



Final Engineering Report

Glenwood Landing Former Gas Plant Site



May 2012

FINAL ENGINEERING REPORT

**NATIONAL GRID
GLENWOOD LANDING FORMER GAS PLANT SITE
GLENWOOD LANDING, NEW YORK**

**VOLUNTARY CLEANUP
AGREEMENT NO. R1-0001-01-01**

Prepared for:

**NATIONAL GRID
HICKSVILLE, NEW YORK**

Prepared by:

**DVIRKA AND BARTILUCCI CONSULTING ENGINEERS
WOODBURY, NEW YORK**

MAY 2012

CERTIFICATIONS

I, Brian M. Veith, am currently a registered professional engineer licensed by the State of New York. I certify that the New York State Department of Environmental Conservation (NYSDEC) approved Conceptual Remedial Action Plan (RAP) was implemented and that all construction activities were completed in substantial conformance with this document.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the Conceptual RAP and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established in for the remedy.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and/or any operation and maintenance requirements applicable to the Site are contained in a deed restriction created and recorded pursuant to Environmental Conservation Law (ECL) 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, and that such plan has been approved by Department.

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Brian M. Veith, of Dvirka and Bartilucci Consulting Engineers, am certifying as Owner's Designated Site Representative for the site.



071687
NYS Professional
Engineer #

Stamp

5/21/2012

Date

Brian Veith

Signature

LIST OF ACRONYMS

Acronym	Definition
AEHS	Association for Environmental Health and Sciences
ASP	Analytical Services Protocol
BGS	Below Ground Surface
CAMP	Community Air Monitoring Plan
CVOC	Chlorinated Volatile Organic Compound
D&B	Dvirka and Bartilucci Consulting Engineers
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
FER	Final Engineering Report
MEG	Miller Environmental Group
MG/KG	Milligram/Kilogram
NYCRR	New York Codes Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
QA/QC	Quality Assurance/Quality Control
RAO	Remedial Action Objective
RAP	Remedial Action Plan
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SVOC	Semivolatile Organic Compounds
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
USEPA	United States Environmental Protection Agency
VCA	Voluntary Cleanup Agreement
VHB	Vanasse Hangen Brustlin, Inc.
VOC	Volatile Organic Compound

FINAL ENGINEERING REPORT GLENWOOD LANDING FORMER GAS PLANT SITE

TABLE OF CONTENTS

<u>Section</u>	<u>Description</u>	<u>Page</u>
1.0	BACKGROUND AND SITE DESCRIPTION.....	1-1
2.0	SUMMARY OF SITE REMEDY	2-1
2.1	Remedial Action Objectives	2-1
2.1.1	Groundwater RAOs	2-1
2.1.2	Soil RAOs	2-1
2.2	Description of Selected Remedy	2-2
3.0	INTERIM REMEDIAL MEASURES, OPERABLE UNITS AND REMEDIAL CONTRACTS.....	3-1
4.0	DESCRIPTION OF REMEDIAL ACTIONS PERFORMED	4-1
4.1	Governing Documents	4-1
4.1.1	Community Air Monitoring Plan (CAMP)	4-1
4.2	Remedial Program Elements.....	4-2
4.2.1	Contractors and Consultants	4-2
4.2.2	Site Preparation and Controls	4-3
4.2.3	CAMP Results	4-4
4.3	Contaminated Materials Removal.....	4-4
4.3.1	Soil	4-4
4.3.1.1	Area 1A-5 Hot Spots.....	4-8
4.3.1.2	Area 2-2 Former Boiler Wash Disposal Area.....	4-8
4.3.1.3	Area 2-3 Lab Septic Area	4-8
4.3.1.4	Area 2-4 23kV Substation.....	4-9
4.3.1.5	Area 2-6 4kV Substation.....	4-9
4.3.1.6	Area 2-7 Construction Debris Piles	4-9
4.3.1.7	Area 3-1 Former Wastewater/Condensate Area	4-9
4.3.1.8	Area 3-8 Compressor Building/Gas Holder.....	4-10
4.3.1.9	Drip Pits in Area 3-1	4-10
4.3.2	Water.....	4-10
4.3.3	Asbestos	4-11

TABLE OF CONTENTS (continued)

<u>Section</u>	<u>Description</u>	<u>Page</u>
4.4	Remedial Performance/Documentation Sampling.....	4-11
4.4.1	Sampling Approach and Methodology	4-11
4.4.2	Laboratory Analytical Results	4-12
	4.4.2.1 Area 1A-5 Hot Spots.....	4-12
	4.4.2.2 Area 2-2 Former Boiler Wash Disposal Area.....	4-12
	4.4.2.3 Area 2-3 Lab Septic Area	4-13
	4.4.2.4 Area 2-4 23kV Substation.....	4-14
	4.4.2.5 Area 2-6 4kV Substation.....	4-14
	4.4.2.6 Area 2-7 Construction Debris Piles	4-15
	4.4.2.7 Area 3-1 Former Wastewater/Condensate Area	4-15
	4.4.2.8 Area 3-8 Compressor Building/Gas Holder.....	4-17
	4.4.2.9 Drip Pits in Area 3-1	4-17
	4.4.2.10 Manholes and Outfall Pipes	4-18
4.4.3	QA/QC and Data Usability	4-19
4.5	Imported Backfill	4-20
4.6	Contamination Remaining at the Site	4-20
4.7	Soil Cover System.....	4-22
4.8	Other Engineering Controls	4-22
4.9	Institutional Controls	4-22
4.10	Changes/Additions to the Conceptual Remedial Action Plan	4-24
4.10.1	Drip Pits	4-24
4.10.2	Asbestos Removal.....	4-25
4.10.3	Yard Piping	4-25
4.10.4	Area 1B Additional Investigation	4-26
	4.10.4.1 Radiation Screening	4-26
	4.10.4.2 Magnetometer Survey	4-26
4.10.5	Storm Sewer and Outfall Sampling	4-27
4.10.6	Industrial Use	4-27
4.10.7	Groundwater	4-28

List of Appendices

Deed Restriction.....	A
Electronic Copy of Final Engineering Report	B
Supplemental Environmental Site Assessment Report.....	C
Remedial Action Summary Report – Surface and Shallow Subsurface Soil.....	D

TABLE OF CONTENTS (continued)

List of Appendices (continued)

Site Management Plan E

NYSDEC Letter F

List of Figures

1-1 Site Location Map 1-2

1-2 Site Plan 1-3

List of Tables

4-1 Soil Disposal Summary..... 4-6

4-2 Site-Specific Soil Cleanup Objectives 4-7

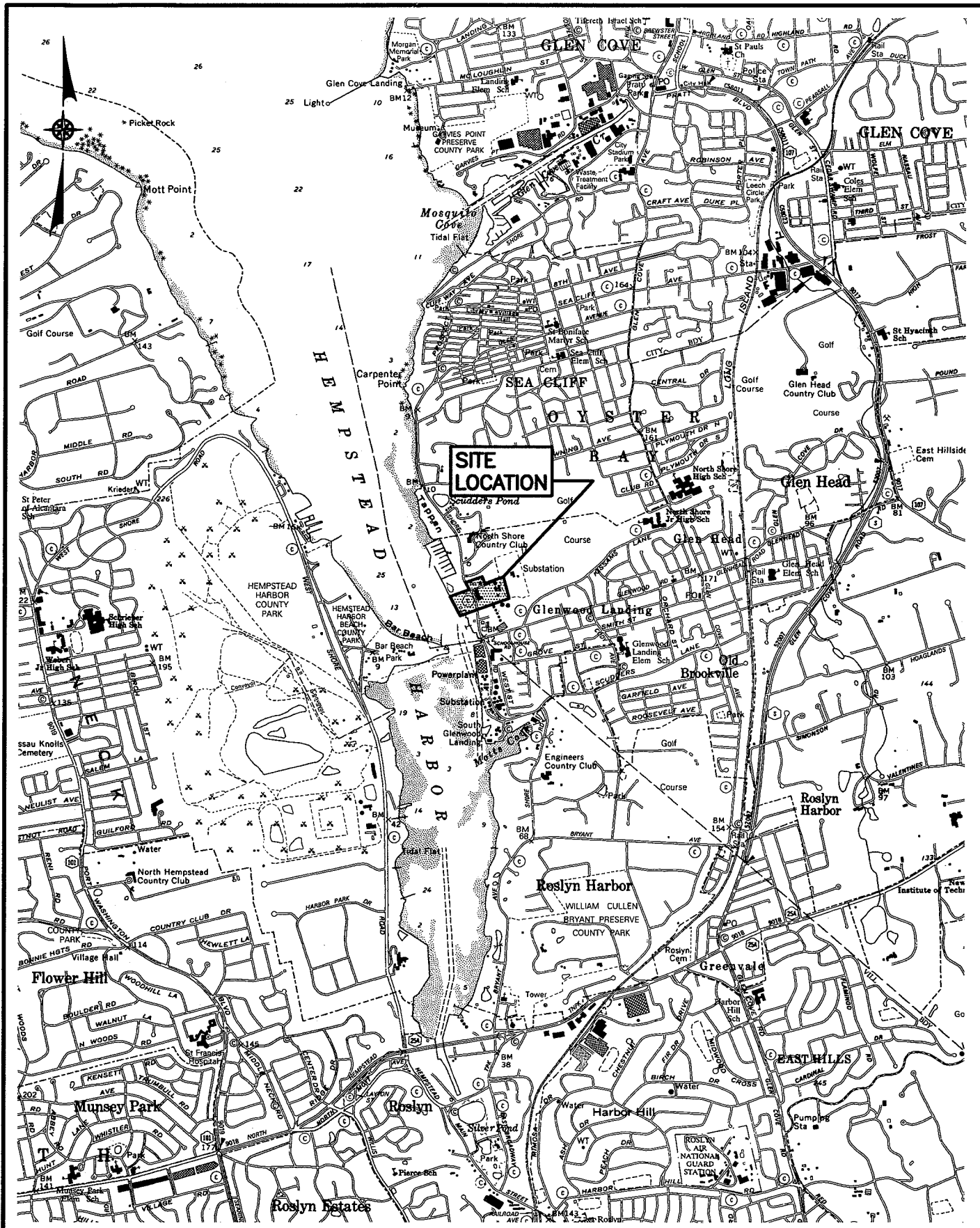
1.0 BACKGROUND AND SITE DESCRIPTION

National Grid's corporate predecessor, KeySpan Corporation, entered into a Voluntary Cleanup Agreement (VCA) with the New York State Department of Environmental Conservation (NYSDEC) in March 2001, to investigate and remediate a property located in Glenwood Landing, Nassau County, New York. The property was remediated to industrial use classification (Areas 2 and 3) and restricted-residential classification (Areas 1A and 1B). Areas 2 and 3 were redeveloped as an electric generating station.

The site is located in the County of Nassau, New York and is identified as Section 21, Block F, P/O Lots 4, 9 and 1947, and Section 21, Block M, P/O Lots 35, 36, 596 and 597 on Nassau County Tax Maps. The approximately 3-acre property is located on approximately 800 feet of waterfront on the east shore of Hempstead Harbor, and extends east across Shore Road. The site is bounded by North Shore Country Club to the north and east, a Mobil Oil/Storage Terminal to the south, and Hempstead Harbor to the west (see Figure 1-1). The boundaries of the site are fully described in the metes and bounds site description that accompanies the Deed Restriction (see Appendix A).

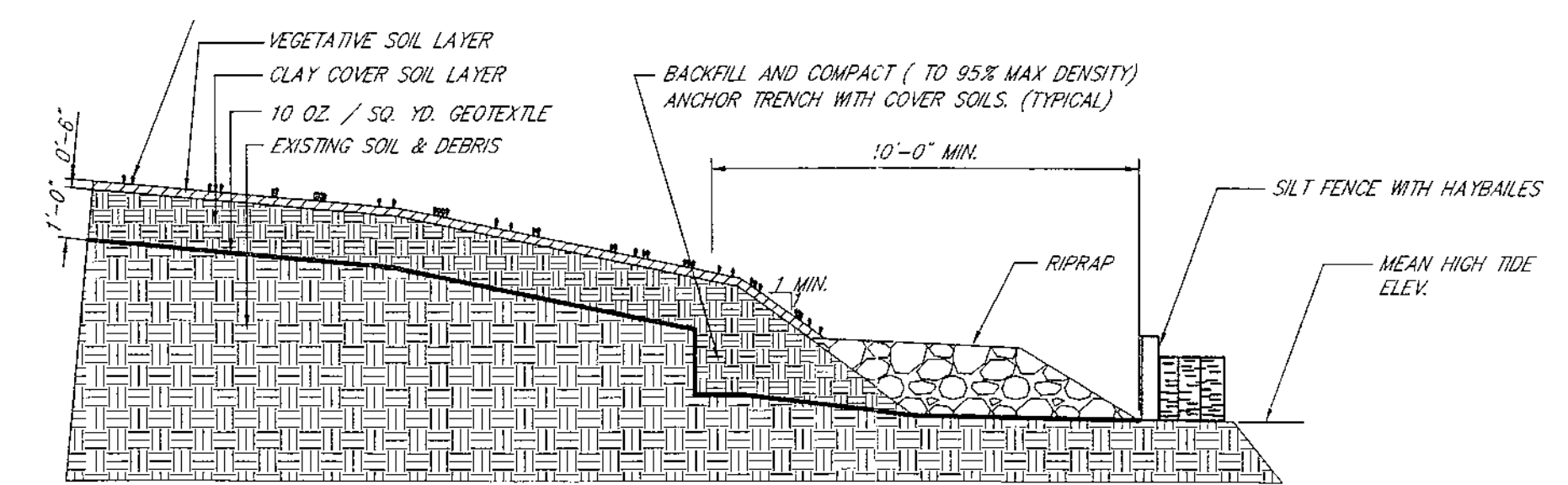
The site was divided into three areas: Areas 1, 2 and 3 (see Figure 1-2). Area 1 includes the entire site west of Shore Road and was subdivided into Area 1A and 1B. Area 1A contained the former propane tank area and was subdivided into areas 5a through 5e. Area 1B was a greenspace and tidal wetland. Area 2 is east of Shore Road and north of the site access road where the laboratory, two electrical substations and storage buildings were located. Area 2 was subdivided into areas 2, 3, 4, 6 and 7. Area 3 is east of Shore Road and south of the site access road where the compressor building and former gas holder were located. Area 3 was subdivided into areas 1 and 8.

Prior to 1951, a hotel was operated at the site. The site was then developed as a natural gas reforming plant to reduce the BTU value of pipeline natural gas using a gas catalytic cracking process. The plant started operating in 1951. Subsequent development included a natural gas regulating station (Compressor Station), laboratory and propane storage field.

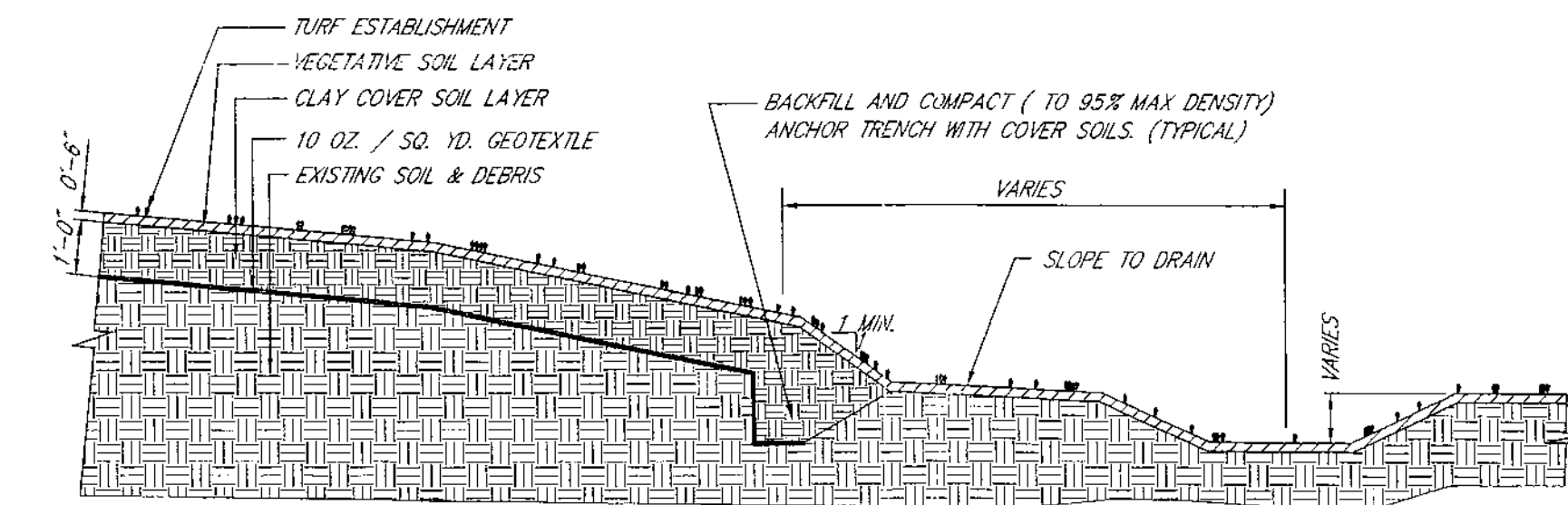


LEGEND

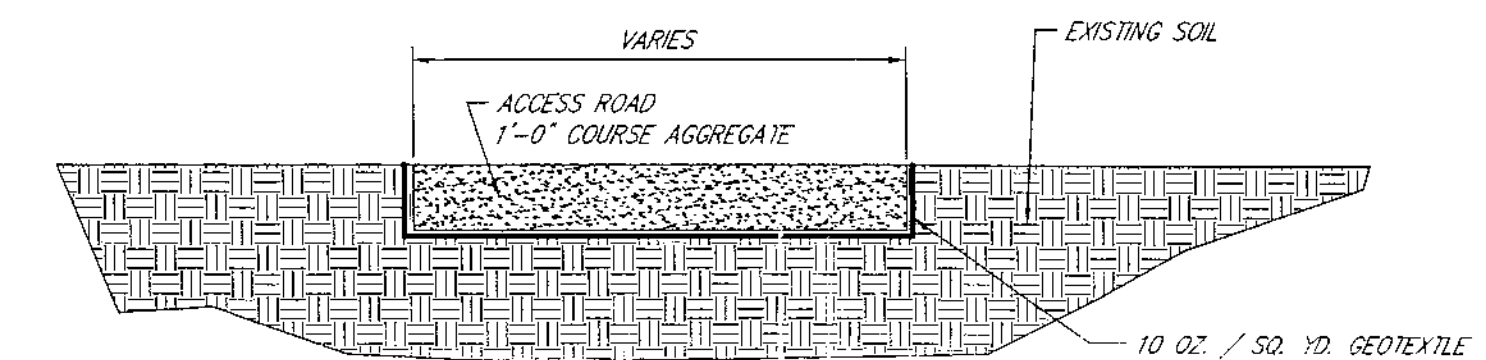
- MONITORING WELL
- SOIL BORING
- SURFACE SOIL SAMPLE
- GEOPROBE SAMPLE
- SURFACE WATER/SEDIMENT SAMPLE
- M.H. MANHOLE
- DW DRYWELL
- OF OUTFALL
- C.B. CATCH BASIN
- AS-BUILT MINOR CONTOUR
- AS-BUILT MAJOR CONTOUR
- FORMER MINOR CONTOUR
- FORMER MAJOR CONTOUR
- FORMER TOP OF BANK
- TREE/BRUSH LINE
- RIPRAP



TYPICAL COVER AND TRENCH DETAIL
SECTION 'C-C'
(Not To Scale)



TYPICAL COVER AND TRENCH DETAIL
SECTION 'B-B'
(Not To Scale)



TYPICAL GRAVEL ACCESS ROAD DETAIL
SECTION 'A-A'
(Not To Scale)

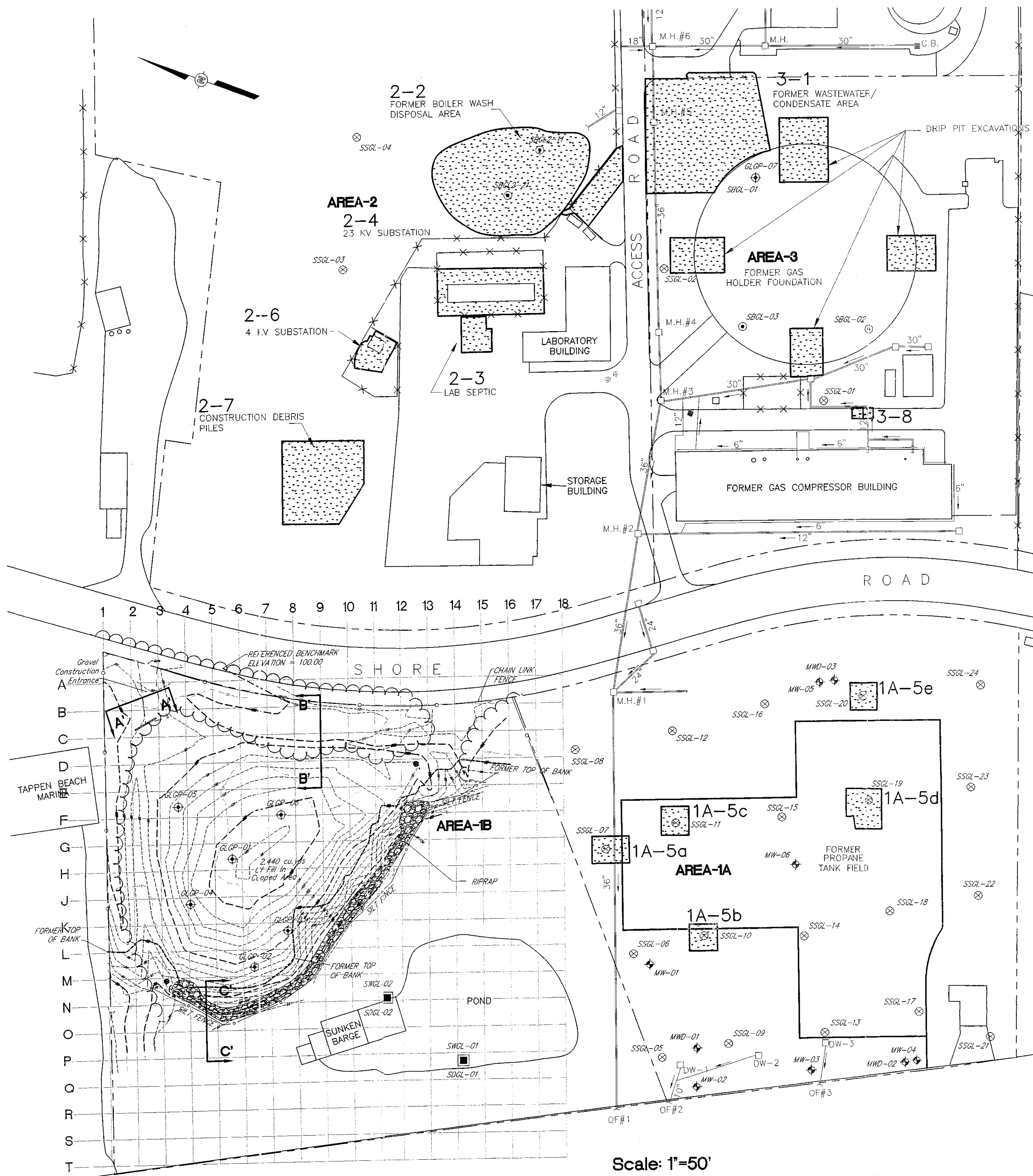
PROPOSED EXCAVATION VOLUMES				ACTUAL EXCAVATION VOLUMES		
AREA	AREA(FT.)	DEPTH (FT)	VOL.(C.Y.)	AREA(FT.)	DEPTH (FT)	VOL.(C.Y.)
AREA 1A-5 HOT SPOTS	25'x25' (5)	1'	12C	25'x25' (3) 35'x35' (2)	1'	161
AREA 2-2 FORMER BOILER WASH DISPOSAL AREA	90'x 100'	8'	2670	90'x 145'	8'	3867
AREA 2-3 LAB SEPTIC	30'x 20'	8'	18C	34'x 20'	8'	180
AREA 2-4 23 KV SUBSTATION	25'x 70'	2'	105	200'x 12' 15'x 18'	2'	198
AREA 2-6 4 KV SUBSTATION	35'x 25'	2'	65	35'x 25'	2'	65
AREA 2-7 CONSTRUCTION DEBRIS PILES	100'x 40'	5'	74C	100'x 40'	5'	740
AREA 3-1 FORMER WASTEWATER/CONDENSATE AREA	100'x90'	8'	2670	100'x90'	8'	2670
AREA 3-8 COMP. BLDG./GAS HOLDER	10'x 10'	2'	8	20'x 10'	2'	15

Proposed Remedial Action Objectives
For Soils in Areas 1, 2, and 3 (mg/kg)

Analyte	Objective
Benzo(a)anthracene	1
Benzo(b)fluoranthene	1
Benzo(a)pyrene	0.1
Indeno (1,2,3-cd)pyrene	1
Benzo(g,h,i)perylene	310
Dibenzo(a,h)anthracene	0.1
Arsenic	20
Lead	400
Vanadium	500
PCBs	2

Response actions should meet the designated values to the Groundwater Interface.

EXCAVATION AREAS



Scale: 1"=50'

Glenwood Landing
Gas Plant Site
Glenwood Landing, New York

Issued for
KETSPAN
ENERGY

Drawing Title

SITE PLAN

Drawing Number

1-2

Sheet of

1 1

Project Number

06392-26

The gas facilities and propane storage tank field have since been decommissioned and demolished. The Compressor Station and associated site features have also been decommissioned and demolished. Laboratory services have been terminated and a portion of the site was redeveloped for electric power generation.

An electronic copy of this Final Engineering Report (FER) with all supporting documentation is included as Appendix B.

2.0 SUMMARY OF SITE REMEDY

2.1 Remedial Action Objectives

Based on the results of the September 2001 Supplemental Environmental Site Assessment, the following Remedial Action Objectives (RAOs) were identified for this site.

2.1.1 Groundwater RAOs

RAOs for Public Health Protection

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection

- Prevent the discharge of contaminants to surface water.

2.1.2 Soil RAOs

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

2.2 Description of Selected Remedy

The site was remediated in accordance with the remedy selected by the NYSDEC in the Conceptual RAP presented in the NYSDEC-approved Supplemental Environmental Site Assessment Report dated September 2001 and prepared by Vanasse Hangen Brustlin, Inc. (VHB) (see Appendix C). The following are the components of the selected remedy:

1. Excavation of soil/fill exceeding site-specific cleanup goals to a maximum depth of 6-8 feet, at which groundwater was encountered. The following excavation dimensions were anticipated:
 - Area 1A: 25 feet by 25 feet to a depth of 1 foot below ground surface (bgs)
 - Area 2-2: 90 feet by 100 feet to a depth of 8 feet bgs
 - Area 2-3: 30 feet by 20 feet to a depth of 8 feet bgs
 - Area 2-4: 25 feet by 70 feet to a depth of 2 feet bgs
 - Area 2-6: 35 feet by 25 feet to a depth of 2 feet bgs
 - Area 2-7: 100 feet by 40 feet to a depth of 5 feet bgs
 - Area 3-1: 100 feet by 90 feet to a depth of 8 feet bgs
 - Area 3-8: 10 feet by 10 feet to a depth of 2 feet bgs

The site specific cleanup goals were based on a residential site reuse scenario using the following guidance documents: United States Environmental Protection Agency (USEPA) Region III Risk Based Concentrations; NYSDEC Technical and Administrative Guidance Memorandum (TAGM) No. 4046 Soil Cleanup Objectives (SCOs); and Association for Environmental Health and Sciences (AEHS) background levels for polycyclic aromatic hydrocarbons (PAHs) and selected metals in New England urban soil. A list of the SCOs for the Site is shown on Table 4-2.

2. Construction and maintenance of a soil cover system to prevent human exposure to remaining contaminated soil/fill remaining at the site. The soil cover system in Area 1B consists of a 10 ounce/square yard geotextile, 1 foot of clean clay/soil cover, 6 inches of topsoil and vegetation. The soil cover system in Area 3 consists of clean fill from the bottom of the excavation area to approximately 6 inches below grade, and 6 inches of topsoil and vegetation.

3. In-situ groundwater treatment to reduce Volatile Organic Compounds (VOCs) in groundwater. Injections of an oxidation compound will be followed by quarterly groundwater monitoring.
4. Collection of sediment samples from the storm sewer manholes and below the three site outfalls located in Hempstead Harbor.
5. Execution and recording of a Deed Restriction to restrict land use and prevent future exposure to any contamination remaining at the site.
6. Development and implementation of a Site Management Plan (SMP) for long term management of remaining contamination as required by the Deed Restriction, which includes plans for: (1) Institutional and Engineering Controls, (2) Monitoring and (3) Reporting;
7. Periodic certification of the institutional and engineering controls listed above.

3.0 INTERIM REMEDIAL MEASURES, OPERABLE UNITS AND REMEDIAL CONTRACTS

The remedy for this site was performed as a single project, and no interim remedial measures, operable units or separate construction contracts were performed.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Remedial activities completed at the Site were conducted in accordance with the Conceptual RAP presented in the NYSDEC-approved Supplemental Environmental Site Assessment Report for the Glenwood Landing Gas Plant site (September, 2001). All deviations from the Conceptual RAP are noted below. The Remedial Action Summary Report – Surface and Shallow Subsurface Soil dated August 2003 and prepared by VHB presented the findings of the remedial activities performed under the Conceptual RAP (see Appendix D).

4.1 Governing Documents

Based on available documentation and a review of the August 2003 Remedial Action Summary Report, which was certified by a professional engineer, it is understood that a Site Specific Health and Safety Plan and Quality Assurance Project Plan were submitted and approved by the NYSDEC and all remedial work performed under this Remedial Action was in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal Occupational Safety and Health Administration regulations.

4.1.1 Community Air Monitoring Plan (CAMP)

All air monitoring was performed during the field investigation program in accordance and compliance with the provisions of the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan. Monitoring of VOCs was performed utilizing a Photoionization Detector and air samples were analyzed for particulate monitoring. Daily dust and silica samples were collected during the course of the project. In addition, air samples were collected for arsenic and vanadium in Area 1B, and polychlorinated biphenyls (PCBs) in Area 3-1 during excavation activities. Refer to Section 4.2.3 for a discussion of analytical results.

4.2 Remedial Program Elements

4.2.1 Contractors and Consultants

The following contractors and consultants completed the remedial program described in the approved Conceptual RAP:

- Matthew Wawrowski, P.E. of VHB was the certifying Engineer of Record responsible for inspection of the work and responsible for the day-to-day performance of the remedial program.
- VHB provided oversight of the remedial program.
- Mercer Group International (Mercer) was the General Contractor responsible for the demolition of the compressor building, former gasholder foundation, and ancillary structures/site features. Mercer was also responsible for the excavation and off-site disposal of surface and subsurface soil and structures.
- Additional excavation work in the 23kV Substation was completed by Tradewinds Environmental Restoration.
- Omega provided health and safety oversight.
- Daily dust and silica air samples were collected by Mercer and Omega.
- Code Environmental coordinated the transportation of excavated soil off-site to Clean Earth of New Castle, Inc., a treatment facility in Delaware.
- Gramercy Group Inc. performed asbestos abatement on subsurface pipes during excavation and demolition activities. The waste was transported by Asbestos Transportation Co., Inc. to Southern Alleghenies Disposal Services in Pennsylvania.
- PCB contaminated water was transported by HazMat Environmental Group Inc. to Trans-Cycle Inc. in Alabama.
- Miller Environmental Group (MEG) was responsible for vacuuming out all manholes using a vacuum truck.
- Materials Testing Laboratory, Inc. was present on-site to ensure that compaction of backfill materials was acceptable in Area 1.
- Galson Laboratories analyzed air samples for particulate monitoring.
- Waste characterization samples were analyzed by H2M Labs, Inc.

- Waste characterization and backfill samples were analyzed by Environmental Testing Laboratories, Inc.
- Endpoint soil samples were analyzed by Severn Trent Laboratories.
- Laboratory data review and verification of samples analyzed by Severn Trent Laboratories was performed by Environmental Quality Associates, Inc.

4.2.2 Site Preparation and Controls

Remediation activities at the site began on October 23, 2001, and were completed in January 2003. Site preparation for the clean cover system, including clearing and grubbing, began on November 13, 2001. Large trees and shrubs on the perimeter of the site were retained to provide a buffer. Cleared and grubbed trees were chipped and mulched for future use on-site. Dust control was implemented during demolition activities through the use of sprayed water, as needed.

A silt fence was installed at the bottom of the fill area slope prior to construction and was left in place to protect downgradient areas. A perimeter drainage swale was installed along the north, east and portions of the south side of the fill area to accommodate runoff. Riprap was placed on the slopes of the cover area adjacent to the tidal flat and wetlands to prevent potential erosion.

In preparation of excavation activities, the following work was performed:

- A truck entrance was created for Area 2-2 and the area was cleared of vegetation prior to excavation activities;
- Characterization samples were collected in Areas 2-3, 2-4 and 2-6;
- Area 2-7 was sampled for characterization and cleared of construction debris; and
- Test pits were conducted prior to excavation in Area 3-1.

During excavation activities, open excavations pending analytical results were covered and protected from rain and storm water. Excavated soil were staged on-site in stockpiles that

were lined, sloped, bermed, covered, and secured. The excavated soil was then disposed of at Clean Earth of New Castle, Inc. in Delaware.

A digital photo log of remedial activities is provided in Appendix G of the Remedial Action Summary Report – Surface and Shallow Subsurface Soil (VHB, 2003) (See Appendix D).

4.2.3 CAMP Results

All air monitoring was performed during the field investigation program in accordance and compliance with the provisions of the NYSDOH's Generic Community Air Monitoring Plan.

Daily dust and silica samples were collected by Mercer and Omega while remedial activities took place. The dust and silica analytical data is provided in Table 11 of Appendix D.

Air samples analyzed for the inorganic compounds, arsenic and vanadium, were collected in Area 1B during excavation activities. Arsenic and vanadium were not detected in any of the collected samples. The inorganic analytical data is provided in Table 12 of Appendix D.

PCBs were sampled for during excavation activities in Area 3-1. No PCBs were detected in any of the collected samples. The analytical data is provided in Table 12 of Appendix D.

4.3 Contaminated Materials Removal

4.3.1 Soil

As part of the remedial activities at the site, approximately 10,880 tons of non-hazardous soil was excavated and transported off-site for disposal at Clean Earth of New Castle, Inc., a permitted waste disposal facility located in New Castle, Delaware. The Clean Earth facility in Delaware is a thermal desorption treatment facility for non-hazardous soil. A total of 10,617 tons of soil was disposed between October 26, 2001 and February 27, 2002. An additional 263

tons were disposed on January 28, 2003 for a total of 10,880 tons. A summary of the total amount of soil removed by remedial is shown on Table 4-1. A figure of the location of original sources and areas where excavations were performed can be found on Figure 1-2.

Waste characterization profiles for Areas 1 through 8 are provided in Appendix D. Samples of nonhazardous waste manifests, asbestos manifests and manhole waste manifests can also be found in Appendix D.

Areas of soil contamination were excavated based on concentrations of contaminants detected above site-specific cleanup goals. The site specific cleanup goals were based on a residential site reuse scenario using the following guidance documents: USEPA Region III Risk Based Concentrations; NYSDEC TAGM No. 4046 SCOs; and AEHS background levels for PAHs and selected metals in New England urban soil. A list of the SCOs for the contaminants of concern for this project is provided in Table 4-2.

The excavations were limited to surface and shallow subsurface removal and did not extend below the water table, which was approximately 6 to 8 feet bgs. Upon completion of the initial excavations in each area, excavation endpoint samples were collected from each excavation area. One sample was collected from the bottom of the excavation, one outside each horizontal limit on the surface, and one sidewall sample per 5 feet of depth (i.e., an 8 foot deep excavation had two samples collected from each sidewall). Duplicate samples were collected from this matrix at a rate of 1 per 10. Samples collected were analyzed for semivolatile organic compounds (SVOCs), PCBs and Inorganics by Methods 8270C, 8020, and New York State (NYS) Analytical Services Protocol (ASP) 95 Target Analyte List (TAL) Metals, respectively, at a NYSDOH Environmental Laboratory Approval Program (ELAP) facility. Results were compared to the SCOs for the Site, as shown in Table 4-2.

Table 4-1

SOIL DISPOSAL SUMMARY

Excavation Area	Approximate Excavation Dimensions	Estimated Soil Removal Quantity (tons)
Area 1-A	25' x 25' x 1' (3) 35' x 35' x 1' (2)	220
Area 2-2	145' x 90' x 8'	5,413
Area 2-3	34' x 20' x 8'	283
Area 2-4	56' x 12' x 2' 20' x 10' x 2' 20' x 100' x 2'	354
Area 2-6	35' x 25' x 2'	91
Area 2-7	75' x 75' x 3'	900
Area 3-1	100' x 90' x 8'	3,600
Area 3-8	20' x 10' x 2'	22

Table 4-2

SITE SPECIFIC SOIL CLEANUP OBJECTIVES

Contaminant	Soil Cleanup Objective (mg/kg)
Arsenic	20
Lead	400
Vanadium	500
Benzo(a)anthracene	1.0
Benzo(b)fluoranthene	1.0
Benzo(a)pyrene	0.1
Indeno(1,2,3-cd)pyrene	1.0
Benzo(g,h,i)perylene	310
Dibenzo(a,h)anthracene	0.1
PCBs	2.0

Based on the results of the excavation endpoint samples, several areas were re-excavated in order to address the full extent of the contamination. Excavation endpoint samples were collected again in the same fashion as described above until SCOs were achieved, unless groundwater was encountered. Removal of contaminated soil below the water table was not performed.

4.3.1.1 - Area 1A-5 Hot Spots

Excavation of Area 1A-5 began on November 28, 2001 and was completed on December 14, 2001. Initial excavation limits were 25 feet by 25 feet to a depth of 1 foot bgs for all hot spots within Area 1A-5. Two areas, 5A and 5D, required additional excavations. Area 5A was excavated an additional 10 feet along the southern sidewall and Area 5D was excavated an additional 10 feet along the northern and western sidewalls. Approximately 220 tons of soil was excavated from this area as depicted on Figure 2-4 found in Appendix D.

4.3.1.2 - Area 2-2 Former Boiler Wash Disposal Area

Excavation of Area 2-2 began on November 9, 2001 and was completed on December 11, 2001. The final excavation limits for this area were approximately 145 feet by 90 feet to a depth of 8 feet bgs, as depicted on Figure 2-2 found in Appendix D. Approximately 5,413 tons of soil was excavated from this area.

4.3.1.3 - Area 2-3 Lab Septic Area

Excavation of Area 2-3 began on December 14, 2001 and was completed on December 21, 2001. The final excavation limits for this area were approximately 34 feet by 20 feet to a depth of 8 feet bgs, as depicted on Figure 2-3 found in Appendix D. Approximately 283 tons of soil was excavated from this area.

4.3.1.4 - Area 2-4 23kV Substation

Excavation of Area 2-4 began on November 13, 2001 and was completed in September 2002. The initial excavation limits of Area 2-4 were approximately 56 feet by 12 feet to a depth of 2 feet bgs, as depicted on Figure 2-3 found in Appendix D. Additional excavations of 20 feet by 10 feet to a depth of 2 feet bgs, and 20 feet by 100 feet to a depth of 2 feet bgs were completed and a total of approximately 354 tons of soil was excavated from this area. The final excavation was not completed until September 2002 because KeySpan had plans to de-energize the transformer substation.

4.3.1.5 - Area 2-6 4kV Substation

Excavation of Area 2-6 began on November 12, 2001 and was completed on November 20, 2001. The final excavation limits for this area were approximately 35 feet by 25 feet to a depth of 2 feet bgs, as depicted on Figure 2-5 found in Appendix D. A total of 91 tons of soil was excavated from this area.

4.3.1.6 - Area 2-7 Construction Debris Piles

Excavation of Area 2-7 began on November 6, 2001 and was completed on December 5, 2001. The initial excavation of Area 2-7 consisted of the removal of previously stockpiled construction debris consisting of soil containing asphalt and concrete. The area was cleared to allow for the stockpiling of excavated soil. Upon the final excavation of the area, 900 tons of soil and debris were excavated. The final dimensions of the excavation were approximately 75 feet by 75 feet to a depth of 3 feet bgs. The limits of the excavation are depicted on Figure 2-5 found in Appendix D.

4.3.1.7 - Area 3-1 Former Wastewater/Condensate Area

Excavation of Area 3-1 began on October 24, 2001 and was completed on November 20, 2001. The final excavation limits were approximately 100 feet by 90 feet to a depth of 6 to

8 feet bgs, as depicted on Figure 2-1 found in Appendix D. Approximately 3,600 tons of soil was excavated from this area. During excavation of the area, soil consisting of ash, cinders, boulders, piping, concrete and other debris was encountered. Steel and concrete were segregated from the excavated soil. The steel was recycled and the concrete was crushed and disposed off-site.

4.3.1.8 - Area 3-8 Compressor Building/Gas Holder

Excavation of Area 3-8 began on October 25, 2001 and was completed on December 4, 2001. The final excavation limits of this area were approximately 20 feet by 10 feet to a depth of 2 feet bgs, as depicted on Figure 2-5 found in Appendix D. Approximately 22 tons of soil was excavated from this area.

4.3.1.9 - Drip Pits in Area 3-1

The four drip pits located on the north, south, east and west sides of the former natural gas holding tank foundation were excavated on October 23, 2001 and completed by November 2, 2001. Each drip pit was approximately 33 feet by 9 feet and composed of concrete walls and bottoms that extended 6 feet bgs. The north drip pit excavation was approximately 6 feet deep and the other three were approximately 11 feet deep as depicted on Figure 3-1 found in Appendix D.

4.3.2 Water

PCB-contaminated water was removed from the West Gas Main and stored on-site in 55-gallon drums until it was disposed of on November 27, 2001. PCB-contaminated water from the circular historical foundation in Area 3-1 was disposed off-site by KeySpan.

Water from dewatering operations was pumped into a fractionation tank. On November 27, 2001 the fractionation tank was pumped out by Haz-Mat Incorporated for disposal.

4.3.3 Asbestos

During excavation and removal activities, asbestos was encountered on several subsurface pipes. Asbestos abatement on the gas drip lines running along the northern, southern, eastern and western edges of the former holding tank was performed by Mercer's subcontractor, Gramercy. A total of 273 cubic yards of asbestos was properly abated and disposed off-site at Southern Alleghenies Disposal Service. A sample manifest is provided in Appendix D.

4.4 Remedial Performance/Documentation Sampling

4.4.1 Sampling Approach and Methodology

Upon completion of the initial excavations in each area, excavation endpoint samples were collected from each excavation area. One sample was collected from the bottom of the excavation, one outside each horizontal limit on the surface, and one sidewall sample per 5 feet of depth (i.e., an 8 foot deep excavation had two samples collected from each sidewall). Duplicate samples were collected from this matrix at a rate of 1 per 10. Samples collected were analyzed for SVOCs, PCBs, and Inorganics by Methods 8270C, 8020, and NYS ASP 95 TAL Metals, respectively, at a NYSDOH ELAP facility. Results were compared to the SCOs for the Site, as shown in Table 4-2.

Based on the results of the excavation endpoint samples, several areas were re-excavated in order to address the full extent of the contamination. Excavation endpoint samples were collected again in the same fashion as described above. The results of endpoint sampling are detailed below. Figures depicting all end-point sampling locations can be found on Figures 2-1 to 2-5 and 3-1 of Appendix D. Soil analytical laboratory data can be found in Tables 1-10 of Appendix D.

4.4.2 Laboratory Analytical Results

4.4.2.1 - Area 1A-5 Hot Spots

Inorganics

A total of 45 soil samples were collected for metals analysis. There were no detected exceedances of site specific cleanup goals for metals in any of these samples.

Semivolatile Organic Compounds

Twenty-seven soil samples were collected for SVOCs in this area. All 27 samples had detected concentrations of SVOCs. Areas 1A-5B, 1A-5C, and 1A-5E did not require additional excavations. Areas 1A-5A and 1A-5D were re-excavated until samples met site specific cleanup goals.

Polychlorinated Biphenyls

Thirty-nine soil samples were collected and analyzed for PCBs. None of the samples exceeded the site-specific cleanup goal.

Laboratory analytical data for Area 1A-5 can be found in Table 5 of Appendix D. Sample locations are depicted on Figure 2-4 found in Appendix D.

4.4.2.2 - Area 2-2 Former Boiler Wash Disposal Area

Inorganics

A total of 27 endpoint soil samples were collected for metals analysis in this area. Several samples had detected concentrations of arsenic, lead and vanadium, although only one vanadium sample, GLA2-3S, was above the SCO of 500 milligram/kilogram (mg/kg) for

residential use, with a concentration of 681 mg/kg. Due to construction logistics additional soil was not excavated from this area. This area will continue to be used as industrial and could require further cleanup if the intended use changes to a less restrictive use (residential or unrestricted).

Semivolatile Organic Compounds

Twenty-seven samples were collected and analyzed for SVOCs. SVOCs were detected in five of the samples. None of the detected values exceeded the site specific cleanup goals. Benzo(a)pyrene was estimated at concentrations ranging from 0.1 to 0.56 mg/kg in samples GLA2-1, GLA2-1A, GLA2-2, GLA2-10, and GLA2-11S. Sample GLA2-10 also had an estimated concentration of dibenzo(a,h)anthracene of 0.16 mg/kg.

Polychlorinated Biphenyls

A total of 25 samples were collected for PCB analysis. Several samples had detected concentrations below the site specific cleanup goal of 2 mg/kg. Four samples, GLA2-1, GLA2-1A, GLA2-2, and GLA2-10, had concentrations of PCBs above the site specific cleanup goal. An additional excavation was not performed since these samples were collected at the groundwater interface at a depth of 6 feet bgs.

Laboratory analytical data for Area 2-2 can be found in Table 2 of Appendix D. Sample locations are depicted on Figure 2-2 found in Appendix D.

4.4.2.3 - Area 2-3 Lab Septic Area

Thirteen soil samples were collected for analysis of metals, SVOCs and PCBs. Several samples had detected concentrations of arsenic, lead, and vanadium below the site specific cleanup goals. No SVOCs were detected in the 13 samples, and no PCBs exceeded the site specific cleanup goal. Laboratory analytical data for Area 2-3 can be found in Table 3 of Appendix D. Sample locations are depicted on Figure 2-3 found in Appendix D.

4.4.2.4 Area 2-4 23kV Substation

Inorganics

Nineteen soil samples were collected for metals analysis. Several samples had detected concentrations of arsenic, lead and vanadium, with two lead concentrations above the site specific cleanup goal of 400 mg/kg. Lead concentrations of 408 and 450 mg/kg were detected in samples GLA4-2SB and GLA4-4SE, respectively.

Semivolatile Organic Compounds

SVOC analysis was performed on 19 soil samples. SVOCs were detected in 12 of the samples. Additional excavations were performed until sample results met the site specific cleanup goals.

Polychlorinated Biphenyls

A total of 19 soil samples were analyzed for PCBs. No samples had PCB concentrations exceeding the site specific cleanup goal.

Laboratory analytical data for Area 2-4 can be found in Table 4 of Appendix D. Sample locations are depicted on Figure 2-3 found in Appendix D.

4.4.2.5 - Area 2-6 4kV Substation

Ten samples were collected and analyzed for metals, SVOCs and PCBs. None of the samples exceeded site specific cleanup goals. Laboratory analytical data for Area 2-6 can be found in Table 6 of Appendix D. Sample locations are depicted on Figure 2-5 found in Appendix D.

4.4.2.6 Area 2-7 Construction Debris Piles

Inorganics

A total of 33 samples were collected for metals analysis. Several samples had detected concentrations of arsenic, lead and vanadium, all below their respective site specific cleanup goals.

Semivolatile Organic Compounds

Twenty-two soil samples were collected for SVOC analysis, with 16 samples having detected concentrations of SVOCs. None of the samples had detected concentrations above the site specific cleanup goals.

Polychlorinated Biphenyls

A total of 22 soil samples were collected for PCB analysis. None of the samples exceeded the site specific cleanup goal.

Laboratory analytical data for Area 2-7 can be found in Table 7 of Appendix D. Sample locations are depicted on Figure 2-5 found in Appendix D.

4.4.2.7 Area 3-1 Former Wastewater/Condensate Area

Inorganics

Nineteen soil samples were collected for inorganics analysis. Several samples had detected concentrations of arsenic, lead and vanadium. There were no detected exceedances of site specific cleanup goals for metals in any of these samples.

Semivolatile Organic Compounds

Fourteen samples were collected for SVOC analysis in which nine samples had detected concentrations. None of these samples exceeded the site specific cleanup goals. Several carcinogenic-polycyclic aromatic hydrocarbons were detected in sample GLA1-2 including benzo(a)anthracene and benzo(b)fluoranthene, at estimated concentrations of 1.5 and 0.68 mg/kg, respectively. This sample was collected at 6 feet bgs at the water table interface. The Conceptual RAP did not require soil removal below the groundwater interface.

Benzo(a)pyrene was detected in samples GLA1-2, GLA1-3S, and GLA1-4S at concentrations of 1.2, 0.3, and 0.15 mg/kg, respectively. Sample GLA1-3S was re-sampled due to construction activities. No detected concentrations of SVOCs were found in this sample, GLA-3SSA.

Polychlorinated Biphenyls

Of the 15 samples collected and analyzed for PCBs in Area 3-1, two samples had concentrations of Aroclors above the site specific cleanup goal of 2 mg/kg. Sample GLA1-2 had concentrations of Aroclors 1242, 1248, 1254, and 1260 of 35, 7.3, 7.3, and 2.1 mg/kg, respectively. Additional excavation of this area was not conducted because the sample was collected at the water table interface. The Conceptual RAP did not require soil removal below the groundwater interface. Sample GLA1-4 had an Aroclor 1248 concentration of 3.7 mg/kg. This area was re-excavated.

Laboratory analytical data for Area 3-1 can be found in Table 1 of Appendix D. Sample locations are depicted on Figure 2-1 found in Appendix D.

4.4.2.8 Area 3-8 Compressor Building/Gas Holder

Inorganics

Twelve soil samples were collected for metals analysis. Several samples had detected concentrations of arsenic, lead and vanadium. There were no detections above site specific cleanup goals for metals in any of these samples.

Semivolatile Organic Compounds

Ten soil samples were collected for SVOC analysis, with 8 samples having detected concentrations of SVOCs. None of the samples had detected concentrations above the site specific cleanup goals.

Polychlorinated Biphenyls

A total of ten soil samples were collected for PCB analysis. None of the samples exceeded the site specific cleanup goal.

Laboratory analytical data for Area 3-8 can be found in Table 8 of Appendix D. Sample locations are depicted on Figure 2-5 found in Appendix D.

4.4.2.9 Drip Pits in Area 3-1

Inorganics

A total of 19 soil samples were analyzed for metals from this area. Several samples had detected concentrations of arsenic, lead, and vanadium. Two samples, GLDPW-02 and GLDPW-04S, had elevated arsenic concentrations of 20.2 and 82.6 mg/kg. No other concentrations were detected above the site specific cleanup goals. Additional excavations were not performed since these samples were collected at the groundwater interface.

Semivolatile Organic Compounds

Sixteen samples were collected for SVOC analysis. Detected concentrations of SVOCs below site specific cleanup goals were found in eight of the samples.

Polychlorinated Biphenyls

A total of 16 soil samples were collected from the drip pits for PCB analysis. Four samples were collected from each drip pit. None of the samples had PCB concentrations above the site specific cleanup goal.

Laboratory analytical data for the drip pits can be found in Table 9 of Appendix D. Sample locations are depicted on Figure 3-1 found in Appendix D.

4.4.2.10 Manholes and Outfall Pipes

Inorganics

Seven sediment samples were collected from four manholes and three outfall pipes for metals analysis. Several samples had detected concentrations of arsenic, lead and vanadium. There were no detected exceedances of site specific cleanup goals for metals in any of these samples.

Semivolatile Organic Compounds

A total of seven sediment samples were collected for SVOC analysis from four manholes and three outfall pipes. SVOCs were detected in all seven samples. The following SVOCs were detected in Manhole 2:

- Benzo(a)anthracene – 68 mg/kg

- Benzo(a)pyrene – 63 mg/kg
- Benzo(b)fluoranthene – 58 mg/kg
- Dibenzo(a,h)anthracene – 18 mg/kg
- Indeno(1,2,3-cd)pyrene – 41 mg/kg

Polychlorinated Biphenyls

Seven sediment samples were collected for PCB analysis from four manholes and three outfall pipes. There were no detected exceedances of site specific cleanup goals for PCBs in any of these samples.

Volatile Organic Compounds

Seven sediment samples were collected for VOC analysis from four manholes and three outfall pipes. Methylene chloride, tetrachloroethene and trichloroethene were detected in Manholes 3 and 4 and Outfalls 2 and 3.

The sediment samples listed above were collected prior to the stormwater sewer cleaning. All manholes were vacuumed out using a Vacuum truck on January 23, 2002 by Miller Environmental Group. All sediment was removed and no closures samples could be collected. Laboratory analytical data for the manholes and outfalls can be found in Table 10 of Appendix D.

4.4.3 QA/QC and Data Usability

All analytical data packages submitted by Severn Trent Laboratories were validated by an Independent third party, Environmental Quality Associates, Inc. in accordance with NYSDEC October 1995 ASP Quality Assurance/Quality Control (QA/QC) requirements. All sample results were reviewed to confirm proper data transcription, data completeness and compliance with applicable method and QA/QC requirements. The data validation report can be found in

Appendix D. The data validator reported that the overall quality of the data was good and the results are valid and useable for the purpose of the remedial program.

4.5 Imported Backfill

All excavated areas on site were backfilled with sand to level surface contours prior to placing the filter fabric, stone, and final sandy fill to grade. The backfill was sampled for full Toxicity Characteristic Leaching Procedure analysis prior to placement. The fill was transported by New York Dirt from an approved source located on Commonwealth Boulevard in Bellerose, New York. Sampling of backfill material was conducted at a rate of one sample per 100 cubic yards, and was analyzed for SVOCs, PCBs and Inorganics at an NYSDOH ELAP facility. The backfill analytical data is presented in Appendix D. The site was backfilled in 1 to 2-foot lifts and then compacted with a vibratory roller. A summary of the compaction test results is presented in Appendix D. Materials Testing Laboratory, Inc. was present to ensure that Area 1 met at least 95% compaction.

The riprap used in Area 1B consisted of approximately 500 tons of 0.5 foot to 1.5 feet Light Stone Fill from the Tilcon New York Haverstraw Quarry. The stone fill met the requirements for Gabion stone as defined by the New York State Department of Transportation specifications. The source certification can be found in Appendix D.

4.6 Contamination Remaining At The Site

As discussed in Section 4.3, the property east of Shore Road was remediated to site specific residential use SCOs established under the Department-approved conceptual RAP, dated September 2001. Excavations were limited to surface and shallow subsurface and did not extend below the water table in accordance with the conceptual RAP. At three locations, the site-specific residential use SCOs were not achieved because the excavations reached the water table. A summary of the excavation endpoint sample results from each area of the Site can be found in Appendix D.

It should be noted that since the time the remedial excavation activities were completed, the NYSDEC has adopted new soil cleanup standards, which are presented in 6 New York Codes, Rules and Regulations (NYCRR) Part 375-6. As per this standard, different SCOs have been defined based on the intended future use of the property. Therefore, based on this new standard, the soil sample results collected from the area located to the west of Shore Road, which is intended to be used as open space, were compared to the restricted-residential use criteria and the soil sample results collected from the area located to the east of Shore Road, which is used as an electric generating station, were compared to the industrial use criteria. Although the endpoint soil samples collected in the areas located to the east of Shore Road were compared to the industrial use criteria, it should be noted that approximately 94% of the VCA related property area located to the east of Shore Road also meets the restricted-residential criteria. Comparing the endpoint data on the tables in Appendix D to the new standards, the following excavation endpoint samples were detected above the applicable 6NYCRR Part 375 SCOs:

- Sample GLA1-2, collected from excavation Area 3-1, exhibited concentrations of benzo(a)pyrene and total PCBs above their applicable industrial use SCOs; and
- Samples GLDPW-02 and GLDPW-04S, collected from the west drips pits, exhibited concentrations of arsenic above the industrial use SCO; and
- Lastly, four soil samples collected from Area 2-2 had concentrations of PCBs above the site-specific cleanup goal of 2 mg/kg. However, the PCB concentrations were below the industrial use SCO for total PCBs of 25 mg/kg.

Excavation endpoint samples were not collected from Area 1B as part of the remedial activities; however, samples collected during previous investigations throughout Area 1B exhibited concentrations of arsenic and mercury above their restricted-residential use SCOs.

The proposed remedial activities for Area 1B included installation of a clean cover system in conjunction with a Deed Restriction. A clean cover was implemented to mitigate any exposure potential, based on a request from the NYSDEC. Surface and shallow subsurface soil was screened for radioactivity using a Mini-Rad. No radioactive materials were encountered; therefore, no soil samples were collected in Area 1B.

The location of the areas with residual contamination above the SCO's, as discussed above, is provided on the as-built drawings in Appendix B of the SMP found in Appendix E.

4.7 Soil Cover System

Exposure to remaining contamination in soil/fill at the site is prevented by two soil cover systems placed at the site. The soil cover system placed in Area 1B is comprised of a 10-ounce/square yard geotextile, 1 foot of clean/clay soil cover and 6 inches of topsoil and seed. The soil cover system in Area 3 is comprised of clean fill from the bottom of the excavation area to approximately 6 inches below grade and 6 inches of topsoil and seed. Figure 1-2 found in Appendix B of the SMP shows the as-built cross sections and location of each cover system at the Site. An Excavation Work Plan, which outlines the procedures required in the event the cover system and/or underlying residual contamination are disturbed, is provided in Appendix D of the SMP found in Appendix E. Procedures for the inspection and maintenance of the soil cover system are provided in the Monitoring Plan in Section 3.0 of the SMP.

4.8 Other Engineering Controls

The remedy for the site did not require the construction of any other engineering control systems.

4.9 Institutional Controls

The site remedy requires that a deed restriction be placed on the property to (1) implement, maintain and monitor the Engineering Controls; (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-residential and industrial uses only.

The deed restriction for the site was filed with the Nassau County Clerk on February 24, 2012. The County Recording Identifier number for this filing is D-12804. A copy of the deed restriction and proof of filing is provided in Appendix A.

The following Institutional Controls will be implemented under the SMP:

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

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 Site are:

- Use of groundwater underlying the Site property is prohibited without testing and/or treatment to ensure it is safe for the intended use;
- All future activities on the property that will disturb contaminated material are prohibited unless they are conducted in accordance with the SMP;
- The portion of the property located to the east of Shore Road may be used for industrial use, provided that long-term Engineering and Institutional Controls described in the SMP remain in use;
- The portion of the property located to the west of Shore Road may be used for restricted residential use, provided that long-term Engineering and Institutional Controls described in the SMP remain in use;
- The two portions of the property may not be used for a higher level of use, without NYSDEC approval, and amendment and approval of the Deed Restriction; and

- The site owner or remedial party will submit to NYSDEC annually a written statement that certifies, under penalty or perjury, that; (1) controls employed at the Controlled Property are unchanged from the previous certification or that 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.

4.10 Changes/Additions to the Conceptual Remedial Action Plan

4.10.1 Drip Pits

The four drip pits located on the north, south, east and west sides of the former natural gas holding tank foundation were excavated between October 23, 2001 and November 2, 2001. The drip pits were approximately 33 feet long by 9 feet wide and composed of concrete walls and bottoms that extended 6 feet bgs. Each Drip Pit was demolished, removed, and then the surrounding soil was excavated and disposed of off-site. All sidewalls were removed and the bottoms remained in place. The excavation areas extended past the horizontal extents of the drip pit sidewalls. The north drip pit excavation was approximately 6 feet deep and the other three were approximately 11 feet deep in the excavation areas adjacent to the drip pit bottoms.

Groundwater was encountered during the excavation of the drip pits. When necessary, groundwater was pumped to the fractionation tank located on-site. The water was passed through a bag filter and an activated carbon unit prior to being discharged to the storm sewer system.

The sidewalls of each excavation were sampled for PCBs, SVOCs and inorganics. Analytical results are provided in Table 9 of Appendix D.

The drip pits were backfilled. All steel and concrete from the excavations was segregated. The steel was recycled and the concrete was disposed of.

4.10.2 Asbestos Removal

During excavation and removal activities, asbestos was encountered on several subsurface pipes. Asbestos abatement on the gas drip lines running along the northern, southern, eastern and western edges of the former holding tank was performed by Mercer's subcontractor, Gramercy. Workers were required to wear Level B personal protective equipment during the removal of the eastern drip pipe, due to a gas condensate odor. A total of 273 cubic yards of asbestos was properly abated and disposed of off-site at Southern Alleghenies Disposal Service. A sample manifest is provided in Appendix D. The excavations were backfilled to grade.

4.10.3 Yard Piping

Demolition work that was not part of the original Conceptual RAP included the removal of existing structures to provide clearance for new foundations. Several in-tact pipes were encountered during this work. The pipes required liquid removal and disposal. Characterization sampling of liquids and solids encountered in the pipes was performed. Analytical results are provided in Appendix D.

A 45-inch diameter abandoned cast iron gas main was excavated adjacent to the south drip pit. The pipe was wrapped in polyethylene sheeting and removed. The trench was dewatered and the section of pipe left in place was filled with concrete on November 1, 2001.

A 42-inch diameter west gas main was discovered and 0.6 inches of product was measured in it on November 7, 2001. The bottom of the gas main was 12.5 feet deep. The gas main was cleaned, sampled and filled with concrete on November 29, 2001.

Gas drip pipes that were encountered were removed, cut and placed in a lined roll off where they were cleaned via MEG's regulatory approved washing system. The pipes were then sampled using the standard wipe tests. Pipes that were not deemed clean were re-washed and sampled. The metal piping was then recycled.

The trenches were backfilled, compacted and graded. Waste manifests, job reports and supporting documentation can be found in Appendix D.

4.10.4 Area 1B Additional Investigation

4.10.4.1 Radiation Screening

Radiation screening was conducted in Area 1B on November 6, 2001 based on a request from NYSDEC. A Victoreen Model 190D meter with an alpha, beta and gamma pancake probe was utilized to take measurements of background and both ambient and surface soil readings in Areas 1, 2 and 3.

Background levels in Area 1B were lower than in the other three areas. Borings were performed at six locations within this area. Borings were conducted to a depth of 3 feet bgs at three of the locations. The other locations were terminated at auger refusal. Soil was screened and found to be consistent with materials previously encountered and evaluated in this area. No soil screened indicated levels of radiation above site background. No samples were collected for laboratory analysis.

Based on the results of the field screening, VHB recommended no further investigation for radioactive wastes/materials in Area 1B and completing the remedial action work plan for this area, which involves a clean cover system and a deed restriction.

4.10.4.2 Magnetometer Survey

A magnetometer survey of Area 1B was conducted on December 5, 2001 to support previous investigation data with respect to subsurface anomalies, and enable construction personnel to retrieve and properly dispose of any materials that could not be properly managed in the cover system.

A 25-foot by 25-foot grid was laid out over the proposed cap area. Each north/south transect area was walked with the magnetometer. Any anomalies encountered were flagged and excavated later.

Several anomalies were identified and investigated. No drums or tanks were found. All the materials encountered were incorporated under the clean cover system.

4.10.5 Storm Sewer and Outfall Sampling

Storm sewer sampling was conducted in addition to the previously conducted storm water sewer sampling. It was conducted to determine if sediments in the storm sewer contained compounds previously detected and removed from the site. Sediment samples were collected from six manholes and immediately below the three site outfalls on November 5, 2001. Refer to Section 4.4.2.10 for a discussion of laboratory analytical results.

Based on the results, VHB recommended cleaning of all manhole sumps on-site. MEG performed the manhole cleaning. On January 23, 2002, a vacuum truck was utilized to remove sediments from the six manholes. The recovered sediment was transferred to a settling tank. The liquids were removed and returned to the storm sewer. Recovered solids were removed via KeySpan's Hicksville Treatment, Storage and Disposal Facility. A total of 8 cubic yards of materials was removed and disposed of off-site.

4.10.6 Industrial Use

At the time the Conceptual RAP was approved, KeySpan had not determined the reuse scenario for the entire site. Site specific standards assuming residential reuse was proposed.

Subsequent to the approval of the Conceptual RAP, it was determined that Areas 2 and 3 would be redeveloped as a power generation station, classifying these areas as industrial use. During implementation of the Conceptual RAP, remedial efforts were focused on remediating all areas to residential use standards. Residential standards were met in all sample locations above

the water table except one surface soil sample location, sample GLA 2-3S, located on the north side of Area 2-2. Therefore the industrial use classification is conservative since the majority of areas were remediated to the residential classification. Approximately 94% of the VCA related property area located to the east of Shore Road meets the restricted-residential criteria.

This area was not excavated further due to construction logistics, steep slope of the work area, and overhead utilities. Although this location exceeds residential site specified cleanup goals, the area will be used for industrial purposes and meets industrial cleanup goals.

4.10.7 Groundwater

The Conceptual RAP proposed remediation of groundwater in Areas 1A and 1B to reduce levels of detected VOCs. Injections of an oxidation compound followed by quarterly groundwater monitoring was the planned remedial method. Prior to implementing remedial action, a groundwater investigation was conducted in three separate phases between March 2006 and December 2007 to determine the likelihood that the chlorinated VOCs detected in Area 1A are associated with upgradient sources and do not originate from the Glenwood Landing Site. The findings of the investigations were submitted to NYSDEC in a June 2008 Groundwater Investigation Findings Report.

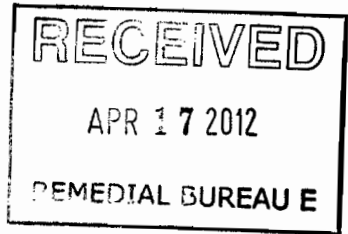
Based on the westerly direction of groundwater flow toward Hempstead Harbor, a minimum of five potential sources of chlorinated VOCs have been identified approximately 1 mile directly upgradient of the National Grid property including four dry cleaning businesses and an electronics manufacturer. The chlorinated VOC groundwater contamination located in the vicinity of the upgradient sites is referred to as the Glen Head groundwater plume by the NYSDEC. Based on currently available information, the total length, width and vertical thickness of the Glen Head groundwater plume has not been defined by the NYSDEC. However, based on regional ground flow, the National Grid property is clearly within the projected path of the plume. The National Grid property is not the source of this contamination.

The main body of the Glen Head groundwater plume migrates in a westerly direction in the deeper portions of the Upper Glacial aquifer until reaching the area where the aquifer transitions to a strong upward vertical hydraulic gradient or groundwater discharge zone located in the immediately vicinity of Hempstead Harbor. After reaching this discharge zone, the plume migrates almost vertically upward and eventually discharges to Hempstead Harbor along with the natural flow of groundwater.

After a review of the Groundwater Model Report submitted to the NYSDEC on October 5, 2009, NYSDEC issued a letter to National Grid dated January 7, 2010 that stated that the Glenwood Landing Site is not the source of Chlorinated VOC (CVOC) contamination in groundwater found in Areas 1A and 1B (see Appendix F). Additionally, NYSDEC indicated that National Grid is not required to proceed with groundwater treatment since the Glenwood Landing Site is not the source of the CVOC's. Due to this, the remediation of groundwater in Areas 1A and 1B proposed in the Conceptual RAP were not implemented.

APPENDIX A

DEED RESTRICTION



NASSAU COUNTY CLERK'S OFFICE
ENDORSEMENT COVER PAGE

Recorded Date: 02-24-2012
Recorded Time: 11:43:30 a

Record and Return To:
AECOM
ATTN TAMERA REBY
100 CORPORATE PKWY
SUITE 341
AMHERST, NY 14226

Liber Book: D 12804
Pages From: 723
To: 737 *A*

Control
Number: 747
Ref #:
Doc Type: D03 DECLARATION RESTRICTIONS

Location:	Section	Block	Lot	Unit
OYSTER BAY (2824)	0021	0000F-00	00004	
OYSTER BAY (2824)	0021	0000F-00	00009	
OYSTER BAY (2824)	0021	0000F-00	01947	

	Taxes Total	.00
GJS001	Recording Totals	190.00
	Total Payment	190.00

THIS PAGE IS NOW PART OF THE INSTRUMENT AND SHOULD NOT BE REMOVED
MAUREEN O'CONNELL
COUNTY CLERK



2012022400747

R/R AECOM
100 Corporate Pkwy
Suite 341
Amherst, N.Y. 14226
Attn: Tamara Reby

DECLARATION of COVENANTS and RESTRICTIONS

THIS COVENANT is made the 21st day of October 2011, by KeySpan Gas East Corporation d/b/a National Grid, a corporation of the State of New York, having its principal office at 175 East Old Country Road, Hicksville, New York 11801; and

WHEREAS, Glenwood Landing Propane Plant and Compressor Station is the subject of Voluntary Cleanup Agreement executed by KeySpan Energy Delivery Long Island, the former fictitious name (*i.e.*, d/b/a) of KeySpan Gas East Corporation as part of the New York State Department of Environmental Conservation's (the Department's) Voluntary Cleanup Program, namely that parcel of real property located On Nassau County Tax Map Section 21, Block F, Lots 4, 9 and 1947, located on Shore Road in the Town of Oyster Bay, County of Nassau, State of New York, which is part of lands conveyed by Long Island Lighting Company to MarketSpan Gas Corporation by deed dated May 27, 1998 and recorded in the Nassau County Clerk's Office in Liber 10921 from Page 0406 through Page 0415 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, KeySpan Gas East Corporation, for itself and its successors and/or assigns, covenants that:

First, the Property subject to this Declaration 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 approved Site Management Plan (the "SMP"), dated October 2011, there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property, which threatens the integrity of the soil cap, or which results in unacceptable human exposure to contaminated soils. The cover page and table of contents of the SMP is attached to this Declaration as Appendix "C" and made a part hereof.

Third, the Owner of the Property shall maintain the cap covering the Property by maintaining its grass cover or, after obtaining the written approval of the Department or Relevant Agency, by capping the Property with another material. The Owner of the Property shall not disturb, remove, or otherwise interfere with the installation, use,

operation, and maintenance of engineering controls required for the remedy, which are described in the SMP, unless in each instance the Owner obtains a written waiver of such prohibition from the Department or Relevant Agency.

Fourth, the Owner of the Property shall prohibit the Property from ever being used for purposes other than for Restricted Residential, Commercial or Industrial Use without the express written waiver of such prohibition by the Department or Relevant Agency.

Fifth, 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.

Sixth, the Owner of the Property shall continue in full force and effect any institutional and engineering controls required under the SMP and maintain such controls, unless the Owner first obtains permission to discontinue such controls from 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 SMP 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.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

Robert P Teetz
Name: Robert P Teetz

Title: vice president

::ODMA\PCDOCS\DOCS\287179\I

STATE OF NEW YORK)
)ss:
COUNTY OF Nassau)

On the 21st day of October in the year 2011, before me, the undersigned, personally appeared Robert D. Teetz, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) 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 signatures(s) on the instrument, the individual(s), or the person on behalf of which the individual(s) acted, executed the instrument.

Beth P Santanello
Notary Signature

Notary Stamp & Expiration Date:

BETH P. SANTANELLO
NOTARY PUBLIC, State of New York
No. 018A6197484
Qualified in Nassau County
Commission Expires December 1, 2012

Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #1
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
SBL Section 021; Block "F"; P/O Lot 4
Sheet #1 of 3
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
- Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence northerly along the westerly right-of-way line of Shore Road along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 153.69 feet to a point; Thence running through P/O Lot 4 along a Tie-Line Due West 76.44 feet to the true point or place of beginning;

Thence continuing running though P/O Lot 4 the following FOUR (4) bearings and distances:

1. Due West 26.34 feet to a point;
2. Due North 25.48 feet to a point;
3. Due East 26.34 feet to a point;
4. Due South 25.48 feet to the true point of place of beginning;

Containing within said bounds 671 Sq. Ft. more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revived: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #2
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "F"; P/O Lot 4
Sheet #1 of 3
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc Length of 91.50 feet to a point;
3. North 13° 22' 34" East 612.95 feet to a point;

Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence northerly along the westerly right-of-way line of Shore Road along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 150.21 feet to a point; Thence running through P/O Lot 4 along a Tie-Line Due West 176.23 feet to the true point or place of beginning;

Thence continuing running though P/O Lot 4 the following SIX (6) bearings and distances:

1. Due West 38.69 feet to a point;
2. Due North 25.99 feet to a point;
3. Due East 11.96 feet to a point;
4. Due North 7.93 feet to a point;
5. Due East 26.74 feet to a point;
6. Due South 33.93 feet to the true point of place of beginning;

Containing within said bounds 1,218 Sq. Ft. more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #3
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "F"; P/O Lot 1947
Sheet #1 of 3
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc Length of 91.50 feet to a point;
3. North 13° 22' 34" East 612.95 feet to a point;

Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence running northerly along the westerly right-of-way line of Shore Road the following TWO (2) bearings and distances:

1. Along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 288.53 feet to a point;
2. North 16° 30' 46" West 20.76 feet to a point;

Thence running through P/O Lots 4 and 1947 along a Tie-Line Due West 272.78 feet to the true point or place of beginning;

Thence continuing running though P/O Lot 1947 the following FOUR (4) bearings and distances:

1. Due West 26.75 feet to a point;
2. Due North 27.03 feet to a point;
3. Due East 26.75 feet to a point;
4. Due South 27.03 feet to the true point of place of beginning;

Containing within said bounds 723 Sq. Ft. more or less.

Being and intending to be a part the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #4
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "F"; P/O Lot 4
Sheet #1 of 3
Situating in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc Length of 91.50 feet to a point;
3. North 13° 22' 34" East 612.95 feet to a point;

Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence running northerly along the westerly right-of-way line of Shore Road the following TWO (2) bearings and distances:

1. Along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 288.53 feet to a point;
2. North 16° 30' 46" West 47.11 feet to a point;

Thence running through P/O Lot 4 along a Tie-Line Due West 154.91 feet to the true point or place of beginning;

Thence continuing running though P/O Lot 4 the following FOUR (4) bearings and distances:

1. Due West 28.07 feet to a point;
2. Due North 26.00 feet to a point;
3. Due East 28.07 feet to a point;
4. Due South 26.00 feet to the true point of place of beginning;

Containing within said bounds 730 Sq. Ft. more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #5
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "F"; P/O Lots 4 & 1947
Sheet #1 of 3
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc Length of 91.50 feet to a point;
3. North 13° 22' 34" East 612.95 feet to a point;

Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence running northerly along the westerly right-of-way line of Shore Road the following TWO (2) bearings and distances:

1. Along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 288.53 feet to a point;
2. North 16° 30' 46" West 105.64 feet to a point;

Thence running through P/O Lot 4 along a Tie-Line Due West 164.97 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 4 and Lot 1947 the following FOUR (4) bearings and distances:

1. Due West 26.75 feet to a point;
2. Due North 35.58 feet to a point;
3. Due East 26.75 feet to a point;
4. Due South 35.58 feet to the true point of place of beginning;

Containing within said bounds 952 Sq. Ft. more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #6
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "F"; P/O Lots 9 & 1947
Sheet #1 of 3
Situating in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc Length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
- Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence running northerly along the westerly right-of-way line of Shore Road the following THREE (3) bearings and distances:
1. Along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 288.53 feet to a point;
 2. North 16° 30' 46" West 113.00 feet to a point;
 3. Along the arc of a curve to the right having a radius of 689.82 feet an a arc length of 93.93 feet to the true point or place of beginning;

Thence running along the division line of Lots 4 and 9 South 69° 25' 48" West 12.76 feet to a point;

Thence running though P/O Lots 9 and Lot 1947 the following TWO (2) bearings and distances:

1. North 51° 55' 18" West 392.18 feet to a point;
2. North 27° 25' 15" East 156.50 feet to a point on the division line of Lots 9 and Lot 10-B (Town of Oyster Bay) ;

Thence running along said division line North 89° 06' 34" East 293.38 feet to a point on the westerly right-of-way line of Shore Road;

Thence running along said right-of-way the following TWO (2) bearings and distances:

1. South 16° 48' 44" West 80.30 feet to a point;
3. Along the arc of a curve to the left having a radius of 689.82 feet an a arc length of 307.29 feet to the true point of place of beginning;

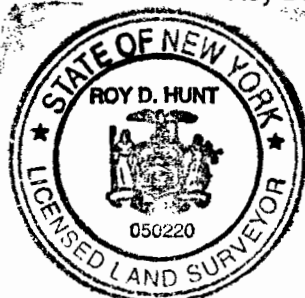
Containing within said bounds 82,549 Sq. Ft. or 1.90 Acres more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #6
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "F"; P/O Lots 9 & 1947
Sheet #1 of 3
Situating in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc Length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
- Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence running northerly along the westerly right-of-way line of Shore Road the following THREE (3) bearings and distances:
1. Along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 288.53 feet to a point;
 2. North 16° 30' 46" West 113.00 feet to a point;
 3. Along the arc of a curve to the right having a radius of 689.82 feet an a arc length of 93.93 feet to the true point or place of beginning;

Thence running along the division line of Lots 4 and 9 South 69° 25' 48" West 12.76 feet to a point;

Thence running though P/O Lots 9 and Lot 1947 the following TWO (2) bearings and distances:

1. North 51° 55' 18" West 392.18 feet to a point;
2. North 27° 25' 15" East 156.50 feet to a point on the division line of Lots 9 and Lot 10-B (Town of Oyster Bay) ;

Thence running along said division line North 89° 06' 34" East 293.38 feet to a point on the westerly right-of-way line of Shore Road;

Thence running along said right-of-way the following TWO (2) bearings and distances:

1. South 16° 48' 44" West 80.30 feet to a point;
3. Along the arc of a curve to the left having a radius of 689.82 feet an a arc length of 307.29 feet to the true point of place of beginning;

Containing within said bounds 82,549 Sq. Ft. or 1.90 Acres more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



nationalgrid

N.C.T.M. LOT 10-B
Now or Formerly
Town Of Oyster Bay

LEASE AGREEMENT
AREA #10
AREA = 5,509 SQ. FT.

N.C.T.M. LOT 28 E
83± ACRES

KEYSPAN ENERGY DELIVERY
TOTAL AREA = 29.43 AC.

LONG ISLAND POWER AUTHORITY EASEMENT #1
AREA = 15.62 ACRES

NOW OR FORMERLY NORTH SHORE COUNTRY CLUB

FORMERLY N.C.T.M. LOT 34
83± ACRES

KEYSPAN ENERGY DELIVERY
TOTAL AREA = 29.43 AC.
- 2.75 AC
26.68 AC

NASSAU COUNTY TAX MAP
SECTION 21, BLK. "M"
SHEET #1 OF 6

NOTES:

- Unauthorized alteration or addition to a survey map bearing a licensed land surveyor seal is a violation of section 7209, sub-section 2 of the N.Y. State Education Law and is illegal.
- Only copies from the original of this survey marked with an original of the land surveyor's embossed seal or purple seal shall be valid copies.
- Certifications indicated herein signify that this survey was prepared in accordance with the existing Code of Practice for Land Surveys adopted by the N.Y. State Association of Professional Land Surveyors. Said certifications shall run only to the person for whom the survey is prepared, and on behalf of the Title Company, governmental agency and lending institution listed herein, and to the assignees of the lending institution. Certifications are not transferable to additional institutions or subsequent owners.
- Underground improvements or encroachments, if any, are not shown herein.

LEGEND

P.O.B. = Point of Beginning

■ = NYSDEC Env. Areas

GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.

GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.

REVISIONS

DATE	BY	DESCRIPTION	APP'D
6/11/11	Updated		
2/26/11	KeySpan Energy Delivery's Fee/1000		
7/26/09	Doc. Com. - Encl. Area		
6/17/08	Proposed Area		
1/17/06	Added Proposed Subdivision		
1/17/06	Added Easements		
2/29/01	Added Easements 7-10		
6/11/01	Added Approx. Location 20' See Sheet		

NATIONALGRID ENGINEERING & SURVEY, INC.
GLENNWOOD GAS PLANT
NYSDEC VOA SITE # V-00351-1

LOCATED AT
GLENNWOOD LANDING, TOWN OF OYSTER BAY
NASSAU COUNTY, NEW YORK

NATIONALGRID
175 EAST OLD COUNTRY ROAD
HICKSVILLE, NEW YORK 11801

DWG. PREPARED BY
DWG. NO. 177
DATE 5/22/01

SCALE
1" = 100'

NO. 10115 C. S.A.

SITE MANAGEMENT PLAN

**NATIONAL GRID GLENWOOD LANDING FORMER GAS PLANT SITE
GLENWOOD LANDING, NEW YORK**

VOLUNTARY CLEANUP AGREEMENT NO. R1-0001-01-01

Prepared for:

**NATIONAL GRID
HICKSVILLE, NEW YORK**

Prepared by:

**DVIRKA AND BARTILUCCI CONSULTING ENGINEERS
WOODBURY, NEW YORK**

OCTOBER 2011

**SITE MANAGEMENT PLAN
NATIONAL GRID GLENWOOD LANDING FORMER GAS PLANT SITE**

TABLE OF CONTENTS

<u>Section</u>	<u>Description</u>	<u>Page</u>
	EXECUTIVE SUMMARY	ES-1
1.0	INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM	1-1
1.1	Introduction.....	1-1
1.1.1	General.....	1-1
1.1.2	Purpose.....	1-4
1.1.3	Revisions.....	1-5
1.2	Site Background.....	1-5
1.2.1	Site Location and Description.....	1-5
1.2.2	Site History	1-6
1.2.3	Geologic Conditions	1-7
1.3	Summary of Previous Investigation Findings.....	1-10
1.4	Summary of Remedial Actions.....	1-15
1.4.1	Removal of Contaminated Materials from the Site	1-16
1.4.2	On-Site and Off-Site Treatment Systems	1-18
1.4.3	Remaining Contamination	1-18
1.4.3.1	Soil	1-18
1.4.3.2	Groundwater	1-20
1.4.4	Engineering and Institutional Controls	1-22
2.0	ENGINEERING AND INSTITUTIONAL CONTROL PLAN.....	2-1
2.1	Introduction.....	2-1
2.1.1	General	2-1
2.1.2	Purpose.....	2-1
2.2	Engineering Controls	2-2
2.2.1	Engineering Control Systems	2-2
2.2.2	Criteria for Completion of Remediation/ Termination of Remedial Systems.....	2-2
2.3	Institutional Controls	2-4
2.3.1	Excavation Work Plan	2-5
2.3.2	Soil Vapor Intrusion Evaluation	2-6
2.4	Inspections and Notifications.....	2-7
2.4.1	Inspections	2-7
2.4.2	Notifications.....	2-7

TABLE OF CONTENTS (continued)

<u>Section</u>	<u>Description</u>	<u>Page</u>
2.5	Contingency Plan	2-8
2.5.1	Emergency Telephone Numbers.....	2-9
2.5.2	Map and Directions to Nearest Health Facility.....	2-9
2.5.3	Response Procedures	2-9
3.0	MONITORING PLAN	3-1
3.1	Introduction.....	3-1
3.1.1	General	3-1
3.1.2	Purpose and Schedule	3-1
3.2	Engineering Control System Monitoring.....	3-3
3.2.1	Monitoring Schedule.....	3-3
3.2.2	Repair Schedule	3-3
3.3	Site-Wide Inspection.....	3-4
3.4	Monitoring Reporting Requirements	3-5
4.0	SITE MANAGEMENT REPORTING PLAN	4-1
4.1	Introduction.....	4-1
4.2	Certification of Engineering and Institutional Controls.....	4-1
4.3	Site Inspections	4-2
4.3.1	Inspection Frequency	4-2
4.3.2	Inspection Forms.....	4-2
4.3.3	Evaluation of Records and Reporting.....	4-3
4.4	Periodic Review Report	4-3
4.5	Corrective Measures Plan	4-4

List of Appendices

Deed Restriction.....	A
As-Built Drawing.....	B
Excavation Endpoint Sample Results	C
Excavation Work Plan	D
Institutional and Engineering Control Inspection Form	E

TABLE OF CONTENTS (continued)

List of Figures

1-1	Site Plan	1-2
1-2	Site Location Map	1-3
1-3	Cross Section Key Map	1-8
1-4	Geologic Cross Section of Site and Upgradient Areas	1-9
2-1	Hospital Route Map	2-10

List of Tables

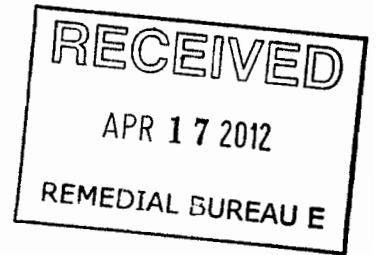
1-1	Soil Disposal Summary	1-17
1-2	Site-Specific Soil Cleanup Objectives	1-19
2-1	Soil Cover System Summary	2-3
2-2	Emergency Contact Numbers	2-11
3-1	Monitoring/Inspection Schedule	3-2

List of Drawings

1	Site Plan	Map Pocket at end of Section 1.0
---	-----------------	----------------------------------



NASSAU COUNTY CLERK'S OFFICE
ENDORSEMENT COVER PAGE



Recorded Date: 02-24-2012
Recorded Time: 11:43:30 a

Record and Return To:
AECOM
ATTN TAMERA REBY
100 CORPORATE PKWY
SUITE 341
AMHERST, NY 14226

Liber Book: D 12804
Pages From: 738
To: 758

Control
Number: 748
Ref #:
Doc Type: D03 DECLARATION RESTRICTIONS

Location:	Section	Block	Lot	Unit
OYSTER BAY (2824)	0021	0000M-00	00035	
OYSTER BAY (2824)	0021	0000M-00	00036	
OYSTER BAY (2824)	0021	0000M-00	00516	
OYSTER BAY (2824)	0021	0000M-00	00585	
OYSTER BAY (2824)	0021	0000M-00	00596-597	

	Taxes Total	.00
GJS001	Recording Totals	220.00
	Total Payment	220.00

THIS PAGE IS NOW PART OF THE INSTRUMENT AND SHOULD NOT BE REMOVED
MAUREEN O'CONNELL
COUNTY CLERK



R/R AECOM
100 Corporate Park
Suite 301
Amherst, N.Y. 14226
Attn: Tamara Raby

DECLARATION of COVENANTS and RESTRICTIONS

THIS COVENANT is made the 21st day of October 2011, by KeySpan Gas East Corporation d/b/a National Grid, a corporation of the State of New York, having its principal office at 175 East Old Country Road, Hicksville, New York 11801; and

WHEREAS, Glenwood Landing Propane Plant and Compressor Station is the subject of Voluntary Cleanup Agreement executed by KeySpan Energy Delivery Long Island, the former fictitious name (*i.e.*, d/b/a) of KeySpan Gas East Corporation as part of the New York State Department of Environmental Conservation's (the Department's) Voluntary Cleanup Program, namely that parcel of real property found on Nassau County Tax Map Section 21, Block M, Lots 35, 36, 516, 585, 596 and 597, located on Shore Road in the Town of Oyster Bay, County of Nassau, State of New York, which is part of lands conveyed by Long Island Lighting Company to MarketSpan Gas Corporation by deed dated May 27, 1998 and recorded in the Nassau County Clerk's Office in Liber 10921 from Page 0406 through Page 0415 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, KeySpan Gas East Corporation, for itself and its successors and/or assigns, covenants that:

First, the Property subject to this Declaration 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 approved Site Management Plan (the "SMP"), dated October 2011, there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property, which threatens the integrity of the soil cap, or which results in unacceptable human exposure to contaminated soils. The cover page and table of contents of the SMP is attached to this Declaration as Appendix "C" and made a part hereof.

Third, the Owner of the Property shall maintain the cap covering the Property by maintaining its grass cover or, after obtaining the written approval of the Department or Relevant Agency, by capping the Property with another material. The Owner of the Property shall not disturb, remove, or otherwise interfere with the installation, use,

operation, and maintenance of engineering controls required for the remedy, which are described in the SMP, unless in each instance the Owner obtains a written waiver of such prohibition from the Department or Relevant Agency.

Fourth, the Owner of the Property shall prohibit the Property from ever being used for purposes other than for Industrial Use without the express written waiver of such prohibition by the Department or Relevant Agency.

Fifth, 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.

Sixth, the Owner of the Property shall continue in full force and effect any institutional and engineering controls required under the SMP and maintain such controls, unless the Owner first obtains permission to discontinue such controls from 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 SMP 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.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

Robert D. Teetz
Name: Robert Teetz

Title: VICE President

::ODMA\PCDOCS\DOCS\287179\1

STATE OF NEW YORK)
)ss:
COUNTY OF Nassau)

On the 21st day of October in the year 2011, before me, the undersigned, personally appeared Robert D. Teetz, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) 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 signatures(s) on the instrument, the individual(s), or the person on behalf of which the individual(s) acted, executed the instrument.

Beth P. Santanello
Notary Signature

Notary Stamp & Expiration Date:

BETH P. SANTANELLO
NOTARY PUBLIC, State of New York
No. 01SA6197484
Qualified in Nassau County
Commission Expires December 1, 2012

nationalgrid

Section 1
Area: 1000 Sq. Ft.
1. Due West 26.75'
2. Due North 27.34'
3. Due East 28.34'
4. Due South 25.48'

Section 2
Area: 1000 Sq. Ft.
1. Due West 38.69'
2. Due North 25.93'
3. Due East 27.98'
4. Due North 21.98'
5. Due East 25.93'
6. Due South 25.48'

Section 3
Area: 1000 Sq. Ft.
1. Due West 26.75'
2. Due North 27.34'
3. Due East 28.34'
4. Due South 25.48'

Section 4
Area: 1000 Sq. Ft.
1. Due West 28.07'
2. Due North 26.00'
3. Due East 28.07'
4. Due South 26.00'

Section 5
Area: 1000 Sq. Ft.
1. Due West 26.75'
2. Due North 27.34'
3. Due East 28.34'
4. Due South 25.48'

Section 6
Area: 1000 Sq. Ft.
1. Due West 26.75'
2. Due North 27.34'
3. Due East 28.34'
4. Due South 25.48'

Section 7
Area: 1000 Sq. Ft.
1. Due West 26.75'
2. Due North 27.34'
3. Due East 28.34'
4. Due South 25.48'

Section 8
Area: 1000 Sq. Ft.
1. Due North 46.22'
2. Due East 34.31'
3. Due South 46.22'
4. Due West 34.31'

Section 9
Area: 1000 Sq. Ft.
1. Due North 30.36'
2. Due East 46.22'
3. Due South 30.36'
4. Due West 46.22'

Section 10
Area: 1000 Sq. Ft.
1. Due North 50.75'
2. Due East 34.20'
3. Due South 50.75'
4. Due West 34.20'

Section 11
Area: 1000 Sq. Ft.
1. Due North 45.74'
2. Due East 61.16'
3. Due South 45.74'
4. Due West 61.16'

Section 12
Area: 1000 Sq. Ft.
1. N36°02'25" W 72.15'
2. N00°04'00" W 60.86'
3. N89°21'11" E 115.13'
4. Due South 106.23'
5. S80°00'00" E 73.23'

Section 13
Area: 1000 Sq. Ft.
1. Due North 25.93'
2. Due East 27.98'
3. Due North 21.98'
4. Due East 25.93'

Section 14
Area: 1000 Sq. Ft.
1. N51°37'40" W 76.40'
2. N00°24'46" W 102.44'
3. N89°30'14" E 101.71'
4. S00°29'45" E 150.86'
5. N89°51'02" E 42.38'

Section 15
Area: 1000 Sq. Ft.
1. Due North 28.78'
2. Due East 32.42'
3. S00°21'34" E 23.57'
4. N89°55'26" W 13.04'
5. Due South 25.07'
6. Due West 22.22'

Section 16
Area: 1000 Sq. Ft.
1. N00°36'06" W 98.40'
2. N89°22'50" E 44.31'
3. S00°01'50" E 91.98'
4. S88°47'38" E 43.23'

Section 17
Area: 1000 Sq. Ft.
1. N09°26'19" E 32.49'
2. S30°04'45" E 42.83'
3. S30°33'08" E 28.24'
4. N61°29'33" S 30.87'

Section 18
Area: 1000 Sq. Ft.
1. Due North 75.45'
2. Due East 75.45'
3. Due South 77.16'
4. Due West 41.21'
5. N27°50'43" E 42.09'

NOTE:
The engineering and institutions for this Easement are set forth in the Management Plan (SMP). A copy of the SMP must be obtained by any party interested in the property. The SMP was obtained from NYS Department of Environmental Conservation, Division of Environmental Remediation, Site Section, 625 Broadway, Albany, NY 12233 or at arweb@ecw.dec.state.ny.us.

LEGEND:
PNT = Point of Beginning
NYSDEC Env. Area

GRAPHIC:
1" = 10' (VERT.)

PREPARED BY:
NATIONAL CONCRETE ENGINEERING & SURVEY, INC.
1000 sq. ft. addition to existing 1000 sq. ft. building

NOTES:
1. N36°02'25" W 72.15'
2. N00°04'00" W 60.86'
3. N89°21'11" E 115.13'
4. Due South 106.23'
5. S80°00'00" E 73.23'

N.C.T.M
LOT 10-B
Now or Formerly
Town Of Oyster Bay

LEASE AGREEMENT

NOW OR FORMERLY
NORTH SHORE COUNTRY CLUB

KEYSPAN ENERGY
DELIVERY
TOTAL AREA = 29.43 AC

LONG ISLAND POWER
AUTHORITY EASEMENT #1
AREA = 15.62 ACRES

NOTES :

- 1) Unauthorized alteration or addition to a survey map bearing a licensed land surveyor's seal is a violation of section 7209 - sub-section 2 of the N.L. STATE EVIDENCE Law and is illegal.
- 2) Copies from the original survey map marked with an original of the land surveyor's embossed seal or purple seal shall be valid copies.
- 3) Instructions indicate that the surveyor shall prepare a duplicate copy of the survey map prepared in accordance with the existing Code of Practice for Land Surveyors adopted by the State of North Carolina. The instructions also indicate that the surveyor shall run only to the person for whom the survey is prepared, and on behalf of the State, the local governmental land agency and the institution listed herein and to the assignees of the lending institution. Certifications shall be made and transferred to the appropriate governmental agency.
- 4) Underground improvements or encroachments, if any, are not shown hereon.

NOW OR FORMERLY
NORTH SHORE COUNTRY CLUB
N.C.T.M.
LOT 28 E.
83± ACRES

KEYSPAN ENERGY DELIVERY
TOTAL AREA = 29.43 AC.
- 2.75 AC
26.68 AC

NASSAU COUNTY TAX MAP
SECTION 21, BLK. " M "
SHEET #1 OF 6

[illegible]

SITE MANAGEMENT PLAN

**NATIONAL GRID GLENWOOD LANDING FORMER GAS PLANT SITE
GLENWOOD LANDING, NEW YORK**

VOLUNTARY CLEANUP AGREEMENT NO. R1-0001-01-01

Prepared for:

**NATIONAL GRID
HICKSVILLE, NEW YORK**

Prepared by:

**DVIRKA AND BARTILUCCI CONSULTING ENGINEERS
WOODBURY, NEW YORK**

OCTOBER 2011

**SITE MANAGEMENT PLAN
NATIONAL GRID GLENWOOD LANDING FORMER GAS PLANT SITE**

TABLE OF CONTENTS

<u>Section</u>	<u>Description</u>	<u>Page</u>
	EXECUTIVE SUMMARY	ES-1
1.0	INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM	1-1
1.1	Introduction.....	1-1
1.1.1	General.....	1-1
1.1.2	Purpose.....	1-4
1.1.3	Revisions.....	1-5
1.2	Site Background.....	1-5
1.2.1	Site Location and Description.....	1-5
1.2.2	Site History	1-6
1.2.3	Geologic Conditions	1-7
1.3	Summary of Previous Investigation Findings.....	1-10
1.4	Summary of Remedial Actions.....	1-15
1.4.1	Removal of Contaminated Materials from the Site	1-16
1.4.2	On-Site and Off-Site Treatment Systems	1-18
1.4.3	Remaining Contamination	1-18
1.4.3.1	Soil	1-18
1.4.3.2	Groundwater	1-20
1.4.4	Engineering and Institutional Controls	1-22
2.0	ENGINEERING AND INSTITUTIONAL CONTROL PLAN.....	2-1
2.1	Introduction.....	2-1
2.1.1	General.....	2-1
2.1.2	Purpose.....	2-1
2.2	Engineering Controls	2-2
2.2.1	Engineering Control Systems	2-2
2.2.2	Criteria for Completion of Remediation/ Termination of Remedial Systems.....	2-2
2.3	Institutional Controls	2-4
2.3.1	Excavation Work Plan	2-5
2.3.2	Soil Vapor Intrusion Evaluation	2-6
2.4	Inspections and Notifications.....	2-7
2.4.1	Inspections	2-7
2.4.2	Notifications.....	2-7

TABLE OF CONTENTS (continued)

<u>Section</u>	<u>Description</u>	<u>Page</u>
2.5	Contingency Plan	2-8
2.5.1	Emergency Telephone Numbers	2-9
2.5.2	Map and Directions to Nearest Health Facility	2-9
2.5.3	Response Procedures	2-9
3.0	MONITORING PLAN	3-1
3.1	Introduction	3-1
3.1.1	General	3-1
3.1.2	Purpose and Schedule	3-1
3.2	Engineering Control System Monitoring	3-3
3.2.1	Monitoring Schedule	3-3
3.2.2	Repair Schedule	3-3
3.3	Site-Wide Inspection	3-4
3.4	Monitoring Reporting Requirements	3-5
4.0	SITE MANAGEMENT REPORTING PLAN	4-1
4.1	Introduction	4-1
4.2	Certification of Engineering and Institutional Controls	4-1
4.3	Site Inspections	4-2
4.3.1	Inspection Frequency	4-2
4.3.2	Inspection Forms	4-2
4.3.3	Evaluation of Records and Reporting	4-3
4.4	Periodic Review Report	4-3
4.5	Corrective Measures Plan	4-4

List of Appendices

Deed Restriction	A
As-Built Drawing	B
Excavation Endpoint Sample Results	C
Excavation Work Plan	D
Institutional and Engineering Control Inspection Form	E

TABLE OF CONTENTS (continued)

List of Figures

1-1	Site Plan	1-2
1-2	Site Location Map.....	1-3
1-3	Cross Section Key Map	1-8
1-4	Geologic Cross Section of Site and Upgradient Areas	1-9
2-1	Hospital Route Map	2-10

List of Tables

1-1	Soil Disposal Summary.....	1-17
1-2	Site-Specific Soil Cleanup Objectives	1-19
2-1	Soil Cover System Summary	2-3
2-2	Emergency Contact Numbers	2-11
3-1	Monitoring/Inspection Schedule	3-2

List of Drawings

1	Site Plan	Map Pocket at end of Section 1.0
---	-----------------	----------------------------------

Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #7
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 596
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FOUR (4) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 169.97 feet to a point;
- Thence running through P/O Lot 596 Due East 103.93 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 596 the following FOUR (4) bearings and distances:

1. Due North 19.81 feet to a point;
2. Due East 10.54 feet to a point;
3. Due South 19.81 feet to a point;
4. Due West 10.54 feet to the true point of place of beginning;

Containing within said bounds 209 Sq. Ft. more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #8
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 596
Sheet #1 of 6
Situating in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FOUR (4) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
3. North 13° 22' 34" East 612.95 feet to a point;
4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 108.84 feet to a point;
Thence running through P/O Lot 596 Due East 243.69 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 596 the following FOUR (4) bearings and distances:

1. Due North 46.27 feet to a point;
2. Due East 34.31 feet to a point;
3. Due South 46.27 feet to a point;
4. Due West 34.31 feet to the true point of place of beginning;

Containing within said bounds 1,587 Sq. Ft. more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #9
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 596
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FOUR (4) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 215.96 feet to a point;
- Thence running through P/O Lot 596 Due East 146.83 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 596 the following FOUR (4) bearings and distances:

1. Due North 30.36 feet to a point;
2. Due East 46.22 feet to a point;
3. Due South 30.36 feet to a point;
4. Due West 46.22 feet to the true point of place of beginning;

Containing within said bounds 1,403 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area#10
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 596
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FOUR (4) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 309.06 feet to a point;
- Thence running through P/O Lot 596 Due East 264.36 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 596 the following FOUR (4) bearings and distances:

1. Due North 50.75 feet to a point;
2. Due East 34.20 feet to a point;
3. Due South 50.75 feet to a point;
4. Due West 34.20 feet to the true point of place of beginning;

Containing within said bounds 1,736 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Remediation Area #11
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 596
Sheet #1 of 6
Situating in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FOUR (4) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 208.35 feet to a point;
- Thence running through P/O Lot 596 Due East 331.32 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 596 the following FOUR (4) bearings and distances:

1. Due North 45.74 feet to a point;
2. Due East 61.16 feet to a point;
3. Due South 45.74 feet to a point;
4. Due West 61.16 feet to the true point of place of beginning;

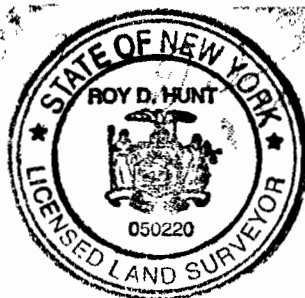
Containing within said bounds 2,798 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #12
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lots 596 and 597
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FOUR (4) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 263.96 feet to a point;
- Thence running through P/O Lot 596 Due East 372.47 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 596 and Lot 597 the following FIVE (5) bearings and distances:

1. North 36° 02' 25" West 72.15 to a point;
2. North 00° 04' 00" West 60.86 feet to a point;
3. North 89° 21' 15" East 113.21 feet to a point;
4. Due South 108.21 feet to a point;
5. South 80° 09' 18" West 71.73 feet to the true point of place of beginning;

Containing within said bounds 11,887 Sq. Ft or 0.27 Acres more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #13
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 597
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FIVE (5) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
3. North 13° 22' 34" East 612.95 feet to a point;
4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 325.05 feet to a point;
5. North 16° 30' 46" West 82.98 feet to a point;
Thence running through P/O Lot 597 Due East 381.41feet to the true point or place of beginning;

Thence continuing running though P/O Lots 597 the following ELEVEN (11) bearings and distances:

1. North 51° 43' 22" West 52.57 feet to a point;
2. North 44° 59' 11" East 16.65 feet to a point;
3. North 12° 05' 22" East 2.08 feet to a point;
4. North 09° 27' 29" West 2.65 feet to a point;
5. North 19° 47' 24" West 3.86 feet to a point;
6. North 12° 43' 07" East 4.62 feet to a point;
7. South 63° 25' 28" East 2.92 feet to a point;
8. South 21° 06' 56" East 6.86 feet to a point;
9. South 51° 37' 10" East 71.19 feet to a point;
10. South 23° 11' 20" East 5.54 feet to a point;
11. South 89° 44' 59" West 33.28 feet to the true point of place of beginning;

Containing within said bounds 1,576 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #14
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lots 35 and Lot 597
Sheet #1 of 6
Situating in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FIVE (5) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 325.05 feet to a point;
 5. North 16° 30' 46" West 111.91 feet to a point;
- Thence running through P/O Lot 597 Due East 398.98 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 35 and Lot 597 the following FIVE (5) bearings and distances:

1. North 51° 37' 16" West 76.40 feet to a point;
2. North 00° 24' 49" West 102.44 feet to a point;
3. North 89° 30' 14" East 101.71 feet to a point;
4. South 00° 29' 46" East 150.86 feet to a point;
5. North 89° 51' 02" West 42.38 feet to the true point of place of beginning;

Containing within said bounds 13,894 Sq. Ft or 0.32 Acres more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #15
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 597
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following SIX (6) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 325.05 feet to a point;
 5. North 16° 30' 46" West 113.00 feet to a point;
 6. Along the arc of a curve to the right having a radius of 619.82 feet an a arc length of 97.34 feet to a point;
- Thence running through P/O Lot 597 Due East 247.85 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 597 the following SIX (6) bearings and distances:

1. Due North 28.98 feet to a point;
2. Due East 37.42 feet to a point;
3. South 00° 21' 34" East 23.72 feet to a point;
4. North 89° 55' 26" West 13.04 feet to a point;
5. Due South 5.27 feet to a point;
6. Due West 22.22 feet to the true point of place of beginning;

Containing within said bounds 1,006 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #16
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lots 35 and Lot 597
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following SIX (6) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 325.05 feet to a point;
 5. North 16° 30' 46" West 113.00 feet to a point;
 6. Along the arc of a curve to the right having a radius of 619.82 feet an a arc length of 49.57 feet to a point;
- Thence running through P/O Lot 597 Due East 277.69 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 35 and Lot 597 the following FOUR (4) bearings and distances:

1. North 00° 36' 06" West 98.40 feet to a point;
2. North 89° 22' 50" East 44.31 feet to a point;
3. South 00° 01' 55" West 97.96 feet to a point;
4. South 88° 47' 36" West 43.23 feet to the true point of place of beginning;

Containing within said bounds 4,297 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #17
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 36
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following SIX (6) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 325.05 feet to a point;
 5. North 16° 30' 46" West 113.00 feet to a point;
 6. Along the arc of a curve to the right having a radius of 619.82 feet an a arc length of 199.93 feet to a point;
- Thence running through P/O Lot 36 Due East 239.05 feet to the true point or place of beginning;

Thence continuing running though P/O Lot 36 the following FOUR (4) bearings and distances:

1. North 09° 26' 19" East 32.49 feet to a point;
2. South 58° 09' 49" East 42.83 feet to a point;
3. South 30° 53' 08" West 28.24 feet to a point;
4. North 61° 29' 52" West 30.97 feet to the true point of place of beginning;

Containing within said bounds 1,080 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #18
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 36
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following SIX (6) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 325.05 feet to a point;
 5. North 16° 30' 46" West 113.00 feet to a point;
 6. Along the arc of a curve to the right having a radius of 619.82 feet an a arc length of 242.72 feet to a point;
- Thence running through P/O Lot 36 Due East 87.65 feet to the true point or place of beginning;

Thence continuing running though P/O Lot 36 the following FIVE (5) bearings and distances:

1. Due North 53.22 feet to a point;
2. Due East 79.45 feet to a point;
3. Due South 77.16 feet to a point;
4. Due West 41.24 feet to a point;
5. North 57° 55' 43" West 45.09 feet to the true point of place of beginning;

Containing within said bounds 5,673 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



APPENDIX B

ELECTRONIC COPY OF FINAL ENGINEERING REPORT

APPENDIX C

SUPPLEMENTAL ENVIRONMENTAL SITE ASSESSMENT REPORT

**Supplemental Environmental Site Assessment Report
Voluntary Cleanup Agreement R1-0001-01-01**

Glenwood Landing Gas Plant Site

**Glenwood Landing,
Nassau County,
New York**

**Prepared for KeySpan Corporation
One MetroTech Center
Brooklyn, New York 11201-3850**

**Prepared by *VHB*/Vanasse Hangen Brustlin, Inc.
Environmental Risk Management
54 Tuttle Place
Middletown, Connecticut 06457**

September 2001

Table of Contents

EXECUTIVE SUMMARY	1
INTRODUCTION	4
REPORT ORGANIZATION	4
SITE LOCATION AND DESCRIPTION	4
PURPOSE AND OBJECTIVES	5
PREVIOUS INVESTIGATIONS	6
<i>Phase I, Phase II, and Supplemental ESAs</i>	7
<i>Supplemental ESA of Area-1</i>	8
<i>Shallow Groundwater Investigation</i>	8
INVESTIGATION ACTIVITIES	10
OVERVIEW	10
COMMUNITY AIR MONITORING	11
SHALLOW GROUNDWATER MONITORING WELL INSTALLATION	11
<i>Shallow Well Sampling</i>	12
DEEP GROUNDWATER MONITORING WELL INSTALLATION	12
<i>Deep Well Sampling</i>	13
GROUNDWATER PROBE INSTALLATION AND SAMPLING	14
SOIL BORING INSTALLATION AND SUBSURFACE SOIL SAMPLING	14
STORM SEWER INVESTIGATION	15
<i>Dye Testing</i>	16
<i>Storm Sewer Sampling</i>	16
SURFACE SOIL SAMPLING	17
SURFACE WATER SAMPLING	18
SEDIMENT SAMPLING	18
COMPRESSOR BUILDING SUB-FLOOR INSPECTION	18
FIELD SURVEY	20
DEVIATIONS FROM THE WORK PLAN	20
ANALYTICAL RESULTS	21
OVERVIEW	21
SHALLOW GROUNDWATER MONITORING WELL SAMPLE RESULTS	21
DEEP GROUNDWATER MONITORING WELL SAMPLE RESULTS	23
GROUNDWATER PROBE SAMPLE RESULTS	24
SUBSURFACE SOIL SAMPLE RESULTS	25
STORM SEWER SAMPLE RESULTS	26
SURFACE SOIL SAMPLE RESULTS	26
SURFACE WATER SAMPLE RESULTS	27
SEDIMENT SAMPLE RESULTS	28
DATA VALIDATION	28
IDENTIFICATION OF CHEMICALS OF POTENTIAL CONCERN	29
IDENTIFICATION OF POTENTIAL ROUTES OF EXPOSURE	29
PATHWAYS CONSIDERED COMPLETE	30
CONCLUSIONS AND RECOMMENDATIONS	31

CONCLUSIONS.....	31
RECOMMENDATIONS	33
Area-1A.....	33
Area-1B.....	34
Area-2	34
Area-3	34
CONCEPTUAL REMEDIAL ACTION PLAN.....	36
PROPOSED REMEDIAL ALTERNATIVES.....	36
Area-1A – Surface Soil.....	36
Engineering Evaluation	36
Conceptual Plan.....	36
Area-1A – Groundwater	37
Engineering Evaluation	37
Conceptual Plan.....	38
Area-1B – Surface and Shallow Subsurface Soils.....	38
Engineering Evaluation	39
Conceptual Plan.....	40
Area-1B – Groundwater	41
Engineering Evaluation	41
Conceptual Plan.....	41
Areas-2 and 3 – Surface and Subsurface Soils	42
Engineering Evaluation	42
Conceptual Plan.....	43
REMEDIAL DESIGN	44
CLOSURE REPORT.....	44
REFERENCES.....	45
CERTIFICATION.....	47

List of Figures

FIGURE	DESCRIPTION
Figure 1-1	Site Location Map
Figure 1-2	Site Compilation and Sample Location Plan
Figure 2-1a	Groundwater Monitoring Data, Shallow Monitoring Wells, April 27, 2001
Figure 2-1b	Groundwater Monitoring Data, Deep Monitoring Wells, April 27, 2001

FIGURE	DESCRIPTION
Figure 3-1a	Summary of Shallow Groundwater Monitoring Well Sample Results
Figure 3-1b	Summary of Deep Groundwater Monitoring Well Sample Results
Figure 3-2	Summary of Groundwater Probe Sample Results
Figure 3-3	Summary of Subsurface Soil Sample Results
Figure 3-4	Summary of Storm Sewer Sample Results
Figure 3-5	Summary of Surface Soil Sample Results
Figure 3-6	Summary of Surface Water and Sediment Sample Results
Figure 5-1	Conceptual Remedial Action Plan

List of Tables

TABLE	DESCRIPTION
Section 2 Tables	Investigation Activities
Section 3 Tables	Analytical Results

List of Appendices

APPENDIX	DESCRIPTION
Appendix A	Field Documentation
Appendix B	Laboratory Analytical Reports
Appendix C	Data Validation Report
Appendix D	Photographic Documentation
Appendix E	Mass Loading Concentrations
Appendix F	Final Addendum

Executive Summary

This report presents the results of a Site Investigation conducted at the Glenwood Landing Gas Plant Site located in Glenwood Landing, Nassau County, New York. The property is located on approximately 800-feet of waterfront on the east shore of Hempstead Harbor, and extends east across Shore Road. The property is bounded on the south by a Mobil Oil/Storage Terminal, to the west by Hempstead Harbor, and on the north and east by the North Shore Country Club.

