Former Macbeth Kollmorgen

NEW WINDSOR, ORANGE COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: 3-36-037

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1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at the Former Macbeth Kollmorgen(hereinafter referred to as the "Site") under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by New York State Department of Environmental Conservation (NYSDEC). The site was remediated in accordance with Order on Consent Index # 3-36-037 which was executed on February 14, 1994.

1.1.1 General

Macbeth Kollmorgen entered into an Order of Consent with the NYSDEC to remediate a 25-acre property located in New Windsor, Orange County, New York. This Order on Consent requires Macbeth Kollmorgen, to investigate and remediate contaminated media at the site. A map showing the site location and boundaries of this 25-acre site is provided in Figure 1.

After completion of the remedial work described in the Record of Decision, all soil contamination was removed from the site. This Site Management Plan (SMP) was prepared to monitor the soil vapor at the site. Remedial action work on the site began in June 1988 and was completed in June 1995. 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 Holzmacher, McLendon & Murrell, P.C., on behalf of Macbeth Kollmorgen, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the soil vapor monitoring for the site.

1.1.2 Purpose

The ICs mandate monitoring and reporting measures for ICs. This SMP specifies the methods necessary to ensure compliance with ICs. This plan has been approved by the NYSDEC. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures at the site after completion of the Remedial Action, including: (1) implementation and management of Institutional Controls; (2) media monitoring; (3) submittal of Periodic Review Reports.

To address these needs, this SMP includes a Monitoring Plan for implementation of Site Monitoring. It is important to note that:

- Failure to properly implement the SMP is a violation of Environmental Conservation Law and the deed restriction;
- Failure to comply with this SMP is also a violation of 6NYCRR Part 375 and the Order on Consent for Site #336037, and thereby subject to applicable penalties.

At the time the SMP was prepared, the SMP and all site documents related to Remedial Investigation and Remedial Action were maintained at the NYSDEC office in New Paltz, New York.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The site is located in the Town of New Windsor, County of Orange, New York and is identified as Block 1 and Lots 19, 34.1, 36 and 37.1 on the Town of New Windsor Tax Map. The site is an approximately 25-acre area bounded by Little Britain Road to the north and residential properties to the south, east and west (see Figure 1). The site is approximately 2.5 miles west of the Hudson River and within 0.5 miles east of the Lake Washington Reservoir and Lockwood Basin. The site is occupied by two buildings surrounded by paved parking areas and driveways. The main building is approximately 62,500 sq ft and the second building is approximately 14,000 sq ft.

1.2.2 Site History

Macbeth Kollmorgen operated at the facility from the 1950's to the 1990's. The main building contained a light manufacturing areas utilized for the manufacturing of software and instrumentation related to the control and evaluation of color systems. During the mid-1970's wastes, off-spec paint and chlorinated solvents were believed to be disposed near the side door of the main building.

A Phase I investigation was completed in August 1986 and a follow-up report was submitted in August 1987.

1.2.3 Geologic Conditions

Geology

The overburden at the Macbeth site consists of unconsolidated glacial till which is composed of fine to coarse sands, gravel and silt. Thickness of the overburden at the site ranges from 11 to 30 ft bg.

Bedrock underlying the site is the Stissing Dolostone member of the Wappinger Group. The Pine Plains member of the Wappinger overlies the Stissing along the southern portion of the site. The Stissing is Cambrian in age; it is typically massive, with intervals of gray green or red shale and localized quartzose layers. The Pine Plains formation is characterized by its extreme lithologic variability, exhibiting diverse textures and bedding.

Hydrogeology

Groundwater occurs in the glacial till overburden and within the bedrock underlying the Macbeth facility. Groundwater has been monitored in three units at the site: the shallow bedrock zone, intermediate bedrock zone and deep bedrock zone. Depth to groundwater measurements were collected in January 2010 during the quarterly groundwater sampling. The groundwater elevation measurements are presented in Table 1. Groundwater contour maps for each bedrock layer are presented in Figures 2 through 4.

Groundwater flow in the shallow and intermediate bedrock zone is generally flowing towards the north and western directions. Groundwater flow in the deep bedrock

zone is generally flowing towards the north. Historically groundwater flow in the shallow and intermediate bedrock is towards the north. However, groundwater flow in the deep bedrock alternates between northern and southern flow.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

A Remedial Investigation (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:

- H2M Remedial Investigation Workplan – November 1988.
- H2M Remedial Investigation Report – September 1989.
- H2M Remedial Investigation/Feasibility Study Workplan – July 1994.
- H2M IRM Workplan – November 1994
- H2M IRM Report – June 1995
- H2M Remedial Investigation Report – December 1995.
- H2M Soil Vapor Intrusion Evaluation Report – March 2007.
- H2M Groundwater and Vapor Intrusion Evaluation Report – June 2008.
- H2M Vapor Intrusion Evaluation Report – June 2009.

Generally, the RI determined that there were two remaining areas of source contamination at the site. The remaining sources were two depressions containing paint solids and debris. These sources were remediated via soil excavation and off-site disposal during the remedial action phase.

Groundwater monitoring has occurred at the site since 1986. Chlorinated compounds were detected in the on-site monitoring wells. One monitoring well, MW-12, is sampled quarterly to monitor the groundwater contamination in the deep bedrock. A granular activated carbon (GAC) water filtration system was installed at the residence located at 7 Steele Road. This homeowner well is also sampled quarterly to see that the GAC units are functioning properly.

A soil vapor investigation was initiated in 2006 at the site and annual soil vapor monitoring is conducted at two permanent points.

Below is a summary of site conditions when the RI was performed from 1988 through 1995 for the soil and groundwater investigation.

1.3.1 Soil

A workplan for the removal of a mounded area of paint waste was submitted to the NYSDEC in November 1988. The source area contamination was observed to be a mound of discarded paint waste materials approximately 40 ft by 45 ft in the wooded area adjacent to the southeast corner of Building No. 1. Soil samples were collected from the mound and the results indicated that there were elevated levels of volatile organic compounds. Soil samples were then collected in the vicinity of the mound and were found not to contain volatile organic compounds above the NYSDEC cleanup objectives.

The remediation of the mounded paint waste is documented in a report to the NYSDEC dated September 1989. Waste material and soil excavation of the area was performed from January 4 through January 6, 1989. A total of 46 drums of waste soil and waste material was generated and disposed at a licensed off-site facility. An additional fifty (50) cubic yards of soil underlying and adjacent to the paint waste was excavated and disposed at a licensed off-site facility. Post excavation soil samples were collected and four (4) samples exhibited contaminant concentrations that were above the NYSDEC cleanup objectives. Therefore a second phase of soil removal was performed from March 13 to March 15, 1989. An additional 40 cu yd of soil was removed and disposed at a licensed off-site facility. Post excavation soil samples indicated volatile organic compounds were well below the NYSDEC cleanup objectives. The location of the paint waste and soil excavation is presented in Figure 5.

A soil gas survey was completed in July and August 1994 to determine the nature and extent of additional source area contamination. Volatile organic compound contamination produces a concentration gradient in soil gas that decreases radially away from the primary source area of contamination. The locations of the soil gas sample points are presented in Figure 6.

Elevated concentrations of volatile organic compounds were observed primarily in the area of the northeastern perimeter of Building No. 1, in the southwestern corner of Building No. 1, at two locations adjacent to the northwest side of Building No. 1 and northeast corner of Building No. 2 and in the former paint waste disposal area removed in 1989. Elevated soil gas concentrations of volatile organic compounds in this area were observed to attenuate along a utility gas line southward for approximately 200 ft before dissipating. Twenty-seven (27) of the 250 soil gas samples contained volatile organic compounds. All 27 locations, with the exception of one point, contained concentrations of volatile organic compounds well below 1,000 ppb by volume. The soil gas sampling data is presented in Table 2 and the soil gas locations are presented in Figure 6.

Based on the soil gas survey sampling, eleven (11) soil borings were conducted on September 15, 1994. Twelve (12) samples were collected from the eleven (11) boreholes. The soil sample data is presented in Table 3. A soil sample was collected from the interval that exhibited the highest reading from each boring and analyzed for volatile organic compounds. All soil samples were below the NYSDEC soil cleanup objectives with the exception of one sample collected from 0.0 to 2.0 ft bg. The sample contained low level petroleum hydrocarbons that were attributed to the asphalt and sub-base of the paved driveway located above the sample. However this sample did not warrant further investigation since it was collected beneath the asphalt and sub-base.

1.3.2 On-Site and Off-Site Groundwater

A Phase I investigation was submitted to the NYSDEC in August 1986 and included the installation of six (6) monitoring wells at the site. The boring logs from the monitoring well installation indicated that the overburden glacial till was underlain by complex bedrock topography. The locations of the monitoring wells are presented in Figure 7.

An addendum to the Phase I investigation was submitted to the NYSDEC in August 1987 which included the installation of three (3) additional monitoring wells and groundwater sampling for volatile organic compounds and metals. The results of the August 1987 investigation indicated that two monitoring wells, MW-3 and MW-8, contained volatile organic compounds. Groundwater at all locations was unaffected with

respect to metals. A site reconnaissance with the PID, which was conducted in the wooded area suspected to be the site of previous waste disposal, revealed the presence of a mound of solidified plastic-like material which was an area of mounded paint waste. Elevated PID readings were observed in this area and it is most likely the on-site source of groundwater contamination found in the monitoring wells. This material was removed in January 1989 and documented in a report to the NYSDEC in September 1989.

In March 1989 to 1995, quarterly groundwater monitoring was initiated for MW-2, MW-3, MW-4, MW-6, MW-7, MW-8, MW-9 and MW-10. Concentrations of volatile organic compounds have decreased in MW-3 and MW-8 since the removal of the paint waste mound. Slight elevations in volatile organic compounds were observed in MW-6 and MW-7.

In late 1990, the NYSDOH discovered the presence of volatile organic compounds in nearby homeowner supply wells. The highest concentrations of volatile organic compounds were found northeast of the site at 400 Little Britain Road. This home contained elevated concentrations of trichloroethene (TCE) and cis/trans-1,2-dichloroethene (cis-1,2-DCE) which were also detected in the Macbeth supply well. Macbeth connected this home, and two homes adjacent to it, to municipal water. Homeowner supply wells to the west of the Site at 419 Little Britain Road and 7 Steele Road contained elevated volatile organic compounds. Macbeth has provided and maintained granular activated carbon (GAC) filters for 7 Steele Road. 419 Little Britain Road was connected to municipal water in September 1997.

As part of the Remedial Investigation, five (5) additional monitoring wells were installed at the site to better define the groundwater flow and quality in the deeper bedrock zones not monitored by the previous well network and at depths where homeowners are withdrawing water. Two rounds of groundwater sampling were conducted at all the monitoring wells in January 1995 and April 1995. The groundwater samples were collected from sixteen (16) monitoring wells and analyzed for volatile organic compounds.

During the first round of groundwater sampling, seven (7) monitoring wells contained VOCs above the NYSDOH drinking water standard. Toluene, xylene, 1,1-

dichloroethane, 1,1,1-trichloroethane, chloroethane, trichloroethene, and 1,2-dichloroethene were detected in all or at least one of the seven (7) monitoring wells.

During the second round of groundwater sampling, five (5) of the monitoring wells contained VOCs above the NYSDOH drinking water standard. 1,1-dichloroethane, chloroethane, trichloroethene, 1,2-dichloroethene and 1,1,1-trichloroethane were detected in all or at least one of the five (5) monitoring wells.

Currently groundwater sampling is monitored quarterly at deep bedrock monitoring well, MW-12 and the homeowner well located at 7 Steele Road. The drilling well log for MW-12 is presented in Appendix B. The groundwater sampling results are submitted quarterly to the NYSDEC and/or NYSDOH after each sampling event. MW-12 contains concentrations of trichloroethene and cis-1,2-dichloroethene consistently above the NYSDEC Groundwater Quality Standards. The historic groundwater data for MW-12 is summarized in Table 4. Slight exceedences of 1,1,1-trichloroethane are generally detected in the water sample collected before the GAC units of the homeowner well located at 7 Steele Road.

A site-wide groundwater sampling event was conducted in January 2008. The analytical data is presented in Tables 5 through 7.

1.3.3 On-Site and Off-Site Soil Vapor

A soil vapor investigation was conducted in December 2006 to characterize VOC concentrations in areas directly underlying the two (2) on-site buildings, which have not previously been evaluated. The NYSDOH also requested the evaluation of the potential for off-site VOC migration in the direction of private residences located adjacent to the facility.

Three (3) sub-slab soil vapor samples and one (1) indoor air sample were collected within Building No. 1. One (1) sub-slab vapor sample and one (1) indoor air sample were collected within Building No. 2. Four (4) soil vapor samples were collected along the exterior property line in the vicinity of the off-site residences and one (1) ambient outdoor air sample was also collected. The locations of the soil vapor and indoor air sampling points are presented in Figure 8.

The NYSDOH Soil Vapor/Air Matrices were reviewed to determine the minimum actions that are recommended to address the current exposures related to soil vapor intrusion. Two (2) indoor sub-slab samples (SG-2 and SG-3) within Building No. 1 contained concentrations of TCE, 1,1,1-TCA and/or PCE above the NYSDOH Air Guidance Values while the remaining sub-slab vapor, soil vapor and ambient air samples were all below the NYSDOH Air Guidance Values. Based on the December 2006 results continued monitoring was the chosen action for the site. The analytical data are presented in Table 8.

Based on the results of the December 2006 soil vapor investigation, an additional investigation was conducted within Building No. 1 in February 2008 to characterize and delineate the concentrations of chlorinated compounds. Eight (8) sub-slab vapor samples were collected in Building No. 1 in the vicinity of SG-2 and SG-3 as well as two (2) indoor air samples. Five (5) of the eight (8) sub-slab vapor samples had concentrations of TCE and/or PCE exceeding the NYSDOH Air Guidance Values. Again the NYSDOH Soil Vapor/ Decision Matrices were reviewed and continued monitoring was the chosen action. The February 2008 soil vapor and air data are presented in Table 9. The soil vapor and air sampling locations are presented in Figure 9.

Based on these results continued soil vapor monitoring was conducted at the site beginning in February 2009. Two (2) permanent sub-slab vapor points were installed in Building No. 1, in the locations of SG-2 and SG-3, where elevated VOC concentrations were observed in past sampling events. TCE, PCE and/or 1,1,1-TCA were detected in sub-slab vapor points SG-2 and SG-3. The soil vapor and air data are presented in Table 10. The soil vapor and air sampling locations are presented in Figure 9.

Continued monitoring was the decision matrix action selected for the TCE, PCE and 1,1,1-TCA concentrations detected in sub-slab vapor and indoor air. Although the concentrations of TCE detected in the sub-slab at the SG-2 and SG-3 locations do not require further action based on NYSDOH Decision Matrix 1, TCE is a degradation product of PCE and will continue to be monitored. The soil vapor sampling plan is discussed in further detail in Section 3.0.

1.3.4 Underground Structures

No underground structures were found at the site. An inactive septic tank is located within the northeastern portion of the site. Four monitoring wells, within the shallow overburden and shallow, intermediate and deep bedrock are located downgradient from the septic tank. Groundwater sampling from the shallow and intermediate bedrock monitoring wells did not indicate any compounds above the NYSDEC Groundwater Quality Standards. MW-12 is a deep bedrock monitoring well that contains cis-1,2-dichloroethene and trichloroethene above the NYSDEC GWQS; however, it is unlikely that the septic tank would be contributing to the contamination in the deep bedrock. The inactive septic tank is located in the central portion of the site and the leach field is located slightly northeast outside the site boundary.

1.4 SUMMARY OF REMEDIAL ACTIONS

The site was remediated in accordance with the NYSDEC-approved Interim Remedial Measure Report dated June 1995. The remedial actions performed at the site included the characterization and excavation and removal of paint solids and containers from two areas of the site. Remedial activities were completed at the site in June 1995 and summarized in the Remedial Investigation Report dated December 1995.

1.4.1 Removal of Contaminated Materials from the Site

During the July and August 1994 soil gas survey, low-lying and mounded areas were observed at the site. These areas did not indicate elevated levels of volatile organic compounds; however, the NYSDEC recommended a test pit investigation. In November and December 1994, eight (8) test pits were investigated and are identified in Figure 5. Three (3) of the test pits were landscaping fill (brush pits). Soil samples were collected from the remaining test pits and analyzed for volatile organic compounds. All results were below the NYSDEC soil cleanup objectives with the exception of two (2) pits, TP-1 and TP-2.

The first area of concern (TP-1) was a circular, low-lying area southwest of Building No. 1 measuring approximately 25 ft in diameter and contained approximately twelve (12) five to ten gallon metal and glass containers containing residual paint

materials as well as general debris. The second area of concern (TP-2) was an area measuring 25 ft long by 13 ft wide south of Building No. 1 and contained paint solids.

Soil samples were collected from TP-1 and analyzed for volatile organic compounds and no compounds were detected above the NYSDEC soil cleanup objective with the exception of acetone. The analytical data is summarized in Table 11.

A sample of the excavated paint solids in TP-2 was analyzed for TAL metals and volatile organic compounds. The paint solids contained elevated levels of non-halogenated volatile organic compounds (including toluene, ethylbenzene and xylenes) and some metals, primarily chromium and lead. Based on these results, a sample of the paint solids was collected and analyzed for TCLP volatile organic compounds and metals. The analytical data indicated that the contaminants of concern were hazardous and is presented in Table 12.

In December 1994, approximately 45 cu yds of material was excavated and stockpiled on-site from TP-1 and TP-2. The excavated material was disposed at City Environmental in Detroit, Michigan. These areas were backfilled to grade with clean fill material.

In December 1994, post-excavation confirmatory samples were collected from TP-1 and analyzed for volatile organic compounds and metals. VOCs were not detected above the NYSDEC soil cleanup objectives and beryllium, cadmium, chromium, copper, iron, mercury, nickel, selenium and/or zinc were above the NYSDEC cleanup objectives and/or Eastern US background levels. However, all metals were below the USEPA risk based concentrations for residential soils, based on a direct ingestion scenario. The analytical data is summarized in Table 13.

In April 1995, total of nine (9) post-excavation soil samples were collected from TP-2. All soil samples were analyzed for volatile organic compounds and metals. All VOCs and metals were below the NYSDEC recommended soil cleanup objectives and Eastern US Background, with the exception of zinc. The zinc values were below the USEPA risk based concentrations for residential soils, based on a direct ingestion scenario. The analytical data is presented in Table 14.

1.4.2 Quality of Backfill Placed in Excavated Areas

All areas were backfilled with clean fill material.

1.4.3 On-Site and Off-Site Treatment Systems

A granular activated carbon (GAC) water filtration system was installed at the residence located at 7 Steele Road to eliminate exposure to volatile organic compounds in drinking water. This unit is monitored quarterly along with the routine groundwater sampling event. No other long-term treatment systems were installed as part of the site remedy.

1.4.4 Remaining Contamination

No remaining soil contamination is present at the site. Elevated volatile organic compounds have been detected in the deep bedrock monitoring well, MW-12, and the homeowner well at 7 Steele Road. These two wells are monitored quarterly and the results are reported quarterly to the NYSDEC and/or NYSDOH. Soil vapor monitoring within Building No. 1 is conducted annually at the site.

1.4.5 Engineering and Institutional Controls

Since there is no remaining soil contamination present at the site, there are no Engineering Controls or Institutional Controls to be implemented at the site relating to soil. However there is residual groundwater contamination present at the site and an institutional control in the form of a deed restriction will be implemented at the site. In addition soil vapor monitoring is necessary to protect public health and the environment. This monitoring program is further discussed in Section 3.0.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Remedial activities completed at the site were conducted in accordance with the NYSDEC-approved Record of Decision for the former Macbeth-Kollmorgen Site (March 1997).

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

2.1.2 Purpose

The purpose of this Plan is to provide:

- A description of all EC/ICs on the site;
- The basic operation and intended role of each implemented EC/IC;
- A description of the key components of the ICs created as stated in the Deed restriction;
- A description of the features that should be evaluated during each periodic inspection and compliance certification period;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of an Excavation Plan for the safe handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site;
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC; and
- A description of the reporting requirements for these controls.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

The site contains institutional controls in the form of groundwater and soil vapor monitoring.

2.2.2. Monitored Natural Attenuation

Groundwater monitoring activities to assess natural attenuation will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic over an extended period. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC.

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls is required by the ROD to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the site to restricted commercial uses only. Adherence to these Institutional Controls on the site is required by the Deed restriction and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the deed restriction by the Grantor and the Grantor's successors and assigns with all elements of this SMP;
- All Engineering Controls must be operated and maintained as specified in this SMP;
- All Engineering Controls on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP.
- Groundwater and soil vapor and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in this SMP;

- On-site environmental monitoring devices, including but not limited to, groundwater monitoring wells and soil vapor probes, must be protected and replaced as necessary to ensure the devices function in the manner specified in this SMP.

Institutional Controls may not be discontinued without an amendment to or extinguishment of the Deed restriction.

The site has a series of Institutional Controls in the form of site restrictions. Adherence to these Institutional Controls is required by the Deed restriction. Site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming, including cattle and dairy farming, on the property are prohibited;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended purpose;
- All future activities on the property that will disturb remaining contaminated material are prohibited unless they are conducted in accordance with this SMP;
- The potential for vapor intrusion must be evaluated for any buildings developed on the site, and any potential impacts that are identified must be mitigated;
- The property may only be used for commercial or industrial use provided that the long-term Engineering and Institutional Controls included in this SMP are employed.
- The property may not be used for a less restrictive use without additional remediation and amendment of the deed restriction by the Commissioner of NYSDEC.
- On behalf of the site owner, the remedial party, MACBETH KOLLMORGEN CORP. will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) 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, (2) nothing has occurred that impairs the ability of the controls to protect public health and 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 annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

3.0 MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the implemented ECs to reduce or mitigate contamination at the site. ECs at the site include groundwater and soil vapor monitoring. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of appropriate groundwater and soil vapor;
- Assessing compliance with NYSDEC/NYSDOH soil vapor intrusion guidelines and NYSDEC groundwater standards;
- 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 Plan provides information on:

- Sampling locations, protocol and frequency;
- Information on all designed monitoring systems (e.g., vapor points and monitoring wells);
- Analytical sampling program requirements;
- Reporting requirements;

- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Vapor point and monitoring well decommissioning procedures.

Annual monitoring of soil vapor and quarterly monitoring of groundwater will be conducted. Trends in contaminant levels in air and groundwater will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs for environmental media are summarized in Table 3.1 and outlined in detail in Sections 3.2 through 3.5 below.

Table [3.1]: Media Monitoring Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Soil Vapor	Annual	Sub-Slab Soil Vapor	USEPA Method TO-15
Groundwater	Quarterly	Groundwater	USEPA Method 8260 and 624

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

3.2 GROUNDWATER MONITORING PROGRAM

Groundwater monitoring will be performed on a periodic basis to assess the performance of the remedy.

3.2.1 Monitoring System Design

The network of monitoring wells has been installed to monitor both up-gradient and down-gradient groundwater conditions at the site. This network of wells has been designed to assess the groundwater within the overburden and shallow, intermediate and deep bedrock zones. The locations of the monitoring wells are presented in Figure 7. The monitoring wells on-site range in depth from 26 ft bg to 142 ft bg. Groundwater flow in the shallow and intermediate bedrock zone is generally flowing towards the northern and western directions. Groundwater flow in the deep bedrock zone is generally

towards the north; however, groundwater flow in the deep bedrock alternates between northern and southern flow.

3.2.2 Groundwater Monitoring Schedule

Monitoring well MW-12 in the northern portion of the site and the private well at 7 Steele Road southwest of the site will be sampled quarterly.

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

Deliverables for the groundwater monitoring program are specified below.

3.2.3 Sampling Event Protocol

All monitoring well sampling activities will be recorded in a field book and a groundwater-sampling log presented in Appendix A. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

Prior to purging MW-12, static water levels will be measured to the nearest hundredth (0.01) foot in each monitoring well. A minimum of three well volumes of groundwater will be purged from MW-12 prior to sampling. Purging will be accomplished via a submersible pump. A dedicated, disposable Teflon bailer affixed to dedicated polypropylene rope will be used to obtain the groundwater sample following purging. Dissolved oxygen, temperature, pH, ORP, turbidity and specific conductivity measurements will be collected prior to and after purging and after sampling.

The water samples collected at 7 Steele Road will be collected before, between and after the carbon units.

The groundwater sample for MW-12 will be analyzed for VOC plus a forward library search via USEPA Method 8260 with an MDL of 1 ppb by H2M Laboratories, Inc. (NYSDEC Certification 10478). The water samples collected at 7 Steele Road will be analyzed for VOC plus a forward library search via USEPA Method 624 with a MDL of 1 ppb by H2M Laboratories, Inc. (NYSDEC Certification 10478). All laboratory

analytical data will be reported in accordance with NYSDEC ASP Category B Deliverables protocols and procedures. Quality assurance/quality control (QA/QC) samples will be collected at the site, including field blank and trip blank samples.

3.2.4 Monitoring Well Repairs, Replacement and Decommissioning

If biofouling or silt accumulation occurs in the on-site and/or off-site 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.

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 or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic 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 "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.3 SOIL VAPOR MONITORING

Soil vapor monitoring will be performed on an annual basis to assess the soil vapor at the site.

3.3.1 Monitoring System Design

The network of permanent sub-slab vapor points has been installed to monitor the soil vapor at the site. The permanent sub-slab vapor points have been designed to assess the sub-slab vapor beneath the main building. The locations of the permanent sub-slab points at the Site are presented in Figure 9. As per the June 2009 Soil Vapor Intrusion Evaluation report, a vapor sample will be collected from the two permanent sub-slab points (SG-2 and SG-3) as well as two (2) indoor air samples at those locations. The two

(2) sub-slab points were constructed to a depth of two (2) inches below the concrete floor slab.

3.3.2 Soil Vapor Monitoring Schedule

Sub-slab vapor points, SG-2 and SG-3, will be sampled annually until the vapor levels meet the NYSDOH Air Guidance Values.

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

Deliverables for the soil vapor monitoring program are specified below.

3.3.3 Sampling Event Protocol

All vapor sampling activities will be recorded in a field book. Other observations (e.g., vapor point integrity, etc.) will be noted in the field book.

All sub-slab soil vapor and indoor air samples will be collected using 6-liter SUMMA canisters. The flow restrictors will be set to facilitate the collection of samples at a flow rate less than 0.2 liters per minute for a period of 24 hours. The sub-slab vapor samples will be collected from permanent vapor points SG-2 and SG-3. The indoor air samples will be collected in the SG-2 and SG-3 locations from a height of three (3) feet above ground.

Prior to collecting the air samples, a helium leak tracer test will be performed at each sample location to confirm the integrity of the seal around the tubing. A second helium leak tracer test will be performed after the samples are collected to make sure the seals are intact during sampling.

All sub-slab vapor and indoor air samples will be analyzed for EPA Method TO-15 Volatiles in Air. The samples will be sent to H2M Laboratories, Inc. (NYSDEC Certification No. 10478).

3.3.4 Vapor Point Repairs, Replacement and Decommissioning

Repairs and/or replacement of the vapor points will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of the sub-slab vapor points for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Vapor point decommissioning without replacement will be done only with the prior approval of NYSDEC. Vapor points that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved.

3.4 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the site (Appendix B). Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
    - Sample 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 ASP requirements.
    - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample 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;
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.5 ENGINEERING CONTROL SYSTEM MONITORING

Groundwater Monitoring

Monitoring wells were installed across the site for the purpose of monitoring the groundwater beneath the site. Monitoring wells were installed within the overburden, shallow bedrock, intermediate bedrock and deep bedrock. The locations of the monitoring wells are presented in Figure 7.

Vapor Monitoring

Two vapor monitoring points were installed to monitor the sub-slab vapor beneath the main building. The monitoring system design is discussed in Section 3.2. The locations of the vapor monitoring points are presented in Figure 9.

3.6 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events will be kept on file on-site. All media 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., sub-slab vapor, indoor air, outdoor air, etc);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, inspection checklists, 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 soil vapor or groundwater conditions have changed since the last reporting event.

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

This Operation and Maintenance Plan describes the measures necessary to operate, monitor and maintain the mechanical components of the remedy selected for the residence at 7 Steele Road in New Windsor, NY. This Operation and Maintenance Plan:

- Includes the steps necessary to allow individuals unfamiliar with the site to operate and maintain the off-site granular activated carbon (GAC) water filtration system that was installed at the residence located at 7 Steele Road in New Windsor, New York.
- Will be updated periodically to reflect changes in site conditions or the manner in which the granular activated carbon (GAC) water filtration system is operated and maintained.

Information on non-mechanical Engineering Controls (i.e. soil cover system) is provided in Section 3 - Engineering and Institutional Control Plan. A copy of this Operation and Maintenance Plan, along with the complete SMP, will be kept at the site. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of the SMP.

4.2 ENGINEERING CONTROL SYSTEM OPERATION AND MAINTENANCE

4.2.1 Off-site Granular Activated Carbon (GAC) Water Filtration System

The off-site granular activated carbon (GAC) water filtration system was installed for the purpose of providing clean drinking water to the residents at 7 Steele Road. The system was installed and started up in October 1990. A schematic drawing of the granular activated carbon (GAC) water filtration system is provided on Figure 10. A general description of the treatment process is provided below.

First, the raw well water passes through a totalizing water meter. The water then enters a 5-micron polypropylene sediment filter to remove particles of 5 microns or larger in size from the water, such as grit, sediment, dirt, and rust. Subsequently, the water passes through two (2) 12-inch granular activated carbon (GAC) portable exchange filters placed in series, which remove organic chemical contaminants and chlorine through adsorption. Pressure gauges were installed before, between and after the GAC filters that allow for monitoring of the pressure drop caused by the GAC filters when they are new, and as they get dirty. Sampling ports were also installed before, between and after the GAC filters to facilitate the collection of water samples as necessary. Upon exiting the second GAC filter, the water passes through a ultra-violet (UV) disinfection unit which is designed to destroy and/or inactivate microorganisms that exist naturally in water including tiny bacteria, viruses, Cryptosporidium and Giardia without leaving a taste or odor in the water. Following the UV disinfection unit, the water passes through another 5-micron sediment filter to remove any additional particles of 5 microns or larger in size from the water.

4.2.1.1 Scope – Operation and Maintenance (O & M) Requirements

The operation and maintenance (O & M) requirements for the granular activated carbon (GAC) water filtration system outlined in this section are broken down into the specific O & M requirements for each component of the system.

Sediment Water Filters

Sediment water filters should be replaced in accordance with their product specifications, which is typically every 6 to 12 months. The water filter cartridge life depends on the water filter cartridge used, the quality of the water, and the amount of water used. A typical sign that a filter cartridge needs to be replaced is when the water pressure in the house drops.

Granular Activated Carbon (GAC) Portable Exchange Filters

Activated carbon filters often become saturated with the chemical impurities they remove. In addition, naturally occurring bacteria in the water can collect and multiply on an activated carbon filter. As a result, the granular activated carbon in the portable exchange filters must be changed out periodically to ensure adequate treatment. As a precautionary measure, the carbon is changed out on an annual basis; however the carbon should also be replaced if low water pressure is observed, or if carbon break-through occurs. GAC filters have a limited lifetime. Eventually, the surface of the activated carbon becomes filled with adsorbed pollutants, and no further treatment occurs. 'Break-through' takes place when pollutants break through the filter and emerge in the treated water. Contaminant concentrations in the treated water can possibly be even higher than those in the untreated water. The carbon then needs to be replaced.

Quarterly Potable Well Sampling

In accordance with the NYSDEC 1997 Record of Decision (ROD) potable well samples are collected on a quarterly basis before, between and after the GAC filters at the residence located at 7 Steele Road in New Windsor, New York. The samples are subsequently analyzed for volatile organic compounds (EPA Method 624). In the event that any targeted VOCs (i.e. 1,1,1-Trichloroethene) are detected in the samples collected between and/or after the GAC filters, a carbon re-bed must be scheduled immediately.

Ultraviolet (UV) Disinfection Unit

Ultraviolet (UV) disinfection units must be properly maintained. Dissolved and suspended solids from the water can build up on the unit and block the ultraviolet light from reaching the water. To ensure that the water is adequately exposed to the light, UV

units must be cleaned periodically. In addition, the output of the UV lamp reduces with age; therefore the UV bulb should be replaced in accordance with product specifications and at least on an annual basis. Microorganisms have varying cell wall thicknesses which require a minimum amount of UV light exposure in order to prevent their reproduction. The most common undesirable bacteria and viruses require an average exposure of between 4,000 and 12,000 micro-watts per centimeter squared ($uWsec/cm^2$). The range of products is designed to give and output between 30,000 and 40,000 $uWsec/cm^2$. In addition, a maximum flow rate is provided in the product specifications for each specific model of the UV disinfection unit. Typically the flow rate for most UV disinfection units ranges from 8 to 10 gallons per minute. At no time should the flow rate exceed the maximum flow rate given for the model.

TABLES

Table 1
Groundwater Elevations - January 2010
Macbeth - Kollmorgen Site
New Windsor, New York
NYSDEC Site No. 3-36-037

Owner's Well No.	Well Elev. (a)	Depth to Water (a)	Groundwater Elevation
MW-1	339.63	12.97	326.66
MW-2	311.11	16.57	294.54
MW-3	332.56	14.55	318.01
MW-4A	321.76	Dry	-
MW-4	322.18	20.90	301.28
MW-5	346.03	9.69	336.34
MW-6	310.81	19.51	291.30
MW-7	320.04	32.10	287.94
MW-8	332.23	11.91	320.32
MW-9	322.44	64.00	258.44
MW-10	320.23	60.20	260.03
MW-11	308.20	61.60	246.60
MW-12	307.98	61.05	246.93
MW-13	345.18	95.20	249.98
MW-15	327.49	21.06	306.43
MW-16	321.52	-	-

Notes:
a: Reference mark at top of PVC mon. well casing; all elevations in feet above mean sea level, USGS NGVD, 1929.

Table 2
Volatile Organic Compounds Quanitified During Soil Gas Survey, July 25, 1994 - August 5, 1994
Macbeth Division of Kollmorgen Instruments Corporation
New Windsor, New York
NYSDEC Site No. 336037

Sample Location		Concentration (ppb by volume)								
Northing	Easting	1,1-DCE	1,1-DCA or t-1,2-DCE	c-1,2-DCE	1,2-DCA	1,1,1-TCA	TCE	Toluene	PCE	Total
500	900	0.00	0.00	0.00	0.00	8.13	0.00	0.00	0.00	8.13
600	800	0.00	0.00	0.00	0.00	7.84	0.00	0.00	0.00	7.84
650	700	0.00	0.00	0.00	0.00	6.35	0.00	0.00	0.00	6.35
650	725	0.00	0.00	0.00	0.00	34.58	0.00	0.00	0.00	34.58
675	675	0.00	0.00	0.00	0.00	150.27	0.00	0.00	0.00	150.27
675	700	0.00	0.00	0.00	0.00	208.68	0.00	0.00	0.00	208.68
675	1075	0.00	0.00	0.00	0.00	131.51	0.00	0.00	0.00	131.51
700	500	0.00	0.00	0.00	0.00	13.81	0.00	0.00	0.00	13.81
700	700	0.00	0.00	0.00	0.00	65.72	0.00	0.00	0.00	65.72
750	300	0.00	0.00	0.00	0.00	79.62	0.00	0.00	330.64	410.26
750	700	0.00	0.00	0.00	0.00	153.36	0.00	0.00	0.00	153.36
750	725	0.00	0.00	0.00	0.00	39.81	0.00	0.00	0.00	39.81
750	750	0.00	0.00	0.00	0.00	10.72	0.00	0.00	0.00	10.72
750	775	0.00	0.00	0.00	0.00	18.32	0.00	0.00	0.00	18.32
770	400	0.00	0.00	0.00	0.00	60.43	0.00	0.00	2.76	63.19
775	700	0.00	0.00	0.00	0.00	71.89	0.00	0.00	0.00	71.89
775	725	0.00	0.00	0.00	0.00	54.02	7.61	244.71	0.00	306.34
775	750	0.00	0.00	0.00	0.00	74.22	0.00	0.00	0.00	74.22
775	775	0.00	0.00	0.00	0.00	8.77	0.00	0.00	0.00	8.77
795	350	0.00	0.00	0.00	0.00	102.64	85.22	0.00	0.00	187.86
795	375	0.00	0.00	0.00	0.00	57.79	0.00	0.00	34.58	92.38
795	400	0.00	0.00	0.00	0.00	43.03	0.00	0.00	184.96	227.99
800	300	0.00	0.00	0.00	0.00	76.36	0.00	0.00	160.81	237.17
800	325	0.00	0.00	0.00	0.00	61.58	0.00	0.00	0.00	61.58
800	700	0.00	0.00	0.00	0.00	47.82	0.00	0.00	0.00	47.82
800	725	0.00	0.00	0.00	0.00	37.11	0.00	0.00	0.00	37.11
800	750	0.00	0.00	0.00	0.00	28.74	0.00	0.00	4.22	32.96
800	775	0.00	0.00	0.00	0.00	16.07	0.00	0.00	0.00	16.07
825	325	0.00	0.00	0.00	0.00	151.53	0.16	0.00	0.00	151.69
825	725	0.00	0.00	0.00	0.00	34.35	0.00	0.00	0.00	34.35
825	750	0.00	0.00	0.00	0.00	268.32	8.58	0.00	23.95	300.84
850	650	0.00	0.00	0.00	0.00	49.89	0.00	0.00	0.00	49.89
850	675	0.00	0.00	0.00	0.00	22.72	0.00	0.00	0.00	22.72
875	625	0.00	0.00	0.00	0.00	3.72	0.00	0.00	0.00	3.72
875	650	0.00	0.00	0.00	0.00	37.59	0.60	9.84	0.00	48.04
875	675	0.00	0.00	0.00	0.00	11.13	0.00	0.00	0.00	11.13

Table 2 (Cont.)
Volatile Organic Compounds Quanitified During Soil Gas Survey, July 25, 1994 - August 5, 1994
Macbeth Division of Kollmorgen Instruments Corporation
New Windsor, New York
NYSDEC Site No. 336037

Sample Location		Concentration (ppb by volume)								
Northing	Easting	1,1-DCE	1,1-DCA or t-1,2-DCE	c-1,2-DCE	1,2-DCA	1,1,1-TCA	TCE	Toluene	PCE	Total
900	200	0.00	0.00	0.00	0.00	1.37	0.00	0.00	0.00	1.37
900	300	0.00	0.00	0.00	0.00	0.73	0.00	0.00	0.00	0.73
900	625	0.00	0.00	0.00	0.00	57.10	106.65	0.00	0.00	163.75
900	650	0.00	0.00	0.00	0.00	42.86	97.25	0.00	0.00	140.11
925	625	0.00	88.67	0.00	0.00	137.79	198.62	0.00	0.00	425.09
925	650	0.00	7.18	0.00	0.00	178.04	107.74	0.00	0.00	292.96
950	325	0.00	0.00	0.00	0.00	9.82	0.00	0.00	0.00	9.82
950	625	2.92	0.00	0.00	0.00	137.30	17.35	0.00	0.00	157.56
975	325	0.00	0.00	0.00	0.00	16.94	0.00	0.00	0.00	16.94
975	340	0.00	0.00	0.00	0.00	73.48	0.00	0.00	0.00	73.48
975	370	0.00	0.00	0.00	0.00	21.59	0.00	0.00	0.00	21.59
975	395	0.00	0.00	0.00	0.00	14.50	0.00	0.00	0.00	14.50
975	625	0.00	0.00	0.00	0.00	58.90	25.85	49.14	0.00	133.89
1000	200	0.00	0.00	0.00	0.00	0.00	0.00	43.12	0.00	43.12
1000	300	0.00	0.00	0.00	0.00	120.12	0.00	0.00	1.43	121.55
1000	625	0.00	0.00	0.00	0.00	150.65	85.67	22.34	0.00	258.66
1000	800	0.00	0.00	0.00	0.00	16.75	0.00	0.00	0.00	16.75
1025	640	0.00	0.00	0.00	0.00	114.35	52.33	0.00	0.00	166.68
1025	675	0.00	0.00	0.00	0.00	2.79	0.00	0.00	0.00	2.79
1050	350	0.00	0.00	551.00	4601.31	0.00	0.00	0.00	0.00	5152.31
1050	640	0.00	0.00	0.00	0.00	115.76	11.33	0.00	0.00	127.09
1075	640	0.00	0.00	0.00	0.00	56.06	0.00	0.00	0.00	56.06
1100	200	0.00	0.00	0.34	0.00	0.00	0.00	73.03	0.00	73.38
1100	300	0.00	0.00	0.34	0.73	0.00	0.00	10.67	0.00	11.73
1100	750	0.00	0.00	0.00	0.00	0.83	0.00	0.00	0.00	0.83
1125	385	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.20
1125	450	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.19
1125	575	39.37	0.00	0.00	1.77	0.39	0.00	0.00	0.00	41.53
1125	625	0.00	0.00	0.00	0.20	2.66	0.00	0.00	0.00	2.86
1125	640	0.00	0.00	0.00	0.00	36.13	19.54	0.00	0.00	55.67
1150	750	0.00	0.00	0.00	0.00	10.74	0.00	0.00	0.00	10.74
1175	600	0.00	0.00	0.00	0.00	10.32	17.40	0.00	0.00	27.72
1175	625	0.00	0.00	0.00	0.00	16.76	4.85	0.00	0.00	21.61
1200	700	0.00	0.00	0.00	0.00	12.08	2.66	0.00	0.00	14.74
1200	750	0.00	0.00	0.00	0.00	23.84	0.00	0.00	0.00	23.84
1200	800	0.00	0.00	0.00	0.00	5.69	0.00	0.00	0.00	5.69

Table 3
Volatile Organic Compounds Quanitified in Soil Samples, mg/kg (ppm)
September 15, 1994
Macbeth Division of Kollmorgen Instruments Corporation
New Windsor, New York
NYSDEC Site No. 336037

Sample Location	SB-1	SB-2	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8	SB-9	SB-10	SB-11	SB-11
Depth	0.0-2.0	0.0-2.0	4.0-6.0	4.0-6.0	2.0-4.0	4.0-6.0	2.0-4.0	0.0-2.0	4.0-6.0	0.0-2.0	0.0-2.0	2.0-4.0
Parameter												
Tetrachloroethene	< 0.012	0.002 J	< 0.011	< 0.011	< 0.013	0.007 J	< 0.011	< 0.011	< 0.011	< 0.011	< 0.010	< 0.011
Trichloroethene	0.003 J	< 0.011	< 0.011	< 0.011	< 0.013	< 0.012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.010	< 0.011
1,2-Dichloroethane	< 0.012	< 0.011	< 0.011	< 0.011	< 0.013	< 0.012	< 0.011	< 0.011	< 0.011	0.001 J	< 0.010	< 0.011
Benzene	< 0.012	< 0.011	< 0.011	< 0.011	< 0.013	< 0.012	< 0.011	< 0.011	< 0.011	0.002 J	< 0.010	< 0.011
Ethylbenzene	< 0.012	< 0.011	< 0.011	< 0.011	< 0.013	< 0.012	< 0.011	< 0.011	< 0.011	0.005 J	0.001 J	< 0.011
Toluene	< 0.012	0.001 J	< 0.011	< 0.011	< 0.013	< 0.012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.010	< 0.011
Xylenes (total)	< 0.012	< 0.011	< 0.011	< 0.011	< 0.013	< 0.012	< 0.011	< 0.011	< 0.011	0.190	0.007 J	0.002 J
Acetone	0.003 J	0.011 B	0.006 J	0.006 J	0.003 J	< 0.012	< 0.011	< 0.011	0.006 J	0.014	0.004 J	0.003 J
Methylene Chloride	< 0.012	0.004 J	0.003 J	0.003 J	0.004 J	0.002 J	0.002 J	0.002 J	0.002 J	0.002 J	< 0.010	< 0.011

Notes
Depths are expressed in feet below grade.
< 0.012- Not found at or above the laboratory detection limit shown.
J - Estimated concentration for a parameter found below the laboratory analytical detection limit.
B - Found in blank as well as sample; presence in sample may be attributable to laboratory contamination.
Other volatile organic compounds were analyzed for in accordance with NYSDEC CLP methods and not detected.

Table 4
Summary of Volatile Organic Compounds in Groundwater
MW-12
Macbeth Kollmorgen
New Windsor, New York

	1/1/95	4/1/95	10/1/96	4/1/97	7/1/97	10/9/97	1/15/98	7/1/98	1/9/99	10/18/01	1/15/02	4/4/02	7/11/02	10/15/02	1/14/03	4/16/03	7/23/03	Groundwater Quality Standard (a)
1,1,1-Trichloroethane	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<1.0	5
1,1,2-Trichloroethane	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<1.0	5
1,1-Dichloroethane	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<1.0	5
1,1-Dichloroethene	< 10	< 10	2 J	< 10	< 10	< 10	< 10	< 10	<10	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<1.0	5
1,2-Dichloroethane	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<1.0	5
Chloroethane	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<1.0	5
Trichloroethene	**72**	**80**	**370**	**25**	**64**	**42**	**35**	**33**	**76**	**17**	**24**	**6**	**17**	**25**	**32**	**70**	**90**	5
Tetrachloroethene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<1	0.6	<0.5	<0.5	<0.5	<0.5	<2.0	<1.0	5
1,2-Dichloroethene (total)	**84**	**170**	**610**	**28**	**100**	**120**	**120**	**63**	**150**	**32**	**41.5**	**12**	**35**	**92**	**44**	**88**	**130**	5
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5	<0.5	<0.5	<0.7	<0.5	NA	<1.0	5 (c)
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**41**	**12**	**35**	**92**	**44**	NA	NA	5 (c)
Vinyl Chloride	2 J	**3 J**	2 J	< 10	< 10	1 J	< 10	< 10	<10	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<1.0	2
Toluene	3 J	< 10	< 10	< 10	1 J	**28**	< 10	< 10	<10	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<1.0	5
Ethylbenzene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<1.0	5
Xylene (total)	5 J	< 10	< 10	3 J	< 10	4 J	< 10	< 10	<10	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<1.0	5 (b)
Benzene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.70	<0.70	1
Methylene Chloride	2 J	< 10	< 10	< 10	< 10	< 10	< 10	< 10	1J	<1	<0.5	<0.5	<0.5	<0.6	<0.5	<2.0	3.3	5
Total Targeted Compounds:	**168**	**256**	**984**	**56**	**165**	**195**	**155**	**96**	**227**	**49**	**66.1**	**18**	**52**	**117**	**76**	**158**	**220**	100

Notes:

< 10 - Not detected at the Contract Required Detection Limit (CRDL) shown.

NA - prior to 1/15/02, samples were analyzed for total 1,2-dichloroethene only, sample collected 1/15/02 was analyzed for both trans- and cis-1,2-dichloroethene, individually.

Sampling of MW-12 was not required in June 1996.

D - Concentration detected in a diluted sample analysis.

J - Estimated value for a compound which is present below the CRDL.

Bold text indicates the concentration exceeds NYSDEC Groundwater Quality Standards.

(a) - NYSDEC Divsion of Water T.O.G.S. 1.1.1, August 1999, Groundwater Quality Standards.

(b) - Standard for xylene is for each individual isomer.

(c) - NYSDEC Standard for trans- and cis-1,2-Dichloroethene are inferred from the standard for total 1,2-Dichloroethene

NYSDEC did not approve Kollmorgen's petition to discontinue sampling following the January 1999 sampling event. Therefore, no samples were collected until October of 2001, while NYSDEC considered Kollmorgen's petition.

Table 4
Summary of Volatile Organic Compounds in Groundwater
MW-12
Macbeth Kollmorgen
New Windsor, New York

	4/16/03	7/23/03	10/3/03	2/9/04	4/15/04	7/23/04	10/27/04	1/20/05	4/14/05	7/18/05	10/13/05	1/18/06	4/7/06	7/25/06	10/13/06	1/17/07	Groundwater Quality Standard (a)
1,1,1-Trichloroethane	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,1,2-Trichloroethane	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,1-Dichloroethane	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,1-Dichloroethene	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,2-Dichloroethane	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Chloroethane	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Trichloroethene	**70**	**90**	**200**	**120**	**130**	**58**	**82**	**94**	**81**	**150**	**170**	**43**	**59**	**70**	**20**	**120**	5
Tetrachloroethene	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,2-Dichloroethene (total)	**88**	**130**	**330**	**220**	**240**	**98**	**150**	**200**	**150**	**310**	**150**	**86**	**110**	**220**	**180**	**290**	5
trans-1,2-Dichloroethene	NA	<1.0	NA	NA	NA	<1.0	<1.0	<1.0	<1.0	***6***	<1.0	<1.0	<1.0	42	1.4	1.2	5 (c)
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	**98**	**120**	**200**	**140**	**280**	**150**	**80**	**110**	**220**	**180**	**290**	5 (c)
Vinyl Chloride	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**3.5**	<1.0	2
Toluene	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Ethylbenzene	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Xylene (total)	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5 (b)
Benzene	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	1
Methylene Chloride	<2.0	3.3	**23**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Total Targeted Compounds:	**158**	**220**	**553**	**340**	**370**	**156**	**232**	**294**	**231**	**460**	**320**	**129**	**169**	**290**	**200**	**410**	100

Notes:

< 10 - Not detected at the Contract Required Detection Limit (CRDL) shown.

NA - prior to 1/15/02, samples were analyzed for total 1,2-dichloroethene only, sample collected 1/15/02 was analyzed for both trans- and cis-1,2-dichloroethene, individually.

Sampling of MW-12 was not required in June 1996.

D - Concentration detected in a diluted sample analysis.

J - Estimated value for a compound which is present below the CRDL.

Bold text indicates the concentration exceeds NYSDEC Groundwater Quality Standards.

(a) - NYSDEC Divsion of Water T.O.G.S. 1.1.1, August 1999, Groundwater Quality Standards.

(b) - Standard for xylene is for each individual isomer.

(c) - NYSDEC Standard for trans- and cis-1,2-Dichloroethene are inferred from the standard for total 1,2-Dichloroethene

NYSDEC did not approve Kollmorgen's petition to discontinue sampling following the January 1999 sampling event. Therefore, no samples were collected until October of 2001, while NYSDEC considered Kollmorgen's petition.

Table 4
Summary of Volatile Organic Compounds in Groundwater
MW-12
Macbeth Kollmorgen
New Windsor, New York

	4/13/07	7/18/07	10/25/07	1/21/08	4/24/08	7/23/08	10/2/08	1/22/09	4/21/09	7/23/09	10/20/09	1/6/10	4/22/10	7/22/10	10/20/10	Groundwater Quality Standard (a)
1,1,1-Trichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	1.5	<1.0	1.7	<1.0	<1.0	<1.0	<1.0	5
1,2-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Trichloroethene	**120**	**120**	**90**	**76**	**84**	**140**	**160**	**130**	**160**	**43**	**170**	**66**	**100**	**55**	**68**	5
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,2-Dichloroethene (total)	**411.6**	**403**	**194.4**	**151.3**	**190**	**260**	**240**	**371.9**	**462.7**	**321.7**	**462.2**	**147.7**	**262.1**	**120**	**150**	5
trans-1,2-Dichloroethene	1.6	**13**	**4.4**	1.3	<1.0	1.6	<1.0	1.9	2.7	1.7	2.2	7.7	2.1	<1.0	<1.0	5 (c)
cis-1,2-Dichloroethene	**410**	**390**	**190**	**150**	**190**	**260**	**240**	**370D**	**460**	**320**	**460D**	**140**	**260D**	**120**	**150**	5 (c)
Vinyl Chloride	<1.0	<1.0	<1.0	1.3	1.3	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2
Toluene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Xylene (total)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5 (b)
Benzene	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1
Methylene Chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Total Targeted Compounds:	**532**	**523**	**284**	**227**	**275**	**402**	**400**	**506**	**624**	**365**	**634**	**214**	**364**	**175**	**218**	100

Notes:

< 10 - Not detected at the Contract Required Detection Limit (CRDL) shown.

NA - prior to 1/15/02, samples were analyzed for total 1,2-dichloroethene only, sample collected 1/15/02 was analyzed for both trans- and cis-1,2-dichloroethene, individually.

Sampling of MW-12 was not required in June 1996.

D - Concentration detected in a diluted sample analysis.

J - Estimated value for a compound which is present below the CRDL.

Bold text indicates the concentration exceeds NYSDEC Groundwater Quality Standards.

(a) - NYSDEC Divsion of Water T.O.G.S. 1.1.1, August 1999, Groundwater Quality Standards.

(b) - Standard for xylene is for each individual isomer.

(c) - NYSDEC Standard for trans- and cis-1,2-Dichloroethene are inferred from the standard for total 1,2-Dichloroethene

NYSDEC did not approve Kollmorgen's petition to discontinue sampling following the January 1999 sampling event. Therefore, no samples were collected until October of 2001, while NYSDEC considered Kollmorgen's petition.

Table 5
Summary of Volatile Organic Compounds in Groundwater
Shallow Bedrock
January 2008
Macbeth / Kollmorgen
New Windsor, New York
NYSDEC Site No. 3-36-037

Well ID:	MW-1	MW-3	MW-4	MW-5	MW-6	MW-7	MW-15	NYSDEC
Lab Sample ID:	0801784-010	0801784-007	0801784-017	0801784-011	0801784-018	0801784-013	0801784-015	GWQS
Date Sampled:	1/22/2008	1/22/2008	1/23/2008	1/22/2008	1/23/2008	1/22/2008	1/22/2008	
Matrix:	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	
Analyte:								
1,1,1-Trichloroethane	<1.0	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,1-Dichloroethane	<1.0	**6.8**	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
1,2-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	2.0	<1.0	5
1,2-Dichloroethene (total)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5 (c)
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5 (c)
Vinyl Chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2
Toluene	<1.0	**9.9**	<1.0	<1.0	<1.0	<1.0	<1.0	5
Ethylbenzene	<1.0	3.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Xylene (total)	<1.0	**15**	<1.0	<1.0	<1.0	<1.0	<1.0	5
Benzene	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	1
Methylene Chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Total Targeted Compounds:	<1.0	36.2	<1.0	<1.0	<1.0	2.0	<1.0	100

Notes:

All units are in parts per billion (ppb.)

Bold - Exceeds the NYSDEC Groundwater Quality Standard (GWQS)

(c) - NYSDEC Standard for trans- and cis-1,2-Dichloroethene are inferred from the standard for total 1,2-Dichloroethene

Table 6
Summary of Volatile Organic Compounds in Groundwater
Intermediate Bedrock
January 2008
Macbeth / Kollmorgen
New Windsor, New York
NYSDEC Site No. 3-36-037

Well ID:	MW-8	MW-9	MW-10	MW-11	NYSDEC
Lab Sample ID:	0801784-002	0801784-019	0801784-012A	0801784-020	GWQS
Date Sampled:	1/21/2008	1/23/2008	1/22/2008	1/23/2008	
Matrix:	Aqueous	Aqueous	Aqueous	Aqueous	
Analyte:					
1,1,1-Trichloroethane	<1.0	<1.0	<1.0	<1.0	5
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0	5
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	5
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	5
1,2-Dichloroethane	<1.0	<1.0	<1.0	<1.0	5
Chloroethane	<1.0	<1.0	<1.0	<1.0	5
Chloromethane	<1.0	<1.0	<1.0	<1.0	-
Trichloroethene	<1.0	<1.0	<1.0	**10**	5
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	5
1,2-Dichloroethene (total)	<1.0	<1.0	<1.0	2.8	5
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	5 (c)
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	2.8	5 (c)
Vinyl Chloride	<1.0	<1.0	<1.0	<1.0	2
Toluene	<1.0	<1.0	<1.0	<1.0	5
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	5
Xylene (total)	<1.0	<1.0	<1.0	<1.0	5
Benzene	<0.7	<0.7	<0.7	<0.7	1
Methylene Chloride	<1.0	<1.0	<1.0	<1.0	5
Total Targeted Compounds:	<1.0	<1.0	<1.0	12.8	100

Notes:
All units are in parts per billion (ppb.)
Bold - Exceeds the NYSDEC Groundwater Quality Standard (GWQS)
(c) - NYSDEC Standard for trans- and cis-1,2-Dichloroethene are inferred from the standard for total 1,2-Dichloroethene

Table 7
Sumarry of Volatile Organic Compounds in Groundwater
Deep Bedrock
January 2008
Macbeth / Kollmorgen
New Windsor, New York
NYSDEC Site No. 3-36-037

Well ID:	MW-12	MW-13	MW-16	NYSDEC
Lab Sample ID:	0801784-001	0801784-009	0801784-021	GWQS
Date Sampled:	1/21/2008	1/22/2008	1/23/2008	
Matrix:	Aqueous	Aqueous	Aqueous	
Analyte:				
1,1,1-Trichloroethane	<1.0	1.1	<1.0	5
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	5
1,1-Dichloroethane	<1.0	1.4	**7.4**	5
1,1-Dichloroethene	<1.0	<1.0	<1.0	5
1,2-Dichloroethane	<1.0	<1.0	<1.0	5
Chloroethane	<1.0	<1.0	<1.0	5
Chloromethane	<1.0	<1.0	<1.0	-
Trichloroethene	**76**	2.1	<1.0	5
Tetrachloroethene	<1.0	<1.0	<1.0	5
1,2-Dichloroethene (total)	**151.3**	<1.0	<1.0	5
trans-1,2-Dichloroethene	1.3	<1.0	<1.0	5 (c)
cis-1,2-Dichloroethene	**150**	<1.0	<1.0	5 (c)
Vinyl Chloride	1.3	<1.0	<1.0	2
Toluene	<1.0	<1.0	<1.0	5
Ethylbenzene	<1.0	<1.0	<1.0	5
Xylene (total)	<1.0	<1.0	<1.0	5
Benzene	<0.7	<0.7	<0.7	1
Methylene Chloride	<1.0	<1.0	<1.0	5
Total Targeted Compounds:	**227.3**	4.6	7.4	100

Notes:

All units are in parts per billion (ppb.)

