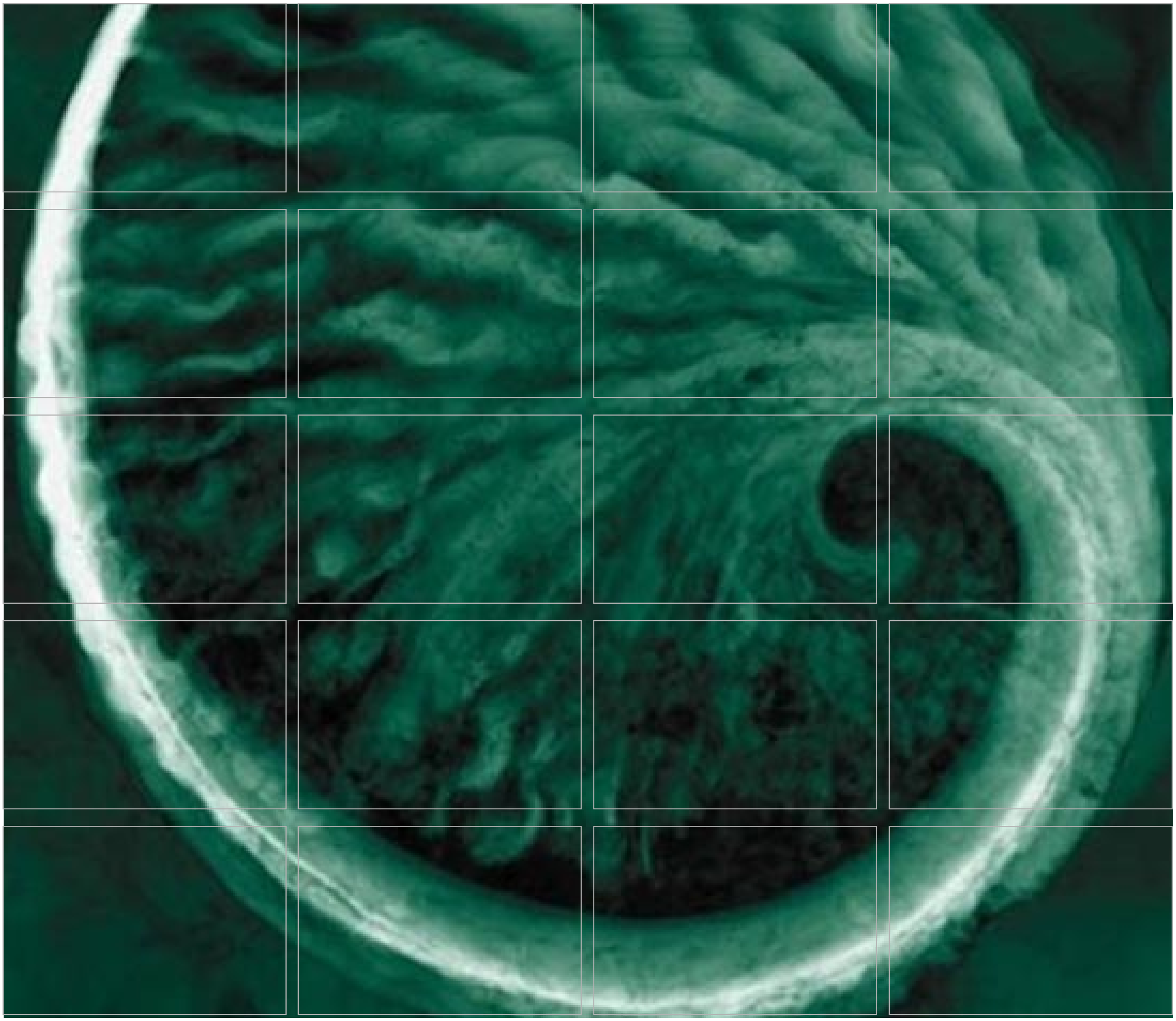


General Electric

Site Characterization Work Plan

Former Baron Blakeslee Potential Site (P-Site) Site No.152204
86 Cleveland Avenue
Bay Shore, NY 11706

October 2010
Revised 8 March 2011

Environmental Resources Management
40 Marcus Drive, Suite 200
Melville, New York 11747

ERM

SITE CHARACTERIZATION WORK PLAN

Former Baron Blakeslee Potential Site (P-Site)
Site No.152204
86 Cleveland Avenue
Bay Shore, NY 11706

29 October 2010
Revised 9 March 2011

Prepared for:

General Electric
319 Great Oaks Boulevard
Albany, NY 12203

Prepared by:

Environmental Resources Management
40 Marcus Drive, Suite 200
Melville, NY 11747

TABLE OF CONTENTS

1.0 INTRODUCTION		***1***
1.1 PURPOSE AND OBJECTIVES		***1***
	1.1.1 Site Setting	***2***
	1.1.2 Site History	***2***
1.2 SITE HYDROGEOLOGY		***3***
2.0 SITE CHARACTERIZATION SCOPE OF WORK		***4***
2.1 SITE ASSESSMENT TASKS		***4***
	2.1.1 Historic Records Search	***5***
	2.1.2 Underground Utility Markouts	***5***
	2.1.3 Site Access	***6***
	2.1.4 Vertical Profile Groundwater Borings	***6***
	2.1.5 Soil Sampling	***7***
	2.1.6 Sub-Slab Soil Vapor Sampling	***8***
	2.1.7 Soil Vapor sampling	***8***
	2.1.8 Indoor Air Sampling	***8***
	2.1.9 Management of Investigative Derived Wastes	***9***
	2.1.10 Analytical Data Quality Evaluation	***10***
	2.1.11 Site Survey	***10***
2.2 SITE CHARACTERIZATION REPORT PREPARATION		***10***
3.0 MONTHLY PROGRESS REPORTING		***12***
4.0 DETAILED WORK ASSIGNMENT SCHEDULE		***13***
5.0 REFERENCES		***14***

LIST OF FIGURES

1 Site Area Location

2 Site Layout and Sample Locations

3 Schedule

LIST OF APPENDICES

APPENDIX A Standard Operating Procedures

APPENDIX B Quality Assurance Summary Tables

1.0 INTRODUCTION

Environmental Resources Management (ERM) is pleased to submit this Site Characterization (SC) Work Plan (WP) for the Former Baron Blakeslee site located in the Town of Bay Shore, Suffolk County, New York ("Site").[1] A site location map is presented as Figure 1. This WP has been prepared in accordance with the Order on Consent and applicable provisions of New York State DER 10 requirements.

The preparation of this SC WP is intended to:

- Identify the overall objectives of the SC WP;
- Identify and describe both the technical approach and Scope of Work of the SCWP;
- Define procedures and protocols for sampling and analysis that will be used to implement field operations associated with the SCWP;
- Establish data management and presentation guidelines;
- Establish progress and final reporting guidelines; and
- Present the overall anticipated project schedule.

This document is intended to be followed by all personnel working on the SC WP to ensure the generation of reliable data and measurement activities such that the resultant data and evaluations are scientifically valid, defensible, comparable, and of known precision and accuracy.

1.1 PURPOSE AND OBJECTIVES

This work plan evaluates pre-existing environmental information from investigations conducted on and in the vicinity of the Site. ERM has relied on the pre-existing information and its understanding of the local hydrogeologic regime and fate and transport of volatile organic compounds (VOCs) and metals in the environment to develop a scope of work which assess the environmental media on and beneath the Site.

[1] This Work Plan is consistent with the scope of NYSDEC Site Characterization Work Plans and in accordance with the language in Paragraph II (A) of the Order on Consent that the "Site Characterization Work Plan under this Order addresses on-Site conditions and shall be developed and implemented in accordance with 6 NYCRR §375-1.6(a)."

1.1.1 Site Setting

The site is approximately one acre in size and contains three interconnected buildings encompassing a total of 47,000 square feet. The construction of the buildings is primarily corrugated steel with some stone walls and a concrete slab on grade foundation.

1.1.2 Site History

The facility was occupied by Baron-Blakeslee, Inc., a division of Purex Corp. in 1976. Baron-Blakeslee operated a solvent storage and distribution facility which received bulk solvents and chemicals from producer facilities in New Jersey. The solvents and chemicals were pumped from trucks to twenty-nine aboveground storage tanks located on-site. Baron-Blakeslee then transferred the chemicals to drums or trucks for distribution to customers. Baron-Blakeslee also maintained a recycling program, which collected non-flammable solvents from customers. The recycled solvents were temporarily stored in 55-gallon drums at the facility prior to transport to a recycling facility in New Jersey.

According to historical records, on-site drains were properly cleaned out prior to the construction of the production building around 1984. In the early 1980s, chlorinated compounds were detected in shallow groundwater samples collected from 11 on-site monitoring wells. Compounds detected included; 1,1,1 TCA, 1,2 trans-dichloroethylene (1,2 trans DCA), PCE, and TCE. The Suffolk County Department of Health Services later issued an Order of Consent to Baron-Blakeslee mandating remedial action to address impacted groundwater.

In 1984, a groundwater remediation system was constructed on-site consisting of two in-line towers used as air strippers. A 10-inch diameter purge well located in the southwestern portion of the site was used to extract groundwater which was piped from the purge well to the air strippers. After treatment, the water was discharged back into the ground through three recharge wells located on the north side of the site. According to records, responsibility for the on-going remedial action was assumed by Aircraft Turbine Services in 1985.

In 1989, the remediation system was reportedly shut down. Residual concentrations of volatile organic compounds (1,2 trans-DEC; 1,1,1-TCA; TCE; and PCE) were still detected in groundwater at concentrations of 275 ppb; 9 ppb; 27 ppb; and 66 ppb respectively. The Suffolk County Department of Health Services determined that the groundwater on-site was sufficiently remediated and that all terms and conditions of Consent Order No. IW82-71, dated December 9, 1982, had been met. In a letter from NYSDEC dated October 10, 1989, permission was granted to Aircraft Turbine Services to terminate their SPDES permit.

In May 1998, a Phase II Environmental Assessment of the property was conducted by McLaren Hart, Inc. Results from the Phase II indicated the continued detection of hazardous substances on the site.

This Site Characterization is intended to determine the nature of remaining contamination that may still be detected on the property.

1.2 SITE HYDROGEOLOGY

This site is located on the Greenlawn, New York 7.5 minute series USGS topographic quadrangle, dated 1967 (photo revised 1979). The site is approximately 60 feet above mean sea level and is generally flat. The nearest surface water body is Belmont Lake located approximately 1 ¾ miles west of the site.

Soils underlying the site are primarily medium to coarse-grained sand with some gravel extending from ground surface to approximately 12 feet below ground surface (bgs).

Depth to groundwater is approximately reported to be 5-10 feet bgs. Groundwater flow is in a southeasterly direction.

2.0 SITE CHARACTERIZATION SCOPE OF WORK

The SC Scope of Work, presented herein, is based on tasks initially identified by the NYSDEC. These tasks are identified and described in detail below.

2.1 SITE ASSESSMENT TASKS

The Scope of Work for this SC includes:

Data and Records Search: Available historic information (documents, maps, aerial photos, building permits, reports, etc.) shall be located and reviewed. Freedom of Information Law (FOIL) requests and well records search will be performed at the NYSDEC, Suffolk County Department of Health (SCDOH), Suffolk County Department of Public Works (SCDPW) and USGS.

Vertical Profile Borings: Groundwater profile borings will be installed at eight locations. Groundwater samples will be obtained at 10 foot intervals beginning at the water table, anticipated to be approximately 10 feet bgs to a depth of approximately 60 feet bgs. The groundwater profile sampling will be initiated to determine the nature and extent of the groundwater impacts. All Groundwater samples will be analyzed for Target Compound List (TCL) VOCs plus the ten tentatively identified compounds (TICs) using USEPA SW-846 Method 8260B and for TAL metals using USEPA SW-846 Method 6010 and 7471 for mercury. Additionally, groundwater samples taken at the water table zone only will also be analyzed for Semi-Volatile Organic Compounds (SVOCs) plus 20 TICS using USEPA SW-846 Method 8270C. See Appendix B for a sampling summary.

Soil Borings: Soil samples will be collected using a Geo-probe macro-core soil sampler and screened for the presence of VOCs using photo-ionization detection (PID) at the proposed borings located within the building located on-site. Soil samples will be collected from directly below the building slab. Soil samples will be analyzed for TCL VOCs plus the ten TICs using USEPA SW-846 Method 8260B, SVOCs plus 20 TICS using USEPA SW-846 Method 8270C and for TAL metals using USEPA SW-846 Method 6010 and 7471 for mercury. See Appendix B for a sampling summary.

Vapor Intrusion Evaluation: Soil vapor samples will be collected from beneath the building slab at four locations and from around the perimeter of the building in five locations. In addition, four indoor air samples will be collected simultaneously and adjacent to the sub-slab samples.

Samples will be collected using six liter Summa canisters equipped with an airflow controller set for an 8-hour sampling period. All samples will be analyzed for VOCs using USEPA Method TO-15. See Appendix B for a sampling summary. A New York State Department of Health (NYSDOH) Center for Environmental Health Indoor Air Quality Questionnaire and Building Inventory will be completed as per the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006.