The site is presently owned by KeySpan Corporation (KeySpan). The site was initially developed in 1949. Development included a natural regulating station (compressor station), laboratory, and propane storage field. The gas facilities and propane storage tank field have since been decommissioned and demolished.

The Site Investigation was conducted under a Voluntary Cleanup Agreement (VCA), Index #R1-0001-01-01 executed March 27, 2001, between KeySpan, and the New York State Department of Environmental Conservation (NYSDEC). The field work and this report were performed by Vanasse Hangen Brustlin, Inc. (VHB) on behalf of KeySpan. In addition, all field work was conducted in accordance with the NYSDEC approved Investigation Work Plan dated April 2001.

The overall objective of the supplemental environmental site assessment, in conjunction with previous investigation results, is to provide sufficient information to perform a remedial action. Specific redevelopment scenarios for the site are undetermined at this time. This as well as previous investigations, evaluations, risk assessments and subsequent remedial actions have been conducted under the premise that the site may be redeveloped as residential, otherwise characterized as restricted residential.

Specific objectives include: determining if the storm sewers were a conduit or source of Volatile Organic Compounds (VOCs) to shallow groundwater in Area-1A; verify presence of VOCs in shallow groundwater in Area-1A; determine if a sinking Dense Non-aqueous phase liquids (DNAPL) plume exists in Area-1A; determine potential impact to shallow groundwater in Area-1B associated with overlying fill materials; collection of co-located surface water/sediment samples from the tidal pond in Area 1B to determine potential for chemical discharges; additional surface soil sampling to ensure all proper delineation of soils which may require remediation; sampling under gas holder to determine if VOCs, Semivolatile Organic Compounds (SVOCs) and Inorganics are migrating or exist under the holder pad; resample a portion of Area-2 to reconfirm previous analytical data; and reconnaissance at the compressor building to identify potential environmental impacts from previous operations.

The Supplemental Site Investigation consisted of a record reviews, site reconnaissance, soil borings, monitoring well installation, sample collection, sample analysis, and reporting. Site sampling activities included sediment, surface soil, subsurface soil, groundwater and surface water sampling and analysis. Soil and groundwater samples were collected and analyzed for various analyses including: VOCs, SVOCs, Pesticides, Polychlorinated Biphenyls (PCBs), and Inorganics. All samples were collected by VHB and analyzed by Severn Trent Laboratories (STL).

The results of this investigation indicate:

- Geotechnical and analytical results from shallow groundwater samples in Area-1A are consistent with previous investigations. The compounds and concentrations detected are consistent with previous data. No substantial confining layer was found in Area-1A. No DNAPL was found. Analytical results indicate VOCs at depth in the upgradient well. Based on the comprehensive investigation conducted in this area, there is no evidence of DNAPL or a sunken plume. Sufficient characterization has been performed for the purpose of performing a remedial design. The shallow subsurface area between the drywells and outfall 2 and 3 to Hempstead Harbor appears to be a source of VOCs to shallow groundwater. Analytical results from Area-1A surface soil samples indicate five locations which contain SVOCs, and more specifically Carcinogenic Polycyclic Aromatic Hydrocarbons (CPAHs) which exceed site specific action levels.
- Analytical results indicate an isolated area of VOCs in shallow groundwater in the northeast corner of Area-1B. The compounds detected are typically associated with the degradation of PCE and TCE. The primary 36-inch reinforced-concrete pipe (RCP) main which runs between Area-1A/1B serves as a shallow groundwater divide. No VOCs were found in the sewer or adjacent tidal pond. Therefore, VHB concludes that this is a discrete area influenced by a source other than shallow groundwater in Area-1A. Analytical results for surface water samples collected from the pond in Area-1B indicate SVOCs were present in both samples at concentrations below action levels. Collected sediment samples collected from the pond indicate SVOCs are present in one of the two samples, but at concentration below action levels.
- Discrete surface soil samples from areas 2 and 3 contained SVOCs, but at concentrations below action levels.
- Analytical results from subsurface soil samples collected from Area-2 confirmed the presence of SVOCs and PCBs at concentrations above action levels in isolated hotspots as previously defined.
- Analytical results from the subsurface soils collected from beneath the gas holder foundation in Area-3 indicate there are no compounds present at levels which require action. Analytical results of the grab groundwater sample contained no compounds which require action or indicate a migration of material from the drip storage area.
- The storm sewers were constructed consistent with as-built documentation. A large 36-inch RCP running east to west down the main site access road, between

Areas-1A and 1B, carries most of the storm runoff from the site to Hempstead Harbor. Analytical results from the sewer system indicate that there are no sources of VOCs in, or migrating from Areas-2, 3, and off-site sources via the sewer.

- The survey conducted on the compressor building sub-floor found no evidence of a release or potential release to the subsurface from the building. All compressor equipment has been removed from the building. A thorough examination of the sub-floor was conducted. All discharges from the building sumps and roofs drains were through the main 36-inch site storm sewer.

Based on the historical information, previous investigations, the results of this investigation, an engineering evaluation, and discussions with representatives from NYSDEC and NYSDOH VHB recommends the following actions for each area:

- Area-1A: Hot spot removal (excavation and off-site disposal) of surface soils which contain concentrations of CPAHs in excess of site clean-up objectives. In-situ groundwater treatment for VOCs in groundwater. Treatment will incorporate oxidation technology to reduce VOCs.
- Area-1B: Cover fill area of 1B to prevent exposure to and mitigate migration potential of elevated levels of inorganics. Area will require deed restriction to maintain as a green space or passive recreation area. In-situ groundwater treatment for VOCs in the northeast portion of this area. Treatment will incorporate oxidation technology to reduce VOCs.
- Area-2: Hot spot removal (excavation and off-site disposal) of surface and subsurface soils up to the water table which contain concentrations of PCBs, CPAHs, and inorganics in excess of site clean-up objectives. Holder pad and compressor building to be demolished. Employ proper environmental controls and techniques during demolition.
- Area-3: Hot spot removal (excavation and off-site disposal) of surface and subsurface soils up to the water table which contain concentrations of PCBs, CPAHs, and inorganics in excess of site clean-up objectives.

1

Introduction

Report Organization

This report has been prepared for KeySpan by VHB. The report summarizes field work and analytical data collected in November 2000 and April 2001 by VHB on behalf of KeySpan during the performance of a Supplemental Environmental Site Assessment at the Glenwood Landing Gas Plant Site. The Site Investigation was conducted under a Voluntary Cleanup Agreement (VCA), Index #R1-0001-01-01, executed March 27, 2001, between KeySpan and NYSDEC.

Section 1 provides an introduction to this report, purpose and objectives, site location and description, and previous environmental investigation history. Section 2 summarizes the investigation activities. Section 3 presents the analytical data obtained from analysis of the samples collected during the investigation. Section 4 provides conclusions and recommendations based on the data collected during the supplemental investigation activities, as well as recommendations for remedial actions proposed at the site. Section 5 provides a Conceptual Remedial Action Plan (RAP) for the Site, based on the recommendations detailed in Section 4. Section 6 summarizes the references used during the generation of this report. Section 7 is a certification that the work was performed in substantial compliance with the work plan approved by NYSDEC.

Site Location and Description

The Glenwood Landing Gas Plant facility is located on Shore Road in Glenwood Landing, New York. The property is located on approximately 800-feet of waterfront on the east shore of Hempstead Harbor, and extends east across Shore Road. The areas east of Shore Road slope steeply toward the harbor, and areas west of Shore Road are relatively flat. Refer to Figure 1-1.

The site was initially developed as a modern liquid petroleum (LP) gas cracking plant in 1949. Subsequent development included a natural gas regulating station (compressor station), laboratory, and propane storage field. The gas facilities and propane storage tank field have since been decommissioned and demolished. The compressor station and associated site features are currently being decommissioned

and/or demolished. Limited laboratory services/operations are still performed at the site.

The site has been subdivided into three discrete areas: Areas 1, 2, and 3 (refer to Figure 1-2). Area-1 includes the entire site west of Shore Road and has been subdivided into Area-1A and 1B. Area-1A contained the former propane tank farm. Area-1B is a greenspace and tidal wetland. Area-2 is east of Shore Road and north of the site access road where the laboratory, electrical substation, and storage buildings are located. Area-3 is east of Shore Road and south of the site access road where the compressor building is located.

Purpose and Objectives

The overall objective of the supplemental environmental site assessment, in conjunction with previous investigation results, is to provide sufficient information to perform a remedial action. Specific redevelopment scenarios for the site are undetermined at this time. This investigation, as well as previous investigations, evaluations, risk assessments, engineering evaluations and subsequent remedial actions have been conducted under the premise that the site may be redeveloped as residential. This approach allows the greatest flexibility for redevelopment.

The investigation discussed herein was developed and implemented as the final "capstone" field effort at the site prior to the development of a remedial action program. Numerous investigation tasks were implemented at the site during the completion of this field effort with the concurrence of the NYSDEC and New York State Department of Health (NYSDOH). The investigation tasks are highlighted below:

- Air monitoring to be protective of the surrounding community during the performance of intrusive field investigation activities.
- Reinstallation of 4 previously destroyed shallow groundwater monitoring wells and installation of a 5th shallow well in the center of the former propane tank field in Area-1A to determine hydrogeologic characteristics and reassess volatile organic constituents (VOCs) found during prior investigations.
- Installation of 3 deep groundwater monitoring wells in Area-1A to determine hydrogeologic characteristics in the deeper portion of the aquifer and assess the potential for deeper migration of halogenated VOCs (DNAPL).
- Installation and sampling of 6 shallow groundwater probes in Area-1B to determine potential chemical constituent distribution and characteristics.
- Installation of 3 soil borings through the former gas holder pad in Area-3 and collection of subsurface soil samples to determine the nature and extent of any chemical constituents in the soils associated with the former wastewater/condensate management area and/or holder. One of the borings was also

completed as a groundwater probe to assess shallow groundwater chemical concentrations, if any, beneath the holder.

- Reinstallation of 2 soil borings in the former boiler wash sump in Area-2 and collection of subsurface soil samples to confirm analytical data collected during previous site investigations.
- Dye testing to determine "as-built" conditions of the storm sewer system at the site and collection of liquid samples at discrete locations across the system to determine whether it is a source and/or conduit for chemical constituents detected in the groundwater in Area-1A.
- Collection of a total of 24 samples (20 in Area-1A, 2 in Area-2 and 2 in Area-3) to determine the presence and concentrations of any chemical constituents in surface soils and assess whether further pathway analysis or mitigation is required.
- Collection of 2 co-located surface water and sediment samples in the tidal pond in Area-1B to determine the potential for chemical discharges which may be degrading this water body.
- Inspection and evaluation of the sub-floor/basement of the natural gas regulator station (compressor building) in Area-3 for evidence of floor drains, staining, and/or any potential release points to the environment.
- Location of all sample points relative to established datum via a field survey.

Overall, this investigation is part of KeySpan's comprehensive environmental program at the site. Each of the tasks highlighted above will be discussed in greater detail within the following sections of this report.

Previous Investigations

Five previous investigations as detailed below were conducted at the site:

- A Phase I Environmental Site Assessment (ESA) was performed by Fluor Daniel GTI, Inc. and reported in January 1999;
- A Phase II-ESA was performed by Fluor Daniel GTI Inc. and reported in May 1999;
- A Supplemental ESA was performed by IT Corporation and reported in June 1999;
- A Supplemental ESA of Area-1, including a Human Health and Ecological Risk Analysis was performed by VHB and reported in December 1999; and
- An upgradient Shallow Groundwater Investigation was performed by VHB in March 2000 (the results of which are reported herein).

The following discussion details these investigations and their findings.

Phase I, Phase II, and Supplemental ESAs

The Phase I ESA by Fluor Daniel GTI suggested the presence of several potential Recognized Environmental Conditions (RECs) in each of the three site areas. These RECs included leach fields, former above ground storage tanks (ASTs), fill deposits/areas, debris piles, structures, and gas handling/processing facilities.

The Phase II ESA by Fluor Daniel GTI investigated the proposed RECs reported in the Phase I ESA. Analytical results from samples collected during the Phase II ESA were compared to referenced background concentrations published by state and federal sources. Analytical results from the Phase II ESA suggested the presence of:

- VOCs in concentrations above published background levels were present in groundwater in Area-1A;
- Inorganics in concentrations above published background levels were present in soil in Area-1B;
- Inorganics and PCBs in concentrations above published background levels were present in soil in Area-2; and
- VOCs, semivolatile organic compounds (SVOCs), and inorganics in concentrations above published background levels were present in soil in Area-3.

The Supplemental ESA by IT Corporation was conducted to "delineate the chemicals detected during [the] Phase II [ESA], and [determine] remediation cost estimates based on the delineation of chemical impacts." Analytical results from the Supplemental ESA included:

- VOCs were present in shallow groundwater on the west side of Area-1A at concentrations exceeding NYSDEC groundwater standards;
- Ash, asbestos, and inorganics (particularly arsenic and vanadium) were present in surface and subsurface soils in the central portion of Area-1B. Arsenic and vanadium were present in concentrations in excess of eastern United States background levels;
- In Area-2, mercury and polycyclic aromatic hydrocarbons (PAHs) were detected in debris piles along the western portion of the property in excess of NYSDEC guidance values. Mercury was detected in soil borings from the former septic system in excess of NYSDEC guidance values. PCBs and PAHs were detected in soil borings from the boiler waste pit area;
- In Area-3, PAHs and PCBs were detected in the wastewater/condensate accumulation area in excess of NYSDEC guidance values. One boring contained VOCs marginally in excess of NYSDEC guidance values. PCBs were also detected above NYSDEC guidance values in the yard storage area.

Supplemental ESA of Area-1

A supplemental ESA and risk analysis was performed by VHB (December 1999) to verify the presence of VOCs in groundwater and inorganics in soil in Area-1, and evaluate their significance. The results of this investigation indicated that:

- Arsenic and vanadium in the surface and shallow subsurface soils in Area-1B may pose a risk to human health and the environment under certain site development scenarios. However, there is no immediate threat, and there is no evidence that these chemicals are migrating from the site or into groundwater at this time, and access to the site is currently controlled. Additional characterization of the area is not necessary since the analytes of concern are associated with the presence of ash, which can be easily distinguished through visual inspection.
- VOCs are present in shallow groundwater in Area-1A in excess of NYSDEC guidance values and may pose a risk to human health and the environment based on KeySpan's proposed redevelopment scenarios. VOCs may also be migrating to the surface waters of Hempstead Harbor and the adjacent tidal pond in Area-1B. The source of VOCs is not known, and there is a potential for off-site sources. The tidal influence on the site may have a smearing effect of VOCs in groundwater along the bulkhead. Additional investigations to delineate the extent of VOC contamination in groundwater, as well as a storm sewer survey, were recommended.

Shallow Groundwater Investigation

An upgradient Shallow Groundwater Investigation was performed by VHB on March 2 and 3, 2000 to determine if a continuing source of VOCs is present in shallow groundwater areas adjacent to Shore Road, and adjacent to former and existing septic tanks and leach fields.

- Nineteen groundwater samples were collected from temporary wells approximately 8 to 12 feet in depth installed using direct-push technology. In addition, four existing monitoring wells were sampled. These samples were analyzed by KeySpan's laboratory for VOCs.
- Analytical results indicate the presence of VOCs (PCE, TCE) in shallow groundwater upgradient of Area-1, however the concentrations detected are well below the levels found in Area-1, and are also below applicable regulatory criteria.
- There appear to be no existing sources of VOCs in subsurface soils and shallow groundwater adjacent to Shore Road, the compressor building, storage sheds, laboratory, and associated septic structures.
- The shallow groundwater investigation results did not preclude the notion that VOCs may be migrating from areas east of Shore Road via the storm sewer network. VOCs are limited to the groundwater adjacent to the bulkhead in Area-

1A. Potential sources of VOCs in groundwater in Area-1A include Hempstead Harbor, a historical release in Area-1A, and the storm sewers.

2

Investigation Activities

Overview

KeySpan has entered into a VCA # R1-0001-01-01 with the NYSDEC to conduct investigation and remediation activities at the Glenwood Landing Gas Plant Site (site number V-00351-1). In accordance with the provisions of the VCA, a work plan and subsequent addendum was prepared which detailed the methods and procedures to be utilized during the completion of the supplemental investigation activities described herein. This work plan was initially submitted in May 2000 and revised in April 2001 following the approval of proposed addenda by the NYSDEC during March 2001. Further detail regarding the purpose and objectives of the supplemental investigation are provided above in Section 1. In addition, the field investigation program consisted of several tasks which are also highlighted above in Section 1.

The field work was conducted in two discrete efforts in November 2000 and April 2001. The first field effort in November 2000 included a storm sewer survey/sampling, limited groundwater sampling, and site reconnaissance by NYSDEC and NYSDOH representatives. The work was initiated on November 13, 2000. Work was completed by November 15, 2000.

The second field effort in April 2001 included surface and subsurface soil sampling, monitoring well installation, groundwater sampling, and site reconnaissance, as well as additional field tasks. On April 16, 2001 VHB mobilized a field team to the site. This team included two technical specialists from VHB and drilling support crews from VHB's subcontractor Miller Environmental Group (MEG). Additional drilling support was provided during the field program by Zebra Environmental (Zebra) under direct contract to MEG. VHB worked in close coordination with KeySpan during the completion of all field work. The investigation work activities were substantially completed by April 26, 2001, and VHB and MEG were demobilized from the site by April 27, 2001. The following sections summarize all of the aforementioned field subtasks. In addition, a summary of all samples collected as part of the field investigation program can be found in Table 2-1.

Community Air Monitoring

All air monitoring was performed during the field investigation program in accordance and compliance with the provisions of the NYSDOH's Generic Community Air Monitoring Plan (CAMP). Continuous, "real-time" air monitoring for VOCs only and VOCs and particulates was conducted directly upwind and downwind, respectively, of the exclusion zones established during intrusive hollow-stem auger (HSA) drill rig work activities. Monitoring of VOCs was performed utilizing a Photoionization Detector (PID), and a digital dust meter (*i.e.*, MiniRam) was utilized for particulate monitoring. All meters were calibrated daily according to manufacturer's specifications. Additionally, data logged during the previous day's activities were downloaded to a laptop computer at the beginning of the following day. Daily equipment calibration logs and all of the data reports downloaded from the meters can be located in Appendix A.

Shallow Groundwater Monitoring Well Installation

A total of 5 new shallow groundwater monitoring wells, 4 of which replaced previously destroyed wells, were installed in Area-1A during the investigation. These wells were designated MW-01 and MW-03 through MW-06 (MW-02 existed at the site). Refer to Figure 1-2 for the monitoring well locations. All of the monitoring wells were installed utilizing the HSA drilling methodology and constructed with 2-inch I.D., Schedule 40 PVC, 10-foot long, 0.010-inch slot screens and flush-joint threaded PVC casing extending to grade. The well screens were installed to bridge the water table interface. Total well installation depths did not exceed 15 feet below grade.

During the installation of the wells, split-spoon samples were collected on 5-foot intervals to determine the physical characteristics of the subsurface soils at the site. None of these samples were selected for chemical analyses. Standard well construction practices were employed during the installation of the 5 wells. A #10 inert silica gravel pack was installed in the borehole extending from depth to 2 feet above the well screen where possible. A bentonite seal was installed in the borehole immediately above the gravel pack. The remainder of the annular space was filled to grade with native fill due to the shallow completion depths of the well screens. The wells were finished at grade in locking, protective steel surface casings anchored in concrete pads. Monitoring well construction diagrams can be found in Appendix A.

All 5 monitoring wells were developed following installation using submersible and/or hydraulic pumps. Numerous parameters including turbidity, pH, temperature, specific conductance and dissolved oxygen were monitored and recorded during the development of the wells. The wells were pumped until the

monitored turbidity dropped below 50 nephelometric turbidity units (NTUs), or two hours had elapsed since commencement.

Shallow Well Sampling

Following development, the wells were allowed to stabilize for at least 24-hours prior to sampling. Depth to groundwater and total well depth measurements were collected relative to the north side of the casing of the 5 new and 1 existing well prior to sampling to determine purge volumes and potentiometric surface characteristics. These elevations were tied to local datum during the field survey subtask detailed below. Groundwater elevation data collected from the 6 shallow wells on April 27, 2001 is summarized in Table 2-2 and presented graphically on Figure 2-1a.

Prior to sampling, 3 to 5 calculated well volumes were purged from all 6 of the monitoring wells. Parameters such as turbidity, pH, temperature, specific conductance and dissolved oxygen were monitored and recorded during purging in preparation for sampling. The samples were labeled and packaged in coolers, chilled to 4 degrees C, and sent to Severn Trent Laboratories (STL) for analysis. All 6 groundwater samples were analyzed for Target Constituent List (TCL) VOCs and SVOCs and Target Analyte List (TAL) metals. One duplicate sample was collected for QA/QC analyses. One trip blank was also submitted with these samples for TCL VOC analysis only.

In addition, a groundwater sample and duplicate were collected from MW-02 during the storm sewer investigation since it was the only monitoring well remaining on-site. Details regarding the storm sewer investigation, which was completed at the site during November 2000, are presented below. Refer to Section 3 for a summary of the analytical results, and the monitoring well sample data forms for each well which are presented in Appendix A.

Deep Groundwater Monitoring Well Installation

A total of 3 deep groundwater monitoring wells were installed in Area-1A during the investigation. These wells were designated MWD-01 through MWD-03. Refer to Figure 1-2 for the monitoring well locations. All of the monitoring wells were installed utilizing the HSA drilling methodology and constructed with 2-inch I.D., Schedule 40 PVC, 20-foot long, 0.010-inch slot screens and flush-joint threaded PVC casing extending to grade. Since the soil matrix is generally fine to fine-silty sand, sumps 5 feet in length were installed on all of the deep monitoring wells. The total installation depths of the wells were dependent upon the depth in each boring that a localized, discontinuous low permeability layer, which was identified at the Site, was first encountered. Ideally, the wells were screened just into this low permeability layer with total depths ranging from 60 to 90 feet below grade including the length of the sumps.

During the installation of the wells, split-spoon samples were collected on 5-foot intervals to determine the physical characteristics of the subsurface soils at the site and determine the depth at which the referenced low permeability layer was first encountered. The sample from MWD-02 collected at 40-42 feet below grade was the only sample selected for chemical analyses (TCL VOCs and SVOCs and TAL Metals). Refer to "Deviations from the Work Plan" subsection below for details regarding the collection of this sample. Standard accepted well construction practices were employed during the installation of the 3 wells. A #10 inert silica gravel pack was installed in the borehole extending from depth to 2 to 5 feet above the well screen. A bentonite seal of at least 2-foot thickness was installed in the borehole immediately above the gravel pack. The remainder of the annular space was filled to grade with a Portland cement/bentonite grout. The wells were finished at grade in locking, protective steel surface casings anchored in concrete pads. Monitoring well construction diagrams can be found in Appendix A.

All 3 monitoring wells were developed following installation using submersible and/or hydraulic pumps. Numerous parameters including turbidity, pH, temperature, specific conductance and dissolved oxygen were monitored and recorded during the development of the wells. The wells were pumped until the monitored turbidity dropped below 50 NTUs, or two hours had elapsed since commencement.

Deep Well Sampling

Following development, the wells were allowed to stabilize for at least 24-hours prior to sampling. Depth to groundwater and total well depth measurements were collected relative to the north side of the casing of the 3 new wells prior to sampling to determine purge volumes and potentiometric surface characteristics. These elevations were tied to local datum during the field survey subtask detailed below. Groundwater elevation data collected from the 3 deep wells on April 27, 2001 is summarized in Table 2-2 and presented graphically on Figure 2-1b.

Prior to sampling, 3 to 5 calculated well volumes were purged from all 3 of the monitoring wells. Parameters such as turbidity, pH, temperature, specific conductance and dissolved oxygen were monitored and recorded during purging in preparation for sampling. The samples were labeled and packaged in coolers, chilled to 4 degrees C, and sent to STL for analysis. All 3 groundwater samples were analyzed for TCL VOCs and SVOCs and TAL metals. One duplicate sample was collected for QA/QC analyses. One trip blank was also submitted with these samples for TCL VOC analysis only. Refer to Section 3 for a summary of the analytical results, and the monitoring well sample data forms for each well which are presented in Appendix A.

Groundwater Probe Installation and Sampling

A total of 6 groundwater probes (designated GLGP-01 through GLGP-06) were installed in Area-1B over the course of the investigation. In addition, one of the soil borings (SBGL-01) advanced through the former holder pad in Area-3 was completed as a 7th groundwater probe location (designated GLGP-07). Refer to Figure 1-2 for the installation locations of the groundwater probes.

All of the groundwater probes were installed using an AMS Power Probe[®] drill rig supplied by MEG. The AMS Power Probe[®] utilizes the direct-push drilling methodology to advance narrow-diameter sampling tools into the subsurface which are capable of collecting depth discrete groundwater samples. All subsurface sampling tools were decontaminated between groundwater probes using a deionized water and Liquinox[®] critical wash. Following completion each groundwater probe was allowed to backfill naturally and was capped at grade with a bentonite seal.

Upon collection all samples were screened for total organic vapors utilizing a PID. Details surrounding the collection of the 7 groundwater probe samples can be located in sample information records which are included in Appendix A. Upon collection, all samples were properly labeled and packaged in coolers, chilled to 4 degrees C, and sent to STL. All of the samples were analyzed for TCL VOCs and SVOCs, and TAL metals. One duplicate sample was collected for QA/QC analyses. One trip blank was also submitted with these samples for TCL VOC analysis only. Refer to Section 3 for a summary of the analytical results.

Soil Boring Installation and Subsurface Soil Sampling

In total, 3 subsurface soil borings (designated SBGL-01 through SBGL-03) were advanced through the existing former gas holder foundation in Area-3. Additionally, 2 soil boring locations (SBGL2-11 and SBGL2-21), previously installed in the former boiler wash disposal area within Area-2, were replicated during this investigation. Refer to Figure 1-2 for subsurface soil boring locations. The following matrix details the general installation locations of the all of the soil borings as well as the sampling methodology employed:

Soil Boring Designation	Installation Location	Sampling Methodology
SBGL-01 to SBGL-03	Advanced through existing former gas holder foundation in Area-3.	Continuous soil sampling to approximately 12-16' bgs with selection of 1 sample per boring for analysis.
SBGL2-11 & SBGL2-21	Former boiler wash disposal area within Area-2.	Continuous soil sampling to approximately 16-20' bgs with selection of 2 samples per boring for analysis.

Bgs - below ground surface

A concrete coring machine was utilized to provide access beneath the former gas holder foundation prior to the advancement of soil borings SBGL-01 through SBGL-03. All of these soil borings were installed using an AMS Power Probe® drill rig supplied by MEG. Soil borings SBGL2-11 and SBGL2-21 were advanced within the former boiler wash disposal area utilizing a Geoprobe® Model 4200 mounted on a Kawasaki Mule ATV. Both drill rigs utilize the direct-push drilling methodology to advance narrow-diameter sampling tools into the subsurface which are capable of retrieving soil samples at discrete intervals. All subsurface sampling tools were decontaminated between soil borings using a deionized water and Liquinox® critical wash. The soil borings were filled to grade utilizing the cuttings removed during the sampling process, and each one was capped at grade with a bentonite seal.

Upon collection all samples were screened for total organic vapors utilizing a PID and inspected for purposes of determining the physical characteristics of the soil and presence of visual staining and chemical constituents, if applicable. All of the borings were described in the project field log-book consistent with American Society for Testing and Materials (ASTM) standard D 2488-00, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Descriptive logs for the soil borings completed during the investigation are included in Appendix A.

The subsurface soil samples selected for analysis were properly labeled and packaged in coolers, chilled to 4 degrees C, and sent to STL. All of the samples were analyzed for TCL VOCs and SVOCs, and polychlorinated biphenyls (PCBs). One duplicate sample was collected for QA/QC analyses. Refer to Section 3 for a summary of the analytical results.

Storm Sewer Investigation

There are several discrete point discharges into Hempstead Harbor at the Glenwood Landing site. VHB has reviewed records and permits provided by KeySpan regarding the discharges and site sewer system. Based upon the record and permit review, and previous analytical data, an investigation of the sewer system was recommended. The rationale for the sampling was to determine if the storm sewers are acting as a conduit for the migration of chemical constituents on-site and off-site.

The storm sewer investigation included a review of as-built documentation, dye testing, and sampling. The investigation was conducted in November 2000. Refer to Figure 1-2 for details regarding the storm sewer system at the site.

Dye Testing

Prior to the initiation of dye-testing, VHB reviewed as-built/record drawings at the Glenwood site. A drawing showing the storm water system was used as a basis for the dye-testing to verify the record. VHB introduced dyes starting at the most downgradient points and worked upgradient alternating colors as necessary to map/verify the system. Dye was also introduced to the Laboratory septic system. Principal findings included:

- Dye-testing confirmed that the as-built documentation is correct;
- All storm sewers from areas east of Shore Road ultimately discharge to Hempstead Harbor via the 36-inch Reinforced Concrete Pipe (RCP) which transects Areas 1A and 1B;
- The two drop inlets along Shore Road adjacent to the entrance of the site have no lateral subsurface discharges to them (*i.e.* not included as part of a larger municipal storm sewer network), and they discharge to the 36-inch RCP which transects Areas 1A and 1B;
- The three dry wells located on the west side of Area-1A discharge to the two 10-inch Vitrified Clap Pipe (VCP) outfalls which extend through the bulkhead into Hempstead Harbor;
- The septic system showed no surface seepage or discharges to adjacent ditches, storm sewers, and site excavations.

Storm Sewer Sampling

Water samples were collected from each discrete discharge from Area-1 into Hempstead Harbor. Three discrete discharges were identified during the previous investigation conducted by VHB in October 1999. Samples were collected from the 36-inch RCP (OF-1) and both of the 10-inch VCP (OF-2 and OF-3) discharges. The point discharges were sampled after the tide has receded sufficiently to allow access to the outfall, and to ensure that the sample matrix was indicative of typical discharge.

Water samples were collected from various manholes/inlets along the storm sewer system upgradient of the outfalls. Sampling was conducted at points in the system which have been characterized as potential migration pathways or discrete sources of potential contamination identified during dye testing. Samples were collected from each of the three drywells (DW-1, DW-2, and DW-3) in Area-1A, and in three manholes (MH-1, MH-2, and MH-4) along the path of the 36-inch RCP.

No water samples were collected from the existing septic tank system since all laboratory wastes are disposed separately on-site in an above ground storage system. The existing system only receives septage from sanitary facilities at the laboratory. Sampling could not be conducted on the former septic systems associated with the laboratory and gas compressor building. The former laboratory system has been backfilled, and the former compressor building system has been previously removed.

A total of 10 samples were collected from the discharges, sewers, and groundwater. Samples from the outfalls were collected by placing the sample container directly in the discharge flow. Samples from manholes and inlets were collected using remote sample collection devices suspended from above. No confined space entry was performed. Dedicated sample collection equipment was used to prevent cross contamination of samples. Water was transferred directly from the sample collection bottle to pre-preserved sample bottles, properly labeled, packaged in coolers, chilled to 4 degrees C, and sent to STL for analysis. Two duplicate samples were collected in this matrix. All of the samples were analyzed for TCL VOCs. Refer to Figure 1-2 for sample locations. Refer to Section 3 for a summary of the analytical results.

Surface Soil Sampling

A total of 24 surface soil samples were collected. Surface soil samples SSGL-01 through SSGL-04 were collected at locations with Areas 2 and 3 selected in the field with the concurrence of the NYSDOH. The remaining 20 surface soil samples were collected in a grid configuration, with an approximate spacing of 100 feet, throughout Area-1A. Refer to Figure 1-2 for the sample locations.

The samples were collected, handled, packaged, shipped and analyzed as specified in the work plan. Each of the surface soil samples was a composite of the 0-2 inch interval below ground surface. The samples were collected using dedicated polystyrene sampling scoops and transferred directly to laboratory provided sample glassware. Upon collection all samples were screened for total organic vapors utilizing a PID and inspected for purposes of determining the physical characteristics of the soil and presence of visual staining and chemical constituents, if applicable. All of the surface soil samples were described in the project field log-book consistent with ASTM standard D 2488-00.

The samples were labeled and packaged in coolers, chilled to 4 degrees C, and sent to STL. The samples were analyzed for TCL SVOCs, and TAL metals. Two duplicate samples were collected for QA/QC analyses. Refer to Section 3 for a summary of the analytical results.

Surface Water Sampling

A total of 2 surface water samples (designated SWGL-01 and SWGL-02) were collected within the tidal pond in Area-1B over the course of the investigation. Refer to Figure 1-2 for the locations of the surface water samples.

The surface water samples were collected by directly placing the sample glassware below the surface of the water, with the exception of samples collected for VOCs analysis. The VOC samples were collected using disposable bailers and transferred directly to laboratory provided glassware. The surface water samples were visually inspected and screened organoleptically upon collection, and specific details were recorded in the project field log-book.

Upon collection, the samples were properly labeled and packaged in coolers, chilled to 4 degrees C, and sent to STL. The samples were analyzed for TCL VOCs and SVOCs, and TAL metals. One duplicate sample was collected for QA/QC analyses. Refer to Section 3 for a summary of the analytical results.

Sediment Sampling

A total of 2 sediment samples (designated SDGL-01 and SDGL-02) were collected over the course of the investigation. The sediment samples were collocated in the tidal pond in Area-1B with the surface water samples to the greatest extent practicable. It should be noted that the sediment samples were obtained following the collection of the surface water samples discussed above to avoid the introduction of sediment loads to the water column. Refer to Figure 1-2 for the sample locations.

The sediment samples were collected from the mud flats within the tidal pond utilizing a decontaminated stainless-steel sludge sampler. The samples were transferred directly to laboratory provided sample glassware. They were visually inspected and screened organoleptically upon collection, and specific details were recorded in the project field log-book.

Upon collection, the samples were properly labeled and packaged in coolers, chilled to 4 degrees C, and sent to STL. The samples were analyzed for TCL SVOCs, and TAL metals. One duplicate sample was collected for QA/QC analyses. Refer to Section 3 for a summary of the analytical results.

Compressor Building Sub-Floor Inspection

During review of VHB's work plan to perform the investigation of the site, NYSDEC requested an evaluation of the compressor building to determine potential

environmental impacts, if any, associated with the former operations in the building. VHB proposed in the work plan addendum to review as-built drawings and perform an inspection of the sub-floor to determine if there are any potential sources of environmental impairment in the building, or evidence of such discharges through the sub-floor of the building.

Specifically, VHB inspected the sub-floor looking for cracks, holes and other migration pathways, and reviewed as-built documentation to determine potential sources from within the compressor building (i.e., Lubricant storage, tanks, and sumps).

VHB conducted the reconnaissance in April 2001. An as-built document of the compressor building was found which served as a basis for the reconnaissance. Thorough inspection of the floor and sub-floor of the building was possible since all compressors and supporting equipment have been removed from the building allowing easy access and observation of floor and sub-floor areas. NYSDEC and NYSDOH representatives were on-site for portions of the reconnaissance work. Principal findings included:

- The sub-floor of the compressor building intercepts the water table. A perforated drain pipe was installed at the perimeter of the compressor building foundation to intercept groundwater and transport it to the main 36-RCP sewer.
- The compressor building had two trench style sumps running the entire length of the east and west walls. The sumps were evacuated via a pedestal pump located in the center of the east sump. As-built records indicate the sump pump discharged to a 12-inch VCP which ultimately discharged to the main 36-inch RCP sewer. Field reconnaissance verified same.
- Lubricating oils were stored adjacent to the south side of the compressor building. The lubricating system was a closed-loop system. All storage and transfer materials associated with the system have been removed during construction of new gas transmission equipment in the past two years.
- The floors of the compressor building are monolithic concrete slab construction with no floor drains or openings for gas operations. Openings in the foundation wall for gas transmission, cooling water, and instrument air are present.
- Some concrete surface staining was found. Some of the staining is attributable to cutting fluids used during demolition. However, the stained surfaces are not indicative of a release or releases which represent a threat to human health or the environment.
- No samples were collected since there was no evidence which indicated potentially harmful substances were released to the environment from the building.

Refer to the photos in Appendix D for documentation of the compressor building reconnaissance.

Field Survey

All sample locations were surveyed on April 26, 2001. All sample locations were surveyed for horizontal and vertical control. Groundwater monitoring well PVC casing and ground surface elevations were surveyed to the nearest 0.01 foot. All other sample locations were surveyed to the nearest 0.1 foot. Drawings and aerial photographs provided by the former Long Island Lighting Company (LILCO) and modified by International Technology (IT) Corporation were used as a source of the base map for this survey. All sample locations were located on this base map. Refer to Figure 1-2 for details regarding the survey.

Deviations from the Work Plan

In general, the field investigation tasks were implemented and completed in accordance with the specifications and approved addenda provided in the work plan. A total of 3 primary Field Changes were executed during the investigation. Each one of these Field Changes is briefly described below:

- **Field Change One** - Soil boring location SBGL-01 was completed as the 7th groundwater probe (designated GLGP-07) based on an NYSDEC request made during a field visit to the site on April 24, 2001.
- **Field Change Two** - A 5th new and 6th permanent shallow groundwater monitoring well (designated MW-06) was installed in the center of the former propane tank field in Area-1A during the investigation. This well was installed to close a critical data gap, further delineate source area characteristics within Area-1A, and provide additional data to support future remedial design efforts.
- **Field Change Three** - Collection and analysis of a soil sample at 40-42 feet bgs at well boring MWD-02. The NYSDEC requested the collection of this sample since this well was installed at a shallower depth than initially anticipated due to the presence of a localized, discontinuous low permeability layer. The sample was also collected because a relatively high PID reading (161 ppm) was obtained at this interval during sampling.

3

Analytical Results

Overview

The following paragraphs summarize the results of the samples collected for analysis over the course of the investigation. The following discussion of analytical results is broken down into discrete sections for shallow and deep groundwater monitoring well samples, groundwater probe samples, subsurface soil samples, storm sewer samples, surface soil samples, surface water samples, and sediment samples. A subsection is also included which details the 100% review of all sample results which was completed by a third party contractor as a component of this supplemental environmental site assessment.

Analytes quantified at or above method detection limits (MDL) in the specific media/matrices described above are presented for review in summary tables included at the end of this report. Complete Form I records and case narratives for the sample delivery groups (SDG) managed and analyzed by STL are included in Appendix B. In addition, the complete SDG validation reports are included in their entirety in Appendix C.

Shallow Groundwater Monitoring Well Sample Results

A total of 6 samples were collected between April 25 to 27, 2001 from the shallow groundwater monitoring wells installed during the investigation. One sample was also collected from monitoring well MW-02 during the storm sewer investigation at the site in November 2000. One laboratory provided trip blank which followed the groundwater samples throughout the collection process was also submitted for analysis. All of these samples were submitted to STL for analysis under standard chain-of-custody protocol. Based upon an organoleptic appraisal of all of the samples upon collection, no indication of water table aquifer degradation was noted. All of the samples were analyzed for TCL (i.e., TCL VOCs and SVOCs, and TAL metals), VOCs and SVOCs, and TAL metals. Analysis of the sample collected from MW-02 during November 2000 and the trip blank was limited to TCL VOCs. Figure 3-1a presents a graphical summary of selected constituents quantified in the groundwater samples.

All of the samples contained concentrations of VOCs. Concentrations of total VOCs detected ranged from 3 to 591 micrograms per liter (ug/l). The primary constituent of concern (COC) quantified in these samples was tetrachloroethene (PCE) which has an assigned NYSDEC Class GA water standard of 5 ug/l. As referenced previously, monitoring well MW-02 was sampled both during November 2000 and April 2001. A review of total VOC data for these sampling events indicates an approximate 23% concentration reduction at MW-02 solely as a result of natural attenuation mechanisms. Refer to Table 3-1 for a summary of the TCL VOC results.

At the request of NYSDEC, VHB estimated the mass loading of PCE and TCE to the harbor. Assuming the harbor has no PCE or TCE background concentrations, the concentrations in the harbor from the site are 0.15 and 0.02 ug/l respectively, well below state regulatory criteria. A summary of this calculation can be found in Appendix E.

The samples collected from monitoring wells MW-03 and MW-04 revealed concentrations of SVOCs. The samples collected from the remaining 4 wells contained nondetect levels of all SVOCs. In particular, a total SVOC concentration of 2 ug/l was quantified at estimated levels below MDL in the samples collected from both monitoring wells MW-03 and MW-04. Concentrations of potentially carcinogenic polycyclic aromatic hydrocarbons (CPAHs) were not detected in any of the samples. It should also be noted that 5 of the 6 samples were reanalyzed due to matrix interference as reported in the laboratory case narrative. This reanalysis was completed outside of sample holding times which makes the usability of this data uncertain. Therefore, all initial sample results were used for a comparison and evaluation basis. Table 3-2 presents a summary of the TCL SVOC results.

All of the samples revealed concentrations of inorganic constituents. Arsenic and lead were the primary COCs identified in these samples. Dissolved lead levels in these samples ranged from 82.6 to 844 ug/l (MW-6 & MW-1), while dissolved arsenic levels ranged from 11 to 72 ug/l (MW-2 & MW-5). Concentrations of dissolved iron ranged from 39,000 to 118,000 ug/l (MW-2 & MW-5). Concentrations of dissolved lead and iron in all of the samples and dissolved arsenic in 2 of the 6 samples exceeded NYSDEC Class GA water standards. Spike sample recovery results for dissolved mercury in all of the samples and dissolved iron and manganese in the majority of the samples were reported in the laboratory case narrative as not within method quality control limits. A summary of the inorganic constituent results can be found in Table 3-3.

Deep Groundwater Monitoring Well Sample Results

A total of 3 samples were collected on April 26, 2001 from the deep groundwater monitoring wells installed during the investigation. One laboratory provided trip blank which followed the groundwater samples throughout the collection process was also submitted for analysis. All of these samples were submitted to STL for analysis under standard chain-of-custody protocol. Based upon an organoleptic appraisal of all of the samples upon collection, no indication of water table aquifer degradation was noted. All of the samples were analyzed for TCL VOCs and SVOCs, and TAL metals. Analysis of the trip blank was limited to TCL VOCs. Figure 3-1b presents a graphical summary of selected constituents quantified in the groundwater samples.

The groundwater sample collected from monitoring well MWD-01 did not contain quantifiable levels of VOCs. Samples collected from the other 2 deep monitoring wells contained total VOC concentrations of 342 ug/l (MWD-02) and 751 ug/l (MWD-03). Again, the primary COC quantified in these samples was PCE which has an assigned NYSDEC Class GA water standard of 5 ug/l. Refer to Table 3-1 for a summary of the TCL VOC results.

All of the samples revealed low concentrations of SVOCs. In particular, total SVOC concentrations (all estimated below MDL) ranging from 5 to 8 ug/l were quantified in wells MWD-01 and MWD-03, respectively. Concentrations of CPAHs were not detected in any of the samples. Bis(2-ethylhexyl)phthalate was the primary COC detected in these samples. This compound is utilized as a plasticizer, and is a likely laboratory contaminant. Additionally, all of the samples were reanalyzed due to matrix interference as reported in the laboratory case narrative. All initial sample results were used for a comparison and evaluation basis. Table 3-2 presents a summary of the TCL SVOC results.

All of the samples revealed concentrations of inorganic constituents. Iron was the primary COC identified in these samples. Dissolved arsenic and mercury were not detected in any of these samples at quantitation limits. The sample collected from MWD-03 contained a 10.2 ug/l concentration of dissolved lead which is less than the assigned NYSDEC Class GA water standard. Concentrations of dissolved iron in the 3 deep monitoring well samples ranged from 444 to 1,790 ug/l. This concentration range exceeds the NYSDEC Class GA water standard assigned for this element. Spike sample recovery results for dissolved mercury in all of the samples and dissolved iron and dissolved manganese in the majority of the samples were reported in the laboratory case narrative as not within method quality control limits. A summary of the inorganic constituent results can be found in Table 3-3.

Groundwater Probe Sample Results

A total of 7 shallow groundwater samples were collected from the 6 probes installed in Area-1B and 1 probe advanced through the holder pad in Area-3 between April 23 and 24, 2001. One laboratory provided trip blank which followed the groundwater samples throughout the collection process was also submitted for analysis. All of these samples were submitted to STL for analysis under standard chain-of-custody protocol. All of the samples were analyzed for TCL VOCs and SVOCs, and TAL metals. Analysis of the trip blank was limited to TCL VOCs. Figure 3-2 presents a graphical summary of selected constituents quantified in the groundwater probe samples.

All of these samples revealed generally low concentrations of VOCs. Total VOC concentrations in these samples ranged from 1 to 115 ug/l. Six of the seven samples revealed concentrations of VOCs at levels less than NYSDEC Class GA water standards. The sample from groundwater probe GLGP-05 contained a 94 ug/l concentration of total 1,2-dichloroethene (1,2-DCE) and a 18 ug/l concentration of vinyl chloride (VC). The NYSDEC Class GA water standards for total 1,2-DCE and VC are 5 and 2 ug/l, respectively. Refer to Table 3-4 for a summary of the TCL VOC results.

The samples collected from GLGP-05 and GLGP-06 revealed low concentrations of SVOCs, while SVOCs were not detected in the 5 remaining samples at quantitation limits. In particular, total SVOC concentrations (estimated below MDL) were 1 ug/l in GLGP-05 and 2 ug/l in GLGP-06. Concentrations of CPAHs were not detected in any of the samples. Bis(2-ethylhexyl)phthalate and Di-n-octyl phthalate were the only COCs detected in these samples. Both of these compounds are utilized as plasticizers, and are likely laboratory contaminants. Additionally, the sample collected from GLGP-05 was reanalyzed due to matrix interference as reported in the laboratory case narrative. The initial results for this sample were used for a comparison and evaluation basis. Table 3-5 presents a summary of the TCL SVOC results.

All of the groundwater probe samples revealed concentrations of inorganic constituents. Arsenic and lead were the primary COCs identified in these samples. Dissolved arsenic and lead concentrations of 36 and 286 ug/l, respectively, were detected in the sample from GLGP-06, while a dissolved lead concentration of 685 ug/l was quantified in the sample from GLGP-05. These concentrations are greater than the assigned NYSDEC Class GA water standards for these elements. Concentrations of dissolved iron were detected in all of the samples ranging from 375 to 57,000 ug/l. This concentration range exceeds the assigned NYSDEC Class GA water standard for this element. Spike sample recovery results for dissolved iron, manganese and mercury in all of the samples were reported in the laboratory case narrative as not within quality control limits. A summary of the inorganic constituent results can be found in Table 3-6.

Subsurface Soil Sample Results

A total of 5 subsurface soil borings were advanced in Areas-2 and 3 during this investigation. Soil borings SBGL-01 through 03 were advanced through the former holder pad in Area-3 and soil borings SBGL2-11 and SBGL2-21 were advanced in the former boiler wash disposal area within Area-2. The physical characteristics of these soil borings, as well as the monitoring well soil borings, were recorded in the field logbook upon collection along with relevant organoleptic and instrument screening data. Boring logs for all of the subsurface soil borings can be located in Appendix A.

The grain size distribution of the subsurface soil matrix at the site generally ranges from medium sands to fine gravels. The lithology at the site also seems to grade downward to a finer silty-sand and clay matrix. In particular, a low permeability layer generally composed of silty fine sand with some clay was noted in the deeper well exploration borings at depths ranging from approximately 60 feet bgs at MWD-01 to 80 feet bgs at MWD-02. It should be noted that this layer was not identified in the exploratory boring for MWD-03. This low permeability layer is particularly important relative to the potential deeper distribution of chemical constituents at the site. However, this layer appears to be discontinuous and localized in extent.

A total of 7 subsurface soil samples collected from these 5 soil borings were selected for analysis by STL under standard chain-of-custody protocol. All of the samples were analyzed for TCL VOCs and SVOCs and PCBs. Additionally, a sample collected from the exploratory soil boring for MWD-02 at 40 to 42 feet bgs was analyzed for TCL VOCs and SVOCs, and TAL metals. Figure 3-3 presents a graphical summary of selected constituents quantified in the subsurface soil samples.

Low concentrations of VOCs were detected in all of the subsurface soil samples. The VOCs detected in the subsurface soils at the site generally consisted of halogenated and aromatic hydrocarbons. Total VOC concentrations ranged from 1 microgram per kilogram (ug/kg) (SBGL2-11, 8 to 12 feet bgs) to 20 ug/kg (MWD-02, 40 to 42 feet bgs). Refer to Table 3-7 for a summary of the TCL VOC results.

Concentrations of SVOCs were only detected in the 4 subsurface soil samples collected from soil borings SBGL2-11 and SBGL2-21, both of which were installed in the former boiler wash disposal area within Area-2. Total SVOC concentrations ranged from 2,385 ug/kg (SBGL2-21, 12 to 16 feet bgs) to 26,878 ug/kg (SBGL2-21, 16 to 20 feet bgs). Constituents of the CPAH subset were also detected in these 4 samples. In particular, concentrations of CPAHs ranged from 510 ug/kg (SBGL2-11, 8-12 feet bgs) to 7,595 ug/kg (SBGL2-21, 16-20 feet bgs). Refer to Table 3-8 for a summary of the TCL SVOC results.

Concentrations of PCBs were also only detected in the 4 subsurface soil samples collected from soil borings SBGL2-11 and SBGL2-21, both of which were installed in the former boiler wash disposal area within Area-2. These results support data collected during a previous investigation effort conducted at the site. Aroclor 1242 and Aroclor 1260 were the only PCB congeners detected in these samples. Total PCB concentrations ranged from 7,600 ug/kg (SBGL2-21, 12 to 16 feet bgs) to 21,500 ug/kg (SBGL2-11, 8 to 12 feet bgs). Refer to Table 3-9 for a summary of the PCB results.

As indicated above, the subsurface soil sample collected from MWD-02 at 40-42 feet bgs was also analyzed for TAL metals. Concentrations of metals were detected in this sample at ranges generally consistent with Eastern United States and New England soil background levels. The metals concentrations were also generally below USEPA residential soil risk based concentrations (RBCs) and NYSDEC recommended soil cleanup objectives. Arsenic and mercury were not quantified in this sample at detection limits. A summary of the inorganic constituent results can be found in Table 3-10.

Storm Sewer Sample Results

Water samples were collected from 3 outfalls, 3 drywells, and 3 manholes associated with the site storm sewer system. Refer to Figure 1-2 for the location of the sewer structures and sample locations and Figure 3-4 for a summary of the sample results.

Analytical results from the storm sewer sampling indicate that VOCs, principally PCE and trichloroethene (TCE) are present in drywells and 2 of the 3 outfalls. However, no significant concentrations of VOCs were found in any of the samples collected from the main 36-inch RCP and associated outfall. Concentrations of PCE ranged from 12 to 110 ug/l in the drywells, non-detect to 320 ug/l in the outfalls, and non-detect to 6.1 ug/l in the manholes. Refer to Table 3-11 for a summary of the TCL VOC results.

Surface Soil Sample Results

A total of 24 surface soil samples were collected over the course of the investigation. All of the surface soil samples were submitted to STL for analysis under standard chain-of-custody protocol. All of the surface soil samples were analyzed for TCL SVOCs and TAL metals. The analytical results generated from these samples are summarized in the following paragraphs. Figure 3-5 presents a graphical summary of the total CPAH results quantified in the surface soil samples throughout the site.

Concentrations of SVOCs were detected in 23 of the 24 surface soil samples. Generally, SVOCs were detected in these samples at relatively low or estimated

concentrations below MDL. In particular, total SVOC concentrations ranged from 103 ug/kg (SSGL-14) to 17,220 ug/kg (SSGL-19). CPAHs were also quantified in 22 of the 24 surface soil samples. Total CPAH concentrations quantified in the samples ranged from 32 ug/kg (SSGL-04) to 8,630 ug/kg (SSGL-19). Additionally, 5 of the 24 surface soil samples were reanalyzed due to matrix interference as reported in the laboratory case narrative. The initial results for these samples were used for a comparison and evaluation basis. Table 3-12 presents a summary of the TCL SVOC results.

All of the surface soil samples contained concentrations of inorganic constituents. The concentrations of metals in these samples were generally detected at ranges consistent with Eastern United States and New England soil background levels. The metals concentrations in these samples were also generally below USEPA residential soil RBCs and NYSDEC recommended soil cleanup objectives. As reported by the laboratory in their case narrative, analysis for aluminum, lead, magnesium, sodium and zinc in the majority of the 24 surface soil samples was not within method quality control limits. In addition, spike sample recovery results for manganese in all of the samples and copper and nickel in a number of the samples were reported as not within quality control limits. A summary of the inorganic constituent results can be found in Table 3-13.

Surface Water Sample Results

Two surface water samples (SWGL-01 and SWGL-02) were collected from the tidal pond within Area-1B on April 23, 2001. The samples were submitted to STL where they were analyzed for TCL VOCs and SVOCs, and TAL metals under standard chain-of-custody protocol. SVOCs were not detected in either of the surface water samples. Figure 3-6 presents a graphical summary of the total VOC concentrations quantified in the surface water samples.

Both of the surface water samples contained estimated concentrations of VOCs below MDL. In particular, total VOC concentrations in both of the samples were only 6 ug/l. The primary VOCs detected in these samples were acetone, a common laboratory contaminant, and PCE. Refer to Table 3-14 for a summary of the TCL VOC results.

The surface water samples also revealed concentrations of a limited number of inorganic constituents. In particular, elevated levels of dissolved calcium, magnesium, potassium and sodium were detected in these samples which is consistent with a brackish-water chemical profile. Spike sample recovery results for dissolved iron and manganese in the surface water samples were reported in the laboratory case narrative as not within quality control limits. Refer to Table 3-15 for a summary of the inorganic constituent results.

Sediment Sample Results

Two sediment samples (SDGL-01 and SDGL-02) co-located with the surface water samples discussed previously were collected from the tidal pond within Area-1B on April 23, 2001. The samples were submitted to STL where they were analyzed for TCL SVOCs and TAL metals under standard chain-of-custody protocol. Figure 3-6 presents a graphical summary of the total CPAH concentrations detected in the sediment samples.

Both of the sediment samples contained estimated concentrations of SVOCs below MDL. In particular, total SVOC concentrations of 780 and 43 ug/kg were detected in sediment samples SDGL-01 and SDGL-02, respectively. A 431 ug/kg concentration of CPAHs was also detected in sediment sample SDGL-01. It should be noted that while concentrations of CPAHs were not detected in sediment sample SDGL-02, CPAHs were detected in the field duplicate sample collected at this location. In particular, a total CPAH concentration of 29 ug/kg was quantified in this sample. Refer to Table 3-16 for a summary of the TCL SVOC results.

The sediment samples also revealed concentrations of inorganic constituents. The concentrations of metals in these samples were generally consistent. As reported by the laboratory in their case narrative, analysis for nickel and vanadium in both sediment samples was not within method quality control limits. In addition, spike sample recovery results for copper, manganese and nickel in both of the samples were reported as not within quality control limits. Refer to Table 3-17 for a summary of the inorganic constituent results.

Data Validation

A 100% review of all sample results was performed as a component of this field investigation program to confirm proper data transcription, data completeness, data usability, and compliance with applicable method and Quality Assurance/Quality Control (QA/QC) requirements. All validation activities were performed by a third party validator under contract with VHB. Analytical data packages submitted by STL were validated in accordance with the QA/QC provisions of the October 1995 version of the NYSDEC Analytical Services Protocol (ASP). USEPA Region II data validation procedures were also utilized where necessary to supplement and complete this process.

The data validator reported that the overall quality of the data was good and the results are usable for environmental assessment purposes. However, the data validator qualified this statement indicating that DQIs, particularly sensitivity, for a number of the samples were potentially compromised due to excessive dilutions. In

addition, a group of samples were deemed unusable due to re-extraction and reanalysis performed outside of acceptable holding-times.

Full details regarding the results of this process can be found in the data validation report which is presented in its entirety in Appendix C. In addition, laboratory analytical data packages for all samples collected during the field investigation program are included in Appendix B.

Identification of Chemicals of Potential Concern

Chemicals of potential concern (COPCs) were identified in the qualitative risk analysis performed by VHB in December 1999. Concentrations of chemicals detected in soil and groundwater during the most recent site investigation were compared to Region III RBCs, NYSDEC TAGM values and site-specific remedial action objectives to identify additional COPCs, if any. A comparison of the maximum concentrations detected in the recent sample collection effort indicated that CPAHs, specifically, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and dibenzo(a,h)anthracene were present in site surface soil at concentrations exceeding applicable criteria. All six of these CPAHs were detected at concentrations exceeding residential soil RBCs and the TAGM values. Four of these CPAHs, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene also were present at concentrations exceeding the applicable site-specific remedial action objective. The six CPAHs, with the exception of benzo(k)fluoranthene, also were detected in subsurface soil at concentrations exceeding applicable criteria. PCBs were identified in two soil borings at two different depth intervals at concentrations exceeding both the Region III RBCs and site-specific remedial action objectives.

Identification of Potential Routes of Exposure

The possible means through which people (e.g., future on-site residents, site occupants, adjacent commercial/industrial populations, off-site residents, trespassers, tourists, and recreational fishermen) could come in contact with site chemicals, either now or in the future were evaluated to determine whether they are pertinent.

The only exposure scenarios which were excluded from further consideration were ingestion of, dermal contact with, and inhalation of COPCs in site groundwater. These exposure scenarios would result from future on-site residents, site occupants and adjacent commercial/industrial populations or offsite residents using groundwater as a potable water supply. Because the area is served by public water supply, and the groundwater has been degraded due to saltwater intrusion, it is

unlikely that groundwater will be used as a source of potable water now or in the future.

Pathways Considered Complete

Several exposure pathways were identified which can be considered complete, i.e., pathways which have:

- A source or chemical release from a source
- An exposure point where contact can occur
- An exposure route by which contact can occur.

These complete pathways are presented in the table below.

Identification of Pathways Considered Complete

Exposure Medium/Exposure Route	Site Occupant / Site Resident ¹	Utility Worker	Trespasser	Recreational Fisherman
Groundwater ²:				
Incidental Ingestion		A		
Dermal Contact		A		
Inhalation of Vapor Phase Chemicals		A		
Surface Water:				
Incidental Ingestion	A, AR, AC		T	A,C
Dermal Contact	A, AR, AC		T	A,C
Inhalation of Vapor Phase Chemicals	A, AR, AC		T	A,C
Soil:				
Incidental Ingestion	A, AR, AC	A	T	
Dermal Contact	A, AR, AC	A	T	

Notes:

A = Exposure to adults

C = Exposure to children

AR = Exposure to adult residents

AC = Exposure to child residents (may be significantly greater than adult exposure)

T = Adolescent exposure (i.e., 12 - 18 years old)

¹ Future use scenario. Specific scenarios for the site are undetermined at this time. This investigation has been conducted under the premise that the site may be redeveloped for residential use.

² Groundwater is considered an incomplete exposure pathway since it is not a source of potable water.

4

Conclusions and Recommendations

Conclusions

Based upon the work performed under the approved VCA work plan we offer the following conclusions:

- The Glenwood Landing Gas Plant Site served as a gas storage (natural gas and propane), gas transmission, and laboratory service center. The gas holder has been demolished, ancillary gas processing facilities at the site have been demolished, the compressor building and holder foundation are slated for demolition, and laboratory capabilities currently remain in the laboratory building on the north side of the site.
- Analytical results from previous investigations indicate that VOCs are present in shallow groundwater in areas adjacent to Hempstead Harbor (Area-1A).
- Analytical results from previous investigations indicate that inorganics are present in surface and shallow subsurface soils in Area-1B.
- Analytical results from previous investigations indicate that there are discrete areas, or "hot spots", of surface and subsurface soils which contain inorganics, SVOCs, and PCBs in Area-2.
- Analytical results from previous investigations indicate that there are discrete areas, or "hot spots", of surface and subsurface soils which contain inorganics, SVOCs, and PCBs in Area-3.
- Shallow groundwater monitoring wells were reinstalled in Area-1A during this investigation. Visual characterization of soils recovered during well construction indicated subsurface conditions consistent with previous collected data. Uniform sands are consistent throughout the area with no visual staining. Groundwater typically encountered less than 10-feet bgs. Analytical results from shallow groundwater samples in Area-1A contain VOCs. The compounds and concentrations detected are consistent with previous data.
- Three deep groundwater monitoring wells were installed in Area-1A to determine if there is DNAPL present at depths, and/or resting on a confining layer. A substantial confining layer was not found at depths of up to 140-feet bgs. Subsurface conditions generally grade downward and range from medium

sand to fine gravel. A discontinuous low permeability layer generally composed of silty fine sand with some clay was noted at depths ranging from approximately 60 to 80 feet bgs. No DNAPL or visual staining was observed during the field analysis of this less permeable material, or in any portion of any borings from the site.

- Grab groundwater samples were collected from Area-1B. Analytical results indicate an isolated area of VOCs in shallow groundwater in the northeast corner of the area. The compounds detected are typically associated with the degradation of PCE and TCE. The compounds detected were not found anywhere else on site, and no PCE or TCE was found in Area-1B. Additionally, the main 36-inch RCP which runs between Area-1A/1B serves as a shallow groundwater divide. No VOCs were found in the sewer or adjacent tidal pond. Therefore, VHB concludes that this is a discrete source and/or area influenced by a source, and not associated with the shallow groundwater in Area-1A.
- Subsurface soil samples were collected from Area-2. The data was used to confirm previous data. Analytical results confirmed the presence of inorganics, SVOCs, and PCBs in isolated hotspots as previously defined.
- Subsurface soil samples were collected from beneath the gas holder foundation in Area-3 to determine if there are no pockets of free product or COCs present beneath the holder. Analytical results from the subsurface soils collected indicated there are no compounds present at levels which require action.
- A grab groundwater sample was collected from beneath the gas holder adjacent to the former drip storage area to determine if there was a migration of subsurface compounds in the drip area under the holder. Analytical results of the grab groundwater sample contained no compounds which require action or indicate a migration of material from the drip storage area.
- The storm sewer system was dye tested to determine its configuration and subsequently sampled to determine if there are discrete on or off-site sources of VOCs migrating to the shallow groundwater in Area-1A via the sewer. Dye testing was supported by existing as-built information. The storm sewers are constructed consistent with as-built documentation. A large 36-inch RCP running east to west down the main site access road, between Areas-1A and 1B, carries most of the storm runoff from the site to Hempstead Harbor. The outfall is a SPDES discharge. The two discrete drop inlets along Shore Road adjacent to the site discharge to the 36-inch line, however there are no laterals associated with the Shore Road structures.
- Analytical results from the sewer system indicate that there are no sources of VOCs in, or migrating from, Areas-2 or 3, and/or off-site sources via the sewer.
- The shallow subsurface area between the drywells and outfall 2 and 3 to Hempstead Harbor appear to be a source of VOCs to shallow groundwater.
- Surface soil samples were collected from Area-1A and from four discrete locations in Areas-2 and 3 selected by NYSDOH. Analytical results from Area-1A samples indicate five locations which contain SVOCs, more specifically

CPAHs, which exceed site specific action levels. Discrete samples from Areas-2 and 3 contained SVOCs, but at concentrations below action levels.

- Surface water samples were collected from the pond in Area-1B. Analytical results indicate SVOCs were present in both samples at concentrations well below action levels.
- Sediment samples were collected from the pond in Area-1B. Analytical results indicate SVOCs are present in one of the two samples, but at concentration below action levels.
- The compressor building sub-floor was inspected to determine if there is any evidence of a release or potential release to the subsurface from the building. All compressor equipment has been removed from the building. A thorough examination of the Subfloor was conducted. All openings in the foundation wall are for gas operations.
- Trench sumps are located on both sides of the building. The sumps are evacuated via a 4-inch pedestal pump located in the center of the east sump. The sump pump discharged via a 4-inch line to the sewer system which ultimately discharges via the main 36-inch storm sewer.
- Some staining associated with former operations and demolition work, however there is no evidence of a major release. Furthermore, releases, if any, would have ultimately been discharged to the sewer.
- All roof drains associated with the compressor building are connected to the existing 36-inch sewer.

Recommendations

Based on the historical information, previous investigations, the results of this investigation, an engineering evaluation and discussions with representatives from NYSDEC and NYSDOH VHB recommends the following actions for each area.

Area-1A

Hot spot removal (excavation and off-site disposal) of surface soils which contain concentrations of CPAHs in excess of site clean-up objectives. Upon conclusion of the initial excavation verification samples will be collected to determine if clean-up is complete. Iterative excavation and sampling will be performed until established clean-up goals are achieved.

In-situ groundwater treatment for VOCs. Treatment will incorporate oxidation technology to reduce VOCs. Treatment will be followed by a prescribed monitoring program and subsequent re-treatment as required. Treatment will be suspended upon the completion of two consecutive rounds of quarterly groundwater sampling which indicate the levels of VOCs are below prescribed action levels.

Area-1B

Cover fill area of 1B to prevent exposure to and mitigate migration potential of inorganics. Cover will consist of clean soil, topsoil, revegetate and restore. No work conducted in adjacent wetland or tidal flat. Area will require deed restriction to maintain as a green space or passive recreation area. NYSDEC also requested radiation screening of slag in the area due to the presence of radioactive slag from unknown sources in nearby Glen Cove. Screening should be conducted prior to design.

A cover will be installed in-lieu of hot-spot removal recommended in previous reports. Excavation and off-site disposal of materials in this fill area would likely lead to a mass removal of all foreign debris/fill. The fill area lies over a relatively shallow water table. The subsurface conditions would likely mandate shoring to protect the adjacent tidal wetland and Hempstead Harbor, and dewatering with subsequent process water management and/or treatment. Excavation and off-site disposal would also greatly increase costs without providing a benefit with respect to human health and the environment.

In-situ groundwater treatment for VOCs in groundwater. Treatment will incorporate oxidation technology to reduce VOCs. Treatment will be followed by a prescribed monitoring program and subsequent re-treatment as required. Treatment will be suspended upon the completion of two consecutive rounds of quarterly groundwater sampling which indicate the levels of VOCs are below prescribed action level.

Area-2

Hot spot removal (excavation and off-site disposal) of surface and subsurface soils up to the water table which contain concentrations of PCBs, CPAHs, and inorganics in excess of site clean-up objectives. Upon conclusion of the initial excavation verification samples will be collected to determine if clean-up is complete. Iterative excavation and sampling will be performed until established clean-up goals are achieved.

Area-3

Hot spot removal (excavation and off-site disposal) of surface and subsurface soils up to the water table which contain concentrations of CPAHs and inorganics in excess of site clean-up objectives. Upon conclusion of the initial excavation verification, samples will be collected to determine if clean-up is complete. Iterative excavation and sampling will be performed until established clean-up goals are achieved.

The former gas holder foundation and compressor building are to be demolished. Potential asbestos containing building materials and debris will be properly quantified and removed from site structures before demolition. Demolition plans will include contingencies for identification, sampling, removal of pockets of free product or potential compounds which may pose a threat to human health or the environment. Upon conclusion of the initial excavation, verification samples will be collected to determine if clean-up is complete. Iterative excavation and sampling will be performed until established clean-up goals are achieved.

Groundwater/rainwater which is currently in the sumps in the compressor building shall be evacuated and properly disposed prior to demolition. All subsurface openings in the compressor building foundation will be sealed with shrink proof grout prior to demolition.

Conceptual Remedial Action Plan

Proposed Remedial Alternatives

The following section provides engineering evaluations and conceptual plans for the specific remedial actions for each area identified in Section 4. All activities proposed are subject to NYSDEC/NYSDOH review and approval. Once approved, VHB will design remedial activities and prepare plans and specifications for KeySpan to contract and execute the work.

Area-1A – Surface Soil

The proposed remedial action for surface soils in Area-1A is excavation and off-site disposal.

Engineering Evaluation

The proposed remedial action in this area is protective of human health and the environment by removing the contaminants from the site. Site remedial action objectives will be achieved and verified through subsequent sampling. This technology is proven effective, and readily implemented. Removal of the materials from the site achieves both short and long-term remedial action objectives. Industry and state accepted standards and procedures (air monitoring, decontamination, zone control, etc.) during removal activities are required to ensure that contaminants are not mobilized or migrate during removal actions.

Conceptual Plan

Excavation and off-site disposal of surface soils will be conducted at the locations indicated on figure 5-1. Initial excavation at each point will be a 25-foot by 25-foot square excavated to a depth of one foot. An air monitoring program for site Health & Safety, and community monitoring consistent with NYSDOH protocols will be implemented. Real time monitoring for organic vapors and dust will be performed at the excavation area, upwind and downwind.

Upon completion of the initial excavation, five verification samples will be collected. One sample will be collected from the bottom of the excavation, and one outside each horizontal limit. Duplicate samples will be collected from this matrix at a rate of 1 per 10. Samples collected will be analyzed for SVOCs by method 8270C at an NYSDOH ELAP facility. Sample results will be made available within 72 hours.

Excavations will remain open until analytical results have been received. Open excavations will be covered and protected from rain and stormwater pending receipt of analytical data. Excavated soils may be temporarily staged on-site in prepared (lined, sloped, bermed, covered, and secured) stockpiles prior to off-site disposal. Disposal of soils will be performed at an approved disposal facility. Approvals will be obtained prior to implementation. Waste profiles will be performed in compliance with applicable state and specific disposal facility requirements.

Completed excavations will be surveyed for mapping and quantification of soil volume removed. Upon receipt of data which indicates that site clean-up goals have been achieved the excavation will be backfilled with soil from a pre-approved source and/or regraded. Additional iterative excavation and verification sampling will be conducted until site clean-up goals have been achieved.

Backfill sources will be sampled for full TCLP analysis prior to the commencement of remedial work. Sampling of backfill materials from the same source will be conducted at a rate of one sample per 1000 cubic yards, and analyzed for SVOCs via method 8270C at an NYSDOH ELAP facility.

Area-1A – Groundwater

The proposed remedial action for groundwater in Area 1A is in-situ groundwater treatment using an oxidizing compound to reduce VOCs.

Engineering Evaluation

The proposed remedial action in this area is protective of human health and the environment by removing, reducing through oxidation, the contaminants from the site. Site remedial action objectives will be achieved and verified through subsequent sampling. This technology is proven effective, and readily implemented. Oxidation of the VOCs in groundwater from the site achieves both short and long-term remedial action objectives. Industry and state accepted standards and procedures (air monitoring, quarterly groundwater sampling, zone control, etc.) during application activities are required to ensure that contaminants are not mobilized or migrate during treatment.

Implementation of this technology requires an engineering design to determine the oxidant (hydrogen peroxide or potassium permanganate), application locations, depths, volume of oxidants, and correlation with tidal fluctuations to optimize

treatment. Site monitoring will be required to determine short and long-term effectiveness.

Conceptual Plan

VHB proposes in-situ groundwater treatment for VOCs in Area-1A. Injections of an oxidation compound will be performed throughout the area. This technology is appropriate relative to the COCs and heterogeneous subsurface conditions at the site. Furthermore, effective contact with potential VOCs in the subsurface can be enhanced by the tidal fluctuations at the site. Determination of the specific products and their application is subject to a detailed engineering review and design.

VHB anticipates injecting a liquid oxidation compound in transects across the area via Geoprobe. The compound will be injected at variable depths to ensure contact and treatment of VOCs which may reside at variable depths in the area. VHB anticipates a minimum of two rounds of application over a 1-year period will be required to achieve desired clean-up objectives. Injection points will be placed to optimize coverage of the entire potential source area. Monuments will be installed and surveyed at each injection point for replication and subsequent applications.

To preclude premature evacuation of injected agents, existing openings/outfalls in the steel bulkhead will be temporarily sealed with inflatable seals. Additionally, applications will be coordinated with tidal sequences to ensure optimal retention. The application coordination will be determined during design.

Existing monitoring wells will be used to monitor performance. Samples will be collected on a quarterly basis during remediation. In-situ groundwater parameter/chemistry (pH, conductivity, temperature, etc.) data will be collected in conjunction with samples which will be analyzed for VOCs via method 8260B at a NYSDOH ELAP facility. Duplicates will be collected at a rate of 1 per 10.

Groundwater sampling will be conducted prior to injection, 3 months following the initial application, prior to the second application, and 3 months subsequent to the second application. A review of remedial program performance will be conducted at this time to modify and/or terminate subsequent applications.

Treatment will be suspended upon the completion of two consecutive rounds of quarterly groundwater sampling which indicate the levels of VOCs are below prescribed action level. Subsequent annual sampling will be conducted for a period of 5 years to verify long-term efficacy of remedial action.

Area-1B – Surface and Shallow Subsurface Soils

The proposed remedial alternative for surface and shallow subsurface soils in Area-1B is clean cover. Soils in the fill area of Area-1B contain concentrations of inorganics

which may pose a risk to human health and the environment. Borings, test pits, and reconnaissance of the area has been used to delineate the fill area. VHB proposes covering the area with clean fill to eliminate exposure potential, and mitigate migration. NYSDEC also requested radiation screening of slag in the area due to the presence of radioactive slag from unknown sources in nearby Glen Cove. Screening should be conducted prior to design. VHB anticipates performing this screening in one day with a Rad-Mini or similar device. Screening will be conducted on slag on the surface and in the shallow subsurface at the site. A brief letter report summarizing the findings will be prepared and submitted to NYSDEC prior to cover design.

Sampling will be conducted at the start of remedial activities in Areas 2 and 3. Specific sampling activities will include performing 6 hand-augered boreholes at discrete locations within Area 1B which have been identified as fill areas. Prior to the collection of samples, background readings will be collected using the Mini-Rad from Areas 1A, 2, and 3. Prior to initiating a discrete boring, surface soils will be screened with a Mini-Rad. The instrument to be used is a Victoreen Model 190 Meter with GM probe for Alpha, Beta, and Gamma. NYSDEC indicated that Thorium (Th) is the compound of concern. Radioactive isotopes of Th are typically low level alpha particles. The proposed instrument provides proper screening for the compound of concern.

If instrumentation response indicated radiation at levels above background, a surface soil sample will be collected for laboratory analysis per method DOE RP-725 at Severn Trent Laboratories.

The augers will be driven a minimum of 3-feet below grade at each of the six sample points. Recovered soils will be continuously screened with the Mini-Rad. A grab sample will be collected from soil intervals which exhibit radiation above background. Grab soil samples will be laboratory analyzed as identified above. A maximum of three samples per borehole will be collected for laboratory analysis. If none of the soils in Area 1B are found to exhibit radioactivity above background levels, no samples will be collected for laboratory analysis.

A letter report will be generated subsequent to the investigation. The report will include the results of the field screening, laboratory results (if any), soil descriptions and sample intervals/depths, a map identifying the sample locations, photodocumentation, and a narrative of the investigation with conclusions and recommendations. The letter will be submitted to NYSDEC for review and approval.

Engineering Evaluation

Site remedial action objectives will be achieved by a engineered cover in conjunction with a deed restriction. The proposed remedial action in this area is protective of human health and the environment by eliminating exposure to compounds on site,

and mitigating potential for migration via overland flow or infiltration. This technology is proven effective, and readily implemented. The cover was selected in lieu of removal of the materials from the site due to the potential volume of fill/debris, proximity to tidal wetland (sensitive habitat), and shallow water table. Removal action will not provide any additional effectiveness, may prove harmful to the adjacent habitat, and will add substantial costs relative to proposed technology.

Industry and state accepted standards and procedures (air monitoring, decontamination, zone control, etc.) during site clearing, grading, and restoration activities are required to ensure that contaminants are not mobilized or migrate during removal actions. Site monitoring will be required to determine short and long-term effectiveness. An operation and maintenance element is required. Annual visual inspections should be performed on the cover to verify integrity. Vegetation on the cover should be managed to mitigate erosion and growth which may degrade cover. Site redevelopment is limited to green space and passive recreational uses. Some structures may be constructed with appropriate consideration given to maintenance of cover integrity.

Conceptual Plan

The cover system will be installed by clearing the area of all trees and shrubs. These materials will be chipped/mulched and staged on site for later use. Existing surface stockpiles (leaves, wood, ash, concrete) will be sized/processed and incorporated into the sub-base of the cover. Finished grades of the subgrade cover will be determined during the design after a topographic survey is conducted of the area.

When finish sub-grades have been achieved, a layer of geotextile will be placed as a means of delineating original fill, and preventing mixing of the clean cover soils with the fill materials. The geotextile will be keyed into anchor trenches at the perimeter of the fill area. 1-foot of clean fill material will be placed over the geotextile. A clay fill with a maximum remolded coefficient of permeability 1×10^{-6} cm/sec will be used. Pre-approved, tested sources of cover soils will be determined prior to construction.

Cover soils will be topped with 6-inches of topsoil. The area will be seeded and mulched using the mulch from clearing. A perimeter drainage swale will be installed along the north, east, and portions of the south side of the fill area to accommodate runoff. Slopes of the cover area adjacent to the tidal flat and wetlands will be clad with rip-rap to mitigate potential erosion. Refer to Figure 5-1 for limits of the cover and conceptual cover sections.

As indicated by NYSDEC, a deed restriction will be established for Area 1B. The restriction will be prepared by KeySpan and be consistent with the Deed Restriction requirements established in the VCA. Specifically a deed restriction will be filed with the County Clerk within 60 days of work plan approval by NYSDEC. The deed

restriction will include a description of the property by metes and bounds and a description of specific activities which will require approval from NYSDEC/NYSDOH prior to implementation.

Area-1B – Groundwater

The proposed remedial action for groundwater in Area 1B is in-situ groundwater treatment using an oxidizing compound to reduce VOCs.

Engineering Evaluation

The proposed remedial action in this area is protective of human health and the environment by removing, reducing through oxidation, the contaminants from the site. Site remedial action objectives will be achieved and verified through subsequent sampling. This technology is proven effective, and readily implemented. Oxidation of the VOCs in groundwater from the site achieves both short and long-term remedial action objectives. Industry and state accepted standards and procedures (air monitoring, quarterly groundwater sampling, zone control, etc.) during application activities are required to ensure that contaminants are not mobilized or migrate during treatment.

Implementation of this technology requires an engineering design to determine the oxidant (hydrogen peroxide or potassium permanganate), application locations, depths, volume of oxidants, and correlation with tidal fluctuations to optimize treatment. Site monitoring will be required to determine short and long-term effectiveness.

Conceptual Plan

VHB proposes in-situ groundwater treatment for VOCs in the northeast corner of Area-1B. Injections of an oxidation compound will be performed in the vicinity of GLGP-5, refer to figure 5-1. This technology is appropriate relative to the COCs and limited area of influence required. Furthermore, effective contact with potential VOCs in the subsurface can be enhanced by the tidal fluctuations at the site. Determination with respect to the specific products and their application is subject to a detailed engineering review and design. Groundwater treatment will not be conducted in this area until the cover identified in the previous section is complete.

VHB anticipates injecting a liquid oxidation compound in transects across the area via Geoprobe. The compound will be injected at variable depths to ensure contact and treatment of VOCs which may reside at variable depths in the area. VHB anticipates a minimum of two rounds of application over a 1-year period will be required to achieve desired clean-up objectives. Injection points will be placed to

optimize coverage of the entire potential source area. Monuments will be installed and surveyed at each injection point for replication and subsequent applications.

Three shallow monitoring wells will be installed and used to monitor performance. Samples will be collected on a quarterly basis during remediation. In-situ groundwater parameter/chemistry (pH, conductivity, temperature, etc.) data will be collected in conjunction with samples which will be analyzed for VOCs via method 8260B at a NYSDOH ELAP facility. Duplicates will be collected at a rate of 1 per 10.

Groundwater sampling will be conducted at the prior to injection, 3 months following the initial application, prior to the second application, and 3 months subsequent to the second application. A review of remedial program performance will be conducted at this time to modify and/or terminate subsequent applications.

Treatment will be suspended upon the completion of two consecutive rounds of quarterly groundwater sampling which indicate the levels of VOCs are below prescribed action level. Subsequent annual sampling will be conducted for a period of 5 years to verify long-term efficacy of remedial action.

Areas-2 and 3 – Surface and Subsurface Soils

The proposed remedial action for surface and subsurface soils in Areas 2 & 3 is excavation and off-site disposal.

Engineering Evaluation

The proposed remedial action in this area is protective of human health and the environment by removing the contaminants from the site. Site remedial action objectives will be achieved and verified through subsequent sampling. This technology is proven effective, and readily implemented. Removal of the materials from the site achieves both short and long-term remedial action objectives. Industry and state accepted standards and procedures (air monitoring, decontamination, zone control, etc.) during removal activities are required to ensure that contaminants are not mobilized or migrate during removal actions.

This technology is limited to surface and shallow subsurface removals. Investigation data indicates that compounds in concentrations exceeding site RAOs may exist at depths below the groundwater interface. However, the data also shows no evidence that these compounds are migrating via groundwater. Removals will not extend below the water table.

Conceptual Plan

Excavation and off-site disposal of surface and subsurface soils will be conducted at the locations indicated on figure 5-1. Initial excavation at each area will be to the vertical and horizontal limits shown on the plan. The following table summarizes the remaining initially proposed excavation subareas and removal volumes within Areas-2 and 3 which will be completed during this remedial action. Information regarding "hot spot" soil removals which will be conducted in Area-1A is also detailed in this table. An air monitoring program for site Health & Safety, and community monitoring consistent with NYSDOH protocols will be implemented. Real time monitoring for organic vapors and dust will be performed at the excavation area, upwind and downwind.

AREA/SUBAREA	APPROXIMATE EXCAVATION DIMENSIONS	ESTIMATED SOIL REMOVAL QUANTITY
AREA-1A		
5 Hot Spots	25' x 25' x 1' (5)	120 Cubic Yards
AREA-2		
Former Boiler Wash Disposal Area	90' x 100' x 8'	2,670 Cubic Yards
Lab Septic	30' x 20' x 8'	180 Cubic Yards
23 kV Substation	25' x 70' x 2'	130 Cubic Yards
4 kV Substation	35' x 25' x 2'	65 Cubic Yards
Construction Debris Piles	100' x 40' x 5'	740 Cubic Yards
AREA-3		
Former Wastewater/ Condensate Area	100' x 90' x 8'	2,670 Cubic Yards
Compressor Building/Gas Holder	10' x 10' x 2'	8 Cubic Yards

NA – Not Applicable

Upon completion of the initial excavation, five verification samples will be collected. One sample will be collected from the bottom of the excavation, one outside each horizontal limit on the surface, and one sidewall sample per 5-feet of depth (i.e., 8-foot deep excavation would have 2 samples collected from each sidewall. Duplicate samples will be collected from this matrix at a rate of 1 per 10. Samples collected will be analyzed for SVOCs, PCBs, and Inorganics by method 8270C, 8020, and NYS ASP 95 TAL Metals respectively at an NYSDOH ELAP facility. Sample results will be made available within 72 hours.

Excavations will remain open until analytical results have been received. Open excavations will be covered and protected from rain and stormwater pending receipt of analytical data. Excavated soils may be temporarily staged on-site in prepared (lined, sloped, bermed, covered, and secured) stockpiles prior to off-site disposal. Disposal of soils will be performed at an approved disposal facility. Approvals will be obtained prior to implementation. Waste profiles will be performed in compliance with applicable state and specific disposal facility requirements.

Excavations will not extend below water table. If free product is encountered during excavation work, product removal and groundwater collection/treatment/disposal techniques will be implemented as appropriate.

Completed excavations will be surveyed for mapping and quantification of soil volume removed. Upon receipt of data which indicates that site clean-up goals have been achieved the excavation will be backfilled with soil from a pre-approved source and/or regraded. Additional iterative excavation and verification sampling will be conducted until site clean-up goals have been achieved.

Backfill sources will be sampled for full TCLP analysis prior to the commencement of remedial work. Backfill in excavations greater than 2-feet in depth will be conducted in lifts and compacted. Sampling of backfill materials from the same source will be conducted at a rate of one sample per 1000 cubic yards, and analyzed for SVOCs, PCBs, and Inorganics at an NYSDOH ELAP facility.

Remedial Design

All elements of this remedial program are subject to a complete engineering design. Portions of the work will require plans and specifications which will be prepared and stamped by an engineer licensed in New York. Complete, certified as-built documentation will be provided to the NYSDEC/NYSDOH with the closure report.

Closure Report

A draft closure report will be submitted to NYSDEC/NYSDOH at the conclusion of initial remedial activities. A final report will be submitted upon conclusion of the groundwater treatment and monitoring program. The report will be consistent with the requirements of the VCA and incorporate the necessary information for NYSDEC to issue a notice of "No Further Action".

6

References

United States Geological Survey (USGS) 7.5 Minute Series Topographic Map, Sea Cliff, New York Quadrangle

American Society for Testing and Materials (ASTM), 2000, Practice for Description and Identification of Soils (Visual-Manual Procedure), D-2488-00.

American Society for Testing and Materials (ASTM), 2000, Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System), D-2487-00.

American Society for Testing and Materials (ASTM), 2000, Practice for Environmental Site Assessments: Phase I Assessment Process, E-1527-00.

American Society for Testing and Materials (ASTM), 1996, Practice for Environmental Site Assessments: Transaction Screen Process, E-1528-96.

American Society for Testing and Materials (ASTM), 1995, Guide for Developing Conceptual Site Models for Contaminated Sites, E-1689-95.

New York State Department of Environmental Conservation (NYSDEC), Division of Environmental Remediation, 1994, Technical and Administrative Guidance Memorandum (TAGM) No. 4046: Determination of Soil Cleanup Objectives and Cleanup Levels.

New York State Department of Environmental Conservation (NYSDEC), Division of Water, June 1998, Technical and Operational Guidance Series (TOGS) 1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.

United States Environmental Protection Agency (USEPA), Office of Solid Waste and Emergency Response (OSWER), July 1996, Soil Screening Guidance: User's Guide, Second Edition (EPA/540/R-96/018).

United States Environmental Protection Agency (USEPA), Office of Solid Waste and Emergency Response (OSWER), May 1996, Soil Screening Guidance: Technical Background Document, Second Edition (EPA/540/R-95/128).

United States Environmental Protection Agency (USEPA), October 5, 2000, Region III
Risk Based Concentration Table.

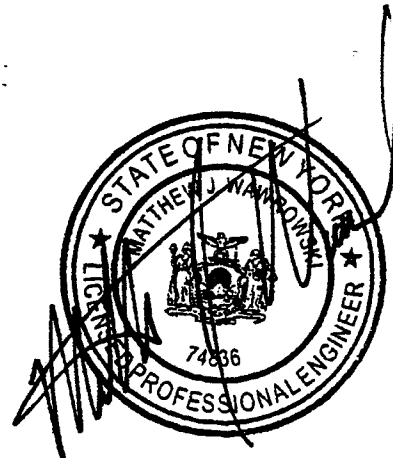
Bradley, L.J.N., B.H. Magee and S.L. Allen, 1994, Background Levels of Polycyclic
Aromatic Hydrocarbons (PAH) and Selected Metals in New England Urban Soils,
AEHS Journal of Soil Contamination, 3(4):349-361.

7

Certification

The following certification is required as prescribed in Voluntary Cleanup Agreement Index Number R1-0001-01-01.

I, MATTHEW J. WAWROSK, responsible for the day to day performance of the Field Investigation Program for the Glenwood Landing Gas Plant site certify that the work was performed in substantial compliance with the approved Supplemental Environmental Site Assessment Work Plan and attached addenda, dated April 2001.



FIGURES

Section 1 Figures

Section 2 Figures

Section 3 Figures

Section 5 Figures

TABLES

Section 2 Tables

Investigation Activities

Section 3 Tables

Analytical Results

APPENDIX A

Field Documentation

This Appendix contains all requisite field documentation generated during the field program. Specifically, this Appendix contains the following:

- Soil Boring Reports
- Groundwater Monitoring Well Construction Diagrams
- Sample Information Records
- Monitoring Well Sample Data Forms
- Daily Equipment Calibration Logs
- Air Monitoring Reports

APPENDIX B

Laboratory Analytical Reports

APPENDIX C

Data Validation Report

APPENDIX E

Mass Loading Concentrations

APPENDIX F

Final Addendum

APPENDIX D

REMEDIAL ACTION SUMMARY REPORT – SURFACE AND SHALLOW SUBSURFACE SOIL

**Remedial Action Summary Report – Surface and Shallow
Subsurface Soil
Voluntary Cleanup Agreement R1-0001-01-01**

Glenwood Landing Gas Plant Site

Glenwood Landing,
Nassau County,
New York

Prepared for **KeySpan Corporation
One MetroTech Center
Brooklyn, New York 11201-3850**

Prepared by ***VHB*/Vanasse Hangen Brustlin, Inc.
Environmental Risk Management
54 Tuttle Place
Middletown, Connecticut 06457**

August 2003

Table of Contents

EXECUTIVE SUMMARY	1
INTRODUCTION	1
REPORT ORGANIZATION.....	1
SITE LOCATION AND DESCRIPTION	1
SITE REMEDIATION LAYOUT.....	2
PURPOSE AND OBJECTIVES.....	2
PREVIOUS INVESTIGATIONS	2
<i>Phase I, Phase II, and Supplemental ESAs.....</i>	<i>3</i>
<i>Supplemental Environmental Site Assessment (ESA) of Area-1</i>	<i>4</i>
<i>Shallow Groundwater Investigation.....</i>	<i>4</i>
<i>VCA Investigation.....</i>	<i>5</i>
REMEDIAL ACTION SUMMARY	7
INTRODUCTION.....	7
COMMUNITY AIR MONITORING.....	7
EXCAVATION AREAS.....	8
<i>Area 3-1 Former Wastewater/Condensate Area</i>	<i>9</i>
<i>Area 2-2 Former Boiler Wash Disposal Area</i>	<i>10</i>
<i>Area 2- 3 Lab Septic Area</i>	<i>10</i>
<i>Area 2-4 23kV Substation.....</i>	<i>11</i>
<i>Area 1A-5 Hot Spots.....</i>	<i>11</i>
<i>Area 2-6 4kV Substation.....</i>	<i>12</i>
<i>Area 2-7 Construction Debris Piles</i>	<i>12</i>
<i>Area 3-8 Compressor Building/Gas Holder</i>	<i>13</i>
AREA 1B	14
<i>Radiation Screening</i>	<i>15</i>
<i>Magnetometer Survey.....</i>	<i>15</i>
<i>Composite Clean Cover System.....</i>	<i>15</i>
DEWATERING OPERATIONS	16
DEMOLITION OF COMPRESSOR BUILDING	16
SITE RESTORATION	17
SUMMARY OF ANALYTICAL RESULTS	18
<i>Area 3-1 Former Wastewater/Condensate Area</i>	<i>19</i>
Inorganics	19
Semi-Volatile Organic Compounds.....	19
Polychlorinated Biphenyls.....	19
<i>Area 2-2 Former Boiler Wash Disposal Area</i>	<i>20</i>
Inorganics	20
Semi-Volatile Organic Compounds.....	20
Polychlorinated Biphenyls.....	20
<i>Area 2- 3 Lab Septic Area</i>	<i>21</i>
Inorganics	21
Semi-Volatile Organic Compounds.....	21

Polychlorinated Biphenyls.....	21
<i>Area 2-4 23kV Substation.....</i>	<i>21</i>
Inorganics	21
Semi-Volatile Organic Compounds.....	21
Polychlorinated Biphenyls.....	22
<i>Area 1A-5 Hot Spots.....</i>	<i>22</i>
Inorganics	22
Semi-Volatile Organic Compounds.....	22
Polychlorinated Biphenyls.....	22
<i>Area 2-6 4kV Substation.....</i>	<i>22</i>
Inorganics	22
Semi-Volatile Organic Compounds.....	22
Polychlorinated Biphenyls.....	23
<i>Area 2-7 Construction Debris Piles</i>	<i>23</i>
Inorganics	23
Semi-Volatile Organic Compounds.....	23
Polychlorinated Biphenyls.....	23
<i>Area 3-8 Compressor Building/Gas Holder.....</i>	<i>23</i>
Inorganics	23
Semi-Volatile Organic Compounds.....	23
Polychlorinated Biphenyls.....	24
<i>Drip Pits</i>	<i>24</i>
Inorganics	24
Semi-Volatile Organic Compounds.....	24
Polychlorinated Biphenyls.....	24
<i>Manholes and Outfall Pipes</i>	<i>24</i>
Inorganics	24
Semi-Volatile Organic Compounds.....	25
Polychlorinated Biphenyls.....	25
Volatile Organic Compounds	25
AIR SAMPLING DATA	26
DATA VALIDATION	26
WORK PLAN MODIFICATIONS.....	27
DRIP PITS	27
ASBESTOS REMOVAL DURING EXECUTION OF THE VCA	28
YARD PIPING.....	28
AREA 1B ADDITIONAL INVESTIGATION	29
<i>Radiation Screening in Area 1B.....</i>	<i>29</i>
<i>Magnetometer Survey.....</i>	<i>31</i>
STORM SEWER AND OUTFALL SAMPLING	31
INDUSTRIAL USE	33
GROUNDWATER	34
AREA 1A.....	34
<i>Area-1A – Groundwater</i>	<i>34</i>
CONCLUSIONS AND RECOMMENDATIONS	35
CLOSURE REPORT	35
CERTIFICATION	36

Tables

Table No.	Name
1	Summary of Area 3-1 Analytical Results
2	Summary of Area 2-2 Analytical Results
3	Summary of Area 2-3 Analytical Results
4	Summary of Area 2-4 Analytical Results
5	Summary of Area 1A-5 Analytical Results
6	Summary of Area 2-6 Analytical Results
7	Summary of Area 2-7 Analytical Results
8	Summary of Area 3-8 Analytical Results
9	Summary of Drip Pit Analytical Results
10	Summary of Manhole and Outfall Analytical Results
11	Summary of Silica/Dust Air Sampling Results
12	Summary of PCB and Inorganic Air Sampling Results
13	Summary of Soil Disposal Shipments Off-Site

Figures

Figure No.	Name
1-1	Site Location Map
1-2	Site Map
2-1	Area 3-1- Extent of Excavation and Sample Location Points
2-2	Area 2-2- Extent of Excavation and Sample Location Points
2-3	Areas 2-3 and 2-4- Extent of Excavations and Sample Location Points
2-4	Area 1A-5 Extent of Excavation and Sample Location Points
2-5	Areas 2-6, 2-7, and 3-8- Extent of Excavations and Sample Location Points
3-1	Drip Pits- Extent of Excavations and Sample Location Points

Appendices

Appendix	Name
A	Sample of Non-hazardous Waste Manifest, Asbestos Manifests, and Manhole Waste Manifests
B	Waste Characterization Profiles for Areas 1 through 8
C	Backfill (Soil, Cover Soil, Topsoil, Rip-rap, Geotextile) Sources, Locations, and Analytical Results
D	Compaction Testing Data
E	Manhole #2 As-Built
F	Data Validation Report
G	Photo Log

NOTE: A compact disc with the laboratory data packages is located on the inside back cover.

Executive Summary

This report presents the results of remediation activities conducted at the Glenwood Landing Gas Plant Site located in Glenwood Landing, Nassau County, New York. The property is located on approximately 800-feet of waterfront on the east shore of Hempstead Harbor, and extends east across Shore Road. The property is bounded on the south by a Mobil Oil/Storage Terminal, to the west by Hempstead Harbor, and on the north and east by the North Shore Country Club.

KeySpan Corporation (KeySpan) owns the referenced property. The site was initially developed in 1949. Development included a natural gas regulating station (compressor station), laboratory, and propane storage field. The gas facilities and propane storage tank field have since been decommissioned and demolished.

The site cleanup and remediation was conducted under a Voluntary Cleanup Agreement (VCA), Index #R1-0001-01-01 executed March 27, 2001, between KeySpan, and the New York State Department of Environmental Conservation (NYSDEC). Vanasse Hangen Brustlin, Inc. (VHB) prepared the remedial design plan, oversaw the fieldwork, and prepared this report on behalf of KeySpan. In addition, fieldwork was conducted in accordance with the NYSDEC-approved Work Plan dated September 2001.

Based on the historical information, previous investigations, the results of the site investigation, an engineering evaluation, and discussions with representatives from NYSDEC and NYSDOH, the following remedial actions were completed:

- Area-1A: The hot spot removal (excavation and off-site disposal) of surface soils (designated discrete areas 1A-5a through 1A-5e) with CPAHs concentrations above the site clean-up objectives. Groundwater in this area will be further evaluated.
- Area-1B: The fill area of 1B was consolidated and covered to isolate detected levels of inorganics. The area will have a deed restriction in order to maintain it as green space and/or a passive recreation area.
- Area-2: The hot spot removal (excavation and off-site disposal) of surface and subsurface soils with concentrations of PCBs, CPAHs, and inorganics above the site clean-up objectives was completed down to the water table. Area 2 was subdivided into discrete areas 2, 3, 4, 6, and 7.

- Area-3: The hot spot removal (excavation and off-site disposal) of surface and subsurface soils with concentrations of PCBs, CPAHs, and inorganics above the site clean-up objectives was completed down to the water table. Area 3 was subdivided into discrete areas 1 and 8.
- The four Drip Pits located on the north, south, east, and west sides of the former gas holder foundation were demolished and removed. Contaminated soil was excavated from these Drip Pit footprints.
- The holder pad, compressor building, and ancillary facilities were demolished utilizing proper environmental controls and techniques.