Bold - Exceeds the NYSDEC Groundwater Quality Standard (GWQS)

(c) - NYSDEC Standard for trans- and cis-1,2-Dichloroethene are inferred from the standard for total 1,2-Dichloroethene

Table 8
Soil Vapor and Air Sampling Data
December 2006
Macbeth - Kollmorgen Corporate Site
New Windsor, NY

Sample ID:	NYSDOH	NYSDOH Study Homes in NYS 1997 - 2003		Ambient - 1	Ambient - 2	SG-1	SG-2	SG-3	SG-4
Location:				Building 1	Building 2	Building 2	Building 1	Building 1	Building 1
Depth:	Air Guideline					2.0" below slab	2.0" below slab	2.0" below slab	2.0" below slab
Date:	Values	Background Levels		12/01/06	12/01/06	12/01/06	12/01/06	12/01/06	12/01/06
Lab Sample ID:		Indoor	Outdoor	0612651-001A	0612651-002A	0612651-004A	0612651-005A	0612651-006A	0612651-007A
Units:	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Analysis: EPA Method TO - 15 Volatiles in Air									
Dichlorodifluoromethane	-	NA	NA	3.3	33	13	3	2200	3.7
1,1-Dichloroethene	-	< 0.25	< 0.25	< 0.8 U	< 0.8 U	8.7	18	28 D	39
Trichlorofluoromethane	-	NA	NA	25	51	110	5.6	120	18
Hexane	-	NA	NA	0.8	0.7	1.6	0.7 J	< 7 U	1.4
Methyl tert-butyl ether	-	< 0.25 - 6.7	< 0.25 - 1.0	< 0.7	< 0.7 U	< 0.7 U	< 1.4 U	< 7.2 U	0.7
Chloroform	-	< 0.25 - 0.54	< 0.25	< 1 U	< 1 U	0.5 J	2.3	< 9.8 U	1
1,1,1-Trichloroethane	100	< 0.25 - 1.4	< 0.25 - 0.38	< 1 U	< 1.1 U	9.3	93	**480**	1.3
Cyclohexane	-	NA	NA	6.2	< 0.7 U	< 0.7 U	< 1.4 U	< 6.9 U	< 0.7 U
2,2,4-Trimethylpentane	-	NA	NA	< 0.9 U	< 0.9 U	19	< 1.9 U	< 9.3 U	< 0.9 U
Trichloroethene (TCE)	5	< 0.25	< 0.25	< 1.1 U	< 1.1 U	< 1.1 U	**860** D	**5.4** J	2.6
Benzene	-	1.2 - 5.7	< 0.25 - 2.6	0.6 J	0.6	1.7	1 J	< 6.4 U	1.1
1,1,2 Trichloroethane	-	< 0.25	< 0.25	< 1.1 U	< 1.1 U	< 1.1 U	< 2.2 U	< 11 U	0.5 J
Heptane	-	NA	NA	0.8 J	< 0.8 U	2.3	< 1.6 U	< 8.2 U	1.1
Tetrachloroethene (PCE)	100	< 0.25 - 1.2	< 0.25 - 0.34	< 1.4 U	< 1.4 U	1.4	8.1	**6000** D	1.6
Toluene	-	4.2 - 25	0.68 - 3.3	7.5	4.9	20	6.8	< 7.5 U	25
Ethylbenzene	-	0.43 - 2.8	< 0.25 - 0.61	1.2	0.9	5.6	1.3 J	< 8.7 U	2.6
m,p-Xylene	-	0.52 - 4.7	< 0.25 - 0.69	4	3.3	23	4.2	< 8.7 U	9.6
o-Xylene	-	0.39 - 3.1	< 0.25 - 0.74	1.3	1.4	8.3	2	< 8.7 U	4.3
4-Ethyltoluene	-	NA	NA	0.5 J	< 1 U	13	4.9	< 9.8 U	8.8
1,3,5-Trimethylbenzene	-	< 0.25 - 1.7	< 0.25 - 0.44	< 1 U	< 1 U	4.1	2	< 9.8 U	3.1

Notes:
Bold - exceeds air guideline value
Underline - exceeds NYSDOH Indoor Background Level (Homes in NYS 1997-2003)
J - Estimated values
D - Results for dilution
U - Below method detection limit (MDL)
NA - data not available

1.) The air guideline value for tetrachloroethene (PCE) and 1,1,1 trichloroethane (1,1,1 TCA) is 100 µg/m3
2.) The air guideline value for trichloroethene (TCE) is 5 µg/m3
3.) Air guideline value exceedances are further evaluated through decision matrices developed by the NYSDOH

Table 8
Soil Vapor and Air Sampling Data
December 2006
Macbeth - Kollmorgen Corporate Site
New Windsor, NY

Sample ID:	NYSDOH	NYSDOH Study Homes in NYS 1997 - 2003		Ambient - 3	SG-5A (REDO)	SG-5B	SG-6	SG-7	SG-8	TRIP BLANK
Location:				Outside	Outside	Outside	Outside	Outside	Outside	
Depth:	Air Guideline				4 .0 - 4.5 ft.	7.0 - 7.5 ft.	5.5 - 6.0 ft	4.0 - 4.5 ft.	4.0 - 4.5 ft.	
Date:	Values	Background Levels		11/30/06	12/01/06	11/30/06	11/30/06	11/30/06	11/30/06	12/01/06
Lab Sample ID:		Indoor	Outdoor	0612651-003A	0612651-008A	0612651-009A	0612651-010A	0612651-011A	0612651-012A	0612651-013A
Units:	µg/m³	µg/m3	µg/m3	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Analysis: EPA Method TO - 15 Volatiles in Air										
Dichlorodifluoromethane	-	NA	NA	2.6	2.4	3.3	3.6	< 1 U	1.7	< 1 U
1,1-Dichloroethene	-	< 0.25	< 0.25	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U
Trichlorofluoromethane	-	NA	NA	1.5	1.7	1.7	1.5	5.6	1.8	< 1.1 U
Hexane	-	NA	NA	< 0.7 U	2.8	19	53	20	21	< 0.7 U
Methyl tert-butyl ether	-	< 0.25 - 6.7	< 0.25 - 1.0	< 0.7 U	2.5	< 0.7 U	4.3	5.8	1.3	< 0.7 U
Chloroform	-	< 0.25 - 0.54	< 0.25	< 1 U	1.3	1.6	< 1 U	< 1 U	1.4	< 1 U
1,1,1-Trichloroethane	##	< 0.25 - 1.4	< 0.25 - 0.38	< 1.1 U	1.4	1.1	< 1.1 U	2.9	< 1.1 U	< 1.1 U
Cyclohexane	-	NA	NA	< 0.7 U	< 0.7 U	8.3	22	9.6	8.6	< 0.7 U
2,2,4-Trimethylpentane	-	NA	NA	< 0.9 U	2.2	22	84	32	35	< 1.1 U
Trichloroethene (TCE)	5	< 0.25	< 0.25	< 1.1 U	< 1.1 U	0.5 J	< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U
Benzene	-	1.2 - 5.7	< 0.25 - 2.6	0.3 J	7	9.6	22	27	8	< 0.6 U
1,1,2 Trichloroethane	-	< 0.25	< 0.25	< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U
Heptane	-	NA	NA	< 0.8 U	3.5	16	41	34	16	< 0.8 U
Tetrachloroethene (PCE)	##	< 0.25 - 1.2	< 0.25 - 0.34	< 1.4 U	1.8	3.5	6	2.2	< 1.4 U	< 1.4 U
Toluene	-	4.2 - 25	0.68 - 3.3	0.9	49	26	83	140	24	< 0.8 U
Ethylbenzene	-	0.43 - 2.8	< 0.25 - 0.61	< 0.9 U	9.6	5.6	11	18	2.5	< 0.9 U
m,p-Xylene	-	0.52 - 4.7	< 0.25 - 0.69	< 0.9 U	31	21	27	48	6.9	< 0.9 U
o-Xylene	-	0.39 - 3.1	< 0.25 - 0.74	< 0.9 U	11	8.3	11	15	2.7	< 0.9 U
4-Ethyltoluene	-	NA	NA	< 1 U	11	11	5.9	12	3.8	< 1 U
1,3,5-Trimethylbenzene	-	< 0.25 - 1.7	< 0.25 - 0.44	< 1 U	3.9	3.9	2.6	3.9	1.5	< 1 U

Notes:
Bold - exceeds air guideline value
Underline - exceeds NYSDOH Indoor Background Levels (Homes in NYS 1997-2003)
J - Estimated values
D - Results for dilution
U - Below method detection limit (MDL)
NA - data not available

1.) The air guideline value for tetrachloroethene (PCE) and 1,1,1 trichloroethane (1,1,1 TCA) is 100 µg/m3
2.) The air guideline value for trichloroethene (TCE) is 5 µg/m3
3.) Air guideline value exceedances are further evaluated through decision matrices developed by the NYSDOH

Table 9
Soil Vapor and Air Sampling Data
February 2008
Macbeth - Kollmorgen Corporate Site
New Windsor, NY

Sample ID: Location: Depth: Date: Lab Sample ID: Units:	**Table 3.1 NYSDOH Air Guidance Values** µg/m³	**C.2 EPA 2001 Building Assessment and Survey Evaluation (BASE) Background Levels** **Indoor** µg/m³	 **Outdoor** µg/m³	**AA-1** Main Building 2.0" below slab 2/6/2008 µg/m³	**AA-2** Main Building 2.0" below slab 2/6/2008 µg/m³	**SG-1B** Main Building 2.0" below slab 2/6/2008 µg/m³	**SG-1C** Main Building 2.0" below slab 2/6/2008 µg/m³	**SG-2** Main Building 2.0" below slab 2/6/2008 µg/m³	**SG-2A** Main Building 2.0" below slab 2/6/2008 µg/m³
Analysis: EPA Method TO - 15 Volatiles in Air									
Acetone	-	11.6 - 226.6	N/A	12.4	10.2	11.0	**227***	16.6	32.6
Methylene chloride	60	< 1.1 - 1,496	N/A	< 1.74 U	< 1.74 U	< 1.74 U	5.14	23.8	2.01
2-Butanone	-	< 1.4 - 55.4	N/A	4.57	3.07	4.48	< 1.00 U	3.16	12.7
1,4-Dichlorobenzene	-	< 0.5 - 87.1	N/A	3.55	< 3.01 U	< 3.01 U	< 6.01 U	< 3.01 U	< 3.01 U
1,1,2-Trichloro-1,2,2-triflouroethane	-	N/A	N/A	< 3.83 U	< 3.83 U	< 3.83 U	8.74	58.6	< 3.83 U
4-Methyl-2-pentanone	-	< 0.7 - 72.5	N/A	< 2.05 U	< 2.05 U	< 2.05 U	< 4.10 U	< 2.05 U	2.05
1,1-Dichloroethane	-	< 0.2 - < 0.9	N/A	< 2.02 U	< 2.02 U	< 2.02 U	< 4.05 U	< 2.02 U	< 2.02 U
Dichlorodifluoromethane	-	< 4.8 - 942.3	N/A	< 2.47 U	< 2.47 U	< 2.47 U	< 4.95 U	< 2.47 U	< 2.47 U
1,1-Dichloroethene	-	< 0.9 - < 1.8	N/A	< 1.98 U	< 1.98 U	< 1.98 U	< 3.96 U	< 1.98 U	3.09*
Trichlorofluoromethane	-	< 1.7 - 1,015.3	N/A	23.0	16.0	16.3	19.6	24.2	26.3
Chloroform	-	< 0.3 - 12.1	N/A	< 2.44 U	< 2.44 U	< 2.44 U	< 4.88 U	< 2.44 U	4.20
1,1,1-Trichloroethane	100	< 0.5 - 833.2	N/A	< 2.73 U	< 2.73 U	< 2.73 U	***225***	29.2	23.0
Trichloroethene (TCE)	5	< 0.6 - 88.5	N/A	< 2.69 U	< 2.69 U	< 2.69 U	***11.8***	***8.17***	***77.4***
Benzene	-	< 0.8 - 63.0	N/A	< 1.60 U	< 1.60 U	< 1.60 U	3.39	< 1.60 U	1.76
Tetrachloroethene (PCE)	100	< 0.9 - 65.7	N/A	< 3.39 U	< 3.39 U	8.34	30.7	24.3	35.3
Toluene	-	3.5 - 390.3	N/A	4.75	4.67	4.56	8.89	5.50	20.5
Ethylbenzene	-	< 0.9 - 73.6	N/A	< 2.17 U	< 2.17 U	< 2.17 U	< 4.34 U	< 2.17 U	2.17
m,p-Xylene	-	< 1.5 - 260.8	N/A	< 2.17 U	< 2.17 U	< 2.17 U	< 4.34 U	< 2.17 U	6.04
o-Xylene	-	< 0.7 - 90.5	N/A	< 2.17 U	< 2.17 U	< 2.17 U	< 4.34 U	< 2.17 U	< 2.17 U

Notes:

1.) Table 3.1 - NYSDOH Air Guidance Values (October 2006) only apply to concentrations of volatile chemicals in indoor and outdoor air

2.) C.2 EPA 2001 Building Assessment and Survey Evaluation (BASE) background levels only apply to concentrations of volatile chemicals in indoor air

3.) New York State does not have any standards, criteria or guidance values for concentrations of volatile chemicals in subsurface vapors. Additionally, there are no databases available of background levels of volatile chemicals in subsurface vapors

Bold - Requires a remedial action based on data evaluation through NYSDOH Soil Vapor/Indoor Air Matrices

Italics - Requires continued monitoring based on data evaluation through NYSDOH Soil Vapor/Indoor Air Matrices

Underline - Requires mitigation based on data evaluation through NYSDOH soil Vapor/Indoor Air Matrices

* - Above EPA 2001 (BASE) background levels

J - Estimated values

D - Results for dilution

U - Below method detection limit (MDL)

N/A - Not applicable to concentrations of VOCs detected in sub-slab vapor or indoor ambient air

Table 9
Soil Vapor and Air Sampling Data
February 2008
Macbeth - Kollmorgen Corporate Site
New Windsor, NY

Sample ID: Location: Depth: Date: Lab Sample ID: Units:	**Table 3.1 NYSDOH Air Guidance Values** µg/m³	**C.2 EPA 2001 Building Assessment and Survey Evaluation (BASE) Background Levels** **Indoor** µg/m³	 **Outdoor** µg/m³	**SG-2B** Main Building 2.0" below slab 2/6/2008 µg/m³	**SG-2C** Main Building 2.0" below slab 2/6/2008 µg/m³	**SG-2D** Main Building 2.0" below slab 2/6/2008 µg/m³	**SG-3** Main Building 2.0" below slab 2/6/2008 µg/m³	**TRIP BLANK** 2/6/2008 µg/m³
Analysis: EPA Method TO - 15 Volatiles in Air								
Acetone	-	11.6 - 226.6	N/A	63.8	4.96	5.63	19.5	< 1.19 U
Methylene chloride	60	< 1.1 - 1,496	N/A	< 3.47 U	< 1.74 U	1.98	2.05	6.22
2-Butanone	-	< 1.4 - 55.4	N/A	6.61	< 1.47 U	3.80	1.59	< 1.47 U
1,4-Dichlorobenzene	-	< 0.5 - 87.1	N/A	< 6.01 U	< 3.01 U	< 3.01 U	< 3.01 U	< 3.01 U
1,1,2-Trichloro-1,2,2-triflouroethane	-	N/A	N/A	47.8	< 3.83 U	22.9	133	< 3.83 U
4-Methyl-2-pentanone	-	< 0.7 - 72.5	N/A	9.83	< 2.05 U	< 2.05 U	< 2.05 U	< 2.05 U
1,1-Dichloroethane	-	< 0.2 - < 0.9	N/A	< 4.05 U	< 2.02 U	5.10*	< 2.02 U	< 2.02 U
Dichlorodifluoromethane	-	< 4.8 - 942.3	N/A	< 4.95 U	< 2.47 U	< 2.47 U	93.5	< 2.47 U
1,1-Dichloroethene	-	< 0.9 - < 1.8	N/A	< 3.96 U	< 1.98 U	< 1.98 U	< 1.98 U	< 1.98 U
Trichlorofluoromethane	-	< 1.7 - 1,015.3	N/A	25.5	< 2.81 U	5.62	122	< 2.81 U
Chloroform	-	< 0.3 - 12.1	N/A	< 2.07 U	< 2.44 U	2.93	< 2.44 U	< 2.44 U
1,1,1-Trichloroethane	100	< 0.5 - 833.2	N/A	54.3	< 2.73 U	65.5	***161***	< 2.73 U
Trichloroethene (TCE)	5	< 0.6 - 88.5	N/A	< 5.37 U	< 2.69 U	***11.4***	< 2.69 U	< 2.69 U
Benzene	-	< 0.8 - 63.0	N/A	< 3.19 U	< 1.60 U	< 1.60 U	< 1.60 U	< 1.60 U
Tetrachloroethene (PCE)	100	< 0.9 - 65.7	N/A	90.2	9.36	11.3	***501***	< 3.39 U
Toluene	-	3.5 - 390.3	N/A	17.1	< 1.88 U	4.30	5.50	< 1.88 U
Ethylbenzene	-	< 0.9 - 73.6	N/A	< 4.34 U	< 2.17 U	2.74	< 2.17 U	< 2.17 U
m,p-Xylene	-	< 1.5 - 260.8	N/A	22.9	< 2.17 U	11.7	3.08	< 2.17 U
o-Xylene	-	< 0.7 - 90.5	N/A	5.38	< 2.17 U	6.95	< 2.17 U	< 2.17 U

Notes:

1.) Table 3.1 - NYSDOH Air Guidance Values (October 2006) only apply to concentrations of volatile chemicals in indoor and outdoor air

2.) C.2 EPA 2001Building Assessment and Survey Evaluation (BASE) background levels only apply to concentrations of volatile chemicals in indoor air

3.) New York State does not have any standards, criteria or guidance values for concentrations of volatile chemicals in subsurface vapors. Additionally, there are no databases available of background levels of volatile chemicals in subsurface vapors.

Bold - Requires a remedial action based on data evaluation through NYSDOH Soil Vapor/Indoor Air Matrices

Italics - Requires continued monitoring based on data evaluation through NYSDOH Soil Vapor/Indoor Air Matrices

Underline - Requires mitigation based on data evaluation through NYSDOH soil Vapor/Indoor Air Matrices

J - Estimated values

D - Results for dilution

U - Below method detection limit (MDL)

N/A - Not applicable to concentrations of VOCs detected in sub-slab vapor or indoor ambient air

Table 10
Soil Vapor and Air Sampling Data
February 2009
Macbeth - Kollmorgen Corporate Site
New Windsor, New York

Sample ID: Location: Date: Lab Sample ID: Units:	**Table 3.1 NYSDOH Air Guidance Values** $\mu g/m^3$	**C.2 EPA 2001 Building Assessment and Survey Evaluation (BASE) Background Levels µg/m3**	**NYSDOH 2003 Study of Volatiles in Air of Fuel Oil Heated Homes (90th Percentile Indoor Air Values) µg/m3**	Ambient - 2 Building 1 2/11/2009 0902397-001 $\mu g/m^3$			Ambient - 3 Building 1 2/11/2009 0902397-002 $\mu g/m^3$			SG-2 Building 1 2/11/2009 0902397-003 $\mu g/m^3$			SG-3 Building 1 2/11/2009 0902397-004 $\mu g/m^3$			TRIP BLANK 0902397-005 $\mu g/m^3$		
Analysis: EPA Method TO - 15 Volatiles in Air				Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Dichlorodifluoromethane	-	<4.8 - 942.3	15	2.57		0.99	2.62		0.99	3.41		0.99	40.1			ND	U	0.99
Chloromethane	-	<0.7 - 21.8	3.3	1.26		0.41	1.18		0.41	ND	U	0.41	ND	U	0.83	ND	U	0.41
Methylene chloride	60	<1.1 - 1,496	22	2.22	B	0.69	2.15	B	0.69	2.64		0.69	2.64	B	1.38	ND	U	0.69
Acetone	-	11.6 - 226.6	110	36.3	B	0.48	20.1		0.48	203	BD	0.48	45.8	B		ND	U	0.48
Carbon disulfide	-	<0 5 - 24.5	-	ND	U	0.62	ND	U	0.62	10.9		0.62	7.54			ND	U	0.62
1,1,2-Trichloro-1,2,2-triflouroethane	-	NA	-	ND	U	1.53	ND	U	1.53	304	D	1.53	125			ND	U	1.53
Trichlorofluoromethane	-	<1.7 - 1,015.3	17	33.4		1.12	16.1		1.12	29.4		1.12	108			ND	U	1.12
n-Hexane	-	<0.9 - 130.0	-	ND	U	0.70	ND	U	0.70	4.44		0.70	1.62			ND	U	0.70
Methyl tert-butyl ether	-	<1.0 - 34.0	26	0.9		0.72	ND	U	0.72	0.76		0.72	ND	U	1.44	ND	U	0.72
1,2-Dichloroethene (trans)	-	NA	<0.25	ND	U	0.79	ND	U	0.79	4.16		0.79	ND	U	1.59	ND	U	0.79
Methyl ethyl ketone	-	NA	16	5.34		0.59	2.45		0.59	24.5		0.59	3.19			ND	U	0.59
1,1,1-Trichloroethane	100	<0.5 - 833.2	3.1	ND	U	1.09	ND	U	1.09	**175**		1.09	**222**			ND	U	1.09
Cyclohexane	-	NA	8.1	ND	U	0.69	ND	U	0.69	0.89		0.69	ND	U	1.38	ND	U	0.69
Carbon tetrachloride	-	<0.5 - 2.1	0.8	ND	U	0.63	ND	U	0.63	1.45		0.63	ND	U	1.26	ND	U	0.63
Trichloroethene (TCE)	5	<0.6 - 88.5	0.5	ND	U	0.48	ND	U	0.48	**5.27**		0.48	3.01			ND	U	0.48
Benzene	-	<0.8 - 63.0	15	1.5		0.64	1.34		0.64	3.71		0.64	1.34			ND	U	0.64
Methyl butyl ketone	-	NA	-	ND	U	0.82	ND	U	0.82	0.9		0.82	ND	U	1.64	ND	U	0.82
Tetrachloroethene (PCE)	100	< 0.9 - 65.7	2.9	ND	U	1.36	1.63		1.36	4.61		1.36	**448**			ND	U	1.36
Toluene	-	3.5 - 390.3	58	11.5		0.75	7.91		0.75	44.5		0.75	13.8			ND	U	0.75
Ethylbenzene	-	<0.9 - 73.6	7.3	ND	U	0.87	ND	U	0.87	7.82		0.87	3.82			ND	U	0.87
m,p-Xylene	-	<1.5 - 260.8	12	1.78		0.87	1.39		0.87	33.5		0.87	12.4			ND	U	0.87
o-Xylene	-	<0.7 - 90.5	7.6	ND	U	0.87	ND	U	0.87	17		0.87	7.82			ND	U	0.87
1,3,5-Trimethylbenzene	-	<0.8 - 16.6	3.6	ND	U	0.98	ND	U	0.98	1.97		0.98	ND	U	1.97	ND	U	0.98
1,2,4-Trimethylbenzene	-	<0.4 - 24.2	9.5	ND	U	0.98	ND	U	0.98	9.78		0.98	1.97			ND	U	0.98
1,4-Dichlorobenzene	-	<0.5 - 87.1	1.3	ND	U	1.20	ND	U	1.20	13.5		1.20	3.13			ND	U	1.20

Notes:
1.) Table 3.1 - NYSDOH Air Guidance Values (October 2006) only apply to concentrations of volatile chemicals in indoor and outdoor air
2.) New York State does not have any standards, criteria or guidance values for concentrations of volatile chemicals in subsurface vapors
Bold - Exceeds the NYSDOH Air Guideline Values
Underline - Above the 90th percentile indoor air values given in the NYSDOH 2003 Study of Volatile Organic Chemicals in Air of Fuel Oil Heated Homes
D - Results for dilution
B - Analyte associated with blank
U - Below method detection limit (MDL)
ND - compound not detected above MDL

Table 11
Volatile Organic Compounds Quanitified in Test Pit (TP-1) Soil Samples, mg/kg (ppm)
November 18, 1994
Macbeth Division of Kollmorgen Instruments Corporation
New Windsor, New York
NYSDEC Site No. 336037

Sample Location	Former Source Area		Bldg 1 Rear	Container Area				NYSDEC Rec.
	Pit 1	Pit 2	Conc.	Center	North	South	SE	Cleanup
	FSA	NSA	Trough	Wall	Wall	Wall	Pit	Objective
Parameter								
1,1,1-Trichloroethane	0.023	0.017	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	0.8
Tetrachloroethene	0.075	0.057	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	1.4
Trichloroethene	0.003 J	0.008 J	< 0.012	0.004 J	< 0.017	< 0.012	0.009 J	0.7
Acetone	0.077	0.033	0.012 B	0.011 BJ	***0.250***	< 0.012	0.020	0.2
Methylene Chloride	0.003 BJ	< 0.014	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	0.1

Notes

< 0.012- Not found at or above the laboratory detection limit shown.

Compounds found above NYSDEC recommended cleanup objectives (TAGM HWR 94-4046) denoted in bold italics.

J - Estimated concentration for a parameter found below the laboratory analytical detection limit.

B - Found in blank as well as sample; presence in sample may be attributable to laboratory contamination.

Other volatile organic compounds were analyzed for in accordance with NYSDEC CLP methods and not detected.

Table 12
Volatile Organic Compounds & TAL Metals Quantified in Paint Solids Sample (TP-2)
Macbeth Division of Kollmorgen Instruments Corp.
November 18, 1994

Volatile Organic Compounds (total) (mg/kg)	Conc.
Bromomethane	1.300
Methylene Chloride	0.240
2-Butanone	0.670
1,1,1-Trichloroethane	0.490
Toluene	9,000
Ethylbenzene	250
Xylene (total)	2,000

-Other TCL VOCs were analyzed for but not detected.

TAL Metals (total) (mg/kg)	
Aluminum	6,600
Arsenic	5.30
Barium	91.3
Calcium	7,690
Cadmium	7.95
Chromium	8,400
Cobalt	118
Copper	27.1
Iron	18,060
Mercury	0.15
Potassium	3,300
Magnesium	2,450
Manganese	118
Sodium	2,390
Lead	2,310
Antimony	77.8
Zinc	7,365

-Other TAL metals were analyzed for but not detected.

Table 13
Volatile Organic Compounds & TAL Metals Quanitified in Confirmatory Soil Samples, mg/kg (ppm)
Container Test Pit Area
December 8, 1994
Macbeth Division of Kollmorgen Instruments Corporation
New Windsor, New York
NYSDEC Site No. 336037

	North	South	Center	Center Wall	Backfill	USEPA Heast RBC (1)	NYSDEC Rec. Cleanup Objective (2)	Eastern USA Background (2)
Volatile Organics								
Acetone	< 0.013	< 0.011	< 0.013	< 0.012	0.009 J	7,800	0.2	NA
Carbon Disulfide	< 0.013	0.002 J	< 0.013	< 0.012	< 0.011	7,800	2.7	NA
Xylenes (total)	0.002 J	< 0.011	0.002 J	< 0.012	< 0.011	160,000	1.2	NA
Inorganics								
Aluminum	32,700	14,600	25,300	28,400	15,900	230,000	SB	33,000
Antimony	0.64 B	0.47 B	0.91 B	0.75 B	1.7 B	31	SB	N/A
Arsenic	4.3	5.4	5.8	5.0	6.0	0.37 (c)	7.5 or SB	3 - 12.
Barium	83.4	56.1	109	158	242	5,500	300 or SB	15 - 600
Beryllium	0.62 B	0.47 B	0.54 B	0.65 B	0.56 B	0.15 (c)	0.16 or SB	0 - 1.75
Cadmium	1.2 B	0.2 B	0.33 B	0.84 B	0.05 B	39	1 or SB	0.1 - 1
Calcium	1,040 B	853 B	1,290	883 B	3,240	NA	SB	130 - 35,000
Chromium (total)	32.8	20.0	64.4	40.9	47.1	390 (Cr VI)	10 or SB	1.5 - 40
Cobalt	11.3 B	9.8 B	13.4	13.1	13.4	14,000	30 or SB	2.5 - 60
Copper	967	23.5	484	566	140	2,900	25 or SB	1 - 50.
Iron	26,100	28,300	59,700	28,500	43,900	NA	2,000 or SB	2,000 - 550,000
Lead	67.5	14.5	58.8	61.1	181	NA	SB	4 - 500
Magnesium	4,110	4,790	4,280	4,180	4,360	NA	SB	100 - 5,000
Manganese	675	624	864	865	703	390	SB	50 - 5,000
Mercury	1.6	0.07 B	1.4	0.82	0.47	23	0.1	0.001 - 0.2
Nickel	28.4	20.3	37.9	31.5	23.6	1,600	13 or SB	0.5 - 25
Potassium	2,730	1,960	2,520	2,300	2,800	NA	SB	8,500 - 43,000
Selenium	1.7	1.4	3.6	1.5	2.6	390	2 or SB	0.1 - 3.9
Silver	0.17 B	< 0.05	< 0.05	0.08 B	0.71 B	390	SB	N/A
Sodium	177 B	187 B	159 B	160 B	213 B	NA	SB	6,000 - 8,000
Thallium	< 0.49	< 0.41	< 0.45	< 0.45	< 0.42	NA	SB	N/A
Vanadium	26.9	20.0	28.2	28.3	24.9	550	150 or SB	1 - 300
Zinc	250	77.6	301	259	239	23,000	20 or SB	9 - 50.

Notes:

(1) - USEPA risk-based concentrations obtained from HEAST for non-industrial soils, direct ingestion

(2) - NYSDEC TAGM HWR-94-4046.

SB - Site Background.

< 0.012- Not found at or above the laboratory detection limit shown.

NA - Not available or not applicable

J - Estimated concentration for a parameter found below the laboratory analytical detection limit.

B - Found in blank as well as sample; presence in sample may be attributable to laboratory contamination.

(c) -value for carcinogenic effects provided where values for non-carcinogenic effects are also available.

FIGURES

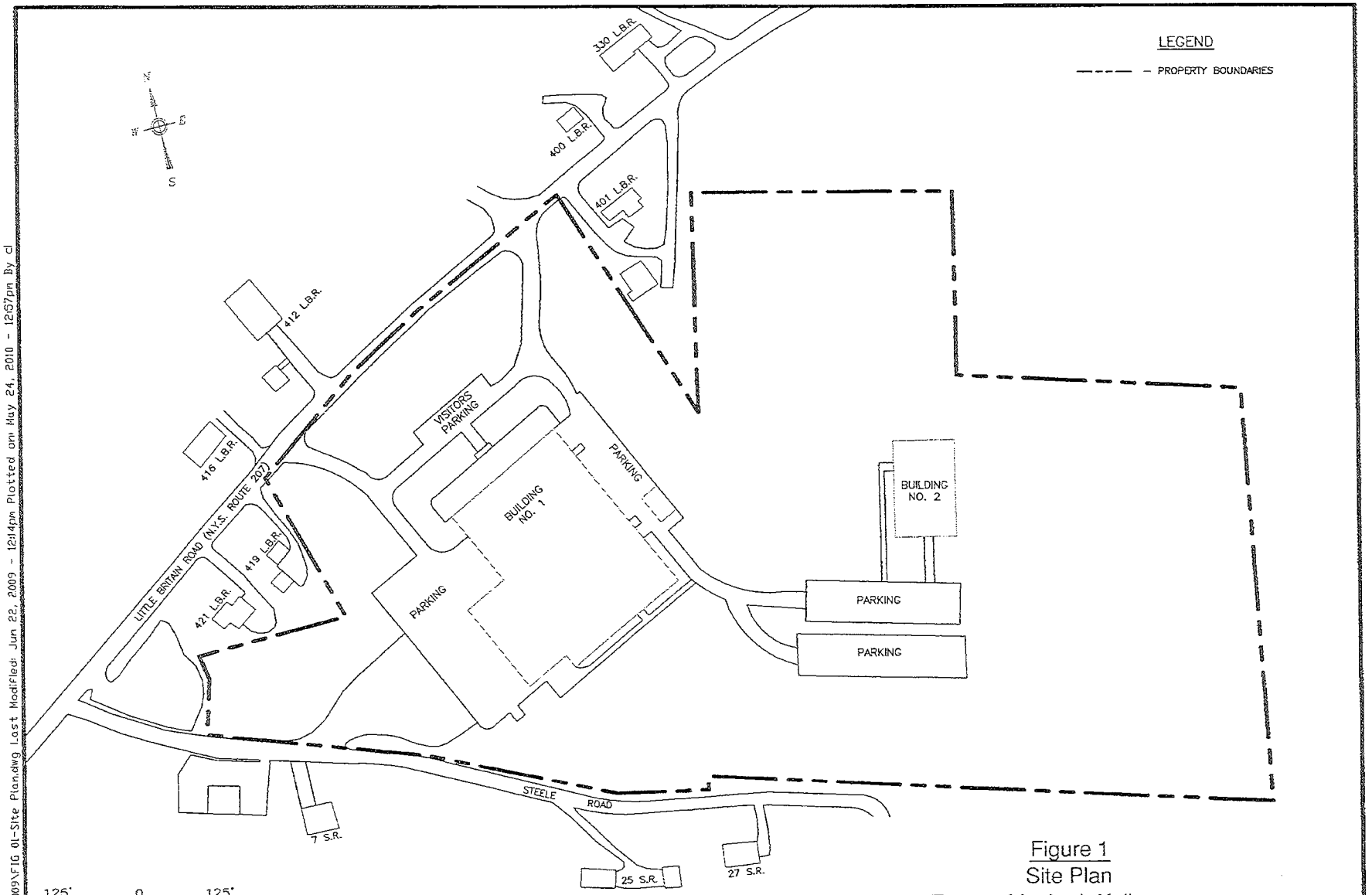
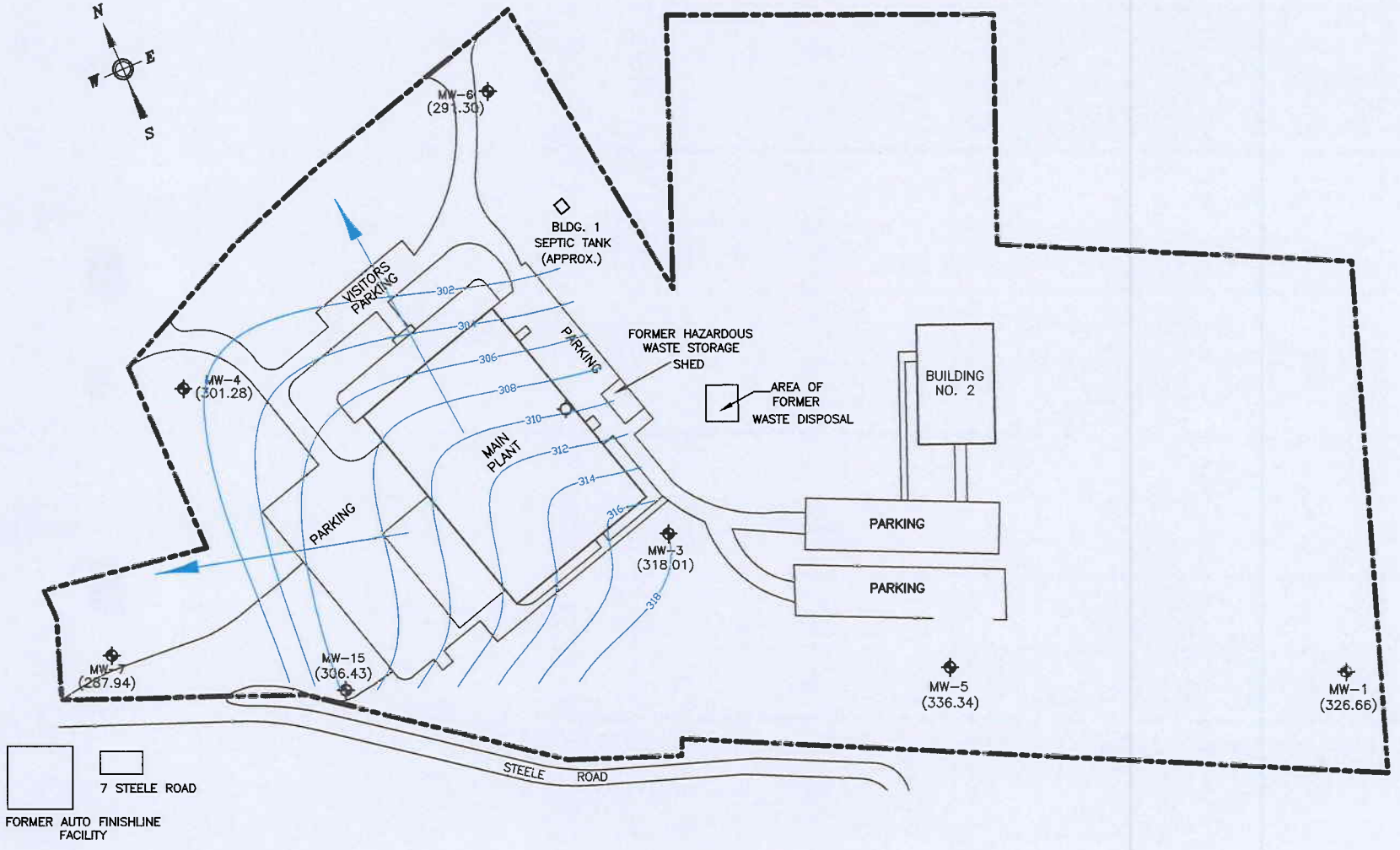


Figure 1
Site Plan
Former Macbeth Kollmorgan
New Windsor, New York

H2MGROUP ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS
MELVILLE, N.Y. PARSIPPANY, N.J.

I:\ZMAC\Report 06-2009\FIG 01-Site Plan.dwg Last Modified: Jun 22, 2009 - 12:14pm Plotted on May 24, 2010 - 12:57pm By cl



LEGEND

MW-3 ⊕ SHALLOW BEDROCK MONITORING WELL

240 GROUNDWATER CONTOUR

DIRECTION OF FLOW

FIGURE 2
GROUNDWATER ELEVATION CONTOUR MAP
SHALLOW BEDROCK WELLS
MACBETH/KOLLMORGEN
NYSDEC SITE No. 3-36-037
NEW WINDSOR, NEW YORK
JANUARY 2010

125' 0 125'

APPROXIMATE SCALE

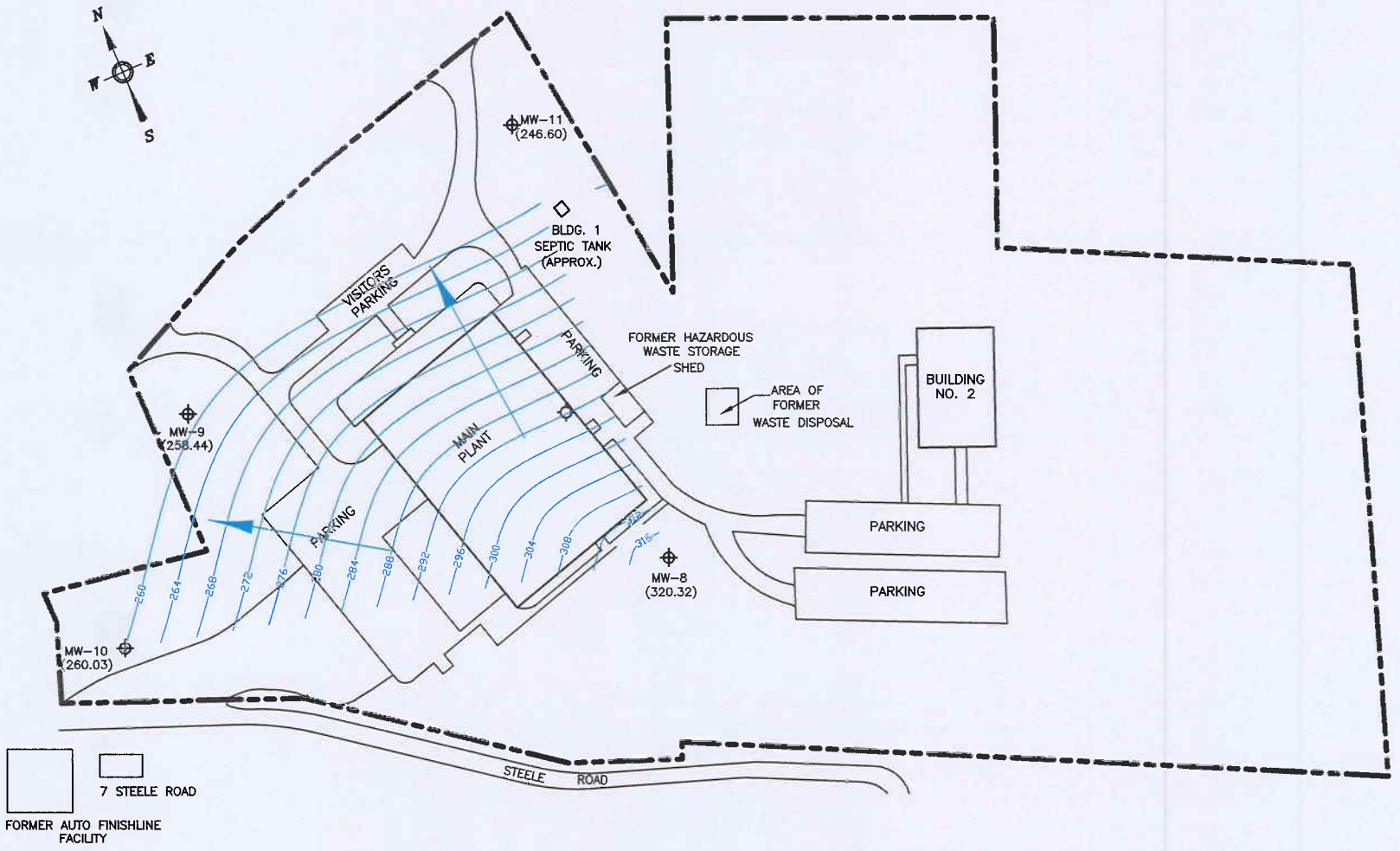


FIGURE 3
GROUNDWATER ELEVATION CONTOUR MAP
INTERMEDIATE BEDROCK WELLS
MACBETH/KOLLMORGEN
NYSDEC SITE No. 3-36-037
NEW WINDSOR, NEW YORK
JANUARY 2010

LEGEND

MW-8 ⊕ INTERMEDIATE BEDROCK MONITORING WELL

—240.5— GROUNDWATER CONTOUR

DIRECTION OF FLOW

125' 0 125'

APPROXIMATE SCALE

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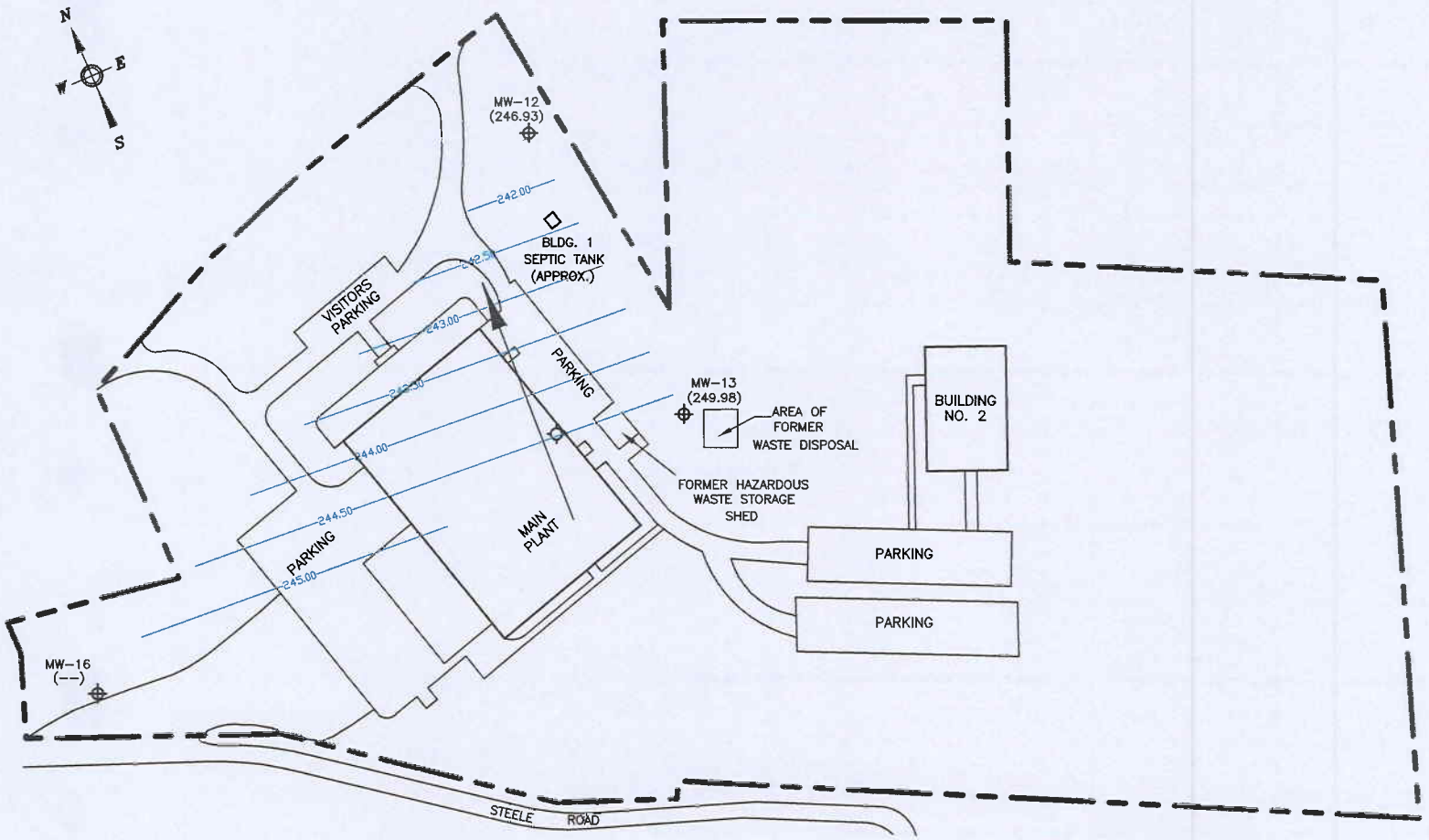
MELVILLE, N.Y. PARSIPPANY, N.J.

I:\ZMAC\0101\2010\01-10_IBed.dwg Last Modified: May 24, 2010 - 11:45am Plotted on: Dec 03, 2010 - 11:11am By rwirth



LEGEND

MW-16 ⊕ DEEP BEDROCK MONITORING WELL

240.5 GROUNDWATER CONTOUR

DIRECTION OF FLOW

FIGURE 4
GROUNDWATER ELEVATION CONTOUR MAP
DEEP BEDROCK WELLS
MACBETH/KOLLMORGEN
NYSDEC SITE No. 3-36-037
NEW WINDSOR, NEW YORK
JANUARY 2010

125' 0 125'
APPROXIMATE SCALE

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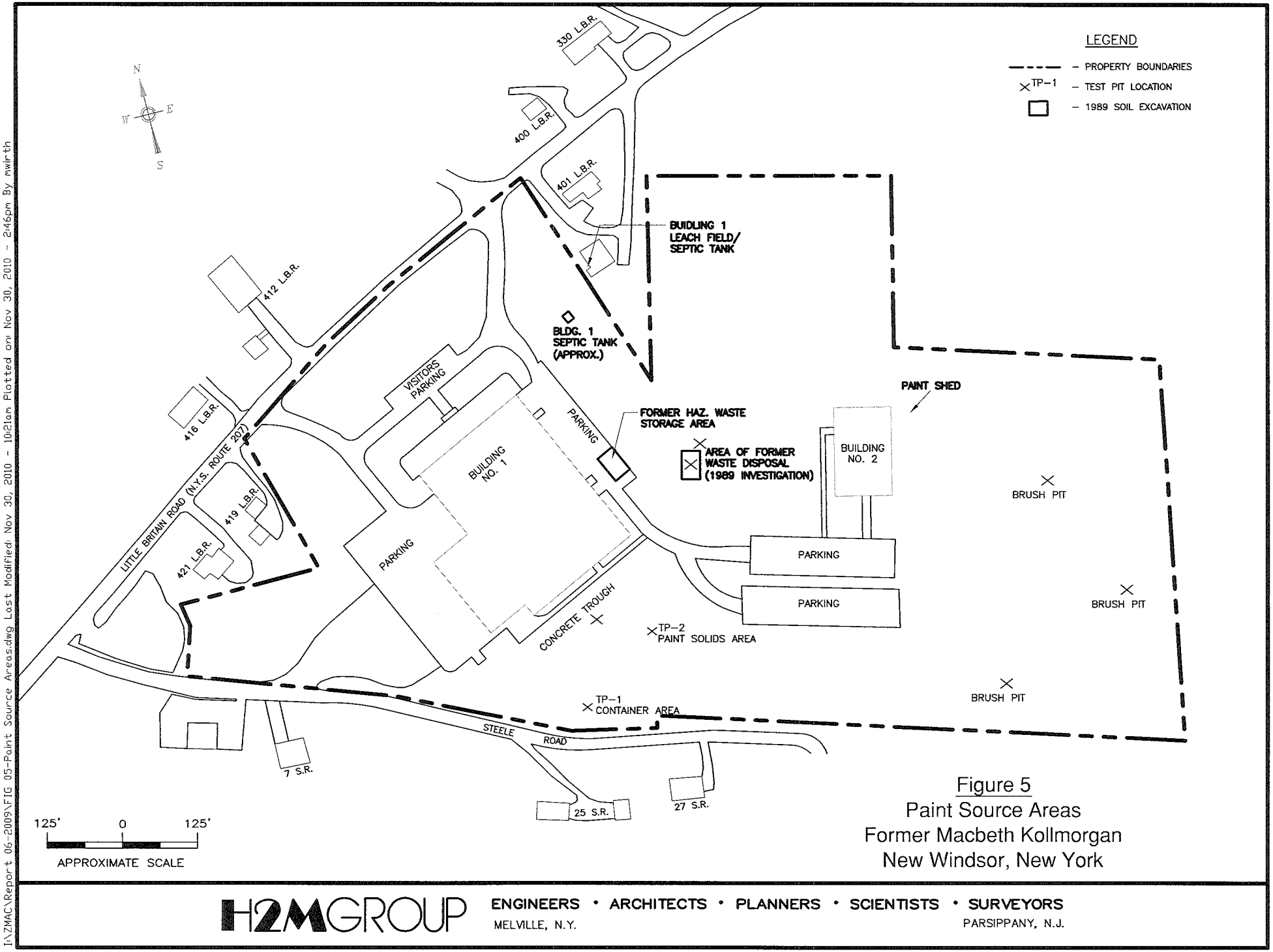

Figure 5
Paint Source Areas
Former Macbeth Kollmorgan
New Windsor, New York

H2MGROUP
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MELVILLE, N.Y. PARSIPPANY, N.J.

I:\ZMAC\Report 06-2009\FIG 05-Paint Source Areas.dwg Last Modified: Nov 30, 2010 - 10:21am Plotted on: Nov 30, 2010 - 2:46pm By: rwirth

SAMPLE ID: / DEPTH (ft.):	SB–2 0.0–2.0	NYS CLEANUP OBJECTIVES
TETRACHLOROETHENE	0.002 J	1.4
TOLUENE	0.001 J	1.5
ACETONE	0.011 B	0.2
METHYLENE CHLORIDE	0.004 J	0.1

SAMPLE ID: / DEPTH (ft.):	SB–4 4.0–6.0	NYS CLEANUP OBJECTIVES
ACETONE	0.006 J	0.2
METHYLENE CHLORIDE	0.003 J	0.1

SAMPLE ID: / DEPTH (ft.):	SB–5 2.0–4.0	NYS CLEANUP OBJECTIVES
ACETONE	0.003 J	0.2
METHYLENE CHLORIDE	0.004 J	0.1

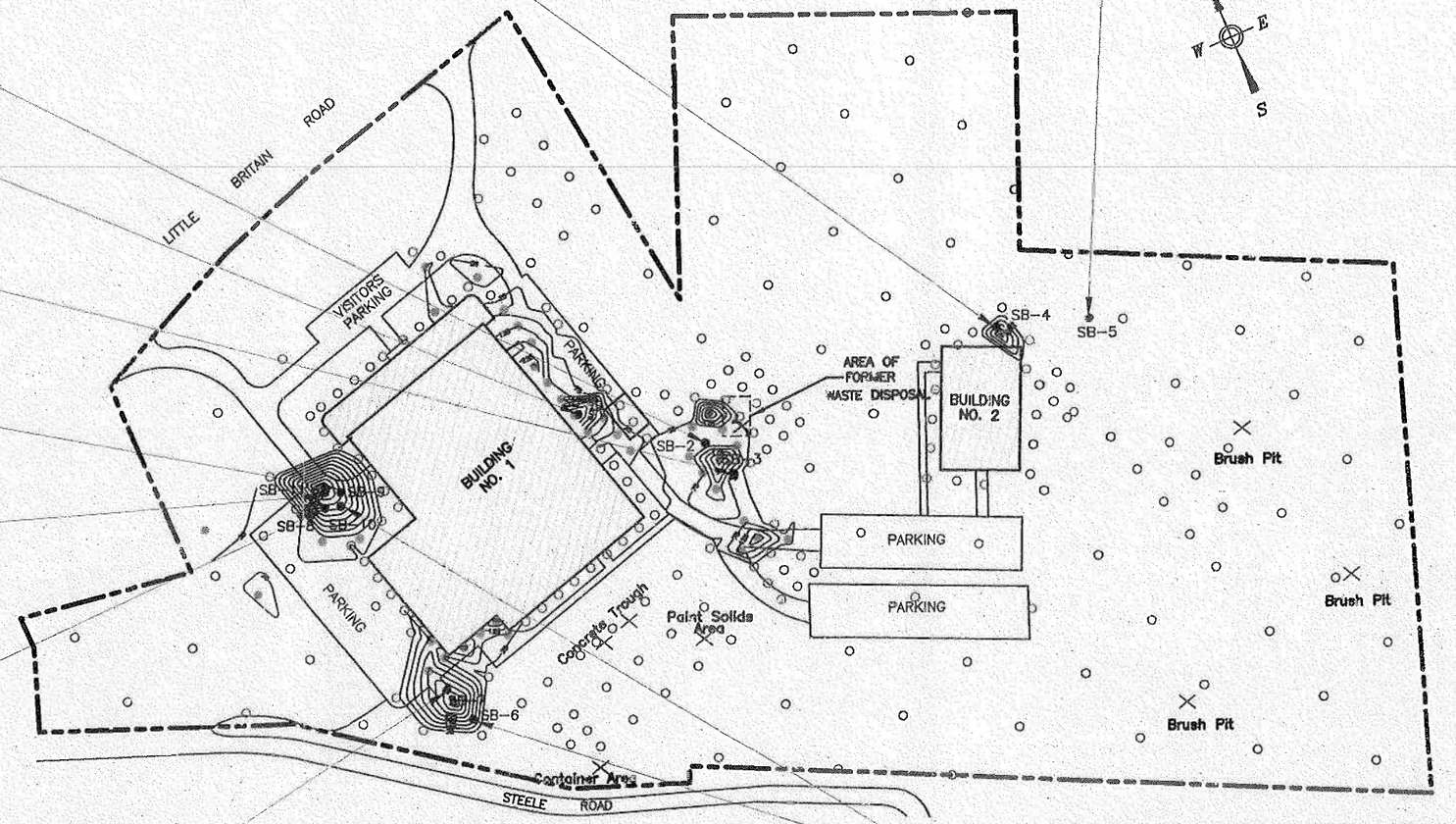
SAMPLE ID: / DEPTH (ft.):	SB–1 0.0–2.0	NYS CLEANUP OBJECTIVES
TRICHLOROETHENE	0.003 J	0.70
ACETONE	0.003 J	0.2

SAMPLE ID: / DEPTH (ft.):	SB–3 4.0–6.0	NYS CLEANUP OBJECTIVES
ACETONE	0.006 J	0.2
METHYLENE CHLORIDE	0.003 J	0.1

SAMPLE ID: / DEPTH (ft.):	SB–9 4.0–6.0	NYS CLEANUP OBJECTIVES
ACETONE	0.006 J	0.2
METHYLENE CHLORIDE	0.002 J	0.1

SAMPLE ID: / DEPTH (ft.):	SB–11 0.0–2.0	SB–11 2.0–4.0	NYS CLEANUP OBJECTIVES
ETHYLBENZENE	0.005 J	0.005 J	5.5
XYLENES (TOTAL)	0.190	0.190	1.2
ACETONE	0.014	0.014	0.2

SAMPLE ID: / DEPTH (ft.):	SB–8 0.0–2.0	NYS CLEANUP OBJECTIVES
METHYLENE CHLORIDE	0.002 J	0.1



SAMPLE ID: / DEPTH (ft.):	SB–7 2.0–4.0	NYS CLEANUP OBJECTIVES
METHYLENE CHLORIDE	0.002 J	0.1

SAMPLE ID: / DEPTH (ft.):	SB–6 4.0–6.0	NYS CLEANUP OBJECTIVES
TETRACHLOROETHENE	0.007 J	1.4
METHYLENE CHLORIDE	0.002 J	0.1

SAMPLE ID: / DEPTH (ft.):	SB–10 0.0–2.0	NYS CLEANUP OBJECTIVES
1,2–DICHLOROETHANE	0.001 J	0.1
BENZENE	0.002 J	0.06
ETHYLBENZENE	0.005 J	5.5
XYLENES (TOTAL)	0.190	1.2
ACETONE	0.014	0.2
METHYLENE CHLORIDE	0.002 J	0.1

LEGEND

- × – TEST PIT LOCATION
- ● – SOIL BORING – ALL ANALYTICAL RESULTS IN ppb
- ◉ – SOIL GAS SURVEY POINT > 25 ppb (volume)
- ○ – SOIL GAS SURVEY POINT < 25 ppb (volume)
- 1000 – ISOPLETH CONTOUR (INTERVAL AS SHOWN)

NOTE

OTHER VOLATILE ORGANIC COMPOUNDS WERE ANALYZED FOR IN ACCORDANCE WITH NYSDEC CLP METHODS AND NOT DETECTED.

Figure 6

Soil Gas Points & Soil Boring Locations
1995 RI Results
Former Macbeth Kollmorgan
New Windsor, New York

125' 0 125'

APPROXIMATE SCALE

H2MGROUP ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS
MELVILLE, N.Y. PARSIPPANY, N.J.

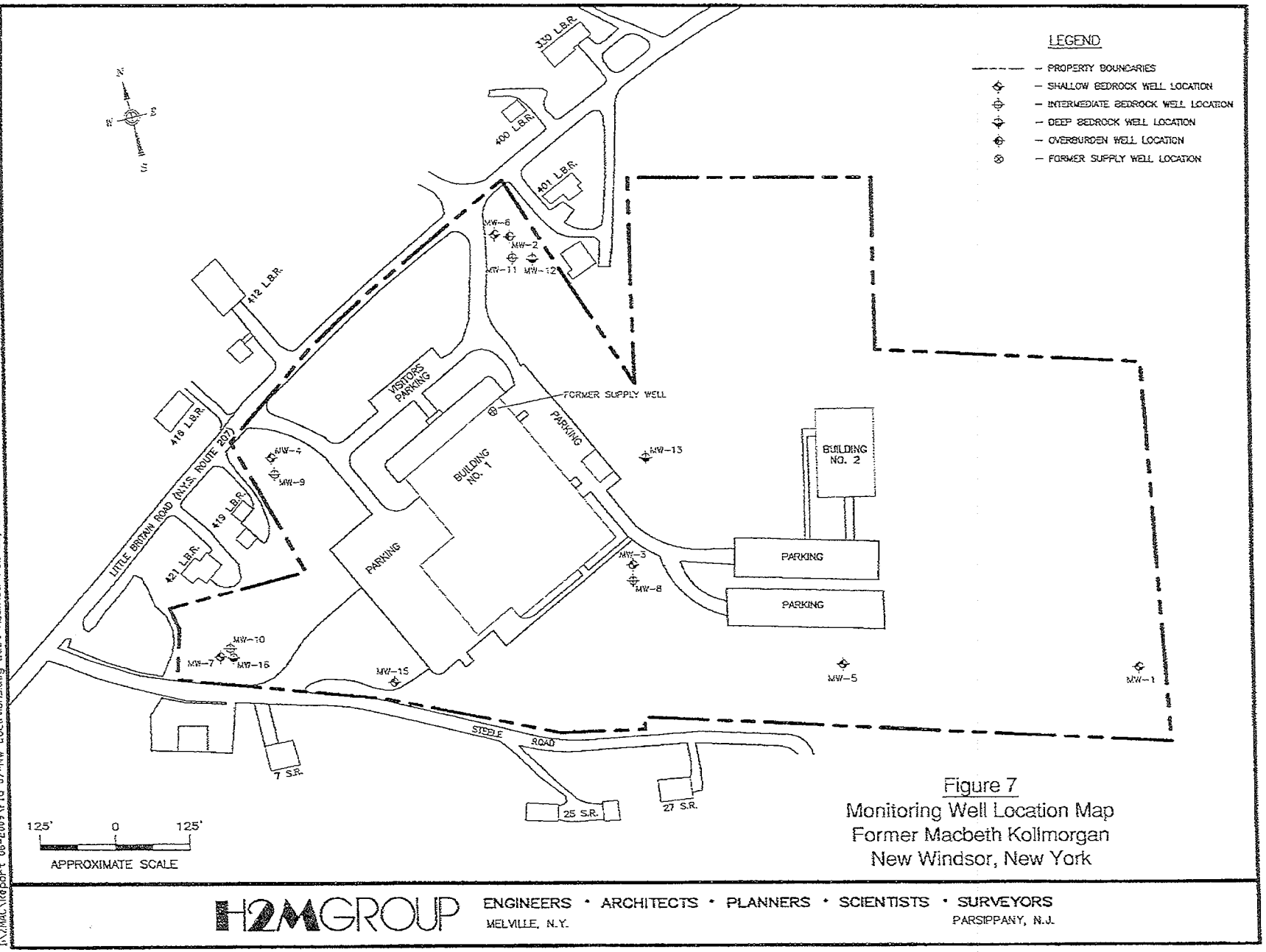


Figure 7
Monitoring Well Location Map
Former Macbeth Kollmorgan
New Windsor, New York

H2MGROUP ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS
MELVILLE, N.Y. PARSIPPANY, N.J.

J:\ZMAC\Report 06-2009\FIG 07-HW Locations.dwg Last Modified: Feb 25, 2010 - 11:00am Plotted on Feb 25, 2010 - 1:18pm By cl

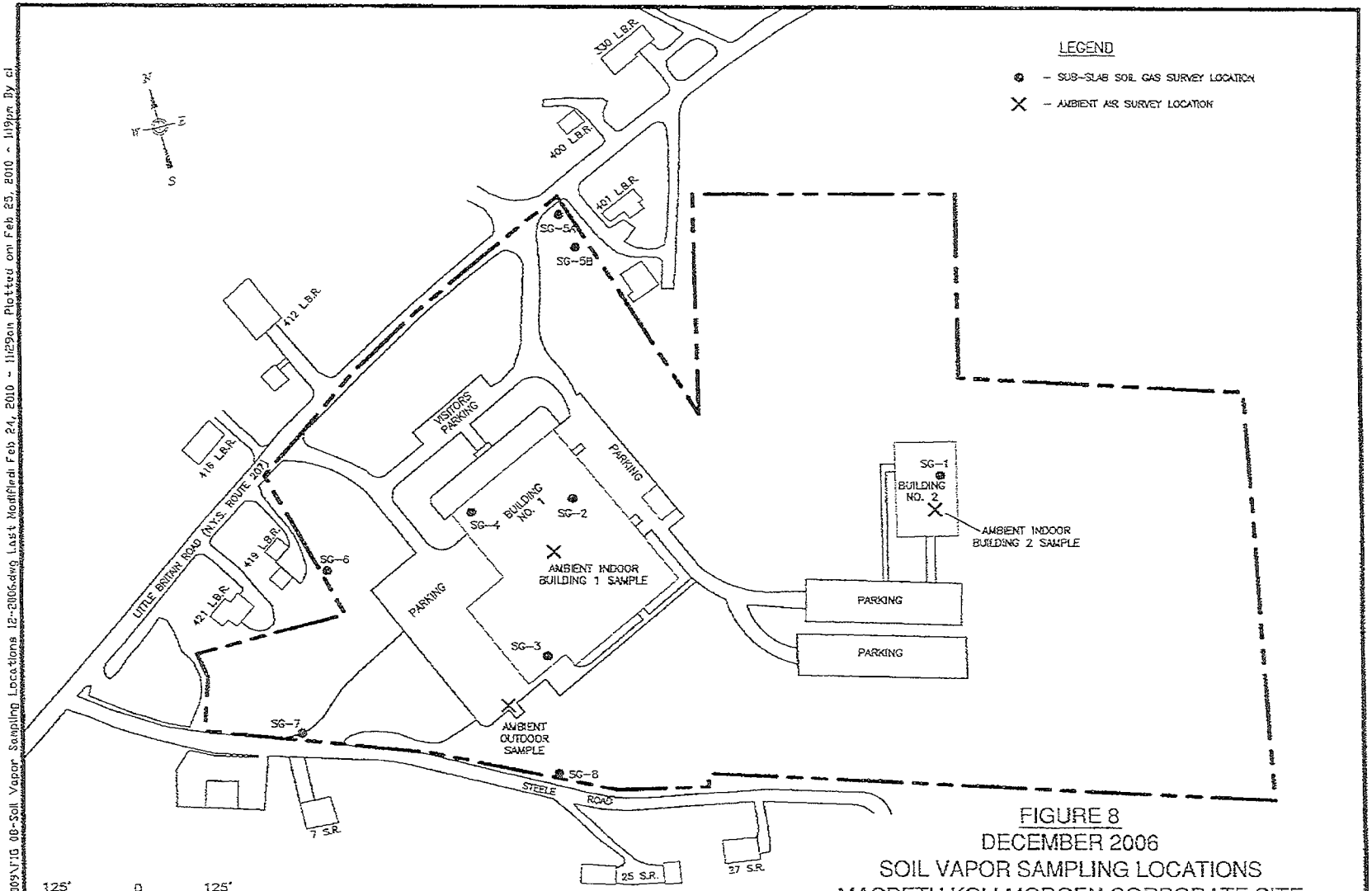


FIGURE 8
DECEMBER 2006
SOIL VAPOR SAMPLING LOCATIONS
MACBETH KOLLMORGEN CORPORATE SITE
NEW WINDSOR, NEW YORK

H2MGROUP ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS
MELVILLE, N.Y. TOTOWA, N.J.