Survey: At the completion of field sampling activities, a New York State licensed surveyor will establish the location of each profile boring and the elevation and location of all indoor soil sampling locations. Surface elevations and their corresponding latitude and longitude coordinates will be determined to within 0.01 feet, based on USGS datum.

Data Usability Validation: All soil, groundwater, soil vapor and air analytical data will be validated by a qualified individual to determine whether the data meets the site/project specific data quality objectives and data use as specified in the DER-10 Technical Guidance, 3 May 2010. The Quality Assurance/Quality Control (QA/QC) officer will review these reports.

The core field investigative activities of the PSA are discussed below, which comprise the Detailed Field Activities Plan (FAP). To streamline the FAP, and ensure that the field activities are executed in a consistent and safe manner, the FAP is supported by the following documents:

- Appendix A: Standard Operating Procedures (SOP)
- Appendix B: Quality Assurance Summary Tables

Strict adherence to the SOPs will ensure the generation of reliable data and measurement activities such that resultant data and evaluations of the same are scientifically valid, defensible, comparable and of known precision and accuracy.

2.1.1 Historic Records Search

Available historic and contemporary information (documents, topographic and tax maps, aerial photos, building permits, reports, etc.) shall be located and reviewed. Information sources may include NYSDEC's Region 1 and Central Office (Albany) files, the Town of Bay Shore files, Suffolk County Health Department (NCHD) files, Department of Public Works (SCDPW) and USGS files.

2.1.2 Underground Utility Markouts

Underground utility mark-outs will be performed at the areas to be investigated prior to finalization of sampling locations, and/or any intrusive field investigation is undertaken. As part of this survey, the

Underground Utilities Protection Organization (UFPO) will be contacted as required by law. Any information identified by utility mark-outs that suggests the location of underground utility lines will be considered in design of the field-sampling program. Drilling will only be performed at a safe distance from all utilities.

2.1.3 Site Access

The consultant will require access to the Former Baron-Blakeslee Site to temporarily stage:

- Materials;
- Subcontractor vehicles (i.e. overnight parking of the drill rig);
- A self-contained decontamination area; and
- Drums of investigative derived waste (IDW) such as drill cuttings, decontamination water, and purge water from groundwater profile borings.

2.1.4 Vertical Profile Groundwater Borings

Vertical profile borings will be installed at the eight (8) locations detailed in Figure 2. Groundwater samples will be collected at each location to vertically characterize groundwater. The vertical profile borings will be advanced from the top of the water table to a completion depth of 60 feet bgs or refusal.

The Vertical Profile Borings will be installed using a Geoprobe® equipped with a SP-16 groundwater sampler. Groundwater samples will be collected at ten-foot intervals. At each profile location, groundwater samples will be collected at 10 foot intervals from the water table to the final depth of the Vertical Profile boring (estimated at 60 feet bgs).

Groundwater samples obtained from the Vertical Profile Borings will be analyzed by an ELAP-certified laboratory for TCL VOCs plus the ten TICs using USEPA SW-846 Method 8260B and for TAL metals using USEPA SW-846 Method 6010 and 7471 for mercury. Additionally, groundwater samples taken at the water table zone will also be analyzed for SVOCs plus 20 TICS using USEPA SW-846 Method 8270C.

The applicable standard operating procedures that will be employed during this activity are summarized below and presented in Appendix A.

Section	Standard Operating Procedure
A.1	SOP 1 Hydro Punch Vertical Profile Borings with Groundwater Sampling

2.1.5 *Soil Sampling*

Four soil samples will be collected from just below the building floor slab using a Geoprobe equipped with a macro-core soil sampler. The soil sampling locations are presented in Figure 2.

A core drill will be utilized to drill through the concrete floor slab and a macro-core sampler will be advanced four feet into the underlying soil. A Hydrogeologist shall examine and identify the sample immediately upon removal of the macro-core. The sample shall also be screened for volatile organic compound contamination using a hand-held PID total organic vapor analyzer and the PID reading will be noted on the geologic boring log.

A standard "Geologic Log" shall be maintained for each boring that shall include all of the geological information gathered in the field, including the following:

- The structure of the soils sampled, including layering stratification features, and the dominant soil types.
- The color of soils, using Munsell Soil Color Charts.
- The moisture content of soils.
- Soil grain features, including grain sizes, degree of sorting or grading, angularity, and mineralogy. The soils shall be classified using the American Society for Testing and Materials (ASTM) Method D2488-84, a visual manual procedure.
- Identification of any rock fragments, organic material or other components.
- The consistency of clay-dominated soils.

All of the soils information collected shall be recorded as a designation under the Unified Soil Classification System (USCS) along with additional observations for each distinctive soil type within each sample. Geologic logging of each core sample will be by direct observation and classification of soils, using the Munsell Soil Color Chart and Unified Soil Classification System (USCS), as the boreholes are advanced. Each macro-core will be screened using a photoionization detector (PID) instrument for the presence of VOCs and the PID reading will be noted on the geologic boring log.

Soil samples collected from directly below the building slab will be analyzed by an ELAP-certified laboratory for TCL VOCs plus the ten TICs using USEPA SW-846 Method 8260B, SVOCs plus 20 TICS using USEPA SW-846 Method 8270C and for TAL metals using USEPA SW-846 Method 6010 and 7471 for mercury.

The applicable standard operating procedures that will be employed during this activity are summarized below and presented in Appendix A.

Section	Standard Operating Procedure
A.2	SOP 2 Geoprobe Soil Sampling
A.3	SOP 3 Organic Vapor Screening – Soil Sample Headspace

2.1.6 *Sub-Slab Soil Vapor Sampling*

Four sub-slab soil vapor samples will be collected from within the on-site building at the locations specified in Figure 2 using SUMMA® canisters equipped with an airflow controller set for an 8-hour sampling period. The canisters and regulators will be certified clean by the laboratory prior to on-site use. A NYSDOH ELAP-certified laboratory will analyze each sample for VOCs using USEPA Method TO-15.

The applicable standard operating procedures that will be employed during this activity are summarized below and presented in Appendix A.

Section	Standard Operating Procedure
A.4	SOP 4 Sub-Slab Soil Vapor Sampling

2.1.7 *Soil Vapor sampling*

Five soil vapor samples will be collected outside the building as indicated in Figure 2 using SUMMA® canisters equipped with an airflow controller set for an 8-hour sampling period. The canisters and regulators will be certified clean by the laboratory prior to on-site use. A NYSDOH ELAP-certified laboratory will analyze each sample for VOCs using USEPA Method TO-15.

The applicable standard operating procedures that will be employed during this activity are summarized below and presented in Appendix A.

Section	Standard Operating Procedure
A.5	SOP 5 Soil Vapor Sampling

2.1.8 *Indoor Air Sampling*

The four indoor air samples will be collected simultaneously and adjacent to the four sub-slab samples as indicated in Figure 2 using SUMMA® canisters equipped with an airflow controller set for an 8-hour sampling period. If there are occupied areas of the building, the indoor air samples will be relocated to the occupied areas. The canisters and regulators will be certified clean by the laboratory prior to on-site use. A NYSDOH

ELAP-certified laboratory will analyze each sample for VOCs using USEPA Method TO-15. An NYSDOH Center for Environmental Health Indoor Air Quality Questionnaire and Building Inventory will be completed as per the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006.

The applicable standard operating procedures that will be employed during this activity are summarized below and presented in Appendix A.

Section	Standard Operating Procedure
A.6	SOP 6 Indoor Air Sampling

2.1.9 *Management of Investigative Derived Wastes*

The following section describes the general protocols for handling and disposal of liquid investigative derived waste (IDW) generated during the implementation of the SC. Waste generated during the investigation is expected to consist of trash (boxes, paper, etc.), decontamination wash water, vertical profile purge water, and used protective clothing.

The following guidance documents and regulations may be relied upon to guide the management, staging, storage and disposal of RI-generated IDW:

- NYSDEC's TAGM #4032 on " Disposal of Drill Cuttings" {November 21, 1989};
- NYSDEC's RCRA TAGM #3028 on " Contained-In Criteria for Environmental Media" {November 30, 1992};
- 40 C. F. R. Part 262 (Standards Applicable to Generators of Hazardous Waste);
- 40 C. F. R. Part 263 (Standards Applicable to Transporters of Hazardous Waste;
- 40 C. F. R. Part 264 (Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities); and
- 40 C. F. R. Part 268 (Land Disposal Restrictions).

Accordingly, handling and disposal will be as follows:

- Liquids generated from equipment decontamination, and purging of vertical profile borings will be collected in drums at the point of generation. The collected water will be transported and temporarily stored in reconditioned 55-gallon, New York State Department of Transportation (DOT) open-top drums. A composite sample will be collected and analyzed for TCL VOCs using USEPA SW-846 Method 8260B, SVOCs using USEPA SW-846 Method 8270 and TAL Metals using USEPA SW-846 Method 6010 and 7471 for mercury.

- Used protective clothing and equipment that is suspected to be contaminated will be placed in plastic bags, packed in 55-gallon ring-top drums.
- All drums will be labeled according to the borehole/vertical profile number. The drilling subcontractor shall move the drums on a daily basis at the direction of the consultant's representative to the staging area.
- The consultant will procure waste transport and disposal subcontractor services to properly dispose of all IDW in accordance with all local, state and federal regulations.
- Non-contaminated trash, debris and protective clothing will be placed in a trash dumpster and disposed of by a local garbage hauler.

2.1.10 Analytical Data Quality Evaluation

All laboratory data will be reviewed and qualified as necessary by a third party validation firm. The third party validation form will also prepare a data usability report to be submitted to the NYSDEC along with "Category B Deliverables". The consultant's QA/QC officer will be review these reports prior to their submission to NYSDEC.

2.1.11 Site Survey

At the completion of field sampling activities, a New York State licensed surveyor will establish the location and elevation of each newly installed vertical profile boring and soil boring. Elevations of all ground surfaces and their corresponding latitude and longitude coordinates will be determined to within 0.01 feet, +/- 0.01 feet based on the NGVD 86 datum.

All surveyor collected latitude, longitude and elevation data will be provided to the consultant in an ASCII file and imported in to GISKEY database format.

An aerial survey map will be used as a base map and all existing and newly installed sampling locations will be accurately located and plotted on the aerial.

2.2 SITE CHARACTERIZATION REPORT PREPARATION

The SC Report will be prepared following completion of all SC field activities, and the reduction, validation and interpretation of the data. The SC Report will provide a summary of the Scope of Work, methods, results, conclusions and recommendations from the SC. It will present any available waste disposal history, the environmental setting, contamination assessment and hydrogeology. The Report will also identify any data gaps that require further investigation and recommend any IRMs, if required. Further details concerning essential components to the Report are discussed below.

- Summary of Site History and Conditions: The report will include all of the information collected during the historic records and file search and a section detailing the geologic and hydrogeologic conditions.
- Summary of Field Work: The report will include a detailed summary of investigative and analytical methods related to the fieldwork performed during the PSA. This account will include figures and tables to show sample locations, parameters analyzed for, etc.
- Summary of Analytical Data: Using tables and maps, the report will summarize to the extent possible, all of the analytical data collected during the PSA and historical records search.
- Comparison to State Standards, Criteria and Guidelines (SCGs): The PSA Report will identify SCGs. The concentrations of each contaminant detected will be compared to the SCGs.
- Evaluation of Data Collected: The completeness of the data collected during the PSA will be evaluated. The consultant will make recommendations on ways to fill these data gaps, if required.

All reports and correspondence will be provided in Adobe Acrobat format in addition to providing paper copies.

3.0 *MONTHLY PROGRESS REPORTING*

Monthly Progress Reports (MPRs) will be submitted to NYSDEC on or before the 10^{th} of each month following Notice-To-Proceed. Each MPR will address the following topics:

- Accomplishments during the reporting period.
- Problems encountered during the reporting period.
- Compliance with project schedule and budget.
- Projected changes in Scope of Work.

All reports and correspondence will be provided in Adobe Acrobat format in addition to providing paper copies.

4.0 DETAILED WORK ASSIGNMENT SCHEDULE

The SC Implementation Schedule, including milestones and deliverables for the SC, is presented in Figure 3.

The schedule contemplates an April, 2011, start for field activities. The consultant will endeavor to adhere to the schedule at all times, but there are several critical path items related to execution of the fieldwork (i.e. drilling site access and logistical issues) and possibly several cycles of draft/final document review by the NYSDEC. As such, it may be necessary to modify and revise the schedule as the SC progresses because of:

- Potential new requirements or activities that may be requested by the NYSDEC;
- Force majeure;
- Severe weather conditions preventing timely completion of scheduled field activities; or
- Other matters beyond the consultant's reasonable anticipation and control.

5.0 REFERENCES

NYSDEC, 1989. Division Technical and Administrative Guidance Memorandum (TAGM): Disposal of Drill Cuttings. Division of Hazardous Waste Remediation. HWR-94-4032. 21 November 1989.