NYSDEC approved the VCA work plan dated September 2001. The plan provided the background and investigation data, and provided planned removal volumes, verification sampling methods, air monitoring, health and safety, and site specific clean-up goals for soils. The plan was implemented starting in October 2001 and removal work was substantially complete in January 2002. Final soil removal work from a substation at the site was completed in October 2002 in association with the upgrade of that substation. A total of 10,880.62 tons of soil was removed from the site for off-site disposal.

After executing the majority of the work described in this report, a portion of the site (Areas 2 & 3) was redeveloped as an electric generation station by KeySpan. The site soil remediation on site was conducted under the assumption that the site may be redeveloped as residential, otherwise characterized as restricted residential. All elevated concentrations of SVOCs and inorganics in site soils down to the water table were removed to the site specific residential cleanup goals with the exception of sample GLA1-2 located in Area 3-1 and GLA2-3S located in Area 2-2. These areas do meet the industrial cleanup goals consistent with the reuse of those areas.

Site groundwater in Area 1A is subject to further investigation. Information regarding groundwater is provided under a separate work plan for groundwater dated January 2003.

KeySpan implemented a surface and shallow subsurface (to the water table) soil removal program at the site. The goal of the program was to remove elevated soil concentrations of SVOCs, inorganics, and PCBs which were present above site specific clean-up goals. In all areas on-site, KeySpan has achieved industrial cleanup standards which are protective of human health and environment given current and proposed future use scenarios. In most areas on-site, KeySpan achieved the site specific residential cleanup criteria. Based on favorable results of the remedial action and verification sampling, a letter of "No Further Action" is requested for site soils.

1

Introduction

Report Organization

This report was prepared on behalf of KeySpan Corporation (KeySpan). The report summarizes fieldwork and analytical data associated with the Voluntary Cleanup Action at the Glenwood Landing Gas Plant Site from October of 2001 thru January 2002, and in September 2002. The Remedial Action was conducted under a Voluntary Cleanup Agreement (VCA), Index #R1-0001-01-01, executed March 27, 2001, between KeySpan and NYSDEC.

Section 1 provides an introduction to this report, purpose and objectives, site location and description, and previous environmental investigation history. Section 2 summarizes the activities associated with soil remediation. Section 3 presents modifications to the remediation work plan. Section 4 provides the analytical data obtained from analysis of the samples collected during the closure sampling. Section 5 references remaining work associated with groundwater at the site. Section 6 presents conclusions and recommendations based on the data collected during the remediation activities, as well as recommendations for no further actions at the site. Section 7 is a certification that the work was performed in substantial compliance with the work plan approved by NYSDEC.

Site Location and Description

The Glenwood Landing Gas Plant facility is located on Shore Road in Glenwood Landing, New York. The property is located on approximately 800-feet of waterfront on the east shore of Hempstead Harbor, and extends east across Shore Road. The areas east of Shore Road slope steeply toward the harbor, and areas west of Shore Road are relatively flat. Figure 1-1 is a site location map.

The site was initially developed as a modern liquid petroleum (LP) gas cracking plant in 1949. Subsequent development included a natural gas regulating station (compressor station), laboratory, and propane storage field. The gas facilities and propane storage tank field have since been decommissioned and demolished. The compressor station and associated site features have also been decommissioned and

demolished. Laboratory services have been terminated, and a portion of the site was redeveloped for electric power generation.

Site Remediation Layout

The site was divided into three areas: Areas 1, 2, and 3 (refer to Figure 1-2). Area-1 includes the entire site west of Shore Road and has been subdivided into Area-1A and 1B. Area-1A contained the former propane tank area which was further subdivided into discrete areas 5a through 5e. Area-1B was a greenspace and tidal wetland. Area-2 is east of Shore Road and north of the site access road where the laboratory, two electrical substations, and storage buildings were located. Area 2 was subdivided into discrete areas 2, 3, 4, 6, and 7. Area-3 is east of Shore Road and south of the site access road where the compressor building and former gas holder were located. Area 3 was subdivided into discrete areas 1 and 8. Additionally, four Drip Pits that were located on the north, south, east, and west sides of the former gas holder foundation were also demolished and remediated

Purpose and Objectives

The purpose of the remedial action was to remove identified soils, and/or cap to prevent migration and exposure of soils which contain levels of SVOCs, inorganics, and PCBs above site specific cleanup goals identified in the VCA work plan dated September 2001. Specific redevelopment scenarios for the west side of Shore Road are undetermined at this time. The eastern part of the project area was redeveloped as an electric generating station following remedial actions.

Previous site investigations, evaluations, risk assessments, engineering evaluations and the subsequent remedial actions have been conducted under the premise that the site may be redeveloped as residential. This approach allows the greatest flexibility for redevelopment and also applies the strictest cleanup standards to the site.

Previous Investigations

Six previous investigations as detailed below were conducted at the site:

- A Phase I Environmental Site Assessment (ESA) was performed by Fluor Daniel GTI, Inc. and reported in January 1999;
- A Phase II ESA was performed by Fluor Daniel GTI Inc. and reported in May 1999;

- A Supplemental ESA was performed by IT Corporation and reported in June 1999;
- A Supplemental ESA of Area-1, including a Human Health and Ecological Risk Analysis was performed by VHB and reported in December 1999;
- An upgradient Shallow Groundwater Investigation was performed by VHB in March 2000; and
- VCA Investigation was performed in two phases by VHB in November of 2000 and April of 2001.

The following discussion details these investigations and the findings.

Phase I, Phase II, and Supplemental ESAs

The Phase I ESA by Fluor Daniel GTI suggested the presence of several potential Recognized Environmental Conditions (RECs) in each of the three site areas. These RECs included leach fields, former above ground storage tanks (ASTs), fill deposits/areas, debris piles, structures, and gas handling/processing facilities.

The Phase II ESA by Fluor Daniel GTI investigated the proposed RECs reported in the Phase I ESA. Analytical results from samples collected during the Phase II ESA were compared to referenced background concentrations published by state and federal sources. Analytical results from the Phase II ESA suggested the presence of:

- VOCs were present in groundwater in Area-1A in concentrations above published background levels ;
- Inorganics were present in soil in Area-1B in concentrations above published background levels ;
- Inorganics and PCBs in soil in Area-2 in concentrations above published background levels ; and
- VOCs, semivolatile organic compounds (SVOCs), and inorganics were present in soil in Area-3 in concentrations above published background levels .

The Supplemental ESA by IT Corporation was conducted to "delineate the chemicals detected during [the] Phase II [ESA], and [determine] remediation cost estimates based on the delineation of chemical impacts." Analytical results from the Supplemental ESA included:

- VOCs were present in shallow groundwater on the west side of Area-1A at concentrations exceeding NYSDEC groundwater standards;

- Ash, asbestos, and inorganics (particularly arsenic and vanadium) were present in surface and subsurface soils in the central portion of Area-1B. Arsenic and vanadium were present in concentrations above of eastern United States background levels;
- In Area-2, mercury and polycyclic aromatic hydrocarbons (PAHs) were detected in debris piles along the western portion of the property above of NYSDEC guidance values. Mercury was detected in soil borings from the former septic system in excess of NYSDEC guidance values. PCBs and PAHs were detected in soil borings in the boiler waste pit area;
- In Area-3, PAHs and PCBs were detected in the wastewater/condensate accumulation area above of NYSDEC guidance values. One boring contained VOCs marginally above of NYSDEC guidance values. PCBs were also detected above NYSDEC guidance values in the yard storage area.

Supplemental Environmental Site Assessment (ESA) of Area-1

A supplemental ESA and risk analysis was performed for KeySpan by VHB (December 1999) to evaluate VOCs in groundwater, and inorganics in soil in Area-1. The results of this investigation indicated that:

- The arsenic and vanadium present in the surface and shallow subsurface soils in Area-1B was evaluated relative to certain site development scenarios. However, there was no immediate threat, and there was no evidence of migration from the site or into groundwater at that time, and access to the site was currently controlled. Additional characterization of the area was not necessary since the analytes of concern were associated with the presence of ash, which could be easily distinguished through visual inspection.
- VOCs are present in shallow groundwater in Area-1A above of NYSDEC guidance values.

Shallow Groundwater Investigation

An upgradient Shallow Groundwater Investigation was performed on March 2 and 3, 2000 to determine whether a source of VOCs was present in shallow groundwater areas adjacent to Shore Road, and adjacent to former and existing septic tanks and leach fields.

- Nineteen groundwater samples were collected from temporary wells approximately 8 to 12 feet in depth installed using direct-push technology. In

addition, four existing monitoring wells were sampled. These samples were analyzed by KeySpan's laboratory for VOCs.

- Analytical results indicated the presence of chlorinated VOCs (PCE, TCE) in shallow groundwater upgradient of Area-1, however the concentrations detected are well below the levels found in Area-1, and are also below applicable regulatory criteria.
- There appears to be no existing sources of VOCs in subsurface soils and shallow groundwater adjacent to Shore Road, the compressor building, storage sheds, laboratory, and associated septic structures.

VCA Investigation

Specific objectives of the investigation included: determining if the storm sewers were a conduit or source of Volatile Organic Compounds (VOCs) to shallow groundwater in Area-1A; verify presence of VOCs in shallow groundwater in Area-1A; determine if a sinking Dense Non-aqueous phase liquids (DNAPL) plume exists in Area-1A; determine potential impact to shallow groundwater in Area-1B associated with overlying fill materials; collection of co-located surface water/sediment samples from the tidal pond in Area 1B to determine potential for surface water discharges; sampling under gas holder to determine if VOCs and/or Semi-volatile Organic Compounds (SVOCs) were present, and determine if Inorganics are migrating or exist under the holder pad.

The results of this investigation indicated:

- Geotechnical and analytical results from shallow groundwater samples in Area-1A were consistent with previous investigations. The compounds and concentrations detected were consistent with previous data. No substantial confining layer was found in Area-1A. No DNAPL was found. Analytical results indicated VOCs at depth in the Area 1A upgradient well. Based on the comprehensive investigation conducted in this area, there was no evidence of DNAPL or a sunken plume. Sufficient characterization was performed for the purpose of performing a preliminary remedial design. The shallow subsurface area between the drywells and Hempstead Harbor appears to be a source of VOCs to shallow groundwater. Analytical results from Area-1A surface soil samples indicate five locations with SVOCs above site-specific action levels.
- Analytical results indicated an isolated area of VOCs in shallow groundwater in the northeast corner of Area-1B. The compounds detected are typically associated with the degradation of PCE and TCE. The primary 36-inch reinforced-concrete pipe (RCP) main that runs between Area-1A/1B serves as a shallow groundwater divide. No VOCs were found in the sewer or adjacent tidal pond. Analytical results for surface water samples collected from the pond

in Area-1B indicated SVOCs were present in both samples at concentrations below action levels. Sediment samples collected from the pond indicated SVOCs were present in one of the two samples, but at concentrations below action levels.

- Discrete surface soil samples from areas 2 and 3 contained SVOCs, but at concentrations below action levels.
- Analytical results from subsurface soil samples collected from Area-2 confirmed the presence of SVOCs and PCBs at concentrations above site-specific action levels in isolated hotspots as previously defined.
- Analytical results from the subsurface soils collected from beneath the gas holder foundation in Area-3 indicated there were no compounds present at levels which require action. Analytical results of the grab groundwater sample contained no compounds that require action or indicate a migration of material from the drip storage area.
- The storm sewers were constructed consistent with as-built documentation. A 36-inch diameter RCP running east to west down the main site access road, between Areas-1A and 1B, carries most of the storm runoff from the site to Hempstead Harbor. Analytical results from the storm sewer system indicated that there were no sources of VOCs in, or migrating from Areas-2, 3, and off-site sources via the sewer.
- The survey conducted on the compressor building sub-floor found no evidence of a release or potential release to the subsurface from the building. All compressor equipment was removed from the building. A thorough examination of the sub-floor was conducted. The building sumps and roofs drains were connected to the main 36-inch site storm sewer.

Remedial Action Summary

Introduction

VHB provided oversight for the remediation activities on behalf of KeySpan starting on October 23, 2001. The excavation areas were determined during the site investigations discussed above.

Mercer Group International (Mercer) was the General Contractor responsible for the demolition of the compressor building, former gasholder foundation, and ancillary structures/site features. Mercer was also responsible for the excavation and off-site disposal of surface and subsurface soils and structures indicated on Figure 1-2. Tradewinds Environmental Restoration completed the additional excavation work in the 23 kva substation in September of 2002.

A total of approximately 10,800 tons of non-hazardous soil was disposed off-site between October 26, 2001 and January 2003. A Summary of Off-Site Soil Shipments is included as Table 13. Code Environmental coordinated the transportation of excavated soils off-site to Clean Earth thermal desorption treatment facility in Delaware. Clean Earth is a treatment facility for non-hazardous soils. A typical Non-Hazardous Materials Manifest is included as Appendix A, and characterization waste profiles for Areas 1 through 8 are included in Appendix B.

Volumes presented in this report are predicated on field measurements. Conversions from cubic yards to tons were estimated using a multiplier of 1.4 tons/cubic yard.

Community Air Monitoring

All air monitoring was performed during the field investigation program in accordance and compliance with the provisions of the NYSDOH's Generic Community Air Monitoring Plan (CAMP). Monitoring of VOCs was performed utilizing a Photoionization Detector (PID) and air samples were analyzed by Galson Laboratories located in East Syracuse, NY, for particulate monitoring. Daily dust and silica air samples were collected by Mercer and their health and safety subcontractor (Omega) during the course of the project. During the excavation of Area 1B, air

samples were collected for arsenic and vanadium parameters; PCB air samples were collected for two days during removal activities in Area 3-1.

Excavation Areas

Excavation and off-site disposal was the remedial technology selected to address the identified surface and subsurface soils in the discrete areas. The excavation remedy selected for these areas was protective of human health and the environment by removing the contaminants from the site. Site remedial action objectives were achieved and verified through subsequent verification sampling performed by VHB. Removal of the materials from the site achieved both short and long-term remedial action objectives. Industry and state accepted standards and procedures (air monitoring, decontamination, zone control, etc.) were required during removal activities to monitor airborne concentrations of contaminants during removal actions.

The excavations were limited to surface and shallow subsurface removals. Investigation data indicated that compounds in concentrations exceeding site Remedial Action Objectives (RAOs) might exist at depths below the groundwater interface. However, the data also showed no evidence that these compounds were migrating via groundwater. Excavations did not extend below the water table, which was approximately 6- 8 feet below ground surface (bgs).

Excavations were conducted using conventional machine excavators. Soils were loaded into trucks for off-site disposal. In areas with potential delicate subsurface features (telecommunications cable, active transformers/power lines) hand excavation was employed. All metal and concrete was segregated from the soil prior to shipment off-site in roll off containers.

Upon completion of the initial excavations, verification samples were collected from each excavation. One sample was collected from the bottom of the excavation, one outside each horizontal limit on the surface, and one sidewall sample per 5-feet of depth (i.e., an 8-foot deep excavation had 2 samples collected from each sidewall). Duplicate samples were collected from this matrix at a rate of 1 per 10. Samples collected were analyzed for SVOCs, PCBs, and Inorganics by method 8270C, 8020, and NYS ASP 95 TAL Metals, respectively, at an NYSDOH ELAP facility. Sample results were typically available within 72 hours.

Excavations remained open until analytical results were reviewed. Open excavations were covered and protected from rain and stormwater pending receipt of analytical data. Excavated soils were temporarily staged on-site in prepared (lined, sloped, bermed, covered, and secured) stockpiles prior to off-site disposal. Excavated soil was disposed at Clean Earth in Delaware, an approved thermal desorption treatment and disposal facility. Waste profiles (Appendix B) were performed in compliance with applicable state and specific Clean Earth facility requirements.

Per the work plan, the excavations did not extend below the water table, which was approximately 6' - 8' bgs. If product was encountered during excavation work, groundwater collection/treatment/disposal techniques were implemented as appropriate.

Completed excavations were measured for quantification of soil volume removed. Upon receipt of laboratory data that indicated the site clean-up goals had been achieved, the excavation was backfilled with soil from a pre-approved source and re-graded. If soil cleanup verification results were above RAOs, additional iterative excavation and verification sampling was conducted until site clean-up goals were achieved.

The backfill source was sampled for full TCLP analysis prior to placement. Backfill in excavations greater than 2-feet in depth was conducted in one to two-foot lifts and compacted. Sampling of backfill materials from the same source was conducted at a rate of one sample per 1000 cubic yards, and analyzed for SVOCs, PCBs, and Inorganics at an NYSDOH ELAP facility. The backfill analytical data is included as Appendix C.

Initial excavation for each area was in accordance with the vertical and horizontal limits shown on Figure 1-2. An air-monitoring program for site Health & Safety, and community monitoring consistent with NYSDOH protocols was implemented. Omega, a subcontractor to Mercer, provided health and safety oversight. Real time monitoring for organic vapors and dust was performed at the excavation area, upwind and downwind. The air monitoring results are included in Tables 11 and 12.

Area 3-1 Former Wastewater/Condensate Area

An excavator began exploratory test pits in Area 3-1 on October 23, 2001. The excavation of Area 3-1 began on October 24, 2001. The stained and odorous soil within the concrete vault shown on Figure 2-1 consisted of ash, cinders, boulders, piping, concrete, and other debris. The structure consisted of a 28' diameter concrete foundation and an attached 8' by 10' concrete foundation. Steel plates and piping from previous demolitions were buried within these structures. The steel was segregated for recycling and the concrete was crushed and disposed off site. The concrete structures were demolished with an excavator and segregated from the soil. Excavation for Area 3-1 was completed and sampled on November 2, 2001. The extent of the first excavation and sampling locations are shown on Figure 2-1.

Work in Area 3-1 required the use of Level B personal protective equipment. This was due to odorous gas condensate vapor emanating from within that work area. Personnel in the contaminant reduction zone were in Level C personal protective equipment equipped with respirators.

Upon receipt of verification sample results which indicated concentrations of SVOCs above site cleanup criteria, the Area had to be partially re-excavated and re-sampled in the eastern direction in order to achieve the Site cleanup goals. This re-excavation occurred on November 20, 2001 and was re-sampled on this date.

The dimensions of the final excavation limits were approximately 100' by 90' by 6' – 8' deep, as shown on Figure 2-1. A Summary of Analytical Results is included in Table 1. A total of approximately 3,600 tons of soil were excavated from Area 3-1.

Groundwater was encountered during this excavation. The area was covered with geotextile and 2' of crushed recycled concrete aggregate (RCA). Approximately 1' of fine aggregate was placed and compacted prior to backfilling with 3' – 4' of sandy fill. The area was compacted and graded.

Area 2-2 Former Boiler Wash Disposal Area

Area 2-2 was prepared for excavation on November 6, 2001. A truck entrance was created and the area was cleared of all vegetation. Excavation activities began on November 9, 2001. A berm in the southeastern portion of the excavation was composed of black "boiler wash" material and soil up to 4 feet thick. The Area 2-2 material was direct loaded and shipped to Clean Earth in Delaware. Verification samples were collected on November 15, 2001 and November 27, 2001.

Upon receipt of verification sample results which indicated concentrations of SVOCs above site specific cleanup criteria, Area 2-2 was prepared for additional excavation on December 5, 2001. A test pit was cut and sampled approximately 15-feet west of the west wall of the excavation and sampled to help define second cut limits. Soils along the west side of Area 2 and surface soils outside of the chain link fence were excavated on December 11, 2001 and sampled on December 12, 2001. This excavation is shown on Figure 2-2.

The approximate dimensions of the completed excavation were 145' by 90' by 8'. A Summary of Analytical Results is included in Table 2. A total of approximately 5,312 tons (3,866 cubic yards) of soil were excavated from Area 2-2.

Filter fabric was placed on the bottom of Area 2-2 and then backfilled with on-site soils and off-site sandy fill material.

Area 2- 3 Lab Septic Area

This area was sampled for characterization on October 24, 2001. The 30' by 20' by 8' area was excavated and sampled on December 14, 2001.

Upon receipt of verification sample results which indicated elevated concentrations of inorganics, principally mercury, a 4' by 20' area of the south sidewall had to be re-

excavated and re-sampled on December 21, 2001. The area was excavated to 8' bgs to the top of the water table, as shown on Figure 2-3.

A Summary of Analytical Results is included in Table 3. A total of approximately 283 tons (202 cubic yards) of soil were excavated and transported offsite from Area 2-3.

The area was backfilled with sand and covered with crushed stone on January 7, 2002.

Area 2-4 23kV Substation

This area was sampled for characterization on October 24, 2001. Laborers began excavating these soils by hand on November 13, 2001 and completed the 56' by 12' by 2' excavation on December 6, 2001. The area was sampled at the completion of the excavation on December 6, 2001. Figure 2-4 shows the excavation and additional iterative excavations.

Upon receipt of laboratory results which indicated concentrations of SVOCs above site specific cleanup criteria, the area was re-excavated and re-sampled on December 18, 2001. The area was backfilled with sandy fill and top-dressed with crushed concrete aggregate on December 21, 2001.

On January 7, 2002, a 20' by 10' by 2' area of the backfilled material and crushed concrete aggregate had to be removed because additional excavation in this area was required. The additional excavation was sampled on January 8, 2002. A Summary of Analytical Results is included in Table 4. Approximately 91 tons (65 cubic yards) of soil were excavated and shipped offsite from Area 2-4.

Due to soil analytical results that exceeded the site specific cleanup goals for SVOCs, the area was re-excavated in September 2002 and re-sampled. The area was not re-excavated in 2001 because of plans to deenergize the transformer substation. Tradewinds Environmental Restoration, Inc., removed 263.12 tons in September 2002. The soil was temporarily stored at a nearby KeySpan substation and later transported to Clean Earth in January 2003. Figure 2-3 shows the location of sample points.

A total of 354.12 tons of soil was excavated and disposed from this area.

Area 1A-5 Hot Spots

Excavation and off-site disposal of surface soils was conducted at the locations indicated on Figure 2-4. Initial excavation within each area was a 25' by 25' square excavated to a depth of 1' bgs. The initial excavations and sampling activities occurred on November 28, 2001. One sample, GLA5E-1, was collected on December 4, 2001 because a stockpile had been generated in the bottom of this grid during the

excavation activities within Area 1A-5. Upon removal of the stockpile, the bottom sample was then collected.

Areas 5A and 5D required re-excavation upon the receipt of laboratory results which indicated levels of SVOCs were present above site specific cleanup criteria. These areas were excavated and sampled on December 14, 2001. Discrete area 5A was re-excavated along the southern sidewall and discrete area 5D was re-excavated along the northern and western sidewalls. Each sidewall was excavated an additional 10 feet in the noted directions.

A Summary of Analytical Results is included in Table 5. A total of approximately 220 tons (157 cubic yards) of soil were excavated from Area 1A-5.

Area 2-6 4kV Substation

This area was sampled for characterization on October 24, 2001. The laborers on site began excavating these soils by hand on November 12, 2001 and were then supported with a backhoe over the next few days. The soil was stockpiled and shipped from November 16, 2001 through the completion of the excavation on November 20, 2001. VHB sampled the area on November 20, 2001 and then the area was backfilled soon after sampling. The limit of excavation is shown on Figure 2-5.

A Summary of Analytical Results is included in Table 6. The excavation was approximately 35' by 25' by 2' deep. A total of approximately 91 tons (65 cubic yards) of soil were excavated from Area 2-6.

Area 2-7 Construction Debris Piles

This area was sampled for characterization on October 24, 2001. The area was cleared of construction debris on November 6, 2001 to allow for the stockpiling of excavated soil. The excavation was complete on November 8, 2001. Approximately 200 cubic yards of previously stockpiled debris and soil consisting of chunks of asphalt and concrete was excavated from this area. Then the area was excavated to a depth of approximately 2' bgs. The limits of excavation are shown on Figure 2-5. VHB collected samples on November 9, 2001.

Upon receipt of laboratory results which indicated levels of SVOCs above site specific cleanup criteria, two 30' by 20' by 1' areas were re-excavated on November 20, 2001 and re-sampled by VHB on November 21, 2001. These two additional excavations totaled approximately 62 tons of soil and are shown on Figure 2-7. It should be noted that three of the samples collected and shipped to the laboratory on November 21, 2001 (GLA7-3 B, D, and GLA7-1D) had to be submitted again because the sample jars were damaged during the shipping process to the laboratory.

An additional 1' had to be removed from the remainder of Area 2-7 on December 5, 2001 due to elevated concentrations of SVOCs above site specific cleanup criteria. The additional excavation was extended to the north, south, east, and 1' deeper. The final dimensions of the excavation were approximately 75' by 75' by 3' deep. Final verification sampling in this area was performed on December 12, 2001.

A Summary of Analytical Results is included in Table 7. A total of approximately 900 tons (approximately 650 cubic yards) of soil and debris were excavated from Area 2-7.

Area 3-8 Compressor Building/Gas Holder

Area 3-8 was excavated on October 25, 2001 to the vertical and horizontal limits specified in the plan. The original excavation limits were 10' by 10' by 2' deep. This soil was staged and stockpiled on top of polyethylene sheeting and covered. Five verification samples were collected on October 26, 2001. The excavation was backfilled with sandy fill on this date as well.

On December 4, 2001, the area was re-excavated in the northern direction off the northern sidewall with dimensions of 10' by 10' by 2' deep. This new excavation was sampled on December 4, 2001 after the excavation was complete. Figure 2-5 shows the original and iterative excavations.

A Summary of Analytical Results is included in Table 8. A total of approximately 22 tons (16 cubic yards) of soil were excavated from Area 3-8.

The following table summarizes the actual excavation areas and removal volumes within all the discrete areas excavated during the remedial action.

Summary of Soil Volumes Removed From Each Area

Area/Subarea	Approximate Excavation Dimensions	Estimated Soil Removal Quantity
Area-1A		
<i>Area 1A- 5- Hot Spots</i>	25' x 25' x 1' (3) 35' x 35' x 1' (2)	220 Tons
Area-2		
<i>Area 2-2- Former Boiler Wash Disposal Area</i>	145' x 90' x 8'	5,413 Tons
<i>Area 2-3- Lab Septic</i>	34' x 20' x 8'	283 Tons
<i>Area 2-4- 23 kV Substation</i>	56' x 12' x 2' 20' x 10' x 2' 20' x 100' x 2'	354 Tons
<i>Area 2- 6- 4 kV Substation</i>	35' x 25' x 2'	91 Tons
<i>Area 2-7- Construction Debris Piles</i>	75' x 75' x 3'	900 Tons
Area-3		
<i>Area 3-1- Former Wastewater/ Condensate Area</i>	100' x 90' x 8'	3,600 Tons
<i>Area 3-8- Compressor Building/Gas Holder</i>	20' x 10' x 2'	22 Tons

NA – Not Applicable

Area 1B

The proposed action plan for surface and shallow subsurface soils in Area 1B was clean soil cover. Soils in the fill area of Area-1B contained elevated concentrations of inorganics. Borings, test pits, and reconnaissance of the area had been used to delineate the fill area. The remedial action plan proposed covering the area with clean fill to eliminate exposure potential, and mitigate migration.

Radiation Screening

NYSDEC requested radiation screening of slag in the area due to the presence of radioactive slag from unknown sources in nearby Glen Cove. Screening was conducted on slag on the surface and in the shallow subsurface at the site. A brief letter report summarizing the findings was prepared and submitted to NYSDEC prior to designing the cover for this area.

Based on the results of the field screening effort, which indicated radioactive materials are not present on-site, no further investigation for radioactive wastes/materials in Area 1B was implemented.

Magnetometer Survey

NYSDEC requested a magnetometer survey be performed on Area 1B. The purpose of this survey was to support previous investigation data with respect to subsurface anomolys, and enable construction personnel to retrieve and properly dispose any materials that could not be properly managed in the proposed cover system.

Several anomolys were identified, however, after exposing the materials no drums or tanks were found. All materials encountered were incorporated under the clean cover.

Composite Clean Cover System

Site preparation, including clearing and grubbing, began on November 13, 2001. The cover system was installed by clearing the area. Large trees and shrubs on the perimeter of the site were retained to provide a buffer. Cleared and grubbed trees and shrubs were chipped/mulched and staged on site for later use. Existing surface stockpiles (leaves, wood, ash, concrete) were consolidated and incorporated into the sub-base of the cover. Metal debris on the surface and in shallow subsurface soils was disposed of off-site. Finished grades of the sub-grade cover were determined on site during construction after consolidation was complete.

Once finish sub-grades were achieved, a layer of geotextile was placed as a means of delineating original fill, and preventing mixing of the clean cover soils with the fill materials. The geotextile was keyed into anchor trenches at the perimeter of the fill area. A minimum of 1' of clean fill material, consisting primarily of clay, was placed over the geotextile. Pre-approved, tested sources of cover soils were determined during construction.

Cover soils were topped with 6-inches of topsoil. The area was seeded and mulched using the mulch from clearing. A perimeter drainage swale was installed along the north, east, and portions of the south side of the fill area to accommodate runoff. Slopes of the cover area adjacent to the tidal flat and wetlands were clad with riprap

to mitigate potential erosion. A silt fence installed at the toe of the fill area slope before the start of construction has been left in-place to protect downgradient areas until vegetation matures. Refer to Figure 1-2 for the As-Built cover.

As requested by NYSDEC, a deed restriction will be established for Area 1B. The deed restriction will be provided as an appendix to the final site report.

Dewatering Operations

Several excavations on site required dewatering, including the Drip Pit foundation areas and former gas main piping, discussed below. The infiltrating groundwater was pumped from the excavations into a fractionation (frac) tank. Water that was discharged from the site was passed through a filter and then through a carbon system before being discharged to the stormwater system.

The PCB-contaminated water removed from the West Gas Main was stored separately in 55-gallon drums and subsequently disposed on November 27, 2001. Other water from dewatering operations was stored in the frac tank and pumped out on November 27, 2001 by Haz-Mat Incorporated.

The water from the circular historical foundation in Area 3-1 with a PCB concentration of 45.7 ppm was disposed off-site by KeySpan. This foundation was left in place because it was in the water table at a depth of approximately 8' bgs. The walls of the structure were demolished to 8' bgs.

Demolition of Compressor Building

Demolition of the compressor building is not part of the VCA, but was performed concurrently with remedial activities under the VCA. Demolition activities on the compressor building began on October 29, 2001. The compressor building was completely demolished by November 14, 2001, and the foundation walls were broken up and removed. The steel from the demolition was shipped off site and recycled. Dust suppression consisting of sprayed water was used as necessary.

The compressor building slab was left in-place and backfilled on November 30, 2001. Copies of backfill geotechnical, analytical, and compaction data are included in Appendix C.

Site Restoration

All Areas were backfilled with sand to level surface contours prior to placing the filter fabric, stone, and final sandy fill to grade. New York Dirt transported the fill on site from an approved source located on Merrick Boulevard in Queens, NY.

Historical information, a site description, laboratory analytical data, and gradation analytical results (sieve results) on the backfill material are included as Appendix C. Technical information on the geotextile is also included in appendix c. The Site was backfilled in 1' – 2' lifts and then compacted with a vibratory roller.

Materials Testing Laboratory, Inc. was present on site on November 15 and December 7, 2001 to ensure that Area 1 was at least 95% compacted while backfilling activities occurred. The compaction of the backfill material was acceptable, meeting 98% compaction. A summary of the compaction test results is included in Appendix D.

The 6" to 1'6" Light Stone Fill from the Tilcon New York Haverstraw Quarry was used as rip rap in Area 1B. The stone fill met the requirements for Gabion stone as defined by New York State Department of Transportation specifications. Source certification is provided in appendix C.

Areas 2-2 and 2-7 were hydroseeded at the completion of excavation.

3

Summary of Analytical Results

The following Section provides a summary of the analytical data from samples collected during remediation activities. Refer to Tables 1 through 10 relating to each area on site for a Summary of Soil Analytical Results. Figures 2-1 through 3-3 show each work area and indicate sample locations. Copies of complete laboratory data packages have been included on a CD located inside the back cover of this report.

The following site-specific cleanup goals were based on a residential site reuse scenario that was contemplated during the work plan development process.

The following site-specific cleanup goals were established for inorganics:

- Arsenic: 20 mg/kg
- Lead: 400 mg/kg
- Vanadium: 500 mg/kg

The following site-specific cleanup goals were established for SVOCs:

- Benzo(a)anthracene: 1 mg/kg
- Benzo(b)fluoranthene: 1 mg/kg
- Benzo(a)pyrene: 0.1 mg/kg
- Indeno(1,2,3-cd)pyrene: 1 mg/kg
- Benzo(g,h,i)perylene: 310 mg/kg
- Dibenzo(a,h)anthracene: 0.1 mg/kg

The site-specific cleanup goal for PCBs was 2 mg/kg.

Area 3-1 Former Wastewater/Condensate Area**Inorganics**

During the course of the soil remediation activities, 19 verification soil samples were collected for inorganics analysis. Of these 19 samples, several had detected concentrations of arsenic, lead, and vanadium. There were no detected exceedances for metals in any of these samples.

Semi-Volatile Organic Compounds

Fourteen samples were collected for SVOC analysis from Area 1. SVOCs were detected in 9 samples from Area 3-1. However, none of them exceeded the site-specific goals. Several CPAHs, including benzo(a)anthracene and benzo(b)fluoranthene, were detected in sample GLA1-2 with estimated laboratory results of 1.5 and 0.68 mg/kg, respectively. These soils are 6' below ground surface at the water table interface and were not removed. As indicated, these were estimated results that were marginally above the site specific cleanup goal of 1 mg/kg for benzo (a) anthracene. In addition, the plan did not specify the removal of soils below the water table.

Benzo(a)pyrene was detected in three samples (GLA1-2, GLA1-3S, and GLA1-4S) and estimated by the laboratory with results of 1.2, 0.3, and 0.15 mg/kg, respectively. Sample GLA1-3S was excavated during construction activities and subsequently resampled by VHB on January 23, 2002. There were no detected concentrations of SVOCs in closure sample GLA1-3SSA.

Polychlorinated Biphenyls

VHB collected 15 samples for PCB analysis from Area 3-1. Several samples had PCBs detected below the cleanup goal; however two samples from the Area 3-1 excavation had PCB results above the site cleanup goal. Sample GLA1-2 had concentrations of Aroclors 1242, 1248, 1254, and 1260 of 35, 7.3, 7.3, and 2.1 mg/kg, respectively. These soils were not removed because they are 6' below ground surface at the water table interface. The plan did not require soil removal below the groundwater interface. Sample GLA1-4 had an Aroclor 1248 concentration of 3.7 mg/kg which was excavated by the second removal in Area 3-1.

Refer to Table 1 for the analytical data summary for Area 3-1.

Area 2-2 Former Boiler Wash Disposal Area**Inorganics**

During the course of the soil remediation activities, 27 soil samples were collected for metals analysis. Of these 27 samples, several had detected concentrations of arsenic, lead, and vanadium. There was one elevated vanadium sample (GLA2-3S) with a sample result of 681 mg/kg. These soils were not removed due to construction logistics and because this area of the site continues to be used as industrial instead of residential. No other concentrations were detected above the site cleanup goals.

Semi-Volatile Organic Compounds

27 samples were collected for SVOC analysis from Area 2-2. SVOCs were detected in 5 samples from Area 1. However, none of them exceeded the site-specific goals. Benzo(a)pyrene was estimated by the laboratory in samples GLA2-1, GLA2-1A, GLA2-2, GLA2-10, and GLA2-11S. These concentrations ranged from 0.1 to 0.56 mg/kg. Dibenzo(a,h)anthracene was estimated by the laboratory in sample GLA2-10, with a concentration of 0.16 mg/kg.

Polychlorinated Biphenyls

25 samples were collected for PCB analysis from Area 2-2. The site-specific cleanup goal for PCBs was 2 mg/kg. Several samples had PCBs detected below the cleanup goal, and four samples from the Area 2-2 excavation had PCB results above the site cleanup goals. These samples were collected at the groundwater/soil interface at a depth of approximately 6' bgs, and they were not removed as per the work plan. The PCB sample results are summarized below.

Analyte	Sample Identification			
	GLA2-1	GLA2-1A	GLA2-2	GLA2-10
Aroclor 1242	3.9 U	12	3.8 U	3.4 U
Aroclor 1248	7.1	U	10	18
Aroclor 1254	3.9 U	U	3.8 U	3.4 U

All results are in mg/kg (ppm).

U- indicates the compound was analyzed for and determined to be present in the sample.

Refer to Table 2 for the complete analytical data summary of Area 2-2.

Area 2-3 Lab Septic Area**Inorganics**

During the course of the soil remediation activities, 13 soil samples were collected for metals analysis. Of these 13 samples, several had detected concentrations of arsenic, lead, and vanadium. There were no detections above site specific cleanup goals for metals in any of these samples.

Semi-Volatile Organic Compounds

SVOCs were not detected in any of the 13 samples from Area 2-3.

Polychlorinated Biphenyls

13 samples were collected for PCB analysis from Area 2-3. None of the 13 samples exceeded the site cleanup goal.

Refer to Table 3 for the complete analytical data summary of Area 2-3.

Area 2-4 23kV Substation**Inorganics**

During the course of the soil remediation activities, 19 soil samples were collected for metals analysis. Of these 19 samples, several had detected concentrations of arsenic, lead, and vanadium. There were two lead concentrations slightly above the site cleanup goal in samples GLA4-2SB and GLA4-4SE, with concentrations of 408 and 450 mg/kg, respectively. No other concentrations were detected above the site cleanup goals.

Semi-Volatile Organic Compounds

19 samples were collected for SVOC analysis from Area 2-4. SVOCs were detected in 12 samples from Area 2-4. Elevated SVOCs concentrations persisted following three iterations of removal and sampling. Work in this area was temporarily suspended in an attempt to employ heavy equipment when the substation would be deenergized during a planned outage later in 2002. However, KeySpan later determined that hand digging was still appropriate, and hand excavation resumed in September 2002.

The initial re-excavation, or fourth cut, and subsequent sampling in September 2002 yielded analytical results that indicated elevated levels of SVOCs above site cleanup criteria. Subsequent removal, or fifth cut, and sampling indicated that the cleanup meets the site specific cleanup criteria.

Polychlorinated Biphenyls

19 samples were collected for PCB analysis from Area 2-4. None of the 19 samples exceeded the site cleanup goal.

Refer to Table 4 for the complete analytical data summary of Area 2-4.

Area 1A-5 Hot Spots

Inorganics

During the course of the soil remediation activities, 45 soil samples were collected for metals analysis. There were no detected exceedances for metals in any of these samples.

Semi-Volatile Organic Compounds

27 samples were collected for SVOC analysis from Area 1A-5. SVOCs were detected in all 27 samples from Area 1A-5. Areas 1A-5B, 1A-5C, and 1A-5E were determined to be remediated upon the completion of the first excavation. Area 1A-5A required additional iterative excavation in the southern direction due to a benzo(a)pyrene concentration above site specific cleanup criteria. The iterative excavation was successful. Area 1A-5D also required two additional iterative excavations in the northern and westerly directions. These re-excavations yielded acceptable SVOC analytical results.

Polychlorinated Biphenyls

39 samples were collected for PCB analysis from Area 1A-5. None of the 39 samples exceeded the site cleanup goal.

Refer to Table 5 for the complete analytical data summary of Area 1A-5.

Area 2-6 4kV Substation

Inorganics

During the course of the soil remediation activities, 10 soil samples were collected for metals analysis. There were no metals above site specific cleanup goals in any of these samples.

Semi-Volatile Organic Compounds

10 samples were collected for SVOC analysis from Area 2-6. None of the samples exceeded the site-specific goals.

Polychlorinated Biphenyls

10 samples were collected for PCB analysis from Area 2-6. None of the 10 samples exceeded the site cleanup goal.

Refer to Table 6 for the complete analytical data summary of Area 2-6.

Area 2-7 Construction Debris Piles

Inorganics

During the course of the soil remediation activities, 33 soil samples were collected for metals analysis. Of these 33 samples, several had detected concentrations of arsenic, lead, and vanadium. There were no metals concentrations above site specific cleanup goals in any of these samples.

Semi-Volatile Organic Compounds

22 samples were collected for SVOC analysis from Area 2-7. SVOCs were detected in 16 samples from Area 2-7. However, none of them were above the site-specific cleanup goals.

Polychlorinated Biphenyls

22 samples were collected for PCB analysis from Area 2-7. None of the 22 samples exceeded the site cleanup goal.

Refer to Table 7 for the complete analytical data summary of Area 2-7.

Area 3-8 Compressor Building/Gas Holder

Inorganics

During the course of the soil remediation activities, 12 soil samples were collected for metals analysis. Of these 12 samples, several had detected concentrations of arsenic, lead, and vanadium. No concentrations were detected above the site cleanup goals.

Semi-Volatile Organic Compounds

10 samples were collected for SVOC analysis from Area 3-8. SVOCs were detected in 8 samples from Area 3-8. However, none of them exceeded the site-specific cleanup goals.

Polychlorinated Biphenyls

10 samples were collected for PCB analysis from Area 3-8. None of the samples exceeded the site cleanup goal.

Refer to Table 8 for the complete analytical data summary of Area 3-8.

Drip Pits

Inorganics

During the course of the soil remediation activities, 19 soil samples were collected for metals analysis. Of these 19 samples, several had detected concentrations of arsenic, lead, and vanadium. Two samples from the western Drip Pit, GLDPW-02 and GLDPW-04S, had elevated arsenic concentrations of 20.2 and 82.6 mg/kg, respectively. These soils are remaining on site since they were located at the groundwater/soil interface. No soil was excavated below the groundwater table located at approximately 6' bgs. No other concentrations were detected above the site cleanup goals.

Semi-Volatile Organic Compounds

16 samples were collected for SVOC analysis from the Drip Pit excavations. SVOCs were detected in 8 samples. However, none of them were above the site-specific goals indicated in the table above.

Polychlorinated Biphenyls

Four verification soil samples were collected for PCB analysis from each drip pit excavation within the former holder footprint. A total of 16 soil samples were collected. None of the 16 samples were above the site cleanup goal.

Refer to Table 9 for the complete analytical data summary of Drip Pits.

Manholes and Outfall Pipes

Inorganics

During the course of the soil remediation activities, 7 sediment samples were collected for metals analysis. Of these 7 samples, several had detected concentrations of arsenic, lead, and vanadium. No concentrations were detected above the site cleanup goals.

Semi-Volatile Organic Compounds

7 sediment samples were collected for SVOC analysis from four manholes and three outfall pipes. SVOCs were detected in all 7 samples. Manhole #2 was impacted with SVOC contamination. The following contaminants were detected prior to the stormwater sewer cleaning:

- Benzo(a)anthracene: 68 mg/kg
- Benzo(a)pyrene: 63 mg/kg
- Benzo(b)fluoranthene: 58 mg/kg
- Dibenzo(a,h)anthracene: 18 mg/kg
- Indeno(1,2,3-cd)pyrene: 41 mg/kg

Polychlorinated Biphenyls

7 sediment samples were collected for PCB analysis from four manholes and three samples from three outfall pipe. None of the samples were above the site cleanup goal.

Volatile Organic Compounds

7 samples were collected for VOC analysis from four manholes and three samples from three outfall pipes. The following compounds were detected in Manholes 3 and 4 and Outfall pipes 2 and 3. The highest concentrations are shown below.

- Methylene Chloride: 0.009 mg/kg
- Tetrachloroethene: 0.029 mg/kg
- Trichloroethene: 0.002 mg/kg

All manholes were vacuumed out using a Vac-truck on January 23, 2002 by Miller Environmental Group. No closure samples were collected since all sediment had been removed based on visual inspection.

Refer to Table 10 for the complete analytical data summary for the manholes and storm sewer.

Air Sampling Data

Mercer collected daily dust and silica air samples while on-site remediation activities took place. The dust and silica analytical data is summarized in Table 11. The samples were collected on cartridges and sent to Galson Laboratories in East Syracuse, New York. The results of the dust data indicate that there was only one occurrence in which the dust levels were above the Permissible Exposure Limit (PEL). On December 4, 2001, dust concentrations of 0.32 and 0.25 mg/m³ were above their respective PELs of 0.27 and 0.23 mg/m³. However, the adjusted 8-hour Time-Weighted Averages (TWA) for both results were below the PEL, with results of 0.2 and 0.16 mg/m³, respectively.

Silica results were all below the PELs established for each day.

Two inorganics, arsenic and vanadium, were sampled for during the excavation work at Area 1B from December 4, 2001 through December 12, 2001. None of the samples had detected results. The inorganic analytical air data is summarized in Table 12.

Polychlorinated biphenyls (PCBs) were sampled for on October 23, 2001 and October 24, 2001 while excavation activities occurred at Area 3-1. There were no PCBs detected in these samples. The PCB analytical air data is summarized in Table 12.

Data Validation

All analytical data packages submitted by Severn Trent Laboratories were validated by an Independent third party (EQA, Inc.) in accordance with NYSDEC October 1995 Analytical Services Protocol (ASP) Quality Assurance/Quality Control (QA/QC) requirements. A 100% review of all sample results was performed as a component of this remedial program to confirm proper data transcription, data completeness, and compliance with applicable method and QA/QC requirements.

The remedial program included the collection of surface and subsurface soil samples in accordance with the NYSDEC approved VCA work plan dated September 2001, and as noted in this report.

The data validator reported that the overall quality of the data was good and the results are useable for the purpose of the remedial program.

Full details of the data validation report can be found in Appendix F.

4

Work Plan Modifications

The following Section identifies changes to the Scope of Work as identified in the original VCA work plan, or additional work not previously specified.

Drip Pits

Work within the four Drip Pits located on the north, south, east, and west sides of the former natural gas holding tank foundation began on October 23, 2001. The Drip Pits are shown on Figure 3-1. Each Drip Pit was approximately 33 feet long by 9 feet wide. The Drip Pits were composed of concrete walls that extended approximately 6' into the subsurface and had a concrete bottom. Each Drip Pit was demolished, removed, and then the surrounding contaminated soil was excavated and disposed of off site. Characterization data for the soils adjacent to the drip pits is included in Appendix B. Excavation of the north drip pit was approximately 6-feet deep, the other three excavations were approximately 11-feet deep. Refer to figure 3-1 for excavation details.

During much of the demolition of these Drip Pits, groundwater was encountered. When necessary, groundwater was pumped to the fractionation tank that was located on the southwestern portion of the site. The stored water was then passed thru a bag filter and an activated carbon unit before being discharged to the storm sewer system.

The sidewalls of all of the Drip Pits were demolished and removed. The concrete bottoms of the Drip Pits remained in place and were backfilled.

After each Drip Pit was demolished and excavated, the sidewalls of the excavations were then sampled for PCBs, SVOCs, and inorganics on October 26, 2001. Analytical results are summarized in Table 9. All four Drip Pit demolitions were completed by November 2, 2001. Concrete and steel from these excavations was segregated; the concrete was broken down and disposed of and the steel was recycled.

Asbestos Removal During Execution of the VCA

Although not part of the original VCA, it was necessary to remove asbestos from several subsurface pipes during excavation and demolition work.

Gramercy, a subcontractor to Mercer, performed asbestos abatement on the gas drip lines running along northern, eastern, southern, and western edges of the former holding tank. A total of 273 cubic yards of asbestos was properly abated and disposed off-site at Southern Alleghenies Disposal Service. A sample manifest is included in Appendix A.

The excavator exposed the eastern drip pipe running along the edge of the former holding tank on October 23, 2001. Drip pipes that were wrapped in asbestos required remediation prior to backfilling the pipes in-place or removing them. While exposing the eastern drip pipe, the work area had a gas condensate odor and required the use of level B personal protective equipment.

On October 24, 2001, asbestos piping along the northern side of the former holding tank was removed and backfilled to grade.

Yard Piping

Demolition work which was not part of the VCA included removal of existing structures to provide clearance for new foundations. While performing this subsurface work KeySpan encountered several in-tact pipes which required liquid removal, and disposal. As part of their proactive approach, KeySpan implemented a conservative plan to maintain the integrity of subsurface pipes during excavation, drain, removed and/or decommissioned in-place, and clean. The following text summarizes the work associated with the yard piping. Analytical results for characterization sampling of liquids and solids in the yard piping is attached in Appendix B.

A 45" diameter cast iron gas main was excavated adjacent to the south drip pit on October 31, 2001. This section of pipe was wrapped in polyethylene sheeting and removed. The remaining trench was dewatered and the section of abandoned gas pipe left in place (approximately 6 feet of pipe) was filled with concrete on November 1, 2001.

The 42" diameter west gas main had 0.6 inches of measured product on November 7, 2001. The bottom of the gas main was measured to be 12.5 feet deep. The west gas main was cleaned, sampled, and filled in-place with concrete on November 29, 2001.

Some gas drip pipes were removed, cut, and placed in the lined roll off where they were subsequently cleaned via the MEG regulatory approved washing system. After

the pipes were washed, one end of the pipe was sampled using standard wipe tests. If the results yielded less than 100 mg/cm² PCB, the pipe was deemed clean. If the results yielded greater than 100 mg/cm² PCB, the pipe had to be washed again in the roll off and re-sampled. MEG recycled the metal piping that was excavated and cleaned.

The trenches that were created during the excavation of these gas drip pipes were all backfilled, compacted, and graded. Refer to Appendix A for copies of waste manifests, job reports, and supporting documentation.

Area 1B Additional Investigation

Radiation Screening in Area 1B

Radiation screening was conducted on Tuesday, November 6, 2001. The screening was conducted under clear skies, gusty winds from the north, and a temperature of approximately 50 degrees F.

As specified in the work plan, VHB obtained a Victoreen Model 190D meter with an alpha, beta, and gamma pancake probe. The instrument arrived in the field calibrated, ready for use. All measurements were made in micro Roentgens/hour (uR/h). Screening activities commenced with measurement of background, both ambient and surface soil readings in all three site areas (1, 2, and 3). Refer to table below for background readings.

Background Readings

Location	Reading (uR/h)
Area 1A	2 – 35
Area 1B	<1 – 13
Area 2	4 – 25
Area 3	2 – 20

Background in Area 1B was lower than the other three areas. This is most likely attributable to the tree canopy over the area, whereas background measurements in Areas 1A, 2, and 3 were in full sunlight.

Upon completion of background readings, VHB commenced hand auguring at six discrete locations in Area 1B. Samples for screening were co-located to existing grab groundwater sample locations (GLGP-01 through GLGP-06) identified during previous investigation work at the site. Refer to the Figure 1-2 of the work plan.

Borings were performed to the specified minimum 3-foot depth at three locations (01, 03, and 04). The other locations varied in depth due to auger refusal, but multiple attempts were made at each location.

The results of the screening are indicated in the table below. Soils/materials encountered during the screening were consistent with materials previously encountered and evaluated in this area. None of the soils evaluated exhibited instrument response that indicated levels of radiation above site background. All field measurements were consistent with background concentrations. No samples were collected for laboratory analysis.

Based on the results of the field screening effort, which indicated radioactive materials are not present on-site, VHB recommended no further investigation for radioactive wastes/materials in Area 1B. VHB also recommended completing the remedial action work plan (clean cover/deed restriction) for this area.

Radiation Screening Results

Sample Location	Depth (feet)	Soil Description	Reading (uR/h)
GLGP-01	0 – 1	Black ash	5 – 20
GLGP-01	1 – 2	Very fine black ash	<1 – 6
GLGP-01	2 – 3	Black ash	1.7 – 11
GLGP-05	0 – 1	Red/Brown sand w/some gravel	5 – 16
GLGP-05	1 – 2	Brown sand	2.5 – 16
GLGP-05	2 – 2.5	Brown sand	2.5 – 16
GLGP-06	0 – 1	Gray to black sand, some ash	0.9 – 12
GLGP-06	1 – 1.5	Red/Brown sand w/some gravel	1 – 13
GLGP-03	0 – 1	Brown sand w/some fine gravel	7 – 15.5
GLGP-03	1 – 2	Sand w/trace of white sand	6 – 17
GLGP-03	2 – 3	Sand and white material (ash?)	12 – 36
GLGP-03	3 – 3.5	Red/Brown sand	6 – 19
GLGP-02	0 – 1	Tan/Brown fine/med. sand, loose	<1 – 12
GLGP-04	0 – 1	Black ash	1 – 13
GLGP-04	1 – 2	Black ash	5 – 17
GLGP-04	2 – 3	Black ash w/ some brown peat	2.6 – 18

Magnetometer Survey

The magnetometer survey of Area 1B was conducted on December 5, 2001. The purpose of this survey was to support previous investigation data with respect to subsurface anomalies, and enable construction personnel to retrieve and properly dispose any materials that could not be properly managed in the proposed cover system.

Prior to the survey, VHB laid out a 25-foot by 25-foot grid over the proposed cap area. Refer to Figure 1-2. VHB used a MAC-51B magnetic and cable locator that is capable of locating drums to 15-feet bgs. The magnetometer provides audible signals indicating the presence of conductive or inductive materials. To perform the survey, VHB walked each north/south transect established in the area with the magnetometer. Anomalies or "hits" were flagged and excavated later.

Several anomalies were identified. However, after exposing the materials, no drums or tanks were found. All materials encountered were incorporated under the clean cover. The results of the screening are indicated below.

Magnetometer Survey Results

Location	Findings
J-3	Reinforced Concrete Pipe (RCP), steel cable
H-3	Scrap steel, sheet steel, cans
I-7	Steel Frame, rags
H-8	Steel Door
B-14	Steel pipe on surface
B-12	Sand, no metal, possibly end of pipe from B-14
C-9	Sand, no metal
B-7	Sand, no metal

Storm Sewer and Outfall Sampling

Storm sewer sampling was conducted on November 5, 2001. This sampling was conducted to determine if sediments in the storm sewer contained compounds previously detected and removed from the site. This sampling is in addition to the previously conducted stormwater sewer sampling.

Sediment samples were recovered from six manholes. Sediment samples were collected remotely using a long spade from above grade, precluding confined space entry. Samples were analyzed for VOCs, SVOCs, Inorganics, and PCBs (Methods

8260B, 8270B, 6010B/7471, and 8081 respectively). Locations of manholes and outfalls are identified on Figure 1-2.

VHB collected sediment samples from sediment located immediately below the three site outfalls (outfalls 01, 02, & 03). Sediment samples were collected at low tide. No sediment was detected on the inside of the pipes at each discrete outfalls. The laboratory analytical results are shown on Tables 10A, 10B, and 10C.

The analytical results indicated the presence of SVOCs in MH #2. Traces of inorganics, PCBs, and VOCs were found in the storm sewer system. Field inspection by VHB verified the construction of the manholes as solid bottom concrete structures. MH #2 has a weir in it with an approximate 2-foot sump to collect sediment (Refer to attached copy of as-built in appendix F). The collection sump/weir appeared to have prevented migration of sediment in the system as evidenced by downgradient analytical data that show substantially lower concentrations of SVOCs and PCBs. This data also supports the rationale that the source of VOCs in shallow groundwater in Area 1A is located in Area 1A, as previously indicated.

Three sediment samples were collected from the Hempstead Harbor outfalls and analyzed for volatile organic compounds (VOCs). A total of five VOCs were detected in these samples: acetone, 2-butanone, methylene chloride, tetrachloroethene, and trichloroethene. Acetone, 2-butanone, and methylene chloride are common laboratory contaminants. All detected concentrations reported for these three VOCs are flagged "B" indicating that these VOCs also were detected in the associated laboratory blank and, therefore, are not site-related. Tetrachloroethene and trichloroethene were detected in OF #2 at concentrations of 7 and 2 ppb, respectively. Tetrachloroethene also was detected in OF #3 at 29 ppb. In the absence of risk-based concentrations for sediment, these VOC concentrations were compared to NYSDEC's recommended soil cleanup objectives (NYSDEC TAGM #4046). This comparison indicates that concentrations in the outfall sediment are much lower, by approximately 50 (for tetrachloroethene) and 350 times (for trichloroethene) than the referenced TAGM. Further, it is unlikely that direct human contact with these sediments occurs as recreational activity (*i.e.*, swimming, wading, fishing) has not been observed in the vicinity of these outfalls. Consequently, the potential for health impacts associated with these sediments is highly unlikely.

NYSDEC does not have ecological sediment screening values for tetrachloroethene and trichloroethene. Concentrations of these VOCs were compared to the EPA OSWER toxicological benchmarks for sediment presented in the Oak Ridge National Laboratory guidance (Jones et al, 1997). These values were derived using equilibrium partitioning methodology and use the lower limit of the 95% confidence interval. The screening value for tetrachloroethene and trichloroethene are 530 and 1600 ppb, respectively. This comparison indicates that concentrations in the outfall sediments are much lower than the applicable ecological benchmark values. Consequently, the potential for ecological impacts associated with these sediments is highly unlikely. Based on the results of the sampling effort, VHB recommended

cleaning of all Manhole sumps on-site. The rationale for this recommendation was based on the fact that the new construction at the site will be using this drainage system.

On January 23, 2002, MEG was mobilized to the site to perform the manhole cleaning. MEG used a vacuum truck to remove sediments from Manholes 1 through 6. The recovered sediment was transferred to a settling tank where liquids were removed and returned to the storm sewer. Recovered solids were properly disposed via KeySpans's Hicksville TSDF. A total of 8 cubic yards of materials was removed and disposed off-site. The clean manholes were visually inspected by VHB to verify performance objectives.

Industrial Use

At publication of the VCA work plan the proposed reuse scenario for the site had not been determined, and as such, KeySpan proposed conservative, site specific standards assuming a residential reuse scenario for the entire site.

Subsequent to the approval of the work plan, it was decided that Areas 2 & 3 (all areas east of Shore Road) would be redeveloped as a power generation station. This site reuse classifies as an industrial reuse scenario. During implementation of the proposed remedial action, remedial efforts were focused on achieving the site specific residential standards as identified in the approved VCA work plan. Residential standards were successfully met for all sample locations above the water table except one surface soil location, sample GLA 2-3S, located on the north side of Area 2-2.

This area was not excavated due to construction logistics, steep slope of the work area, and overhead power line interference. While it is acknowledged that this one location exceeds residential site specified cleanup goals, the area does meet the industrial cleanup goals which are applicable considering the area will be used for industrial purposes. Accordingly, it has been concluded that in this area, no further action is required considering the current industrial use.

5

Groundwater

Area 1A

Area-1A – Groundwater

The NYSDEC-approved Work Plan for Area 1A Groundwater is provided in a separate document (*Groundwater Remediation Work Plan, VCA # R1-0001-01-01, Glenwood Landing Gas Plant Site*, dated January 2003).

6

Conclusions and Recommendations

Closure Report

In accordance with VCA #R1-0001-01-01, KeySpan completed a surface and shallow subsurface (to the water table) soil removal program at the site. The goal of the program was to remove elevated concentrations of SVOCs, inorganics, and PCBs which were present above site specific clean-up goals in site soils. In most areas on-site, KeySpan has achieved the site specific residential cleanup criteria. In all areas on-site, KeySpan has achieved industrial standards prescribed for the site based on current and proposed future use scenarios.

We recommend the issuance of a letter of "No Further Action" for site surface and shallow soils upon, receipt, review, and approval of this report submitted to NYSDEC/NYSDOH at the conclusion of soil remedial activities. A final "site wide" report will be submitted upon conclusion of the groundwater program. The report will address site groundwater and include the information in this report by reference. The report will be consistent with the requirements of the VCA and incorporate the necessary information for NYSDEC to issue a notice of "No Further Action" for the site.

Certification

The following certification is required as prescribed in Voluntary Cleanup Agreement Index Number R1-0001-01-01.

I, MATTHEW WAWRODINSKI, responsible for the day-to-day performance of the surface and shallow subsurface soil remediation program for the Glenwood Landing Gas Plant site certify that the work was performed in substantial compliance with the approved VCA Work Plan and attached addenda, dated September 2001.

A circular professional seal for the State of New York, License No. 74836, for Matthew J. Wawrodzki, a Licensed Professional Engineer. The seal is partially obscured by a large, stylized handwritten signature in black ink.

Tables

Table 1
Summary of Analytical Results From Area 3-1
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date																
	GLA1-1A 11/02/01	GLA1-1B 11/02/01	GLA1-2 11/02/01	GLA1-3 11/02/01	GLA1-3S 11/02/01	GLA1-3SSA 1/23/02	GLA1-4 11/02/01	GLA1-4B 11/20/01	GLA1-4C 11/20/01	GLA1-4S 11/02/01	GLA1-5 11/02/01	GLA1-5S 11/02/01	GLA1-6 11/02/01	GLA1-6S 11/02/01	GLA1-6SA 12/12/01	GLA1-6SB 12/12/01	GLA1-6SB 12/12/01
SVOC 8170 (ug/kg)																	
2-Methylnaphthalene	390 U	390 U	22000 J	340 U	36 J	330 U	28 J	360 U	380 U	14 J	88 J	360 U	340 U	330 U	32 Ua	390 Ua	380 U
4-Chloroaniline	390 U	390 U	37000 U	340 U	340 U	330 U	360 U	360 U	4 J	350 U	360 U	360 U	340 U	330 U	28 U	390 U	380 U
4-Methylphenol	390 U	390 U	37000 U	340 U	340 U	330 U	360 U	360 U	380 U	10 J	360 U	360 U	340 U	330 U	20 U	390 Ua	380 U
Acenaphthene	390 U	390 U	2000 J	340 U	18 J	330 U	360 U	360 U	380 U	9 J	8 J	360 U	340 U	330 U	17 U	390 Ua	18 J
Acenaphthylene	390 U	390 U	10000 J	340 U	1400	330 U	60 J	360 U	380 U	58 J	44 J	360 U	340 U	330 U	12 U	61 Ja	55 J
Anthracene	390 U	390 U	3700 J	340 U	400	330 U	360 U	360 U	380 U	51 J	23 J	4 J	340 U	330 U	19 Ja	49 Ja	84 J
Benzo(a)anthracene	390 U	390 U	1500 J	340 U	220 J	330 U	360 U	360 U	380 U	150 J	30 J	11 J	340 U	330 U	51 Ja	160 Ja	310 J
Benzo(a)pyrene	390 U	390 U	1200 J	340 U	300 J	330 U	360 U	360 U	380 U	150 J	31 J	10 J	340 U	330 U	51 Ja	180 Ja	290 J
Benzo(b)fluoranthene	390 U	390 U	680 J	340 U	300 J	330 U	360 U	360 U	380 U	120 J	18 J	10 J	340 U	330 U	43 Ua	150 Ja	240 J
Benzo(g,h,i)perylene	390 U	390 U	37000 U	340 U	140 J	330 U	89 J	360 U	380 U	78 J	29 J	360 U	340 U	330 U	42 Ja	190 Ja	230 J
Benzo(k)fluoranthene	390 U	390 U	890 J	340 U	320 J	330 U	360 U	360 U	380 U	140 J	19 J	10 J	340 U	330 U	49 Ja	170 Ja	290 J
Benzoic acid	1900 U	1900 U	180000 U	1600 U	190 J	1600 U	1800 U	1700 U	1800 U	130 J	1800 U	1700 U	1600 U	1600 U	750 U	1900 U	1800 U
bis(2-Ethylhexyl)phthalate	390 U	390 U	37000 U	340 U	38 J	330 U	360 U	320 J	240 J	49 J	360 U	360 U	340 U	330 U	41 UB	390 U	380 U
Butylbenzylphthalate	390 U	390 U	37000 U	340 U	14 J	330 U	360 U	470	400	16 J	360 U	360 U	340 U	330 U	15 U	390 U	380 U
Carbazole	390 U	390 U	37000 U	340 U	16 J	330 U	360 U	360 U	380 U	17 J	2 J	360 U	340 U	330 U	25 U	390 Ua	380 U
Chrysene	390 U	390 U	1600 J	340 U	260 J	330 U	360 U	360 U	380 U	180 J	31 J	11 J	340 U	330 U	72 Ja	210 Ja	380 J
Dibenzo(a,h)anthracene	390 U	390 U	37000 U	340 U	20 J	330 U	360 U	360 U	380 U	29 J	360 U	360 U	340 U	330 U	20 Ua	53 Ja	85 J
Dibenzofuran	390 U	390 U	37000 U	340 U	12 J	330 U	360 U	360 U	380 U	6 J	360 U	360 U	340 U	330 U	17 U	390 Ua	380 U
Di-n-butylphthalate	390 U	390 U	37000 U	340 U	12 J	330 U	360 U	360 U	380 U	45 J	360 U	360 U	340 U	330 U	16 U	390 U	380 U
Di-n-octylphthalate	390 U	390 U	37000 U	340 U	340 U	330 U	360 U	360 U	11 J	350 U	360 U	360 U	340 U	330 U	14 U	390 U	380 U
Fluoranthene	390 U	390 U	3600 J	340 U	280 J	330 U	360 U	360 U	380 U	250 J	35 J	21 J	340 U	330 U	95 Ja	250 Ja	520
Fluorene	390 U	390 U	5700 J	340 U	340 U	330 U	360 U	360 U	380 U	15 J	20 J	360 U	340 U	330 U	23 U	380 U	380 U
Indeno(1,2,3-cd)pyrene	390 U	390 U	37000 U	340 U	100 J	330 U	360 U	360 U	380 U	89 J	15 J	5 J	340 U	330 U	37 Ja	150 Ja	210 J
Naphthalene	390 U	390 U	43000	340 U	34 J	330 U	360 U	360 U	18 J	16 J	360 U	360 U	340 U	330 U	36 U	390 Ua	380 U
Phenanthrene	390 U	390 U	15000 J	340 U	230 J	330 U	360 U	360 U	25 J	220 J	89 J	17 J	340 U	330 U	81 Ja	110 Ja	290 J
Phenol	390 U	390 U	37000 U	340 U	340 U	330 U	360 U	11 J	5 J	350 U	360 U	360 U	340 U	330 U	27 U	390 Ua	380 U
Pyrene	390 U	390 U	5800 J	340 U	330 J	330 U	360 U	360 U	380 U	320 J	60 J	21 J	340 U	330 U	120 Ja	320 Ja	680
CLP Metals (mg/kg)																	
Aluminum	1450 *	578 *	3000 *	1620 *	9340 *	1520	970 *	1060	1120	5360 *	2040 *	1270 *	930 *	1240 *	11000	7490	
Antimony	1.1 UN	1.1 UN	0.91 UN	0.86 UN	0.97 UN	1.1 U	0.96 UN	0.96 UN	0.83 UN	0.95 UN	1.0 UN	0.95 UN	0.98 UN	0.84 UN	0.24 B	0.37 B	
Arsenic	1.1 U	1.0 U	2.2	1.2 B	11.6	1.5	1.0 B	1.1 B	1.2 B	4.9	6.6	1.1 B	0.92 U	1.0 B	9.0	9.6	
Barium	4.1 B	1.5 B	18.4 B	6.6 B	34.7 B	8.3	3.0 B	3.4 B	3.8 B	36.8 B	8.0 B	4.0 B	3.9 B	5.5 B	34.3	34.1	
Beryllium	0.17 B	0.11 U	0.26 B	0.17 B	0.41 B	0.45 U	0.10 U	0.10 U	0.090 U	0.42 B	0.13 B	0.10 B	0.16 B	0.18 B	0.34 B	0.29 B	
Cadmium	0.19 U	0.18 U	0.15 U	0.15 U	0.19 B	0.91 U	0.16 U	0.17 U	0.14 U	0.17 B	0.18 U	0.16 U	0.17 U	0.14 U	0.0013 U	0.14 B	
Calcium	141. B	64.3 B	1620	168. B	1210	131	573. B	109. B	121. B	2880	5450	134. B	67.1 B	96.3 B	701	1800	
Chromium	2.6	1.4 B	12.6	4.4	24.8	3.7	3.0	1.9 B	1.9	59.0	25.8	2.4	2.9	4.1	29.1	14.7	
Cobalt	0.43 B	0.29 U	2.2 B	0.78 B	3.0 B	1.1	0.26 U	0.27 U	0.27 B	3.0 B	0.85 B	0.26 U	0.68 B	0.97 B	3.6	3.7	
Copper	2.3 B	1.2 B	6.8	3.8 B	17.4	2.9	1.6 B	2.3 B	2.2 B	18.1	4.7 B	2.1 B	1.7 B	2.0 B	15.6	15.8	
Iron	1090	704	5200	2940	12900	4280	809	912	750	11800	3270	1300	2310	3060	14500	11800	
Lead	3.7 N	1.2 N	13.6 N	6.0 N	103. N	2.6	2.6 N	2.2	2.0	206. N	14.6 N	2.4 N	0.95 N	1.8 N	68.8	52.2	
Magnesium	40.4 B	13.8 B	463. B	185. B	1390	284	303. B	27.2 B	24.8 B	1610	462. B	35.3 B	124. B	188. B	1280	1430	
Manganese	8.3	3.3 B	113.	51.8	177.	95.6	4.9	2.4 B	1.7 B	186.	31.0	6.6	28.8	54.4	175	209	
Mercury	0.0032 U	0.0029 U	0.016	0.0037 B	0.36	0.13 U	0.0032 U	0.077	0.26	0.13	0.0054	0.0027 U	0.0028 U	0.0037 U	0.25 B	0.39 B	
Nickel	0.52 B	0.32 U	4.0 B	1.8 B	10.6	2.1	0.65 B	0.36 B	0.39 B	11.5	1.8 B	0.51 B	1.2 B	1.9 B	11.6	12.0	
Potassium	156. B	65.8 B	330 B	144. B	479. B	178	88.9 B	82.0 B	78.2 B	416. B	193. B	191. B	90.5 B	138. B	541 ^	650 ^	
Selenium	1.2 U	1.1 U	0.92 U	0.88 U	0.99 U	1.5 U	0.98 U	1.0 U	0.88 U	0.97 U	1.1 U	0.97 U	1.0 U	0.86 U	0.24 B	0.37 B	
Silver	0.24 U	0.23 U	0.19 U	0.18 U	0.21 U	0.27 U	0.20 U	0.21 U	0.18 U	0.20 U	0.22 U	0.20 U	0.21 U	0.18 U	0.061 B	0.19 B	
Sodium	11.8 B	9.5 B	29.6 B	9.8 B	29.0 B	34.5	5.9 B	13.7 B	13.4 B	28.3 B	23.8 B	13.4 B	7.0 B	8.0 B	31.3 B	34.0 B	
Thallium	2.4 U	2.3 U	1.9 U	1.8 U	2.1 U	2.7 U	2.0 U	3.9 U	3.3 U	2.0 U	2.2 U	2.0 U	2.1 U	1.8 U	0.0091 U	0.0095 U	
Vanadium	8.5 B	3.9 B	10.7	6.7 B	38.0	5.0	6.4 B	5.0 B	4.2 B	29.8	7.8 B	5.3 B	3.1 B	3.6 B	40.5	34.2	
Zinc	6.6 BE	2.9 BE	40.4 E	8.5 E	143. E	5.7	5.6 BE	3.1 B	3.1 B	140. E	17.6 E	3.7 BE	3.8 BE	6.2 E	51.5	95.3	
PCB 8082 (ug/kg)																	
Aroclor-1242	40. U	40. U	35000	34. U	35. U	17. U	740 U	36. U	38. U	35. U	480	36. U	34. U	33. U	19 U	20 U	
Aroclor-1248	22. J	2.9 J	7300 U	24. J	59.	17. U	3700	36. U	38. U	86.	190 U	21. J	3.9 J	18. J	19 U	20 U	
Aroclor-1254	40. U	40. U	7300 U	34. U	90.	17. U	740 U	7.0 J	38. U	150	190 U	36. U	34. U	33. U	19 U	20 U	
Aroclor-1260	40. U	40. U	2100 J	34. U	180	17. U	480 J	6.4 J	2.6 J	120	59. J	36. U	34. U	33. U	46	36	

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).
Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).
U - Indicates analyte was not detected at or above the reporting limit.
J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.
B - Indicates result between instrument detection limit (IDL) and contract required detection limit (CRDL).
E - Indicates that the concentration is estimated due to matrix interferences.
N - Spiked sample recovery not within control limits.
^ - Concentration exceeds the instrument calibration range or is below the reporting limit.
^ - Instrument quality control not within control limits.
* - Batch quality control not within control limits.
NS - Not Sampled

Table 2
Summary of Analytical Results From Area 2-2
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date																											
	GLA2-1 11/27/01	GLA2-1A 12/12/01	GLA2-2 11/27/01	GLA2-2A 12/12/01	GLA2-3 11/15/01	GLA2-3S 11/15/01	GLA2-4 11/27/01	GLA2-4S 11/27/01	GLA2-5 11/15/01	GLA2-5S 11/15/01	GLA2-6 11/15/01	GLA2-6A 12/12/01	GLA2-6B 12/12/01	GLA2-6S 11/15/01	GLA2-7 11/15/01	GLA2-8 11/27/01	GLA2-9 11/27/01	GLA2-10 11/27/01	GLA2-10A 12/12/01	GLA2-10AD 12/12/01	GLA2-10B 12/12/01	GLA2-11 11/27/01	GLA2-11A 12/12/01	GLA2-11S 11/27/01	GLA2-11SA 12/12/01	GLA2-TPDK 12/13/01	GLA2-TPLT 12/13/01	
SVOC 8270 (ug/kg)																												
2-Methylnaphthalene	1300 U	40 U	160 J	42 U	330 U	42 J	320 U	350 U	330 U	16 J	330 U	34 U	33 U	21 J	320 U	330 U	330 U	13 J	33 U	33 U	33 U	330 U	33 U	370 U	37 U	33 U	33 U	
4-Chloroaniline	1300 U	210 Ja	380 U	36 U	330 U	9 J	320 U	350 U	330 U	10 J	330 U	29 U	29 U	23 J	320 U	330 U	330 U	840	29 U	29 U	28 U	330 U	29 Ua	7 J	37 Ja	29 U	28 U	
4-Methylphenol	1300 U	23 U	380 U	23 U	330 U	320 U	320 U	350 U	330 U	340 U	330 U	19 U	19 U	340 U	320 U	330 U	330 U	330 U	19 U	19 U	18 U	330 U	19 U	17 J	21 U	19 U	18 U	
Acenaphthene	300 J	60 Ja	74 J	20 U	330 U	320 U	320 U	350 U	330 U	6 J	330 U	16 U	16 U	340 U	320 U	330 U	330 U	14 J	16 U	16 U	15 U	330 U	16 U	370 U	18 U	11 U	15 U	
Acenaphthylene	280 J	640	560	14 U	11 J	75 J	320 U	350 U	330 U	110 J	330 U	12 U	11 U	63 J	320 U	330 U	24 J	1300	11 U	11 U	11 U	330 U	11 U	19 J	13 U	12 U	11 U	
Anthracene	670 J	740	290 J	16 U	330 U	30 J	320 U	350 U	330 U	46 J	330 U	13 U	12 U	27 J	320 U	330 U	330 U	320 J	12 U	12 U	12 U	330 U	13 U	24 J	14 Ja	15 U	12 U	
Benzo(a)anthracene	390 J	830 Q	410	20 U	330 U	42 J	320 U	350 U	330 U	72 J	330 U	16 U	16 U	42 J	320 U	330 U	330 U	170 J	16 U	16 U	15 U	330 U	19 Ja	110 J	51 Ja	16 U	15 U	
Benzo(a)pyrene	310 J	560 H	280 J	21 U	330 U	43 J	320 U	350 U	330 U	67 J	330 U	17 U	17 U	42 J	320 U	330 U	330 U	290 J	17 U	17 U	16 U	330 U	18 Ja	100 J	67 Ja	39 U	16 U	
Benzo(b)fluoranthene	250 J	700	200 J	49 U	330 U	37 J	320 U	350 U	330 U	65 J	330 U	40 U	39 U	40 J	320 U	330 U	330 U	100 J	39 U	39 U	39 U	330 U	40 Ua	87 J	55 Ja	17 U	38 U	
Benzo(g,h,i)perylene	1300 U	130 Ja	170 J	22 U	330 U	68 J	320 U	350 U	330 U	130 J	330 U	18 U	18 U	37 J	320 U	330 U	64 J	560	44 Ja	62 Ja	17 U	330 U	18 Ua	16 J	62 Ja	40 U	17 U	
Benzo(k)fluoranthene	360 J	430 Q	290 J	51 U	330 U	41 J	320 U	350 U	330 U	77 J	330 U	41 U	40 U	36 J	320 U	330 U	330 U	270 J	40 U	40 U	40 U	330 U	41 Ua	110 J	69 Ja	40 U	39 U	
Benzoic acid	6100 U	830 U	120 J	860 U	1600 U	32 J	1600 U	66 J	1600 U	1700 U	32 J	1600 U	700 U	680 U	110 J	1500 U	1600 U	1600 U	200 J	690 U	690 U	670 U	1600 U	690 U	280 J	770 U	680 U	670 U
bis(2-Ethylhexyl)phthalate	1300 U	200 JaB	20 J	250 JaB	330 U	320 U	320 U	350 U	330 U	26 J	330 U	200 JaB	37 Ua	340 U	320 U	330 U	330 U	330 U	230 JaB	260 JaB	390 B	330 U	220 JaB	66 J	240 JaB	37 U	34 U	
Butylbenzylphthalate	1300 U	16 U	380 U	17 U	330 U	320 U	320 U	350 U	330 U	340 U	330 U	14 U	13 U	8 J	320 U	330 U	330 U	330 U	13 U	13 U	13 U	330 U	14 U	370 U	15 U	13 U	13 U	
Carbazole	1300 U	28 U	380 U	29 U	330 U	320 U	320 U	350 U	330 U	4 J	330 U	23 U	23 U	6 J	320 U	330 U	330 U	330 U	23 U	23 U	22 U	330 U	23 U	19 J	26 U	23 U	22 U	
Chrysene	430 J	1000	470	22 U	330 U	58 J	320 U	14 J	330 U	100 J	330 U	18 U	18 U	56 J	320 U	330 U	330 U	120 J	18 U	18 U	17 U	330 U	24 Ja	130 J	81 Ja	17 U	17 U	
Dibenz(a,h)anthracene	1300 U	23 U	36 J	23 U	330 U	18 J	320 U	350 U	330 U	28 J	330 U	19 U	19 U	340 U	320 U	330 U	330 U	160 J	19 U	19 U	18 U	330 U	19 U	370 U	21 Ua	19 U	18 U	
Dibenzofuran	1300 U	19 U	380 U	20 U	330 U	320 U	320 U	350 U	330 U	340 U	330 U	16 U	16 U	6 J	320 U	330 U	330 U	330 U	16 U	16 U	15 U	330 U	16 U	370 U	18 U	19 U	18 U	
Di-n-butylphthalate	1300 U	18 U	380 U	18 U	330 U	330 U	320 U	350 U	330 U	340 U	330 U	15 U	14 U	340 U	320 U	330 U	330 U	330 U	15 U	15 U	14 U	330 U	15 U	13 J	16 U	14 U	14 U	
Fluoranthene	820 J	1600 H	780	29 U	330 U	55 J	320 U	350 U	330 U	120 J	330 U	23 U	23 U	68 J	320 U	330 U	330 U	130 J	23 U	23 U	22 U	330 U	28 Ja	140 J	79 Ja	23 U	22 U	
Fluorene	1800	340 Ja	120 J	26 U	330 U	320 U	320 U	350 U	330 U	17 J	330 U	21 U	21 U	340 U	320 U	330 U	330 U	330 U	21 U	21 U	20 U	330 U	21 U	370 U	23 U	21 U	20 U	
Indeno(1,2,3-cd)pyrene	1300 U	89 Ja	160 J	23 U	330 U	56 J	320 U	350 U	330 U	92 J	330 U	19 U	19 U	40 J	320 U	330 U	330 U	330 U	19 U	25 Ja	43 Ja	18 U	330 U	19 Ua	24 J	50 Ja	19 U	18 U
Naphthalene	1300 U	210 Ja	380 U	42 U	330 U	320 U	320 U	350 U	330 U	14 J	330 U	34 U	33 U	14 J	320 U	330 U	330 U	11 J	33 U	33 U	33 U	330 U	33 U	370 U	37 U	33 U	32 U	
Phenanthrene	4000	3200	370 J	31 U	330 U	54 J	320 U	350 U	330 U	180 J	330 U	25 U	25 U	61 J	320 U	330 U	14 J	29 J	25 U	25 U	24 U	330 U	25 U	63 J	50 Ja	25 U	24 U	
Pyrene	1600	3200	1800	25 U	9 J	130 J	320 U	18 J	330 U	270 J	330 U	20 U	20 U	110 J	320 U	330 U	330 U	410	20 U	20 U	19 U	330 U	37 Ja	210 J	120 Ja	20 U	19 U	
CLP Metals (mg/kg)																												
Aluminum	495	557	690	3350	3450	2650	1210	1540	2440	1190	1170	2310	1610	4190	1260	923	1090	824	781	602	904	2320	3630	6540	7420	1920 H^	1460 H^	
Antimony	0.98 U	0.68 B	0.77 U	0.44 B	0.99 UN	0.81 UN	0.71 U	0.87 U	0.80 UN	0.82 UN	0.73 UN	0.17 B	0.12 B	1.2 BN	0.84 UN	0.87 U	0.88 U	0.86 U	0.36 B	0.14 B	0.29 B	0.86 U	0.4 B	0.88 U	0.39 B	0.90 UH^	1.1 UH^	
Arsenic	0.94 U	1.1 B	0.73 U	1.6 B	1.8 B	2.9	0.94 B	0.83 U	0.81 B	2.6	0.70 U	1.1 B	0.83 B	3.2	0.80 U	0.84 U	1.3 B	1.2 B	0.71 B	0.43 B	0.85 B	0.82 U	4.4 B	5.2	10.4	0.81 BH^	1.2 BH^	
Barium	4.7 B	4.0	9.9 B	10.2	14.4 B	20.7 B	9.2 B	7.9 B	16.6 B	17.1 B	9.9 B	12.4	10.4	16.8 B	8.8 B	7.6 B	3.6 B	5.7 B	6.1	5.4	6.6	13.6 B	19.0	36.8 B	32.6	11.6 H^	11.3 H^	
Beryllium	0.11 U	0.007 U	0.16 B	0.086 B	0.47 B	0.75 B	0.098 B	0.17 B	0.24 B	0.46 B	0.16 B	0.17 B	0.096 B	0.58 B	0.17 B	0.096 B	0.36 B	0.28 B	0.042 B	0.036 B	0.042 B	0.18 B	0.28 B	0.41 B	0.28 B	0.18 U^	0.21 U^	
Cadmium	0.17 U	0.29 U	0.13 U	0.25 U	0.15 U	0.14 U	0.12 U	0.15 U	0.14 U	0.14 U	0.13 U	0.22 U	0.25 U	0.14 U	0.15 U	0.15 U	0.15 U	0.15 U	0.26 U	0.27 U	0.2 U	0.15 U	0.24 U	0.15 U	0.24 U	0.21 U	0.25 U	
Calcium	138 B	55.7 B	210 B	122	558 B	604 B	185 B	184 B	367 B	302 B	197 B	243	321	197 B	160 B	96.9 B	234 B	191 B	80.0	70.7 B	254	282 B	422	1340	2260	202 H^	160 H^	
Chromium	4.0	3.2	3.7	8.2	8.0	23.7	2.5	4.5	5.8	12.4	2.6	7.2	3.7	20.4	3.2	2.3	7.2	4.0	15.0	5.5	6.7	5.7	10.6	41.				

Table 3
Summary of Analytical Results From Area 2-3
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date												
	GLA3-1 12/17/01	GLA3-1A 12/21/01	GLA3-1AD 12/21/01	GLA3-2 12/14/01	GLA3-3 12/14/01	GLA3-4 12/14/01	GLA3-4A 12/21/01	GLA3-5 12/14/01	GLA3-6 12/14/01	GLA3-7 12/14/01	GLA3-8 12/14/01	GLA3-8A 12/21/01	GLA3-9 12/14/01
SVOC 8270 (ug/kg)													
2,4-Dinitrophenol	260 U	59 U	59 U	52 U	52 U	54 U*	52 U	53 U*	52 U*	52 U*	53 U*	61 U	53 U*
4,6-Dinitro-2-methylphenol	250 U	33 U	33 U	29 U	28 U	29 U*	29 U	29 U*	29 U*	29 U*	29 U*	33 U	29 U*
2-Methylnaphthalene	170 U	33 U	33 U	29 U	28 U	29 U	29 U	29 U	29 U	29 U	29 U	33 U	29 U
Acenaphthene	110 U	17 U	17 U	15 U	15 U	16 U	15 U	16 U	15 U	15 U	15 U	18 U	15 U
Acenaphthylene	100 U	18 Ja	13 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U	13 U	11 U
Anthracene	120 U	14 Ja	14 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U	12 U	14 U	12 U
Benzo(a)anthracene	110 U	33 Ja	17 U	15 U	15 U	16 U	15 U	16 U	15 U	15 U	15 U	18 U	15 U
Benzo(a)pyrene	110 U	19 U	19 U	16 U	16 U	17 U	16 U	17 U	16 U	16 U	17 U	19 U	17 U
Benzo(b)fluoranthene	150 U	44 U	44 U	39 U	38 U	40 U	39 U	39 U	39 U	39 U	39 U	45 U	39 U
Benzo(ghi)perylene	160 U	20 U	20 U	17 U	17 U	18 U	17 U	18 U	17 U	17 U	18 U	20 U	18 U
Benzo(k)fluoranthene	130 U	44 U	45 U	40 U	39 U	41 U	40 U	40 U	40 U	40 U	40 U	47 U	40 U
Benzoic acid	130 U	770 U	770 U	680 U	670 U	700 Ua	680 U	690 U	680 U	680 U	680 U	790 U	680 U
bis-2-ethylhexyl-phthalate	170 UB	42 U	42 U	37 U	36 U	38 U	37 U	37 U	37 U	37 U	37 U	43 U	37 U
Chrysene	130 U	41 Ja	20 U	17 U	17 U	18 U	17 U	18 U	17 U	17 U	18 U	20 U	18 U
Dibenz(a,h)anthracene	150 U	21 U	21 U	18 U	18 U	19 U	18 U	19 U	19 U	18 U	19 U	21 U	19 U
Dibenzofuran	130 U	17 U	17 U	15 U	15 U	16 U	15 U	16 U	15 U	15 U	15 U	18 U	15 U
Fluoranthene	140 U	72 Ja	26 U	22 U	22 U	23 U	23 U	23 U	23 U	22 U	23 U	26 U	23 U
Fluorene	89 U	23 U	23 U	20 U	20 U	21 U	20 U	21 U	21 U	20 U	21 U	24 U	21 U
Indeno(1,2,3-cd)pyrene	160 U	21 U	21 U	18 U	18 U	19 Ua	18 U	19 U	19 U	18 U	19 U	21 U	19 U
Phenanthrene	120 U	32 Ja	28 U	25 U	24 U	25 U	25 U	25 U	25 U	25 U	25 U	29 U	25 U
Pyrene	310 U	98 Ja	36 Ja	19 U	19 U	20 U	19 U	20 U	20 U	19 U	20 U	23 U	20 U
CLP Metals (mg/kg)													
Aluminum	839 H	705	1260	722 H^	721 H^	1430 H^	821	1050 H^	896 H^	787 H^	566 H^	1230	867 H^
Antimony	0.93 UH	0.0041 U	0.039	0.83 UH^	1.2 UH^	0.98 UH^	0.21	0.82 UH^	1.0 UH^	1.1 UH^	1.1 UH^	0.032	0.86 UH^
Arsenic	0.64 UH	0.35	0.38	0.57 UH^	0.81 UH^	1.3 H^	0.71	0.57 UH^	0.70 UH^	1.7 H^	0.77 UH^	0.32	0.76 H^
Barium	6.9 H	11.5	53.0	5.6 H^	6.1 H^	10.6 H^	7.5	7.9 H^	4.8 H^	8.5 H^	3.6 H^	34.1	4.7 H^
Beryllium	0.18 UH	0.033	0.10	0.16 U^	0.23 U^	0.19 U^	0.12	0.16 U^	0.20 U^	0.21 U^	0.22 U^	0.15	0.17 U^
Cadmium	0.22 UH	0.069	0.35	0.20 UH	0.28 UH	0.23 UH	0.0089	0.20 UH	0.24 UH	0.26 UH	0.27 UH	0.10	0.21 UH
Calcium	220 H	78.6	174	105 H^	193 H^	170 H^	79.8	259 H^	79.5 H^	57.1 H^	43.1 H^	151	96.4 H^
Chromium	2.7	4.1	6.4	1.4 BH^	3.1 H^	3.4 H^	2.8	3.0 H^	2.7 H^	6.6 H^	2.1 H^	4.8	2.8 H^
Cobalt	0.56 H	0.65	2.4	0.84 BH^	0.85 BH^	1.4 H^	1.3	1.4 H^	0.94 H^	0.94 H^	0.26 H^	0.59	0.96 H^
Copper	10.8	45.5	132	1.6 BH^	1.5 BH^	2.8 H^	2.3	1.8 H^	4.9 H^	3.9 H^	26.1 H^	10.3	3.6 H^
Iron	3520 H	1300	1930	2600 H^	2790 H^	4630 H^	4950	3570 H^	3030 H^	4390 H^	1740 H^	1360	4100 H^
Lead	4.8 H	3.1	3.5	0.88 BH^	0.96 BH^	4.1 H^	3.8	1.2 H^	1.1 H^	1.0 H^	3.4 H^	2.1	0.86 H^
Magnesium	219 H	170	335	188 H	246 H	354 H	168	361 H	248 H	142 H	121 H	232	230 H
Manganese	51.0 H	16.8	133	92.5 H^	100 H^	135 H^	127	109 H^	95.2 H^	98.2 H^	12.7 H^	7.5	84.1 H^
Mercury	2.8 B^	0.90 B	1.2 B	0.012 B	0.0045 U	0.077 B	0.0068 B	0.0050 U	0.38 B	0.0040 U	3.0 B	0.77 B	0.35 B
Nickel	3.7 H	9.9	49.5	1.3 B	1.3 B	2.7	1.8	2.0	1.7	1.7	0.53	9.3	1.8
Potassium	111 H^	107	239	128 BH^	134 BH^	192 H^	119	243 H^	138 H^	104 H^	87.3 H^	147	188 H^
Selenium	1.3 UH	0.0045 U	0.20	1.1 UH^	1.6 UH^	1.3 UH^	0.079	1.1 UH^	1.4 UH^	1.5 UH^	1.5 UH^	0.078	1.2 UH^
Silver	0.20 UH^	0.074	0.047	0.18 UH^	0.26 UH^	0.21 UH^	0.030	0.18 UH^	0.22 UH^	0.24 UH^	0.24 UH^	0.0010 U	0.19 UH^
Sodium	12.3 H	92.4	113	16.6 BH^	13.7 BH^	27.0 H^	131	29.8 H^	40.9 H^	16.8 H^	14.4 H^	125	710 H^
Thallium	1.7 UH	0.25	0.18	1.6 UH^	2.2 UH^	1.8 UH^	0.31	1.5 UH^	1.9 UH^	2.0 UH^	2.1 UH^	0.0082 U	1.6 UH^
Vanadium	33.3 H	39.5	149	2.4 BH	2.7 BH	6.3 H	3.5	4.3 H	3.2 H	3.0 H	3.4 H	101	5.1 H
Zinc	9 H	10.9	38.0	4.1 BH^	4.2 BH^	8.4 H^	5.9	7.4 H^	6.8 H^	6.0 H^	9.4 H^	25.8	13.0 H^
PCB 8082 (ug/kg)													
Aroclor-1242	19 U	38 P	19 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	17 U	20 U	17 U
Aroclor-1248	19 U	19 U	19 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	17 U	20 U	17 U
Aroclor-1254	42 P	19 U	19 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	17 U	20 U	17 U
Aroclor-1260	19 U	19 U	19 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	17 U	20 U	17 U

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).
Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).
U - Indicates analyte was not detected at or above the reporting limit
J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.
B - Indicates result between instrument detection limit (IDL) and contract required detection limit (CRDL)
E - Indicates that the concentration is estimated due to matrix interferences.
N - Spiked sample recovery not within control limits
a - Concentration exceeds the instrument calibration range or is below the reporting limit.
^ - Instrument quality control not within control limits.
* - Batch quality control not within control limits.
NS- Not Sampled

Table 4
Summary of Analytical Results From Area 2-4
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date																						
	GLA4-1 12/05/01	GLA4-2 12/18/01	GLA4-2A 1/8/02	GLA4-2S 12/18/01	GLA4-2SA 1/8/02	GLA4-2SB 1/7/02	GLA4-3 12/05/01	GLA4-4 12/05/01	GLA4-4S 12/05/01	GLA4-4SA 12/18/01	GLA4-4SB 12/18/01	GLA4-4SC 1/7/02	GLA4-4SD 1/7/02	GLA4-4SE 1/7/02	GLA4-5 12/05/01	23 KV Bottom 9/3/02	23 KV East Wall 9/3/02	23 KV North Wall 9/3/02	23 KV South Wall 9/3/02	Glenwood Bottom C 9/19/02	Glenwood Bottom N 9/19/02	Glenwood Bottom S 9/19/02	Glenwood Sidewall E 9/19/02
SVOC 8270 (ug/kg)																							
2-Methylnaphthalene	330 U	150 U	28 U	150 U	28 U	32 Ua	330 U	s J	2900 J	360 U	160 U	29 U	30 U	130 Ja	330 U	340 U	520 J	1800 U	340 U	410 U	350 U	340 U	340 U
2,4,5-Trichlorophenol	1600 U	93 U	10 U	93 U	10 U	20 Ja	1600 U	1700 U	65000 U	900 U	95 U	10 U	11 U	42 U	1600 U	840 U	4200 U	4300 U	830 U	990 U	840 U	830 U	820 U
Acenaphthene	330 U	96 U	15 U	96 U	15 U	17 Ua	330 U	350 U	9500 J	340 U	96 U	16 U	16 U	450 Ja	330 U	22 J	1600 J	110 J	13 J	410 U	350 U	340 U	340 U
Acenaphthylene	330 U	90 U	11 U	89 U	11 U	22 Ja	330 U	350 U	13000 U	340 U	92 U	11 U	12 U	85 Ja	330 U	340 U	1700 U	1800 U	340 U	410 U	350 U	340 U	340 U
Anthracene	330 U	110 U	15 Ja	110 U	12 U	48 Ja	330 U	350 U	14000	340 U	110 U	12 Ua	38 Ja	1100 Ja	330 U	52 J	2400	800 J	40 J	410 U	350 U	11 J	340 U
Benzo(a)anthracene	330 U	100 U	15 U	350 J	15 U	210 Ja	10 J	10 J	28000	160 J	660	42 Ja	84 Ja	2800	30 J	190 J	4800	3700	150 J	410 U	350 U	94 J	340 U
Benzo(a)pyrene	330 U	100 U	16 U	400	16 U	190 Ja	12 J	350 U	22000	130 J	590	41 Ja	93 Ja	2500	26 J	170 J	3900	2400	140 J	410 U	350 U	96 J	340 U
Benzo(b)fluoranthene	330 U	130 U	39 U	600	39 U	160 Ja	11 J	9 J	18000	140 J	690	39 Ua	76 Ja	1900	26 J	130 J	3700	3900	240 J	410 U	350 U	110 J	340 U
Benzo(g,h,i)perylene	330 U	140 U	17 U	160 J	17 U	200 Ja	330 U	350 U	9900 J	66 J	220 J	18 Ja	48 Ja	2400	330 U	100 J	1300 J	760 J	110 J	410 U	350 U	70 J	340 U
Benzo(k)fluoranthene	330 U	110 U	40 U	250 J	40 U	200 Ja	14 J	10 J	21000	63 J	270 J	47 Ja	85 Ja	2400	29 J	160 J	2600	1800 U	340 U	410 U	350 U	65 J	340 U
bis(2-Ethylhexyl)phthalate	330 U	150 U	36 U	150 U	37 U	250 JaB	330 U	120 JB	13000 U	340 U	150 U	37 UaB	47 JaB	340 JaB	57 J	17 J	1700 U	1800 U	99 J	410 U	350 U	29 J	340 U
Butyl benzyl phthalate	330 U	180 U	13 U	180 U	13 U	38 Ja	330 U	350 U	13000 U	340 U	190 U	13 U	14 U	55 U	330 U	340 U	1700 U	1800 U	340 U	410 U	350 U	340 U	340 U
Carbazole	330 U	na	22 U	na	22 U	37 Ja	330 U	350 U	4900 J	360 U	na	23 U	23 Ua	760 Ja	330 U	na	na	na	na	na	na	na	na
Chrysene	330 U	110 U	17 U	470	17 U	320 Ja	13 J	10 J	29000	140 J	610	54 Ja	120 Ja	3300	30 J	160 J	4200	2700	140 J	410 U	350 U	100 J	340 U
Dibenz(a,h)anthracene	330 U	130 U	18 U	130 U	18 U	70 Ja	330 U	350 U	4300 J	340 U	130 U	19 U	21 Ja	720 Ja	330 U	50 J	830 J	480 J	48 J	410 U	350 U	23 J	340 U
Dibenzofuran	330 U	110 U	15 U	110 U	15 U	17 Ua	330 U	350 U	3900 J	340 U	120 U	16 U	16 U	370 Ja	330 U	340 U	860 J	1800 U	340 U	410 U	350 U	340 U	340 U
D,n-butyl phthalate	330 U	120 U	14 U	120 U	14 U	16 Ua	330 U	350 U	13000 U	340 U	120 U	14 U	15 U	59 Ua	330 U	91 Bf	1700 U	1800 U	13 Bf	31 J	20 J	47 J	37 J
Fluoranthene	330 U	130 U	22 U	1200	22 Ua	410	330 U	15 J	56000	260 J	1000	71 Ja	120 Ja	5700	25 J	330 J	9800	6800	270 J	410 U	350 U	200 J	340 U
Fluorene	330 U	79 U	20 U	79 U	20 U	23 Ua	330 U	350 U	8200 J	340 U	80 U	21 U	21 U	580 Ja	330 U	17 J	1400 J	86 J	10 J	410 U	350 U	340 U	340 U
Indeno(1,2,3-cd)pyrene	330 U	140 U	18 U	150 J	18 U	190 Ja	330 U	350 U	10000 J	57 J	220 J	19 Ua	45 Ja	2100	10 J	96 J	1500 J	860 J	92 J	410 U	350 U	59 J	340 U
Naphthalene	330 U	80 U	32 U	80 U	33 U	36 Ua	330 U	350 U	5000 J	340 U	82 U	33 U	34 U	310 Ja	330 U	340 U	2200	1800 U	340 U	410 U	350 U	340 U	340 U
Phenanthrene	330 U	100 U	24 U	660	49 Ja	280 Ja	330 U	8 J	51000	95 J	310 J	34 Ja	45 Ja	6200	330 U	240 J	11000	1600 J	140 J	410 U	350 U	49 J	340 U
Pyrene	330 U	280 U	19 U	1300	36 Ja	640	330 U	16 J	42000	230 J	890	64 Ja	120 Ja	7900	32 J	280 J	7400	7000	410 U	350 U	160 J	340 U	340 U
CLP Metals (mg/kg)																							
Aluminum	1550	6090	1090	1530	1600	1910	1570	1620	1430	2200 H	1610	2350	2120	1940	2390	1850 E	2460 E	6140 E	2150 E	2040 E	2400 E	2200 E	1430 E
Antimony	0.90 U	1.1 U	0.30	8.7	0.29	4.7	0.78 U	0.83 U	0.71 U	0.77 UH	1.1 U	0.42	0.26	3.4	0.84 U	1.2 B	0.65 B	0.93 B	1.1 B	0.82 BN	0.59 NU	0.57 NU	0.56 NU
Arsenic	0.94 B	1.5	0.70	0.99	1.2	3.4	1.2 B	1.0 B	1.1 B	1.4 H	0.80 U	1.6	1.3	3.0	0.81 U	1.1	1.1	2.4	1.4	0.99 B	1.3	0.99 B	0.59 B
Barium	10.4 B	24.4	6.6	26.4	11.5	26.5	10.4 B	10.8 B	9.8 B	15.0 H	13.2	15.6	14.0	27.7	13.8 B	11.8 B	18.3 B	58.8	10.6 B	15.5 BE	14.4 BE	14.6 BE	9.5 BE
Beryllium	0.23 B	0.29	0.06	0.21 U	0.20	0.14	0.24 B	0.20 B	0.20 B	0.19 H	0.23 U	0.13	0.13	0.17	0.25 B	0.09 B	0.12 B	0.15 B	0.18 B	0.15 B	0.17 B	0.09 B	0.09 B
Cadmium	0.16 U	0.25 U	0.11	0.51	0.20	0.70	0.79 B	0.14 U	0.12 U	0.18 UH	0.28 U	0.14	0.17	1.6	0.15 U	0.04 B	0.08 B	0.03 B	0.47 B	0.17 B	0.03 U	0.11 B	0.03 U
Calcium	232 B	528	95.1	1340	156	1030	193 B	176 B	135 B	237 H	162	271	268	1290	351 B	194 B	221 B	7040	172 B	213 B	319 B	233 B	124 B
Chromium	3.6	9.6	3.1	8.4	38.9	12.4	3.8	3.3	4.6	6.1	3.5	5.3	4.6	33.6	4.7	3.7	5.3	10.6	4.7	6 E	4.4 E	4.5 E	4.5 E
Cobalt	1.4 B	3.2	1.1	2.2	2.4	2.8	1.5 B	1.4 B	1.8 B	1.7 H	1.4	1.9	1.7	4.1	2.1 B	1.6 B	2.7 B	4.8 B	2.4 B	2 B	5 B	1.9 B	1.4 B
Copper	15.4	5.7	1.9	59.3	6.3	44.7	6.1	3.5 B	11.8	10.3	4.3	5.1	6.7	63.0	4.3 B	5.1	6.9	31.4	3.7	7.8	5.8	7.5	2.6
Iron	4710	10100	3150	6530	9770	9790	9560	5100	4830	6210 H	4370	4830	4940	9260	6300	4960	5470	12400	6110	7020 E	6240 E	5540 E	3820 E
Lead	22.2	11.6 ^	1.0	335 ^	1.0	408	5.3	12.7	53.3	19.9 H	9.8 ^	8.1	37.0	450	5.9	17.2	16.6	61.7	5.2	31.7 *	12 *	29 *	7.4 *
Magnesium	377 B	1180	304	881	409	751	390 B	381 B	369 B	454 H	474	479	1060	573 B	376 B	591	3690	413 B	558 BE	610 E	506 BE	649 BE	649 BE
Manganese	114.	145	91.1	752	202	111	191.	129.	104	143 H	115	133	123	97.1	123	121 N	140 N	192 N	152 N	126 N	150 N	125 N	94.7 NU
Mercury	0.0036 B	0.015 B	0.0052 U	0.095 B	0.0057 U	0.18 B	0.18	0.0081	0.19	0.095 B	0.014 B	0.012 B	0.039 B	1.8 B	0.022	0.013 U	0.015 U	0.087	0.014 U	0.016 U	0.021 B	0.014 U	0.014 U
Nickel	3.8 B	7.3	1.8	19.2	14.8	28.6	4.0 B	3.0 B	6.3	4.0 H	4.0	5.2	3.5	40.8	5.0 B	2.9 B	4.1 B	13.5	8.3	9.2	5.3	3.8 B	5.3
Potassium	207 B	454 ^	141	189 ^	223	227	232 B	202 B	206 B	265 H^	187 ^	291	232	335 B	215 B	274 B	780	248 B	334 B	322 B	249 B	218 B	218 B
Selenium	0.96 U	1.4 U^	0.19	1.5 U^	0.23	0.71	0.83 U	0.88 U	0.76 U	1.1 UH	1.6 U^	0.27	0.29	0.61	0.90 U	0.54 U	0.53 U	0.56 U	0.54 U	0.67	0.44 U	0.42 U	0.42 U
Silver	0.20 U	0.23 U^	0.00091 U	0.43 ^	0.00094 U	0.35	0.17 U	0.18 U	0.15 U	0.17 UH	0.25 U^	0.0010 U	0.020	0.56	0.18 U	0.1 U	0.1 U	0.1 U	0.1 U	0.06 U	0.05 U	0.05 U	0.05 U
Sodium	17.0 B	33.1	36.1	54.4	49.5	84.3	13.0 B	18.4 B	17.1 B	18.3 H	21.6	65.9	51.7	73.4	26.4 B	26.9 B	25.3 U	136 B	53 B	32 U	28.1 U	41.6 B	26.9 U
Thallium	3.6 U	2.0 U^	0.33	2.0 U^	0.0068 U	0.40	3.2 U	3.4 U	2.9 U	1.5 UH	2.2 U^	0.0081 U	0.0085 U	0.048	3.4 U	0.4 U	0.39 U	0.41 U	0.41 B	0.46 U	0.42 U	0.72 B	0.4

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).
Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).
U - Indicates analyte was not detected at or above the reporting limit.
J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.
B - Indicates result between instrument detection limit (IDL) and correct required detection limit (CRDL).
E - Indicates that the concentration is estimated due to matrix interference.
N - Spiked sample recovery not within control limits.
a - Concentration exceeds the instrument calibration range or is below the reporting limit.
^ - Instrument quality control not within control limits.
* - Batch quality control not within control limits.
NS- Not Sampled
na- not analyzed

Table 5
Summary of Analytical Results From Area 1A-5
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date																			
	GLA5A-1 11/28/01	GLA5A-2 11/28/01	GLA5A-3 11/28/01	GLA5A-4 11/28/01	GLA5A-4A 12/17/01	GLA5A-4B 12/17/01	GLA5A-4C 12/17/01	GLA5A-4D 12/17/01	GLA5A-5 11/28/01	GLA5B-1 11/28/01	GLA5B-1D 11/28/01	GLA5B-2 11/28/01	GLA5B-3 11/28/01	GLA5B-4 11/28/01	GLA5B-5 11/28/01	GLA5C-1 11/28/01	GLA5C-1D 11/28/01	GLA5C-2 11/28/01	GLA5C-3 11/28/01	GLA5C-4 11/28/01
SVOC 8270 (ug/kg)																				
2-Methylnaphthalene	4 J	5 J	4 J	10 J	350 U	350 U	350 U	350 U	4	2 J	350 U	340 U	4 J	3 J	4 J	330 U	330 U	330 U	340 U	330 U
Acenaphthene	340 U	340 U	330 U	340 U	350 U	350 U	350 U	350 U	330	340 U	350 U	340 U	340 U	330 U	340 U	330 U	330 U	330 U	340 U	330 U
Acenaphthylene	340 U	340 U	330 U	340 U	350 U	350 U	350 U	350 U	330	340 U	350 U	340 U	340 U	330 U	340 U	330 U	330 U	330 U	340 U	330 U
Anthracene	6 J	7 J	15 J	32 J	350 U	350 U	350 U	350 U	9	5 J	350 U	340 U	4 J	7 J	5 J	7 J	7 J	15 J	9 J	12 J
Benzo(a)anthracene	24 J	24 J	65 J	270 J	48 J	350 U	350 U	350 U	40	16 J	14 J	340 U	20 J	16 J	21 J	32 J	30 J	79 J	32 J	52 J
Benzo(a)pyrene	23 J	25 J	58 J	210 J	53 J	350 U	350 U	350 U	59	18 J	14 J	5 J	18 J	15 J	21 J	29 J	28 J	70 J	32 J	54 J
Benzo(b)fluoranthene	30 J	29 J	59 J	220 J	80 J	350 U	37 J	350 U	57	18 J	15 J	5 J	19 J	24 J	26 J	36 J	32 J	74 J	33 J	55 J
Benzo(g,h,i)perylene	11 J	14 J	29 J	110 J	350 U	350 U	350 U	350 U	29	9 J	9 J	3 J	8 J	8 J	10 J	18 J	17 J	32 J	21 J	38 J
Benzo(k)fluoranthene	25 J	30 J	74 J	260 J	350 U	350 U	350 U	350 U	60	18 J	17 J	8 J	23 J	20 J	23 J	36 J	40 J	78 J	48 J	59 J
bis(2-Ethylhexyl)phthalate	120 J	18 J	51 J	13 J	130 J	250 JB	49 JB	110 JB	330	92 J	210 J	13 J	14 J	36 J	26 J	330 U	100 JB	330 U	340 U	2100 B
Butylbenzylphthalate	340 U	340 U	330 U	340 U	350 U	350 U	350 U	350 U	330	340 U	350 U	340 U	340 U	330 U	340 U	330 U	18 J	330 U	340 U	330 U
Carbazole					na	na	na	na	330 U			340 U	340 U	330 U	340 U	330 U	330 U	330 U	340 U	330 U
Chrysene	31 J	29 J	83 J	280 J	57 J	350 U	350 U	350 U	48	19 J	17 J	340 U	23 J	25 J	25 J	43 J	37 J	92 J	42 J	60 J
Dibenz(a,h)anthracene	5 J	6 J	9 J	40 J	350 U	350 U	350 U	350 U	12	3 J	3 J	340 U	4 J	3 J	4 J	330 U	330 U	330 U	340 U	330 U
Dibenzofuran	340 U	340 U	330 U	340 U	350 U	350 U	350 U	350 U	330	340 U	350 U	340 U	340 U	330 U	340 U	330 U	330 U	330 U	340 U	330 U
Diethylphthalate	340 U	25 JB	31 JB	340 U	350 U	350 U	350 U	350 U	330	340 U	30 JB	340 U	340 U	330 U	37 JB	330 U	23 JB	330 U	340 U	330 U
Fluoranthene	39 J	41 J	130 J	460	73 J	36 J	41 J	350 U	64	32 J	23 J	9 J	37 J	48 J	32 J	47 J	50 J	140 J	55 J	81 J
Fluorene	340 U	340 U	330 U	340 U	350 U	350 U	350 U	350 U	330	340 U	350 U	340 U	340 U	330 U	340 U	330 U	330 U	330 U	340 U	330 U
Indeno(1,2,3-cd)pyrene	10 J	12 J	25 J	96 J	350 U	350 U	350 U	350 U	26	7 J	6 J	2 J	7 J	7 J	10 J	15 J	17 J	32 J	19 J	34 J
Phenanthrene	11 J	18 J	34 J	88 J	350 U	350 U	350 U	350 U	25	18 J	350 U	4 J	12 J	22 J	16 J	23 J	20 J	33 J	27 J	38 J
Pyrene	35 J	35 J	110 J	400	76 J	350 U	350 U	350 U	47	26 J	21 J	8 J	30 J	36 J	29 J	45 J	50 J	120 J	55 J	83 J
CLP Metals (mg/kg)																				
Aluminum	1850	2670	2350	2300	2940 H	2100 H	2270 H	2360 H	2230	2390	2700	2660	2510	2570	2280	2220	2460	2410	3160	2920
Antimony	0.67 U	0.79 U	0.75 U	0.66 U	1.1 UH	1.2 UH	1.2 UH	1.2 UH	0.77 U	0.83 U	0.88 U	0.83 U	0.83 U	0.76 U	0.76 U	0.72 UN	0.68 UN	0.79 UN	0.79 UN	0.73 UN
Arsenic	1.1 B	1.6 B	1.4 B	1.5	2.0 H	1.5 H	1.5 H	1.5 H	1.1 B	0.85 U	1.3 B	1.2 B	1.7 B	1.3 B	0.91 B	0.69 U	0.65 U	0.76 U	0.97 B	3.2
Barium	14.4 B	16.8 B	17.9 B	18.4 B	21.4 H	17.7 H	19.4 H	19.9 H	14.9 B	25.3 B	31.1 B	35.8 B	33.6 B	21.7 B	17.5 B	17.0 B	19.9 B	29.5 B	22.8 B	20.5 B
Beryllium	0.11 B	0.12 B	0.14 B	0.12 B	0.22 UH	0.23 UH	0.23 UH	0.24 H	0.11 B	0.13 B	0.18 B	0.23 B	0.18 B	0.15 B	0.12 B	0.18 B	0.20 B	0.21 B	0.25 B	0.26 B
Cadmium	0.12 U	0.14 U	0.16 B	0.12 U	0.27 UH	0.28 UH	0.28 UH	0.28 UH	0.17 B	0.15 B	0.17 B	0.15 U	0.25 B	0.17 B	0.14 U	0.12 U	0.12 U	0.14 U	0.14 U	0.13 U
Calcium	295. B	342. B	711. B	378. B	1180 H	459 H	609 H	646 H	356. B	1040	1110	2510	942.	769. B	451. B	438. B	596. B	563. B	698. B	570. B
Chromium	4.5	6.6	5.9	5.3	7.0	5.3	6.3	7.1	5.2	6.2	7.6	6.9	6.8	6.6	5.7	5.5	6.3	6.4	7.4	6.2
Cobalt	1.6 B	2.2 B	2.3 B	1.9 B	2.2 H	1.9 H	2.2 H	1.8 H	1.8 B	2.4 B	3.5 B	2.2 B	3.5 B	2.5 B	2.1 B	2.0 B	2.1 B	2.3 B	2.5 B	2.0 B
Copper	3.6 B	5.3	6.0	5.2	6.2	5.1	5.5	5.2	4.8	5.8	10.9	6.5	9.6	6.8	5.5	5.5	6.2	6.5	6.9	6.5
Iron	5370	7180	6430	6020	7380 H	5920 H	6360 H	6270 H	5320	6020	8710	7720	11700	7130	5980	5340	6270	6980	7660	7350
Lead	7.6	13.8	16.2	14.3	17.9 H	15.6 H	16.5 H	17.1 H	12.5	23.1	25.3	40.4	21.6	18.2	15.6	14.6	17.6	21.0	15.7	16.7
Magnesium	457. B	814. B	680. B	629. B	920 H	680 H	760 H	828 H	668. B	1050	1030	1420	981.	869.	686. B	652. B	757.	750. B	958.	693. B
Manganese	99.8 *	124. *	102. *	80.9 *	115 H	92.9 H	102 H	86.1 H	77.4 *	94.8 *	122. *	112. *	196. *	105. *	83.6 *	85.4	92.3	184.	112.	90.2
Mercury	0.0066 B	0.012	0.0099	0.0086 B	0.046 B	0.011 B	0.011 B	0.011 B^	0.0082 B	0.42	0.0090	0.0035 U	0.0048 B	0.0057 B	0.0076 B	0.0093	0.0086	0.0087	0.0088	0.010
Nickel	4.3 B	5.9 B	5.6 B	5.8	6.3 H	5.5 H	5.5 H	5.9 H	4.9 B	6.4 B	7.8	6.7 B	9.5	6.6 B	5.8 B	5.9 B	6.1	6.0 B	7.2	6.7
Potassium	294. B	442. B	407. B	440. B	551 H^	436 H^	482 H^	472 H^	402. B	534. B	579. B	588. B	554. B	530. B	439. B	407. B	441. B	428. B	556. B	418. B
Selenium	0.73 U	0.86 U	0.81 U	0.71 U	1.6 UH	1.6 UH	1.6 UH	1.6 UH	0.83 U	0.91 U	0.95 U	0.91 U	0.91 U	0.83 U	0.83 U	0.77 U	0.73 U	0.84 U	0.86	0.78 U
Silver	0.15 U	0.18 U	0.17 U	0.14 U	0.25 UH^	0.26 UH^	0.26 UH^	0.25 UH^	0.17 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.17 U	0.16 U	0.15 U	0.17 U	0.17 U	0.16 U
Sodium	23.4 B	29.8 B	33.9 B	33.7 B	40.0 H	31.8 H	33.9 H	30.2 H	33.4 B	44.9 B	60.1 B	79.3 B	52.4 B	45.8 B	36.0 B	25.9 B	28.3 B	29.6 B	41.3 B	32.6 B
Thallium	1.5 U	1.8 U	1.7 U	1.4 U	2.1 UH	2.2 UH	2.2 UH	2.2 UH	1.7 U	1.8 U	1.9 U	1.8 U	1.8 U	1.7 U	1.7 U	2.9 U	2.8 U	3.2 U	3.2 U	3.0 U
Vanadium	5.9 B	8.6 B	8.0 B	7.2 B	9.5 H	7.6 H	8.2 H	7.4 H	7.1 B	7.3 B	9.2 B	8.2 B	10.	8.3 B	7.5 B	7.3 B	8.6	9.0	9.9	8.2
Zinc	11.1	18.8	17.5	15.7	21.7 H	16.2 H	16.4 H	18.2 H	14.5	27.4	34.0	16.5	21.0	17.0	16.6	16.9	18.6	18.2	20.8	20.3
PCB 8082 (ug/kg)																				
Aroclor-1254	34 U	34 U	33 U	34 U	17 U	17 U	17 U	17 U	33 U	34 U	35 U	33 U	35 U	33 U	34 U	33 U	33 U	34 U	33 U	34 U
Aroclor-1260	34 U	34 U	33 U	34 U	17 U	17 U	17 U	17 U	33 U	34 U	35 U	33 U	35 U	33 U	34 U	33 U	33 U	34 U	33 U	34 U

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).

Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).

U - Indicates analyte was not detected at or above the reporting limit.

J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.

B - Indicates result between instrument detection limit (IDL) and contract required detection limit (CRDL).

E - Indicates that the concentration is estimated due to matrix interferences.

N - Spiked sample recovery not within control limits.

s - Concentration exceeds the instrument calibration range or is below the reporting limit.

^ - Instrument quality control not within control limits.

* - Batch quality control not within control limits.

NS- Not Sampled

na- not analyzed

Table 5 cont'd
Summary of Analytical Results From Area 1A-5
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation and Collection Date																			
	GLA5C-5 11/28/01	GLA5D-1 11/28/01	GLA5D-2 11/28/01	GLA5D-2A 12/14/01	GLA5D-2B 12/14/01	GLA5D-2C 12/14/01	GLA5D-2D 12/14/01	GLA5D-3 11/28/01	GLA5D-4 11/28/01	GLA5D-5 11/28/01	GLA5D-5A 12/14/01	GLA5D-5B 12/14/01	GLA5D-5C 12/14/01	GLA5D-5D 12/14/01	GLA5E-1 12/04/01	GLA5E-2 11/28/01	GLA5E-3 11/28/01	GLA5E-4 11/28/01	GLA5E-5 11/28/01	
SVOC 8270 (ug/kg)																				
2-Methylnaphthalene	330 U	4 J	3300 U	350 U	360 Ua	350 U	350 U	5 J	3 J	12 J	360 U	350 U	350 U	360 Ua	340 U	340 U	3 J	2 J	3 J	
Acenaphthene	330 U	340 U	3300 U	350 U	27 Ja	350 U	350 U	9 J	340 U	160 J	360 U	350 U	350 U	360 U	340 U	340 U	340 U	330 U	340 U	
Acenaphthylene	330 U	340 U	3300 U	350 U	22 Ja	350 U	350 U	340 U	340 U	J	360 U	350 U	350 U	360 U	340 U	340 U	340 U	12 J	340 U	
Anthracene	8 J	6 J	3300 U	350 U	120 Ja	350 U	350 U	20 J	10 J	450 J	360 U	350 U	350 U	360 U	340 U	7 J	8 J	5 J	5 J	
Benzo(a)anthracene	34 J	24 J	110 J	350 Ua	300 Ja	27 Ja	40 Ja	58 J	47 J	1300 J	45 Ja	48 Ja	45 Ja	68 Ja	17 J	37 J	42 J	25 J	19 J	
Benzo(a)pyrene	34 J	27 J	150 J	350 U	190 Ja	30 Ja	40 Ja	52 J	46 J	970 J	44 Ja	48 Ja	48 Ja	68 Ja	16 J	34 J	38 J	27 J	22 J	
Benzo(b)fluoranthene	37 J	36 J	90 J	350 Ua	170 Ja	350 Ua	44 Ja	64 J	50 J	1000 J	43 Ja	50 Ja	55 Ja	78 Ja	19 J	44 J	52 J	28 J	28 J	
Benzo(g,h,i)perylene	20 J	15 J	250 J	350 U	170 Ja	28 Ja	33 Ja	29 J	32 J	330 J	23 Ja	28 Ja	29 Ja	54 Ja	340 U	16 J	19 J	13 J	12 J	
Benzo(k)fluoranthene	38 J	35 J	77 J	350 Ua	200 Ja	350 Ua	41 Ja	63 J	59 J	1000 J	54 Ja	58 Ja	54 Ja	100 Ja	19 J	52 J	48 J	26 J	32 J	
bis(2-Ethylhexyl)phthalate	330 U	340 U	3300 U	350 U	360 U	350 U	350 U	88 J	150 J	1900 U	360 U	350 U	350 U	360 U	340 U	130 J	22 J	87 J	140 J	
Butylbenzylphthalate	330 U	340 U	3300 U	350 U	360 U	350 U	350 U	340 U	340 U	1900 U	360 U	350 U	350 U	360 U	340 U	340 U	340 U	330 U	340 U	
Carbazole	330 U	340 U	3300 U	350 U	360 U	350 U	350 U	340 U	340 U	1900 U	360 U	350 U	350 U	120 J	340 U					
Chrysene	42 J	31 J	210 J	22 Ja	490	39 Ja	59 Ja	68 J	62 J	1400 J	55 Ja	67 Ja	63 Ja	130 Ja	21 J	62 J	50 J	29 J	32 J	
Dibenzo(a,h)anthracene	330 U	340 U	3300 U	350 U	51 Ja	350 U	350 U	10 J	340 U	120 J	360 U	350 U	350 U	360 U	340 U	7 J	7 J	3 J	4 J	
Dibenzofuran	330 U	340 U	3300 U	350 U	16 Ja	350 U	350 U	340 U	340 U	58 J	360 U	350 U	350 U	28 Ja	340 U	340 U	340 U	330 U	340 U	
Diethylphthalate	330 U	340 U	3300 U	350 U	360 U	350 U	350 U	340 U	340 U	1900 U	360 U	350 U	350 U	360 U	340 U	67 JB	22 JB	330 U	21 JB	
Fluoranthene	56 J	34 J	75 J	350 Ua	480	40 Ja	54 Ja	110 J	89 J	3000	72 Ja	75 Ja	68 Ja	350 Ja	23 J	70 J	80 J	41 J	42 J	
Fluorene	330 U	340 U	3300 U	350 U	360 U	350 U	350 U	340 U	340 U	140 J	360 U	350 U	350 U	360 U	340 U	340 U	340 U	330 U	340 U	
Indeno(1,2,3-cd)pyrene	19 J	13 J	78 J	350 U	150 Ja	21 Ja	27 Ja	23 J	26 J	340 J	20 Ja	23 Ja	22 Ja	39 Ja	340 U	14 J	16 J	9 J	10 J	
Phenanthrene	24 J	13 J	3300 U	350 U	120 Ja	350 Ua	350 Ua	69 J	36 J	1900	360 Ua	350 Ua	350 Ua	340 Ja	340 U	12 J	28 J	19 J	14 J	
Pyrene	54 J	29 J	190 J	26 Ja	770	59 Ja	86 Ja	98 J	85 J	2200	76 Ja	86 Ja	82 Ja	320 Ja	340 U	52 J	72 J	60 J	35 J	
CLP Metals (mg/kg)																				
Aluminum	2510	3030	3320	2280 H^	5440 H^	3230 H^	3190 H^	3130	3390	2230	2850 H^	3030 H^	3340 H^	2930 H^	2540	2650	2920	2760	2860	
Antimony	0.80 UN	0.68 U	0.83 U	1.2 UH^	1.1 UH^	1.0 UH^	0.99 UH^	0.63 U	0.79 U	0.78 U	0.90 UH^	0.92 UH^	1.1 UH^	0.86 UH^	0.80 U	0.89 U	0.89 U	0.68 U	0.85 U	
Arsenic	0.77 U	1.6	2.5	1.2 H^	2.4 H^	2.0 H^	1.5 H^	3.3	3.0	1.6 B	2.2 H^	2.1 H^	1.6 H^	2.1 H^	0.89 B	1.2 B	1.7 B	1.3 B	1.7 B	
Barium	20.5 B	23.5 B	25.5 B	20.8 H^	39.1 H^	24.7 H^	24.5 H^	22.0 B	22.9 B	16.2 B	25.1 H^	22.0 H^	27.8 H^	22.4 H^	20.2 B	32.3 B	20.0 B	27.2 B	21.8 B	
Beryllium	0.21 B	0.14 B	0.18 B	0.23 U^	0.33 ^	0.20 U^	0.21 ^	0.18 B	0.17 B	0.11 B	0.18 ^	0.20 ^	0.23 ^	0.21 ^	0.26 B	0.15 B	0.16 B	0.14 B	0.15 B	
Cadmium	0.14 U	0.19 B	0.24 B	0.28 UH	0.27 UH	0.24 UH	0.27 H	0.25 B	0.16 B	0.22 B	0.22 UH	0.22 UH	0.26 UH	0.21 UH	0.14 U	0.16 B	0.30 B	0.18 B	0.20 B	
Calcium	805. B	1060	666. B	638 H^	2760 H^	899 H^	767 H^	610. B	916.	440. B	605 H^	490 H^	775 H^	694 H^	656. B	804. B	691. B	645. B	708. B	
Chromium	6.1	6.4	8.3	5.7 H^	12.6 H^	8.2 H^	7.4 H^	8.5	7.9	5.2	10.4 H^	10.4 H^	7.3 H^	6.7 H^	5.7	6.2	6.4	6.6	8.7	
Cobalt	2.1 B	2.4 B	2.8 B	2.1 H^	4.3 H^	2.8 H^	2.4 H^	2.9 B	6.5 B	1.8 B	2.5 H^	2.3 H^	3.0 H^	2.3 H^	2.2 B	2.8 B	2.8 B	2.8 B	2.9 B	
Copper	6.8	6.2	8.3	5.9 H^	12.5 H^	7.0 H^	7.8 H^	8.1	8.0	6.4	7.2 H^	8.0 H^	8.2 H^	7.3 H^	6.0	6.2	6.7	6.5	7.2	
Iron	6410	6510	9260	6070 H^	12400 H^	8090 H^	7740 H^	9220	6510	5270	7890 H^	7370 H^	9880 H^	7240 H^	7540	7040	6680	7550	7880	
Lead	16.3	19.7	37.1	28.0 H^	24.8 H^	23.3 H^	23.7 H^	25.9	37.4	23.2	76.7 H^	38.7 H^	25.7 H^	24.2 H^	18.2	23.6	19.1	31.5	23.8	
Magnesium	821. B	856.	881. B	801 H	2290 H	1190 H	995 H	811.	936.	614. B	923 H	718 H	929 H	892 H	752. B	877. B	837. B	850.	818. B	
Manganese	103.	112. *	147. *	105 H^	215 H^	122 H^	119 H^	144. *	130. *	92.5 *	113 H^	130 H^	153 H^	122 H^	129.	240. *	134. *	154. *	134. *	
Mercury	0.0084 B	0.01	0.049	0.016 B	0.40 B	0.025 B	0.088 B	0.042	0.043	0.036	0.016 B	0.043 B	0.035 B	0.035 B	0.010	0.0050 U	0.013	0.0070 B	0.015	
Nickel	6.4 B	10.5	7.3 B	5.9	12.5	8.2	6.7	8.6	6.6 B	5.2 B	7.9	6.5	7.0	6.4	6.2 B	7.0 B	6.4 B	8.2	9.8	
Potassium	439. B	545. B	558. B	520 H^	1380 H^	814 H^	744 H^	536. B	486. B	389. B	585 H^	450 H^	506 H^	574 H^	459. B	539. B	432. B	590. B	539. B	
Selenium	0.86 U	0.74 U	0.90 U	1.6 UH^	1.6 UH^	1.4 UH^	1.3 UH^	0.68 U	0.86 U	0.84 U	1.2 UH^	1.3 UH^	1.5 UH^	1.2 UH^	0.85 U	0.97 U	0.97 U	0.74 U	0.93 U	
Silver	0.17 U	0.15 U	0.18 U	0.25 UH^	0.25 UH^	0.22 UH^	0.22 UH^	0.14 U	0.18 U	0.17 U	0.20 UH^	0.20 UH^	0.24 UH^	0.19 UH^	0.17 U	0.20 U	0.20 U	0.15 U	0.19 U	
Sodium	41.9 B	47.7 B	43.4 B	37.2 H^	130 H^	47.0 H^	75.6 H^	38.2 B	47.2 B	46.5 B	60.0 H^	41.8 H^	55.2 H^	44.1 H^	36.8 B	39.5 B	31.5 B	41.3 B	38.1 B	
Thallium	3.2 U	1.5 U	1.8 U	2.2 UH^	2.2 UH^	1.9 UH^	1.9 UH^	1.4 U	1.8 U	1.7 U	1.7 UH^	1.7 UH^	2.0 UH^	1.6 UH^	3.2 U	2.0 U	2.0 U	1.5 U	1.9 U	
Vanadium	8.5 B	9.0	11.0	8.0 H	17.3 H	10.8 H	10 H	12.2	9.6	7.4 B	10.1 H	10.3 H	10.3 H	9.6 H	8.3 B	8.8 B	9.0 B	8.8	9.8	
Zinc	19.0	18.2	28.9	16.7 H^	34.4 H^	23.0 H^	26.0 H^	27.0	29.4	21.5	27.6 H^	26.4 H^	31.2 H^	26.9 H^	17.3	18.6	26.6	18.5	19.6	
PCB 8082 (ug/kg)																				
Aroclor-1254	33 U	34 U	34 U	18 U	18 U	180	18 U	34 U	34 U	39 U	18 U	18 U	17 U	18 U	17 U	34 U	34 U	34 U	34 U	
Aroclor-1260	33 U	34 U	9.9 J	18 U	36	18 U	18 U	6.8 J	5.9 J	7.0 J	18 U	18 U	17 U	18 U	17 U	34 U	34 U	15 J	34 U	

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).
Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).
U - indicates analyte was not detected at or above the reporting limit
J - indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.
B - indicates result between instrument detection limit (IDL) and contract required detection limit (CRL)
E - indicates that the concentration is estimated due to matrix interferences.
N - Spiked sample recovery not within control limits
a - Concentration exceeds the instrument calibration range or is below the reporting limit.
^ - Instrument quality control not within control limits.
* - Batch quality control not within control limits.
NS - Not Sampled
ne - not analyzed

Table 6
Summary of Analytical Results From Area 2-6
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date									
	GLA6-1 11/15/01	GLA6-1B 11/20/01	GLA6-2 11/15/01	GLA6-2S 11/20/01	GLA6-3 11/20/01	GLA6-3S 11/20/01	GLA6-4 11/20/01	GLA6-4S 11/20/01	GLA6-5 11/20/01	GLA6-5S 11/20/01
SVOC 8270 (ug/kg)										
2-Methylnaphthalene	330 U	350 U	340 U	3 J	340 U	380 U	380 U	340 U	330 U	350 U
Benzo(a)anthracene	330 U	350 U	5 J	340 U	340 U	380 U	380 U	340 U	330 U	350 U
Benzo(a)pyrene	5 J	350 U	340 U	340 U	340 U	380 U	380 U	340 U	330 U	350 U
Benzo(b)fluoranthene	8 J	350 U	5 J	340 U	340 U	380 U	380 U	340 U	330 U	350 U
Benzo(k)fluoranthene	8 J	350 U	6 J	340 U	340 U	380 U	380 U	340 U	330 U	350 U
Chrysene	12 J	350 U	7 J	340 U	340 U	380 U	380 U	340 U	330 U	350 U
Fluoranthene	22 J	350 U	10 J	13 J	340 U	380 U	380 U	11 J	130 U	8 J
Indeno(1,2,3-cd)pyrene	330 U	350 U	340 U	340 U	340 U	380 U	380 U	5 J	330 U	350 U
Phenanthrene	10 J	350 U	340 U	340 U	340 U	380 U	380 U	340 U	330 U	350 U
Pyrene	16 J	350 U	8 J	15 J	340 U	380 U	380 U	17 J	330 U	12 J
CLP Metals (mg/kg)										
Aluminum	2640	1850	3490	2090	1870	3400	1370	2570	1610	2330
Antimony	0.80 UN	0.92 UN	0.98 BN	1.8 BN	0.88 UN	0.98 UN	0.92 UN	0.76 UN	0.79 UN	0.98 BN
Arsenic	1.5 B	1.6 B	2.2	1.5 B	1.2 B	1.7 B	1.0 B	1.7	1.3 B	1.8 B
Barium	14.6 B	10.4 B	16.5 B	10.7 B	13.4 B	26.5 B	11.9 B	16.5 B	11.2 B	18.2 B
Beryllium	0.22 B	0.20 B	0.25 B	0.15 B	0.16 B	0.25 B	0.10 U	0.20 B	0.13 B	0.15 B
Cadmium	0.14 U	0.16 U	0.14 U	0.17 B	0.15 U	0.17 U	0.16 U	0.13 U	0.14 U	0.16 U
Calcium	498. B	217. B	423. B	250. B	217. B	414. B	310. B	427. B	225. B	290. B
Chromium	5.2	7.5	6.4	5.9	4.3	7.2	5.2	5.1	5.5	5.2
Cobalt	1.9 B	2.0 B	2.2 B	1.9 B	1.6 B	2.4 B	2.8 B	2.2 B	2.0 B	2.4 B
Copper	4.5	9.5	6.1	5.6	3.2 B	6.3	3.4 B	9.7	4.4	5.3
Iron	7490	9200	7660	6290	5070	8540	7070	6530	6280	7320
Lead	11.4	1.9	11.6	17.3	1.5	10.6	2.0	50.4	1.9	22.9
Magnesium	714. B	454. B	779. B	557. B	554. B	777. B	371. B	729. B	450. B	496. B
Manganese	133.	112.	130.	92.2	138.	150.	150.	126.	111.	141.
Mercury	0.0068 B	0.0037 U	0.019	0.011	0.0037 U	0.012	0.0031 U	0.036	0.0031 U	0.016
Nickel	5.4 B	6.4 B	6.2 B	5.1 B	3.5 B	6.4 B	6.1 B	5.3 B	5.7 B	5.4 B
Potassium	318. B	260. B	352. B	316. B	349. B	333. B	315. B	308. B	279. B	310. B
Selenium	0.85 U	0.98 U	0.85 U	0.88 U	0.94 U	1 U	0.98 U	0.8 U	0.85 U	0.98 U
Silver	0.17 U	0.2 Y	0.7 U	0.18 U	0.19 U	0.21 U	0.2 U	0.16 U	0.17 U	0.2 U
Sodium	15.4 B	16.0 B	18.1 B	19.9 B	21.0 B	31.7 B	35.4 B	22.6 B	20.2 B	22.1 B
Thallium	3.2 U	3.7 U	3.2 U	3.3 U	3.6 U	4 U	3.7 U	3 U	3.2 U	3.7 U
Vanadium	8.4 B	6.3 B	11.3	11.7	5.7 B	9.7 B	6.4 B	10.1	6.2 B	9.7 B
Zinc	27.1	8.6	89.4	404.	7.9	17.2	12.8	22.7	6.6	18.2
PCB 8082 (ug/kg)										
Aroclor-1260	1.9 J	35 U	1.8 J	2.2 J	34 U	2.4 J	38 U	1.6 J	33 U	3 J

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).

Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).

U - Indicates analyte was not detected at or above the reporting limit

J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.

B - Indicates result between instrument detection limit (IDL) and contract required detection limit (CRDL)

E - Indicates that the concentration is estimated due to matrix interferences.

N - Spiked sample recovery not within control limits

a - Concentration exceeds the instrument calibration range or is below the reporting limit.

A - Instrument quality control not within control limits.

* - Batch quality control not within control limits.

NS - Not Sampled

na - not analyzed

Table 7
Summary of Analytical Results From Area 2-7
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date																					
	GLA7-1A 11/09/01	GLA7-1B 11/09/01	GLA7-1C 11/20/01	GLA7-1D 11/27/01	GLA7-1E 11/21/01	GLA7-1F 11/21/01	GLA7-2 11/09/01	GLA7-3 11/09/01	GLA7-3B 11/27/01	GLA7-3C 11/21/01	GLA7-3D 11/27/01	GLA7-3E 11/21/01	GLA7-4 11/09/01	GLA7-4A 12/12/01	GLA7-5 11/09/01	GLA7-5A 12/12/01	GLA7-5SA 12/12/01	GLA7-6 11/09/01	GLA7-6A 12/12/01	GLA7-7S 11/09/01	GLA7-7SA 12/12/01	GLA7-8S 11/09/01
SVOC 8270 (ug/kg)																						
2,4-Dimethylphenol	1700 U	8500 U	350 U	320 U	340 U	330 U	210 J	350 U	350 U	340 U	46 J	330 U	350 U	35 U	340 U	33 U	34 U	350 U	31 U	350 U	35 U	340 U
2-Methylnaphthalene	460 J	300 J	350 U	30 J	36 J	330 U	98 J	320 J	4 J	340 U	77 J	330 U	65 J	30 U	49 J	28 U	30 Ua	4 J	29 U	20 J	30 Ua	13 J
4-Methylphenol	1700 U	8500 U	350 U	320 U	340 U	330 U	39 J	8 J	350 U	340 U	340 U	330 U	350 U	20 U	340 U	18 U	19 U	350 U	18 U	350 U	20 U	340 U
Acenaphthene	620 J	950 J	350 U	320 U	340 U	330 U	15 J	51 J	350 U	340 U	14 J	330 U	7 J	16 U	36 J	15 U	16 U	350 U	15 U	14 J	16 U	340 U
Acenaphthylene	890 J	1300 J	350 U	50 J	25 J	330 U	51 J	66 J	10 J	340 U	50 J	330 U	60 J	12 U	100 J	11 U	12 U	350 U	11 U	21 J	12 U	23 J
Anthracene	2200	4700 J	350 U	20 J	18 J	330 U	57 J	290 J	350 U	340 U	62 J	330 U	46 J	13 U	180 J	12 U	13 U	19 J	12 U	53 J	13 U	17 J
Benzo(a)anthracene	9700	22000	350 U	37 J	73 J	330 U	190 J	1300	350 U	11 J	340	19 J	170 J	16 U	560	15 U	16 U	120 J	15 U	190 J	16 U	58 J
Benzo(a)pyrene	11000	24000	350 U	46 J	89 J	330 U	220 J	1200	350 U	340 U	330 J	35 J	190 J	17 U	640	16 U	17 U	140 J	16 U	180 J	17 U	70 J
Benzo(b)fluoranthene	9600	18000	350 U	41 J	81 J	330 U	210 J	1300	350 U	12 J	230 J	26 J	140 J	41 U	890	39 U	41 U	120 J	39 U	140 J	41 U	72 J
Benzo(g,h,i)perylene	870 J	12000	350 U	33 J	55 J	330 U	26 J	100 J	350 U	340 U	150 J	39 J	91 J	18 U	59 J	17 U	18 Ua	39 J	17 U	38 J	18 Ua	15 J
Benzo(k)fluoranthene	7200	18000	350 U	39 J	78 J	330 U	200 J	1200	350 U	13 J	300 J	30 J	180 J	42 U	1000	40 U	42 U	130 J	40 U	190 J	42 U	62 J
Benzoic acid	8200 U	41000 U	1700 U	1500 U	22 J	1600 U	120 J	36 J	24 J	1600 U	64 J	1600 U	1700 U	720 U	39 J	670 U	710 U	1700 U	680 U	1700 U	730 U	70 J
bis(2-Ethylhexyl)phthalate	1700 U	8500 U	350 U	320 U	340 U	330 U	310 J	350 U	29 J	340 U	47 J	330 U	72 J	240 JaB	55 J	160 JaB	210 JaB	350 U	290 JaB	350 U	210 JaB	340 U
Carbazole	320 J	8500 U	350 U	320 U	340 U	330 U	360 U	44 J	350 U	340 U	20 J	330 U	350 U	24 U	26 J	22 U	24 U	350 U	23 U	18 J	24 U	340 U
Chrysene	9600	22000	350 U	54 J	100 J	330 U	260 J	1400	350 U	14 J	360	26 J	230 J	18 U	640	17 U	18 U	140 J	17 U	230 J	19 U	64 J
Dibenz(a,h)anthracene	580 J	5100 J	350 U	13 J	21 J	330 U	360 U	51 J	350 U	340 U	67 J	330 U	40 J	20 U	340 U	18 U	19 U	16 J	17 U	20 J	18 U	340 U
Dibenzofuran	310 J	490 J	350 U	5 J	340 U	330 U	18 J	68 J	350 U	340 U	18 J	330 U	13 J	18 U	14 J	15 U	16 U	350 U	18 U	7 J	19 U	340 U
Di-n-butylphthalate	1700 U	8500 U	350 U	320 U	340 U	330 U	360 U	350 U	350 U	340 U	7 J	330 U	350 U	15 U	340 U	14 U	15 U	350 U	14 U	350 U	15 U	340 U
Fluoranthene	9900	30000	350 U	43 J	86 J	15 J	260 J	1700	8 J	16 J	370	37 J	220 J	24 U	990	22 U	24 Ua	150 J	23 Ua	290 J	24 Ua	76 J
Fluorene	710 J	1100 J	350 U	5 J	340 U	330 U	15 J	54 J	350 U	340 U	15 J	330 U	350 U	22 U	41 J	20 U	22 U	350 U	20 U	350 U	22 U	340 U
Indeno(1,2,3-cd)pyrene	1300 J	14000	350 U	26 J	54 J	330 U	34 J	140 J	350 U	5 J	180 J	25 J	98 J	20 U	58 J	18 U	19 Ua	44 J	18 U	46 J	19 Ua	18 J
Naphthalene	490 J	450 J	350 U	28 J	32 J	330 U	62 J	230 J	350 U	340 U	56 J	330 U	48 J	35 U	34 J	33 U	34 U	350 U	33 U	350 U	34 U	340 U
N-Nitrosodiphenylamine (1)	1700 U	8500 U	350 U	320 U	340 U	330 U	35 J	350 U	350 U	340 U	340 U	330 U	350 U	17 U	340 U	16 U	17 U	350 U	16 U	350 U	18 U	340 U
Phenanthrene	5700	12000	350 U	33 J	53 J	330 U	230 J	900	10 J	340 U	200 J	16 J	130 J	26 U	430	24 U	26 U	45 J	25 U	190 J	26 U	38 J
Phenol	1700 U	8500 U	350 U	320 U	340 U	330 U	40 J	4 J	350 U	340 U	340 U	330 U	350 U	26 U	3 J	24 U	26 U	350 U	25 U	350 U	26 U	340 U
Pyrene	14000	37000	350 U	78 J	120 J	14 J	400	1800	10 J	18 J	570	48 J	330 J	21 U	730	19 U	25 Ja	170 J	19 Ua	340 J	25 Ja	100 J
CLP Metals (mg/kg)																						
Aluminum	6460	7160	3020	2050	5710	1440	6090	3520	5330	1580	3580	2340	4440	4330	3170	4280	3100	7200	1730	5600	7240	5540
Antimony	0.81 UN	0.81 UN	0.86 UN	0.87 U	0.78 U	0.83 U	0.88 UN	0.87 UN	0.86 U	0.82 U	0.89 U	0.82 U	0.90 UN	0.096 B	0.75 UN	0.071 B	0.53 B	0.95 UN	0.42 B	0.79 UN	0.17 B	0.75 UN
Arsenic	3.2	2.9	1.6 B	1.1 B	3.2	1.2 B	5.5	3.4	2.2	1.2 B	2.2	1.3 B	3.7	2.3 B	3.3	2.1 B	2.8 B	3.1	1.1 B	3.9	1.9 B	4.8
Barium	44.3	46.0	25.9 B	12.7 B	29.3 B	7.9 B	42.1	28.6 B	24.4 B	9.6 B	24.2 B	15.6 B	24.6 B	17.3	23.7 B	19.8	20.4	29.6 B	12.5	34.2 B	21.4	41.3
Beryllium	0.51 B	0.52 B	0.18 B	0.18 B	0.29 B	0.094 B	0.62 B	0.43 B	0.34 B	0.17 B	0.32 B	0.19 B	0.59 B	0.23 B	0.35 B	0.22 B	0.22 B	0.62 B	0.14 B	0.47 B	0.22 B	0.57 B
Cadmium	0.14 U	0.14 U	0.15 U	0.15 U	0.14 U	0.14 U	0.15 U	0.15 U	0.15 U	0.14 U	0.15 U	0.14 U	0.16 U	0.001 U	0.13 U	0.0011 U	0.011 B	0.16 U	0.001 U	0.14 U	0.001 U	0.13 U
Calcium	3490	13400	404 B	254 B	1310	563 B	5900	3530	662 B	446 B	1210	388 B	1290	625	7000	503	2640	2250	466	8040	4790	1010
Chromium	10.4	10.4	6.0	4.6	13.8	8.1	15.0	9.5	14.0	4.6	8.4	4.5	10.8	7.7	130	9.6	10.3	10.5	4.8	8.9	6.7	12.8
Cobalt	3.2 B	3.5 B	3.0 B	1.5 B	4.0 B	1.1 B	5.4 B	4.6 B	3.5 B	1.4 B	2.9 B	1.8 B	4.1 B	2.9	2.3 B	3.9	3.6	4.7 B	2.7	3.4 B	6.2	4.1 B
Copper	10.0	11.0	4.8	4.4 B	13.5	3.1 B	76.4	46.7	7.3	7.0	18.6	3.8 B	15.6	8.5	12.8	6.7	6.9	30.2	3.2 B	27.2	75.9	36.4
Iron	9390 *	10100 *	7540	6890	11400		12200 *	7790 *	10800	5650	8910	5780	10000 *	8430	11900 *	11700	9630	13300 *	5750	11200 *	17800	10200 *
Lead	20.5 *	24.4 *	5.2	6.5	24.5	4.0	43.8 *	24.6 *	8.0	4.3	27.3	4.5	49.4 *	7.4 B	95.2 *	4.8 B	14.4	35.4 *	5.1 B	28.4 *	13.6	51.8 *
Magnesium	2100	3060	647 B	477 B	1680	592 B	1680	1440	1170	475 B	1030	602 B	1370	868	3940	1100	1730	1850	484	2680	2350	1110
Manganese	204	222	199	105 *	189 *	65.9 *	202	128	206 *	96.5 *	180 *	127 *	148	153	155	191	166	173	155	153	207	157
Mercury	0.051	0.046	0.0074 B	0.043	0.17	0.0048 B	0.17	0.12	0.011	0.0041 U	0.046	0.0054 B	0.39	0.0054 U	0.13	0.0052 U	0.0050 U	0.047	0.0049 U	0.44	0.0055 U	0.10
Nickel	7.2	8.3	5.2 B	6.0 B	23.6	3.8 B	71.4	86.9	8.0	4.5 B	16.9	4.6 B	45.2	7.3	9.0	7.8	26.9	11.3	4.3	10.7	8.5	40.6
Potassium	494 B	554 B	343 B	302 B	569 B	177 B	743 B	498 B	571 B	187 B	403 B	345 B	517 B	416 ^	395 B	517 ^	521 ^	820 B	291 ^	735 B	833 ^	609 B
Selenium	0.87 U	0.86 U	0.91 U	0.93 UN	0.98 N	0.88 UN	0.94 U	1.2	0.91 UN	0.87 UN	0.95 UN	0.87 UN	0.96 U	0.096 B	0.80 U	0.071 B	0.53 B	1.0 U	0.42 B	0.84 U	0.17 B	0.96
Silver	0.18 U	0.18 U	0.18 U	0.19 U	0.17 U	0.18 U	0.19 U	0.19 U														

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).

Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).

U - Indicates analyte was not detected at or above the reporting limit.

J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.

B - Indicates result between instrument detection limit (IDL) and contract required detection limit (CRDL).

Table 8
Summary of Analytical Results From Area 3-8
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date									
	GLA8-01 10/26/01	GLA8-02 10/26/01	GLA8-2B 12/04/01	GLA8-2C 12/04/01	GLA8-2D 12/04/01	GLA8-2E 12/04/01	GLA8-03 10/26/01	GLA8-04A 10/26/01	GLA8-04B 10/26/01	GLA8-05 10/26/01
SVOC 8270 (ug/kg)										
2-Methylnaphthalene	350 U	11 J	11 J	330 U	24 J	9 J	13 J	340 U	340 U	340 U
Acenaphthene	350 U	44 J	11 J	330 U	350 U	9 J	330 U	340 U	340 U	340 U
Acenaphthylene	350 U	13 J	340 U	330 U	12 J	350 U	330 U	340 U	340 U	340 U
Anthracene	6 J	160 J	18 J	330 U	23 J	26 J	12 J	340 U	340 U	340 U
Benzo(a)anthracene	350 U	310 J	80 J	13 J	82 J	110 J	83 J	340 U	340 U	340 U
Benzo(a)pyrene	350 U	260 J	84 J	15 J	77 J	120 J	95 J	340 U	340 U	340 U
Benzo(b)fluoranthene	350 U	200 J	79 J	17 J	59 J	98 J	96 J	340 U	340 U	340 U
Benzo(g,h,i)perylene	350 U	220 J	64 J	17 J	69 J	110 J	75 J	340 U	340 U	340 U
Benzo(k)fluoranthene	350 U	240 J	94 J	15 J	75 J	130 J	97 J	340 U	340 U	340 U
Carbazole	350 U	78 J	340 U	330 U	350 U	11 J	330 U	340 U	340 U	340 U
Chrysene	350 U	310 J	110 J	23 J	96 J	140 J	120 J	340 U	340 U	340 U
Dibenzo(a,h)anthracene	350 U	340 U	23 J	330 U	23 J	44 J	330 U	340 U	340 U	340 U
Dibenzofuran	350 U	37 J	9 J	330 U	350 U	8 J	330 U	340 U	340 U	340 U
Fluoranthene	52 J	450	160 J	18 J	130 J	180 J	120 J	340 U	340 U	21 J
Fluorene	350 U	72 J	340 U	330 U	350 U	350 U	330 U	340 U	340 U	340 U
Indeno(1,2,3-cd)pyrene	350 U	190 J	58 J	14 J	58 J	100 J	66 J	340 U	340 U	340 U
Naphthalene	350 U	340 U	340 U	330 U	25 J	350 U	330 U	340 U	340 U	340 U
Phenanthrene	28 J	590	100 J	12 J	97 J	96 J	58 J	340 U	340 U	340 U
Pyrene	78 J	930	150 J	24 J	170 J	210 J	210 J	340 U	340 U	340 U
CLP Metals (mg/kg)										
Aluminum	3130	3140	4430	4680	3800	4100	2720	1400	1530	2270
Antimony	0.94 U/N	0.82 U/N	0.84 U	0.82 U	0.77 U	0.88 U	0.93 U/N	0.86 U/N	0.86 U/N	0.82 U/N
Arsenic	1.2 B	1.3 B	2.3	3.5	3.1	2.3	1.9 B	0.92 U	0.92 U	2.6
Barium	12.3 B	13.0 B	18.8 B	26.4 B	17.8 B	17.4 B	14.5 B	7.7 B	10.5 B	6.1 B
Beryllium	0.27 B	0.25 B	0.30 B	0.42 B	0.32 B	0.30 B	0.18 B	0.10 B	0.095 B	0.15 B
Cadmium	0.16 U	0.14 U	0.14 U	0.14 U	0.13 U	0.15 U	0.24 B	0.15 U	0.15 U	0.14 U
Calcium	494. B	370. B	1330	1040	438. B	1418	820. B	301. B	370. B	185. B
Chromium	10.8	8.2	9.6	7.5	7.8	11.6	6.5	5.2	4.7	13.0
Cobalt	1.8 B	2.0 B	2.2 B	2.4 B	2.1 B	2.4 B	1.9 B	1.5 B	1.6 B	1.2 B
Copper	5.3	7.3	8.1	10.7	6.0	7.5	7.6	3.7 B	3.7 B	3.9 B
Iron	7210 *	7270 *	6460	6770	6260	7210	5360 *	5150 *	5500 *	4720 *
Lead	10.8	15.5	48.0	32.8	17.8	63.4	28.1	2.0	2.5	7.3
Magnesium	457. B	710. B	896. B	922.	537. B	963.	749. B	501. B	637. B	293. B
Manganese	80.5	81.0	94.8	50.9	93.8	106.	99.3	72.9	79.7	46.4
Mercury	0.019	0.024	0.059	0.034	0.046	0.077	0.088	0.0066 B	0.014	0.026
Nickel	4.8 B	4.1 B	5.2 B	6.2 B	4.8 B	5.8 B	4.1 B	4.7 B	4.5 B	2.4 B
Potassium	209. B	173. B	335. B	283. B	281. B	326. B	262. B	260. B	372. B	130. B
Selenium	0.94 U	0.82 U	0.89 U	0.87 U	0.82 U	0.94 U	0.93 U	0.86 U	0.86 U	0.82 U
Silver	0.20 U	0.18 U	0.18 U	0.18 U	0.17 U	0.19 U	0.20 U	0.19 U	0.19 U	0.18 U
Sodium	35.6 B	20.2 B	37.5 B	48.6 B	26.3 B	49.6 B	20.3 B	15.5 B	17.1 B	19.1 B
Thallium	2.8 U	2.4 U	3.4 U	3.3 U	3.1 U	3.6 U	2.8 U	2.6 U	2.6 U	2.4 U
Vanadium	7.4 B	8.2 B	10.6	10.2	10.1	10.3	8.3 B	5.1 B	5.8 B	6.5 B
Zinc	16.0	18.9	79.9	29.6	33.0	81.2	97.7	14.9	15.2	11.2
PCB 8082 (ug/kg)										
Aroclor-1248	35 U	3.9 J	19 U	18 U	18 U	18 U	9.3 J	34 U	35 U	34 U
Aroclor-1260	35 U	5.3 J	19 U	18 U	18 U	18 U	4.2 J	34 U	35 U	34 U

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).

Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).

U - Indicates analyte was not detected at or above the reporting limit.

J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.

B - Indicates result between Instrument detection limit (IDL) and contract required detection limit (CRDL).

E - Indicates that the concentration is estimated due to matrix interferences.

N - Spiked sample recovery not within control limits.

a - Concentration exceeds the instrument calibration range or is below the reporting limit.

^ - Instrument quality control not within control limits.

* - Batch quality control not within control limits.

NS- Not Sampled

ne- not analyzed

Table 9
Summary of Analytical Results From Drip Pits
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date															
	GLDPE-01	GLDPE-02	GLDPE-03	GLDPE-04	GLDPN-01	GLDPN-02	GLDPN-03	GLDPN-04	GLDPS-01	GLDPS-02	GLDPS-03	GLDPS-04	GLDPW-01	GLDPW-02	GLDPW-03	GLDPW-04
	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01
SVOC 8270 (ug/kg)																
2-Methylnaphthalene	380 U	340 U	350 U	390 U	41 J	340 U	360 U	330 U	340 U	6 J	350 U	11 J	350 U	360 U	350 U	340 U
Acenaphthene	380 U	340 U	350 U	390 U	8 J	340 U	360 U	330 U	340 U	350 U	350 U	380 U	350 U	360 U	350 U	340 U
Acenaphthylene	380 U	340 U	350 U	390 U	150 J	340 U	360 U	330 U	340 U	350 U	350 U	87 J	350 U	360 U	350 U	340 U
Anthracene	380 U	340 U	23 J	390 U	58 J	340 U	360 U	330 U	11 J	5 J	350 U	39 J	350 U	7 J	350 U	340 U
Benzo(a)anthracene	380 U	340 U	45 J	390 U	140 J	340 U	360 U	330 U	36 J	350 U	350 U	120 J	350 U	360 U	350 U	340 U
Benzo(a)pyrene	380 U	340 U	350 U	390 U	160 J	340 U	360 U	330 U	340 U	350 U	350 U	150 J	350 U	360 U	350 U	340 U
Benzo(b)fluoranthene	380 U	340 U	350 U	390 U	87 J	340 U	360 U	330 U	340 U	350 U	350 U	98 J	350 U	360 U	350 U	340 U
Benzo(g,h,i)perylene	380 U	340 U	350 U	390 U	320 J	340 U	360 U	330 U	340 U	350 U	350 U	170 J	350 U	360 U	350 U	340 U
Benzo(k)fluoranthene	380 U	340 U	350 U	390 U	130 J	340 U	360 U	330 U	340 U	350 U	350 U	130 J	350 U	360 U	350 U	340 U
Benzoic acid	1800 U	1700 U	1700 U	1900 U	1700 U	1600 U	1800 U	1600 U	21 J	25 J	1700 U	28 J	1700 U	29 J	1700 U	1700 U
Chrysene	380 U	340 U	56 J	390 U	170 J	340 U	360 U	330 U	52 J	350 U	350 U	140 J	350 U	360 U	350 U	340 U
Fluoranthene	380 U	340 U	68 J	390 U	100 J	26 J	360 U	330 U	47 J	19 J	350 U	120 J	350 U	25 J	350 U	12 J
Fluorene	380 U	340 U	350 U	390 U	390 U	340 U	360 U	330 U	340 U	350 U	350 U	10 J	350 U	360 U	350 U	340 U
Indeno(1,2,3-cd)pyrene	380 U	340 U	24 J	390 U	150 J	340 U	360 U	330 U	340 U	350 U	350 U	120 J	350 U	360 U	350 U	340 U
Isophorone	380 U	340 U	350 U	390 U	350 U	260 J	360 U	330 U	340 U	350 U	350 U	380 U	350 U	360 U	350 U	340 U
Naphthalene	380 U	340 U	350 U	390 U	31 J	340 U	360 U	330 U	340 U	29 J	350 U	11 J	350 U	360 U	350 U	340 U
Phenanthrene	380 U	340 U	50 J	390 U	250 J	340 U	360 U	330 U	32 J	16 J	350 U	62 J	350 U	16 J	350 U	340 U
Pyrene	380 U	340 U	160 J	390 U	370	42 J	360 U	330 U	100 J	45 J	350 U	380	350 U	61 J	350 U	24 J
CLP Metals (mg/kg)																
Aluminum	1020	1810	1700	748	2190	1400	2150	1370	2460	2810	2620	1960	2330	3520	2470	1610
Antimony	0.97 UN	0.88 UN	0.98 UN	1.0 UN	0.94 UN	0.93 UN	0.98 UN	0.86 UN	0.86 UN	0.99 UN	0.88 UN	0.92 UN	0.84 UN	0.92 UN	0.92 UN	0.94 UN
Arsenic	1.0 U	0.94 U	1.1 B	1.1 U	2.6	0.99 U	1.4 B	0.91 U	1.8 B	1.3 B	1.4 B	1.6 B	0.92 B	20.2	1.2 B	1.0 U
Barium	3.9 B	9.2 B	8.4 B	2.3 B	12.4 B	7.2 B	12.5 B	14.7 B	11.6 B	14.9 B	11.8 B	8.3 B	10.6 B	16.9 B	13.8 B	8.9 B
Beryllium	0.10 U	0.11 B	0.11 U	0.11 U	0.13 B	0.13 B	0.14 B	0.11 B	0.16 B	0.18 B	0.18 B	0.16 B	0.16 B	0.24 B	0.16 B	0.11 B
Cadmium	0.17 U	0.15 U	0.17 U	0.18 U	0.31 B	0.16 U	0.17 U	0.15 U	0.22 B	0.16 U	0.15 U	0.18 B	0.15 U	0.31 B	0.16 U	0.16 U
Calcium	927. B	345. B	1470	135. B	5850	511. B	3820	171. B	2510	1100	284. B	582. B	239. B	828. B	244. B	167. B
Chromium	3.1	4.1	18.6	2.0 B	105.	7.1	10.2	3.7	32.4	17.9	5.7	110.	4.4	45.4	7.5	4.5
Cobalt	0.46 B	2.0 B	1.6 B	0.27 U	1.6 B	1.4 B	1.4 B	0.82 B	1.6 B	3.0 B	2.3 B	1.3 B	1.4 B	2.4 B	3.2 B	1.7 B
Copper	2.0 B	4.4 B	5.2 B	2.0 B	8.7	3.2 B	4.3 B	2.2 B	6.9	5.9	4.5 B	6.7	17.4	9.0	4.0 B	2.9 B
Iron	1060 *	5040 *	3460 *	1100 *	10700 *	3970 *	4170 *	2820 *	5600 *	6440 *	7300 *	7930 *	4980 *	10600 *	6490	4140
Lead	2.8	5.1	12.4	2.0	54.0	6.6	14.1	2.2	15.9	18.9	4.7	28.9	6.7	35.9	8.7	3.9
Magnesium	36.4 B	440. B	393. B	20.2 B	3000	298. B	1050 B	210. B	505. B	483. B	381. B	392. B	284. B	685. B	578. B	281. B
Manganese	10.4	52.9	54.9	7.2	128.	71.6	71.4	110.	84.6	133.	81.6	66.9	78.9	124.	125.	111.
Mercury	0.0059 B	0.0061 B	0.011	0.0040 B	0.025	0.0087	0.016	0.0038 B	0.018	0.010	0.0036 U	0.017	0.0072	0.027	0.023	0.0066
Nickel	0.90 B	4.0 B	2.4 B	0.39 B	4.8 B	2.0 B	2.3 B	2.2 B	3.6 B	4.2 B	4.0 B	3.4 B	3.3 B	5.1 B	6.5 B	2.3 B
Potassium	137. B	246. B	205. B	105. B	230. B	143. B	204. B	116. B	224. B	325. B	409. B	186. B	221. B	270. B	232. B	179. B
Selenium	0.97 U	0.88 U	0.98 U	1.0 U	0.94 U	0.93 U	0.98 U	0.86 U	0.86 U	0.99 U	0.88 U	0.92 U	0.84 U	0.92 U	0.92 U	0.94 U
Silver	0.21 U	0.19 U	0.21 U	0.23 U	0.20 U	0.20 U	0.21 U	0.19 U	0.19 U	0.22 U	0.19 U	0.20 U	0.18 U	0.20 U	0.20 U	0.20 U
Sodium	13.8 B	12.7 B	17.4 B	11.1 B	30.2 B	12.2 B	24.7 B	11.8 B	21.2 B	20.5 B	12.3 B	11.0 B	15.0 B	21.1 B	19.3 B	13.6 B
Thallium	2.9 U	2.6 U	2.9 U	3.1 U	2.8 U	2.8 U	2.9 U	2.6 U	2.6 U	2.9 U	2.6 U	2.7 U	2.5 U	2.7 U	2.7 U	2.8 U
Vanadium	5.8 B	6.1 B	7.6 B	6.0 B	7.6 B	4.6 B	7.2 B	3.1 B	7.4 B	8.3 B	8.4 B	8.7 B	6.8 B	18.0	7.5 B	5.9 B
Zinc	6.5	8.1	15.8	4.2 B	40.8	12.4	13.3	5.4 B	24.6	26.2	12.0	31.3	10.4	51.4	11.7	11.3
PCB 8082 (ug/kg)																
Aroclor-1248	3.7 J	35. U	1100	39. U	390	74.	17. J	34. U	6.4 J	35. U	35. U	8.2 J	34. U	1.6 J	34. U	35. U
Aroclor-1254	38. U	35. U	350 U	39. U	70. U	56.	37. U	34. U	35. U	35. U	35. U	38. U	34. U	38. U	34. U	32 J
Aroclor-1260	38. U	35. U	120 J	39. U	110	34.	4.7 J	34. U	35. U	33 J	35. U	6.6 J	34. U	38. U	34. U	20 J

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).
Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).
U - indicates analyte was not detected at or above the reporting limit.
J - indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.
B - indicates result between instrument detection limit (IDL) and contract required detection limit (CROL).
E - indicates that the concentration is estimated due to matrix interferences.
N - Spiked sample recovery not within control limits.
a - Concentration exceeds the instrument calibration range or is below the reporting limit.
^ - Instrument quality control not within control limits.
* - Batch quality control not within control limits.
NS- Not Sampled
na- not analyzed

Table 10
Summary of Analytical Results From the Manholes and Outfall Pipes
KeySpan Energy - Glenwood Landing
Queena, NY

Analyte	Sample Collection Designation & Collection Date						
	M.H.#1	M.H.#2	M.H.#3	M.H.#4	OF#1	OF#2	OF#3
	11/05/01	11/05/01	11/05/01	11/05/01	11/06/01	11/06/01	11/06/01
SVOC 8270 (ug/kg)							
2-Methylnaphthalene	380 U	5400 J	10 J	9 J	390 U	400 U	400 U
Acenaphthene	380 U	14000 J	370 U	380 U	27 J	400 U	400 U
Acenaphthylene	380 U	20000 U	370 U	380 U	10 J	400 U	400 U
Anthracene	6 J	41000	370 U	24 J	62 J	400 U	400 U
Benzo(a)anthracene	19 J	68000	370 U	50 J	120 J	18 J	400 U
Benzo(a)pyrene	19 J	63000	8 J	53 J	100 J	14 J	400 U
Benzo(b)fluoranthene	24 J	58000	8 J	60 J	97 J	14 J	400 U
Benzo(g,h,i)perylene	380 U	45000	8 J	380 U	28 J	400 U	400 U
Benzo(k)fluoranthene	26 J	47000	8 J	60 J	110 J	15 J	400 U
bis(2-Ethylhexyl)phthalate	380 U	20000 U	370 U	65 J	390 U	400 U	400 U
Carbazole	380 U	22000	370 U	380 U	19 J	400 U	400 U
Chrysene	32 J	64000	370 U	96 J	140 J	30 J	400 U
Dibenz(a,h)anthracene	380 U	18000 J	370 U	380 U	12 J	400 U	400 U
Dibenzofuran	380 U	12000 J	370 U	380 U	15 J	400 U	400 U
Fluoranthene	43 J	150000	9 J	98 J	250 J	46 J	22 J
Fluorene	380 U	26000	370 U	380 U	390 U	400 U	400 U
Indeno(1,2,3-cd)pyrene	380 U	41000	5 J	7 J	31 J	5 J	3 J
Naphthalene	380 U	21000	370 U	380 U	390 U	400 U	400 U
Phenanthrene	28 J	140000	370 U	100 J	140 J	400 U	400 U
Pyrene	40 J	120000	11 J	120 J	190 J	38 J	17 J
CLP Metals (mg/kg)							
Aluminum	1850	1910	1260	1640	987	645	1250
Arsenic	0.99 U	3.5	2.9	3.6	0.99 B	0.84 U	1.3 B
Barium	4.8 B	29.5 B	13.9 B	14.6 B	5.6 B	3.3 B	2.1 B
Beryllium	0.11 U	0.10 U	0.17 B	0.11 U	0.11 U	0.095 U	0.087 U
Cadmium	0.18 U	0.23 B	0.16 U	0.18 U	0.17 U	0.15 U	0.14 U
Calcium	19800	19700	7100	27200	22100	2890	1170
Chromium	1.6 B	14.7	47.8	13.6	3.9	3.5	4.7
Cobalt	3.5 B	2.8 B	2.4 B	2.9 B	1.2 B	0.42 B	0.88 B
Copper	54.6	82.0	72.1	99.9	43.0	4.9	4.9
Iron	9630	13800	26600	15500	7450	3250	7190
Lead	6.4	58.4	68.7	15.7	8.7	10.3	6.6
Magnesium	11400	10500	4160	15800	1820	508. B	643. B
Manganese	89.4	132	200	187	92.3	40.3	97.2
Mercury	0.0077	0.36	0.13	0.029	0.035	0.010	0.0084
Nickel	2.8 B	16.7	56.0	101	2.4 B	2.2 B	2.3 B
Potassium	541. B	308. B	132. B	201. B	286. B	128. B	153. B
Selenium	1.1 U	1.0 U	1.1	1.1 U	1.1 U	0.93 U	0.86 U
Sodium	1000 B	81.4 B	73.2 B	103. B	1640	251. B	42.2 B
Vanadium	14.2	36.0	62.2	17.4	6.9 B	3.3 B	6.9 B
Zinc	28.4	87.4	109	88.4	29.1	13.5	19.7
PCB 8082 (ug/kg)							
Aroclor-1248	75	1200	1000	53	65	13. J	7.7 J
Aroclor-1260	14. J	160 J	27. J	13. J	16. J	3.4 J	2.2 J
VOC 8260 (ug/kg)							
2-Butanone	12 U	14 U	12 U	12 U	7 JB	13 U	13 U
Acetone	8 JB	19 B	11 JB	10 J	18 B	31 B	13 U
Methylene Chloride	4 JB	11 B	9 B	9	10 B	18 B	5 JB
Tetrachloroethene	6 U	7 U	3 J	6 U	6 U	7	29
Trichloroethene	6 U	7 U	6 U	6 U	6 U	2 J	6 U

VOC, SVOC, and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).

Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).

U - Indicates analyte was not detected at or above the reporting limit.

J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.

B - for VOC data, indicates that the analyte was found in the blanks as well as in the sample.

B - for all other data, indicates result between instrument detection limit (IDL) and contract required detection limit (CRDL).

E - indicates that the concentration is estimated due to matrix interferences.

N - Split sample recovery not within control limits.

a - Concentration exceeds the instrument calibration range or is below the reporting limit.

A - instrument quality control not within control limits.

* - Batch quality control not within control limits.

NS - Not Sampled

na - not analyzed

Table 11
Summary of Silica/Dust Air Sampling Results
KeySpan Energy
Glenwood Landing Site
Queens, NY

Sample Date	Sample Type	Location	Total Dust				Silica		
			Result Reported	Adjusted 8-hour TWA	% Silica	PEL*	Result Reported	Adjusted 8-hour TWA	PEL*
8/21/2001	Ambient-01	At Holder Pad G. Sellers/247-25-0216	<0.05	<0.04	ND	5.0	<0.01	-	30.0
	Personal-02		0.08	0.06	21.3%	0.43	0.017	0.01	1.29
	Blank-03		<0.05 mg	-	-	-	<0.01 mg	-	-
8/22/2001	Personal-04	G. Sellers/247-25-0216	0.07	0.06	ND	5.0	<0.01	<0.01	30.0
	Ambient-05	North Perimeter	<0.06	-	ND	5.0	<0.01	-	30.0
	Ambient-06	West Perimeter	<0.06	-	ND	5.0	<0.01	-	30.0
	Blank-07	-	0.117 mg	-	-	-	<0.01 mg	-	-
8/23/2001	Ambient-08	North Perimeter	<0.06	-	ND	5.0	<0.01	-	30.0
	Ambient-09	West Perimeter	0.07	-	21.7%	0.42	0.015	-	1.27
	Blank-10	-	0.098 mg	-	-	-	<0.01 mg	-	-
8/27/2001	Ambient-11	North Perimeter	0.11	-	15.0%	0.59	0.016	-	1.76
	Ambient-12	West Perimeter	<0.06	-	ND	5.0	<0.01	-	30.0
	Blank-13	-	<0.05 mg	-	-	-	<0.01 mg	-	-
8/28/2001	Ambient-14	North Perimeter	<0.06	-	ND	15.0	<0.01	-	30.0
	Ambient-15	West Perimeter	0.08	-	ND	15.0	<0.01	-	30.0
	Blank-16	-	<0.05 mg	-	-	-	<0.01 mg	-	-
8/29/2001	Ambient-17	North Perimeter	0.094	-	36.7%	0.71	0.034	-	0.78
	Ambient-18	West Perimeter	<0.06	-	ND	15.0	<0.01	-	30.0
	Blank-19	-	<0.05 mg	-	-	-	<0.01 mg	-	-
9/4/2001	Ambient-20	North Perimeter	<0.06	<0.06	100.0%	0.1	0.014	0.013	0.294
	Ambient-21	West Perimeter	<0.06	<0.06	ND	5.0	<0.01	<0.01	30.0
	Blank-22	-	<0.01 mg	-	-	-	<0.01 mg	-	-
9/5/2001	Ambient-23	North Perimeter	<0.06	<0.06	ND	5.0	<0.01	<0.01	30.0
	Ambient-24	West Perimeter	0.062	0.058	51.0%	0.19	0.032	0.03	0.566
	Blank-25	-	<0.05 mg	-	-	-	<0.01 mg	-	-
9/6/2001	Ambient-26	North Perimeter	<0.06	<0.05	100.0%	0.1	0.016	0.014	0.294
	Blank-27	-	<0.05 mg	-	-	-	<0.01 mg	-	-
9/7/2001	Ambient-28	North Perimeter	0.12	0.11	51.6%	0.19	0.061	0.053	0.56
	Ambient-29	Shore Road	0.084	0.074	29.0%	0.32	0.025	0.022	0.968
	Blank-30	-	<0.05 mg	-	-	-	<0.01 mg	-	-
9/17/2001	Ambient-31	North Perimeter	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Ambient-32	Shore Road	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Blank-33	-	<0.05 mg	-	-	-	<0.01 mg	-	-
9/18/2001	Ambient-34	North Perimeter	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Ambient-35	Shore Road	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Blank-36	-	<0.05 mg	-	-	-	<0.01 mg	-	-
9/19/2001	Ambient-37	North Perimeter	0.086	0.075	83.8%	0.12	0.072	0.063	0.35
	Ambient-38	Shore Road	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Blank-39	-	<0.05 mg	-	-	-	<0.01 mg	-	-
9/20/2001	Ambient-40	North Perimeter	0.071	0.062	46.0%	0.21	0.033	0.029	0.625
	Ambient-41	Shore Road	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Blank-42	-	<0.05 mg	-	-	-	<0.01 mg	-	-
9/24/2001	Ambient-43	North Perimeter	0.11	0.096	44.9%	0.21	0.049	0.043	0.64
	Ambient-44	Shore Road	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Blank-45	-	<0.05 mg	-	-	-	<0.01 mg	-	-
9/25/2001	Ambient-46	North Perimeter	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0

	Ambient-47 Blank-48	Shore Road -	<0.06 <0.05 mg	<0.05 -	ND -	5.0 -	<0.01 <0.01 mg	<0.01 -	30.0 -
9/26/2001	Ambient-49	North Perimeter Shore Road -	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Ambient-50		<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Blank-51		<0.05 mg	-	-	-	<0.01 mg	-	-
9/27/2001	Ambient-52	North Perimeter Shore Road -	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Ambient-53		0.061	0.05	32.1%	0.29	0.02	0.018	0.88
	Blank-54		<0.05 mg	-	-	-	<0.01 mg	-	-
10/1/2001	Ambient-55	North Perimeter Shore Road -	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Ambient-56		<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Blank-57		<0.05 mg	-	-	-	<0.01 mg	-	-
10/2/2001	Ambient-58	North Perimeter Shore Road -	<0.06	<0.05	100.0%	0.1	0.013	0.011	0.294
	Ambient-59		<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Blank-60		<0.06 mg	-	-	-	<0.01 mg	-	-
10/3/2001	Ambient-61	North Perimeter Shore Road -	<0.06	<0.05	100.0%	0.1	0.016	0.014	0.294
	Ambient-62		<0.06	<0.05	100.0%	0.1	0.016	0.014	0.294
	Blank-63		<0.05 mg	-	-	-	<0.01 mg	-	-
10/4/2001	Ambient-64	North Perimeter Shore Road -	0.18	0.158	9.8%	0.85	0.018	0.016	2.542
	Ambient-65		<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Blank-66		<0.05 mg	-	-	-	-	-	-
10/11/2001	10/11-01	North Perimeter Shore Road -	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	10/11-02		<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Blank-03		<0.05 mg	-	-	-	<0.01 mg	-	-
10/29/2001	Ambient-67	North Perimeter Shore Road -	0.075	0.066	-	15.0	-	-	-
	Ambient-68		<0.06	<0.06	<0.05	15.0	-	-	-
	Blank-69		<0.05 mg	-	-	-	-	-	-
10/30/2001	Ambient-70	North Perimeter Shore Road -	0.091	0.072	-	15.0	-	-	-
	Ambient-71		<0.06	<0.05	-	15.0	-	-	-
	Blank-72		<0.05 mg	-	-	-	-	-	-
10/31/2002	Ambient-73	North Perimeter Shore Road -	<0.07	<0.05	-	15.0	-	-	-
	Ambient-74		<0.19	0.143	-	15.0	-	-	-
	Blank-75		<0.05 mg	-	-	-	-	-	-
11/1/2001	Ambient-76	North Perimeter Shore Road -	<0.13	<0.126	-	15.0	-	-	-
	Ambient-77		<0.05	<0.048	-	15.0	-	-	-
	Blank-78		<0.05 mg	-	-	-	-	-	-
11/2/2001	Ambient-79	North Perimeter Shore Road -	<0.06	<0.05	-	15.0	-	-	-
	Ambient-80		0.2	0.18	-	15.0	-	-	-
	Blank-81		<0.05 mg	-	-	-	-	-	-
11/5/2001	Ambient-82	North Perimeter Shore Road -	<0.06	<0.05	100.0%	0.1	0.024	0.021	0.294
	Ambient-83		<0.06	<0.05	100.0%	5.0	0.018	0.016	0.294
	Blank-84		<0.05 mg	-	-	-	<0.01 mg	-	-
11/10/2001	Ambient-85	North Perimeter Shore Road -	0.12	0.11	39.1%	0.24	0.046	0.04	0.73
	Ambient-86		0.16	0.14	26.6%	0.35	0.042	0.037	1.049
	Blank-87		<0.05 mg	-	-	-	<0.01 mg	-	-
11/14/2001	Ambient-88	NW Shore Road SW Shore Road -	<0.06	<0.05	100.0%	0.1	0.015	0.013	0.294
	Ambient-89		0.093	0.08	31.2%	0.3	0.029	0.025	0.904
	Blank-90		<0.05 mg	-	-	-	<0.01 mg	-	-
11/15/2001	Ambient-91	NW Shore Road SW Shore Road -	0.17	0.15	19.0%	0.48	0.032	0.028	1.429
	Ambient-92		<0.06	<0.05	100.0%	0.1	0.017	0.015	0.294
	Blank-93		0.0 mg	-	-	-	<0.01 mg	-	-
11/16/2001	Ambient-94	NW Shore Road SW Shore Road -	0.061	0.053	ND	5.0	<0.01	<0.01	15.0
	Ambient-95		0.13	0.11	45.6%	0.21	0.059	0.052	0.63
	Blank-96		<0.05 mg	-	-	-	<0.01 mg	-	-
11/19/2001	Ambient-97	NW Shore Road SW Shore Road -	<0.06	<0.05	100.0%	0.1	0.028	0.025	0.294
	Ambient-98		0.12	0.11	32.5%	0.29	0.038	0.033	0.87
	Blank-99		<0.05 mg	-	-	-	<0.01 mg	-	-

11/20/2001	Ambient-100 Ambient-101 Blank-102	NW Shore Road SW Shore Road -	<0.06 <0.06 <0.05 mg	<0.05 <0.05 -	100.0% ND -	0.1 5.0 -	0.012 <0.01 <0.01 mg	0.011 <0.01 -	0.294 15.0 -
11/21/2001	Ambient-103 Ambient-104 Blank-105	NW Shore Road SW Shore Road -	<0.08 0.15 <0.05 mg	<0.05 0.09 -	100.0% 37.2% -	0.1 0.26 -	0.025 0.056 <0.01 mg	0.016 0.035 -	0.294 0.766 -
11/26/2001	Ambient-106 Ambient-107 Blank-108	NW Shore Road SW Shore Road -	<0.06 0.17 <0.05 mg	<0.05 0.15 -	ND 45.6% -	5.0 0.21 -	<0.01 0.079 <0.01 mg	<0.01 0.069 -	15.0 0.63 -
11/27/2001	Ambient-109 Ambient-110 Blank-111	NW Shore Road SW Shore Road -	<0.10 0.18 <0.05 mg	<0.09 0.16 -	100.0% 34.8% -	0.1 0.27 -	0.07 0.061 <0.01 mg	0.061 0.053 -	0.294 0.815 -
11/28/2001	Ambient-112 Ambient-113 Blank-114	NW Shore Road SW Shore Road -	0.14 <0.06 <0.05 mg	0.12 <0.05 -	27.5% 100.0% -	0.34 0.1 -	0.039 0.018 <0.01 mg	0.034 0.016 -	1.017 0.294 -
11/29/2001	Ambient-115 Ambient-116 Blank-117	NW Shore Road SW Shore Road -	0.018 <0.08 <0.05 mg	0.11 <0.05 -	9.8% ND -	0.85 5.0 -	0.011 <0.02 <0.01 mg	0.016 <0.01 -	2.542 15.0 -
11/30/2001	Ambient-118 Ambient-119 Blank-120	NW Shore Road SW Shore Road -	0.13 <0.06 <0.05 mg	0.11 <0.05 -	35.4% 100.0% -	0.27 0.1 -	0.048 0.014 <0.01 mg	0.042 0.012 -	0.802 0.294 -
12/1/2001	Ambient-121 Ambient-122 Blank-123	NW Shore Road SW Shore Road -	0.08 <0.06 <0.05 mg	0.07 <0.05 -	15.0% ND -	0.59 5.0 -	0.012 <0.01 <0.01 mg	0.011 <0.01 -	1.765 15.0 -
12/3/2001	Ambient-124 Ambient-125 Blank-126	NW Shore Road SW Shore Road -	0.26 0.11 <0.05 mg	0.16 0.07 -	35.5% 45.0% -	0.27 0.21 -	0.093 0.049 <0.01 mg	0.058 0.031 -	0.8 0.638 -
12/4/2001	Ambient-127 Ambient-128 Blank-129	NW Shore Road SW Shore Road -	0.32 0.25 <0.05 mg	0.2 0.16 -	34.5% 40.7% -	0.27 0.23 -	0.11 0.1 <0.01 mg	0.069 0.063 -	0.822 0.703 -

Results in mg/m³

* PEL for silica depends upon % silica in total dust sample as determined by IH Laboratory; PEL for silica quartz = 30 mg/m³/(%SiO₂ + 2)

Table 12

Summary of PCB and Inorganic Air Sampling Results

KeySpan Energy
Glenwood Landing Site
Queens, NY

Sample ID Date Sampled Air Volume (L)	Area 1B - #01 12/4/2001 300	Area 1B - #02 12/4/2001 300	Area 1B - #03 Blank 12/4/2001 -	#7- North Side A1B 12/6/2001 600	#8- North Side A1B 12/6/2001 600	#9- Blank 12/6/2001 -	10- North Side A1B 12/10/2001 600	11- North Side A1B 12/10/2001 600	12- Blank 12/10/2001 -	13- Area 1B 12/11/2001 600	14- Area 1B 12/11/2001 600	15- Blank 12/11/2001 -	16- North Area 1B 12/12/2001 480	17- North Area 1B 12/12/2001 480	18- Blank 12/12/2001 -
Arsenic Total ug Concentration (ug/m ³)	<0.15 <0.5	<0.15 <0.5	<0.15 NA	<0.15 <0.2	<0.15 <0.2	<0.15 NA	<0.15 <0.2	<0.15 <0.2	<0.15 NA	<0.15 <0.2	<0.15 <0.2	<0.15 NA	<0.15 <0.3	<0.15 <0.3	<0.15 NA
Vanadium Total ug Concentration (mg/m ³)	<0.45 <0.002	<0.45 <0.002	<0.45 NA	<0.45 <0.0008	<0.45 <0.0008	<0.45 NA	<0.45 <0.0008	<0.45 <0.0008	<0.45 NA	<0.45 <0.0008	<0.45 <0.0008	<0.45 NA	<0.45 <0.0009	<0.45 <0.0009	<0.45 NA

Sample ID Date Sampled Air Volume (L)	#1- East of Pad 10/23/2001 48	#2- West Laborer in Cab 10/23/2001 48	#3- Blank 10/23/2001 NA	#1 Area 1- Excavator 10/24/2001 48	#2 Area 1- Tanks 10/24/2001 48	Lab Blank 10/24/2001 48
PCB (Aroclors 1016-1260) Front ug Back ug Total ug Concentration (mg/m ³)	<0.05 <0.05 <0.05 <0.001	<0.05 <0.05 <0.05 <0.001	<0.05 <0.05 <0.05 NA	<0.05 <0.05 <0.05 <0.001	<0.05 <0.05 <0.05 <0.001	<0.05 <0.05 <0.05 NA

NA- Not Applicable

Table 13
Summary of Soil Disposal Quantities
KeySpan Energy – Glenwood Landing
Queens, NY

Glenwood						
Date	Ticket	Truck	Manifest	Net Tons		
10/26/2001	68030	709	GW001	35.82		
10/26/2001	68034	717	GW002	36.43		
10/26/2001	68035	727	GW003	33.11		
10/26/2001	68038	14	GW005	31.99		
10/26/2001	68040	714	GW004	40.55		
10/26/2001	68041	141	GW006	28.18		
10/26/2001	68042	109	GW007	25.97		
10/26/2001	68043	110	GW008	29.66		
10/26/2001	68044	111	GW009	29.81		
10/26/2001	68045	103	GW010	33.14		
10/26/2001	68047	102	GW011	32.29		
10/26/2001	68049	140	GW013	29.2		
10/26/2001	68052	16	GW012	35.74		
Total Trucks Received		Total Tons Received				
10/26/2001	13	421.89				
Sub total week ending 10/27/01				Job total to date - 421.89/tons		
Date	Ticket	Truck	Manifest	Net Tons		
10/29/2001	68054	708	GW015	33.9		
10/29/2001	68055	705	GW014	34.05		
10/29/2001	68060	707	GW016	35.22		
10/29/2001	68061	713	GW017	29.84		
10/29/2001	68063	102	GW020	27.35		
10/29/2001	68064	109	GW018	28.67		
10/29/2001	68065	112	GW019	27.53		
10/29/2001	68068	103	GW025	21.84		
10/29/2001	68069	111	GW024	27.03		
10/29/2001	68071	141	GW022	28.3		
Total Trucks Received		Total Tons Received				
10/29/01	10	293.73				
Date	Ticket	Truck	Manifest	Net Tons		
10/30/2001	68077	140	GW021	29.11		
10/30/2001	68078	110	GW023	28.51		
10/30/2001	68079	112	GW026	25.54		
10/30/2001	68080	105	GW027	26.61		
10/30/2001	68081	102	GW031	26.39		
10/30/2001	68082	103	GW030	28.11		
10/30/2001	68083	104	GW032	28.51		
10/30/2001	68084	705	GW034	33.11		

10/30/2001	68085	711	GW035	31.59
10/30/2001	68086	141	GW029	26.33
10/30/2001	68087	109	GW028	27.51
10/30/2001	68088	16	GW033	26.72
10/30/2001	68089	707	GW036	35.14
10/30/2001	68090	710	GW037	36.22
Date	Total Trucks Received	Total Tons Received		
10/30/01	14	409.4		
Date	Ticket	Truck	Manifest	Net Tons
10/31/2001	68095	140	GW038	29.37
10/31/2001	68096	110	GW039	29.07
10/31/2001	68097	141	GW040	32.57
10/31/2001	68098	103	GW043	29.03
10/31/2001	68099	104	GW042	29.2
10/31/2001	68100	102	GW041	30.34
10/31/2001	68101	105	GW045	29.61
10/31/2001	68102	112	GW044	27.72
10/31/2001	68107	721	GW048	36.04
10/31/2001	68108	720	GW049	35.72
10/31/2001	68109	705	GW050	36.82
10/31/2001	68110	711	GW051	37.18
10/31/2001	68111	707	GW046	33.82
10/31/2001	68112	710	GW047	38.39
10/31/2001	68114	719	GW052	36.48
10/31/2001	68115	717	GW053	37.63
Date	Total Trucks Received	Total Tons Received		
10/31/01	16	530.99		
Date	Ticket	Truck	Manifest	Net Tons
11/01/01	68118	141	GW055	27.73
11/01/01	68119	140	GW054	31.27
11/01/01	68122	103	GW057	28.57
11/01/01	68123	102	GW056	29.37
11/01/01	68124	104	GW058	29.74
11/01/01	68125	112	GW059	27.45
11/01/01	68126	105	GW060	28.73
11/01/01	68127	110	GW061	27.73
Date	Total Trucks Received	Total Tons Received		
11/01/01	8	230.59		
Date	Ticket	Truck	Manifest	Net Tons
11/2/2001	68130	5	GW063	25.57
11/2/2001	68131	4	GW062	25.88
11/2/2001	68132	1	GW064	25.98

11/2/2001	68133	2	GW065	28.08
11/2/2001	68137	109	GW067	30.6
11/2/2001	68138	141	GW066	30.27
11/2/2001	68139	102	GW068	30.68
11/2/2001	68140	104	GW069	30.08
11/2/2001	68141	4	GW070	23.35
11/2/2001	68142	3	GW071	23.98
11/2/2001	68148	651	GW072	18.57
11/2/2001	68149	709	GW075	29.47
11/2/2001	68150	2	GW074	22.78
11/2/2001	68151	1	GW073	20.44
11/2/2001	68154	711	GW076	31.17
11/2/2001	68156	705	GW077	31.4
11/2/2001	68157	708	GW078	29.22
Date	Total Trucks Received	Total Tons Received		
11/02/01	12	457.52		
Sub total week ending 11/3/01	1922.23/tons	Job total to date - 2344.12/tons		
Date	Ticket	Truck	Manifest	Net Tons
11/5/2001	68160	710	GW080	28.86
11/5/2001	68161	706	GW081	33.02
11/5/2001	68162	720	GW082	32.39
11/5/2001	68163	712	GW083	29.95
11/5/2001	68164	717	GW084	31.36
11/5/2001	68166	708	GW085	24.17
11/5/2001	68168	711	GW086	28.76
11/5/2001	68169	716	GW087	29.02
11/5/2001	68170	715	GW090	24.86
11/5/2001	68172	723	GW089	28.69
11/5/2001	68173	727	GW088	28.46
11/5/2001	68178	719	GW091	25.7
Date	Total Trucks Received	Total Tons Received		
11/05/01	12	345.24		
Date	Ticket	Truck	Manifest	Net Tons
11/7/2001	68199	708	GW092	25.02
11/7/2001	68200	706	GW093	26.2
11/7/2001	68201	717	GW095	26.53
11/7/2001	68203	720	GW097	27.52
11/7/2001	68204	723	GW096	28.21
11/7/2001	68205	712	GW094	28.16
11/7/2001	68206	714	GW098	26.78

11/7/2001	68208	718	GW099	25.85
11/7/2001	68209	719	GW100	27.13
Date	Total Trucks Received	Total Tons Received		
11/07/01	9	241.4		
Date	Ticket	Truck	Manifest	Net Tons
11/8/2001	68210	716	GW101	28.67
11/8/2001	68211	715	GW102	27.58
11/8/2001	68213	713	GW103	25.45
11/8/2001	68214	720	GW106	30.43
11/8/2001	68215	709	GW104	27.44
11/8/2001	68216	719	GW105	26.71
11/8/2001	68217	110	GW107	26.54
11/8/2001	68218	13	GW108	27.01
11/8/2001	68219	141	GW109	25.77
11/8/2001	68220	140	GW110	24.07
11/8/2001	68221	104	GW114	27.58
11/8/2001	68222	102	GW115	27.42
11/8/2001	68223	103	GW113	26.97
11/8/2001	68224	11	GW116	26.43
11/8/2001	68225	12	GW112	28.59
11/8/2001	68226	15	GW111	28.27
Date	Total Trucks Received	Total Tons Received		
11/08/01	16	434.93		
Date	Ticket	Truck	Manifest	Net Tons
11/9/2001	68227	721	GW117	27.91
11/9/2001	68228	707	GW118	26.86
11/9/2001	68229	710	GW119	26.14
11/9/2001	68230	723	GW120	29.38
11/9/2001	68236	105	GW122	25.87
11/9/2001	68237	112	GW121	24.52
11/9/2001	68238	140	GW123	28.28
11/9/2001	68239	141	GW126	31.23
11/9/2001	68241	110	GW124	28.55
11/9/2001	68242	100	GW125	27.38
11/9/2001	68245	102	GW129	29.12
11/9/2001	68246	104	GW128	29.48
11/9/2001	68247	111	GW131	27.87
11/9/2001	68248	103	GW130	26.77
11/9/2001	68251	106	GW127	26.12
Date	Total Trucks Received	Total Tons Received		
11/09/01	15	415.48		

Sub total week ending 11/10/01		1437.05/tons	Job total to date - 3781.17/tons		
Date	Ticket	Truck	Manifest	Net Tons	
11/12/2001	68262	106	GW132	25.1	
11/12/2001	68263	105	GW133	26.91	
11/12/2001	68264	112	GW134	26.48	
11/12/2001	68265	109	GW135	26.84	
11/12/2001	68266	140	GW137	25.84	
11/12/2001	68267	111	GW138	27.29	
11/12/2001	68268	100	GW136	24.41	
11/12/2001	68270	104	GW141	26.45	
11/12/2001	68271	102	GW140	27.93	
11/12/2001	68272	103	GW139	25.82	
11/12/2001	68285	141	GW142	26.89	
				289.96	
Date	Total Trucks Received	Total Tons Received			
11/12/01	11	289.96			
Sub total week ending 11/13/01		609.37	Job total to date - 4390.54/tons		
Date	Ticket	Truck	Manifest	Net Tons	
11/13/2001	68298	110	GW143	28.8	
11/13/2001	68320	711	GW144	26.59	
11/13/2001	68321	716	GW145	27.86	
11/13/2001	68322	715	GW146	29.05	
11/13/2001	68323	14	GW147	29.05	
11/13/2001	68326	140	GW148	28.67	
11/13/2001	68327	18	GW149	28.56	
11/13/2001	68330	109	GW151	30.47	
11/13/2001	68337	714	GW150	29.35	
11/13/2001	68341	15	GW152	30.53	
11/13/2001	68342	8	GW153	30.66	
11/13/2001	68343	17	GW154	29.04	
11/13/2001	68344	102	GW156	28.68	
11/13/2001	68345	104	GW155	29.92	
11/13/2001	68346	12	GW159	28.15	
11/13/2001	68347	103	GW158	28.36	
11/13/2001	68352	718	GW157	29.78	
11/13/2001	68355	10	GW161	29.43	
11/13/2001	68356	112	GW162	26.58	
11/13/2001	68360	141	GW163	30.84	
11/13/2001	68364	16	GW160	29	
Date	Total Trucks Received	Total Tons Received			
11/13/01	21	609.37			

11/16/2001	68536	109	GW198	31.98
11/16/2001	68537	727	GW197	30.69
11/16/2001	68540	724	GW199	33.76
11/16/2001	68542	141	GW200	31.52
11/16/2001	68543	103	GW201	29.8
11/16/2001	68546	111	GW203	30.3
11/16/2001	68547	102	GW202	30.38
11/16/2001	68551	723	GW204	30.89
Date	Total Trucks Received	Total Tons Received		
11/16/01	12	363.18		
Sub total week ending 11/17/01	2058.3	Job total to date - 5839.47/tons		
Date	Ticket	Truck	Manifest	Net Tons
11/19/2001	68590	140	GW205	30.46
11/19/2001	68591	106	GW209	24.64
11/19/2001	68592	705	GW207	27.11
11/19/2001	68595	112	GW206	28.32
11/19/2001	68598	707	GW215	26.3
11/19/2001	68599	704	GW212	22.53
11/19/2001	68600	706	GW214	26.9
11/19/2001	68602	703	GW211	25.64
11/19/2001	68603	64	GW216	30.9
11/19/2001	68604	63	GW213	25.43
11/19/2001	68605	53	GW217	36.1
11/19/2001	68609	103	GW218	29.86
11/19/2001	68610	102	GW219	30.77
11/19/2001	68611	62	GW208	21.42
11/19/2001	68612	61	GW210	25.97
11/19/2001	68627	58	GW220	28.01
Date	Total Trucks Received	Total Tons Received		
11/19/01	16	440.36		
Date	Ticket	Truck	Manifest	Net Tons
11/20/2001	68660	61	GW222	28.75
11/20/2001	68661	63	GW221	27.82
11/20/2001	68663	705	GW223	28.14
11/20/2001	68665	707	GW225	28.5
11/20/2001	68666	703	GW224	25.98
11/20/2001	68667	706	GW226	27.51
11/20/2001	68668	141	GW228	28.58
11/20/2001	68669	102	GW229	29.04
11/20/2001	68670	103	GW230	30.16

11/20/2001	68676		704	GW227	28.72
11/20/2001	68693		58	GW231	27.54
Date					
11/20/01		Total Trucks Received	Total Tons Received		
	12		310.74		
Date	Ticket	Truck	Manifest	Net Tons	
11/21/2001	68731	61	GW234	31.31	
11/21/2001	68732	62	GW233	24.44	
11/21/2001	68734	141	GW232	32.73	
11/21/2001	68735	705	GW235	28.17	
11/21/2001	68736	704	GW236	28.79	
11/21/2001	68737	703	GW237	27.67	
11/21/2001	68738	63	GW238	30.41	
11/21/2001	68739	707	GW242	28.89	
11/21/2001	68741	102	GW239	30.21	
11/21/2001	68742	103	GW240	31.73	
11/21/2001	68747	58	GW241	29.35	
11/21/2001	68767	25	GW245	31.84	
11/21/2001	68768	1	GW249	28.41	
11/21/2001	68769	721	GW243	32.21	
11/21/2001	68770	920	GW244	29.2	
11/21/2001	68771	2	GW247	28.61	
11/21/2001	68772	922	GW246	29.84	
11/21/2001	68773	3	GW248	28.23	
Date		Total Trucks Received	Total Tons Received		
11/21/01	18		532.04		
Sub total week ending 11/24/01	1283.14		Job total to date - 7122.61/tons		
Date	Ticket	Truck	Manifest	Net Tons	
11/26/2001	68784	58	GW251	31.46	
11/26/2001	68785	703	GW254	28.76	
11/26/2001	68786	53	GW252	31.86	
11/26/2001	68787	705	GW255	29.98	
11/26/2001	68788	51	GW250	30.59	
11/26/2001	68789	52	GW253	34.51	
11/26/2001	68794	61	GW258	31.68	
11/26/2001	68796	109	GW259	29.25	
11/26/2001	68797	707	GW260	28.76	
11/26/2001	68798	141	GW257	31.22	
11/26/2001	68801	809	GW264	29.1	
11/26/2001	68803	802	GW265	30.19	
11/26/2001	68804	501	GW266	29.58	
11/26/2001	68806	140	GW256	31.41	

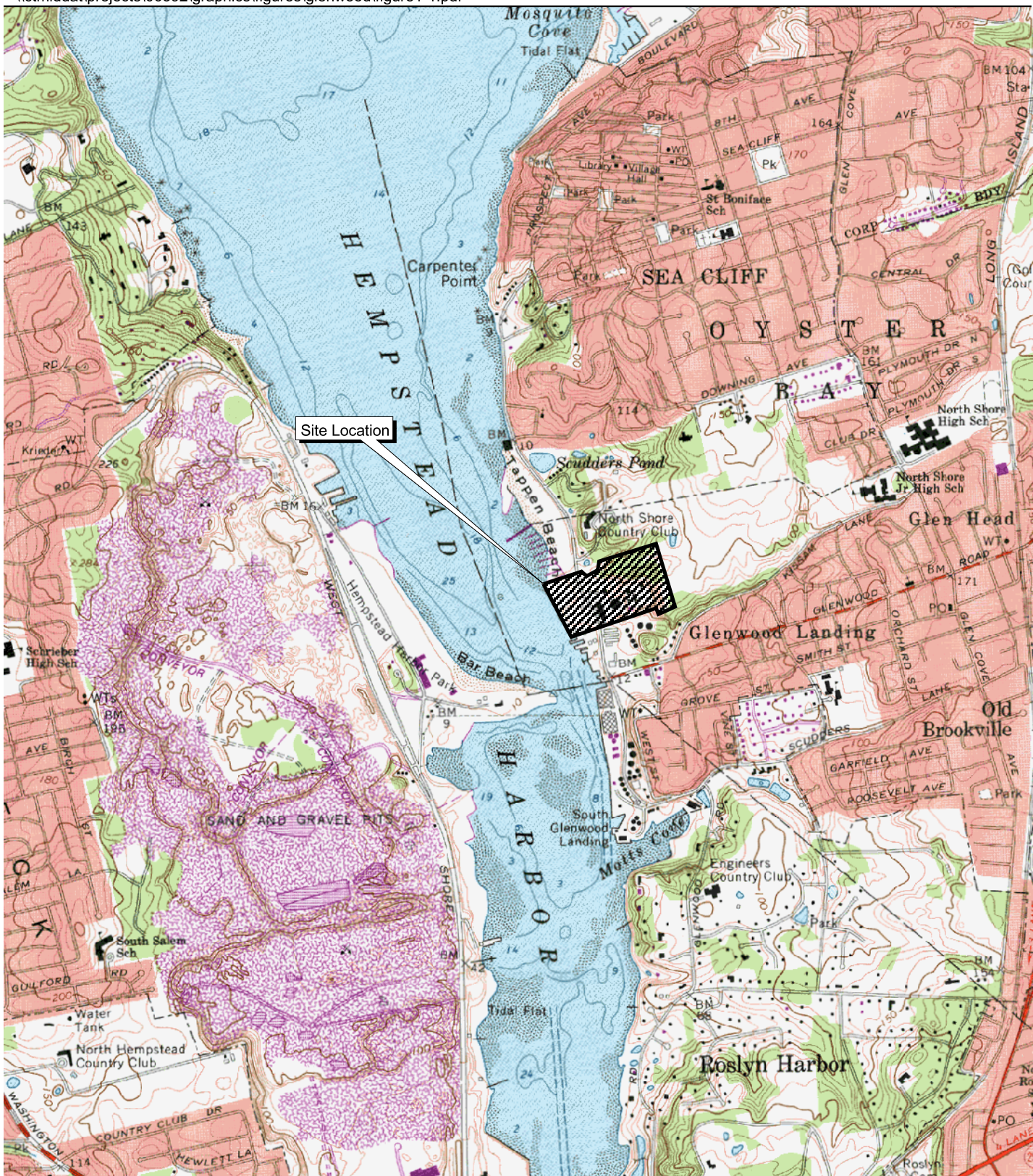
11/26/2001	68807	812	GW263	29.03
11/26/2001	68808	807	GW268	27.05
11/26/2001	68810	110	GW261	30.62
11/26/2001	68811	103	GW262	27.2
11/26/2001	68812	805	GW271	28.49
11/26/2001	68813	804	GW272	28.26
11/26/2001	68814	811	GW269	28.45
11/26/2001	68815	808	GW267	29.48
11/26/2001	68816	810	GW270	28.89
11/26/2001	68817	921	GW273	28.29
11/26/2001	68818	920	GW275	30.5
11/26/2001	68821	3	GW276	28.27
11/26/2001	68822	2	GW274	28.99
Date	Total Trucks Received	Total Tons Received		
11/26/01	27	801.87		
Date	Ticket	Truck	Manifest	Net Tons
11/27/2001	68859	61	GW278	31.43
11/27/2001	68860	62	GW277	27.9
11/27/2001	68863	51	GW279	30.96
11/27/2001	68864	56	GW281	29.56
11/27/2001	68865	57	GW280	30.84
11/27/2001	68867	64	GW287	25.95
11/27/2001	68869	52	GW282	29.11
11/27/2001	68871	55	GW283	30.88
11/27/2001	68873	501	GW284	30.71
11/27/2001	68874	802	GW285	27.33
11/27/2001	68875	703	GW286	27.63
11/27/2001	68878	805	GW293	29.14
11/27/2001	68879	807	GW294	28.7
11/27/2001	68880	58	GW292	31.34
11/27/2001	68881	705	GW289	28.52
11/27/2001	68882	707	GW291	29.52
11/27/2001	68883	704	GW290	29.14
11/27/2001	68885	59	GW288	30.61
11/27/2001	68886	63	GW295	30.28
11/27/2001	68899	811	GW300	27.36
11/27/2001	68901	810	GW302	27.35
11/27/2001	68902	808	GW299	28.28
11/27/2001	68905	809	GW301	29.11
11/27/2001	68908	65	GW298	28.3
11/27/2001	68909	60	GW297	29.27
11/27/2001	68910	54	GW296	31.64
Date	Total Trucks Received	Total Tons Received		760.86
11/27/01	26	760.68		

Sub total week ending 12/01/01	1562.55	Job total to date - 8685.16/tons	
Date	Ticket	Truck	Manifest
12/4/2001		61	GW303
12/4/2001		51	GW304
12/4/2001		53	GW305
12/4/2001		52	GW306
12/4/2001		63	GW307
12/4/2001		55	GW308
12/4/2001		62	GW309
			207.39
Date	Total Trucks Received	Total Tons Received	
12/4/01	7	207.39	
Date	Ticket	Truck	Manifest
12/5/2001		652	GW310
			12.53
Date	Total Trucks Received	Total Tons Received	
12/5/01	1	12.53	
Date	Ticket	Truck	Manifest
12/7/2001		652	GW311
			12.69
Date	Total Trucks Received	Total Tons Received	
12/7/01	1	12.69	
Date	Ticket	Truck	Manifest
12/12/2001		60	GW312
12/12/2001		54	GW313
12/12/2001		61	GW314
12/12/2001		51	GW315
12/12/2001		62	GW316
12/12/2001		64	GW317
12/12/2001		56	GW318
12/12/2001		65	GW319
12/12/2001		63	GW320
12/12/2001		53	GW321
12/12/2001		52	GW322
12/12/2001		58	GW323
12/12/2001		59	GW324
			399.36
Date	Total Trucks Received	Total Tons Received	
12/12/01	13	399.36	
Date	Ticket	Truck	Manifest
12/13/2001		811	GW325
			28.02

12/13/2001		805	GW326	29.11
12/13/2001		803	GW327	28.56
12/13/2001		801	GW328	30.06
12/13/2001		501	GW329	33.79
12/13/2001		62	GW330	31.22
12/13/2001		61	GW331	33.36
12/13/2001		64	GW332	28.05
12/13/2001		65	GW333	28.64
12/13/2001		921	GW334	29.57
12/13/2001		54	GW335	31.03
12/13/2001		60	GW336	28.77
12/13/2001		1	GW337	30.26
12/13/2001		20	GW338	29.4
12/13/2001		55	GW339	30.33
12/13/2001		920	GW340	31.31
12/13/2001		3	GW341	29.52
12/13/2001		57	GW342	31.16
12/13/2001		56	GW343	30.3
12/13/2001		23	GW344	30.02
12/13/2001		3	GW345	27.64
12/13/2001		22	GW346	25.52
12/13/2001		2	GW347	27.44
12/13/2001		1	GW348	29.37
12/13/2001		707	GW349	27.3
12/13/2001		703	GW350	29.67
				769.42
Date		Total Trucks Received	Total Tons Received	
12/13/01	26		769.42	
Date	Ticket	Truck	Manifest	Net Tons
12/14/2001		675	GW351	23.5
12/14/2001		57	GW352	38.24
12/14/2001		56	GW353	35.72
12/14/2001		703	GW354	26.5
12/14/2001		65	GW355	30.83
12/14/2001		60	GW356	29.69
12/14/2001		54	GW357	31.52
12/14/2001		705	GW358	28.13
12/14/2001		707	GW359	27.07
				271.2
Date		Total Trucks Received	Total Tons Received	
12/14/01	9		271.2	
Date	Ticket	Truck	Manifest	Net Tons
12/17/2001		703	GW360	24.99
12/17/2001		705	GW361	26.37
12/17/2001		707	GW362	25.57
				76.93

Date	Total Trucks Received	Total Tons Received		
12/17/01	3	76.93		
Date	Ticket	Truck	Manifest	Net Tons
12/27/2001		812	GW363	25.25
12/27/2001		811	GW364	21.57
12/27/2001		802	GW365	35.56
				82.38
Date	Total Trucks Received	Total Tons Received		
12/27/01	3	82.38		
Date	Ticket	Truck	Manifest	Net Tons
1/22/2002		675	GW366	21.92
				21.92
Date	Total Trucks Received	Total Tons Received		
1/22/2002	1	21.92		
Date	Ticket	Truck	Manifest	Net Tons
2/27/2002		501	GW360A	32.32
2/27/2002		811	GW361A	31.2
2/27/2002		807	GW362A	15
				78.52
Date	Total Trucks Received	Total Tons Received		
02/27/02	3	78.52		
Sub total: 12/4/01 - 2/27/02	1,932.34	Job total to date - 10,617.5/tons		

Figures



BASE MAP SOURCE:

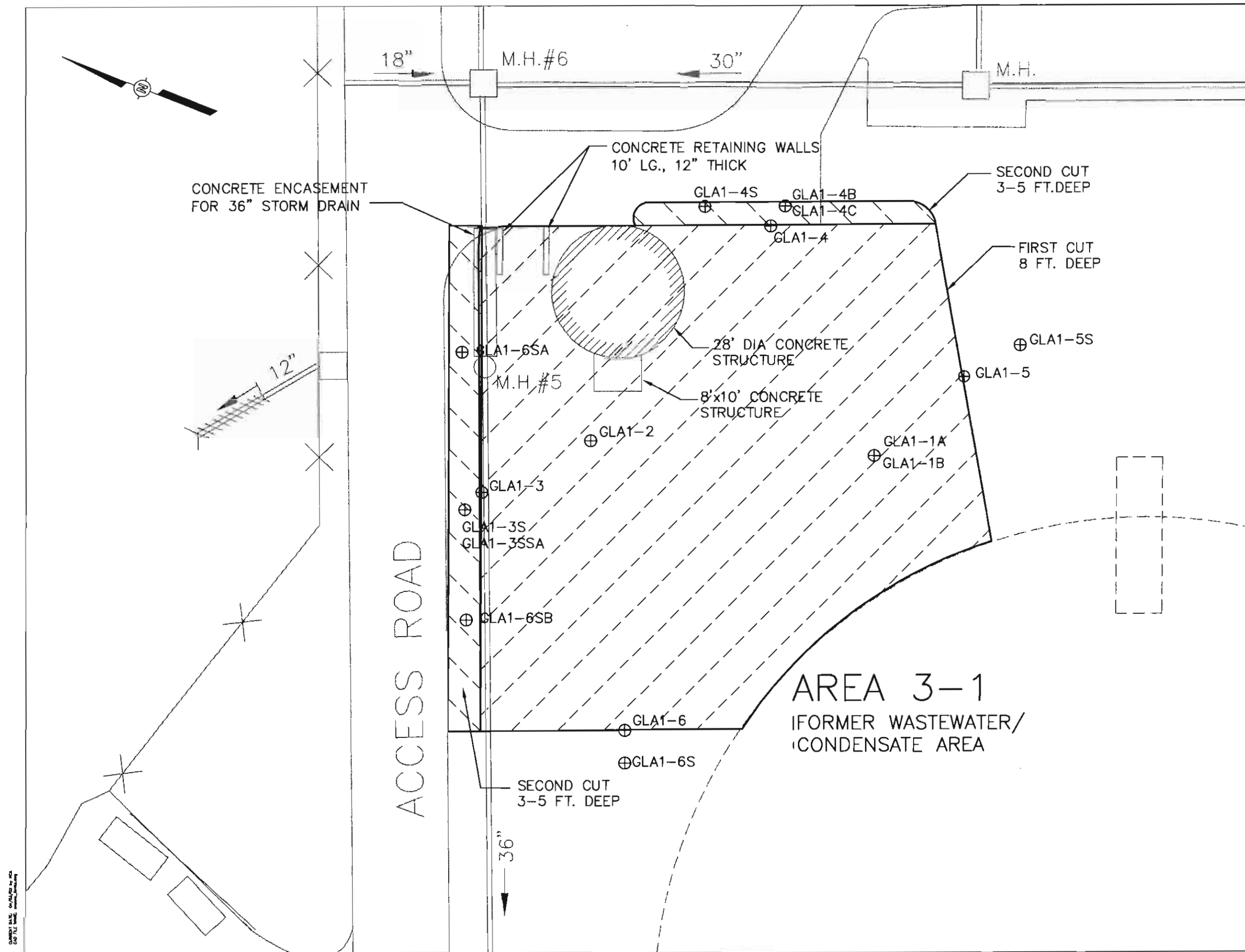
U.S.G.S. QUAD MAP
SEA CLIFF, N.Y. QUADRANGLE - 1979



Vanasse Hangen Brustlin, Inc.

