveralls, gloves, and boots) will be changed on a daily basis unless there is reason to change more frequently. Dual respirator cartridges will be changed daily, unless more frequent changes are deemed appropriate by site surveillance data or by assessments made by the HSO.

Pressurized sprayers or other designated equipment will be available in the decontamination area for wash down and cleaning of samples and equipment.

A waterless hand cleaner and paper towels may be used for hands, arms and any other skin surfaces potentially in contact with contaminated material.

Respirators (if used) will be decontaminated daily and taken from the drop area. The masks will be disassembled, the cartridges set aside and all other parts placed in a cleansing solution. After an appropriate time in the solution, the parts will be removed and rinsed with tap water. Old cartridges will be discarded in the contaminated trash container for disposal. In the morning, the masks will be reassembled and new cartridges installed, if appropriate. Personnel will inspect their own masks and readjust the straps for proper fit.

9.5 Emergency Decontamination

Decontamination will be delayed if immediate medical treatment is required to save a life. Decontamination will then be performed after the victim is stabilized. When decontamination can be performed without interfering with medical treatment, or a worker has been contaminated with an extremely toxic or corrosive material that could cause additional injury or loss of life, decontamination will be performed immediately.

When decontamination cannot be done, the victim will be wrapped in a chemical protective barrier (clothing or sheeting) to reduce contamination of other personnel. Emergency and off-site medical personnel will be informed of potential contamination and will be instructed about specific decontamination procedures. When the victim is transported off the site, personnel knowledgeable of the incident, the site and decontamination procedure will accompany the victim.

9.6 General Equipment Decontamination

- All vehicles and equipment used in the Exclusion Zone will be decontaminated prior to leaving the site.
- No vehicles will leave the decontamination area until they are properly inspected and approved by the HSO or FOM for general cleanliness of frame and tires.
- No vehicle will leave the site unless it is in a broom-clean condition and free of loose dirt or material on tailgates, axles, wheels, etc.
- The HSO or designee will monitor all vehicles to confirm proper decontamination prior to exiting. Approval will be based on visual inspection of all exposed surfaces.
- Equipment decontamination wash water residues will be collected for disposal.
- Personnel engaged in vehicle decontamination will wear Level C or Level D equipment with respiratory protection consistent with the air monitoring results collected by the HSO, and perform personal decontamination at the completion of equipment decontamination.
- Only clean water will be used for personnel, equipment and vehicle decontamination.

9.7 Small Equipment Decontamination Procedures

Small equipment will be protected from contamination as much as possible by draping, masking or otherwise covering the instruments with plastic (to the extent feasible) without hindering operation of the unit. For example, the photoionization detector can be placed in a clear plastic bag to allow reading the scale and operation of the controls.

Step 1 Remove coverings from equipment left in the drop area and place the coverings in appropriate waste containers.

Step 2 Brush or wipe any soil or moisture with a disposal paper wipe. Place soiled wipes in appropriate containers.

Step 3 Place bare units in a clean plastic tub and wiped off with a damp, clean, disposable wipe. Equipment will then be allowed to air dry.

Step 4 Following decontamination, check and recharge equipment, as necessary, for the next day's operations.

Step 5 Prior to entering the Exclusion Zone, recover all small equipment with new, protective coverings, if necessary.

9.8 Heavy Equipment Decontamination Procedures

A decontamination area for the drill rig and excavator will be set up. A wash/rinse will be performed on all surfaces that came in contact with contaminants (e.g., augers). Prior to removing any heavy equipment or vehicles from the Exclusion Zone, they must be thoroughly decontaminated. Specific procedures are as follows:

Step 1 Initially, inspect equipment/vehicles to determine if gross decontamination is required first. Particular attention must be paid to tires, under surfaces, points of contact with the ground, and horizontal surfaces where dust or aerosols might settle.

Step 2 If visible contamination is present, the equipment/vehicle must be moved to the decontamination pad where gross contamination will be scraped, brushed or swept off.

Step 3 Following gross decontamination, or if visible contamination is no longer present, wash the equipment/vehicle with high pressure washer as deemed necessary by the

HSO or designee. Efforts should be made to minimize water usage to reduce wastewater quantities.

Step 4 Prior to releasing any heavy equipment or vehicles from the Contaminant Reduction Zone, decontamination personnel will contact the HSO for final approval.

10.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN

10.1 General

This plan has been prepared in accordance with 29 CFR 1910.120 (l) and will address the following potential emergencies:

- Emergencies outside the site.
- Emergencies within the site.
- Chemical exposures.
- Site evacuation.

10.2 Emergency Equipment

Specially marked and readily accessible emergency equipment will be provided on-site.

10.3 Special Requirements

- The Project Director or FOM will be on-call for any after hour emergencies resulting from adverse weather conditions. Incidents resulting from adverse weather will be reported to the HSO who will in turn contact the Project Director.
- First aid kit locations will be specially marked and have adequate water and other supplies necessary to cleanse and decontaminate burns wounds, or lesions. First aid stations will also stock buffer solutions for treating acid and caustic burns.

10.4 Emergency/Accident Reporting and Investigation

In the event of an emergency associated with the site work, the HSO or FOM will, without delay take: 1) diligent action to remove or otherwise minimize the cause of the emergency; 2) alert the Project Director; and 3) institute whatever measures are necessary to prevent any repetition of any conditions or actions leading to, or resulting in, the emergency.

Notification of the Project Director will occur immediately and initially be verbal with written notification occurring within 24 hours of the incident (i.e., accident, explosion, serious exposure, etc.). The Incident Notification Form, provided in Exhibit 8, will be used for written notifications and documentation.

10.5 Emergency Medical Care

- Site-specific emergency medical information will be provided in the site-specific investigation work plan.
- The hospital will be informed by the HSO or FOM of potential medical emergencies that could result from site operations and advised on the types of hazardous materials that are on site. In the event of an incident requiring their assistance, specific details of hazardous materials should be provided to the hospital medical staff, if available.
- A list of emergency information and a map to the nearest medical facility/hospital will be posted at every work site telephone. Copies of this map will also be available to be placed in vehicles used to transport injured personnel to the medical facility.

10.6 Emergencies Outside the Site

- All work in the site area will stop when advised by any authorized personnel and will remain so until otherwise instructed.
- The HSO and FOM will be fully advised of any work that may affect the safety of on-site employees or property.
- Actions to be taken by on-site personnel in the event of an outside emergency will include:
  - All operations will cease immediately and all equipment will be shut down and secured.
  - All personnel will leave vehicles in work zone in a safe manner making sure any remaining vehicles will not hamper any emergency traffic in the area or block any fire hydrants or foam supply systems.
  - All personnel will evacuate to a prearranged muster area.
  - All personnel will remain in the muster area to await further instructions.

10.7 Emergencies Within the Site

- The HSO will monitor all operations from the roadway and assist any emergency personnel responding to an emergency within this work zone.
- It will be the HSO's responsibility to maintain communications with public works personnel.
- In the event of an emergency within the work zone at the site, the emergency notification procedures will be followed.
- In all emergency situations, it will be the responsibility of the HSO to ensure that all site personnel are accounted for.

10.8 Personnel Exposures

The emergency procedures which will be used in the event of acute exposure (eyes, skin contact, inhalation) are described in Exhibit 9.

10.9 Site Evacuation

The site area will be evacuated, and fire and police departments will be notified in the event of fire, explosion or their potential. Depending on the cause and magnitude of the conditions requiring evacuation, three stages have been designated. See Exhibit 9 for details.

11.0 POSTINGS

Postings will be available on-site. These postings will cover four specific areas:

- Use of personal protective equipment;
- Personal hygiene;
- Provisions for smoking, eating, chewing and drinking; and
- Emergency information.

These postings may be added to, based on need to disseminate information or policy. All postings will be coordinated for approval prior to posting. The specified postings are provided in Exhibit 10. The site-specific emergency information for each site will be included on Exhibit 11 and will be posted at each site.

EXHIBIT 1

HEALTH AND SAFETY PLAN REVIEW ACKNOWLEDGEMENT FORM

INSTRUCTIONS: This form is to be completed by each person working on the subject work-site. Upon completion, this form is to be given to the HSO.

JOB NUMBER: _____

CLIENT/PROJECT: _____

DATE: _____

I represent that I have read and understand the contents of the above mentioned Health and Safety Plan and agree to perform my work in accordance with this plan:

_____
Signature

_____
Name Printed

_____
Company/Office

_____
Date Signed

EXHIBIT 2

CONFINED SPACE OPERATIONS GUIDELINES

1.0 PURPOSE

To establish safe procedures for employees of D&B who have potential to be exposed to the hazards of a confined space pursuant to 29 CFR 1910.146

2.0 SCOPE

Applies to the activities of all employees of D&B/WFC exposed to the hazards of a confined space.

3.0 DEFINITIONS

Attendant - A trained individual stationed outside the confined space who monitors the authorized entrant.

Authorized Entrant - A trained individual who's name is listed on the entry permit and who is authorized by the employer to enter a confined space.

Confined Space – A space that:

1) Is large enough and so configured that an employee's entire body can enter and perform assigned work (for example, storage tanks, stacks, pits, basements, silos, boilers, ventilation and exhaust ducts, manholes, sewers, tunnels, underground utility vaults); and
2) Has limited or restricted means for entry or exit; and
3) Is not designed for continuous employee occupancy.

Emergency – any occurrence or event internal or external to the permit space that could endanger entrants.

Engulfment – the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

Entry – The act of intentionally passing through an opening into a confined space. Entry occurs as soon as any part of the entrant's body breaks the plane of the opening into the space.

Entry Permit – A written or printed document provided by the employer that authorizes the confined space entry and identifies acceptable conditions for entry into a confined space. At a multi employer site all affected employers must be in agreement regarding who will issue a Permit.

EXHIBIT 2 (continued)

CONFINED SPACE OPERATIONS GUIDELINES

Entry Supervisor – the person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned for authorizing entry, overseeing entry operations, and for terminating the confined space entry.

Hazardous Atmosphere – an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following causes:

1) Flammable gas, vapor, or mist in excess of 10% of its lower flammable limit (LFL)
2) Airborne combustible dust at a concentration that meets or exceeds its LFL
3) Atmospheric oxygen concentration below 19.5% or above 23.5%
4) Atmospheric concentration of any substance for which a dose or a permissible exposure limit (PEL) is published in OSHA 1919 Subpart Z, Toxic and Hazardous Substances, which could result in employee exposure in excess of its dose or permissible exposure limit
5) Any other atmospheric condition that is immediately dangerous to life or health.

Hot Work Permit – the employer's written authorization to perform operations (for example, welding, cutting, burning and heating) capable of providing a source of ignition.

Immediately Dangerous to Life or Health (IDLH) – any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit required confined space.

Isolation – the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding, blocking, bleeding, and lockout or tagout of all sources of energy.

Line Breaking – the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Oxygen Deficient Atmosphere – an atmosphere containing less than 19.5 % oxygen.

Oxygen Enriched Atmosphere – an atmosphere containing greater than 23.5 % oxygen.

Permit Required Confined Space (PRCS) – a confined space that has one or more of the following characteristics:

1) contains or has potential to contain a hazardous atmosphere, or
2) contains a material with the potential for engulfment of an entrant, or
3) has inwardly converging walls or floors that could trap or asphyxiate an entrant, or

4) contains any other recognized serious safety or health hazard.

Permit System – the employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.
Prohibited Condition – any condition in a permit system that is not allowable by the permit during the period when entry is authorized.

Rescue Service – the personnel designated to rescue employees from permit required spaces.

Retrieval System – the equipment used for non-entry rescue of persons from permit required spaces.

Testing – the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

4.0 RESPONSIBILITIES

Entry Supervisor - The entry supervisor is responsible for:

1) Knowing the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
2) Completing the Entry Permit, verify that all requirements of the Permit have been met and all equipment specified in the permit is in place before endorsing the permit and allowing entry to begin.

Health and Safety Coordinator (HSC) - The HSC is responsible for:

1) Coordinating training for personnel designated as an Authorized Entrant, Attendant or Entry Supervisor.
2) Reviewing and updating this program annually to include new revisions by OSHA.
3) Conducting annual field audits of this program.

On-Site Health and Safety Representative (HSR) - The HSR is responsible for:

1) Making sure that the Permit requirements are implemented
2) Reporting all incidents or PRCS guidelines deficiencies
3) Making on-site H&S decisions related to field operations

HSR may take on an Entry Supervisor's responsibilities, if assigned.