J:\2MAC\Report 06-2009\FIG 08-Soil Vapor Sampling Locations 12-2006.dwg Last Modified: Feb 24, 2010 - 11:29am Plotted on: Feb 25, 2010 - 1:19pm By: cl

PARKING

SG-3

AMBIENT-3

AA-2

SG-3 SG-1B

SG-4

SG-1C

ENTER

AMBIENT-1

SG-2C

AA-1

AMBIENT-2

SG-2B

SG-2

SG-2A

SG-2D

PARKING

PARKING

VISITORS

LEGEND

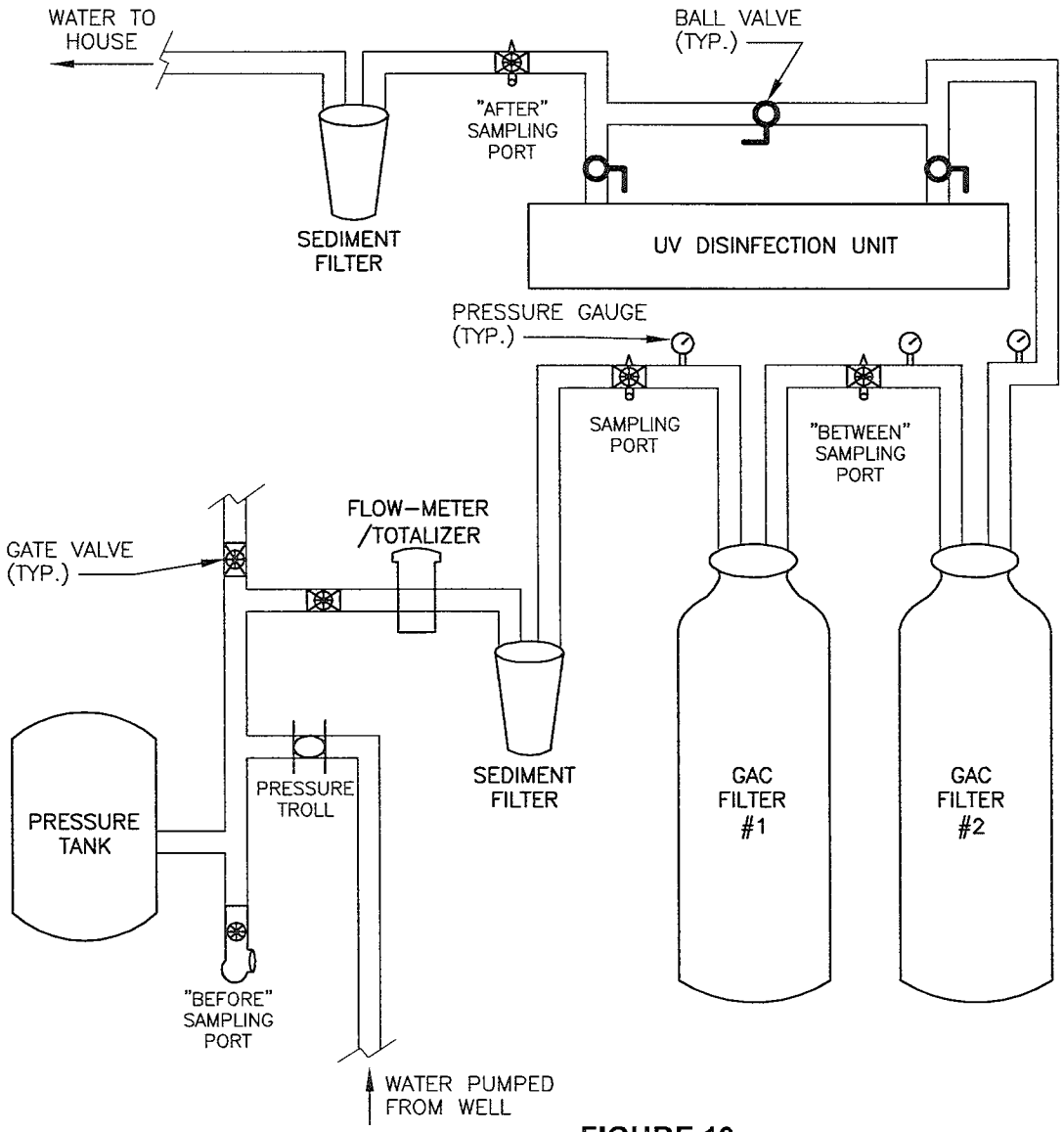
● SG-4	SUB-SLAB VAPOR SAMPLE LOCATION (DECEMBER 2006)
○ SG-2A	SUB-SLAB VAPOR SAMPLE LOCATION (FEBRUARY 2008)
◒ SG-2	SUB-SLAB SAMPLE LOCATION (FEBRUARY 2009)
× AA-1	AMBIENT AIR SAMPLE LOCATION (DECEMBER 2006)
⊗ AA-1	AMBIENT AIR SAMPLE LOCATION (FEBRUARY 2008)
⊠ AMBIENT-1	AMBIENT AIR SAMPLE LOCATION (FEBRUARY 2009)

Figure 9
Soil Vapor & Air Sampling Locations
February 2008 & 2009
617 Little Britain Road
New Winsor, N.Y.

50 0 50

APPROXIMATE SCALE
(IN FEET)

H2MGROUP ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS
MELVILLE, N.Y. PARSIPPANY, N.J.



LEGEND

- GATE VALVE
- BALL VALVE
- PRESSURE GAUGE

FIGURE 10
GENERAL SCHEMATIC OF
GRANULAR ACTIVATED CARBON (GAC)
FILTRATION SYSTEM

7 STEELE ROAD
NEW WINDSOR, NEW YORK

NOT TO SCALE

H2M architects + engineers
Melville, NY
Parsippany, NJ

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APPENDICES

Appendix A
Groundwater Sampling Form

Table
Ground Water Sampling Measurements and Calculations

SAMPLING DATE:

Site Name/Location:

revised: 03/05

PRE-PURGE STATIC INFORMATION									
Well No. or Name	Time	Total Depth (ft)	Depth To Water (ft)	Water Column (ft)	Multi-plier	Est. Purge Vol.(gal)	PID (ppm)	Depth to Prod. (ft)	Prod. Thick. (ft)

PRE-PURGE					
Temp (°C)	pH (su)	Cond. (umhos/cm)	Turbidity NTU	ORP (mV)	D.O. (ppm)

PURGING SUMMARY								
Well No. or Name	Pump Intake Depth (ft)	Time Pump On	Time Pump Off	Flow Rate per Volume (gpm)		Total Purge Vol. (gal)	Pump Type	Water Conditions
				1st & 2nd	3rd			

POST-PURGE					
Temp (°C)	pH (su)	Cond. (umhos/cm)	Turbidity NTU	ORP (mV)	D.O. (ppm)

SAMPLING SUMMARY					
Well No. or Name	80% Recov. (ft)	Depth To Water (ft)	Sample Time	Sample Method	Comments/Water Conditions at time of sample

POST-SAMPLE					
Temp (°C)	pH (su)	Cond. (umhos/cm)	Turbidity NTU	ORP (mV)	D.O. (ppm)

Total depth includes stick-up height, if applicable.

Multiplier includes a factor of 3 to calculate the required volume of ground water to be removed from the well.

80% recovery is calculated by subtracting 80% of the water column height from the total depth [Total Depth - (0.80 x Water Column)].

Appendix B
MW-12 Drilling Log

Boring MW-12

Page 1 of 3

PROJECT: MACBETH DIVISION OF KOLLMORGEN INSTRUMENTS CORP. RI/FS; Date Start: 11/15/94 Date Complete: 12/9/94
Location: New Windsor, NY Ground Elev. (FT. MSL) 303.62; Total Depth (FT. BG) 140.0

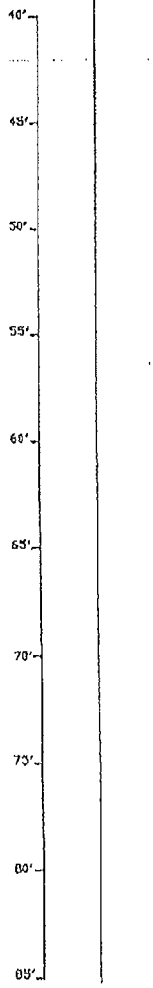
Casing 1 ID (in.)/type: 12 in. Steel; Casing 1 Depth (FT. BG): 40.0; Drill Method: Air rotary; Bit type/size: 17.5" roller;
Casing 2 ID (in.)/type: 8 in. Steel; Casing 2 Depth (FT. BG): 85.0; Drill Method: Air rotary; Bit type/size: 12 in. hammer
Well Casing ID (in.)/type: NA; Well Casing Depth (FT. BG): NA; Screened Interval (FT. BG): 85.0-140.0
Screen ID (in.)/type: Open Hole; Slot Size (in.): NA; Drill Method: Air rotary; Bit type/size: 8 in. hammer;

CONTRACTOR: Salamone Brothers, Wayne, NJ; LOGGED BY: H2M Group, Totowa, NJ

SCALE IN FEET	LITHOLOGIC SYMBOL	RATE OF PENETRATION (MIN/FT)	SOIL AND ROCK DESCRIPTION/COMMENTS
0'		*	0-.25' - Topsoil and grass .25'-3.0' - Light brown silty sand containing some gravel and cobbles
5'		*	Light brown silty sand containing some gravel and cobbles; as depth increases, cobble and boulder content increases
10'			
15'		*	13.0'-16.0' - Boulders
		*	16.0'-19.0' - Ligtht brown silty sand and gravel containing some gravel and cobbles
20'		*	19.0'-22.5' - Bluish gray rock cuttings; very smooth consistent drilling
25'		*	22.5'-32.5' - Hardpan - Dull light brown silty sand and cobbles drilling becomes irregular (rods vibrate and jump through this zone)
30'			
		*	32.5'-34.5' - Bluish gray to whitish gray rock cuttings Relatively smooth drilling
35'		NL	34.5'-35.5' - Fracture zone
		2.6	35.5'-40.0' - Bedrock - bluish gray rock cuttings; smooth drilling 34.5'-38.5' - Water in hole after it sat open over night 0-40.0' - No PID responses above background were recorded
40'			

* - Rate of penetration (min/ft) not given due to drilling in overburden or delays/equipment.
NL - Drill time not logged in void or fracture zone.

LEGEND: Topsoil; Till; Dolomite; Fracture zone



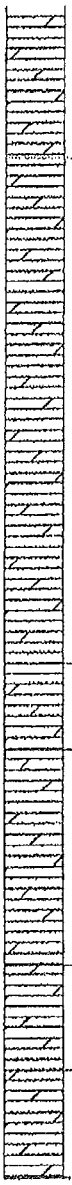
SCALE IN FEET	LITHOLOGIC SYMBOL	RATE OF PENETRATION (MIN/FT)	SOIL AND ROCK DESCRIPTION/COMMENTS
40'–70'		2.6	40.0'–70.0' – Bedrock – Grayish black rock cuttings Consistent, dry drilling
70'–75'		0.6	70.0'–75.0' – Bedrock – Grayish black rock cuttings Consistent, dry drilling Drill time = 43 min. 12 in hammer bit used
75'–76'		NL	75.0'–76.0' – Fracture zone
76'–81'		2.6	76.0'–81.0' – Bedrock Consistent, dry drilling
81'–85'		NL	81.0'–85.0' – Fracture zone water bearing No water in hole when drilling began through casing set at 85.0 Ft.

» – Rate of penetration (min/Ft) not given due to drilling in overburden or delays/equipment.
NL – Drill time not logged in void or fracture zone.

LEGEND: Topsoil, Till, Dolomite, Fracture zone

Boring MW-12

Page 3 of 3

SCALE IN FEET	LITHOLOGIC SYMBOL	RATE OF PENETRATION (MIN/FT)	SOIL AND ROCK DESCRIPTION/COMMENTS
85'–90'–95'–100'–105'–110'–115'		2.3	85.0'–116.0' – Bedrock Consistent, dry drilling Stopped drilling at 116 ft. and left borehole open for 2 hrs; no water
120'		8.0	116.0'–120.0' – Bedrock Consistent, dry drilling
125'		1.9	120.0'–130.0' – Bedrock Consistent, dry drilling Stopped drilling at 130 ft. and left borehole open for 30 min; no water
130'		1.6	130.0'–135.0' – Bedrock Consistent, dry drilling Stopped drilling at 135 ft. and left borehole open for thr. and 35 min; no water
135'		1.25	135.0'–140.0' – Bedrock Consistent, dry drilling 8 in. open hole from 08–140 ft.
140'			

LEGEND: Topsoil · Till · Dolomite · Fracture zone

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MELVILLE, N.Y. TOTOWA, N.J.

Appendix C
Quality Assurance Project Plan

QUALITY ASSURANCE PROJECT PLAN

for
Macbeth Kollmorgen
New Windsor, New York

Prepared by:

H2M Associates, Inc.
119 Cherry Hill Road, Suite 200
Parsippany, New Jersey

May 2010

QUALITY ASSURANCE PROJECT PLAN

Macbeth Kollmorgen

New Windsor, New York

May 2010

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TABLE OF CONTENTS

(Continued)

List of Appendices

Macbeth Division of Kollmorgen Instruments Corporation
New Windsor, Orange County, New York
NYSDEC Site No. 336037

QUALITY ASSURANCE/QUALITY CONTROL PROJECT PLAN

May 2010

1.0 Introduction/Project Description

This Quality Assurance/Quality Control Plan ("QA/QC Plan") describes the measures that will be employed to achieve the data quality objectives appropriate for the continued soil vapor monitoring at the Macbeth Division of Kollmorgen Instruments Corporation ("Macbeth").

The New York State Department of Environmental Conservation ("NYSDEC") added the Macbeth site to the New York State Registry of Inactive Hazardous Waste Sites in March 1991, with a Class 2 designation. The only known source of contamination on the Macbeth property was discovered during previous investigations and removed. The primary purpose of the Site Management Plan is to monitor soil vapor on the Macbeth property.

2.0 Analytical Procedures and Data Quality Objectives

Soil gas samples will be analyzed using 6-liter SUMMA canisters canisters that will be set with flow restrictors to facilitate the collection of samples at a flow rate less than 0.2 liters per minute for a period of 24-hours. The unit will be operated in a manner consistent with the manufacturer's recommended protocols.

3.0 Sampling Procedures

Soil gas samples will be analyzed using 6-liter SUMMA canisters canisters that will be set with flow restrictors to facilitate the collection of samples at a flow rate less than 0.2 liters per minute for a period of 24-hours. Before and after sampling, a helium leak tracer test will be performed to check the integrity of the seal at each sampling location to confirm that the sample volume was not cross contaminated with ambient air. Prior to initiating sample collection, three volumes of air will be purged from each sample location using a low-flow vacuum pump set to approximately 0.2 liters per minute

4.0 Sample Custody

To maintain and document sample possession, chain-of-custody procedures are followed. A chain-of-custody form contains the signatures of individuals who had possession of the samples after

collection and identification in the field. Each person involved with the samples will know chain-of-custody procedures. A detailed discussion of the stages of possession; (1) field collection, (2) transfer, and (3) laboratory custody are presented below: A separate, internal chain-of-custody will be maintained for soil gas samples, as these samples will be analyzed on-site the same day as collection. The method and time of sample collection and analysis for soil gas samples will be documented in a bound field book and/or field log by the sampler and GC analyst.

4.1 Field Chain-of-Custody

The field sampler initiates the chain-of-custody procedure in the field and is the first to sign the form upon collection of samples. A sample is under custody if:

1. it is in your actual possession; or
2. it is in your view, after being in your physical possession; or
3. it was in your physical possession and then you locked it up or sealed it to prevent tampering; or
4. it is in a designated secure place restricted to authorized personnel.

The field sampler is personally responsible for the care and custody of the samples until they are transferred and properly dispatched. Sample bottle labels shall be completed for each soil vapor sample, using waterproof ink subjected to proper preservation, and packaged to preclude breakage during shipment. Every sample shall be assigned a unique identification number that is entered on the chain-of-custody form, provided in Appendix A. Samples can be grouped for shipment using a single form.

4.2 Transfer of Custody and Shipments

All soil vapor samples, upon collection, will be accompanied by the environmental sample chain-of-custody record. An example of this chain-of-custody can be found in Appendix A. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date and note the time of transfer. This record documents transfer of custody of samples from the sampler to another person, to a courier, or to the laboratory. If samples are shipped directly to the laboratory, the chain-of-custody forms will be kept in possession of the person delivering the samples. For samples shipped by commercial carrier, the chain-of-custody form will be sealed in a watertight envelope, placed in the shipping container, and the shipping container sealed prior to being given to the carrier. The waybill will serve as an extension of the chain-of-custody record between the final field sampler and receipt in the laboratory. Whenever samples are split with a facility or regulatory agency, the chain-of-custody will be marked to indicate which samples and with whom the samples were split.

4.3 Laboratory Sample Custody

H2M Labs, Inc. has a standard operating procedure for documenting the receipt, tracking and compilation of sample data. Sample custody related to sampling procedures and sample transfer are described below.

(1) Shipping or Pickup of Cooler by Field Team
   a. Cooler packed at H2M Labs after contact with field team or Proj. Mgr.
   b. Cooler wrapped with custody seal.
   c. Chain-of-custody form filled out by H2M Labs personnel.
   d. Field team supplied with custody seal to secure cooler prior to shipment back to the laboratory.

(2) Delivery of Cooler to Field Team
   a. Samplers check for any external damages (such as leaking).
   b. Samplers or facility representative sign for cooler from shipper.

(3) Cooler Delivery to H2M Labs
   a. Check condition of external seal.
   b. Open cooler.
   c. Remove chain-of-custody forms, fill out and sign.
   d. Check to see if any samples are broken or damaged.

5.0 Calibration Procedures

5.1 Field Instruments

All field instruments, including photoionization detectors will be calibrated according to the manufacturers specifications and requirements. Calibration records will be maintained in the field log. The field GC will be calibrated according to the manufacturer's requirements using a calibration gas blended for the targeted compounds. Calibration standards will be run for every ten samples. If area counts, retention times, or concentrations differ by more than 20 percent, recalibration will be performed.

6.2 Laboratory Calibration Practices

Laboratory calibration procedures are described in H2M Labs protocol for volatile organic analysis, CLP Method 91-1, included as Appendix B.

6.0 Data Reduction, Validation, and Reporting

6.1 Field Data

Field team members will be responsible for ensuring that data collected during field activities are properly recorded. The data reporting scheme and key individuals who will handle the data are as follows: (1) data collection by the field team; (2) data reduction, if necessary, also by the field team; (3)

data review by the project manager. Examples of field data include groundwater elevations, responses of field instruments, monitoring well purge volumes, etc. Subsequent data reduction and reporting, including but not limited to, contour maps of groundwater elevations, tabulated laboratory results, and contaminant isopleths will be handled in a similar fashion.

6.2 Laboratory Data

Laboratory data reduction and analysis for volatile organic parameters involves relating a "peak area" to the mass of a constituent. This is accomplished by digital computers. The computer hardware and software is designed to allow the analyst to create libraries or files of calibration standards, and then compare raw sample data against these libraries to produce a report which contains the identification and quantification of constituents present in the sample. The computer-reduced data are manually checked by the analysts.

Internal H2M Labs data validation begins with the processing of data and continues through review of the data and the reporting of analytical results. Data processing can be performed either by the analyst who obtained the data or another analyst. Data review starts with an analyst independent of the data acquisition and processing, reviewing (validating) that the data processing has been correctly performed and continues through verifying that the reported analytical results correspond to the data required and processed. Final review of the data to be reported is by the Laboratory QA Manager.

As stated, the first step in validation is data processing. In general, data will be processed by an analyst in one of the following ways:

- Manual computation of results directly on the data sheet or on calculation pages attached to the data sheets.
- Input of raw data for computer processing.
- Direct acquisition and processing of raw data by a computer.

If data are manually processed by an analyst, all steps in the computation shall be provided including equations used and the source of input parameters such as response factors, dilution factors, and calibration constants. If calculations are not performed directly on the data sheet, calculations should be attached to the data sheets. For data that are input by an analyst and processed using a computer, a copy of the input shall be kept and uniquely identified with the project number and other information as needed. These samples analyzed shall be evident and the input signed and dated by the analyst. If data are directly acquired from instrumentation and processed, the analyst shall verify that the following are correct: project and sample numbers, calibration constants and response factors, output parameters such

as units and numerical values used for detection limits (if a value is reported as less than "<"). The analyst shall sign and date the resulting output.

Review of Data Processing

The analyst performing the data processing shall give an analyst independent of the work the data package. The package shall include, as appropriate, raw data, data sheets, strip charts, computer input/output, calculations, sources for input parameters such as response factors, etc. The independent analyst (checker) shall review the data for:

- Appropriateness of equations used.
- Correctness of numerical input.
- Numerical correctness of all calculations. This should be done by re-performing numerical computations.
- Correct interpretation of strip charts, etc.

The checking process must be thorough enough to validate that the results are correct. If the checker disagrees with any part of the computations, the checker shall mark through the number with a single line and place the revised number above it. Any changes made by the checker shall be back-checked by the originator. If the originator agrees with the change, no action is necessary. If the originator disagrees, the originator and checker must resolve the difference so they agree with the result presented.

Review of Data Reporting

Review of data reports is required to verify that information reported by H2M Labs, Inc. corresponds with processed analytical results. Review is only required of the data as it is presented for issuance. Intermediate steps performed after the processed data are checked to prepare the data report (such as data summaries) do not require validation. After the draft report is prepared (generally in tabular form), the reported results should be checked against the reviewed processed data so that transcription errors do not occur. The checking process follows:

. Using the draft report, all data entries are checked. The checker is not required to be independent of the work because only the transcription from the reviewed data to the data report is being checked.

. The draft data report should be checked for completeness and correctness. Corrected entries are marked through with a single line and the correct entry provided. The reviewer will indicate that corrections have been made in the report by placing a second

check mark by the correction after comparing the change with the revised copy. The checker shall sign and date every page of the data report in ink.

- Use of the draft data report results in a check-print which should be maintained as a record to demonstrate the review.
- If data printouts, such as chromatograms or GC/MS data processing, are included in the data report, review is not required for the data printout.
- If computer output is used directly as the data report without further transcription, only the input requires review.

After checking of the data report is complete, it is given to the Laboratory QA Manager or her designated representative for final review. This step is not intended to verify the reported data. This review is intended to determine that the report meets project requirements. The data report is approved for issue by the Laboratory QA Manager.

Data Reporting

The following are applicable to data presentation:

- The final presentation shall be checked in accordance with data verification requirements and approved by Laboratory QA Manager.
- Data presentation will include:
  - Sample identification number used by H2M Laboratory and/or the sample identification provided to the laboratory, if different that identification used in the laboratory.
  - Chemical parameters analyzed, reported values, and units of measurement.
  - Detection limit of the analytical procedure, if the reported value is less than the detection limit.
  - Data for chemical parameters are reported with consistent significant figures for all samples.
  - Results of quality control sample analysis, if appropriate.
  - Footnotes referenced to specific data, if required to explain reported values.

The format for reporting will be in accordance with NYSDEC CLP protocols.

9.0 Quality Assurance/Quality Control Analysis

9.1 Field Samples

A closed and empty SUMMA canister was brought to the site during sampling to later be analyzed for the same compounds. This canister will serve as a trip blank for the group of samples that will be collected. The purpose of the trip blank is to assess the environmental conditions under which the samples are subject to upon storage and transport.

8.2 Laboratory

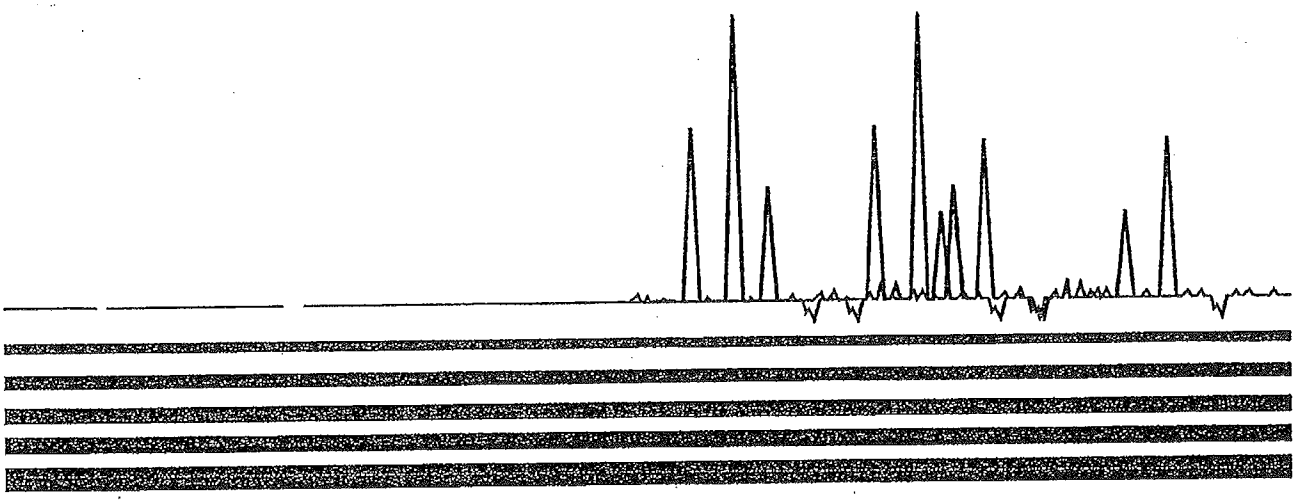
Laboratory QA/QC analyses, such as matrix spike/matrix spike duplicate ("MS/MSD") samples, surrogate recoveries, and instrument method and tuning blanks will be run as necessary, in accordance with NYSDEC CLP protocols. One set of MS/MSD samples will be collected by the field team for every 20 samples, for the soil and aqueous matricies. The laboratory QA officer will provide a QA summary sheet which includes a narrative of any QA/QC difficulties encountered during sample analysis.

APPENDIX A
H2M LABS, INC. QUALITY ASSURANCE/QUALITY CONTROL MANUAL

H2M LABS, INC.

QUALITY ASSURANCE
QUALITY CONTROL MANUAL

H2M Labs
575 Broad Hollow Road
Melville, New York 11747
(631) 694-3040



Issued 26-Jun-09 Control Copy #2

H2M LABS, INC.

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H2M LABS, INC.

This document has been read and approved by:

John Molloy
Laboratory Director
President and CEO

5/26/09
Date

Joann M. Slavin
Senior Vice President
Laboratory Manager

5/26/09
Date

Nicole Crespi
Quality Assurance Manager

5/26/09
Date

This document has been read and approved for continued acceptance by:

Signature	Title	Date
Signature	Title	Date
Signature	Title	Date
Signature	Title	Date
Signature	Title	Date
Signature	Title	Date

Revision History

Revision Number	Revision Date	Revisions made
09	02/19/09	Add signature page, effective date. Combine document into one revision. Streamline information into tables. Added continued acceptance provision. Added the appendix. Removed floor plan, instrument listing, vendor listing, approved methods, resumes, org chart to the Appendix.

1.0 Quality Policy Statement

H2M Laboratories, Inc. has established systems, policies, programs, and procedures in order to assure the quality of the test results of the laboratory. Laboratory personnel are committed to exceptional professional practices and to the quality of its environmental testing in servicing its clients.

1.1 Quality System Policies and Objectives

1.1.1 The overall quality system objectives are documented in the quality policy statement and are issued under authority of John Molloy, President and CEO.

1.1.2 The laboratories standard of service are intended to meet or exceed the requirements of the National Environmental Laboratory Accreditation Program (NELAC), the USEPA Contract Laboratory Program as well as the requirements found in ISO 17025.

1.1.3 The QAM is supported by a larger collection of Standard Operating Procedures (SOPs) and documents for all programs in the laboratory.

1.1.4 All laboratory personnel concerned with environmental testing activities within the laboratory will familiarize themselves with the laboratories system policies and objectives.

1.1.5 The QA Manager will maintain evidence on file that demonstrates that each employee has read, understood, and is using the latest version of the laboratory's in-house quality documentation, which relates to his/her job responsibilities.

1.1.6 Opportunities for improvement of operations and processes are identified by managers on a continual basis from ongoing feedback on operations and through management reviews.

1.1.7 Inputs for improvement opportunities may be obtained from the following sources:

1.1.7.1 Customer satisfaction surveys

1.1.7.2 Employees

1.1.7.3 Internal and external audits of the management system

1.1.7.4 Records of service nonconformities

1.1.8 Opportunities for improvement from daily feedback are evaluated by the Technical or Quality Manager(s) and are implemented through the preventative and correction action procedures.

1.1.9 Opportunities for improvement from analysis of longer-term data and trends are evaluated and implemented through the management review process.

2.0 Organization and Management Structure

2.1 Organization Chart (See the Appendix, Section 1.0)

3.0 Management Structure Relationships/Responsibility Designations

Table 1.0 Management Structure

Laboratory Director	John J. Molloy, P.E. is responsible for all technical and quality operations in the laboratory
Laboratory Manager	Joann M. Slavin oversees day-to-day operations of the analyses. She is responsible for arranging and overseeing all support services including instrument service contracts, subcontracting agreements and physical maintenance of the lab. The laboratory manager is responsible for and directs the operations and activities of the laboratory, including the receipt, analysis and delivery of all work performed by the laboratory. Through departmental supervisors, she coordinates schedules and manages all work in the organic, inorganic and bacteriology sections of the laboratory.
QA Manager	Nicole R. Crespi is responsible for the quality system and its implementation. She serves as the focal point for QA/QC and is responsible for the oversight and/or review of quality control data. The QA Manager functions independently from laboratory operations for which she has quality assurance oversight. In her role she is able to evaluate data objectively and perform assessments without outside (e.g., managerial) influence. The QA Manager has documented training and/or experience in QA/QC procedures and is knowledgeable in the quality system as defined under NELAC. She has a general knowledge of the analytical test methods for which data review is performed and arranges for or conducts internal audits annually. In addition, the QA Manager will notify laboratory management of deficiencies in the quality system and monitor corrective action.
Production Manager	Stuart M. Murrell supervises the production capability of all departments. He prioritizes testing and is responsible for completeness and correctness of reports.
Technical Manager	Ursula R. Middel provides technical guidance and data review of sample packages for completeness and compliance. She is also responsible for initial and ongoing training of staff.
GC/MS Supervisor	Glenn K. Bocchicchio supervises the operation of the GC/MS laboratory. He reviews analyses and implementation and oversight of QC data.
GC Supervisor	James Bidas supervises the operations of the GC laboratory. He reviews GC analyses and implementation and oversight of QC data.
Special Process Supervisor	Ellison Torres supervises sample preparation procedures for organic analyses, and RCRA characteristic-procedures. He is responsible for the oversight and QC of the processes.
Inorganic Supervisor	Christopher Otterberg supervises the wet chemistry and bacteriology laboratories. He reviews analyses and the implementation and oversight of QC data.
Metals Supervisor	Christopher Otterberg oversees the metals laboratory including digestion and analyses. He also reviews analyses and the implementation and oversight of QC data.
Package Production	Noranne Saager is responsible for data package coordination and verification of correctness and completeness of data.

Coordinator Receiving Supervisor	David Czekaj coordinates bottle preparation and sample receipt, serves as sample custodian, and ensures proper execution of chain-of-custody procedures.
Analysts	All analysts are responsible for complying with all QA/QC requirements that pertain to their job function. In both the organic and inorganic departments, H2M scientists perform analyses under direct management of the supervisors. The responsibility of the scientists is to perform analyses according to the established and documented procedures, calibrate and maintain equipment and adhere to all quality control requirements.
LIMS Administrator/ Technical Manager	Jonathon Walsh is Senior Computer Programmer and LIMs Administrator. He is an MS Access/VBA programmer responsible for customizing and the implementation of the Omega LIMs. As technical manager, he rebuilds, overhauls, modifies and interfaces laboratory equipment and assists in technical methodology issues.

4.0 Record Retention

4.1 All records are retained as required by regulatory requirements and client contractual agreements. The system shall produce unequivocal, accurate records that document all laboratory activities.

4.2 Instrument raw data is backed up daily to the network.

4.3 The Laboratory Information Management System (LIMs) is maintained in a fireproof room. In addition, a copy of the operating system is stored off-site.

4.4 Electronic files are backed up daily to the network.

4.5 In the case of transfer of ownership or if the lab goes out of business, all records are to be transferred to the new owner or retained by the current Lab Director for the required time period.

Table 2.0: Temporary Storage

Record	Retention	Hardcopy	Location	Organization
Current Lab Reports	1 year	Yes	General Office Area	Alphabetized
Current Data Packages	3-6 months	Yes	QC Department	Alphabetized by month
Standard Operating Procedures	Current Version	Electronic Copy	LIMs and Network	Directories and Sub-directories
Completed Logbooks	1-2 years	Yes	In the lab	Numbered
Accreditation Support Data	3 years	Yes	QA Office	Study number and date
Data Integrity Issues	5 years	Yes	QA Office	Date
Employee File/ Training Records	Current Employees	Yes	QA Office	Alphabetized

Table 3.0: Archival Storage

Record	Retention	Hardcopy	Location	Electronic	Location
Accreditation Support Data	5 years	Yes	QA office	Yes	Computer Directories
Raw Data/ Test Report Data	10 years	Yes	Off-site storage	Yes	Tape storage/ CDs
Data Integrity Issues	5 years	No	Off-site storage	Yes	Tape storage/ CDs
Method Evaluations	5 years	Yes	QA Office	NO	N/A
Water Quality Tests	10 years	Yes	Off-site Storage	Yes	Tape storage/ CDs
Drinking Water Program	10 years	Yes	Off-site Storage	Yes	Tape storage/ CDs
Employee File/ Training Records	10 years	Only original SDGs folder Case files	Off-site storage	NO	NA
CLP Reports	5 years	Yes	Off-site storage	Yes	Tape Storage/ CDs stored onsite
SOPs	5 years	Signature Page only	QA Office	Yes	Server Network

5.0 Document Control

5.1 All records, documents and manuals generated by the laboratory will be maintained and controlled through a document control system. The purpose of the document control system is to ensure that only the most recent versions are available to the appropriate personnel, that revisions are timely, and that the document receives the required approvals. This system allows for retrieval of information such as lab reports, raw data as well as control of manuals, documents and Standard Operating Procedures produced.

5.2 The Quality Assurance Manager or designee is responsible for the document control system and maintains a master list of the location of all documents and their current revision by using an access database.

5.3 Document Approval

5.3.1 The Laboratory Manager and the Quality Assurance Manager approve all newly released documents and revised documents.

5.3.2 The Laboratory Director, Quality Assurance Manager, and the Laboratory

Manager approve the QAM.

5.3.3 Controlled documents will have an approval signature page and a revision change record.

5.3.4 The central repository for controlled documents is the H2M Server/LIMs.

5.4 Revision Control

5.4.1 All documents will contain the following control information:

5.4.1.1 Document Title

5.4.1.2 Revision Date

5.4.1.3 Revision Number

5.4.1.4 Effective Date

5.5 Obsolete Documents

5.5.1 The Quality Assurance Manager will maintain one electronic copy of an obsolete standard operating procedure in an archive folder on the server/network.

5.5.2 The original hardcopy signature page from the obsolete standard operating procedure is stored in the QA Office.

5.6 Document Archive

5.6.1 All hardcopy records are legible.

5.6.2 Completed laboratory logbooks are individually numbered.

5.6.3 Final archival is completed by the following:

5.6.3.1 Records are boxed.

5.6.3.2 Each box is labeled with a consecutive number that is generated by an electronic notebook.

5.6.4 The electronic notebook (archival storage) serves as the index for archived items.

5.6.5 Items removed from archive are done using an access log that records the following:

- Date removed
- Requested by
- Box Number
- Item number and description
- Authorized by
- Date returned

5.6.6 All archived data is stored to an off site document storage facility at Central Avenue in Farmingdale, NY.

5.6.7 The storage facility is locked, is free of vermin and is environmentally stable in regard to temperature and humidity and is kept safe from loss.

5.7 Data Package Archive

5.7.1 Data packages are scanned to a file (adobe PDF format) and saved to the local and network drives.

5.7.2 Original chain-of-custody, narratives, and title and chronicle pages are removed and filed in the case file in the QC department.

5.7.3 The PDF files are burned to a CD on a monthly basis.

5.7.4 After 3 to 6 months, the paper copy is destroyed.

5.8 Changes to Documents

5.8.1 Changes to documents will be reviewed and approved by the same function that performed the original review.

5.8.2 Where practicable, the altered or new text shall be identified in the document or the appropriate attachments.

5.8.3 Changes to any document will be made so as not to obscure or delete the previous data entry.
5.8.4 All changes will be crossed out and the correct entry made alongside.
5.8.5 Mistakes are not erased, made illegible, or deleted.
5.8.6 All alterations to records are signed or initialed by the person making the correction.
5.8.7 The H2M error codes will be applied to the correction to explain the change.
5.8.8 Hand amendments of standard operating procedures are only permitted by those personnel authorized to do so.
5.8.9 Hand amendments of standard operating procedures, pending the re-issue of the documents, will be clearly marked, initialed and dated.
5.8.10 The QA Manager, prior to implementation as a new or modified procedure, will approve all hand amendments.

5.9 Laboratory Logbooks

5.9.1 Templates of some logbooks are maintained in the QC department and new books are generated and issued through this department.
5.9.2 In some cases, an electronic run log is generated using the instrument software, printed out, comments written were necessary. Final storage is in a binder.
5.9.3 Logbooks are bound and the pages in all logbooks are numbered sequentially to maintain the integrity of the document.
5.9.4 The books are given a book number and are signed out by the QC department, which maintains a master record of all logbooks.
5.9.5 Upon completion, the logbook binder is labeled with the test, start and completion date, and run number and are then logged back into the electronic notebook for archiving.
5.9.6 Analysts are required to sign initials and date next to all analyses performed.
5.9.7 For GC and GC/MS, the instrument program is to be listed as well as sample ID, amount of sample injected and reason, if any, for re-analysis (under remarks).
5.9.8 For wet chemistry tests, all raw data used in calculations is to be recorded in the logbook.
5.9.9 For sample preparation, all weights and/or exact volume of sample extracted are to be listed as well as type of cleanup performed and date extracted.

5.10 Document Distribution

5.10.1 Only the most recent versions of SOPs and the QAM are available on the document central repository.
5.10.2 The central repository to be used by employees for all current versions of laboratory documents is the server/network.
5.10.3 The Document Control Officer in the QC Department maintains instrument and logbooks and data packages.
5.10.4 A signed statement is on file that demonstrates that each employee has read, understood, and is using the latest version of the laboratory's QAM documentation, which relates to his/her job responsibilities.
5.10.5 Each analyst must certify by signature that they have read, understand and agreed to perform the most recent version of the test method, the approved method or standard operating procedure as defined by this

document control system.

6.0 Job Descriptions and Communication Processes

6.1 H2M management ensures that appropriate communication processes are established within the laboratory.

6.2 The current job descriptions for all personnel who manage, perform, or verify work affecting the quality of the environmental tests is listed below.

6.3 Complete resumes are found in the Appendix, Section 2.0.

6.4 The laboratory maintains records of the relevant educational and professional qualifications, training, skills and experience required of all technical personnel, including contracted personnel.

Laboratory Director

Job Description

The Laboratory Director is responsible for all technical and quality operations in the laboratory

Educational Requirements

Chemical Analyses

A bachelor's degree in the chemical, environmental, biological sciences, physical sciences or engineering and at least two years of experience in environmental analysis is required.

Microbiological Analyses

For microbiology, a minimum of an associated degree and four college semester credits is required for analysis of total coliform, fecal coliform and standard plate count unless grandfathered in the position.

Laboratory Manager

Job Description

The laboratory manager is responsible for and directs the operations and activities of the laboratory, including the receipt, analysis and delivery of all work performed by the laboratory. Through departmental supervisors, he schedules and manages all work in the organic, inorganic and bacteriology labs.

Educational Requirements

Minimum requirements are a bachelors degree in chemistry or biology or a related science and a degree in Business Administration, five years supervisory experience, good written and verbal communication skills, and strong laboratory background.

Quality Assurance Manager

Job Description

The Laboratory Quality Assurance Manager is responsible for developing, implementing and monitoring the required systems and controls to assure company compliance with established regulatory and industry standards.

The QA manager implements the QA/QC program, reviews analytical reports and oversees chain-of custody policies. The QA manager also performs data validation of packages for correctness and completeness; is liaison to regulatory agencies for issues of proficiency testing and certification.

Educational Requirements

The QA manager will have at least a degree in chemistry, bacteriology, biology or related science, preferably a graduate degree, excellent organizational and communication skills, experience in quality assurance procedures and a minimum of five years of relevant experience.

Technical Manager

Job Description

Is responsible for CLP data review for completeness and correctness, technical guidance, and development of new methods and special projects. The technical manager also assists section supervisors with training and staff development.

Educational Requirements

Minimum requirements include undergraduate degree in chemistry or related science, five years of analytical experience, and good communication skills.

Laboratory Scientist

Job Description

Performs chemical tests on a variety of environmental samples often using sophisticated instrumentation under supervision. Maintain and monitor QA/QC requirements associated with test. Maintain instrumentation in optimum operational condition and analyze and report data for work assigned.

Educational Requirements

Minimum requirements are a bachelor's degree in appropriate scientific disciplined. With experience and/or education employees can advance from Scientist I to II, III, IV & V. this rating of levels is documented in the Human Resource Dept.

Laboratory Technician

Job Description

Performs routine laboratory testing or sample preparation under the direct supervision of a section supervisor. Technicians perform routine analytical tasks according to standard operating procedures. They operate and maintain lab instruments and maintain required quality control for each test.

Educational Requirements

Minimum requirements for technician I are a high school diploma with an associates degree preferred in a technical course of study. Employees can advance to technician II, III, IV or V with experience. This rating of levels is documented in the Human Resource Dept.

Data Package/QC Coordinators

Job Description

Maintain and monitor the QA/QC and project elements of CLP projects. Input methods data into CLP reporting packages and produce custom spreadsheets and diskettes. Coordinators, review external and internal chain of custody for accuracy and completeness. Assist the lab manager in prioritizing projects, prepare and mail completed data packages, prepare and distribute workbooks and communicate with clients regarding the status of or problems associated with their projects.

Educational Requirements

Minimum requirements are an associate's degree with one year of experience or a high school diploma and three years experience strong word processing and data entry skills essential as well as strong organizational and good communication skills.

Laboratory Section Supervisors

Job Description

The supervisors of the operational sections of the laboratory: GC, GC/MS, metals, wet chemistry, sample preparation, QA/QC and receiving, direct the daily activities of the section and supervise the staff in their section. They are responsible for directing and distributing daily work, employee training, maintaining and monitoring quality control programs, maintenance of instrumentation and operating supplies. They also implement new tests and protocols, review and approve data completed by section personnel and analyze and report samples.

Educational Requirements

Minimum requirements are a bachelor's degree in chemistry or related science or an associate degree and at least four years of related laboratory experience.

Educational Requirements for performing CLP (Contract Laboratory Protocol) analysis:

GC/MS Laboratory Supervisor

A bachelor's degree in chemistry or the physical sciences and three years of relevant laboratory experience, including one year in a supervisory capacity is required.

GC/MS Operator

A GC/MS Operator shall be a person with at least a bachelor's degree in chemistry or the physical sciences, and one year of experience in operating and maintaining a GC/MS data system. Three years of operating and maintaining a GC/MS data system may be substituted for the educational requirements

Mass Spectral Interpretation Specialist

Mass Spectral Interpretation Specialist shall be a person with at least a bachelor's degree in chemistry or the physical sciences, who has successfully completed a specialized training course in mass spectral interpretation and has at least two years experience in mass spectral interpretation.

Pesticide Residue Analyst

Pesticide Residue Analyst shall be a person with at least a bachelor's degree in chemistry or the physical sciences, and two years of experience in operating and maintaining a gas chromatograph and interpreting gas chromatograms.

Organic Sample Preparation Supervisor

Organic Sample Preparation Supervisor shall be a person with at least a bachelor's degree in chemistry or the physical sciences and at least three years of organic laboratory experience, including at least one year in a supervisory capacity.

Extraction/Concentration Expert

Extraction/Concentration Expert shall be a person with at least a high school diploma, including one course in chemistry and one year of experience in an analytical chemistry laboratory.

Inductively Coupled Plasma (ICP) Spectroscopist

Inductively Coupled Plasma (ICP) Spectroscopist shall be a person with at least a bachelor's

degree in chemistry or the physical sciences, who has successfully completed specialized training courses in ICP spectroscopy and has two years of applied experience in ICP analysis of environmental samples.

ICP Operator
ICP Operator shall be a person with at least a bachelor's degree in chemistry or the physical sciences, and one year of experience in the operation and maintenance of ICP instrumentation, or, in lieu of the educational requirement, four years of experience in the operation and maintenance of ICP instrumentation.

Atomic Absorption (AA) Operator
Atomic Absorption (AA) Operator shall be a person with at least a bachelor's degree in chemistry or the physical sciences, and a minimum of one year experience in operating and maintaining AA instrumentation for frame, graphite, furnace and cold vapor techniques, or, in lieu of the educational requirement, three years of experience in operating and maintaining AA instrumentation.

Inorganic Sample Preparation Specialist
Inorganic Sample Preparation Specialist shall be a person with at least a high school diploma, successful completion of a college level course in general chemistry or it equivalent, and six months experience in analytical chemistry.

Classical Chemistry Analyst
Classical Chemistry Analyst shall be a person with at least a bachelor's degree in chemistry or the physical science, and six months experience in classical chemistry laboratory procedures or in lieu of the education requirement, two and one half years of experience performing classical chemistry analysis.

7.0 Lab Approved Signatures

7.1 The Quality Assurance Manual is approved by the Laboratory Director, the Laboratory Manager, and the Quality Assurance Manager.

7.2 Lab reports generated by H2M Labs, Inc. must be approved prior to release to client except if data is stamped "Preliminary Results".

7.3 The approved signatories are:
- 7.3.1 Lab Director, John J. Molloy P.E.
- 7.3.2 Lab Manager, Joann M. Slavin
- 7.3.3 QA Manager, Nicole R. Crespi.

7.4 Case narratives, which are part of a data package, list any non-compliances pertaining to the package and require a signature that certifies that the analyses were performed in accordance with the said requirements.
- 7.4.1 The individual that reviewed the data package signs the narrative.

7.5 Data package reporters sign a form indicating that the data was reported truthfully.
- 7.5.1 This form is generated for each fraction and is included at the end of each data package fraction.

7.6 In the case where the person requiring a signature for the narrative or chain of custody is not present it is permitted to either sign the persons name followed by your initials or sign your name followed by "for" and the individual's name.

8.0 Data Reduction Procedure

8.1 Laboratory validation of the data begins with the processing of data and continues through data review and reporting of analytical results.

8.2 Data processing can be performed by the analyst who obtained the data or by another analyst.

8.3 Data review starts with an analyst independent of the data acquisition and processing, reviewing (validating) the data to determine if the data processing was performed correctly. The review continues through verifying that the reported analytical results correspond to the data acquired and processed.

8.4 In general, data will be processed by an analyst in one of the following manners:

8.4.1 manual computation of results directly on the data sheet or on calculation pages that are attached to the data sheet

8.4.2 input of raw data for computer processing

8.4.3 direct acquisition and processing of raw data by computer

8.5 If data is manually processed by an analyst, all steps in the computation shall be provided including:

8.5.1 equations used

8.5.2 the source of input parameters such as response factors (RF), dilution factors, calibration constants

8.5.3 if calculations are not performed directly on the data sheet, calculations shall be attached to the data sheets.

8.6 Analysts enter data into the LIMs where the data is computer processed to apply final calculations if necessary.

8.7 The samples analyzed shall be evident on the raw data and the input is signed and dated by the analyst.

8.8 If data is directly acquired from instrumentation and imported into the LIMs, the analyst shall verify that the following are correct:

8.8.1 sample numbers

8.8.2 calibration constants and RF

8.8.3 output parameters such as units and numerical values used for reporting limits .

9.0 Data Reporting and Authorization Procedures

9.1 Completed data packages are generated in the departments.

9.2 Data reported to the clients in Massachusetts will be reported with the addition of a parameter list indicating the certified parameter list in that state.

9.3 Either the department supervisor, Technical Manager, Laboratory Manager or QA Manager, reviews all data packages.

9.4 Any deviations or non-compliances are documented in the "case narrative" written by the reviewer.

9.5 Any omissions or errors are listed and the data package is rejected and returned to the department for correction.

9.6 After corrections have been made, the reviewer verifies the corrections, the case

narrative is revised as necessary, and the case narrative is signed by the reviewer.

10.0 Personnel Authorized to Review Data Packages

Metals and Metals Inorganic:	Supervisor	Christopher Otterberg
	Wet Chem Supervisor	Christopher Otterberg
	Vice President	Vincent Stancampiano
	QA Manager	Nicole R. Crespi
	Technical Manager	Ursula Middel
	Laboratory Manager	Joann Slavin
Pesticides:	Technical Manager	Ursula Middel
	QA Manager	Nicole R. Crespi
	Laboratory Manager	Joann Slavin
	Scientist IV	Elizabeth Gustin
GC/MS:	GC/MS Supervisor	Glen Bochicchio
	Technical Manger	Ursula Middel
	QA Manager	Nicole R. Crespi
	Laboratory Manager	Joann Slavin

11.0 Traceability of Measurements

11.1 Measurement Traceability is defined as ensuring that all equipment used for environmental tests, including equipment for subsidiary measurements (e. g. for environmental conditions) having a significant effect on the accuracy or validity of the result of the environmental test or sampling shall be calibrated before being put into service and on a continuing basis.

11.2 Table 4 lists the program and verification of the measuring and testing equipment.

11.3 All measurement and support equipment are maintained in proper working order in accordance with the manufacturer instructions.

11.4 H2M utilizes an outside calibration service to perform its annual calibration of equipment and instruments.

11.5 Records of maintenance activities are kept.

11.6 During annual calibration of equipment, (depending on the severity of the issue) item(s) that are found to be out of tolerance will undergo the following corrective actions (by sectional supervisor and management):

11.6.1 The data will be evaluated for anomalies and out of performance specifications from the last acceptable calibration.

11.6.2 Any analyses that could potentially be impacted will be reviewed to determine possible effects on reported results.

11.6.3 If reported results are affected, data must be recalled, re-reported and qualified.

Table 4: Verification of Measurement and Testing Equipment

Equipment	Requirement	Frequency	QC Limits
Analytical Balances	Calibrated by Integrated Service Solutions	Annually	NA
Analytical Balances	Check the working range with NIST traceable class S (NIST F) weights. The range should reflect the routine use of the balance and should bracket the target weight and should test the balance at mid-point.	Daily or before each use	±1% of expected value
Top-loading Balances	Calibration by Integrated Service Solutions	Annually	NA
Top-loading Balances	Calibration check in-house (micro and soils) using 150g weight	Daily or before each use	Must detect 0.1g at 150g load
pH meter	Calibration with standard buffers of pH 4.0 and 10.0. Slope verified with standard buffer of pH 7.0	Daily or before each use	Slope verification must be ±0.1 pH units to proceed
Conductivity Meter	Calibration check with 0.01, 0.001, and 0.005M KCL solution	Day of use	±20% of the expected value
Conductivity Meter	Cell constant determination using a 0.01M	Annually or as needed	±1% of the manufacturer's specifications

Equipment	Requirement	Frequency	QC Limits
	KCl solution		
Dissolved Oxygen Meter	Calibration of Meter and probe against winkler method	Day of use	
Spectrophotometers	Verify wavelength settings using NIST traceable color standards or their equivalent	Annually	See manufacturers specifications
NIST Thermometers	Checked at ice-point and correction factor adjusted	Annually	NA
Liquid in Glass Working Thermometers	Correction factor determined verses the NIST.	Annually	NA
Digital Thermometers	Must read to 3 significant figures. Calibration verses NIST	Quarterly	NA
Turbidimeters	Initial Calibration with formazin or AMCO-AEPA-1	Annually	Results within manufacturers specifications
Turbidimeters	Checked with a Polymer sphere standard in the range(s) of interest.	Daily or each use	Must fall within the standard control limits.
Refrigerators	Temperature checks	Daily	1.0-6.0°C
Freezers	Temperature checks	Daily	<0°C
BOD Incubators	Temperature checks	Daily	20°C ±1 °C
Bacteriological Incubators	Temperature Checks monitored on each shelf	Daily	35°C ±0.5 °C
Ovens	Temperature check	Beginning and end of cycle	Must maintain the target

Equipment	Requirement	Frequency	QC Limits
		and/or daily if left on always	temperature of interest during use
Autoclaves	Temperature Check	Beginning and end of cycle	Must maintain sterilization temperatures during the sterilization cycle. Cycle must be completed within 45 minutes when a 10-12 minute sterilization period is used.
Autoclaves	Autoclave mechanical timing device check verses a NIST digital timer.	Quarterly	Within 120 seconds
Autoclaves	Demonstration of sterilization	Biological indicators weekly OR continuous monitoring	Indicators must show sterility or continuous monitoring must indicate correct temperature
Bacteriological Water Baths	Temperature check	Daily	Must maintain a temperature of 44.5 °C ±0.2 °C
Volumetric Dispensing Devices	Calibrated at all levels of use	Quarterly	Calculate %accuracy and %error
Syringes	Certified calibrated from the vendor	NA	Store certificates

Table 5.0: Working Thermometers

Equipment	Requirement	QA Limits
Freezer	Dedicated and calibrated. Immersed in liquid.	Graduations no greater than 1°C.
BOD Incubator	Dedicated and calibrated. Immersed in liquid.	Graduations no greater than 0.2 °C
Ovens	Dedicated and calibrated. Immersed in sand.	Graduations no greater than 1.0 °C
Refrigerators	Dedicated and calibrated. Immersed in liquid.	Graduations no greater than 1.0 °C
Bacteriological Air Bath Incubators	Dedicated and calibrated located on each shelf in the incubator.	Graduations no greater than 0.1 °C
Bacteriological Water Bath Incubators	Dedicated and calibrated located on each shelf in the incubator.	Graduations no greater than 0.1 °C

Table 6.0: Reagent Grade (Laboratory pure) Water

Parameter	Frequency	Acceptance Criteria
Conductivity (at 25°C)	Daily	<2 micromhos/cm at 25°C
Free residual chlorine	Monthly	<0.1 mg/L
Standard plate count	Monthly	<500 colonies/mL
Suitability test	Yearly	Ratio between 0.8 to 3.0
Heavy metals	Yearly	< 50 ug/L for each metal collectively <100 ug/L

12.0 Accredited Test Methods

12.1 See the Appendix, Section 3.0

13.0 Contract Review

13.1 Records of request, tender and contract review, including significant changes, are maintained. Records of pertinent discussions with customers relating to the customer's requirements or work during the period of execution of the contract are also maintained.

13.2 Routine Work

13.2.1 For review of routine work and other simple tasks, the date and identification of the person on the chain-of-custody who is responsible for accepting the samples is considered adequate.

13.3 Written Contract Work

13.3.1 Prior to acceptance of new written contract work, the Project Manager thoroughly reviews the requirements of the written contract to ensure that the laboratory has the appropriate facility and resources to successfully complete the project. Criteria considered includes, but it not limited to:

13.3.1.1 Methodology
13.3.1.2 Detection Limits
13.3.1.3 Personnel requirements
13.3.1.4 Turn-around-time

13.3.2 At this time, guidance from the various departments and/or QC and Administration are provided. If a project specific quality plan is provided, it is reviewed in the above manner.

13.3.3 After initial review by the Project Manager and subsequent review by departmental personnel, the contract is then reviewed for legal considerations. Any questions or issues may be discussed with and Officer of the Company for approval.

13.4 Questions, modifications, or changes to the contract are then discussed and resolved prior to agreeing to the terms of the contract. An amendment to the contract may be included if needed.

13.5 The mutually agreed upon contract is then signed by an authorized representative of the firm.

14.0 Review of New Work

14.1 To maintain current methodologies and implement new regulations new test methods and procedures are occasionally added to the scope of testing in the laboratory.

14.2 There are varying degrees to the addition of new work. These include:

14.2.1 The addition of an analyte to an existing method.
14.2.2 Complete start-up of an established method.
14.2.3 Analyte requested with no established method.

14.3 Addition of an Analyte to an Existing Method

14.3.1 The analytical method is reviewed to determine if its use is appropriate for the new analyte. The standard is purchased from a commercial vendor and prepared. If the analyte is available from more than one source, a second source may be purchased to verify the calibration standard. The standard is analyzed to determine its elution time in the scan.

14.3.2 A calibration curve is produced to determine linearity. If preparatory steps are required, four replicates of the standard are carried through

all phases of the method. The initial start-up procedure is documented.

14.3.3 A MDL or IDL is performed and the detection limit is determined.

14.3.4 An in-house SOP is written and used by the analysts. Demonstration of capability is maintained on file.

14.3.5 If necessary, the appropriate state accreditation is sought for the additional analyte following approved state certification processes.

14.4 Complete Start-Up of an Established Method

14.4.1 The method is obtained and reviewed by the Technical Manager or Supervisor to determine if new instrumentation or reagents/standards are required by the method.

14.4.2 If the required instrumentation is currently available in the laboratory, the reagents, standards and other supplies are gathered/purchased.

14.4.3 If more than one analyte is quantified in the method, the analytes may be initially analyzed individually to determine elution time.

14.4.4 If the analyte is available from more than one source, a second source may be purchased to verify the calibration standard.

14.4.5 A calibration curve is produced to determine linearity. If preparatory steps are required, four replicates of the standard are carried through all phases of the method and compared to the established QC of the method. The initial start-up procedure is documented.

14.4.6 A MDL or IDL is performed and the detection limit is determined.

14.4.7 An in-house SOP is written and used by the analysts. Demonstration of capability is maintained on file.

14.4.8 The samples and standards and associated QC samples are carried through the procedure and the QC is compared to the method QC acceptance criteria.

14.4.9 If necessary, the appropriate state accreditation is sought for the additional analyte following approved state certification processes.

14.5 Analyte Requested with No Established Method

14.5.1 The analyte to be analyzed is researched and reviewed by the Technical Manager to determine the compound classification.

14.5.2 After the compound classification is complete, it is determined if it can be analyzed by an existing method. If not, it is determined if perhaps a modification to an existing method would allow successful determination of the compound.

14.5.3 Different approaches to testing the analyte may be tried, comparing the efficiency of the various approaches. The method that allows for acceptable precision and accuracy is used.

14.5.4 If more than one analyte is quantified in the method, the analytes may be initially analyzed individually to determine elution time.

14.5.5 If the required analytes are available from more than one source, a second source may be purchased to verify the calibration standard. A calibration curve is produced to determine linearity.

14.5.6 If preparatory steps are required, four replicates of the standard are carried through all phases of the method and compared to the established QC of the method. The initial start-up procedure is documented.

14.5.7 A MDL or IDL is performed and the detection limit is determined.

14.5.8 An in-house SOP is written and used by the analysts. Demonstration

of capability is maintained on file.

14.5.9 The samples and standards and associated QC samples are carried through the procedure and the QC is compared to the method QC acceptance criteria.

14.5.10 If necessary, the appropriate state accreditation is sought for the additional analyte following approved state certification processes.

15.0 Conflict of Interest

15.1 The H2M company policy regarding conflict of interest is found in section 2.7 of the company Personnel Manual. This includes the receipt of gifts and ownership in other businesses. Policies are in place regarding "Moonlighting".

15.2 The Personnel Manual also includes ways in which to deal with employee issues and conflict resolution.

15.3 The Human Resources Department is available to all employees for guidance regarding personal issues.

15.4 The Personnel Manual can be accessed via the company intranet.

16.0 Confidentiality

16.1 It is H2M's policy to protect the confidential information and proprietary rights of our customers including the electronic storage and transmission of results.

16.2 All employees sign an Employee Confidentiality Agreement. The signed agreement is retained by the Human Resource Department.

16.3 The confidentiality of client results is ensured by enforcement of the following:

16.3.1 All results are held in the strictest confidence.

16.3.2 Sample results are not released to others without pre-authorized permission by the client or a written release request allowing transmittal of the data to an outside source.

16.3.3 Some clients require data to be kept strictly confidential with limited access by laboratory personnel.

16.3.4 If required, all sample information generated, as well as raw data, is kept in a locked area in the QC Department and access is limited to the Laboratory Manger, Quality Assurance Manager, and document control officer.

16.4 Notification of the requirement for strict confidentiality (limited personnel access) must be received with the samples.

17.0 Subcontracting

17.1 Occasionally, it is necessary to subcontract samples to other approved laboratories if H2M does not perform an analysis, instruments are down, or there is an current overload of work making meeting holding times questionable.

17.2 No samples are subcontracted to an outside laboratory without prior permission of the client.

17.3 Prior to shipping of subcontract samples, the specific client requirements are reviewed with the laboratory including:

17.3.1 Specific method requirements

17.3.2 Reporting and detection limits

17.3.3 QC requirements

17.3.4 Submission of a project QAPjP SOP, if required.

17.4 Once the requirements are reviewed with the subcontract laboratory, a copy of their state certification is reviewed and maintained on file.
17.5 All subcontract results are generated on the subcontract laboratories report forms and submitted to H2M.
17.6 Results may be transcribed onto H2Ms lab report with the qualifier that an outside laboratory performed the results. The H2M laboratory report shows the test subcontracted out and have the notation "see attached".
17.7 Copies of the subcontract process are maintained in individual client files. The information need only be filled out once for an ongoing project.
17.8 Project Management maintains a file with the current laboratory certifications from the laboratories used for subcontracting. These certifications will be updated annually.
17.9 It is the responsibility of the person providing the quote or setting up the project to notify the client that their samples will be subcontracted.

18.0 Calibration and/or Verification Test Procedures

18.1 Calibration and/or verification procedures are designed to insure that the data will be of known quality and the results are appropriate for a given regulation or decision.
18.2 Raw data is retained to reconstruct the calibration used to calculate the sample result.