Figure 1-1
Site Location Map
Glenwood Landing Gas Plant Site
Glenwood Landing, New York



0 0.25 0.5 0.75 1 Miles



LEGEND

- ⊕ SAMPLE LOCATIONS
— EXCAVATION LIMITS
FENCE LINE

EXCAVATION AREAS

-  FIRST CUT
-  SECOND CUT

[illegible]

Designed by	DKH	Drawn by	ECA	Created by	DKH
CAD checked by	ECA	Approved by	MJW		
Scale	1"=20'	Date	November, 2002		
Project Title					

**Glenwood Landing
Gas Plant Site
Glenwood Landing, New York**



Drawing Title

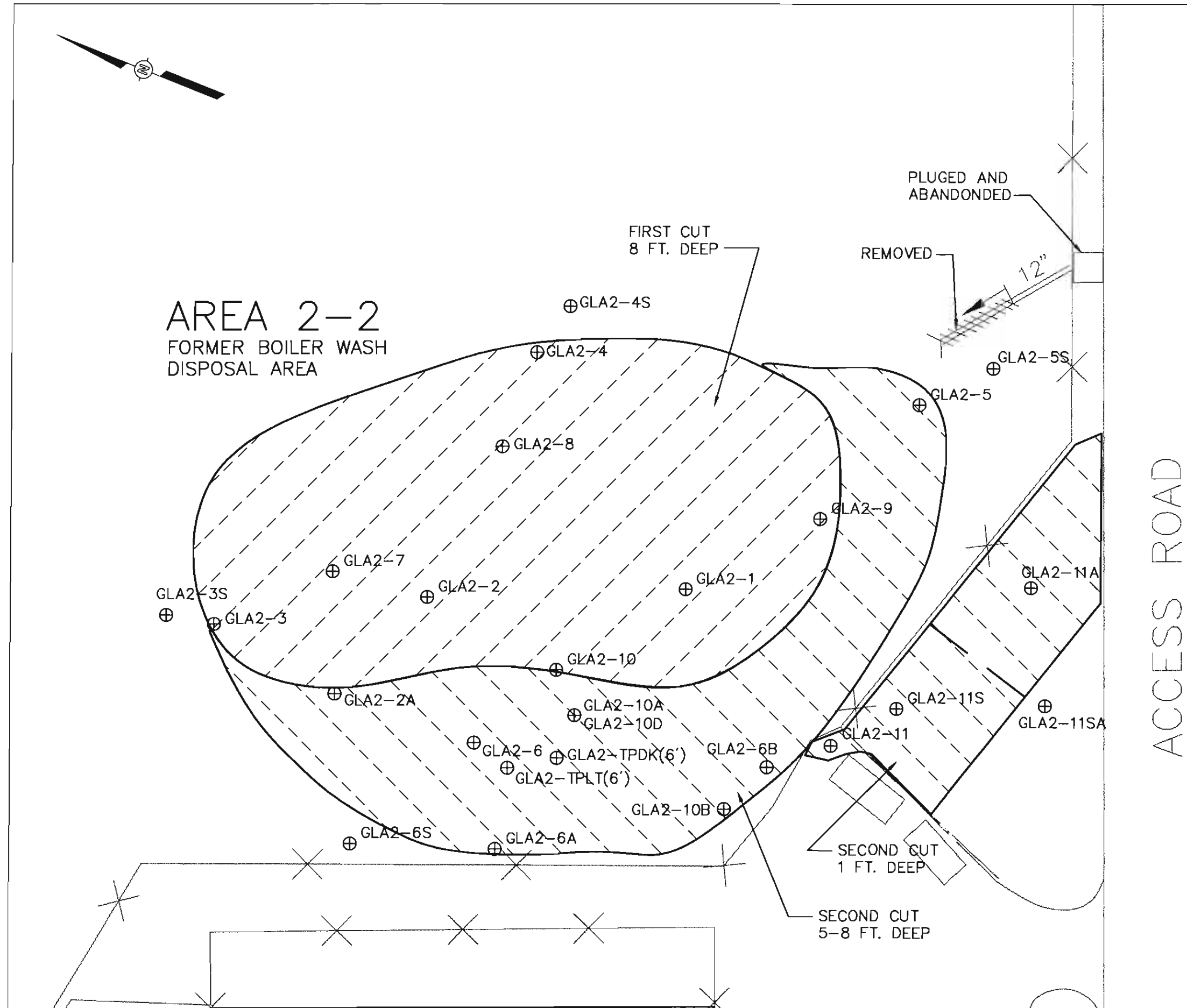
Sample Location Plan
Area 3-1
**Former Wastewater/
Condensate Area**

Learning Objectives

Figure 2-1

5392-26



www.jstor.org



LEGEND

- ⊕ SAMPLE LOCATIONS
 — EXCAVATION LIMITS
 FENCE LINE

EXCAVATION AREAS

-  FIRST CUT
-  SECOND CUT

[illegible]

**Glenwood Landing
Gas Plant Site
Glenwood Landing, New York**



Drawing Time

**Sample Location Plan
Area 2-2**

**Former Boiler Wash
Disposal Area**

Figure 2-2

LEGEND

⊕ SAMPLE LOCATIONS
— EXCAVATION LIMITS
FENCE LINE

EXCAVATION AREAS

 FIRST CUT

 SECOND CUT THIRD CUT

FOURTH CUT

FIFTH CUT

[illegible]

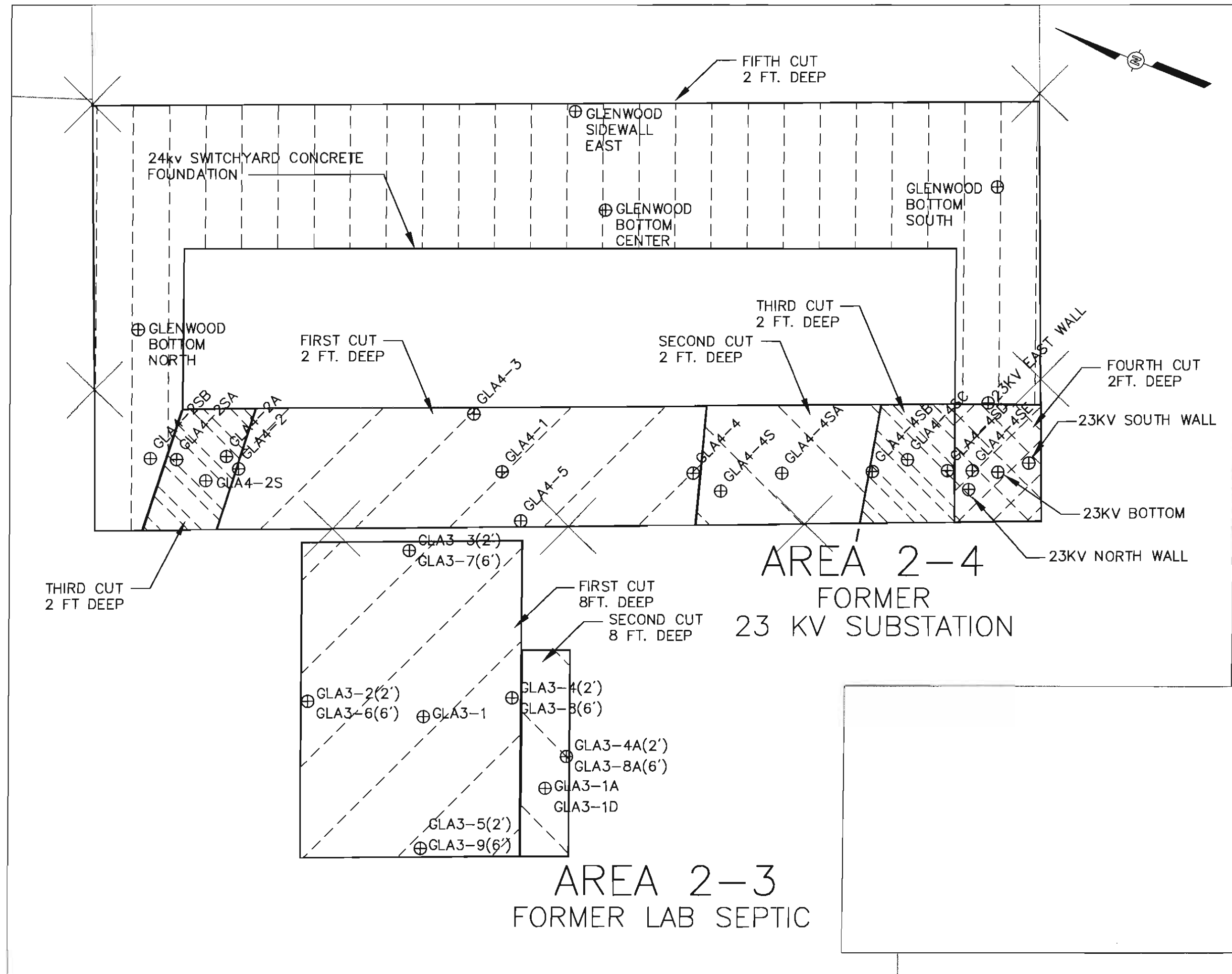
Designed by DKH	Drawn by ECA	Checked by DKH
NO checked by ECA	Approved by MJW	
Scale 1"=10'	Date November 2002	
Sheet Title		

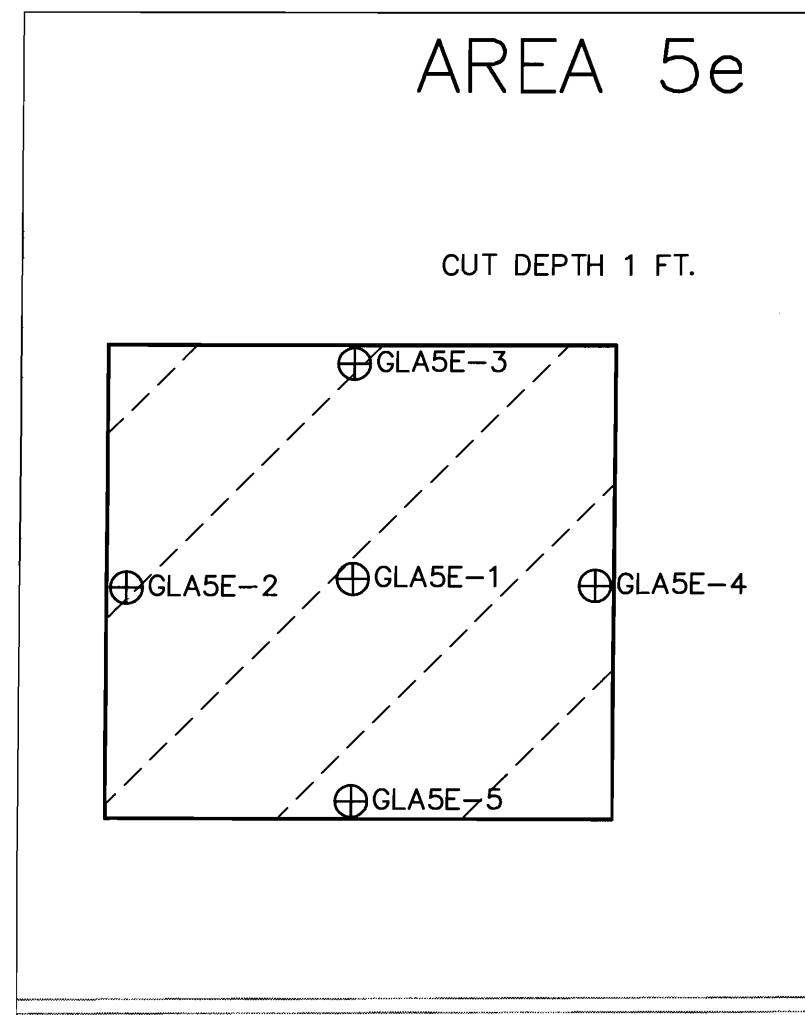
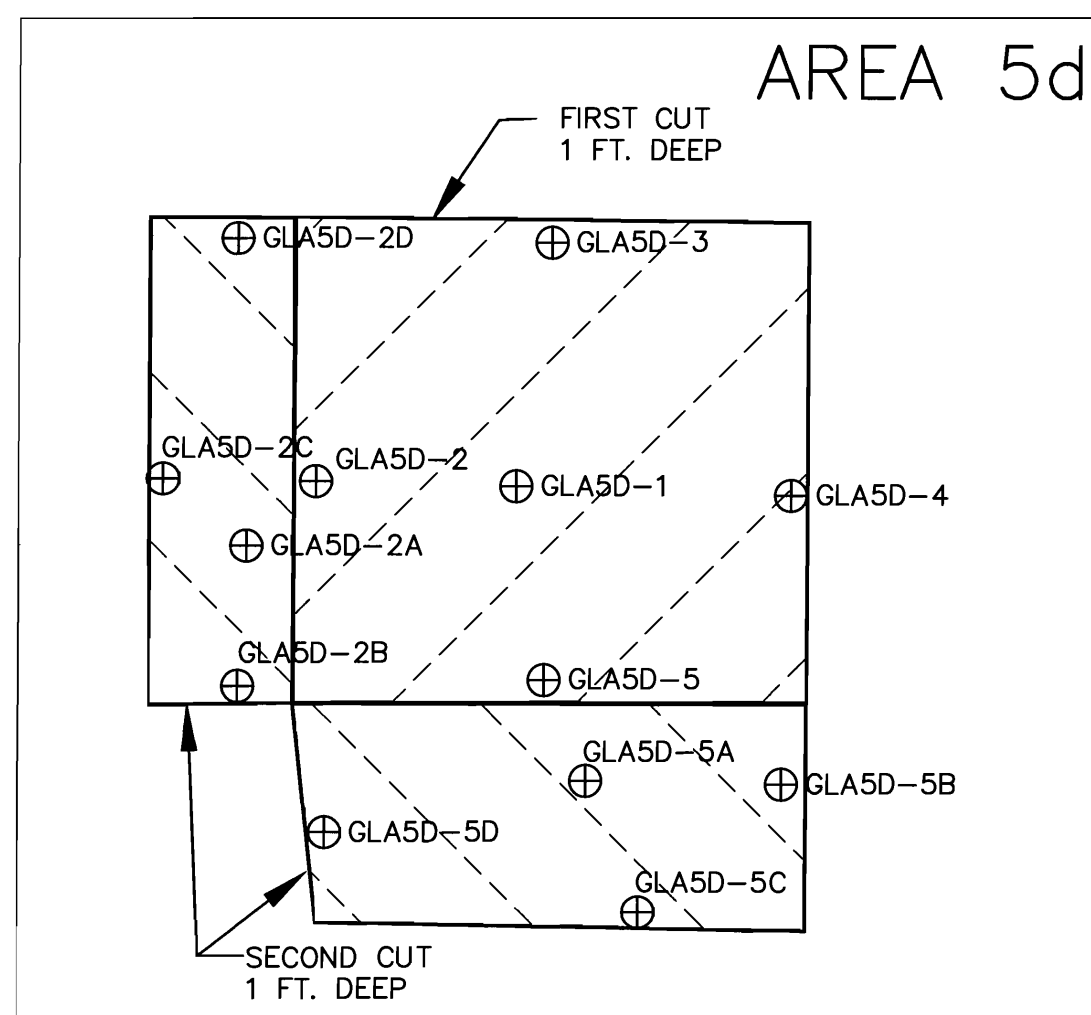
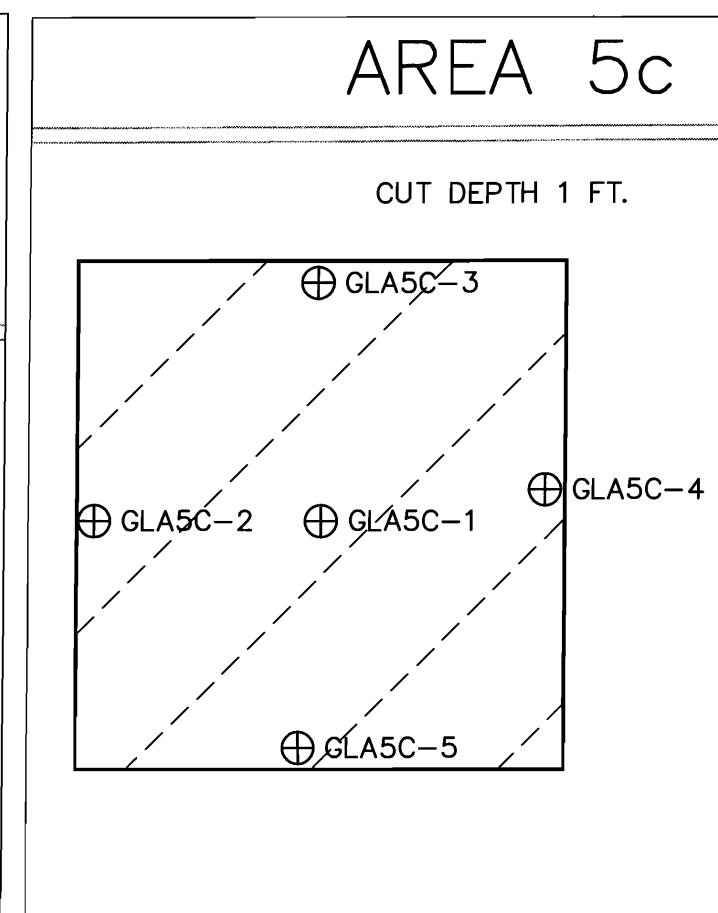
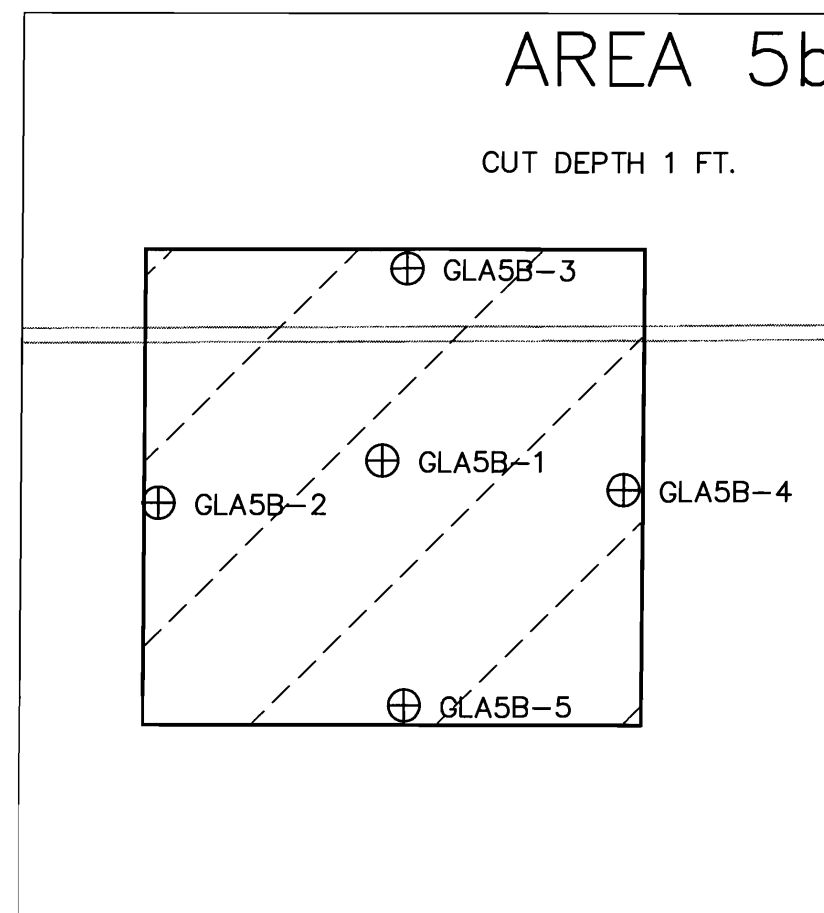
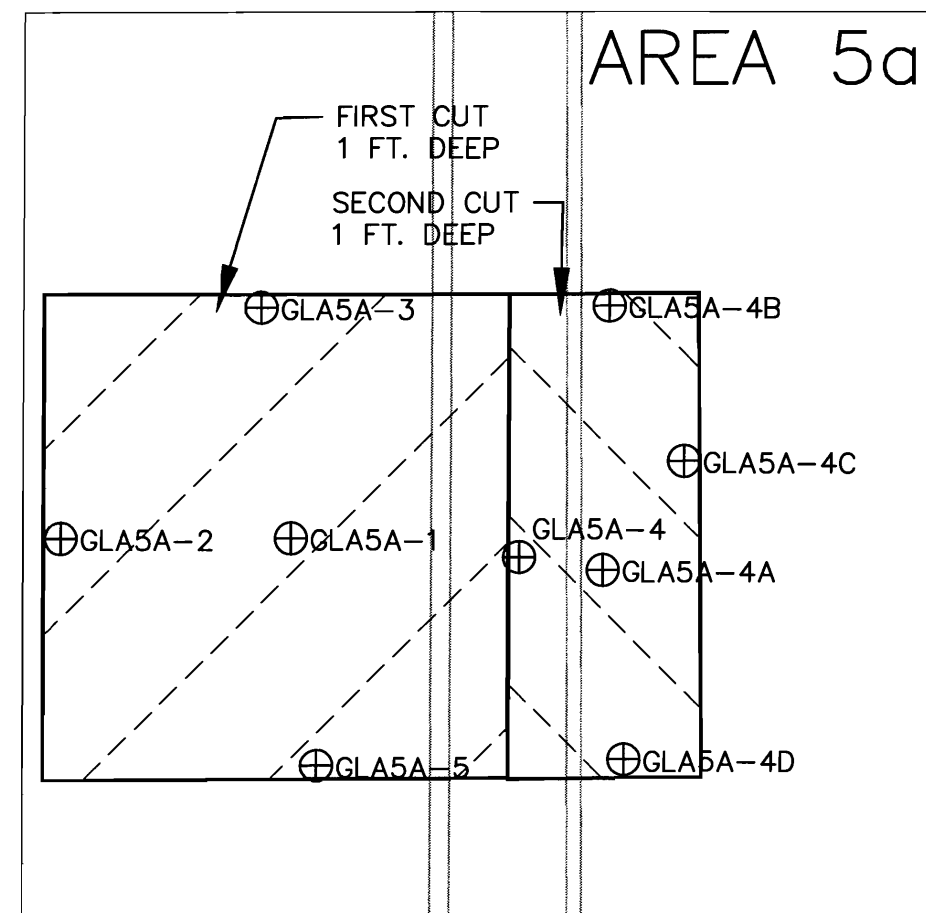
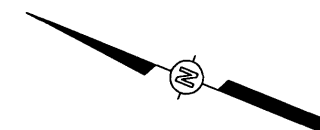
**Glenwood Landing
Gas Plant Site
Glenwood Landing, New York**



Sample Location Plan
Area 2-3
Former 23KV Substation
Area 2-4
Former Lab Septic

Figure 2-3







LEGEND

⊕ SAMPLE LOCATIONS
 — EXCAVATION LIMITS
 FENCE LINE

EXCAVATION AREAS

 FIRST CUT

 SECOND CUT

[illegible]

Designed by DKH	Drawn by RCA	Checked by DKH
CAD checked by RCA	Approved by MIW	
Scale 1"=10'	Date November, 2002	
Project Title		

**Glenwood Landing
Gas Plant Site
Glenwood Landing, New York**



**Sample Location Plan
Area 1-A Hot Spots
5a,5b,5c,5d,5e**

Figure 2-4

Vanasse Hangen Brustlin, Inc.

**Transportation
Land Development
Environmental Services**

54 Tuttle Place
Middletown, Connecticut 06457
860 632 1500 • FAX 860 632 7879

LEGEND

⊕ SAMPLE LOCATIONS
— EXCAVATION LIMITS
FENCE LINE

EXCAVATION AREAS

 FIRST CUT

 SECOND CUT

[illegible]

Designed by	DKH	Drawn by	RCA	Checked by	DKH
CAD checked by			RCA	Approved by	
Scale			As Noted	Date	
				November, 2002	

**Glenwood Landing
Gas Plant Site
Glenwood Landing, New York**



Keywords: *parenting, child development, child abuse, child neglect, child maltreatment, child welfare, child protection, child abuse prevention, child abuse investigation, child abuse assessment, child abuse intervention, child abuse treatment, child abuse prevention, child abuse investigation, child abuse assessment, child abuse intervention, child abuse treatment*

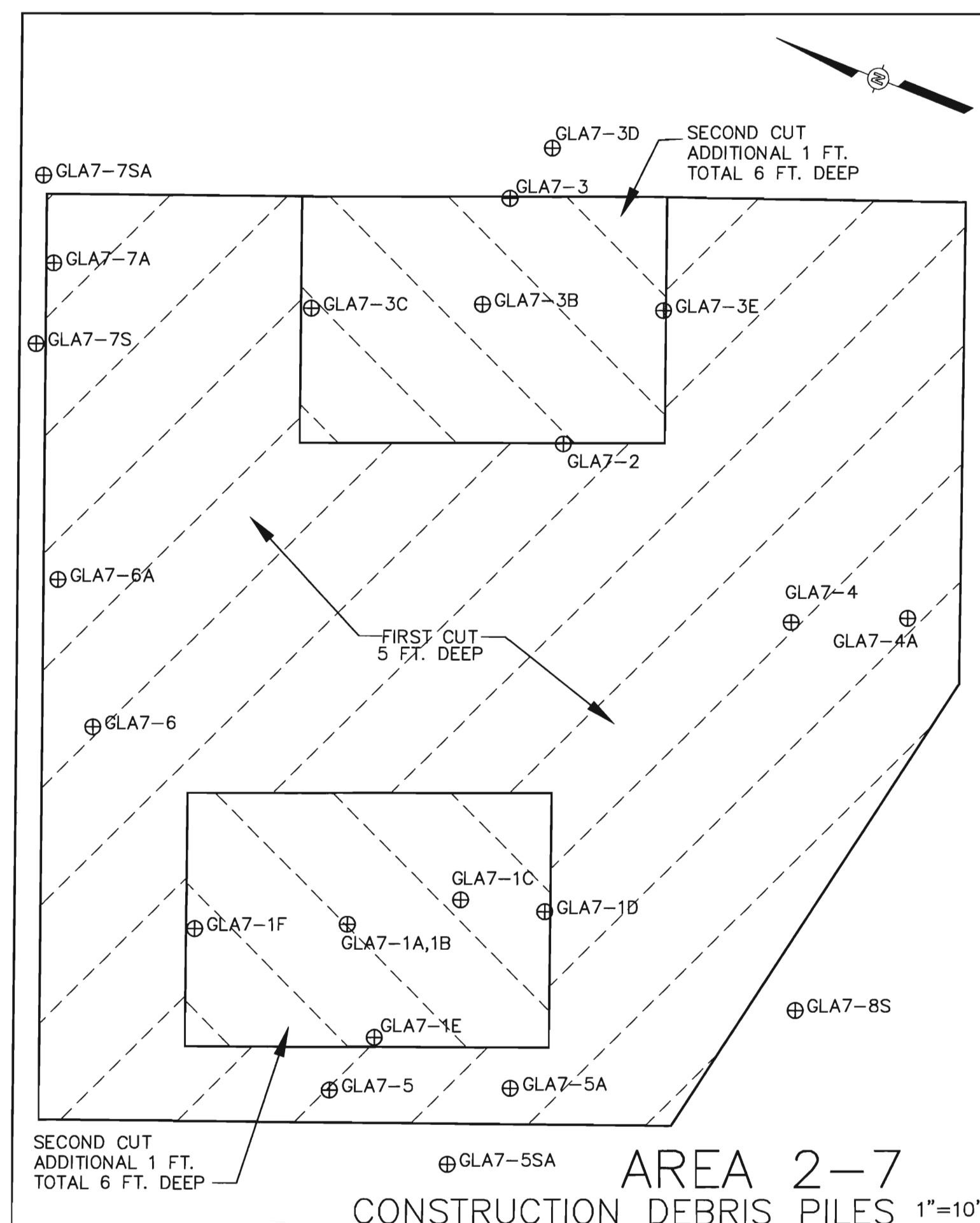
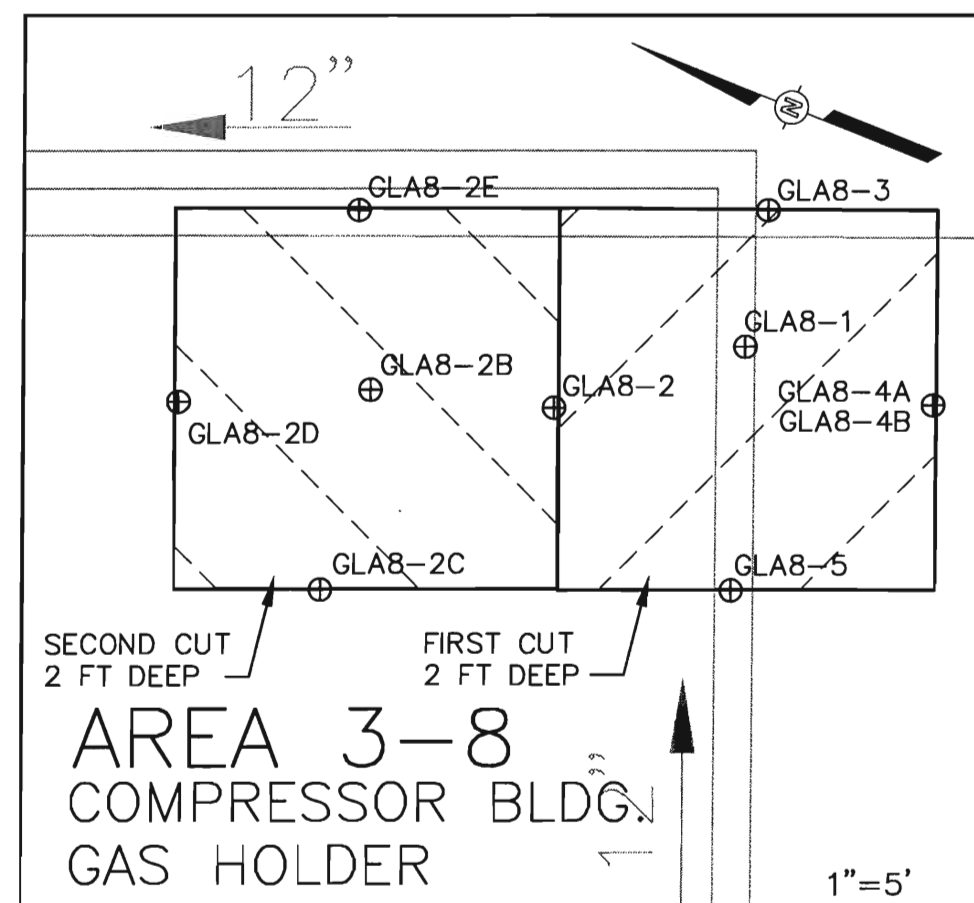
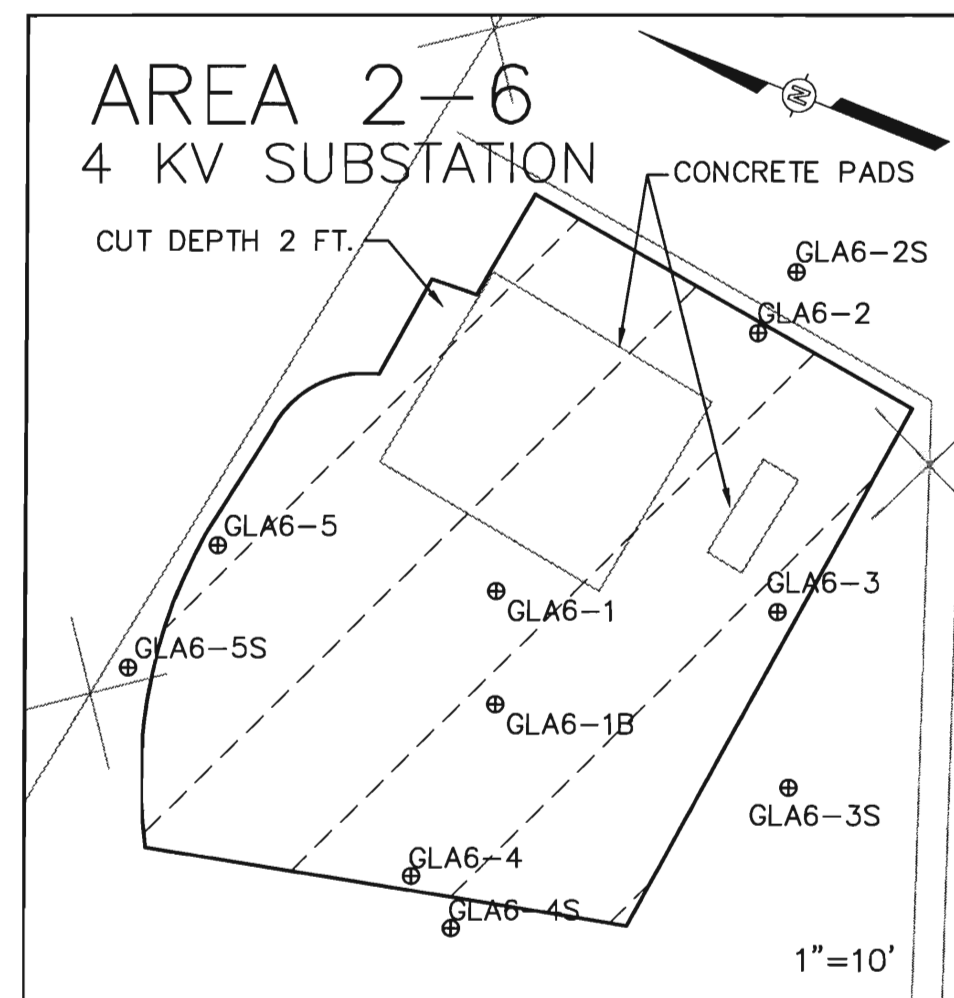
Sample Location Plan

Area 2-6 4-KV Substation
Area 2-7 Constr. Debris Piles
Area 2-8 Comp. Bldg. Gas Holder

Figure 2-5

Sheet of

Project Number
06392-26



LEGEND

⊕ SAMPLE LOCATIONS
— EXCAVATION LIMITS
FENCE LINE

EXCAVATION AREAS

 FIRST CUT[illegible]

Designed by DCH	Drawn by BCA	Checked by DCH
CAD checked by BCA	Approved by MW	
Scale 1"=50'	Date November, 2002	
Project Title		

**Glenwood Landing
Gas Plant Site
Glenwood Landing, New York**

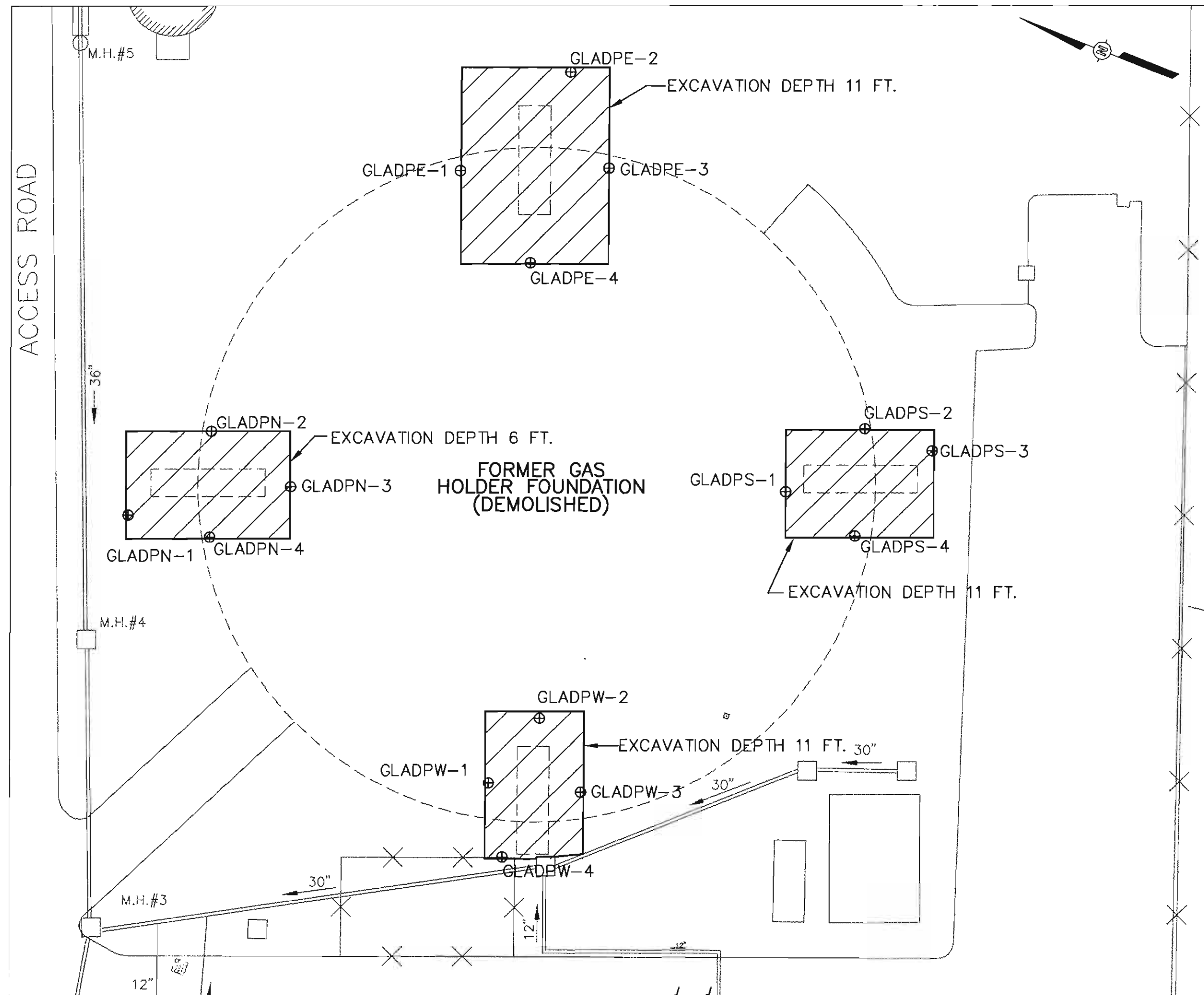
KEYSPAN
ENERGY

Sample Location Plan at Drip Pits AREA 3-1

Figure 3-1

Just Number
392-26

CONFIDENTIAL



Appendix A

Sample of Non-Hazardous Waste Manifest

CLEAN EARTH OF NEW CASTLE, INC.

94 Pyles Lane, New Castle, DE 19720
Tele# (302) 427-6633/800-30EARTH
Fax# (302) 427-6634

IN 9:30 AM
OUT 11:00 AM
1/2 Hr
OK

NON-HAZARDOUS MATERIALS MANIFEST

(TYPE OR PRINT CLEARLY)

APPROVAL # 107037

TRUCK NUMBER W 810
MANIFEST # SW 302
CENC TICKET # _____

GENERATOR'S NAME & ADDRESS:

Wayssco Energy
175 E. Os County RD.
Richfield, NY 14601

Site Address:

133 1/2 Ave SE
Glenwood Landing, NY 11547

GENERATOR'S PHONE #: 516-215-5500

Est. Quantity: 10 tons

DESCRIPTION OF MATERIAL: Load Out Start 10:40 AM Load Out Finish 11:15
NON DOT REGULATED/RCRA NON-HAZARDOUS PETROLEUM HYDROCARBON CONT. MATERIAL

I hereby certify that the above described material is not a hazardous waste as defined by 40 CFR Part 261 nor is it contaminated by PCB as defined by 40 CFR part 761. Additionally, it is the same material which was analyzed and described in the application for treatment provided to Clean Earth of New Castle, Inc. which resulted in the approval number listed above. It is property classified and packaged for transportation in accordance with applicable regulations.

Name: George Brudish **Title:** Project Mgr. Code Env
Signature: George Brudish **Date:** 11/27/01

TRANSPORTER

Company: B.I. Clark **Phone #:** _____
Address: Denville, NJ **Gross Weight:** _____
DE SW HAULERS PERMIT # 1001 **Tare Weight:** _____
Driver: Frank Korus **Net Weight:** _____
(Type or print clearly)

I hereby certify the above described materials were picked up at the above described generator address without incident and will be delivered without tampering of any kind.

Driver Signature: Frank Korus **Date:** 11/27/01

DESTINATION

I hereby certify that the above described material was delivered to Clean Earth of New Castle, Inc. at 94 Pyles Lane, New Castle, Delaware.

Driver Signature: _____ **Date:** _____

I hereby certify that the above described material has been accepted at Clean Earth of New Castle, Inc. at 94 Pyles Lane, New Castle, Delaware.

Authorized Signature: _____ **Date:** _____

PRIVATE
NON-HAZARDOUS
DOCUMENT OF CARGO

84153

N.Y. State 364 Permit No. 1A-041

#1 MEG ID # 53

#1 Truck License Number P451P2

#2 MEG ID #

#2 Truck License Number

IDENTIFICATION

Company name, mailing address and telephone number

Generator:

Raymond G. ...
...

Transporter:

Miller Environmental Group, Inc.
538 Edwards Avenue
Calverton, New York 11933

TSDf Treatment
Storage or Dis-
posal Facility:

...

WASTE INFORMATION

NON-HAZARDOUS WASTE SHIPPING DESCRIPTION	Containers		Total Quantity Gals./Lbs./Yds./Bgs.	NYSDEC Code	TSDf Code
	No.	Type			
...	1	DT	8 yds	1011	

I hereby certify that the above waste description is complete and accurate, and that no component exist in the wastes which render it hazardous as defined by 6 NY CRR Section 371 and 372.

Generator's Signature

Date

Transporter's Signature #1

Date

Transporter's Signature #2

Date

TSDf Signature

Date

NOV 15 2002 11:26 HP LASERJET 3200

P. 2

326

NYDEC 1A-371

NYDCA 483056

Asbestos Transportation Co., Inc.

P.O. BOX 1044
HAMPTON BAYS, N.Y. 11946TOLL FREE
1-800-755-0ATC
"EMERGENCY NUMBER"PHONE 631-924-5050
FAX 631-924-5085

Waste Manifest # 33475	Job #	Floor or Location	Cust # 370
1. Work Site Name and Mailing Address KEYSPAN POWER PLANT 400 SHORE ROAD GLENWOOD LANDING, NY		Owner's Name, Address, Phone Number KEYSPAN 100 GRAND STREET WESTBURY, NY	
Contractor's Name, Address GRAMERCY GROUP INC. 100 GRAND STREET WESTBURY, NY 11590		Waste Disposal Site SOUTHERN ALLEGHENIES DISPOSAL SVCS. 843 MILLER PICKING ROAD DAVIDSVILLE, PA 15928	
Name and Address of Responsible NESHAPS Agency U.S. EPA REGION II, 290 BROADWAY, NEW YORK, NY 10007			
Description of Materials <input checked="" type="checkbox"/> RQ Waste Asbestos, Class 9, NA2212, PGIII <input type="checkbox"/> Other _____ <input type="checkbox"/> RQ Waste White Asbestos, Class 9, UN2590, PGIII		Bags -	Cubic Yds. - 30
Special Handling Instructions and Additional Information		Drums or Tons -	OTHER -
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international government regulations.			
Printed/Typed Name K. Southas Agent For Gramercy X		Title X	Signature K. Southas
Transporter 1 (Acknowledgement of Receipt of Materials)		Date (M/DD/YY) 11/28	
Company Name and Address ASBESTOS TRANSPORTATION CO., INC. P.O. BOX 1044 HAMPTON BAYS, NY 11946		Signature: [Signature]	Telephone No. 631-924-5050
		Printed Name: A. R. R. R.	Date 11/28
		Title: DRIVER	
Transporter 2 (Acknowledgement of Receipt of Materials)			
Company Name and Address ASBESTOS TRANSPORTATION CO., INC. P.O. BOX 1044 HAMPTON BAYS, NY 11946		Signature: J. P.	Telephone No. 631-924-5050
		Printed Name: TERET PIER	Date 11/28
		Title: DRIVER	
Discrepancy Indication Space:			
Waste Disposal Site Owner or Operator's Certification (Receipt of Above Waste Accepted)			
Company Name and Address SOUTHERN ALLEGHENIES DISP. SVCS (814) 479-2483		Signature: Michael Mack	Telephone No.
		Printed Name: MICHAEL MACK	Date 11/30/01
		Title: WM	

LOCATION:

RX TIME 11/15 '02 11:27

MILLER ENVIRONMENTAL GROUP, INC.

Daily Job Report

DATE: 27 Nov 01 PAGE _____ OF _____CUSTOMER: PCB/PAH Cleanup JOB#: _____CONTACT AND PHONE: L. J. De Niro CLIENT CODE: _____BILLING ADDRESS: 100 Park St. 4th Fl. PO#: _____LOCATION OF WORK: 100 Park St. 4th Fl. PHONE: _____JOB DESCRIPTION: PCB/PAH Cleanup SERVICE CODE: _____

MATERIALS: _____

PURCHASED ITEMS: _____

EQUIPMENT: 100 Park St. 4th Fl.

SUBCONTRACTORS: _____

PERSONNEL HRS PPE HRS PPE

PERSONNEL	HRS	PPE	HRS	PPE
Mr. J. De Niro	/		/	
Mr. R. Porto	/		/	
Mr. J. Rubio	/		/	
	/		/	
	/		/	
	/		/	
	/		/	
	/		/	

MEALS: _____ SUBSISTENCE: _____

START TIME: 0830 SECURED TIME: _____DISPOSAL/NOTES: All waste for disposal via TRIPCB/water mixture from west 42" pipe pumped from frac tank & cleaned frac tank

APPROVED

Louis De Niro 11/27/01
CUSTOMER REPRESENTATIVE DATED

69556

NYG 3156246

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALSHAZARDOUS WASTE MANIFEST
R.O. Box 12820, Albany, New York 12212

Please type or print. Do not staple

(Hazardous Waste Manifest 1/5/90)

In case of emergency or spill immediately call the National Response Center (800) 424-9802 and the NYS Department of Environmental Conservation (516) 457-7362

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. NYD98064823256219		Manifest Doc. No. 1		2. Page 1 of 1		Information within heavy bold line is not required by Federal Law.			
3. Generator's Name and Mailing Address KEYSPAN ENERGY GLENWOOD GAS PLANT SHORE ROAD, GLENWOOD LANDING, NY 11547						A. NYG3156246					
4. Generator's Telephone Number (516) 759-8520						B. Generator's ID GLENWOOD GAS PLANT					
5. Transporter 1 (Company Name) HAZMAT ENVIRONMENTAL GROUP						C. State Transporter's ID (616) 545-5511 W.C.					
6. US EPA ID Number NYD980769947						D. Transporter's Telephone (716) 827-7200					
7. Transporter 2 (Company Name)						E. State Transporter's ID 11458P-NY					
8. US EPA ID Number						F. Transporter's Telephone ()					
9. Designated Facility Name and Site Address TRANSOLIE IND. INC. 101 PARKWAY EAST, CORSWELL PELL CITY, AL 35125						G. State Facility ID SAME					
10. US EPA ID Number ALD9831678911						H. Facility Telephone (516) 545-5511					
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number) a. POLYCHLORATED BIPHENYLS, SOLUTION UN 2315, II					12. Containers Number Type 11 TT 16697 K		13. Total Quantity 116697		14. Unit Wt/Vol K		
									I. Waste No. EPA STATE 8002		
b.									EPA STATE		
c.									EPA STATE		
d.									EPA STATE		
J. Additional Descriptions for Materials listed Above PCB OILY-WATER MIXTURE						K. Handling Codes for Wastes Listed Above					
a.						a. <input checked="" type="checkbox"/> c. <input type="checkbox"/>					
b.						b. <input type="checkbox"/> d. <input type="checkbox"/>					
15. Special Handling Instructions and Additional Information IN CASE OF EMERGENCY, CALL 516-545-4007/2000 ERG #171 11/2 PLEASE RETURN COPIES TO KEYSPAN ENERGY (ENVIRONMENTAL) 445 BROADHOLLOW ROAD MELVILLE, N.Y. 11747 GAL/ACCUMULATION START DATE 6/1 (DATE SIGNATURE)											
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and state laws and regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.											
Printed/Typed Name LOUIS D'ONOFRIO						Signature Louis D'Onofrio					
17. Transporter 1 Acknowledgement of Receipt of Materials						Mo. Day Year 11 27 01					
Printed/Typed Name JOHN A. REED						Signature John A. Reed					
18. Transporter 2 Acknowledgement of Receipt of Materials						Mo. Day Year 11 27 01					
Printed/Typed Name						Signature					
19. Discrepancy Indication Space											
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.											
Printed/Typed Name						Signature					
						Mo. Day Year					

COPY 1—Disposer State—Mailed by TSD Facility

HAZMAT



ENVIRONMENTAL GROUP, INC.
60 Commerce Drive, Buffalo, NY 14218
www.hazmatinc.com

FAX (716) 827-7217
(716) 827-7200

NYDEC #9A-278
EPA ID# NYD000760047

DATE

221824

11/27/01

PICK UP		DELIVERY	
SHIPPER	NAME KEYSPAN	CONSIGNEE	NAME TRANS CYCLE INC (TO)
	STREET 300 SHORE RD		STREET 101 PARKWAY EAST
	CITY GLENWOOD, NY		CITY PELL CITY, AL
	STATE NY		STATE AL
	ZIP CODE 316-345-1308		ZIP CODE 35125
CONTACT NAME J. CHAND		CONTACT NAME GREG ALABARCO	
PHONE 316-345-1308		PHONE 205-345-1308	
SCHEDULED TIME 11/27/01 08:00			

ADDITIONAL INFORMATION / EQUIPMENT DAMAGE
If damaged at pickup site, did you send in Equipment Damage Report (EDR) via Qualcomm? Y N Explain damage below.

Pursuant to 6NYCRR 372.2 (b) (2) (II) HazMat certifies that it is authorized to deliver this shipment of manifested waste to the TSDF listed on this Bill of Lading

ADDITIONAL INFORMATION / EQUIPMENT DAMAGE
If damaged at delivery site, did you send in Equipment Damage Report (EDR) via Qualcomm? Y N Explain damage below.

PURCHASE ORDER NO.
VERBAL SUE ON

WORK ORDER NUMBER

MANIFEST NUMBER
NYG 3156246

H.M. NUMBER
178578

LOAD NUMBER
178578

TRACTOR

TRAILER

ROLL OFF BOX

DRIVER NUMBER

DRIVER'S NAME

EQUIPMENT	MATERIAL DESCRIPTION / MANIFEST NUMBER	QUANTITY
EQUIPMENT TYPE UNIT# DROPPED UNIT# PICKED UP CONDITION REPORT	PCB'S UN 2315, PG II ERG 4 171 OSD 11/27/01	EST. 4911 G. 16.697 K

PICK UP	DELIVERY
PICK UP DATE 11/27/01	DRIVER DAY #1 DATE
ARRIVAL TIME 7:15 PM	ARRIVAL TIME AM PM
RELEASE TIME 11:15 PM	RELEASE TIME AM PM
DAY #2 DATE	DAY #2 DATE
ARRIVAL TIME AM PM	ARRIVAL TIME AM PM
RELEASE TIME AM PM	RELEASE TIME AM PM
DAY #3 DATE	DAY #3 DATE
ARRIVAL TIME AM PM	ARRIVAL TIME AM PM
RELEASE TIME AM PM	RELEASE TIME AM PM
TRAILER EMPTY UPON ARRIVAL <input checked="" type="checkbox"/> YES (if not, explain below—)	TRAILER CLEAN AND EMPTY UPON DEPARTURE <input type="checkbox"/> YES <input type="checkbox"/> NO (if not, explain below—)
DIP MEASUREMENT (Tankers Only) 51 INCHES	
COMMENTS: (EXPLAIN ALL DELAYS) CUSTOMER REQ EARLY LOAD. WAS LOAD AND TRUCK.	COMMENTS: (Explain all delays or discrepancies)
HAZMAT MATERIALS USED (ex. overpacks, etc.): <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	IF YES EXPLAIN:
IF YES EXPLAIN:	IF YES EXPLAIN:
I, THE UNDERSIGNED, CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND COMPLETE.	I, THE UNDERSIGNED, CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND COMPLETE.
SHIPPER'S SIGNATURE Date	CONSIGNEE'S SIGNATURE Date

GENERATOR COPY

KEYSPAN ENERGY
LAND DISPOSAL RESTRICTION NOTIFICATION

MANIFEST #: NYG3156246 DATE OF SHIPMENT: 11/27/01
 GENERATOR ADDRESS: 8400 Rte 40 EPA ID NUMBER: NYD980648232
CHENWOOD LANDFILL
NY. 11547

Pursuant to 40 CFR 268.7(a)(1), the waste(s) referenced below are subject to land disposal restrictions specified in 40 CFR Part 268.

Ref #	US EPA Hazardous Waste Codes	waste water	non-waste water	Waste Description
1	<u>B002</u>		<u>X</u>	<u>POLYCHLORINATED BIPHENYLS</u>
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				

Waste Analysis Data

 are attached
X not required (notice is based on generator knowledge)

Underlying Hazardous Constituents:

() Check here if none of the constituents listed on the attached tables are reasonably expected to be present as an underlying hazardous constituent in this waste above the listed concentration.

() Check here if one or more of the constituents listed on the attached tables are reasonably expected to be present as an underlying hazardous constituent in this waste above the listed concentration. Check all those constituents that apply for the above listed waste(s).

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

Signature: Louis Bonaficio as an agent for KEYSPAN ENERGY

Title: Engineer / KeySpan Date: 11/27/01

Appendix B

Waste Characterization Profiles for Areas 1 through 8

**KEYSPAN ENERGY TCLP SAMPLE COLLECTION PLAN
AT GLENWOOD LANDING, NY**

Area #	Sample Type	Excavations Within area	Sample Depths ea. hole	Total grabs to form 1 composite	Samples Collected
1	TCLP; TPH & TOX	3	2'; 4' & 6'	9 scoops	2
2	TCLP; TPH & TOX	3	2'; 4' & 6'	9 scoops	2
3	TCLP	1	2' & 6'	2 scoops	1
4	TCLP	1	2'	1 scoop	1
5	TCLP	1	1'	1 scoop	1
6	TCLP	1	1'	1 scoop	1
7	TCLP	1	2' & 5'	2 scoops	1
8	TCLP	1	1'	1 scoop	1

TOTAL SAMPLES: 10

ALL SAMPLES WERE COLLECTED ON 9/18 & 9/19/01 AND HAVE BEEN SENT
TO LABORATORY ON SEP. 19, 2001.
RESULTS ARE EXPECTED BY OCT.03, 2001.

PROJECT NAME/NUMBER KEYSPAN		CLIENT: MGT		H2M SDG NO:	
SAMPLERS: (signature)/Client <i>Chad Hinkle</i>		Project Contact: JERRY		Phone Number: 609-284-0283	
DELIVERABLES: RT-00		NOTES:			
TURNAROUND TIME: 10 WORKING DAYS					
DATE	TIME	MATRIX	FIELD I.D.	ANALYSIS REQUESTED	REMARKS
9-12	10:00	soil	AREA #1 SAMPLE #1	ORGANIC: VOA, PCB, INORG: Metal, CN	RECEIVED
9-13	10:00	soil	AREA #1 SAMPLE #2		RECEIVED
9-13	10:00	soil	AREA #2 SAMPLE #2		RECEIVED
9-14	11:00	soil	AREA #2 SAMPLE #1		RECEIVED
9-14	13:00	soil	AREA #2 SAMPLE #5		RECEIVED
9-16	10:00	soil	AREA #3 SAMPLE #6		RECEIVED
9-17	14:00	soil	AREA #11 SAMPLE #7		RECEIVED
9-17	14:00	soil	AREA #10 SAMPLE #8		RECEIVED
9-18	15:00	soil	AREA #16 SAMPLE #9		RECEIVED
9-18	16:00	soil	AREA #8 SAMPLE #10		RECEIVED
Relinquished by: (Signature)		Date	Time	Date	
Relinquished by: (Signature)		Date	Time	Date	
Relinquished by: (Signature)		Date	Time	Date	
Relinquished by: (Signature)		Date	Time	Date	

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N

Explain:

Samples were:
 1. Shipped ___ or Hand Delivered ___ Airbill# ___
 2. Ambient or chilled
 3. Received in good condition: Y or N
 4. Properly preserved: Y or N
 5. Samples returned to lab ___ Hrs from collection.
 COC Tag was:
 1. Present on outer package: Y or N
 2. Unbroken on outer package: Y or N
 3. COC record present & complete upon sample receipt: Y or N

H2M LABS, INC.

575 Broad Hollow Road, Melville NY 11747
(631) 694-3040 FAX: (631) 420-8436 NYSDOH ID# 10478

LABORATORY RESULTS

KEYSPAN/MERCER WRECKING CO.
400 SHORE ROAD
GLENWOOD LANDING, NEW YORK 11547
Attn To : JERRY CIECIERSKI

Lab No. : 0109417-002

Sample Information...

Type : Soil

Origin:

Client ID. : AREA #1 SAMPLE #2

Collected 9/18/01 10:05:00 AM

TCLP PREP.

Received 9/19/01 3:00:00 PM

Collected By CLIENT

Copies To JERRY CIECIERSKI

Parameter(s)	Results	Units	Method Number	Analyzed
2,4-D	< 5.0	µg/L	SW1311/8150	9/27/01 10:53:00 AM
2,4,5-TP (Silvex)	< 2.5	µg/L	SW1311/8150	9/27/01 10:53:00 AM
gamma-BHC	< 0.10	µg/L	SW1311/8080A	9/26/01 1:29:00 AM
Heptachlor	< 0.10	µg/L	SW1311/8080A	9/26/01 1:29:00 AM
Heptachlor epoxide	< 0.10	µg/L	SW1311/8080A	9/26/01 1:29:00 AM
Endrin	< 0.20	µg/L	SW1311/8080A	9/26/01 1:29:00 AM
Methoxychlor	< 1.0	µg/L	SW1311/8080A	9/26/01 1:29:00 AM
Toxaphene	< 10	µg/L	SW1311/8080A	9/26/01 1:29:00 AM
Chlordane	< 2.0	µg/L	SW1311/8080A	9/26/01 1:29:00 AM
Silver	< 0.02	mg/L	SW1311/7760	9/26/01 11:20:00 AM
Mercury	< 0.20	µg/L	SW1311/7470	9/25/01 10:07:08 AM
Barium	0.566	mg/L	SW1311/6010A	9/26/01 5:04:00 PM
Cadmium	< 0.005	mg/L	SW1311/6010A	9/26/01 5:04:00 PM
Chromium	< 0.010	mg/L	SW1311/6010A	9/26/01 5:04:00 PM
Arsenic	< 0.020	mg/L	SW1311/6010A	9/26/01 5:04:00 PM
Lead	< 0.020	mg/L	SW1311/6010A	9/26/01 5:04:00 PM
Selenium	< 0.020	mg/L	SW1311/6010A	9/26/01 5:04:00 PM
Pyridine	< 10	µg/L	SW1311/8270A	9/25/01 10:16:00 PM
1,4-Dichlorobenzene	< 10	µg/L	SW1311/8270A	9/25/01 10:16:00 PM
2-Methylphenol	< 10	µg/L	SW1311/8270A	9/25/01 10:16:00 PM
3-Methylphenol/4-Methylphenol	< 10	µg/L	SW1311/8270A	9/25/01 10:16:00 PM
Hexachloroethane	< 10	µg/L	SW1311/8270A	9/25/01 10:16:00 PM
Nitrobenzene	< 10	µg/L	SW1311/8270A	9/25/01 10:16:00 PM
Hexachlorobutadiene	< 10	µg/L	SW1311/8270A	9/25/01 10:16:00 PM
2,4,6-Trichlorophenol	< 10	µg/L	SW1311/8270A	9/25/01 10:16:00 PM
2,4,5-Trichlorophenol	< 25	µg/L	SW1311/8270A	9/25/01 10:16:00 PM
2,4-Dinitrotoluene	< 10	µg/L	SW1311/8270A	9/25/01 10:16:00 PM
Hexachlorobenzene	< 10	µg/L	SW1311/8270A	9/25/01 10:16:00 PM
Pentachlorophenol	< 25	µg/L	SW1311/8270A	9/25/01 10:16:00 PM
Vinyl chloride	< 10	µg/L	SW1311/8260B	9/25/01 11:34:00 PM
1,1-Dichloroethene	< 10	µg/L	SW1311/8260B	9/25/01 11:34:00 PM
2-Butanone	< 10	µg/L	SW1311/8260B	9/25/01 11:34:00 PM
Chloroform	< 10	µg/L	SW1311/8260B	9/25/01 11:34:00 PM
1,2-Dichloroethane	< 10	µg/L	SW1311/8260B	9/25/01 11:34:00 PM
Carbon tetrachloride	< 10	µg/L	SW1311/8260B	9/25/01 11:34:00 PM
Benzene	< 10	µg/L	SW1311/8260B	9/25/01 11:34:00 PM
Trichloroethene	< 10	µg/L	SW1311/8260B	9/25/01 11:34:00 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

Date Reported : 10/1/01

Page 2 of 18

Joann M. Slavin

H2M LABS, INC.

575 Broad Hollow Road, Melville NY 11747
(631) 694-3040 FAX: (631) 420-8436 NYSDOH ID# 10478

LABORATORY RESULTS

KEYSPAN/MERCER WRECKING CO.

400 SHORE ROAD

GLENWOOD LANDING, NEW YORK 11547

Attn To : JERRY CIECIERSKI

Lab No. : 0109417-001

Sample Information...

Type : Soil

Origin:

Client ID. : AREA #1 SAMPLE #1

Collected 9/18/01 10:00:00 AM

Received 9/19/01 3:00:00 PM

Collected By CLIENT

Copies To JERRY CIECIERSKI

<u>Parameter(s)</u>	<u>Results</u>	<u>Units</u>	<u>Method Number</u>	<u>Analyzed</u>
Total Organic Halides (TOX) ATTACHED	< 232	mg/Kg	SW9020	9/27/01
Percent Moisture	13.4	wt%	D2216	9/26/01 2:30:00 PM
Petroleum Hydrocarbons, IR	330	mg/Kg-dry	E418.1M	9/25/01 11:17:00 AM

Qualifiers: E - Value above quantitation range

D - Results for Dilution

Joann M. Slavin

Date Reported : 10/1/01

Page 1 of 18

H2M LABS, INC.

575 Broad Hollow Road, Melville NY 11747
(631) 694-3040 FAX: (631) 420-8436 NYSDOH ID# 10478

LABORATORY RESULTS

KEYSPAN/MERCER WRECKING CO.
400 SHORE ROAD
GLENWOOD LANDING, NEW YORK 11547
Attn To : JERRY CIECIERSKI

Lab No. : 0109417-001A

Sample Information...

Type : Soil

Origin:

Client ID. : AREA #1 SAMPLE #1

Collected : 9/18/01 10:00:00 AM

Received : 9/19/01 3:00:00 PM

Collected By : CLIENT

Copies To : JERRY CIECIERSKI

Parameter(s)	Results	Units	Method Number	Analyzed
Aroclor 1016	< 3800	µg/Kg-dry	SW8082	10/2/01 11:19:00 AM
Aroclor 1221	< 7700	µg/Kg-dry	SW8082	10/2/01 11:19:00 AM
Aroclor 1232	< 3800	µg/Kg-dry	SW8082	10/2/01 11:19:00 AM
Aroclor 1242	< 3800	µg/Kg-dry	SW8082	10/2/01 11:19:00 AM
Aroclor 1248	27000	µg/Kg-dry	SW8082	10/2/01 11:19:00 AM
Aroclor 1254	< 3800	µg/Kg-dry	SW8082	10/2/01 11:19:00 AM
Aroclor 1260	< 3800	µg/Kg-dry	SW8082	10/2/01 11:19:00 AM
Benzo(a)anthracene	1500	µg/Kg-dry	SW8270B	10/3/01 3:04:00 PM
Benzo(b)fluoranthene	660	µg/Kg-dry	SW8270B	10/3/01 3:04:00 PM
Benzo(k)fluoranthene	900	µg/Kg-dry	SW8270B	10/3/01 3:04:00 PM
Benzo(a)pyrene	1100	µg/Kg-dry	SW8270B	10/3/01 3:04:00 PM
Indeno(1,2,3-cd)pyrene	< 380	µg/Kg-dry	SW8270B	10/3/01 3:04:00 PM
Dibenzo(a,h)anthracene	< 380	µg/Kg-dry	SW8270B	10/3/01 3:04:00 PM
Benzo(g,h,i)perylene	< 380	µg/Kg-dry	SW8270B	10/3/01 3:04:00 PM
Total Organic Halides (TOX) ATTACHED	< 232	mg/Kg	SW9020	9/27/01
Percent Moisture	13.4	wt%	D2216	9/26/01 2:30:00 PM
Petroleum Hydrocarbons, IR	330	mg/Kg-dry	E418.1M	9/25/01 11:17:00 AM

Qualifiers: E - Value above quantitation range

D - Results for Dilution

Date Reported : 10/5/01

Joann M. Slavin

Page 1 of 1

H2M LABS, INC.

575 Broad Hollow Road, Melville NY 11747
(631) 694-3040 FAX: (631) 420-8436 NYSDOH ID# 10478

LABORATORY RESULTS

KEYSPAN/MERCER WRECKING CO.

400 SHORE ROAD

GLENWOOD LANDING, NEW YORK 11547

Attn To : JERRY CIECIERSKI

Lab No. : 0109417-002

Sample Information...

Type : Soil

Origin:

Client ID. : AREA #1 SAMPLE #2

TCLP PREP.

Collected 9/18/01 10:05:00 AM

Received 9/19/01 3:00:00 PM

Collected By CLIENT

Copies To JERRY CIECIERSKI

<u>Parameter(s)</u>	<u>Results</u>	<u>Units</u>	<u>Method Number</u>	<u>Analyzed</u>
Tetrachloroethene	< 10	µg/L	SW1311/8260B	9/25/01 11:34:00 PM
Chlorobenzene	< 10	µg/L	SW1311/8260B	9/25/01 11:34:00 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

Date Reported : 10/1/01

Page 3 of 18

Joann M. Slavin

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

Custody Document: L3722

Received: 10/24/2001 16:19

Sampled by: N/A

Client: Mercer Wrecking Recycling Corp.

853 Nottingham Way

Trenton,

NJ 08638

Project: Glenwood

Manager: Jerry Ciecierski

Respectfully submitted,

Patricia Weiner-Els

Quality Assurance Officer

NYS Lab ID # 10969

NJ Cert. # 73812

CT Cert. # PH0645

MA Cert. # NY061

PA Cert. # 68-535

VA Cert. # 108

NH Cert. # 252592-BA

RI Cert. # 161



208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

PCB (Aroclor) Compounds - EPA 8062/608**Sample: L3722-1**

Client Sample ID: Work Area #4

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 95.3%

Remarks:

Analyzed Date: 10/26/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
12674-11-2	PCB 1018	G 391-7	2.14	2.14	ppb	U
11104-28-2	PCB 1221	G 391-7	10.1	10.1	ppb	U
11141-16-5	PCB 1232	G 391-7	2.24	2.24	ppb	U
53469-21-9	PCB 1242	G 391-7	1.68	1.68	ppb	U
12672-29-8	PCB 1248	G 391-7	3.78	3.78	ppb	U
11097-89-1	PCB 1254	G 391-7	5.72	5.72	ppb	U
11096-82-5	PCB 1260	G 391-7	6.57	6.57	ppb	U

Cas No	12674-11-2	11104-28-2	11141-16-5	53469-21-9	12672-29-8	11097-89-1	11096-82-5
PCB	1018	1221	1232	1242	1248	1254	1260
2051-24-3	1018	1221	1232	1242	1248	1254	1260

Sample: L3722-2

Client Sample ID: Work Area #5

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 94.6%

Remarks:

Analyzed Date: 10/26/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
12674-11-2	PCB 1018	G 391-8	2.16	2.16	ppb	U
11104-28-2	PCB 1221	G 391-8	10.1	10.1	ppb	U
11141-16-5	PCB 1232	G 391-8	2.25	2.25	ppb	U
53469-21-9	PCB 1242	G 391-8	1.69	1.69	ppb	U
12672-29-8	PCB 1248	G 391-8	3.81	3.81	ppb	U
11097-89-1	PCB 1254	G 391-8	5.76	5.76	ppb	U
11096-82-5	PCB 1260	G 391-8	6.62	6.62	ppb	U

Cas No	12674-11-2	11104-28-2	11141-16-5	53469-21-9	12672-29-8	11097-89-1	11096-82-5
PCB	1018	1221	1232	1242	1248	1254	1260
2051-24-3	1018	1221	1232	1242	1248	1254	1260



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

PCB (Aroclor) Compounds - EPA 8082/608**Sample: L3722-3**

Client Sample ID: Work Area #6

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 95.1%

Remarks:

Analyzed Date: 10/26/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
12674-11-2	PCB 1016	G 391-9	2.15	2.15	ppb	U
11104-28-2	PCB 1221	G 391-9	10.1	10.1	ppb	U
11141-16-5	PCB 1232	G 391-9	2.24	2.24	ppb	U
53469-21-9	PCB 1242	G 391-9	1.68	1.68	ppb	U
12672-29-6	PCB 1248	G 391-9	3.79	3.79	ppb	U
11097-69-1	PCB 1254	G 391-9	5.73	5.73	ppb	U
11096-82-5	PCB 1260	G 391-9	6.58	6.58	ppb	U

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
877-09-8	PCB 1016	G 391-10	2.25	2.25	ppb	U
2051-24-5	PCB 1221	G 391-10	10.6	10.6	ppb	U

Sample: L3722-4

Client Sample ID: Work Area #7

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 90.7%

Remarks:

Analyzed Date: 10/26/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
12674-11-2	PCB 1016	G 391-10	2.25	2.25	ppb	U
11104-28-2	PCB 1221	G 391-10	10.6	10.6	ppb	U
11141-16-5	PCB 1232	G 391-10	2.35	2.35	ppb	U
53469-21-9	PCB 1242	G 391-10	1.76	1.76	ppb	U
12672-29-6	PCB 1248	G 391-10	3.97	3.97	ppb	U
11097-69-1	PCB 1254	G 391-10	6.01	87.8	ppb	
11096-82-5	PCB 1260	G 391-10	6.90	6.90	ppb	U

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
877-09-8	PCB 1016	G 391-10	2.25	2.25	ppb	U
2051-24-5	PCB 1221	G 391-10	10.6	10.6	ppb	U



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

PCB (Aroclor) Compounds - EPA 8082/608**Sample: L3722-5**

Client Sample ID: Work Area #8

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 93.5%

Remarks:

Analyzed Date: 10/26/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
12674-11-2	PCB 1016	G 391-11	2.18	2.18	ppb	U
11104-28-2	PCB 1221	G 391-11	10.3	10.3	ppb	U
11141-16-5	PCB 1232	G 391-11	2.28	2.28	ppb	U
53469-21-9	PCB 1242	G 391-11	1.71	1.71	ppb	U
12672-29-6	PCB 1248	G 391-11	3.86	3.85	ppb	U
11097-69-1	PCB 1254	G 391-11	5.83	5.83	ppb	U
11096-82-5	PCB 1260	G 391-11	6.70	6.70	ppb	U

Cas No:						
877-0086	Decachlorobiphenyl					
2053-2413	Decachlorobiphenyl					



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

BTEX - EPA 602/8021B**Sample: L3722-1**

Client Sample ID: Work Area #4

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 95.3%

Remarks:

Analyzed Date: 10/25/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
71-43-2	Benzene	D 638-8	1.01	1.01	ppb	U
108-88-3	Toluene	D 638-8	1.24	1.24	ppb	U
100-41-4	Ethylbenzene	D 638-8	1.05	1.05	ppb	U
108-38-3	m,p-xylene	D 638-8	2.08	2.08	ppb	U
95-47-6	o-xylene	D 638-8	1.36	1.36	ppb	U

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
460-00-4	4-Bromobenzonitrile					

Sample: L3722-2

Client Sample ID: Work Area #5

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 94.6%

Remarks:

Analyzed Date: 10/25/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
71-43-2	Benzene	D 638-9	1.01	1.01	ppb	U
108-88-3	Toluene	D 638-9	1.25	1.25	ppb	U
100-41-4	Ethylbenzene	D 638-9	1.06	1.06	ppb	U
108-38-3	m,p-xylene	D 638-9	2.09	2.09	ppb	U
95-47-6	o-xylene	D 638-9	1.37	1.37	ppb	U

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
460-00-4	4-Bromobenzonitrile					



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

BTEX - EPA 602/8021B**Sample: L3722-3**

Client Sample ID: Work Area #6

Collected: 10/24/2001

Matrix: Soil

Type: Grab

% Solid: 95.1%

Remarks:

Analyzed Date: 10/25/2001

Gas No	Analyte	File ID	MDL	Concentration	Units	Q
71-43-2	Benzene	D 638-10	1.01	1.01	ppb	U
108-88-3	Toluene	D 638-10	1.24	1.24	ppb	U
100-41-4	Ethylbenzene	D 638-10	1.05	1.05	ppb	U
108-38-3	m,p-xylene	D 638-10	2.08	2.08	ppb	U
95-47-6	o-xylene	D 638-10	1.37	1.37	ppb	U

Gas No	Analyte	File ID	MDL	Concentration	Units	Q
400-00-4	4-Bromobenzonitrile					

Sample: L3722-4

Client Sample ID: Work Area #7

Collected: 10/24/2001

Matrix: Soil

Type: Grab

% Solid: 90.7%

Remarks:

Analyzed Date: 10/25/2001

Gas No	Analyte	File ID	MDL	Concentration	Units	Q
71-43-2	Benzene	D 638-11	1.06	1.06	ppb	U
108-88-3	Toluene	D 638-11	1.30	1.30	ppb	U
100-41-4	Ethylbenzene	D 638-11	1.10	1.10	ppb	U
108-38-3	m,p-xylene	D 638-11	2.18	2.18	ppb	U
95-47-6	o-xylene	D 638-11	1.43	1.43	ppb	U

Gas No	Analyte	File ID	MDL	Concentration	Units	Q
400-00-4	4-Bromobenzonitrile					



Environmental Testing Laboratories, Inc.208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

BTEX - EPA 602/8021BSample: L3722-5

Client Sample ID: Work Area #8

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 93.5%

Remarks:

Analyzed Date: 10/26/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
71-43-2	Benzene	D 639-3	1.03	1.03	ppb	U
108-88-3	Toluene	D 639-3	1.26	1.26	ppb	U
100-41-4	Ethylbenzene	D 639-3	1.07	1.07	ppb	U
106-38-3	m,p-xylene	D 639-3	2.12	2.12	ppb	U
95-47-6	o-xylene	D 639-3	1.39	1.39	ppb	U

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
106-10-3	Bromobenzene	D 639-3	1.03	1.03	ppb	U



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

% Moisture**Sample: L3722-1**

Client Sample ID: Work Area #4

Matrix: Soil

Remarks:

Analyzed Date: 10/24/2001

Type: Grab

Collected: 10/24/2001

% Solid: 95.3%

Cas No	Analyte	MDL	Result	Units	Q
	% Moisture	NA	4.700	%	
	% Solid	NA	95.300	%	

Sample: L3722-2

Client Sample ID: Work Area #5

Matrix: Soil

Remarks:

Analyzed Date: 10/24/2001

Type: Grab

Collected: 10/24/2001

% Solid: 94.6%

Cas No	Analyte	MDL	Result	Units	Q
	% Moisture	NA	5.400	%	
	% Solid	NA	94.600	%	

Sample: L3722-3

Client Sample ID: Work Area #6

Matrix: Soil

Remarks:

Analyzed Date: 10/24/2001

Type: Grab

Collected: 10/24/2001

% Solid: 95.1%

Cas No	Analyte	MDL	Result	Units	Q
	% Moisture	NA	4.900	%	
	% Solid	NA	95.100	%	

Sample: L3722-4

Client Sample ID: Work Area #7

Matrix: Soil

Remarks:

Analyzed Date: 10/24/2001

Type: Grab

Collected: 10/24/2001

% Solid: 90.7%

Cas No	Analyte	MDL	Result	Units	Q
	% Moisture	NA	9.300	%	
	% Solid	NA	90.700	%	



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

% Moisture**Sample: L3722-5**

Client Sample ID: Work Area #8

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 93.5%

Remarks:

Analyzed Date: 10/24/2001

Cas No	Analyte	MDL	Result	Units	Q
	% Moisture	NA	6.800	%	
	% Solid	NA	93.500	%	



Environmental Testing Laboratories, Inc.**208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344**

10/29/2001

Total Petroleum Hydrocarbons - EPA 418.1**Sample: L3722-1**

Client Sample ID: Work Area #4

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 95.3%

Remarks:

Analyzed Date: 10/26/2001

Cas No	Analyte	MDL	Result	Units	Q
	Total Rec.Petr. Hydrocarbons	3.42	16.2	ppm	

Sample: L3722-2

Client Sample ID: Work Area #5

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 94.6%

Remarks:

Analyzed Date: 10/26/2001

Cas No	Analyte	MDL	Result	Units	Q
	Total Rec.Petr. Hydrocarbons	3.42	95.6	ppm	

Sample: L3722-3

Client Sample ID: Work Area #6

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 95.1%

Remarks:

Analyzed Date: 10/26/2001

Cas No	Analyte	MDL	Result	Units	Q
	Total Rec.Petr. Hydrocarbons	3.42	3.42	ppm	U

Sample: L3722-4

Client Sample ID: Work Area #7

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 90.7%

Remarks:

Analyzed Date: 10/26/2001

Cas No	Analyte	MDL	Result	Units	Q
	Total Rec.Petr. Hydrocarbons	3.42	258	ppm	



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

Total Petroleum Hydrocarbons - EPA 418.1**Sample: L3722-5**

Client Sample ID: Work Area #8

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 93.5%

Remarks:

Analyzed Date: 10/26/2001

Case No	Analyte	MDL	Result	Units	Q
	Total Rec.Petr. Hydrocarbons	3.42	42.8	ppm	



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

Flash Point (Ignitability)**Sample: L3722-1**

Client Sample ID: Work Area #4

Matrix: Soil

Remarks:

Analyzed Date: 10/29/2001

Type: Grab

Collected: 10/24/2001

% Solid: 95.3%

Gas No	Analyte	MDL	Result	Units	Q
	Flash Point	1.00	>100	deg C	

Sample: L3722-2

Client Sample ID: Work Area #5

Matrix: Soil

Remarks:

Analyzed Date: 10/29/2001

Type: Grab

Collected: 10/24/2001

% Solid: 94.6%

Gas No	Analyte	MDL	Result	Units	Q
	Flash Point	1.00	>100	deg C	

Sample: L3722-3

Client Sample ID: Work Area #6

Matrix: Soil

Remarks:

Analyzed Date: 10/29/2001

Type: Grab

Collected: 10/24/2001

% Solid: 95.1%

Gas No	Analyte	MDL	Result	Units	Q
	Flash Point	1.00	>100	deg C	

Sample: L3722-4

Client Sample ID: Work Area #7

Matrix: Soil

Remarks:

Analyzed Date: 10/29/2001

Type: Grab

Collected: 10/24/2001

% Solid: 90.7%

Gas No	Analyte	MDL	Result	Units	Q
	Flash Point	1.00	>100	deg C	



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

Flash Point (Ignitability)**Sample: L3722-5**

Client Sample ID: Work Area #8

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 93.5%

Remarks:

Analyzed Date: 10/29/2001

Cas No	Analyte	MDL	Result	Units	Q
	Flash Point	1.00	>100	deg C	



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

pH - Soil in Water @ 20 Degrees C**Sample: L3722-1**

Client Sample ID: Work Area #4

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 95.3%

Remarks:

Analyzed Date: 10/24/2001

Cas No	Analyte	MDL	Result	Units	Q
	pH over-aged	NA	8.70		
	Temperature	NA	21.4	C	

Sample: L3722-2

Client Sample ID: Work Area #5

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 94.6%

Remarks:

Analyzed Date: 10/24/2001

Cas No	Analyte	MDL	Result	Units	Q
	pH over-aged	NA	7.88		
	Temperature	NA	21.0	C	

Sample: L3722-3

Client Sample ID: Work Area #6

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 95.1%

Remarks:

Analyzed Date: 10/24/2001

Cas No	Analyte	MDL	Result	Units	Q
	pH over-aged	NA	7.61		
	Temperature	NA	20.9	C	

Sample: L3722-4

Client Sample ID: Work Area #7

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 90.7%

Remarks:

Analyzed Date: 10/24/2001

Cas No	Analyte	MDL	Result	Units	Q
	pH over-aged	NA	8.03		
	Temperature	NA	19.3	C	



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

pH - Soil in Water @ 20 Degrees C**Sample: L3722-5**

Client Sample ID: Work Area #8

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 93.5%

Remarks:

Analyzed Date: 10/24/2001

Cas No	Analyte	MDL	Result	Units	Q
	pH over-aged	NA	7.66		
	Temperature	NA	21.0	C	



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

Reactivity - EPA 9010**Sample: L3722-1**

Client Sample ID: Work Area #4

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 95.3%

Remarks:

Analyzed Date: 10/24/2001

Cas No	Analyte	MDL	Result	Units	Q
	Releasable Cyanide	0.10	0.10	ppm	U
	Releasable H2 Sulfide	0.010	0.010	ppm	U
	Reactivity	NA	Negative		

Sample: L3722-2

Client Sample ID: Work Area #5

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 94.6%

Remarks:

Analyzed Date: 10/24/2001

Cas No	Analyte	MDL	Result	Units	Q
	Releasable Cyanide	0.10	0.10	ppm	U
	Releasable H2 Sulfide	0.010	0.010	ppm	U
	Reactivity	NA	Negative		

Sample: L3722-3

Client Sample ID: Work Area #6

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 95.1%

Remarks:

Analyzed Date: 10/24/2001

Cas No	Analyte	MDL	Result	Units	Q
	Releasable Cyanide	0.10	0.10	ppm	U
	Releasable H2 Sulfide	0.010	0.010	ppm	U
	Reactivity	NA	Negative		



Oct 29 01 02:22p

ry and Becky Halleran

10/29/2001 11:43 FAX 631 249 8344

ETL

10/11/01

P. 18

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

Reactivity - EPA 9010

Sample: L3722-4

Client Sample ID: Work Area #7

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 90.7%

Remarks:

Analyzed Date: 10/24/2001

Cas No	Analyte	MDL	Result	Units	Q
	Releasable Cyanide	0.10	0.10	ppm	U
	Releasable H2 Sulfide	0.010	0.010	ppm	U
	Reactivity	NA	Negative		

Sample: L3722-5

Client Sample ID: Work Area #8

Matrix: Soil

Type: Grab

Collected: 10/24/2001

% Solid: 93.5%

Remarks:

Analyzed Date: 10/24/2001

Cas No	Analyte	MDL	Result	Units	Q
	Releasable Cyanide	0.10	0.10	ppm	U
	Releasable H2 Sulfide	0.010	0.010	ppm	U
	Reactivity	NA	Negative		



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale, NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

10/29/2001

ORGANIC METHOD QUALIFIERS

Q - Qualifier - specified entries and their meanings are as follows:

- U - The analytical result is a non-detect.
- J - Indicates an estimated value. The concentration reported was detected below the Method Detection Limit.
- B - The analyte was found in the associated method blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
- E - The concentration of the analyte exceeded the calibration range of the instrument.
- D - This flag identifies all compounds identified in an analysis at a secondary dilution.

INORGANIC METHOD QUALIFIERS

C - (Concentration) qualifiers are as follows:

- B - Entered if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
- U - Entered when the analyte was analyzed for, but not detected.
- J - Indicates an estimated value. The concentration reported was detected below the Method Detection Limit.

Q - Qualifier specific entries and their meanings are as follows:

- E - Reported value is estimated because of the presence of interferences.

M - (Method) qualifiers are as follows:

- A - Flame AA
- AS - Semi-automated Spectrophotometric
- AV - Automated Cold Vapor AA
- C - Manual Spectrophotometric
- F - Furnace AA
- NR - when the analyte is not required to be analyzed.
- P - ICP
- T - Titrimetric

OTHER QUALIFIERS

- ND - Not Detected
- NA - Not Applicable
- * - Outside Expected Range (NYCDEP Table VII or Surrogate Limits)



10/10/2001 11:51 5154208486

H2M LABS

Page 01

H2M LABS, INC.575 Broad Hollow Road, Melville NY 11747
(631) 924-3040 FAX (631) 420-8438 NYSDOH ID# 10478**LABORATORY RESULTS**KEYSPAN/MERCER WRECKING CO.
400 SHORE ROAD
GLENWOOD LANDING, NEW YORK 11547Lab No. : **0110099-001A**

Sample Information...

Type : Soil

Origin:

Attn To :

Client ID. : COMPOSITE DRIP AREAS #1 & #2

Collected : 10/2/01 2:00:00 PM

Received : 10/3/01 3:35:00 PM

Collected By : CLIENT

Copies To : JERRY CIEGERSKI

Parameter(s)	Results	Units	Method Number	Analyzed
2,4-D	< 50	µg/L	SW1311/8150	10/9/01 9:02:00 PM
2,4,5-TP (Silvax)	< 25	µg/L	SW1311/8150	10/9/01 9:02:00 PM
Aroclor 1016	3800	µg/Kg-dry	SW8082	10/8/01 1:11:00 PM
Aroclor 1221	< 7400	µg/Kg-dry	SW8082	10/8/01 1:11:00 PM
Aroclor 1232	< 3600	µg/Kg-dry	SW8082	10/8/01 1:11:00 PM
Aroclor 1242	< 3600	µg/Kg-dry	SW8082	10/8/01 1:11:00 PM
Aroclor 1248	< 3600	µg/Kg-dry	SW8082	10/8/01 1:11:00 PM
Aroclor 1254	< 3600	µg/Kg-dry	SW8082	10/8/01 1:11:00 PM
Aroclor 1260	< 3600	µg/Kg-dry	SW8082	10/8/01 1:11:00 PM
Pyridine	< 10	µg/L	SW1311/8270A	10/9/01 5:20:00 PM
1,4-Dichlorobenzene	< 10	µg/L	SW1311/8270A	10/9/01 5:20:00 PM
2-Methylphenol	< 10	µg/L	SW1311/8270A	10/9/01 5:20:00 PM
3-Methylphenol/4-Methylphenol	< 10	µg/L	SW1311/8270A	10/9/01 5:20:00 PM
Hexachloroethane	< 10	µg/L	SW1311/8270A	10/9/01 5:20:00 PM
Nitrobenzene	< 10	µg/L	SW1311/8270A	10/9/01 5:20:00 PM
Hexachlorobutadiene	< 10	µg/L	SW1311/8270A	10/9/01 5:20:00 PM
2,4,6-Trichlorophenol	< 10	µg/L	SW1311/8270A	10/9/01 5:20:00 PM
2,4,5-Trichlorophenol	< 25	µg/L	SW1311/8270A	10/9/01 5:20:00 PM
2,4-Dinitrotoluene	< 10	µg/L	SW1311/8270A	10/9/01 5:20:00 PM
Hexachlorobenzene	< 10	µg/L	SW1311/8270A	10/9/01 5:20:00 PM
Pentachlorophenol	< 25	µg/L	SW1311/8270A	10/9/01 5:20:00 PM
Benzo(a)anthracene	< 3600	µg/Kg-dry	SW8270B	10/9/01 7:18:00 PM
Benzo(b)fluoranthene	< 3600	µg/Kg-dry	SW8270B	10/9/01 7:18:00 PM
Benzo(k)fluoranthene	< 3600	µg/Kg-dry	SW8270B	10/9/01 7:18:00 PM
Benzo(a)pyrene	< 3600	µg/Kg-dry	SW8270B	10/9/01 7:18:00 PM
Indeno(1,2,3-cd)pyrene	< 3600	µg/Kg-dry	SW8270B	10/9/01 7:18:00 PM
Dibenzo(a,h)anthracene	< 3600	µg/Kg-dry	SW8270B	10/9/01 7:18:00 PM
Benzo(g,h,i)perylene	< 3600	µg/Kg-dry	SW8270B	10/9/01 7:18:00 PM
Percent Moisture	5.1	wt%	D2216	10/8/01 5:10:00 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

Date Reported:

Page 1 of 1



287 Maspeth Avenue, Brooklyn, NY 11211
Phone: (718) 963-5421, Fax: (718) 963-3026

Lab Report #: BL0110039

ELAP Number: 11173

KeySpan Laboratory Services Certificate of Results



Customer Information

Company Name: KeySpan System Laboratory - East
Customer Contact: Jeff Kost
Address: 400 Shore Road
Glenwood Landing NY 11547
Phone Number: 516-759-8520 Fax Number: 516-759-8515
Customer PO:

Laboratory Acceptance

Collect Date and Time: 10/3/01 9:24 AM
Collector: J. Kost
Receive Date: 10/3/01 9:27:57 AM
Approved By: 2832
Report Date: 10/11/01

Matrix: Aqueous Sample ID: BL0110039-01 Customer Sample #: 65725
Location: GGP Water from Clay Pipe near E vault Project ID:

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082		Analysis Date: 10/10/01	D.F. 1	
PCBs	Aroclor 1016 (PCB-1016)	0.05 µg/L	U	
	Aroclor 1221 (PCB-1221)	0.05 µg/L	U	
	Aroclor 1232 (PCB-1232)	0.05 µg/L	U	
	Aroclor 1242 (PCB-1242)	0.05 µg/L	U	
	Aroclor 1248 (PCB-1248)	0.05 µg/L	U	
	Aroclor 1254 (PCB-1254)	0.05 µg/L	U	
	Aroclor 1260 (PCB-1260)	0.08 µg/L		

Sample Comment: PCB Analysis via Single Column

SAMPLE CONDITION RECORD

Are samples submitted with a chain of custody? Yes
Are the number of samples the same as stated on the chain of custody? Yes
Are bottle caps tight and securely in place? Yes
Were all containers intact when received? Yes
Were samples submitted in an ice chest? Yes
Were samples received cold? N/A
Were samples within the holding time for the requested test(s)? Yes
Is the volume of sample submitted sufficient for the requested test(s)? Yes
Are all samples for volatile organic analyses free of headspace? N/A



287 Maspeth Avenue, Brooklyn, NY 11211
Phone: (718) 963-5421, Fax: (718) 963-3026

Lab Report #: BL0110039

ELAP Number: 11173

KeySpan Laboratory Services Certificate of Results



Customer Information

Company Name: KeySpan System Laboratory - East
Customer Contact: Jeff Kost
Address: 400 Shore Road
Glenwood Landing NY 11547
Phone Number: 516-759-8520 Fax Number: 516-759-8515
Customer PO:

Laboratory Acceptance

Collect Date and Time: 10/3/01 9:24 AM
Collector: J. Kost
Receive Date: 10/3/01 9:27:57 AM
Approved By: 2832
Report Date: 10/11/01

Qualifiers: U - Indicates compound was analyzed for but not detected.
D - Diluted
B - Indicates that compound was found in associated blank as well as in the sample.
UD - Indicates diluted compound was analyzed for but not detected.
J - Indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero (0).
E - Exceeds calibration range, dilution to follow.
N - QC criteria was not met for matrix spike recovery.

Comments: All solid sample results are reported on a dry weight basis, unless otherwise noted.

ND - Not Detected NA - Not Analyzed

Approval Signature

Laboratory results shall not be reproduced except in full, without written approval of the Laboratory.
Results relate only to the sample "As Received" by the laboratory.



287 Maspeth Avenue, Brooklyn, NY 11211
Phone: (718) 963-5421, Fax: (718) 963-3026

Lab Report #: BL0110029

ELAP Number: 11173

KeySpan Laboratory Services Certificate of Results



Customer Information

Company Name: KeySpan System Laboratory - East
Customer Contact: Robert Kalberer
Address: 400 Shore Road
Glenwood Landing, NY 11547

Phone Number: 516-759-8520
Fax Number: 516-759-8515
Customer PO:
Project ID: Compressor Bldg.

Laboratory Information

Receive Date: 10/2/2001 2:00:27 PM

Approved By: 2832

Report Date: 10/11/2001

<u>Sample ID:</u>	BL0110029-01	<u>Matrix:</u>	Oil	<u>Customer Sample #:</u>	1
<u>Collect Date and Time:</u>	10/2/2001 10:30 AM	<u>Collector:</u>	R. Kalberer		
<u>Location:</u>	Lube Oil Cool Pot				
Test	Parameters	Result	Qualifier	Comments	
	Method: SW 846 - 8082	Analysis Date: 10/10/2001		D.F. 1	
PCBs	Aroclor 1016 (PCB-1016)	2.0 mg/Kg	U		
	Aroclor 1221 (PCB-1221)	2.0 mg/Kg	U		
	Aroclor 1232 (PCB-1232)	2.0 mg/Kg	U		
	Aroclor 1242 (PCB-1242)	2.0 mg/Kg	U		
	Aroclor 1248 (PCB-1248)	2.0 mg/Kg	U		
	Aroclor 1254 (PCB-1254)	2.0 mg/Kg	U		
	Aroclor 1260 (PCB-1260)	2.0 mg/Kg	U		

Sample Comment: PCB Analysis via Single Column

<u>Sample ID:</u>	BL0110029-02	<u>Matrix:</u>	Solid	<u>Customer Sample #:</u>	2
<u>Collect Date and Time:</u>	10/2/2001 10:40 AM	<u>Collector:</u>	R. Kalberer		
<u>Location:</u>	East Gas Supply				
Test	Parameters	Result	Qualifier	Comments	
	Method: SW 846 - 8082	Analysis Date: 10/9/2001		D.F. 1	
PCB Wipe Analysis	Aroclor 1016 (PCB-1016)	2.0 µg/100 cm2	U		
	Aroclor 1221 (PCB-1221)	2.0 µg/100 cm2	U		
	Aroclor 1232 (PCB-1232)	2.0 µg/100 cm2	U		
	Aroclor 1242 (PCB-1242)	2.0 µg/100 cm2	U		
	Aroclor 1248 (PCB-1248)	2.0 µg/100 cm2	U		
	Aroclor 1254 (PCB-1254)	2.0 µg/100 cm2	U		
	Aroclor 1260 (PCB-1260)	2.0 µg/100 cm2	U		

Sample Comment: PCB Analysis via Single Column

Received: 10/11/01 11:18AM;

KeySpan Energy: Page 2

From: KeySpan Laboratory Services To: Robert Kalberer

Date: 10/11/2001 Time: 11:14:40 AM

Page 2 of 4



287 Maspeth Avenue, Brooklyn, NY 11211
Phone: (718) 963-5421. Fax: (718) 963-3026

Lab Report #: BL0110029

ELAP Number: 11173

KeySpan Laboratory Services Certificate of Results



<u>Sample ID:</u> BL0110029-03		<u>Matrix:</u> Solid	<u>Customer Sample #:</u> 3	
<u>Collect Date and Time:</u> 10/2/2001 10:50 AM		<u>Collector:</u> R. Kalberer		
<u>Location:</u> West Gas Supply				
Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082		Analysis Date: 10/9/2001	D.F. 1	
PCB Wipe Analysis	Aroclor 1016 (PCB-1016)	2.0 µg/100 cm2	U	
	Aroclor 1221 (PCB-1221)	2.0 µg/100 cm2	U	
	Aroclor 1232 (PCB-1232)	2.0 µg/100 cm2	U	
	Aroclor 1242 (PCB-1242)	2.0 µg/100 cm2	U	
	Aroclor 1248 (PCB-1248)	2.0 µg/100 cm2	U	
	Aroclor 1254 (PCB-1254)	2.0 µg/100 cm2	U	
	Aroclor 1260 (PCB-1260)	2.0 µg/100 cm2	U	

Sample Comment: PCB Analysis via Single Column

<u>Sample ID:</u> BL0110029-04		<u>Matrix:</u> Solid	<u>Customer Sample #:</u> 4	
<u>Collect Date and Time:</u> 10/2/2001 11:00 AM		<u>Collector:</u> R. Kalberer		
<u>Location:</u> East/West Crossover				
Test	Parameters	Result	Qualifier	Comments
<u>Method:</u> SW 846 - 8082		<u>Analysis Date:</u> 10/9/2001	<u>D.F.</u> 1	
PCB Wipe Analysis	Aroclor 1016 (PCB-1016)	2.0 µg/100 cm2	U	
	Aroclor 1221 (PCB-1221)	2.0 µg/100 cm2	U	
	Aroclor 1232 (PCB-1232)	2.0 µg/100 cm2	U	
	Aroclor 1242 (PCB-1242)	3.88 µg/100 cm2		
	Aroclor 1248 (PCB-1248)	2.0 µg/100 cm2	U	
	Aroclor 1254 (PCB-1254)	2.0 µg/100 cm2	U	
	Aroclor 1260 (PCB-1260)	2.0 µg/100 cm2	U	

Sample Comment: PCB Analysis via Single Column

Received: 10/11/01 11:19AM;

-> Keyspan Energy; Page 3

From: KeySpan Laboratory Services To: Robert Kalberer

Date: 10/11/2001 Time: 11:14:40 AM

Page 3 of 4



287 Maspeth Avenue, Brooklyn, NY 11211
Phone: (718) 963-5421, Fax: (718) 963-3026

Lab Report #: BL0110029

ELAP Number: 11173

KeySpan Laboratory Services Certificate of Results



<u>Sample ID:</u> BL0110029-05		<u>Matrix:</u> Solid	<u>Customer Sample #:</u> 5	
<u>Collect Date and Time:</u> 10/2/2001 11:10 AM		<u>Collector:</u> R. Kalberer		
<u>Location:</u> Debris In West Pipe				
Test	Parameters	Result	Qualifier	Comments
<u>Method:</u> SW 846 - 8082		<u>Analysis Date:</u> 10/10/2001	<u>D.F.</u> 1	
PCBs in Solids	Aroclor 1016 (PCB-1016)	2.0 mg/Kg	U	
	Aroclor 1221 (PCB-1221)	2.0 mg/Kg	U	
	Aroclor 1232 (PCB-1232)	2.0 mg/Kg	U	
	Aroclor 1242 (PCB-1242)	2.0 mg/Kg	U	
	Aroclor 1248 (PCB-1248)	2.0 mg/Kg	U	
	Aroclor 1254 (PCB-1254)	2.0 mg/Kg	U	
	Aroclor 1260 (PCB-1260)	2.0 mg/Kg	U	
Sample Comment: PCB Analysis via Single Column				

<u>Sample ID:</u>	BL0110029-06	<u>Matrix:</u>	Solid	<u>Customer Sample #:</u>	6
<u>Collect Date and Time:</u>	10/2/2001 11:20 AM	<u>Collector:</u>	R. Kalberer		
<u>Location:</u>	Valve Grease				
Test	Parameters	Result	Qualifier	Comments	
	<u>Method:</u> SW 846 - 8082	<u>Analysis Date:</u> 10/10/2001		<u>D.F.</u>	1
PCBs in Solids	Aroclor 1016 (PCB-1016)	2.0 mg/Kg	U		
	Aroclor 1221 (PCB-1221)	2.0 mg/Kg	U		
	Aroclor 1232 (PCB-1232)	2.0 mg/Kg	U		
	Aroclor 1242 (PCB-1242)	2.0 mg/Kg	U		
	Aroclor 1248 (PCB-1248)	2.0 mg/Kg	U		
	Aroclor 1254 (PCB-1254)	2.0 mg/Kg	U		
	Aroclor 1260 (PCB-1260)	2.0 mg/Kg	U		
Sample Comment: PCB Analysis via Single Column					

Received: 10/11/01 11:19AM;

-> Keyspan Energy; Page 4

From: KeySpan Laboratory Services To: Robert Kalberer

Date: 10/11/2001 Time: 11:14:40 AM

Page 4 of 4



287 Maspeth Avenue, Brooklyn, NY 11211
Phone: (718) 963-5421, Fax: (718) 963-3026

Lab Report #: BL0110029

ELAP Number: 11173

KeySpan Laboratory Services Certificate of Results



<u>Sample ID:</u>	BL0110029-07	<u>Matrix:</u>	Solid	<u>Customer Sample #:</u>	7
<u>Collect Date and Time:</u>	10/2/2001 11:30 AM	<u>Collector:</u>	R. Kalberer		
<u>Location:</u>	Air Line Grease				
Test	Parameters	Result	Qualifier	Comments	
	<u>Method:</u> SW 846 - 8082	<u>Analysis Date:</u> 10/10/2001		<u>D.F.</u>	1
PCBs in Solids	Aroclor 1016 (PCB-1016)	2.0 mg/Kg	U		
	Aroclor 1221 (PCB-1221)	2.0 mg/Kg	U		
	Aroclor 1232 (PCB-1232)	2.0 mg/Kg	U		
	Aroclor 1242 (PCB-1242)	2.0 mg/Kg	U		
	Aroclor 1248 (PCB-1248)	2.0 mg/Kg	U		
	Aroclor 1254 (PCB-1254)	2.0 mg/Kg	U		
	Aroclor 1260 (PCB-1260)	65.7 mg/Kg			

Sample Comment: PCB Analysis via Single Column

SAMPLE CONDITION RECORD

Are samples submitted with a chain of custody?	Yes	Are the number of samples the same as stated on the chain of custody?	Yes
Are bottle caps tight and securely in place?	Yes	Were samples within the holding time for the requested test(s)?	Yes
Were all containers intact when received?	Yes	Is the volume of sample submitted sufficient for the requested test(s)?	Yes
Were samples submitted in an ice chest?	No	Are all samples for volatile organic analyses free of headspace?	N/A
Were samples received cold?	No		

Qualifiers: U - Indicates compound was analyzed for but not detected.
D - Diluted
B - Indicates that compound was found in associated blank as well as in the sample.
UD - Indicates diluted compound was analyzed for but not detected.
J - Indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero (0).
E - Exceeds calibration range, dilution to follow.
N - QC criteria was not met for matrix spike recovery.

Comments: All solid sample results are reported on a dry weight basis, unless otherwise noted.

ND - Not Detected NA - Not Analyzed

Approval Signature

Laboratory results shall not be reproduced except in full, without written approval of the Laboratory.
Results relate only to the sample "As Received" by the laboratory.