Authorized Entrant - The authorized entrant is responsible for:

1) Knowing the hazards and understanding the consequences of exposure

2) Maintaining contact with the Attendant
3) Understanding and utilizing the provided personal protective equipment
4) Exiting the permit space if evacuation is ordered by the Attendant
5) Alert the Attendant whenever:
   - the entrant recognizes any warning sign or symptom of exposure to a dangerous situation
   - the entrant detects a prohibited condition
6) Exit from the permit space as quickly as possible whenever:
   - An order to evacuate is given by the Attendant or the entry supervisor
   - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation
   - The entrant detects a prohibited condition
   - An evacuation alarm is activated

Attendant – The Attendant is responsible for:

1) Knowing the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure
2) Continuously maintaining an accurate count and identity of authorized entrants in the permit space.
3) For remaining outside the permit space until relieved by another Attendant.
4) Maintaining continuous communication with all Authorized Entrants
5) Monitoring activities inside and outside the space to determine if it is safe for entrants to remain in the space and ordering the authorized entrants to evacuate the permit space immediately under any of the following conditions:
   - If the Attendant detects a prohibited condition of the entry
   - If the Attendant detects the behavioral effects of hazard exposure in an Authorized Entrant
   - If the Attendant detects a situation outside the space that could endanger the Authorized Entrants
   - If the Attendant cannot effectively and safely perform all of his or her required duties
6) Summoning rescue or emergency services as soon as the Attendant determines that authorized entrants may need assistance to escape from permit required confined space (PRCS) hazards
7) Perform non-entry rescue as specified in the rescue procedure.

5.0 GUIDELINES

D&B/WFC will use these guidelines for any entry into a PRCS for testing, maintenance, inspection, or repair activities.

5.1 General

In general, the HSC or HSR should evaluate the workplace and identify the number, type and location of all confined space areas within the site that personnel may need to enter to perform work. Once the confined spaces have been identified, as defined in Section 3.0, a determination must be made if the space(s) requires an Entry Permit.

If a confined space has been defined as a PRCS, the HSC, HSR or his/her designee must inform site personnel of the existence, location and danger posed by the space. This can be accomplished by posting a danger sign with appropriate language (e.g. DANGER – PERMIT REQUIRED CONFINED SPACE).

NO ENTRY INTO A PRCS SHALL OCCUR WITHOUT A PERMIT.

5.2 Reclassifying Permit-Required Confined Spaces

PRCS can be temporarily reclassified as either a Non-Permit Confined Space or Alternate Space, providing the following is met.

5.2.1 Reclassification to a Non-Permit Confined Spaces

Some identified confined spaces are classified PRCS based solely upon the space containing hazards which can effectively be eliminated through lockout/tagout procedures. For a PRCS to be temporarily reclassified as a non-permit space, there must be no potential for the space to contain other hazards. The permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated. All measures for eliminating hazards within the space should be documented and reviewed by the HSC. Upon work completion and after the control measures have been removed, the space must be reclassified as a PRCS.

5.2.2 Reclassifying PRCS to Alternate Space

If the only hazard in a PRCS is a hazardous atmosphere, then it is possible to potentially reclassify the space as an Alternate Space. In order to consider such spaces as non-permit spaces, all atmospheric hazards must be eliminated without entry into the space. Monitoring and inspection data, collected during routine entry operations, must show that the atmospheric hazards were effectively abated through the use of ventilation equipment. The HSC or HSR shall verify an evaluation of designated Alternate Spaces. Although an Entry Permit is not required for entrance into an Alternate Space, the following precaution must be followed:

- Entrants must be trained in the potential hazards of the space
- Continuous ventilation shall be established and maintained throughout the entry period. The ventilation must be sufficient to maintain the space safe for entry
- Prior to entry the space must be tested for oxygen content, flammable gases and vapors, potential toxic air contaminants
- If a hazardous atmosphere is detected entrants must evacuate the space and the space then becomes a PRCS.

5.3 Hazard Identification

The Hazard Assessment Form in Appendix A can be used to assess the hazards of each confined space prior to entry.

5.4 Entry Permit

The Entry Permit (Appendix B) is a checklist designed to ensure that the proper precautions are implemented prior to entry.

All blocks on the permit must be completed. If an item is not applicable then "N/A" must be written in the space. NO blank spaces are to appear on the permit. The permit must be signed by the Entry Supervisor and posted at the entrance to the confined space until the entry is completed or the work shift ends. The permit is applicable for a single work shift. The entry permit will serve as safety briefing outline before entry and will be available for review by all affected employees.

The entry permit will identify:

1. The location of the confined space, a description of the entry task, date of entry and duration of permit.

2. Known and potential hazards that may be encountered during the confined space entry.

3. All mechanical apparatus within the confined space such as agitators and pumps, which if activated could injure the worker.

4. Isolation procedures to be implemented.

    a. Blanking and/or disconnecting of all lines
    b. Electrical lockout and tagout
    c. Mechanical isolation and tagout
    d. Mechanical ventilation (volumes)

EXHIBIT 2 (continued)

CONFINED SPACE OPERATIONS GUIDELINES

5. Safety and protective equipment required (specify routine and emergency requirements):

    a. Level of respiratory protection
    b. Personal protective equipment
    c. Safety harness and/or lifelines
    d. Extraction devices
    e. Tools and equipment to be taken into the confined space by the entrant.

6. Pre-entry atmospheric monitoring and acceptable levels of contaminants:

    a. Oxygen level (19.5 – 23.5 %)
    b. Combustible gas/vapor level (< 10% LEL)
    c. Toxic substances level less than established TLV, PEL

7. Provisions for continuous atmospheric monitoring:

    a. Equipment
    b. Evacuation criteria

8. Equipment/procedures to maintain acceptable atmospheric conditions:

    a. Purging, ventilation, flushing, inerting

9. Identification of entry team (authorized and eligible):

    a. Personnel to make entry (authorized entrant)
    b. Personnel on stand-by (Attendant)

10. Emergency procedures and first aid:

    a. Communication procedures
    b. Equipment location
    c. Rescue team

11. Training required (Specifics beyond Section 5.8 should be noted):

    a. Authorized Entrant, Attendant and Entry Supervisor
    b. Non-entry rescue
    c. Respirator use

d. PPE

5.5 Work Practices

5.5.1 Pre-Entry

As part of the pre-entry procedure, the Entry Supervisor, HSC or HSR will review the entry permit with all authorized entrants and Attendants. The Entry Supervisor, HSC or HSR must make sure that all the necessary steps have been taken to ensure that there are safe conditions prior to issuing an entry permit. These steps include:

- *Pre-entry briefing*:
- *Preparation of the Entry Permit including:*
  - ✓ ***Initial Atmospheric Testing*** as necessary for oxygen deficiency or enrichment, for combustible gases, and for toxic gases and vapors
  - ✓ ***Hazard Control/Elimination*** to ensure that proper hazard control/elimination measures have been taken
  - ✓ ***Space Preparation and Site Control*** to ensure that unauthorized personnel do not impact the entry operation, that all necessary entry equipment can be staged effectively, that housekeeping at the entry location and in the space itself is adequate and that rescue services can locate and access the entry space as needed
  - ✓ ***Training*** which identifies the level of training required for all personnel involved with the entry
  - ✓ ***Emergency Rescue Procedures*** identifying the level and type of emergency services required for the entry
  - ✓ ***Equipment and Instrumentation*** required for monitoring, hazard control, safety, rescue

5.5.2 Purging and Ventilation

All confined space enclosures containing a hazardous atmosphere shall be subject to purging and continuous ventilation prior to an entry. Continuous ventilation may not be required if the confined space meets all of the following criteria:

1. No oxygen deficiency or enrichment (19.5 - 23.5 %)

2. LEL measurements are less than 10%

3. Toxicity measurement is less than 10% of the established IDLH of the airborne contaminant present

5.5.3 Isolation/Lockout and Tagging

Except for such confined spaces as manholes, sewers, and tunnels, where complete isolation is not physically possible, all confined spaces shall be completely isolated from all other systems by such means as lockout/tagout, double block and bleed, or physical disconnection of all lines into the confined space.

5.5.4 Buddy System

All tasks involving confined space entry will by performed by a team of not less than two (2) persons with specific duties as described in Section 4.0 Responsibilities.

5.5.5 Communication

The Authorized Entrants and the Attendant must maintain continuous communication with each other during the entire confined space entry. If visual contact and/or verbal communication cannot be maintained, the following code may be used which utilizes the lifeline:

Person Outside Confined Space	Person In Confined Space
1 Pull - Come out	1 Pull - Send help
2 Pulls- Back out	2 Pulls- Keep slack out of line
3 Pulls- Advance	3 Pulls- I am going ahead
4 Pulls- Are you okay?	4 Pulls- I am okay

If the person inside the confined space does not respond to the pull code, assume that there is trouble and begin effecting emergency procedures.

5.5.6 Testing and Monitoring

When preparing for an entry into a PRCS, appropriate initial testing must be conducted to assure that the atmosphere in the confined space is safe. Monitoring will be conducted for oxygen content, combustible gases/vapors, toxic contaminants, and any other contaminants identified. Air monitoring should be conducted continuously while personnel are within the confined space.

EXHIBIT 2 (continued)

CONFINED SPACE OPERATIONS GUIDELINES

Entry into a confined space without proper personal protective equipment will not be permitted under the following conditions:

1. Oxygen concentrations less than 19.5% (148 mm Hg*) or greater than 23.5% (178 mm Hg*) * *Based on Atmospheric Pressure of 760 mm HG (Sea Level)*

2. Flammability measurements greater than 10% of the lower explosive limits (LEL)

3. Toxicity measurements indicating an IDLH atmosphere's existence in the confined space.

Initial atmospheric samples shall be drawn while outside the confined space at the following locations:

1. Outside the entry point(s)

2. Immediately inside the entry point(s)

3. Every four feet from the entrance.

All initial-monitoring results will be recorded on the entry permit.

5.6 Equipment

Equipment necessary for safe entry, including testing, monitoring, communication, and personal protective equipment must be available prior to entry. Personnel using the equipment must be trained in proper use and maintenance of such equipment.

5.6.1 Safety Equipment

Additional safety equipment such as safety belts, body harnesses, or wristlets with lifelines shall be provided and used for all confined space entries, as determined by Entry Supervisor, HSC or HSR. If necessary, lifelines shall be attached to a mechanical extraction device outside the confined space so the Attendant can perform non-entry rescue.

5.6.2 Illumination

Illumination must be provided, as necessary, pursuant to 29 CFR 1910.120(m).

5.6.3 Equipment Requirements

All tools and other equipment, including monitoring instruments, for use in PRCS shall be inspected for compliance with the following requirements:

1. Tools and equipment will be kept clean and in a good state of repair.

2. All electrical equipment including portable tools, lighting, and power cords should meet approvals in accordance with OSHA regulations found in 29 CFR 1910 subpart S, including provisions for ground fault circuit interruption.

3. Only explosion proof temporary lighting listed by the Underwriters Laboratory should be used during PRCS entry and be equipped with all necessary guards.

4. Air activated tools must be used where flammable liquids are present and be bonded to the confined space.

5. Compressed gas cylinders, except those that are part of SCBA or resuscitation equipment, shall never be permitted inside a confined space. Cylinders used to supply compressed gases to a confined space shall be turned off at the cylinder valve when not in use and the supply lines will be removed.

6. Ladders, scaffolding, and staging shall be adequately designed and secured in conformance with OSHA regulations found in 29 CFR 1910 subpart D.

7. Any equipment or instrumentation subject to use in a confined space where flammable atmospheres may occur shall be listed as explosion proof or intrinsically safe by a recognized testing laboratory.

5.7 Rescue

If it becomes necessary to remove a worker from a confined space, the Attendant should act in accordance with the predetermined emergency rescue plan as follows:

A. The Attendant will communicate through the predesignated communication network and request assistance. The following information should be given:

   1. The location of the confined space

   2. Request for emergency oxygen supply and first-aid kit

3. Request for self-contained air supply with full-face mask, safety harness, and lifeline

4. Call for professional medical assistance

B. The Attendant will only attempt a non-entry rescue. At no time will the Attendant place himself/herself inside the confined space to perform an in-space rescue.

C. If the person within the confined space is secured to a winch, begin hauling him/her out. This procedure must be performed at speed that will not further injure the person.

D. If the lifeline is not secured to a winch, the Attendant will secure lifeline.

5.8 Employee Information and Training

Employees shall be trained to recognize confined spaces, the hazards of working in a confined space, and demonstrate understanding, knowledge, and skills necessary for the safe performance of their assigned duties during any confined space entry. The HSC will also ensure employees are trained before an employee is assigned the duties of Entrant, Attendant or Entry Supervisor.

Training shall include:

1. Hazard recognition associated with confined space operations

2. Emergency entry and egress procedures

3. Respiratory Protection

4. First aid

5. Cardiopulmonary resuscitation

6. Lockout and tagout procedures

7. Personal Protective Equipment

8. Rescue operations

9. The Permit System

10. Work practices (see Section 5.4)

5.9 Subcontractors

Subcontractors shall be provided with all available information on existing confined spaces, their hazards, necessary permits (if applicable), and any other workplace hazards, safety rules and emergency procedures necessary to complete the task safely.

5.10 Recordkeeping

Copies of the entry permits and personnel exposure record will be maintained by the HSC as required under 29 CFR 1910.20.