Table 7.0: Calibration and Verification

QC Requirement	Frequency	QC Limits	Correction
Instrument Calibration	Per the requirements of the method	Linear Regression: Correlation coefficient (r^2) >0.995 unless demonstrated that a lower r^2 can produce acceptable data. Average Response Factor: as per method requirements Calibration Factor: as per method requirements	Analysis cannot proceed unless an acceptable calibration is produced unless covered under the exceptionally permitted departures from procedure. All departures are reviewed by section supervisors. Data may be reported if determined acceptable by supervisor and will be documented in the run log.
Calibration Documentation	Each time instrument is calibrated	Labeled with the method used, instrument, date of analysis, analyte concentrations and response factor or calibration factor.	
Second source Standard	Immediately following initial calibration	Unless specified otherwise in the analytical method, the measured value of the analyte must be within	

QC Requirement	Frequency	QC Limits	Correction
		method or 15% of the true value.	
Mid-point Standard	Daily or as required by analytical method		
Instrument Blank	Daily or as required by the method		
Lowest Concentration Level Reported (LOQ)	Each Initial Calibration	The lowest calibration standard is the lowest concentration level reported.	Results reported below this standard are considered estimated and the data are flagged with a qualifier and/or discussed in the case narrative.
Highest Level Concentration	Each Initial Calibration	The highest calibration standard is the highest concentration reported without dilution	Results reported above this standard (unless from a diluted run) are considered estimated and the data flagged with a qualifier and/or discussed in the case narrative.
Method Detection Limit (LOD)	Annually	Determined for all analytes where spiking solutions are available.	Results reported down to MDL are qualified as estimated (J).

19.0 Procedures for Handling Submitted Samples

Personnel are in the laboratory: Monday to Friday 7am to 11pm
Saturday and Sunday: 9am to 3pm
If deliveries must be made later than 6pm on weekdays, or anytime on weekends, the laboratory must be contacted in advance so that arrangements can be made with our staff to ensure proper receipt of samples.

19.1 External Chain of Custody

19.1.1 Sample tracking is accomplished through the use of chains of custody.

19.1.2 A sample is considered to be in custody if it is:

- In an individual's actual possession;
- In view, after being in physical possession;
- Locked so that no one can tamper with it, after having been in physical custody;
- In a secured area, restricted to authorized personnel only.

19.1.3 All samples are handled under conditions, which avoid contamination, deterioration or damage to samples, and which secure their use for litigation purposes.

19.1.4 The chain of custody (COC) procedure begins with either sample collection or bottle preparation depending on client's needs.

19.1.5 Every sample shall be assigned a unique identification number that is entered on the COC.

19.1.5.1 All bottles are identified with the lab ID number and a suffix of A, B, C, D, etc. when samples are fractionated.
19.1.5.2 The total number of bottles received is entered.
19.1.5.3 If the sample is not fractionated, the bottles are all listed as A
19.1.5.4 In this case, the total quantity of bottles is differentiated by the number of bottles as indicated by the designation "1 of 3, 2 of 3, etc." on the bottles.

19.1.6 The COC includes:

- container type
- preservative type
- number of containers for each sample location (including MS/MSD, trip blank and field blank)
- any distinctive notification
- signature of sampler
- receiver's signature
- date/time of relinquishment.

19.1.7 Upon receipt of the samples by an H2M representative, the first "relinquished by/received by" blocks shall be completed on the COC.
19.1.8 The date and time of receipt in the lab is entered on the external COC form.
19.1.9 The shipment is checked for integrity, completeness and the samples are examined for damage.
19.1.9.1 All sample bottles are checked to verify that they are sealed properly, that they have no breakage, air bubbles (volatiles), and proper labeling.
19.1.9.2 Any shortages and damage is noted on the external COC.
19.1.9.3 If any problems occur, the project manager will be notified.
19.1.9.3.1 If the samples aren't in jeopardy of holding time exceedences, they are assigned cold storage before proceeding with sample accession until laboratory-receiving personnel receive instructions.
19.1.9.3.2 If the samples need to be analyzed immediately, the samples will be giving a laboratory number.
19.1.9.3.3 If the samples analyzed need to be re-collected, the laboratory number will be deleted and a new work order with a new number will be generated for the re-collected samples.
19.1.9.4 A sample receipt checklist is prepared in the sample-receiving department to account for any breakage or discrepancy in sample documentation, as compared to the sample shipment
19.1.10 The temperature of the cooler is checked for samples that require storage at <= 6°C.
19.1.10.1 A temperature blank is sent out with the coolers.
19.1.10.2 A 100ml plastic bottle filled with water and labeled Temperature Blank is placed in the cooler during cooler set up.
19.1.10.3 This bottle is read with the IR gun upon receipt in the lab and logged on the COC form.

19.1.10.4 Local samples may not be in transit long enough to be chilled, however there must be evidence that the preservation process has begun, such as receipt on ice.

19.1.10.5 If no temperature blank is present, a clear plastic or glass bottle may be used for the temperature blank.

19.1.10.6 Amber bottles are not to be used to check the temperature nor are vials or bottles wrapped in bubble pack.

19.1.11 A cooler checklist form is completed for samples received after normal business hours or on weekends.

19.1.11.1 The cooler temperature is checked as is the custody seal.

19.1.11.2 The COC is signed and placed back in the cooler and stored in the lab walk-in refrigerator.

19.1.12 Samples that have not been properly stored during transport to the lab will either be rejected and a resample collected or it will be noted on the non-conformance report and on the final lab report.

19.1.13 A copy of the external COC is returned to the project manager.

19.1.14 The sample custodian places the original in the H2M Labs client file.

19.1.15 The H2M project manager will notify the client of non-conformances.

19.2 DC-1 Form Completion

19.2.1 If applicable to the samples received, the USEPA sample login form (Form DC-1) is completed. This form is used to document the receipt and inspection of the samples and coolers.

19.2.2 One original of the DC-1 form is required per cooler.

19.2.3 If the samples in a single cooler must be assigned to more than one Sample Delivery Group (SDG), the original DC-1 accompanies the deliverables for the SDG of the lowest Arabic number and a copy accompanies the other SDG's.

19.2.4 The copies must be stamped "COPY" and the location of the original noted on the copy.

19.2.5 The following information will be required to complete the DC-1 form:

19.2.5.1 Lab Name

19.2.5.2 Log-in data

19.2.5.3 Print and signature of lab personnel who received samples

19.2.5.4 Case number

19.2.5.5 SDG number

19.2.5.6 SAS number

19.2.5.7 Condition of shipping coolers

19.2.5.8 Sign and date air bill

19.2.5.9 Record the presence/absence of custody seals and their condition in item 1 of the form

19.2.5.10 Add pH of cyanide and metals samples as verified upon receipt in the laboratory. Cyanide must be greater than 12.

19.2.5.11 Record the air bill or sticker number in item 6

19.2.5.12 Record condition of bottles and presence or absence of sample tags in items 7 and 8 on the form

19.2.5.13 Review shipping documents and compare information on all documents and complete item 9

19.2.5.14 If there are no problems, sign, date and indicate time on the DC-1 form.

19.2.5.15 Record the sample tag I.D. numbers and assigned lab

numbers.

19.2.5.16 Cross reference H2M numbers with the SMO.

19.2.5.17 Project coordinator will document communication in the CLP communication logbook

19.2.5.18 Record the fraction and area stored in the sample transfer space and sign and date.

19.3 Internal Chain-of-Custody

19.3.1 The sample custodian assigns laboratory identification numbers to the samples and then transfers the samples to department custodians.

19.3.2 An internal COC form is completed with the project number, date of receipt and listing of samples by number and H2M laboratory identification numbers.

19.3.3 The sample custodian and department custodian sign for transfer with date and time indicated.

19.3.4 The department custodian places samples in secured areas for storage.

19.3.5 The department custodian relinquishes samples to the technicians for sample preparation and/or analysis.

19.3.6 The analysts sign for the samples and extracts/digestates each time the samples exchange hands.

19.3.7 Upon completion of analysis, any remaining original sample matrix containers are returned to the appropriate sample custodian.

19.4 Internal Verification of COC Procedures

19.4.1 The sample custodian gives a copy of the external and internal COCs to the project manager as well as any information received with the sample to the document control section of the QA Department.

19.4.2 All paperwork is reviewed and checked for any transcription errors.

19.4.3 If there are any transcription errors, the sample custodian and any affected departments are contacted.

19.4.4 Verification that corrections were made properly is the responsibility of the laboratory's document control section or QA Department.

19.4.5 The samples are automatically entered into a CLP status spreadsheet and the sample delivery group folder is prepared including all pertinent information.

19.4.6 The folder is labeled with the SDG number and filed.

19.5 Initial Sample Storage

19.5.1 All samples are stored in an area free from secondary contamination.

19.5.2 CLP Volatile

19.5.2.1 Samples are stored in the GC/MS section in a locked refrigerator at 4°C (±2°C) and are protected from light from receipt until analysis.

19.5.3 CLP BNA, Pesticide/PCB

19.5.3.1 Samples are stored in the Special Process section in a locked refrigerator or the walk-in refrigerator at 4°C (±2°C) and are protected from light upon receipt until extraction and analysis.

19.5.3.2 After analysis, extracts and unused samples are protected from light and stored at 4°C (±2°C).

19.5.3.3 The extracts are stored in the locked refrigerator between the GC/MS and Special Process sections.

19.5.4 CLP Metals

19.5.4.1 Water samples are stored in a locked refrigerator in the Metals

section.

19.5.4.2 Soil samples are stored in a locked refrigerator in the metals section and maintained at 4°C (±2°C).

19.5.5 CLP Cyanide

19.5.5.1 Samples are stored in a locked refrigerator at 4°C (±2°C) in the Wet Chemistry storage area.

19.6 Final Sample Storage

19.6.1 The time that samples are held after completion of analysis is dependent on the client's requirements.

19.6.2 Some samples are stored for 6 months.

19.6.3 Most samples are stored for 60days after report generation.

19.6.4 If extended storage is required, the samples are boxed and moved to the off-site storage facility.

20.0 Sample Preservation, Containers, and Holding Times

A summary of preservation, container and holding times is found in Tables 8.0-10.0

20.1 Sample Preservation

20.1.1 The addition of preservative is verified upon receipt and documented.

20.1.2 The pH of all preserved samples (except volatile samples) are verified in the receiving department by the use of pH paper.

20.1.3 A small aliquot of sample is poured over the pH paper.

20.1.4 Do not dip the paper into the sample.

20.1.5 Note the pH in the LIMs in the pH field on the chain of custody.

20.1.6 Volatile aqueous samples are checked for proper preservative by the use of pH paper after sample analysis.

20.1.7 Tables 8.0-10.0 contain proper sample preservations.

20.1.8 For USEPA samples, note the pH on the DC-1 form.

20.1.9 Bottles without preservative will be noted on the COC and if allowable, preservative will be added at the laboratory.

20.1.10 Notify the project manager if preservations have been added at the laboratory.

20.1.11 If sample preservations do not comply with the requirements in Table 8.0-10.0, notify the project manager immediately.

20.1.12 The client will be notified as soon as possible.

20.2 Sample Containers

20.2.1 Sample containers are usually provided by H2M, except where otherwise specified by the client.

20.2.2 Several different sampling containers may be used for one project.

20.2.3 Materials must be selected that would not result in interference with the analysis.

20.2.4 Each sample container will have a durable waterproof label, which contains all the information necessary to identify the sample.

20.2.5 New clients are given a summary of which bottle to use for what test to ensure that the correct bottle is used for the test requested.

20.2.6 The amount of information on the label may vary depending on the source and other factors, but, in general may include:

- Number of bottles per analysis
- Collector's name
- Sample location

- Date and time of collection
- Depth of sample
- Atmospheric conditions

20.2.7 The bottles used are verified as non-contaminated by monthly checking of bottles. This is done by filling the bottle with distilled water and analyzing the water for the parameters that would normally be analyzed from that bottle.

20.2.8 This record is kept on file in the QC Department.

20.2.9 Any positive readings for any analytes are flagged and the supervisor and QA Manager are notified.

20.2.10 No bottles from the effected lot are used until the source of contamination is determined and remedied.

20.3 Holding Time Status

20.3.1 On a daily basis, holding times are monitored as a check on the different departments and the supervisors notify staff if holding times are drawing near (at least two days in advance).

20.3.2 The Package Production Supervisor meets with the Section Supervisors on a weekly basis to update the status of the project.

20.3.3 A status report is available to all laboratory employees in the LIMs.

20.3.4 To ensure that the status report is kept current, all analysts are required to update sample status on a daily basis.

20.3.5 After completion of a project, the Package Production section coordinates collation of the data package and reviews that all required forms are included and that the package is mailed within the required time frame.

Table 8.0 Potable Water Bottle and Preservation Requirements

Analyte	Bottle	Preservation	Holding Time
The information contained in this item comes from the Code of Federal Regulations (40 CFR 141). Note 1: Maximum holding time includes the time elapsed from collection of the sample to placement in the incubator. Note 2: Consumer collected samples may be left unpreserved for up to 14 days. Note 3: E. coli samples enumerated for reporting to EPA under the LT2 rule may be tested when the 8 hour hold time is exceeded and within 30 hours from the time of collection to set-up only when preservation is documented intact. All data generated outside of the 8 hour hold time must be qualified as such in the report to the client. No samples older than 30 hours shall be tested.			
Bacteriological Tests: Fully processed Drinking Water (40 CFR 141.21(f)(3)):			
Coliform (Total) and E. coli presence/absence	Sterile P,G	0.008% Na2S2O3	30 hours NOTE 1
Standard Plate Count	Sterile P,G	0.008% Na2S2O3	8 hours NOTE 1

Analyte	Bottle	Preservation	Holding Time
Coliphage	P	Cool to 4oC, 0.5mL 10% Na2S2O3 per L of sample	48 hours
Surface Water (40 CFR 141.74(a)(1)):			
Coliform (Total) and E. coli enumeration	P,G	Cool to 4oC	8 hours NOTE 1, 3
Standard Plate Count	P,G	Cool to 4oC	8 hours NOTE 1
Coliphage	P	Cool to 4oC	48 hours
Inorganic Tests			
Alkalinity	P,G	Separate bottle completely filled to the exclusion of air, cool, 4oC	14 days
Metals (Sb, As, Ba, Be, Cd, Ca, Cr, Cu, Pb, Ni, Se, Ag, Na, Tl)	P,G	HNO3 to pH<2	6 months NOTE 2
Bromate	P,G	50 mg/L EDA	28 days
Chloride	P,G	None	28 days
Chlorite	P,G	50 mg/L EDA, Cool to 4oC	14 days
Color	P,G	Cool, 4oC	48 hours
Conductivity	P,G	Cool, 4oC	28 days
Cyanide	P,G	Cool, 4oC NaOH to pH<12 1.2 g/L ascorbic acid	14 days
Fluoride	P,G	None	28 days
Mercury	G	HNO3 to pH<2	28 days
Mercury	P	HNO3 to pH<2	28 days
Nitrate By Ion Chromatography	P,G	Cool, 4oC	48 hours
Nitrate Chlorinated Supplies	P,G	Cool, 4oC	14 days
Nitrate Non-chlorinated Supplies	P,G	H2SO4 to pH<2	48 hours
Nitrite	P,G	Cool, 4oC	48 hours
Phosphorus (as Orthophosphate)	P,G	Cool, 4oC	48 hours
Silica	P	Cool, 4oC	28 days
Sulfate	P,G	Cool, 4oC	28 days
Total Filterable Residue	P,G	Cool, 4oC	7 days

Analyte	Bottle	Preservation	Holding Time
UV254 Absorbance	P,G	Cool, 4oC	48 hours
Organic Tests			
Trihalomethanes Bromodichloromethane Bromoform Chlorodibromomethane Chloroform	Glass with Teflon-lined Septum	0.008%Na2S2O3	14 days
Volatile Halocarbon and Volatile Aromatics: Methy-tert-butyl ether	Glass with Teflon-lined Septum	Ascorbic Acid (25 mg/40 ml) added to empty sample bottle then add 1:1 HCl to pH<2. Cool 4oC	14 days
Microextractables: Method 504.1	Glass with Teflon-lined Septum	Cool, 4oC3 mg Na2S2O3 per 40 ml vial	28 days
Method 505	40-ml glass vial with cap liner	3 mg Na2S2O3 Cool, 4oC	7 days
Method 506	1-L (or qt.) amber glass with TFE lined cap	60 mg Na2S2O3 Cool, 4oC	14 days until extraction, then 14 days after extraction
Method 507	1-L Borosilicate glass, graduated, with TFE lined cap	80 mg Na2S2O3 Cool, 4oC Protect from light	14 days until extraction, then 14 days after extraction
Method 508	1-L Borosilicate glass, graduated, with TFE lined cap	80 mg Na2S2O3 Cool, 4oC Protect from light	7 days until extraction, then 14 days after extraction
Method 508A PCB's, Total as decachlorobiphenyl	1-L glass, with TFE lined cap	Cool, 4oC	14 days until extraction, then 30 days after extraction
Method 508.1	1-L glass with TFE lined cap	50 mg Na2S2O3 then 1:1 HCl to pH<2 Cool, 4oC	14 days until extraction then 30 days after extraction

Analyte	Bottle	Preservation	Holding Time
Method 515.1: 515.2, 515.3 Chlorinated Acids	1-L Borosilicate glass, graduated, with TFE lined cap	80 mg Na2S2O3 Cool, 4oC Protect from light	14 days until extraction, then 14 days after extraction
Method 525.2	Refrigerated glass sample containers, sampling must be free of plastic tubing, gaskets, etc. that may leach analytes into water	Cool, 4 C Remove Cl residual; adjust pH<2 with6 N HCl	Extract within14 days. Analyze within 30 days of sample extraction
Method 531.1 Methylcarbamate pesticides	60-ml vial with PTFE silicone faced septa	1.8 ml acetic acid buffer, 4.8 mg Na2S2O3 Ship 4oC Store at-10oC	28 days
Glyphosate	60-ml vial PTFE faced Silicone	6 mg Na2S2O3 Cool 4oC; Protect from light	14 days
Endothall	40-ml amber glass vial with TFE lined cap	Cool 4oC; Protect from light	7 days
Diquat	1-L amber plastic or silanized glass with screw cap	100 mg Na2S2O3 H2SO4 to pH=2, Cool to 4oC, Protect from light	7 days until extraction, then 21 days after extraction
Benzo(a)pyrene	1-L (or qt.) amber glass with TFE lined cap	100 mg Na2S2O3 1:1 HCl to pH<2; Cool to 4oC; Protect from light	7 days until extraction then 30 (40 for Method 550.1) days after extraction
Method 551.1	60 ml glass vials Teflon lined Septum	Sodium Sulfite or Ammonium Chloride (for microextractables), pH 4.5-5.0 with phosphate buffer Cool, 4C	14 days until extraction, then 14 days after extraction

Analyte	Bottle	Preservation	Holding Time
Method 552.1	Amber glass with TFE liner	Add NH4Cl to a concentration of 100mg/L in sample; Cool 4oC	Extract within 28 days of collection. Analyze extract within 48 hours if stored at 4oC or less.
Method 552.2	Amber glass with TFE liner	Add NH4Cl to a concentration of 100mg/L in sample; Cool 4oC	Extract within 28 days of collection. Analyze extract within 7 days if stored dark at 4oC or less or 14 days if 10oC or less.
Method 555	glass TFE lined	Acidify to pH2 with 1:1 HCl; Dechlorinate with 5mg NaSO3 per 100mL sample; Cool 4oC Protect from light	Analyze after extraction, within 14 days of collection

Table 9.0 Non-potable Water Bottle and Preservation Requirements

Analyte	Bottle	Preservation	Holding Time
Note that where "Cool to <=6°C" is stated, samples are not to be frozen. Rounding down to 6°C may not be used to meet the <=6°C requirement. The preservation temperature does not apply to samples that are analyzed immediately (less than 15 minutes).			
Bacteriological Tests			
Coliform, Total, Fecal, and E. coli, and Enterococcus	P,G	Cool to <=6°C	8 hours*
Coliform, Total, Fecal, and E. coli and Enterococcus in chlorinated samples	P,G	Cool to <=6°C 0.008% Na2S2O3	8 hours*
Standard Plate Counts	P,G	Cool to <=6°C, 0.008% Na2S2O3	8 hours*
*Maximum holding time includes the time elapsed from collection of the sample to placement into the incubator.			

Analyte	Bottle	Preservation	Holding Time
Inorganic Tests			
Acidity	P, FP,G Separate bottle completely filled to the exclusion of air	Cool to <=6°C	14 days
Alkalinity	P, FP,G Separate bottle completely filled to the exclusion of air	Cool to <=6°C	14 days
Metals (Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Au, Fe, Pb, Mn, Mg, Mo, Ni, Pd, Pt, Ag, Tl, Sn, Ti, V)	P, FP,G	Cool to <=6°C, H2SO4 to pH<2	28 days
Biochemical oxygen demand	P, FP,G	Cool to <=6°C	48 hours
Bromide	P, FP,G	None	28 days
Biochemical oxygen demand, carbonaceous	P, FP,G	Cool to <=6°C	48 hours
Chemical oxygen demand	P, FP,G	Cool to <=6°C, H2SO4 to pH<2	28 days
Chloride	P, FP,G	None	28 days
Chromium VI	P, FP,G	Cool to <=6°C	24 hours
Chromium VI	P, FP,G	Cool to <=6°C, Plus pH9.3-9.7 with (NH4)2SO4	28 Days
Color	P, FP,G	Cool to <=6°C	48 hours
Cyanide, total and amendable to chlorination	P, FP,G	Cool to <=6°C, NaOH to pH>12, 0.6g No Sulfide	48 Hrs
Cyanide, total and amendable to chlorination	P, FP,G	Cool to <=6°C, NaOH to pH>12, 0.6g No Sulfide: **Plus mitigate for interferences**	14 Days
Fluoride	P	None	28 days
Hardness	P, FP,G	HNO3 to pH<2 H2SO4 to pH<2	6 months
Hydrogen ion (pH)	P, FP,G	None	Analyze within 15 Minutes
Kjeldahl and organic nitrogen	P, FP,G	Cool to <=6°C, H2SO4 to pH<2	28 days
Mercury	P, FP,G	HNO3 to pH<2	28 days

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Analyte	Bottle	Preservation	Holding Time
Nitrate	P, FP,G	Cool to <=6°C	48 hours
Nitrate-nitrite	P, FP,G	Cool to <=6°C, H2SO4 to pH<2	28 days
Nitrite	P, FP,G	Cool to <=6°C	48 hours
Oil and Grease	G	Cool to <=6°C, HCl or H2SO4 to pH<2	28 days
Organic carbon	P, FP,G	Cool to <=6°C, HCl or H3PO4, or H2SO4 to pH<2	28 days
Orthophosphate	P, FP,G	Filter within 15 minutes, Cool to <=6°C	48 hours
Phenols	G	Cool to <=6°C H2SO4 to pH<2	28 days
Phosphorus, total	P, FP,G	Cool to <=6°C, H2SO4 to pH<2	28 days
Residue, Total	P, FP,G	Cool to <=6°C	7 days
Residue, Filterable	P, FP,G	Cool to <=6°C	7 days
Residue, Non-filterable	P, FP,G	Cool to <=6°C	7 days
Residue, Settleable	P, FP,G	Cool to <=6°C	7 days
Silica	P, Quartz	Cool to <=6°C	28 days
Specific Conductance	P, FP,G	Cool to <=6°C	28 days
Sulfate	P, FP,G	Cool to <=6°C	28 days
Sulfide	P, FP,G	Cool to <=6°C, add zinc acetate plus sodium hydroxide to pH>9	7 days
Surfactants	P, FP,G	Cool to <=6°C	48 hours
Temperature	P, FP,G	None	Analyze within 15 Minutes
Organic Tests			
Purgeable Halocarbons plus Benzyl Chloride and Epichlorohydrin	G, Teflon- lined septum	Cool to <=6°C, Ascorbic Acid (25 mg/40 ml) for residual chlorine	14 days (7 days if not preserved)
Purgeable Aromatics	G, Teflon-lined septum	Cool to <=6°C, 0.008%Na2S2O3 for residual chlorine Preserve as above and HCl to pH<2	14 days (7days if not preserved)

Analyte	Bottle	Preservation	Holding Time
Acrolein and Acrylonitrile	G, Teflon-lined septum	Cool to <=6°C, 0.008%Na2S2O3 for residual chlorine Preserve as above and pH to 4-5	14 days for acrylonitrile, 3 days for acrolein 14 days
Phenols	G, Teflon- lined cap	Cool to <=6°C, 0.008% Na2S2O3 for residual chlorine	7 days until extraction 40 days after extraction
Benzidines	G, Teflon- lined cap	Cool to <=6°C, 0.008% Na2S2O3 for residual chlorine	7 days until extraction 7 days after extraction if stored under inert gas
Phthalate Esters	G, Teflon- lined cap	Cool to <=6°C	7 days until extraction 40 days after extraction
Nitrosamines	G, Teflon- lined cap	Cool to <=6°C, store in dark, 0.008% Na2S2O3 for residual chlorine. For diphenylnitrosamine add 0.008% Na2S2O3 and adjust pH 7-10 with NaOH within 24 hours of sampling	7 days until extraction 40 days after extraction
Nitroaromatics and Isophorone	G, Teflon lined cap	Cool to <=6°C, 0.008% Na2S2O3 for residual chlorine, store in dark	7 days until extraction 40 days after extraction
PCBs	G, Teflon-lined cap	Cool to <=6°C	1 year until extraction 1 year after extraction

Analyte	Bottle	Preservation	Holding Time
Pesticides	G, Teflon-lined cap	Cool to <=6°C Cool to <=6°C, pH 5-9, 0.008% Na2S2O3 for residual chlorine if aldrin is to be determined	72 hours 7 days until extraction 40 days after extraction
Polynuclear Aromatic Hydrocarbons	G, Teflon-lined cap	Cool to <=6°C, 0.08%Na2S2O3 for residual chlorine only, store in dark	7 days until extraction 40 days after extraction
Haloethers	G, Teflon-lined cap	Cool to <=6°C, 0.008%Na2S2O3 for residual chlorine only	7 days until extraction 40 days after extraction
Chlorinated Hydrocarbons	G-Teflon-lined cap	Cool to <=6oC	7 days until extraction 40 days after extraction

Table 10.0 Solid/Hazardous Waste Bottle and Preservation Requirements

Analyte	Bottle	Preservation	Holding Time
Note: Due to the variety of possible sample types, only generalizations can be made. Most solid samples are best preserved by refrigeration to 4□C. Analysis should begin as soon as possible. If SW846 does not list a holding time, then the holding time must not exceed the holding time listed for water samples. A complete record should be maintained on each sample to provide a history of sample handling from collection to analysis.			
HCr+6	P	≤6 °C	30 days to digestion, 7 days from extraction to analysis
Mercury	P	≤6 °C	28 days
Metals	P	None	6 months
HEM, Grease & Oil	P	≤6 °C	28 days
Cyanide	P	≤6 °C	14 days
pH	P	None	Analyze immediately
Total Organic Carbon	P	≤6 °C	28 days
Volatile Organics	P	≤6 °C	14 days

Analyte	Bottle	Preservation	Holding Time
Semi-volatile Organics Pesticides Herbicides	125-mL wide-mouth glass with PTFE-lined lid	≤6 °C	Samples extracted within 14 days and extracts analyzed within 40 days following extraction
PCBs	250-mL wide-mouth glass container with PTFE-lined lid.	Cool to ≤6 °C.	Samples extracted within 14 days and extracts analyzed within 40 days following extraction

21.0 Laboratory Water Supply

21.1 The water used for reagents and blanks (trip, field, method, holding) and general laboratory procedures is derived from two sources: ultra pure still (Nanopure water filtration system) and the Millipore Alpha Q.

21.2 Nanopure Water Filtration System

21.2.1 Used for all organic work and all blanks sent to clients (field, trip).

21.2.2 GC and GC/MS sections use this water as the source for the method blanks for extractions and volatile organics.

21.2.3 The water is verified on a daily basis by the analysis of a method blank and determined to be free of organic contaminates. The resistivity is checked on a daily basis and logged into a logbook.

21.2.4 The conductivity is checked on a monthly basis and the values recorded in a notebook.

21.2.5 The cartridges are replaced when the resistivity is no longer within the allowable range (0.5 to 2.0 megohms-cm).

21.2.6 No volatile organics greater than the reporting limit can be detected in this water.

21.3 Millipore Alpha Q Filtration System

21.3.1 Used for all inorganic work.

21.3.2 The conductivity is checked daily and must be within the limits of 0.5 to 2.0 megohms/m.

21.3.3 This result will be recorded daily in a logbook.

21.4 Field and Trip Blank Sample Preparation

21.4.1 Laboratory distilled water, certified as pure, is used for all field and trip blanks.

21.4.2 This water is verified as pure by analysis prior to filling the trip and field blank bottles by analysis for volatiles, semi-volatiles and

pesticide/PCBs.

21.4.3 All organic analytes must be detected at less than the reporting limit.

21.4.4 A record of this analysis is kept on file in the QC department.

21.4.5 Preservations are added to the sample containers prior to shipment.

22.0 Major Equipment and Reference Measurement Standards

22.1 Preventative Maintenance Procedures

22.1.1 The preventative maintenance procedures are designed to generate consistent production of a quality product. The proper calibration and verification of equipment is critical.

22.1.2 Preventative maintenance is important in preventing probable down time and instrument problems by instituting a proactive program to ensure that the routine maintenance procedures are performed to prevent failure of the equipment during use.

22.1.3 The calibration and maintenance on all the instruments are documented in the calibration log books and the individual instrument maintenance logbooks.

22.1.4 See the Appendix Section 5 for general preventative maintenance.

22.2 Responsibility for Maintenance

22.2.1 The responsibility for the preventative maintenance lies with the analyst and the supervisor of the department.

22.2.2 All staff are trained to perform routine daily maintenance on instrumentation.

22.3 Service Contracts

22.3.1 All major laboratory instrumentation is covered under service contracts from either the instrument manufacturer or an outside service organization (Compco Analytical).

22.3.2 The service agreements include preplanned service during the course of the contract to minimize downtime. Examples include:

22.3.2.1 Source Cleaning, changing pump oil, cleaning the source and other routine maintenance.

22.3.3 Trained staff observes all external source maintenance

22.3.4 Once maintenance is requested, the time frame for arrival to the site is anywhere from 48 hours to 4 days depending on the specific agreement.

22.4 Equipment Redundancy

22.4.1 All major equipment has a back-up instrument that can be used in a situation where an instrument failure occurs.

22.4.2 All GC, GC/MS, ICP instrumentation have more than one instrument available at all times.

22.4.3 Spare parts for small consumables and columns are kept on site.

22.4.4 In the event that an instrument fails and no redundant instrument is available, the client is notified and arrangements are made to subcontract the impacted samples.

22.4.5 Equipment that fails is taken out of service, clearly marked, and appropriately stored (if applicable) until it has been repaired and shown by calibration test to perform correctly.

22.5 Reference Standards

22.5.1 Reference standards are obtained or calibrated by a body that can provide traceability (National Institute of Standards and

Technology(NIST)).

22.5.2 Reference standards of measurement held by the laboratory are used for calibration only and for no other purpose, unless it can be shown that their performance as reference standards would not be invalidated.

23.0 Facilities

23.1 H2M Laboratories, Inc. is located at:

575 Broad Hollow Road (Route 110)
Melville, New York 11747
Exit 49 South of the Long Island Expressway (495)

23.2 The laboratory comprises approximately 10,400 square feet in size (see Floor Plan, Appendix, Section 3.0)

23.3 The laboratory is subdivided into six sections:

23.3.1 Shipping/Receiving
23.3.2 Inorganic Chemistry (Wet Chemistry)
23.3.3 Inorganic Chemistry (Metals)
23.3.4 Organic Chemistry (GC)
23.3.5 Organic Chemistry (GC/MS)
23.3.6 Special Process Laboratory

23.4 The laboratory is staffed by 50+ technically qualified scientists, technicians, and support staff whose educational backgrounds vary depending on specific job functions.

23.5 The laboratories air supply is designed to minimize cross-contamination in various lab areas (e.g. sample preparation and volatile organic analysis). The air supply is monitored via computer and records of temperature fluctuations and humidity are available.

23.5.1 Negative pressure exists between the special process (extractions) room and the rest of the laboratory to eliminate contamination of extraction solvents in the volatile organic testing areas.

23.6 Bench tops and floors are made of impervious, smooth easily cleaned materials.

23.7 There is at least two linear meters workspace per analyst while working.

23.8 Specific work areas are defined and access is controlled. Only authorized personnel and escorted signed-in visitors may enter the work area. This limits the access of unauthorized personnel from entering work areas with potentially hazardous chemicals.

23.9 Good housekeeping measures are employed to avoid the possibility of contamination as well as to maintain safety.

24.0 Security

24.1 The entire building is equipped with a security system monitored by a private alarm company.

24.2 The laboratory area is divided into separate zones.

24.3 The access doors to these areas are wired with sensors so that the zones can be operated individually.

24.4 Each employee is assigned a FOB, which allows access to the building during a preset time schedule.

24.4.1 The FOBs are codes with the analyst information and are given to each analyst.

24.4.2 The number of FOBs and responsible persons is controlled.

24.4.3 FOBs are signed for by each analyst and handed in to Human Resources if employment ends.

24.5 Access to the building is monitored both internally and by an outside security company.

24.6 The lab is equipped with a hand scanner that limits entry to the building to employees that have been scanned in for approved entry.

24.7 All other entries are made by made by either the receptionist or receiving personnel electronically opening the door.

25.0 Purchasing

25.1 Non-capital purchases in the laboratory are centralized.

25.2 The decision of the vendor used to purchase products from is dependent on several factors which may include:

25.2.1 The quality of the product must be of an adequate quality to ensure confidence in the results.

25.2.2 The cost must be fair.

25.3 If no independent assurance of the quality is available, the lab must document that the product was inspected, calibrated or otherwise verified before use.

25.4 "Standing orders" are arranged as often as possible to ensure a constant supply of disposable materials while not requiring storage on site.

25.5 Records of all suppliers are maintained.

25.6 A listing of vendors may be found in the Appendix, Section 4.0.

25.7 Packing slips are checked against package content labels and matched with the purchase order if accepted.

25.8 Once accepted, the packing slip is dated and initialed as evidence of compliance.

25.9 Certificates of analysis (COA) are maintained on file after the COA is checked to ensure the received item meets the minimum specifications.

25.10 Where no independent assurance of quality of procured goods or services is available from the supplier, the laboratory ensures that purchased goods and services comply with specified requirements.

26.0 Waste Generation, Storage and Disposal

26.1 Waste Storage Facility

26.1.1 The waste storage room was designed and constructed according to Article XII of the Suffolk County Sanitary Code.

26.1.2 The room includes secondary containment for 15-55 gallon drums, explosion proof lighting/HVAC systems, and a fire suppression system.

26.1.3 The storage room is located adjacent to the laboratory's eastern lobby.

26.1.4 The waste room is restricted to certain personnel and is controlled by the Special Process Supervisor.

26.1.5 Entrance to the waste room is obtained by submitting to the Special Process Supervisor a list of types and quantities of wastes to be transferred.

26.1.6 The list is reviewed and maintained by the Special Process Supervisor to document the types and quantities of wastes transferred.

26.1.7 On a weekly basis, an inspection of the storage facility is conducted and documented.

26.2 Samples that are not hazardous or contaminated are disposed of through

conventional means.

Under no circumstances are any hazardous wastes discharged into any sink or drain

26.3 Bulk and Small Quantity Hazardous Wastes

26.3.1 These wastes are initially accumulated in the section of the laboratory where they are generated.

26.3.2 Bulk wastes are initially stored in containers ranging from 1 liter to 5 gallons in size.

26.3.3 After accumulation of a maximum of 5 gallons in size, the waste is transferred to a designated 55-gallon drum in the hazardous waste storage facility by the department supervisor or authorized hazardous waste handler.

26.4 Hazardous Waste Storage

26.4.1 Major Waste is segregated into 55 gallon drums as follows:

26.4.1.1 Waste acids

26.4.1.2 Waste methylene chloride/chloroform

26.4.1.3 Waste ether

26.4.1.4 Waste granulated activated carbon

26.5 Small Quantity Waste Storage

26.5.1 Small quantity waste consists primarily of contaminated samples, prepared samples, and expired or off-spec analytical standards.

26.6 Hazardous Waste Removal

26.6.1 All hazardous waste is removed for final disposal by a fully licensed transporter and treatment, storage and storage facility (TSD).

26.6.2 During transfer of wastes from the storage room by the disposal contractor, spill control equipment is on-site to respond to potential spills.

26.6.3 All final waste is processed through physical treatment and/or incineration.

27.0 Standard Reference Materials

27.1 Solvents, Reagents, and Absorbent Check Analysis

27.1.1 All solvents, absorbent materials, and reagents are routinely demonstrated to be free from contamination under the conditions of the analysis by analyzing a reagent blank.

27.1.2 All solvents, absorbent materials and reagents are stored so as to ensure their integrity by preventing against deterioration, contamination, and loss of identity.

27.1.3 Traceability of solvents and reagents is documented by monitoring and recording:

27.1.3.1 Lot numbers

27.1.3.2 Date opened

27.1.3.3 Expiration date

27.1.4

27.2 Reference Material Use

27.2.1 Stock Standards

27.2.1.1 All stock standards purchased, if available, are traceable to NIST (National Institute of Standards and Technology).

27.2.1.2 All stocks come with documentation from the vendor attesting to the integrity of the standard solution.

27.2.2 Volatile Organic Standards

27.2.2.1 Generally, volatile standards are replaced every month or sooner if necessary.
27.2.2.2 Gas standard solutions are replaced on a weekly basis.
27.2.3 Semi-volatile and GC/ECD
27.2.3.1 Standards are generally replaced every 6 months or sooner if necessary.
27.2.4 Metals
27.2.4.1 Stock standards are generally used up to the date of expiration.
27.2.4.2 Working standards for metals analysis are prepared on a daily basis.
27.2.5 Wet Chemistry
27.2.5.1 Stock standards are generally used up to the date of expiration.
27.2.5.2 Working standards are prepared at a frequency prescribed by the analytical method.

27.3 Proficiency Samples
27.3.1 H2M Laboratories participates in the NYSDOH proficiency sample program.
27.3.2 In addition, other state regulatory agencies as well as outside vendors such as ERA or Absolute Standards provide scheduled proficiency samples for various parameters.
27.3.3 The NYSDOH proficiency samples are performed twice a year per matrix.
27.3.4 The samples are incorporated into the analytical system in the same manner as normal environmental samples and results reported.
27.3.4.1 NYSDOH evaluates the data and scores are assigned to each analyte as satisfactory or unsatisfactory.
27.3.4.2 No response is required for satisfactory results.
27.3.4.3 In the case of an unsatisfactory result, a review of the test and its accompanying QC is performed and the cause of the unsatisfactory result is investigated.
27.3.4.4 A report listing the cause and the corrective action is generated.

27.4 Double Blind Samples
27.4.1 A double blind sample is one that replicates a real environmental sample in composition and appearance.
27.4.2 Laboratory sample bottles are used to prepare whole-volume PT samples by an outside standard vendor company and usually submitted as a fictitious engineering firm.
27.4.3 The full range of services provided to the customer is checked including turn around time, correctness, and customer service.
27.4.4 A report is generated documenting the accuracy of the results submitted.

28.0 Internal Quality Control

28.1 The data acquired from QC procedures are used to estimate the quality of the data to determine the need for corrective action, and to interpret results following corrective actions that were implemented.
28.2 Details of each method stipulated QC is stated in the method standard

operating procedure (SOP).

28.3 When no method limits exist, QC limits are generated in-house.

28.4 If less than 20 data points are available, interim QC limits are used with a recovery of 70-130% for accuracy and ±20% relative percent difference for precision.

28.5 For spiking data when 20 data points become available, limits are calculated based on the mean recovery ±3 standard deviations.

28.5.1 Results that are slightly *above* the LCS QC limit are not counted toward the allowable number of analytes outside the QC limits.

28.5.2 This situation must still be noted in the case narrative.

28.6 For duplicate data when 20 points become available, limits are calculated based on the mean of the historical difference.

28.7 Quality control measures are assessed and evaluated on an on-going basis to monitor trend analysis through control charts.

28.8 Marginal Exceedences (ME)

28.8.1 For methods that contain a large number of analytes in the LCS, it is statistically unlikely that all analytes will be in control.

28.8.2 Upper and Lower marginal exceedence (ME) limits may be established to determine if corrective action is needed (3 standard deviation units around the mean).

28.8.3 An ME is defined as being beyond the LCS control limit but within the marginal exceedence limit.

28.8.4 The ME is calculated as being between 3 and 4 standard deviation units around the mean.

28.8.5 Marginal exceedences must be random. If the same analyte is consistently outside the LCS control limits, the cause must be investigated.

Table 11.0: Spiking Requirements

Number of Analytes in Method	Minimum Number of Analytes to be Spiked	Number of analytes to fall outside the marginal exceedence (ME)
<10	10	0
11 to 30	80%	1
31 to 50	Spike at least 16 parameters.	2
51 to 70		3
71 to 90		4
>90		5

28.9 Failure to Meet QC Requirements/Customer Requirements

28.9.1 If the non-conformance requires a resampling or re-extraction, the analyst completes a form and distributes it to the QA Manager and the QC Department.

28.9.2 If there is a specific project manager, they also would receive a copy.

28.9.3 The QA department then reviews the non-compliance and takes action by either contacting the client to inform them and asking for feedback or initiating an investigation by a technical nature to determine the root cause of the problem.

28.9.4 If data must be reported even though all QC requirements were not

met, the affected sample results must be qualified in the case narrative (if applicable) or by qualifying the data on the report form.

28.10 Positive Results

28.10.1 All drinking water samples, with positive results without a historical background associated with it are re-prepped and re-analyzed for confirmation prior to reporting the result to the client.

28.10.2 A resample may be collected to confirm results especially for SOCs.

Table 12.0: Summary of Essential QC for Chemical Analysis

REFERENCE	TYPE OF CONTROL	FREQUENCY	CRITERIA
Negative control	Method blank	1 per batch/matrix type/sample extraction or prep method	Must be less than1/10 of regulatory level or 1/10 any positive result except for normal laboratory contaminants which are addressed in SOPs and methods.
Positive control	Matrix spikes	1 per 20 samples/matrix type/prep method	Advisory only
Positive control	Lab fortified blank	1 per batch/prep procedure	Method dependent
Positive control	Laboratory control Sample	1 per batch/prep procedure	Method dependent
Precision	Matrix spike/matrix spike duplicate or duplicates	1per20/ matrix /prep procedure	Advisory
Method evaluation	Demonstration of capability	Initial verification per analyst	Method dependent

REFERENCE	TYPE OF CONTROL	FREQUENCY	CRITERIA
Method evaluation	Calibration	Initially with daily verification	Method dependent
Method evaluation	Proficiency results	NELAC freq	NELAC spec
Sensitivity	Method detection limit	Yearly	Method dependent
Data reduction	Documentation	Not specified	Protocol dependent
Quality of standards and reagents	Reagent quality checks	Reagent grade	Per label
Quality of standards and reagents	Water quality checks	Bottle checks monthly	Less than reporting limit
Selectivity	Absolute retention time and relative retention time	Method dependent	Instrument dependent
Constant and consistent test conditions	Instrument stability	None specified	Method dependent
Constant and consistent test conditions	Glassware cleaning	Method dependent	Protocol dependent

Table 13.0 Summary of Essential QC for Microbiological Analysis

REQUIREMENTS	TYPE OF CONTROL	FREQUENCY	CRITERIA
Negative control	Sterility checks and Blanks	Method specified	Method specified
Negative control	Un-inoculated control	Method specified	None specified
Positive control	Positive	Monthly	None specified
Precision	Duplicates	5% of suspected	None specified

REQUIREMENTS	TYPE OF CONTROL	FREQUENCY	CRITERIA
		positives	
Precision	Proficiency tests	NELAC	None specified
Method Evaluation	Proficiency tests	NELAC	To be specified
Method Evaluation	Method validation	Method dependent	None specified
Test Performance	Media appropriateness	Check prior to use	None specified
Data Reduction	Analyst counting	Verify ability to count monthly	None specified
Quality of Standards, Reagents and Media	Shelf life for reagents and media	Manufacturer specified	Manufacturer specified
Quality of Standards, Reagents and Media	Water quality	Free from bacterial and inhibitory substances	Method specified
Selectivity	Traceability/selectivity	Reference cultures	Not specified
Selectivity	Confirmation/verification	Method specified	Method specified
Quality of Standards, Reagents and Media	Detergent inhibition	Check detergent lot(initially verify)	Not specified
Constant and Consistent Test Conditions	Contaminant monitoring	Trend analysis	Not specified
Constant and Consistent Test Conditions	Autoclave performance	Within temperature tolerances	Method specified
Constant and Consistent Test Conditions	Performance of volumetric equipment	Manufacturer specified	Manufacturer specified

REQUIREMENTS	TYPE OF CONTROL	FREQUENCY	CRITERIA
Constant and Consistent Test Conditions	Measurement instruments	Manufacturer specified	Manufacturer specified

Table 14.0 Purgeable Organics QC Summary

	Tune Performance	System Evaluation	Calibration Check	Instrument Blank	Matrix Spike Sample/ Matrix Spike Duplicate	Matrix Spike Blank	System Monitoring Compound Recoveries	Internal STD Area and RT
Measure Taken	BFB Injection	Initial calibration standards 5 levels	Continuing calibration standard run	Analyze Nanopure water	Run sample spiked with select standard mix	Run reagent water spiked with select standard mix	Add system monitoring compounds	Compare I.S. area and RT of 12 hour Std to samples
Frequency	Every 12 hours	Good until cont. calibration not met or change in system	Every 12 hours	Every 12 hours	One per 20 samples or SDG or matrix or 7 days sampling	One per 20 samples or SDG or matrix or 7 days sampling	All standards, blanks, samples, MS/MSD, MSB	every sample
Acceptance Criteria	Ion abundance must meet ASP criteria in Table 7.2F	Maximum %RSD and minimum RRF in Table 7.2G	Maximum %D and minimum RRF in Table 7.2G	Common solvents <5 x CRQL Others <CRQL	See lab established limits	See lab established limits	See lab established limits	RT: ± 30 seconds from Std, I.S. area -50% to +100% from Std
Corrective Action	Tune with FC 43 or PFTBA	1.New standard 2.Leak check 3.Column 4.Trap	Recalibrate Using the 5 levels	1.Check spikes for contamination 2.Bake instrument 3.Re-analyze samples assoc.	Not required	1.Re-analyze MSB/MS/MSD 2.Check solution 3.Check system	1.Check for calc errors 2.Check inst. 3.Re-analyze	1.Inspect MS system 2.Re-analyze samples

Table 15.0 CLP Semi-Volatile Organics QC Summary

	Tune Performance	System Evaluation	Calibration Check	Instrument Blank	Matrix Spike Sample/ Matrix Spike Duplicate	Matrix Spike Blank	System Monitoring Compound Recoveries	Internal STD Area and RT
Measure Taken	DFTPP Injection	Five calibration standard runs	Continuing calibration standard run	Analyze Nanopure filtered water	Run sample spiked with select standard in duplicate	Run reagent water with spiked select standard	Spike system monitoring compounds into samples, blank standards, MS, MSD, MSB	Monitor I.S. area and RT of samples and compare samples
Frequency	Every 12 hours	Good until cont. calibration not met or change in system	Every 12 hours	Per Extraction batch	One per 20 samples or SDG or matrix or 7 days collection	One per 20 samples or SDG or matrix or 7 days collection	All standards, blanks, samples, MS standards, MSD, MSB	Every 12 hours
Acceptance Criteria	Ion abundance must meet ASP criteria in Table 7.3F	Maximum %RSD and minimum RRF in Table 7.3G	Maximum %D and minimum RRF in Table 7.3G	Common phthalate esters <5 x CRQL all others <CRQL	See lab established limits	See lab established limits	See lab established limits	RT: 30 seconds from Std, I.S. area: within -50% to +100%
Corrective Action	Tune with FC 43 or PFTBA	1.New standard 2.Leak check 3.Column 4.Trap	1.Recalibrate 2.Re-do initial calibration	1.Alleviate phthalate source 2.Re-extract SDG	Advisory	1.Check spiking 2.Re-analyze 3.MS/MSD	1.Check solution 2.Check system 3.Re-analyze	1.Check solutions 2.Check system 3.Re-analyze

Table 16.0 CLP Pesticide/PCBs QC Summary

	Initial and Continuing Calibration Column Resolution	Initial Calibration Linearity	Initial and Continuous Calibration Breakdown	Matrix Spike Blank	Method Blank
Measure Taken	Initial and continuing calibration and PEM and resolution check std (RESC)	Determine linearity by analyzing min 3 levels of Std for mixture standard single level for multi-component	Initial and continuing calibration and PEM analyzed and endrin and DDT breakdown calculated in the PEM	Reagent water spiked with select list of analytes and surrogates extracted	Reagent water Spiked with surrogate
Frequency	Initially or when continuing calibration not met or major change to system	Initially or when continuing calibration not met or major change to system	Initially or when continuing calibration not met or major change to system	Each SDG or 7 days or matrix or 20 samples	Each batch of Samples Extracted
Accept-ance Criteria	PEM: all peaks must be 90% resolved on columns Ind. A&B: midpoint conc. Resolution must be ≥90% %D: ≤ 25% of true value. %RSD ≤ 20%, %RSD surrog. ≤ 30% except <25% □- and □-BHC Resc. 60% resolution Two may be out but must be ≤ 30%		Breakdown of DDT and endrin in the PEM ≤ 20%, combined breakdown ≤ 30%	See Lab established limits	Less than CRQL
Corrective Action	1. Change the parameter (e.g. temp. prog or flow) 2. Re-analyze	Re-calibrate	1. Clip column 2. Clean injection port area	1. Check solution 2. Check instrument response 3. Re extract and reanalyze	1. Determine cause of contamination 2. Re-extract and re-analyses

Table 17.0 Organphosphorus Pesticide QC Summary

	INITIAL CALIBRATION LINEARITY	CONTINUING CALIBRATION	SURROGATE STANDARD RECOVERY	MS/MSD	LAB FORTIFIED BLANK	METHOD BLANK
Measure Taken	Six calibration standard runs	Analyze continuing Calibration Standard	Run sample spiked With select standard In duplicate	Run sample spiked W/ select standard In duplicate	Run reagent Water spiked W/ select standard	Analyze Nanopore water
Frequency	Good until calibration not Met or change in system	Initially and after Every 10 samples	All standards, blanks, Samples, MS/MSD, LFB	One per 20 samples Or SDG, or Matrix Or 7 days collection	One per 20 samples Or SDG, or matrix Or 7 days collection	One per Extraction batch
Acceptance Criteria	%RSD < 20%	%D < 15% on quantitation column	Achieve recoveries	See lab established limits	See lab established limits	< CRQL
Corrective Action	1.Linear regression used 2.Or second order function 3.Or quadratic curve	1.reinject 2.new solution 3.instrument corrective action 4.analyze new initial calibration	1.Check solution 2.Check system 3.Re-analyze	Advisory	Check solution Check system Re-analyze MSB/ MS/MSD	Identify source Of contamination Re-analyze

Table 18.0 Herbicide QC Summary

	INITIAL CALIBRAT LINEARITY	CONTINUING CALIBRATION	SURROGATE STANDARD RECOVERY	MS/MSD	LAB FORTIFIED BLANK	METHOD BLANK
Measure Taken	Six calibration standard runs	Analyze continuing Calibration Standard	Run sample spiked With select standard In duplicate	Run sample spiked W/ select standard In duplicate	Run reagent Water spiked W/ select standard	Analyze Nanopore water
Frequency	Good until calibration not Met or change in system	Initially and after Every 10 samples	All standards, blanks, Samples, MS/MSD, LFB	One per 20 samples Or SDG, or Matrix Or 7 days collection	One per 20 samples Or SDG, or matrix Or 7 days collection	One per Extraction batch
Acceptance Criteria	%RSD < 20%	%D < 15% on quantitation column	Achieve recoveries	Lab established limits	Lab established limits	< CRQL
Corrective Action	1.Linear regression function used 2.Or second order function 3.Or quadratic curve	1.Reinject 2.new solution 3.instrument corrective action 4.analyze new initial calibration	1.Check solution 2.Check system 3.Re-analyze	Advisory	1.Check solution 2.Check system 3.Re-analyze MSB/ MS/MSD	1.Identify source of contamination 2.Re-analyze

Table 19.0 CLP-M TAL Metals QC Summary

	Verification Of Linearity at CRQL	System Evaluation Calibration	Calibration Check ICV and CCV	Instrument Blank	Spiked Sample	Duplicate	Preparation Blank	ICP Interference Check Sample	Laboratory Control Sample (CS)	ICP Serial Dilution
Measure Taken		Analyze a blank standard independence for calibration levels	Analyze standard independent from calibration	Analyze ICB and CCBs	Sample spiked with analytes	Analyze a sample twice	A prep blank carried through prep and analysis	Analyze ICS, ICS A and ICS B	Carry through prep, & analyze aqueous and solid LCS	Analyze a 5 fold dilution of sample that is 50x IDL
Frequency	After the ICV in each analysis	Each 24 hours of use	10% or every 2 hrs during analysis whichever is more frequent	10% or every 2 hrs during analysis whichever is more frequent	One per matrix and conc. or SDG whichever is more frequent	One per matrix and conc. or SDG which-ever is more frequent	One per SDG or with each batch of samples digested whichever is more frequent	At beginning and end of analysis run of minimum of 2x per 8-hr.whichever is more frequent	One LCS per batch digested per matrix or per SDG whichever is more frequent except Hg and Cn	If analyte conc. is at minimum of factor of 50 above IDL on each group of samples of a similar matrix or for each SDG
Acceptance Criteria	Advisory	± 5% of true value except at CRDL	See Table 7.5B	Absolute value must be less than or equal to the CRDL	Spike recov. Should be between 75-125% except if sample conc. 4x > spike conc.	> 5x CRQL RPD 20%, < 5x CRQL or one above and one below RPD ± CRQL	The absolute value must be less than or equal to CRQL	ICS AB must be within ± 20% of true value	80–120% except Ag & Sb, soil/sed's limits provided 10/LCS	Dilution must be within 10% of the original determination
Corrective Action	None	Re-calculate	1.Stop analysis 2.Correct problem 3.Re-calibrate 4.Re-analyze	1.Stop analysis 2.Correct problem 3.Re-calculate 4.Re-analyze	Flag with "N" and for non-furnace & Hg elements also perform a post-spike	Flag with "*"	If above CRDL, the lowest conc. in the smpls must be 10x blank conc. or re-digested and re-analyzed	1.Stop analysis 2.Correct problem 3.Re-calibrate 4.Re-analyze	1.Terminate 2.Correct 3.Re-digest/ re-analyze	Flag with "E"

Table 20.0 Wet Chemistry QC Summary

Parameter	Method	ICV/ CCV/ Freq	ICV/ CCV Limits	Matrix Spike Freq	Matrix Spike Limits *	ICB/ CCB Freq	ICB/ CCB Limits	DUP Freq	RPD Limits
Alkalinity	SM2320B	1 per 10	± 20%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20
BOD	SM5210B	1 per 20	± 20%	NA	NA%	1 per20	± CRQL	1 per 20	± 20%
Bromide	SM15p.S4 4	1 per 10	± 20%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20% or CRDL
Chloride	SM4500 CIE	1 per 10	± 20%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20% or CRQL
Nitrate	353.2	1 per 10	± 20%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20% or CRQL
Sulfate	SM4500 SO4E	1 per 5	± 20%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20% or CRQL
TDS	SM2540C	1 per 10	±20%	1 per 20	±25%	1 per 10	± CRQL	1 per 20	± 20% or CRQL
TSS	SM2540D	1 at start of run	±20%	NA	NA	1 per 10	± CRQL	1 per 20	± 20% or CRQL
Color	SM2120B	1 per 10	± 20%	NA	NA	1 per 20	± CRQL	1 per 20	± 20% or CRQL
Turbidity	180.1	1 per 10	± 10%	NA	NA	1 per 10	± CRQL	1 per 20	± 20%
Hex. Chrom	SM3500 CRD	1 per 10	± 20%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20%
TPH	1664A	1 per 10	± 20%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20%
TOC	SM5310B	1 per 10	± 20%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20%
TOC	Kahn	1 per 10	± 20%	1 per 20	± 25%	1 per 10	± CRQL	Quad 1 per 20	± 3 SD
Total Phenols	420.1	1 per 10	± 10%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20% or CRQL
Ammonia	350.1	1 per 10	± 20%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20% or CRQL
COD	410.4	1 per 10	± 20%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20% or CRQL
TKN	351.2	1 per 10	± 20%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20% or CRQL
Hardness	SM2340C	1 per 10	± 10%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20% or CRQL
Oil & Grease	1664A	1 per 20	± 20 &	1 per 20	± 25%	1 per 20	+ CRQL	1 per 20	± 20% or CRQL
Sulfide	SM4500 SE	1 per 10	± 20%	1 per 20	± 25%	1 per 10	± CRQL	1 per 20	± 20% or CRQL

* = If outside limits, repeat matrix spike analysis once.

29.0 Departures from Documented Policies and Procedures

29.1 All policies and procedures in place in the laboratory must be adhered.

29.2 Departures from documented policies and procedures may be permitted if approved by the QA Manager, Laboratory Manager, or Technical Manager.

29.3 This departure must be fully documented and include the reason for departure and signed and dated by either the Technical Manager, Laboratory Manager, or the QA Manager.

29.4 No departures are permitted unless this procedure is followed.

30.0 Instrument Corrective Action

30.1 Specific corrective action protocols for handling out-of-control QC are stated in each SOP.

30.2 Instrument Corrective Action

30.2.1 The analyst is responsible for reviewing the initial calibration, blank and QC check criteria for adherence to the method requirements prior to initiating sample analysis.

30.2.2 On going QC is checked by the analyst either in real time or the following morning for an overnight run.

30.2.3 The analyst is responsible for reviewing the data in comparison with the QC of the method.

30.2.4 Analysis proceeds if all QC is met and analysis is halted if the QC requirements are not met.

30.2.5 Corrective actions are taken to correct instrument non-compliances that may include:

30.2.5.1 Checking calculation

30.2.5.2 Verification of standard

30.2.5.3 Recalibrating instrument

30.2.5.4 Baking out the instrument, etc.

30.2.6 If the corrective action doesn't correct the instrument non-compliance, the department supervisor is notified and is involved in the decision making process of corrective action.

30.2.7 If due to holding time constraints, analysis must proceed, another instrument will be used if available.

30.2.8 If another instrument is not available, the QC Manager, Technical Manager and Laboratory Manager are notified and if the QC requirement does not affect the sample results, the sample analysis may be approved and the discrepancy noted on the report or in the case narrative.

30.2.9 The QA Manager, Laboratory Manager or Technical Manager may override the QC requirement.

30.2.10 This is documented in the run log by the initials, date and a short statement of the non-compliance and that it was approved.

30.2.11 Either the QA Manager, Laboratory Manager or Technical Manager grants approval with the documentation in the run log only.

30.2.12 General procedures are followed to determine when departures from quality controlled have occurred.

30.3 Due to sampling schedule and time frame of analysis, it is not always possible to repeat the analysis if the quality control measures are not acceptable.

30.4 If a quality control measure is found to be out-of-control and the data is to be reported, all samples associated with the failed quality control measure are reported with the data qualified.

30.4.1 This may occur by the addition of the qualifier to the result:

30.4.1.1 B – analyte detected in method blank

30.4.1.2 E – concentration level over calibration

30.4.1.3 J – estimated result

30.4.2 It may also be documenting the discrepancy in the case narrative (if it is a full data package) or by indicating the non-conformance in the remarks section in the lab report.

30.4.3 A non-conformance report is completed documenting the out-of-control QC event and stating corrective measures to prevent re-occurrence.

31.0 Systems/Internal Audits/Data

31.1 The laboratory has a program of audits to ensure the effective operation of the quality system. Several different types of audit procedures are used in the laboratory. These include the following:

31.1.1 Non-conformance Summary Reports

31.1.1.1 This form is used intra as well as interdepartmental to note any deficiencies, systematic or human errors for specific samples.

31.1.1.2 This form is prepared by the analyst and distributed to the Technical Manager.

31.1.1.3 The Technical Manager meets with the supervisors and analysts or the entire department, if necessary, to discuss and resolve the non-conformance issues.

31.1.1.4 The QA Manager is consulted if procedural changes need to be implemented.

31.1.2 LIMs Holding Time Worksheet

31.1.2.1 The ACCESS-based LIMs has the capability to monitor samples and required analyses by holding time.

31.1.2.2 A daily printout lists the sample and the date by which it must be prepared/analyzed.

31.1.2.3 This is reviewed on a daily basis by the Production Manager and Laboratory supervisors to ensure that holding times are met.

31.1.3 Data Package Review

31.1.3.1 All data packages are reviewed by the Technical Manager, QA Manager, or departmental supervisors.

31.1.4 Internal Audit of Chain-of- Custody (COC)

31.1.4.1 The QA Manager or designated representative conducts random audits of the internal COC records.

31.1.4.2 A sample is tracked throughout the internal custody of the department to ensure consistency.

31.1.4.3 Since all COC documentation is submitted in the data packages, the COC is also reviewed at that time.

31.1.5 Internal Audit of QC Measures and Records

31.1.5.1 The QA Manager or designated representative conducts random inspections of the various laboratory departments.

31.1.5.2 This may be formal (use of checklist) or informal.

31.1.5.3 These inspections include logbook review, QC records, standard preparation logs and instrument maintenance records.

31.1.5.4 This may include retesting of samples, intralaboraory comparison of results and interlaboratory comparisons.

31.1.6 Data Package Audit

31.1.6.1 On a weekly basis, an update of the status of deliverable requirements is prepared in the QA Department and given to all managers and supervisors to monitor the progress of the data packages.

31.1.6.2 Corrective measures are taken if the department or reporting of the various components of the package is not on schedule.

31.1.7 Methods Audit

31.1.7.1 Analyst reviews of the in-house SOPs are occasionally performed to ensure compliance with the method.

31.1.7.2 The analyst will review the most recent version of the SOP and make edits if necessary to comply with the method. A new revision may be required.

31.1.8 Quality System Audit

31.1.8.1 An annual quality systems audit of technical activities is performed. These audits are designed to verify that activities are conducted in accordance with the requirements of the laboratory quality system.

31.1.8.2 The QA Manager or a staff member of the QC department trained in the area to be audited performs the annual internal audit.

31.1.8.3 The Technical Manager if so authorized by the QA Manager may also perform the audit.

31.1.8.4 In cases where the audit identifies circumstances in which the correctness or validity of test results is questioned, the laboratory must take corrective action immediately and notify all clients whose work may have been affected.