Appendix C

Backfill Analytical Results

Backfill Soil Analytical Results

Environmental Testing Laboratory
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

11/05/2001

Custody Document: M2357

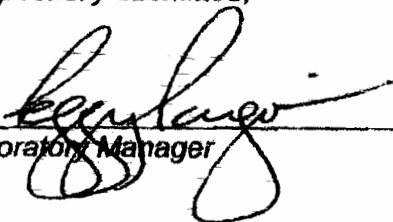
Received: 10/30/2001 08:46
Sampled by: N/A

Client: Mercer Wrecking Recycling Corp.
853 Nottingham Way
Trenton,
NJ 08638

Project: Glenwood

Manager: Jerry Cleclerski

Respectfully submitted,


Laboratory Manager

Post-It® Fax Note	7671	Date	11/5	# of pages	11
To	Jerry	From			
Co./Dept.		Co.			
Phone #		Phone #			
Fax #	516-759-6272	Fax #			

NYS Lab ID # 10969
NJ Cert. # 73812
CT Cert. # PH0645
MA Cert. # NY061
PA Cert. # 68-535
VA Cert. # 108
NH Cert. # 252592-BA
RI Cert. # 161



11/05/2001

TCLP Volatile Compounds - EPA 8240

Sample: M2357-2

Client Sample ID: Comp A

Collected: 10/26/2001

Matrix: Soil

Type: Composite

Remarks: See Case Narrative

Analyzed Date: 11/02/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
71-43-2	Benzene	C 302-4702	0.0017	0.0017	ppm	U
56-23-5	Carbon Tetrachloride	C 302-4702	0.0010	0.0010	ppm	U
108-90-7	Chlorobenzene	C 302-4702	0.0019	0.0019	ppm	U
67-68-3	Chloroform	C 302-4702	0.0022	0.0022	ppm	U
107-06-2	1,2-Dichloroethane	C 302-4702	0.0018	0.0018	ppm	U
75-35-4	1,1-Dichloroethene	C 302-4702	0.0022	0.0022	ppm	U
78-93-3	Methyl Ethyl Ketone	C 302-4702	0.17	0.17	ppm	U
127-18-4	Tetrachloroethene	C 302-4702	0.0012	0.0012	ppm	U
79-01-6	Trichloroethene	C 302-4702	0.0017	0.0017	ppm	U
75-01-4	Vinyl Chloride	C 302-4702	0.0085	0.0085	ppm	U

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
280-00-4	4-BROMOFLUOROBENZENE	C 302-4702	0.0010	0.0010	ppm	U
2037-26-5	TOLUENE	C 302-4702	0.0010	0.0010	ppm	U
4774-33-8	DIBROMOFLUOROMETHANE	C 302-4702	0.0010	0.0010	ppm	U



ENVIRONMENTAL TESTING LABORATORY
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

11/05/2001

TCLP Semivolatile Compounds - EPA 8270C

Sample: M2357-1

Client Sample ID: Comp B

Collected: 10/26/2001

Matrix: Soil

Type: Composite

Remarks:

Analyzed Date: 11/01/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
95-48-7	o-cresol	C 591-7672	0.0075	0.0075	ppm	U
106-44-5	m,p-cresol	C 591-7672	0.0078	0.0078	ppm	U
	Cresol	C 591-7672	0.0076	0.0076	ppm	U
106-46-7	1,4-Dichlorobenzene	C 591-7672	0.0060	0.0060	ppm	U
121-14-2	2,4-Dinitrotoluene	C 591-7672	0.0040	0.0040	ppm	U
118-74-1	Hexachlorobenzene	C 591-7672	0.0049	0.0049	ppm	U
87-68-3	Hexachlorobutadiene	C 591-7672	0.0046	0.0046	ppm	U
67-72-1	Hexachloroethane	C 591-7672	0.0054	0.0054	ppm	U
98-95-3	Nitrobenzene	C 591-7672	0.0038	0.0038	ppm	U
87-86-5	Pentachlorophenol	C 591-7672	0.0022	0.0022	ppm	U
110-86-1	Pyridine	C 591-7672	0.0014	0.0014	ppm	U
95-95-4	2,4,5-Trichlorophenol	C 591-7672	0.0055	0.0055	ppm	U
88-06-2	2,4,6-Trichlorophenol	C 591-7672	0.0049	0.0049	ppm	U

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
116-76-5	2,4-DIBROMOPHENOL					
321-80-8	2-FLUOROBIPHENYL					
367-12-2	2-FLUOROPHENOL					
1218-51-0	TERPHENYL DIA					
9105-90-0	NITROBENZENE DS					
13127-84-3	PHENOL DS					



ENVIRONMENTAL TESTING CORPORATION
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

11/05/2001

TCLP Semivolatile Compounds - EPA 8270C

Sample: M2357-2

Client Sample ID: Comp A

Collected: 10/26/2001

Matrix: Soil

Type: Composite

Remarks:

Analyzed Date: 11/01/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
95-48-7	o-cresol	C 591-7673	0.0075	0.0075	ppm	U
106-44-5	m,p-cresol	C 591-7673	0.0076	0.0076	ppm	U
	Cresol	C 591-7673	0.0076	0.0076	ppm	U
106-46-7	1,4-Dichlorobenzene	C 591-7673	0.0060	0.0060	ppm	U
121-14-2	2,4-Dinitrotoluene	C 591-7673	0.0040	0.0040	ppm	U
118-74-1	Hexachlorobenzene	C 591-7673	0.0049	0.0049	ppm	U
87-68-3	Hexachlorobutadiene	C 591-7673	0.0046	0.0046	ppm	U
67-72-1	Hexachloroethane	C 591-7673	0.0054	0.0054	ppm	U
98-95-3	Nitrobenzene	C 591-7673	0.0038	0.0038	ppm	U
87-86-5	Pentachlorophenol	C 591-7673	0.0022	0.0022	ppm	U
110-86-1	Pyridine	C 591-7673	0.0014	0.0014	ppm	U
95-95-4	2,4,5-Trichlorophenol	C 591-7673	0.0055	0.0055	ppm	U
88-06-2	2,4,6-Trichlorophenol	C 591-7673	0.0049	0.0049	ppm	U

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
118-76-6	2,4,6-TRIBROMOPHENOL	C 591-7673	0.0055	0.0055	ppm	U
921-86-6	2-FLUOROPHENOL	C 591-7673	0.0055	0.0055	ppm	U
861-12-4	2-FLUOROPHENOL	C 591-7673	0.0055	0.0055	ppm	U
1718-51-0	TERPHEYL-OL	C 591-7673	0.0055	0.0055	ppm	U
4186-80-0	NITROBENZENEIS	C 591-7673	0.0055	0.0055	ppm	U
13127-98-3	PHENOL-OL	C 591-7673	0.0055	0.0055	ppm	U



Environmental Testing
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

11/05/2001

TCLP Herbicide Compounds

Sample: M2357-1

Client Sample ID: Comp B

Collected: 10/26/2001

Matrix: Soil

Type: Composite

Remarks:

Analyzed Date: 11/05/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
94-75-7	2,4 - D	K 98 -6	0.000019	0.000019	ppm	U
93-72-1	2,4,5-TP (Silvex)	K 98 -6	0.000021	0.000021	ppm	U

Sample: M2357-2

Client Sample ID: Comp A

Collected: 10/26/2001

Matrix: Soil

Type: Composite

Remarks:

Analyzed Date: 11/05/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
94-75-7	2,4 - D	K 98 -7	0.000019	0.000019	ppm	U
93-72-1	2,4,5-TP (Silvex)	K 98 -7	0.000021	0.000021	ppm	U



Environmental Testing
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

11/05/2001

TCLP Pesticide Compounds

Sample: M2357-1

Client Sample ID: Comp B

Collected: 10/26/2001

Matrix: Soil

Type: Composite

Remarks:

Analyzed Date: 11/05/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
57-74-9	Chlordane	G 398-13	0.00014	0.00014	ppm	U
72-20-8	Endrin	G 398-13	0.0000020	0.0000020	ppm	U
76-44-8	Heptachlor	G 398-13	0.0000040	0.0000040	ppm	U
1024-57-3	Heptachlor epoxide	G 398-13	0.0000030	0.0000030	ppm	U
58-89-9	Lindane	G 398-13	0.0000030	0.0000030	ppm	U
72-43-5	Methoxychlor	G 398-13	0.0000040	0.0000040	ppm	U
8001-35-2	Toxaphene	G 398-13	0.0011	0.0011	ppm	U

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
57-74-9	Chlordane	G 398-13	0.00014	0.00014	ppm	U
72-20-8	Endrin	G 398-13	0.0000020	0.0000020	ppm	U
76-44-8	Heptachlor	G 398-13	0.0000040	0.0000040	ppm	U
1024-57-3	Heptachlor epoxide	G 398-13	0.0000030	0.0000030	ppm	U
58-89-9	Lindane	G 398-13	0.0000030	0.0000030	ppm	U
72-43-5	Methoxychlor	G 398-13	0.0000040	0.0000040	ppm	U
8001-35-2	Toxaphene	G 398-13	0.0011	0.0011	ppm	U

Sample: M2357-2

Client Sample ID: Comp A

Collected: 10/26/2001

Matrix: Soil

Type: Composite

Remarks:

Analyzed Date: 11/05/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
57-74-9	Chlordane	G 398-14	0.00014	0.00014	ppm	U
72-20-8	Endrin	G 398-14	0.0000020	0.0000020	ppm	U
76-44-8	Heptachlor	G 398-14	0.0000040	0.0000040	ppm	U
1024-57-3	Heptachlor epoxide	G 398-14	0.0000030	0.0000030	ppm	U
58-89-9	Lindane	G 398-14	0.0000030	0.0000030	ppm	U
72-43-5	Methoxychlor	G 398-14	0.0000040	0.0000040	ppm	U
8001-35-2	Toxaphene	G 398-14	0.0011	0.0011	ppm	U

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
57-74-9	Chlordane	G 398-14	0.00014	0.00014	ppm	U
72-20-8	Endrin	G 398-14	0.0000020	0.0000020	ppm	U
76-44-8	Heptachlor	G 398-14	0.0000040	0.0000040	ppm	U
1024-57-3	Heptachlor epoxide	G 398-14	0.0000030	0.0000030	ppm	U
58-89-9	Lindane	G 398-14	0.0000030	0.0000030	ppm	U
72-43-5	Methoxychlor	G 398-14	0.0000040	0.0000040	ppm	U
8001-35-2	Toxaphene	G 398-14	0.0011	0.0011	ppm	U



Environmental Testing
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

11/05/2001

TCLP Mercury

Sample: M2357-1

Client Sample ID: Comp B

Collected: 10/26/2001

Matrix: Soil

Type: Composite

Remarks:

Analyzed Date: 11/01/2001

Cas No	Analyte	MDL	Concentration	Units	Q
7439-97-6	Mercury	0.000050	0.000050	ppm	U

Sample: M2357-2

Client Sample ID: Comp A

Collected: 10/26/2001

Matrix: Soil

Type: Composite

Remarks:

Analyzed Date: 11/01/2001

Cas No	Analyte	MDL	Concentration	Units	Q
7439-97-6	Mercury	0.000050	0.000050	ppm	U



Environmental Testing Laboratories, Inc.
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

11/05/2001

TCLP Metals

Sample: M2357-1

Client Sample ID: Comp B

Collected: 10/26/2001

Matrix: Soil

Type: Composite

Remarks:

Analyzed Date: 11/01/2001

Cas No	Analyte	MDL	Concentration	Units	Q
7440-38-2	Arsenic	0.048	0.048	ppm	U
7440-39-3	Barium	0.012	0.51	ppm	
7440-43-9	Cadmium	0.012	0.012	ppm	U
7440-47-3	Chromium	0.022	0.022	ppm	U
7439-92-1	Lead	0.022	0.25	ppm	
7782-49-2	Selenium	0.047	0.050	ppm	
7440-22-4	Silver	0.015	0.015	ppm	U

Sample: M2357-2

Client Sample ID: Comp A

Collected: 10/26/2001

Matrix: Soil

Type: Composite

Remarks:

Analyzed Date: 11/01/2001

Cas No	Analyte	MDL	Concentration	Units	Q
7440-38-2	Arsenic	0.048	0.048	ppm	U
7440-39-3	Barium	0.012	0.39	ppm	
7440-43-9	Cadmium	0.012	0.012	ppm	U
7440-47-3	Chromium	0.022	0.022	ppm	U
7439-92-1	Lead	0.022	0.022	ppm	U
7782-49-2	Selenium	0.047	0.047	ppm	U
7440-22-4	Silver	0.015	0.015	ppm	U



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

11/05/2001

Case Narrative

8260

The following compounds were calibrated at 25, 50, 100, 150 and 200 ppb levels in the initial calibration curve:

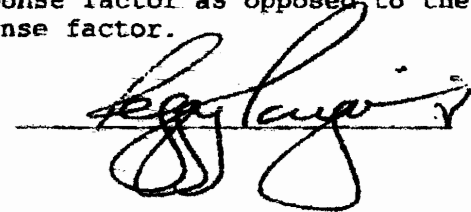
Acetone
2-Butanone
4-Methyl-2-pentanone
2-Hexanone

M&P-Xylenes were calibrated at 10, 40, 100, 200 and 300 ppb levels.

All other compounds were calibrated at 5, 20, 50, 100 and 150 ppb levels.

Samples were quantitated using the continuing calibration standard response factor as opposed to the initial calibration average response factor.

Reviewed by:



Client: Mercer Wrecking & Recycling Corp.
853 Nottingham Way
Trenton, NJ 08638

Report #: 01MWR-002
Date: 11/21/01

Page 1 of 1

Project: New Keyspan Bldg.

Sample: Sandy Soil

Test: Gradation, #200 Wash

Method: ASTM C136, ASTM D1140

Sampled By: Materials Testing Lab, Inc.

On: 11/15/01 **Delivered By:** MTL

Gradation, #200 Wash

Sieve Size	% Passing #1	Specification	
		Min.	Max.
1"	100	-	-
1/2"	97.8	-	-
3/4"	94.5	-	-
#4	91.7	-	-
#10	81.7	-	-
#40	55.2	-	-
#80	9.4	-	-
#200	2.8	-	-

Sample ID

#1 - Sandy Soil from Stockpile

Complies:

-

Reported To:

--

Remarks:

Lab #4702

Submitted By:

Materials Testing Lab, Inc.

The above reported data is the property of the client. No reproduction of the above data without the sole permission of Materials Testing Lab, Inc. Materials Testing accepts no liability for work executed by others.

Client: Mercer Wrecking & Recycling Corp.
853 Nottingham Way
Trenton, NJ 08638

Report #: 01MWR-002

Date: 11/21/2001

Project: New Keyspan Bldg.

Sample: Sary Soil from Stockpile

Test: MOISTURE DENSITY RELATIONSHIP (STANDARD)

Method: ASTM D698 'A'

Sampled By: Materials Testing Lab, Inc.

On

11/15/2001

DELIVERED BY:

MTL

TEST #	CLASSIFICATION	% MOISTURE	DRY DENSITY
1		6.2	109.1
		8.3	112.7
		10.7	113.8
		12.9	112.4
		15.1	108.5

OPTIMUM MOISTURE

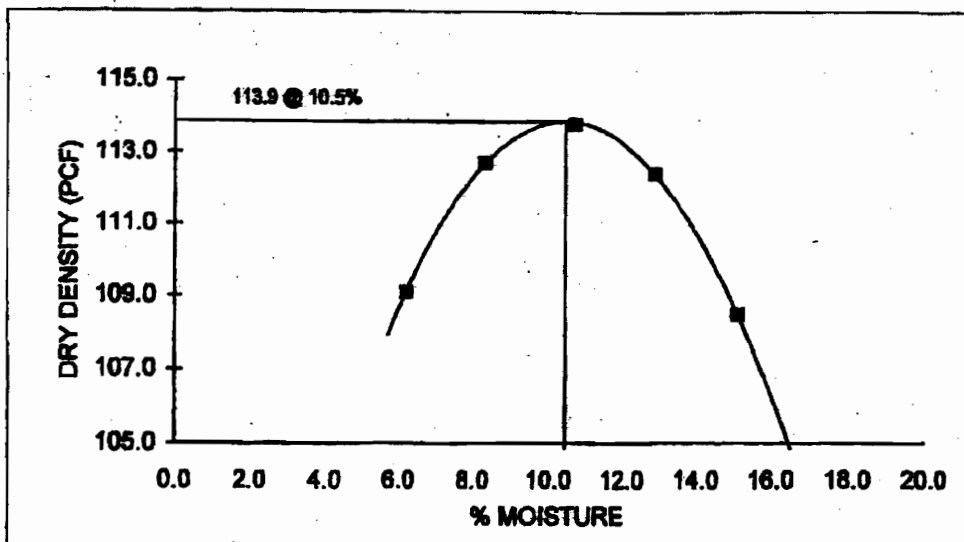
10.5 %

@

MAXIMUM DRY DENSITY

113.9

LBS./CU. FT.



Reported To:--

Submitted By: Materials Testing Lab, Inc.

Adjacent Properties

- Numerous one and two family homes, apartment buildings and small businesses surround the Site. To the west and to the south of the Site, there is a mix of commercial and residential properties including a supermarket, a realtor, and other specialty shops. To the north of the Site there are primarily one and two family homes and apartment buildings. To the east is the Laurelton Parkway. No recognized environmental conditions (RECs) resulting from adjacent properties were evident from a visual survey.

Site Historical Use

- The 1949 Sanborn map shows three small structures on the Site. Sanborn maps from 1926 through 1996 show the Site as either a vacant property or as a parking lot. A review of the Environmental Data Resources aerial photos dating back to 1957 also indicate the Site is vacant, with the exception of a structure present on the west corner of the property. No RECs are evident from historical reference sources.

Regulatory Agency Records Review

- The Site was not listed in any of the databases searched by Environmental Data Resources (EDR).
- No sites listed in the EDR database represent a REC to the Site

Hazardous Materials and Petroleum Products Storage and Handling

- There is no evidence of hazardous materials and petroleum product storage and handling at the Site and there is no evidence of a REC resulting from the same.

Solid Waste Generation, Storage and Disposal

- There is no evidence to indicate solid waste generation or storage at the Site. While limited household refuse is visible on Site, no RECs associated with solid waste are evident.

Project:

**P.S. 270 Queens
Laurelton, NY**

234TH ST. & MERRICK BLVD.
QUEENS, NY.



**NEW YORK CITY
SCHOOL CONSTRUCTION
AUTHORITY**

Milo Rivera, Ph.D., P.E., President & CEO

Board of Trustees

**Howard Wilson, Chairman
Harold D. Levy, Member**

Underground and Aboveground Storage Tanks (USTs and ASTs)

- Information provided in EDR's database does not indicate a REC associated with ASTs and USTs at the Site.

Polychlorinated Biphenyls (PCBs)

- The site survey did not indicate the presence of PCB-containing equipment or material on Site and no REC was identified.

Asbestos-Containing Material (ACM)

- The site survey did not indicate the presence of ACM on Site and no REC associated with ACM was identified.

Radon

- According to the EDR report, the average indoor radon level is less than two picoCuries per liter of air, ($<2\text{pCi/L}$). Of the 81 sites tested for radon in Queens, the average indoor activity for all of the sites tested was less than 0.970 picoCuries per Liter ($<0.970\text{pCi/L}$), which is below EPA's action level of 4 pCi/L. Based on these data, there is no REC associated with radon at the Site.



Streets98

Area 1B- Cover Soil Analytical Results



**NEW YORK DIRT
CONTRACTING CORP.**

121 East Second Street, Mineola, New York 11501 • (516) 294-3217 • Fax (516) 294-1375

November 28, 2001

Mercer Group International
PO Box 5625
853 Nottingham Way
Trenton, New Jersey 08635
Attn: Jerry Ciecierski

RE: Glenwood Landing
Job # 20134

Dear Jerry:

The material that New York Dirt Contracting is delivering to Glenwood Landing is coming from the following location:

S.C.A. # C 8702
GLENOKS CAMPUS, QUEENS
74-02 COMMONWEALTH BLVD.
BELLEROSE, NEW YORK 11421

CONTACT PERSON: BILLY KONKEL (718) 217-0518

If you have any question please don't hesitate to call.

Sincerely,

Pat Cascione

PC:mf

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

12/03/2001

Custody Document: L3723

Received: 11/26/2001 10:06

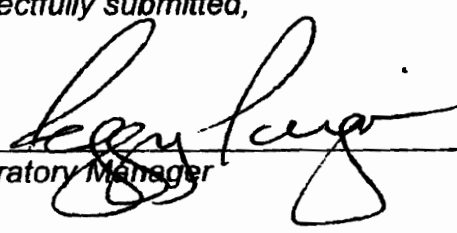
Sampled by: N/A

Client: Mercer Wrecking Recycling Corp.

853 Nottingham Way
Trenton,
NJ 08638

Project: Glenwood**Manager: Jerry Ciecierski**

Respectfully submitted,


Laboratory Manager

Post-it® Fax Note	7671	Date	12-3-01	# of pages	9
To	Terry	From			
Co./Dept.		Co.			
Phone #		Phone #			
Fax #		Fax #			

NYS Lab ID # 10969
NJ Cert. # 73812
CT Cert. # PH0645
MA Cert. # NY061
PA Cert. # 68-535
VA Cert. # 108
NH Cert. # 252592-BA
RI Cert. # 161



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

12/03/2001

TCLP Volatile Compounds - EPA 8240**Sample: L3723-1**

Client Sample ID: Clay Backfill Material

Collected: 11/26/2001 10:00

Matrix: Soil

Type: Grab

Remarks: See Case Narrative

Analyzed Date: 12/01/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
71-43-2	Benzene	B 642-8295	0.0016	0.0016	ppm	U
56-23-5	Carbon Tetrachloride	B 642-8295	0.0025	0.0025	ppm	U
108-90-7	Chlorobenzene	B 642-8295	0.0015	0.0015	ppm	U
67-66-3	Chloroform	B 642-8295	0.0020	0.0020	ppm	U
107-06-2	1,2-Dichloroethane	B 642-8295	0.0023	0.0023	ppm	U
75-35-4	1,1-Dichloroethene	B 642-8295	0.0030	0.0030	ppm	U
78-93-3	Methyl Ethyl Ketone	B 642-8295	0.050	0.050	ppm	U
127-18-4	Tetrachloroethene	B 642-8295	0.0024	0.0024	ppm	U
79-01-6	Trichloroethene	B 642-8295	0.0016	0.0016	ppm	U
75-01-4	Vinyl Chloride	B 642-8295	0.0010	0.0010	ppm	U

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
460-00-4	4-BROMODIBROMOBENZENE	B 642-8295	0.0010	0.0010	ppm	U
2037-26-5	TOLUENE DIISOCYANATE	B 642-8295	0.0010	0.0010	ppm	U
4774-33-8	DIBROMODIBROMOMETHANE	B 642-8295	0.0010	0.0010	ppm	U



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

12/03/2001

TCLP Semivolatile Compounds - EPA 8270C**Sample: L3723-1**

Client Sample ID: Clay Backfill Material

Collected: 11/26/2001 10:00

Matrix: Soil

Type: Grab

Remarks:

Analyzed Date: 11/30/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
95-48-7	o-cresol	C 607-7845	0.0075	0.0075	ppm	U
106-44-5	m,p-cresol	C 607-7845	0.0076	0.0076	ppm	U
	Cresol	C 607-7845	0.0076	0.0076	ppm	U
106-46-7	1,4-Dichlorobenzene	C 607-7845	0.0060	0.0060	ppm	U
121-14-2	2,4-Dinitrotoluene	C 607-7845	0.0040	0.0040	ppm	U
118-74-1	Hexachlorobenzene	C 607-7845	0.0049	0.0049	ppm	U
87-68-3	Hexachlorobutadiene	C 607-7845	0.0046	0.0046	ppm	U
67-72-1	Hexachloroethane	C 607-7845	0.0054	0.0054	ppm	U
98-95-3	Nitrobenzene	C 607-7845	0.0038	0.0038	ppm	U
87-86-5	Pentachlorophenol	C 607-7845	0.0022	0.0022	ppm	U
110-86-1	Pyridine	C 607-7845	0.0014	0.0014	ppm	U
95-95-4	2,4,5-Trichlorophenol	C 607-7845	0.0055	0.0055	ppm	U
88-06-2	2,4,6-Trichlorophenol	C 607-7845	0.0049	0.0049	ppm	U

Gas No	SYNTHETIC	FILE ID	RELATIVE	GC LIMIT
118-76-6	2,4,6-TRIBROMOPHENOL	C 607-7845	0.0033	10.0-20.0
321-60-8	2-FLUOROPHENYL	C 607-7845	0.0033	10.0-20.0
367-12-4	2-FLUOROPHENOL	C 607-7845	0.0033	10.0-20.0
1718-51-0	TERPENE DMS	C 607-7845	0.0033	10.0-20.0
4165-60-0	NITROBENZENE D5	C 607-7845	0.0033	10.0-20.0
13127-88-3	PHENOL D6	C 607-7845	0.0033	10.0-20.0



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

12/03/2001

TCLP Herbicide Compounds**Sample: L3723-1**

Client Sample ID: Clay Backfill Material

Collected: 11/26/2001 10:00

Matrix: Soil

Type: Grab

Remarks:

Analyzed Date:

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
94-75-7	2,4 - D	B -	NA	ND	ppm	
93-72-1	2,4,5-TP (Silvex)	B -	NA	ND	ppm	

*Not**Analyzed*

Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

12/03/2001

TCLP Pesticide Compounds**Sample: L3723-1**

Client Sample ID: Clay Backfill Material

Collected: 11/26/2001 10:00

Matrix: Soil

Type: Grab

Remarks:

Analyzed Date: 11/30/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
57-74-9	Chlordane	G 413-57	0.00014	0.00014	ppm	U
72-20-8	Endrin	G 413-57	0.0000020	0.0000020	ppm	U
76-44-8	Heptachlor	G 413-57	0.0000040	0.0000040	ppm	U
1024-57-3	Heptachlor epoxide	G 413-57	0.0000030	0.0000030	ppm	U
58-89-9	Lindane	G 413-57	0.0000030	0.0000030	ppm	U
72-43-5	Methoxychlor	G 413-57	0.0000040	0.0000040	ppm	U
8001-35-2	Toxaphene	G 413-57	0.0011	0.0011	ppm	U

Cas No	Analyte	File ID	Recovery	Units	Q
877-09-8	Tetrachloroethylene	G 413-57	88.3	ppm	U
2051-24-3	Decachlorobiphenyl	G 413-57	85.5	ppm	U



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

12/03/2001

TCLP Mercury**Sample: L3723-1**

Client Sample ID: Clay Backfill Material

Collected: 11/26/2001 10:00

Matrix: Soil

Type: Grab

Remarks:

Analyzed Date: 11/28/2001

Cas No	Analyte	MDL	Concentration	Units	Q
7439-97-6	Mercury	0.000050	0.000050	ppm	U



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

12/03/2001

TCLP Metals**Sample: L3723-1**

Client Sample ID: Clay Backfill Material

Collected: 11/26/2001 10:00

Matrix: Soil

Type: Grab

Remarks:

Analyzed Date: 11/28/2001

Cas No	Analyte	MDL	Concentration	Units	Q
7440-38-2	Arsenic	0.048	0.048	ppm	U
7440-39-3	Barium	0.012	0.58	ppm	
7440-43-9	Cadmium	0.012	0.012	ppm	U
7440-47-3	Chromium	0.022	0.022	ppm	U
7439-92-1	Lead	0.022	0.022	ppm	U
7782-49-2	Selenium	0.047	0.11	ppm	
7440-22-4	Silver	0.015	0.015	ppm	U



Environmental Testing Laboratories, Inc.

208 Route 109, Farmingdale NY 11735

Phone - 631-249-1456 Fax - 631-249-8344

12/03/2001

Case Narrative**VOLATILES**

The following compounds were calibrated at 25, 50, 100, 150 and 200 ppb levels in the initial calibration curve:

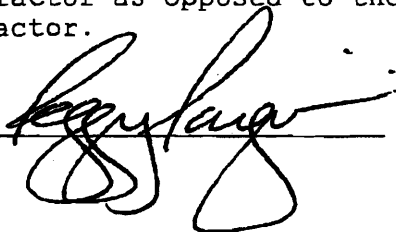
Acetone
2-Butanone
4-Methyl,2-pentanone
2-Hexanone

M&P-Xylenes were calibrated at 10, 40, 100, 200 and 300 ppb levels.

All other compounds were calibrated at 5, 20, 50, 100 and 150 ppb levels.

Samples were quantitated using the continuing calibration standard response factor as opposed to the initial calibration average response factor.

Reviewed by: _____



Environmental Testing Laboratories, Inc.**208 Route 109, Farmingdale NY 11735****Phone - 631-249-1456 Fax - 631-249-8344****12/03/2001****ORGANIC METHOD QUALIFIERS**

Q - Qualifier - specified entries and their meanings are as follows:

- U - The analytical result is a non-detect.
- J - Indicates an estimated value. The concentration reported was detected below the Method Detection Limit.
- B - The analyte was found in the associated method blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
- E - The concentration of the analyte exceeded the calibration range of the instrument.
- D - This flag identifies all compounds identified in an analysis at a secondary dilution. In the case of a surrogate this flag indicates a system monitoring compound diluted out.

INORGANIC METHOD QUALIFIERS

C - (Concentration) qualifiers are as follows:

- B - Entered if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

U - Entered when the analyte was analyzed for, but not detected.

- J - Indicates an estimated value. The concentration reported was detected below the Method Detection Limit.

Q - Qualifier specific entries and their meanings are as follows:

- E - Reported value is estimated because of the presence of interferences.

M - (Method) qualifiers are as follows:

- A - Flame AA
- AS - Semi-automated Spectrophotometric
- AV - Automated Cold Vapor AA
- C - Manual Spectrophotometric
- F - Furnace AA
- NR - when the analyte is not required to be analyzed.
- P - ICP
- T - Titrimetric

OTHER QUALIFIERS

- ND - Not Detected
- NA - Not Applicable
- * - Outside Expected Range (NYCDEP Table I/II or Surrogate Limits)



Area 1B- Topsoil Analytical Results

**CUSTOM CLAY INC.
P.O. BOX 8
OLD BETHPAGE, N.Y. 11804
(631) 249-7471**

December 21, 2001

**Mercer Wrecking
853 Nottingham Way
Trenton, New Jersey 08638**

**Attn: Jerry Ciecierski
Re: Keyspan
400 Shore Road
Glenwood Landing, New York**

Dear Jerry,

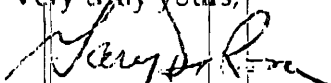
As per your request, enclosed you will find 4 random Topsoil sieve analysis done at various times. The tested material originated from New York State stockpile #D-258309 located at 136 Spagnoli Road Melville, N.Y. approved for the Meadowbrook Parkway.

As you can see by the Ph and organic results, our topsoil is of the finest quality and is recognized as the standard of the industry.

Although your purchase order did not require any specific specifications, it is our company policy to only sell state and county approved material.

If you have any further questions, please contact me at (631) 249-7471.

Very truly yours,


Gary De Rosa

Chemical Consulting of Babylon
41 East Main Street
Babylon, NY 11702

Phone (631) 587-4832 Fax (631) 587-4827

Dr. Hans L. Helmreich, Ph.D.

SOIL TESTING REPORT

DATE: 12/26/2011

SAMPLE	PH	SALT	NO3	NH4	CA	P	K	MG	FE	MIN	P	CU	ZN	COB	CL	AL	NA
SCREENED																	
TOPSOIL	7.2																

HYDROMETER TEST

SAND - 69.6%

CLAY - 14.0%

SILT - 16.4%

SIEVE ANALYSIS

SIEVE SIZE % PASSING % RETAINED

3/8"	100.0 %	0.0 %
1/4"	95.4 %	4.6 %
#4	91.4 %	8.6 %
#50	39.3 %	60.7 %
#100	26.3 %	73.7 %
PAN		26.3 %

ORGANIC MATTER CONTENT - 4.2%

Sample Analyzed by

Hans L. Helmreich

Hans L. Helmreich, Ph.D.

Chemical Consulting of Babylon
41 East Main Street
Babylon, NY 11702
Phone (631) 587-0632 Fax (631) 587-4827
E-Mail ccof@nytimes.com

Dr Hans L. Helmschlag, Ph.D.

SOIL ANALYSIS REPORT

CLAY

Ph - 5.0

SOLUBLE SALT - 130 MMHOS/CM

ORGANIC MATTER CONTENT - 5.2 %

SIEVE ANALYSIS

SIEVE SIZE	% PASSING	% RETAINED	
1"	100.0 %	0.0 %	GRAVEL
1/4"	99.2 %	0.8 %	FINE GRAVEL
#10	89.0 %	11.0 %	VERY COARSE SAND
#20	88.9 %	11.1 %	COARSE SAND
#40	39.0 %	61.0 %	COARSE SAND
#60	27.0 %	73.0 %	MEDIUM SAND
#80	20.3 %	79.7 %	FINE SAND
#100	18.4 %	81.6 %	VERY FINE SAND
#200	8.3 %	91.7 %	VERY FINE SAND
PAN	0.10 %	99.9 %	SILT, CLAY

Chemical Consulting of Babylon
41 East Main Street
Babylon, NY 11702
Phone (516) 397-6232 Fax (516) 397-4437

Dr. Hans L. Helmreich, Ph.D.

SOIL TESTING REPORT

SAMPLE	PH	SALT	NO ₃	NH ₄	CA	P	K	MG	FE	MN	B	CU	AL	NA
SAMPLE D	6.3													

ORGANIC MATTER CONTENT - 4.9 %

SIEVE ANALYSIS

% PASSING

1/4"	100.0 %
#50	54.1 %
#100	45.4 %
PAN	

SAMPLE	PH	SALT	NO ₃	NH ₄	CA	P	K	MG	FE	MN	B	CU	AL	NA
SAMPLE L	6.0													

ORGANIC MATTER CONTENT - 7.3 %

SIEVE ANALYSIS

% PASSING

1/4"	98.8 %
#50	47.5 %
#100	34.7 %
PAN	

***Nutrient levels are in mg per million (ppm)

GOOD NUTRIENT LEVELS FOR SOIL

Nutrient	20-40 ppm	100-200 ppm	10-100 ppm	100-200 ppm
Nitrogen	2-10 ppm	0.5 ppm plus	2-15 ppm	2-15 ppm
Phosphorus	8-30 ppm	0.5 ppm plus	15-40 ppm	15-40 ppm
Potassium	5-25 ppm	10-30 ppm	9-25 ppm	9-25 ppm
Sulfur	0.05-5 ppm	0.001-5 ppm		
Zinc	1-30 ppm			

GOOD NUTRIENT LEVELS FOR AGRICULTURAL USE

Nutrient	10-100 ppm	100-200 ppm	100-200 ppm
Nitrogen	2-15 ppm	2-15 ppm	2-15 ppm
Phosphorus	15-40 ppm	15-40 ppm	15-40 ppm
Potassium	9-25 ppm	9-25 ppm	9-25 ppm
Sulfur			
Zinc			

***Salt levels are in mg per million (ppm)



FAX 317-8877

Hans L. Holmbeck
CHEMICAL CONSULTING OF BABYLON
(316) 387-8812

41 EAST MAIN STREET
BABYLON, NY 11702

04/30/99

Custom Clay
P.O. Box 8
Old Bethpage, NY 11804

SAMPLE Top Soil

SIEVE ANALYSIS

SIEVE SIZE	% PASSING	% RETAINED
1"	100.0 %	0.0 %
3/4"	100.0 %	0.0 %
#100	42.8 %	57.2 %
PAN		42.8 %

pH 6.3

Organic Matter Content - 5.5 %

ANALYST: HANS L. HOLMBECK

10/10/99
10/10/99
10/10/9910/10/99
10/10/99
10/10/99

Sample Analyzed by _____
Hans L. Holmbeck, Ph.D.

Rip-Rap Source

DEC-06-01 02:35 PM

P. 02

DEC-06-2001 03:31

TILCON MAIL BC

9453535218

P. 02/02



TILCON NEW YORK INC. 162 Old Mill Road West Nyack, NY 10994 (945) 353-4500 Fax (945) 353-4700

December 6, 2001

New York Dirt Contracting Corp.
121 East 2nd St.
Middletown, NY 11501

RE: Rip Rap 6" to 1" 6"

Quantity: Approximately 500 Tons

Destination: Merger Wrecking Recycling Corp.
400 Shore Road
Glenwood Landing, NY 11547

Job Super: Jerry Ciecielski

Dear Sir:

The 620.03 Light Stone Fill at the Tilcon New York Haverstraw Quarry, Sources 8-10R, meet the requirements for Gabion stone and is New York State D.O.T. approved.

If you have any further questions please contact Pat Caccione.

Best Regards,

Morsia Thomas
(AR)

Morsia Thomas
Technical Services Manager

M/Jer

TOTAL P. 02

Geotextile Specifications

Matt

NW 35 NON-WOVEN GEOTEXTILE

This letter is to certify that the NW 35, a non-woven polypropylene fabric supplied by [redacted] Industries, meets the fabric properties listed below:

Grab Tensile Strength:	ASTM D-4532	90 LBS
Grab Elongation:	ASTM D-4532	50 %
Trapezoid Tear:	ASTM D-4533	35 LBS
Puncture:	ASTM D-4833	55 LBS
Mullen Burst:	ASTM D-3786	185 PSI
Permittivity:	ASTM D-4491	2 SEC-1
Permeability:	ASTM D-4491	.25 CM/SEC
A.O.S.	ASTM D-4751	70 US Sieve
Water Flow Rate:	ASTM D-4491	110 GPM/FT 2
U.V. Resistance (500 hr)	ASTM D-4355	70 %

10 0 Z



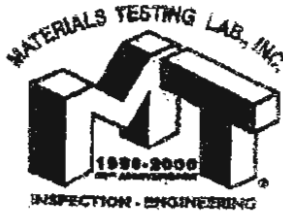
Amoco Fabrics and Fibers Company

4508		4510		4512		4514		4516		Properties ¹
American Standard	Metric	American Standard	Metric	American Standard	Metric	American Standard	Metric	American Standard	Metric	
										Physical
8.0	270	10.0	335	12.0	405	14.0	470	16.0	540	Unit Weight
203	0.900	250	1.11	300	1.33	360	1.60	400	1.78	Grab Tensile Strength
50		50		50		50		50		Grab Tensile Elongation
450	3100	550	3790	650	4480	750	5170	800	5510	Mullen Burst
130	0.575	165	0.730	195	0.865	230	1.02	250	1.11	Puncture
80	0.355	100	0.445	115	0.510	130	0.575	145	0.645	Trapezoid Tear
70/500		70/500		70/500		70/500		70/500		UV Resistance ²

4508		4510		4512		4514		4516		Hydraulic
American Standard	Metric	American Standard	Metric	American Standard	Metric	American Standard	Metric	American Standard	Metric	
100	0.150	100	0.150	100	0.150	100	0.150	100	0.150	Apparent Opening Size
1.5		1.2		0.90		0.80		0.70		Permittivity
0.30		0.30		0.30		0.30		0.30		Permeability
110	4470	85	3480	65	2640	60	2440	50	2035	Flow Rate
										Packaging
15	4.6	15 15	4.6 4.6	15 15	4.6 4.6	15 15	4.6 4.6	15 15	4.6 4.6	Roll Width
600	182	180 600	54.9 183	165 450	50.3 137	120 300	36.6 91.4	120 300	36.6 91.4	Roll Length
560	255	215 700	85 315	235 630	105 285	200 490	90 220	230 560	105 255	Gross Weight ³
1000	836	300 1000	251 836	275 750	230 627	200 500	167 418	200 500	167 418	Area

Appendix D

Compaction Testing Data



MATERIALS TESTING LAB INC.

NEW YORK DIVISION

1529 JERICHO TURNPIKE • NEW HYDE PARK, NEW YORK 11040 • (516) 354-6600 • FAX (516) 354-6690

Client: <i>MERCER WRECKING / RECYCLING CORP.</i>	Report #:
Date: <i>11/15/2001</i>	Technician: <i>FRED HANCOCK</i>
Project: <i>NEW KEYSAN BLDG. @ 400 SHORE RD.</i>	Permit #:
Test: <i>In Place Density Test</i>	Job #:
Method: <i>ASTM D2922</i>	

ARR: 1:00 PM DEP: 5:00 PM

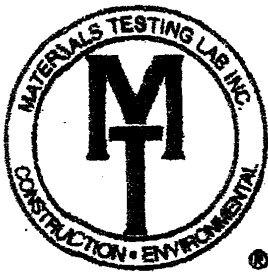
Depth	Location	Molders	Wet Density	Dry Density	Moisture
2'±	GRADE WORK AREA #1, NE CORNER OF GAS HOLDER PAD 36' W/E EDGE & 1/2'S/N END	7.6	107.7	108.6	99.2%
1'±	GRADE WORK AREA #1, NE CORNER OF GAS HOLDER PAD 24' W/E EDGE & 1/5'S/N END	6.7	107.9	108.6	99.4%

Remarks: *(1) TEST PER LEFT IS ALL THAT IS REQUIRED, AS PER KEYSAN ENGINEER*

Material Type: <i>SAND</i>	Proctor Dated: <i>11/15/2001</i>
Item #:	Max. Dry Density: <i>108.6</i>
Min. Comp. Req.: <i>95%</i>	Optimum Moisture

Complies: ☒

Reported To: *JERRY (KEYSPAN)*



MATERIALS TESTING LAB INC.

1529 JERICHO TURNPIKE • NEW HYDE PARK, NEW YORK 11040 • (516) 354-6600 • FAX (516) 354-6690
28-70 COLLEGE POINT BOULEVARD • FLUSHING, NEW YORK 11354 • (718) 445-1474 • FAX (718) 359-8648
180 MILL ROAD • EDISON, NEW JERSEY 08817 • PHONE (908) 248-3777 • FAX (908) 248-7979

CHAIN OF CUSTODY RECORD

CLIENT MERCER WHEELING & RECYCLING CORP. PHONE JERRY - (609) 289-168
CELL # (516) 759-627

PROJECT NEW KEYSPAN BLDG @ 400 SHORE RD, GREENWOOD LANDING, L.I.

TOTAL NUMBER OF SAMPLES (1) BAG LAB NO. _____

DATE OF SAMPLING 11/15/2001 SAMPLED BY FXH OF MTL

DELIVERED BY FXH OF MTL DATE/TIME 11/15/2001

RECEIVED BY _____ OF _____ DATE/TIME _____

SAMPLE I.D. NUMBER	NUMBER OF CONTAINERS	TYPE OF SAMPLE	LOCATION OF SAMPLE	TYPE OF TEST METHOD NUMBER
<u>1</u>	<u>(1) BAG</u>	<u>SOIL (FOR)</u>	<u>ON SITE STOCKPILE</u>	<u>GRADATION / SIZE</u>
				<u>ANALYSIS + MDR</u>

REMARKS: _____

DATE TESTED _____ BILL AMOUNT _____

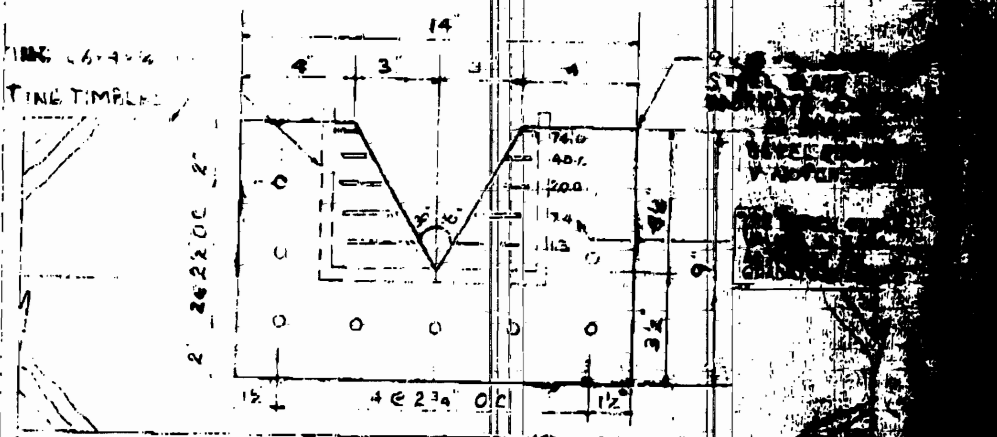
(FOR OFFICIAL USE ONLY)

Appendix E

Manhole As-Built

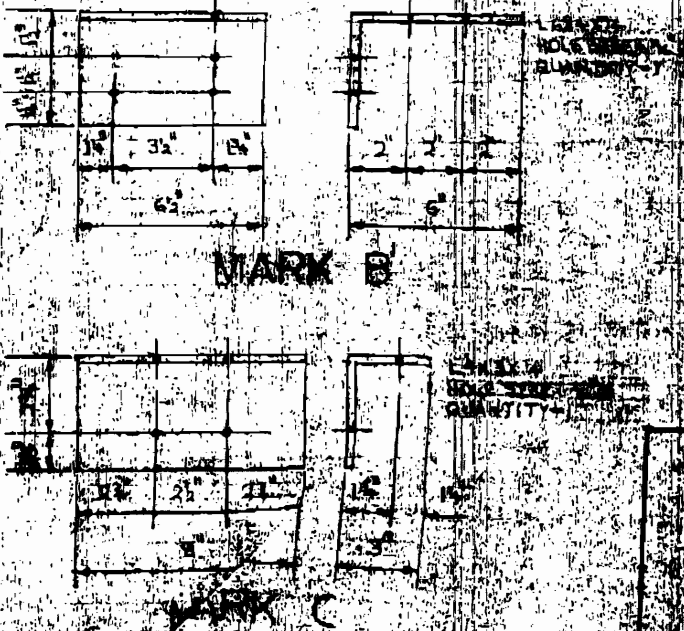
2. ALL STRUCTURAL STEEL SHALL BE FURNISHED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC SPECIFICATIONS.
3. ALL BOLTS SHALL BE CORROS RESISTANT UNLESS OTHERWISE SPECIFIED.
4. TENSILE STEELS ARE SUBJECT TO THE AISC AND AASHTO STANDARDS FOR CONSTRUCTION.
5. ALL STRUCTURAL STEEL SHALL BE ERECTED IN ACCORD WITH AISC SPECIFICATIONS.
6. ALL STEEL BOLTS MUST BE GALVANIZED OR GALVANIZED IN ACCORD WITH AISC SPECIFICATIONS.
7. ALL GRADING COMPOUND STRUCTURES SHALL BE BASE COMPOUND THAT MEETS THE REQUIREMENTS OF TT-5-00657, TYPE ONE, SUCH AS FOR GRAVEL OR EMUL.

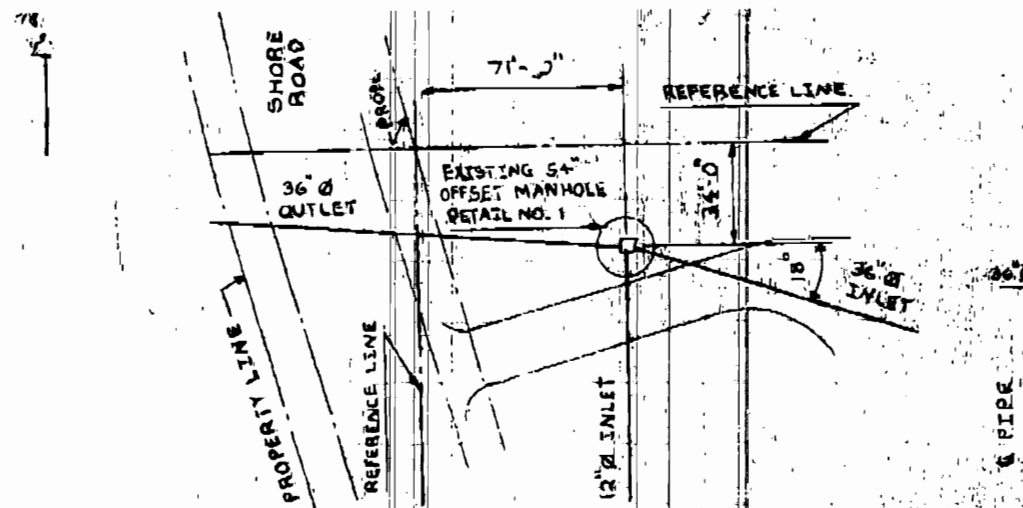
EMBED WEIR PLATE IN HEAVY COATING OF DAP BUTYL-FLEX PART BUTYL-RUBBER BASED CHINA OR EPOXY FASTENED TO FACE OF TIMBERS WITH 2" x 2" EVERDURE BROS. STAINLESS STL SCREWS. ALL HOLES TO BE 5/8"



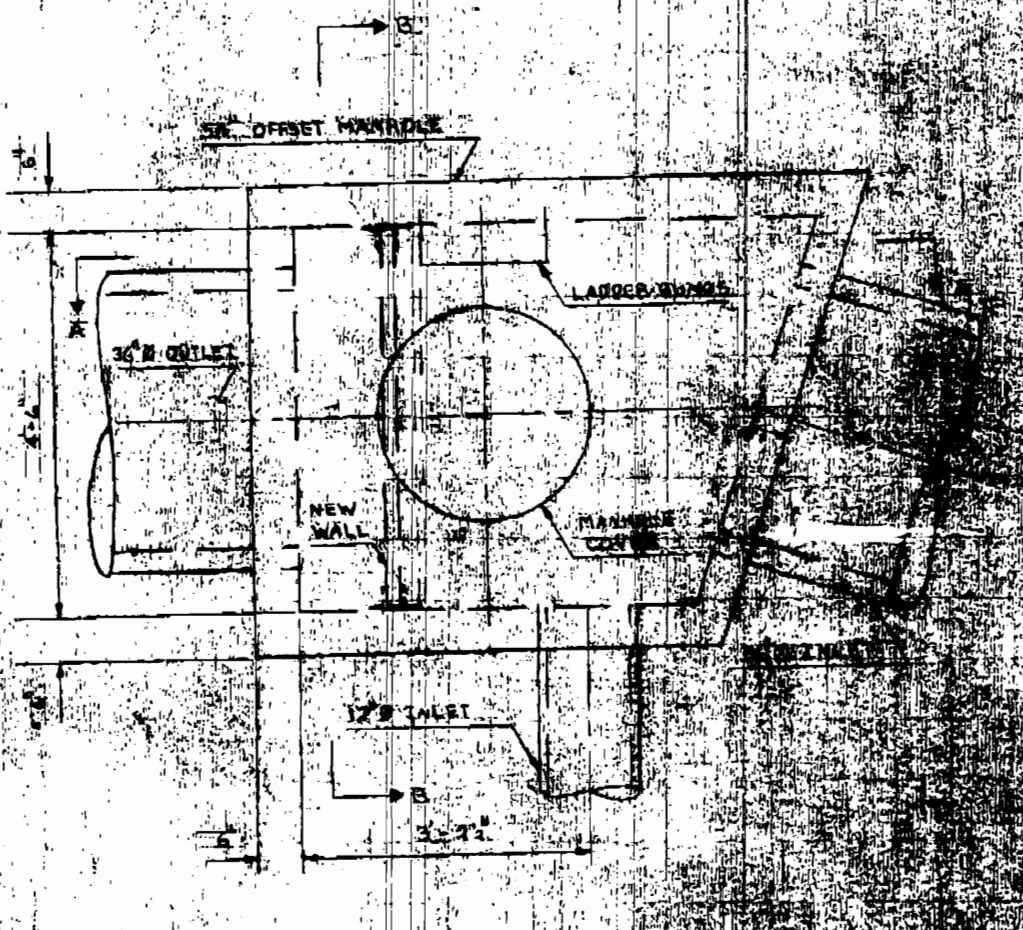
SECTION F-F

SHOWING TRIANGULAR WEIR PLATE WITH GRADE MARKING IN INCH INCREMENTS FROM BASE OF V-NOTCH. LOCATIONS AT PAINT MARKING LINES AND FLOW VALUES RED.

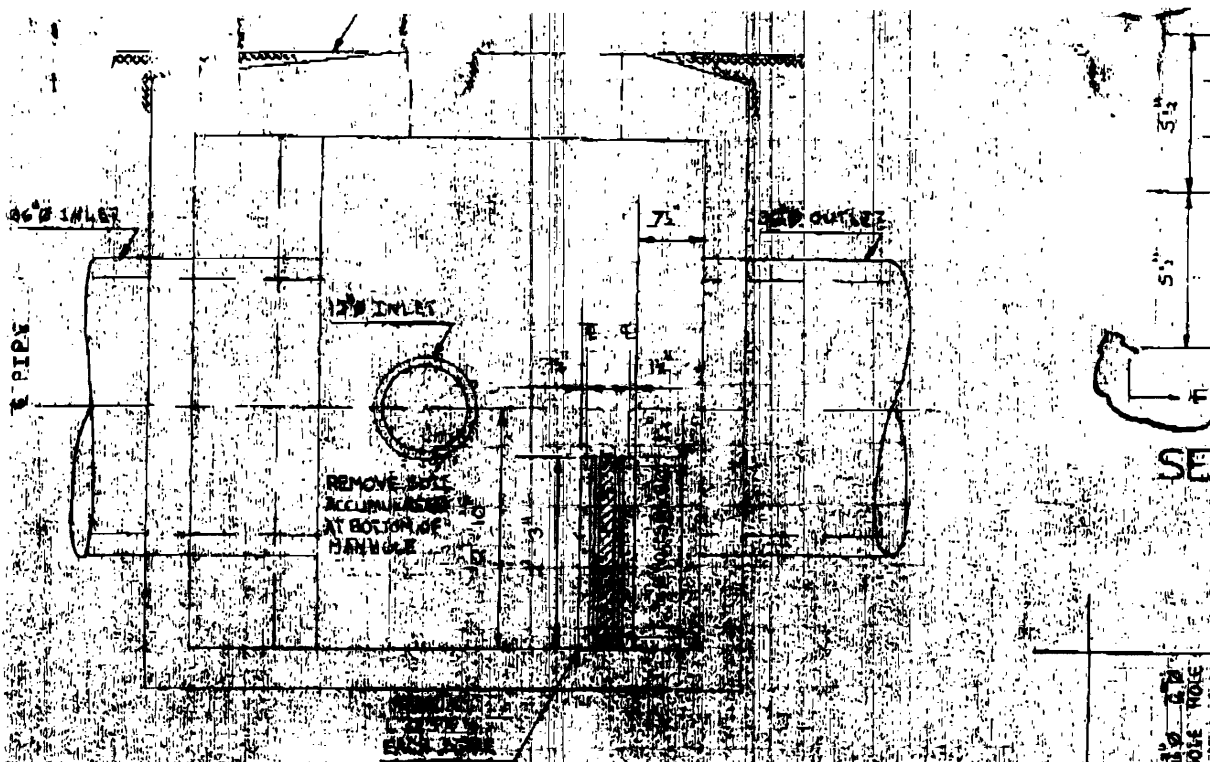




PARTIAL PLAN PLANT DRAINAGE SYSTEM
 SCALE 1" = 40'



DETAIL NO. 1
 SCALE 1" = 40'



SECTION A-A

SCALE 1/4\"/>

3/8\"/>

3/8\"/>

MANHOLE
COVER
1/4\"/>

3/8\"/>

3/8\"/>

3/8\"/>

SECTION WITH AS
MUCH AS POSSIBLE
OF COVER PLUGS

INLET
PIPE

MANHOLE COVER

Appendix F

Data Validation Report

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

September 21, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 7001-2856A

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA5E-2	012856A-01	SOIL	11/28/01	X	X	X
GLA5E-3	012856A-02	SOIL	11/28/01	X	X	X
GLA5E-4	012856A-03	SOIL	11/28/01	X	X	X
GLA5E-5	012856A-04	SOIL	11/28/01	X	X	X
GLA5B-1	012856A-05	SOIL	11/28/01	X	X	X
GLA5B-1D	012856A-06	SOIL	11/28/01	X	X	X
GLA5B-2	012856A-07	SOIL	11/28/01	X	X	X
GLA5B-3	012856A-08	SOIL	11/28/01	X	X	X
GLA5B-4	012856A-09	SOIL	11/28/01	X	X	X
GLA5B-5	012856A-10	SOIL	11/28/01	X	X	X
GLA5A-1	012856A-11	SOIL	11/28/01	X	X	X
GLA5A-2	012856A-12	SOIL	11/28/01	X	X	X
GLA5A-3	012856A-13	SOIL	11/28/01	X	X	X
GLA5A-4	012856A-14	SOIL	11/28/01	X	X	X
GLA5A-5	012856A-15	SOIL	11/28/01	X	X	X
GLA5D-1	012856A-16	SOIL	11/28/01	X	X	X
GLA5D-2	012856A-17	SOIL	11/28/01	X	X	X
GLA5D-3	012856A-18	SOIL	11/28/01	X	X	X
GLA5D-4	012856A-19	SOIL	11/28/01	X	X	X
GLA5D-5	012856A-20	SOIL	11/28/01	X	X	X

Sample Collection and Receipt

It is noted that samples were received at STL-CT at 9 degrees C. The method-prescribed sample preservation temperature is 4 degrees C; EPA Region II validation guidelines call for qualification above 10 C. No data qualifiers were applied.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

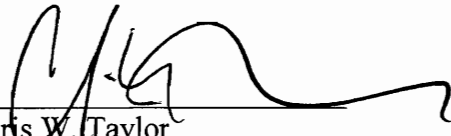
Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

- 1) No GPC clean-up was performed on the soil samples for the semi-volatile or pesticide-PCB fractions, nor was Florisil clean-up performed for the PCB fraction. GPC clean-up can improve resolution for these fractions by removing a wide range of higher molecular weight interferences, and Florisil fractionation provides separation of interferent analytes from the Aroclor compounds of interest. Acid clean-up and copper clean-up were performed on the PCB fractions.
- 2) The laboratory quantitated Aroclors in samples using three of the five peaks selected in the calibration process. Since the two peaks (on both columns) not used for quantitation were typically larger than the earlier peaks which were used, potential peak weathering is indicated, and negative bias is suggested.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-2856A

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2856AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA5E-2	Diethylphthalate	33 J	67 JB	340 U	negate	2
		Phenanthrene		12 J	12 J	qualify	1
		Anthracene		7 J	7 J	qualify	1
		Fluoranthene		70 J	70 J	qualify	1
		Pyrene		52 J	52 J	qualify	1
		Benzo(a)anthracene		37 J	37 J	qualify	1
		Chrysene		62 J	62 J	qualify	1
		bis(2-ethylhexyl)phthalate		130 J	130 J	qualify	1
		Benzo(b)fluoranthene		44 J	44 J	qualify	1
		Benzo(k)fluoranthene		52 J	52 J	qualify	1
		Benzo(a)pyrene		34 J	34 J	qualify	1
		Indeno(1,2,3-cd)pyrene		14 J	14 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		7 J	7 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		16 J	16 J	qualify	1, 3, 4
		Benzoic acid		1600 U	1600 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4
	GLA5E-3	2-Methylnaphthalene		3 J		qualify	1
		Diethylphthalate	33 J	22 JB	340 U	negate	2
		Phenanthrene		28 J	28 J	qualify	1
		Anthracene		8 J	8 J	qualify	1
		Fluoranthene		80 J	80 J	qualify	1
		Pyrene		72 J	72 J	qualify	1
		Benzo(a)anthracene		42 J	42 J	qualify	1
		Chrysene		50 J	50 J	qualify	1
		bis(2-ethylhexyl)phthalate		22 J	22 J	qualify	1
		Benzo(b)fluoranthene		52 J	52 J	qualify	1
		Benzo(k)fluoranthene		48 J	48 J	qualify	1
		Benzo(a)pyrene		38 J	38 J	qualify	1
		Indeno(1,2,3-cd)pyrene		16 J	16 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		7 J	7 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		19 J	19 J	qualify	1, 3, 4
		Benzoic acid		1600 U	1600 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4
	GLA5E-4	2-Methylnaphthalene		2 J	2 J	qualify	1
		Acenaphthylene		12 J	12 J	qualify	1
		Phenanthrene		19 J	19 J	qualify	1
		Anthracene		5 J	5 J	qualify	1
		Fluoranthene		41 J	41 J	qualify	1
		Pyrene		60 J	60 J	qualify	1
		Benzo(a)anthracene		25 J	25 J	qualify	1
		Chrysene		29 J	29 J	qualify	1
		bis(2-ethylhexyl)phthalate		87 J	87 J	qualify	1
		Benzo(b)fluoranthene		20 J	20 J	qualify	1
		Benzo(k)fluoranthene		26 J	26 J	qualify	1
		Benzo(a)pyrene		27 J	27 J	qualify	1
		Indeno(1,2,3-cd)pyrene		9 J	9 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		3 J	3 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		13 J	13 J	qualify	1, 3, 4
		Benzoic acid		1600 U	1600 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2856AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA5E-5	2-Methylnaphthalene		3 J	3 J	qualify	1
		Diethylphthalate	33 J	21 JB	340 U	negate	2
		Phenanthrene		14 J	14 J	qualify	1
		Anthracene		5 J	5 J	qualify	1
		Fluoranthene		42 J	42 J	qualify	1
		Pyrene		35 J	35 J	qualify	1
		Benzo(a)anthracene		19 J	19 J	qualify	1
		Chrysene		32 J	32 J	qualify	1
		bis(2-ethylhexyl)phthalate		140 J	140 J	qualify	1
		Benzo(b)fluoranthene		28 J	28 J	qualify	1
		Benzo(k)fluoranthene		32 J	32 J	qualify	1
		Benzo(a)pyrene		22 J	22 J	qualify	1
		Indeno(1,2,3-cd)pyrene		10 J	10 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		4 J	4 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		12 J	12 J	qualify	1, 3, 4
		Benzoic acid		1600 U	1600 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4
	GLA5B-1	2-Methylnaphthalene		2 J	2 J	qualify	1
		Phenanthrene		18 J	18 J	qualify	1
		Anthracene		5 J	5 J	qualify	1
		Fluoranthene		32 J	32 J	qualify	1
		Pyrene		36 J	36 J	qualify	1
		Benzo(a)anthracene		16 J	16 J	qualify	1
		Chrysene		19 J	19 J	qualify	1
		bis(2-ethylhexyl)phthalate		92 J	92 J	qualify	1
		Benzo(b)fluoranthene		18 J	18 J	qualify	1
		Benzo(k)fluoranthene		18 J	18 J	qualify	1
		Benzo(a)pyrene		18 J	18 J	qualify	1
		Indeno(1,2,3-cd)pyrene		7 J	7 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		3 J	3 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		9 J	9 J	qualify	1, 3, 4
		Benzoic acid		1700 U	1700 UJ	qualify	4
		4-Nitroaniline		1700 U	1700 UJ	qualify	4
	GLA5B-1D	Diethylphthalate	33 J	30 JB	350 U	negate	2
		Fluoranthene		23 J	23 J	qualify	1
		Pyrene		21 J	21 J	qualify	1
		Benzo(a)anthracene		14 J	14 J	qualify	1
		Chrysene		17 J	17 J	qualify	1
		bis(2-ethylhexyl)phthalate		210 J	210 J	qualify	1
		Benzo(b)fluoranthene		15 J	15 J	qualify	1
		Benzo(k)fluoranthene		17 J	17 J	qualify	1
		Benzo(a)pyrene		14 J	14 J	qualify	1
		Indeno(1,2,3-cd)pyrene		6 J	6 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		3 J	3 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		9 J	9 J	qualify	1, 3, 4
		Benzoic acid		1700 U	1700 UJ	qualify	4
		4-Nitroaniline		1700 U	1700 UJ	qualify	4

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2856AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA5B-2	Phenanthrene		4 J	4 J	qualify	1
		Fluoranthene		9 J	9 J	qualify	1
		Pyrene		8 J	8 J	qualify	1
		bis(2-ethylhexyl)phthalate		13 J	13 J	qualify	1
		Benzo(b)fluoranthene		5 J	5 J	qualify	1
		Benzo(k)fluoranthene		8 J	8 J	qualify	1
		Benzo(a)pyrene		5 J	5 J	qualify	1
		Indeno(1,2,3-cd)pyrene		2 J	2 J	qualify	
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	4
		Benzo(g,h,i)perylene		3 J	3 J	qualify	3, 4
		Benzoic acid		1600 U	1600 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4
	GLA5B-3	2-Methylnaphthalene		4 J	4 J	qualify	1
		Phenanthrene		12 J	12 J	qualify	1
		Anthracene		4 J	4 J	qualify	1
		Fluoranthene		37 J	37 J	qualify	1
		Pyrene		30 J	30 J	qualify	1
		Benzo(a)anthracene		20 J	20 J	qualify	1
		Chrysene		23 J	23 J	qualify	1
		bis(2-ethylhexyl)phthalate		14 J	14 J	qualify	1
		Benzo(b)fluoranthene		19 J	19 J	qualify	1
		Benzo(k)fluoranthene		23 J	23 J	qualify	1
		Benzo(a)pyrene		18 J	18 J	qualify	1
		Indeno(1,2,3-cd)pyrene		7 J	7 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		4 J	4 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		8 J	8 J	qualify	1, 3, 4
		Benzoic acid		1700 U	1700 UJ	qualify	4
		4-Nitroaniline		1700 U	1700 UJ	qualify	4
	GLA5B-4	2-Methylnaphthalene		3 J	3 J	qualify	1
		Phenanthrene		22 J	22 J	qualify	1
		Anthracene		7 J	7 J	qualify	1
		Fluoranthene		48 J	48 J	qualify	1
		Pyrene		36 J	36 J	qualify	1
		Benzo(a)anthracene		16 J	16 J	qualify	1
		Chrysene		25 J	25 J	qualify	1
		bis(2-ethylhexyl)phthalate		36 J	36 J	qualify	1
		Benzo(b)fluoranthene		24 J	24 J	qualify	1
		Benzo(k)fluoranthene		20 J	20 J	qualify	1
		Benzo(a)pyrene		15 J	15 J	qualify	1
		Indeno(1,2,3-cd)pyrene		7 J	7 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		3 J	3 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		8 J	8 J	qualify	1, 3, 4
		Benzoic acid		1600 U	1600 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2856AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hanzen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA5B-5	2-Methylnaphthalene		4 J	4 J	qualify	1
		Diethylphthalate	33 J	37 JB	340 U	negate	2
		Phenanthrene		16 J	16 J	qualify	1
		Anthracene		5 J	5 J	qualify	1
		Fluoranthene		32 J	32 J	qualify	1
		Pyrene		29 J	29 J	qualify	1
		Benzo(a)anthracene		21 J	21 J	qualify	1
		Chrysene		25 J	25 J	qualify	1
		bis(2-ethylhexyl)phthalate		26 J	26 J	qualify	1
		Benzo(b)fluoranthene		26 J	26 J	qualify	1
		Benzo(k)fluoranthene		23 J	23 J	qualify	1
		Benzo(a)pyrene		21 J	21 J	qualify	1
		Indeno(1,2,3-cd)pyrene		10 J	10 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		4 J	4 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		10 J	10 J	qualify	1, 3, 4
		Benzoic acid		1600 U	1600 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4
	GLA5A-1	2-Methylnaphthalene		4 J	4 J	qualify	1
		Phenanthrene		11 J	11 J	qualify	1
		Anthracene		6 J	6 J	qualify	1
		Fluoranthene		39 J	39 J	qualify	1
		Pyrene		35 J	35 J	qualify	1
		Benzo(a)anthracene		24 J	24 J	qualify	1
		Chrysene		31 J	31 J	qualify	1
		bis(2-ethylhexyl)phthalate		120 J	120 J	qualify	1
		Benzo(b)fluoranthene		30 J	30 J	qualify	1
		Benzo(k)fluoranthene		25 J	25 J	qualify	1
		Benzo(a)pyrene		23 J	23 J	qualify	1
		Indeno(1,2,3-cd)pyrene		10 J	10 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		5 J	5 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		11 J	11 J	qualify	1, 3, 4
		Benzoic acid		1600 U	1600 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4
	GLA5A-2	2-Methylnaphthalene		5 J	5 J	qualify	1
		Diethylphthalate	33 J	25 JB	340 U	negate	2
		Phenanthrene		18 J	18 J	qualify	1
		Anthracene		7 J	7 J	qualify	1
		Fluoranthene		41 J	41 J	qualify	1
		Pyrene		35 J	35 J	qualify	1
		Benzo(a)anthracene		24 J	24 J	qualify	1
		Chrysene		29 J	29 J	qualify	1
		bis(2-ethylhexyl)phthalate		18 J	18 J	qualify	1
		Benzo(b)fluoranthene		29 J	29 J	qualify	1
		Benzo(k)fluoranthene		30 J	30 J	qualify	1
		Benzo(a)pyrene		25 J	25 J	qualify	1
		Indeno(1,2,3-cd)pyrene		12 J	12 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		6 J	6 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		14 J	14 J	qualify	1, 3, 4
		Benzoic acid		1600 U	1600 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 7001-2856AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA5A-3	2-Methylnaphthalene		4 J	4 J	qualify	1
		Diethylphthalate	33 J	31 JB	340 U	negate	2
		Phenanthrene		34 J	34 J	qualify	1
		Anthracene		15 J	15 J	qualify	1
		Fluoranthene		130 J	130 J	qualify	1
		Pyrene		110 J	110 J	qualify	1
		Benzo(a)anthracene		65 J	65 J	qualify	1
		Chrysene		83 J	83 J	qualify	1
		bis(2-ethylhexyl)phthalate		51 J	51 J	qualify	1
		Benzo(b)fluoranthene		59 J	59 J	qualify	1
		Benzo(k)fluoranthene		74 J	74 J	qualify	1
		Benzo(a)pyrene		58 J	58 J	qualify	1
		Indeno(1,2,3-cd)pyrene		25 J	25 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		9 J	9 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		29 J	29 J	qualify	1, 3, 4
		Benzoic acid		1600 U	1600 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4
	GLA5A-4	2-Methylnaphthalene		10 J	10 J	qualify	1
		Phenanthrene		88 J	88 J	qualify	1
		Anthracene		32 J	32 J	qualify	1
		Fluoranthene		460	460		
		Pyrene		400	400		
		Benzo(a)anthracene		270 J	270 J	qualify	1
		Chrysene		280 J	280 J	qualify	1
		bis(2-ethylhexyl)phthalate		13 J	13 J	qualify	1
		Benzo(b)fluoranthene		220 J	220 J	qualify	1
		Benzo(k)fluoranthene		260 J	260 J	qualify	1
		Benzo(a)pyrene		210 J	210 J	qualify	1
		Indeno(1,2,3-cd)pyrene		96 J	96 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		40 J	40 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		110 J	110 J	qualify	1, 3, 4
		Benzoic acid		1600 U	1600 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4
	GLA5A-5	2-Methylnaphthalene		4 J	4 J	qualify	1
		Phenanthrene		25 J	25 J	qualify	1
		Anthracene		9 J	9 J	qualify	1
		Fluoranthene		64 J	64 J	qualify	1
		Pyrene		47 J	47 J	qualify	1, 4
		Benzo(a)anthracene		40 J	40 J	qualify	1
		Chrysene		48 J	48 J	qualify	1
		Benzo(b)fluoranthene		57 J	57 J	qualify	1
		Benzo(k)fluoranthene		60 J	60 J	qualify	1
		Benzo(a)pyrene		59 J	59 J	qualify	1
		Indeno(1,2,3-cd)pyrene		26 J	26 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		12 J	12 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		29 J	29 J	qualify	1, 3, 4
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2856AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA5D-1	2-Methylnaphthalene		4 J	4 J	qualify	1
		Phenanthrene		13 J	13 J	qualify	1
		Anthracene		6 J	6 J	qualify	1
		Fluoranthene		34 J	34 J	qualify	1
		Pyrene		29 J	29 J	qualify	1, 4
		Benzo(a)anthracene		24 J	24 J	qualify	1
		Chrysene		31 J	31 J	qualify	1
		Benzo(b)fluoranthene		36 J	36 J	qualify	1
		Benzo(k)fluoranthene		35 J	35 J	qualify	1
		Benzo(a)pyrene		27 J	27 J	qualify	1
		Indeno(1,2,3-cd)pyrene		13 J	13 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	4
		Benzo(g,h,i)perylene		15 J	15 J	qualify	1, 3, 4
		Hexachlorocyclopentadiene		340 U	340 UJ	qualify	4
		4-Nitroaniline		1700 U	1700 UJ	qualify	4
	GLA5D-2	Fluoranthene		75 J	75 J	qualify	1
		<i>Note: this sample</i> <i>extract would not</i> <i>concentrate below</i> <i>10,000 uL; reported</i> <i>PQL values are therefore</i> <i>10x higher than normal</i>		190 J	190 J	qualify	1, 4
		Benzo(a)anthracene		110 J	110 J	qualify	1
		Chrysene		210 J	210 J	qualify	1
		Benzo(b)fluoranthene		90 J	90 J	qualify	1
		Benzo(k)fluoranthene		77 J	77 J	qualify	1
		Benzo(a)pyrene		150 J	150 J	qualify	1
		Indeno(1,2,3-cd)pyrene		78 J	78 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		3300 U	3300 UJ	qualify	4
		Benzo(g,h,i)perylene		250 J	250 J	qualify	1, 3, 4
		Hexachlorocyclopentadiene		3300 U	3300 UJ	qualify	4
		4-Nitroaniline		16000 U	16000 UJ	qualify	4
	GLA5D-3	2-Methylnaphthalene		5 J	5 J	qualify	1
		Acenaphthene		9 J	9 J	qualify	1
		Phenanthrene		69 J	69 J	qualify	1
		Anthracene		20 J	20 J	qualify	1
		Fluoranthene		110 J	110 J	qualify	1
		Pyrene		98 J	98 J	qualify	1, 4
		Benzo(a)anthracene		56 J	56 J	qualify	1
		Chrysene		68 J	68 J	qualify	1
		bis(2-ethylhexyl)phthalate		88 J	88 J	qualify	1
		Benzo(b)fluoranthene		64 J	64 J	qualify	1
		Benzo(k)fluoranthene		63 J	63 J	qualify	1
		Benzo(a)pyrene		52 J	52 J	qualify	1
		Indeno(1,2,3-cd)pyrene		23 J	23 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		10 J	10 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		29 J	29 J	qualify	1, 3, 4
		Hexachlorocyclopentadiene		340 U	340 UJ	qualify	4
		4-Nitroaniline		1600 U	1600 UJ	qualify	4

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 7001-2856AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA5D-1	2-Methylnaphthalene		3 J	3 J	qualify	1
		Phenanthrene		36 J	36 J	qualify	1
		Anthracene		10 J	10 J	qualify	1
		Fluoranthene		89 J	89 J	qualify	1
		Pyrene		85 J	85 J	qualify	1, 4
		Benzo(a)anthracene		47 J	47 J	qualify	1
		Chrysene		62 J	62 J	qualify	1
		bis(2-ethylhexyl)phthalate		150 J	150 J	qualify	1
		Benzo(b)fluoranthene		50 J	50 J	qualify	1
		Benzo(k)fluoranthene		59 J	59 J	qualify	1
		Benzo(a)pyrene		46 J	46 J	qualify	1
		Indeno(1,2,3-cd)pyrene		26 J	26 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	4
		Benzo(g,h,i)perylene		42 J	42 J	qualify	1, 3, 4
		Hexachlorocyclopentadiene		340 U	340 UJ	qualify	4
		4-Nitroaniline		1700 U	1700 UJ	qualify	4
	GLA5D-5 (@ 5x dilution)	2-Methylnaphthalene		12 J	12 J	qualify	1
		Acenaphthylene		1900 J	1900 J	qualify	1
		Acenaphthene		160 J	160 J	qualify	1
		Dibenzofuran		58 J	58 J	qualify	1
		Fluorene		140 J	140 J	qualify	1
		Phenanthrene		1900	1900	qualify	1
		Anthracene		450 J	450 J	qualify	1
		Carbazole		120 J	120 J	qualify	1
		Fluoranthene		3000	3000		
		Pyrene		2200	2200 J	qualify	4
		Benzo(a)anthracene		1300 J	1300 J	qualify	1
		Chrysene		1400 J	1400 J	qualify	1
		Benzo(b)fluoranthene		1000 J	1000 J	qualify	1
		Benzo(k)fluoranthene		1000 J	1000 J	qualify	1
		Benzo(a)pyrene		970 J	970 J	qualify	1
		Indeno(1,2,3-cd)pyrene		340 J	340 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		120 J	120 J	qualify	1, 3, 4
		Benzo(g,h,i)perylene		330 J	330 J	qualify	1, 3, 4
		Benzoic acid		9400 U	9400 UJ	qualify	4
		4-Nitroaniline		9400 U	9400 UJ	qualify	4

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported result for this compound is negated, with 'U' qualifier applied at the compound's PQL, because the reported value is below 10x the concentration of this compound in the associated method Blank, OR, the compound is a common laboratory contaminant.
- The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2856A

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION

AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION

ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within allowable holding times.

Note: Extraction Log was not from this SDG; lab was contacted and correct log copy requested.

Note: All samples were received at 9 degrees C ; although no data qualifiers were applied, the data user is alerted to the potential for negative bias in samples maintained above the recommended range of 2 to 6 degrees C.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
12/04/01	SBLKHR	R2826	soil	diethylphthalate	33 J

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'

If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'

If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
------------------	------------------	-------------	---------------

All reported surrogate recoveries were within acceptable limits

D. MATRIX SPIKE / DUPLICATE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
GLA5E-2 MSD	2-chlorophenol	high	Qualify positives in GLA5E-2 only
GLA5E-2 MSD	2,4-diNO2toluene	high	Qualify positives in GLA5E-2 only

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
SBLKHR	All blank spike recoveries were within laboratory limits		

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
------------------	--------------------------	-------------	---------------

All IS recoveries & RTs were within acceptable limits

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
11/27/01	OK	yes	
12/05/01	OK	yes	
12/06/01	OK	yes	
12/07/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

	<u>Sample ID</u>	<u>Compound</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>	
	GLA5D-5	fluoranthene	3000	2989	
Conc., ug/Kg =	Ax	Is	Vt	Df	GPC
	1938267	40.0	1000	5.0	1.0
	Ais	RRF	Vi	Ws	D
	2297450	1.109	2.0	30.3	0.84

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2856A

A. INITIAL CALIBRATION

CALIBRATION DATE :	11/27/01
FILE IDs :	R2751 - 2755
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds)	benzoic acid hexachlorocyclopentadiene 2,4-dinitrophenol indeno(123cd)pyrene dibenzo(ah)anthracene benzo(ghi)perylene
SPCC Compounds	
N-Nitroso-di-n-propylamine	
Hexachlorocyclopentadiene	
2,4-Dinitrophenol	
4-Nitrophenol	
MINIMUM RRF = 0.050	

CCC Compounds
<u>Base/Neutrals</u>
Acenaphthene
1,4-Dichlorobenzene
Hexachlorobutadiene
Diphenylamine
Di-n-octylphthalate
Fluoranthene
Benzo(a)pyrene
<u>Acids</u>
4-Chloro-3-methylphenol
2,4-Dichlorophenol
2-Nitrophenol
Phenol
Pentachlorophenol
2,4,6-Trichlorophenol
MAXIMUM %RSD = 30.0%

ACTION: Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

B.

CONTINUING CALIBRATIONS

<u>SPCC Compounds</u>		CALIBRATION DATE :	12/05/01	12/06/01	12/07/01
		FILE ID :	R2825	R2844	R2862
N-Nitroso-di-n-propylamine		ALL RRFs > 0.05 ?	Yes	Yes	Yes
Hexachlorocyclopentadiene		SPCC RRFs >0.05 ?	Yes	Yes	Yes
2,4-Dinitrophenol		CCC %Ds < 20% ?	Yes	Yes	Yes
4-Nitrophenol		All Targets < 20%D?	NO	NO	NO
MINIMUM RRF = 0.050					
(If No, list compounds)		benzoic acid	hexachlorocyclopentadiene	benzoic acid	
		4-nitroaniline	4-nitroaniline	4-nitroaniline	
		indeno(123cd)pyrene	pyrene	pyrene	
		dibenzo(ah)anthracene	indeno(123cd)pyrene	indeno(123cd)pyrene	
		benzo(ghi)perylene	dibenzo(ah)anthracene	dibenzo(ah)anthracene	
			benzo(ghi)perylene	benzo(ghi)perylene	

ACTION: Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2856AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA5E-2	Aroclor 1016		34 U	34 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA5E-3	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA5E-4	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		15 J	34 UJ	qualify	2, 3
	GLA5E-5	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA5B-1	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA5B-1D	Aroclor 1016		35 U	35 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		35 U	35 U		
	GLA5B-2	Aroclor 1016		33 U	33 U		
		Aroclor 1221		67 U	67 U		
		Aroclor 1232		33 U	33 U		
		Aroclor 1242		33 U	33 U		
		Aroclor 1248		33 U	33 U		
		Aroclor 1254		33 U	33 U		
		Aroclor 1260		33 U	33 U		

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2856AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC. ug/Kg	LAB REPORTED CONC. ug/Kg	QA REPORTED CONC. ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA5B-3	Aroclor 1016		35 U	35 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		35 U	35 U		
	GLA5B-4	Aroclor 1016		33 U	33 U		
		Aroclor 1221		67 U	67 U		
		Aroclor 1232		33 U	33 U		
		Aroclor 1242		33 U	33 U		
		Aroclor 1248		33 U	33 U		
		Aroclor 1254		33 U	33 U		
		Aroclor 1260		33 U	33 U		
	GLA5B-5	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA5A-1	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA5A-2	Aroclor 1016		34 U	34 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA5A-3	Aroclor 1016		33 U	33 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		33 U	33 U		
		Aroclor 1242		33 U	33 U		
		Aroclor 1248		33 U	33 U		
		Aroclor 1254		33 U	33 U		
		Aroclor 1260		33 U	33 U		
	GLA5A-4	Aroclor 1016		34 U	34 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2856AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA5A-5	Aroclor 1016		33 U	33 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		33 U	33 U		
		Aroclor 1242		33 U	33 U		
		Aroclor 1248		33 U	33 U		
		Aroclor 1254		33 U	33 U		
		Aroclor 1260		33 U	33 U		
	GLA5D-1	Aroclor 1016		34 U	34 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA5D-2	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		9.9 J	9.9 J	qualify	1, 2, 4
	GLA5D-3	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		6.8 J	6.8 J	qualify	1, 2, 4
	GLA5D-4	Aroclor 1016		34 U	34 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		5.9 J	5.9 J	qualify	1, 2, 4
		Aroclor 1260					
	GLA5D-5	Aroclor 1016		39 U	39 U		
		Aroclor 1221		79 U	79 U		
		Aroclor 1232		39 U	39 U		
		Aroclor 1242		39 U	39 U		
		Aroclor 1248		39 U	39 U		
		Aroclor 1254		39 U	39 U		
		Aroclor 1260		7.0 J	7.0 J	qualify	1, 2, 4

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME :	<u>Glenwood</u>	SDG No.:	<u>7001-2856A</u>	METHOD:	<u>SW846 / 8082</u>
LAB NAME :	<u>STL - Buffalo</u>	CLIENT:	<u>Vanasse, Hangen, Brustlin, Inc.</u>	SAMPLE MATRIX:	<u>Non-Aqueous</u>

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported result is qualified 'J', as quantitatively estimated, because all calibration peaks were present on both columns within RT windows, but only the three smallest peaks were utilized for quantitation. Potential negative bias is suggested due to peak weathering.
- 3 The reported result is qualified 'J', as quantitatively estimated, because the %D between analytical columns exceeded 50%, and the reported value was below the analyte's PQL. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.
- 4 The reported result is qualified 'J', as quantitatively estimated, because the %D between analytical columns exceeded 25%, but was below 50%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory

Project No.: 7001-2856A

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

Note: All samples were received at 9 degrees C ; although no data qualifiers were applied, the data user is alerted to the potential for negative bias in samples maintained above the recommended preservation temperature range of 2 to 6 degrees C.

B. METHOD BLANKS

Blank ID:	D4142160
Extraction Date:	12/03/01
<u>Analyte</u>	<u>Conc. ug/Kg</u>
none found	
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE (GLA5A-2)

All reported recoveries and %RPD were within acceptable limits.

E. LABORATORY QC SPIKE (PBLK20QC2)

All reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 7001-2856ALaboratory: STL - Buffalo**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 11/30/01

Verification of ICAL Results

<u>Aroclor 1260</u>	<u>RTX-35</u>		
<u>Peak 1, RT = 22.36</u>	<u>Response</u>	<u>Cal Factor, Calc'd.</u>	<u>CF, reported</u>
0.05	20111	402220	402220
0.1	40448	404480	404480
0.2	77493	387465	387465
0.4	149445	373613	373612
0.8	272654	340818	340818
Average		381719	381719
Calc'd. %RSD =	6.82		
Reported %RSD =	6.8		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/06/01	12/07/01	12/07/01
FILE ID :	D4142158	D4142175	D4142192
All Targets < 15% D?	Yes	Yes	Yes

(If No, list compounds) ==>

QA ACTION : None necessary**C. SAMPLE RESULT VERIFICATION**

SAMPLE ID: GLA5E-4
 COMPOUND: Aroclor-1260
 REPORTED VALUE: 15 J ug/Kg column = DB-1701

<u>Peak RT</u>	<u>CF</u>	<u>Peak Area</u>	<u>conc., ng</u>
20.81	2356009	139700	0.0593
22.43	2493837	79665	0.0319
23.84	4409720	168404	0.0382
Average conc. =			0.0431

ug/Kg =	ng average conc.	extract, uL	Dilution factor
	0.0431	10000	1.0
	30.3	1.0	0.97
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 14.7

Comments: The laboratory reported the highest of the two values between analytical columns, per SW-846 protocol. However, the laboratory did not use all 5 calibration peaks for quantitation, but used 3, which is the minimum allowable number of peaks. Chromatographic evaluation revealed that the 4th and 5th peaks used in calibration were present on each column, and were within established RT windows. These peaks were present at ratios which indicated potential weathering of earlier peaks. These peaks, when taken into account, approximately double the reported Aroclor concentration. This information is provided to the data end-user for potential utility in determining ultimate data usability in conjunction with regulatory compliance requirements.

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : GlenwoodSDG No.: 7001-2856AMethod : SW-846Lab Name : STL - ConnecticutSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5E-2	Aluminum		2650	2650		
		Antimony		0.89 U	0.89 U		
		Arsenic		1.2 B	1.2 J	qualify	1
		Barium		32.3 B	32.3 J	qualify	1
		Beryllium		0.15 B	0.15 J	qualify	1
		Cadmium		0.16 B	0.16 J	qualify	1
		Calcium	13.138	804 B	804 J	qualify	1
		Chromium		6.2	6.2		
		Cobalt		2.8 B	2.8 J	qualify	1
		Copper		6.2	6.2		
		Iron	3.233	7040	7040		
		Lead		23.6	23.6		
		Magnesium		877 B	877 J	qualify	1
		Manganese		240 *	240 J	qualify	2
		Mercury		0.005 U	0.005 U		
		Nickel		7.0 B	7.0 J	qualify	1
		Potassium	13.626	539 B	539 J	qualify	1
		Selenium		0.97 U	0.97 U		
		Silver		0.20 U	0.20 U		
		Sodium	18.733	39.5 B	39.5 J	qualify	1
		Thallium		2.0 U	2.0 U		
		Vanadium		8.8 B	8.8 J	qualify	1
		Zinc	1.181	18.6	18.6 J	qualify	3
		Cyanide		Not analyzed			
	GLA5E-3	Aluminum		2920	2920		
		Antimony		0.89 U	0.89 U		
		Arsenic		1.7 B	1.7 J	qualify	1
		Barium		20.0 B	20.0 J	qualify	1
		Beryllium		0.16 B	0.16 J	qualify	1
		Cadmium		0.30 B	0.30 J	qualify	1
		Calcium	13.138	691 B	691 J	qualify	1
		Chromium		6.4	6.4		
		Cobalt		2.8 B	2.8 J	qualify	1
		Copper		6.7	6.7		
		Iron	3.233	6680	6680		
		Lead		19.1	19.1		
		Magnesium		837 B	837 J	qualify	1
		Manganese		134 *	134 J	qualify	2
		Mercury		0.013	0.013		
		Nickel		6.4 B	6.4 J	qualify	1
		Potassium	13.626	432 B	432 J	qualify	1
		Selenium		0.97 U	0.97 U		
		Silver		0.20 U	0.20 U		
		Sodium	18.733	31.5 B	31.5 J	qualify	1
		Thallium		2.0 U	2.0 U		
		Vanadium		9.0 B	9.0 J	qualify	1
		Zinc	1.181	26.6	26.6 J	qualify	3
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2856AMethod : SW-846Lab Name : STL - ConnecticutSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5E-4	Aluminum		2760	2760		
		Antimony		0.68 U	0.68 U		
		Arsenic		1.3 B	1.3 J	qualify	1
		Barium		27.2 B	27.2 J	qualify	1
		Beryllium		0.14 B	0.14 J	qualify	1
		Cadmium		0.18 B	0.18 J	qualify	1
		Calcium	13.138	645 B	645 J	qualify	1
		Chromium		6.6	6.6		
		Cobalt		2.8 B	2.8 J	qualify	1
		Copper		6.5	6.5		
		Iron	3.233	7550	7550		
		Lead		31.5	31.5		
		Magnesium		850	850		
		Manganese		154 *	154 J	qualify	2
		Mercury		0.007 B	0.007 J	qualify	1
		Nickel		8.2	8.2		
		Potassium	13.626	590 B	590 J	qualify	1
		Selenium		0.74 U	0.74 U		
		Silver		0.15 U	0.15 U		
		Sodium	18.733	41.3 B	41.3 J	qualify	1
		Thallium		1.5 U	1.5 U		
		Vanadium		8.8	8.8		
		Zinc	1.181	18.5	18.5 J	qualify	3
		Cyanide		Not analyzed			
	GLA5E-5	Aluminum		2860	2860		
		Antimony		0.85 U	0.85 U		
		Arsenic		1.7 B	1.7 J	qualify	1
		Barium		21.8 B	21.8 J	qualify	1
		Beryllium		0.15 B	0.15 J	qualify	1
		Cadmium		0.20 B	0.20 J	qualify	1
		Calcium	13.138	708 B	708 J	qualify	1
		Chromium		8.7	8.7		
		Cobalt		2.9 B	2.9 J	qualify	1
		Copper		7.2	7.2		
		Iron	3.233	7880	7880		
		Lead		23.8	23.8		
		Magnesium		818 B	818 J	qualify	1
		Manganese		134 *	134 J	qualify	2
		Mercury		0.015	0.015		
		Nickel		9.8	9.8		
		Potassium	13.626	539 B	539 J	qualify	1
		Selenium		0.93 U	0.93 U		
		Silver		0.19 U	0.19 U		
		Sodium	18.733	38.1 B	38.1 J	qualify	1
		Thallium		1.9 U	1.9 U		
		Vanadium		9.8	9.8		
		Zinc	1.181	19.6	19.6 J	qualify	3
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2856A Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5B-1	Aluminum		2390	2390		
		Antimony		0.83 U	0.83 U		
		Arsenic		0.85 U	0.85 U		
		Barium		25.3 B	25.3 J	qualify	1
		Beryllium		0.13 B	0.13 J	qualify	1
		Cadmium		0.15 B	0.15 J	qualify	1
		Calcium	13.138	1040	1040		
		Chromium		6.2	6.2		
		Cobalt		2.4 B	2.4 J	qualify	1
		Copper		5.8	5.8		
		Iron	3.233	6020	6020		
		Lead		23.1	23.1		
		Magnesium		1050	1050		
		Manganese		94.8 *	94.8 J	qualify	2
		Mercury		0.42	0.42		
		Nickel		6.4 B	6.4 J	qualify	1
		Potassium	13.626	534 B	534 J	qualify	1
		Selenium		0.91 U	0.91 U		
		Silver		0.18 U	0.18 U		
		Sodium	18.733	44.9 B	44.9 J	qualify	1
		Thallium		1.8 U	1.8 U		
		Vanadium		7.3 B	7.3 J	qualify	1
		Zinc	1.181	27.4	27.4 J	qualify	3
		Cyanide		Not analyzed			
	GLA5B-1D	Aluminum		2700	2700		
		Antimony		0.88 U	0.88 U		
		Arsenic		1.3 B	1.3 J	qualify	1
		Barium		31.1 B	31.1 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.17 B	0.17 J	qualify	1
		Calcium	13.138	1110	111J	qualify	1
		Chromium		7.6	7.6		
		Cobalt		3.5 B	3.5 J	qualify	1
		Copper		10.9	10.9		
		Iron	3.233	8710	8710		
		Lead		25.3	25.3		
		Magnesium		1030	1030		
		Manganese		122 *	122 J	qualify	2
		Mercury		0.009	0.009		
		Nickel		7.8	7.8		
		Potassium	13.626	579 B	579 J	qualify	1
		Selenium		0.95 U	0.95 U		
		Silver		0.19 U	0.19 U		
		Sodium	18.733	60.1 B	60.1 J	qualify	1
		Thallium		1.9 U	1.9 U		
		Vanadium		9.2 B	9.2 J	qualify	1
		Zinc	1.181	34.0	34.0 J	qualify	3
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2856AMethod : SW-846Lab Name : STL - ConnecticutSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5B-2	Aluminum		2660	2660		
		Antimony		0.83 U	0.83 U		
		Arsenic		1.2 B	1.2 J	qualify	1
		Barium		35.8 B	35.8 J	qualify	1
		Beryllium		0.23 B	0.23 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	13.138	2510	2510		
		Chromium		6.9	6.9		
		Cobalt		2.2 B	2.2 J	qualify	1
		Copper		6.5	6.5		
		Iron	3.233	7720	7720		
		Lead		40.4	40.4		
		Magnesium		1420	1420		
		Manganese		112 *	112 J	qualify	2
		Mercury		0.0035 U	0.004 U		
		Nickel		6.7 B	6.7 J	qualify	1
		Potassium	13.626	588 B	588 J	qualify	1
		Selenium		0.91 U	0.91 U		
		Silver		0.18 U	0.18 U		
		Sodium	18.733	79.3 B	79.3 J	qualify	1
		Thallium		1.8 U	1.8 U		
		Vanadium		8.2 B	8.2 J	qualify	1
		Zinc	1.181	16.5	16.5 J	qualify	3
		Cyanide		Not analyzed			
	GLA5B-3	Aluminum		2510	2510		
		Antimony		0.83 U	0.83 U		
		Arsenic		1.7 B	1.7 J	qualify	1
		Barium		33.6 B	33.6 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.25 B	0.25 J	qualify	1
		Calcium	13.138	942	942		
		Chromium		6.8	6.8		
		Cobalt		3.5 B	3.5 J	qualify	1
		Copper		9.6	9.6		
		Iron	3.233	11700	11700		
		Lead		21.6	21.6		
		Magnesium		981	981		
		Manganese		196 *	196 J	qualify	2
		Mercury		0.0048 B	0.005 J	qualify	1
		Nickel		9.5	9.5		
		Potassium	13.626	554 B	554 J	qualify	1
		Selenium		0.91 U	0.91 U		
		Silver		0.18 U	0.18 U		
		Sodium	18.733	52.4 B	52.4 J	qualify	1
		Thallium		1.8 U	1.8 U		
		Vanadium		10.0	10.0		
		Zinc	1.181	21.0	21.0 J	qualify	3
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 7001-2856A Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5B-4	Aluminum		2570	2570		
		Antimony		0.76 U	0.76 U		
		Arsenic		1.3 B	1.3 J	qualify	1
		Barium		21.7 B	21.7 J	qualify	1
		Beryllium		0.15 B	0.15 J	qualify	1
		Cadmium		0.17 B	0.17 J	qualify	1
		Calcium	13.138	769 B	769 J	qualify	1
		Chromium		6.6	6.6		
		Cobalt		2.5 B	2.5 J	qualify	1
		Copper		6.8	6.8		
		Iron	3.233	7130	7130		
		Lead		18.2	18.2		
		Magnesium		869	869		
		Manganese		105 *	105 J	qualify	2
		Mercury		0.0057 B	0.006 J	qualify	1
		Nickel		6.6 B	6.6 J	qualify	1
		Potassium	13.626	530 B	530 J	qualify	1
		Selenium		0.83 U	0.83 U		
		Silver		0.17 U	0.17 U		
		Sodium	18.733	45.8 B	45.8 J	qualify	1
		Thallium		1.7 U	1.7 U		
		Vanadium		8.3 B	8.3 J	qualify	1
		Zinc	1.181	17.0	17.0 J	qualify	3
		Cyanide		Not analyzed			
	GLA5B-5	Aluminum		2280	2280		
		Antimony		0.76 U	0.76 U		
		Arsenic		0.91 B	0.91 J	qualify	1
		Barium		17.5 B	17.5 J	qualify	1
		Beryllium		0.12 B	0.12 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	13.138	451 B	451 J	qualify	1
		Chromium		5.7	5.7		
		Cobalt		2.1 B	2.1 J	qualify	1
		Copper		5.5	5.5		
		Iron	3.233	5980	5980		
		Lead		15.6	15.6		
		Magnesium		686 B	686 J	qualify	1
		Manganese		83.6 *	83.6 J	qualify	2
		Mercury		0.0076 B	0.0076 J	qualify	1
		Nickel		5.8 B	5.8 J	qualify	1
		Potassium	13.626	439 B	439 J	qualify	1
		Selenium		0.83 U	0.83 U		
		Silver		0.17 U	0.17 U		
		Sodium	18.733	36.0 B	36.0 J	qualify	1
		Thallium		1.7 U	1.7 U		
		Vanadium		7.5 B	7.5 J	qualify	1
		Zinc	1.181	16.6	16.6 J	qualify	3
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2856A Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5A-1	Aluminum		1850	1850		
		Antimony		0.67 U	0.67 U		
		Arsenic		1.1 B	1.1 J	qualify	1
		Barium		14.4 B	14.4 J	qualify	1
		Beryllium		0.11 B	0.11 J	qualify	1
		Cadmium		0.12 U	0.12 U		
		Calcium	13.138	295 B	295 J	qualify	1
		Chromium		4.5	4.5		
		Cobalt		1.6 B	1.6 J	qualify	1
		Copper		3.6 B	3.6 J	qualify	1
		Iron	3.233	5370	5370		
		Lead		7.6	7.6		
		Magnesium		457 B	457 J	qualify	1
		Manganese		99.8 *	99.8 J	qualify	2
		Mercury		0.0066 B	0.007 J	qualify	1
		Nickel		4.3 B	4.3 J	qualify	1
		Potassium	13.626	294 B	294 J	qualify	1
		Selenium		0.73 U	0.73 U		
		Silver		0.15 U	0.15 U		
		Sodium	18.733	23.4 B	23.4 J	qualify	1
		Thallium		1.5 U	1.5 U		
		Vanadium		5.9 B	5.9 J	qualify	1
		Zinc	1.181	11.1	11.1 J	qualify	3
		Cyanide		Not analyzed			
	GLA5A-2	Aluminum		2670	2670		
		Antimony		0.79 U	0.79 U		
		Arsenic		1.6 B	1.6 J	qualify	1
		Barium		16.8 B	16.8 J	qualify	1
		Beryllium		0.12 B	0.12 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	13.138	342 B	342 J	qualify	1
		Chromium		6.6	6.6		
		Cobalt		2.2 B	2.2 J	qualify	1
		Copper		5.3	5.3		
		Iron	3.233	7180	7180		
		Lead		13.8	13.8		
		Magnesium		814 B	814 J	qualify	1
		Manganese		124 *	124 J	qualify	2
		Mercury		0.012	0.012		
		Nickel		5.9 B	5.9 J	qualify	1
		Potassium	13.626	442 B	442 J	qualify	1
		Selenium		0.86 U	0.86 U		
		Silver		0.18 U	0.18 U		
		Sodium	18.733	29.8 B	29.8 J	qualify	1
		Thallium		1.8 U	1.8 U		
		Vanadium		8.6 B	8.6 J	qualify	1
		Zinc	1.181	18.8	18.8 J	qualify	3
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2856A Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5A-3	Aluminum		2350	2350		
		Antimony		0.75 U	0.75 U		
		Arsenic		1.4 B	1.4 J	qualify	1
		Barium		17.9 B	17.9 J	qualify	1
		Beryllium		0.14 B	0.14 J	qualify	1
		Cadmium		0.16 B	0.16 J	qualify	1
		Calcium	13.138	711 B	711 J	qualify	1
		Chromium		5.9	5.9		
		Cobalt		2.3 B	2.3 J	qualify	1
		Copper		6.0	6.0		
		Iron	3.233	6430	6430		
		Lead		16.2	16.2		
		Magnesium		680 B	680 J	qualify	1
		Manganese		102 *	102 J	qualify	2
		Mercury		0.0099	0.010		
		Nickel		5.6 B	5.6 J	qualify	1
		Potassium	13.626	407 B	407 J	qualify	1
		Selenium		0.81 U	0.81 U		
		Silver		0.17 U	0.17 U		
		Sodium	18.733	33.9 B	33.9 J	qualify	1
		Thallium		1.7 U	1.7 U		
		Vanadium		8.0 B	8.0 J	qualify	1
		Zinc	1.181	17.5	17.5 J	qualify	3
		Cyanide		Not analyzed			
	GLA5A-4	Aluminum		2300	2300		
		Antimony		0.66 U	0.66 U		
		Arsenic		1.5	1.5		
		Barium		18.4 B	18.4 J	qualify	1
		Beryllium		0.12 B	0.12 J	qualify	1
		Cadmium		0.12 U	0.12 U		
		Calcium	13.138	378 B	378 J	qualify	1
		Chromium		5.3	5.3		
		Cobalt		1.9 B	1.9 J	qualify	1
		Copper		5.2	5.2		
		Iron	3.233	6020	6020		
		Lead		14.3	14.3		
		Magnesium		629 B	629 J	qualify	1
		Manganese		80.9 *	80.9 J	qualify	2
		Mercury		0.0086 B	0.009 J	qualify	1
		Nickel		5.8	5.8		
		Potassium	13.626	440 B	440 J	qualify	1
		Selenium		0.71 U	0.71 U		
		Silver		0.14 U	0.14 U		
		Sodium	18.733	33.7 B	33.7 J	qualify	1
		Thallium		1.4 U	1.4 U		
		Vanadium		7.2 B	7.2 J	qualify	1
		Zinc	1.181	15.7	15.7 J	qualify	3
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 7001-2856A Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5A-5	Aluminum		2230	2230		
		Antimony		0.77 U	0.77 U		
		Arsenic		1.1 B	1.1 J	qualify	1
		Barium		14.9 B	14.9 J	qualify	1
		Beryllium		0.11 B	0.11 J	qualify	1
		Cadmium		0.17 B	0.17 J	qualify	1
		Calcium	13.138	356 B	356 J	qualify	1
		Chromium		5.2	5.2		
		Cobalt		1.8 B	1.8 J	qualify	1
		Copper		4.8	4.8		
		Iron	3.233	5320	5320		
		Lead		12.5	12.5		
		Magnesium		668 B	668 J	qualify	1
		Manganese		77.4 *	77.4 J	qualify	2
		Mercury		0.0082 B	0.009 J	qualify	1
		Nickel		4.9 B	4.9 J	qualify	1
		Potassium	13.626	402 B	402 J	qualify	1
		Selenium		0.83 U	0.83 U		
		Silver		0.17 U	0.17 U		
		Sodium	18.733	33.4 B	33.4 J	qualify	1
		Thallium		1.7 U	1.7 U		
		Vanadium		7.1 B	7.1 J	qualify	1
		Zinc	1.181	14.5	14.5 J	qualify	3
		Cyanide		Not analyzed			
	GLA5D-1	Aluminum		3030	3030		
		Antimony		0.68 U	0.68 U		
		Arsenic		1.6	1.6		
		Barium		23.5 B	23.5 J	qualify	1
		Beryllium		0.14 B	0.14 J	qualify	1
		Cadmium		0.19 B	0.19 J	qualify	1
		Calcium	13.138	1060	1060		
		Chromium		6.4	6.4		
		Cobalt		2.4 B	2.4 J	qualify	1
		Copper		6.2	6.2		
		Iron	3.233	6510	6510		
		Lead		19.7	19.7		
		Magnesium		856	856		
		Manganese		112 *	112 J	qualify	2
		Mercury		0.011	0.011		
		Nickel		10.5	10.5		
		Potassium	13.626	545 B	545 J	qualify	1
		Selenium		0.74 U	0.74 U		
		Silver		0.15 U	0.15 U		
		Sodium	18.733	47.7 B	47.7 J	qualify	1
		Thallium		1.5 U	1.5 U		
		Vanadium		9.0	9.0		
		Zinc	1.181	18.2	18.2 J	qualify	3
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 7001-2856A Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5D-2	Aluminum		3320	3320		
		Antimony		0.83 U	0.83 U		
		Arsenic		2.5	2.5		
		Barium		25.5 B	25.5 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.24 B	0.24 J	qualify	1
		Calcium	13.138	666 B	666 J	qualify	1
		Chromium		8.3	8.3		
		Cobalt		2.8 B	2.8 J	qualify	1
		Copper		8.3	8.3		
		Iron	3.233	9260	9260		
		Lead		37.1	37.1		
		Magnesium		881 B	881 J	qualify	1
		Manganese		147 *	147 J	qualify	2
		Mercury		0.049	0.049		
		Nickel		7.3 B	7.3 J	qualify	1
		Potassium	13.626	558 B	558 J	qualify	1
		Selenium		0.90 U	0.90 U		
		Silver		0.18 U	0.18 U		
		Sodium	18.733	43.4 B	43.4 J	qualify	1
		Thallium		1.8 U	1.8 U		
		Vanadium		11.0	11.0		
		Zinc	1.181	28.9	28.9 J	qualify	3
		Cyanide		Not analyzed			
	GLA5D-3	Aluminum		3130	3130		
		Antimony		0.63 U	0.63 U		
		Arsenic		3.3	3.3		
		Barium		22.0 B	22.0 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.25 B	0.25 J	qualify	1
		Calcium	13.138	610 B	610 J	qualify	1
		Chromium		8.5	8.5		
		Cobalt		2.9 B	2.9 J	qualify	1
		Copper		8.1	8.1		
		Iron	3.233	9220	9220		
		Lead		25.9	25.9		
		Magnesium		811	811		
		Manganese		144 *	144 J	qualify	2
		Mercury		0.042	0.042		
		Nickel		8.6	8.6		
		Potassium	13.626	536 B	536 J	qualify	1
		Selenium		0.68 U	0.68 U		
		Silver		0.14 U	0.14 U		
		Sodium	18.733	38.2 B	38.2 J	qualify	1
		Thallium		1.4 U	1.4 U		
		Vanadium		12.2	12.2		
		Zinc	1.181	27.0	27.0 J	qualify	3
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2856AMethod : SW-846Lab Name : STL - ConnecticutSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5D-4	Aluminum		3390	3390		
		Antimony		0.79 U	0.79 U		
		Arsenic		3.0	3.0		
		Barium		22.9 B	22.9 J	qualify	1
		Beryllium		0.17 B	0.17 J	qualify	1
		Cadmium		0.16 B	0.16 J	qualify	1
		Calcium	13.138	916	916		
		Chromium		7.9	7.9		
		Cobalt		6.5 B	6.5 J	qualify	1
		Copper		8.0	8.0		
		Iron	3.233	6510	6510		
		Lead		37.4	37.4		
		Magnesium		936	936		
		Manganese		130 *	130 J	qualify	2
		Mercury		0.043	0.043		
		Nickel		6.6 B	6.6 J	qualify	1
		Potassium	13.626	486 B	486 J	qualify	1
		Selenium		0.86 U	0.86 U		
		Silver		0.18 U	0.18 U		
		Sodium	18.733	47.2 B	47.2 J	qualify	1
		Thallium		1.8 U	1.8 U		
		Vanadium		9.6	9.6		
		Zinc	1.181	29.4	29.4 J	qualify	3
		Cyanide		Not analyzed			
	GLA5D-5	Aluminum		2230	2230		
		Antimony		0.78 U	0.78 U		
		Arsenic		1.6 B	1.6 J	qualify	1
		Barium		16.2 B	16.2 J	qualify	1
		Beryllium		0.11 B	0.11 J	qualify	1
		Cadmium		0.22 B	0.22 J	qualify	1
		Calcium	13.138	440 B	440 J	qualify	1
		Chromium		5.2	5.2		
		Cobalt		1.8 B	1.8 J	qualify	1
		Copper		6.4	6.4		
		Iron	3.233	5270	5270		
		Lead		23.2	23.2		
		Magnesium		614 B	614 J	qualify	1
		Manganese		92.5 *	92.5 J	qualify	2
		Mercury		0.036	0.036		
		Nickel		5.2 B	5.2 J	qualify	1
		Potassium	13.626	389 B	389 J	qualify	1
		Selenium		0.84 U	0.84 U		
		Silver		0.17 U	0.17 U		
		Sodium	18.733	46.5 B	46.5 J	qualify	1
		Thallium		1.7 U	1.7 U		
		Vanadium		7.4 B	7.4 J	qualify	1
		Zinc	1.181	21.5	21.5 J	qualify	3
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : Glenwood SDG No.: 7001-2856A Method : SW-846
Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value.
No bias direction is inferred.
- 2 The reported value for this analyte is qualified 'UJ' or 'J', because the precision value between duplicate samples exceeded the applicable criterion. No bias direction is inferred.
- 3 The reported positive value for this analyte was qualified 'J', because the associated Serial Dilution standard precision exceeded 10.0%D, while the sample concentration was above 10x analyte IDL.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 7001-2856A

- A. CALIBRATION
- | | | |
|--------------|---------------------|-------------------|
| ICP Analytes | | <u>Outliers ?</u> |
| ICV | 90% - 110% recovery | none |
| CCV | 90% - 110% recovery | none |
- B. CRDL STANDARD
- | | |
|--------------------|--------------------------|
| 80 - 120% recovery | <u>Outliers ?</u> |
| | Pb CRI 1 124% ; CRI2 77% |
| | Se CRI2 121% |
- QA Action : Qualify 'J' positive Pb values up to nominal 2.4 mg/Kg, with positive bias suggested.
- Affects : GLA5E (all), GLA5B (all), GLA5A 1-4
- QA Action : Qualify 'UJ' or 'J' Pb values up to nominal 2.4 mg/Kg, with negative bias suggested.
- Affects : GLA5A-5, GLA5D (all)
- Note : No Se values were positive; therefore no qualifiers were applicable.
- C. BLANKS
- | | | |
|------------|--------|-------------------|
| ICB / CCB | < CRDL | <u>Outliers ?</u> |
| Prep Blank | < CRDL | none |
- D. INTERELEMENT CORRECTION (ICSA / ICSAB)
- | | | |
|-------|-------------------------------------|-------------------|
| ICSA | Response < 2x CRDL for trace metals | <u>Outliers ?</u> |
| ICSAB | 80 - 120% recovery | none |
- E. MATRIX SPIKE (MS) GLA5B-5
- | | |
|---|-------------------|
| 75 - 125% recovery (if sample conc. < 4x spike conc.) | <u>Outliers ?</u> |
| | none |
- F. POST-DIGESTION SPIKE (PDS)
- Required for analytes outside MS recovery range; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.
- No MS recovery excursions were reported; no PDS were required.
- G. MATRIX DUPLICATE (MD) GLA5B-5
- | | |
|--|-------------------|
| Max. 100% RPD for non-aqueous samples > 5x CRDL | <u>Outliers ?</u> |
| Max. (+/-) CRDL value if either sample < 5x CRDL | none |
| | n/a |
- Note: The %RPD for Mn exceeded the 20% method limit; however, EPA Region II guidance allows up to 100% RPD for soil samples.
- H. LABORATORY CONTROL SAMPLE (LCS)
- | | |
|--|-------------------|
| Recovery within control limits for non-aqueous samples | <u>Outliers ?</u> |
| Recovery between 80 - 120% for aqueous samples | none |
| | n/a |
- I. SERIAL DILUTION SAMPLE GLA5B-5
- | | |
|---|-------------------|
| Maximum 10.0% D if undiluted sample > 10x IDL | <u>Outliers ?</u> |
| | Zn (29%) |
- QA Action : Qualify 'J' positive Zn values > 10x IDL; negative bias suggested
- Affects : All SDG samples
- J. VERIFICATION OF INSTRUMENTAL PARAMETERS
- | | | |
|---------------------------------|------------------|-------------------|
| | <u>Frequency</u> | <u>Outliers ?</u> |
| Instrument Detection Limits | Quarterly | none |
| Interelement Correction Factors | Annually | none |
| Linear Range Analysis | Quarterly | none |

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 7001-2856A

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ?