6.0 REFERENCES

1. ANSI Z117.1-1989 "Safety Requirements for Confined Space"
2. 29 CFR 1910.146, Proposed Rulemaking "Permit Required Confined Spaces"
3. 29 CFR 1910.120(m) Hazardous Waste Operations (Illumination)
4. 29 CFR 1910 Subpart S (Electrical)
5. 29 CFR 1910 Subpart D (Walking-Working Surfaces)

7.0 APPENDICES

Appendix A- Hazard Assessment Form
Appendix B- Entry Permit

EXHIBIT 3

EXCAVATION/TRENCHING OPERATIONS GUIDELINES

1.0 PURPOSE

To establish safe operating procedures for employees working in or near excavation or trenching operations at D&B work sites.

2.0 SCOPE

Applies to all D&B activities where excavation or trenching operations take place.

3.0 DEFINITIONS

Adjacent area – The horizontal surface area surrounding the excavation, which extends outward from the excavation edge up to a distance that is half the depth of the excavation.

Competent Person – A competent person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authority to take prompt corrective measures to eliminate the hazard.

Excavation – Any manmade cavity or depression in the earth's surface, including its sides, walls, or faces, formed by earth removal and producing unsupported earth conditions by reasons of the excavation.

Protective system – Shoring, Shielding, Sloping or equivalent.

Trench – A narrow excavation made below the earth's surface. In general, the depth is greater than the width, but the width of a trench is not greater than 15 feet.

4.0 RESPONSIBILITIES

Health and Safety Coordinator (HSC) responsible for revising the Trenching and Excavation program to include new OSHA updates. The HSC is also responsible for ensuring trenching and excavation training is available for applicable D&B employees. The HSC or a designee may conduct site inspections of all trenching and excavations that D&B employees will be exposed to.

All Site Personnel must follow these procedures when working in or around an excavation or trench.

EXHIBIT 3 (continued)

EXCAVATION/TRENCHING OPERATIONS GUIDELINES

5.0 GUIDELINES

D&B personnel may be providing oversight on projects where excavation and trenching operations are being undertaken. ***D&B WILL NEVER BE PLACED IN THE ROLE OF THE DESIGNATED "COMPETENT PERSON", MAKING DECISIONS ON THE SAFETY CONDITIONS AND PROCEDURES OF THE EXCAVATION AND TRENCHING OPERATIONS***. D&B personnel should identify the contractor/subcontractor/sub-consultant "Competent Person". D&B personnel will also understand the basic H&S requirements for excavating and trenching to protect themselves and other D&B personnel.

5.1 Hazards Associated with Excavation/Trenching

The principle hazards associated with excavation/trenching are:

- Suffocation, crushing or other injury from falling material.
- Damage/failure of installed underground services and consequent hazards.
- Tripping, slipping or falling.
- Possibility of explosive, flammable, toxic or oxygen-deficient atmosphere in excavation.

5.2 Requirements for Protective Systems

- Whenever there is a potential for cave-in.
- The excavation is 5 or more feet in depth, as determined by the competent person, pursuant to 29 CFR Part 1926.501.

5.3 Inspections

The designated "competent person" from the contractor/subcontractor/sub-consultant will perform inspections pursuant to 29 CFR 1926.651 k(1) when employee exposure to hazards are reasonably anticipated:

- Each day before employees enter the excavation,
- After every rain storm,

- As needed throughout the shift, or
- As soil conditions change.

During the inspection the "competent person" must:

- Ensure the protective system is adequate for the soil classification and the external loads placed on the adjacent area,
- Evaluate the excavation, the adjacent area and the protective system, for
  - Hazardous atmosphere
  - Potential situations that could lead to cave-in
  - Indications of failure of a protective system
  - Cracks in the ground parallel to the top of the excavation
  - Any other hazardous conditions
- Verify that ladders or other means of access/egress to excavations shall be provided at:
  - maximum spacing of 100 feet on the perimeter of open excavations and
  - maximum spacing of 25 feet for trench excavations greater than 4 feet in depth.

5.4 Entering the Excavation

D&B employee shall ***NOT*** enter an excavation unless the D&B site supervisor has coordinated with the contractor/subcontractor/sub-consultant competent person to ensure the excavation has been inspected and is safe.

6.0 REFERENCES

1. OSHA Regulations 29 CFR 1926 Subpart P - Excavations

EXHIBIT 4

LOCKOUT/TAGOUT GUIDELINES

1.0 PURPOSE

Lockout/Tagout guidelines have been established to protect D&B employees from injuries that could result from the unexpected or unplanned start-up or movement of machinery or equipment during inspections, maintenance, installation, adjustment, or servicing operations. These guidelines provide D&B personnel with information regarding the hazards and control measures associated with the release of such hazardous energy pursuant to OSHA Standard 29 CFR 1910.147.

If D&B is expected to take measures to control hazardous energy for site-specific operations, then a written Energy Control Procedure must be prepared for each site. Such procedures will include steps for equipment shutdown, isolation, application of locks and tags, dissipation of stored energy, verification of equipment isolation, removal of locks and tags, and restoration of energy to machines.

The components of the Lockout/Tagout Program include:

a. Energy Control Procedures, if applicable

b. Employee notification

c. Contractor activities

d. Employee training

e. Periodic audits of the Energy Control Procedures, if applicable

2.0 SCOPE

These guidelines apply to all D&B employees who perform activities (such as surveying, construction, installation, set-up, adjustment, inspection, maintenance, and repair) where a hazardous energy release potential exists. This applies to any source of electrical, hydraulic, pneumatic, potential (stored), chemical, thermal, or other energy.

3.0 DEFINITIONS

Affected Employee - an employee who performs job duties in an area in which lockout or tagout is performed. An affected employee **does not** perform servicing or maintenance on machines or

equipment and **is not** responsible for implementing energy control procedures or applying locks or tags.

Authorized Employee - an employee who performs servicing or maintenance on machines or equipment and who implements energy control procedures, including the application of locks or tags. (Note: A single employee may be both authorized and affected if he/she performs servicing or maintenance under Lockout/Tagout on a machine or equipment he/she normally operates).

Capable of Being Locked Out - an energy isolating device is considered to be capable of being locked out if it meets **one** of the following criteria:

- it is designed in such way so that a lock can be attached
- it is designed with any other integral part through which a lock can be affixed
- it has a locking mechanism built into it
- it can be locked without dismantling, rebuilding, or replacing the energy isolating device or permanently altering its energy control capability. (For example, although many valves are not designed with an integral locking device, they can be secured with chains, blocking braces, or wedges, which can then be locked).

Energized - machines and equipment are energized when they are connected to an energy source or they contain residual or stored energy.

Energy-Isolating Device - a mechanical device that physically prevents the transmission or release of energy -- including, but not limited to: manually operated circuit breakers; disconnect switches; valves, and blocks. The term does not apply to pushbuttons, selector switches, or other control circuit devices.

Energy Source - any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Energy Control Procedure - a written procedure which contains the information and steps an Authorized Employee needs to follow in order to safely isolate equipment to perform servicing or maintenance under Lockout/Tagout. Note, only Authorized Employees are permitted to use the Energy Control Procedures.

Lockout - the act of padlocking and tagging an energy-isolating device in the off or safe position. In cases where more than one employee is involved, provision will be made so that each Authorized Employee can affix his/her own lock and tag.

"Other" Employees - all D&B employees who are not Authorized or Affected Employees.

EXHIBIT 4 (continued)

LOCKOUT/TAGOUT GUIDELINES

Tagout - the act of placing an energy-isolating device in the off or safe position and placing a tag on it to indicate that the equipment **may not** be operated until the tag is removed.

4.0 RESPONSIBILITIES

The ***Health and Safety Coordinator (HSC)*** has an overall responsibility for the Lockout/Tagout Program. The HSC will coordinate Lockout/Tagout training for all authorized and affected employees, if necessary, and assess authorized employee's knowledge of the Lockout/Tagout Program.

The ***On-Site Health and Safety Representative (HSR)*** will:

- Be knowledgeable about the types and magnitude of hazardous energy sources and the hazards associated with the unexpected or unplanned start-up or movement of machinery or equipment during maintenance, installation, adjustment, or servicing operation.
- Be knowledgeable in the methods to control hazardous energy, verify that each authorized and affected D&B personnel has received Lockout/Tagout training before they begin work in an area where Energy Control Procedures are used
- Ensure that D&B /WFC personnel correctly obtain, review and apply the appropriate Energy Control Procedures, when required, and maintain adequate supply of Lockout devices and equipment
- Be responsible for developing new or modify existing Energy Control Procedures for each job site, if required, and attached them to the Site-Specific Health and Safety Plan (HASP)
- Coordinate Lockout/Tagout operations which, involve outside contractors.

Authorized Employees – D&B Authorized Employees, if designated, are responsible to correctly apply Energy Control Procedures, including the application of locks or tags. Authorized employees will:

- Be knowledgeable about the types and magnitude of hazardous energy and the hazards employed with the unexpected or unplanned start-up or movement of machinery or equipment during maintenance, installation, adjustment, or servicing operations

- Be knowledgeable in the methods used to control hazardous energy (Energy Control Procedures)
- Notify affected employees prior to application of Lockout/Tagout devices and after the devices are removed
- Coordinate the Lockout/Tagout activities when a Lockout/Tagout operation continues beyond one (1) shift.

Affected and "other" employees are generally responsible for operating or working near machines upon which Lockout/Tagout operations are performed. Affected employees will:

- Understand the purpose of Energy Control Procedures and the importance of not attempting to start-up or use machines that have been locked or tagged.
- Recognize when Energy Control Procedures are being implemented.

5.0 GUIDELINES FOR LOCKOUT/TAGOUT

5.1 General

It is anticipated that for most jobs, D&B personnel will not be responsible for developing Energy Control Procedures. However, when working in the areas of potential hazardous energy release, each employee must recognize the types and magnitudes of hazardous energy sources and the hazards associated with the unexpected or unplanned start-up or movement of machinery or equipment. They must also observe safe work practices.

Only authorized employees are permitted to implement the Energy Control Procedures.

5.2 Work Practices

Following is a typical sequence to implement the Lockout/Tagout procedures.

a. *Prepare for Shutdown* - Authorized employees must review the applicable Energy Control Procedure. If a specific Energy Control Procedure does not exist for a machine then the HSC or designee must ensure that a procedure is developed

b. *Notify Affected Employees* - Authorized employees must verbally notify affected employees prior to application of lockout or tagout devices

c. *Shut Down Machinery or Equipment*

d. *Isolate Machinery or Equipment from Energy Source* - Place manually operated circuit breakers, disconnect switches, valves and related equipment into the "off" or safe position. Place blocks where necessary to physically isolate the machinery or equipment from its energy source to prevent the transmission or release of energy.

e. *Apply Lockout and/or Tagout Devices* - Each authorized employee or outside contractor involved in the work which requires the use of Lockout/Tagout must personally place his/her lock and identification tag on each identified energy isolating device. The tag must be filled out with the authorized employee's name, the date it was placed, and the reason for the Lockout/Tagout operation. Each authorized employee must maintain possession of the key to his/her lock during the entire work operation. Where an energy-isolating device is not designed to accept a lock, a signed and dated tag may be used according to procedures specified in Section 5.4. After applying locks and tags, the energy isolating devices must be tested to make certain they cannot be moved into the "on" position.

f. *Release Stored Energy* in air lines, water lines, etc by bleeding off excess pressure. Bleed-off valves must be locked and/or tagged out in the open position. Disconnected lines must be tagged out. Restrain potential energy using safety blocks.

g. *Verify that Machinery or Equipment is De-energized* - Using normal operating controls, attempt to start the machinery or equipment to make sure that it has been completely de-energized.

5.3 Release from Lockout/Tagout

Upon completion of work requiring the use of Lockout/Tagout procedures, the following sequence can be used to restore machinery or equipment to service:

a. *Check Equipment* - Following completion of the work, the authorized employees who performed the work must inspect the area around the machinery or equipment to ensure that all tools or other nonessential items have been removed, machine guards have been reinstalled, and the machinery or equipment components are operationally intact and safe to energize.

b. *Check Work Area* - The authorized employees who performed the work must inspect the work area to make certain all employees are safely positioned away from the machinery or equipment.

c. *Removal of Lockout/Tagout Devices* - Locks and/or tags must be removed from each energy isolating device by the authorized employee or outside contractor who placed it. If the authorized employee or outside contractor is not available to remove his/her own lockout/tagout device, use the Emergency Lock or Tag Removal Procedures described in Section 5.7.

d. *Restore Energy to Machinery/Equipment* - Place manually operated circuit breakers, disconnect switches, valves, etc. into the "on" position. Remove safety blocks

e. *Notify Affected Employees* - Authorized employees must verbally notify affected employees following removal of locks and tags and the re-energization of the machinery or equipment.

5.4 Use of a Tagout System Only

In cases where machinery or equipment **is not** capable of being locked out, it will be necessary to use a completed "Do Not Operate" tag to provide the highest level of safety available without the use of locks. The tag must be filled out with the authorized employee's name, the date it was placed, and the reason for the Tagout operation. Note that tags alone **may not** be used as a substitute when the use of locks is specified in the applicable Energy Control Procedure. Only authorized employees are permitted to implement tagout. The following conditions apply to the use of tags without locks:

a. Only authorized D&B employees are permitted to place a "Do Not Operate" tag;

b. The tag must be placed at the same location that a lock would have been attached with a self-locking plastic or nylon tie wrap capable of withstanding at least 50 pounds of force;

c. The lockout tag can only be removed by the authorized employee who installed it. If the authorized employee is not available to remove his/her own tag, use the emergency lock or tag removal procedures in section 5.7.