NYSDEC, 1991. New York State Water Classifications – 6 NYCRR 701. 2 August, 1991

NYSDEC, 1992. Division Technical and Administrative Guidance Memorandum (TAGM): "Contained-In" Criteria For Environmental Media. Division of Hazardous Substance Regulation. HWR-92-3028. 30 November 1992.

NYSDEC, 1994. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels. Division of Hazardous Waste Remediation. HWR-94-4046. 24 January 1994.

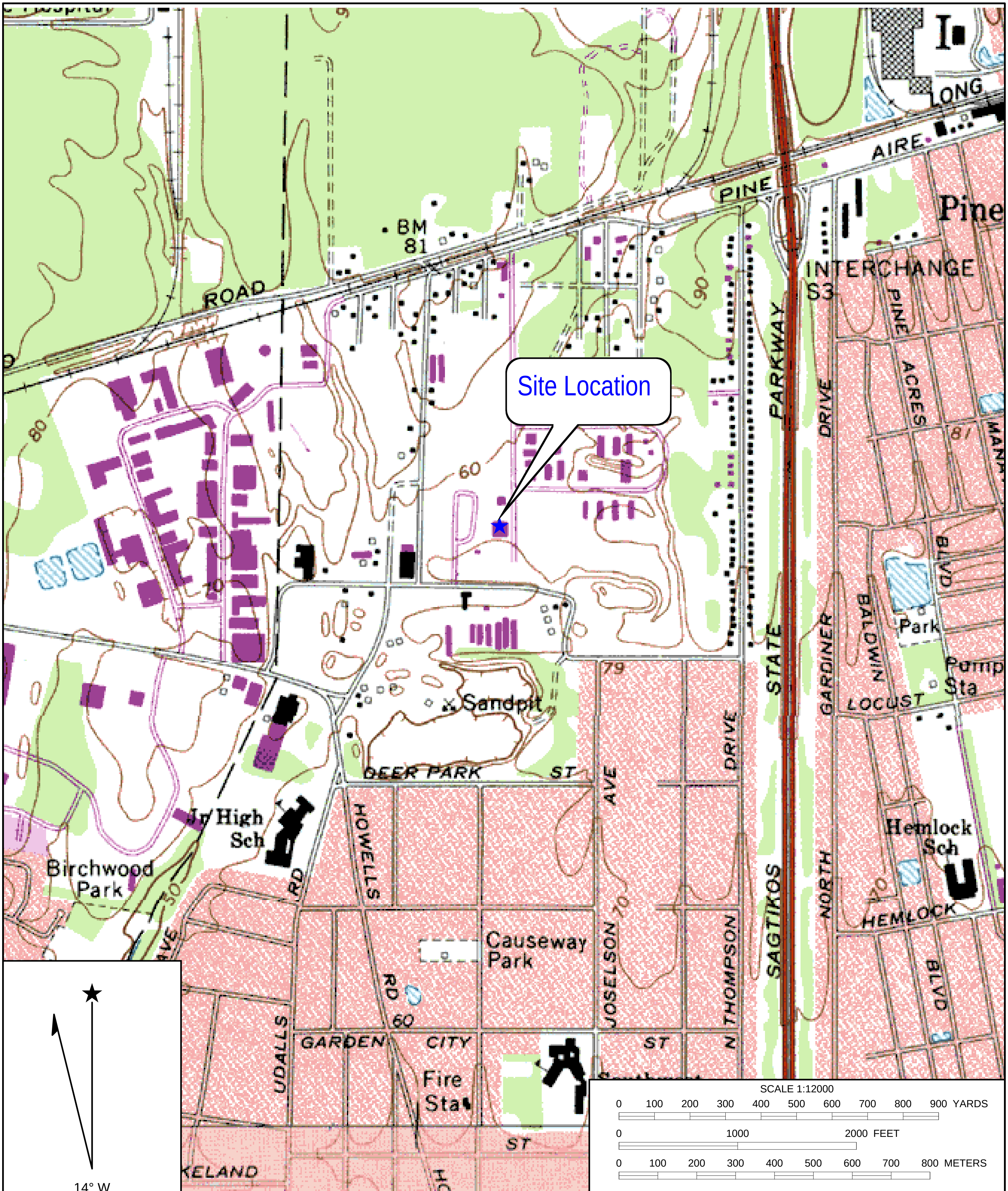
NYSDEC, 1998. New York State Groundwater Quality Standards – 6 NYCRR 703 (12 March 1998) and Division of Water Technical and Operational Guidance Series (1.1.1) – Ambient Water Quality Standards and Guidance Values, (June 1998), Errata Sheet (January 1999), and Addenda (April 2000).

6 NYCRR Part 375 – 6.8(b) Soil Cleanup Objectives

November 4, 2009 CP/Soil Cleanup Guidance

McLaren Hart, Inc., 1997. Phase I Environmental Assessment UNC Accessory Services 86 Cleveland Avenue, Bay Shore, NY, 11706

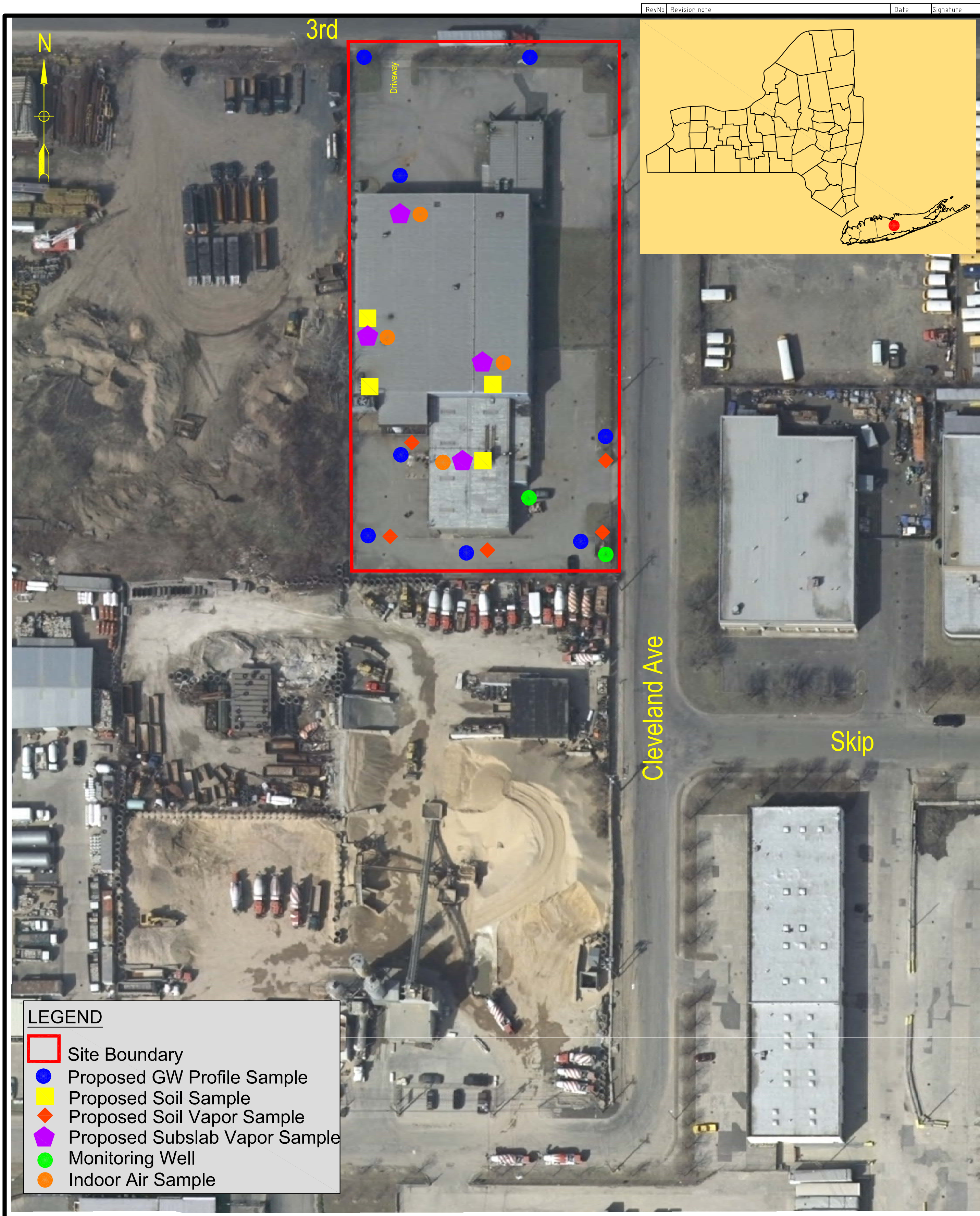
McLaren Hart, Inc., 1998. Phase II Environmental Assessment Report UNC Accessory Services, 86 Cleveland Avenue, Bay Shore, NY, 11706



Name: GREENLAWN
Date: 10/7/2009
Scale: 1 inch equals 1000 feet

Location: 040° 45' 44.33" N 073° 17' 18.74" W NAD 83
Caption: Figure 1 - Site Location Map
86 Cleveland Ave
Bay Shore, NY

RevNo	Revision note	Date	Signature



SOURCE:

Created by: RKC
Date:06/17/09

Scale (1"=100')

50' 0 50' 100' 200'

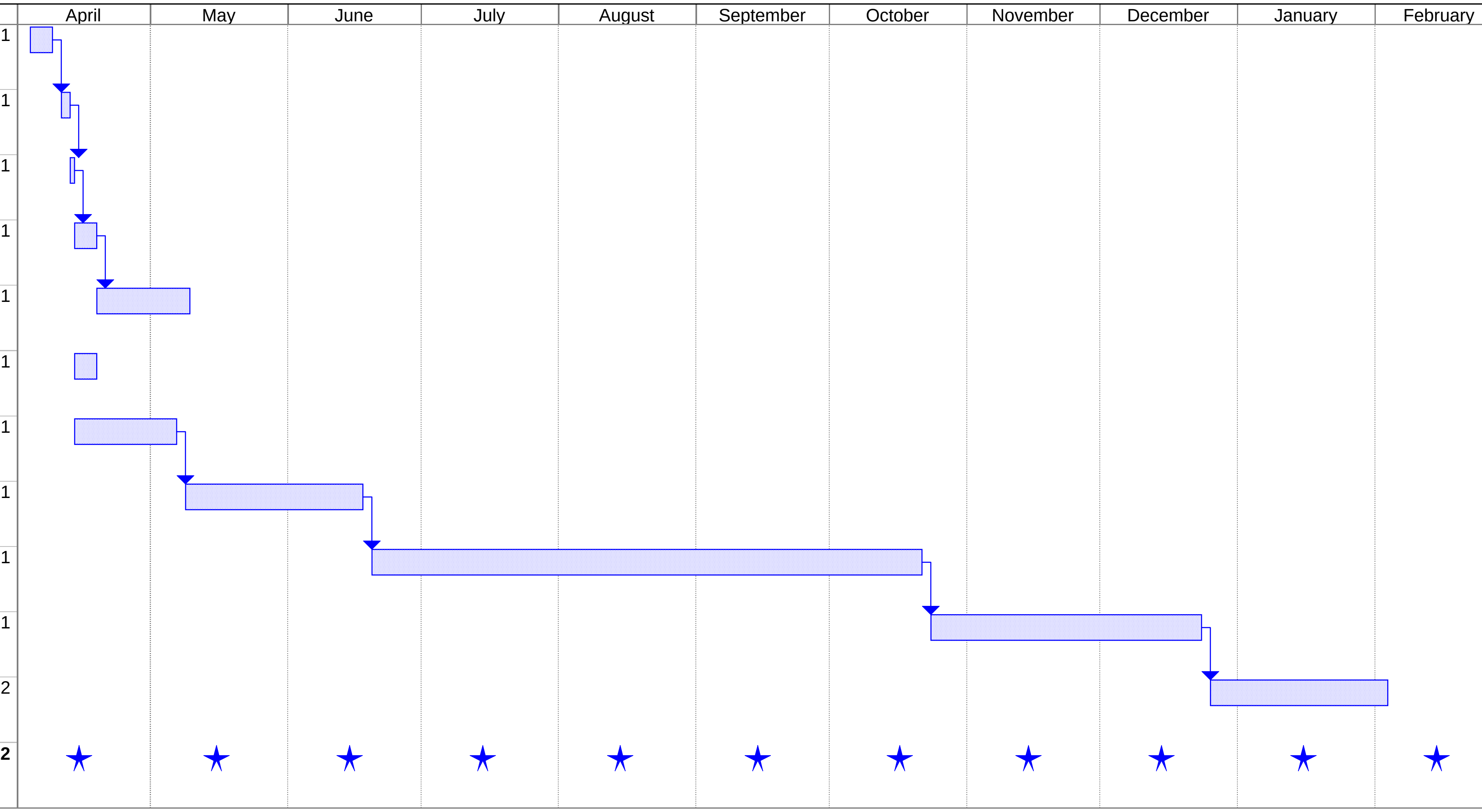
Figure 2
Site Plan
Former Baron-Blakeslee Site
86 Cleveland Ave, Bay Shore, NY