32.0 Performance/External Audits

32.1 Several procedures are in place for monitoring the performance of the product produced by the laboratory.

32.1.1 External Data Validation

32.1.1.1 A minimum of 20% of the data packages produced by the laboratory undergo data validation by an outside service.

32.1.1.2 A report is generated listing the comments by noted by the validator.

32.1.1.3 The QA Manager responds to the comments noted by the validator, and if necessary, corrective action measures are introduced in the appropriate department.

32.1.2 Internal Data Validation

32.1.2.1 The review of the data covers:

32.1.2.1.1 appropriateness of equations used

32.1.2.1.2 correctness of numerical input

32.1.2.1.3 numerical correctness of all calculations (accomplished by re-performing numerical computations)

32.1.2.2 The review process must be thorough enough to verify the results.
32.1.2.3 If the reviewer disagrees with any part of the computations, the reviewer marks through the number with a single line and places the revised number above it.
32.1.2.4 All large corrections are returned to the analyst for modification.
32.1.2.5 The originator of the data shall review any changes made by the reviewer.
32.1.2.6 If the originator agrees with the change, no action is necessary.
32.1.2.7 If the originator disagrees, then both the originator and reviewer must resolve the difference so that they agree with the result presented.
32.1.2.8
32.1.3 Inter-Laboratory Comparison Testing Programs
32.1.3.1 Testing in regards to blind samples or comparison of data inter-laboratory is performed periodically.
32.1.4 State/Federal Laboratory Audits
32.1.4.1 The laboratory is certified in several states.
32.1.4.2 The laboratory is audited for all methods in use on an ongoing basis.
32.1.5 Consultant/Customer Laboratory Audits
32.1.5.1 Clients may choose to audit the laboratory at any stage during project development and analysis.
32.1.6 Proficiency Sample Program
32.1.6.1 The laboratory participates the NYSDOH Proficiency Program as well as outside PT provider programs.
32.1.7 Double Blind Samples
32.1.7.1 An outside supplier may be utilized to evaluate the capability of the laboratory through the use of double blind samples.

33.0 Corrective and Preventative Action

33.1 A proactive approach is taken in regards to the initiation of preventative actions where the process includes the identification of opportunities for improvement rather than a reaction to the problem.
33.2 Improvements and potential sources of non-conformances, either technical or concerning the quality system, shall be identified on an ongoing basis.
33.3 If preventative action is required, corrective action plans will be put into place and monitored.
33.4 Some examples of preventative action are:
33.4.1 The use of holding time worksheets
33.4.2 Analyst monitoring of method QC requirements
33.4.3 Instrument maintenance
33.4.4 Column Replacement
33.4.5 Preparation of new solutions as needed
33.4.6 Checking calculations
33.4.7 Performing re-analysis
33.4.8 Schedule changes
33.4.9 Data Validation

33.4.10 Internal Audits
33.4.11 Non-conformance reports
33.4.12 Double Blind Samples

33.5 Corrective Action is implemented to document the reasons behind and remediation for an isolated event or a pattern of events that could potentially raise concerns about data integrity should they not be properly recorded.

33.6 The first step in corrective action is to identify the root causes.

33.6.1 Potential root causes that are evaluated are problems with:

33.6.1.1 Customer requirements
33.6.1.2 Samples
33.6.1.3 Sample specifications
33.6.1.4 Methods and procedures
33.6.1.5 Personnel skills and training
33.6.1.6 Consumable materials
33.6.1.7 Equipment
33.6.1.8 Calibration

33.7 Where corrective action is needed, the laboratory shall identify potential corrective actions.

33.8 Corrective actions are designed to select and implement the action(s) most likely to eliminate the problem and to prevent recurrence.

33.9 Corrective actions shall be to a degree appropriate to the magnitude and the risk of the problem.

33.10 The QA Manager shall document and implement any required changes resulting from corrective action investigations.

33.11 The QA Manager shall monitor the results to ensure that the corrective actions taken have been effective.

33.12 Where the identification of nonconformances or departures casts doubts on the laboratory's compliance with its own policies and procedures, or on its compliance with regulations, the laboratory shall ensure that the appropriate areas of activity are audited as soon as possible.

34.0 Quality System Report to Management

34.1 On an annual basis the laboratory's executive management performs a review of the laboratories quality system and environmental testing activities to ensure their continuing suitability and effectiveness, and to introduce necessary changes or improvements.

34.2 The review shall take account of:

34.2.1 the suitability of policies and procedures
34.2.2 reports from managerial and supervisory personnel
34.2.3 the outcome of recent internal audits
34.2.4 corrective and preventive actions
34.2.5 assessments by external bodies
34.2.6 the results of interlaboratory comparisons or proficiency tests
34.2.7 changes in the volume and type of the work
34.2.8 client feedback
34.2.9 complaints
34.2.10 other relevant factors, such as quality control activities, resources and staff training

34.3 Findings from management reviews and the actions that arise from them shall be recorded.

34.4 All actions will be addressed within 90 days of their identification.

35.0 Procedure for Dealing with Complaints

35.1 Records of all complaints received from clients or other parties are maintained as well as the investigations and potential corrective actions that arise from the compliant.

35.2 Customer Service/Timeliness of Reports/Invoice Issues

35.2.1 Complaints that deal with responsiveness to the client are handled by laboratory staff.

35.2.2 If a client complains that they have not received resolution to a complaint, the call may be forwarded to the Project Manager, QA Manager or Laboratory Manager for resolution.

35.2.3 These issues are documented via email or phone log.

35.3 Quality of Product

35.3.1 All complaints received regarding the quality of the data produced are handled by the QC department.

35.3.2 The date and the name of the person receiving the complaint, source of complaint, resolution and any written material associated with the complaint are documented and kept on file in the project management department.

35.3.3 The form is completed by the individual who received the complaint and forwarded to the QA Manager for investigation.

35.3.4 The complaint is investigated by the QA officer or designee and a technical review of the suspected test is undertaken.

35.3.5 The results of the investigation are documented on a customer complaint form.

35.3.6 This information is to be used by all laboratory personnel that have contact with clients.

35.3.7 These forms need to be filled out each time there is a customer complaint (for example- late results, client left message and was not called back, etc).

35.3.8 These files are located in S:\LABSHARE\NELACLOGS\

36.0 Training

36.1 Employee training is an ongoing process and also includes extensive, supervised cross training.

36.2 For new employees, it begins with a company orientation, followed by laboratory safety orientation in which employees are familiarized with laboratory hazards, safety policies, and the use of material safety data sheets and laboratory emergency evacuation procedures.

36.3 Specific training continues in the employee's laboratory section.

36.4 The employee is extensively trained in the use of instrumentation, equipment, techniques and theory of the tasks in his/her specific job description.

36.5 New employees receive supervised training upon reporting for duty.

36.5.1 The training period varies depending upon the work required of these individuals.

36.5.2 Training of new employees includes a review of laboratory techniques, safety requirements and intensive on-the-job training.

36.5.3 After a four-month review period, the new employee's progress will be reviewed.

36.5.4 Initial Demonstrations of Capability are performed for each method that the new employee will be performing.
36.5.5 As employees remain in the assigned departments, they are continuously trained in different methods to provide cross training.
36.5.6 The technical manager or QA manager maintains records of staff training in the various departments in order to assure coverage and sufficient backup of trained personnel.

37.0 New Employee Orientation

37.1 The Human Resource Manager presents company policy, benefits and other aspects of the personnel manual to the new employee.
37.2 Each employee receives a personnel manual also under the direction of the Human Resources Manager.
37.3 The Human Resources Manager informs the employee that there is an open door policy and the employee should be free to discuss any problems or difficulties with them.
37.4 The technical manager/safety officer then gives the employee a laboratory orientation.
37.4.1 H2M Safety procedures may be referenced in the Chemical Hygiene Plan Rev. 2 May 2009 and the New Employee Handbook.
37.5 The section supervisor shows the new employee the facilities and introduces him/her to laboratory personnel.
37.6 General aspects of establishing a successful working relationship as well as group dynamics are discussed.
37.7 The importance of honesty, integrity, dependability, and providing correct data is stressed.
37.8 If the employee is assigned to a technical, receiving or sampling section of the laboratory, he/she will be scheduled for a pre-employment physical at that time.
37.9 It is company policy that all employees who routinely work with samples, chemicals or reagents have a comprehensive employment physical and annual physicals thereafter.
37.10 Because of the inherent dangers involved in working in a laboratory, safety measures are discussed in detail, as it is the responsibility of each technician to employ safe laboratory practices.
37.11 He/she should bring any unsafe conditions to the attention of his/her supervisor, safety officer or laboratory manager.
37.12 The laboratory safety policy is read and discussed with the new employee.
37.13 Additional material on lab safety is given to the employee for later reading.
37.14 The required use of protective clothing is discussed and each employee is given goggles and sized for laboratory coats.
37.15 The employee is shown how to use and understand the information from product warning labels and material safety data sheets.
37.16 The material safety data sheets exist for every chemical used in the laboratory and readily available to all employees.
37.17 Handout material regarding safety measures provides additional information.
37.18 Also explained in the orientation is the emergency fire evacuation plan, location of fire extinguishers, emergency showers and eye wash stations.
37.19 The employee learns the location of North Shore University Hospital in Plainview where accidents are treated when necessary.

37.20 The alarm and security system is demonstrated and the employee is given the appropriate security code for his/her section.

38.0 Employee Job Responsibilities

38.1 The employee is given the appropriate SOP to read and to sign that he/she has read, understands and complies with its requirements.

38.2 The analyst is also given the QA Manual to read and to sign.

38.3 The analyst is assigned to an experienced analyst for specific job training.

38.4 It is the supervisor's responsibility to follow the training schedule.

38.5 Training includes theoretical explanation as well as hands-on demonstrations.

38.6 Emphasized are the proper techniques for handling and storing flammable liquids, use of hoods and laboratory glassware, safety procedures, QC and record keeping, and use of the laboratory information management system.

38.7 After an interim time of working together with an experienced analyst, the newly trained employee demonstrates his capability for a specific test.

38.8 This is documented formally by the demonstration of capability summary form and signed off by management.

38.8.1 The QA Manager maintains all raw data associated with the "DOC" on file.

38.8.2 The demonstration of capabilities must be made prior to analyzing samples.

38.8.3 Standards or blind samples of which the analyst does not know the true value concentrations are prepared.

38.8.4 The analytes are diluted into a clean volume of sample and given to the analyst to test.

38.8.5 The concentration level used is approximately 1 to 4 times the expected limit of quantitation.

38.8.6 Four aliquots are prepared and tested. The mean recovery and the standard deviation are calculated for each parameter of interest.

38.8.7 This information is compared against the method QC criteria or if not available, against in-house control limits.

38.8.8 If the parameters meet the required limits analysis may proceed.

38.8.9 If not, performance is deemed unacceptable for that parameter and corrective measures are taken to determine the problem.

38.8.10 Analysis is not permitted until acceptable performance has been demonstrated.

38.8.11 A certification statement is completed and the statement and raw data are placed in the employee files.

38.8.12 The newly trained analyst is permitted to perform sample analysis independently, still under close supervision of the instructor.

38.8.13 A DOC is performed prior to using a test method, any time that there is a change in instrument type, personnel and test method.

38.9 The QA Manager monitors progression of training of individuals in the various tasks.

38.9.1 Tables for the departments are maintained, reflecting the tests that can be performed by each analyst.

38.9.2 These tables are periodically updated in the computer system to provide a reference for management about capabilities of each employee to perform testing and training requirements.

38.9.3 The analyst's capabilities are verified annually by various means such

as proficiency testing, Lab fortified blank analysis, blind duplicate testing or another DOC.

39.0 Seminars and Continuing Education

39.1.1 Seminars are scheduled on a yearly basis.

39.1.2 These seminars may cover special interest subjects such as quality control, sample tracking, new methods, updates to regulations, waste disposal, etc.

39.1.3 Managers and/or department heads specially qualified in a particular subject may conduct these seminars.

39.1.4 For instance, supervisors of the analytical departments are called upon to inform analysts in the sample preparation departments about analytical aspects in their department.

39.1.5 This increases the awareness for certain requirements during the preparation of the samples.

39.1.6 These seminars therefore not only serve to increase knowledge but also provide a means to develop understanding and communication between departments.

39.1.7 To keep employees current on new techniques, employees are also encouraged to attend outside seminars and conferences on subjects and techniques beneficial to their job requirements, and specialized training offered by the instrument manufacturers.

39.1.8 Internal group training by outside vendors also is provided for equipment and software enhancements. This may also be used to disseminate training information such as troubleshooting of instruments or new columns available.

39.1.9 Tuition reimbursement is also offered to employees who take relevant courses, and dues reimbursement is provided for professional society memberships.

40.0 Ethics Policy Agreement

40.1 It is the policy of H2M Labs that all employees at all times shall conduct themselves and the business of H2M Labs in an honest and ethical manner.

40.2 Management and personnel are to be free from any undue internal and external commercial, financial and other pressures that may adversely affect the quality of their work.

40.3 Compliance with this policy will be strictly enforced.

40.4 Unethical behavior or fraud is, among other things, falsification of data or records, (such as sampling or sample handling records), laboratory worksheets or logbooks, instrument settings or data, sample results or laboratory analysis reports and date and time of analysis.

40.5 Violators of this policy are subject to immediate dismissal.

40.6 Unacceptable behavior includes such misconduct as:

40.6.1 lack of adherence to company and method requirements (including procedures for instrument calibration

40.6.2 quality control

40.6.3 standard and reagent preparation

40.6.4 sample handling

40.6.5 sample preparation and analysis

40.7 The following is a list of some unacceptable and fraudulent activities. This list

is not intended to be all-inclusive:

40.7.1 Making up data or other sampling and analysis information.

40.7.2 Misrepresentation of QC samples and spikes as being extracted or digested when they were not.

40.7.3 Falsification of the clock setting or improper recording of dates and times on any document.

40.7.4 Improper peak integration.

40.7.5 Improper GC/MS tuning.

40.7.6 Improper calibration/QC analysis.

40.7.7 File substitution.

40.7.8 Deletion of non-compliant data.

40.7.9 Improper alteration of analytical conditions.

40.7.10 Unwarranted manipulation of computer software.

40.7.11 Failure to notify management of sample or data errors.

40.8 Information regarding ethics concerns, questions or reports of suspected unethical behavior could be directed to Nicole R. Crespi, Quality Assurance Manager or to Liz Davis, Human Resource Manager.

41.0 Standard Operation Procedures

41.1 Electronic copies of SOP's are available to all employees.

41.2 The SOP lists the title, revision number the effective date and signatures of the approving authority.

41.3 Each method SOP contains the following information or references where the information may be found.

41.4 The information listed in the SOP may not be in the following order:

41.4.1 Identification of test method

41.4.2 Applicable matrix or matrices

41.4.3 Detection limit

41.4.4 Scope and application to be analyzed

41.4.5 Summary of the test method

41.4.6 Definitions

41.4.7 Interference's

41.4.8 Safety

41.4.9 Equipment and supplies

41.4.10 Reagents and standards

41.4.11 Sample collection, preservation, and storage

41.4.12 Quality control

41.4.13 Calibration and standardization

41.4.14 Calculations

41.4.15 Method performance

41.4.16 Pollution prevention

41.4.17 Data assessment and acceptance criteria

41.4.18 Corrective action for out of control data

41.4.19 Contingencies for handling out of control data

41.4.20 Waste management

41.4.21 References

41.4.22 Any tables, diagrams, flow charts and validation data

42.0 References

1. "New York State Department of Environmental Protection Analytical Services Protocol" October 1995, or most recent approved version.

2. "New York State Department of Environmental Protection Analytical Services Protocol" June 2000, or most recent approved version.

3. "New York State Department of Environmental Protection Analytical Services Protocol" July 2005, or most recent approved version.

4. "Methods for the Determination of Organic Compounds in Drinking Water", EPA/600/4-88/039, USEPA Office of Research and Development, Washington D.C., December 1988, revised July 1991, or most recent approved version.

5. "Method for the Low Level Determination of Total Organic Carbons", USEPA Environmental Monitoring and Support Laboratory, Cincinnati, Ohio, April 1978, or most recent approved version.

6. "The Determination of Total Organic Halide", Interim Method 450.1, USEPA Environmental Monitoring and Support laboratory, Cincinnati, Ohio, November 1980, or most recent approved version.

7. "Methods for Chemical Analysis of Water and Wastes", E600/4-79/020, USEPA Environmental Monitoring and Support Laboratory, Cincinnati, Ohio Revised 1983, or most recent approved version.

8. "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, American Public Health Association (APHA), or most recent approved version.

9. "Analytical Handbook", New York State Department of Health, Analytical Methods Toxicology Institute, Division of Laboratories and Research, Albany, New York, Revised January 1986, or most recent approved version.

10. "Methods for the Determination of Organic Compounds in Drinking Water", Supplement I, EPA600/4-90/020, USEPA Office of Research and Development, Washington, D.C., December 1988, revised July 1991, or most recent approved version.

11. "Methods for the Determination of Organic Compounds in Drinking Water -Supplement II", EPA/600/R-92/129, USEPA Office of Research and Development, Washington, D.C., December 1988, revised July 1991, or most recent approved version.

12. "Test Methods for Evaluating Solid Waste", EPA/SW-846, USEPA, Water Characterization Branch, Update 3 Dec. 1996, or most recent approved version.

13. "Handbook for Analytical Quality control in Water and Wastewater Laboratories". USEPA, Office of Research and Development, Cincinnati, Ohio 1979, or most recent approved version.

14. "Methods for Organochlorine Pesticides and Chlorophenoxy Acid Herbicides in Drinking Water and Raw Source Water", EPA/600/4-81/053, USEPA, EMSL Cincinnati, Ohio July 1978, or most recent approved version.

15. "Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water":, USEPA, EMSL, USEPA Cincinnati, Ohio, Revised December 1988, or most recent approved version.

16. USEPA Contract Laboratory Protocol Statement of Work for Inorganic Analysis, SOW, ILMO 4.1, Revised 1999, or most recent approved version.

17. USEPA Contract Laboratory Protocol Statement of Work For Organic, OLMO 4.2 Revised May 1999, or most recent approved version.

18. "Compendium of Methods for the Determination of Air Pollutants in Indoor Air". USEPA Office of Research and Development, Washington, D.C., April 1990, or most recent approved version.

19. "Guidance for Performing Tests On Dredged Material to be Disposed of in Ocean Waters", US Army Corps of Engineers, December 1984, or most recent approved version.

20. "EPA Regulations On Test Procedures for the Analysis of Pollutants", USEPA 40 CFR 136, October 1984, revised August 1990, or most recent approved version.

21. "NIOSH Manual of Analytical Methods, Fourth Edition", U. S. Department of Health and Human Services, Cincinnati, Ohio, August 1994, or most recent approved version.

22. "Analytical Handbook", New York State Department of Health, Laboratory of Organic Analytical Chemistry, Albany, NY 1988, or most recent approved version.

23. "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA/600/4-84/041, USEPA Environmental Monitoring System Laboratory, April 1984, Revised June 1998, or most recent approved version.

24. "Protocol for the Collection and Analysis of Volatile POHCs Using VOST", Environdyne Engineers, Inc., St. Louis, Missouri, March 1984, or most recent approved version.

25. "Validation of the VOST Protocol, Volume 2 – Field Validation Phase", NTIS, PEI Associates, Inc., Cincinnati, Ohio, January 1986, or most recent approved version.

26. "USEPA Contract Laboratory Program – Volatile Organics Analysis of Ambient Air', Revised VCAA 01.0, December 1991, or most recent approved version.

27. "USEPA Contract Laboratory Program – Metal Analysis of Ambient Air", Revised MAA 01.0, December 1991, or most recent approved version.

28. "USEPA Contract Laboratory Program – Semi-volatile Organics Analysis of Ambient Air", Revised SVAA 01.0, January 1992, or most recent approved version.

29. "Superfund Analytical Methods for Low Concentration Water for Organics Analysis", EPA/540/R-94/087, USEPA Office of Solid Waste and Emergency Response, Cincinnati, Ohio, December 1994, or most recent approved version.

30. "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA/600/R-93/100, USEPA Office of Research and Development, Washington, D.C., August 1993, or most recent approved version.

31. "USEPA Contract Laboratory Program – Multimedia High – Concentration", 50W No. Rev 9/88 including Rev. 4/89, or most recent approved version.

32. "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air', USEPA Office of Research and Development, Research Triangle Park N.C. EPA/600/4-89/018, June 1988, or most recent approved version.

33. "Environmental Laboratory Approval Program Certification Manual", New York State Department of Health, Wadsworth Center, 10/99 update, or most recent approved version.

34. "Methods and Guidance for Analysis of Water", USEPA Office of Water, Washington, D.C., EPA 827 C97001, April 1997, or most recent approved version.

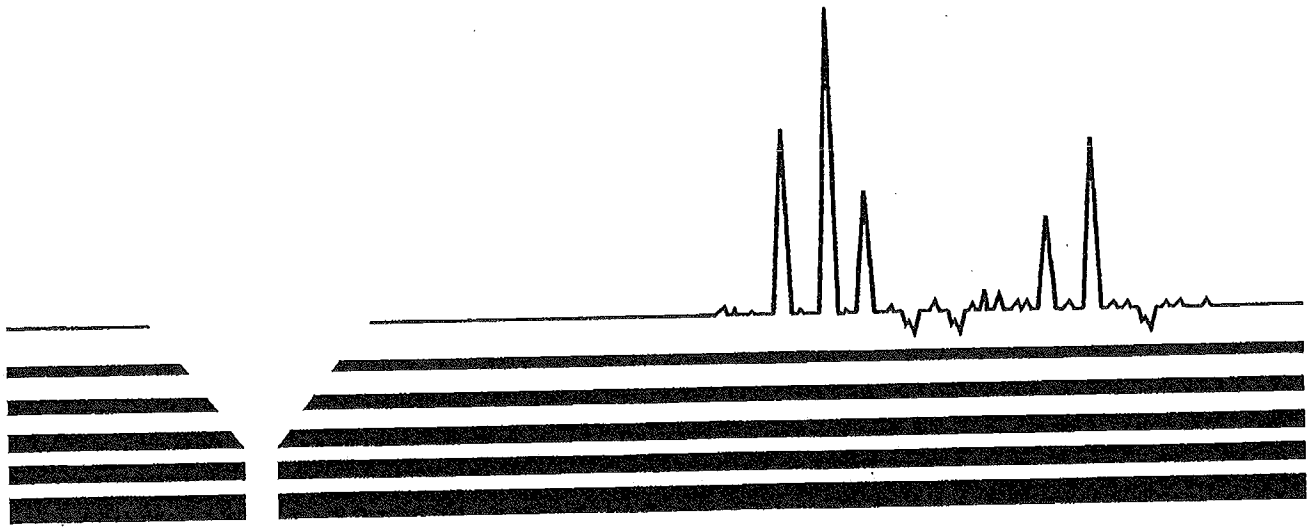
35. "Determination of Metals in Environmental Samples", Supplement I, EPA 600/R-94/11, May 1994, or most recent approved version.

36. "Methods for the Determination of Organic Compounds in Drinking Water -Supplement III", EPA/600/R-95/131, USEPA Office of Research and Development, Washington, D.C., December 1988, revised August 1995, or most recent approved version.

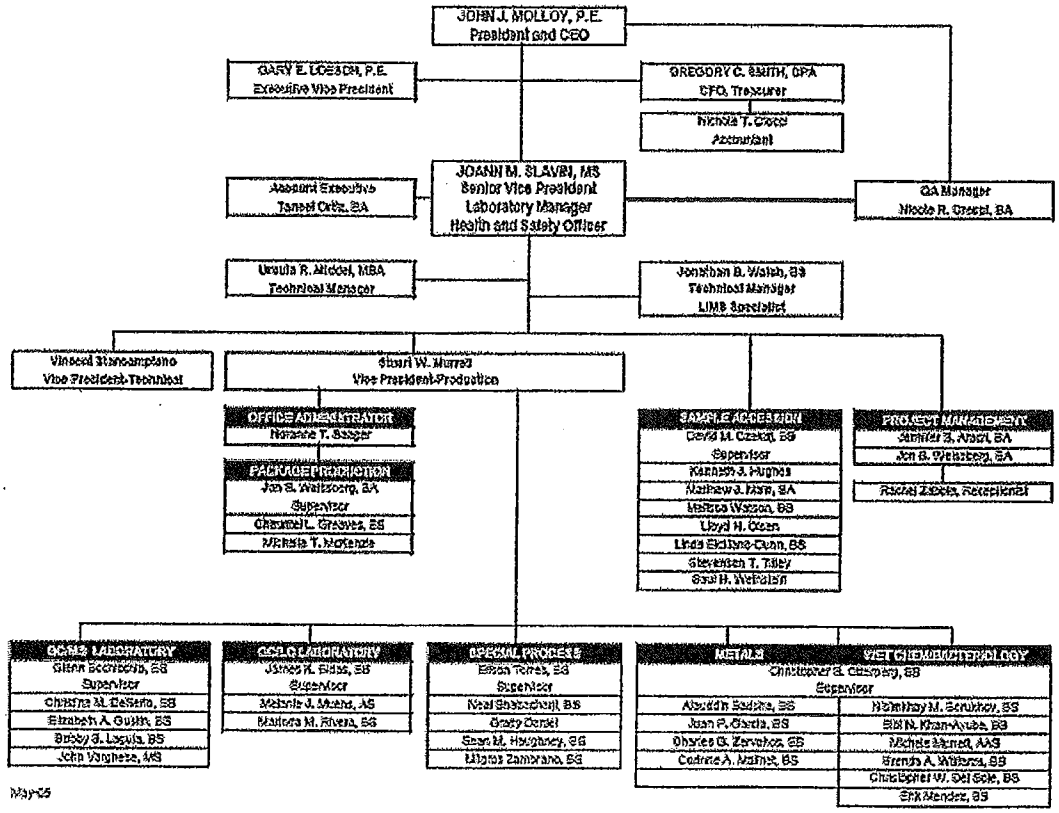
37. "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995, American Public Health Association (APHA), or most recent approved version.

QUALITY ASSURANCE
QUALITY CONTROL MANUAL,
Appendix

H2M Labs
575 Broad Hollow Road
Melvile, New York 11747
(631) 694-3040



LAB ORGANIZATION CHART



May-09

JOHN J. MOLLOY, P.E.

President and CEO

PROFESSIONAL EXPERIENCE

H2M (1974 - Present)

EDUCATION

B.E., Chemical Engineering, Manhattan College, 1967

REGISTRATIONS/ CERTIFICATIONS

Licensed Professional Engineer, New York (1977)

Director, Environmental Laboratory Approval Program - New York, New Jersey, Connecticut, Massachusetts, Pennsylvania and Delaware

Dale Carnegie Leadership Training for Managers Course, 2000

OFFICES HELD

American Council of Independent Laboratories [ACIL]:

Chairman (2009)
Secretary, Board of Directors 2002-present
Board of Directors-Environmental Section, 2000 – 2001
Eastern Division:
Chairman, 1996-1997
Secretary/Treasurer, 2000–2001

New York State Association of Approved Environmental Laboratories
Director, 1989 –1995
Chairman, 1989 –1993

Town of Huntington Chamber of Commerce:
Director, 1989 –1995

Committee for Better Government:
Vice-Chairman, 2000 – 2001
Director, 1995 – 2001

Town of Hempstead
Business Council, 1989-1992

Boys Scouts of America Suffolk County Council
Director, 1995 –2001

MEMBERSHIPS

American Water Works Association

Environmental Management Association

Long Island Water Conference

National Society of Professional Engineers

New York State Society of Professional Engineers

Water Environmental Federation

Mr. Molloy is President and Chief Executive Officer of the H2M group of firms that includes: Holzmacher, McLendon & Murrell, P.C.; H2M Labs, Inc.; H2M Associates, Inc.; H2M Architects & Engineers, Inc. and H2M Construction Management, Inc. Mr. Molloy is responsible for all facets of corporate management including administration, finance; staffing and budgeting; planning and development; and marketing.

In his professional capacity with Holzmacher, McLendon & Murrell, P.C., Mr. Molloy directs engineering programs for a wide-array of the firm's clients. His experience includes all phases of project engineering and management including feasibility studies, pilot studies, planning studies, cost estimating, design services and construction management. Mr. Molloy has provided professional services to government and industrial clients covering most spheres of environmental engineering, air pollution control; water and wastewater; and, solid and hazardous waste management.

Since assuming direction of H2M Labs, Inc. in the late 1970's, Mr. Molloy has been the key principal responsible for its growth and development, overseeing all aspects of management including planning; budgeting; sales and marketing; and quality control and quality assurance.

Mr. Molloy began his professional career as a project engineer in the chemical process industry. He has also served as an air pollution control engineer for the City of New York where he was involved in the testing and evaluation of air emissions for industrial processes. With H2M he has been responsible for the assessment of numerous industrial sites. The extent and severity of site contamination has been assessed both privately and with regulatory agency overview. He has worked on programs throughout the eastern region of the United States that have included soil borings and analysis, groundwater monitoring well installation, sampling and analysis, and remediation. The projects have varied in scope from Phase I and Phase II real estate liability assessments through formal remedial investigation and feasibility studies at hazardous waste sites.

Mr. Molloy has participated in and managed hundreds of projects relating to water quality protection, supply, treatment and system development; industrial wastewater treatment; hazardous and solid waste management; and, site evaluation and remediation. He was the project manager for a major Long Island water project to remove volatile organic compounds by air stripping. This five million gallon per day system became operational in the spring of 1985 and was one of the first such treatment systems in the region.

JOANN M. SLAVIN

Senior Vice President, Laboratory Manager

PROFESSIONAL EXPERIENCE

H2M (1980 - Present)

EDUCATION

M.S., Toxicology, St. John's University 1984

B.S., Toxicology, St. John's University 1980

Certified Health and Safety Operations at Hazardous Waste Sites (OSHA)

Dale Carnegie Leadership training for Managers, 2000

OFFICES

H2M Labs, Inc. Board of Directors

New York Association of Approved Environmental Laboratories (NYAAEL):

- Vice Chair (2004 - present)
- Immediate Past-Chairman, Board of Directors (2002 - present)
- Director (1999 - 2002)
- Board of Directors (1995-present)
- Secretary/Treasurer (2009, 1997-1999)

Melville Rotary, Board of Directors, (2006 to present)

MEMBERSHIPS

American Chemical Society

American Chemical Society - Safety and Health Section

American Council for Independent Laboratories

American Laboratory Managers Association

New York Association of Approved Environmental Laboratories

Former Memberships:

American Academy for the Advancement of Science

American Society of Mass Spectroscopy

International Association of Quality Circles, Long Island Chapter

New York Academy of Sciences

Rho Chi Pharmaceutical Honor Society

Society of Forensic Toxicologists

AWARDS

Top 50 most Influential Women in Business, Long Island Business News, 2008.

PUBLISHED PAPER

Slavin, Joann M., Ursula R. Middel and Ellen R. Kelly. **Environmental Chemistry and Analysis of Regulated Compounds.** Environmental Science & Technology Handbook, Government Institutes, Inc., 1994.

As Senior Vice President and Laboratory Manager, Ms. Slavin is responsible for and directs all laboratory operations and activities. She maintains all records for laboratory operations, including reports, billing and purchasing. She is responsible for all contract administration and serves as liaison between lab and client. She directs over 50 scientists and technicians, and manages the programs necessary to conduct the organic, inorganic and bacteriological services of the laboratory. She also reviews and supervises the methods, protocols and guidelines for sample collection and analysis based upon USEPA and state contract requirements and chain-of-custody procedures.

Ms. Slavins' responsibilities include the day-to-day management of laboratory procedures and reporting of results. Her duties include the monitoring of performance standard in QC and QA, monitoring the validity of the analysis performed in the laboratory and the data generated to assure reliable results and to provide technical guidance and educational direction to the laboratory staff.

Ms. Slavin is currently the Vice Chair of the New York Association of Approved Environmental Laboratories (NYAAEL) and a member of the Technical Affairs Committee that meets with state agencies such as NYS Department of Health Environmental Laboratory Approval Program (ELAP) and NYSDEC to provide technical guidance on regulatory issues that impact the environmental testing industry.

As the Laboratory's safety officer, OSHA representative and trained toxicologist, Ms. Slavin supervises all aspects of occupational safety and health programs. She has designed safety protocols for the safe handling and disposal of hazardous materials. She has completed the OSHA 40 hour hazardous materials training course and maintains the certification with yearly eight hour refresher training.

Ms. Slavin attended a course on the interpretation of mass spectra at the Finnigan Institute. She reviews the identifications of non-targeted components in the GC/MS Laboratory. She also attended a course in Denver, Colorado on the compliance criteria for inorganic and organic USEPA CLP data packages. She also attended two USEPA-sponsored seminars/symposia discussing CLP and associated criteria and a training course in Total Quality Management (TQM).

Prior experience includes QA Manager of the laboratory, GC/MS supervisor for volatile and semi-volatile organics; analysis of pesticides, PCBs, herbicides, volatiles and semi-volatile organics by GC and priority pollutant and HSL by GC/MS; semi-volatile, pesticides and herbicide sample preparation and clean-up procedures. ■

URSULA R. MIDDEL

Scientist VI, Technical Manager

PROFESSIONAL EXPERIENCE

H2M (1977 - Present)

EDUCATION

M.B.A., Business Administration, Dowling College, 1990

Chemical Engineering, Ohm-Polytechnikum, Germany, 1962

MEMBERSHIPS

American Chemical Society, Environmental Division

American Chemical Society-Long Island, Environmental Committee

Delta Mu Delta

AWARDS

H2M Group Employee Excellence Award, 1990

PUBLISHED PAPER

Slavin, Joann M., Ursula R. Middel and Ellen R. Kelly. **Environmental Chemistry and Analysis of Regulated Compounds.** Environmental Science & Technology Handbook, Government Institutes, Inc., 1994.

Ms. Middel is responsible for research for special projects, technical guidance and development, and implementation of new methodologies. This includes keeping instrumentation up to the latest developments. Under her guidance, H2M has excelled in performing many tasks for unusual types of analyses for the USEPA Special Analytical Services (SAS) projects. She is also responsible for staff training and updates to the laboratory Standard Operating Procedures manual to include new analyses and revisions.

Ms. Middel conducts a safety orientation seminar for all new employees, as well as in-service seminars on various sampling analytical topics. She is specifically involved with review of the operations of the special process lab for GC and GC/MS sample preparation.

Her responsibilities also include the review of in-house data packages completeness, accuracy and contract compliance for GC and GC/MS analyses. Ms. Middel has successfully completed numerous software-training programs and has frequently attended USEPA sponsored seminars on analytical methods and quality assurance. She also gave a technical presentation in environmental symposia (EAS, WTQA).

As former supervisor of the GC laboratory, she developed a comprehensive understanding of New York State Department of Environmental Conservation (NYSDEC) CLP protocols and deliverables. She has participated in a training session for organic data validation given by the NYSDEC. Apart from review of H2M's in-house CLP packages, she has also conducted data validation of data packages from other laboratories for government agencies and engineering firms for organic and radiological tests. Since no USEPA guidelines are available for radiological analyses, she has developed validation protocols for tritium and SIRA C13 testing. Ms. Middel has been instrumental in developing H2M's expertise in air analyses, in particular for low level analyses by sorbent tubes, summa canisters and VOST tubes well before air analyses were developed in other laboratories. H2M protocols were ahead of the methodologies published by the USEPA.

Her prior experience includes sales engineer for gas chromatographs, QC supervisor in an aircraft factory where she also gained experience in GC installation, repair and application problems, and research in U/TH analysis for Columbia University. ■

NICOLE R. CRESPI

QA Manager

PROFESSIONAL EXPERIENCE

H2M (1994 - Present)

EDUCATION

B.A., Biology, State University of New York at Oneonta, 1990

Ms. Crespi's responsibilities include the monitoring of performance standards in QC and QA. This includes the monitoring of the validity of the analysis performed in the laboratory and the data generated to assure reliable results to the client and to provide technical guidance, education and direction to the laboratory staff. Ms. Crespi is responsible for the NELAP certification as well as the coordination of performance evaluation studies and maintaining certifications in varying states. She is the liaison with governmental agencies.

Ms. Crespi is also responsible for the laboratory Standard Operating Procedures and QA Manual updates, and coordinates staff training and new method implementation. She is also responsible for the laboratory ethics training for new and existing employees.

Prior experience at H2M includes sample preparation and analysis by GC/MS, GC and HPLC. She is proficient in both routine and CLP analyses and reporting by USEPA methodologies and CLP reporting requirements.

Ms. Crespi has assisted in the development of the laboratory's Laboratory Information Management System (LIMS), where she refined, developed and implemented organic and inorganic CLP reporting. In addition to training laboratory personnel in the use of the LIMS, her expertise also includes the maintenance and troubleshooting of the system. ■

STUART W. MURRELL

Vice President, Production Manager

PROFESSIONAL EXPERIENCE

H2M (1975 - Present)

EDUCATION

Course work in Business Management, State University of New York at Farmingdale

COURSES

SQL*LIMS - Key Personnel, Training and Advanced Training

MS Access

Mr. Murrell has 26 years of laboratory experience at H2M. His responsibilities encompass production oversight of all analytical departments. This includes prioritizing testing, ensuring all analyses are performed within holding times, and liaison with service departments. He assists in the planning and scheduling of analytical events, monitors laboratory productivity, and acts as liaison with the computer department.

Mr. Murrell monitors production capacity levels in the various departments and monitors on-time performance. ■

JONATHAN B. WALSH

Technical Manager / LIMS Specialist

PROFESSIONAL EXPERIENCE

H2M (1985 - Present)

NYTest (1984 to 1985)

EDUCATION

B.S., Chemistry, Syracuse University, 1983

Course work in Engineering and Computer Science, Syracuse University

Microsoft Windows NT Server Administration Training

Crystal Reports Training

AWARDS/HONORS

H2M Group Employee Excellence Award, 1989

Mr. Walsh is Senior Computer Programmer and LIMS administrator. He is an MS Access /VBA programmer responsible for customizing and the implementation of the Omega LIMS. He has significantly expanded the scope of H2M's LIMS system with new features and with enhancements to existing ones. These improvements have increased the efficiency and interoperability of our software / hardware systems.

Some of his advancements include:

- Interfaced all Lab hardware based data systems to the LIMS
- Customized and modified the LIMS-based CLP reporting system to be compliant with the latest regulatory requirements
- Maintained and enhanced a wide range of industry standard electronic data deliverable capability of the LIMS
- Created an extensive range of custom, client-specific electronic data deliverables.
- Created extensive client-specific custom reporting/data monitoring reports and facilities

Due to his extensive knowledge of chemistry, physics, electronics, mechanics and software, as well as his extensive ability to troubleshoot and optimize systems, Mr. Walsh rebuilds, overhauls, modifies and interfaces laboratory equipment.

His capabilities in the field of analytical chemistry encompass atomic absorption/emission, GC and GC/MS extractables/volatiles, and most forms of spectroscopy. As such, Mr. Walsh has designed, developed, built and patented a system and methodology to automatically spike sorbent tubes for air analysis. He conducted method validations of summa canister analysis for the USEPA with an in-house developed GC/MS canister sampling system. He has designed and constructed an automated eight-position VOST air tube analysis system capable of performing split samples analysis. He also constructed an ultra trace DC plasma atomic emission spectroscopic device.

Past experience includes air, potable water, groundwater, industrial wastewater analysis for metals, purgeable organics, semi-volatile organics, instrumentation calibration, setup, analysis, data reduction and reporting, following full QA/QC protocols. He attended a GC/MS training course designed by Hewlett Packard specifically for H2M. ■

VINCENT STANCAMPIANO

Vice President, Technical Advisor

PROFESSIONAL EXPERIENCE

H2M (1973 - Present)

EDUCATION

A.A.S., Air and Water Pollution Control, Sullivan County Community College

Sample Collection and Laboratory Training, U.S. Environmental Protection Agency

Air and Water Sample Collection and Testing Procedures, New York City Laboratories

MEMBERSHIP:

American Association for the Advancement of Science

Mr. Stancampiano is a technical advisor and client liaison for major accounts and has assisted clients in negotiations with regulatory agencies. His strong technical background and comprehensive understanding of the environmental field make Mr. Stancampiano a highly successful client ombudsman. He also consults with potential clients to define and discuss their analytical and regulatory compliance needs. Mr. Stancampiano's years of scientific experience, together with his extensive knowledge of the laboratory's capabilities, make him uniquely qualified to present the services of H2M Labs, Inc.

As an experienced data validator, Mr. Stancampiano reviews the metals and inorganic parameter data packages for compliance with USEPA Contract Laboratory Protocol. He also has extensive experience conducting laboratory audits to ensure that laboratories meet regulatory or contract compliance.

He formerly served as H2M's Supervisor of Inorganic Chemistry where he supervised laboratory technicians in analyses of water, sewage and industrial/hazardous wastes, metals, flash point, ignitability, EP TOX (extraction procedure), corrosivity and toxicity tests; automated analyses for inorganic constituents via Technicon and total organic carbon analysis via Dohrmann Envirotech TOC analyzer. ■

Supervisors

GC/LC LABORATORY

PROFESSIONAL EXPERIENCE

H2M (2005 - Present)

EDUCATION

B.S., Chemistry, State University of New York at Stony Brook, 2000

MEMBERSHIPS

American Chemical Society

JAMES K. BIDAS, Scientist VI

Mr. Bidas is experienced with all phases of GC and is responsible for the analysis and reporting of pesticides, PCBs by GC/ECD. Prior to H2M, Mr. Bidas has had over five years of environmental laboratory experience that included GC, GCMS, HPLC, IC, FAAS, UV/VIS and all organic extraction procedures. He has a strong knowledge of EPA methodologies and ASTM standards. He is skilled in the maintenance and repair of instruments and laboratory equipment.

GC/MS LABORATORY

PROFESSIONAL EXPERIENCE

H2M (1984 - Present)

EDUCATION

B.S., Biology, University of Hawaii 1982

SPECIALIZED COURSES

Hewlett Packard Systems Manager
Hewlett Packard Mass Spectral Interpretation
Superincos Quantitation Procedures, Finnigan Mat Institute
Target Compound Analysis - Autoquan, Finnigan Mat Institute

MEMBERSHIP

American Chemical Society

AWARDS

H2M Group Employee Excellence Award, 1990

GLENN K. BOCHICCHIO, Scientist VI

As supervisor of the GC/MS laboratory, Mr. Bochicchio's responsibilities include scheduling of analyses and staff, quality control, maintenance of instrumentation, calibration and programming of the GC/MS system, interpretation of results, implementation of test protocols and the training and supervision of chemists in the GC/MS laboratory. Prior to supervisor, Mr. Bochicchio is responsible for the analysis of semi-volatile priority pollutants and TCL compounds by GC/MS, analysis and reporting of data, spectra interpretation, data system management and instrumental quality control. He attended a GC/MS in-house training course designed by Hewlett Packard to specifically meet the needs of the laboratory personnel. Mr. Bochicchio has performed wet chemical analysis for sulfate, cyanide, total alkalinity, and dissolved carbon dioxide. In the organic section, he prepared samples for analysis and has conducted instrumental analysis of pesticides, PCB's, and herbicides, including interpretation and reporting of data. Prior experience included wet and instrument analysis of plating solutions, wastewater and treatment operation, and hazardous waste management including collection, transportation, storage and manifestation.

METALS LABORATORY & WET CHEM/BACTERIOLOGY LAB

PROFESSIONAL EXPERIENCE

H2M (2004-Present)

Environmental Testing Laboratories (2002-2004)

EDUCATION

B.S., Microbiology, Kutztown University, 2002

CHRISTOPHER OTTERBERG, Scientist VI

Mr. Otterberg is responsible for the analysis of trace metals by atomic absorption, and inductively coupled plasma spectrophotometer, as well as ICP.MS using USEPA methods. He is responsible for a variety of preparative analytical procedures on sample matrices requiring metals analysis, and performs acid digestions on waters, soils, and other solid sample types including lead solder scrapings, paint chips and surface wipes. Mr. Otterberg also oversees the Wet Chemistry & Bacteriology Lab. He is responsible for the coordination and scheduling of the various tests as well as data package generation and reporting.

SPECIAL PROCESS LAB

PROFESSIONAL EXPERIENCE

H2M (1997 to Present)

EDUCATION

B.S., Biochemistry, University of Santo Tomas

ELISON C. TORRES, Scientist VI

Mr. Torres is responsible for the coordination and scheduling of the extraction of pesticides/PCBs, herbicides and base neutral and acid extractable compounds. He is experienced in all phases of sample preparation. Previous experience at H2M includes all phases of gas chromatography, drinking water and CLP reporting. He is an expert in the operation and maintenance of Perkin Elmer and Hewlett Packard gas chromatography, and particularly adept at troubleshooting and instrument maintenance as well as ASE and GPC instrumentation.

RECEIVING DEPARTMENT

PROFESSIONAL EXPERIENCE

H2M (2006 - Present)

EDUCATION

B.S., Biology, Washington College

DAVID M. CZEKAJ, Technician VI

Mr. Czekaj supervises a team of nine laboratory assistants and samplers and is the primary laboratory sample custodian. He oversees chain-of-custody procedures, preparation of sample kits, scheduling sampling and sample pick-up and logging samples into the laboratory LIMS system. He also acts as liaison with county health departments and water suppliers regarding changes in monitoring requirements and setting up sampling programs

EXPERIENCE: H2M Labs, Inc., (1984 - Present) **EDUCATION:** B.S., Biology, University of Hawaii 1982 **SPECIALIZED COURSES:** Hewlett Packard Systems Manager Hewlett Packard Mass Spectral Interpretation Superincos Quantitation Procedures, Finnigan Mat Institute Target Compound Analysis - Autoquan, Finnigan Mat Institute **MEMBERSHIPS:** American Chemical Society **AWARDS:** H2M Group Employee Excellence Award, 1990	**GLENN K. BOCHICCHIO, Scientist VI** **Supervisor of GC/MS Laboratory** As supervisor of the GC/MS laboratory, Mr. Bochicchio's responsibilities include scheduling of analyses and staff, quality control, maintenance of instrumentation, calibration and programming of the GC/MS system, interpretation of results, implementation of test protocols and the training and supervision of chemists in the GC/MS laboratory. Prior to supervisor, Mr. Bochicchio was responsible for the analysis of semi-volatile priority pollutants and TCL compounds by GC/MS, analysis and reporting of data, spectra interpretation, data system management and instrumental quality control. He attended a GC/MS in-house training course designed by Hewlett Packard to specifically meet the needs of the laboratory personnel. Mr. Bochicchio has performed wet chemical analysis for sulfate, cyanide, total alkalinity, and dissolved carbon dioxide. In the organic section, he prepared samples for analysis and has conducted instrumental analysis of pesticides, PCBs, and herbicides, including interpretation and reporting of data. Prior experience included wet and instrument analysis of plating solutions, wastewater and treatment operation, and hazardous waste management including collection, transportation, storage and manifestation.
EXPERIENCE: H2M (1988 - Present) **EDUCATION** M.S., Chemistry, S.S.L. Jain College, 1983 B.S., Chemistry, S.N.. College, 1980 **SPECIALIZED COURSES:** Air Academy, Entech Instruments, Inc., 2006	**JOHN VARGHESE, Scientist V** Mr. Varghese has experience with the analysis of environmental samples and hazardous waste by GC/MS. He is proficient on both Finnigan and Hewlett Packard instrumentation, as well as purgeable and semi-volatile compounds, and is quite familiar with both Federal Register and USEPA CLP methods. Mr. Varghese performed the method start up for TO-15 air canister analysis and was trained at Entech's Air Academy. He is responsible for all TO-15 analysis and equipment maintenance. He routinely analyzes and reports CLP volatile organic compounds on HP instrumentation and attended GC/MS operator training at the Hewlett Packard Analytical Education Center in Atlanta and an in-house training course designed by Hewlett Packard specifically for H2M. His prior experience includes sample preparation for BNA analysis, and GC/MS analysis for both volatile and semi-volatile organics.
EXPERIENCE: H2M (1994 - Present) **EDUCATION:** B.S., Environmental Science, Lynchburg College, 1992	**ELIZABETH A. GUSTIN, Scientist IV** Ms. Gustin is responsible for the analysis and reporting of semi-volatile organics and TCL compounds according to USEPA methods and CLP reporting requirements. Ms. Gustin is crossed trained to also perform the analysis and reporting of volatile organics by GCMS, pesticides, PCBs, herbicides and organophosphates by gas chromatography, and CLP analysis using HP and PE dual ECD Gas Chromatographs.

EXPERIENCE: H2M (2000 - Present) Chemtech (1996 - 2000) **EDUCATION:** B.S., Chemistry, Far Eastern University, 1979	**BOBBY B. LAGULA, Scientist IV** Mr. Lagula is responsible for the analysis and reporting of volatile organics and TCL compounds according to USEPA methods and CLP reporting requirements. His prior experience includes analysis of volatile and semi-volatile analysis by GC/MS on the HP 5995, 5970 and 5971. He is experienced in the analysis of water, soil and air using NYSDEC CLP protocols for priority pollutants, target compound list compounds and RCRA compounds. He performs all steps in the analysis including instrument calibration, sample set up, real time QC and reporting.
EXPERIENCE: H2M (2005 - Present) **EXPERIENCE:** B.S., Chemistry, State University of New York at Stony Brook, 2004	**CHRISTINE DeSERIO, Scientist II** Ms. DeSerio is responsible for the analysis and reporting of semi-volatile organics and TCL compounds according to USEPA methods and CLP reporting requirements. Ms. DeSerio's prior experience at H2M includes performing preparative and analytical procedures for trace metals by atomic absorption and inductively coupled plasma spectrophotometery using USEPA methods.

Gas Chromatography/Liquid Chromatography Lab

EXPERIENCE: H2M (2005 - Present) **EDUCATION:** B.S., Chemistry, State University of New York at Stony Brook, 2000 **MEMBERSHIPS:** American Chemical Society	**JAMES K. BIDAS, Scientist VI** **Supervisor of GC/LC Laboratory** Mr. Bidas is experienced with all phases of GC and is responsible for the analysis and reporting of pesticides and PCBs by GC/ECD, as well as GC Volatiles. Prior to H2M, Mr. Bidas has had over five years of environmental laboratory experience that included GC, GCMS, HPLC, IC, FAAS, UV/VIS and all organic extraction procedures. He has a strong knowledge of EPA methodologies and ASTM standards. He is skilled in the maintenance and repair of instruments and laboratory equipment.
EXPERIENCE: H2M (2006 - Present) **EDUCATION:** A.A.S., Laboratory Technology, Suffolk County Community College, 1997	**MELANIE J. MUENS, Scientist II** Ms. Muens is responsible for the analysis and reporting of pesticides and herbicides by GC/ECD and HPLC analyses. She is proficient with HPLC, GC, UV and IR instrumentation. Prior to H2M, Ms. Muens has had over five years lab experience that include organic extraction and field sampling procedures.
EXPERIENCE: H2M (2008 - Present) **EDUCATION:** B.S., Chemistry, Fordham University, 2005	**MARINDA M. RIVERA, Scientist II** Ms. Rivera is responsible for the analysis and reporting of pesticides and PCBs by GC/ECD according to USEPA methods and CLP reporting requirements.

EXPERIENCE: H2M (1997 to Present) **EDUCATION:** B.S., Biochemistry, University of Santo Tomas, 1989	**ELISON C. TORRES, Scientist VI** **Supervisor of Special Process Laboratory** Mr. Torres is responsible for the coordination and scheduling of the extraction of pesticides/PCBs, herbicides and base neutral and acid extractable compounds. He is experienced in all phases of sample preparation. Previous experience at H2M includes all phases of gas chromatography, drinking water and CLP reporting. He is an expert in the operation and maintenance of Perkin Elmer and Hewlett Packard gas chromatography, and particularly adept at troubleshooting and instrument maintenance as well as ASE and GPC instrumentation.
EXPERIENCE: H2M (2008 - Present) **EDUCATION:** B.S. Biochemistry, State University of New York at Stony Brook, 2008	**NEAL BHATTACHARJI, Scientist I** Mr. Bhattacharji is responsible for the extraction of pesticides/PCBs, base neutrals and acid extractable compounds. He also does TCLP prep and ignitability. His primary responsibility is herbicide extraction in soil and water environmental samples.
EXPERIENCE: H2M (2008 - Present) **EDUCATION:** B.S. Chemistry, Adelphi University, 2006	**SEAN M. HAUGHNEY, Scientist I** Mr. Haughney is responsible for the extraction of pesticides/PCBs, base neutrals and acid extractable compounds, as well as TCLP prep.
EXPERIENCE: H2M (2006 - Present) **EDUCATION:** B.S., Biology, Long Island University-Southampton College, 1996	**MILAGROS ZAMBRANO, Scientist I** Mr. Zambrano is responsible for the extraction of pesticides/PCBs base neutrals and acid extractable compounds, solid phase extraction for potable water, pesticides and BNA extractable analytes. She also does TCLP prep and ignitability.
EXPERIENCE: H2M (1998 - Present) **EDUCATION:** Course work towards B.A., St. John's College, India	**GRACY DANIEL, Technician IV** Ms. Daniel is responsible for sample preparation of environmental samples. Ms. Daniel does extractions for herbicides, PCBs in soil, water, and solid phase extraction for potable water pesticides as well as base-neutral-acid-extractable analytes. Ms. Daniel performs cleanups on sample extracts using Gel Permeation Chromatography.

EXPERIENCE: H2M (2004 - Present) Environmental Testing Laboratories (2002-2004) **EXPERIENCE:** B.S., Microbiology, Kutztown University, 2002	**CHRISTOPHER OTTERBERG, Scientist VI** **Supervisor of Metals Laboratory** Mr. Otterberg is responsible for the analysis of trace metals by atomic absorption, and inductively coupled plasma spectrophotometer, as well as ICP.MS using USEPA methods. He is responsible for a variety of preparative analytical procedures on sample matrices requiring metals analysis, and performs acid digestions on waters, soils, and other solid sample types including lead solder scrapings, paint chips and surface wipes. Mr. Otterberg also oversees the Wet Chemistry & Bacteriology Lab. He is responsible for the coordination and scheduling of the various tests as well as data package generation and reporting.
EXPERIENCE: H2M (1988 - Present) **EXPERIENCE:** B.S., Chemistry, State University of New York at Stony Brook, 1987 **AWARDS:** H2M Group Employee Excellence Award, 1991	**CHARLES G. ZERVAKOS, Scientist IV** Mr. Zervakos is responsible for the analyses of trace metals by atomic absorption and inductively coupled plasma spectrophotometer using USEPA methods and CLP reporting. Mr. Zervakos also possesses unique expertise in computer software and hardware, and designed quality control software for the lab.
EXPERIENCE: H2M (2007 - Present) **EXPERIENCE:** B.S., Health Science, State University of New York at Stony Brook, 2006	**CORINNE MOLINET, Scientist I** Ms. Molinet is responsible for the analyses of trace metals by atomic absorption and inductively coupled plasma spectrophotometer using USEPA methods and CLP reporting. She is responsible for a variety of preparative analytical procedures on sample matrices requiring metals analysis, and performs acid digestions on waters, soils, and other solid sample types including lead solder scrapings, paint chips and surface wipes. Ms. Molinet's prior experience at H2M has been in the Sample Accessioning Department.
EXPERIENCE: H2M (2006 - Present) **EXPERIENCE:** B.S., Health Science, State University of New York at Stony Brook, 2005	**ALAUDDIN BADSHA, Scientist II** Mr. Badsha is responsible for the analysis of trace metals by atomic absorption, and inductively coupled plasma spectrophotometer, as well as ICP-MS using USEPA methods. He is responsible for a variety of preparative analytical procedures on sample matrices requiring metals analysis, and performs acid digestions on waters, soils, and other solid sample types including lead solder scrapings, paint chips and surface wipes.
EXPERIENCE: H2M (2008 - Present) **EXPERIENCE:** B.S., Biology, Adelphi University, 2008	**JUAN P. GARCIA, Scientist I** Mr. Garcia is responsible for performing a variety of preparative analytical procedures on sample matrices requiring metals analysis. He performs acid digestions on waters, soils, and other solid sample types including lead solder scrapings, paint chips and surface wipes. Mr. Garcia also performs the analyses of trace metals by atomic absorption.

METALS LABORATORY & WET CHEM/BACTERIOLOGY LAB

PROFESSIONAL EXPERIENCE

H2M (2004-Present)

Environmental Testing Laboratories (2002-2004)

EDUCATION

B.S., Microbiology, Kutztown University, 2002

CHRISTOPHER OTTERBERG, Scientist VI
Supervisor of Wet Chemistry/Bacteriology Laboratory

As Supervisor, Mr. Otterberg is responsible for the coordination and scheduling of the various tests in the wet chemistry laboratory. Mr. Otterberg also oversees the Metals lab where he is responsible for the analysis of trace metals by atomic absorption, and inductively coupled plasma spectrophotometer, as well as ICP.MS using USEPA methods.

EXPERIENCE:
H2M (1999 - Present)

EDUCATION:
B.S., Chemistry, Bukhara U. Uzkokistan, USSR, 1973

NISIMKHAY M. BORUKHOV, Scientist III

Mr. Borukhov has over 25 years experience in environmental analysis. He performs wet chemistry analysis with a focus on total phenolic and color, turbidity, ammonia and TKN preparation. He is proficient in the analysis of sulfate, orthophosphate, total phosphate bromide, volatile acids and hexavalent chromium.

EXPERIENCE:
H2M (2006 - Present)
Four years experience at American Analytical Labs

EDUCATION:
B.S., Biological Sciences, State University of New York at Old Westbury, 2001

BIBI N. KHAN-AYUBE, Scientist II

Ms. Khan-Ayube is responsible for several wet chemistry analyses, including NH3, TKN, CL, NO2, NO3 with Lachat instrumentation, as well as Anions and Perchlorate by Ion Chromatography. Ms. Khan-Ayube also performs analysis for Oil & Grease by Method 1664A.

EXPERIENCE:
H2M (2006 - Present)

EDUCATION:
B.S., Biology, State University of New York at Albany, 2006

CHRISTOPHER W. DEL SOLE, Scientist I

Mr. Del Sole is responsible for several wet chemistry analyses, including NH3, TKN, CL, NO2, NO3 with Lachat instrumentation, as well as Anions by Ion Chromatography and Oil & Grease by Method 1664A. Mr. Del Sole's prior experience at H2M includes the extraction of pesticides/PCBs base neutrals and acid extractable compounds, solid phase extraction for potable water, pesticides and BNA extractable analytes. He also has experience in the Sample Accessioning Department.

EXPERIENCE:
H2M (2006 - Present)
Two years experience in other environmental labs

EDUCATION:
B.S., Environmental Science/Biology, Long Island University-Southampton College, 2004

BRENDA WILLIAMS, Scientist II

Ms. Williams is responsible for the analysis of alkilinity, hardness, BOD, COD, cyanide, fluoride, solids and other miscellaneous wet chemistry analyses. Ms. Williams prior experience includes data analysis and report compilation on bioassay tests as well as other wet chemistry analyses, including ammonia.. Ms. Williams was also project manager for special studies for tests involving sludge, reactors, chelation, etc.

EXPERIENCE:
H2M (2008-Present)

EDUCATION:
B.S., Biology, Adelphi University, 2006

ERIK MENDEZ, Scientist I

Mr. Mendez is responsible for several wet chemistry analyses, including cyanide, total alkalinity and BOD. Mr. Mendez has prior experience with H2M in the sample accession department.

METALS LABORATORY & WET CHEM/BACTERIOLOGY LAB	**CHRISTOPHER OTTERBERG, Scientist VI** **Supervisor of Wet Chemistry/Bacteriology Laboratory**
PROFESSIONAL EXPERIENCE H2M (2004-Present) Environmental Testing Laboratories (2002-2004) **EDUCATION** B.S., Microbiology, Kutztown University, 2002	As Supervisor, Mr. Otterberg is responsible for the coordination and scheduling of the various tests in the wet chemistry laboratory. Mr. Otterberg also oversees the Metals lab where he is responsible for the analysis of trace metals by atomic absorption, and inductively coupled plasma spectrophotometer, as well as ICP.MS using USEPA methods.
EXPERIENCE: H2M (1999 - Present) **EDUCATION:** B.S., Chemistry, Bukhara U. Uzkokistan, USSR, 1973	**NISIMKHAY M. BORUKHOV, Scientist III** Mr. Borukhov has over 25 years experience in environmental analysis. He performs wet chemistry analysis with a focus on total phenolic and color, turbidity, ammonia and TKN preparation. He is proficient in the analysis of sulfate, orthophosphate, total phosphate bromide, volatile acids and hexavalent chromium.
EXPERIENCE: H2M (1993 - Present) **EDUCATION:** A.A.S., Laboratory Technology, 1978	**MICHELE MURRELL, Technician III** Ms. Murrell is the laboratory microbiologist. She is responsible for total and fecal coliform analysis as well as E.Coli and enterococcus using EPA approved methodology. She is also responsible for the bacteriological speciation of sample.

Package Production

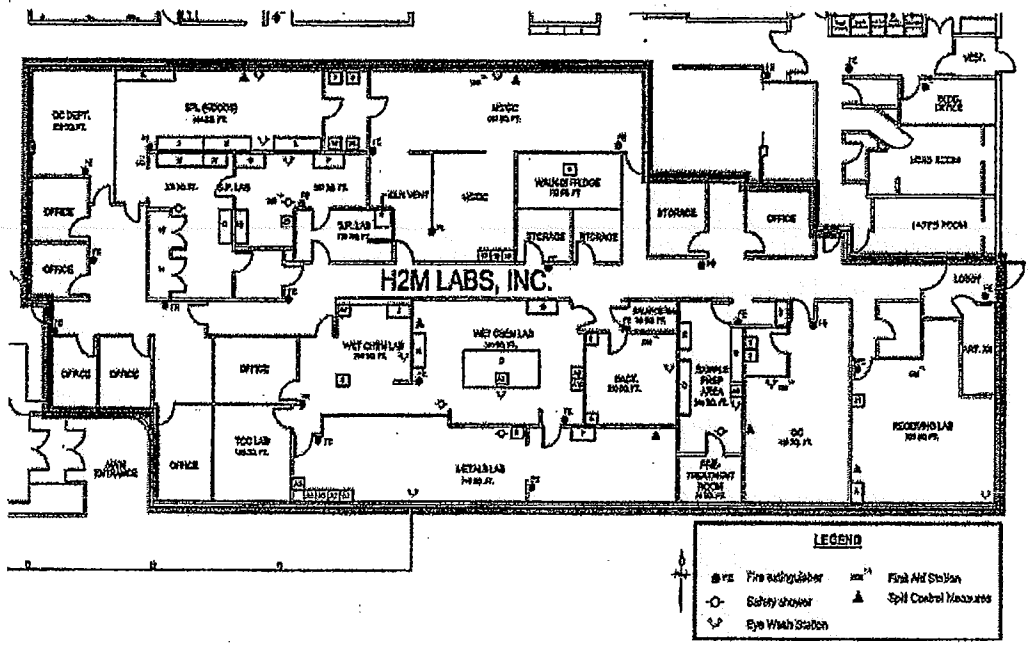
EXPERIENCE: H2M (1989 - Present)	**NORANNE T. SAAGER, Project Coordinator** Ms. Saager is responsible for coordinating package production in order to meet client-specified turnaround times. Ms. Saager is responsible for the routing of data packages through appropriate channels for QA/QC review and package assembly. She is the liaison between the production manager and customer service in order to ensure the timely and correct delivery of client data packages and Electronic Diskette Deliverables. Ms. Saager also assists in the all aspects of contract-required data deliverables procedures in meeting client-specified turnaround times.