YesIf No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ?

YesIf No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ?

YesIf No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ?

Yes

If No, list affected analytes and samples, and QA action : _____

Note: % solids values below were taken from the raw data, and are within a reasonable error band.

5. Show calculation for % Solids for one sample.

Sample ID: GLA5B-5Lab value : 96.1 %Dry weight : 8.86 gm% Solids = Dry weight x 100Wet weight : 9.13 gm

Wet weight

=

97.0 %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLA5B-5Analyte : PbLab value : 15.6 mg/Kg% Solids : 97.0Raw value 0.0920 mg/LFinal volume 200 mLWet weight 1.23 gmmg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (ml)}}{\text{wet wgt} \times (\% \text{Sol}/100)}$ **15.4**

mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ?

n/aIf No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

August 26, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 7001-2876A

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA8-2B	012876A-01	SOIL	12/04/01	X	X	X
GLA8-2C	012876A-02	SOIL	12/04/01	X	X	X
GLA8-2D	012876A-03	SOIL	12/04/01	X	X	X
GLA8-2E	012876A-04	SOIL	12/04/01	X	X	X
GLA5E-1	012876A-05	SOIL	12/04/01	X	X	X
GLA4-1	012876A-06	SOIL	12/05/01	X	X	X
GLA4-3	012876A-07	SOIL	12/05/01	X	X	X
GLA4-4	012876A-08	SOIL	12/05/01	X	X	X
GLA4-4S	012876A-09	SOIL	12/05/01	X	X	X
GLA4-5	012876A-10	SOIL	12/05/01	X	X	X

Sample Collection and Receipt

It is noted that samples were received at STL-CT at 14 and 15 degrees C; the laboratory narrative indicates that the client was contacted and authorized the lab to proceed with sample analysis. The method-prescribed sample preservation temperature is 4 degrees C; EPA Region II validation guidelines call for qualification above 10 C. The data reviewer has qualified all organic-fraction results due to temperature exceedance, with potential negative bias noted.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

- 1) No GPC clean-up was performed on the soil samples for the semi-volatile or pesticide-PCB fractions, nor was Florisil clean-up performed for the PCB fraction. GPC clean-up can improve resolution for these fractions by removing a wide range of higher molecular weight interferences, and Florisil fractionation provides separation of interferent analytes from the Aroclor compounds of interest. Acid clean-up and copper clean-up were performed on the PCB fractions.
- 2) The calibration acceptance evaluation procedure employed by the laboratory is incorrect for all continuing calibrations reviewed, relative to %D acceptability for Aroclor compounds. The laboratory is using a response-factor summation of each individual peak response from the Initial Calibration, and comparing that summed value to a summation of the individual Continuing Calibration peak responses, to determine a %D value for each Aroclor compound. In effect, this mathematical manipulation amounts to a "smoothing" process in which individual peak response variations, unless all in the same direction, tend to cancel each other out. For Aroclor standards, which are in a clean matrix, and should not normally degrade, there should be minimal change in peak response, unless chromatographic parameters (detector sensitivity, column breakdown, retention time shifts) are changing. In each calibration verification reviewed, at least one individual Aroclor peak, on at least one of the analytical columns, exhibited a %D value above 15.0%, which is the maximum value allowed by the method; however for each of these compounds, in all CCVs except one, the laboratory's procedure yielded an acceptable reported %D value for the Aroclor. SW-846, Method 8082, Sect. 7.6.2.1 states : "The calibration factor for each analyte calculated from the calibration verification standard (CFv) must not exceed a difference of more than ± 15 percent when compared to the mean calibration factor from the initial calibration curve.

Lest the potential ambiguity of the word 'analyte' in the above section be misinterpreted to mean the group of all peaks taken to quantitate each Aroclor compound, Method 8082, Sect. 7.6.2.3 should clarify the intent of the above section, as follows : "If this criterion is exceeded for *any calibration factor or response factor (emphasis added)*, inspect the gas chromatographic system to determine the cause and perform whatever maintenance is necessary before verifying calibration and proceeding with sample analysis."

Because the lab has incorrectly performed the calibration verification procedure as defined above, and all reported calibration verification events have at least one Aroclor peak on at least one analytical column above the 15.0% D limit, the reviewer has qualified all reported Aroclor compound results as quantitatively estimated values, either 'UJ' or 'J'.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-2876A

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2876AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC. ug/Kg	LAB REPORTED CONC. ug/Kg	QA REPORTED CONC. ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA8-2B	2-Methylnaphthalene		11 J	11 J	qualify	1, 3
		Acenaphthene		11 J	11 J	qualify	1, 3
		Dibenzofuran		9 J	9 J	qualify	1, 3
		Phenanthrene		100 J	100 J	qualify	1, 3
		Anthracene		18 J	18 J	qualify	1, 3
		Fluoranthene		160 J	160 J	qualify	1, 3
		Pyrene		150 J	150 J	qualify	1, 3
		Benzo(a)anthracene		80 J	80 J	qualify	1, 3
		Chrysene		110 J	110 J	qualify	1, 3
		Benzo(b)fluoranthene		79 J	79 J	qualify	1, 3
		Benzo(k)fluoranthene		94 J	94 J	qualify	1, 3
		Benzo(a)pyrene		84 J	84 J	qualify	1, 3
		Indeno(1,2,3-cd)pyrene		58 J	58 J	qualify	1, 2, 3
		Dibenzo(a,h)anthracene		23 J	23 J	qualify	1, 2, 3
		Benzo(g,h,i)perylene		64 J	64 J	qualify	1, 2, 3
		Benzyl alcohol		U	UJ	qualify	3, 5
		2,4-Dinitrophenol		U	UJ	qualify	3, 5
		4,6-Dinitro-2-methylphenol		U	UJ	qualify	3, 5
		All other target compounds		U	UJ	qualify	3
GLA8-2C	GLA8-2C	Phenanthrene		12 J	12 J	qualify	1, 3
		Fluoranthene		18 J	18 J	qualify	1, 3
		Pyrene		24 J	24 J	qualify	1, 3
		Benzo(a)anthracene		13 J	13 J	qualify	1, 3
		Chrysene		23 J	23 J	qualify	1, 3
		Benzo(b)fluoranthene		17 J	17 J	qualify	1, 3
		Benzo(k)fluoranthene		15 J	15 J	qualify	1, 3
		Benzo(a)pyrene		15 J	15 J	qualify	1, 3
		Indeno(1,2,3-cd)pyrene		14 J	14 J	qualify	1, 2, 3
		Benzo(g,h,i)perylene		17 J	17 J	qualify	1, 2, 3
		Benzyl alcohol		U	UJ	qualify	3, 5
		2,4-Dinitrophenol		U	UJ	qualify	3, 5
		4,6-Dinitro-2-methylphenol		U	UJ	qualify	3, 5
		All other target compounds		U	UJ	qualify	3
GLA8-2D	GLA8-2D	Naphthalene		25 J	25 J	qualify	1, 3
		2-Methylnaphthalene		24 J	24 J	qualify	1, 3
		Acenaphthylene		12 J	12 J	qualify	1, 3
		Phenanthrene		97 J	97 J	qualify	1, 3
		Anthracene		23 J	23 J	qualify	1, 3
		Fluoranthene		130 J	130 J	qualify	1, 3
		Pyrene		170 J	170 J	qualify	1, 3
		Benzo(a)anthracene		82 J	82 J	qualify	1, 3
		Chrysene		96 J	96 J	qualify	1, 3
		Benzo(b)fluoranthene		59 J	59 J	qualify	1, 3
		Benzo(k)fluoranthene		75 J	75 J	qualify	1, 3
		Benzo(a)pyrene		77 J	77 J	qualify	1, 3
		Indeno(1,2,3-cd)pyrene		58 J	58 J	qualify	1, 2, 3
		Dibenzo(a,h)anthracene		23 J	23 J	qualify	1, 2, 3
		Benzo(g,h,i)perylene		69 J	69 J	qualify	1, 2, 3
		Benzyl alcohol		U	UJ	qualify	3, 5
		2,4-Dinitrophenol		U	UJ	qualify	3, 5
		4,6-Dinitro-2-methylphenol		U	UJ	qualify	3, 5
		All other target compounds		U	UJ	qualify	3

METHOD: SW846 / 8270C

SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA8-2E	2-Methylnaphthalene		9 J	9 J	qualify	1, 3
		Acenaphthene		9 J	9 J	qualify	1, 3
		Dibenzofuran		8 J	8 J	qualify	1, 3
		Phenanthrene		96 J	96 J	qualify	1, 3
		Anthracene		26 J	26 J	qualify	1, 3
		Carbazole		11 J	11 J	qualify	1, 3
		Fluoranthene		180 J	180 J	qualify	1, 3
		Pyrene		210 J	210 J	qualify	1, 3
		Benzo(a)anthracene		110 J	110 J	qualify	1, 3
		Chrysene		140 J	140 J	qualify	1, 3
		Benzo(b)fluoranthene		98 J	98 J	qualify	1, 3
		Benzo(k)fluoranthene		130 J	130 J	qualify	1, 3
		Benzo(a)pyrene		120 J	120 J	qualify	1, 3
		Indeno(1,2,3-cd)pyrene		100 J	100 J	qualify	1, 2, 3
		Dibenzo(a,h)anthracene		44 J	44 J	qualify	1, 2, 3
		Benzo(g,h,i)perylene		110 J	110 J	qualify	1, 2, 3
		Benzyl alcohol		U	UJ	qualify	3, 5
		2,4-Dinitrophenol		U	UJ	qualify	3, 5
		4,6-Dinitro-2-methylphenol		U	UJ	qualify	3, 5
		All other target compounds		U	UJ	qualify	3
	GLA5E-1	Fluoranthene		23 J	23 J	qualify	1, 3
		Benzo(a)anthracene		17 J	17 J	qualify	1, 3
		Chrysene		21 J	21 J	qualify	1, 3
		Benzo(b)fluoranthene		19 J	19 J	qualify	1, 3
		Benzo(k)fluoranthene		19 J	19 J	qualify	1, 3
		Benzo(a)pyrene		16 J	16 J	qualify	1, 3
		Benzyl alcohol		U	UJ	qualify	3, 5
		2,4-Dinitrophenol		U	UJ	qualify	3, 5
		4,6-Dinitro-2-methylphenol		U	UJ	qualify	3, 5
		All other target compounds		U	UJ	qualify	3
	GLA4-1	Benzyl alcohol		U	UJ	qualify	3, 5
		2,4-Dinitrophenol		U	UJ	qualify	3, 5
		4,6-Dinitro-2-methylphenol		U	UJ	qualify	3, 5
		All other target compounds		U	UJ	qualify	3
	GLA4-3	Benzo(a)anthracene		10 J	10 J	qualify	1, 3
		Chrysene		13 J	13 J	qualify	1, 3
		Benzo(b)fluoranthene		11 J	11 J	qualify	1, 3
		Benzo(k)fluoranthene		14 J	14 J	qualify	1, 3
		Benzo(a)pyrene		12 J	12 J	qualify	1, 3
		Benzyl alcohol		U	UJ	qualify	3, 5
		2,4-Dinitrophenol		U	UJ	qualify	3, 5
		4,6-Dinitro-2-methylphenol		U	UJ	qualify	3, 5
		All other target compounds		U	UJ	qualify	3
	GLA4-4	2-Methylnaphthalene		6 J	6 J	qualify	1, 3
		Phenanthrene		8 J	8 J	qualify	1, 3
		Fluoranthene		15 J	15 J	qualify	1, 3
		Pyrene		16 J	16 J	qualify	1, 3
		Benzo(a)anthracene		10 J	10 J	qualify	1, 3
		Chrysene		10 J	10 J	qualify	1, 3
		bis(2-ethylhexyl)phthalate	220 J	120 JB	350 UJ	negate/qualify	4, 3
		Benzo(b)fluoranthene		9 J	9 J	qualify	1, 3
		Benzo(k)fluoranthene		10 J	10 J	qualify	1, 3
		All other target compounds		U	UJ	qualify	3

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2876AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Yanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA4-4S (@ 40x dilution)	Naphthalene		5000 J	5000 J	qualify	1, 3
		2-Methylnaphthalene		2900 J	2900 J	qualify	1, 3
		Acenaphthene		9500 J	9500 J	qualify	1, 3
		Dibenzofuran		3900 J	3900 J	qualify	1, 3
		Fluorene		8200 J	8200 J	qualify	1, 3
		Phenanthrene		51000	51000 J	qualify	3
		Anthracene		14000	14000 J	qualify	3
		Carbazole		4900 J	4900 J	qualify	3
		Fluoranthene		56000	56000 J	qualify	3
		Pyrene		42000	42000 J	qualify	3
		Benzo(a)anthracene		28000	28000 J	qualify	3
		Chrysene		29000	29000 J	qualify	3
		Benzo(b)fluoranthene		18000	18000 J	qualify	3
		Benzo(k)fluoranthene		21000	21000 J	qualify	3
		Benzo(a)pyrene		22000	22000 J	qualify	3
		Indeno(1,2,3-cd)pyrene		10000 J	10000 J	qualify	1, 3
		Dibenzo(a,h)anthracene		4300 J	4300 J	qualify	1, 3
		Benzo(g,h,i)perylene		9900 J	9900 J	qualify	1, 3
		Benzoic acid		U	UJ	qualify	3, 5
		2,4-Dinitrophenol		U	UJ	qualify	3, 5
		All other target compounds		U	UJ	qualify	3
	GLA4-5	Fluoranthene		25 J	25 J	qualify	1, 3
		Pyrene		32 J	32 J	qualify	1, 3
		Benzo(a)anthracene		30 J	30 J	qualify	1, 3
		Chrysene		30 J	30 J	qualify	1, 3
		bis(2-ethylhexyl)phthalate		57 J	57 J	qualify	1, 3
		Benzo(b)fluoranthene		26 J	26 J	qualify	1, 3
		Benzo(k)fluoranthene		29 J	29 J	qualify	1, 3
		Benzo(a)pyrene		26 J	26 J	qualify	1, 3
		Indeno(1,2,3-cd)pyrene		10 J	10 J	qualify	1, 2, 3
		Benzyl alcohol		U	UJ	qualify	3, 5
		2,4-Dinitrophenol		U	UJ	qualify	3, 5
		4,6-Dinitro-2-methylphenol		U	UJ	qualify	3, 5
		All other target compounds		U	UJ	qualify	3

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- The reported positive and non-detect values are qualified 'J' or 'UJ'. As quantitatively estimated values, because the samples were received at the laboratory above 10 degrees C. The data user is alerted to the potential for negative bias due to elevated sample temperatures.
- The reported result for this compound is negated, with 'U' qualifier applied at the compound's PQL, because the reported value is below 10x the concentration of this compound in the associated method Blank, OR, the compound is a common laboratory contaminant.
- The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2876A

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within allowable holding times.

Note: All samples were received above 10 degrees C (@ 14 & 15 C); all reported data are qualified 'UJ' or 'J'.
 The data user is alerted to the potential for negative bias in the reported results.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
12/10/01	SBLKRQ	Q4261	soil	di-n-butylphthalate	29 J
12/10/01	SBLKRS	S5315	soil	none	n/a
12/13/01	SBLKAQ	Q4307	soil	bis(2-ethylhexyl)phthalate	220 J

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
 If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
 If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
GLA4-3	2-fluorophenol	high	Qualify positive phenolics

D. MATRIX SPIKE / DUPLICATE

No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
SBLKRQ	benzyl alcohol	high	Qualify positives in associated samples
SBLKAQ	none	n/a	n/a

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
All IS recoveries & RTs were within acceptable limits			

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
12/05/01	OK	yes	
12/12/01	OK	yes	
12/19/01	OK	yes	
12/19/01	OK	yes	
12/17/01	OK	yes	
12/26/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

<u>Sample ID</u>	<u>Compound</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>
GLA4-4S	benzo(a)pyrene	22000	21763

<u>Conc., ug/Kg =</u>	<u>Ax</u>	<u>Is</u>	<u>Vt</u>	<u>Df</u>	<u>GPC</u>
	130818	40.0	500	40.0	1.0
	Ais	RRF	Vi	Ws	D
	156532	1.039	2.0	15.4	0.06

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2876A

A. INITIAL CALIBRATION

CALIBRATION DATE : FILE IDs :	12/05/01 Q4204 - 4208	12/19/01 Q4292 - 4296	12/17/01 S5195 - 5199
ALL RRFs > 0.05 ?	Yes	Yes	Yes
SPCC RRFs > 0.05 ?	Yes	Yes	Yes
CCC %RSDs < 30% ?	Yes	Yes	Yes
All Targets < 15% RSD?	NO	NO	NO
(If No, list compounds)	benzyl alcohol	benzoic acid	benzoic acid
SPCC Compounds	hexachlorocyclopentadiene	2,4-dinitrophenol	hexachlorocyclopentadiene
N-Nitroso-di-n-propylamine	2,4-dinitrophenol	2,4-dinitrotoluene	2,4-dinitrophenol
Hexachlorocyclopentadiene	4,6-dinitro-2-methylphenol	4,6-dinitro-2-methylphenol	N-nitrosodiphenylamine
2,4-Dinitrophenol	indeno(123cd)pyrene		pentachlorophenol
4-Nitrophenol	dibenzo(ah)anthracene		
MINIMUM RRF = 0.050	benzo(ghi)perylene		
CCC Compounds	ACTION : Quality 'J' all positive compounds which exceed 15% RSD in associated samples.		
Base/Neutrals			
Acenaphthene			
1,4-Dichlorobenzene			
Hexachlorobutadiene			
Diphenylamine			
Di-n-octylphthalate			
Fluoranthene			
Benzo(a)pyrene			
Acids			
4-Chloro-3-methylphenol			
2,4-Dichlorophenol			
2-Nitrophenol			
Phenol			
Pentachlorophenol			
2,4,6-Trichlorophenol			
MAXIMUM %RSD = 30.0%			

B.

CONTINUING CALIBRATIONS

CALIBRATION DATE : FILE IDs :	12/12/01 Q4260	12/19/01 Q4296	12/26/01 SC5311
ALL RRFs > 0.05 ?	Yes	Yes	Yes
SPCC RRFs > 0.05 ?	Yes	Yes	Yes
CCC %Ds < 20% ?	Yes	Yes	Yes
All Targets < 20%D?	NO	Yes	NO
(If No, list compounds)	benzyl alcohol		benzoic acid
	2,4-dinitrophenol		2,4-dinitrophenol
	4,6-dinitro-2-methylphenol		
SPCC Compounds	ACTION : Quality 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.		
N-Nitroso-di-n-propylamine			
Hexachlorocyclopentadiene			
2,4-Dinitrophenol			
4-Nitrophenol			
MINIMUM RRF = 0.050			
CCC Compounds			
Base/Neutrals			
Acenaphthene			
1,4-Dichlorobenzene			
Hexachlorobutadiene			
Diphenylamine			
Di-n-octylphthalate			
Fluoranthene			
Benzo(a)pyrene			
Acids			
4-Chloro-3-methylphenol			
2,4-Dichlorophenol			
2-Nitrophenol			
Phenol			
Pentachlorophenol			
2,4,6-Trichlorophenol			
MAXIMUM %D = 20.0%			

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2876AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA8-2B	Aroclor 1016		19 U	19 UJ	qualify	1, 2
		Aroclor 1221		19 U	19 UJ	qualify	1, 2
		Aroclor 1232		19 U	19 UJ	qualify	1, 2
		Aroclor 1242		19 U	19 UJ	qualify	1, 2
		Aroclor 1248		19 U	19 UJ	qualify	1, 2
		Aroclor 1254		19 U	19 UJ	qualify	1, 2
		Aroclor 1260		19 U	19 UJ	qualify	1, 2
	GLA8-2C	Aroclor 1016		18 U	18 UJ	qualify	1, 2
		Aroclor 1221		18 U	18 UJ	qualify	1, 2
		Aroclor 1232		18 U	18 UJ	qualify	1, 2
		Aroclor 1242		18 U	18 UJ	qualify	1, 2
		Aroclor 1248		18 U	18 UJ	qualify	1, 2
		Aroclor 1254		18 U	18 UJ	qualify	1, 2
		Aroclor 1260		18 U	18 UJ	qualify	1, 2
	GLA8-2D	Aroclor 1016		18 U	18 UJ	qualify	1, 2
		Aroclor 1221		18 U	18 UJ	qualify	1, 2
		Aroclor 1232		18 U	18 UJ	qualify	1, 2
		Aroclor 1242		18 U	18 UJ	qualify	1, 2
		Aroclor 1248		18 U	18 UJ	qualify	1, 2
		Aroclor 1254		18 U	18 UJ	qualify	1, 2
		Aroclor 1260		18 U	18 UJ	qualify	1, 2
	GLA8-2E	Aroclor 1016		18 U	18 UJ	qualify	1, 2
		Aroclor 1221		18 U	18 UJ	qualify	1, 2
		Aroclor 1232		18 U	18 UJ	qualify	1, 2
		Aroclor 1242		18 U	18 UJ	qualify	1, 2
		Aroclor 1248		18 U	18 UJ	qualify	1, 2
		Aroclor 1254		18 U	18 UJ	qualify	1, 2
		Aroclor 1260		18 U	18 UJ	qualify	1, 2
	GLA5E-1	Aroclor 1016		17 U	17 UJ	qualify	1, 2
		Aroclor 1221		17 U	17 UJ	qualify	1, 2
		Aroclor 1232		17 U	17 UJ	qualify	1, 2
		Aroclor 1242		17 U	17 UJ	qualify	1, 2
		Aroclor 1248		17 U	17 UJ	qualify	1, 2
		Aroclor 1254		17 U	17 UJ	qualify	1, 2
		Aroclor 1260		17 U	17 UJ	qualify	1, 2
	GLA4-1	Aroclor 1016		17 U	17 UJ	qualify	1, 2
		Aroclor 1221		17 U	17 UJ	qualify	1, 2
		Aroclor 1232		17 U	17 UJ	qualify	1, 2
		Aroclor 1242		17 U	17 UJ	qualify	1, 2
		Aroclor 1248		17 U	17 UJ	qualify	1, 2
		Aroclor 1254		17 U	17 UJ	qualify	1, 2
		Aroclor 1260		17 U	17 UJ	qualify	1, 2
	GLA4-3	Aroclor 1016		18 U	18 UJ	qualify	1, 2
		Aroclor 1221		18 U	18 UJ	qualify	1, 2
		Aroclor 1232		18 U	18 UJ	qualify	1, 2
		Aroclor 1242		18 U	18 UJ	qualify	1, 2
		Aroclor 1248		18 U	18 UJ	qualify	1, 2
		Aroclor 1254		18 U	18 UJ	qualify	1, 2
		Aroclor 1260		18 U	18 UJ	qualify	1, 2

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2876AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA4-4	Aroclor 1016		18 U	18 UJ	qualify	1, 2
		Aroclor 1221		18 U	18 UJ	qualify	1, 2
		Aroclor 1232		18 U	18 UJ	qualify	1, 2
		Aroclor 1242		18 U	18 UJ	qualify	1, 2
		Aroclor 1248		18 U	18 UJ	qualify	1, 2
		Aroclor 1254		18 U	18 UJ	qualify	1, 2
		Aroclor 1260		18 U	18 UJ	qualify	1, 2
	GLA4-4S	Aroclor 1016		17 U	17 UJ	qualify	1, 2
		Aroclor 1221		17 U	17 UJ	qualify	1, 2
		Aroclor 1232		17 U	17 UJ	qualify	1, 2
		Aroclor 1242		17 U	17 UJ	qualify	1, 2
		Aroclor 1248		17 U	17 UJ	qualify	1, 2
		Aroclor 1254		17 U	17 UJ	qualify	1, 2
		Aroclor 1260		52	52 J	qualify	1, 2
	GLA4-5	Aroclor 1016		18 U	18 UJ	qualify	1, 2
		Aroclor 1221		18 U	18 UJ	qualify	1, 2
		Aroclor 1232		18 U	18 UJ	qualify	1, 2
		Aroclor 1242		18 U	18 UJ	qualify	1, 2
		Aroclor 1248		18 U	18 UJ	qualify	1, 2
		Aroclor 1254		18 U	18 UJ	qualify	1, 2
		Aroclor 1260		18 U	18 UJ	qualify	1, 2

FOOTNOTES

- 1 The reported result for this compound is qualified 'UJ', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 15.0%. The data user is directed to comments in the data validation narrative regarding laboratory calibration acceptance calculation procedures.
- 2 The reported result is qualified 'UJ' or 'J', as quantitatively estimated, because the sample was received at the laboratory above 10 degrees C. Potential negative bias for positive values, or potential false-negatives for non-detects are suggested.

POLYCHLORINATED BIPHENYLS (PCBs)

QC PARAMETER / QUALIFIER SUMMARY

SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory

Project No.: 7001-2876A

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

Note: Although samples were received at STL-Buffalo at 2 degrees C, samples had been received initially at STL-Connecticut above 10 degrees C (@ 14 & 15 C). Therefore, all organic fraction results are qualified 'UJ' or 'J', as quantitatively estimated values. The data user is alerted to the potential for negative bias in the reported results.

B. METHOD BLANKS

Blank ID:	A1B1115502
Extraction Date:	12/10/01
<u>Analyte</u>	<u>Conc. ug/Kg</u>
none found	
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

All reported recoveries and %RPD were within acceptable limits.

E. LABORATORY QC SPIKE

All reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 7001-2876ALaboratory: STL - Buffalo**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 9/19/01

Reviewer's Note : The laboratory utilized linear regression to generate a calibration line for the Aroclors, which is an allowable option under SW-846 protocols (see Method 8000B, pp. 20-21). All reported correlation coefficients were >0.99, which is the method acceptability criterion for acceptable fit.

Aroclor 1260, Peak A RT = 11.25 minutes	Conc.	Response	Lab R-squared	Calc. R-squared
	0.05	29587	0.996285	0.9962845
	0.1	58100		
	0.5	240298		
	1	444268		
	2	796750		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/10/01 08:33 - 10:40	12/10/01 19:14	12/10/01 08:33 - 10:40
All Targets < 15% D? (If No, list compounds) ==>	NO	NO	NO
	AROCLOR 1221	AROCLOR 1254	AROCLOR 1016
	AROCLOR 1232	Associated Samples	AROCLOR 1260
	AROCLOR 1242	GLA4-3	Associated Samples
	AROCLOR 1248	GLA4-4	GLA4-3
	AROCLOR 1254	GLA4-4S	GLA4-4
	AROCLOR 1260	GLA4-5	GLA4-4S
	AROCLOR 1016		GLA4-5
	Associated Samples		
	GLA8-2B		
	GLA8-2C		
	GLA8-2D		
	GLA8-2E		
	GLA5E-1		
	GLA4-1		

QA ACTION: Qualify all reported non-detect results 'UJ'; qualify all reported positive values 'J'.
 See Comments in validation narrative re: method calibration acceptance criteria.

C. SAMPLE RESULT VERIFICATION

SAMPLE ID: GLA4-4S
 COMPOUND: Aroclor-1260
 REPORTED VALUE: 52 ug/Kg

Peak RT	CF	Peak Area	conc., ng
12.17	4.23E+05	41572	0.0984
12.72	4.48E+05	48890	0.1092
13.41	5.54E+05	90661	0.1636
13.80	2.99E+05	61791	0.2066
14.39	2.80E+05	55372	0.1977

Average conc. = 0.1551

ug/Kg =	ng average conc.	extract, uL	Dilution factor
	0.1551	10000	1.0
	30.8	1.0	0.962
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 52.3

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2876A Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA8-2B	Aluminum	7.157	4430	4430		
		Antimony		0.84 U	0.84 U		
		Arsenic		2.3	2.3		
		Barium		18.8 B	18.8 J	qualify	1
		Beryllium		0.30 B	0.30 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	4.002	1330	1330		
		Chromium		9.6	9.6		
		Cobalt		2.2 B	2.2 J	qualify	1
		Copper		8.1	8.1		
		Iron		6460	6460		
		Lead		48.0	48.0		
		Magnesium		896 B	896 J	qualify	1
		Manganese		94.8	94.8		
		Mercury		0.059	0.059		
		Nickel		5.2 B	5.2 J	qualify	1
		Potassium		335 B	335 J	qualify	1, 2
		Selenium		0.89 U	0.89 U		
		Silver		0.18 U	0.18 U		
		Sodium	10.081	37.5 B	37.5 J	qualify	1
		Thallium		3.4 U	3.4 U		
		Vanadium		10.6	10.6		
		Zinc	1.255	79.9	79.9 J	qualify	2
		Cyanide		Not analyzed			
	GLA8-2C	Aluminum	7.157	4680	4680		
		Antimony		0.82 U	0.82 U		
		Arsenic		3.5	3.5		
		Barium		26.4 B	26.4 J	qualify	1
		Beryllium		0.42 B	0.42 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	4.002	1040	1040		
		Chromium		7.5	7.5		
		Cobalt		2.4 B	2.4 J	qualify	1
		Copper		10.7	10.7		
		Iron		6770	6770		
		Lead		32.8	32.8		
		Magnesium		922	922		
		Manganese		50.9	50.9		
		Mercury		0.034	0.034		
		Nickel		6.2 B	6.2 J	qualify	1
		Potassium		283 B	283 J	qualify	1, 2
		Selenium		0.87 U	0.87 U		
		Silver		0.18 U	0.18 U		
		Sodium	10.081	48.6 B	48.6 J	qualify	1
		Thallium		3.3 U	3.3 U		
		Vanadium		10.2	10.2		
		Zinc	1.255	29.6	29.6 J	qualify	2
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : GlenwoodSDG No.: 7001-2876AMethod : SW-846Lab Name : STL - ConnecticutSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA8-2D	Aluminum	7.157	3800	3800		
		Antimony		0.77 U	0.77 U		
		Arsenic		3.1	3.1		
		Barium		17.8 B	17.8 J	qualify	1
		Beryllium		0.32 B	0.32 J	qualify	1
		Cadmium		0.13 U	0.13 U		
		Calcium	4.002	483 B	483 J	qualify	1
		Chromium		7.8	7.8		
		Cobalt		2.1 B	2.1 J	qualify	1
		Copper		6.0	6.0		
		Iron		6260	6260		
		Lead		17.8	17.8		
		Magnesium		537 B	537 J	qualify	1
		Manganese		93.8	93.8		
		Mercury		0.046	0.046		
		Nickel		4.8 B	4.8 J	qualify	1
		Potassium		281 B	281 J	qualify	1, 2
		Selenium		0.82 U	0.82 U		
		Silver		0.17 U	0.17 U		
		Sodium	10.081	26.3 B	26.3 J	qualify	1
		Thallium		3.1 U	3.1 U		
		Vanadium		10.1	10.1		
		Zinc	1.255	33.0	33.0 J	qualify	2
		Cyanide		Not analyzed			
	GLA8-2E	Aluminum	7.157	4100	4100		
		Antimony		0.88 U	0.88 U		
		Arsenic		2.3	2.3		
		Barium		17.4 B	17.4 J	qualify	1
		Beryllium		0.30 B	0.30 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	4.002	1410	1410		
		Chromium		11.6	11.6		
		Cobalt		2.4 B	2.4 J	qualify	1
		Copper		7.5	7.5		
		Iron		7210	7210		
		Lead		63.4	63.4		
		Magnesium		963	963		
		Manganese		106	106		
		Mercury		0.077	0.077		
		Nickel		5.8 B	5.8 J	qualify	1
		Potassium		326 B	326 J	qualify	1, 2
		Selenium		0.94 U	0.94 U		
		Silver		0.19 U	0.19 U		
		Sodium	10.081	49.6 B	49.6 J	qualify	1
		Thallium		3.6 U	3.6 U		
		Vanadium		10.3	10.3		
		Zinc	1.255	81.2	81.2 J	qualify	2
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2876A Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5E-1	Aluminum	7.157	2540	2540		
		Antimony		0.80 U	0.80 U		
		Arsenic		0.89 B	0.89 J	qualify	1
		Barium		20.2 B	20.2 J	qualify	1
		Beryllium		0.26 B	0.26 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	4.002	656 B	656 J	qualify	1
		Chromium		5.7	5.7		
		Cobalt		2.2 B	2.2 J	qualify	1
		Copper		6.0	6.0		
		Iron		7540	7540		
		Lead		18.2	18.2		
		Magnesium		752 B	752 J	qualify	1
		Manganese		129	129		
		Mercury		0.010	0.010		
		Nickel		6.2 B	6.2 J	qualify	1
		Potassium		459 B	459 J	qualify	1, 2
		Selenium		0.85 U	0.85 U		
		Silver		0.17 U	0.17 U		
		Sodium	10.081	36.8 B	36.8 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		8.3 B	8.3 J	qualify	1
		Zinc	1.255	17.3	17.3 J	qualify	2
		Cyanide		Not analyzed			
	GLA4-1	Aluminum	7.157	1550	1550		
		Antimony		0.90 U	0.90 U		
		Arsenic		0.94 B	0.94 J	qualify	1
		Barium		10.4 B	10.4 J	qualify	1
		Beryllium		0.23 B	0.23 J	qualify	1
		Cadmium		0.16 U	0.16 U		
		Calcium	4.002	232 B	232 J	qualify	1
		Chromium		3.6	3.6		
		Cobalt		1.4 B	1.4 J	qualify	1
		Copper		15.4	15.4		
		Iron		4710	4710		
		Lead		22.2	22.2		
		Magnesium		377 B	377 J	qualify	1
		Manganese		114	114		
		Mercury		0.004 B	0.004 J	qualify	1
		Nickel		3.8 B	3.8 J	qualify	1
		Potassium		207 B	207 J	qualify	1, 2
		Selenium		0.96 U	0.96 U		
		Silver		0.20 U	0.20 U		
		Sodium	10.081	17.0 B	17.0 J	qualify	1
		Thallium		3.6 U	3.6 U		
		Vanadium		8.0 B	8.0 J	qualify	1
		Zinc	1.255	48.3	48.3 J	qualify	2
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2876AMethod : SW-846Lab Name : STL - ConnecticutSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA4-3	Aluminum	7.157	1570	1570		
		Antimony		0.78 U	0.78 U		
		Arsenic		1.2 B	1.2 J	qualify	1
		Barium		10.4 B	10.4 J	qualify	1
		Beryllium		0.24 B	0.24 J	qualify	1
		Cadmium		0.79 B	0.79 J	qualify	1
		Calcium	4.002	193 B	193 J	qualify	1
		Chromium		3.8	3.8		
		Cobalt		1.5 B	1.5 J	qualify	1
		Copper		6.1	6.1		
		Iron		9860	9860		
		Lead		5.3	5.3		
		Magnesium		390 B	390 J	qualify	1
		Manganese		191	191		
		Mercury		0.18	0.18		
		Nickel		4.0 B	4.0 J	qualify	1
		Potassium		232 B	232 J	qualify	1, 2
		Selenium		0.83 U	0.83 U		
		Silver		0.17 U	0.17 U		
		Sodium	10.081	13.0 B	13.0 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		11.4	11.4		
		Zinc	1.255	221	221 J	qualify	2
		Cyanide		Not analyzed			
	GLA4-4	Aluminum	7.157	1620	1620		
		Antimony		0.83 U	0.83 U		
		Arsenic		1.0 B	1.0 J	qualify	1
		Barium		10.8 B	10.8 J	qualify	1
		Beryllium		0.20 B	0.20 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	4.002	176 B	176 J	qualify	1
		Chromium		3.3	3.3		
		Cobalt		1.4 B	1.4 J	qualify	1
		Copper		3.5 B	3.5 J	qualify	1
		Iron		5100	5100		
		Lead		12.7	12.7		
		Magnesium		381 B	381 J	qualify	1
		Manganese		129	129		
		Mercury		0.008	0.008		
		Nickel		3.0 B	3.0 J	qualify	1
		Potassium		202 B	202 J	qualify	1, 2
		Selenium		0.88 U	0.88 U		
		Silver		0.18 U	0.18 U		
		Sodium	10.081	18.4 B	18.4 J	qualify	1
		Thallium		3.4 U	3.4 U		
		Vanadium		4.9 B	4.9 J	qualify	1
		Zinc	1.255	14.4	14.4 J	qualify	2
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2876AMethod : SW-846Lab Name : STL - ConnecticutSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA4-4S	Aluminum	7.157	1430	1430		
		Antimony		0.71 U	0.71 U		
		Arsenic		1.1 B	1.1 J	qualify	1
		Barium		9.8 B	9.8 J	qualify	1
		Beryllium		0.20 B	0.20 J	qualify	1
		Cadmium		0.12 U	0.12 U		
		Calcium	4.002	135 B	135 J	qualify	1
		Chromium		4.6	4.6		
		Cobalt		1.8 B	1.8 J	qualify	1
		Copper		11.8	11.8		
		Iron		4830	4830		
		Lead		53.3	53.3		
		Magnesium		369 B	369 J	qualify	1
		Manganese		104	104		
		Mercury		0.19	0.19		
		Nickel		6.3	6.3		
		Potassium		206 B	206 J	qualify	1, 2
		Selenium		0.76 U	0.76 U		
		Silver		0.15 U	0.15 U		
		Sodium	10.081	17.1 B	17.1 J	qualify	1
		Thallium		2.9 U	2.9 U		
		Vanadium		23.1	23.1		
		Zinc	1.255	44.4	44.4 J	qualify	2
		Cyanide		Not analyzed			
	GLA4-5	Aluminum	7.157	2390	2390		
		Antimony		0.84 U	0.84 U		
		Arsenic		0.81 U	0.81 U		
		Barium		13.8 B	13.8 J	qualify	1
		Beryllium		0.25 B	0.25 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	4.002	351 B	351 J	qualify	1
		Chromium		4.7	4.7		
		Cobalt		2.1 B	2.1 J	qualify	1
		Copper		4.3 B	4.3 J	qualify	1
		Iron		6300	6300		
		Lead		5.9	5.9		
		Magnesium		573 B	573 J	qualify	1
		Manganese		123	123		
		Mercury		0.022	0.022		
		Nickel		5.0 B	5.0 J	qualify	1
		Potassium		335 B	335 J	qualify	1, 2
		Selenium		0.90 U	0.90 U		
		Silver		0.18 U	0.18 U		
		Sodium	10.081	26.4 B	26.4 J	qualify	1
		Thallium		3.4 U	3.4 U		
		Vanadium		7.0 B	7.0 J	qualify	1
		Zinc	1.255	19.8	19.8 J	qualify	2
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : Glenwood SDG No.: 7001-2876A Method : SW-846
Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value.
No bias direction is inferred.
- 2 The reported positive value for this analyte was qualified 'J', because the associated Serial Dilution standard precision exceeded 10.0%D, while the sample concentration was above 10x analyte IDL.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 7001-2876A

- A. **CALIBRATION**
 ICP Analytes
- | | | <u>Outliers ?</u> |
|-----|---------------------|-------------------|
| ICV | 90% - 110% recovery | none |
| CCV | 90% - 110% recovery | none |
- B. **CRDL STANDARD**
- | | <u>Outliers ?</u> |
|--------------------|--------------------------------|
| 80 - 120% recovery | TI CRI 1 & 2, 120.2, %, 125.4% |
- QA Action : Qualify 'J' positive TI values up to nominal 8.0 mg/Kg, with positive bias suggested.
 Affects : All SDG samples.
- C. **BLANKS**
- | | <u>Outliers ?</u> |
|-------------------|-------------------|
| ICB / CCB < CRDL | none |
| Prep Blank < CRDL | none |
- D. **INTERELEMENT CORRECTION (ICSA / ICSAB)**
- | | <u>Outliers ?</u> |
|--|-------------------|
| ICSA Response < 2x CRDL for trace metals | none |
| ICSAB 80 - 120% recovery | none |
- E. **MATRIX SPIKE**
- Outliers ?
- 75 - 125% recovery (if sample conc. < 4x spike conc.)
 Note: no matrix spike was reported for this SDG; therefore, no assessment may be made of potential sample matrix effects.
- F. **POST-DIGESTION SPIKE**
- 75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.
 Note: no matrix spike was reported for this SDG; therefore, no assessment may be made of potential sample matrix effects. No post-digestion spike was reported.
- G. **MATRIX DUPLICATE**
- Outliers ?
- Max. 100% RPD for non-aqueous samples > 5x CRDL
 Max. (+/-) CRDL value if either sample < 5x CRDL n/a
 Note: no matrix duplicate was reported for this SDG; therefore, no assessment may be made of potential sample matrix effects.
- H. **LABORATORY CONTROL SAMPLE**
- | | <u>Outliers ?</u> |
|--|-------------------|
| Recovery within control limits for non-aqueous samples | none |
| Recovery between 80 - 120% for aqueous samples | n/a |
- I. **SERIAL DILUTION SAMPLE**
- | | <u>Outliers ?</u> |
|---|-------------------------|
| Maximum 10.0% D if undiluted sample > 10x IDL | K (15.2%)
Zn (14.2%) |
- QA Action : Qualify 'J' positive K & Zn values > 10x IDL; negative bias suggested
 Affects : All SDG samples
- J. **VERIFICATION OF INSTRUMENTAL PARAMETERS**
- | | <u>Frequency</u> | <u>Outliers ?</u> |
|---------------------------------|------------------|-------------------|
| Instrument Detection Limits | Quarterly | none |
| Interelement Correction Factors | Annually | none |
| Linear Range Analysis | Quarterly | none |

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 7001-2876A

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ?

YesIf No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ?

YesIf No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ?

YesIf No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ?

Yes

If No, list affected analytes and samples, and QA action : _____

Note: % solids values below were taken from the raw data, and are within a reasonable error band.

5. Show calculation for % Solids for one sample.

Sample ID: GLA8-2ELab value : 94.2 %Dry weight : 8.53 gm% Solids = Dry weight x 100Wet weight : 9.12 gm

Wet weight

= 93.5 %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLA8-2EAnalyte : PbLab value : 63.4 mg/Kg% Solids : 93.5

Note: Pb analyzed at 50x dilution

Raw value 0.3314 mg/LFinal volume 200 mLWet weight 1.1100 gmmg/Kg dry weight = mg/L x FV (ml)

wet wgt x (%Sol/100) =

63.8

mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ?

n/aIf No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 31, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 200230

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA7-6A	200230-1	SOIL	12/12/01	X	X	X
GLA7-4A	200230-2	SOIL	12/12/01	X	X	X
GLA7-5A	200230-3	SOIL	12/12/01	X	X	X
GLA7-5SA	200230-4	SOIL	12/12/01	X	X	X
GLA7-7SA	200230-5	SOIL	12/12/01	X	X	X
GLA2-11A	200230-6	SOIL	12/12/01	X	X	X
GLA2-11SA	200230-7	SOIL	12/12/01	X	X	X
GLA2-2A	200230-8	SOIL	12/12/01	X	X	X
GLA2-6A	200230-9	SOIL	12/12/01	X	X	X
GLA2-10A	200230-10	SOIL	12/12/01	X	X	X
GLA2-10AD	200230-11	SOIL	12/12/01	X	X	X
GLA2-1A	200230-12	SOIL	12/12/01	X	X	X
GLA2-10B	200230-13	SOIL	12/12/01	X	X	X
GLA2-6B	200230-14	SOIL	12/12/01	X	X	X
GLA1-6SA	200230-15	SOIL	12/12/01	X	X	X
GLA1-6SB	200230-16	SOIL	12/12/01	X	X	X
GLA2-TPLT	200230-17	SOIL	12/13/01	X		X
GLA2-TPDK	200230-18	SOIL	12/13/01	X		X
GLA3-2	200230-19	SOIL	12/14/01	X	X	X
GLA3-3	200230-20	SOIL	12/14/01	X	X	X

Sample Collection and Receipt

It is noted that the samples collected on 12/13 and 12/14/01 were received at STL-CT at 10 degrees C; the laboratory narrative indicates that the client was contacted and authorized the lab to proceed with sample analysis. The method-prescribed sample preservation temperature is 4 degrees C; EPA Region II validation guidelines call for qualification above 10 C; no data qualifiers were applied.

No PCB (Aroclor) results were submitted for samples GLA2-TPLT and GLA2-TPDK; the sample log indicated that one sample had been received in a broken jar, but there was no mention of this in the laboratory narrative. The Prep and Injection Logs indicated that both samples had been extracted and analyzed, but no Form 1s or chromatograms were present. Also, a handwritten note in the logs next to these two samples read 'ZZZZZ per client, 12/19'; the reviewer's assumption is that analysis was canceled by client.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

Aroclor samples were sub-contracted to two other STL labs for analysis; 01-16 were sent to STL Buffalo, NY, and 17 - 20 sent to STL Colchester, VT. The calibration acceptance evaluation procedure employed by the Buffalo, NY laboratory is incorrect for all continuing calibrations reviewed, relative to %D acceptability for Aroclor compounds. The laboratory is using a response-factor summation of each individual peak response from the Initial Calibration, and comparing that summed value to a summation of the individual Continuing Calibration peak responses, to determine a %D value for each Aroclor compound. In effect, this mathematical manipulation amounts to a "smoothing" process in which individual peak response variations, unless all in the same direction, tend to cancel each other out.

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

Mr. Matthew Wawrowski / VHB

October 31, 2002

Page 3 of 3

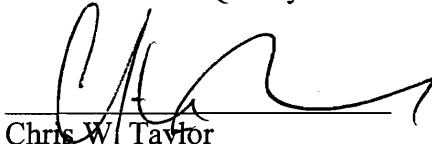
For Aroclor standards, which are in a clean matrix, and should not normally degrade, there should be minimal change in peak response, unless chromatographic parameters (detector sensitivity, column breakdown, retention time shifts) are changing. In each calibration verification reviewed, at least one individual Aroclor peak, on at least one of the analytical columns, exhibited a %D value above 15.0%, which is the maximum value allowed by the method; however for each of these compounds, in all CCVs except one, the laboratory's procedure yielded an acceptable reported %D value for the Aroclor. SW-846, Method 8082, Sect. 7.6.2.1 states : "The calibration factor for each analyte calculated from the calibration verification standard (CFv) must not exceed a difference of more than ± 15 percent when compared to the mean calibration factor from the initial calibration curve.

Lest the potential ambiguity of the word 'analyte' in the above section be misinterpreted to mean the group of all peaks taken to quantitate each Aroclor compound, Method 8082, Sect. 7.6.2.3 should clarify the intent of the above section, as follows : "If this criterion is exceeded for *any calibration factor or response factor (emphasis added)*, inspect the gas chromatographic system to determine the cause and perform whatever maintenance is necessary before verifying calibration and proceeding with sample analysis." To further clarify this issue, the reviewer placed a call to EPA's SW-846 method information services, requesting agency interpretation of the CCV requirements. The staffer confirmed that the method did indeed intend a 15% D criterion for each Aroclor peak, and further noted that any potential ambiguities in wording would be addressed by the updated Method 8000 (currently in committee review) which will specifically disallow averaging of peak areas to determine CCV %D compliance.

Because the lab has incorrectly performed the calibration verification procedure as defined above, and all reported calibration verification events have at least one Aroclor peak on at least one analytical column above the 15.0% D limit, the reviewer has qualified all reported Aroclor compound results as quantitatively estimated values, either 'UJ' or 'J'.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.



Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-200230

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 200230METHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hanzen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA7-6A	bis(2-Ethylhexyl)phthalate	102 J	290 JB	340 U	negate	2
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	6
		Benzyl alcohol		340 U	340 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		340 U	340 UJ	qualify	4
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	4
		Benzo(g,h,i)perylene		340 U	340 UJ	qualify	4
	GLA7-4A	bis(2-Ethylhexyl)phthalate	102 J	240 JB	360 U	negate	2
		2,4-Dinitrophenol		1700 U	1700 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	6
		Benzyl alcohol		360 U	360 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		360 U	360 UJ	qualify	4
		Dibenzo(a,h)anthracene		360 U	360 UJ	qualify	4
		Benzo(g,h,i)perylene		360 U	360 UJ	qualify	4
	GLA7-5A	bis(2-Ethylhexyl)phthalate	102 J	160 JB	340 U	negate	2
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	6
		Benzyl alcohol		340 U	340 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		340 U	340 UJ	qualify	4
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	4
		Benzo(g,h,i)perylene		340 U	340 UJ	qualify	4
	GLA7-5SA	Pyrene		25 J	25 J	qualify	1
		bis(2-Ethylhexyl)phthalate	102 J	210 JB	360 U	negate	2
		2,4-Dinitrophenol		1700 U	1700 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	6
		Benzyl alcohol		360 U	360 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		360 U	360 UJ	qualify	4
		Dibenzo(a,h)anthracene		360 U	360 UJ	qualify	4
		Benzo(g,h,i)perylene		360 U	360 UJ	qualify	4
	GLA7-7SA	Pyrene		34 J	34 J	qualify	1
		bis(2-Ethylhexyl)phthalate	102 J	240 JB	360 U	negate	2
		Benzo(a)pyrene		22 J	22 J	qualify	1
		Benzo(g,h,i)perylene		21 J	21 J	qualify	1, 3, 4
		2,4-Dinitrophenol		1800 U	1800 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1800 U	1800 UJ	qualify	6
		Benzyl alcohol		360 U	360 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		360 U	360 UJ	qualify	4
		Dibenzo(a,h)anthracene		360 U	360 UJ	qualify	4
	GLA2-11A	Fluoranthene		28 J	28 J	qualify	1
		Pyrene		37 J	37 J	qualify	1
		Benzo(a)anthracene		19 J	19 J	qualify	1
		Chrysene		24 J	24 J	qualify	1
		bis(2-ethylhexyl)phthalate	102 J	220 JB	340 U	negate	2
		Benzo(a)pyrene		18 J	18 J	qualify	1
		2,4-Dinitrophenol		1700 U	1700 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	6
		Benzyl alcohol		340 U	340 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		340 U	340 UJ	qualify	4
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	4
		Benzo(g,h,i)perylene		340 U	340 UJ	qualify	4

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 200230METHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA2-11SA	2-Methylnaphthalene		37 J	37 J	qualify	1
		Phenanthrene		50 J	50 J	qualify	1
		Anthracene		14 J	14 J	qualify	1
		Fluoranthene		79 J	79 J	qualify	1
		Pyrene		120 J	120 J	qualify	1
		Benzo(a)anthracene		51 J	51 J	qualify	1
		Chrysene		81 J	81 J	qualify	1
		bis(2-ethylhexyl)phthalate	102 J	240 JB	390 U	negate	2
		Benzo(b)fluoranthene		55 J	55 J	qualify	1
		Benzo(k)fluoranthene		69 J	69 J	qualify	1
		Benzo(a)pyrene		67 J	67 J	qualify	1
		Indeno(1,2,3-cd)pyrene		50 J	50 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		390 U	390 UJ	qualify	4
		Benzo(g,h,i)perylene		62 J	62 J	qualify	1, 3, 4
		2,4-Dinitrophenol		1900 U	1900 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1900 U	1900 UJ	qualify	6
		Benzyl alcohol		390 U	390 UJ	qualify	4
	GLA2-2A	bis(2-ethylhexyl)phthalate	102 J	250 JB	430 U	negate	2
		2,4-Dinitrophenol		2100 U	2100 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		2100 U	2100 UJ	qualify	6
		Benzyl alcohol		430 U	430 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		430 U	430 UJ	qualify	4
		Dibenzo(a,h)anthracene		430 U	430 UJ	qualify	4
		Benzo(g,h,i)perylene		430 U	430 UJ	qualify	4
	GLA2-6A	bis(2-ethylhexyl)phthalate	102 J	200 JB	350 U	negate	2
		2,4-Dinitrophenol		1700 U	1700 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	6
		Benzyl alcohol		350 U	350 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		350 U	350 UJ	qualify	4
		Dibenzo(a,h)anthracene		350 U	350 UJ	qualify	4
		Benzo(g,h,i)perylene		350 U	350 UJ	qualify	4
	GLA2-10A	bis(2-ethylhexyl)phthalate	102 J	230 JB	340 UJ	negate	2
		2,4-Dinitrophenol		1700 U	1700 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	6
		Benzyl alcohol		340 U	340 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		25 J	25 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	4
		Benzo(g,h,i)perylene		44 J	44 J	qualify	1, 3, 4
	GLA2-10AD	bis(2-ethylhexyl)phthalate	102 J	260 JB	340 U	negate	2
		2,4-Dinitrophenol		1700 U	1700 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	6
		Benzyl alcohol		340 U	340 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		43 J	43 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	4
		Benzo(g,h,i)perylene		62 J	62 J	qualify	1, 3, 4
	GLA2-1A	Naphthalene		210 J	210 J	qualify	1
		2-Methylnaphthalene		210 J	210 J	qualify	1
		Acenaphthylene		640	640		
		Acenaphthene		60 J	60 J	qualify	1
		Fluorene		340 J	340 J	qualify	1

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 200230METHOD: SW846 / 8270CLAB NAME : Severn Trent - NYCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA2-1A	Phenanthrene		3200	3200		
	(cont'd.)	Anthracene		740	740		
		Fluoranthene		1600	1600		
		Pyrene		3200	3200		
		Benzo(a)anthracene		830	830		
		Chrysene		1000	1000		
		bis(2-ethylhexyl)phthalate	102 J	200 JB	410 U	negate	2
		Di-n-octylphthalate		410 U	410 UJ	qualify	5
		Benzo(b)fluoranthene		700	700 J	qualify	5
		Benzo(k)fluoranthene		430	430 J	qualify	5
		Benzo(a)pyrene		560	560 J	qualify	5
		Indeno(1,2,3-cd)pyrene		89 J	89 J	qualify	1, 3, 4, 5
		Dibenzo(a,h)anthracene		410 U	410 UJ	qualify	4, 5
		Benzo(g,h,i)perylene		130 J	130 J	qualify	1, 3, 4, 5
		2,4-Dinitrophenol		2000 U	2000 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		2000 U	2000 UJ	qualify	6
		Benzyl alcohol		410 U	410 UJ	qualify	4
	GLA2-10B	bis(2-ethylhexyl)phthalate	102 J	390 B	390 U	negate	2
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	6
		Benzyl alcohol		340 U	340 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		340 U	340 UJ	qualify	4
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	4
		Benzo(g,h,i)perylene		340 U	340 UJ	qualify	4
	GLA2-6B	2,4-Dinitrophenol		1700 U	1700 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	6
		Benzyl alcohol		340 U	340 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		340 U	340 UJ	qualify	4
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	4
		Benzo(g,h,i)perylene		340 U	340 UJ	qualify	4
	GLA1-6SA	Phenanthrene		81 J	81 J	qualify	1
		Anthracene		19 J	19 J	qualify	1
		Fluoranthene		95 J	95 J	qualify	1
		Pyrene		120 J	120 J	qualify	1
		Benzo(a)anthracene		51 J	51 J	qualify	1
		Chrysene		72 J	72 J	qualify	1
		Benzo(k)fluoranthene		49 J	49 J	qualify	1
		Benzo(a)pyrene		51 J	51 J	qualify	1
		Indeno(1,2,3-cd)pyrene		37 J	37 J	qualify	1, 3, 4
		Dibenzo(a,h)anthracene		370 U	370 UJ	qualify	4
		Benzo(g,h,i)perylene		42 J	42 J	qualify	1, 3, 4
		2,4-Dinitrophenol		1800 U	1800 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1800 U	1800 UJ	qualify	6
		Benzyl alcohol		370 U	370 U	qualify	4
	GLA1-6SB	Acenaphthylene		61 J	61 J	qualify	1, 7
		Phenanthrene		110 J	110 J	qualify	1, 7
		Anthracene		49 J	49 J	qualify	1, 7
		Fluoranthene		250 J	250 J	qualify	1, 7
		Pyrene		320 J	320 J	qualify	1, 7
		Benzo(a)anthracene		160 J	160 J	qualify	1, 7
		Chrysene		210 J	210 J	qualify	1, 7

CYS
10/30/07

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 200230METHOD: SW846 / 8270CLAB NAME : Severn Trent - NYCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA1-6SB	Benzo(b)fluoranthene		150 J	150 J	qualify	1, 7
	(cont'd.)	Benzo(k)fluoranthene		170 J	170 J	qualify	1, 7
		Benzo(a)pyrene		180 J	180 J	qualify	1, 7
		Indeno(1,2,3-cd)pyrene		150 J	150 J	qualify	1, 4, 7
		Dibenzo(a,h)anthracene		53 J	53 J	qualify	1, 4, 7
		Benzo(g,h,i)perylene		190 J	190 J	qualify	1, 3, 4, 7
		2,4-Dinitrophenol		1900 U	1900 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1900 U	1900 UJ	qualify	6
		ALL OTHER REPORTED COMPOUNDS		U	UJ	qualify	7
	GLA2-TPLT	1,3-Dichlorobenzene		330 U	330 UJ	qualify	6
		Hexachloroethane		330 U	330 UJ	qualify	6
	GLA2-TPDK	1,3-Dichlorobenzene		340 U	340 UJ	qualify	6
		Hexachloroethane		340 U	340 UJ	qualify	6
	GLA3-2	1,3-Dichlorobenzene		340 U	340 UJ	qualify	6
		Hexachloroethane		340 U	340 UJ	qualify	6
	GLA3-3	1,3-Dichlorobenzene		330 U	330 UJ	qualify	6
		Hexachloroethane		330 U	330 UJ	qualify	6

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported result for this compound is negated, with 'U' qualifier applied at the compound's PQL, because the reported value is below 10x the concentration of this compound in the associated method Blank, OR, the compound is a common laboratory contaminant.
- The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.
- The reported result for this compound is qualified 'UJ', or 'J', because recovery of the associated Internal Standard (IS) compound was below 50% of the response for that IS in the corresponding Continuing Calibration standard.
- The reported positive value for this compound is qualified 'J', or the reported non-detect value 'UJ', because the associated Laboratory Control Sample (Blank Spike) recoveries for this compound were below the acceptable limit. Negative bias for positive values, or potential false-negatives for non-detects, are suggested.
- This sample has a somewhat complex analytical history. The original extraction on 12/13/01 was lost; it was then re-extracted on 12/14/01, but was "double-spiked" with surrogates, according to the laboratory. Analysis of this extract was performed outside the 12-hour maximum tune window. The sample was then re-extracted (due to surrogate double-spike) outside holding time on 12/21/01, and this extract was analyzed on 12/28/01. Since this extraction was performed outside hold-time, the original (12/14/01) extract was again analyzed (this time within 12-hr. tune) on 01/03/02. The results from the re-extraction analysis are generally higher than the results from the holding-time compliant extract analysis, but these results would be qualified due to holding time exceedance. The second analysis from the compliant extraction would be qualified due to surrogate recoveries. The data reviewer has chosen to report the original extract analysis results, qualified 'J', as quantitatively estimated values. If any of the reported results are within range of site action limits, the reviewer recommends sample re-collection and re-analysis.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.:

200230

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
 All samples were extracted and analyzed within allowable holding times.

Note: Samples 17 - 20 were received at 10 degrees C ; although no data qualifiers were applied, the data user is alerted to the potential for negative bias in samples maintained above the recommended range of 2 to 6 degrees C.

B. METHOD BLANKS

<u>Samples</u>	<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
01 - 15	12/13/01	1625-2MB	R2948	soil	bis(2eh)phthalate	102 J
16	12/14/01	2016-1MB	Q4435	soil	none	
17 - 20	12/17/01	1688-2MB	R2996	soil	none	

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
 If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
 If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
GLA2-TPLT	2-fluorophenol	high	Qualify positive phenols
GLA2-TPDK	2-fluorophenol	high	Qualify positive phenols
GLA3-3	2-fluorophenol	high	Qualify positive phenols
GLA7-6A	2-fluorophenol	high	Qualify positive phenols
GLA7-5A	2-fluorophenol	high	Qualify positive phenols
GLA2-6A	2-fluorophenol	high	Qualify positive phenols
GLA2-10A	2-fluorophenol	high	Qualify positive phenols
GLA2-10AD	2-fluorophenol	high	Qualify positive phenols
GLA1-6SB	All except	high	Qualify all positives
	2,4,6-TBP & 2-FBP		

D. MATRIX SPIKE / DUPLICATE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made. It seems that the laboratory should have selected at least one sample from 20 to prepare and analyze an MS/MSD pair.			

E. BLANK SPIKE

<u>Samples</u>	<u>BlankSpike ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
01 - 15	LCS-1542	2,4-dinitrophenol	low	Qualify in associated samples
		4,6-dinitro-2-methylphenol	low	Qualify in associated samples
17 - 20	LCS-1541	1,3-dichlorobenzene	low	Qualify in associated samples
		hexachloroethane	low	Qualify in associated samples
16	LCS-1620	2,4-dinitrophenol	low	Qualify in associated samples
		4,6-dinitro-2-methylphenol	low	Qualify in associated samples

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
GLA2-1A	perylene-d12	low	Qualify all compounds quantitated from perylene-d12

Note: lab stated re-analysis confirmed matrix effects

H. SAMPLE RESULT VERIFICATION

<u>Sample ID</u>	<u>Compound</u>	<u>Internal Standard</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>
GLA2-11SA	pyrene	chrysene-d12	120 J	120.2
	Ax	Is	Vt	GPC
	127555	40.0	500	1.0
	Ais	RRF	Vi	Ws
	641921	1.288	2.0	15.0
				0.856

Conc., ug/Kg =

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 200230

A. GC/MS PERFORMANCE CHECK (DFTPP TUNE)

Date	m/z abundance	< 12-hrs.	Comments
12/17/01	OK	yes	The Form 5 tune summaries for all analytical sequences list incorrect m/z ratio windows for m/z 51, 127, 365 and 443. These windows are incorrect in both the summary forms and raw data. Although the actual ratios were within the acceptable ranges for 8270, the lab should take steps to implement the correct ranges in their software.
12/17/01	OK	yes	
12/19/01	OK	yes	
12/19/01	OK	yes	
12/26/01	OK	yes	
01/03/02	OK	yes	

B. INITIAL CALIBRATION

CALIBRATION DATE :	12/17/01	12/19/01	12/26/01
FILE IDs :	R2941 - 2945	R2989 - 2993	QT4368 - 4372
ALL RRFs > 0.05 ?	Yes	Yes	Yes
SPCC RRFs > 0.05 ?	Yes	Yes	Yes
CCC %RSDs < 30% ?	Yes	Yes	Yes
All Targets < 15% RSD?	NO	NO	NO
(If No, list compounds)	benzoic acid	benzyl alcohol	benzoic acid
SPCC Compounds	hexachlorocyclopentadiene	benzoic acid	hexachlorocyclopentadiene
N-Nitroso-di-n-propylamine	2,4-dinitrophenol	hexachlorocyclopentadiene	2,4-dinitrophenol
Hexachlorocyclopentadiene	indeno(123cd)pyrene	2,4-dinitrophenol	benzo(ghi)perylene
2,4-Dinitrophenol	dibenzo(ah)anthracene	4-nitrophenol	
4-Nitrophenol	benzo(ghi)perylene	butylbenzylphthalate	
MINIMUM RRF = 0.050		3,3'-dichlorobenzidine	
CCC Compounds		indeno(123cd)pyrene	
Base/Neutrals		dibenzo(ah)anthracene	
Acenaphthene		benzo(ghi)perylene	
1,4-Dichlorobenzene			
Hexachlorobutadiene			
Diphenylamine			
Di-n-octylphthalate			
Fluoranthene			
Benzo(a)pyrene			
Acids			
4-Chloro-3-methylphenol			
2,4-Dichlorophenol			
2-Nitrophenol			
Phenol			
Pentachlorophenol			
2,4,6-Trichlorophenol			
MAXIMUM %RSD = 30.0%			
MAXIMUM %D = 20.0%			

ACTION: Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

C. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/17/01	12/19/01	01/03/02
FILE ID :	R2947	R2995	Q4434
ALL RRFs > 0.05 ?	Yes	Yes	Yes
SPCC RRFs > 0.05 ?	Yes	Yes	Yes
CCC %Ds < 20% ?	Yes	Yes	Yes
All Targets < 20%D?	NO	Yes	NO
(If No, list compounds)	benzyl alcohol		indeno(123cd)pyrene
	indeno(123cd)pyrene		dibenzo(ah)anthracene
	dibenzo(ah)anthracene		benzo(ghi)perylene
	benzo(ghi)perylene		

ACTION: Qualify 'J' or 'JJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 200230METHOD: SW846 / 8082LAB NAME : STL - Buffalo, NY & STL - VTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA7-6A	Aroclor 1016		18 U	18 UJ	qualify	1
		Aroclor 1221		18 U	18 UJ	qualify	1
		Aroclor 1232		18 U	18 UJ	qualify	1
		Aroclor 1242		18 U	18 UJ	qualify	1
		Aroclor 1248		18 U	18 UJ	qualify	1
		Aroclor 1254		18 U	18 UJ	qualify	1
		Aroclor 1260		18 U	18 UJ	qualify	1
	GLA7-4A	Aroclor 1016		18 U	18 UJ	qualify	1
		Aroclor 1221		18 U	18 UJ	qualify	1
		Aroclor 1232		18 U	18 UJ	qualify	1
		Aroclor 1242		18 U	18 UJ	qualify	1
		Aroclor 1248		18 U	18 UJ	qualify	1
		Aroclor 1254		18 U	18 UJ	qualify	1
		Aroclor 1260		18 U	18 UJ	qualify	1
	GLA7-5A	Aroclor 1016		18 U	18 UJ	qualify	1
		Aroclor 1221		18 U	18 UJ	qualify	1
		Aroclor 1232		18 U	18 UJ	qualify	1
		Aroclor 1242		18 U	18 UJ	qualify	1
		Aroclor 1248		18 U	18 UJ	qualify	1
		Aroclor 1254		18 U	18 UJ	qualify	1
		Aroclor 1260		18 U	18 UJ	qualify	1
	GLA7-5SA	Aroclor 1016		18 U	18 UJ	qualify	1
		Aroclor 1221		18 U	18 UJ	qualify	1
		Aroclor 1232		18 U	18 UJ	qualify	1
		Aroclor 1242		18 U	18 UJ	qualify	1
		Aroclor 1248		18 U	18 UJ	qualify	1
		Aroclor 1254		18 U	18 UJ	qualify	1
		Aroclor 1260		18 U	18 UJ	qualify	1
	GLA7-7SA	Aroclor 1016		19 U	19 UJ	qualify	1
		Aroclor 1221		19 U	19 UJ	qualify	1
		Aroclor 1232		19 U	19 UJ	qualify	1
		Aroclor 1242		19 U	19 UJ	qualify	1
		Aroclor 1248		19 U	19 UJ	qualify	1
		Aroclor 1254		19 U	19 UJ	qualify	1
		Aroclor 1260		19 U	19 UJ	qualify	1
	GLA2-11A	Aroclor 1016		17 U	17 UJ	qualify	1
		Aroclor 1221		17 U	17 UJ	qualify	1
		Aroclor 1232		17 U	17 UJ	qualify	1
		Aroclor 1242		17 U	17 UJ	qualify	1
		Aroclor 1248		17 U	17 UJ	qualify	1
		Aroclor 1254		17 U	17 UJ	qualify	1
		Aroclor 1260		17 U	17 UJ	qualify	1
	GLA2-11SA	Aroclor 1016		20 U	20 UJ	qualify	1
		Aroclor 1221		20 U	20 UJ	qualify	1
		Aroclor 1232		20 U	20 UJ	qualify	1
		Aroclor 1242		20 U	20 UJ	qualify	1
		Aroclor 1248		20 U	20 UJ	qualify	1
		Aroclor 1254		20 U	20 UJ	qualify	1
		Aroclor 1260		82	82 NJ	qualify	1, 2

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 200230METHOD: SW846 / 8082LAB NAME : STL - Buffalo, NY & STL - VTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC. ug/Kg	LAB REPORTED CONC. ug/Kg	QA REPORTED CONC. ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA2-2A	Aroclor 1016		22 U	22 UJ	qualify	1
		Aroclor 1221		22 U	22 UJ	qualify	1
		Aroclor 1232		22 U	22 UJ	qualify	1
		Aroclor 1242		22 U	22 UJ	qualify	1
		Aroclor 1248		22 U	320 J	qualify	1, 3
		Aroclor 1254		320	22 UJ	qualify	1, 3
		Aroclor 1260		22 U	22 UJ	qualify	1
	GLA2-6A	Aroclor 1016		18 U	18 UJ	qualify	1
		Aroclor 1221		18 U	18 UJ	qualify	1
		Aroclor 1232		18 U	18 UJ	qualify	1
		Aroclor 1242		18 U	18 UJ	qualify	1
		Aroclor 1248		18 U	18 UJ	qualify	1
		Aroclor 1254		18 U	18 UJ	qualify	1
		Aroclor 1260		18 U	18 UJ	qualify	1
	GLA2-10A	Aroclor 1016		17 U	17 UJ	qualify	1
		Aroclor 1221		17 U	17 UJ	qualify	1
		Aroclor 1232		17 U	17 UJ	qualify	1
		Aroclor 1242		17 U	17 UJ	qualify	1
		Aroclor 1248		340	340 J	qualify	1
		Aroclor 1254		17 U	17 UJ	qualify	1
		Aroclor 1260		17 U	17 UJ	qualify	1
	GLA2-10AD	Aroclor 1016		18 U	18 UJ	qualify	1
		Aroclor 1221		18 U	18 UJ	qualify	1
		Aroclor 1232		18 U	18 UJ	qualify	1
		Aroclor 1242		18 U	18 UJ	qualify	1
		Aroclor 1248		470	470 J	qualify	1
		Aroclor 1254		18 U	18 UJ	qualify	1
		Aroclor 1260		18 U	18 UJ	qualify	1
	GLA2-1A (@ 50x dilution)	Aroclor 1016		1000 U	1000 UJ	qualify	1
		Aroclor 1221		1000 U	1000 UJ	qualify	1
		Aroclor 1232		1000 U	1000 UJ	qualify	1
		Aroclor 1242		12000	12500 J	qualify	1, 4
		Aroclor 1248		1000 U	1000 UJ	qualify	1
		Aroclor 1254		1000 U	1000 UJ	qualify	1
		Aroclor 1260		1000 U	1000 UJ	qualify	1
	GLA2-10B	Aroclor 1016		18 U	18 UJ	qualify	1
		Aroclor 1221		18 U	18 UJ	qualify	1
		Aroclor 1232		18 U	18 UJ	qualify	1
		Aroclor 1242		18 U	18 UJ	qualify	1
		Aroclor 1248		18 U	18 UJ	qualify	1
		Aroclor 1254		18 U	18 UJ	qualify	1
		Aroclor 1260		18 U	18 UJ	qualify	1
	GLA2-6B	Aroclor 1016		18 U	18 UJ	qualify	1
		Aroclor 1221		18 U	18 UJ	qualify	1
		Aroclor 1232		18 U	18 UJ	qualify	1
		Aroclor 1242		18 U	18 UJ	qualify	1
		Aroclor 1248		18 U	18 UJ	qualify	1
		Aroclor 1254		18 U	18 UJ	qualify	1
		Aroclor 1260		18 U	18 UJ	qualify	1

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 200230METHOD: SW846 / 8082LAB NAME : STL - Buffalo, NY & STL - VTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA1-6SA	Aroclor 1016		19 U	19 UJ	qualify	1
		Aroclor 1221		19 U	19 UJ	qualify	1
		Aroclor 1232		19 U	19 UJ	qualify	1
		Aroclor 1242		19 U	19 UJ	qualify	1
		Aroclor 1248		19 U	19 UJ	qualify	1
		Aroclor 1254		19 U	19 UJ	qualify	1
		Aroclor 1260		46	46 J	qualify	1, 5
	GLA1-6SB	Aroclor 1016		20 U	20 UJ	qualify	1
		Aroclor 1221		20 U	20 UJ	qualify	1
		Aroclor 1232		20 U	20 UJ	qualify	1
		Aroclor 1242		20 U	20 UJ	qualify	1
		Aroclor 1248		20 U	20 UJ	qualify	1
		Aroclor 1254		20 U	20 UJ	qualify	1
		Aroclor 1260		36	36 JN	qualify	1, 6
	GLA3-2	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA3-3	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA2-TPLT	RESULTS FOR THIS SAMPLE NOT REPORTED					
	GLA2-TPDK	RESULTS FOR THIS SAMPLE NOT REPORTED					

FOOTNOTES

- The reported result for this compound is qualified 'UJ', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 15.0%. The data user is directed to comments in the data validation narrative regarding laboratory calibration acceptance calculation procedures.
- The reported concentration is qualified 'NJ', as presumptively present at a quantitatively estimated concentration, because the %D between analytical columns exceeded 70%, but was below 100%. This qualifier is taken from Sect. 12.6 of the USEPA Region II SOP HW-23B, Rev.1.
- The laboratory incorrectly reported the Aroclor present in this sample as 1254. The correct identification is Aroclor 1248; concentration is correct.
- The laboratory incorrectly reported the concentration of Aroclor 1242 in this sample as 12000; the correct concentration is 12,500 ug/Kg.
- The reported concentration is qualified 'J', as a quantitatively estimated concentration, because the %D between analytical columns exceeded 25%, but was below 70%. This qualifier is taken from Sect. 12.6 of the USEPA Region II SOP HW-23B, Rev.1.
- The reported concentration is qualified 'JN', as presumptively present at a quantitatively estimated concentration, because the %D between analytical columns exceeded 100%. A pattern match was evident, with some interference and possible "weathering" of peaks. This qualifier is taken from Sect. 12.6 of the USEPA Region II SOP HW-23B, Rev.1.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory
Project No.: 200230

Laboratory: STL - VT, STL-Buffalo, NY

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP : 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

Note: No results were reported for samples GLA2-TPLT and GLA2-TPDK.

B. METHOD BLANKS

Blank ID:	A1B1134502	Blank ID:	PBLKN9
Extraction Date:	12/14/01	Extraction Date:	12/16/01
Analyte	<u>Conc. ug/Kg</u>	Analyte	<u>Conc. ug/Kg</u>
none found		none found	
AFFECTS:	1 - 16	AFFECTS:	17 - 20

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Note: No matrix spike / duplicate were performed; only Blank Spikes / Duplicates were run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (LCS)

LCS and LCS duplicates were performed for each extraction batch; results were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 200230Laboratory: STL - Buffalo

Note: This Calibration Summary applies to samples 200230 01 - 16, analyzed by STL - Buffalo, NY. Samples 17 - 20 were analyzed by STL- Vermont; these samples are addressed on a separate calibration summary.

A. INITIAL CALIBRATIONSCALIBRATION DATE : 9/20/01 Verification of ICAL Results

Reviewer's Note : The laboratory used linear regression to generate a calibration line for the Aroclors, which is an allowable option under SW-846 protocols (see Method 8000B, pp. 20-21). All reported correlation coefficients were >0.99, which is the method criterion for acceptable curve fit.

12/18/01				Calc.
Aroclor 1260, Peak 1	<u>Conc.</u>	<u>Response</u>	<u>Lab R-squared</u>	<u>R-squared</u>
	0.05	29587	0.996285	0.9962845
	0.10	58100		
	0.50	240298		
	1.0	444268		
	2.0	796750		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/17/01	12/17/01
RUN TIME :	8:43	20:56
All Targets < 15% D?	NO	NO
(If No, list compounds) ==>	Aroclor 1016	Aroclor 1016
	Aroclor 1221	Aroclor 1254
	Aroclor 1232	Aroclor 1260
	Aroclor 1242	
	Aroclor 1248	
	Aroclor 1254	
	Aroclor 1260	

QA ACTION : Qualify all reported non-detect results 'UJ'; qualify all reported positive values 'J'.
See Comments in validation narrative re: method calibration acceptance criteria.

C. SAMPLE RESULT VERIFICATIONSAMPLE ID: GLA2-1ACOMPOUND: Aroclor-1242REPORTED VALUE: 12000 ug/Kg Primary column

	ng avg. conc.	extract, mL	Dilution factor
ug/Kg =	0.623	10000	50.0
	30.0	1.0	0.83
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 12502

Confirmation column

	ng avg. conc.	extract, mL	Dilution factor
ug/Kg =	0.555	10000	50.0
	30.0	1.0	0.83
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 11145

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc. Project: Glenwood Laboratory Project No.: 200242
Laboratory: STL - VT

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 12/14/01 Verification of ICAL Results

Reviewer's Note : The lab used linear regression to generate a calibration line for the Aroclors, which is an allowable option under SW-846 protocols (see Method 8000B, pp. 20-21). All reported correlation coefficients were >0.99, which is the method criterion for acceptable curve fit.

	<u>12/14/01</u>	(peak height)		Calc.
Aroclor 1260, Peak 4	<u>Conc.</u>	<u>Response</u>	<u>Lab R-squared</u>	<u>R-squared</u>
RTX-5, RT = 12.10 minutes	0.05	17328	0.99876	0.998757
	0.1	33271		
	0.2	67263		
	0.4	121948		
	0.8	256463		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/18/01	12/18/01	12/18/01	12/18/01
RUN TIME :	4:01	9:12	14:23	16:23
All Targets < 15% D?	Yes	Yes	Yes	Yes

(If No, list compounds) ==>

CALIBRATION DATE :	12/19/01	12/19/01	12/21/01	12/21/01
RUN TIME :	15:14	19:36	17:48	22:32
All Targets < 15% D?	Yes	Yes	Yes	Yes

(If No, list compounds) ==>

QA ACTION: None necessary

C. SAMPLE RESULT VERIFICATION

SAMPLE ID: N9LCS
COMPOUND: Aroclor-1260
REPORTED VALUE: 160 ug/Kg column = RTX-5

<u>Peak RT</u>	<u>m1</u>	<u>peak height</u>	<u>+ b</u>	<u>ppb</u>
10.94	0.00806	61644	-21.81666	475.034
11.07	0.01429	33888	-8.54287	475.717
11.52	0.0071	68298	-6.25889	478.657
12.09	0.00316	152298	-3.56582	477.696
12.81	0.01113	44651	-6.97958	489.986

conc., y = (m1*x) + b avg. ppb = 479.418

ug/Kg =	ppb avg. conc.	extract, mL	Dilution factor
	479.418	10	1.0
	30.0	1.0	1.0
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 159.8

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 200230 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-6A	Aluminum		1730	1730		
		Antimony		0.97 U	0.97 UJ	qualify	2
		Arsenic		1.1 B	1.1 J	qualify	1
		Barium		12.5	12.5		
		Beryllium		0.19 U	0.19 U		
		Cadmium		0.23 U	0.23 U		
		Calcium		466	466		
		Chromium		4.8	4.8		
		Cobalt		2.7	2.7		
		Copper		3.2 B	3.2 J	qualify	1
		Iron		5750	5750		
		Lead		5.1 B	5.1 J	qualify	1
		Magnesium		484	484		
		Manganese		155	155 J	qualify	3
		Mercury		0.005 U	0.005 U		
		Nickel		4.3	4.3		
		Potassium		291	291 J	qualify	6
		Selenium		1.3 U	1.3 UJ	qualify	4
		Silver		0.21 U	0.21 U		
		Sodium		22.0 B	22.0 J	qualify	1
		Thallium		1.8 U	1.8 U		
		Vanadium		5.8	5.8		
		Zinc		11.8 B	11.8 J	qualify	1
		Cyanide		Not analyzed			
	GLA7-4A	Aluminum		4330	4330		
		Antimony		0.98 U	0.98 UJ	qualify	2
		Arsenic		2.3 B	2.3 J	qualify	1
		Barium		17.3	17.3		
		Beryllium		0.23 B	0.23 J	qualify	1
		Cadmium		0.23 U	0.23 U		
		Calcium		625	625		
		Chromium		7.7	7.7		
		Cobalt		2.9	2.9		
		Copper		8.5	8.5		
		Iron		8430	8430		
		Lead		7.4 B	7.4 J	qualify	1
		Magnesium		868	868		
		Manganese		153	153 J	qualify	3
		Mercury		0.005 U	0.005 U		
		Nickel		7.3	7.3		
		Potassium		416	416 J	qualify	6
		Selenium		1.3 U	1.3 UJ	qualify	4
		Silver		0.21 U	0.21 U		
		Sodium		29.3 B	29.3 J	qualify	1
		Thallium		1.8 U	1.8 U		
		Vanadium		166	166		
		Zinc		66.7	66.7		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 200230 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-5A	Aluminum		4280	4280		
		Antimony		1.1 U	1.1 UJ	qualify	2
		Arsenic		2.1 B	2.1 J	qualify	1
		Barium		19.8	19.8		
		Beryllium		0.22 B	0.22 J	qualify	1
		Cadmium		0.26 U	0.26 U		
		Calcium		503	503		
		Chromium		9.6	9.6		
		Cobalt		3.9	3.9		
		Copper		6.7	6.7		
		Iron		11700	11700		
		Lead		4.8 B	4.8 J	qualify	1
		Magnesium		1100	1100		
		Manganese		191	191 J	qualify	3
		Mercury		0.005 U	0.005 U		
		Nickel		7.8	7.8		
		Potassium		517	517 J	qualify	6
		Selenium		1.5 U	1.5 UJ	qualify	4
		Silver		0.24 U	0.24 U		
		Sodium		30.2 B	30.2 J	qualify	1
		Thallium		2.0 U	2.0 U		
		Vanadium		11.8	11.8		
		Zinc		14.2 B	14.2 J	qualify	1
		Cyanide		Not analyzed			
	GLA7-5SA	Aluminum		3100	3100		
		Antimony		1.2 U	1.2 UJ	qualify	2
		Arsenic		2.8 B	2.8 J	qualify	1
		Barium		20.4	20.4		
		Beryllium		0.24 U	0.24 U		
		Cadmium		0.29 U	0.29 U		
		Calcium		2640	2640		
		Chromium		10.3	10.3		
		Cobalt		3.6	3.6		
		Copper		6.9	6.9		
		Iron		9830	9830		
		Lead		14.4	14.4		
		Magnesium		1730	1730		
		Manganese		166	166 J	qualify	3
		Mercury		0.005 U	0.005 U		
		Nickel		26.9	26.9		
		Potassium		521	521 J	qualify	6
		Selenium		1.7 U	1.7 UJ	qualify	4
		Silver		0.27 U	0.27 U		
		Sodium		37.5 B	37.5 J	qualify	1
		Thallium		2.3 U	2.3 U		
		Vanadium		32.8	32.8		
		Zinc		21.3	21.3		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 200230 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-7SA	Aluminum		7240	7240		
		Antimony		0.97 U	0.97 UJ	qualify	2
		Arsenic		1.9 B	1.9 J	qualify	1
		Barium		21.4	21.4		
		Beryllium		0.22 B	0.22 J	qualify	1
		Cadmium		0.23 U	0.23 U		
		Calcium		4790	4790		
		Chromium		6.7	6.7		
		Cobalt		6.2	6.2		
		Copper		75.9	75.9		
		Iron		17800	17800		
		Lead		13.6	13.6		
		Magnesium		2350	2350		
		Manganese		207	207 J	qualify	3
		Mercury		0.006 U	0.006 U		
		Nickel		8.5	8.5		
		Potassium		833	833 J	qualify	6
		Selenium		1.3 U	1.3 UJ	qualify	4
		Silver		0.21 U	0.21 U		
		Sodium		527	527		
		Thallium		1.8 U	1.8 U		
		Vanadium		36.7	36.7		
		Zinc		36.1	36.1		
		Cyanide		Not analyzed			
	GLA2-11A	Aluminum		3630	3630		
		Antimony		0.98 U	0.98 UJ	qualify	2
		Arsenic		4.4 B	4.4 J	qualify	1
		Barium		19.0	19.0		
		Beryllium		0.28 B	0.28 J	qualify	1
		Cadmium		0.24 U	0.24 U		
		Calcium		422	422		
		Chromium		10.6	10.6		
		Cobalt		2.3	2.3		
		Copper		19.3	19.3		
		Iron		10200	10200		
		Lead		24.2	24.2		
		Magnesium		717	717		
		Manganese		191	191 J	qualify	3
		Mercury		0.045 B	0.045 J	qualify	1
		Nickel		7.2	7.2		
		Potassium		324	324 J	qualify	6
		Selenium		1.3 U	1.3 UJ	qualify	4
		Silver		0.22 U	0.22 U		
		Sodium		24.4 B	24.4 J	qualify	1
		Thallium		1.9 U	1.9 U		
		Vanadium		10.8	10.8		
		Zinc		23.3	23.3		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : Glenwood SDG No.: 200230 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-11SA	Aluminum		7420	7420		
		Antimony		0.99 U	0.99 UJ	qualify	2
		Arsenic		10.4	10.4		
		Barium		32.6	32.6		
		Beryllium		0.28 B	0.28 J	qualify	1
		Cadmium		0.24 U	0.24 U		
		Calcium		2260	2260		
		Chromium		41.2	41.2		
		Cobalt		3.8	3.8		
		Copper		21.3	21.3		
		Iron		12800	12800		
		Lead		90.3	90.3		
		Magnesium		1190	1190		
		Manganese		172	172 J	qualify	3
		Mercury		0.006 U	0.006 U		
		Nickel		10.9	10.9		
		Potassium		463	463 J	qualify	6
		Selenium		1.3 U	1.3 UJ	qualify	4
		Silver		0.22 U	0.22 U		
		Sodium		38.2 B	38.2 J	qualify	1
		Thallium		1.9 U	1.9 U		
		Vanadium		33.1	33.1		
		Zinc		85.1	85.1		
		Cyanide		Not analyzed			
	GLA2-2A	Aluminum		3350	3350		
		Antimony		1.0 U	1.0 UJ	qualify	2
		Arsenic		1.6 B	1.6 J	qualify	1
		Barium		10.2	10.2		
		Beryllium		0.21 U	0.21 U		
		Cadmium		0.25 U	0.25 U		
		Calcium		122	122		
		Chromium		8.2	8.2		
		Cobalt		0.89 B	0.89 J	qualify	1
		Copper		19.5	19.5		
		Iron		4260	4260		
		Lead		6.1 B	6.1 J	qualify	1
		Magnesium		341	341		
		Manganese		14.8	14.8 J	qualify	3
		Mercury		0.006 U	0.006 U		
		Nickel		10.7	10.7		
		Potassium		239	239 J	qualify	6
		Selenium		1.4 U	1.4 UJ	qualify	4
		Silver		0.23 U	0.23 U		
		Sodium		12.5 B	12.5 J	qualify	1
		Thallium		2.0 U	2.0 U		
		Vanadium		120	120		
		Zinc		9.4 B	9.4 J	qualify	1
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 200230 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-6A	Aluminum		2310	2310		
		Antimony		0.90 U	0.90 UJ	qualify	2
		Arsenic		1.1 B	1.1 J	qualify	1
		Barium		12.4	12.4		
		Beryllium		0.18 U	0.18 U		
		Cadmium		0.22 U	0.22 U		
		Calcium		243	243		
		Chromium		7.2	7.2		
		Cobalt		2.2	2.2		
		Copper		3.9 B	3.9 J	qualify	1
		Iron		8160	8160		
		Lead		7.2	7.2		
		Magnesium		608	608		
		Manganese		124	124 J	qualify	3
		Mercury		0.005 U	0.005 U		
		Nickel		7.4	7.4		
		Potassium		328	328 J	qualify	6
		Selenium		1.2 U	1.2 UJ	qualify	4
		Silver		0.20 U	0.20 U		
		Sodium		25.4 B	25.4 J	qualify	1
		Thallium		1.7 U	1.7 U		
		Vanadium		13.1	13.1		
		Zinc		10.6 B	10.6 J	qualify	1
		Cyanide		Not analyzed			
	GLA2-10A	Aluminum		781	781		
		Antimony		1.1 U	1.1 UJ	qualify	2
		Arsenic		0.75 U	0.75 U		
		Barium		6.1	6.1		
		Beryllium		0.21 U	0.21 U		
		Cadmium		0.26 U	0.26 U		
		Calcium		80.0	80.0		
		Chromium		15.0	15.0		
		Cobalt		0.67 B	0.67 J	qualify	1
		Copper		21.5	21.5		
		Iron		4050	4050		
		Lead		2.6 B	2.6 J	qualify	1
		Magnesium		189	189		
		Manganese		39.5	39.5 J	qualify	3
		Mercury		0.005 B	0.005 J	qualify	1
		Nickel		7.8	7.8		
		Potassium		169 B	169 J	qualify	1, 6
		Selenium		1.5 U	1.5 UJ	qualify	4
		Silver		0.24 U	0.24 U		
		Sodium		10.5 B	10.5 J	qualify	1
		Thallium		2.0 U	2.0 U		
		Vanadium		274	274		
		Zinc		7.4 B	7.4 J	qualify	1
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 200230 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-10AD	Aluminum		602	602		
		Antimony		1.1 U	1.1 UJ	qualify	2
		Arsenic		0.78 U	0.78 U		
		Barium		5.4	5.4		
		Beryllium		0.22 U	0.22 U		
		Cadmium		0.27 U	0.27 U		
		Calcium		70.7 B	70.7 J	qualify	1
		Chromium		5.5	5.5		
		Cobalt		0.43 B	0.43 J	qualify	1
		Copper		21.7	21.7		
		Iron		4040	4040		
		Lead		2.5 B	2.5 J	qualify	1, 5
		Magnesium		137	137		
		Manganese		25.0	25.0 J	qualify	3
		Mercury		0.005 U	0.005 U		
		Nickel		6.0	6.0		
		Potassium		97.5 B	97.5 J	qualify	1, 6
		Selenium		1.5 U	1.5 UJ	qualify	4
		Silver		0.25 U	0.25 U		
		Sodium		22.8 B	22.8 J	qualify	1
		Thallium		2.1 U	2.1 U		
		Vanadium		298	298		
		Zinc		4.3 B	4.3 J	qualify	1
		Cyanide		Not analyzed			
	GLA2-1A	Aluminum		557	557		
		Antimony		1.2 U	1.2 UJ	qualify	2
		Arsenic		1.1 B	1.1 J	qualify	1
		Barium		4.0	4.0		
		Beryllium		0.24 U	0.24 U		
		Cadmium		0.29 U	0.29 U		
		Calcium		55.7 B	55.7 J	qualify	1
		Chromium		3.2	3.2		
		Cobalt		0.41 B	0.41 J	qualify	1
		Copper		42.3	42.3		
		Iron		1500	1500		
		Lead		2.2 B	2.2 J	qualify	1, 5
		Magnesium		152	152		
		Manganese		5.6	5.6 J	qualify	3
		Mercury		0.014 B	0.014 J	qualify	1
		Nickel		6.7	6.7		
		Potassium		104 B	104 J	qualify	1, 6
		Selenium		1.7 U	1.7 UJ	qualify	4
		Silver		0.27 U	0.27 U		
		Sodium		10.4 B	10.4 J	qualify	1
		Thallium		2.3 U	2.3 U		
		Vanadium		48.2	48.2		
		Zinc		4.9 B	4.9 J	qualify	1
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 200230 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-10B	Aluminum		904	904		
		Antimony		0.85 U	0.85 UJ	qualify	2
		Arsenic		0.85 B	0.85 J	qualify	1
		Barium		6.6	6.6		
		Beryllium		0.17 U	0.17 U		
		Cadmium		0.20 U	0.20 U		
		Calcium		254	254		
		Chromium		6.7	6.7		
		Cobalt		1.0 B	1.0 J	qualify	1
		Copper		1.5 B	1.5 J	qualify	1
		Iron		3230	3230		
		Lead		1.3 B	1.3 J	qualify	1, 5
		Magnesium		258	258		
		Manganese		72.1	72.1 J	qualify	3
		Mercury		0.005 U	0.005 U		
		Nickel		1.6 B	1.6 J	qualify	1
		Potassium		171	171 J	qualify	6
		Selenium		1.2 U	1.2 UJ	qualify	4
		Silver		0.19 U	0.19 U		
		Sodium		12.2 B	12.2 J	qualify	1
		Thallium		1.6 U	1.6 U		
		Vanadium		41.2	41.2		
		Zinc		4.7 B	4.7 J	qualify	1
		Cyanide		Not analyzed			
	GLA2-6B	Aluminum		1610	1610		
		Antimony		1.0 U	1.0 UJ	qualify	2
		Arsenic		0.83 B	0.83 J	qualify	1
		Barium		10.4	10.4		
		Beryllium		0.20 U	0.20 U		
		Cadmium		0.25 U	0.25 U		
		Calcium		321	321		
		Chromium		3.7	3.7		
		Cobalt		1.6 B	1.6 J	qualify	1
		Copper		2.6 B	2.6 J	qualify	1
		Iron		5200	5200		
		Lead		11.9	11.9		
		Magnesium		484	484		
		Manganese		112	112 J	qualify	3
		Mercury		0.004 U	0.004 U		
		Nickel		4.6	4.6		
		Potassium		275	275 J	qualify	6
		Selenium		1.4 U	1.4 UJ	qualify	4
		Silver		0.23 U	0.23 U		
		Sodium		15.7 B	15.7 J	qualify	1
		Thallium		1.9 U	1.9 U		
		Vanadium		68.0	68.0		
		Zinc		9.3 B	9.3 J	qualify	1
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : Glenwood SDG No.: 200230 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA1-6SA	Aluminum		11000	11000		
		Antimony		1.2 U	1.2 UJ	qualify	2
		Arsenic		9.0	9.0		
		Barium		34.3	34.3		
		Beryllium		0.34 B	0.34 J	qualify	1
		Cadmium		0.29 U	0.29 U		
		Calcium		701	701		
		Chromium		29.1	29.1		
		Cobalt		3.6	3.6		
		Copper		15.6	15.6		
		Iron		14500	14500		
		Lead		68.8	68.8		
		Magnesium		1280	1280		
		Manganese		175	175 J	qualify	3
		Mercury		0.25 B	0.25 J	qualify	1
		Nickel		11.6	11.6		
		Potassium		541	541 J	qualify	6
		Selenium		1.6 U	1.6 UJ	qualify	4
		Silver		0.27 U	0.27 U		
		Sodium		31.3 B	31.3 J	qualify	1
		Thallium		2.3 U	2.3 U		
		Vanadium		40.5	40.5		
		Zinc		51.5	51.5		
		Cyanide		Not analyzed			
	GLA1-6SB	Aluminum		7490	7490		
		Antimony		1.3 U	1.3 UJ	qualify	2
		Arsenic		9.6	9.6		
		Barium		34.1	34.1		
		Beryllium		0.29 B	0.29 J	qualify	1
		Cadmium		0.30 U	0.30 U		
		Calcium		1800	1800		
		Chromium		14.7	14.7		
		Cobalt		3.7	3.7		
		Copper		15.8	15.8		
		Iron		11800	11800		
		Lead		52.2	52.2		
		Magnesium		1430	1430		
		Manganese		209	209 J	qualify	3
		Mercury		0.39 B	0.39 J	qualify	1
		Nickel		12.0	12.0		
		Potassium		650	650 J	qualify	6
		Selenium		1.7 U	1.7 UJ	qualify	4
		Silver		0.28 U	0.28 U		
		Sodium		34.0 B	34.0 J	qualify	1
		Thallium		2.4 U	2.4 U		
		Vanadium		34.2	34.2		
		Zinc		95.3	95.3		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 200230Method : SW-846Lab Name : STL - ConnecticutSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-TPLT	Aluminum		1460	1460		
		Antimony		1.1 U	1.1 UJ	qualify	2
		Arsenic		1.2 B	1.2 J	qualify	1
		Barium		11.3	11.3		
		Beryllium		0.21 U	0.21 U		
		Cadmium		0.25 U	0.25 U		
		Calcium		160	160		
		Chromium		4.2	4.2		
		Cobalt		1.6 B	1.6 J	qualify	1
		Copper		3.2 B	3.2 J	qualify	1
		Iron		4840	4840		
		Lead		5.7 B	5.7 J	qualify	1
		Magnesium		370	370		
		Manganese		100	100 J	qualify	3
		Mercury		0.005 B	0.005 J	qualify	1
		Nickel		5.2	5.2		
		Potassium		246	246		
		Selenium		1.4 U	1.4 U		
		Silver		0.23 U	0.23 U		
		Sodium	46.2	22.1 B	22.1 J	qualify	1
		Thallium		2.0 U	2.0 U		
		Vanadium		17.5	17.5		
		Zinc		13.2 B	13.2 J	qualify	1
		Cyanide		Not analyzed			
	GLA2-TPDK	Aluminum		1920	1920		
		Antimony		0.90 U	0.90 UJ	qualify	2
		Arsenic		0.81 B	0.81 J	qualify	1
		Barium		11.6	11.6		
		Beryllium		0.18 U	0.18 U		
		Cadmium		0.21 U	0.21 U		
		Calcium		202	202		
		Chromium		6.0	6.0		
		Cobalt		1.7	1.7		
		Copper		5.4	5.4		
		Iron		6810	6810		
		Lead		10.0	10.0		
		Magnesium		488	488		
		Manganese		98.3	98.3 J	qualify	3
		Mercury		0.011 B	0.011 J	qualify	1
		Nickel		11.6	11.6		
		Potassium		245	245		
		Selenium		1.2 U	1.2 U		
		Silver		0.20 U	0.20 U		
		Sodium	46.2	15.1 B	15.1 J	qualify	1
		Thallium		1.7 U	1.7 U		
		Vanadium		15.8	15.8		
		Zinc		12.2 B	12.2 J	qualify	1
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : Glenwood SDG No.: 200230 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA3-2	Aluminum		722	722		
		Antimony		0.83 U	0.83 UJ	qualify	2
		Arsenic		0.57 U	0.57 U		
		Barium		5.6	5.6		
		Beryllium		0.16 U	0.16 U		
		Cadmium		0.20 U	0.20 U		
		Calcium		105	105		
		Chromium		1.4 B	1.4 J	qualify	1
		Cobalt		0.84 B	0.84 J	qualify	1
		Copper		1.6 B	1.6 J	qualify	1
		Iron		2600	2600		
		Lead		0.88 B	0.88 J	qualify	1, 4
		Magnesium		188	188		
		Manganese		92.5	92.5	qualify	3
		Mercury		0.012 B	0.012 J	qualify	1
		Nickel		1.3 B	1.3 J	qualify	1
		Potassium		128 B	128 J	qualify	1
		Selenium		1.1 U	1.1 U		
		Silver		0.18 U	0.18 U		
		Sodium	46.2	16.6 B	16.6 J	qualify	1
		Thallium		1.6 U	1.6 U		
		Vanadium		2.4 B	2.4 J	qualify	1
		Zinc		4.1 B	4.1 J	qualify	1
		Cyanide		Not analyzed			
	GLA3-3	Aluminum		721	721		
		Antimony		1.2 U	1.2 UJ	qualify	2
		Arsenic		0.81 U	0.81 U		
		Barium		6.1	6.1		
		Beryllium		0.23 U	0.23 U		
		Cadmium		0.28 U	0.28 U		
		Calcium		193	193		
		Chromium		3.1	3.1		
		Cobalt		0.85 B	0.85 J	qualify	1
		Copper		1.5 B	1.5 J	qualify	1
		Iron		2790	2790		
		Lead		0.96 B	0.96 J	qualify	1, 4
		Magnesium		246	246		
		Manganese		100	100 J	qualify	3
		Mercury		0.005 U	0.005 U		
		Nickel		1.3 B	1.3 J	qualify	1
		Potassium		134 B	134 J	qualify	1
		Selenium		1.6 U	1.6 U		
		Silver		0.26 U	0.26 U		
		Sodium	46.2	13.7 B	13.7 J	qualify	1
		Thallium		2.2 U	2.2 U		
		Vanadium		2.7 B	2.7 J	qualify	1
		Zinc		4.2 B	4.2 J	qualify	1
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : Glenwood SDG No.: 200230 Method : SW-846
Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value.
No bias direction is inferred.
- 2 The reported value for this analyte was qualified 'UJ' or 'J', because the matrix spike recovery was below the lower limit of 75%. Potential negative bias is suggested.
- 3 The reported positive value for this analyte was qualified 'J', because the matrix spike recovery was above the upper limit of 125%. Potential positive bias is suggested.
- 4 The reported value for this analyte was qualified 'UJ' or 'J', because the associated CRDL standard recovery was below the lower limit. Potential negative bias is suggested.
- 5 The reported positive value for this analyte was qualified 'J', because the associated CRDL standard recovery exceeded the upper limit. Potential positive bias is suggested.
- 6 The reported positive value for this analyte was qualified 'J', because the associated Continuum Calibration standard recovery exceeded the upper limit. Positive bias is suggested.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200230**A. CALIBRATION**

ICP Analytes

ICV	90% - 110% recovery
CCV	90% - 110% recovery

Outliers ?

none
none

B. CRDL STANDARD

	Outliers ? (01 - 16)	Samples	Outliers ? (17 - 20)	Samples
80 - 120% recovery	Pb	All > 120%	Pb	CRI1 76%
	Se	CRI1 75%	Se	All > 120%

QA Action : Qualify positive Pb values up to 4x CRDL; positive bias suggested.Qualify Se values up to 4x CRDL; negative bias suggested.Affects : 200230 01 - 16QA Action : Qualify positive Se values up to 4x CRDL; positive bias suggested.Qualify Pb values up to 4x CRDL; negative bias suggested.Affects : 200230 17 - 20**C. BLANKS**

ICB / CCB	< CRDL
Prep Blank	< CRDL

Outliers ?

none
none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

ICSA	Response < 2x CRDL for trace metals
ICSAB	80 - 120% recovery

Outliers ?

n/a
Se ICSB 2, 76%

QA Action : Levels of interferent analytes in samples were relatively low compared to ICS.No data qualifiers were warranted.**E. MATRIX SPIKE (MS)**

GLA1-6SB

75 - 125% recovery (if sample conc. < 4x spike conc.)	<u>Outliers ?</u>
	Sb 55%
	Mn 162%

QA Action : Qualify all Sb 'UJ' or 'J'; negative bias suggested.Qualify all positive Mn 'J'; positive bias suggested.**F. POST-DIGESTION SPIKE (PDS)**No PDS was reported.