5.5 Energy Control Procedures

Generally, Energy Control Procedures are developed by the client or the owner of the equipment and made available to D&B project personnel. If such procedures are not available, D&B can develop, if required, a site-specific written Energy Control Procedure, which will contain the steps and techniques to be used by authorized employees to properly de-energize machinery and equipment prior to the initiation of work.

When the operations involves more than one (1) authorized employee or outside contractor, provision must be made to ensure that each individual can place his/her lock and tag on each energy isolating device identified in the applicable Energy Control Procedure.

5.6 Shifts or Personnel Change

When Lockout/Tagout must continue beyond one (1) shift or when there is personnel change, the following procedures apply:

a. At the end of the shift, each authorized employee who is leaving work must remove his/her "Do Not Operate" tag(s) from each energy isolating device. Each oncoming authorized employee must affix his/her own personal "Do Not Operate" tag(s) on the padlock(s) to which his/her key corresponds and maintain possession of the padlock key(s)

b. Verify that machinery or equipment is de-energized using the procedures described in Section 5.2 g

c. Proceed with operations.

5.7 Emergency Lock or Tag Removal

In the event that the authorized employee or outside contractor who attached a lock or tag is not available to unlock or remove a lock or tag, the HSC, HSR or a designee may remove the lock or tag only using the following procedures:

a. Verify that the authorized employee or outside contractor who placed the lock or tag is not at the facility

b. Attempt to contact the authorized employee or outside contractor whose lock is still in place

c. Ensure that all work has been completed and the equipment machinery is safe to return to service

d. The HSC, HSR or a designee may cut the lock off using a saw or bolt cutters. Where tagout only is being used, tags may be removed by designated personnel using appropriate methods

e. Ensure that the authorized employee or outside contractor whose lock or tag has been removed is informed before he/she returns to work

f. Review the lockout/tagout requirements with the authorized employee or outside contractor who left their lock or tag on the isolated equipment

5.8 Testing and Positioning of Machines and Equipment

In some situations, it may be necessary for authorized employees to operate equipment for testing or positioning before it is ready to be used. These situations require the temporary removal of Lockout/Tagout devices only during the limited time necessary for the testing or positioning. Use the following procedures for testing and positioning of machines or equipment:

a. Release the machine, equipment or component from Lockout/Tagout

b. Perform the testing and positioning

c. De-energize and re-apply locks and tags.

5.9 Hardware and Tags

If Logout/Tagout will be employed by D&B authorized employees, the HSC is responsible for providing the resources to ensure that an adequate supply of Lockout/Tagout devices and equipment will be maintained for each project site. Lockout/Tagout hardware is issued to all authorized employees for use with this program. The HSC or his/hers designee will maintain a master list of all lockout padlocks and keys.

6.0 EMPLOYEE TRAINING

An initial training program will be provided to all authorized and affected employees, as required. The HSC has overall responsibility for coordinating employee training, including as needed "refresher" training.

Each HSR must verify that all employees have received initial lockout/tagout training prior to starting work involving the control of hazardous energy. The HSC must identify any employees who require re-training when there is a change in Energy Control Procedures, a change in equipment or processes which presents a new hazard, or when observations reveal that there are inadequacies in employees' knowledge or use of Energy Control Procedures.

EXHIBIT 4 (continued)

LOCKOUT/TAGOUT GUIDELINES

Authorized employees will receive site specific training in the recognition of hazardous energy, the sources, types and magnitudes of energy and the elements of the Energy Control Procedures. Affected employees will receive training in the purpose and use of Energy Control Procedures.

7.0 CONTRACTORS/SUBCONTRACTORS

Outside contractors and subcontractors performing operations which require the use of Lockout/Tagout must use ***THEIR OWN*** Energy Control Procedures

8.0 PERIODIC INSPECTIONS OF ENERGY CONTROL PROCEDURES

D&B will conduct periodic evaluations of the Lockout/Tagout Program including a review of Energy Control Procedures, as applicable. Authorized Employee(s) (other than those utilizing the Energy Control Procedure) will perform periodic inspections.

EXHIBIT 5

CARE AND CLEANING OF RESPIRATORS

General Requirements

Any organization using respirators on a routine basis should have a program for their care and cleaning. The purpose of a program is to assure that all respirators are maintained at their original effectiveness. If they are modified in any way, their Protection Factors may be voided. Usually one person in an organization is trained to inspect, clean, repair, and store respirators.

The program should be based on the number and types of respirators, working conditions, and hazards involved. In general, the program should include:

- Inspection (including a leak check)
- Cleaning and Disinfection
- Repair
- Storage

Inspection

Inspect respirators after each use. Inspect a respirator that is kept ready for emergency use monthly to assure it will perform satisfactorily.

On air-purifying respirators, thoroughly check all connections for gaskets and "O" rings and for proper tightness. Check the condition of the facepiece and all its parts, connecting air tubes, and headbands. Inspect rubber or elastic parts for pliability and signs of deterioration.

Maintain a record for each respirator inspection, including date, inspector, and any unusual conditions for findings.

EXHIBIT 5 (continued)

CARE AND CLEANING OF RESPIRATORS

Cleaning and Disinfection

Collect respirators at a central location. Brief employees required to wear respirators on the respirator program and assure them that they will always receive a clean and sanitized respirator. Such assurances will boost morale. Clean and disinfect respirators as follows:

- Remove all cartridges, canisters, and filters, plus gaskets or seals not affixed to their seats.
- Remove elastic headbands.
- Remove exhalation cover.
- Remove speaking diaphragm.
- Remove inhalation valves.
- Wash facepiece and breathing tube in cleaner/sanitizer powder mixed with warm water, preferably at 120 to 140°F. Wash components separately from the facemask, as necessary. Remove heavy soil from surfaces with a hand brush.
- Remove all parts from the wash water and rinse twice in clean, warm water.
- Air dry parts in a designated clean area.
- Wipe facepieces, valves, and seats with a damp lint-free cloth to remove any remaining soap or other foreign material.

Note: Most respirator manufacturers market their own cleaners/sanitizers as dry mixtures of a bactericidal agent and a mild detergent. One-ounce packets for individual use and bulk packages for quantity use are usually available.

EXHIBIT 5 (continued)

CARE AND CLEANING OF RESPIRATORS

Repairs

Only a trained person with proper tools and replacement parts should work on respirators. No one should ever attempt to replace components or to make adjustments or repairs beyond the manufacturers' recommendations. It may be necessary to send high pressure side components of SCBA's to an authorized facility for repairs.

Make repairs as follows:

- Disassemble and hand clean the pressure-demand and exhalation valve assembly (SCBA's only). Exercise care to avoid damage to the rubber diaphragm.
- Replace all faulty or questionable parts or assemblies. Use parts only specifically designed for the particular respirator.
- Reassemble the entire respirator and visually inspect the completed assembly.
- Insert new filters, cartridges, or canisters, as required. Make sure that gaskets or seals are in place and tightly sealed.

Storage

Follow manufacturers' storage instructions, which are always furnished with new respirators or affixed to the lid of the carrying case. In addition, these general instructions may be helpful:

- After respirators have been inspected, cleaned, and repaired, store them so to protect against dust, excessive moisture, damaging chemicals, extreme temperatures, and direct sunlight.

EXHIBIT 5 (continued)

CARE AND CLEANING OF RESPIRATORS

Storage (continued)

- Do not store respirators in clothes lockers, bench drawers, or tool boxes. Place them in wall compartments at work stations or in a work area designated for emergency equipment. Store them in the original carton or carrying case.

- Draw clean respirators from storage for each use. Each unit can be sealed in a plastic bag, placed in a separate box, and tagged for immediate use.

EXHIBIT 5 (continued)

RESPIRATORY CERTIFICATION RECORDS

RESPIRATORY PROTECTION PROGRAM
RECORD OF RESPIRATOR USE

Name _____ Date _____

Social Security Number _____ Age _____

Location _____

Department _____ Supervisor _____

Area to be used in _____

Type of Respirator _____ Fitted By _____

Medical Approval Date _____

Medical Facility/Physician _____

Specific contaminants for which respiratory protection is necessary:

EMPLOYEE STATEMENT

I, an employee of _____, have received the above-referenced respirator. I have been fitted and properly instructed on its uses and limitations. I, also, understand that it is my responsibility to properly clean, maintain and store my respirator in a clean area unless other arrangements have been made to assure maintenance and care of the respiratory protection.

Signature _____

Date _____

EXHIBIT 6

AIR MONITORING RESULTS REPORT

Date: _____

Duration of Monitoring: _____

Work Location and Task: _____

_____

Instrument Reading _____ (Time)	Instrument Reading _____ (Time)	Instrument Reading _____ (Time)
_____	_____	_____
_____	_____	_____

(Note: If instruments have recorders, just attach tape to report. Also note any action levels when exceeded.)

Instrument Calibration: _____

Perimeter Samples Collected: _____

_____

Personnel Samples Collected: _____

_____

Perimeter and Personnel Sample Results From Previous Day (attach data once received):

_____

Comments: _____

_____

_____ _____

Name Title (Site Safety Officer)

Signature _____

EXHIBIT 7

HEAT/COLD STRESS GUIDELINES

1.0 WORKING CONDITIONS AS RELATED TO HEAT STRESS

1.1 Personal Protective Clothing

All of the protective ensemble does not lend itself to the release of body heat generated during work. With this in mind, the following will be taken into consideration during the work schedule so as to minimize the heat stress to all personnel:

- All personnel will be advised to wear lightweight undergarments with short sleeves, under the chemical protective coverall.
- Personnel will be advised that extra clothing be on-site for use as the workday progresses due to the clothing becoming wet from perspiration.
- Dressing-out will be done in a designated trailer and be scheduled so as not to extend time in the protective ensembles.
- The dress-out area will have a table with fresh water and/or other water replenishing liquids along with disposable cups. All personnel will be expected to drink liquids before each work cycle. The SSO will supervise the dressing and water intake.
- As the job progresses and more information becomes available as to the materials that the workers are coming in contact with, consideration as to modifications to the protective ensemble will be examined. Such things as allowing personnel to keep the protective garment's hood down allowing for the release of heat. All decisions regarding the protective ensemble will be the SSO's decision based on available information.
- After completion of each work cycle, personnel will pass through personnel decontamination and remove their protective ensembles in the designated area. All personnel will then be medically monitored, if deemed necessary by the SSO. Liquid replenishment will be mandatory after each work cycle.
- Eating facilities will allow for meal periods to be taken in the designated lunch area. On days of extreme temperatures, the use of air conditioning in the decontamination trailer will be limited so as not to have personnel exposed to temperature extremes.

HEAT/COLD STRESS GUIDELINES

1.2 Causes of Heat Stress

Wearing the expected levels of protection on-site can put personnel at risk of developing heat stress. This section will discuss heat stress and what steps will be taken to monitor personnel for the signs of it.

The body's chemical activities take place in a limited temperature range. Heat is generated by these processes. Any heat not needed to sustain the activities must be lost from the body to maintain a balance. HYPOTHERMIA is an abnormally high body temperature. The three main avenues for the release of body heat are:

- Respiration is our breathing pattern. Care should be taken that the body is not fooled into believing it is cool based on skin temperature.
- Radiation is how heat is released from the skin. Blood will pool on the surface of the skin as body temperatures increase. The protective ensemble specified for this site will not allow for this type of heat release.
- Evaporative Heat Loss normally allows for a body to cool itself by the evaporation of perspiration. Because the protective ensemble stops any contact with moving air the sweat coming off of the body will not evaporate.

If any of these release mechanisms is out of balance, the following conditions can occur and may be considered emergencies needing care:

- **HEAT RASH** is a common occurrence in areas where body parts rub causing friction. The level of protection will heighten its effects. Proper treatment would be personal washing of the affected areas and administering powder to help healing.
- **HEAT CRAMPS** occur when people are exposed to heat for extended periods of time. Due to the wearing of the required protective ensemble, this will be expected. The person will sweat heavily and drink large quantities of water. The more the person sweats, the more electrolytes are lost. If enough body salts are lost, the individual will begin to experience body cramps and pain in the extremities.

EXHIBIT 7 (continued)

HEAT/COLD STRESS GUIDELINES

Proper treatment includes slow replenishment of body fluids augmented by a proper salt solution along with cooling the individual down, taking care not to expose the person to extreme cooling measures. The worker will not be allowed to return to work until the SSO has monitored and approved re-entry.

- **HEAT EXHAUSTION** occurs as the blood pools at the skin surface in an attempt to cool the body. Sweating is profuse, skin is moist and cool, and the patient will experience dizziness, nausea, or fainting. This condition is an indicator of overwork in the environmental conditions. Treatment includes all for heat cramps with an extended rest period before re-entry. Depending on the worker's physical condition, rest periods may be from 30-60 minutes. After experiencing heat exhaustion, the worker should be closely monitored for symptoms reoccurring.