ERM

R:\projects\GE - Bay Shore\CAD\010724I-00-001 Site Plan.dwg (10/18/2010 - 2:12pm Boston)

FIGURE 3
PROJECT SCHEDULE SITE CHARACTERIZATION
FORMER BARON & BLAKESLEE SITE, BAYSHORE, NY

ID	Task Name	Duration	Start	Finish
1	**Project Start-Up Post NYSDEC Approval**	5 days	Mon 4/4/11	Fri 4/8/11
2	**Utility Markouts**	2 days	Mon 4/11/11	Tue 4/12/11
3	**Mobilization**	1 day	Wed 4/13/11	Wed 4/13/11
4	**Soil Gas and Indoor Air Sampling**	3 days	Thu 4/14/11	Mon 4/18/11
5	**Laboratory Analysis (Soil Gas and Air)**	15 days	Tue 4/19/11	Mon 5/9/11
6	**Soil Sampling**	3 days	Thu 4/14/11	Mon 4/18/11
7	**Vertical Profile Groundwater Sampling**	17 days	Thu 4/14/11	Fri 5/6/11
8	**Laboratory Analysis (Soil & Groundwater)**	30 days	Mon 5/9/11	Fri 6/17/11
9	**Site Characterization Report**	90 days	Mon 6/20/11	Fri 10/21/11
10	**NYSDEC Review**	45 days	Mon 10/24/11	Fri 12/23/11
11	**Final Site Characterization Report**	30 days	Mon 12/26/11	Fri 2/3/12
12	**Monthly Reporting**	**219 days**	**Fri 4/15/11**	**Wed 2/15/12**



APPENDIX A

STANDARD OPERATING PROCEDURES (SOPS)

Former Baron Blakeslee Potential Site (P-Site)

Site No. 152204

86 Cleveland Avenue

Bay Shore, NY   11706

29 October 2010
Revised 9 March 2011

Prepared for:

General Electric
319 Great Oaks Boulevard
Albany, NY 12203

Prepared by:

Environmental Resources Management
40 Marcus Drive, Suite 200
Melville, NY 11747

APPENDIX A
STANDARD OPERATING PROCEDURES (SOPS)

Section	Standard Operating Procedure
A.1	Vertical Profile Groundwater Boring
A.2	GeoProbe Soil Sampling
A.3	Organic Vapor Screening– Soil Sample Headspace
A.4	Sub-slab Soil Vapor Sampling Using SUMMA Canisters
A.5	Soil Vapor Sampling Using SUMMA Canisters
A.6	Indoor Air Sampling Using SUMMA Canisters

A.1 SOP 1: VERTICAL PROFILE GROUNDWATER BORING

Vertical profile groundwater boring will be performed at 8 locations to characterize the on-site groundwater quality/impacts. Approximate locations are shown in Figure 2.

A NYSDOH ELAP-certified laboratory will analyze the groundwater samples obtained from these locations for Target Compound List (TCL) VOCs plus the ten tentatively identified compounds (TICs) using USEPA SW-846 Method 8260B and for TAL metals using USEPA SW-846 Method 6010 and 7471 for mercury. Additionally, groundwater samples taken at the water table zone will also be analyzed for Semi-Volatile Organic Compounds (SVOCs) plus 20 TICS using USEPA SW-846 Method 8270.

A.1.1 Drilling Methods

All boreholes will be advanced using a Geoprobe®. Where possible, borings will be placed immediately adjacent to any concrete slabs. If areas are identified where a concrete slab must be penetrated, then concrete coring will be required prior to installation of the soil borings/groundwater monitoring wells.

A.1.2 Source of Water

The use of drilling mud and/or foams shall not be allowed. All water used during drilling and/or steam-cleaning operations shall be from a potable source and so designated in writing. The consultant's drilling subcontractor will obtain all permits from the local water purveyor and any other concerned authorities, and provide of any required back-flow prevention devices.

A.1.3 Drilling Equipment Decontamination

All drilling equipment and the back of the drilling rig shall be decontaminated by steam cleaning prior to performance of the first boring/well installation and between all subsequent borings/well installations. This shall include all hand tools, casing, drill rods and bits, and other related tools and equipment. The steam cleaning equipment shall be capable of generating live steam with a minimum temperature of 212^{o} degrees Fahrenheit. The equipment shall be cleaned to the satisfaction of the consultant's Hydrogeologist.

A.1.4 Geoprobe® Groundwater Sample Collection

Groundwater samples will be collected from each of the 8 borings utilizing the SP-16 screen point groundwater sampler at ten-foot intervals from the water table to the final depth of approximately 60 feet bgs. The consultant's drilling subcontractor will be responsible for provision of the sampling tool and all necessary accessory items (reusable and disposable) to collect groundwater samples.

The drill rods will be advanced to the designated sample depth starting with the upper most sample in the profile. A properly decontaminated SP-16 sampler will be opened in each sampling interval to expose the screen in order to collect a groundwater sample. Each sample zone will be purged until an acceptable sample can be obtained using new dedicated disposable tubing. Once the sample has been obtained, it will be immediately transferred to laboratory-supplied bottles.

The drill rods will then be removed from the borehole and decontaminated before they are advanced to the next sampling interval.

A.1.5 Borehole Abandonment

Boreholes will be abandoned by backfill with the drill cuttings to within 2-feet of land surface. The remaining 2-feet will be filled with cement/bentonite grout, consisting of 5.0 pounds of high grade bentonite for each 94 pounds of Type I or Type II Portland cement mixed with 8.3 gallons of water for a target density of 13.9 pounds/gallon with an acceptable range of 13.4 to 14.5 pounds/gallon.

A.1.6 Work Site Restoration

Upon completion of the work, the drilling subcontractor shall restore all work areas/drilling locations to a pre-drilling condition. The drilling subcontractor shall remove and dispose of all debris, remove all equipment and materials from each work site promptly and leave the location in a neat and orderly fashion to the satisfaction of the consultant's Hydrogeologist. The restoration shall include repair of any holes, trenches, tire ruts, damage to pavement, etc. caused by the movement or operation of the drilling subcontractor's equipment.

A.2 SOP 2: GEOPROBE SOIL SAMPLING

Four soil samples will be collected from just below the building floor slab using a Geoprobe equipped with a macro-core soil sampler. The soil sampling locations are presented in Figure 2.

To collect soil samples, a Macro Core (MC) sampler will be used. The MC sampler is an open tube design and measure approximately 2" in diameter by 46" long. It is equipped with an acetate liner to assist in the removal of the soil sample from the tube and help insure sample integrity. The MC sampler will be driven to four feet below the floor slab using direct push technology (GeoProbe). After the completion of each boring the MC samplers will decontaminated and fitted with a new acetate liner.

A.3 SOP 3: ORGANIC VAPOR SCREENING – SOIL SAMPLE HEADSPACE

Field screening for organic compounds in soil samples will be performed as one of several field screening criteria, and continuously in the breathing zone of all work areas where intrusive activities are to occur as of the part of the Health and Safety monitoring program. This will serve as an immediate indication as to volatile organic hazards at the work location and will determine if personnel health and safety protection is adequate. Screening with a hand-held PID meter will be performed during all intrusive work activities (i.e. installation of soil borings and/or groundwater monitoring wells, or collection of groundwater samples) field investigation and all sample collection activities.

1. Calibrate the PID daily in accordance with the particular manufacturer's procedures.
2. For health and safety monitoring during intrusive activities, the PID will be used to continuously monitor for organic vapors in the breathing zone of all work areas in accordance with the HASP.
3. For soil samples, a container separate from any jars that may be used for laboratory analysis will be used to check for total organic vapor concentrations using the PID. Generally, the sample aliquot retained for geologic description and archive is used for headspace total organic vapor screening.
4. Fill the sample container approximately 2/3 full with soil.
5. Place aluminum foil over the sample jar mouth, tightly sealing the opening.
6. Allow the jar to stand for 5 minutes in a location where the sample temperature change will be minimal.
7. After the 5 minutes, shake to jar for 1 minute to aid the desegregation of VOCs from the soil matrix.
8. Allow the jar to stand for an additional 5 minutes in a location where the sample temperature change will be minimal.
9. After the 5 minutes, insert the probe of a PID through the foil seal and observe the instrument for the maximum organic vapor reading.
10. Record the sample number and maximum headspace organic vapor concentration reading.

A.4 SOP 4: SUB-SLAB SOIL VAPOR SAMPLING

Four sub-slab soil vapor samples will be collected at the locations specified in the Work Plan using SUMMA® canisters equipped with an 8-hour timed sample acquisition regulators. The canisters and regulators will be certified clean by the laboratory prior to on-site use. A NYSDOH ELAP-certified laboratory will analyze each sample for VOCs using USEPA Method TO-15.

Selection and Preparation of Sample Collection Point

Observe the condition of the building floor slab for apparent penetrations such as concrete floor cracks, floor drains, or sump holes. Note the floor conditions on the sampling form and select a potential location or locations for a temporary or permanent subsurface probe. The location or locations should be away from foundation walls and apparent penetrations.

Review the proposed location or locations with the occupant/owner describing how the sampling port or ports will be installed. After receiving permission from the occupant or owner, mark the proposed location(s) and describe the location(s) on the sampling form.

Using the PID, screen indoor air in the area of floor penetrations such as concrete floor cracks, floor drains, or sump holes (note that the detection limits for the laboratory analyses to be performed on the samples collected are considerably lower than the detection limits of the PID). Record the indoor air PID readings on the sampling form.

Temporary Subsurface Probe Installation

1. Drill a 1-inch diameter hole about 1 to 2 inches into the concrete slab using an electric hammer drill.
2. Extend the hole through the remaining thickness of the slab using a 3/8-inch drill bit. Extend the hole about three inches into the sub-slab material using either the drill bit or a steel probe rod.
3. Insert a section of ¼ -inch O.D. Teflon ™ or brass tubing to the bottom of the floor slab. Seal the annular space between the 1-inch hole and ¼ -inch tubing by applying hot beeswax into the 1-inch hole.
4. Connect the ¼ -inch Teflon™ tubing (or brass tubing using a length of ¼-inch I.D. Teflon™ tubing) to a stainless steel valve using compression fittings or hose clamps. Open the in-line valve and purge the probe

tubing using a polyethylene 60-cubic centimeter (cc) syringe. Close the valve, remove and cap the syringe, and connect the ¼ -inch Teflon™ tubing and in-line valve to a SUMMA® canister. DO NOT DISCHARGE THE AIR/SOIL GAS SYRINGE INTO INDOOR AIR. For duplicate sample locations connect a second canister before purging by installing a ¼ -inch stainless steel "tee" fitting between the probe discharge tubing and the stainless steel valve.

Preparation of SUMMA® Canister and Collection of Sample

1. Place SUMMA® canister adjacent to temporary subsurface probe.
2. Record SUMMA® canister serial number on sampling summary form and COC.
3. Assign sample identification on canister ID tag, and record on sampling summary form and COC.
4. Remove brass plug from canister fitting.
5. Install pressure gauge / metering valve on canister valve fitting and tighten. If pressure gage has additional (2nd) fitting, install brass plug from canister fitting into gage fitting and tighten.
6. Open and close canister valve.
7. Record gage pressure on sample summary form and COC. Gage pressure must read >25 psi. Replace SUMMA® canister if gage pressure reads <25 psi.
8. Remove brass plug from gauge fitting and store for later use.
9. Install particulate filter onto metering valve input fitting and tighten.
10. Connect subsurface probe to end of in-line particular filter via ¼ -inch O.D. Teflon™ tubing and Swagelok® fittings.
11. Open canister valve and in-line stainless steel valve to initiate sample collection.
12. Take digital photograph of SUMMA® canister set up and surrounding area.
13. Record date and local time of valve opening on sampling summary form and COC.

Termination of Sample Collection

1. Revisit SUMMA® canister after 80% of sample collection time has elapsed to verify sufficient amount of vacuum pressure remains for sample collection and shipment. At end of sample collection period (e.g., 24 hours after initiation of sample collection) record gauge pressure on sampling form and COC.
2. Record date and local time of valve closing on sampling summary form and COC.
3. Close canister valve.
4. Disconnect Teflon™ tubing and remove particulate filter and pressure gage/metering valve from canister.
5. Reinstall brass plug on canister fitting and tighten.
6. Remove SUMMA® canister from sample collection area.
7. Remove temporary subsurface probe and plug the slab probe hole with solid laboratory grade rubber plug. Set plug slightly below the finished floor level cover flush with the floor surface using quick drying hydraulic cement.

Preparation and Shipment of Sample to Analytical Laboratory

1. Pack SUMMA® canister in shipping container, note presence of brass plug installed in tank fitting.
2. Complete COC and place requisite copies in shipping container.
3. Close shipping container and affix custody seal to container closure.