EXPERIENCE: H2M (2003 - Present) **EDUCATION** B.A., Business Administration, State University of New York at Oneonta, 1989 **CERTIFICATIONS** New York State Secondary Education Teaching Certification – Mathematics, 1999 Web Development and Business Programming, Chubb Institute, 2002	**JON WEISSBERG, Project Coordinator , Document Control Officer** Mr. Weissberg is responsible for all aspects of data deliverables. Mr. Weissberg ensures that all data is assembled and reported per requirements. Mr. Weissberg is responsible for the preparation of Electronic Diskette Deliverables in various formats required by H2M's clients. Mr. Weissberg has extensive computer experience with a strong working knowledge of Microsoft Access. Mr. Weissberg insures that all document control procedures are followed in the preparation, review, delivery and archiving of sample delivery groups (SDGs). Mr. Weissberg also insures that internal documentation requirements are met including the process for revision of technical documents, logbook maintenance and electronic data archiving procedures.
EXPERIENCE: H2M (2008 - Present) **EXPERIENCE:** B.S., Toxicology, St. John's University	**CHAUNTEL L. GREAVES, Package Production** Ms. Greaves is responsible for all aspects of contract-required data deliverables, including organization, packaging, copying and delivery. Ms. Greaves prepares electronic diskette deliverables in various formats required by H2M clients. Ms. Greaves is highly proficient in the creation of Equis EDDs. Ms Greaves has an active role in logbook maintenance and electronic and hardcopy data archiving procedures. Ms. Greaves also assists in the day-to-day management of project coordination efforts, client communication and report submittal.
EXPERIENCE: H2M (2007 - Present) **EXPERIENCE:** B.S.M., Management University of Phoenix, 2004 A.A.S., Chemical Technology New York City College of Technology, 1995	**MICHELLE T. MCKENZIE, Package Production** Ms. Mckenzie is responsible for all aspects of contract-required data deliverables, including organization, packaging, copying and delivery. Ms. Mckenzie is proficient in the creation of electronic data packages in PDF format that provide searchable text, book marking and hyperlinks. Ms. Mckenzie has an active role in logbook maintenance and electronic and hardcopy data archiving procedures. Ms. McKenzie assists clients and potential clients with their regulatory and analytical testing needs assuring correct methodologies, quality control requirements and deliverables meet the regulatory and project requirements.

EXPERIENCE: H2M (1997 - Present) **EXPERIENCE:** B.A., Biology, State University of New York at Stony Brook, 1997	**JENNIFER ARACRI, Scientist I, Project Manager** As project manager, Ms. Aracri assists clients and potential clients with their regulatory and analytical testing needs through completion of the project. She provides assistance in the coordination and organization of analytical services for H2M's major engineering, consulting and industrial clients. She works with clients to assure the correct methodologies, quality control requirements and deliverables are requested at the inception of each project. Ms. Aracri also provides analytical cost quotations to current and potential clients. She was the supervisor of the sample preparation department. She has performed the extraction of environmental samples including semi-volatile GC and GC/MS extractions and concentration, including pesticide, herbicide and semi-volatile compounds, TCLP extractions, and sample cleanup including GPC and Florisil. As supervisor, Ms. Aracri was responsible for scheduling the extractions staff, monitoring work flow to meet tight holding times, maintaining sample prep equipment and instrumentation, and training staff in extraction procedures.
EXPERIENCE: H2M (2003 - Present) **EDUCATION** B.A., Business Administration, State University of New York at Oneonta, 1989 **CERTIFICATIONS** New York State Secondary Education Teaching Certification – Mathematics, 1999 Web Development and Business Programming, Chubb Institute, 2002	**JON WEISSBERG, Project Manager** Mr. Weissberg provides assistance in the coordination and organization of analytical services for major utilities and landfills. As the primary contact, he assists them with their regulatory and analytical testing needs through completion of the project, ensuring that all methodologies and quality control requirements are met. Mr. Weissberg is responsible for the day-to-day management of the project including production coordination efforts, client communication, electronic disc production and data package submittal. He also provides analytical cost quotations to potential clients. Mr. Weissberg works with clients to assure the correct methodologies, quality control requirements and deliverables are requested at the inception of each project.

Section 3.0

A. Floor Plan



REFRIGERATOR NUMBER	REFRIGERATOR NUMBER	CABINET NUMBER (METALS)	FUME HOODS	FUME HOODS (SPECIAL PROCESS)
1 Standards H2O 2 - Reagent H2O Samples VOA HCl 3 - Not in Use 4 - Volatile Refrigerator 5 - Bacteriology Lab Samples 6 - Wet Chem Portion 7 - Wet Chem 8 - Metals CLP 9 - ENA Extracts 10-Routine ENA/Pest Samples 11-CLP ENA/Pest Samples	12 Drinking H2O ENA/Pest Samples 13 - Not in Use 14 - Semi-volatile Extracts Non-Evidentiary 15 - Not in Use 16 - Not Currently in Use 17 - GC/MS Volatile Extractions 18 - VOA Standards Freezer 19 - GC/MS Volatile Non-Evidentiary 20 - Semi-VOA Standards Freezer 21 - Receiving 22 Not in Use 23 Semi-volatile Extracts	A1 Water cool digestion A2 - Water cool digestion A3 - Furnace Digestion A4 - Drinking Acetyn A5 - Flame Digestion A6 - Evidentiary Sample Digestion A7 - Flame Digestion A8 - Flame Digestion A9 - Furnace Digestion A10 - Furnace Digestion	A - Receiving 3' hood B - Inorganic Sample Prep-3' hood C - Inorganic Sample Prep-2' hood D - Inorganic Sample Prep-3' hood E - None F - Metals Lab-4' hood G - Wet Chem Lab-5' hood H - Wet Chem Lab-5' hood I - Wet Chem Lab-4' hood	J 8' hood Concentrators K - 6' hood L - 8' hood Semi-volatile Standard Prep M - 8' hood volatile N - 4' hood O - 6' hood P - 6' hood Herbicide Extractions Q - 8' hood Soil Extractions R 10' hood Acid Extractions

Note: Limited Access Laboratories (locked) are: GC, GCMS, Metals, Bacteriology, Special Process
Revised 6/09

B. Methodology Listing

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Demand	**Method**	**Technology**	**Matrix**
Biochemical Oxygen Demand	SM 18-20 5210B (01)	TITR	NW
Carbonaceous BOD	SM 18-20 5210B (01)	TITR	NW
Chemical Oxygen Demand	EPA 410.4 Rev. 2.0	COLOR	NW
Residue	**Method**	**Technology**	NW
Settleable Solids	SM 18-20 2540 F	GRAV	NW
Solids, Total Dissolved	SM 18-21 2540C (97)	GRAV	NW
Solids, Total Suspended	SM 18-20 2540D (97)	GRAV	NW
Solids, Total	SM 18-20 2540B (97)	GRAV	NW
Bacteriology	**Method**	**Technology**	NW
Coliform, Fecal	SM 18-20 9221E (99)	FB-QN	NW
Standard Plate Count	SM 18-21 9215B	PP-QN	NW
Coliform, Total	SM 18-20 9221B (99)	FB-QN	NW
Enterococci	Enterolert	FB-PAF-QL	NW
E. coli (Enumeration)	SM 18-20 9221F	FB-PAF-QL	NW
Mineral	**Method**	**Technology**	NW
Acidity	SM 18-20 2310B.4a (97)	TITR	NW
Alkalinity	SM 18-21 2320B (97)	TITR	NW
Chloride	EPA 300.0 Rev. 2.1	IC-COND	NW
Chloride	SM 18-20 4500-Cl- E (97)	COLOR	NW
Fluoride, Total	EPA 300.0 Rev. 2.1	IC-COND	NW
Fluoride, Total	SM 18-21 4500-F C (97)	POT	NW
Calcium Hardness	EPA 200.7 Rev. 4.4	ICP-AES	NW
Hardness, Total	SM 18-20 2340C (97)	TITR	NW
Hardness, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Sulfate (as SO4)	EPA 300.0 Rev. 2.1	IC-COND	NW
Sulfate (as SO4)	EPA 9056	IC-COND	NW
Nutrient	**Method**	**Technology**	NW
Ammonia (as N)	SM 18 4500-NH3 H	AUTO	NW
Ammonia (as N)	EPA 350.1 Rev. 2.0	AUTO	NW
Ammonia (as N)	SM 18-20 4500-NH3 B (97)	PREP	NW
Kjeldahl Nitrogen, Total	EPA 351.2 Rev. 2.0	AUTO	NW
Nitrate (as N)	EPA 353.2 Rev. 2.0	COLOR	NW
Nitrate (as N)	EPA 300.0 Rev. 2.1	IC-COND	NW
Nitrite (as N)	EPA 353.2 Rev. 2.0	COLOR	NW
Nitrite (as N)	EPA 354.1	COLOR	NW
Nitrite (as N)	EPA 300.0 Rev. 2.1	IC-COND	NW
Orthophosphate (as P)	EPA 365.1 Rev. 2.0	COLOR	NW
Orthophosphate (as P)	EPA 300.0 Rev. 2.1	IC-COND	NW
Orthophosphate (as P)	SM 18-21 4500-P E	COLOR	NW
Phosphorus, Total	EPA 365.1 Rev. 2.0	COLOR	NW
Phosphorus, Total	SM 18-21 4500-P E	COLOR	NW
Wastewater Metals I	**Method**	**Technology**	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Barium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Barium, Total	EPA 3010A	PREP	NW
Barium, Total	EPA 3005A	PREP	NW
Barium, Total	EPA 6010B	ICP-AES	NW
Barium, Total	EPA 6020	ICP-MS	NW
Barium, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Cadmium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Cadmium, Total	EPA 3010A	PREP	NW
Cadmium, Total	EPA 3005A	PREP	NW
Cadmium, Total	EPA 6010B	ICP-AES	NW
Cadmium, Total	EPA 6020	ICP-MS	NW
Cadmium, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Calcium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Calcium, Total	EPA 3010A	PREP	NW
Calcium, Total	EPA 3005A	PREP	NW
Calcium, Total	EPA 6010B	ICP-AES	NW
Chromium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Chromium, Total	EPA 3010A	PREP	NW
Chromium, Total	EPA 3005A	PREP	NW
Chromium, Total	EPA 6010B	ICP-AES	NW
Chromium, Total	EPA 6020	ICP-MS	NW
Chromium, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Copper, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Copper, Total	EPA 3010A	PREP	NW
Copper, Total	EPA 3005A	PREP	NW
Copper, Total	EPA 6010B	ICP-AES	NW
Copper, Total	EPA 6020	ICP-MS	NW
Copper, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Iron, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Iron, Total	EPA 3010A	PREP	NW
Iron, Total	EPA 3005A	PREP	NW
Iron, Total	EPA 6010B	ICP-AES	NW
Lead, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Lead, Total	EPA 3010A	PREP	NW
Lead, Total	EPA 3005A	PREP	NW
Lead, Total	EPA 6010B	ICP-AES	NW
Lead, Total	EPA 6020	ICP-MS	NW
Lead, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Magnesium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Magnesium, Total	EPA 3010A	PREP	NW
Magnesium, Total	EPA 3005A	PREP	NW
Magnesium, Total	EPA 6010B	ICP-AES	NW
Manganese, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Manganese, Total	EPA 3010A	PREP	NW
Manganese, Total	EPA 3005A	PREP	NW
Manganese, Total	EPA 6010B	ICP-AES	NW
Manganese, Total	EPA 6020	ICP-MS	NW
Manganese, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Nickel, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Nickel, Total	EPA 3010A	PREP	NW
Nickel, Total	EPA 3005A	PREP	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Nickel, Total	EPA 6010B	ICP-AES	NW
Nickel, Total	EPA 6020	ICP-MS	NW
Nickel, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Potassium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Potassium, Total	EPA 3010A	PREP	NW
Potassium, Total	EPA 3005A	PREP	NW
Potassium, Total	EPA 6010B	ICP-AES	NW
Silver, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Silver, Total	EPA 3005A	PREP	NW
Silver, Total	EPA 6010B	ICP-AES	NW
Silver, Total	EPA 6020	ICP-MS	NW
Silver, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Sodium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Sodium, Total	EPA 3010A	PREP	NW
Sodium, Total	EPA 3005A	PREP	NW
Sodium, Total	EPA 6010B	ICP-AES	NW
Strontium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Strontium, Total	EPA 6010B	ICP-AES	NW
Strontium, Total	EPA 6020	ICP-MS	NW
Strontium, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Wastewater Metals II	**Method**	**Technology**	NW
Aluminum, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Aluminum, Total	EPA 3010A	PREP	NW
Aluminum, Total	EPA 3005A	PREP	NW
Aluminum, Total	EPA 6010B	ICP-AES	NW
Aluminum, Total	EPA 6020	ICP-MS	NW
Aluminum, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Antimony, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Antimony, Total	EPA 3005A	PREP	NW
Antimony, Total	EPA 6010B	ICP-AES	NW
Antimony, Total	EPA 6020	ICP-MS	NW
Antimony, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Arsenic, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Arsenic, Total	EPA 3010A	PREP	NW
Arsenic, Total	EPA 3005A	PREP	NW
Arsenic, Total	EPA 6010B	ICP-AES	NW
Arsenic, Total	EPA 6020	ICP-MS	NW
Arsenic, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Beryllium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Beryllium, Total	EPA 3010A	PREP	NW
Beryllium, Total	EPA 3005A	PREP	NW
Beryllium, Total	EPA 6010B	ICP-AES	NW
Beryllium, Total	EPA 6020	ICP-MS	NW
Beryllium, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Chromium VI	EPA 7196A	COLOR	NW
Chromium VI	SM 18-19 3500-Cr D	COLOR	NW
Mercury, Total	EPA 245.1 Rev. 3.0	CVAAS	NW
Mercury, Total	EPA 7470A	CVAAS	NW
Mercury, Total	EPA 6020	ICP-MS	NW
Mercury, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Selenium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Selenium, Total	EPA 3010A	PREP	NW
Selenium, Total	EPA 3005A	PREP	NW
Selenium, Total	EPA 6010B	ICP-AES	NW
Selenium, Total	EPA 6020	ICP-MS	NW
Selenium, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Vanadium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Vanadium, Total	EPA 3010A	PREP	NW
Vanadium, Total	EPA 3005A	PREP	NW
Vanadium, Total	EPA 6010B	ICP-AES	NW
Vanadium, Total	EPA 6020	ICP-MS	NW
Vanadium, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Zinc, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Zinc, Total	EPA 3010A	PREP	NW
Zinc, Total	EPA 3005A	PREP	NW
Zinc, Total	EPA 6010B	ICP-AES	NW
Zinc, Total	EPA 6020	ICP-MS	NW
Zinc, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Wastewater Metals III	**Method**	**Technology**	NW
Cobalt, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Cobalt, Total	EPA 3010A	PREP	NW
Cobalt, Total	EPA 3005A	PREP	NW
Cobalt, Total	EPA 6010B	ICP-AES	NW
Cobalt, Total	EPA 6020	ICP-MS	NW
Cobalt, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Molybdenum, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Molybdenum, Total	EPA 3005A	PREP	NW
Molybdenum, Total	EPA 6010B	ICP-AES	NW
Molybdenum, Total	EPA 6020	ICP-MS	NW
Molybdenum, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Thallium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Thallium, Total	EPA 3010A	PREP	NW
Thallium, Total	EPA 3005A	PREP	NW
Thallium, Total	EPA 6010B	ICP-AES	NW
Thallium, Total	EPA 6020	ICP-MS	NW
Thallium, Total	EPA 200.8 Rev. 5.4	ICP-MS	NW
Tin, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Tin, Total	EPA 6010B	ICP-AES	NW
Titanium, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Titanium, Total	EPA 6010B	ICP-AES	NW
Acrylates	**Method**	**Technology**	NW
Acrolein (Propenal)	EPA 5030B	PREP	NW
Acrolein (Propenal)	EPA 8260B	GC-MS	NW
Acrolein (Propenal)	EPA 624	GC-MS	NW
Acrylonitrile	EPA 5030B	PREP	NW
Acrylonitrile	EPA 8260B	GC-MS	NW
Acrylonitrile	EPA 624	GC-MS	NW
Ethyl methacrylate	EPA 8260B	GC-MS	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Methyl acrylonitrile	EPA 8260B	GC-MS	NW
Methyl methacrylate	EPA 8260B	GC-MS	NW
Benzidines	**Method**	**Technology**	NW
Benzidine	EPA 3510C	PREP	NW
Benzidine	EPA 3520C	PREP	NW
Benzidine	EPA 625	GC-MS	NW
Benzidine	EPA 8270C	GC-MS	NW
3,3'-Dichlorobenzidine	EPA 3510C	PREP	NW
3,3'-Dichlorobenzidine	EPA 3520C	PREP	NW
3,3'-Dichlorobenzidine	EPA 625	GC-MS	NW
3,3'-Dichlorobenzidine	EPA 8270C	GC-MS	NW
3,3'-Dimethylbenzidine	EPA 8270C	GC-MS	NW
Chlorinated Hydrocarbons	**Method**	**Technology**	NW
1-Chloronaphthalene	EPA 8270C	GC-MS	NW
2-Chloronaphthalene	EPA 3510C	PREP	NW
2-Chloronaphthalene	EPA 3520C	PREP	NW
2-Chloronaphthalene	EPA 8121	GC-ECD	NW
2-Chloronaphthalene	EPA 625	GC-MS	NW
2-Chloronaphthalene	EPA 612	GC-ECD	NW
2-Chloronaphthalene	EPA 8270C	GC-MS	NW
Hexachlorobenzene	EPA 3510C	PREP	NW
Hexachlorobenzene	EPA 3520C	PREP	NW
Hexachlorobenzene	EPA 8121	GC-ECD	NW
Hexachlorobenzene	EPA 625	GC-MS	NW
Hexachlorobenzene	EPA 612	GC-ECD	NW
Hexachlorobenzene	EPA 8270C	GC-MS	NW
Hexachlorobutadiene	EPA 3510C	PREP	NW
Hexachlorobutadiene	EPA 3520C	PREP	NW
Hexachlorobutadiene	EPA 8260B	GC-MS	NW
Hexachlorobutadiene	EPA 8121	GC-ECD	NW
Hexachlorobutadiene	EPA 625	GC-MS	NW
Hexachlorobutadiene	EPA 612	GC-ECD	NW
Hexachlorobutadiene	EPA 8270C	GC-MS	NW
Hexachloroethane	EPA 3510C	PREP	NW
Hexachloroethane	EPA 3520C	PREP	NW
Hexachloroethane	EPA 8121	GC-ECD	NW
Hexachloroethane	EPA 625	GC-MS	NW
Hexachloroethane	EPA 612	GC-ECD	NW
Hexachloroethane	EPA 8270C	GC-MS	NW
Hexachlorocyclopentadiene	EPA 3510C	PREP	NW
Hexachlorocyclopentadiene	EPA 3520C	PREP	NW
Hexachlorocyclopentadiene	EPA 8121	GC-ECD	NW
Hexachlorocyclopentadiene	EPA 625	GC-MS	NW
Hexachlorocyclopentadiene	EPA 612	GC-ECD	NW
Hexachlorocyclopentadiene	EPA 8270C	GC-MS	NW
Hexachloropropene	EPA 8270C	GC-MS	NW
Pentachlorobenzene	EPA 8270C	GC-MS	NW
1,2,4-Trichlorobenzene	EPA 3510C	PREP	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
1,2,4-Trichlorobenzene	EPA 3520C	PREP	NW
1,2,4-Trichlorobenzene	EPA 8260B	GC-MS	NW
1,2,4-Trichlorobenzene	EPA 8121	GC-ECD	NW
1,2,4-Trichlorobenzene	EPA 625	GC-MS	NW
1,2,4-Trichlorobenzene	EPA 612	GC-ECD	NW
1,2,4-Trichlorobenzene	EPA 8270C	GC-MS	NW
1,2,3-Trichlorobenzene	EPA 8260B	GC-MS	NW
1,2,4,5-Tetrachlorobenzene	EPA 8270C	GC-MS	NW
Haloethers	**Method**	**Technology**	NW
Bis(2-chloroethyl)ether	EPA 3510C	PREP	NW
Bis(2-chloroethyl)ether	EPA 3520C	PREP	NW
Bis(2-chloroethyl)ether	EPA 625	GC-MS	NW
Bis(2-chloroethyl)ether	EPA 8270C	GC-MS	NW
Bis (2-chloroisopropyl) ether	EPA 3510C	PREP	NW
Bis (2-chloroisopropyl) ether	EPA 3520C	PREP	NW
Bis (2-chloroisopropyl) ether	EPA 625	GC-MS	NW
Bis (2-chloroisopropyl) ether	EPA 8270C	GC-MS	NW
Bis(2-chloroethoxy)methane	EPA 3510C	PREP	NW
Bis(2-chloroethoxy)methane	EPA 3520C	PREP	NW
Bis(2-chloroethoxy)methane	EPA 625	GC-MS	NW
Bis(2-chloroethoxy)methane	EPA 8270C	GC-MS	NW
4-Chlorophenylphenyl ether	EPA 3510C	PREP	NW
4-Chlorophenylphenyl ether	EPA 3520C	PREP	NW
4-Chlorophenylphenyl ether	EPA 625	GC-MS	NW
4-Chlorophenylphenyl ether	EPA 8270C	GC-MS	NW
4-Bromophenylphenyl ether	EPA 3510C	PREP	NW
4-Bromophenylphenyl ether	EPA 3520C	PREP	NW
4-Bromophenylphenyl ether	EPA 625	GC-MS	NW
4-Bromophenylphenyl ether	EPA 8270C	GC-MS	NW
Nitroaromatics and Isophorone	**Method**	**Technology**	NW
1,3-Dinitrobenzene	EPA 8270C	GC-MS	NW
1,3,5-Trinitrobenzene	EPA 8270C	GC-MS	NW
1,4-Naphthoquinone	EPA 8270C	GC-MS	NW
2,4-Dinitrotoluene	EPA 3510C	PREP	NW
2,4-Dinitrotoluene	EPA 3520C	PREP	NW
2,4-Dinitrotoluene	EPA 625	GC-MS	NW
2,4-Dinitrotoluene	EPA 8270C	GC-MS	NW
2,6-Dinitrotoluene	EPA 3510C	PREP	NW
2,6-Dinitrotoluene	EPA 3520C	PREP	NW
2,6-Dinitrotoluene	EPA 625	GC-MS	NW
2,6-Dinitrotoluene	EPA 8270C	GC-MS	NW
Isophorone	EPA 3510C	PREP	NW
Isophorone	EPA 3520C	PREP	NW
Isophorone	EPA 625	GC-MS	NW
Isophorone	EPA 8270C	GC-MS	NW
Nitrobenzene	EPA 3510C	PREP	NW
Nitrobenzene	EPA 3520C	PREP	NW
Nitrobenzene	EPA 625	GC-MS	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Nitrobenzene	EPA 8270C	GC-MS	NW
Nitrosoamines	**Method**	**Technology**	NW
N-Nitrosodiethylamine	EPA 8270C	GC-MS	NW
N-Nitrosodimethylamine	EPA 3510C	PREP	NW
N-Nitrosodimethylamine	EPA 3520C	PREP	NW
N-Nitrosodimethylamine	EPA 625	GC-MS	NW
N-Nitrosodimethylamine	EPA 8270C	GC-MS	NW
N-Nitrosodiphenylamine	EPA 3510C	PREP	NW
N-Nitrosodiphenylamine	EPA 3520C	PREP	NW
N-Nitrosodiphenylamine	EPA 625	GC-MS	NW
N-Nitrosodiphenylamine	EPA 8270C	GC-MS	NW
N-Nitrosodi-n-butylamine	EPA 8270C	GC-MS	NW
N-Nitrosodi-n-propylamine	EPA 3510C	PREP	NW
N-Nitrosodi-n-propylamine	EPA 3520C	PREP	NW
N-Nitrosodi-n-propylamine	EPA 625	GC-MS	NW
N-Nitrosodi-n-propylamine	EPA 8270C	GC-MS	NW
N-nitrosopiperidine	EPA 8270C	GC-MS	NW
N-Nitrosopyrrolidine	EPA 8270C	GC-MS	NW
Phthalate Esters	**Method**	**Technology**	NW
Benzyl butyl phthalate	EPA 3510C	PREP	NW
Benzyl butyl phthalate	EPA 3520C	PREP	NW
Benzyl butyl phthalate	EPA 625	GC-MS	NW
Benzyl butyl phthalate	EPA 8270C	GC-MS	NW
Bis(2-ethylhexyl) phthalate	EPA 3510C	PREP	NW
Bis(2-ethylhexyl) phthalate	EPA 3520C	PREP	NW
Bis(2-ethylhexyl) phthalate	EPA 625	GC-MS	NW
Bis(2-ethylhexyl) phthalate	EPA 8270C	GC-MS	NW
Diethyl phthalate	EPA 3510C	PREP	NW
Diethyl phthalate	EPA 3520C	PREP	NW
Diethyl phthalate	EPA 625	GC-MS	NW
Diethyl phthalate	EPA 8270C	GC-MS	NW
Dimethyl phthalate	EPA 3510C	PREP	NW
Dimethyl phthalate	EPA 3520C	PREP	NW
Dimethyl phthalate	EPA 625	GC-MS	NW
Dimethyl phthalate	EPA 8270C	GC-MS	NW
Di-n-butyl phthalate	EPA 3510C	PREP	NW
Di-n-butyl phthalate	EPA 3520C	PREP	NW
Di-n-butyl phthalate	EPA 625	GC-MS	NW
Di-n-butyl phthalate	EPA 8270C	GC-MS	NW
Di-n-octyl phthalate	EPA 3510C	PREP	NW
Di-n-octyl phthalate	EPA 3520C	PREP	NW
Di-n-octyl phthalate	EPA 625	GC-MS	NW
Di-n-octyl phthalate	EPA 8270C	GC-MS	NW
Polychlorinated Biphenyls	**Method**	**Technology**	NW
PCB-1016	EPA 3510C	PREP	NW
PCB-1016	EPA 8082	GC-ECD	NW
PCB-1016	EPA 608	GC-ECD	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
PCB-1221	EPA 3510C	PREP	NW
PCB-1221	EPA 8082	GC-ECD	NW
PCB-1221	EPA 608	GC-ECD	NW
PCB-1232	EPA 3510C	PREP	NW
PCB-1232	EPA 8082	GC-ECD	NW
PCB-1232	EPA 608	GC-ECD	NW
PCB-1242	EPA 3510C	PREP	NW
PCB-1242	EPA 8082	GC-ECD	NW
PCB-1242	EPA 608	GC-ECD	NW
PCB-1248	EPA 3510C	PREP	NW
PCB-1248	EPA 8082	GC-ECD	NW
PCB-1248	EPA 608	GC-ECD	NW
PCB-1254	EPA 3510C	PREP	NW
PCB-1254	EPA 8082	GC-ECD	NW
PCB-1254	EPA 608	GC-ECD	NW
PCB-1260	EPA 3510C	PREP	NW
PCB-1260	EPA 8082	GC-ECD	NW
PCB-1260	EPA 608	GC-ECD	NW
PCB-1262	EPA 8082	GC-ECD	NW
PCB-1268	EPA 8082	GC-ECD	NW
Polynuclear Aromatics	**Method**	**Technology**	NW
Acenaphthene	EPA 3510C	PREP	NW
Acenaphthene	EPA 3520C	PREP	NW
Acenaphthene	EPA 625	GC-MS	NW
Acenaphthene	EPA 8270C	GC-MS	NW
Anthracene	EPA 3510C	PREP	NW
Anthracene	EPA 3520C	PREP	NW
Anthracene	EPA 625	GC-MS	NW
Anthracene	EPA 8270C	GC-MS	NW
Acenaphthylene	EPA 3510C	PREP	NW
Acenaphthylene	EPA 3520C	PREP	NW
Acenaphthylene	EPA 625	GC-MS	NW
Acenaphthylene	EPA 8270C	GC-MS	NW
Benzo(a)anthracene	EPA 3510C	PREP	NW
Benzo(a)anthracene	EPA 3520C	PREP	NW
Benzo(a)anthracene	EPA 625	GC-MS	NW
Benzo(a)anthracene	EPA 8270C	GC-MS	NW
Benzo(a)pyrene	EPA 3510C	PREP	NW
Benzo(a)pyrene	EPA 3520C	PREP	NW
Benzo(a)pyrene	EPA 625	GC-MS	NW
Benzo(a)pyrene	EPA 8270C	GC-MS	NW
Benzo(b)fluoranthene	EPA 3510C	PREP	NW
Benzo(b)fluoranthene	EPA 3520C	PREP	NW
Benzo(b)fluoranthene	EPA 625	GC-MS	NW
Benzo(b)fluoranthene	EPA 8270C	GC-MS	NW
Benzo(ghi)perylene	EPA 3510C	PREP	NW
Benzo(ghi)perylene	EPA 3520C	PREP	NW
Benzo(ghi)perylene	EPA 625	GC-MS	NW
Benzo(ghi)perylene	EPA 8270C	GC-MS	NW
Benzo(k)fluoranthene	EPA 3510C	PREP	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Benzo(k)fluoranthene	EPA 3520C	PREP	NW
Benzo(k)fluoranthene	EPA 625	GC-MS	NW
Benzo(k)fluoranthene	EPA 8270C	GC-MS	NW
Chrysene	EPA 3510C	PREP	NW
Chrysene	EPA 3520C	PREP	NW
Chrysene	EPA 625	GC-MS	NW
Chrysene	EPA 8270C	GC-MS	NW
Dibenzo(a,h)anthracene	EPA 3510C	PREP	NW
Dibenzo(a,h)anthracene	EPA 3520C	PREP	NW
Dibenzo(a,h)anthracene	EPA 625	GC-MS	NW
Dibenzo(a,h)anthracene	EPA 8270C	GC-MS	NW
7,12-Dimethylbenzyl (a) anthracene	EPA 8270C	GC-MS	NW
Fluoranthene	EPA 3510C	PREP	NW
Fluoranthene	EPA 3520C	PREP	NW
Fluoranthene	EPA 625	GC-MS	NW
Fluoranthene	EPA 8270C	GC-MS	NW
Fluorene	EPA 3510C	PREP	NW
Fluorene	EPA 3520C	PREP	NW
Fluorene	EPA 625	GC-MS	NW
Fluorene	EPA 8270C	GC-MS	NW
Indeno(1,2,3-cd)pyrene	EPA 3510C	PREP	NW
Indeno(1,2,3-cd)pyrene	EPA 3520C	PREP	NW
Indeno(1,2,3-cd)pyrene	EPA 625	GC-MS	NW
Indeno(1,2,3-cd)pyrene	EPA 8270C	GC-MS	NW
Naphthalene	EPA 3510C	PREP	NW
Naphthalene	EPA 3520C	PREP	NW
Naphthalene	EPA 8260B	GC-MS	NW
Naphthalene	EPA 625	GC-MS	NW
Naphthalene	EPA 8270C	GC-MS	NW
3-Methylcholanthrene	EPA 8270C	GC-MS	NW
Phenanthrene	EPA 3510C	PREP	NW
Phenanthrene	EPA 3520C	PREP	NW
Phenanthrene	EPA 625	GC-MS	NW
Phenanthrene	EPA 8270C	GC-MS	NW
Pyrene	EPA 3510C	PREP	NW
Pyrene	EPA 3520C	PREP	NW
Pyrene	EPA 625	GC-MS	NW
Pyrene	EPA 8270C	GC-MS	NW
Low Level Polynuclear Aromatics	**Method**	**Technology**	NW
Acenaphthene	EPA 8270-SIM	GC-MS	NW
Acenaphthylene	EPA 8270-SIM	GC-MS	NW
Anthracene	EPA 8270-SIM	GC-MS	NW
Benzo(a)anthracene	EPA 8270-SIM	GC-MS	NW
Benzo(b)fluoranthene	EPA 8270-SIM	GC-MS	NW
Benzo(k)fluoroanthene	EPA 8270-SIM	GC-MS	NW
Benzo(g,h,i)perylene	EPA 8270-SIM	GC-MS	NW
Benzo(a)pyrene	EPA 8270-SIM	GC-MS	NW
Chrysene	EPA 8270-SIM	GC-MS	NW
Dibonzo(a,h)anthracene	EPA 8270-SIM	GC-MS	NW
Fluoranthene	EPA 8270-SIM	GC-MS	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Fluorene	EPA 8270-SIM	GC-MS	NW
Indeno(1,2,3-cd)pyrene	EPA 8270-SIM	GC-MS	NW
Naphthalene	EPA 8270-SIM	GC-MS	NW
Phenanthrene	EPA 8270-SIM	GC-MS	NW
Pyrene	EPA 8270-SIM	GC-MS	NW
Priority Pollutant Phenols	**Method**	**Technology**	NW
4-Chloro-3-methylphenol	EPA 3510C	PREP	NW
4-Chloro-3-methylphenol	EPA 3520C	PREP	NW
4-Chloro-3-methylphenol	EPA 625	GC-MS	NW
4-Chloro-3-methylphenol	EPA 8270C	GC-MS	NW
2-Chlorophenol	EPA 3510C	PREP	NW
2-Chlorophenol	EPA 3520C	PREP	NW
2-Chlorophenol	EPA 625	GC-MS	NW
2-Chlorophenol	EPA 8270C	GC-MS	NW
2,4-Dichlorophenol	EPA 3510C	PREP	NW
2,4-Dichlorophenol	EPA 3520C	PREP	NW
2,4-Dichlorophenol	EPA 625	GC-MS	NW
2,4-Dichlorophenol	EPA 8270C	GC-MS	NW
2,6-Dichlorophenol	EPA 8270C	GC-MS	NW
2,4-Dimethylphenol	EPA 3510C	PREP	NW
2,4-Dimethylphenol	EPA 3520C	PREP	NW
2,4-Dimethylphenol	EPA 625	GC-MS	NW
2,4-Dimethylphenol	EPA 8270C	GC-MS	NW
2,4-Dinitrophenol	EPA 3510C	PREP	NW
2,4-Dinitrophenol	EPA 3520C	PREP	NW
2,4-Dinitrophenol	EPA 625	GC-MS	NW
2,4-Dinitrophenol	EPA 8270C	GC-MS	NW
2-Methyl-4,6-dinitrophenol	EPA 3510C	PREP	NW
2-Methyl-4,6-dinitrophenol	EPA 3520C	PREP	NW
2-Methyl-4,6-dinitrophenol	EPA 625	GC-MS	NW
2-Methyl-4,6-dinitrophenol	EPA 8270C	GC-MS	NW
2-Nitrophenol	EPA 3520C	PREP	NW
2-Nitrophenol	EPA 625	GC-MS	NW
2-Nitrophenol	EPA 8270C	GC-MS	NW
4-Nitrophenol	EPA 3520C	PREP	NW
4-Nitrophenol	EPA 625	GC-MS	NW
4-Nitrophenol	EPA 8270C	GC-MS	NW
2-Methylphenol	EPA 3510C	PREP	NW
2-Methylphenol	EPA 3520C	PREP	NW
2-Methylphenol	EPA 8270C	GC-MS	NW
3-Methylphenol	EPA 8270C	GC-MS	NW
4-Methylphenol	EPA 3510C	PREP	NW
4-Methylphenol	EPA 3520C	PREP	NW
4-Methylphenol	EPA 8270C	GC-MS	NW
Cresols, Total	EPA 625	GC-MS	NW
Cresols, Total	EPA 8270C	GC-MS	NW
Pentachlorophenol	EPA 3510C	PREP	NW
Pentachlorophenol	EPA 3520C	PREP	NW
Pentachlorophenol	EPA 625	GC-MS	NW
Pentachlorophenol	EPA 8270C	GC-MS	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Phenol	EPA 3510C	PREP	NW
Phenol	EPA 3520C	PREP	NW
Phenol	EPA 625	GC-MS	NW
Phenol	EPA 8270C	GC-MS	NW
2,3,4,6 Tetrachlorophenol	EPA 8270C	GC-MS	NW
2,4,5-Trichlorophenol	EPA 3520C	PREP	NW
2,4,5-Trichlorophenol	EPA 625	GC-MS	NW
2,4,5-Trichlorophenol	EPA 8270C	GC-MS	NW
2,4,6-Trichlorophenol	EPA 3510C	PREP	NW
2,4,6-Trichlorophenol	EPA 3520C	PREP	NW
2,4,6-Trichlorophenol	EPA 625	GC-MS	NW
2,4,6-Trichlorophenol	EPA 8270C	GC-MS	NW
Purgeable Aromatics	**Method**	**Technology**	NW
Benzene	EPA 5030B	PREP	NW
Benzene	EPA 8260B	GC-MS	NW
Benzene	EPA 8021B	GCELCD/PID	NW
Benzene	EPA 624	GC-MS	NW
Benzene	EPA 602	GC-PID	NW
Chlorobenzene	EPA 5030B	PREP	NW
Chlorobenzene	EPA 8260B	GC-MS	NW
Chlorobenzene	EPA 8021B	GCELCD/PID	NW
Chlorobenzene	EPA 601	GC-ELCD	NW
Chlorobenzene	EPA 624	GC-MS	NW
Chlorobenzene	EPA 602	GC-PID	NW
1,2-Dichlorobenzene	EPA 3510C	PREP	NW
1,2-Dichlorobenzene	EPA 3520C	PREP	NW
1,2-Dichlorobenzene	EPA 5030B	PREP	NW
1,2-Dichlorobenzene	EPA 8260B	GC-MS	NW
1,2-Dichlorobenzene	EPA 8021B	GCELCD/PID	NW
1,2-Dichlorobenzene	EPA 625	GC-MS	NW
1,2-Dichlorobenzene	EPA 601	GC-ELCD	NW
1,2-Dichlorobenzene	EPA 624	GC-MS	NW
1,2-Dichlorobenzene	EPA 602	GC-PID	NW
1,2-Dichlorobenzene	EPA 8270C	GC-MS	NW
1,3-Dichlorobenzene	EPA 3510C	PREP	NW
1,3-Dichlorobenzene	EPA 3520C	PREP	NW
1,3-Dichlorobenzene	EPA 5030B	PREP	NW
1,3-Dichlorobenzene	EPA 8260B	GC-MS	NW
1,3-Dichlorobenzene	EPA 8021B	GCELCD/PID	NW
1,3-Dichlorobenzene	EPA 625	GC-MS	NW
1,3-Dichlorobenzene	EPA 601	GC-ELCD	NW
1,3-Dichlorobenzene	EPA 624	GC-MS	NW
1,3-Dichlorobenzene	EPA 602	GC-PID	NW
1,3-Dichlorobenzene	EPA 8270C	GC-MS	NW
1,4-Dichlorobenzene	EPA 3510C	PREP	NW
1,4-Dichlorobenzene	EPA 3520C	PREP	NW
1,4-Dichlorobenzene	EPA 5030B	PREP	NW
1,4-Dichlorobenzene	EPA 8260B	GC-MS	NW
1,4-Dichlorobenzene	EPA 8021B	GCELCD/PID	NW
1,4-Dichlorobenzene	EPA 625	GC-MS	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
1,4-Dichlorobenzene	EPA 601	GC-ELCD	NW
1,4-Dichlorobenzene	EPA 624	GC-MS	NW
1,4-Dichlorobenzene	EPA 602	GC-PID	NW
1,4-Dichlorobenzene	EPA 8270C	GC-MS	NW
1,2,4-Trimethylbenzene	EPA 8260B	GC-MS	NW
1,3,5-Trimethylbenzene	EPA 8260B	GC-MS	NW
Ethyl benzene	EPA 5030B	PREP	NW
Ethyl benzene	EPA 8260B	GC-MS	NW
Ethyl benzene	EPA 8021B	GCELCD/PID	NW
Ethyl benzene	EPA 624	GC-MS	NW
Ethyl benzene	EPA 602	GC-PID	NW
Isopropylbenzene	EPA 8260B	GC-MS	NW
n-Butylbenzene	EPA 8260B	GC-MS	NW
n-Propylbenzene	EPA 8260B	GC-MS	NW
p-Isopropyltoluene (P-Cymene)	EPA 8260B	GC-MS	NW
Toluene	EPA 5030B	PREP	NW
Toluene	EPA 8260B	GC-MS	NW
Toluene	EPA 8021B	GCELCD/PID	NW
Toluene	EPA 624	GC-MS	NW
Toluene	EPA 602	GC-PID	NW
Total Xylenes	EPA 5030B	PREP	NW
Total Xylenes	EPA 8260B	GC-MS	NW
Total Xylenes	EPA 8021B	GCELCD/PID	NW
Total Xylenes	EPA 624	GC-MS	NW
Total Xylenes	EPA 602	GC-PID	NW
sec-Butylbenzene	EPA 8260B	GC-MS	NW
tert-Butylbenzene	EPA 8260B	GC-MS	NW
Styrene	EPA 5030B	PREP	NW
Styrene	EPA 8260B	GC-MS	NW
Styrene	EPA 8021B	GCELCD/PID	NW
Styrene	EPA 624	GC-MS	NW
Purgeable Halocarbons	**Method**	**Technology**	NW
Bromochloromethane	EPA 5030B	PREP	NW
Bromochloromethane	EPA 8260B	GC-MS	NW
Bromodichloromethane	EPA 5030B	PREP	NW
Bromodichloromethane	EPA 8260B	GC-MS	NW
Bromodichloromethane	EPA 8021B	GCELCD/PID	NW
Bromodichloromethane	EPA 601	GC-ELCD	NW
Bromodichloromethane	EPA 624	GC-MS	NW
Bromoform	EPA 5030B	PREP	NW
Bromoform	EPA 8260B	GC-MS	NW
Bromoform	EPA 8021B	GCELCD/PID	NW
Bromoform	EPA 601	GC-ELCD	NW
Bromoform	EPA 624	GC-MS	NW
Bromomethane	EPA 5030B	PREP	NW
Bromomethane	EPA 8260B	GC-MS	NW
Bromomethane	EPA 8021B	GCELCD/PID	NW
Bromomethane	EPA 601	GC-ELCD	NW
Bromomethane	EPA 624	GC-MS	NW
Carbon tetrachloride	EPA 5030B	PREP	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Carbon tetrachloride	EPA 8260B	GC-MS	NW
Carbon tetrachloride	EPA 8021B	GCELCD/PID	NW
Carbon tetrachloride	EPA 601	GC-ELCD	NW
Carbon tetrachloride	EPA 624	GC-MS	NW
Chloroethane	EPA 5030B	PREP	NW
Chloroethane	EPA 8260B	GC-MS	NW
Chloroethane	EPA 8021B	GCELCD/PID	NW
Chloroethane	EPA 601	GC-ELCD	NW
Chloroethane	EPA 624	GC-MS	NW
2-Chloro-1,3-butadiene (Chloroprene)	EPA 5030B	PREP	NW
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B	GC-MS	NW
2-Chloroethylvinyl ether	EPA 5030B	PREP	NW
2-Chloroethylvinyl ether	EPA 8260B	GC-MS	NW
2-Chloroethylvinyl ether	EPA 8021B	GCELCD/PID	NW
2-Chloroethylvinyl ether	EPA 601	GC-ELCD	NW
2-Chloroethylvinyl ether	EPA 624	GC-MS	NW
Chloroform	EPA 5030B	PREP	NW
Chloroform	EPA 8260B	GC-MS	NW
Chloroform	EPA 8021B	GCELCD/PID	NW
Chloroform	EPA 601	GC-ELCD	NW
Chloroform	EPA 624	GC-MS	NW
Chloromethane	EPA 5030B	PREP	NW
Chloromethane	EPA 8260B	GC-MS	NW
Chloromethane	EPA 8021B	GCELCD/PID	NW
Chloromethane	EPA 601	GC-ELCD	NW
Chloromethane	EPA 624	GC-MS	NW
3-Chloropropene (Allyl chloride)	EPA 5030B	PREP	NW
3-Chloropropene (Allyl chloride)	EPA 8260B	GC-MS	NW
Dibromochloromethane	EPA 5030B	PREP	NW
Dibromochloromethane	EPA 8260B	GC-MS	NW
Dibromochloromethane	EPA 8021B	GCELCD/PID	NW
Dibromochloromethane	EPA 601	GC-ELCD	NW
Dibromochloromethane	EPA 624	GC-MS	NW
Dibromomethane	EPA 5030B	PREP	NW
Dibromomethane	EPA 8260B	GC-MS	NW
Dichlorodifluoromethane	EPA 5030B	PREP	NW
Dichlorodifluoromethane	EPA 8260B	GC-MS	NW
Dichlorodifluoromethane	EPA 8021B	GCELCD/PID	NW
Dichlorodifluoromethane	EPA 601	GC-ELCD	NW
Dichlorodifluoromethane	EPA 624	GC-MS	NW
cis-1,4-Dichloro-2-butene	EPA 5030B	PREP	NW
trans-1,4-Dichloro-2-butene	EPA 5030B	PREP	NW
1,1-Dichloroethane	EPA 5030B	PREP	NW
1,1-Dichloroethane	EPA 8260B	GC-MS	NW
1,1-Dichloroethane	EPA 8021B	GCELCD/PID	NW
1,1-Dichloroethane	EPA 601	GC-ELCD	NW
1,1-Dichloroethane	EPA 624	GC-MS	NW
1,2-Dichloroethane	EPA 5030B	PREP	NW
1,2-Dichloroethane	EPA 8260B	GC-MS	NW
1,2-Dichloroethane	EPA 8021B	GCELCD/PID	NW
1,2-Dichloroethane	EPA 601	GC-ELCD	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
1,2-Dichloroethane	EPA 624	GC-MS	NW
1,1-Dichloroethene	EPA 5030B	PREP	NW
1,1-Dichloroethene	EPA 8260B	GC-MS	NW
1,1-Dichloroethene	EPA 8021B	GCELCD/PID	NW
1,1-Dichloroethene	EPA 601	GC-ELCD	NW
1,1-Dichloroethene	EPA 624	GC-MS	NW
cis-1,2-Dichloroethene	EPA 5030B	PREP	NW
cis-1,2-Dichloroethene	EPA 8260B	GC-MS	NW
cis-1,2-Dichloroethene	EPA 8021B	GCELCD/PID	NW
cis-1,2-Dichloroethene	EPA 624	GC-MS	NW
trans-1,2-Dichloroethene	EPA 5030B	PREP	NW
trans-1,2-Dichloroethene	EPA 8260B	GC-MS	NW
trans-1,2-Dichloroethene	EPA 8021B	GCELCD/PID	NW
trans-1,2-Dichloroethene	EPA 601	GC-ELCD	NW
trans-1,2-Dichloroethene	EPA 624	GC-MS	NW
1,1-Dichloropropene	EPA 5030B	PREP	NW
1,2-Dichloropropane	EPA 5030B	PREP	NW
1,2-Dichloropropane	EPA 8260B	GC-MS	NW
1,2-Dichloropropane	EPA 8021B	GCELCD/PID	NW
1,2-Dichloropropane	EPA 601	GC-ELCD	NW
1,2-Dichloropropane	EPA 624	GC-MS	NW
1,3-Dichloropropane	EPA 5030B	PREP	NW
1,3-Dichloropropane	EPA 8260B	GC-MS	NW
2,2-Dichloropropane	EPA 5030B	PREP	NW
2,2-Dichloropropane	EPA 8260B	GC-MS	NW
trans-1,3-Dichloropropene	EPA 5030B	PREP	NW
trans-1,3-Dichloropropene	EPA 8260B	GC-MS	NW
trans-1,3-Dichloropropene	EPA 8021B	GCELCD/PID	NW
trans-1,3-Dichloropropene	EPA 601	GC-ELCD	NW
trans-1,3-Dichloropropene	EPA 624	GC-MS	NW
cis-1,3-Dichloropropene	EPA 5030B	PREP	NW
cis-1,3-Dichloropropene	EPA 8260B	GC-MS	NW
cis-1,3-Dichloropropene	EPA 8021B	GCELCD/PID	NW
cis-1,3-Dichloropropene	EPA 601	GC-ELCD	NW
cis-1,3-Dichloropropene	EPA 624	GC-MS	NW
Methylene chloride	EPA 5030B	PREP	NW
Methylene chloride	EPA 8260B	GC-MS	NW
Methylene chloride	EPA 8021B	GCELCD/PID	NW
Methylene chloride	EPA 601	GC-ELCD	NW
Methylene chloride	EPA 624	GC-MS	NW
1,1,1,2-Tetrachloroethane	EPA 5030B	PREP	NW
1,1,1,2-Tetrachloroethane	EPA 8260B	GC-MS	NW
1,1,2,2-Tetrachloroethane	EPA 5030B	PREP	NW
1,1,2,2-Tetrachloroethane	EPA 8260B	GC-MS	NW
1,1,2,2-Tetrachloroethane	EPA 8021B	GCELCD/PID	NW
1,1,2,2-Tetrachloroethane	EPA 601	GC-ELCD	NW
1,1,2,2-Tetrachloroethane	EPA 624	GC-MS	NW
Tetrachloroethene	EPA 5030B	PREP	NW
Tetrachloroethene	EPA 8260B	GC-MS	NW
Tetrachloroethene	EPA 8021B	GCELCD/PID	NW
Tetrachloroethene	EPA 601	GC-ELCD	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Tetrachloroethene	EPA 624	GC-MS	NW
1,1,1-Trichloroethane	EPA 5030B	PREP	NW
1,1,1-Trichloroethane	EPA 8260B	GC-MS	NW
1,1,1-Trichloroethane	EPA 8021B	GCELCD/PID	NW
1,1,1-Trichloroethane	EPA 601	GC-ELCD	NW
1,1,1-Trichloroethane	EPA 624	GC-MS	NW
1,1,2-Trichloroethane	EPA 5030B	PREP	NW
1,1,2-Trichloroethane	EPA 8260B	GC-MS	NW
1,1,2-Trichloroethane	EPA 8021B	GCELCD/PID	NW
1,1,2-Trichloroethane	EPA 601	GC-ELCD	NW
1,1,2-Trichloroethane	EPA 624	GC-MS	NW
Trichloroethene	EPA 5030B	PREP	NW
Trichloroethene	EPA 8260B	GC-MS	NW
Trichloroethene	EPA 8021B	GCELCD/PID	NW
Trichloroethene	EPA 601	GC-ELCD	NW
Trichloroethene	EPA 624	GC-MS	NW
Trichlorofluoromethane	EPA 5030B	PREP	NW
Trichlorofluoromethane	EPA 8260B	GC-MS	NW
Trichlorofluoromethane	EPA 8021B	GCELCD/PID	NW
Trichlorofluoromethane	EPA 601	GC-ELCD	NW
Trichlorofluoromethane	EPA 624	GC-MS	NW
1,2,3-Trichloropropane	EPA 5030B	PREP	NW
1,2,3-Trichloropropane	EPA 8260B	GC-MS	NW
1,1,2-Trifluoro-1,2,2-Trichloroethane	EPA 8260B	GC-MS	NW
Vinyl chloride	EPA 5030B	PREP	NW
Vinyl chloride	EPA 8260B	GC-MS	NW
Vinyl chloride	EPA 8021B	GCELCD/PID	NW
Vinyl chloride	EPA 601	GC-ELCD	NW
Vinyl chloride	EPA 624	GC-MS	NW
Chlorinated Hydrocarbon Pesticides	**Method**	**Technology**	NW
Aldrin	EPA 8081A	GC-ECD	NW
Aldrin	EPA 3510C	PREP	NW
Aldrin	EPA 3520C	PREP	NW
Aldrin	EPA 608	GC-ECD	NW
alpha-BHC	EPA 8081A	GC-ECD	NW
alpha-BHC	EPA 3510C	PREP	NW
alpha-BHC	EPA 3520C	PREP	NW
alpha-BHC	EPA 608	GC-ECD	NW
beta-BHC	EPA 8081A	GC-ECD	NW
beta-BHC	EPA 3510C	PREP	NW
beta-BHC	EPA 3520C	PREP	NW
beta-BHC	EPA 608	GC-ECD	NW
delta-BHC	EPA 8081A	GC-ECD	NW
delta-BHC	EPA 3510C	PREP	NW
delta-BHC	EPA 3520C	PREP	NW
delta-BHC	EPA 608	GC-ECD	NW
Lindane	EPA 8081A	GC-ECD	NW
Lindane	EPA 3510C	PREP	NW
Lindane	EPA 3520C	PREP	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Lindane	EPA 608	GC-ECD	NW
alpha-Chlordane	EPA 8081A	GC-ECD	NW
alpha-Chlordane	EPA 3510C	PREP	NW
alpha-Chlordane	EPA 3520C	PREP	NW
gamma-Chlordane	EPA 8081A	GC-ECD	NW
gamma-Chlordane	EPA 3510C	PREP	NW
gamma-Chlordane	EPA 3520C	PREP	NW
Chlordane Total	EPA 8081A	GC-ECD	NW
Chlordane Total	EPA 3510C	PREP	NW
Chlordane Total	EPA 3520C	PREP	NW
Chlordane Total	EPA 608	GC-ECD	NW
Chlorobenzilate	EPA 8270C	GC-MS	NW
4,4'-DDD	EPA 8081A	GC-ECD	NW
4,4'-DDD	EPA 3510C	PREP	NW
4,4'-DDD	EPA 3520C	PREP	NW
4,4'-DDD	EPA 608	GC-ECD	NW
4,4'-DDE	EPA 8081A	GC-ECD	NW
4,4'-DDE	EPA 3510C	PREP	NW
4,4'-DDE	EPA 3520C	PREP	NW
4,4'-DDE	EPA 608	GC-ECD	NW
4,4'-DDT	EPA 8081A	GC-ECD	NW
4,4'-DDT	EPA 3510C	PREP	NW
4,4'-DDT	EPA 3520C	PREP	NW
4,4'-DDT	EPA 608	GC-ECD	NW
Diallate	EPA 8270C	GC-MS	NW
Dieldrin	EPA 8081A	GC-ECD	NW
Dieldrin	EPA 3510C	PREP	NW
Dieldrin	EPA 3520C	PREP	NW
Dieldrin	EPA 608	GC-ECD	NW
Dichloran	SM 18-20 6630B	GC-ECD	NW
Endosulfan I	EPA 8081A	GC-ECD	NW
Endosulfan I	EPA 3510C	PREP	NW
Endosulfan I	EPA 3520C	PREP	NW
Endosulfan I	EPA 608	GC-ECD	NW
Endosulfan II	EPA 8081A	GC-ECD	NW
Endosulfan II	EPA 3510C	PREP	NW
Endosulfan II	EPA 3520C	PREP	NW
Endosulfan II	EPA 608	GC-ECD	NW
Endosulfan sulfate	EPA 8081A	GC-ECD	NW
Endosulfan sulfate	EPA 3510C	PREP	NW
Endosulfan sulfate	EPA 3520C	PREP	NW
Endosulfan sulfate	EPA 608	GC-ECD	NW
Endrin	EPA 8081A	GC-ECD	NW
Endrin	EPA 3510C	PREP	NW
Endrin	EPA 3520C	PREP	NW
Endrin	EPA 608	GC-ECD	NW
Endrin aldehyde	EPA 8081A	GC-ECD	NW
Endrin aldehyde	EPA 3510C	PREP	NW
Endrin aldehyde	EPA 3520C	PREP	NW
Endrin aldehyde	EPA 608	GC-ECD	NW
Endrin Ketone	EPA 8081A	GC-ECD	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Heptachlor	EPA 8081A	GC-ECD	NW
Heptachlor	EPA 3510C	PREP	NW
Heptachlor	EPA 3520C	PREP	NW
Heptachlor	EPA 608	GC-ECD	NW
Heptachlor epoxide	EPA 8081A	GC-ECD	NW
Heptachlor epoxide	EPA 3510C	PREP	NW
Heptachlor epoxide	EPA 3520C	PREP	NW
Heptachlor epoxide	EPA 608	GC-ECD	NW
Isodrin	EPA 8081A	GC-ECD	NW
Mirex	SM 18-20 6630B	GC-ECD	NW
Methoxychlor	EPA 8081A	GC-ECD	NW
Methoxychlor	EPA 3510C	PREP	NW
Methoxychlor	EPA 3520C	PREP	NW
Methoxychlor	EPA 608	GC-ECD	NW
PCNB	EPA 8270C	GC-MS	NW
Strobane	SM 18-20 6630C	GC-ECD	NW
Trifluralin	SM 18-20 6630B	GC-ECD	NW
Toxaphene	EPA 8081A	GC-ECD	NW
Toxaphene	EPA 3510C	PREP	NW
Toxaphene	EPA 3520C	PREP	NW
Toxaphene	EPA 608	GC-ECD	NW
Chlorophenoxy Acid Pesticides	**Method**	**Technology**	NW
2,4-D	EPA 8151A	GC-ECD	NW
Dicamba	EPA 8151A	GC-ECD	NW
Dinoseb	EPA 8151A	GC-ECD	NW
Dinoseb	EPA 8270C	GC-MS	NW
2,4,5-T	EPA 8151A	GC-ECD	NW
2,4,5-TP (Silvex)	EPA 8151A	GC-ECD	NW
Organophosphate Pesticides	**Method**	**Technology**	NW
Atrazine	EPA 8141A	GC-NPD	NW
Azinphos methyl	EPA 8141A	GC-NPD	NW
Diazinon	EPA 8141A	GC-NPD	NW
Disulfoton	EPA 8141A	GC-NPD	NW
Disulfoton	EPA 8270C	GC-MS	NW
Demeton-O	EPA 8141A	GC-NPD	NW
Demeton-S	EPA 8141A	GC-NPD	NW
Dimethoate	EPA 8141A	GC-NPD	NW
Dimethoate	EPA 8270C	GC-MS	NW
Famphur	EPA 8141A	GC-NPD	NW
Malathion	EPA 8141A	GC-NPD	NW
Parathion ethyl	EPA 8141A	GC-NPD	NW
Parathion methyl	EPA 8141A	GC-NPD	NW
Phorate	EPA 8270C	GC-MS	NW
Volatile Chlorinated Organics	**Method**	**Technology**	NW
Benzyl chloride	EPA 8260B	GC-MS	NW
Wastewater Miscellaneous	**Method**	**Technology**	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Turbidity	EPA 180.1 Rev. 2.0	COLOR	NW
Total Residual Chlorine	SM 18-21 4500-Cl G (00)	COLOR	NW
Boron, Total	EPA 200.7 Rev. 4.4	ICP-AES	NW
Boron, Total	EPA 6010B	ICP-AES	NW
Bromide	SM 15 p.S44	TITR	NW
Bromide	EPA 300.0 Rev. 2.1	IC-COND	NW
Color	SM 18-21 2120B (01)	COLOR	NW
Corrosivity	SM 18-19 2330	99	NW
Cyanide, Total	SM 18-20 4500-CN C	PREP	NW
Cyanide, Total	EPA 9010B	PREP	NW
Cyanide, Total	EPA 9014	COLOR	NW
Cyanide, Total	SM 18-21 4500-CN E (99)	COLOR	NW
Cyanide, Total	SM 18-21 4500-CN G (99)	COLOR	NW
Hydrogen Ion (pH)	EPA 9040B	POT	NW
Hydrogen Ion (pH)	SM 18-21 4500-H B (00)	POT	NW
Oil & Grease Total Recoverable (HEM)	EPA 1664A	GRAV	NW
Oil & Grease Total Recoverable (HEM)	EPA 9070 (Solvent:Hexane)	GRAV	NW
Organic Carbon, Total	SM 18-21 5310B (00)	IR	NW
Phenols	EPA 420.1 Rev. 1978	COLOR	NW
Phenols	EPA 9065	COLOR	NW
Silica, Dissolved	EPA 200.7 Rev. 4.4	ICP-AES	NW
Silica, Dissolved	EPA 6010B	ICP-AES	NW
Specific Conductance	EPA 120.1 Rev. 1982	COND	NW
Surfactant (MBAS)	SM 18-21 5540C (00)	COLOR	NW
Sulfide (as S)	EPA 376.1	TITR	NW
Sulfide (as S)	EPA 9030B	PREP	NW
Sulfide (as S)	EPA 9034	TITR	NW
Sulfide (as S)	SM 18 4500-S E	TITR	NW
Temperature	SM 18-21 2550B (00)	99	NW
Total Recoverable Petroleum Hydrocarbons	EPA 1664A	GRAV	NW
Amines	**Method**	**Technology**	NW
Aniline	EPA 8270C	GC-MS	NW
4-Chloroaniline	EPA 8270C	GC-MS	NW
1-Naphthylamine	EPA 8270C	GC-MS	NW
2-Naphthylamine	EPA 8270C	GC-MS	NW
2-Nitroaniline	EPA 8270C	GC-MS	NW
3-Nitroaniline	EPA 8270C	GC-MS	NW
4-Nitroaniline	EPA 8270C	GC-MS	NW
5-Nitro-o-toluidine	EPA 8270C	GC-MS	NW
Carbazole	EPA 8270C	GC-MS	NW
Diphenylamine	EPA 8270C	GC-MS	NW
Methapyrilene	EPA 8270C	GC-MS	NW
1,4-Phenylenediamine	EPA 8270C	GC-MS	NW
Pronamide	EPA 8270C	GC-MS	NW
Propionitrile	EPA 8260B	GC-MS	NW
Pyridine	EPA 8260B	GC-MS	NW
Pyridine	EPA 625	GC-MS	NW
Pyridine	EPA 8270C	GC-MS	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Purgeable Organics	**Method**	**Technology**	NW
Acetone	EPA 5030B	PREP	NW
Acetone	EPA 8260B	GC-MS	NW
Acetone	EPA 8015 B	GC-FID	NW
Acetonitrile	EPA 8260B	GC-MS	NW
2-Butanone (Methylethyl ketone)	EPA 5030B	PREP	NW
2-Butanone (Methylethyl ketone)	EPA 8260B	GC-MS	NW
2-Butanone (Methylethyl ketone)	EPA 8015 B	GC-FID	NW
Carbon Disulfide	EPA 8260B	GC-MS	NW
Cyclohexane	EPA 8260B	GC-MS	NW
1,4-Dioxane	EPA 8260B	GC-MS	NW
Methyl acetate	EPA 8260B	GC-MS	NW
2-Hexanone	EPA 8260B	GC-MS	NW
Isobutyl alcohol	EPA 8260B	GC-MS	NW
Isobutyl alcohol	EPA 8015 B	GC-FID	NW
Methyl iodide	EPA 8260B	GC-MS	NW
4-Methyl-2-Pentanone	EPA 8260B	GC-MS	NW
o-Toluidine	EPA 8270C	GC-MS	NW
Vinyl acetate	EPA 5030B	PREP	NW
Vinyl acetate	EPA 8260B	GC-MS	NW
Semi-Volatile Organics	**Method**	**Technology**	NW
Acetophenone	EPA 8270C	GC-MS	NW
4-Amino biphenyl	EPA 8270C	GC-MS	NW
Benzoic Acid	EPA 8270C	GC-MS	NW
Benzyl alcohol	EPA 8270C	GC-MS	NW
Benzaldehyde	EPA 8270C	GC-MS	NW
1,1'-Biphenyl	EPA 8270C	GC-MS	NW
Caprolactam	EPA 8270C	GC-MS	NW
Dibenzofuran	EPA 3510C	PREP	NW
Dibenzofuran	EPA 3520C	PREP	NW
Dibenzofuran	EPA 8270C	GC-MS	NW
p-Dimethylaminoazobenzene	EPA 8270C	GC-MS	NW
Ethyl methanesulfonate	EPA 8270C	GC-MS	NW
Isosafrole	EPA 8270C	GC-MS	NW
Methyl cyclohexane	EPA 8270C	GC-MS	NW
Methyl methanesulfonate	EPA 8270C	GC-MS	NW
2-Methylnaphthalene	EPA 3510C	PREP	NW
2-Methylnaphthalene	EPA 3520C	PREP	NW
2-Methylnaphthalene	EPA 8270C	GC-MS	NW
Phenacetin	EPA 8270C	GC-MS	NW
Safrole	EPA 8270C	GC-MS	NW
O,O,O-Triethyl phosphorothioate	EPA 8270C	GC-MS	NW
Carbamate Pesticides	**Method**	**Technology**	NW
Aldicarb Sulfone	EPA 8318	HPLC-FLUOR	NW
Aldicarb	EPA 8318	HPLC-FLUOR	NW
Carbofuran	EPA 8318	HPLC-FLUOR	NW
Microextractables	**Method**	**Technology**	NW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
1,2-Dibromoethane	EPA 5030B	PREP	NW
1,2-Dibromoethane	EPA 8260B	GC-MS	NW
1,2-Dibromoethane	EPA 8011	GC-ECD	NW
1,2-Dibromo-3-chloropropane	EPA 5030B	PREP	NW
1,2-Dibromo-3-chloropropane	EPA 8260B	GC-MS	NW
1,2-Dibromo-3-chloropropane	EPA 8011	GC-ECD	NW
Fuel Oxygenates	**Method**	**Technology**	NW
Di-isopropyl ether	EPA 8260B	GC-MS	NW
Ethanol	EPA 8260B	GC-MS	NW
ethyl tert-butyl ether	EPA 8260B	GC-MS	NW
Methyl tert-butyl ether	EPA 5030B	PREP	NW
Methyl tert-butyl ether	EPA 8260B	GC-MS	NW
Methyl tert-butyl ether	EPA 8021B	GCELCD/PID	NW
tert-amyl alcohol	EPA 8260B	GC-MS	NW
tert-amyl methyl ether	EPA 8260B	GC-MS	NW
tert-Butyl alcohol	EPA 8260B	GC-MS	NW
tert-Butyl alcohol	EPA 8015 B	GC-FID	NW
PW			
Drinking Water Bacteriology	**Method**	**Technology**	
Coliform, Total / E. coli (Qualitative)	Colisure	CF-QL	PW
Coliform, Total / E. coli (Qualitative)	SM 18-20 9221D/40 CFR 141.21(F)6i	FB-PAF-QL	PW
Coliform, Total / E. coli (Qualitative)	SM 18-21 9223B (97) (Colilert)	CF-QL	PW
Standard Plate Count	SM 18-21 9215B	PP-QN	PW
Drinking Water Metals I	**Method**	**Technology**	PW
Arsenic, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Arsenic, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Barium, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Barium, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Cadmium, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Cadmium, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Chromium, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Chromium, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Copper, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Copper, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Iron, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Lead, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Lead, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Mercury, Total	EPA 245.1 Rev. 3.0	CVAAS	PW
Mercury, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Manganese, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Manganese, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Selenium, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Silver, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Silver, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Zinc, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Zinc, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Drinking Water Metals II	**Method**	**Technology**	PW
Aluminum, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Aluminum, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Antimony, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Antimony, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Beryllium, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Beryllium, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Molybdenum, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Molybdenum, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Nickel, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Nickel, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Thallium, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Vanadium, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Vanadium, Total	EPA 200.8 Rev. 5.4	ICP-MS	PW
Drinking Water Metals III	**Method**	**Technology**	PW
Boron, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Calcium, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Magnesium, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Potassium, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Sodium, Total	EPA 200.7 Rev. 4.4	ICP-AES	PW
Drinking Water Non-Metals	**Method**	**Technology**	PW
Alkalinity	SM 18-21 2320B (97)	TITR	PW
Chloride	EPA 300.0 Rev. 2.1	IC-COND	PW
Chloride	SM 18-20 4500-Cl- E (97)	COLOR	PW
Color	SM 18-21 2120B (01)	COLOR	PW
Corrosivity	SM 18-19 2330	99	PW
Specific Conductance	EPA 120.1 Rev. 1982	COND	PW
Specific Conductance	SM 18-21 2510B (97)	COND	PW
Cyanide, Free	SM 18-21 4500-CN E (99)	COLOR	PW
Cyanide, Total	SM 18-21 4500-CN E (99)	COLOR	PW
Fluoride, Total	EPA 300.0 Rev. 2.1	IC-COND	PW
Fluoride, Total	SM 18-21 4500-F C (97)	POT	PW
Calcium Hardness	EPA 200.7 Rev. 4.4	ICP-AES	PW
Hydrogen Ion (pH)	SM 18-21 4500-H B (00)	POT	PW
Nitrate (as N)	EPA 353.2 Rev. 2.0	COLOR	PW
Nitrate (as N)	EPA 300.0 Rev. 2.1	IC-COND	PW
Nitrite (as N)	EPA 353.2 Rev. 2.0	COLOR	PW
Nitrite (as N)	EPA 300.0 Rev. 2.1	IC-COND	PW
Orthophosphate (as P)	EPA 365.1 Rev. 2.0	COLOR	PW
Orthophosphate (as P)	EPA 300.0 Rev. 2.1	IC-COND	PW
Orthophosphate (as P)	SM 18-21 4500-P E	COLOR	PW
Silica, Dissolved	EPA 200.7 Rev. 4.4	ICP-AES	PW
Solids, Total Dissolved	SM 18-21 2540C (97)	GRAV	PW
Sulfate (as SO4)	EPA 300.0 Rev. 2.1	IC-COND	PW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Sulfate (as SO4)	SM 18-21 4500-SO4 E (97)	COLOR	PW
Drinking Water Chlorinated Acids	**Method**	**Technology**	PW
2,4-D	EPA 515.1	GC-ECD	PW
Dalapon	EPA 515.1	GC-ECD	PW
Dicamba	EPA 515.1	GC-ECD	PW
Dinoseb	EPA 515.1	GC-ECD	PW
Pentachlorophenol	EPA 515.1	GC-ECD	PW
Pentachlorophenol	EPA 525.2	GC-MS	PW
Picloram	EPA 515.1	GC-ECD	PW
2,4,5-TP (Silvex)	EPA 515.1	GC-ECD	PW
Drinking Water Organohalide Pesticides	**Method**	**Technology**	PW
Alachlor	EPA 505	GC-ECD	PW
Alachlor	EPA 508.1	GC-ECD	PW
Alachlor	EPA 525.2	GC-MS	PW
Aldrin	EPA 505	GC-ECD	PW
Aldrin	EPA 508.1	GC-ECD	PW
Aldrin	EPA 525.2	GC-MS	PW
Atrazine	EPA 505	GC-ECD	PW
Atrazine	EPA 525.2	GC-MS	PW
Chlordane Total	EPA 505	GC-ECD	PW
Chlordane Total	EPA 508.1	GC-ECD	PW
Chlordane Total	EPA 525.2	GC-MS	PW
Dieldrin	EPA 505	GC-ECD	PW
Dieldrin	EPA 508.1	GC-ECD	PW
Dieldrin	EPA 525.2	GC-MS	PW
Endrin	EPA 505	GC-ECD	PW
Endrin	EPA 508.1	GC-ECD	PW
Endrin	EPA 525.2	GC-MS	PW
Heptachlor	EPA 505	GC-ECD	PW
Heptachlor	EPA 508.1	GC-ECD	PW
Heptachlor	EPA 525.2	GC-MS	PW
Heptachlor epoxide	EPA 505	GC-ECD	PW
Heptachlor epoxide	EPA 508.1	GC-ECD	PW
Heptachlor epoxide	EPA 525.2	GC-MS	PW
Lindane	EPA 505	GC-ECD	PW
Lindane	EPA 508.1	GC-ECD	PW
Lindane	EPA 525.2	GC-MS	PW
Methoxychlor	EPA 505	GC-ECD	PW
Methoxychlor	EPA 508.1	GC-ECD	PW
Methoxychlor	EPA 525.2	GC-MS	PW
Metolachlor	EPA 525.2	GC-MS	PW
Metribuzin	EPA 525.2	GC-MS	PW
Simazine	EPA 505	GC-ECD	PW
Simazine	EPA 525.2	GC-MS	PW
Toxaphene	EPA 505	GC-ECD	PW
Toxaphene	EPA 508.1	GC-ECD	PW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
D. W. Methylcarbamate Pesticides	**Method**	**Technology**	PW
Aldicarb	EPA 531.1	HPLC-FLUOR	PW
Aldicarb Sulfone	EPA 531.1	HPLC-FLUOR	PW
Aldicarb Sulfoxide	EPA 531.1	HPLC-FLUOR	PW
Carbaryl	EPA 531.1	HPLC-FLUOR	PW
Carbofuran	EPA 531.1	HPLC-FLUOR	PW
3-Hydroxy Carbofuran	EPA 531.1	HPLC-FLUOR	PW
Methomyl	EPA 531.1	HPLC-FLUOR	PW
Oxamyl	EPA 531.1	HPLC-FLUOR	PW
Drinking Water Miscellaneous	**Method**	**Technology**	PW
Turbidity	EPA 180.1 Rev. 2.0	COLOR	PW
Benzo(a)pyrene	EPA 525.2	GC-MS	PW
Butachlor	EPA 525.2	GC-MS	PW
Di (2-ethylhexyl) adipate	EPA 525.2	GC-MS	PW
Bis(2-ethylhexyl) phthalate	EPA 525.2	GC-MS	PW
Diquat	EPA 549.2	HPLC-UV	PW
Endothall	EPA 548.1	GC-MS	PW
Glyphosate	EPA 547	HPLC-UV	PW
Hexachlorobenzene	EPA 505	GC-ECD	PW
Hexachlorobenzene	EPA 525.2	GC-MS	PW
Hexachlorocyclopentadiene	EPA 505	GC-ECD	PW
Hexachlorocyclopentadiene	EPA 525.2	GC-MS	PW
Methyl tert-butyl ether	EPA 524.2	GC-MS	PW
Methyl tert-butyl ether	EPA 502.2/ SEE ITEM 198.5	GC-PID	PW
Odor	EPA 140.1	99	PW
Organic Carbon, Total	SM 18-21 5310B (00)	IR	PW
Perchlorate	EPA 314.0	IC-COND	PW
Propachlor	EPA 525.2	GC-MS	PW
Temperature	SM 18-21 2550B (00)	99	PW
Surfactant (MBAS)	SM 18-21 5540C (00)	COLOR	PW
UV 254	SM 19-21 5910B	COLOR	PW
Polychlorinated Biphenyls	**Method**	**Technology**	PW
PCB Screen	EPA 505	GC-ECD	PW
PCB Screen	EPA 508.1	GC-ECD	PW
PCB Screen	EPA 525.2	GC-MS	PW
PCB,Total (as decachlorobiphenyl)	EPA 508A	GC-ECD	PW
Drinking Water Trihalomethanes	**Method**	**Technology**	PW
Bromodichloromethane	EPA 502.2	GCELCD/PID	PW
Bromodichloromethane	EPA 524.2	GC-MS	PW
Bromoform	EPA 502.2	GCELCD/PID	PW
Bromoform	EPA 524.2	GC-MS	PW
Dibromochloromethane	EPA 502.2	GCELCD/PID	PW
Dibromochloromethane	EPA 524.2	GC-MS	PW
Chloroform	EPA 502.2	GCELCD/PID	PW
Chloroform	EPA 524.2	GC-MS	PW
Total Trihalomethanes	EPA 502.2	GCELCD/PID	PW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Total Trihalomethanes	EPA 524.2	GC-MS	PW
Volatile Halocarbons	**Method**	**Technology**	PW
Bromochloromethane	EPA 502.2	GCELCD/PID	PW
Bromochloromethane	EPA 524.2	GC-MS	PW
Bromomethane	EPA 502.2	GCELCD/PID	PW
Bromomethane	EPA 524.2	GC-MS	PW
Carbon tetrachloride	EPA 502.2	GCELCD/PID	PW
Carbon tetrachloride	EPA 524.2	GC-MS	PW
Chloroethane	EPA 502.2	GCELCD/PID	PW
Chloroethane	EPA 524.2	GC-MS	PW
Chloromethane	EPA 502.2	GCELCD/PID	PW
Chloromethane	EPA 524.2	GC-MS	PW
Dibromomethane	EPA 502.2	GCELCD/PID	PW
Dibromomethane	EPA 524.2	GC-MS	PW
Dichlorodifluoromethane	EPA 502.2	GCELCD/PID	PW
Dichlorodifluoromethane	EPA 524.2	GC-MS	PW
1,1-Dichloroethane	EPA 502.2	GCELCD/PID	PW
1,1-Dichloroethane	EPA 524.2	GC-MS	PW
1,2-Dichloroethane	EPA 502.2	GCELCD/PID	PW
1,2-Dichloroethane	EPA 524.2	GC-MS	PW
1,1-Dichloroethene	EPA 502.2	GCELCD/PID	PW
1,1-Dichloroethene	EPA 524.2	GC-MS	PW
cis-1,2-Dichloroethene	EPA 502.2	GCELCD/PID	PW
cis-1,2-Dichloroethene	EPA 524.2	GC-MS	PW
trans-1,2-Dichloroethene	EPA 502.2	GCELCD/PID	PW
trans-1,2-Dichloroethene	EPA 524.2	GC-MS	PW
1,2-Dichloropropane	EPA 502.2	GCELCD/PID	PW
1,2-Dichloropropane	EPA 524.2	GC-MS	PW
1,3-Dichloropropane	EPA 502.2	GCELCD/PID	PW
1,3-Dichloropropane	EPA 524.2	GC-MS	PW
2,2-Dichloropropane	EPA 502.2	GCELCD/PID	PW
2,2-Dichloropropane	EPA 524.2	GC-MS	PW
1,1-Dichloropropene	EPA 502.2	GCELCD/PID	PW
1,1-Dichloropropene	EPA 524.2	GC-MS	PW
cis-1,3-Dichloropropene	EPA 502.2	GCELCD/PID	PW
cis-1,3-Dichloropropene	EPA 524.2	GC-MS	PW
trans-1,3-Dichloropropene	EPA 502.2	GCELCD/PID	PW
trans-1,3-Dichloropropene	EPA 524.2	GC-MS	PW
Methylene chloride	EPA 502.2	GCELCD/PID	PW
Methylene chloride	EPA 524.2	GC-MS	PW
1,1,1,2-Tetrachloroethane	EPA 502.2	GCELCD/PID	PW
1,1,1,2-Tetrachloroethane	EPA 524.2	GC-MS	PW
1,1,2,2-Tetrachloroethane	EPA 502.2	GCELCD/PID	PW
1,1,2,2-Tetrachloroethane	EPA 524.2	GC-MS	PW
Tetrachloroethene	EPA 502.2	GCELCD/PID	PW
Tetrachloroethene	EPA 524.2	GC-MS	PW
1,1,1-Trichloroethane	EPA 502.2	GCELCD/PID	PW
1,1,1-Trichloroethane	EPA 524.2	GC-MS	PW
1,1,2-Trichloroethane	EPA 502.2	GCELCD/PID	PW
1,1,2-Trichloroethane	EPA 524.2	GC-MS	PW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Trichloroethene	EPA 502.2	GCELCD/PID	PW
Trichloroethene	EPA 524.2	GC-MS	PW
Trichlorofluoromethane	EPA 502.2	GCELCD/PID	PW
Trichlorofluoromethane	EPA 524.2	GC-MS	PW
1,2,3-Trichloropropane	EPA 502.2	GCELCD/PID	PW
1,2,3-Trichloropropane	EPA 524.2	GC-MS	PW
Vinyl chloride	EPA 502.2	GCELCD/PID	PW
Vinyl chloride	EPA 524.2	GC-MS	PW
Volatile Aromatics	**Method**	**Technology**	PW
Benzene	EPA 502.2	GCELCD/PID	PW
Benzene	EPA 524.2	GC-MS	PW
Bromobenzene	EPA 502.2	GCELCD/PID	PW
Bromobenzene	EPA 524.2	GC-MS	PW
n-Butylbenzene	EPA 502.2	GCELCD/PID	PW
n-Butylbenzene	EPA 524.2	GC-MS	PW
sec-Butylbenzene	EPA 502.2	GCELCD/PID	PW
sec-Butylbenzene	EPA 524.2	GC-MS	PW
tert-Butylbenzene	EPA 502.2	GCELCD/PID	PW
tert-Butylbenzene	EPA 524.2	GC-MS	PW
Chlorobenzene	EPA 502.2	GCELCD/PID	PW
Chlorobenzene	EPA 524.2	GC-MS	PW
2-Chlorotoluene	EPA 502.2	GCELCD/PID	PW
2-Chlorotoluene	EPA 524.2	GC-MS	PW
4-Chlorotoluene	EPA 502.2	GCELCD/PID	PW
4-Chlorotoluene	EPA 524.2	GC-MS	PW
1,2-Dichlorobenzene	EPA 502.2	GCELCD/PID	PW
1,2-Dichlorobenzene	EPA 524.2	GC-MS	PW
1,3-Dichlorobenzene	EPA 502.2	GCELCD/PID	PW
1,3-Dichlorobenzene	EPA 524.2	GC-MS	PW
1,4-Dichlorobenzene	EPA 502.2	GCELCD/PID	PW
1,4-Dichlorobenzene	EPA 524.2	GC-MS	PW
Ethyl benzene	EPA 502.2	GCELCD/PID	PW
Ethyl benzene	EPA 524.2	GC-MS	PW
Hexachlorobutadiene	EPA 502.2	GCELCD/PID	PW
Hexachlorobutadiene	EPA 524.2	GC-MS	PW
Isopropylbenzene	EPA 502.2	GCELCD/PID	PW
Isopropylbenzene	EPA 524.2	GC-MS	PW
p-Isopropyltoluene (P-Cymene)	EPA 502.2	GCELCD/PID	PW
p-Isopropyltoluene (P-Cymene)	EPA 524.2	GC-MS	PW
n-Propylbenzene	EPA 502.2	GCELCD/PID	PW
n-Propylbenzene	EPA 524.2	GC-MS	PW
Styrene	EPA 502.2	GCELCD/PID	PW
Styrene	EPA 524.2	GC-MS	PW
Toluene	EPA 502.2	GCELCD/PID	PW
Toluene	EPA 524.2	GC-MS	PW
1,2,3-Trichlorobenzene	EPA 502.2	GCELCD/PID	PW
1,2,3-Trichlorobenzene	EPA 524.2	GC-MS	PW
1,2,4-Trichlorobenzene	EPA 502.2	GCELCD/PID	PW
1,2,4-Trichlorobenzene	EPA 524.2	GC-MS	PW
1,2,4-Trimethylbenzene	EPA 502.2	GCELCD/PID	PW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
1,2,4-Trimethylbenzene	EPA 524.2	GC-MS	PW
1,3,5-Trimethylbenzene	EPA 502.2	GCELCD/PID	PW
1,3,5-Trimethylbenzene	EPA 524.2	GC-MS	PW
Total Xylenes	EPA 502.2	GCELCD/PID	PW
Total Xylenes	EPA 524.2	GC-MS	PW
Microextractibles	**Method**	**Technology**	PW
1,2-Dibromoethane	EPA 504.1	GC-ECD	PW
1,2-Dibromo-3-chloropropane	EPA 504.1	GC-ECD	PW
Disinfection By-products	**Method**	**Technology**	PW
Total Residual Chlorine	SM 18-21 4500-Cl G (00)	COLOR	PW
Bromide	EPA 300.0 Rev. 2.1	IC-COND	PW
Dibromoacetic acid	EPA 552.2	GC-ECD	PW
Dichloroacetic acid	EPA 552.2	GC-ECD	PW
Monobromoacetic acid	EPA 552.2	GC-ECD	PW
Monochloroacetic acid	EPA 552.2	GC-ECD	PW
Trichloroacetic acid	EPA 552.2	GC-ECD	PW
Bromochloroacetic acid	EPA 552.2	GC-ECD	PW
AI			
Chlorinated Hydrocarbons	**Method**	**Technology**	
Hexachlorobutadiene	EPA TO-15	GC-MS	AI
Hexachloroethane	EPA TO-15	GC-MS	AI
1,2,4-Trichlorobenzene	EPA TO-15	GC-MS	AI
Metals I	**Method**	**Technology**	AI
Lead, Total	EPA 200.7 Rev. 4.4	ICP-AES	AI
Priority Pollutant Phenols	**Method**	**Technology**	AI
2-Chlorophenol	EPA 625	GC-MS	AI
Pentachlorophenol	EPA 625	GC-MS	AI
Phenol	EPA 625	GC-MS	AI
Metals II	**Method**	**Technology**	AI
Mercury, Total	EPA 245.1 Rev. 3.0	CVAAS	AI
Purgeable Halocarbons	**Method**	**Technology**	AI
Bromodichloromethane	EPA TO-15	GC-MS	AI
Bromoform	EPA TO-17	GC-MS	AI
Bromoform	EPA TO-15	GC-MS	AI
Bromomethane	EPA TO-15	GC-MS	AI
Carbon tetrachloride	EPA TO-1	GC-MS	AI
Carbon tetrachloride	EPA TO-2	GC-MS	AI
Carbon tetrachloride	EPA TO-15	GC-MS	AI
Chloroform	EPA TO-1	GC-MS	AI
Chloroform	EPA TO-2	GC-MS	AI