- **HEAT STROKE** can occur if heat exhaustion is not cared for. This occurs when the body loses its ability to regulate its temperature. Sweating stops and, if not treated, can lead to death. Signs and symptoms include dry red skin with no perspiration along with nausea, dizziness and confusion. A strong, rapid pulse should be carefully monitored as this condition can lead to coma. Proper treatment begins by understanding that this is a true medical emergency and requires activating the emergency medical system as covered in other sections. When notifying the Emergency Medical Response organization, emphasis should be placed on the words HEAT STROKE and the need for rapid transportation to the medical facility. (See Appendix A of the SSHP). Emergency medical treatment in the field includes immediate cooling of the body with total body immersion preferable. Water temperature should be cool enough to absorb the high body heat but not cold. Ice packs can be applied to the person's head area and under the arms. Due to the personnel needed to treat the patient while awaiting emergency medical care, all work will stop and all attention will be devoted to the person in stress. The First Aid Technician will evaluate all personnel after the patient is transported to determine if they also are showing signs of heat stroke.

To facilitate treatment of all of the above, the trailer, with its air conditioning, fresh water supply and shower, will be used if necessary. In all cases requiring treatment, emergency decontamination procedures based on the individual's degree of contamination will be done before entry into the trailer. Remember: *You* are your own best indicator of signs of heat stress.

HEAT/COLD STRESS GUIDELINES

2.0 COLD STRESS

The purpose of this section is to make all workers on-site aware of the problems associated with cold weather operations. As with heat related emergencies, cold weather injuries are progressive. That means that if the worker is aware of the problems beforehand he may prevent further damage and remain working.

Cold related injuries may be divided into two types:

- LOCAL COOLING affects the particular part of the body coming in direct contact with the cold air. This is commonly known as FROSTBITE.
- GENERAL COOLING affects the entire body and is known as HYPOTHERMIA. Hypothermia is a true medical emergency and should be recognized as such and treated immediately by trained medical personnel.

As stated, cold related injuries are progressive. The body loses heat either by CONDUCTION or direct transfer of body heat into the cold environment. An example would be an unprotected head allowing the surface area of the head to come in direct contact with the colder air. The other means by which the body loses heat is by CONVECTION. This occurs when colder air is allowed to pass over the body surface. When that air is also moist or the garments work become wet, a WATER CHILL or more commonly recognized WIND CHILL occurs. An example of wind chill would be a 20 mph wind during a 10 degree day would produce the same effect as -25 degree temperature. Both of these conditions may be easily prevented by proper work attire and safe work practices. Hardhat liners prevent the wind from blowing under the brim but will also affect your hearing ability.

EXHIBIT 7 (continued)

HEAT/COLD STRESS GUIDELINES

Lose layers of work clothes rather than bulky garments will allow the wearer to adapt to changing conditions. Use of rubber overboots will prevent leather workboots from getting wet and are excellent for stationary work to stop cold penetration.

Signs to Look For:

FROSTNIP, the first stage of frostbite occurs when a body part comes in direct contact to a cold object or cold air. This condition is not serious and can be remedied by warming of the region. The real problem is that a numbing effect can occur and keep the worker from realizing that he is going into the next stage SUPERFICIAL FROSTBITE.

The skin and under layers become effected. If not treated this can become a FREEZING condition in which the deeper structures of the body become effected.

CONDITION	SKIN SURFACE	TISSUE UNDER SKIN	SKIN COLOR
frostnip	soft	soft	red-white
frostbite	hard	soft	white/waxy
freezing	hard	hard	white/gray

HYPOTHERMIA occurs when the body is unable to maintain its proper temperature of 98.6 degrees. It is important for the worker to realize that this can occur in temperatures of 50 degrees and below. Submersion of a body part in cold water will also cause hypothermia very quickly. Some early signs are:

1. Shivering
2. Numbness in extremities
3. Drowsiness

4. Slow breathing and pulse rates
5. Failing eyesight
6. Loss of coordination, inability to do easy tasks
7. Freezing of body parts

Proper treatment begins by activation of emergency medical service procedure. Hypothermia required prompt qualified medical treatment. Initial site action would revolve around getting the affected worker out of the weather and begin the warming process. The most important thing to realize is that Hypothermia is a MEDICAL EMERGENCY.

Workers exposed to cool temperatures for extended period of time can experience lesions in the form of red swollen areas that seem hot and itchy. These chronic lingering lesions are known as CHILBLAINS. Although not an emergency, the Chilblains indicate that the worker in not adequately protecting the affected area.

A common problem in wet work areas is TRENCH FOOT. The worker whose feet remain unprotected by leather footwear in water close to freezing will have swollen limbs that appear waxy and mottled in color. The affected limb will appear cold to the touch. Basic treatment revolves around getting the worker to a warm place and slowly removing the wet footwear. The obvious way to prevent TRENCH FOOT is to wear rubber protective footwear.

Some suggestions to prevent cold weather operation problems:

1. Plan ahead as to the proper work clothes to be worn.
2. Avoid early overheating which dampens clothes and hastens the release of body heat by evaporation.
3. Use of windbreaks in the work zone.

4. Elimination of standing water or avoid prolonged immersion in that water.

5. Provision of heated rest area (i.e., trailer or vehicle).

6. Avoid overheating of the rest area. Extreme temperature differentials between the work area and the rest area will lead to chilling upon return to work.

7. Proper diet and eating habits.

8. Avoid or cut down smoking which constricts the blood vessels.

REMEMBER, YOU ARE THE BEST PROVIDER OF INFORMATION ABOUT HOW YOU FEEL. THE BEST WAY TO PREVENT INJURIES FROM COLD WEATHER OPERATIONS IS TO RECOGNIZE THE EARLY SIGNS AND PREVENT SERIOUS INJURY.

EXHIBIT 8

INCIDENT NOTIFICATION FORM

TO: Project Manager

Date: _____

FROM: HSO and/or _____
(someone who has direct knowledge of the incident)

1. Contractor's Name: _____

2. Organization: _____

3. Telephone Number: _____

4. Location: _____

5. Reporter Name: _____

6. Name of Injured: _____ Birth date: _____

7. Company Employing Injured: _____

8. Date of Incident: _____

9. Company Employing Injured: _____

10. Location of Incident: _____

11. Brief Summary of Incident (provide pertinent details including type of operation at time of incident):

_____

_____

_____

12. Cause, if known: _____

13. Casualties, if any: _____

EXHIBIT 8 (continued)

INCIDENT NOTIFICATION FORM

14. Details of Any Existing Chemical Hazards or Contamination:

_____

_____

15. Estimated Property Damage: _____

16. Affect on Contract Schedule: _____

17. Actions Taken by Contractor: _____

18. What Medical Help was Given: _____

_____

_____

19. Doctor and/or Hospital (if known): _____

_____

20. When did Employee Return to Work: _____

21. Other Damages/Injuries Sustained (public or private):

_____

_____

22. Additional Information:

_____

_____

_____

EXHIBIT 9

EMERGENCY INFORMATION

1. Emergencies Within the Site

- Contact the HSO On-Site
- Contact the FOM
- Contact Public Works
- Report the following:
  - Location of emergency in relation to a specific recognizable landmark.
  - Nature of emergency:
    - **FIRE**, if so of what kind and what equipment is involved.
    - **EMERGENCY MEDICAL INCIDENT, ALL INJURIES, ACCIDENTS OR FIRES.**
      Communication will include:
      - Number of injured people.
      - Nature of injuries.
      - If Project Field Team Members can't handle injuries with its resources, what emergency medical services will be needed.
    - If any outside personnel must enter the site, any hazards will be communicated and those people will be supervised by the HSO.
    - In the event that any site personnel wearing protective equipment in the Exclusion Zone becomes injured, the HSO or designated individual will do whatever decontamination is necessary to remove that equipment.
    - Any emergency treatment information dealing with the injury will accompany the injured party so that those treating that person will have any and all information.
    - **REQUEST FOR POLICE**. If any person entering the site who does not belong there becomes a problem, Police will be notified. If that person either endangers the safe operation of Project Field Team members or himself, the HSO will suspend all work until that person can be removed.
  - If site personnel will be evacuating the site due to emergency.

2. Personnel Exposures Within the Site

- Contact the HSO On-Site
- Contact the FOM
- Provide treatment as follows:
  - Eye Exposure - treat by immediate flushing with distilled water (portable eyewash). Transport for examination and treatment. Site-Specific hospital information can be found in Section 5.1.1.
  - Skin Exposure - remove contaminated clothing and treat by washing with soap and water.

- Inhalation - if a person inhales a large amount of organic vapor, the person will be removed from the work area to fresh air and artificial respiration will be administered if breathing has ceased. The affected person will be transported to the hospital by ambulance or emergency vehicle if overexposure to lungs has occurred.
- Personal Injuries - in case of severe injury, the victim will receive emergency first aid at the site, as appropriate, and will be transported by ambulance or emergency vehicle to the hospital. An accident form must be completed for any accident or occupational exposure and forwarded to the Project Manager.

3. Evacuating the Site

- Contact the HSO On-Site
- Contact the FOM
- Follow the directions below:
  - Upwind withdrawal - withdraw to a safe upwind location if:
    - Air quality concentration contain excessive concentrations of volatile organics, combustible gases, or oxygen percentage above or below safe levels for the level of protection being worn. The field team will withdraw to a safe upwind location determined by the HSO.
    - A minor accident occurs. The victim will undergo decontamination procedures and be transported to a safe upwind location. Field operations will resume after first aid and/or decontamination procedures have been administered to the affected individual.
    - Protective clothing and/or respirator malfunctions.
  - Withdrawal from site - evacuate the site if:
    - Explosive levels of combustible gases, toxic gases, or volatile organics are recorded.
    - A major accident or injury occurs.
    - Fire and/or explosion occurs.
    - Shock-sensitive, unstable, or explosive materials are discovered.
    - High levels of radioactive materials are discovered.

- Evacuation of nearby facilities - a continuous release of toxic, flammable, or explosive vapors from the site could affect people off-site. Air quality should be monitored downwind to assess the situation. The FOM, or on-site designee, is responsible for determining if circumstances exist for any level of off-site contamination warranting concern for people off-site. he should always assume worst case conditions until proven otherwise. If conditions are marginal, evacuation should be conducted until acceptable conditions resume. Key personnel identified in the HASP should be contacted when evacuation of nearby facilities becomes necessary.

EXHIBIT 9 (continued)

EMERGENCY INFORMATION

TABLE I

EMERGENCY SIGNALS

In most cases, field personnel will carry portable radios for communications. If this is the case, a transmission that indicates an emergency will take priority over all other transmissions. All other site radios will yield the frequency to the emergency transmissions.

Where radio communication is not available, the following air-horn and/or hand signals will be used:

EMERGENCY AIR-HORN SIGNALS

HELP!	Three short blasts	. . .
EVACUATION!	Three long blasts	— — —
ALL CLEAR!	Alternating long and short blasts	— . — .

EMERGENCY HAND SIGNALS

OUT OF AIR, CAN'T BREATH	Hand gripping throat
LEAVE AREA IMMEDIATELY, NO DEBATE!	Grip partner's wrist or place both hands around waist
NEED ASSISTANCE	Hands on top of head
OKAY! - I'M ALRIGHT! - I UNDERSTAND!	Thumbs up
NO! - NEGATIVE!	Thumbs down

EXHIBIT 9 (continued)

EMERGENCY INFORMATION

TABLE II

LOCATION OF EMERGENCY EQUIPMENT

EQUIPMENT	**TYPE**	**LOCATION(S)**
Fire Extinguisher Dry Chemical	20A-80B:C	
First Aid Kit		
Eye Wash	Portable	
Emergency Sprayer	Portable	
Communication	Air Horns Each work area.	
Map	Hospital Route	

EXHIBIT 10

POSTING 1 - USE OF PERSONAL PROTECTIVE EQUIPMENT

WHO This posting applies to all site workers, supervisors, and visitors, *without exception.*

WHEN Prior to entering the Contaminant Reduction Zone (CRZ) or Exclusion Zone (EZ) provisions of this posting will be followed.

WHAT This posting outlines the initial forms of PPE required to be worn while working in the CRZ and EZ. Particular types or forms of PPE may be altered based on the authority of the HSO. Specific guidelines are provided in Section 7.0 of this HASP. Disposable PPE will not be worn more than one work shift of workday. In some instances disposable PPE may have to be replaced more than once during a workday. The HSO will determine the frequency of replacing disposable PPE. Reusable PPE will be properly decontaminated, cleaned, sterilized (if appropriate), and stored. Doubts regarding what to wear will be directed to the HSO for resolution.

WHY The levels of protection specified in the SSHP were chosen to protect individuals from potentially harmful exposures to chemicals or physical hazards. No changes to PPE specifications are authorized without the permission of the HSO.

EXHIBIT 10 (continued)

POSTING 2 - PERSONAL HYGIENE

WHO This posting applies to all site workers, supervisors, and visitors, but is intended primarily for site workers.