A.5 SOP 5: SOIL VAPOR SAMPLING USING SUMMA CANISTERS

Five soil vapor samples will be collected outside the building as indicated in Figure 2 using SUMMA® canisters equipped with an airflow controller set for an 8-hour sampling period. The canisters and regulators will be certified clean by the laboratory prior to on-site use. A NYSDOH ELAP-certified laboratory will analyze each sample for VOCs using USEPA Method TO-15. Specific details are presented below.

1. A 5/8-inch diameter pilot hole will be drilled to a total depth of 4 feet below ground surface at each soil vapor sampling location. The pilot hole will be drilled with an electric rotary hammer-drill powered by a portable generator. At locations where a concrete pad or asphalt covers the ground surface, an industrial-grade rotary drill equipped with a masonry bit will first be used to drill a pilot hole through the concrete pad/asphalt.

2. After the pilot hole is completed, an initial VOC measurement will be made using a PID immediately following the removal of the bit. The initial reading will be recorded in the field logbook and/or on a soil gas sampling log form.

3. A dedicated length of new Teflon tubing will be threaded through a cork and inserted into the pilot hole. The cork will serve to seal the pilot hole at ground surface or the concrete pad. The sealed borehole will then be allowed to equilibrate for a period of several hours to one day.

4. After observing the required equilibration period, the tubing will be purged using a PID to evacuate 1 – 2 volumes (maximum) of the soil gas-sampling probe. The maximum PID reading (if any) and the subsequent sustained reading will be recorded in the field notebook and/or data collection forms. As per the NYSDOH guidance, a Helium Tracer Gas Test will be performed on each vapor sample point to verify that no infiltration of atmospheric air occurs during sampling. This consists of applying a shroud that covers the top of the cork seal. The Teflon tubing will then be connected to a portable helium detector. Helium gas is then applied underneath the shroud to enrich the atmosphere in the immediate vicinity of the area where the cork intersects the ground surface. A vapor sample is then measured from the tubing for the presence of high concentrations (>10%) of the tracer. Should a short circuit to the system be encountered, the cork will be hammered down more. Additionally a bentonite seal will be applied to the area where the cork intersects the surface area of the borehole. The

tracer gas will be applied again and the test will be repeated until the tracer gas is no longer detected through the sample tubing.

5. The Summa canister will then be attached to the Teflon tubing and the sampling regulator set to collect a soil vapor sample over a two-hour period, ensuring that the flow rate for the extraction of soil vapor samples shall not exceed 0.1 to 0.2 liters per minute. After the sample is collected, all Teflon tubing/corks will be removed and disposed of in the general refuse dumpster. All penetrations of concrete pads/asphalt will be sealed with cement/black top patch. The analytical detection limits shall be no greater than 0.5 parts per billion by volume (ppbv) or 1 microgram per cubic meter (ug/m^3).

6. For each soil vapor sample location, all the pertinent data will be recorded in the field notebook and/or data collection forms. This information should include the following for each soil vapor sample:

   - Sampler's name;
   - Date, time and initial PID reading;
   - Date and time of Teflon tubing insertion and pilot hole sealing;
   - Date, time and sustained PID reading;
   - Summa canister serial number;
   - Survey location number, and descriptive location of the sampling area;
   - Weather conditions;
   - Sampling depth(s);
   - Soil type at sample location, if known;
   - Description of the surface features (i.e., drainage, facilities), soils, any contamination noted, and trenches or any other feature that may impact the soil vapor measurement; and
   - All calibrations performed.

A.6 SOP 6: INDOOR AIR SAMPLING USING SUMMA® CANISTERS

The four indoor air samples will be collected simultaneously and adjacent to the four sub-slab samples as indicated in Figure 2 using SUMMA® canisters equipped with an airflow controller set for an 8-hour sampling period. If there are occupied areas of the building, the indoor air samples will be relocated to the occupied areas. The canisters and regulators will be certified clean by the laboratory prior to on-site use. A NYSDOH ELAP-certified laboratory will analyze each sample for VOCs using USEPA Method TO-15.

General details are presented below.

1. Prior to sampling, the consultant will select an appropriate location for collection of the indoor and outdoor air samples. The consultant will attempt to obtain the sample from a central location at the sampling point, away from foundation walls. If possible, sources of VOCs will be removed from the sampling area. A PID will be used to help identify such sources.

2. The location of the sample will be marked, documented, and photographed. A Sample identification label will be visible in each photograph. In addition, a measuring device will be visible in each photograph to show that indoor ambient air sample intake valves are located between three and five-feet from the floor.

3. An initial PID reading will be made at the location of each air sample.

4. The SUMMA® canister will be attached to a sampling regulator set to collect a soil vapor sample over a 24-hour period (sample collection time interval may be changed at the discretion of the NYSDEC Project Manager). At the end of each day and after approximately 80% of the specified sample collection time has elapsed, the canister will be checked to ensure substantial vacuum pressure remains in the canister for sample collection and shipment.

5. For each indoor sample location, all the pertinent data will be recorded in the field forms. Additional general information will be recorded within a field book(s) designated to the project. This information should include the following:

   - Sampler's name;
   - Date, time and PID reading;
   - Date and time of sample start and stop;

- SUMMA® canister serial number;
- Survey location number, and descriptive location of the sampling area;
- Sample identification for corresponding outdoor air samples
- Weather conditions;
- Barometric pressure;
- Initial SUMMA® canister pressure; and
- Final SUMMA® canister pressure.

<u>Preparation of SUMMA® Canister and Collection of Sample:</u>

1. Place SUMMA® canister at height equivalent to approximately the breathing zone of the ground story level of a building (e.g., approximately 5 feet above the ground surface). Position canister on stable surface, or suspend from stable structure with nylon rope. The canister inlet should be protected from precipitation (rain, ice, or snow) either by pointing the inlet downward or by shielding the top of the canister.
2. Record SUMMA® canister serial number on sampling summary form and COC.
3. Assign sample identification on canister ID tag, and record on sampling summary form and COC.
4. Remove brass plug from canister fitting.
5. Install pressure gage/metering valve on canister valve fitting and tighten. If pressure gage has additional (2nd) fitting, install brass plug from canister fitting into gage fitting and tighten.
6. Open and close canister valve.
7. Record gage pressure on sample summary form and COC. Gage pressure must read >25 inches Hg. Replace SUMMA® canister if gage pressure reads <25 inches Hg.
8. Remove brass plug from gage fitting and store for later use.
9. Install particulate filter onto metering valve input fitting and tighten.
10. Open canister valve to initiate sample collection.
11. Record local time on sampling summary form and COC.
12. Take digital photograph of SUMMA® canister and surrounding area.

Termination of Sample Collection:

1. Revisit SUMMA® canister at the end of each sampling day and approximately after 80% of sample collection time has elapsed to verify sufficient amount of vacuum pressure remains for sample collection and shipment. If vacuum pressure no longer exists, or if vacuum pressure is <5 inches Hg, close the canister valve and document conditions. At end of sample collection period (e.g., 24 hours after initiation of sample collection) record gage pressure on sampling form and COC.
2. Record local time on sampling summary and COC.
3. Close canister valve.
4. Remove particulate filter and pressure gage/metering valve from canister.
5. Reinstall brass plug on canister fitting and tighten.
6. Remove SUMMA® canister from sample collection area.
7. Preparation and shipment of sample to analytical laboratory will follow the procedure below.
8. Pack SUMMA® canister in shipping container, note presence of brass plug installed in tank fitting.
9. Complete COC and place requisite copies in shipping container.
10. Close shipping container and affix custody seal to container closure.

APPENDIX B
QUALITY ASSURANCE SAMPLING SUMMARY TABLES

Former Baron Blakeslee Potential Site (P-Site)
Site No. 152204
86 Cleveland Avenue
Bay Shore, NY 11706

9 March 2011

Prepared for:

General Electric
319 Great Oaks Boulevard
Albany, NY 12203

Prepared by:

Environmental Resources Management
40 Marcus Drive, Suite 200
Melville, NY 11747

TABLE 1
SAMPLE TOTAL SUMMARY

Analytical Parameters	*Matrix*	*Number of Samples*	*Blind Field Duplicates* [1]	*MS/MSD Pairs* [2]	*Field Blanks* [3]	*Trip Blanks* [4]
TCL VOCs +TICS[7] by SW-846 8260B	Soil	4	1	1	1	0
TCL SVOCs + TICS by SW-846 8270C	Soil	4	1	1	1	0
TAL Metals by SW-846 6010/7471	Soil	4	1	1	1	0
TCL VOCs + TICS by SW-846 8260B	Groundwater	48	3	3	3	17
TCL SVOCs + TICS[8] by SW-846 8270C	Groundwater	8	1	1	3	0
TAL Metals by SW-846 6010/7471	Groundwater	48	3	3	3	0
TO-15 Volatile Organic Compounds (VOCs)	Soil Gas	4	1	0	0	0
	Indoor Air	4	0	0	0	0
	Sub-Slab Soil Vapor	4	0	0	0	0
Waste Characterization						
Composite for VOCs, SVOCs and RCRA Metals Reactivity to Sulfide and Cyanide, Corrosivity, Flammability [5]	Aqueous	1 [6]	0	0	0	0

Notes:

1. Duplicates are generally collected at a minimum frequency of five percent (1 per 20 field samples). More frequent collection may be warranted based on field conditions/observations and/or at the discretion of the Field Team Leader.
2. MS/MSD Pairs (two samples) will be collected at a minimum frequency of five percent (1 per 20 field samples). More frequent collection may be warranted based on field conditions/observations and/or at the discretion of the Field Team Leader.
3. Field Blanks will be collected at a minimum frequency of one per day. More frequent collection may be warranted based on field conditions/observations and/or at the discretion of the Field Team Leader
4. Trip Blanks will be collected at the rate of one per aqueous sample shipment when VOCs are collected (except for IDW samples). No trip blanks are expected to be collected.
5. Waste Characterization sampling to include TCLP in accordance with SW-846 Method 1311 for VOCs by USEPA SW-846 Method 8260B, SVOCs by USEPA SW-846 Method 8270C, and Metals by USEPA SW-846 Methods 6010B / 7470A, Ignitability, Corrosivity and Reactivity to Sulfide and Cyanide.
6. Vertical profile groundwater purge water composite sample.
7. Tentatively Identified Compounds (TICs)
8. See work plan. Only groundwater samples taken at the water table are to be analyzed for SVOCs + TICS.

TABLE 2
DETAILED SUMMARY OF SOIL SAMPLING PROGRAM
SAMPLE TOTALS, ANALYTICAL METHODS, PRESERVATIVES, HOLDING TIMES AND CONTAINERS

Analytical Parameters	*Analytical Method Reference*	*Sample Preservation*	*Holding Time* [1]	*Container* [2]
TCL VOCs + TICS	SW-846 8260B	Cool 4°C,	14 days	1 – 2 oz. glass jar
TCL SVOCs + TICS	SW-846 8270C	Cool, 4°C	14 days/ 40 days	1 – 8 oz. glass jar
TAL Metals	SW-846 6010/7471	Cool 4°C	All metals (except mercury) 180 days, Mercury 26 days	1 – 8 oz. glass jar

Notes:

1. VOC holding times are days after collection until analysis; SVOC holding times are days after collection until extraction / days from extraction to analysis; Inorganics holding times are days after collection until analysis.
2. As specified by Accutest Laboratories.

TABLE 3
DETAILED SUMMARY OF AQUEOUS SAMPLING PROGRAM [1]
SAMPLE TOTALS, ANALYTICAL METHODS, PRESERVATIVES, HOLDING TIMES AND CONTAINERS

Analytical Parameters	*Analytical Method Reference*	*Sample Preservation*	*Holding Time [2]*	*Container [3,4]*
TCL VOCs + TICS	SW-846 8260B	Cool 4°C, pH<2 (HCl)	14 days	3 – 40 ml glass Teflon-lined cap
TCL SVOCs + TICS[5]	SW-846 8270C	Cool, 4°C	5 days / 40 days	2 – 1 liter amber glass bottles
TAL Metals	SW-846 6010/7471	Cool, 4°C, pH<2 (HNO_3)	180 days (all metals except Mercury) 26 days (Mercury only)	1 - 500 ml poly bottle
Waste Characterization				
Toxicity Characteristic Leaching Procedure (TCLP)	Sample preparation: USEPA SW-846 Method 1311 Sample analysis: 8260B, 8270C, 6010B, & 7470A	Cool, 4°C	VOCs 14 days/NA/14 days, SVOCs, 14 days/14 days/40 days, Metals (*except Mercury*) 14 days/NA/180 days, Mercury 5 days/NA/28 days	3 - 1000 ml (1 Liter) amber bottle
Reactivity to Sulfide and Cyanide	USEPA SW-846 Methods 9034 and 9014 (Chapter Seven)	Cool, 4°C	Not Regulated (14 day holding time is suggested)	1 - 1000 ml (1 Liter) plastic bottle
Corrosivity	USEPA SW-846 Method 9045C	Cool, 4°C	Not Regulated	1 - 1000 ml (1 Liter) plastic bottle
Flammability (Ignitability)	USEPA SW-846 Method 1010	Cool, 4°C	Not Regulated	1 - 1000 ml (1 Liter) plastic bottle

Notes:
1. Additional Parameters may be added if deemed necessary.