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Chloroform	EPA TO-15	GC-MS	AI
Chloroethane	EPA TO-15	GC-MS	AI
Chloromethane	EPA TO-17	GC-MS	AI
Chloromethane	EPA TO-15	GC-MS	AI
Dibromochloromethane	EPA TO-15	GC-MS	AI
Dichlorodifluoromethane	EPA TO-15	GC-MS	AI
1,2-Dibromoethane	EPA TO-15	GC-MS	AI
1,1-Dichloroethane	EPA TO-15	GC-MS	AI
1,2-Dichloroethane	EPA TO-1	GC-MS	AI
1,2-Dichloroethane	EPA TO-2	GC-MS	AI
1,2-Dichloroethane	EPA TO-15	GC-MS	AI
cis-1,2-Dichloroethene	EPA TO-17	GC-MS	AI
cis-1,2-Dichloroethene	EPA TO-15	GC-MS	AI
trans-1,2-Dichloroethene	EPA TO-17	GC-MS	AI
trans-1,2-Dichloroethene	EPA TO-15	GC-MS	AI
1,1-Dichloroethene	EPA TO-2	GC-MS	AI
1,1-Dichloroethene	EPA TO-15	GC-MS	AI
1,2-Dichloropropane	EPA TO-1	GC-MS	AI
1,2-Dichloropropane	EPA TO-15	GC-MS	AI
cis-1,3-Dichloropropene	EPA TO-17	GC-MS	AI
cis-1,3-Dichloropropene	EPA TO-15	GC-MS	AI
trans-1,3-Dichloropropene	EPA TO-17	GC-MS	AI
trans-1,3-Dichloropropene	EPA TO-15	GC-MS	AI
1,2-Dichloro-1,1,2,2-tetrafluoroethane	EPA TO-15	GC-MS	AI
Methylene chloride	EPA TO-2	GC-MS	AI
Methylene chloride	EPA TO-15	GC-MS	AI
1,1,2,2-Tetrachloroethane	EPA TO-15	GC-MS	AI
Tetrachloroethene	EPA TO-1	GC-MS	AI
Tetrachloroethene	EPA TO-15	GC-MS	AI
1,1,1-Trichloroethane	EPA TO-17	GC-MS	AI
1,1,1-Trichloroethane	EPA TO-15	GC-MS	AI
1,1,2-Trichloroethane	EPA TO-15	GC-MS	AI
Trichloroethene	EPA TO-15	GC-MS	AI
Trichlorofluoromethane	EPA TO-15	GC-MS	AI
1,1,2-Trifluoro-1,2,2-Trichloroethane	EPA TO-17	GC-MS	AI
Vinyl bromide	EPA TO-15	GC-MS	AI
Vinyl bromide	EPA TO-2	GC-MS	AI
Vinyl chloride	EPA TO-15	GC-MS	AI
Vinyl chloride			
Volatile Chlorinated Organics	**Method**	**Technology**	AI
Benzyl chloride	EPA TO-15	GC-MS	AI
Purgeable Aromatics	**Method**	**Technology**	AI
Benzene	EPA TO-1	GC-MS	AI
Benzene	EPA TO-2	GC-MS	AI
Benzene	EPA TO-15	GC-MS	AI
Chlorobenzene	EPA TO-15	GC-MS	AI
2-Chlorotoluene	EPA TO-15	GC-MS	AI
1,2-Dichlorobenzene	EPA TO-15	GC-MS	AI

ANALYTE	METHOD	TECHNOLOGY	MATRIX
1,4-Dichlorobenzene	EPA TO-15	GC-MS	AI
1,3-Dichlorobenzene	EPA TO-17	GC-MS	AI
1,3-Dichlorobenzene	EPA TO-15	GC-MS	AI
Ethyl benzene	EPA TO-1	GC-MS	AI
Ethyl benzene	EPA TO-15	GC-MS	AI
Isopropylbenzene	EPA TO-17	GC-MS	AI
Isopropylbenzene	EPA TO-15	GC-MS	AI
Toluene	EPA TO-1	GC-MS	AI
Toluene	EPA TO-2	GC-MS	AI
Toluene	EPA TO-15	GC-MS	AI
Total Xylenes	EPA TO-1	GC-MS	AI
Total Xylenes	EPA TO-15	GC-MS	AI
o-Xylene	EPA TO-15	GC-MS	AI
m/p-Xylenes	EPA TO-15	GC-MS	AI
1,2,4-Trimethylbenzene	EPA TO-15	GC-MS	AI
1,3,5-Trimethylbenzene	EPA TO-15	GC-MS	AI
Styrene	EPA TO-17	GC-MS	AI
Styrene	EPA TO-15	GC-MS	AI
Miscellaneous Air	**Method**	**Technology**	AI
Volatile Organics	**Method**	**Technology**	AI
Acetone	EPA TO-15	GC-MS	AI
1,3-Butadiene	EPA TO-15	GC-MS	AI
2-Butanone (Methylethyl ketone)	EPA TO-17	GC-MS	AI
2-Butanone (Methylethyl ketone)	EPA TO-15	GC-MS	AI
Carbon Disulfide	EPA TO-17	GC-MS	AI
Carbon Disulfide	EPA TO-15	GC-MS	AI
Cyclohexane	EPA TO-15	GC-MS	AI
1,4-Dioxane	EPA TO-17	GC-MS	AI
1,4-Dioxane	EPA TO-15	GC-MS	AI
Hexane	EPA TO-15	GC-MS	AI
n-Heptane	EPA TO-15	GC-MS	AI
Isopropanol	EPA TO-15	GC-MS	AI
4-Methyl-2-Pentanone	EPA TO-17	GC-MS	AI
4-Methyl-2-Pentanone	EPA TO-15	GC-MS	AI
Methyl tert-butyl ether	EPA TO-17	GC-MS	AI
Methyl tert-butyl ether	EPA TO-15	GC-MS	AI
tert-Butyl alcohol	EPA TO-15	GC-MS	AI
2,2,4-Trimethylpentane	EPA TO-15	GC-MS	AI
Vinyl acetate	EPA TO-17	GC-MS	AI
Vinyl acetate	EPA TO-15	GC-MS	AI
Acrylates	**Method**	**Technology**	AI
Acrylonitrile	EPA TO-15	GC-MS	AI
SW			

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Characteristic Testing	**Method**	**Technology**	
Ignitability	EPA 1010	99	SW
Corrosivity	EPA 1110	GRAV	SW
Corrosivity	EPA 9045C	POT	SW
Corrosivity	EPA 9040B	POT	SW
Reactivity	SW-846 Ch7 Sec. 7.3	TITR	SW
TCLP	EPA 1311	PREP	SW
Metals I	**Method**	**Technology**	SW
Barium, Total	EPA 3010A	PREP	SW
Barium, Total	EPA 3005A	PREP	SW
Barium, Total	EPA 3050B	PREP	SW
Barium, Total	EPA 6010B	ICP-AES	SW
Barium, Total	EPA 6020	ICP-MS	SW
Cadmium, Total	EPA 3010A	PREP	SW
Cadmium, Total	EPA 3005A	PREP	SW
Cadmium, Total	EPA 3050B	PREP	SW
Cadmium, Total	EPA 6010B	ICP-AES	SW
Cadmium, Total	EPA 6020	ICP-MS	SW
Calcium, Total	EPA 3010A	PREP	SW
Calcium, Total	EPA 3005A	PREP	SW
Calcium, Total	EPA 3050B	PREP	SW
Calcium, Total	EPA 6010B	ICP-AES	SW
Chromium, Total	EPA 3010A	PREP	SW
Chromium, Total	EPA 3005A	PREP	SW
Chromium, Total	EPA 3050B	PREP	SW
Chromium, Total	EPA 6010B	ICP-AES	SW
Chromium, Total	EPA 6020	ICP-MS	SW
Copper, Total	EPA 3010A	PREP	SW
Copper, Total	EPA 3005A	PREP	SW
Copper, Total	EPA 3050B	PREP	SW
Copper, Total	EPA 6010B	ICP-AES	SW
Copper, Total	EPA 6020	ICP-MS	SW
Iron, Total	EPA 6010B	ICP-AES	SW
Lead, Total	EPA 3010A	PREP	SW
Lead, Total	EPA 3005A	PREP	SW
Lead, Total	EPA 3050B	PREP	SW
Lead, Total	EPA 6010B	ICP-AES	SW
Lead, Total	EPA 6020	ICP-MS	SW
Nickel, Total	EPA 3010A	PREP	SW
Nickel, Total	EPA 3005A	PREP	SW
Nickel, Total	EPA 3050B	PREP	SW
Nickel, Total	EPA 6010B	ICP-AES	SW
Nickel, Total	EPA 6020	ICP-MS	SW
Magnesium, Total	EPA 3010A	PREP	SW
Magnesium, Total	EPA 3005A	PREP	SW
Magnesium, Total	EPA 3050B	PREP	SW
Magnesium, Total	EPA 6010B	ICP-AES	SW
Manganese, Total	EPA 3010A	PREP	SW
Manganese, Total	EPA 3005A	PREP	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Manganese, Total	EPA 3050B	PREP	SW
Manganese, Total	EPA 6010B	ICP-AES	SW
Manganese, Total	EPA 6020	ICP-MS	SW
Potassium, Total	EPA 3010A	PREP	SW
Potassium, Total	EPA 3005A	PREP	SW
Potassium, Total	EPA 3050B	PREP	SW
Potassium, Total	EPA 6010B	ICP-AES	SW
Silver, Total	EPA 3005A	PREP	SW
Silver, Total	EPA 3050B	PREP	SW
Silver, Total	EPA 6010B	ICP-AES	SW
Silver, Total	EPA 6020	ICP-MS	SW
Sodium, Total	EPA 3050B	PREP	SW
Sodium, Total	EPA 6010B	ICP-AES	SW
Strontium, Total	EPA 3010A	PREP	SW
Strontium, Total	EPA 3005A	PREP	SW
Strontium, Total	EPA 3050B	PREP	SW
Strontium, Total	EPA 6010B	ICP-AES	SW
Metals II	**Method**	**Technology**	SW
Aluminum, Total	EPA 3010A	PREP	SW
Aluminum, Total	EPA 3005A	PREP	SW
Aluminum, Total	EPA 3050B	PREP	SW
Aluminum, Total	EPA 6010B	ICP-AES	SW
Aluminum, Total	EPA 6020	ICP-MS	SW
Antimony, Total	EPA 3005A	PREP	SW
Antimony, Total	EPA 3050B	PREP	SW
Antimony, Total	EPA 6010B	ICP-AES	SW
Antimony, Total	EPA 6020	ICP-MS	SW
Arsenic, Total	EPA 3010A	PREP	SW
Arsenic, Total	EPA 3005A	PREP	SW
Arsenic, Total	EPA 3050B	PREP	SW
Arsenic, Total	EPA 6010B	ICP-AES	SW
Arsenic, Total	EPA 6020	ICP-MS	SW
Beryllium, Total	EPA 3010A	PREP	SW
Beryllium, Total	EPA 3005A	PREP	SW
Beryllium, Total	EPA 3050B	PREP	SW
Beryllium, Total	EPA 6010B	ICP-AES	SW
Beryllium, Total	EPA 6020	ICP-MS	SW
Chromium VI	EPA 7196A	COLOR	SW
Chromium VI	EPA 3060A	PREP	SW
Lithium, Total	EPA 3010A	PREP	SW
Lithium, Total	EPA 3005A	PREP	SW
Lithium, Total	EPA 3050B	PREP	SW
Mercury, Total	EPA 7471A	CVAAS	SW
Selenium, Total	EPA 3010A	PREP	SW
Selenium, Total	EPA 3005A	PREP	SW
Selenium, Total	EPA 3050B	PREP	SW
Selenium, Total	EPA 6010B	ICP-AES	SW
Selenium, Total	EPA 6020	ICP-MS	SW
Vanadium, Total	EPA 3010A	PREP	SW
Vanadium, Total	EPA 3005A	PREP	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Vanadium, Total	EPA 3050B	PREP	SW
Vanadium, Total	EPA 6010B	ICP-AES	SW
Vanadium, Total	EPA 6020	ICP-MS	SW
Zinc, Total	EPA 3010A	PREP	SW
Zinc, Total	EPA 3005A	PREP	SW
Zinc, Total	EPA 3050B	PREP	SW
Zinc, Total	EPA 6010B	ICP-AES	SW
Zinc, Total	EPA 6020	ICP-MS	SW
Metals III	**Method**	**Technology**	SW
Cobalt, Total	EPA 3010A	PREP	SW
Cobalt, Total	EPA 3005A	PREP	SW
Cobalt, Total	EPA 3050B	PREP	SW
Cobalt, Total	EPA 6010B	ICP-AES	SW
Cobalt, Total	EPA 6020	ICP-MS	SW
Molybdenum, Total	EPA 3010A	PREP	SW
Molybdenum, Total	EPA 3005A	PREP	SW
Molybdenum, Total	EPA 3050B	PREP	SW
Molybdenum, Total	EPA 6010B	ICP-AES	SW
Molybdenum, Total	EPA 6020	ICP-MS	SW
Thallium, Total	EPA 3010A	PREP	SW
Thallium, Total	EPA 3005A	PREP	SW
Thallium, Total	EPA 3050B	PREP	SW
Thallium, Total	EPA 6010B	ICP-AES	SW
Thallium, Total	EPA 6020	ICP-MS	SW
Tin, Total	EPA 3010A	PREP	SW
Tin, Total	EPA 3005A	PREP	SW
Tin, Total	EPA 3050B	PREP	SW
Tin, Total	EPA 6010B	ICP-AES	SW
Titanium, Total	EPA 3010A	PREP	SW
Titanium, Total	EPA 3005A	PREP	SW
Titanium, Total	EPA 3050B	PREP	SW
Silica, Dissolved	EPA 6010B	ICP-AES	SW
Acrylates	**Method**	**Technology**	SW
Acrolein (Propenal)	EPA 5030B	PREP	SW
Acrolein (Propenal)	EPA 8260B	GC-MS	SW
Acrolein (Propenal)	EPA 5035	PREP	SW
Acrylonitrile	EPA 5030B	PREP	SW
Acrylonitrile	EPA 8260B	GC-MS	SW
Acrylonitrile	EPA 5035	PREP	SW
Ethyl methacrylate	EPA 8260B	GC-MS	SW
Methyl acrylonitrile	EPA 8260B	GC-MS	SW
Methyl methacrylate	EPA 8260B	GC-MS	SW
Chlorinated Hydrocarbons	**Method**	**Technology**	SW
1-Chloronaphthalene	EPA 8270C	GC-MS	SW
2-Chloronaphthalene	EPA 3550B	PREP	SW
2-Chloronaphthalene	EPA 3545	PREP	SW
2-Chloronaphthalene	EPA 8121	GC-ECD	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
2-Chloronaphthalene	EPA 8270C	GC-MS	SW
Hexachlorobenzene	EPA 3550B	PREP	SW
Hexachlorobenzene	EPA 3545	PREP	SW
Hexachlorobenzene	EPA 8121	GC-ECD	SW
Hexachlorobenzene	EPA 8270C	GC-MS	SW
Hexachlorobutadiene	EPA 3550B	PREP	SW
Hexachlorobutadiene	EPA 3545	PREP	SW
Hexachlorobutadiene	EPA 8260B	GC-MS	SW
Hexachlorobutadiene	EPA 8121	GC-ECD	SW
Hexachlorobutadiene	EPA 8270C	GC-MS	SW
Hexachlorocyclopentadiene	EPA 3550B	PREP	SW
Hexachlorocyclopentadiene	EPA 3545	PREP	SW
Hexachlorocyclopentadiene	EPA 8121	GC-ECD	SW
Hexachlorocyclopentadiene	EPA 8270C	GC-MS	SW
Hexachloroethane	EPA 3550B	PREP	SW
Hexachloroethane	EPA 3545	PREP	SW
Hexachloroethane	EPA 8121	GC-ECD	SW
Hexachloroethane	EPA 8270C	GC-MS	SW
Hexachloropropene	EPA 8270C	GC-MS	SW
Pentachlorobenzene	EPA 8270C	GC-MS	SW
1,2,4,5-Tetrachlorobenzene	EPA 8270C	GC-MS	SW
1,2,4-Trichlorobenzene	EPA 3550B	PREP	SW
1,2,4-Trichlorobenzene	EPA 3545	PREP	SW
1,2,4-Trichlorobenzene	EPA 8260B	GC-MS	SW
1,2,4-Trichlorobenzene	EPA 8121	GC-ECD	SW
1,2,4-Trichlorobenzene	EPA 8270C	GC-MS	SW
Haloethers	**Method**	**Technology**	SW
Bis(2-chloroethyl)ether	EPA 8270C	GC-MS	SW
Bis(2-chloroethoxy)methane	EPA 3550B	PREP	SW
Bis(2-chloroethoxy)methane	EPA 3545	PREP	SW
Bis(2-chloroethoxy)methane	EPA 8270C	GC-MS	SW
Bis (2-chloroisopropyl) ether	EPA 3550B	PREP	SW
Bis (2-chloroisopropyl) ether	EPA 3545	PREP	SW
Bis (2-chloroisopropyl) ether	EPA 8270C	GC-MS	SW
4-Bromophenylphenyl ether	EPA 3550B	PREP	SW
4-Bromophenylphenyl ether	EPA 3545	PREP	SW
4-Bromophenylphenyl ether	EPA 8270C	GC-MS	SW
4-Chlorophenylphenyl ether	EPA 3550B	PREP	SW
4-Chlorophenylphenyl ether	EPA 3545	PREP	SW
4-Chlorophenylphenyl ether	EPA 8270C	GC-MS	SW
Nitroaromatics and Isophorone	**Method**	**Technology**	SW
2,4-Dinitrotoluene	EPA 3550B	PREP	SW
2,4-Dinitrotoluene	EPA 3545	PREP	SW
2,4-Dinitrotoluene	EPA 8270C	GC-MS	SW
2,6-Dinitrotoluene	EPA 3550B	PREP	SW
2,6-Dinitrotoluene	EPA 3545	PREP	SW
2,6-Dinitrotoluene	EPA 8270C	GC-MS	SW
Isophorone	EPA 3550B	PREP	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Isophorone	EPA 3545	PREP	SW
Isophorone	EPA 8270C	GC-MS	SW
1,4-Naphthoquinone	EPA 8270C	GC-MS	SW
Nitrobenzene	EPA 3550B	PREP	SW
Nitrobenzene	EPA 3545	PREP	SW
Nitrobenzene	EPA 8270C	GC-MS	SW
Pyridine	EPA 8270C	GC-MS	SW
Phthalate Esters	**Method**	**Technology**	SW
Benzyl butyl phthalate	EPA 3550B	PREP	SW
Benzyl butyl phthalate	EPA 3545	PREP	SW
Benzyl butyl phthalate	EPA 8270C	GC-MS	SW
Bis(2-ethylhexyl) phthalate	EPA 3550B	PREP	SW
Bis(2-ethylhexyl) phthalate	EPA 3545	PREP	SW
Bis(2-ethylhexyl) phthalate	EPA 8270C	GC-MS	SW
Diethyl phthalate	EPA 3550B	PREP	SW
Diethyl phthalate	EPA 3545	PREP	SW
Diethyl phthalate	EPA 8270C	GC-MS	SW
Dimethyl phthalate	EPA 3550B	PREP	SW
Dimethyl phthalate	EPA 3545	PREP	SW
Dimethyl phthalate	EPA 8270C	GC-MS	SW
Di-n-butyl phthalate	EPA 3550B	PREP	SW
Di-n-butyl phthalate	EPA 3545	PREP	SW
Di-n-butyl phthalate	EPA 8270C	GC-MS	SW
Di-n-octyl phthalate	EPA 3550B	PREP	SW
Di-n-octyl phthalate	EPA 3545	PREP	SW
Di-n-octyl phthalate	EPA 8270C	GC-MS	SW
Polychlorinated Biphenyls	**Method**	**Technology**	SW
PCB-1016	EPA 3550B	PREP	SW
PCB-1016	EPA 3545	PREP	SW
PCB-1016	EPA 8082	GC-ECD	SW
PCB-1221	EPA 3550B	PREP	SW
PCB-1221	EPA 3545	PREP	SW
PCB-1221	EPA 8082	GC-ECD	SW
PCB-1232	EPA 3550B	PREP	SW
PCB-1232	EPA 3545	PREP	SW
PCB-1232	EPA 8082	GC-ECD	SW
PCB-1242	EPA 3550B	PREP	SW
PCB-1242	EPA 3545	PREP	SW
PCB-1242	EPA 8082	GC-ECD	SW
PCB-1248	EPA 3550B	PREP	SW
PCB-1248	EPA 3545	PREP	SW
PCB-1248	EPA 8082	GC-ECD	SW
PCB-1254	EPA 3550B	PREP	SW
PCB-1254	EPA 3545	PREP	SW
PCB-1254	EPA 8082	GC-ECD	SW
PCB-1260	EPA 3550B	PREP	SW
PCB-1260	EPA 3545	PREP	SW
PCB-1260	EPA 8082	GC-ECD	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
PCB-1262	EPA 8082	GC-ECD	SW
PCB-1268	EPA 8082	GC-ECD	SW
Polynuclear Aromatic Hydrocarbons	**Method**	**Technology**	SW
Acenaphthene	EPA 3550B	PREP	SW
Acenaphthene	EPA 3545	PREP	SW
Acenaphthene	EPA 8270C	GC-MS	SW
Anthracene	EPA 3550B	PREP	SW
Anthracene	EPA 3545	PREP	SW
Anthracene	EPA 8270C	GC-MS	SW
Acenaphthylene	EPA 3550B	PREP	SW
Acenaphthylene	EPA 3545	PREP	SW
Acenaphthylene	EPA 8270C	GC-MS	SW
Benzo(a)anthracene	EPA 3550B	PREP	SW
Benzo(a)anthracene	EPA 3545	PREP	SW
Benzo(a)anthracene	EPA 8270C	GC-MS	SW
Benzo(a)pyrene	EPA 3550B	PREP	SW
Benzo(a)pyrene	EPA 3545	PREP	SW
Benzo(a)pyrene	EPA 8270C	GC-MS	SW
Benzo(b)fluoranthene	EPA 3550B	PREP	SW
Benzo(b)fluoranthene	EPA 3545	PREP	SW
Benzo(b)fluoranthene	EPA 8270C	GC-MS	SW
Benzo(ghi)perylene	EPA 3550B	PREP	SW
Benzo(ghi)perylene	EPA 3545	PREP	SW
Benzo(ghi)perylene	EPA 8270C	GC-MS	SW
Benzo(k)fluoranthene	EPA 3550B	PREP	SW
Benzo(k)fluoranthene	EPA 3545	PREP	SW
Benzo(k)fluoranthene	EPA 8270C	GC-MS	SW
Chrysene	EPA 3550B	PREP	SW
Chrysene	EPA 3545	PREP	SW
Chrysene	EPA 8270C	GC-MS	SW
Dibenzo(a,h)anthracene	EPA 3550B	PREP	SW
Dibenzo(a,h)anthracene	EPA 3545	PREP	SW
Dibenzo(a,h)anthracene	EPA 8270C	GC-MS	SW
7,12-Dimethylbenzyl (a) anthracene	EPA 8270C	GC-MS	SW
Fluoranthene	EPA 3550B	PREP	SW
Fluoranthene	EPA 3545	PREP	SW
Fluoranthene	EPA 8270C	GC-MS	SW
Fluorene	EPA 3550B	PREP	SW
Fluorene	EPA 3545	PREP	SW
Fluorene	EPA 8270C	GC-MS	SW
Indeno(1,2,3-cd)pyrene	EPA 3550B	PREP	SW
Indeno(1,2,3-cd)pyrene	EPA 3545	PREP	SW
Indeno(1,2,3-cd)pyrene	EPA 8270C	GC-MS	SW
3-Methylcholanthrene	EPA 8270C	GC-MS	SW
Naphthalene	EPA 3550B	PREP	SW
Naphthalene	EPA 3545	PREP	SW
Naphthalene	EPA 8260B	GC-MS	SW
Naphthalene	EPA 8270C	GC-MS	SW
Phenanthrene	EPA 3550B	PREP	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Phenanthrene	EPA 3545	PREP	SW
Phenanthrene	EPA 8270C	GC-MS	SW
Pyrene	EPA 3550B	PREP	SW
Pyrene	EPA 3545	PREP	SW
Pyrene	EPA 8270C	GC-MS	SW
Low Level Polynuclear Aromatic Hydrocarbons	**Method**	**Technology**	SW
Acenaphthylene	EPA 8270-SIM	GC-MS	SW
Acenaphthene	EPA 8270-SIM	GC-MS	SW
Anthracene	EPA 8270-SIM	GC-MS	SW
Benzo(a)anthracene	EPA 8270-SIM	GC-MS	SW
Benzo(b)fluoranthene	EPA 8270-SIM	GC-MS	SW
Benzo(k)fluoroanthene	EPA 8270-SIM	GC-MS	SW
Benzo(g,h,i)perylene	EPA 8270-SIM	GC-MS	SW
Benzo(a)pyrene	EPA 8270-SIM	GC-MS	SW
Chrysene	EPA 8270-SIM	GC-MS	SW
Dibenzo(a,h)anthracene	EPA 8270-SIM	GC-MS	SW
Fluoranthene	EPA 8270-SIM	GC-MS	SW
Fluorene	EPA 8270-SIM	GC-MS	SW
Indeno(1,2,3-cd)pyrene	EPA 8270-SIM	GC-MS	SW
Naphthalene	EPA 8270-SIM	GC-MS	SW
Phenanthrene	EPA 8270-SIM	GC-MS	SW
Pyrene	EPA 8270-SIM	GC-MS	SW
Priority Pollutant Phenols	**Method**	**Technology**	SW
4-Chloro-3-methylphenol	EPA 3550B	PREP	SW
4-Chloro-3-methylphenol	EPA 3545	PREP	SW
4-Chloro-3-methylphenol	EPA 8270C	GC-MS	SW
2-Chlorophenol	EPA 3550B	PREP	SW
2-Chlorophenol	EPA 3545	PREP	SW
2-Chlorophenol	EPA 8270C	GC-MS	SW
2,4-Dichlorophenol	EPA 3550B	PREP	SW
2,4-Dichlorophenol	EPA 3545	PREP	SW
2,4-Dichlorophenol	EPA 8270C	GC-MS	SW
2,6-Dichlorophenol	EPA 8270C	GC-MS	SW
2,4-Dimethylphenol	EPA 3550B	PREP	SW
2,4-Dimethylphenol	EPA 3545	PREP	SW
2,4-Dimethylphenol	EPA 8270C	GC-MS	SW
2,4-Dinitrophenol	EPA 3550B	PREP	SW
2,4-Dinitrophenol	EPA 3545	PREP	SW
2,4-Dinitrophenol	EPA 8270C	GC-MS	SW
2-Methylphenol	EPA 3550B	PREP	SW
2-Methylphenol	EPA 3545	PREP	SW
2-Methylphenol	EPA 8270C	GC-MS	SW
3-Methylphenol	EPA 8270C	GC-MS	SW
4-Methylphenol	EPA 8270C	GC-MS	SW
2-Methyl-4,6-dinitrophenol	EPA 3550B	PREP	SW
2-Methyl-4,6-dinitrophenol	EPA 3545	PREP	SW
2-Methyl-4,6-dinitrophenol	EPA 8270C	GC-MS	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
2-Nitrophenol	EPA 3550B	PREP	SW
2-Nitrophenol	EPA 3545	PREP	SW
2-Nitrophenol	EPA 8270C	GC-MS	SW
4-Nitrophenol	EPA 3550B	PREP	SW
4-Nitrophenol	EPA 3545	PREP	SW
4-Nitrophenol	EPA 8270C	GC-MS	SW
Pentachlorophenol	EPA 3550B	PREP	SW
Pentachlorophenol	EPA 3545	PREP	SW
Pentachlorophenol	EPA 8270C	GC-MS	SW
Phenol	EPA 3550B	PREP	SW
Phenol	EPA 3545	PREP	SW
Phenol	EPA 8270C	GC-MS	SW
2,3,4,6 Tetrachlorophenol	EPA 8270C	GC-MS	SW
2,4,6-Trichlorophenol	EPA 3550B	PREP	SW
2,4,6-Trichlorophenol	EPA 3545	PREP	SW
2,4,6-Trichlorophenol	EPA 8270C	GC-MS	SW
2,4,5-Trichlorophenol	EPA 3550B	PREP	SW
2,4,5-Trichlorophenol	EPA 3545	PREP	SW
2,4,5-Trichlorophenol	EPA 8270C	GC-MS	SW
Purgeable Aromatics	**Method**	**Technology**	SW
Benzene	EPA 5030B	PREP	SW
Benzene	EPA 8260B	GC-MS	SW
Benzene	EPA 8021B	GCELCD/PID	SW
Benzene	EPA 5035	PREP	SW
Benzene	EPA 3585	PREP	SW
n-Butylbenzene	EPA 5030B	PREP	SW
n-Butylbenzene	EPA 8260B	GC-MS	SW
n-Butylbenzene	EPA 5035	PREP	SW
sec-Butylbenzene	EPA 5030B	PREP	SW
sec-Butylbenzene	EPA 8260B	GC-MS	SW
sec-Butylbenzene	EPA 5035	PREP	SW
tert-Butylbenzene	EPA 5030B	PREP	SW
tert-Butylbenzene	EPA 8260B	GC-MS	SW
tert-Butylbenzene	EPA 5035	PREP	SW
Bromobenzene	EPA 5030B	PREP	SW
Bromobenzene	EPA 8260B	GC-MS	SW
Bromobenzene	EPA 5035	PREP	SW
Chlorobenzene	EPA 5030B	PREP	SW
Chlorobenzene	EPA 8260B	GC-MS	SW
Chlorobenzene	EPA 8021B	GCELCD/PID	SW
Chlorobenzene	EPA 5035	PREP	SW
Chlorobenzene	EPA 3585	PREP	SW
2-Chlorotoluene	EPA 8260B	GC-MS	SW
4-Chlorotoluene	EPA 8260B	GC-MS	SW
1,2-Dichlorobenzene	EPA 5030B	PREP	SW
1,2-Dichlorobenzene	EPA 8260B	GC-MS	SW
1,2-Dichlorobenzene	EPA 8021B	GCELCD/PID	SW
1,2-Dichlorobenzene	EPA 5035	PREP	SW
1,2-Dichlorobenzene	EPA 3585	PREP	SW
1,2-Dichlorobenzene	EPA 8270C	GC-MS	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
1,3-Dichlorobenzene	EPA 5030B	PREP	SW
1,3-Dichlorobenzene	EPA 8260B	GC-MS	SW
1,3-Dichlorobenzene	EPA 8021B	GCELCD/PID	SW
1,3-Dichlorobenzene	EPA 5035	PREP	SW
1,3-Dichlorobenzene	EPA 3585	PREP	SW
1,3-Dichlorobenzene	EPA 8270C	GC-MS	SW
1,4-Dichlorobenzene	EPA 5030B	PREP	SW
1,4-Dichlorobenzene	EPA 8260B	GC-MS	SW
1,4-Dichlorobenzene	EPA 8021B	GCELCD/PID	SW
1,4-Dichlorobenzene	EPA 5035	PREP	SW
1,4-Dichlorobenzene	EPA 3585	PREP	SW
1,4-Dichlorobenzene	EPA 8270C	GC-MS	SW
Ethyl benzene	EPA 5030B	PREP	SW
Ethyl benzene	EPA 8260B	GC-MS	SW
Ethyl benzene	EPA 8021B	GCELCD/PID	SW
Ethyl benzene	EPA 5035	PREP	SW
Ethyl benzene	EPA 3585	PREP	SW
Isopropylbenzene	EPA 5030B	PREP	SW
Isopropylbenzene	EPA 8260B	GC-MS	SW
Isopropylbenzene	EPA 5035	PREP	SW
p-Isopropyltoluene (P-Cymene)	EPA 5030B	PREP	SW
p-Isopropyltoluene (P-Cymene)	EPA 8260B	GC-MS	SW
p-Isopropyltoluene (P-Cymene)	EPA 8021B	GCELCD/PID	SW
p-Isopropyltoluene (P-Cymene)	EPA 5035	PREP	SW
n-Propylbenzene	EPA 5030B	PREP	SW
n-Propylbenzene	EPA 8260B	GC-MS	SW
n-Propylbenzene	EPA 8021B	GCELCD/PID	SW
n-Propylbenzene	EPA 5035	PREP	SW
Toluene	EPA 5030B	PREP	SW
Toluene	EPA 8260B	GC-MS	SW
Toluene	EPA 8021B	GCELCD/PID	SW
Toluene	EPA 5035	PREP	SW
Toluene	EPA 3585	PREP	SW
Total Xylenes	EPA 5030B	PREP	SW
Total Xylenes	EPA 8260B	GC-MS	SW
Total Xylenes	EPA 8021B	GCELCD/PID	SW
Total Xylenes	EPA 5035	PREP	SW
Total Xylenes	EPA 3585	PREP	SW
1,2,4-Trimethylbenzene	EPA 8260B	GC-MS	SW
1,3,5-Trimethylbenzene	EPA 8260B	GC-MS	SW
Styrene	EPA 5030B	PREP	SW
Styrene	EPA 8260B	GC-MS	SW
Styrene	EPA 5035	PREP	SW
Purgeable Halocarbons	**Method**	**Technology**	SW
Bromochloromethane	EPA 5030B	PREP	SW
Bromochloromethane	EPA 8260B	GC-MS	SW
Bromochloromethane	EPA 5035	PREP	SW
Bromodichloromethane	EPA 5030B	PREP	SW
Bromodichloromethane	EPA 8260B	GC-MS	SW
Bromodichloromethane	EPA 8021B	GCELCD/PID	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Bromodichloromethane	EPA 5035	PREP	SW
Bromodichloromethane	EPA 3585	PREP	SW
Bromoform	EPA 5030B	PREP	SW
Bromoform	EPA 8260B	GC-MS	SW
Bromoform	EPA 8021B	GCELCD/PID	SW
Bromoform	EPA 5035	PREP	SW
Bromoform	EPA 3585	PREP	SW
Bromomethane	EPA 5030B	PREP	SW
Bromomethane	EPA 8260B	GC-MS	SW
Bromomethane	EPA 8021B	GCELCD/PID	SW
Bromomethane	EPA 5035	PREP	SW
Carbon tetrachloride	EPA 5030B	PREP	SW
Carbon tetrachloride	EPA 8260B	GC-MS	SW
Carbon tetrachloride	EPA 8021B	GCELCD/PID	SW
Carbon tetrachloride	EPA 5035	PREP	SW
Carbon tetrachloride	EPA 3585	PREP	SW
Chloroethane	EPA 5030B	PREP	SW
Chloroethane	EPA 8260B	GC-MS	SW
Chloroethane	EPA 8021B	GCELCD/PID	SW
Chloroethane	EPA 5035	PREP	SW
2-Chloro-1,3-butadiene (Chloroprene)	EPA 5030B	PREP	SW
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B	GC-MS	SW
2-Chloro-1,3-butadiene (Chloroprene)	EPA 5035	PREP	SW
2-Chloroethylvinyl ether	EPA 5030B	PREP	SW
2-Chloroethylvinyl ether	EPA 8260B	GC-MS	SW
2-Chloroethylvinyl ether	EPA 8021B	GCELCD/PID	SW
2-Chloroethylvinyl ether	EPA 5035	PREP	SW
Chloroform	EPA 5030B	PREP	SW
Chloroform	EPA 8260B	GC-MS	SW
Chloroform	EPA 8021B	GCELCD/PID	SW
Chloroform	EPA 5035	PREP	SW
Chloroform	EPA 3585	PREP	SW
Chloromethane	EPA 5030B	PREP	SW
Chloromethane	EPA 8260B	GC-MS	SW
Chloromethane	EPA 8021B	GCELCD/PID	SW
Chloromethane	EPA 5035	PREP	SW
1,2-Dibromo-3-chloropropane	EPA 5030B	PREP	SW
1,2-Dibromo-3-chloropropane	EPA 8260B	GC-MS	SW
1,2-Dibromo-3-chloropropane	EPA 5035	PREP	SW
1,2-Dibromoethane	EPA 5030B	PREP	SW
1,2-Dibromoethane	EPA 8260B	GC-MS	SW
1,2-Dibromoethane	EPA 5035	PREP	SW
3-Chloropropene (Allyl chloride)	EPA 8260B	GC-MS	SW
3-Chloropropene (Allyl chloride)	EPA 5035	PREP	SW
cis-1,3-Dichloropropene	EPA 5030B	PREP	SW
cis-1,3-Dichloropropene	EPA 8260B	GC-MS	SW
cis-1,3-Dichloropropene	EPA 8021B	GCELCD/PID	SW
cis-1,3-Dichloropropene	EPA 5035	PREP	SW
trans-1,3-Dichloropropene	EPA 5030B	PREP	SW
trans-1,3-Dichloropropene	EPA 8260B	GC-MS	SW
trans-1,3-Dichloropropene	EPA 8021B	GCELCD/PID	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
trans-1,3-Dichloropropene	EPA 5035	PREP	SW
Dibromochloromethane	EPA 5030B	PREP	SW
Dibromochloromethane	EPA 8260B	GC-MS	SW
Dibromochloromethane	EPA 8021B	GCELCD/PID	SW
Dibromochloromethane	EPA 5035	PREP	SW
Dibromochloromethane	EPA 3585	PREP	SW
Dibromomethane	EPA 5030B	PREP	SW
Dibromomethane	EPA 8260B	GC-MS	SW
Dibromomethane	EPA 5035	PREP	SW
Dichlorodifluoromethane	EPA 5030B	PREP	SW
Dichlorodifluoromethane	EPA 8260B	GC-MS	SW
Dichlorodifluoromethane	EPA 8021B	GCELCD/PID	SW
Dichlorodifluoromethane	EPA 5035	PREP	SW
1,1-Dichloroethane	EPA 5030B	PREP	SW
1,1-Dichloroethane	EPA 8260B	GC-MS	SW
1,1-Dichloroethane	EPA 8021B	GCELCD/PID	SW
1,1-Dichloroethane	EPA 5035	PREP	SW
1,1-Dichloroethane	EPA 3585	PREP	SW
1,2-Dichloroethane	EPA 5030B	PREP	SW
1,2-Dichloroethane	EPA 8260B	GC-MS	SW
1,2-Dichloroethane	EPA 8021B	GCELCD/PID	SW
1,2-Dichloroethane	EPA 5035	PREP	SW
1,2-Dichloroethane	EPA 3585	PREP	SW
1,1-Dichloroethene	EPA 5030B	PREP	SW
1,1-Dichloroethene	EPA 8260B	GC-MS	SW
1,1-Dichloroethene	EPA 8021B	GCELCD/PID	SW
1,1-Dichloroethene	EPA 5035	PREP	SW
cis-1,2-Dichloroethene	EPA 5030B	PREP	SW
cis-1,2-Dichloroethene	EPA 8260B	GC-MS	SW
cis-1,2-Dichloroethene	EPA 5035	PREP	SW
trans-1,2-Dichloroethene	EPA 5030B	PREP	SW
trans-1,2-Dichloroethene	EPA 8260B	GC-MS	SW
trans-1,2-Dichloroethene	EPA 5035	PREP	SW
1,1-Dichloropropene	EPA 5030B	PREP	SW
1,1-Dichloropropene	EPA 8260B	GC-MS	SW
1,1-Dichloropropene	EPA 5035	PREP	SW
1,2-Dichloropropane	EPA 5030B	PREP	SW
1,2-Dichloropropane	EPA 8260B	GC-MS	SW
1,2-Dichloropropane	EPA 8021B	GCELCD/PID	SW
1,2-Dichloropropane	EPA 5035	PREP	SW
1,3-Dichloropropane	EPA 5030B	PREP	SW
1,3-Dichloropropane	EPA 8260B	GC-MS	SW
1,3-Dichloropropane	EPA 5035	PREP	SW
2,2-Dichloropropane	EPA 5030B	PREP	SW
2,2-Dichloropropane	EPA 8260B	GC-MS	SW
2,2-Dichloropropane	EPA 5035	PREP	SW
Methylene chloride	EPA 5030B	PREP	SW
Methylene chloride	EPA 8260B	GC-MS	SW
Methylene chloride	EPA 8021B	GCELCD/PID	SW
Methylene chloride	EPA 5035	PREP	SW
Methylene chloride	EPA 3585	PREP	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
1,1,1,2-Tetrachloroethane	EPA 5030B	PREP	SW
1,1,1,2-Tetrachloroethane	EPA 8260B	GC-MS	SW
1,1,1,2-Tetrachloroethane	EPA 5035	PREP	SW
1,1,1,2-Tetrachloroethane	EPA 3585	PREP	SW
1,1,2,2-Tetrachloroethane	EPA 5030B	PREP	SW
1,1,2,2-Tetrachloroethane	EPA 8260B	GC-MS	SW
1,1,2,2-Tetrachloroethane	EPA 8021B	GCELCD/PID	SW
1,1,2,2-Tetrachloroethane	EPA 5035	PREP	SW
1,1,2,2-Tetrachloroethane	EPA 3585	PREP	SW
Tetrachloroethene	EPA 5030B	PREP	SW
Tetrachloroethene	EPA 8260B	GC-MS	SW
Tetrachloroethene	EPA 8021B	GCELCD/PID	SW
Tetrachloroethene	EPA 5035	PREP	SW
Tetrachloroethene	EPA 3585	PREP	SW
1,1,1-Trichloroethane	EPA 5030B	PREP	SW
1,1,1-Trichloroethane	EPA 8260B	GC-MS	SW
1,1,1-Trichloroethane	EPA 8021B	GCELCD/PID	SW
1,1,1-Trichloroethane	EPA 5035	PREP	SW
1,1,1-Trichloroethane	EPA 3585	PREP	SW
1,1,2-Trichloroethane	EPA 5030B	PREP	SW
1,1,2-Trichloroethane	EPA 8260B	GC-MS	SW
1,1,2-Trichloroethane	EPA 8021B	GCELCD/PID	SW
1,1,2-Trichloroethane	EPA 5035	PREP	SW
Trichloroethene	EPA 5030B	PREP	SW
Trichloroethene	EPA 8260B	GC-MS	SW
Trichloroethene	EPA 8021B	GCELCD/PID	SW
Trichloroethene	EPA 5035	PREP	SW
Trichloroethene	EPA 3585	PREP	SW
Trichlorofluoromethane	EPA 5030B	PREP	SW
Trichlorofluoromethane	EPA 8260B	GC-MS	SW
Trichlorofluoromethane	EPA 8021B	GCELCD/PID	SW
Trichlorofluoromethane	EPA 5035	PREP	SW
1,2,3-Trichloropropane	EPA 5030B	PREP	SW
1,2,3-Trichloropropane	EPA 8260B	GC-MS	SW
1,2,3-Trichloropropane	EPA 5035	PREP	SW
1,1,2-Trifluoro-1,2,2-Trichloroethane	EPA 8260B	GC-MS	SW
Vinyl chloride	EPA 5030B	PREP	SW
Vinyl chloride	EPA 8260B	GC-MS	SW
Vinyl chloride	EPA 8021B	GCELCD/PID	SW
Vinyl chloride	EPA 5035	PREP	SW
Chlorinated Hydrocarbon Pesticides	**Method**	**Technology**	SW
Aldrin	EPA 8081A	GC-ECD	SW
Aldrin	EPA 3550B	PREP	SW
Aldrin	EPA 3545	PREP	SW
Atrazine	EPA 8270C	GC-MS	SW
alpha-BHC	EPA 8081A	GC-ECD	SW
alpha-BHC	EPA 3550B	PREP	SW
alpha-BHC	EPA 3545	PREP	SW
beta-BHC	EPA 8081A	GC-ECD	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
beta-BHC	EPA 3550B	PREP	SW
beta-BHC	EPA 3545	PREP	SW
delta-BHC	EPA 8081A	GC-ECD	SW
delta-BHC	EPA 3550B	PREP	SW
delta-BHC	EPA 3545	PREP	SW
Lindane	EPA 8081A	GC-ECD	SW
Lindane	EPA 3550B	PREP	SW
Lindane	EPA 3545	PREP	SW
alpha-Chlordane	EPA 8081A	GC-ECD	SW
gamma-Chlordane	EPA 8081A	GC-ECD	SW
Chlordane Total	EPA 8081A	GC-ECD	SW
Chlordane Total	EPA 3550B	PREP	SW
Chlordane Total	EPA 3545	PREP	SW
Chlorobenzilate	EPA 8270C	GC-MS	SW
4,4'-DDD	EPA 8081A	GC-ECD	SW
4,4'-DDD	EPA 3550B	PREP	SW
4,4'-DDD	EPA 3545	PREP	SW
4,4'-DDE	EPA 8081A	GC-ECD	SW
4,4'-DDE	EPA 3550B	PREP	SW
4,4'-DDE	EPA 3545	PREP	SW
4,4'-DDT	EPA 8081A	GC-ECD	SW
4,4'-DDT	EPA 3550B	PREP	SW
4,4'-DDT	EPA 3545	PREP	SW
Diallate	EPA 8270C	GC-MS	SW
Dieldrin	EPA 8081A	GC-ECD	SW
Dieldrin	EPA 3550B	PREP	SW
Dieldrin	EPA 3545	PREP	SW
Endosulfan I	EPA 8081A	GC-ECD	SW
Endosulfan I	EPA 3550B	PREP	SW
Endosulfan I	EPA 3545	PREP	SW
Endosulfan II	EPA 8081A	GC-ECD	SW
Endosulfan II	EPA 3550B	PREP	SW
Endosulfan II	EPA 3545	PREP	SW
Endosulfan sulfate	EPA 8081A	GC-ECD	SW
Endosulfan sulfate	EPA 3550B	PREP	SW
Endosulfan sulfate	EPA 3545	PREP	SW
Endrin	EPA 8081A	GC-ECD	SW
Endrin	EPA 3550B	PREP	SW
Endrin	EPA 3545	PREP	SW
Endrin aldehyde	EPA 8081A	GC-ECD	SW
Endrin aldehyde	EPA 3550B	PREP	SW
Endrin aldehyde	EPA 3545	PREP	SW
Endrin Ketone	EPA 8081A	GC-ECD	SW
Heptachlor	EPA 8081A	GC-ECD	SW
Heptachlor	EPA 3550B	PREP	SW
Heptachlor	EPA 3545	PREP	SW
Heptachlor epoxide	EPA 8081A	GC-ECD	SW
Heptachlor epoxide	EPA 3550B	PREP	SW
Heptachlor epoxide	EPA 3545	PREP	SW
Methoxychlor	EPA 8081A	GC-ECD	SW
Methoxychlor	EPA 3550B	PREP	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Methoxychlor	EPA 3545	PREP	SW
Toxaphene	EPA 8081A	GC-ECD	SW
Toxaphene	EPA 3550B	PREP	SW
Toxaphene	EPA 3545	PREP	SW
Pentachloronitrobenzene	EPA 8270C	GC-MS	SW
Chlorophenoxy Acid Pesticides	**Method**	**Technology**	SW
2,4-D	EPA 8151A	GC-ECD	SW
2,4,5-T	EPA 8151A	GC-ECD	SW
2,4,5-TP (Silvex)	EPA 8151A	GC-ECD	SW
Dicamba	EPA 8151A	GC-ECD	SW
Organophosphate Pesticides	**Method**	**Technology**	SW
Azinphos methyl	EPA 8141A	GC-NPD	SW
Demeton-O	EPA 8141A	GC-NPD	SW
Demeton-S	EPA 8141A	GC-NPD	SW
Diazinon	EPA 8141A	GC-NPD	SW
Dimethoate	EPA 8141A	GC-NPD	SW
Dimethoate	EPA 8270C	GC-MS	SW
Dioxathion	EPA 8141A	GC-NPD	SW
Disulfoton	EPA 3545	PREP	SW
Disulfoton	EPA 8141A	GC-NPD	SW
Disulfoton	EPA 8270C	GC-MS	SW
Famphur	EPA 8141A	GC-NPD	SW
Malathion	EPA 8141A	GC-NPD	SW
Parathion ethyl	EPA 8141A	GC-NPD	SW
Parathion methyl	EPA 8141A	GC-NPD	SW
Phorate	EPA 8141A	GC-NPD	SW
Phorate	EPA 8270C	GC-MS	SW
Thionazin	EPA 8141A	GC-NPD	SW
Thionazin	EPA 8270C	GC-MS	SW
Volatile Chlorinated Organics	**Method**	**Technology**	SW
Benzyl chloride	EPA 8260B	GC-MS	SW
Miscellaneous	**Method**	**Technology**	SW
Boron, Total	EPA 6010B	ICP-AES	SW
Cyanide, Total	EPA 9010B	PREP	SW
Cyanide, Total	EPA 9014	COLOR	SW
Hydrogen Ion (pH)	EPA 9045C	POT	SW
Hydrogen Ion (pH)	EPA 9040B	POT	SW
Lead in Paint	EPA 6010B	ICP-AES	SW
Lead in Dust Wipes	EPA 6010B	ICP-AES	SW
Phenols	EPA 9065	COLOR	SW
Sulfide (as S)	EPA 9030B	PREP	SW
Sulfide (as S)	EPA 9034	TITR	SW
Benzidines	**Method**	**Technology**	SW
Benzidine	EPA 8270C	GC-MS	SW
3,3'-Dichlorobenzidine	EPA 8270C	GC-MS	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
3,3'-Dimethylbenzidine	EPA 8270C	GC-MS	SW
Purgeable Organics	**Method**	**Technology**	SW
Acetone	EPA 5030B	PREP	SW
Acetone	EPA 8260B	GC-MS	SW
Acetone	EPA 5035	PREP	SW
Acetonitrile	EPA 8260B	GC-MS	SW
Carbon Disulfide	EPA 8260B	GC-MS	SW
Cyclohexane	EPA 8260B	GC-MS	SW
1,4-Dioxane	EPA 8260B	GC-MS	SW
1,4-Dioxane	EPA 8015 B	GC-FID	SW
Isobutyl alcohol	EPA 8260B	GC-MS	SW
Isobutyl alcohol	EPA 8015 B	GC-FID	SW
2-Hexanone	EPA 8260B	GC-MS	SW
2-Butanone (Methylethyl ketone)	EPA 5030B	PREP	SW
2-Butanone (Methylethyl ketone)	EPA 8260B	GC-MS	SW
2-Butanone (Methylethyl ketone)	EPA 5035	PREP	SW
Methyl acetate	EPA 8260B	GC-MS	SW
Methyl tert-butyl ether	EPA 5030B	PREP	SW
Methyl tert-butyl ether	EPA 8260B	GC-MS	SW
Methyl tert-butyl ether	EPA 8021B	GCELCD/PID	SW
Methyl tert-butyl ether	EPA 5035	PREP	SW
4-Methyl-2-Pentanone	EPA 8260B	GC-MS	SW
4-Methyl-2-Pentanone	EPA 5035	PREP	SW
4-Methyl-2-Pentanone	EPA 3585	PREP	SW
Propionitrile	EPA 8260B	GC-MS	SW
o-Toluidine	EPA 8270C	GC-MS	SW
Vinyl acetate	EPA 5030B	PREP	SW
Vinyl acetate	EPA 8260B	GC-MS	SW
Vinyl acetate	EPA 5035	PREP	SW
Semi-Volatile Organics	**Method**	**Technology**	SW
Acetophenone	EPA 8270C	GC-MS	SW
4-Amino biphenyl	EPA 8270C	GC-MS	SW
Benzoic Acid	EPA 8270C	GC-MS	SW
Benzyl alcohol	EPA 8270C	GC-MS	SW
Benzaldehyde	EPA 8270C	GC-MS	SW
1,1'-Biphenyl	EPA 8270C	GC-MS	SW
Caprolactam	EPA 8270C	GC-MS	SW
Dibenzofuran	EPA 3550B	PREP	SW
Dibenzofuran	EPA 3545	PREP	SW
Dibenzofuran	EPA 8270C	GC-MS	SW
Ethyl methanesulfonate	EPA 8270C	GC-MS	SW
Isosafrole	EPA 8270C	GC-MS	SW
Methyl cyclohexane	EPA 8270C	GC-MS	SW
2-Methylnaphthalene	EPA 8270C	GC-MS	SW
Methyl methanesulfonate	EPA 8270C	GC-MS	SW
Phenacetin	EPA 8270C	GC-MS	SW
Safrole	EPA 8270C	GC-MS	SW
O,O,O-Triethyl phosphorothioate	EPA 8270C	GC-MS	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Amines	**Method**	**Technology**	SW
Aniline	EPA 8270C	GC-MS	SW
Carbazole	EPA 8270C	GC-MS	SW
4-Chloroaniline	EPA 8270C	GC-MS	SW
Diphenylamine	EPA 8270C	GC-MS	SW
1-Naphthylamine	EPA 8270C	GC-MS	SW
2-Naphthylamine	EPA 8270C	GC-MS	SW
2-Nitroaniline	EPA 8270C	GC-MS	SW
3-Nitroaniline	EPA 8270C	GC-MS	SW
4-Nitroaniline	EPA 8270C	GC-MS	SW
5-Nitro-o-toluidine	EPA 8270C	GC-MS	SW
Methapyrilene	EPA 8270C	GC-MS	SW
1,4-Phenylenediamine	EPA 8270C	GC-MS	SW
1,2-Diphenylhydrazine	EPA 8270C	GC-MS	SW
Pronamide	EPA 8270C	GC-MS	SW
Carbamate Pesticides	**Method**	**Technology**	SW
Aldicarb	EPA 8318	HPLC-FLUOR	SW
Aldicarb Sulfone	EPA 8318	HPLC-FLUOR	SW
Carbofuran	EPA 8318	HPLC-FLUOR	SW
Nitrosoamines	**Method**	**Technology**	SW
N-Nitrosodiphenylamine	EPA 8270C	GC-MS	SW
N-Nitrosodimethylamine	EPA 8270C	GC-MS	SW
N-Nitrosodiethylamine	EPA 8270C	GC-MS	SW
N-nitrosomethylethylamine	EPA 8270C	GC-MS	SW
N-Nitrosodi-n-butylamine	EPA 8270C	GC-MS	SW
N-Nitrosodi-n-propylamine	EPA 3550B	PREP	SW
N-Nitrosodi-n-propylamine	EPA 3545	PREP	SW
N-Nitrosodi-n-propylamine	EPA 8270C	GC-MS	SW
N-nitrosopiperidine	EPA 8270C	GC-MS	SW
N-Nitrosopyrrolidine	EPA 8270C	GC-MS	SW
Minerals	**Method**	**Technology**	SW
Bromide	EPA 9056	IC-COND	SW
Chloride	EPA 9250	COLOR	SW
Chloride	EPA 9056	IC-COND	SW
Fluoride, Total	EPA 9214	POT	SW
Fluoride, Total	EPA 9056	IC-COND	SW
Sulfate (as SO4)	EPA 9038	COLOR	SW
Sulfate (as SO4)	EPA 9056	IC-COND	SW
Nutrients	**Method**	**Technology**	SW
Nitrate (as N)	EPA 9056	IC-COND	SW
Nitrite (as N)	EPA 9056	IC-COND	SW
Orthophosphate (as P)	EPA 9056	IC-COND	SW
Petroleum Hydrocarbons	**Method**	**Technology**	SW
Diesel Range Organics	EPA 8015 B	GC-FID	SW