WHEN Before beginning work, during scheduled breaks, and at the end of a workday.

WHAT This posting summarizes the policy on personal hygiene that applies to all site personnel. Personal hygiene includes those activities such as washing hands, showering, shaving, etc., that are conducive to keeping one's body clean and mind refreshed. For the individual's sake, and his/her coworkers, each worker will be responsible for maintaining a high level of personal hygiene. This is especially critical prior to breaks where food, beverages, or smoking will occur. If proper personal hygiene is not followed, potential ingestion, absorption, or inhalation of toxic materials may occur. Particular attention must be paid to close shaving whenever respirators are worn. Facial hair and long hair will interfere with respirator fit and will allow excessive contaminant penetration.

WHY To avoid accidental ingestion, absorption, or inhalation of hazardous materials. To maintain an elevated state of awareness, thus reducing potential mental errors and accidents.

EXHIBIT 10 (continued)

POSTING 3 - PROVISIONS FOR SMOKING, EATING, CHEWING, AND DRINKING

WHO This posting applies to all site workers, supervisors, and visitors, *without exception.*

WHEN At all times personnel are on-site. This regulation will specifically apply during breaks and rest periods.

WHAT Site personnel are forbidden to smoke, eat, chew, or drink in the Exclusion Zone or Contaminant Reduction Zone. Only those areas specified as break areas or common areas in the Support Zone may be used for smoking, eating, chewing, or drinking. The rest/break facility and office trailers in the Support Zone may be used. Individuals found to be repeatedly disregarding these provisions will be released.

The only exception to this posting involves access to electrolytic fluids in the Contaminant Reduction Zone when the HSO has determined heat stress warrants regular replenishing of lost body fluids.

WHY To protect personnel from accidental exposures to hazardous materials, smoking, eating, chewing, and drinking is prohibited everywhere except designated break areas. To avoid potential fires and explosions, smoking is prohibited everywhere except designated break areas and office trailers.

EXHIBIT 11

SITE-SPECIFIC INFORMATION

The following site-specific information will be filled out by project personnel for each site and will be posted on-site:

Site Name: _____
Address: _____

Telephone: _____
Date of HASP Preparation: _____
Dates of Field Investigation: _____
Entry Objectives: _____

	Name	Phone
Site Organizational Structure:		
Project Director:		
Project Manager:		
HSO:		
FOM/Alternate HSO:		
Field team staff:		
Subcontractors:		

Medical Assistance
Physician: _____
Hospital: _____
Address: _____

EXHIBIT 11 (continued)

SITE-SPECIFIC INFORMATION

Emergency Telephone: _____

Directions: _____

_____

_____

_____

_____

Please attach a route to hospital

Emergency Telephones

Agent/Facility	Telephone	Emergency No.
EMS - Ambulance		911
Police Department		911
Fire Department		911
Hospital		
Poison Control Center		

Additional site related information (may include special hazards, site control, waste storage and disposal, PPE, decon area location, special engineering controls, etc.).

_____

_____

_____

_____

EXHIBIT 1

HEALTH AND SAFETY PLAN REVIEW ACKNOWLEDGEMENT FORM

INSTRUCTIONS: This form is to be complete by each person working on the subject work-site. Upon completion, this form is to be given to the HSO.

JOB NUMBER: 3150-45A

CLIENT/PROJECT: NYSDEC / Alsy Manufacturing 3150 – 45A

DATE: _____

I represent that I have read and understand the contents of the above mentioned Health and Safety Plan and agree to perform my work in accordance with this plan:

_____
Signature

_____
Name Printed

_____
Company/Office

_____
Date Signed

APPENDIX I

SITE MANAGEMENT FORMS

D&B ENGINEERS AND ARCHITECTS, P.C.		DATE:
		REPORT NO.
		PAGE NO.
		PROJECT NO.

DAILY FIELD ACTIVITY REPORT

PROJECT _____

LOCATION _____

ATTACHMENTS _____

WEATHER	TIME	TEMP.	PRECIP.	WIND (MPH)	WIND (DIR)

SITE CONDITIONS:

WORK GOAL FOR DAY:

PERSONNEL ON SITE:

NAME	AFFILIATION	ARRIVAL TIME	DEPART TIME

EQUIPMENT ON SITE:

TYPE	MODEL	TYPE	MODEL

HEALTH & SAFETY:

PPE REQUIRED: ☐ ☐ ☐ ☐ **HASP?**

SITE SAFETY OFFICER:

H & S NOTES:

D&B ENGINEERS AND ARCHITECTS, P.C.		**DATE:**
		REPORT NO.
		PAGE NO.
		PROJECT NO.

DAILY FIELD ACTIVITY REPORT

DESCRIPTION OF WORK PERFORMED AND OBSERVED

D&B ENGINEERS AND ARCHITECTS, P.C.		**DATE:**
		REPORT NO.
		PAGE NO.
		PROJECT NO.

DAILY FIELD ACTIVITY REPORT

PREPARED BY (OBSERVER)	**REVIEWED BY**
PRINT NAME:	PRINT NAME:
SIGNATURE:	SIGNATURE:
☐ **ADDITIONAL SHEETS USED**	
☐ emailed draft / final to NYSDEC – date:	☐ hardcopy to NYSDEC – date:

FIELD OBSERVATION LOG
GROUNDWATER SAMPLING RECORD

SITE _____ DATE _____

WELL ID: _____ Time On-site: _____ Time Off-site: _____
SAMPLERS: _____

Depth of well (feet from top of casing/riser)..... _____ Depth to ____/____of screen
Initial static water level (feet from top of casing/riser)..... _____ top / bottom

Purging Method

Airlift	____	Centrifugal	___
Bailer	____	Pos. Displ.	___
Peristaltic Pump (dedicated tubing)	____	Disposable Bladder Pump (Low Flow)	___

Well Volume Calculation:
2 in. casing: _____ft. of water x 0.16 = _____ gallons
3 in. casing: _____ft. of water x 0.36 = _____ gallons
6 in. casing: _____ft. of water x 1.47 = _____ gallons

volume of water removed:
_____ gal. >3 volumes: yes ____ no ____ purged dry? yes ____ no ____

Field Tests

Time	Purge Rate (ml/min)	Depth to Water (ft)	pH [+/-0.1 units]	Temp (c°) [3%]	Spec. Cond. (ms/cm) [3%]	Turbidity (NTUs) [10% >5 NTU]	DO (mg/l) [10% >0.5mg/l]	ORP (mv) [+/- 10]

Purge Volume: Purging Time:
Purge Rate (gph):

Sampling
Time of Sample Collection: _____

Method:		Analyses:	
____	Stainless steel bailer	____	USEPA Method 8260C TCL VOCs
____	Teflon bailer	____	
____	Pos. Disp. Pump	____	
____	Disposable bailer	____	
X	Dedicated pump and tubing	____	

Observations
Well Observations: _____
Weather/Temperature: _____
Sample description: _____
Free Product? yes ____ no ____ describe _____
Sheen? yes ____ no ____ describe _____
Odor? yes ____ no ____ describe _____

D&B ENGINEERS AND ARCHITECTS, P.C.

SITE NAME: SITE ID.:

INSPECTOR:

MONITORING WELL FIELD INSPECTION LOG

DATE/TIME:

WEll ID.:

	YES	NO
WELL VISIBLE? (If not, provide directions below)		

WELL COORDINATES? NYTM X_____ NYTM Y_____

PDOP Reading from Trimble Pathfinder:_____ Satelites:_____

GPS Method (circle) Trimble And/Or Magellan

	YES	NO
WELL I.D. VISIBLE?		
WELL LOCATION MATCH SITE MAP? (if not, sketch actual location on back).....		

WELL I.D. AS IT APPEARS ON PROTECTIVE CASING OR WELL: .....

	YES	NO
SURFACE SEAL PRESENT?		
SURFACE SEAL COMPETENT? (If cracked, heaved etc., describe below)		
PROTECTIVE CASING IN GOOD CONDITION? (If damaged, describe below)		

HEADSPACE READING (ppm) AND INSTRUMENT USED.....

TYPE OF PROTECTIVE CASING AND HEIGHT OF STICKUP IN FEET (If applicable)

PROTECTIVE CASING MATERIAL TYPE: .....

MEASURE PROTECTIVE CASING INSIDE DIAMETER (Inches): .....

	YES	NO
LOCK PRESENT?		
LOCK FUNCTIONAL?		
DID YOU REPLACE THE LOCK?		
IS THERE EVIDENCE THAT THE WELL IS DOUBLE CASED? (If yes,describe below)		
WELL MEASURING POINT VISIBLE?		

MEASURE WELL DEPTH FROM MEASURING POINT (Feet): .....

MEASURE DEPTH TO WATER FROM MEASURING POINT (Feet): .....

MEASURE WELL DIAMETER (Inches): .....

WELL CASING MATERIAL: .....

PHYSICAL CONDITION OF VISIBLE WELL CASING: .....

ATTACH ID MARKER (if well ID is confirmed) and IDENTIFY MARKER TYPE .....

PROXIMITY TO UNDERGROUND OR OVERHEAD UTILITIES.....

DESCRIBE ACCESS TO WELL: (Include accessibility to truck mounted rig, natural obstructions, overhead power lines, proximity to permanent structures, etc.); ADD SKETCH OF LOCATION ON BACK, IF NECESSARY.

DESCRIBE WELL SETTING (For example, located in a field, in a playground, on pavement, in a garden, etc.) AND ASSESS THE TYPE OF RESTORATION REQUIRED.

IDENTIFY ANY NEARBY POTENTIAL SOURCES OF CONTAMINATION, IF PRESENT (e.g. Gas station, salt pile, etc.):

REMARKS:

Sketch

ENGINEERING AND INSTITUTIONAL CONTROL INSPECTION FORM

I. Site Background Information

A. Site Name and Location:

Site name as it appears on the Environmental Easement*:* _____

Name of the current property owner(s): _____

Site Street Address: _____

Municipality (-ies): _____ County (-ies): _____

Blocks: _____

Lots: _____

Source information obtained from: _____

B. Person responsible for preparing Engineering and Institutional Control Evaluation Form:

Person's Name: _____

Person's Title: _____

Company Name: _____

Relationship to the Site (check as appropriate): Owner _____ Operator_____

Lessee _____ Person Who Conducted the Cleanup _____
Other (describe)_____

Street Address: _____

City: _____ State: _____

Telephone Number: (___) ___-____

Fax Number: (___) ___-____

E-mail Address:_____

C. Case Specific Information (**Complete all that apply**)

- Site Name: _____
- Site Registry Number: _____
- Date of final Remediation Report and/or Certificate of Completion:_____
- Name and program of assigned Project Manager at issuance of Environmental Easement:
  _____

D. Existing Site Conditions

- Describe the physical characteristics of the site (features, topography, drainage, vegetation, access, etc.). If necessary, attach additional sheets.

_____
_____
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_____
_____
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_____

- Describe the current site operations/use. If necessary, attach additional sheets.

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_____

- Describe visual integrity/condition engineering control. If necessary, attach additional sheets.

_____

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II. Protectiveness Evaluation

A. Environmental Easement and Engineering Control Information (Complete below)

- Provide the following information for the recorded Environmental Easement:

  Book Number: _____

  Page Number: _____

  Date the date the Environmental Easement was filed in the office of the county recording officer: _____

- Have any amendments and/or additional filings been recorded that may modify or supersede the Environmental Easement?

Yes ____ No ____

If "Yes", provide an explanation. If necessary, attach additional sheets.

_____

_____

_____

_____

_____

B. Evaluation of Engineering and Institutional Controls

1. Zoning or Land Use Changes (Complete below)

a. Land use at the time the Environmental Easement was filed (check all that apply):

Non-Residential ____ Residential _____ Agricultural _____ Other _____

b. Current land use (check all that apply):

Non-Residential ____ Residential _____ Agricultural _____ Other _____

c. Has there been an actual or pending zoning or land-use change?

Yes ____ No ____

2. Inspections (Complete below)

Have periodic inspections of the site identified any excavation or other disturbance activities that have taken place within the restricted areas?

Yes____No_____

Date(s) of Disturbance: _____

Duration of Disturbance: Years ____ Months ____ Days ____

Date the NYSDEC was notified: _____

Date Work Plan Approved: _____

Description of the disturbance and methods to address the disturbance. If necessary, attach additional sheets.

_____

_____

_____

Name of Contact Person Relative to the Disturbance:

_____

Title: _____

Street Address: _____

City: _____ State: _____ Zip Code: _____

Telephone Number: _____

Email Address: _____

3. Changes to Laws and Regulations (Complete below)

a. Are there any subsequently promulgated or modified environmental laws or regulations, which apply to the site?

Yes ____No ____

b. If "Yes", has the evaluation also determined that the Environmental Easement and engineering control, as applicable, meets the requirements of the new laws and regulations?

Yes____No_____

c. The Environmental Easement and engineering control, as applicable that did not meet the requirements of the new laws and regulations has been addressed in the following manner to bring them into compliance. If necessary, attach additional sheets.