2. VOC holding times are days after collection until analysis; SVOC holding times are days after collection until extraction / days from extraction to analysis; Inorganics holding times are days after collection until analysis. TCLP holding times are days after collection until leaching/days from leaching until extraction (if required)/days from extraction until analysis.
3. As specified by Accutest Laboratories.
4. Reactivity to Sulfide and Cyanide, Corrosivity, and Flammability (Ignitability) will be collected into the same 1000 ml sample container.
5. See work plan. Only groundwater samples taken at the water table are to be analyzed for SVOCs + TICS.

TABLE 4
VOLATILE TARGET COMPOUND LIST (TCL)
AND REPORTING LIMITS

Target Compound List (TCL)	*CAS Number* [1]	*Reporting Limits (RL)* [2, 3] *Aqueous (µg/l)*	*Low Soil (µg/kg)*
dichlorodifluoromethane	75-71-8	1.0	1.0
chloromethane	74-87-3	1.0	1.0
vinyl chloride	75-01-4	1.0	1.0
bromomethane	74-83-9	1.0	1.0
chloroethane	75-00-3	1.0	1.0
trichlorofluoromethane	75-69-4	1.0	1.0
1,1-dichloroethene	75-35-4	1.0	1.0
1,1,2-trichloro-1,2,2-trifluoroethane	76-13-1	1.0	1.0
acetone	67-64-1	5.0	5.0
carbon disulfide	75-15-0	1.0	1.0
methyl acetate	79-20-9	1.0	1.0
methylene chloride	75-09-2	1.0	1.0
trans-1,2-dichloroethene	156-60-5	1.0	1.0
methyl tertiary butyl ether	1634-04-4	1.0	1.0
1,1-dichloroethane	75-34-3	1.0	1.0
cis-1,2-dichloroethene	156-59-2	1.0	1.0
2-butanone	78-93-3	5.0	5.0
chloroform	67-66-3	1.0	1.0
1,1,1-trichloroethane	71-55-6	1.0	1.0
cyclohexane	110-82-7	1.0	1.0
carbon tetrachloride	56-23-5	1.0	1.0
benzene	71-43-2	1.0	1.0
1,2-dichloroethane	107-06-2	1.0	1.0
trichloroethene	79-01-6	1.0	1.0
methylcyclohexane	108-87-2	1.0	1.0
1,2-dichloropropane	78-87-5	1.0	1.0
bromodichloromethane	75-27-4	1.0	1.0
cis-1,3-dichloropropene	10061-01-5	1.0	1.0
4-methyl-2-pentanone	108-10-1	5.0	5.0
toluene	108-88-3	1.0	1.0
trans-1,3-dichloropropene	10061-02-6	1.0	1.0
1,1,2-trichloroethane	79-00-5	1.0	1.0

TABLE 4 (continued)
VOLATILE TARGET COMPOUND LIST (TCL)
AND REPORTING LIMITS

Target Compound List (TCL)	*CAS Number* [1]	*Reporting Limits (RL)* [2, 3] *Aqueous (µg/l)*	*Soil (µg/kg)*
tetrachloroethene	127-18-4	1.0	1.0
2-hexanone	591-78-6	5.0	5.0
dibromochloromethane	124-48-1	1.0	1.0
1,2-dibromoethane	106-93-4	1.0	1.0
chlorobenzene	108-90-7	1.0	1.0
ethylbenzene	100-41-4	1.0	1.0
xylene (total)	1330-20-7	5.0	5.0
styrene	100-42-5	1.0	1.0
bromoform	75-25-2	1.0	1.0
isopropylbenzene	98-82-8	1.0	1.0
1,1,2,2-tetrachloroethane	79-34-5	1.0	1.0
1,3-dichlorobenzene	541-73-1	1.0	1.0
1,4-dichlorobenzene	106-46-7	1.0	1.0
1,2-dichlorobenzene	95-50-1	1.0	1.0
1,2-dibromo-3-chloropropane	96-12-8	1.0	1.0
1,2,4-trichlorobenzene	120-82-1	1.0	1.0

Notes:
1. Chemical Abstracts Service (CAS) Registry Number.
2. As specified by Accutest Laboratories.
3. RL for soil samples are reported on a dry weight basis and will vary per sample pending on that samples percent moisture.

TABLE 5
SEMIVOLATILE TARGET COMPOUND LIST (TCL)
AND REPORTING LIMITS

Target Compound List (TCL)	*CAS Number* [1]	*Reporting Limits (RL)* [2, 3] *Aqueous (µg/l)*	*Soil (µg/kg)*
benzaldehyde	100-52-7	10	330
phenol	108-95-2	10	330
bis(2-chloroethyl)ether	111-44-4	10	330
2-chlorophenol	95-57-8	10	330
2-methylphenol	95-48-7	10	330
2,2'-oxybis (1-chloropropane)	108-60-1	10	330
acetophenone	98-86-2	10	330
4-methylphenol	106-44-5	10	330
n-nitroso-di-n-propylamine	621-64-7	10	330
hexachloroethane	67-72-1	10	330
nitrobenzene	98-95-3	10	330
isophorone	78-59-1	10	330
2-nitrophenol	88-75-5	10	330
2,4-dimethylphenol	105-67-9	10	330
bis(2-chloroethoxy)methane	111-91-1	10	330
2,4-dichlorophenol	120-83-2	10	330
naphthalene	91-20-3	10	330
4-chloroaniline	106-47-8	10	330
hexachlorobutadiene	87-68-3	10	330
caprolactam	105-60-2	10	330
4-chloro-3-methylphenol	59-50-7	10	330
2-methylnaphthalene	91-57-6	10	330
hexachlorocyclopentadiene	77-47-4	10	330
2,4,6-trichlorophenol	88-06-2	10	330
2,4,5-trichlorophenol	95-95-4	20	670
1,1'-biphenyl	92-52-4	10	330
2-chloronaphthanlene	91-58-7	10	330
2-nitroaniline	88-74-4	20	670
dimethylphthalate	131-11-3	10	330
2,6-dinitrotoluene	606-20-2	10	330
4-chloro-3-methylphenol	208-96-8	10	330
3-nitroaniline	99-09-2	20	670
acenaphthene	83-32-9	10	330
2,4-dinitrophenol	51-28-5	20	670
4-nitrophenol	100-02-7	20	670

TABLE 5 (continued)
SEMIVOLATILE TARGET COMPOUND LIST (TCL)
AND REPORTING LIMITS

Target Compound List (TCL)	*CAS Number* [1]	*Reporting Limits (RL)* [2, 3] *Aqueous (µg/l)*	*Soil (µg/kg)*
dibenzofuran	132-64-9	10	330
2,4-dinitrotoluene	121-14-2	10	330
diethylphthalate	84-66-2	10	330
fluorene	86-73-7	10	330
4-chlorophenol phenyl ether	7005-72-3	10	330
4-nitroaniline	100-01-6	20	670
4,6-dinitro-2-methylphenol	534-52-1	20	670
n-nitrosodiphenylamine	86-30-6	10	330
4-bromophenyl-phenylether	101-55-3	10	330
hexachlorobenzene	118-74-1	10	330
atrazine	1912-24-9	10	330
pentachlorophenol	87-86-5	20	670
phenanthrene	85-01-8	10	330
anthracene	120-12-7	10	330
carbazole	86-74-8	10	330
di-n-butylphthalate	84-74-2	10	330
fluoranthene	206-44-0	10	330
pyrene	129-00-0	10	330
butylbenzylphthalate	85-68-7	10	330
3,3'-dichlorobenzidine	91-94-1	10	330
benzo(a)anthracene	56-55-3	10	330
chrysene	218-01-9	10	330
bis(2-ethylhexyl)phthalate	117-81-7	10	330
di-n-octylphthalate	117-84-0	10	330
benzo(b)fluoranthene	205-99-2	10	330
benzo(k)fluoranthene	207-08-9	10	330
benzo(a)pyrene	50-32-8	10	330
indeno(1,2,3-cd)pyrene	193-39-5	10	330
dibenzo(a,h)anthracene	53-70-3	10	330
benzo(g,h,i)perylene	191-24-2	10	330

Notes:
1. Chemical Abstracts Service (CAS) Registry Number.
2. As specified by Accutest Laboratories.
3. RL for soil samples are reported on a dry weight basis and will vary per sample pending on that samples percent moisture.

TABLE 6
METALS TARGET ANALYTE LIST (TAL),
REPORTING LIMITS

Target Analyte List (TAL)	*CAS Number* [1]	*Reporting Limits Water (µg/l)* [2]	*Reporting Limits Soil (mg/kg)* [2, 3]
aluminum	7429-90-5	200	10
antimony	7440-36-0	20	1
arsenic	7440-38-2	20	1
barium	7440-39-3	200	10
beryllium	7440-41-7	5.0	0.25
cadmium	7440-43-9	5.0	0.25
calcium	7440-70-2	800	40
chromium	7440-47-3	20	1
cobalt	7440-48-4	50	2.5
copper	7440-50-8	30	1.5
iron	7439-89-6	200	10
lead	7439-92-1	10	0.5
magnesium	7439-95-4	500	25
manganese	7439-96-5	50	2.5
mercury	7439-97-6	0.20	0.033
nickel	7440-02-0	50	2.5
potassium	7440-09-7	1000	50
selenium	7782-49-2	30	1.5
silver	7440-22-4	30	1.5
sodium	7440-23-5	1000	50
thallium	7440-28-0	20	1
vanadium	7440-62-2	50	2.5
zinc	7440-66-6	50	2.5

Notes:
1. Chemical Abstracts Service (CAS) Registry Number.
2. As specified by Accutest Laboratories.
3. RL are reported on a dry weight basis and will vary per sample pending on that samples percent moisture.

TABLE 7
AIR
TARGET COMPOUND LIST (TCL) AND REPORTING LIMITS

Target Compound List	*CAS Number* [1]	*Molecular Weight*	*Reporting Limit (ppbv)*	*Reporting Limit (ug/m^3)*
Acetone (2-propanone)	67-64-1	58.08	5.0	12
Benzene	71-43-2	78.11	0.20	0.64
Bromodichloromethane	75-27-4	163.83	0.20	1.3
Bromoethene	593-60-2	106.96	0.20	0.87
Bromoform	75-25-2	252.75	0.20	2.1
Bromomethane (Methyl bromide)	74-83-9	94.95	0.20	0.78
1,3-Butadiene	106-99-0	60.14	0.20	0.49
2-Butanone (Methyl ethyl ketone)	78-93-3	72.11	0.50	1.5
Carbon disulfide	75-15-0	76.14	0.50	1.6
Carbon tetrachloride	56-23-5	153.84	0.20	1.3
Chlorobenzene	108-90-7	112.56	0.20	0.92
Chloroethane	75-00-3	64.52	0.20	0.53
Chloroform	67-66-3	119.39	0.20	0.98
Chloromethane (Methyl chloride)	74-87-3	50.49	0.20	0.41
3-Chloropropene (allyl chloride)	107-05-1	76.53	0.20	0.63
2-Chlorotoluene (o-Chlorotoluene)	95-49-8	126.59	0.20	1.04
Cyclohexane	110-82-7	84.16	0.20	0.69
Dibromochloromethane	124-48-1	242.74	0.20	2.0
1,2-Dibromoethane	106-93-4	187.88	0.20	1.5
1,2-Dichlorobenzene	95-50-1	147.01	0.20	1.2
1,3-Dichlorobenzene	541-73-1	147.01	0.20	1.2
1,4-Dichlorobenzene	106-46-7	147.01	0.20	1.2
Dichlorodifluoromethane (Freon 12)	75-71-8	120.92	0.20	0.99
1,1-Dichloroethane	75-34-3	98.97	0.20	0.81
1,2-Dichloroethane	107-06-2	98.96	0.20	0.81
1,1-Dichloroethene	75-35-4	96.95	0.20	0.79
cis-1,2-Dichloroethene	156-59-2	96.95	0.20	0.79
trans-1,2-Dichloroethene	156-60-5	96.95	0.20	0.79
1,2-Dichloropropane	78-87-5	112.99	0.20	0.92
cis-1,3-Dichloropropene	10061-01-5	110.98	0.20	0.91
trans-1,3-Dichloropropene	10061-02-6	110.98	0.20	0.91
1,2-Dichlorotetrafluoroethane (Freon 114)	76-14-2	170.93	0.20	1.4
Ethylbenzene	100-41-4	106.16	0.20	0.87
4-Ethyltoluene (p-Ethyltoluene)	622-96-8	120.2	0.20	0.98
n-Heptane	142-82-5	101.2	0.20	0.83
Hexachlorobutadiene	87-68-3	260.76	0.20	2.1