ANALYTE	METHOD	TECHNOLOGY	MATRIX
Gasoline Range Organics	EPA 8015 B	GC-FID	SW
Oil & Grease Total Recoverable (HEM)	EPA 9071 (Solvent:Hexane)	GRAV	SW

Section 4.0 Vendor Listing

VendorID	Company	Address	Address2	State	City	Zip	Phone	Fax	Representative
Absolute Standard							203-281-2917		
Accustandard	Accustandard	25 Science Park	Suite 687	Conn.	New Haven	06511	800-442-5290		
Andrews Glass Co. Inc.	Andrews Glass Co. Inc.	3740 Northwest Boulevard		New Jersey	Vineland	08360	8566924435	8566925357	
Airweld, Inc.	Airweld, Inc.	94 Marine Street		NY	Farmingdale	11735	631-694-4343		Rich Graziano
bioMerieux, Inc.	bioMerieux, Inc.						8006347656		
Bulbtronics	Bulbtronics						6312492272		
Chemical Research Supplies	Chemical Research Supplies	P.O. Box 888		IL	Addison	60101	8003273800		
Compco	Compco Analytical, Inc.	215 Gates Road	Unit U	NJ	Little Ferry	07643	201-641-3936		
Dionex	Dionex Corporation	1228 Titan Way		CA	Sunnyvale	940883603	8003466390		
Entech Instruments	Entech Instruments						1-805-527-5939		Tom Wilber
Environmental Express	Environmental Express LTD	490 Wando Park Blvd.		SC	Mt. Pleasant	29464	8003435319		Les Orr
Environmental Resource Associates	Environmental Resource Associates	6000 West 54th Avenue		CO	Arvada	80002	8003720122	3034210159	
Environmental Sample Technology	Environmental Sample Technology						8002833510		
Thermo Fisher Scientific	Fisher Scientific						8007667000		
Glove Planet	Glove Planet						1-800-848-0616		Louie LeMieux
Grainger	Grainger						6313913030		
Grasby Nutech	Grasby Nutech						8006376312		

VendorID	Company	Address	Address2	State	City	Zip	Phone	Fax	Representative
Hach Co.	Hach Company	P.O. Box 389		Colorado	Loveland	80539	8002274224		
High Purity Stds	High Purity Standards	P.O. Box 41727		SC	Charleston	29423	8437677900	8437677906	
Horizon Technologies	Horizon Technologies	8 Commerce Drive		NH	Atkinson	03811	8009972997		Justine ext 12 or Ann Vachon ext. 11
Idexx Laboratories	Idexx Laboratories	One Idexx Drive		ME	Westbrook	04092	1-800-551-0998		Dave Jefferson
Inorganic Ventures	Inorganic Ventures						8006696799		
Inorganics Standards Service	Inorganic Standards Service						8009960980	2154899577	Arlene & Fred
J2 Scientific	J2 Scientific						5732140472		
JE Meinhard Associates, Inc.	JE Meinhard Associates, Inc.						8006346427		
LaMotte Company	Lamotte Company						8003443100	4107786394	
Teledyne Leeman Labs, Inc.	Leeman Labs, Inc.	6 Wentworth Drive		NH	Hudson	03051	8005336267	6038864322	Donald Miller
Man-Tech Associates	Man-Tech Associates						1/800-206-8116		
M & M (Marsid) Printing	Marsid-M & M Group	245 Westbury Avenue		NY	Carle Place	11514	5167963020		
Marquardt & Company	Marquardt & Company	60 MC Clellan St.		New Jersey	Newark	071142112	1-516-796-3020		Frank Fields & Elaine
Millipore Corp	Millipore Corp.	2736 Paysphere Circle		IL	Chicago	60674	8006455476		
MV Labs	MV Laboratories, Inc.	P.O. Box 370		NJ	Three Bridges	08887	9089966633		Marge & Warren
Office Depot	Office Depot	110 Bi-County Blvd.	Suite 122	NY	Famindale	11735	516-454-4606		Alex Coules
Perkin Elmer	Perkin Elmer	761 Main Avenue		Conn.	Newark	06859-0156	1-800-762-4000		
Phenomenex	Phenomenex	411 Madrid Avenue		CA	Torrance	905011430	3103287768		Eric Kwak
Pickering Labs	Pickering Laboratories	1951 Colony St.		CA	Mountain View	94043	8006543330		Can order thru VWR @ same

VendorID	Company	Address	Address2	State	City	Zip	Phone	Fax	Representative
									price
Remel	Remel, Inc.	12076 Santa Fe Drive		Kansas	Lenexa	66215	8002556730		Robin Swank, John Demurse
Restek Corp.	Restek Corporation	P.O. Box 8500-6215		PA	Philadelphia	191786215	8003561688		Mark Lawrence
Spex CertiPrep	Spex CertiPrep Group	203 Norcross Avenue.		NJ	Metuchen				
Tridon Chemical	Tridon Chemical			NY			242-6924		Beth Catalano
Ultra	Ultra Scientific	250 Smith St.		RI	N: Kingston	02852	8003381754		Paul Jennings
Veolia	Veolia Environmental Services	1 Eden Lane		NJ	Flanders	07836	866-435-9256		Bill Sanchez
VWR	VWR International								James Wall
Waters	Waters Corp.	34 Maple Street		MA	Milford	01757	1-800-252-4752		Frank Gagliardi
Wrap N Pack	Wrap N Pack	21 Executive Blvd.		NY	Farmingdale	11735	631-756-0440		Joe Razzano

Section 5.0 Instrument Listing and Maintenance

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
GC/MS	Gas Chromatograph	Hewlett Packard	5890		North Cabinet	2908A-21584	1987	New
GC/MS	Gas Chromatograph	Hewlett Packard	5890		North Cabinet	2643A-11385	1988	New
GC/MS	Gas Chromatograph	Hewlett Packard	5890 Series II		North Cabinet	3310A-47249	1995	New
GC/MS	Gas Chromatograph	Hewlett Packard	5890 Series II		North Cabinet	3310A-48125	2007	Refurb
GC/MS	Gas Chromatograph	Hewlett Packard	6890N		Drawer below instrument		2001	New
GC/MS	Gas Chromatograph	Hewlett Packard	6890N				1998	New
GC/MS	Gas Chromatograph	Hewlett Packard	6890N				2005	
GC/MS	GC/MS	Hewlett Packard	5996A	As needed: Clean source, clip column, swab injection port liner Daily: change insert, replace septa, check mass calibration Annually: change vacuum pump oil	East Shelf	2217A-00303	1984	New
GC/MS	GC/MS	Hewlett Packard	5970		North Cabinet	2637A-01845	1988	New
GC/MS	GC/MS	Hewlett Packard	5970		North Cabinet	2637A-01851	1990	New
GC/MS	GC/MS	Hewlett Packard	5971		East Shelf	3304A-04413	1993	New
GC/MS	GC/MS	Hewlett Packard	5972		Drawer below instr.	3501A-02544	1995	New
GC/MS	GC/MS	Hewlett Packard	5972			4W43-148	2007	Refurb.
GC/MS	GC/MS	Hewlett Packard	5973			U5638-10174	1998	New

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
GC/MS	GC/MS	Hewlett Packard	5973N		Drawer below instr.	U5104-51830	2001	New
GC/MS	GC/MS	Hewlett Packard	5973i			U5446-21373	2005	New
GC/MS	Auto- injector	Hewlett Packard	7673A	Daily: check needles and lines	North Cabinet	3042A-23605	1989	New
GC/MS	Auto- injector	Hewlett Packard	7673A		North Cabinet	2628A-03701	1990	New
GC/MS	Auto- injector	Hewlett Packard	7673A			3033A-23186		New
GC/MS	Auto- injector	Hewlett Packard	7683			13822-158	2001	New
GC/MS	Injector Modules	Hewlett Packard	18593A			2843A-12464		New
GC/MS	Injector Modules	Hewlett Packard	18593A			2843A-12474		New
GC/MS	Liquid Samplers	Tekmar	ALS2016		East Shelf	90052025	1989	New
GC/MS	Liquid Samplers	Env. Sample Tech. Inc.	Archon		East Shelf	12578	1998	New
GC/MS	Liquid Samplers	Varian	Archon		East Shelf	12565	1998	New
GC/MS	Liquid Samplers	Varian	Archon		East Shelf	15045	2007	New
GC/MS	Liquid Samplers	Varian	Archon		East Shelf	15046	2007	
GC/MS	Liquid Samplers	Teledyne Tekmar	SOLA Tek 72			U50515-1007	2005	New
GC/MS	Auto- sampler	Custom	Custom		East Shelf		1995	New
GC/MS	Cryogenic Cap. Interface	Tekmar	M2000			H2M-40099	1987	New
GC/MS	Liquid Sample Concentrators	Tekmar	LCS2000		North Cabinet	88041019	1988	New
GC/MS	Liquid Sample Concentrators	Tekmar	LCS2000		North Cabinet	92086007	1989	

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
GC/MS	Liquid Sample Concentrators	Tekmar	LCS2000		East Shelf	90088002		New
GC/MS	Liquid Sample Concentrators	Tekmar	LCS2000			97203002		
GC/MS	Liquid Sample Concentrators	Tekmar	LCS3000		East shelf	94238021	2007	Refurb
GC/MS	Liquid Sample Concentrators	Tekmar	LCS3000		East shelf	97203002	2007	Refurb
GC/MS	Liquid Sample Concentrators	Tekmar	Velocity XP			3631a-10564	2005	Refurb
GC/MS	Moisture Control Module	Tekmar	14-4700				1990	New
GC/MS	Tube Desorber	Envirochem	8916		Drawer by RTE	142-1015	1992	New
GC/MS	Concentrator	Entech	7100A				2005	New
GC/MS	Tube Assembly	Entech	7100			1255	2005	New
GC/MS	Autosampler	Entech	7032-L			1051	2005	New
GC/MS	Oven Can Cleaning System	Entech	3106A			1154	2005	New
GC/MS	Dynamic Diluter	Entech	4601A			1105	2005	New
INORG	TOC Analyzer	Tekmar	Apollo 9000	Monthly: Change injection needle, clean injection port, change catalyst. Semi-annually: Inspect	Drawer by instru.	00038010	2000	New

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
				combustion tube				
INORG	DO Meter	YSI	52	Daily:Check solution and membrane	Upper cabinet	0602377	2006	New
INORG	DO Meter	YSI	5000		File cabinet in office		2002	New
INORG	COD Apparatus	Hach	Micro Block		File Cabinet	87120-9870	1988	New
INORG	Chlorine Meter	LaMotte	1200				2006	
INORG	Chlorine Meter	LaMotte	1200				2008	
INORG	pH Meter	Orion	420A	Electronics Checked Daily			2000	
INORG	pH Meter	VWR	8000		File cabinet	1370	2005	New
INORG	pH Meter	VWR	Symphony SP70P					
INORG	pH Meter	Corning	Scholar 425		File cabinet	06999	2002	New
INORG	pH Meter	WTW Measurement Systems	Scholar 425				2006	
INORG	Spectrophotometer	Milton Roy	Genesys 5		File cabinet	3V062-77019	1995	
INORG	Spectrophotometer	Thermo Spectronic	Spectronic20 DX		In office	3DV103-51004	2002	New
INORG	Spectrophotometer	Thermo Spectronic	Spectronic20 DX		In office	3DUG3-35015	2005	New
INORG	Ion Chromatograph	Dionex	ICS 2000		Bookshelf	0605-0717	2005	New
INORG	Analytical Nephelometer	Hach	2424				1977	
INORG	Specfic Ion Electrodes	Cole Palmer	2750231				2000	
INORG	Distillation Systems	Westco	East Dist		File cabinet	1130	1996	New
INORG	Distillation	Westco	East Dist		Drawer by	1130	2005	New

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
	Systems				instru.			
INORG	Conductivity Meter	VWR Scientific	2052	Daily: check probe and cable	File cabinet	0103009	2000	New
INORG	Conductivity Meter	VWR Scientific	2052		File cabinet	0212006	2002	New
INORG	Solid Phase Extractor for Oil and Grease	Horizon	3000XL		Drawer by instru.	0210166	2002	New
INORG	Solid Phase Extractor for Oil and Grease	Horizon	3000XL		Drawer by instru.	07-1431	2007	New
INORG	Microscope	Nikon	Labobot 104	Monthly: Clean optics	File cabinet	214700	1983	New
INORG	COD Apparatus	Hach	DRB200		By meter	1122349	2004	New
INORG	TALK Instrument	Schott	Titroline Alphaplus		Drawer by instru.	065719	2004	New
INORG	Flow Injection Analysis System with Automated Ion Analyzer	Lachat	QuickChem 8500		Top shelf	051100-000231	2006	New
INORG	BOD Assay Plus	Man-Tech	Release version 11/7/03		BOD Bench		2006	New
HPLC	HPLC System for Carbamate 531 and Post Column Derivatizer for 547	Pickering	PCX-5200				2001	
HPLC	System Controller	Shimadzu	SCL-10AVP				2001	
HPLC	Liquid Chromatograph	Shimadzu	LC-10ADVP				2001	
HPLC	Mixer	Shimadzu	FCV-10ALVP				2001	
HPLC	Degasser	Shimadzu	DGU-14A				2001	
HPLC	Auto Injector	Shimadzu	SIL-10ADVP				2001	

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
GC	PID Photo Ionization Detector	HNU			Next to Refrig#2		1993	New
GC	PID Photo Ionization Detector	HNU			Next to Refrig#2		2004	New
GC	Micro Electron Capture Detector	Hewlett Packard			Next to Refrig#2	43366U2256	2000	New
GC	Micro Electron Capture Detector	Hewlett Packard			Next to Refrig#2	U1789U1790	2002	New
GC	Micro Electron Capture Detector	Hewlett Packard			Next to Refrig#2	U0744U0712	2008	New
GC	Nitrogen Phosphorus Detector	Perkin Elmer			Next to Refrig#2		1992	New
GC	Autoinjector	Hewlett Packard	7683		Next to Refrig#2	US94910497	1998	New
GC	Autoinjector	Hewlett Packard	7683		Next to Refrig#2	US02013524	2000	New
GC	Autoinjector	Hewlett Packard	7683		Next to Refrig#2	US95110902	2002	New
GC	Autoinjector	Perkin Elmer	Autosystem		Next to Refrig#2		1992	New
GC	Purging Apparatus	Teledyne-Tekmar	Velocity XPT		Next to Refrig#2	US04224008	2004	New
GC	Purging Apparatus	Teledyne-Tekmar	Stratum		Next to Refrig#2	US08059005	2008	New
GC	Automated Liquid Sampler	Teledyne-Tekmar	Solatek 72		Next to Refrig#2	US04238003	2004	New
GC	Automated Liquid Sampler	Teledyne-Tekmar	Solatek 72		Next to Refrig#2	US08044003	2008	New
GC	Gas Chromatograph	Hewlett Packard			Next to Refrig#2	U14239U14322		New

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
METAL	Automated Mercury System	Leeman	Hydra AA	Daily: Check for leaks Monthly: Clean Autosampler and check tubing for wear and discoloration	Next to instrument	HA4001	2004	New
METAL	Inductively Coupled Plasma (ICP)	ThermoJarrell Ash-61E	Trace Simultaneous	As needed: Sample Capillary nebulizer. Weekly: Pump winding Quarterly: Lens cleaning Monthly: Clean and realign torch Annually: check interelement interference	On shelf next to instru.	294490	1994	New
METAL	Inductively Coupled Plasma (ICP)	Thermo-Fisher ICAP	6300 Duo MFC		On shelf opposite of ICAP	20081811	2008	New
METAL	Autosampler for 6300 Duo ICAP	Cetac Techologies	ASX-520		Opposite instru. On shelf	050773A520	2008	New
METAL	ICP-MS	ThermalElemental	X7		Next to instru.	X0129	2002	New
METAL	Autosampler for ICP-MS	Cetac Technologies	ASX-510		Next to instru.	020201ASX	2002	New
PREP	Dishwasher	Lab Conco	Flask Scrubber		Kiln room cabinet	041027886	2004	New
PREP	AccuPrep GPC System	JZ Scientific	04A-1094-3.1				2004	
PREP	TCLP Tumbler	Environmental Express	10-Position				1990	
PREP	TCLP Tumbler	Analytical Testing	4-position				1987	
PREP	TCLP Tumbler	Environmental Express	Item#LE1002 12-position				2006	

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
PREP	Zero Headspace Extractor	Environmental Express		18????			1990	
PREP	Zero Headspace Extractor	Analytical Testing	C-102				1987	
PREP	Zero Headspace Extractor	Analytical Testing	C-102				1989	
PREP	Continuous Liquid/Liquid Extractor	Organomation	Rot-X-Tracth		Drawer near hood#16	20558	2009	New
PREP	Continuous Liquid/Liquid Extractor	Organomation	Rot-X-Tracth		Drawer near hood#16	9878	1997	New
PREP	Agitator	Analytical Testing	DC-18		Kiln room	252392	1987	New
PREP	Agitator	Analytical Testing	DC-18	Not in use			1987	
PREP	Sonic Disruptors	Tekmar	TSDB-500	Not in use			1986	
PREP	Sonic Disruptors	Tekmar	TSD-602	Not in use			1994	
PREP	Concentrator	Zymark	Turbo-vap		Kiln room cabinet	TV0639-R7075	1996	New
PREP	Evaporators	Organomation	PN-Evap, 12 position		Kiln room cabinet	14430	1992	New
PREP	Automated Solvent Extractor	Dionex	ASE2000		Desk near hood#8	3010457	2003	New
PREP	Automated Solid Phase Extractor	Horizon	SPE-DEX 4790		Kiln room cabinet		2001	
PREP	Automated Solid Phase Extractor	Horizon	SPE-DEX 4790		Kiln room cabinet		2001	
PREP	Automated Solid Phase Extractor Controller	Horizon	SPE-DEX		Kiln room cabinet	01-0333	2001	
PREP	Dry Disk	Horizon	SDS-100		Shelf near hood#11		2001	

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
PREP	Dry Disk	Horizon	SDS-100		Shelf near hood#11		2001	
PREP	Pensky-Martens Flash Point Tester	Petrotest	12-1624		Kiln room cabinet	07260215 01	2002	New
PREP	Heating block	Barnstead International	DB28125		Kiln room cabinet	823040-705627	2004	New
PREP	Sonicator	Branson	1210		Kiln room cabinet	9710538C		New
PREP	Evaporators	Organomation	PN EVAP-12 Position		Drawer near hood#16	20638	2009	New

Support Equipment/Computers

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
GCMS	Combined Wiley and NBS Data Base with Wiswisser Line Notation	Hewlett Packard	59868A				1984	
GCMS	Aquarius	Hewlett Packard					1984	

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
	Software							
GCMS	Winchester Disk Drive	Hewlett Packard					1984	
GCMS	Printer	Hewlett Packard	LaserJet 4				1995	
GCMS	Printer	Hewlett Packard	LaserJet 4				1995	
GCMS	Printer	Hewlett Packard	LaserJet 4				1995	
GCMS	Printer	Hewlett Packard	LaserJet 4				1995	
GCMS	Printer	Hewlett Packard	LaserJet 4				1995	
GCMS	GC/MS A Series Data System with Micro 24 SPU and 304 Mb Disk Drive	Hewlett Packard	59870C				1990	
GCMS	GC/LC/MS Software	Hewlett Packard	59872C				1990	
GCMS	Mass Spectral Library	Hewlett Packard	59868C				1990	
GCMS	Chemstation/ Enviroquant	Hewlett Packard	1701AA				1998	
GCMS	Chemstation/ Enviroquant	Hewlett Packard	1701AA				1998	
GCMS	Chemstation/ Enviroquant	Hewlett Packard	1701AA				1998	
GCMS	Chemstation/ Enviroquant	Hewlett Packard	1701AA				1998	
GCMS	Chemstation/ Enviroquant	Hewlett Packard	1701AA				1998	
GCMS	Chemstation/ Enviroquant	Hewlett Packard	1701CA, BA				2001	
GCMS	Chemstation/ Enviroquant	Hewlett Packard	MSD D.01.02 06				2005	
GCMS	Graphics Display	Hewlett Packard	2393A				2001	

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
	Terminal							
GCMS	Printer	Hewlett Packard	LaserJet 5				1998	
GCMS	Printer	Hewlett Packard	LaserJet 4100				2001	
GCMS	Printer	Hewlett Packard	LaserJet 4250				2005	
GCMS	Printer	Hewlett Packard	LaserJet 4250				2005	
GCMS	Printer	Hewlett Packard	LaserJet 4250				2005	
INORG	Balance	Mettler Toledo	AX304		File cabinet	1125121429	2004	New
INORG	Balance	Ohaus	CS200				2002	
INORG	Balance	Ohaus	CS200				2004	
INORG	Balance	Ohaus	GT4100	Out of service			1999	
INORG	Balance	Westco	40/20				2004	
INORG	Balance	Lachat	BD_46				2007	
INORG	Refrigerator-Walk-in			Daily: Record and Verify temperature setting. Monthly: Clean interior Annually: check thermometer against NIST certified thermometer			1998	
INORG	Refrigerator Locking (no spark interior)	Fisher Scientific					1984	
INORG	Refrigerator Locking	Fisher Scientific					1989	
INORG	Centrifuge	Fisher Scientific					1957	
INORG	Drying Ovens	Fisher Scientific	CL ISOTEMP500	Daily: Record and Verify temperature setting. Monthly: clean interior Annually:			1980	

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
				check thermometer against NIST certified thermometer				
INORG	Dessicator	Boekel					1997	
INORG	Muffle Furnace	Thermoline			File cabinet		1997	
INORG	Autoclave	Market Forge	STM-E Type C	Daily: Sterilization indicator tape Monthly: Clean interior	File cabinet	150790	1987	New
INORG	Autoclave	Market Forge	STM-E Type C		File cabinet	213371	2003	New
INORG	Solid Phase Extraction Controller	Horizon	3000XL		Drawer by instru.	07-0166	2002	New
INORG	Solid Phase Extraction Controller	Horizon	3000XL		Drawer by instru.	07-1431	2007	New
INORG	Automatic Pipetting Machine	Scientific Equip. Prod.	40		File cabinet	2064	1983	New
INORG	Automatic Pipetting Machine	Scientific Equip. Prod.	40	Not in service			1984	
INORG	Auto Titrator	Visco	Titroline Alpha		Drawer by instru.		1998	
INORG	Coliform Incubator Bath	Labline	Aquabat	Daily: Record and Verify temperature setting. Monthly: clean	File cabinet	10-01	2001	New
INORG	BOD Incubators	VWR-Sheldon Manufacturing, Inc.	2030		Office file cabinet	08006405	2005	New

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
INORG	BOD Incubators	VWR-Sheldon Manufacturing, Inc.	2030	interior Annually: check thermometer against NIST certified thermometer	Office file cabinet	07045306	2007	New
INORG	Water Purification System	Millipore	Alpha Q		File cabinet in office	F6CM10889K	1997	New
INORG	Dishwasher	Kenmore	Ultrawash 665		File cabinet		2000	New
INORG	Quant-Tray Sealer	IDEXX	2X		File cabinet	03177	2004	New
INORG	Incubator	Labline	100	Daily: Record and Verify temperature setting. Monthly: clean interior Annually: check thermometer against NIST certified thermometer		0493-0002	1993	New
INORG		Precision	815		File cabinet	604011627		New
INORG		Precision	815		File cabinet	602041661	2004	New
INORG		Precision				600101596	2005	Used
INORG	Infrared Thermometer	VWR	12777-846				2004	
INORG	UV Light	UVP	UVL-56		File Cabinet	2064	1990	New
RECV	Refrigerator	Welbilt	W8/210G					
INORG	Boat Sampling Module		183		Drawer by instru.		1991	
METAL	CLP Reporting Software	Khemia	Omega				2000	

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
METAL	Water Bath	Precision	280 Series		Metals room		2007	New
METAL	Hotblock	Envrionmental Express	SC154		Dig. Room		2002	New
METAL	Hotblock	Environmental Express	SC154		Dig. Room		2007	New
METAL	Balance	Sartorius	TE153S		Metals room		2007	New
PREP	Data System	Omega					2000	
PREP	ICC Clinical Centrifuge	Int'l. Equipment Co.	ICC Clinical				1985	
PREP	Balance	Ohaus	CS-20000				2000	
INORG	Balance	Ohaus	Scout Pro SP202		File cabinet	7125080183	2005	New
PREP	Blue M Oven	General Signal		Daily: Record and Verify temperature setting. Monthly: Clean interior Annually: check thermometer against NIST certified thermometer			1986	
PREP	Water Bath	Precision Scientific	Thelco84				1984	
PREP	Water Bath	VWR	1245-PC				2003	
PREP	Kiln	Cress	Firemate FE27				1989	
PREP	Kiln	Cress	Firemate FE27				2002	
PREP	Balance	Sartorius	BL150S				1998	
HPLC	Water	Barnstead	Nanopure II				1989	

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
	Purification System							
GC	CLP Reporting Software	Khemia	Omega				1994	
GC	Computing Integrators/Data System	Perkin Elmer/Nelson	Total Chrom 6.3X				2005	
GC	Computing Integrators/Data System	Perkin Elmer/Nelson	Total Chrom 6.3X				2005	
GC	Computing Integrators/Data System	Perkin Elmer/Nelson	Total Chrom 6.3X				2005	
GC	Computing Integrators/Data System	Perkin Elmer/Nelson	Total Chrom 6.3X				2005	
GC	Computing Integrators/Data System	Perkin Elmer/Nelson	Total Chrom 6.3X				2005	
GC	Computing Integrators/Data System	Perkin Elmer/Nelson	Total Chrom 6.3X				2005	
GC	Balance	Ohaus	CS 200				2002	
GC	Balance	Ohaus	CS 2000				2007	

Section 6.0 Documents

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Sample Preparation and Analysis of Volatile Organics by GC/MS: Method 95-1	ASP 95-1	4-4/17/02
Sample Preparation and Analysis of Semivolatile Organics by GC/MS: Method 95-2	ASP 95-2	6-5/3/06
Sample Preparation and Analysis of Chlorinated Pesticides and PCBs: Method 95-3	ASP 95-3	7-1/24/06
Analysis of Volatile Organics by GC/MS - EPA CLP (Combined with 4.2)	OLM04.3V	2-6/12/06
Preparation and Analysis of Semi-Volatile Organics by GC/MS - EPA CLP (Combined with 4.2)	OLM04.3S	3-4/26/06
Sample Preparation and Analysis of Chlorinated Pesticides and PCBS - Method OLM04.2	OLMO4.2 PEST/PCB	2-2/28/03
Sample Preparation and Analysis of Volatile Organics by GC/MS in Air	Meth 18-106	1-5/11/06
Analysis of Volatile Organics on Sorbent Tubes by EPA Method TO-17	TO-17	1-2/15/07

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Sample Preparation and Analysis of Polychlorinated Biphenyls in Air	PCB311-1	1-2/12/07
Analysis of Volatile Organics in Drinking Water GC with PID/ELCD IN Series - EPA Method 502.2	502.2	7-5/18/09
Analysis of Volatile Organics in Ambient Air Using Summa or Other Specially Prepared Canisters by GCMS/SCAN/SIM	TO-15	2-2/15/07
Sample Preparation and Analysis of 1,2-Dibromoethane and 1,2-Dibromo-3-chloro-propane	504.1	5-5/21/09
Sample Preparation and Analysis of Organohalide Pesticides and Commercial PCB Products	505	7-5/25/09
Sample Preparation and Analysis of Polychlorinated Biphenyls as Decachlorobiphenyl- EPA Method 508A	508A	4-5/27/09
Sample Preparation and Analysis of Chlorinated Pesticides and PCB's in Drinking Water by Liquid/ Solid Extraction and GC/ECD Analysis	508.1	3-5/27/09

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Sample Preparation and Analysis of Chlorinated Herbicides in Drinking Water - EPA Method 515.1	515.1	8-5/6/09
Analysis of Volatile Organics in Drinking Water by GC/MS	524.2	6-5/25/09
Determination of Organic Compounds in Drinking Water by Liquid Solid Extraction and GC/MS Analysis	525.2	4-1/22/09
Determination of N-Methylcarbamoyloximes and N-Methylcarbamates in Drinking Water by HPLC	531.1	4-1/12/09
Glyphosate	547	4-5/21/09
Determination of Endothall in Drinking Water by Ion Exchange Extraction and GC/MS Analysis	548.1	2-5/21/09
Analysis of Diquat in Drinking Water by HPLC	549.2	5-5/21/09
Determination of Haloacetic Acids in Drinking Water by Liquid/Liquid Extraction, Derivatization and GC/ECD Analysis Method 552.2	552.2	3-5/21/09

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Method 601 Analysis of Volatile Organics in Wastewater by GC-HALL Detector	601	4-5/25/09
Method 602 Analysis of Aromatics in Waste Water by GC/PID	602	4-5/25/09
Method 608 - Sample Preparation and Analysis of Chlorinated Pesticides in Wastewater	608	6-5/21/09
Method 624 Sample Preparation and Analysis of Purgeables in Wastewater by GC/MS	624	6-5/21/09
Method 625 - Sample Preparation and Analysis of Base/Neutral Acid Extractable in Water	625	6-9/10/07
Sample Preparation and Analysis of Chlorinated Hydrocarbons in Water Method 612	612	1-8/7/08
SM18 6630B and 6630C Sample Preparation and Analysis of Chlorinated Pesticides in Waste Water	6630B-C	2-5/21/09

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Analysis of Total Petroleum Hydrocarbons by GC with FID or by GC/MS -EPA Method 8015M	8015B	6-5/21/09
Analysis of Volatile Organics by GC with PID/Hall Detectors - EPA Method 8021B	8021B	7-5/21/09
Sample Preparation and Analysis of Chlorinated Pesticides - Method 8081A	8081A	11-5/18/09
Sample Preparation and Analysis of Polychlorinated Biphenyls - Method 8082	8082	8-5/21/09
Sample Preparation and Analysis of Chlorinated Hydrocarbons in Water and Soil Method 8121	8121	2-5/18/09
Sample Preparation and Analysis of Organo phosphorous Pesticides: EPA Method 8141A	8141A	4-5/21/09
Sample Preparation and Analysis of Chlorinated Herbicides: EPA Method 8151A Modified	8151A	5-5/14/09
Sample Preparation and Analysis of Volatile Organics by GC/MS - Method 5030B/8260B	8260B	9-5/20/09

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Sample Preparation and Analysis of Semivolatile Organics by GC/MS - Method 8270C	8270C	6-5/20/09
Sample Preparation and Analysis of Formaldehyde by HPLC - Method 8315	8315A	3-4/22/06
Sample Preparation and Analysis of the Determination of Trace Metals by Inductively Coupled Plasma Atomic/ Emission Spectroscopy /Mass Spectroscopy- Method 200.8	200.8	2-10/16/06
Sample Preparation and Analysis of the Determination of Trace Metals by Inductively Coupled Plasma Atomic Emission Spectroscopy - Method 6010B and Prep. Methods 3005A, 3010A and 3050B	6010B	5-5/31/09
Sample Preparation and Analysis of the Determination of Trace Metals by Inductively Coupled Plasma Atomic Emission Spectroscopy/Mass Spectrometry - Method 6020 and Prep. Methods 3005A, 3010A and 3050B	6020	1-10/19/06

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Preparation of Air Filters and Wipes for Lead Analysis by Method 200.7 or 6010B.	Pb-Air-Wipe	0-5/20/09
Determination and Analysis of Perchlorate by Ion Chromatography EPA Method 314.0	314.0	1-8/8/06
Total Alkalinity Analysis in Water by Titrimetric technique (pH4.5) - Method 2320B	TALK2320B	3-3/25/09
Determination of Ammonia by Lachat Continuous Flow Phenate Analysis : Method 350.1	350.1 Lachat	3-8/14/08
The Determination of Inorganic Anions in Water by Ion Chromatography	Anion 300.0	1-2/8/07
The Determination of Inorganic Anions by Ion Chromatography Lachat QuickChem Method 19-510-00-1-A	Lachat 300.0	0-3/18/09
The Determination of Inorganic Anions in Water by Ion Chromatography	Anion 9056	0-2/16/07
Bromide Analysis by Titrimetric Technique: Standard Method 15th Edition p.S44	Br 15 S44	1-2/25/09

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Sample Preparation and Analysis of Biological Oxygen Demand (BOD) SM 5210B	BOD/CBOD SM 5210	2-3/30/09
Hexavalent Chromium Analysis by Colorimetric Technique: Method 3500 CR-D (water)	Cr6 3500 CrD	6-5/13/09
Hexavalent Chromium Analysis by Colorimetric Technique: Method 7196A (soil)	CR6 7196A	1-3/1/07
Conductivity Analysis in Water by Electrometric Technique EPA Method - 120.1	COND 120.1	3-2/8/07
Conductivity Analysis in Water by Electrometric Technique SM18.2510B	COND 2510B	2-2/8/07
Chemical Oxygen Demand Analysis by Manual Colorimetric Technique: Method 410.4	COD	6-2/28/07
Sample Preparation and Analysis of Color Method 2120B	2120B	0-3/13/09
Total Cyanide in Water by Manual Spectrophotometric Technique - Method 4500 CN-E	CN 4500E	3-1/17/07

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Total Cyanide Analysis in Water and Soils by Manual Spectrophotometric Technique with Midi-Distillation - Method 9014 with 9010 Distillation	CN9014/9010	5-9/11/07
Fluoride Analysis in Water by Ion Selective Electrode - 4500F C	FLUORIDE	3-1/26/09
Fluoride Analysis in Water by Ion Selective Electrode - EPA 9214	Fl 9214	0-2/6/07
Total Hardness Analysis in Waters by Manual Titrimetric (EDTA) Technique SM 18-20 2340C	Hard 2340C	1-3/24/98
Total Kjeldahl Nitrogen (TKN) Analysis by Semi-Automated Colorimetric Technique: Method 351.2	TKN	9-8/13/08
Analysis of MBAS: Standard Method 5540C	MBAS 5540C	0-5/30/07
Determination of Nitrate/Nitrite by Lachat Continuous Flow Cadmium Reduction Analysis Method 353.2	353.2 Lachat	2-1/18/07
Analysis of Organic Nitrogen (by Calculation)	ORG-NIT	1-5/31/09

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Phosphorous, All Forms Colorimetric Ascorbic Acid SM 18 4500-PE	Phos-4500PE	2-5/12/09
Phosphorous, All Forms Colorimetric Ascorbic Acid Method EPA 365.2	Phos 365.2	1-2/7/07
Method 1664A Total Recoverable Oil and Grease and Petroleum Hydrocarbon Analysis in Waters N-Hexane Extractable Material(SGT_HEM) by Extraction and Gravimetry	O&G1664	3-3/19/09
Oil and Grease Extraction Method For Sludge and Sediment	9071A	1-5/19/09
Sample Preparation and Analysis of pH Electrometric Measurement - Method 9040B	pH 9040B	1-2/8/07
pH Analysis in Soils, Sediments and Sludges by Electrometric TechniqueEPA Method 9045C	pH 9045C	1 - 2/13/07
Total Recoverable Phenol Analysis by Manual Colorimetric Technique with Mini-Distillation: Method 420.1	420.1	6-9/13/06
Total Recoverable Phenol Analysis by Manual Colorimetric Technique with Mini-Distillation: Method 9065	9065	1-9/19/06

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Sample Preparation and Analysis of Sulfide: Method 376.1	S376.1	6-2/28/07
Sample Preparation and Analysis of Sulfide (Titrimetric, Iodine) - Method 9034	S 9034	1-2/28/07
Sample Preparation and Analysis of Sulfide in Soil - Method 9030B Modified	S 9030B	1-5/12/09
Sample Preparation and Analysis of Sulfate (Turbidimetric) SM 18-19 4500-E	SO4 4500-E	1-2/7/07
Sample Preparation and Analysis of Sulfate (Turbidimetric) SW846 9038	SO4 9038	1-2/7/07
Sample Preparation and Analysis of Total Dissolved Solids - Method 2540C	TDS 2540C	3-3/24/09
Sample Preparation and Analysis of Turbidity: Method 180.1 (Nephelometric)	180.1	5-5/10/07
Colilert Coliform and E. Coli Water Analysis - 9223	COLILERT	3-6/1/06
Colilert 18 Method for the Analysis of Total Coliform and E. Coli in Water Method 9223B	COLILERT 18	2-5/26/09
Heterotropic Plate Count - Method 9215D	HPC	5-10/16/06

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Multiple Tube Fermentation Technique for Members of the Coliform Group - Method 9221 B, C and E	MPN	5-4/30/09
Method 9221Dand 40CFR,141.21(f)6i Presence and Absence Coliform and E.Coli Water Analysis	PA	2-10/16/06
Colisure Method for the Analysis of Total Coliform and E. Coli in Water Method 9223B	COLISURE	1-10/16/06
Pensky-Martens Closed-Cup method for Determining Ignitability - Method 1010	1010	1-5/27/09
Toxicity Characteristic Leaching Procedure - Method 1311	1311	3-5/26/09
Sample Preparation of Cyanide and Sulfide Reactivity	REACTIVITY	1-5/18/09
Manual Integration Organic Analysis for GC, GCMS, HPLC	Integration	2-3/1/07
Sample Preparation and Analysis of the Determination of Trace Metals by Inductively Coupled Plasma Atomic Emission Spectroscopy with Hardness Calculation - Method 200.7	200.7	3-5/19/09

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Sample Preparation and Analysis of Total Solids - Method 2540B	TS 2540B	0-9/20/07
Total Organic Carbon Analysis in Water by Combustion Infrared Technique: SM5310B	TOC 5310B	1-3/30/09
Temperature (Thermometric) SM2550B	TEMP 2550B	0-9/20/07
Determination of Ammonia by Continuous Flow Phenate Analysis: SM4500-NH3 B H	SM4500-B H	3-3/25/09
pH Analysis in Water by Electrometric Technique SM4500-H B	pH 4500-H B	1-5/28/09
Acidity Analysis in Water by Titrimetric Technique SM2310B	Acidity 2310B	0-3/22/07
Sample Preparation and Analysis of Methylene Blue Active Substances (MBAS)	SM 5540C	0-5/30/07
Sample Preparation and Analysis of Total Suspended Solids (Nonfilterable Residue - Gravimetric): SM2540D	TSS2540D	1-3/24/09
Sample Preparation and Analysis of Sulfide (Titrimetric, Iodine) - SM4500-S E	S 4500-S E	1-3/31/09

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Determination of Chloride by Continuous Flow Injection Analysis SM4500-Cl E	4500-Cl E	1-3/23/09
Enterococcus Analysis Method - D6503-99	ENTERO	1-6/2/06
Sample Preparation and Analysis of Chlorinated Hydrocarbons in Water Method 612	612	1-8/7/08
1,2-Dibromoethane (EDB) and 1,2-Dibromo-3-chloropropane (DBCP) by Microextraction and Gas Chromatography	8011	5/27/2009
Procedure to Select Samples for use as MS/MSD Analyses	QC Select	0-6/27/02
Preparation of Standards and Reagents, Cleaning of Containers	Materials	2-5/25/09
N-Methylcarbonoyloximes and N-Methylcarbamates in Water and Soil by HPLC - Method 8318	8318	0-7/9/07
Analysis of Volatile Organics on Sorbent Cartridges from Volatile Organic Sampling Train (VOST)	5041	1-2/27/06

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Analysis of Volatile Organics in Ambient Air Using Summa or Other Specially Prepared Canisters by GCMS	NJDEPLLTO-15	1-7/9/08
Analysis of Volatile Organics in Ambient Air Using Summa or Other Seciality Prepared Canisters by GCMS/SCAN/SIM	TO-14A	0-1/12/04
Determination of Chloride by Continuous Flow Injection Analysis Low Flow Method 9250	Cl 9250	0-3/6/07
Total Cyanide and Cyanide Amenable to Chlorination in Water and Soils by Manual Spectrophotometric Technique with Midi-Distillation - SM4500-C E,G	CNA4500CEG	2-9/11/07
Sample Preparation and Analysis of Settleable Solids: SM 2540 F	SS 2540F	0-10/11/07
Sample Preparation and Analysis of Volatile Solids: Method 160.4	Vsolids160.4	1-5/31/07
Sample Prep and Analysis Chlorine Residual DPD Method	Cl2 4500Cl G	2-5/28/09
Method RSK-175 Analysis of Dissolved Gases in Water by FID	RSK175	2-5/15/09

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Sample Preparation and Analysis of Mercury in Water by Manual Cold Vapor Technique - Method 245.1	245.1	3-6/1/09
Sample Preparation and Analysis of Mercury in Water by Manual Cold Vapor Technique - Method 245.1 CLP-M	245.1 CLPM	2-10/31/06
Sample Preparation and Analysis of Mercury Analysis in Soil/Sediment by Manual Cold Vapor Technique - Method 245.5-CLP-M	245.5CLPM	3-6/1/09
Sample Preparation and Analysis of Mercury in Water by Manual Cold Vapor Technique - Method 7470A	7470A	3-6/1/09
Sample Preparation and Analysis of Mercury in Soil/Sediment - Method 7471A	7471A	3-6/1/09
EPA SW846 Method 1110 Corrosivity Towards Steel	Corr1110	1-5/14/09
Corrosivity SM2330B Langlelier	CorrSM2330B	1-5/14/2009
Sample Preparation and Analysis of Odor Method 140.1	Odor 140.1	1-1/31/07

SOP TITLE	SOP NUMBER	REVISION NUMBER AND DATE
Oil and Grease Extraction Method For Sludge and Sediment	O&G 9071A	1-5/19/09
Sample Preparation and Analysis UV254	UV254 5910B	1-5/22/07
Quality Assurance Quality Control Manual	QAM009	9-2/12/09
Methylene Chloride Plan	MC	2-5/16/09
Chemical Hygiene Plan	CHP	2-5/16/09
New Employee Handbook	NEW	2-5/16/09
Hazard Communication Program	HCP	2-5/7/09

Section	Instrument Type	Manufacturer	Model #	Preventative Maintenance	Manual location	Serial #	Date Rec'd.	Condition when rec'd.
HPLC	Fluorescence Detector	Shimadzu	RF-10AXL				2001	
HPLC	HPLC System II for 549	Perkin Elmer					1993	
HPLC	Autosampler	Perkin Elmer	155 200				1993	
HPLC	Binary LC Pump	Perkin Elmer	250				1993	
HPLC	Diode Array Detector	Perkine Elmer	235C				1993	
GC	Gas Chromatograph	Perkin Elmer	Clarus 500	As needed: change column Monthly: PID lamp cleanup, Septa change, change injection port liner, clip column ECD Detectors: Annually: Wipe test If needed: Return to factory to refoil.			2004	
GC	Gas Chromatograph	Hewlett Packard	6890				1998	
GC	Gas Chromatograph	Hewlett Packard	6890				2000	
GC	Gas Chromatograph	Hewlett Packard	6890			US00023151	2002	Used
GC	Gas Chromatograph	Hewlett Packard	6890		Bookshelf	US10221098	2008	Used
GC	Gas Chromatograph	Perkin Elmer	Autosystem		Next to Refrig#2	610N2120204	1992	New
GC	Gas Chromatograph	Perkin Elmer	Autosystem		Next to refrig#2	610N2121406	1993	New
GC	Electrolytic Conductivity Detectors	Perkin Elmer	1000		Next to refrig#2	920057	1993	New
GC	Electrolytic Conductivity Detectors	Perkin Elmer	2000		Next to refrig#2		2004	New
GC	Flame Ionization Detectors	Perkin Elmer	N611		Next to Refrig#2		1993	New

Appendix D
Deed Restriction

DECLARATION of COVENANTS and RESTRICTIONS

THIS COVENANT is made the ___ day of _____ 20__, by EMPIRE PROPERTIES, L.L.C., a limited liability company organized and existing under the laws of the State of New York and having an office for the transaction of business at 1 International Boulevard, Suite 610, Mahwah, New Jersey 07495.

WHEREAS, MACBETH KOLLMORGEN CORP. is the subject of an Order on Consent executed by MACBETH KOLLMORGEN CORP. as part of the New York State Department of Environmental Conservation's (the "Department's) State Superfund Program, namely that parcel of real property located on 617 Little Britain Road in the Town of New Windsor, County of Orange, State of New York, which is part of lands conveyed by MACBETH KOLLMORGEN CORP. to EMPIRE PROPERTIES, L.L.C. by deed dated November 5, 2007 and recorded in the Orange County Clerk's Office in Liber and Page Book 12611 / Pages 648-653, and being more particularly described in Appendix "A," attached to this declaration and made a part hereof, and hereinafter referred to as "the Property"; and

WHEREAS, the Department approved a remedy to eliminate or mitigate all significant threats to the environment presented by the contamination disposed at the Property and such remedy requires that the Property be subject to restrictive covenants.

NOW, THEREFORE, EMPIRE PROPERTIES, L.L.C., for itself and its successors and/or assigns, covenants that:

First, the Property subject to this Declaration of Covenants and Restrictions is as shown on a map attached to this declaration 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 State 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 use or occupancy of the Property that results in unacceptable human exposure to contaminated soils.

Third, the owner of the Property shall prohibit the Property from ever being used for purposes other than for Commercial or Industrial use without the express written waiver of such prohibition by the Department or Relevant Agency.

Fourth, the owner of the Property shall prohibit the use of 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.

Fifth, the owner of the Property shall provide a periodic certification, prepared and submitted by a qualified environmental professional acceptable to the Department or Relevant Agency, which will certify that the institutional controls put in place are unchanged from the previous certification, comply with the SMP, and have not been impaired.

Sixth, the owner of the Property shall continue in full force and effect any institutional controls required for the Remedy and maintain such controls, unless the owner first obtains permission to discontinue such controls from the Department or Relevant Agency, in compliance with the approved SMP, which is incorporated and made enforceable hereto, subject to modifications as approved by the Department or Relevant Agency.

Seventh, this Declaration is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Property, and shall provide that the owner and its successors and assigns consent to enforcement by the Department or Relevant Agency of the prohibitions and restrictions that the Order on Consent requires to be recorded, and hereby covenant not to contest the authority of the Department or Relevant Agency to seek enforcement.

Eighth, any deed of conveyance of the Property, or any portion thereof, shall recite, unless the Department or Relevant Agency has consented to the termination of such covenants and restrictions, that said conveyance is subject to this Declaration of Covenants and Restrictions.

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

By: _____

Print Name: _____

Title:_____ Date:_____

STATE OF NEW YORK)

) s.s.:

COUNTY OF)

On the _____ day of _____, in the year 2011, before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____

Notary Public State of New York

[12/10]