_____

_____

_____

APPENDIX J

OPERATION, MAINTENANCE AND MONITORING PLAN

ATTACHMENT 1

Draft Vapor Intrusion Mitigation Work Plan

VAPOR INTRUSION MITIGATION WORK PLAN

Introductio n

On behalf of 270-280 Duffy, LLC, Roux Associates, Inc. (Roux Associates) and Remedial Engineering, P.C. have prepared this REVISED Vapor Intrusion Mitigation Work Plan (Work Plan) for the former Alsy Manufacturing Facil ity located at 270-280 Duffy Avenue, Hicksville, New York (Site). This Work Plan presents an active sub-slab depressurization (SSD) system and monitoring plan for the Site, and is in response to the investigation that was completed in October 2005, with results submitted to the New York State Departm ent of Health (NYSDOH) on November 28, 2005 within the report titled "Vapor Intrusion Evaluation Sam pling Results." This Work Plan was prepared in accordance with the draft guidelines in the February 2005 NYS DOH document "Guidance for Evaluating Soil Vapor Intrusion in the State of New York – Public Comment Draft" (Draft Guidance).

Sub-Slab Depressuriz ation System Description

Section 4.1.1 of the Draft Guidance states that for buildings with a slab-on-grade foundation, an active SSD system must be used to draw vapors from the soil beneath the slab and route the discharge to the atmosphere. The SSD system will use a vent fan and piping installed below the slab (i.e., venting point) to create a vacuum beneath the slab, which will help to prevent the infiltration of sub-slab vapors into the building. Based on the results of the investigation, the SSD system will target four areas under the sub-slab (RSL-2, RSL-4, RSL-10, and RSL-16). Figure 1 shows the proposed locations of the four venting points, the vent fan, the discharge point, the associated piping and appurtenan ces. The exact locations of each venting point will be based upon access and building features such as closets and utility rooms.

Each of the four venting points will consist of a 4-inch diameter pipe installed through the floor slab to a depth of approximately 3 to 4 feet into the subsurface soils below the slab. The pipe will consist of perforated Schedule 40 PVC pipe below the slab and solid Schedule 40 PVC pipe above the slab. The perforated PVC pipe will have four rows of ½-inch diameter holes, staggered, spaced 6 inches center-to-center, and will be enclosed with in geotextile filter fabric. To promote air flow, the annular space between the perforated pipe and the borehole will be backfilled with ¾-inch gravel. The penetration s through the slab will be sealed using materials such as elastom eric joint sealant, compatible caulks, non-shrink mortar, grouts, expanding foam,

proprietary drain seals, or airtight gaskets to prevent the flow of sub-slab vapors into the building and to improve the effectiveness of the SSD system.

The above grade 4-inch diameter PVC riser pipe will exit through the roof and transition to a 6-inch diameter solid Schedule 40 PVC pipe. The 6-inch diameter PVC pipe will be supported on the roof and re-enter the building through the roof above the vent fan to connect to a common header assembly. The header assembly connects the four venting points to the vent fan. The vent fan will be an electric-driven blower capable of extracting 20 to 50 cubic feet per minute (cfm) at 40 inches of water column from each venting point for a potential total air flow rate of approximately 200 cfm. The vent fan and header assembly will be located indoors and outside occupied areas of the building to prevent subsurface vapor intrusion due to leaks or vent fan malfunctions.

Each venting point will have a dedicated flow control device (e.g., butterfly valve, belled end damper, or blast gate) to control the flow rate, a flowmeter to indicate the flow rate, a vacuum gauge to display the pressure differential, and a sample port. These appurtenances will be installed inside the building prior to the common header assembly.

The discharge point piping will be connected to the blower's outlet and exit the building from a roof penetration at least 12 inches above the roof, at least 10 feet from any attached or adjacent buildings or HVAC intakes, at least 10 feet away from any opening that is less than 2 feet below the discharge point, and at least 10 feet above grade. The roof penetration will be sealed using materials that prevent air leakage to avoid backflow of vapors into the building. A rain cap will be fitted on the discharge point to prevent water from entering the SSD system.

Prior to installation, a diagnostic test (commonly referred to as a "communication" test) to evaluate the effectiveness of the SSD system must be performed to measure the ability and extent of air to flow through the soils beneath the slab. This test is commonly conducted by applying suction on a centrally located hole drilled through the slab and simultaneously observing the movement of smoke downward into small holes drilled in the slab at locations radiating out from the central hole. For the purpose of the "communication" test, two test holes will be drilled in the vicinity of each venting point.

Once the SSD system is installed, its effectiveness must be tested and proper installation must be confirmed. A post-mitigation testing plan will be developed that details the requirements for post-mitigation testing as listed in Section 4.3.1 of the Draft Guidance. All post-mitigation testing activities will be documented and reported to the agencies.

While Roux Associates anticipates the SSD system to be installed based on the proposed equipment and layout, the final design could differ from the proposed design. Roux Associates will notify the NYSDOH of any significant changes to the NYSDOH approved SSD system design prior to the installation of the SSD system. The as-built report will detail the final design, components, and performance data of the SSD system.

SSD System Operation, Maintenance and Monitoring Plan

An Operation, Maintenance and Monitoring (OM&M) plan is provided as a separate attachment.

Monitoring Plan

In accordance with Section 3.4 of the Draft Guidance, sample locations RSL-1, RSL-3, RSL-5, RSL-6, RSL-7, RSL-11, RSL-14, and RSL-15 will require monitoring of indoor and sub-slab concentrations of tetrachloroethene (PCE) and trichloroethene (TCE) (Figure 2). Since the OM&M plan includes monitoring of sub-slab vapor concentrations, this sampling along with the ambient indoor sampling will be completed at the above locations at approximately the start and end of the heating season (typically from November 15 to March 31). Air samples will be collected in accordance with New York State Department of Environmental Conservation (NYSDEC) and NYSDOH guidelines, using six-liter SUMMA ® canisters fitted with 8-hour flow regulators that are set at a height representative of the typical breathing zone (3 to 5 feet above ground). Prior to sample collection, the initial pressure of the SUMMA ® canisters and the environmental conditions in the vicinity of the sampling location (e.g., use or presence of volatile chemicals such as paint thinners; use of heating or air conditioning systems; presence of spills, floor stains, or odors) will be recorded. After 8 hours, the SUMMA ® canisters will be closed and the final pressure will be recorded. The air samples will be submitted to a NYSDOH-certified laboratory to be analyzed for volatile organic compounds using United States Environmental Protection Agency (USEPA) Method TO-15 on a standard turnaround time. The results of the laboratory analyses will be summarized and submitted with the OM&M report to the NYSDOH for review, and will be used to determine the need for continued indoor air monitoring.

ATTACHMENT 2

Draft Operations, Maintenance and Monitoring (OM&M) Plan

OPERATION, MAINTENANCE AND MONITORING PLAN

Introductio n

On behalf of 270-280 Duffy, LLC, Roux Associates, Inc. (Roux Associates) and Remedial Engineering, P.C. have prepared this DRAF T Operation, Maintenance and Monitoring (OM&M) plan for the proposed sub-slab depressurization (SSD) system at the former Alsy Manufacturing Facility located at 270-280 Duffy Avenue, Hicksville, New York (Site). This OM&M plan is part of the requirements of the Vapor Intrusion Mitigation Work Plan (Work Plan) for the Site. This OM&M plan was prepared in accordance with the draft guidelin es in the February 2005 New York State Departm ent of Health (NYSDOH) document "Guidance for Evaluating Soil Vapor Intrusion in the State of New York - Public Comment Draft" (Draft Guidance).

The remaining sections of this OM&M plan describe the monitoring, air sampling, and maintenance of the Site's SSD system. The activitie s described in this OM&M plan are consistent with the current commercial/light industrial use for the Site.

Sub-Slab Depressuriz ation System Description

The SSD system consists of four venting points, a vent fan, a discharge point, connecting piping and associated appurtenances (Figure 1 of the Work Plan). Each venting point is installed through the floor slab to a depth of approximately 3 to 4 feet blow grade and is constructed of 4-inch diameter perforated (below the slab) and solid (above the slab) Schedule 40 PVC pipe. The perforated PVC pipe has four rows of ½-inch diameter holes, staggered, spaced 6 inches center-to-center, and is enclosed within geotextile filter fabric. The annular space between the perforated pipe and the borehole is backfilled with ¾-inch gravel to promote air flow. The solid, aboveground 4-inch diameter PVC riser pipe exits the building through the roof and transitions to a 6-inch diameter solid Schedule 40 PVC pipe. The 6-inch diameter PVC pipe is supported on the roof and re-enters the building through the roof above the vent fan to connect to a common header assembly. Inside the building and prior to the header assembly is a flow control device to control the rate at which air is extrac ted from the venting point, a flowmeter to indicate the flow rate, a vacuum gauge to display the pressure differential, and a sample port. The header assembly connects the four venting points to the vent fan. The vent fan is an electric-driven blower that creates the vacuum to extract vapors from the soil beneath the floor slab. The blower

is capable of extracting 20 to 50 cubic feet per minute (cfm) at 40 inches of water column from each venting point for a potential total air flow rate of approximately 200 cfm. The extracted vapors are conveyed from the venting point to the vent fan, then to a stack on the roof to discharge to the atmosphere. The discharge point is 12 inches above the roof, 10 feet from any attached or adjacent buildings or HVAC intakes, 10 feet away from any opening that is less than 2 feet below the discharge point, and 10 feet above grade.

All penetrations in the slab and roof were sealed airtight to prevent air leakage, using materials such as elastomeric joint sealant, compatible caulks, non-shrink mortar, grouts, expanding foam, proprietary drain seals, or airtight gaskets.

Air Sampling

To determine the effectiveness of the SSD system, air samples will be collected near the start and end of the heating season (typically from November 15 to March 31). The air samples will be collected in accordance with New York State Department of Environmental Conservation (NYSDEC) and NYSDOH guidelines. Collected air samples will be submitted to a NYSDOH-certified laboratory to be analyzed for volatile organic compounds (VOCs) using United States Environmental Protection Agency (USEPA) Method TO-15 on a standard turnaround time. General sampling procedures are as follows:

1. Close the flow control device of the venting point to be sampled.
2. Using clean, Teflon®-lined tubing, connect a SUMMA ® canister fitted with a 2-hour flow regulator to the sample port of the venting point to be sampled.
3. Prior to collecting the sample, record the initial pressure of the SUMMA ® canister and the environmental conditions in the vicinity of the sampling location (e.g., use or presence of volatile chemicals such as paint thinners; use of heating or air conditioning systems; presence of spills, floor stains, or odors).
4. After two hours, shut the regulator and record the end pressure of the SUMMA ® canister.
5. Open the flow control device to restore the air flow.

Data Evaluation and Reporting

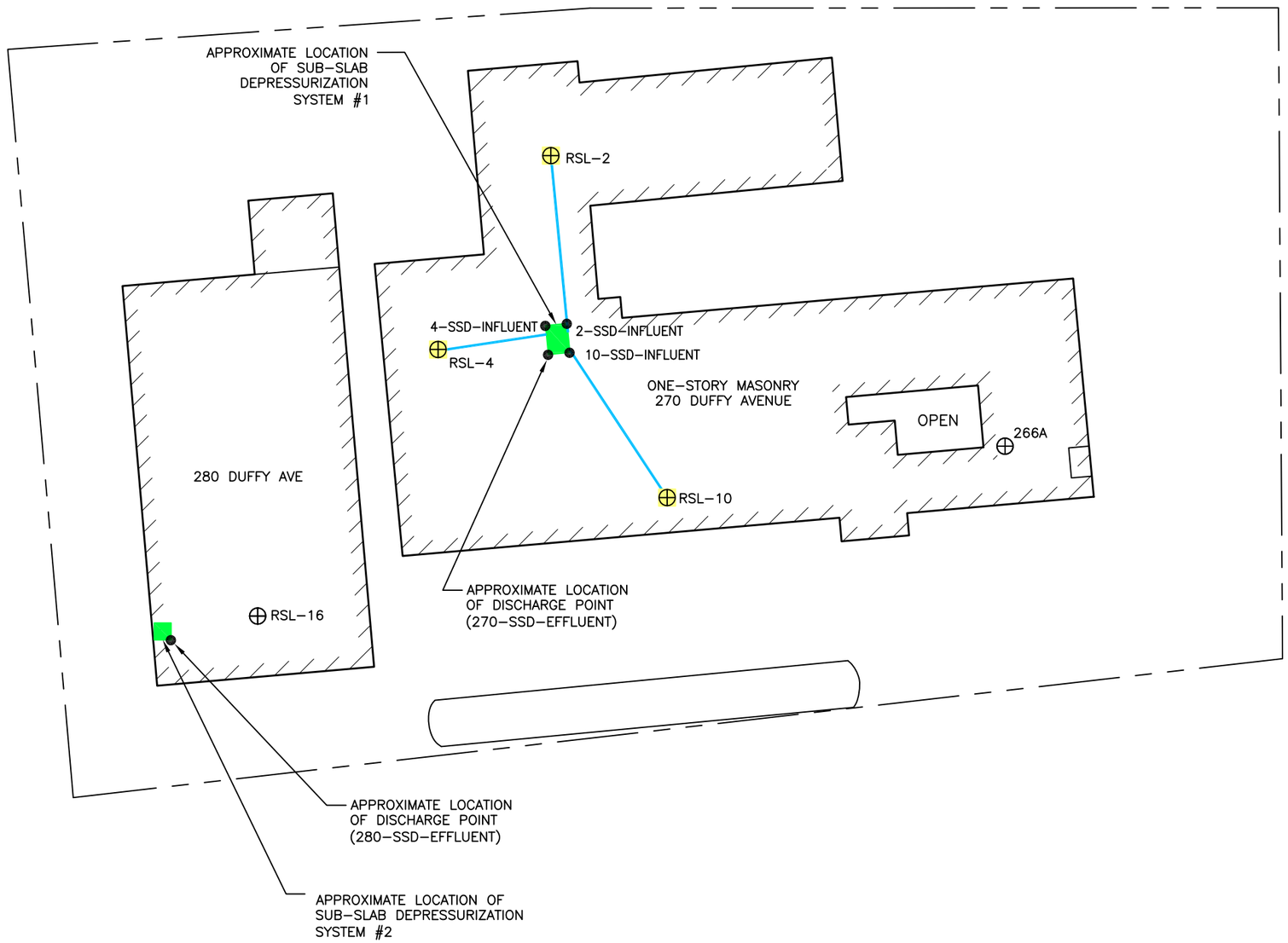
The results of the laboratory analyses will be evaluated to determine the need for continued air monitoring and/or modifications to the OM&M plan. The concentrations of VOCs detected in

the air samples will be evaluated with reference to the guidance values in Section 3.4.3 of the Draft Guidance.