TABLE 7 (continued)
AIR
TARGET COMPOUND LIST (TCL) AND REPORTING LIMITS

Target Compound List	*CAS Number* [1]	*Molecular Weight*	*Reporting Limit (ppbv)*	*Reporting Limit (ug/m³)*
n-Hexane	110-54-3	86.18	0.20	0.70
Methylene chloride	75-09-2	84.94	0.50	1.7
4-Methyl-2-pentanone (MIBK)	108-10-1	100.16	0.50	2.05
MTBE (Methyl tert-butyl ether)	1634-04-4	88.15	0.50	1.8
Styrene	100-42-5	104.14	0.20	0.85
Tertiary butyl alcohol (TBA)	75-65-0	74.12	5.0	15
1,1,2,2-Tetrachloroethane	79-34-5	167.86	0.20	1.4
Tetrachloroethene	127-18-4	165.85	0.20	1.4
Toluene	108-88-3	92.13	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1	181.46	0.50	3.7
1,1,1-Trichloroethane	71-55-6	133.42	0.20	1.1
1,1,2-Trichloroethane	79-00-5	133.42	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	187.38	0.20	1.5
Trichloroethene	79-01-6	131.4	0.20	1.07
Trichlorofluoromethane (Freon 11)	75-69-4	137.38	0.20	1.1
1,2,4-Trimethylbenzene	95-63-6	120.19	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8	120.19	0.20	0.98
2,2,4-Trimethylpentane	540-84-1	132.38	0.20	1.08
Vinyl chloride	75-01-4	62.5	0.20	0.51
m+p-Xylene	179601-23-1	106.16	0.20	0.87
o-Xylene	95-47-6	106.16	0.20	0.87
1,2-Dichloroethene (total)	540-59-0	96.95	0.20	0.79
1,4-Dioxane	123-91-1	88.11	5.0	18
Isopropyl Alcohol	67-63-0	61.09	5.0	12.5
Methyl Butyl Ketone	591-78-6	100.16	0.50	2.05
Methyl methacrylate	80-62-6	100.1	0.50	2.05
Naphthalene	91-20-3	142.2	0.50	2.9
Tetrahydrofuran	109-99-9	72.11	5.0	15

Notes:
1. Chemical Abstracts Service (CAS) Registry Number.

TABLE 8
INVESTIGATIVE DERIVED WASTES COMPOUND LIST
AND REPORTING LIMITS

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) VOLATILES

Target Compound List	*CAS Number* [1]	*Reporting Limits (mg/l)*[2]
benzene	71-43-2	0.0050
2-butanone	78-93-3	0.0050
carbon tetrachloride	56-23-5	0.0050
chlorobenzene	108-90-7	0.0050
chloroform	67-66-3	0.0050
1,4-dichlorobenzene	106-46-7	0.0050
1,2-dichloroethane	107-06-2	0.0050
1,1-dichloroethene	75-35-4	0.0050
tetrachloroethene	127-18-4	0.0050
trichloroethene	79-01-6	0.0050
vinyl chloride	75-01-4	0.0050

Notes:
1. Chemical Abstracts Service (CAS) Registry Number.
2. As specified by Accutest Laboratories.

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) SEMIVOLATILES

Target Compound List	*CAS Number* [1]	*Reporting Limits (mg/l)*[2]
2-methylphenol	95-48-7	0.010
3&4-methylphenol [3]	782-60-0	0.010
pentachlorophenol	87-86-5	0.020
2,4,5-trichlorophenol	95-95-4	0.020
2,4,6-trichlorophenol	88-06-2	0.010
1,4-dichlorobenzene	106-46-7	0.010
2,4-dinitrotoluene	121-14-2	0.010
hexachlorobenzene	118-74-1	0.010
hexachlorobutadiene	87-68-3	0.010
hexachloroethane	67-72-1	0.010
nitrobenzene	98-95-3	0.010
pyridine	110-86-1	0.010

Notes:
1. Chemical Abstracts Service (CAS) Registry Number.
2. As specified by Accutest Laboratories.
3. Compounds co-elute.

TABLE 8 (continued)
INVESTIGATIVE DERIVED WASTES COMPOUND LIST
AND REPORTING LIMITS

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) METALS

Target Analyte List	*CAS Number [1]*	*Reporting Limits (mg/l)[2]*
arsenic	7440-38-2	0.2
barium	7440-39-3	2.0
cadmium	7440-43-9	0.05
chromium	7440-47-3	0.2
lead	7439-92-1	0.1
mercury	7439-97-6	0.002
selenium	7782-49-2	0.3
silver	7440-22-4	0.3

Notes:
1. Chemical Abstracts Service (CAS) Registry Number.
2. As specified by Accutest Laboratories.

GENERAL CHEMISTRY

Parameter	*Compound Number [1]*	*Reporting Limit [2]*	*Units*
Reactivity to Sulfide	GIS-210-017	1.0 1.0	mg/l (aqueous) mg/kg (soil)
Reactivity to Cyanide	GIS-210-015	1.0 1.0	mg/l (aqueous) mg/kg (soil)
Corrosivity (pH)	GIS-210-014	0.2	pH - Standard units
Flammability (Ignitability)	GIS-210-013	200	degrees Fahrenheit

Notes:
1. Identifier utilized by ERM via the database to generate data tables.
2. As specified by Accutest Laboratories.

TABLE 9
LABORATORY DATA QUALITY OBJECTIVES (DQOs) FOR PRECISION AND ACCURACY
VOLATILE ANALYSES

QC Compounds	*Surrogate Accuracy (% R) [1]*	*Field Duplicate Precision (RPD)*	*Method Blanks*	*MS/MSD Accuracy (% R) [1]*	*MS/MSD Precision (RPD)*	*LCS Accuracy (% R) [1]*	*MS/MSD Accuracy (% R) [1]*	*MS/MSD Precision (RPD)*	*LCS Accuracy (% R) [1]*
all compounds		< 50	≤ 2.5 x RL	Aqueous			Soil		
dichlorodifluoromethane		for	for	32-171	27	51-166	23-160	30	45-162
chloromethane		aqueous	methylene	44-146	26	50-152	37-139	30	51-149
vinyl chloride			chloride,	44-151	22	55-145	43-135	28	62-139
bromomethane		< 100	and	51-147	21	57-149	12-138	36	62-132
chloroethane		for	cyclohexane	51-149	22	64-139	8-143	33	62-137
trichlorofluoromethane		soil		42-169	25	70-159	27-159	34	60-148
1,1-dichloroethene			≤5 x RL for	41-141	17	69-135	57-133	21	77-123
1,1,2-trichloro-1,2,2-trifluoroethane			acetone,	45-148	22	73-140	30-154	31	62-134
acetone			2-butanone	42-159	23	46-150	30-150	31	62-134
carbon disulfide				36-131	22	60-150	37-139	24	60-136
methyl acetate			≤ RL for	46-149	21	60-145	51-100	31	57-139
methylene chloride			all other	64-126	14	75-135	53-134	20	77-123
trans-1,2-dichloroethene			compounds	57-131	15	70-124	49-136	22	74-123
methyl tertiary butyl ether				50-141	14	74-124	56-132	22	76-129
1,1-dichloroethane				65-133	16	74-127	57-133	21	77-123
cis-1,2-dichloroethene				62-131	13	75-130	56-136	20	77-122
2-butanone				54-143	18	60-130	37-165	35	46-148
chloroform				71-133	16	79-125	55-130	21	78-121
1,1,1-trichloroethane				58-149	20	77-135	46-147	23	74-129
cyclohexane				31-151	23	61-126	37-142	27	66-123
carbon tetrachloride				54-156	19	72-140	30-168	34	69-134
benzene				48-137	12	77-122	50-134	21	80-116
1,2-dichloroethane				66-145	18	66-137	50-145	21	74-131
trichloroethene				60-138	14	77-123	46-144	22	80-119
methylcyclohexane				40-150	21	71-128	25-149	32	63-130
1,2-dichloropropane				72-127	13	80-119	56-133	20	81-119
bromodichloromethane				74-123	15	76-128	47-150	21	81-123

TABLE 9 (continued)
LABORATORY DATA QUALITY OBJECTIVES (DQOs) FOR PRECISION AND ACCURACY
VOLATILE ANALYSES

QC Compounds	*Surrogate Accuracy (% R) [1]*	*Field Duplicate Precision (RPD)*	*Method Blanks*	*MS/MSD Accuracy (% R) [1]*	*MS/MSD Precision (RPD)*	*LCS Accuracy (% R) [1]*	*MS/MSD Accuracy (% R) [1]*	*MS/MSD Precision (RPD)*	*LCS Accuracy (% R) [1]*
				aqueous			soil		
cis-1,3-dichloropropene				69-127	14	79-120	50-130	20	82-120
4-methyl-2-pentanone				59-140	16	63-136	48-147	26	68-141
toluene				48-141	13	79-122	46-141	23	82-118
trans-1,3-dichloropropene				69-132	16	78-125	46-113	22	80-123
1,1,2-trichloroethane				74-131	13	83-120	54-140	22	82-120
tetrachloroethene				54-141	14	71-128	38-155	27	67-129
2-hexanone				52-150	19	58-136	35-155	31	51-139
dibromochloromethane				32-171	27	51-166	47-146	22	82-127
1,2-dibromoethane				74-125	11	79-122	51-140	21	85-122
chlorobenzene				70-124	11	80-120	44-140	24	84-116
ethylbenzene				48-140	14	80-123	38-145	27	81-118
xylene (total)				46-141	13	77-125	38-145	27	77-124
styrene				58-139	13	80-130	39-147	25	82-126
bromoform				56-137	14	80-125	42-152	23	74-129
isopropylbenzene				52-138	14	76-134	40-140	27	75-125
1,1,2,2-tetrachloroethane				67-125	12	72-118	47-136	26	75-125
1,3-dichlorobenzene				69-123	12	75-117	31-148	27	79-117
1,4-dichlorobenzene				70-121	12	75-118	31-144	27	77-114
1,2-dichlorobenzene				72-123	11	79-116	33-148	25	82-116
1,2-dibromo-3-chloropropane				69-139	16	75-140	41-145	29	70-129
1,2,4-trichlorobenzene				60-131	14	70-130	15-160	33	65-128
dibromofluoromethane	68-123 (soil)		76-123 (water)						
1,2-dichloroethane-d4	59-136 (soil)		63-140 (water)						
toluene-d8	57-123 (soil)		78-117 (water)						
4-bromofluorobenzene	65-140 (soil)		73-125 (water)						

Notes:

1. As specified by Accutest Laboratories.

QC = Quality Control; % R = Percent Recovery; RPD = Relative Percent Difference; MS = Matrix Spike; MSD = Matrix Spike Duplicate; BS = Blank Spike; BSD = Blank Spike Duplicate; Lab Check Sample; RL = Reporting Limit.

TABLE 10
LABORATORY DATA QUALITY OBJECTIVES (DQOs) FOR PRECISION AND ACCURACY
SEMIVOLATILE ANALYSES

QC Compounds	Surrogate Accuracy (% R) [1]	Field Duplicate Precision (RPD)	Method Blanks	MS/MSD Accuracy (% R) [1]	MS/MSD Precision (RPD)	LCS Accuracy (% R) [1]	MS/MSD Accuracy (% R) [1]	MS/MSD Precision (RPD)	LCS Accuracy (% R) [1]
all compounds		< 50	≤ 5 x RL for	aqueous			soil		
benzaldehyde		for	any	4-126	33	1-161	1-28	41	1-109
Phenol		aqueous	phthalate	6-89	34	10-68	42-107	21	58-104
bis(2-chloroethyl)ether			ester.	32-116	32	54-116	36-113	23	54-110
2-chlorophenol		< 100		33-106	29	54-103	44-105	20	62-100
2-methylphenol		for	≤ RL for	28-113	31	47-104	47-110	20	62-107
2,2′-oxybis (1-chloropropane)		soil	all other	31-113	32	55-111	39-112	24	58-108
acetophenone			compounds	30-122	31	55-116	33-108	22	53-101
4-methylphenol				25-112	30	41-101	46-114	19	63-108
n-nitroso-di-n-propylamine				28-129	32	54-126	38-123	22	54-119
hexachloroethane				18-97	35	33-94	24-106	27	56-101
nitrobenzene				30-118	32	54-111	38-112	22	57-106
isophorone				32-118	31	57-115	39-113	19	57-108
2-nitrophenol				33-117	30	57-113	29-115	24	59-107
2,4-dimethylphenol				30-119	29	48-114	42-118	18	58-109
bis(2-chloroethoxy)methane				32-122	32	58-120	43-118	20	60-115
2,4-dichlorophenol				34-113	28	58-109	48-107	18	62-104
naphthalene				26-102	32	46-95	32-109	25	55-99
4-chloroaniline				19-98	31	43-103	17-87	30	30-80
hexachlorobutadiene				23-97	34	34-95	39-108	22	54-108
caprolactam				34-138	27	49-137	1-97	42	1-58
4-chloro-3-methylphenol				37-124	24	59-115	48-117	20	63-113
2-methylnaphthalene				28-106	32	44-101	37-112	23	55-104
hexachlorocyclopentadiene				11-95	38	16-97	1-104	42	31-111
2,4,6-trichlorophenol				38-116	27	59-113	51-111	20	62-108
2,4,5-trichlorophenol				42-121	26	61-118	53-114	21	64-113
1,1′-biphenyl				37-111	31	53-110	46-117	20	64-109
2-chloronaphthanlene				35-108	30	50-108	48-109	18	63-106