The air sampling analytical results will be summarized following each sampling event and submitted to the NYSDOH for review. In addition, proposed modifications to the OM&M plan and/or discontinuation of monitoring, if applicable, will be submitted to the NYSDOH for review and approval.

Sub-Slab Depressurization System Maintenance

Routine maintenance of the SSD system will be performed annually. Each component of the SSD system (e.g., riser pipes, header, gauges, blower, labeling, seal integrity, etc.) will be visually inspected. The discharge point above the roof will be inspected to verify no air intakes have been located nearby. If any component is deemed damaged, the component will be repaired immediately and the NYSDOH will be notified. After a damaged seal is fixed, smoke tubes will be used to verify the seal integrity has been restored.



N

LEGEND

- SUB–SLAB DEPRESSURIZATION SYSTEM CONVEYANCE PIPING
- RSL–2 ⊕ LOCATION AND DESIGNATION OF SUB–SLAB DEPRESSURIZATION SYSTEM VENTING POINTS
- ● LOCATION OF VENT INFLUENT AND EFFLUENT SAMPLE PORTS
- ■ APPROXIMATE LOCATION OF SSD SYSTEM

Title:

SITE PLAN

270–280 DUFFY AVENUE
HICKSVILLE, NEW YORK

Prepared For:
LONG ISLAND INDUSTRIAL

ROUX
ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: C.R.	Date: 08MAR10	FIGURE
Prepared by: K.T.	Scale: NTS	1
Project Mgr: K.T.	Office: NY	
File No: CAM0112401	Project: 97801Y	

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APPENDIX K

ENVIRONMENTAL NOTICE

Alsy Manufacturing, Inc.
Site No.: 130027
270-280 Duffy Avenue
County of Nassau
Tax Map: 11-G-148
11-G-191

ENVIRONMENTAL NOTICE

THIS ENVIRONMENTAL NOTICE is made the 29th day of APRIL 2015 by the New York State Department of Environmental Conservation (Department), having an office for the transaction of business at 625 Broadway, Albany, New York 12233.

WHEREAS, a parcel of real property identified as Alsy Manufacturing, Inc. (130027), located on 270-280 Duffy Avenue in the City of Hicksville (Town of Oyster Bay), County of Nassau, State of New York, which is part of lands conveyed by 270-280 Duffy, LLC to GSM 270-280 LLC, ICA 270-280 LLC, SAF 270-280 LLC, and FED 270-280 LLC by deed dated December 26, 2006 and recorded in the Nassau County Clerk's Office on February 13, 2007 in Book 12231 of Deeds at Page 859 and being more particularly described in Appendix "A", attached to this noticed and made a part hereof, and hereinafter referred to as " the Property" is the subject of a Order on Consent executed by the State as part of the Department's State Superfund Program; and

WHEREAS, the Department approved a cleanup to address contamination disposed at the Property and such cleanup was conditioned upon certain limitations.

NOW, THEREFORE, the Department provides notice that:

FIRST, the Property subject to this Environmental Notice is as shown on a map attached to this Notice as Appendix "B" and made a part hereof.

SECOND, unless prior written approval by the Department or, if the Department shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the Sate and the health of the State's citizens, hereinafter referred to as "the Relevant Agency," is first obtained, where contamination remains at the Property subject to the provisions of the Site Management Plan ("SMP"), there shall be no disturbance or excavation of the Property which threatens the integrity of the engineering controls or which results or may result in a significantly increased threat of harm or damage at any site as a result of exposure to soils. A violation of this provision is a violation of 6 NYCRR 375-1.11(b)(2).

THIRD, no person shall disturb, remove, or otherwise interfere with the installation, use, operations, and maintenance of engineering controls required for the Remedy, including but not limited to those engineering controls described in the SMP and listed below, unless in each instance they first obtain a written waiver of such prohibition from the Department or Relevant Agency.

FOURTH, the remedy was designed to be protective for the following uses:

Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv) . Therefore, any use for purposes other than Commercial and Industrial without the express written waiver of such prohibition by the Relevant Agency may result in a significantly increased threat of harm or damage at any site.

FIFTH, no person shall use the groundwater underlying the Property without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission to do so from the Department or Relevant Agency. Use of the groundwater without appropriate treatment may result in a significantly increased threat of harm or damage at any site.

SIXTH, it is a violation of 6 NYCRR 375-1.11(b) to use the Property in a manner inconsistent with this environmental notice.

IN WITNESS WHEREOF, the undersigned, acting by and though the Department of Environmental Conservation as Designee of the Commissioner, has executed this instrument the day written below.

By: _____
Robert W. Schick, P.E,
Director, Division of
Remediation

STATE OF NEW YORK)
) ss:
COUNTY OF)

On the 29th day of April, in the year 2013, before me, the undersigned, personally appeared Robert Schick, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his signature on the instrument, the individual, or the person upon behalf of which individual acted, executed the instrument.

_____
Notary Public – State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2014

Appendix A

Legal Description

As to Lot 148:
at Hicksville, Town of Oyster Bay, Nassau County, New York, being more particularly bounded and described as follows:

BEGINNING at the southeasterly corner of Tax Lot 191 at a point in the northerly side of Duffy Avenue, said point of beginning being distant 1913.78 feet easterly as measured along the northerly side of Duffy Avenue, from the easterly end of an arc of a curve connecting the easterly side of Charlotte Street with the northerly side of Duffy Avenue, also being 1997.64 feet easterly from the corner (prior to widening) connecting the northerly side of Duffy Avenue with the easterly side of Charlotte Street;

THENCE northerly along Tax Lot 191 north 11 degrees 55 minutes 50 seconds west, 560.56 feet to land of Long Island Railroad;

THENCE easterly along the southerly side of Long Island Railroad, north 83 degrees 23 minutes east 754.87 feet (754.68 feet deed) to the westerly line of Tax Lot 62;

THENCE along said Tax Lot south 5 degrees 12 minutes 50 seconds west, 513.48 feet to the northerly side of Duffy Avenue;

THENCE westerly along the northerly side of Duffy Avenue, south 78 degrees 4 minutes 10 seconds west, 600.26 feet to the point or place of BEGINNING.

As to Lot 191:
ALL that certain piece or parcel or tract of land, situate, lying and being at Hicksville, Town of Oyster Bay, Nassau County, New York, being more particularly bounded and described as follows:

BEGINNING at the southwest corner thereof adjoining Tax Lot 190, at a point in the northerly side of Duffy Avenue, said point of beginning being distant 1715.78 feet easterly as measured along the northerly side of Duffy Avenue, from the easterly end of an arc of a curve connecting the easterly side of Charlotte Street with the northerly side of Duffy Avenue also being 1799.64 feet easterly from the corner (prior to widening) connecting the northerly side of Duffy Avenue with the easterly side of Charlotte Street;

THENCE northerly along Tax Lot 190, north 11 degrees 55 minutes 50 seconds west 578.98 feet to land of Long Island Railroad;

THENCE easterly along the southerly side of Long Island Railroad north 83 degrees 23 minutes east, 198.85 feet to the westerly line of Tax Lot 148;

THENCE along said Tax Lot south 11 degrees 55 minutes 50 seconds east, 560.56 feet to the northerly side of Duffy Avenue;

THENCE westerly along the northerly side of Duffy Avenue south 78 degrees 4 minutes 10 seconds west, 198 feet to the point or place of BEGINNING.

Scale: As Noted

New York State Department of Environmental Conservation

(Source: Nassau County, NY)

ENVIRONMENTAL NOTICE

Alsy Manufacturing, Inc.
Hicksville, NY

January 2013
Job No. 60238139

AECOM

Figure 1

NYSDEC Site #130027

Scale: As Noted	**New York State Department of Environmental Conservation** (Source: Nassau County, NY)	**ENVIRONMENTAL NOTICE** Alsy Manufacturing, Inc. Hicksville, NY January 2013 Job No. 60238139	AECOM **Figure 1** **NYSDEC Site #130027**

APPENDIX L

GREEN REMEDIATION METRICS

Summary of Green Remediation Metrics for Site Management

Site Name: _____ Site Code: _____
Address: _____ City: _____
State: _____ Zip Code: _____ County: _____

Initial Report Period (Start Date of period covered by the Initial Report submittal)
Start Date: _____

Current Reporting Period
Reporting Period From: _____ To: _____

Contact Information
Preparer's Name: _____ Phone No.: _____
Preparer's Affiliation: _____

I. Energy Usage: Quantify the amount of energy used directly on-site and the portion of that derived from renewable energy sources.

	Current Reporting Period	**Total to Date**
Fuel Type 1 (e.g. natural gas (cf))		
Fuel Type 2 (e.g. fuel oil, propane (gals))		
Electricity (kWh)		
Of that Electric usage, provide quantity:		
Derived from renewable sources (e.g. solar, wind)		
Other energy sources (e.g. geothermal, solar thermal (Btu))		

Provide a description of all energy usage reduction programs for the site in the space provided on Page 3.

II. Solid Waste Generation: Quantify the management of solid waste generated on-site.

	Current Reporting Period (tons)	**Total to Date (tons)**
Total waste generated on-site		
OM&M generated waste		
Of that total amount, provide quantity:		
Transported off-site to landfills		
Transported off-site to other disposal facilities		
Transported off-site for recycling/reuse		
Reused on-site		

Provide a description of any implemented waste reduction programs for the site in the space provided on Page 3.

III. Transportation/Shipping: Quantify the distances travelled for delivery of supplies, shipping of laboratory samples, and the removal of waste.

	Current Reporting Period (miles)	**Total to Date (miles)**
Standby Engineer/Contractor		
Laboratory Courier/Delivery Service		
Waste Removal/Hauling		

Provide a description of all mileage reduction programs for the site in the space provided on Page 3. Include specifically any local vendor/services utilized that are within 50 miles of the site.

IV. Water Usage: Quantify the volume of water used on-site from various sources.

	Current Reporting Period (gallons)	**Total to Date (gallons)**
Total quantity of water used on-site		
Of that total amount, provide quantity:		
Public potable water supply usage		
Surface water usage		
On-site groundwater usage		
Collected or diverted storm water usage		

Provide a description of any implemented water consumption reduction programs for the site in the space provided on Page 3.

V. Land Use and Ecosystems: Quantify the amount of land and/or ecosystems disturbed and the area of land and/or ecosystems restored to a pre-development condition (i.e. Green Infrastructure).

	Current Reporting Period (acres)	**Total to Date (acres)**
Land disturbed		
Land restored		

Provide a description of any implemented land restoration/green infrastructure programs for the site in the space provided on Page 3.

Description of green remediation programs reported above (Attach additional sheets if needed)
Energy Usage:
Waste Generation:
Transportation/Shipping:
Water usage:
Land Use and Ecosystems:
Other:

CERTIFICATION BY CONTRACTOR
I, _____ (**Name**) do hereby certify that I am _____ (**Title**) of the Company/Corporation herein referenced and contractor for the work described in the foregoing application for payment. According to my knowledge and belief, all items and amounts shown on the face of this application for payment are correct, all work has been performed and/or materials supplied, the foregoing is a true and correct statement of the contract account up to and including that last day of the period covered by this application. _____ **Date** **Contractor**

APPENDIX M

REMEDIAL SYSTEM OPTIMIZATION

TABLE OF CONTENTS

REMEDIAL SYSTEM OPTIMIZATION FOR FORMER BRIGHT OUTDOORS SITE

TABLE OF CONTENTS