TABLE 10 (continued)
LABORATORY DATA QUALITY OBJECTIVES (DQOs) FOR PRECISION AND ACCURACY
SEMIVOLATILE ANALYSES

QC Compounds	*Surrogate Accuracy (% R)* [1]	*Field Duplicate Precision (RPD)*	*Method Blanks*	*MS/MSD Accuracy (% R)* [1]	*MS/MSD Precision (RPD)*	*LCS Accuracy (% R)* [1]	*MS/MSD Accuracy (% R)* [1]	*MS/MSD Precision (RPD)*	*LCS Accuracy (% R)* [1]
				aqueous			soil		
2-nitroaniline				31-143	29	54-138	41-135	23	54-136
dimethylphthalate				40-121	27	54-121	51-114	20	63-114
2,6-dinitrotoluene				45-127	28	65-124	45-123	21	66-119
4-chloro-3-methylphenol				37-124	24	59-115	48-117	20	62-113
3-nitroaniline				25-123	28	47-123	29-110	24	40-110
acenaphthene				35-111	29	54-105	42-112	23	60-104
2,4-dinitrophenol				15-154	28	35-146	1-132	36	30-140
4-nitrophenol				8-113	34	1-86	25-135	29	35-134
dibenzofuran				39-113	28	59-109	51-111	23	64-107
2,4-dinitrotoluene				46-126	26	62-124	39-124	21	63-121
diethylphthalate				39-133	25	55-132	46-126	20	57-129
fluorene				49-116	25	61-118	42-117	24	62-109
4-chlorophenol phenyl ether				50-112	18	62-113	39-116	27	55-114
4-nitroaniline				26-130	31	42-133	25-112	29	44-125
4,6-dinitro-2-methylphenol				29-135	27	47-131	1-130	38	46-122
n-nitrosodiphenylamine				38-125	26	60-117	46-127	22	62-117
4-bromophenyl-phenylether				47-118	25	60-119	53-117	20	63-119
hexachlorobenzene				50-117	24	62-120	54-115	20	63-119
atrazine				14-120	25	26-119	19-111	20	24-118
pentachlorophenol				32-134	23	38-123	27-122	25	40-119
phenanthrene				50-114	23	63-113	39-124	32	63-113
anthracene				49-119	28	62-118	44-123	24	63-111
carbazole				52-127	23	67-124	52-124	23	64-133
di-n-butylphthalate				52-129	24	62-131	49-128	22	62-127
fluoranthene				49-116	25	61-118	42-117	24	62-109
pyrene				47-118	25	59-115	29-138	33	58-114
butylbenzylphthalate				49-133	25	60-129	42-140	22	60-127
3,3′-dichlorobenzidine				12-125	34	44-119	1-116	35	38-103
benzo(a)anthracene				52-113	24	63-114	41-121	30	62-110
chrysene				54-112	24	65-113	41-120	29	63-110
bis(2-ethylhexyl)phthalate				48-137	26	59-134	40-147	26	57-133

TABLE 10 (continued)
LABORATORY DATA QUALITY OBJECTIVES (DQOs) FOR PRECISION AND ACCURACY
SEMIVOLATILE ANALYSES

QC Compounds	*Surrogate Accuracy (% R)* [1]	*Field Duplicate Precision (RPD)*	*Method Blanks*	*MS/MSD Accuracy (% R)* [1]	*MS/MSD Precision (RPD)*	*LCS Accuracy (% R)* [1]	*MS/MSD Accuracy (% R)* [1]	*MS/MSD Precision (RPD)*	*LCS Accuracy (% R)* [1]
				aqueous			soil		
di-n-octylphthalate				46-147	28	56-144	41-154	26	55-145
benzo(b)fluoranthene				46-120	27	57-119	34-133	33	56-116
benzo(k)fluoranthene				47-121	26	58-121	36-131	32	57-120
benzo(a)pyrene				50-112	24	60-112	39-119	30	60-110
indeno(1,2,3-cd)pyrene				44-124	27	57-129	23-134	30	56-125
dibenzo(a,h)anthracene				43-117	26	57-121	26-124	28	55-117
benzo(g,h,i)perylene				37-122	25	54-123	15-131	31	51-120
nitrobenzene-d5	36-115 (soil)		27-120 (water)						
2-fluorobiphenyl	44-112 (soil)		31-111 (water)						
terphenyl-d14	42-133 (soil)		31-124 (water)						
phenol-d5	34-106 (soil)		10-52 (water)						
2-fluorophenol	26-105 (soil)		10-69 (water)						
2,4,6-tribromophenol	30-126 (soil)		33-125 (water)						
2-chlorophenol-d4	70-130 (soil)		70-130 (water)						
1,2-dichlorobenzene-d4	70-130 (soil)		70-130 (water)						

Notes:
1. As specified by Accutest Laboratories.

QC = Quality Control; % R = Percent Recovery; RPD = Relative Percent Difference; MS = Matrix Spike; MSD = Matrix Spike Duplicate; BS = Blank Spike; BSD = Blank Spike Duplicate; LCS = Lab Check Sample; RL = Reporting Limit.

TABLE 11
LABORATORY DATA QUALITY OBJECTIVES (DQOs) FOR PRECISION AND ACCURACY
METALS ANALYSES

QC Analytes	***Field Duplicate Precision (RPD)***	***Method Blanks***	***Calibration ICV & CCV (%R)***	*MS Accuracy* ***(% R)***	*Laboratory Duplicate Precision* ***(RPD)***	***Serial Dilution*** *Precision* ***(% D)***	***LCS Accuracy (% R)***
all analytes	for water	< ±		75-125 [1]	< 20 [2]	< 10 [3]	80-120%
aluminum	< 50 for	RL	90-110				for all
antimony	All	for all	90-110				analytes
arsenic	Analytes	analytes	90-110				for water
barium			90-110				
beryllium	for soil :		90-110				
cadmium	< 100 for		90-110				
calcium	All		90-110				
chromium	Analytes		90-110				
cobalt			90-110				manufacturer's
copper			90-110				control limits
iron			90-110				for soil
lead			90-110				
magnesium			90-110				
manganese			90-110				
mercury			80-120				
nickel			90-110				
potassium			90-110				
selenium			90-110				
silver			90-110				
sodium			90-110				
thallium			90-110				
vanadium			90-110				
zinc			90-110				

Notes:

1. Spike recovery limits do not apply when the sample concentration exceeds the spike added concentration by a factor of 4 or more.
2. Limit is ± 20% if values are ≥ 5x RL; limit is ± RL if values are <5x RL; no limit if both values are < instrument detection limit (IDL). For soils limits are ± 35RPD and ± 2x RL.
3. Limit applies only when the analyte concentration in the original sample (I) is > 50 x RL; if I < 50x RL then no limit.

QC = Quality Control; RPD = Relative Percent Difference; ICV = Initial Calibration Verification; CCV = Continuing Calibration Verification; % R = Percent Recovery; MS = Matrix Spike Sample; %D = percent difference; LCS = Lab Check Sample; RL = Reporting Limit.

TABLE 12
AIR
ANALYTICAL LABORATORY DATA QUALITY OBJECTIVES (DQOs)
FOR PRECISION AND ACCURACY

QC Compounds	*Surrogate Compound Accuracy (% Rec.)* [1]	*Blind Field Duplicate Precision (RPD)*	*Method Blanks*	*MS/MSD Accuracy (% Rec.)* [1]	*MS/MSD Precision (RPD)* [1]
All compounds	NA [1]	< 50	≤ RL	70 – 130	30

Notes:

1. Air samples are not spiked with surrogates and an MS/MSD is not performed.
2. In-house QC limits established by selected laboratory.

QC = Quality Control
% Rec. = Percent Recovery
RPD = Relative Percent Difference
RL = Reporting Limit
MS = Matrix Spike
MSD = Matrix Spike Duplicate
RL = Reporting Limit

TABLE 13
LABORATORY DATA QUALITY OBJECTIVES (DQOs) FOR PRECISION AND ACCURACY
VOLATILE ANALYSES

QC Compounds	Surrogate Accuracy (% R) [1]	Field Duplicate Precision (RPD)	Method Blanks	MS/MSD Accuracy (% R) [1]	MS/MSD Precision (RPD)	LCS Accuracy (% R) [1]
all compounds		< 100	≤ 2.5 x RL			
Acetone		for	for	26 - 178	32	45 - 168
Benzene		soil	methylene	41 - 136	24	78 - 120
Bromodichloromethane			chloride,	37 - 150	23	76 - 129
Bromoform			and	31 - 153	24	70 - 141
Bromomethane			cyclohexane	4 - 154	32	57 - 142
2-Butanone (MEK)				32 - 159	28	59 - 140
n-Butylbenzene			≤5 x RL for	4 - 165	35	64 - 129
sec-Butylbenzene			acetone,	10 - 161	32	73 - 123
tert-Butylbenzene			2-butanone	14 - 161	30	71 - 128
Carbon disulfide				27 - 148	28	64 - 140
Carbon tetrachloride			≤ RL for	27 - 165	26	66 - 151
Chlorobenzene			all other	33 - 140	26	80 - 117
Chloroethane			compounds	5 - 151	33	60 - 142
Chloroform				44 - 135	24	75 - 122
Chloromethane				27 - 149	27	56 - 140
Cyclohexane				15 - 165	28	60 - 138
1,2-Dibromo-3-chloropropane				24 - 154	27	65 - 136
Dibromochloromethane				35 - 154	23	76 - 136
1,2-Dibromoethane				41 - 140	23	81 - 124
1,2-Dichlorobenzene				20 - 146	29	77 - 117
1,3-Dichlorobenzene				19 - 147	30	77 - 116
1,4-Dichlorobenzene				19 - 143	30	76 - 113
Dichlorodifluoromethane				17 - 170	25	46 - 156
1,1-Dichloroethane				45 - 135	24	73 - 124
1,2-Dichloroethane				44 - 143	23	75 - 137
1,1-Dichloroethene				32 - 149	26	66 - 130
cis-1,2-Dichloroethene				42 - 135	25	73 - 121
trans-1,3-Dichloropropene				34 - 148	26	78 - 130
1,4-Dioxane				36 - 170	33	54 - 157

TABLE 13 (continued)
LABORATORY DATA QUALITY OBJECTIVES (DQOs) FOR PRECISION AND ACCURACY
VOLATILE ANALYSES

QC Compounds	*Surrogate Accuracy (% R) ¹*	*Field Duplicate Precision (RPD)*	*Method Blanks*	*MS/MSD Accuracy (% R) ¹*	*MS/MSD Precision (RPD)*	*LCS Accuracy (% R) ¹*
Ethylbenzene				28 - 147	27	81 - 121
Freon 113				25 - 162	28	56 - 152
2-Hexanone				19 - 169	31	56 - 147
Isopropylbenzene				19 - 157	30	67 - 136
Methyl Acetate				40 - 177	29	59 - 149
Methylcyclohexane				11 - 167	30	68 - 137
Methyl Tert Butyl Ether				48 - 135	22	75 - 124
4-Methyl-2-pentanone(MIBK)				31 - 158	26	64 - 142
Methylene chloride				39 - 138	24	69 - 123
n-Propylbenzene				13 - 158	31	74 - 125
Styrene				23 - 156	29	79 - 127
1,1,2,2-Tetrachloroethane				35 - 136	25	71 - 123
Tetrachloroethene				27 - 164	28	73 - 134
Toluene				32 - 145	26	79 - 122
1,2,4-Trichlorobenzene				10 - 155	34	67 - 127
1,1,1-Trichloroethane				36 - 150	24	72 - 136
1,1,2-Trichloroethane				37 - 147	23	76 - 123
Trichloroethene				34 - 149	25	80 - 124
Trichlorofluoromethane				25 - 160	27	55 - 152
1,2,4-Trimethylbenzene				13 - 158	36	75 - 122
1,3,5-Trimethylbenzene				15 - 157	30	73 - 124
Vinyl chloride				29 - 152	26	59 - 145
Xylene (total)				24 - 150	28	80 - 121
dibromofluoromethane	68-123 (soil)					
1,2-dichloroethane-d4	59-136 (soil)					
toluene-d8	57-123 (soil)					
4-bromofluorobenzene	65-140 (soil)					

Notes:
1. Air samples are not spiked with surrogates and an MS/MSD is not performed.
2. As specified by Mitkem Laboratories, a Division of Spectrum Analytical Inc.
3. QC = Quality Control; % R = Percent Recovery; RPD = Relative Percent Difference; MS = Matrix Spike; MSD = Matrix Spike Duplicate; BS = Blank Spike; BSD = Blank Spike Duplicate; Lab Check Sample; RL = Reporting Limit.