Required for analytes outside MS recovery range; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.

G. MATRIX DUPLICATE (MD)

GLA1-6SB

Max. 100% RPD for non-aqueous samples > 5x CRDL	<u>Outliers ?</u>
Max. (+/-) CRDL value if either sample < 5x CRDL	none
	none

H. LABORATORY CONTROL SAMPLE (LCS)

Recovery within control limits for non-aqueous samples	<u>Outliers ?</u>
Recovery between 80 - 120% for aqueous samples	none
	n/a

I. SERIAL DILUTION SAMPLE

Maximum 10.0% D if undiluted sample > 10x IDL

Outliers ?

none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	<u>Outliers ?</u>
Instrument Detection Limits	Quarterly	*
Interelement Correction Factors	Annually	*
Linear Range Analysis	Quarterly	*

Note : * Above parameters not reported in data deliverables.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200230

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ? Yes
If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ? Yes
If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ? Yes
If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ? Yes
If No, list affected analytes and samples, and QA action : _____
No moisture logs were contained in the data package; reported Form 1 values were used
for verification of reported results.
5. Show calculation for % Solids for one sample.
Sample ID: GLA1-6SB Lab value : 84.9 %
Dry weight : 0.00 gm % Solids = $\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$
Wet weight : 0.00 gm = **#DIV/0!** %
6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.
Sample ID: GLA1-6SB Analyte : Pb Lab value : 52.2 mg/Kg
% Solids : 84.9
Raw value 0.2416 mg/L
Final volume 200 mL mg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (ml)}}{\text{wet wgt} \times (\% \text{Sol}/100)}$
Wet weight 1.09 gm = **52.2** mg/ kg
7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ? n/a
If No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

November 04, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. A02-9356

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Buffalo (Amherst), NY.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLENWOOD BOTTOM SOUTH	A2935601	SOIL	09/19/02	X	X	X
GLENWOOD BOTTOM CENTER	A2935602	SOIL	09/19/02	X	X	X
GLENWOOD BOTTOM NORTH	A2935603	SOIL	09/19/02	X	X	X
GLENWOOD SIDEWALL EAST	A2935604	SOIL	09/19/02	X	X	X

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

The calibration acceptance evaluation procedure employed by the laboratory is incorrect for all continuing calibrations reviewed, relative to %D acceptability for Aroclor compounds. The laboratory is using a response-factor summation of each individual peak response from the Initial Calibration, and comparing that summed value to a summation of the individual Continuing Calibration peak responses, to determine a %D value for each Aroclor compound. In effect, this mathematical manipulation amounts to a "smoothing" process in which individual peak response variations, unless all in the same direction, tend to cancel each other out. For Aroclor standards, which are in a clean matrix, and should not normally degrade, there should be minimal change in peak response, unless chromatographic parameters (detector sensitivity, column breakdown, retention time shifts) are changing. In each calibration verification reviewed, at least one individual Aroclor peak, on at least one of the analytical columns, exhibited a %D value above 15.0%, which is the maximum value allowed by the method; however for each of these compounds, the laboratory's procedure yielded an acceptable reported %D value for the Aroclor. SW-846, Method 8082, Sect. 7.6.2.1 states : "The calibration factor for each analyte calculated from the calibration verification standard (CFv) must not exceed a difference of more than ± 15 percent when compared to the mean calibration factor from the initial calibration curve. Lest the potential ambiguity of the word 'analyte' in the above section be misinterpreted to mean the group of all peaks taken to quantitate each Aroclor compound, Method 8082, Sect. 7.6.2.3 should clarify the intent of the above section, as follows : "If this criterion is exceeded for *any calibration factor or response factor (emphasis added)*, inspect the gas chromatographic system to determine the cause and perform whatever maintenance is necessary before verifying calibration and proceeding with sample analysis." Because the lab has incorrectly performed the calibration verification procedure as defined above, and all reported calibration verification events have at least one Aroclor peak in Aroclors 1248 and 1254 on at least one analytical column above the 15.0% D limit, the reviewer has qualified reported values for the above-noted compound results as quantitatively estimated values, 'UJ'.

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

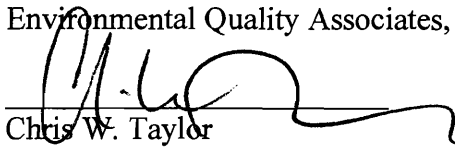
Mr. Matthew Wawrowski / VHB

November 04, 2002

Page 3 of 3

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-A02-9356

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: A02-9356METHOD: SW846 / 8270CLAB NAME : Severn Trent - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLENWOOD BOTTOM	Di-n-butylphthalate		31 J	410 U	negate	2
	CENTER	N-nitroso-dimethylamine		410 U	410 UJ	qualify	3
	GLENWOOD SIDEWALL	Di-n-butylphthalate		37 J	340 U	negate	2
	EAST	N-nitroso-dimethylamine		340 U	340 UJ	qualify	3
	GLENWOOD BOTTOM	Di-n-butylphthalate		20 J	350 U	negate	2
	NORTH	bis(2-Ethylhexyl)phthalate		29 J	350 U	negate	2
		N-nitroso-dimethylamine		350 U	350 UJ	qualify	3
	GLENWOOD BOTTOM	Phenanthrene		49 J	49 J	qualify	1
	SOUTH	Anthracene		11 J	11 J	qualify	1
		Di-n-butylphthalate		47 J	340 U	negate	2
		Fluoranthene		200 J	200 J	qualify	1
		Pyrene		160 J	160 J	qualify	1
		Benzo(a)anthracene		94 J	94 J	qualify	1
		Chrysene		100 J	100 J	qualify	1
		bis(2-Ethylhexyl)phthalate		100 J	340 U	negate	2
		Benzo(b)fluoranthene		110 J	110 J	qualify	1
		Benzo(k)fluoranthene		65 J	65 J	qualify	1
		Benzo(a)pyrene		96 J	96 J	qualify	1
		Indeno(1,2,3-cd)pyrene		59 J	59 J	qualify	1
		Dibenzo(a,h)anthracene		23 J	23 J	qualify	1
		Benzo(g,h,i)perylene		70 J	70 J	qualify	1
		N-nitroso-dimethylamine		340 U	340 UJ	qualify	3

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported result for this compound is negated, with 'U' qualifier applied at the compound's PQL, because the reported value is below 10x the concentration of this compound in the associated method Blank, OR, the compound is a common laboratory contaminant.
- The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

PROJECT: GLENWOOD

SDG No.: A02-9356

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX:	10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
AQUEOUS MATRIX:	5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
ALL MATRICES:	40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
	All samples were extracted and analyzed within allowable holding times.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
09/21/02	A2B0920803	Z53062	soil	none	n/a

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
S BLANK	nitrobenzene-d5	high	none required
S BLANK	2,4,6-tribromophenol	high	none required

D. MATRIX SPIKE / DUPLICATE

Sample ID	Spike Compound	Bias	ACTION
-----------	----------------	------	--------

No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.

E. BLANK SPIKE / DUPLICATE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
A2B0920803	phenol *	high	Qualify positives
	4-chloro-3-methylphenol *	high	Qualify positives
	4-nitrophenol *	high	Qualify positives
	2,4-dinitrotoluene *	high	Qualify positives
	pentachlorophenol *	high	Qualify positives

Note: * next to the compound name indicates that it was out of limits in both Blank Spike and Duplicate

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
All IS recoveries & RTs were within acceptable limits			

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
09/11/02	OK	yes	
09/23/02	OK	yes	

H. SAMPLE RESULT
VERIFICATION

<u>Sample ID</u>	<u>Compound</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>
Glenwood Bottom So.	pyrene	160 J	159

	Ax	Is	Vt	Df	GPC
Conc., ug/Kg =	153161	40.0	1000	1.0	1.0
	Ais	RRF	Vi	Ws	D
	642191	1.034	2.0	30.68	0.946

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: A02-9356

A. INITIAL CALIBRATION

CALIBRATION DATE :	<u>09/11/02</u>
FILE IDs :	<u>Z52906 - 910</u>
ALL RRFs > 0.05 ?	Yes
SPCC RRFs >0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	Yes

(If No, list compounds)

SPCC Compounds
N-Nitroso-di-n-propylamine
Hexachlorocyclopentadiene
2,4-Dinitrophenol
4-Nitrophenol
MINIMUM RRF = 0.050

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in all associated samples.

CCC Compounds
<u>Base/Neutrals</u>
Acenaphthene
1,4-Dichlorobenzene
Hexachlorobutadiene
Diphenylamine
Di-n-octylphthalate
Fluoranthene
Benzo(a)pyrene
<u>Acids</u>
4-Chloro-3-methylphenol
2,4-Dichlorophenol
2-Nitrophenol
Phenol
Pentachlorophenol
2,4,6-Trichlorophenol
MAXIMUM %RSD = 30.0%
MAXIMUM %D = 20.0%

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	<u>09/23/02</u>
FILE ID :	<u>Z53059</u>
ALL RRFs > 0.05 ?	Yes
SPCC RRFs >0.05 ?	Yes
CCC %Ds < 20% ?	Yes
All Targets < 20%D?	NO
(If No, list compounds)====>	N-nitroso-dimethylamine

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: A02-9356METHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLENWOOD BOTTOM SOUTH	Aroclor 1016		83 U	83 U		
		Aroclor 1221		83 U	83 U		
		Aroclor 1232		83 U	83 U		
		Aroclor 1242		83 U	83 U		
		Aroclor 1248		83 U	83 UJ	qualify	1
		Aroclor 1254		83 U	83 UJ	qualify	1
		Aroclor 1260		83 U	83 U		
	GLENWOOD BOTTOM CENTER	Aroclor 1016		98 U	98 U		
		Aroclor 1221		98 U	98 U		
		Aroclor 1232		98 U	98 U		
		Aroclor 1242		98 U	98 U		
		Aroclor 1248		98 U	98 UJ	qualify	1
		Aroclor 1254		98 U	98 UJ	qualify	1
		Aroclor 1260		98 U	98 U		
	GLENWOOD BOTTOM NORTH	Aroclor 1016		84 U	84 U		
		Aroclor 1221		84 U	84 U		
		Aroclor 1232		84 U	84 U		
		Aroclor 1242		84 U	84 U		
		Aroclor 1248		84 U	84 UJ	qualify	1
		Aroclor 1254		84 U	84 UJ	qualify	1
		Aroclor 1260		84 U	84 U		
	GLENWOOD SIDEWALL EAST	Aroclor 1016		82 U	82 U		
		Aroclor 1221		82 U	82 U		
		Aroclor 1232		82 U	82 U		
		Aroclor 1242		82 U	82 U		
		Aroclor 1248		82 U	82 UJ	qualify	1
		Aroclor 1254		82 U	82 UJ	qualify	1
		Aroclor 1260		82 U	82 U		

FOOTNOTES

1

The reported result for this compound is qualified 'UJ', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 15.0%. The data user is directed to comments in the data validation narrative regarding laboratory calibration acceptance calculation procedures.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory

Project No.: A02-9356

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP : 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	A2B0920703
Extraction Date:	09/21/02
<u>Analyte</u>	<u>Conc. ug/Kg</u>
none found	n/a
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Comments: No matrix spike / duplicate were performed; only a Blank Spike / Blank Spike Duplicate were run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE

All reported recoveries and %RPD of the Blank Spike & Blank Spike Duplicate were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: A02-9356Laboratory: STL - Buffalo**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 07/04/02 Verification of ICAL Results

Reviewer's Note : The laboratory utilized linear regression to generate a calibration line for the Aroclors, which is an allowable option under SW-846 protocols (see Method 8000B, pp. 20-21). All reported correlation coefficients were >0.99, which is the method acceptability criterion for acceptable fit. It is noted that the lab employed a second-order regression for this calibration; although the calculated correlation coefficient shown below does not address the second-order equation, it is still >0.99, which is acceptable.

	x	y	r ²	r ²
	Conc.	Response	Lab Value	Calc. Value
Aroclor 1260, Peak 1	0.05	28332	0.999953	0.9971661
RT = 10.46 minutes	0.1	48508		
	0.25	99164		
	0.5	175149		
	1	325167		
	2.5	704806		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	09/21/02	09/22/02
FILE ID :	LA07650 - 54	LA07682
All Targets < 15% D?	NO	NO
(If No, list compounds) ==>	Aroclor 1248	Aroclor 1254

QA ACTION : Qualify 'UJ' or 'J' above-noted compounds in all samples.**C. SAMPLE RESULT VERIFICATION**

SAMPLE ID: Blank Spike
 COMPOUND: Aroclor-1254
 REPORTED VALUE: 180 ug/Kg

	ng average conc.	extract, mL	Dilution factor
ug/Kg =	0.561	10000	1.0
	30.80	1.0	1.0
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 182.1

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: A02-9356 Method : SW-846
 Lab Name : STL - Buffalo Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLENWOOD BOTTOM SOUTH	Aluminum	7.111	2200 E	2200 J	qualify	8, 9
		Antimony		0.57 UN	0.57 UJ	qualify	6, 9
		Arsenic		1.3	1.3 J	qualify	9
		Barium	0.086	14.6 BE	14.6 J	qualify	1, 9
		Beryllium		0.17 B	0.17 J	qualify	1, 9
		Cadmium	0.036	0.11 B	0.11 J	qualify	1, 9
		Calcium	19.204	233 B	233 J	qualify	1, 9
		Chromium	0.106	4.5 E	4.5 J	qualify	8, 9
		Cobalt	-0.050	1.9 B	1.9 J	qualify	1, 9
		Copper	-0.140	7.5	7.5 J	qualify	8, 9
		Iron	5.081	5540 E	5540 J	qualify	8, 9
		Lead		29.0 *	29.0 J	qualify	9
		Magnesium	5.832	506 BE	506 J	qualify	1, 9
		Manganese	0.354	125 N	125 J	qualify	7, 9
		Mercury	-0.010	0.021 B	0.021 J	qualify	1, 2, 9
		Nickel	-0.120	3.8 B	3.8 J	qualify	1, 9
		Potassium	11.595	269 B	269 J	qualify	1, 9
		Selenium		0.42 U	0.42 UJ	qualify	9
		Silver		0.05 U	0.05 UJ	qualify	9
		Sodium		41.6 B	41.6 J	qualify	1, 9
		Thallium	0.446	0.72 B	0.72 J	qualify	1, 4, 5, 9
		Vanadium	0.071	7.2	7.2 J	qualify	9
		Zinc	1.208	125 *	125 J	qualify	8, 9
		Cyanide		Not analyzed			
	GLENWOOD BOTTOM CENTER	Aluminum	7.111	2040 E	2040 J	qualify	8, 9
		Antimony		0.82 BN	0.82 J	qualify	1, 6, 9
		Arsenic		1.5	1.5 J	qualify	9
		Barium	0.086	15.5 BE	15.5 J	qualify	1, 9
		Beryllium		0.18 B	0.18 J	qualify	1, 9
		Cadmium	0.036	0.17 B	0.17 J	qualify	1, 9
		Calcium	19.204	213 B	213 J	qualify	1, 9
		Chromium	0.106	6.0 E	6.0 J	qualify	8, 9
		Cobalt	-0.050	2.0 B	2.0 J	qualify	1, 9
		Copper	-0.140	7.8	7.8 J	qualify	8, 9
		Iron	5.081	7020 E	7020 J	qualify	8, 9
		Lead		31.7 *	31.7 J	qualify	9
		Magnesium	5.832	558 BE	558 J	qualify	1, 9
		Manganese	0.354	126 N	126 J	qualify	7, 9
		Mercury	-0.010	0.016 U	0.016 UJ	qualify	2, 9
		Nickel	-0.120	9.2	9.2 J	qualify	9
		Potassium	11.595	334 B	334 J	qualify	1, 9
		Selenium		0.67	0.67 J	qualify	3, 9
		Silver		0.06 U	0.06 UJ	qualify	9
		Sodium		32.0 U	32.0 UJ	qualify	9
		Thallium	0.446	0.48 U	0.48 UJ	qualify	5, 9
		Vanadium	0.071	114	114 J	qualify	9
		Zinc	1.208	186 *	186 J	qualify	8, 9
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: A02-9356 Method : SW-846
 Lab Name : STL - Buffalo Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLENWOOD BOTTOM NORTH	Aluminum	7.111	2400 E	2400 J	qualify	8, 9
		Antimony		0.59 UN	0.59 UJ	qualify	6, 9
		Arsenic		0.99 B	0.99 J	qualify	1, 9
		Barium	0.086	14.4 BE	14.4 J	qualify	1, 9
		Beryllium		0.15 B	0.15 J	qualify	1, 9
		Cadmium	0.036	0.03 U	0.03 UJ	qualify	9
		Calcium	19.204	319 B	319 J	qualify	1, 9
		Chromium	0.106	4.4 E	4.4 J	qualify	8, 9
		Cobalt	-0.050	5.0 B	5.0 J	qualify	1, 9
		Copper	-0.140	5.8	5.8 J	qualify	8, 9
		Iron	5.081	6240 E	6240 J	qualify	8, 9
		Lead		12.0 *	12.0 J	qualify	9
		Magnesium	5.832	610 E	610 J	qualify	9
		Manganese	0.354	150 N	150 J	qualify	7, 9
		Mercury	-0.010	0.013 U	0.013 UJ	qualify	2, 9
		Nickel	-0.120	5.3	5.3 J	qualify	9
		Potassium	11.595	322 B	322 J	qualify	1, 9
		Selenium		0.44 U	0.44 UJ	qualify	9
		Silver		0.05 U	0.05 UJ	qualify	9
		Sodium		28.1 U	28.1 UJ	qualify	9
		Thallium	0.446	0.42 U	0.42 UJ	qualify	5, 9
		Vanadium	0.071	9.6	9.6 J	qualify	9
		Zinc	1.208	32.3 *	32.3 J	qualify	8, 9
		Cyanide		Not analyzed			
	GLENWOOD SIDEWALL EAST	Aluminum	7.111	1430 E	1430 J	qualify	8, 9
		Antimony		0.56 UN	0.56 UJ	qualify	6, 9
		Arsenic		0.59 B	0.59 J	qualify	1, 9
		Barium	0.086	9.5 BE	9.5 J	qualify	1, 9
		Beryllium		0.09 B	0.09 J	qualify	1, 9
		Cadmium	0.036	0.03 U	0.03 UJ	qualify	9
		Calcium	19.204	124 B	124 J	qualify	1, 9
		Chromium	0.106	4.5 E	4.5 J	qualify	8, 9
		Cobalt	-0.050	1.4 B	1.4 J	qualify	1, 9
		Copper	-0.140	2.6	2.6 J	qualify	8, 9
		Iron	5.081	3820 E	3820 J	qualify	8, 9
		Lead		7.4 *	7.4 J	qualify	9
		Magnesium	5.832	449 BE	449 J	qualify	1, 9
		Manganese	0.354	94.7 N	94.7 J	qualify	7, 9
		Mercury	-0.010	0.014 U	0.014 UJ	qualify	2, 9
		Nickel	-0.120	5.3	5.3 J	qualify	9
		Potassium	11.595	218 B	218 J	qualify	1, 9
		Selenium		0.42 U	0.42 UJ	qualify	9
		Silver		0.05 U	0.05 UJ	qualify	9
		Sodium		26.9 U	26.9 UJ	qualify	9
		Thallium	0.446	0.41 U	0.41 UJ	qualify	5, 9
		Vanadium	0.071	56.1	56.1 J	qualify	9
		Zinc	1.208	14.1 *	14.1 J	qualify	8, 9
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : <u>Glenwood</u>	SDG No.: <u>A02-9356</u>	Method : <u>SW-846</u>
Lab Name : <u>STL - Buffalo</u>	Sample Matrix : <u>Non-Aqueous</u>	

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value. No bias direction is inferred.
- 2 The reported value for this analyte was qualified 'UJ' or 'J', because the associated CRDL standard recovery was below the lower limit. Potential negative bias is suggested.
- 3 The reported positive value for this analyte was qualified 'J', because the associated CRDL standard recovery exceeded the upper limit. Potential positive bias is suggested.
- 4 The reported positive value for this analyte was qualified 'J', because the associated CCV blank response exceeded the CRDL value, and the sample response was <10x the blank response. Positive bias (or potential false-positives) suggested.
- 5 The reported value for this analyte was qualified 'UJ' or 'J', because the associated ICSEA standard response exceeded 2x (absolute) CRDL value. Since the response was negative, overcorrection due to incorrect IEC settings, and associated negative bias are suggested.
- 6 The reported value for this analyte was qualified 'UJ' or 'J', because the matrix spike recovery was below the lower limit of 75%. Potential negative bias is suggested.
- 7 The reported positive value for this analyte was qualified 'J', because the matrix spike recovery exceeded the upper limit of 125%, and was >200%. Significant potential positive bias is suggested for this analyte.
- 8 The reported positive value for this analyte was qualified 'J', because the associated Serial Dilution standard precision exceeded 10.0%D, while the sample concentration was above 10x analyte IDL.
- 9 The reported value for this analyte was qualified, because the reported dates of the IDL (Hg only) and ICP (all) Linear Range determinations exceeded the quarterly repeat frequency requirements. No bias direction is inferred. The laboratory should take corrective actions to ensure that the required frequencies are adhered to and correctly reported.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- BuffaloLab Project No. : A02-9356**A. CALIBRATION**ICP Analytes

ICV	90% - 110% recovery
CCV	90% - 110% recovery

Outliers ?

none
none

B. CRDL STANDARD

80 - 120% recovery

Outliers ?

Pb	150%, 150%
Se	145%
Hg	70%

QA Action : Qualify 'J' positive Pb & Se values up to 4x CRDL, with positive bias suggested for qualified values.QA Action : Qualify 'UJ' or 'J' Hg values up to 2x CRDL; negative bias.Affects : All samples**C. BLANKS**

ICB / CCB < CRDL

Outliers ?

Tl	CCB5 14.6 ppb
Pb	CCB6 3.5 ppb

Prep Blank < CRDL

none

QA Action : Qualify 'J' positive Se results <10x CCB value; positive bias.Note: No SDG field samples were bracketed by CCB6; no QA action.Affects : All samples**D. INTERELEMENT CORRECTION (ICSA / ICSAB)**

ICSA	Response < 2x CRDL for trace metals
ICSAB	80 - 120% recovery

Outliers ?

Tl	-35, -34 ppb
none	

QA Action : Qualify 'UJ' or 'J' Tl results; negative bias.Affects : All samples**E. MATRIX SPIKE (Glen. Bottom North)**

75 - 125% recovery (if sample conc. < 4x spike conc.)

Outliers ?

Sb	74%
Mn	212%

QA Action : Qualify Sb values 'UJ' or 'J', with negative bias suggested.Qualify Mn values 'J'; significant potential positive bias suggested.Affects : All samples**F. POST-DIGESTION SPIKE**

75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.

Outliers ?

none

G. MATRIX DUPLICATE (Glen. Bottom North)

Max. 100% RPD for non-aqueous samples > 5x CRDL
Max. (+/-) CRDL value if either sample < 5x CRDL

Outliers ?

none
none

H. LABORATORY CONTROL SAMPLE

Recovery within control limits for non-aqueous samples
Recovery between 80 - 120% for aqueous samples

Outliers ?

none
n/a

I. SERIAL DILUTION SAMPLE

Maximum 10.0% D if undiluted sample > 10x IDL

Outliers: Al, Ba, Cr, Cu, Fe, Pb, ZnQA Action : Qualify 'J' positive results for above metals > 10x IDL values.**J. VERIFICATION OF INSTRUMENTAL PARAMETERS**

	<u>Frequency</u>
Instrument Detection Limits	Quarterly
Interelement Correction Factors	Annually
Linear Range Analysis	Quarterly

Outliers ?

Hg
*

* Note : IDL for Hg & ICP Linear Range determinations were past scheduled frequencies at time of analysis; all results were qualified as estimated 'J'. The lab should take steps to ensure that updates are performed at specified frequencies.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- BuffaloLab Project No. : A02-9356

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ?

YesIf No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ?

YesIf No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ?

YesIf No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ?

YesIf No, list affected analytes and samples, and QA action : _____

5. Show calculation for % Solids for one sample.

Sample ID: GLEN. BOTTOM CENTERLab value : 79 %Dry weight : 5.15 gm% Solids = $\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$ Wet weight : 6.51 gm

Wet weight

= **79.1** %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLEN. BOTTOM CENTERAnalyte : PbLab value : 31.7 mg/Kg% Solids : 79.1Raw value 0.2562 mg/LFinal volume 50 mLWet weight 0.51 gmmg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (ml)}}{\text{wet wgt} \times (\% \text{Sol}/100)}$

wet wgt x (%Sol/100) =

31.7

mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ?

n/aIf No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

November 02, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. A02-8815

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Buffalo (Amherst), NY.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
23KV-SOUTH WALL	A2881501	SOIL	09/03/02	X	X	X
23KV-NORTH WALL	A2881502	SOIL	09/03/02	X	X	X
23KV-EAST WALL	A2881503	SOIL	09/03/02	X	X	X
23KV-BOTTOM	A2881504	SOIL	09/04/02	X	X	X

Sample Collection and Receipt

The laboratory sample summary incorrectly listed the date of collection for sample 23KV-BOTTOM as 09/03/02; based on the sample chain-of-custody, this sample was collected on 09/04/02.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

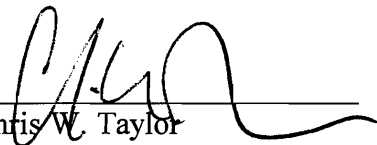
Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

The calibration acceptance evaluation procedure employed by the laboratory is incorrect for all continuing calibrations reviewed, relative to %D acceptability for Aroclor compounds. The laboratory is using a response-factor summation of each individual peak response from the Initial Calibration, and comparing that summed value to a summation of the individual Continuing Calibration peak responses, to determine a %D value for each Aroclor compound. In effect, this mathematical manipulation amounts to a "smoothing" process in which individual peak response variations, unless all in the same direction, tend to cancel each other out. For Aroclor standards, which are in a clean matrix, and should not normally degrade, there should be minimal change in peak response, unless chromatographic parameters (detector sensitivity, column breakdown, retention time shifts) are changing. In each calibration verification reviewed, at least one individual Aroclor peak, on at least one of the analytical columns, exhibited a %D value above 15.0%, which is the maximum value allowed by the method; however for each of these compounds, the laboratory's procedure yielded an acceptable reported %D value for the Aroclor. SW-846, Method 8082, Sect. 7.6.2.1 states : "The calibration factor for each analyte calculated from the calibration verification standard (CFv) must not exceed a difference of more than ± 15 percent when compared to the mean calibration factor from the initial calibration curve. Lest the potential ambiguity of the word 'analyte' in the above section be misinterpreted to mean the group of all peaks taken to quantitate each Aroclor compound, Method 8082, Sect. 7.6.2.3 should clarify the intent of the above section, as follows : "If this criterion is exceeded for *any calibration factor or response factor (emphasis added)*, inspect the gas chromatographic system to determine the cause and perform whatever maintenance is necessary before verifying calibration and proceeding with sample analysis." Because the lab has incorrectly performed the calibration verification procedure as defined above, and all reported calibration verification events have at least one Aroclor peak in Aroclors 1016, 1221 and 1232 on at least one analytical column above the 15.0% D limit, the reviewer has qualified reported values for the above-noted compound results as quantitatively estimated values, 'UJ'.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-A02-8815

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: A02-8815METHOD: SW846 / 8270CLAB NAME : Severn Trent - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	23KV-BOTTOM	Acenaphthene		22 J	22 J	qualify	1
		Fluorene		17 J	17 J	qualify	1
		Phenanthrene		240 J	240 J	qualify	1
		Anthracene		52 J	52 J	qualify	1
		Di-n-butylphthalate	120 J	91 BJ	340 U	negate	2
		Fluoranthene		330 J	330 J	qualify	1
		Pyrene		280 J	280 J	qualify	1
		Benzo(a)anthracene		190 J	190 J	qualify	1
		Chrysene		160 J	160 J	qualify	1
		bis(2-Ethylhexyl)phthalate		17 J	340 U	negate	2
		Benzo(b)fluoranthene		130 J	130 J	qualify	1
		Benzo(k)fluoranthene		160 J	160 J	qualify	1
		Benzo(a)pyrene		170 J	170 J	qualify	1
		Indeno(1,2,3-cd)pyrene		96 J	96 J	qualify	1
		Dibenzo(a,h)anthracene		50 J	50 J	qualify	1
		Benzo(g,h,i)perylene		100 J	100 J	qualify	1
		2-Methylnaphthalene		340 U	340 UJ	qualify	3
		Hexachlorobenzene		340 U	340 UJ	qualify	3
		Butylbenzylphthalate		340 U	340 UJ	qualify	3
		Di-n-octylphthalate		340 U	340 UJ	qualify	3
	23KV-EAST WALL	Naphthalene		2200	2200		
	(@ 5x dilution)	2-Methylnaphthalene		520 J	520 J	qualify	1, 3
		Acenaphthene		1600 J	1600 J	qualify	1
		Dibenzofuran		860 J	860 J	qualify	1
		Fluorene		1400 J	1400 J	qualify	1
		Phenanthrene		11000	11000		
		Anthracene		2400	2400		
		Fluoranthene		9800	9800		
		Pyrene		7400	7400		
		Benzo(a)anthracene		4800	4800		
		Chrysene		4200	4200		
		Benzo(b)fluoranthene		3700	3700		
		Benzo(k)fluoranthene		2600	2600		
		Benzo(a)pyrene		3900	3900		
		Indeno(1,2,3-cd)pyrene		1500 J	1500 J	qualify	1
		Dibenzo(a,h)anthracene		830 J	830 J	qualify	1
		Benzo(g,h,i)perylene		1300 J	1300 J	qualify	1
		Hexachlorobenzene		1700 U	1700 UJ	qualify	3
		Butylbenzylphthalate		1700 U	1700 UJ	qualify	3
		Di-n-octylphthalate		1700 U	1700 UJ	qualify	3
	23KV-NORTH WALL	Acenaphthene		110 J	110 J	qualify	1
	(@ 5x dilution)	Fluorene		86 J	86 J	qualify	1
		Phenanthrene		1600 J	1600 J	qualify	1
		Anthracene		800 J	800 J	qualify	1
		Fluoranthene		8800	8800		
		Pyrene		7000	7000		
		Benzo(a)anthracene		3700	3700		
		Chrysene		2700	2700		
		Benzo(b)fluoranthene		3900	3900		
		Benzo(a)pyrene		2400	2400		
		Indeno(1,2,3-cd)pyrene		860 J	860 J	qualify	1
		Dibenzo(a,h)anthracene		480 J	480 J	qualify	1
		Benzo(g,h,i)perylene		760 J	760 J	qualify	1
		2-Methylnaphthalene		1800 U	1800 UJ	qualify	3
		Hexachlorobenzene		1800 U	1800 UJ	qualify	3
		Butylbenzylphthalate		1800 U	1800 UJ	qualify	3
		Di-n-octylphthalate		1800 U	1800 UJ	qualify	3

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: A02-8815METHOD: SW846 / 8270CLAB NAME : Severn Trent - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	23KV-SOUTH WALL	Acenaphthene		13 J	13 J	qualify	1
		Fluorene		10 J	10 J	qualify	1
		Phenanthrene		140 J	140 J	qualify	1
		Anthracene		40 J	40 J	qualify	1
		Di-n-butylphthalate	120 J	13 BJ	340 UJ	negate	2
		Fluoranthene		270 J	270 J	qualify	1
		Pyrene		260 J	260 J	qualify	1
		Benzo(a)anthracene		150 J	150 J	qualify	1
		Chrysene		140 J	140 J	qualify	1
		bis(2-Ethylhexyl)phthalate		59 J	59 J	qualify	1
		Di-n-octylphthalate		10 J	10 J	qualify	1
		Benzo(b)fluoranthene		240 J	240 J	qualify	1
		Benzo(a)pyrene		140 J	140 J	qualify	1
		Indeno(1,2,3-cd)pyrene		92 J	92 J	qualify	1
		Dibenzo(a,h)anthracene		48 J	48 J	qualify	1
		Benzo(g,h,i)perylene		110 J	110 J	qualify	1
		2-Methylnaphthalene		340 U	340 UJ	qualify	3
		Hexachlorobenzene		340 U	340 UJ	qualify	3
		Butylbenzylphthalate		340 U	340 UJ	qualify	3
		Di-n-octylphthalate		340 U	340 UJ	qualify	3

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported result for this compound is negated, with 'U' qualifier applied at the compound's PQL, because the reported value is below 10x the concentration of this compound in the associated method Blank, OR, the compound is a common laboratory contaminant.
- The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.:

A02-8815

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
All samples were extracted and analyzed within allowable holding times.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
09/09/02	A2B0866003	Z52899	soil	di-n-butylphthalate	120 J

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
All reported surrogate recoveries were within acceptable limits			

D. MATRIX SPIKE / DUPLICATE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
------------------	-----------------------	-------------	---------------

No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.

E. BLANK SPIKE / DUPLICATE

Note: * next to the compound name indicates that it was out of limits in both Blank Spike and Duplicate

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
A2B0866003	phenol *	high	Qualify positives
	2-chlorophenol	high	Qualify positives
	4-chloro-3-methylphenol *	high	Qualify positives
	4-nitrophenol *	high	Qualify positives
	2,4-dinitrotoluene *	high	Qualify positives
	pentachlorophenol *	high	Qualify positives

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
All IS recoveries & RTs were within acceptable limits			

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
06/25/02	OK	yes	
09/09/02	OK	yes	

H. SAMPLE RESULT VERIFICATION

	<u>Sample ID</u>	<u>Compound</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>	
	23KV-EAST WALL	benzo(a)pyrene	3900	4041	
Conc., ug/Kg =	Ax	Is	Vt	Df	GPC
	1713405	40.0	1000	5.0	1.0
	Ais	RRF	Vi	Ws	D
	1501663	0.983	2.0	30.72	0.935

Note : the laboratory utilized the RRF from the CCAL, as opposed to the ICAL average RRF for compound quantitation. Method 8270 stipulates quantitation from the ICAL average RRF. Use of the ICAL average RRF of 0.983 results in a concentration for benzo(a)pyrene of 4041 ug/Kg.

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: A02-8815

A. INITIAL CALIBRATION

CALIBRATION DATE :	<u>06/25/02</u>
FILE IDs :	<u>Z52051-52, 54-56</u>
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds)	benzyl alcohol
SPCC Compounds	2,4-dinitrophenol
N-Nitroso-di-n-propylamine	
Hexachlorocyclopentadiene	
2,4-Dinitrophenol	
4-Nitrophenol	
MINIMUM RRF = 0.050	
CCC Compounds	
<u>Base/Neutrals</u>	
Acenaphthene	
1,4-Dichlorobenzene	
Hexachlorobutadiene	
Diphenylamine	
Di-n-octylphthalate	
Fluoranthene	
Benzo(a)pyrene	
<u>Acids</u>	
4-Chloro-3-methylphenol	
2,4-Dichlorophenol	
2-Nitrophenol	
Phenol	
Pentachlorophenol	
2,4,6-Trichlorophenol	
MAXIMUM %RSD = 30.0%	
MAXIMUM %D = 20.0%	

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in all associated samples.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	<u>09/09/02</u>
FILE ID :	<u>Z52896</u>
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %Ds < 20% ?	Yes
All Targets < 20%D?	NO
(If No, list compounds)	2-methylnaphthalene
	hexachlorobenzene
	butylbenzylphthalate
	di-n-octylphthalate
	2,4,6-tribromophenol (surrogate)

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: A02-8815METHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	23KV-SOUTH WALL	Aroclor 1016		84 U	84 UJ	qualify	1
		Aroclor 1221		84 U	84 UJ	qualify	1
		Aroclor 1232		84 U	84 UJ	qualify	1
		Aroclor 1242		84 U	84 U		
		Aroclor 1248		84 U	84 U		
		Aroclor 1254		84 U	84 U		
		Aroclor 1260		84 U	84 U		
	23KV-NORTH WALL	Aroclor 1016		85 U	85 UJ	qualify	1
		Aroclor 1221		85 U	85 UJ	qualify	1
		Aroclor 1232		85 U	85 UJ	qualify	1
		Aroclor 1242		85 U	85 U		
		Aroclor 1248		85 U	85 U		
		Aroclor 1254		85 U	85 U		
		Aroclor 1260		85 U	85 U		
	23KV-EAST WALL	Aroclor 1016		85 U	85 UJ	qualify	1
		Aroclor 1221		85 U	85 UJ	qualify	1
		Aroclor 1232		85 U	85 UJ	qualify	1
		Aroclor 1242		85 U	85 U		
		Aroclor 1248		85 U	85 U		
		Aroclor 1254		85 U	85 U		
		Aroclor 1260		85 U	85 U		
	23KV-BOTTOM	Aroclor 1016		84 U	84 UJ	qualify	1
		Aroclor 1221		84 U	84 UJ	qualify	1
		Aroclor 1232		84 U	84 UJ	qualify	1
		Aroclor 1242		84 U	84 U		
		Aroclor 1248		84 U	84 U		
		Aroclor 1254		84 U	84 U		
		Aroclor 1260		84 U	84 U		

FOOTNOTES

- 1 The reported result for this compound is qualified 'UJ', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 15.0%. The data user is directed to comments in the data validation narrative regarding laboratory calibration acceptance calculation procedures.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory
Project No.: A02-8815

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP : 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	A2B0865803
Extraction Date:	09/06/02
Analyte	Conc. ug/Kg
none found	n/a
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Comments: No matrix spike / duplicate were performed; only a Blank Spike was run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE

All reported recoveries and %RPD of the Blank Spike & Blank Spike Duplicate were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: GlenwoodLaboratory
Project No.: A02-8815Laboratory: STL - Buffalo**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 07/04/02 Verification of ICAL Results

Reviewer's Note : The laboratory utilized linear regression to generate a calibration line for the Aroclors, which is an allowable option under SW-846 protocols (see Method 8000B, pp. 20-21). All reported correlation coefficients were >0.99, which is the method acceptability criterion for acceptable fit. It is noted that the lab employed a second-order regression for this calibration; although the calculated correlation coefficient shown below does not address the second-order equation, it is still >0.99, which is acceptable.

	x	y	r ²	r ²
Aroclor 1260, Peak 1 RT = 10.46 minutes	<u>Conc.</u>	<u>Response</u>	<u>Lab Value</u>	<u>Calc. Value</u>
	0.05	28332	0.999953	0.9971661
	0.1	48508		
	0.25	99164		
	0.5	175149		
	1	325167		
	2.5	704806		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	09/09/02	01/10/02
FILE ID :	LA07213 - 18	LA07230
All Targets < 15% D?	NO	Yes
(If No, list compounds) ==>	Aroclor 1016 Aroclor 1221 Aroclor 1232	

QA ACTION : Qualify 'UJ' or 'J' above-noted compounds in all samples.**C. SAMPLE RESULT VERIFICATION**

SAMPLE ID: Blank Spike
 COMPOUND: Aroclor-1254
 REPORTED VALUE: 150 ug/Kg column = RTX-5

ug/Kg =	ng average conc.	extract, mL	Dilution factor
	0.445	10000	1.0
	30.07	1.0	1.0
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 147.9

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: A02-8815 Method : SW-846
 Lab Name : STL - Buffalo Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	23KV-SOUTH WALL	Aluminum		2150 E	2150 J	qualify	5, 6
		Antimony	0.373	1.1 B	1.1 J	qualify	1, 6
		Arsenic		1.4	1.4 J	qualify	2, 6
		Barium	0.054	10.6 B	10.6 J	qualify	1, 6
		Beryllium		0.15 B	0.15 J	qualify	1, 6
		Cadmium		0.47 B	0.47 J	qualify	1, 6
		Calcium	10.07	171 B	171 J	qualify	1, 6
		Chromium		3.7	3.7 J	qualify	6
		Cobalt		2.4 B	2.4 J	qualify	1, 6
		Copper		3.7	3.7 J	qualify	5, 6
		Iron		6110	6110 J	qualify	6
		Lead		5.2	5.2 J	qualify	6
		Magnesium		413 B	413 J	qualify	1, 6
		Manganese		152 N	152 J	qualify	4, 6
		Mercury	-0.010	0.014 U	0.014 UJ	qualify	2
		Nickel		8.3	8.3 J	qualify	6
		Potassium	9.03	248 B	248 J	qualify	1, 6
		Selenium		0.54 U	0.54 UJ	qualify	2, 6
		Silver		0.10 U	0.10 UJ	qualify	6
		Sodium		53.0 B	53.0 J	qualify	1, 6
		Thallium		0.41 B	0.41 J	qualify	1, 3, 6
		Vanadium	-0.090	48.4	48.4 J	qualify	6
		Zinc	0.428	717	717 J	qualify	6
		Cyanide		Not analyzed			
	23KV-NORTH WALL	Aluminum		6140 E	6140 J	qualify	5, 6
		Antimony	0.373	0.93 B	0.93 J	qualify	1, 6
		Arsenic		2.4	2.4 J	qualify	2, 6
		Barium	0.054	58.8	58.8 J	qualify	6
		Beryllium		0.19 B	0.19 J	qualify	1, 6
		Cadmium		0.03 B	0.03 J	qualify	1, 6
		Calcium	10.07	7040	7040 J	qualify	6
		Chromium		10.6	10.6 J	qualify	6
		Cobalt		4.8 B	4.8 J	qualify	1, 6
		Copper		31.4	31.4 J	qualify	5, 6
		Iron		12400	12400 J	qualify	6
		Lead		61.7	61.7 J	qualify	6
		Magnesium		3690	3690 J	qualify	6
		Manganese		192 N	192 J	qualify	4, 6
		Mercury	-0.010	0.087	0.087 J	qualify	2
		Nickel		13.5	13.5 J	qualify	6
		Potassium	9.03	780	780 J	qualify	6
		Selenium		0.56 U	0.56 UJ	qualify	2, 6
		Silver		0.10 U	0.10 UJ	qualify	6
		Sodium		136 B	136 J	qualify	1, 6
		Thallium		0.41 U	0.41 UJ	qualify	6
		Vanadium	-0.090	20.6	20.6 J	qualify	6
		Zinc	0.428	58.0	58.0 J	qualify	6
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: A02-8815Method : SW-846Lab Name : STL - BuffaloSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	23KV-EAST WALL	Aluminum		2460 E	2460 J	qualify	5, 6
		Antimony	0.373	0.65 B	0.65 J	qualify	1, 6
		Arsenic		1.1	1.1 J	qualify	2, 6
		Barium	0.054	18.3 B	18.3 J	qualify	1, 6
		Beryllium		0.12 B	0.12 J	qualify	1, 6
		Cadmium		0.08 B	0.08 J	qualify	1, 6
		Calcium	10.07	221 B	221 J	qualify	1, 6
		Chromium		5.3	5.3 J	qualify	6
		Cobalt		2.7 B	2.7 J	qualify	1, 6
		Copper		6.9	6.9 J	qualify	5, 6
		Iron		5470	5470 J	qualify	6
		Lead		16.6	16.6 J	qualify	6
		Magnesium		591	591 J	qualify	6
		Manganese		140 N	140 J	qualify	4, 6
		Mercury	-0.010	0.015 U	0.015 UJ	qualify	2
		Nickel		4.1 B	4.1 J	qualify	1, 6
		Potassium	9.03	274 B	274 J	qualify	1, 6
		Selenium		0.53 U	0.53 UJ	qualify	2, 6
		Silver		0.10 U	0.10 UJ	qualify	6
		Sodium		25.3 U	25.3 UJ	qualify	6
		Thallium		0.39 U	0.39 UJ	qualify	3, 6
		Vanadium	-0.090	9.1	9.1 J	qualify	6
		Zinc	0.428	75.5	75.5 J	qualify	6
		Cyanide		Not analyzed			
	23KV-BOTTOM	Aluminum		1850 E	1850 J	qualify	5, 6
		Antimony	0.373	1.2 B	1.2 J	qualify	1, 6
		Arsenic		1.1	1.1 J	qualify	2, 6
		Barium	0.054	11.8 B	11.8 J	qualify	1, 6
		Beryllium		0.09 B	0.09 J	qualify	1, 6
		Cadmium		0.04 B	0.04 J	qualify	1, 6
		Calcium	10.07	194 B	194 J	qualify	1, 6
		Chromium		3.7	3.7 J	qualify	6
		Cobalt		1.6 B	1.6 J	qualify	1, 6
		Copper		5.1	5.1 J	qualify	5, 6
		Iron		4960	4960 J	qualify	6
		Lead		17.2	17.2 J	qualify	6
		Magnesium		376 B	376 J	qualify	1, 6
		Manganese		121 N	121 J	qualify	4, 6
		Mercury	-0.010	0.013 U	0.013 UJ	qualify	2
		Nickel		2.9 B	2.9 J	qualify	1, 6
		Potassium	9.03	215 B	215 J	qualify	1, 6
		Selenium		0.54 U	0.54 UJ	qualify	2, 6
		Silver		0.10 U	0.10 UJ	qualify	6
		Sodium		26.9 B	26.9 J	qualify	1, 6
		Thallium		0.40 U	0.40 UJ	qualify	6
		Vanadium	-0.09	12.2	12.2 J	qualify	6
		Zinc	0.428	69.2	69.2 J	qualify	6
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : Glenwood SDG No.: A02-8815 Method : SW-846
Lab Name : STL - Buffalo Sample Matrix : Non-Aqueous

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value. No bias direction is inferred.
- 2 The reported value for this analyte was qualified 'UJ' or 'J', because the associated CRDL standard recovery was below the lower limit. Potential negative bias is suggested.
- 3 The reported positive value for this analyte was qualified 'J', because the associated CRDL standard recovery exceeded the upper limit. Potential positive bias is suggested.
- 4 The reported value for this analyte was qualified 'UJ' or 'J', because the matrix spike recovery was below the lower limit of 75%. Potential negative bias is suggested.
- 5 The reported positive value for this analyte was qualified 'J', because the associated Serial Dilution standard precision exceeded 10.0%D, while the sample concentration was above 10x analyte IDL.
- 6 The reported value for this analyte was qualified, because the reported dates of the ICP Interelement Correction factor and Linear Range determinations exceeded the annual (12-month) and quarterly repeat frequency requirements. No bias direction is inferred. The laboratory should take corrective actions to ensure that the required frequencies are adhered to and correctly reported.

METALS ANALYSIS **QC PARAMETER / QUALIFIER SUMMARY**

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- BuffaloLab Project No. : A02-8815**A. CALIBRATION**ICP Analytes

ICV	90% - 110% recovery
CCV	90% - 110% recovery

Outliers ?

none
none

B. CRDL STANDARD

80 - 120% recovery

Outliers ?

As	77%
Pb	128%, 122%
Se	70%
Tl	142%
Hg	65%

QA Action : Qualify 'UJ' or 'J' As, Hg & Se values up to 4x CRDL with negative bias suggested for qualified values.QA Action : Qualify 'J' positive Pb & Tl values up to 4x CRDL with positive bias suggested for qualified values.Affects : All samples**C. BLANKS**

ICB / CCB	< CRDL
Prep Blank	< CRDL

Outliers ?

none
none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

ICSA	Response < 2x CRDL for trace metals
ICSAB	80 - 120% recovery

Outliers ?

none
none

E. MATRIX SPIKE (23KV-SOUTH WALL)

75 - 125% recovery (if sample conc. < 4x spike conc.)

Outliers ?

Mn 66%

QA Action : Qualify Mn values 'UJ' or 'J' with negative bias suggested.**F. POST-DIGESTION SPIKE**

75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.

Outliers ?

none

Comments : Sb native sample was non-detect, PDS conc. should be 120 ppb. PDS concentration used was 500 ppb.**G. MATRIX DUPLICATE (23KV-SOUTH WALL)**

Max. 100% RPD for non-aqueous samples > 5x CRDL
Max. (+/-) CRDL value if either sample < 5x CRDL

Outliers ?

none
none

H. LABORATORY CONTROL SAMPLE

Recovery within control limits for non-aqueous samples
Recovery between 80 - 120% for aqueous samples

Outliers ?

none
n/a

I. SERIAL DILUTION SAMPLE

Maximum 10.0% D if undiluted sample > 10x IDL

Outliers ?

Al 11%
Cu 12%

QA Action : Qualify 'J' positive Al & Cu results > 10x IDL values.**J. VERIFICATION OF INSTRUMENTAL PARAMETERS**

	<u>Frequency</u>
Instrument Detection Limits	Quarterly
Interelement Correction Factors	Annually
Linear Range Analysis	Quarterly

Outliers ?

none
*
*

* Note : IECF & Linear Range determinations were over scheduled frequencies at time of analysis; all results were qualified as estimated 'J'. The laboratory should take steps to ensure that updates are performed at specified frequencies.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- BuffaloLab Project No. : A02-8815

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ?

YesIf No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ?

YesIf No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ?

YesIf No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ?

YesIf No, list affected analytes and samples, and QA action : _____

5. Show calculation for % Solids for one sample.

Sample ID: 23KV-NORTH WALLLab value : 92 %Dry weight : 8.10 gm% Solids = $\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$ Wet weight : 8.83 gm

Wet weight

=

91.7 %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: 23KV-NORTH WALLAnalyte : PbLab value : 61.7 mg/Kg% Solids : 91.7Raw value 0.5433 mg/LFinal volume 50 mLWet weight 0.48 gmmg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (ml)}}{\text{wet wgt} \times (\% \text{Sol}/100)}$

wet wgt x (%Sol/100) =

61.7

mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ?

n/aIf No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 29, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 200242

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA3-4	200242-1	SOIL	12/14/01	X	X	X
GLA3-5	200242-2	SOIL	12/14/01	X	X	X
GLA3-6	200242-3	SOIL	12/14/01	X	X	X
GLA3-7	200242-4	SOIL	12/14/01	X	X	X
GLA3-8	200242-5	SOIL	12/14/01	X	X	X
GLA3-9	200242-6	SOIL	12/14/01	X	X	X
GLA5D-5A	200242-7	SOIL	12/14/01	X	X	X
GLA5D-5B	200242-8	SOIL	12/14/01	X	X	X
GLA5D-5C	200242-9	SOIL	12/14/01	X	X	X
GLA5D-5D	200242-10	SOIL	12/14/01	X	X	X
GLA5D-2A	200242-11	SOIL	12/14/01	X	X	X
GLA5D-2B	200242-12	SOIL	12/14/01	X	X	X
GLA5D-2C	200242-13	SOIL	12/14/01	X	X	X
GLA5D-2D	200242-14	SOIL	12/14/01	X	X	X
GLA5A-4A	200242-15	SOIL	12/17/01	X	X	X
GLA5A-4B	200242-16	SOIL	12/17/01	X	X	X
GLA5A-4C	200242-17	SOIL	12/17/01	X	X	X
GLA5A-4D	200242-18	SOIL	12/17/01	X	X	X
GLA3-1	200242-19	SOIL	12/17/01	X	X	X
GLA4-4SA	200242-20	SOIL	12/18/01	X	X	X

Sample Collection and Receipt

It is noted that samples were received at STL-CT at 8, 9 AND 10 degrees C; the client was notified, and the lab instructed to proceed with analysis. The method-prescribed sample preservation temperature is 4 degrees C; EPA Region II validation guidelines call for qualification above 10 C. No data qualifiers were applied.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

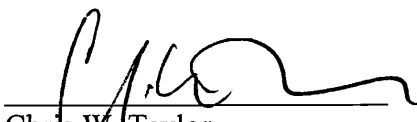
Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

- 1) No GPC clean-up was performed on the soil samples for the semi-volatile or pesticide-PCB fractions, nor was Florisil clean-up performed for the PCB fraction. GPC clean-up can improve resolution for these fractions by removing a wide range of higher molecular weight interferences, and Florisil fractionation provides separation of interferent analytes from the Aroclor compounds of interest. Acid clean-up and copper clean-up were performed on the PCB fractions.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-200242

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 200242METHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA3-4	Benzoic acid		1700 U	1700 UJ	qualify	4
		Benzyl alcohol		350 U	350 UJ	qualify	4
	GLA3-5	Benzoic acid		1700 U	1700 UJ	qualify	4
		Benzyl alcohol		340 U	340 UJ	qualify	4
	GLA3-6	Benzoic acid		1600 U	1600 UJ	qualify	4
		Benzyl alcohol		340 U	340 UJ	qualify	4
	GLA3-7	Benzoic acid		1600 U	1600 UJ	qualify	4
		Benzyl alcohol		340 U	340 UJ	qualify	4
	GLA3-8	Benzoic acid		1700 U	1700 UJ	qualify	4
		Benzyl alcohol		340 U	340 UJ	qualify	4
	GLA3-9	Benzoic acid		1700 U	1700 UJ	qualify	4
		Benzyl alcohol		340 U	340 UJ	qualify	4
	GLA5D-5A	Fluoranthene		72 J	72 J	qualify	1
		Pyrene		76 J	76 J	qualify	1
		Benzo(a)anthracene		45 J	45 J	qualify	1
		Chrysene		55 J	55 J	qualify	1
		Benzo(b)fluoranthene		43 J	43 J	qualify	1
		Benzo(k)fluoranthene		54 J	54 J	qualify	1
		Benzo(a)pyrene		44 J	44 J	qualify	1
		Indeno(1,2,3-cd)pyrene		20 J	20 J	qualify	1, 3
		Benzo(g,h,i)perylene		23 J	23 J	qualify	1, 3
		Benzoic acid		1700 U	1700 UJ	qualify	4
		Benzyl alcohol		360 U	360 UJ	qualify	4
	GLA5D-5B	Fluoranthene		75 J	75 J	qualify	1
		Pyrene		86 J	86 J	qualify	1
		Benzo(a)anthracene		48 J	48 J	qualify	1
		Chrysene		67 J	67 J	qualify	1
		Benzo(b)fluoranthene		50 J	50 J	qualify	1
		Benzo(k)fluoranthene		58 J	58 J	qualify	1
		Benzo(a)pyrene		48 J	48 J	qualify	1
		Indeno(1,2,3-cd)pyrene		23 J	23 J	qualify	1, 3
		Benzo(g,h,i)perylene		28 J	28 J	qualify	1, 3
		Benzoic acid		1700 U	1700 UJ	qualify	4
		Benzyl alcohol		350 U	350 UJ	qualify	4
	GLA5D-5C	Fluoranthene		68 J	68 J	qualify	1
		Pyrene		82 J	82 J	qualify	1
		Benzo(a)anthracene		45 J	45 J	qualify	1
		Chrysene		63 J	63 J	qualify	1
		Benzo(b)fluoranthene		55 J	55 J	qualify	1
		Benzo(k)fluoranthene		54 J	54 J	qualify	1
		Benzo(a)pyrene		48 J	48 J	qualify	1
		Indeno(1,2,3-cd)pyrene		22 J	22 J	qualify	1, 3
		Benzo(g,h,i)perylene		29 J	29 J	qualify	1, 3
		Benzoic acid		1700 U	1700 UJ	qualify	4
		Benzyl alcohol		350 U	350 UJ	qualify	4

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 200242METHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA5D-5D	Dibenzofuran		20 J	20 J	qualify	1
		Phenanthrene		340 J	340 J	qualify	1
		Fluoranthene		350 J	350 J	qualify	1
		Pyrene		320 J	320 J	qualify	1
		Benzo(a)anthracene		68 J	68 J	qualify	1
		Chrysene		130 J	130 J	qualify	1
		Benzo(b)fluoranthene		78 J	78 J	qualify	1
		Benzo(k)fluoranthene		100	100	qualify	1
		Benzo(a)pyrene		68 J	68 J	qualify	1
		Indeno(1,2,3-cd)pyrene		39 J	39 J	qualify	1, 3
		Benzo(g,h,i)perylene		54 J	54 J	qualify	1, 3
		Benzoic acid		1800 U	1800 UJ	qualify	4
		Benzyl alcohol		360 U	360 UJ	qualify	4
	GLA5D-2A	Pyrene		26 J	26 J	qualify	1
		Chrysene		22 J	22 J	qualify	1
		Benzoic acid		1700 U	1700 UJ	qualify	4
		Benzyl alcohol		350 U	350 UJ	qualify	4
	GLA5D-2B	Acenaphthylene		22 J	22 J	qualify	1
		Acenaphthene		27 J	27 J	qualify	1
		Dibenzofuran		16 J	16 J	qualify	1
		Phenanthrene		120 J	120 J	qualify	1
		Anthracene		120 J	120 J	qualify	1
		Fluoranthene		480	480	qualify	1
		Pyrene		770	770	qualify	1
		Benzo(a)anthracene		300 J	300 J	qualify	1
		Chrysene		490	490	qualify	1
		Benzo(b)fluoranthene		170 J	170 J	qualify	1
		Benzo(k)fluoranthene		200 J	200 J	qualify	1
		Benzo(a)pyrene		190 J	190 J	qualify	1
		Indeno(1,2,3-cd)pyrene		150 J	150 J	qualify	1, 3
		Dibenzo(a,h)anthracene		51 J	51 J	qualify	1, 3
		Benzo(g,h,i)perylene		170 J	170 J	qualify	1, 3
		Benzoic acid		1700 U	1700 UJ	qualify	4
		Benzyl alcohol		360 U	360 UJ	qualify	4
	GLA5D-2C	Fluoranthene		40 J	40 J	qualify	1
		Pyrene		59 J	59 J	qualify	1
		Benzo(a)anthracene		27 J	27 J	qualify	1
		Chrysene		39 J	39 J	qualify	1
		Benzo(a)pyrene		30 J	30 J	qualify	1
		Indeno(1,2,3-cd)pyrene		31 J	31 J	qualify	1, 3
		Benzo(g,h,i)perylene		28 J	28 J	qualify	1, 3
		Benzoic acid		1700 U	1700 UJ	qualify	4
		Benzyl alcohol		350 U	350 UJ	qualify	4
	GLA5D-2D	Fluoranthene		54 J	54 J	qualify	1
		Pyrene		86 J	86 J	qualify	1
		Benzo(a)anthracene		40 J	40 J	qualify	1
		Chrysene		59 J	59 J	qualify	1
		Benzo(b)fluoranthene		44 J	44 J	qualify	1
		Benzo(k)fluoranthene		41 J	41 J	qualify	1
		Benzo(a)pyrene		40 J	40 J	qualify	1
		Indeno(1,2,3-cd)pyrene		27 J	27 J	qualify	1, 3
		Benzo(g,h,i)perylene		33 J	33 J	qualify	1, 3
		Benzoic acid		1700 U	1700 UJ	qualify	4
		Benzyl alcohol		350 U	350 UJ	qualify	4

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 200242METHOD: SW846 / 8270CLAB NAME : Severn Trent - NYCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA5A-4A	Fluoranthene		76 J	76 J	qualify	1, 5
		Pyrene		67 J	67 J	qualify	1
		Benzo(a)anthracene		44 J	44 J	qualify	1
		Chrysene		59 J	59 J	qualify	1
		bis(2-ethylhexyl)phthalate	130 J	130 JB	350 U	negate	2
		Benzo(b)fluoranthene		78 J	78 J	qualify	1
		Benzo(a)pyrene		58 J	58 J	qualify	1
		4-Chloroaniline		350 U	350 UJ	qualify	4
		3-Nitroaniline		890 U	890 UJ	qualify	4
		4-Nitroaniline		890 U	890 UJ	qualify	4
		N-nitrosodiphenylamine		350 U	350 UJ	qualify	4, 5
		3,3'-Dichlorobenzidine		710 U	710 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		890 U	890 UJ	qualify	5
		4-Bromophenylphenylether		350 U	350 UJ	qualify	5
		Hexachlorobenzene		350 U	350 UJ	qualify	5
		Pentachlorophenol		890 U	890 UJ	qualify	5
		Phenanthrene		350 U	350 UJ	qualify	5
		Anthracene		350 U	350 UJ	qualify	5
		Carbazole		350 U	350 UJ	qualify	5
		Di-n-butylphthalate		350 U	350 UJ	qualify	5
	GLA5A-4B	Fluoranthene		36 J	36 J	qualify	1
		bis(2-ethylhexyl)phthalate	130 J	250 JB	350 U	negate	2
		4-Chloroaniline		350 U	350 UJ	qualify	4
		3-Nitroaniline		870 U	870 UJ	qualify	4
		4-Nitroaniline		870 U	870 UJ	qualify	4
		N-nitrosodiphenylamine		350 U	350 UJ	qualify	4
		3,3'-Dichlorobenzidine		690 U	690 UJ	qualify	4
	GLA5A-4C	Fluoranthene		41 J	41 J	qualify	1
		bis(2-ethylhexyl)phthalate	130 J	49 JB	350 U	negate	2
		Benzo(b)fluoranthene		37 J	37 J	qualify	1
		4-Chloroaniline		350 U	350 UJ	qualify	4
		3-Nitroaniline		890 U	890 UJ	qualify	4
		4-Nitroaniline		890 U	890 UJ	qualify	4
		N-nitrosodiphenylamine		350 U	350 UJ	qualify	4
		3,3'-Dichlorobenzidine		710 U	710 UJ	qualify	4
	GLA5A-4D	bis(2-ethylhexyl)phthalate	130 J	110 JB	350 U	negate	2
		4-Chloroaniline		350 U	350 UJ	qualify	4
		3-Nitroaniline		880 U	880 UJ	qualify	4
		4-Nitroaniline		880 U	880 UJ	qualify	4
		N-nitrosodiphenylamine		350 U	350 UJ	qualify	4
		3,3'-Dichlorobenzidine		700 U	700 UJ	qualify	4
	GLA3-1	bis(2-ethylhexyl)phthalate	130 J	170 JB	410 U	negate	2
		4-Chloroaniline		410 U	410 UJ	qualify	4
		3-Nitroaniline		1000 U	1000 UJ	qualify	4
		4-Nitroaniline		1000 U	1000 UJ	qualify	4
		N-nitrosodiphenylamine		410 U	410 UJ	qualify	4
		3,3'-Dichlorobenzidine		820 U	820 UJ	qualify	4

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 200242METHOD: SW846 / 8270CLAB NAME : Severn Trent - NYCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC. ug/Kg	LAB REPORTED CONC. ug/Kg	QA REPORTED CONC. ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA4-4SA	Phenanthrene		95 J	95 J	qualify	1
		Fluoranthene		260 J	260 J	qualify	1
		Pyrene		230 J	230 J	qualify	1
		Benzo(a)anthracene		160 J	160 J	qualify	1
		Chrysene		140 J	140 J	qualify	1
		Benzo(b)fluoranthene		140 J	140 J	qualify	1, 4
		Benzo(k)fluoranthene		63 J	63 J	qualify	1
		Benzo(a)pyrene		130 J	130 J	qualify	1, 3
		Indeno(1,2,3-cd)pyrene		57 J	57 J	qualify	1
		Benzo(g,h,i)perylene		66 J	66 J	qualify	1
		3-nitroaniline		910 U	910 UJ	qualify	4
		2,4-dinitrophenol		910 U	910 UJ	qualify	4
		2,4-dinitrotoluene		360 U	360 UJ	qualify	4
		4-nitrophenol		910 U	910 UJ	qualify	4
		4-nitroaniline		910 U	910 UJ	qualify	4
		4,6-dinitro-2-methylphenol		910 U	910 UJ	qualify	4
		pentachlorophenol		910 U	910 UJ	qualify	4
		carbazole		360 U	360 UJ	qualify	4

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported result for this compound is negated, with 'U' qualifier applied at the compound's PQL, because the reported value is below 10x the concentration of this compound in the associated method Blank, OR, the compound is a common laboratory contaminant.
- The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.
- The reported result for this compound is qualified 'UJ', or 'J', because recovery of the associated Internal Standard (IS) compound was below 50% of the response for that IS in the corresponding Continuing Calibration standard.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 200242

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
 All samples were extracted and analyzed within allowable holding times.

Note: 1) Samples were received at 8, 9 & 10 degrees C ; although no data qualifiers were applied, the data user is alerted to the potential for negative bias in samples maintained above the recommended range of 2 to 6 degrees C.

2) Samples (Lab Ids) 01-14 were analyzed by STL-CT, while 15-20 were analyzed by STL-NY.

B. METHOD BLANKS

Lab	Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
CT	12/16/01	MB1619	R2970	soil		
NY	12/19/01	SBLK38	S20997	soil	bis(2-eh)phthalate	130 J
NY	12/21/01	SBLK40	E23519	soil		

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
 If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
 If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

Sample ID	Surrogate	Bias	ACTION
MB1619	2-fluorophenol	high	Qualify positive phenols
GLA3-4	2-fluorophenol	high	Qualify positive phenols
GLA3-5	2-fluorophenol	high	Qualify positive phenols
GLA3-7	2-fluorophenol	high	Qualify positive phenols
GLA3-9	2-fluorophenol	high	Qualify positive phenols
GLA5D-5D	2-fluorophenol	high	Qualify positive phenols
GLA5A-4A RE	2-fluorophenol	low, <10%	n/a ; this re-analysis not used

D. MATRIX SPIKE / DUPLICATE

Sample ID	Spike Compound	Bias	ACTION
GLA4-4SA			

Comments: 1) The above sample represents only the samples extracted on 12/21/01, and should not be considered as representative of other extraction / sample groups, since all other samples were extracted and analyzed in separate groups by different labs.
 2) Only the CLP compound set were spiked in the MS/MSD and Blank Spikes. Recoveries for other target compounds reported are unknown.

E. BLANK SPIKE

See Comment 2 above

Sample ID	Spike Compound	Bias	ACTION
LCS-1619	All blank spike recoveries were within laboratory limits		
SBSPK38	All blank spike recoveries were within laboratory limits		
SBSPK40	All blank spike recoveries were within laboratory limits		

F. INTERNAL STANDARDS

Sample ID	Internal Standard	Bias	ACTION
GLA5A-4A	phenanthrene-d10	low	Use original results; qualify 'UJ' or 'J' all compounds quantitated from phenanthrene-d10
GLA5A-4A RE	perylene-d12	low	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Internal Standard	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA5D-5A	pyrene	chrysene-d12	76 J	75.7
Ax	Is	Vt	Df	GPC
133385	40.0	500	1.0	1.0
Ais	RRF	Vi	Ws	D
994231	1.288	2.0	15	0.92

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 200242

A. GC/MS PERFORMANCE CHECK (DFTPP TUNE)

Date	m/z abundance	< 12-hrs.	Comments
12/17/01	OK	yes	<u>The Form 5 tune summaries for all analytical sequences list incorrect m/z ratio windows for m/z 51, 127, 365 and 443. For the CT lab, ratios are incorrect in both the summary forms and raw data; for the NY lab, the windows are listed correctly in the raw data. Although the actual ratios were within the acceptable ranges for Method 8270, the labs should take steps to implement the correct ranges in their software.</u>
12/18/01	OK	yes	
11/14/01	OK	yes	
12/19/01	OK	yes	
12/20/01	OK	yes	
11/27/01	OK	yes	
12/21/01	OK	yes	

B. INITIAL CALIBRATION

CALIBRATION DATE :	12/17/01	11/14/01	11/27/01
FILE IDs :			
ALL RRFs > 0.05 ?	Yes	Yes	Yes
SPCC RRFs > 0.05 ?	Yes	Yes	Yes
CCC %RSDs < 30% ?	Yes	Yes	Yes
All Targets < 15% RSD?	NO	NO	NO
(If No, list compounds)	benzoic acid	benzoic acid	hexachloroethane
SPCC Compounds	2-methylnaphthalene	2,4-dinitrophenol	N-nitroso-di-n-propylamine
N-Nitroso-di-n-propylamine	hexachlorocyclopentadiene	4-nitrophenol	4-methylphenol
Hexachlorocyclopentadiene	2,4-dinitrophenol	4,6-dinitro-2-methylphenol	benzoic acid
2,4-Dinitrophenol	indeno(123cd)pyrene		naphthalene
4-Nitrophenol	dibenzo(ah)anthracene		hexachlorocyclopentadiene
MINIMUM RRF = 0.050	benzo(ghi)perylene		3-nitroaniline
			2,4-dinitrophenol
			4-nitrophenol
			4,6-dinitro-2-methylphenol
			carbazole
			benzo(a)pyrene

CCC Compounds
<u>Base/Neutrals</u>
Acenaphthene
1,4-Dichlorobenzene
Hexachlorobutadiene
Diphenylamine
Di-n-octylphthalate
Fluoranthene
Benzo(a)pyrene
<u>Acids</u>
4-Chloro-3-methylphenol
2,4-Dichlorophenol
2-Nitrophenol
Phenol
Pentachlorophenol
2,4,6-Trichlorophenol
MAXIMUM %RSD = 30.0%
MAXIMUM %D = 20.0%

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

C. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/18/01	12/19/01	12/20/01	12/21/01
FILE ID :		CCS2169	CCS2170	CCS2250
ALL RRFs > 0.05 ?	Yes	Yes	Yes	Yes
SPCC RRFs > 0.05 ?	Yes	Yes	Yes	Yes
CCC %Ds < 20% ?	Yes	Yes	Yes	Yes
All Targets < 20%D?	NO	NO	NO	NO
(If No, list compounds)	benzoic acid benzyl alcohol	benzoic acid 4-chloroaniline 3-nitroaniline 4-nitroaniline N-nitrosodiphenylamine 3,3'-dichlorobenzidine	N-nitrosodimethylamine 2-fluorophenol 2,4-dinitrophenol	3-nitroaniline 2,4-dinitrophenol 2,4-dinitrotoluene 4-nitrophenol 4-nitroaniline 4,6-dinitro-2-methylphenol pentachlorophenol (CCC) carbazole benzo(b)fluoranthene

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 200242METHOD: SW846 / 8082LAB NAME : STL - VTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA3-4	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		18 U	18 U		
	GLA3-5	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA3-6	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA3-7	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA3-8	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA3-9	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA5D-2A	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		18 U	18 U		

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 200242METHOD: SW846 / 8082LAB NAME : STL - VTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA5D-2B	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		36	36 J	qualify	2
	GLA5D-2C	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		160	160 J	qualify	2
		Aroclor 1260		18 U	18 U		
	GLA5D-2D	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		18 U	18 U		
	GLA5D-5A	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		18 U	18 U		
	GLA5D-5B	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		18 U	18 U		
	GLA5D-5C	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA5D-5D	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		18 U	18 U		

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 200242METHOD: SW846 / 8082LAB NAME : STL - VTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA5A-4A	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA5A-4B	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA5A-4C	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA5A-4D	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA3-1	Aroclor 1016		19 U	19 U		
		Aroclor 1221		19 U	19 U		
		Aroclor 1232		19 U	19 U		
		Aroclor 1242		19 U	19 U		
		Aroclor 1248		19 U	19 U		
		Aroclor 1254		42 P	42 J	qualify	2, 3
		Aroclor 1260		19 U	19 U		
	GLA4-4SA	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		68	68 J	qualify	2

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME :	<u>Glenwood</u>	SDG No.:	<u>200242</u>	METHOD:	<u>SW846 / 8082</u>
LAB NAME :	<u>STL - VT</u>	CLIENT:	<u>Vanasse, Hangen, Brustlin, Inc.</u>	SAMPLE MATRIX:	<u>Non-Aqueous</u>

FOOTNOTES

- 1 NOT USED FOR THIS SDG
- 2 The reported result is qualified 'J', as quantitatively estimated, because the lower of the values from the two analytical columns was reported. This information is provided to the data end-user for potential utility in performing regulatory compliance assessment.
- 3 The reported result is qualified 'J', as quantitatively estimated, because the %D between analytical columns exceeded 25%, but was below 50%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory
Project No.: 200242

Laboratory: STL - VT

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

Note: Samples were received at 8, 9 & 10 degrees C ; although no data qualifiers were applied, the data user is alerted to the potential for negative bias in samples maintained above the recommended preservation temperature range of 2 to 6 degrees C.

B. METHOD BLANKS

Blank ID:	PBLKN9	Blank ID:	PBLKO6	Blank ID:	PBLKP2
Extraction Date:	12/16/01	Extraction Date:	12/18/01	Extraction Date:	12/19/01
Analyte	Conc. ug/Kg	Analyte	Conc. ug/Kg	Analyte	Conc. ug/Kg
none found		none found		none found	
AFFECTS:	1 - 14	AFFECTS:	15 - 19	AFFECTS:	20

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Note: No matrix spike / duplicate were performed; only Blank Spikes / Duplicates were run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (LCS)

LCS and LCS duplicates were performed for each extraction batch; results were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)**CALIBRATION SUMMARY****SW-846 Method 8082**For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 200242Laboratory: STL - VT**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 11/30/01 Verification of ICAL Results

Reviewer's Note : The laboratory used linear regression to generate a calibration line for the Aroclors, which is an allowable option under SW-846 protocols (see Method 8000B, pp. 20-21). All reported correlation coefficients were >0.99, which is the method criterion for acceptable curve fit.

12/18/01				Calc.
Aroclor 1260, Peak 4	<u>Conc.</u>	<u>Response</u>	<u>Lab R-squared</u>	<u>R-squared</u>
RTX-35, RT = 12.09 minutes	0.05	17328	0.99876	0.998757
	0.1	33271		
	0.2	67263		
	0.4	121948		
	0.8	256463		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/18/01	12/18/01	12/18/01	12/18/01
RUN TIME :	4:01	9:12	14:23	16:23
All Targets < 15% D?	Yes	Yes	Yes	Yes
(If No, list compounds) ==>				

CALIBRATION DATE :	12/19/01	12/19/01	12/21/01	12/21/01
RUN TIME :	15:14	19:36	17:48	22:32
All Targets < 15% D?	Yes	Yes	Yes	Yes
(If No, list compounds) ==>				

QA ACTION : None necessary**C. SAMPLE RESULT VERIFICATION**SAMPLE ID: GLA4-4SACOMPOUND: Aroclor-1260REPORTED VALUE: 68 ug/Kg column = RTX-5

<u>Peak RT</u>	<u>m1</u>	<u>peak height</u>	<u>+ b</u>	<u>ppb</u>
10.20	0.00968	21973	-35.87457	176.824
10.33	0.01715	7813	-27.77059	106.222
10.81	0.0114	11190	-31.1148	96.451
11.53	0.00441	34944	-23.5252	130.578
12.45	0.01439	33229	-24.77451	453.391

conc., y = (m1*x) + b

avg. ppb = 192.693

ug/Kg =	ppb avg. conc.	extract, mL	Dilution factor
	192.693	10	1.0
	30.2	1.0	0.93
	wet wgt., gm	inject. vol, uL	%sol/100
ug/Kg =	68.6		

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 200242 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA3-4	Aluminum		1430	1430		
		Antimony		0.98 U	0.98 UJ	qualify	2
		Arsenic		1.3	1.3		
		Barium		10.6	10.6		
		Beryllium		0.19 U	0.19 U		
		Cadmium		0.23 U	0.23 U		
		Calcium		170	170		
		Chromium		3.4	3.4		
		Cobalt		1.4	1.4		
		Copper		2.8	2.8		
		Iron		4630	4630		
		Lead		4.1	4.1		
		Magnesium		354	354		
		Manganese		135	135 J	qualify	2
		Mercury		0.077 B	0.077 J	qualify	1
		Nickel		2.7	2.7		
		Potassium		192	192		
		Selenium		1.3 U	1.3 U		
		Silver		0.21 U	0.21 U		
		Sodium	46.2	27.0	27.0		
		Thallium		1.8 U	1.8 U		
		Vanadium		6.3	6.3		
		Zinc		8.4	8.4		
		Cyanide		Not analyzed			
	GLA3-5	Aluminum		1050	1050		
		Antimony		0.82 U	0.82 UJ	qualify	2
		Arsenic		0.57 U	0.57 U		
		Barium		7.9	7.9		
		Beryllium		0.16 U	0.16 U		
		Cadmium		0.20 U	0.20 U		
		Calcium		259	259		
		Chromium		3.0	3.0		
		Cobalt		1.4	1.4		
		Copper		1.8	1.8		
		Iron		3570	3570		
		Lead		1.2	1.2		
		Magnesium		361	361		
		Manganese		109	109 J	qualify	2
		Mercury		0.005 U	0.005 U		
		Nickel		2.0	2.0		
		Potassium		243	243		
		Selenium		1.1 U	1.1 U		
		Silver		0.18 U	0.18 U		
		Sodium	46.2	29.8	29.8		
		Thallium		1.5 U	1.5 U		
		Vanadium		4.3	4.3		
		Zinc		7.4	7.4		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 200242 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA3-6	Aluminum		896	896		
		Antimony		1.0 U	1.0 UJ	qualify	2
		Arsenic		0.70 U	0.70 U		
		Barium		4.8	4.8		
		Beryllium		0.20 U	0.20 U		
		Cadmium		0.24 U	0.24 U		
		Calcium		79.5	79.5		
		Chromium		2.7	2.7		
		Cobalt		0.94	0.94		
		Copper		4.9	4.9		
		Iron		3030	3030		
		Lead		1.1	1.1 J	qualify	3
		Magnesium		248	248		
		Manganese		95.2	95.2 J	qualify	2
		Mercury		0.38 B	0.38 J	qualify	1
		Nickel		1.7	1.7		
		Potassium		138	138		
		Selenium		1.4 U	1.4 U		
		Silver		0.22 U	0.22 U		
		Sodium	46.2	40.9	40.9		
		Thallium		1.9 U	1.9 U		
		Vanadium		3.2	3.2		
		Zinc		6.8	6.8		
		Cyanide		Not analyzed			
	GLA3-7	Aluminum		787	787		
		Antimony		1.1 U	1.1 UJ	qualify	2
		Arsenic		1.7	1.7		
		Barium		8.5	8.5		
		Beryllium		0.21 U	0.21 U		
		Cadmium		0.26 U	0.26 U		
		Calcium		57.1	57.1		
		Chromium		6.6	6.6		
		Cobalt		0.94	0.94		
		Copper		3.9	3.9		
		Iron		4390	4390		
		Lead		1.0	1.0 J	qualify	3
		Magnesium		142	142		
		Manganese		98.2	98.2 J	qualify	2
		Mercury		0.004 U	0.004 U		
		Nickel		1.7	1.7		
		Potassium		104	104		
		Selenium		1.5 U	1.5 U		
		Silver		0.24 U	0.24 U		
		Sodium	46.2	16.8	16.8		
		Thallium		2.0 U	2.0 U		
		Vanadium		3.0	3.0		
		Zinc		6.0	6.0		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 200242 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA3-8	Aluminum		566	566		
		Antimony		1.1 U	1.1 UJ	qualify	2
		Arsenic		0.77 U	0.77 U		
		Barium		3.6	3.6		
		Beryllium		0.22 U	0.22 U		
		Cadmium		0.27 U	0.27 U		
		Calcium		43.1	43.1		
		Chromium		2.1	2.1		
		Cobalt		0.26	0.26		
		Copper		26.1	26.1		
		Iron		1740	1740		
		Lead		3.4	3.4		
		Magnesium		121	121		
		Manganese		12.7	12.7 J	qualify	2
		Mercury		3.0 B	3.0		
		Nickel		0.53	0.53		
		Potassium		87.3	87.3		
		Selenium		1.5 U	1.5 U		
		Silver		0.24 U	0.24 U		
		Sodium	46.2	14.4	14.4		
		Thallium		2.1 U	2.1 U		
		Vanadium		3.4	3.4		
		Zinc		9.4	9.4		
		Cyanide		Not analyzed			
	GLA3-9	Aluminum		867	867		
		Antimony		0.86 U	0.86 U	qualify	2
		Arsenic		0.76	0.76		
		Barium		4.7	4.7		
		Beryllium		0.17 U	0.17 U		
		Cadmium		0.21 U	0.21 U		
		Calcium		96.4	96.4		
		Chromium		2.8	2.8		
		Cobalt		0.96	0.96		
		Copper		3.6	3.6		
		Iron		4100	4100		
		Lead		0.86	0.86 J	qualify	3
		Magnesium		230	230		
		Manganese		84.1	84.1	qualify	2
		Mercury		0.35 B	0.35 B		
		Nickel		1.8	1.8		
		Potassium		188	188		
		Selenium		1.2 U	1.2 U		
		Silver		0.19 U	0.19 U		
		Sodium	46.2	710	710		
		Thallium		1.6 U	1.6 U		
		Vanadium		5.1	5.1		
		Zinc		13.0	13.0		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 200242 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5D-5A	Aluminum		2850	2850		
		Antimony		0.90 U	0.90 UJ	qualify	2
		Arsenic		2.2	2.2		
		Barium		25.1	25.1		
		Beryllium		0.18	0.18		
		Cadmium		0.22 U	0.22 U		
		Calcium		605	605		
		Chromium		10.4	10.4		
		Cobalt		2.5	2.5		
		Copper		7.2	7.2		
		Iron		7890	7890		
		Lead		76.7	76.7		
		Magnesium		923	923		
		Manganese		113	113 J	qualify	2
		Mercury		0.016 B	0.016 J	qualify	1
		Nickel		7.9	7.9		
		Potassium		585	585		
		Selenium		1.2 U	1.2 U		
		Silver		0.20 U	0.20 U		
		Sodium	46.2	60.0	60.0		
		Thallium		1.7 U	1.7 U		
		Vanadium		10.1	10.1		
		Zinc		27.6	27.6		
		Cyanide		Not analyzed			
	GLA5D-5B	Aluminum		3030	3030		
		Antimony		0.92 U	0.92 UJ	qualify	2
		Arsenic		2.1	2.1		
		Barium		22.0	22.0		
		Beryllium		0.20	0.20		
		Cadmium		0.22 U	0.22 U		
		Calcium		490	490		
		Chromium		10.4	10.4		
		Cobalt		2.3	2.3		
		Copper		8.0	8.0		
		Iron		7370	7370		
		Lead		38.7	38.7		
		Magnesium		718	718		
		Manganese		130	130 J	qualify	2
		Mercury		0.043 B	0.043 J	qualify	1
		Nickel		6.5	6.5		
		Potassium		450	450		
		Selenium		1.3 U	1.3 U		
		Silver		0.20 U	0.20 U		
		Sodium	46.2	41.8	41.8		
		Thallium		1.7 U	1.7 U		
		Vanadium		10.3	10.3		
		Zinc		26.4	26.4		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 200242 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5D-5C	Aluminum		3340	3340		
		Antimony		1.1 U	1.1 UJ	qualify	2
		Arsenic		1.6	1.6		
		Barium		27.8	27.8		
		Beryllium		0.23	0.23		
		Cadmium		0.26 U	0.26 U		
		Calcium		775	775		
		Chromium		7.3	7.3		
		Cobalt		3.0	3.0		
		Copper		8.2	8.2		
		Iron		9880	9880		
		Lead		25.7	25.7		
		Magnesium		929	929		
		Manganese		153	153 J	qualify	2
		Mercury		0.035 B	0.035 J	qualify	1
		Nickel		7.0	7.0		
		Potassium		506	506		
		Selenium		1.5 U	1.5 U		
		Silver		0.24 U	0.24 U		
		Sodium	46.2	55.2	55.2		
		Thallium		2.0 U	2.0 U		
		Vanadium		10.3	10.3		
		Zinc		31.2	31.2		
		Cyanide		Not analyzed			
	GLA5D-5D	Aluminum		2930	2930		
		Antimony		0.86 U	0.86 UJ	qualify	2
		Arsenic		2.1	2.1		
		Barium		22.4	22.4		
		Beryllium		0.21	0.21		
		Cadmium		0.21 U	0.21 U		
		Calcium		694	694		
		Chromium		6.7	6.7		
		Cobalt		2.3	2.3		
		Copper		7.3	7.3		
		Iron		7240	7240		
		Lead		24.2	24.2		
		Magnesium		892	892		
		Manganese		122	122 J	qualify	2
		Mercury		0.035 B	0.035 J	qualify	1
		Nickel		6.4	6.4		
		Potassium		574	574		
		Selenium		1.2 U	1.2 U		
		Silver		0.19 U	0.19 U		
		Sodium	46.2	44.1	44.1		
		Thallium		1.6 U	1.6 U		
		Vanadium		9.6	9.6		
		Zinc		26.9	26.9		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 200242 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5D-2A	Aluminum		2280	2280		
		Antimony		1.2 U	1.2 UJ	qualify	2
		Arsenic		1.2	1.2		
		Barium		20.8	20.8		
		Beryllium		0.23 U	0.23 U		
		Cadmium		0.28 U	0.28 U		
		Calcium		638	638		
		Chromium		5.7	5.7		
		Cobalt		2.1	2.1		
		Copper		5.9	5.9		
		Iron		6070	6070		
		Lead		28.0	28.0		
		Magnesium		801	801		
		Manganese		105	105 J	qualify	2
		Mercury		0.016 B	0.016 J	qualify	1
		Nickel		5.9	5.9		
		Potassium		520	520		
		Selenium		1.6 U	1.6 U		
		Silver		0.25 U	0.25 U		
		Sodium	46.2	37.2	37.2		
		Thallium		2.2 U	2.2 U		
		Vanadium		8.0	8.0		
		Zinc		16.7	16.7		
		Cyanide		Not analyzed			
	GLA5D-2B	Aluminum		5440	5440		
		Antimony		1.1 U	1.1 UJ	qualify	2
		Arsenic		2.4	2.4		
		Barium		39.1	39.1		
		Beryllium		0.33	0.33		
		Cadmium		0.27 U	0.27 U		
		Calcium		2760	2760		
		Chromium		12.6	12.6		
		Cobalt		4.3	4.3		
		Copper		12.5	12.5		
		Iron		12400	12400		
		Lead		24.8	24.8		
		Magnesium		2290	2290		
		Manganese		215	215 J	qualify	2
		Mercury		0.40 B	0.40		
		Nickel		12.5	12.5		
		Potassium		1380	1380		
		Selenium		1.6 U	1.6 U		
		Silver		0.25 U	0.25 U		
		Sodium	46.2	130	130		
		Thallium		2.2 U	2.2 U		
		Vanadium		17.3	17.3		
		Zinc		34.4	34.4		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 200242 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5D-2C	Aluminum		3230	3230		
		Antimony		1.0 U	1.0 UJ	qualify	2
		Arsenic		2.0	2.0		
		Barium		24.7	24.7		
		Beryllium		0.20 U	0.20 U		
		Cadmium		0.24 U	0.24 U		
		Calcium		889	889		
		Chromium		8.2	8.2		
		Cobalt		2.8	2.8		
		Copper		7.0	7.0		
		Iron		8090	8090		
		Lead		23.3	23.3		
		Magnesium		1190	1190		
		Manganese		122	122 J	qualify	2
		Mercury		0.025 B	0.025 J	qualify	1
		Nickel		8.2	8.2		
		Potassium		814	814		
		Selenium		1.4 U	1.4 U		
		Silver		0.22 U	0.22 U		
		Sodium	46.2	47.0	47.0		
		Thallium		1.9 U	1.9 U		
		Vanadium		10.8	10.8		
		Zinc		23.0	23.0		
		Cyanide		Not analyzed			
	GLA5D-2D	Aluminum		3190	3190		
		Antimony		0.99 U	0.99 UJ	qualify	2
		Arsenic		1.5	1.5		
		Barium		24.5	24.5		
		Beryllium		0.21	0.21		
		Cadmium		0.27	0.27		
		Calcium		767	767		
		Chromium		7.4	7.4		
		Cobalt		2.4	2.4		
		Copper		7.8	7.8		
		Iron		7740	7740		
		Lead		23.7	23.7		
		Magnesium		995	995		
		Manganese		119	119 J	qualify	2
		Mercury		0.038 B	0.038 J	qualify	1
		Nickel		6.7	6.7		
		Potassium		744	744		
		Selenium		1.3 U	1.3 U		
		Silver		0.22 U	0.22 U		
		Sodium	46.2	75.6	75.6		
		Thallium		1.9 U	1.9 U		
		Vanadium		10.0	10.0		
		Zinc		26.0	26.0		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 200242Method : SW-846Lab Name : STL - ConnecticutSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5A-4A	Aluminum		2940	2940		
		Antimony		1.1 U	1.1 UJ	qualify	2
		Arsenic		2.0	2.0 J	qualify	3
		Barium		21.4	21.4		
		Beryllium		0.22 U	0.22 U		
		Cadmium		0.27 U	0.27 U		
		Calcium		1180	1180		
		Chromium		7.0	7.0		
		Cobalt		2.2	2.2		
		Copper		6.2	6.2		
		Iron		7380	7380		
		Lead		17.9	17.9		
		Magnesium		920	920		
		Manganese		115	115 J	qualify	2
		Mercury		0.046 B	0.046 J	qualify	1
		Nickel		6.3	6.3		
		Potassium		551	551		
		Selenium		1.6 U	1.6 U		
		Silver		0.25 U	0.25 U		
		Sodium	22.1	40.0	40.0		
		Thallium		2.1 U	2.1 U		
		Vanadium		9.5	9.5		
		Zinc		21.7	21.7		
		Cyanide		Not analyzed			
	GLA5A-4B	Aluminum		2100	2100		
		Antimony		1.2 U	1.2 UJ	qualify	2
		Arsenic		1.5	1.5 J	qualify	3
		Barium		17.7	17.7		
		Beryllium		0.23 U	0.23 U		
		Cadmium		0.28 U	0.28 U		
		Calcium		459	459		
		Chromium		5.3	5.3		
		Cobalt		1.9	1.9		
		Copper		5.1	5.1		
		Iron		5920	5920		
		Lead		15.6	15.6		
		Magnesium		680	680		
		Manganese		92.9	92.9 J	qualify	2
		Mercury		0.011 B	0.011 J	qualify	1
		Nickel		5.5	5.5		
		Potassium		436	436		
		Selenium		1.6 U	1.6 U		
		Silver		0.26 U	0.26 U		
		Sodium	22.1	31.8	31.8		
		Thallium		2.2 U	2.2 U		
		Vanadium		7.6	7.6		
		Zinc		16.2	16.2		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 200242Method : SW-846Lab Name : STL - ConnecticutSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5A-4C	Aluminum		2270	2270		
		Antimony		1.2 U	1.2 UJ	qualify	2
		Arsenic		1.8	1.8 J	qualify	3
		Barium		19.4	19.4		
		Beryllium		0.23 U	0.23 U		
		Cadmium		0.28 U	0.28 U		
		Calcium		609	609		
		Chromium		6.3	6.3		
		Cobalt		2.2	2.2		
		Copper		5.5	5.5		
		Iron		6360	6360		
		Lead		16.5	16.5		
		Magnesium		760	760		
		Manganese		102	102 J	qualify	2
		Mercury		0.011 B	0.011 J	qualify	1
		Nickel		5.5	5.5		
		Potassium		482	482		
		Selenium		1.6 U	1.6 U		
		Silver		0.26 U	0.26 U		
		Sodium	22.1	33.9	33.9		
		Thallium		2.2 U	2.2 U		
		Vanadium		8.2	8.2		
		Zinc		16.4	16.4		
		Cyanide		Not analyzed			
	GLA5A-4D	Aluminum		2360	2360		
		Antimony		1.2 U	1.2 UJ	qualify	2
		Arsenic		1.0	1.0 J	qualify	3
		Barium		19.9	19.9		
		Beryllium		0.24	0.24		
		Cadmium		0.28 U	0.28 U		
		Calcium		646	646		
		Chromium		7.1	7.1		
		Cobalt		1.8	1.8		
		Copper		5.2	5.2		
		Iron		6270	6270		
		Lead		17.1	17.1		
		Magnesium		828	828		
		Manganese		86.1	86.1	qualify	2
		Mercury		0.011 B	0.011 J	qualify	1
		Nickel		5.9	5.9		
		Potassium		472	472		
		Selenium		1.6 U	1.6 U		
		Silver		0.25 U	0.25 U		
		Sodium	22.1	30.2	30.2		
		Thallium		2.2 U	2.2 U		
		Vanadium		7.4	7.4		
		Zinc		18.2	18.2		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 200242 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA3-1	Aluminum		839	839		
		Antimony		0.93 U	0.93 UJ	qualify	2
		Arsenic		0.64 U	0.64 U		
		Barium		6.9	6.9		
		Beryllium		0.18 U	0.18 U		
		Cadmium		0.22 U	0.22 U		
		Calcium		220	220		
		Chromium		2.7	2.7		
		Cobalt		0.56	0.56		
		Copper		10.8	10.8		
		Iron		3520	3520		
		Lead		4.8	4.8		
		Magnesium		219	219		
		Manganese		51.0	51.0 J	qualify	2
		Mercury		2.8 B	2.8		
		Nickel		3.7	3.7		
		Potassium		111	111		
		Selenium		1.3 U	1.3 U		
		Silver		0.20 U	0.20 U		
		Sodium	22.1	12.3	12.3		
		Thallium		1.7 U	1.7 U		
		Vanadium		33.3	33.3		
		Zinc		9.0	9.0		
		Cyanide		Not analyzed			
	GLA4-4SA	Aluminum		2200	2200		
		Antimony		0.77 U	0.77 UJ	qualify	2
		Arsenic		1.4	1.4 J	qualify	3
		Barium		15.0	15.0		
		Beryllium		0.19	0.19		
		Cadmium		0.18 U	0.18 U		
		Calcium		237	237		
		Chromium		6.1	6.1		
		Cobalt		1.7	1.7		
		Copper		10.3	10.3		
		Iron		6210	6210		
		Lead		19.9	19.9		
		Magnesium		454	454		
		Manganese		143	143 J	qualify	2
		Mercury		0.095 B	0.095 J	qualify	1
		Nickel		4.0	4.0		
		Potassium		265	265		
		Selenium		1.1 U	1.1 U		
		Silver		0.17 U	0.17 U		
		Sodium	22.1	18.3	18.3		
		Thallium		1.5 U	1.5 U		
		Vanadium		7.8	7.8		
		Zinc		32.1	32.1		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 200242 Method : SW-846
Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value. No bias direction is inferred.
- 2 The reported value for this analyte was qualified 'UJ' or 'J', because the matrix spike recovery was below the lower limit of 75%. Potential negative bias is suggested.
- 3 The reported positive value for this analyte was qualified 'J', because the associated CRDL standard recovery exceeded the upper limit. Potential positive bias is suggested.

METALS ANALYSIS **QC PARAMETER / QUALIFIER SUMMARY**

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200242

- A. CALIBRATION
- | | | |
|--------------|---------------------|-------------------|
| ICP Analytes | | <u>Outliers ?</u> |
| ICV | 90% - 110% recovery | none |
| CCV | 90% - 110% recovery | none |
- B. CRDL STANDARD
- | | | | | |
|--------------------|-------------------|-------------|-------------------|-------------|
| | <u>Outliers ?</u> | Samples | <u>Outliers ?</u> | Samples |
| 80 - 120% recovery | | (01 - 14) | | (15 - 20) |
| | Pb | CRI 2 76% | As | CRI 2 129% |
| | Se | All > 120% | Se | CRI 1 133% |
| | | | TI | CRI 1 131% |
- QA Action : Qualify Pb values up to 4x CRDL; negative bias suggested.
Qualify positive Se values up to 4x CRDL; positive bias suggested.
Affects : 200242 01 - 14
QA Action : Qualify positive As, Se & TI values up to 4x CRDL; positive bias suggested.
Affects : 200242 15 - 20
- Note : No Se or TI values were positive; therefore no data qualifiers were applicable.
- C. BLANKS
- | | | |
|------------|--------|-------------------|
| ICB / CCB | < CRDL | <u>Outliers ?</u> |
| Prep Blank | < CRDL | none |
| | | none |
- D. INTERELEMENT CORRECTION (ICSA / ICSAB)
- | | | |
|-------|-------------------------------------|-------------------|
| ICSA | Response < 2x CRDL for trace metals | <u>Outliers ?</u> |
| ICSAB | 80 - 120% recovery | n/a |
| | | none |
- E. MATRIX SPIKE (MS) GLA5A-4A
- | | |
|---|-------------------|
| 75 - 125% recovery (if sample conc. < 4x spike conc.) | <u>Outliers ?</u> |
| | Sb 74.7% |
| | Mn 74.7% |
- QA Action : Qualify all Sb & Mn 'UJ' or 'J'; negative bias suggested.
- F. POST-DIGESTION SPIKE (PDS) No PDS was reported.
- Required for analytes outside MS recovery range; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.
- G. MATRIX DUPLICATE (MD) GLA5A-4A
- | | |
|--|-------------------|
| Max. 100% RPD for non-aqueous samples > 5x CRDL | <u>Outliers ?</u> |
| Max. (+/-) CRDL value if either sample < 5x CRDL | none |
| | n/a |
- H. LABORATORY CONTROL SAMPLE (LCS)
- | | |
|--|-------------------|
| Recovery within control limits for non-aqueous samples | <u>Outliers ?</u> |
| Recovery between 80 - 120% for aqueous samples | none |
| | n/a |
- I. SERIAL DILUTION SAMPLE
- | | |
|---|-------------------|
| Maximum 10.0% D if undiluted sample > 10x IDL | <u>Outliers ?</u> |
| | none |
- J. VERIFICATION OF INSTRUMENTAL PARAMETERS
- | | | |
|---------------------------------|------------------|-------------------|
| | <u>Frequency</u> | <u>Outliers ?</u> |
| Instrument Detection Limits | Quarterly | * |
| Interelement Correction Factors | Annually | * |
| Linear Range Analysis | Quarterly | * |
- Note : * Above parameters not reported in data deliverables.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200242

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ?

YesIf No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ?

YesIf No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ?

YesIf No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ?

Yes

If No, list affected analytes and samples, and QA action : _____

No solids determination logs were present in the data deliverables, and could not be verified.% Solids values were taken "as-is" from Form 1 and used to replicate reported result below.

5. Show calculation for % Solids for one sample.

Sample ID: GLA5D-5ALab value : 91.7 %Dry weight : 0.00 gm% Solids = $\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$ Wet weight : 0.00 gm

Wet weight

= **#DIV/0!** %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLA5D-5AAnalyte : PbLab value : 76.7 mg/Kg% Solids : 91.7Raw value 0.4958 mg/LFinal volume 200 mLWet weight 1.41 gmmg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (ml)}}{\text{wet wgt} \times (\% \text{Sol}/100)}$

wet wgt x (%Sol/100) =

76.7

mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ?

n/aIf No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 29, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 200466

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA1-3SSA	200466-1	SOIL	01/23/02	X	X	X

Sample Collection and Receipt

It is noted that samples were collected on 01/23/02, and not logged in to the laboratory until 01/28/2002. This represents four days of transit storage between sample collection and log-in, which may be considered excessive. Although no data qualifiers were applied, since the sample was received at acceptably low temperature, the data user is alerted that excessive time between sample collection and laboratory receipt can potentially lead to sample degradation if low temperatures are not consistently maintained. Further, the chain-of-custody was unsigned and undated in both sample release and sample receipt areas, which renders this document useless for potential forensic purposes. The sampling and laboratory receiving staff should be re-trained in proper sample receipt and custody documentation procedures.

Sample Preparation and Analysis

The reported PCB (Aroclor) results for sample GLA1-3SSA were qualified 'UJ', with potential negative bias suggested, due to re-extraction outside holding times.

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

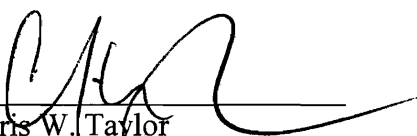
SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-200466

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 200466METHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA1-3SSA	All target compounds		U	U	accept	

FOOTNOTES

No positive target compounds were found; no data qualifiers were applicable.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 200466

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within allowable holding times.

Note: Samples were collected on 01/23/02 and received at the lab on 01/28/02; this delay between collection and VTSR is considered excessive. Further, the chain-of-custody was not signed or dated for sample release or sample receipt. Sampling and lab staff should be trained in proper documentation procedures.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
01/29/02	2752-1MB	P4080	soil	none	n/a

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
 If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
 If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
2752-1MB	2-fluorophenol	high	Qualify positive phenols
GLA1-3SSA	2-fluorophenol	high	Qualify positive phenols

D. MATRIX SPIKE / DUPLICATE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
------------------	-----------------------	-------------	---------------

Comments: The reported MS/MSD were not from this SDG, and not even of the same sample matrix. Therefore, no inferences regarding potential sample matrix effects were made, and no data qualifiers were assigned.

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
E02ASPK001	2-methylnaphthalene	high	qualify positives only
	fluorene	high	qualify positives only

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
------------------	--------------------------	-------------	---------------

All IS recoveries & RTs were within acceptable limits

H. SAMPLE RESULT VERIFICATION

<u>Sample ID</u>	<u>Compound</u>	<u>Internal Standard</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>
E02ASPK001	phenanthrene	phenanthrene-d10	1588	1588

	<u>Ax</u>	<u>Is</u>	<u>Vt</u>	<u>Df</u>	<u>GPC</u>
Conc., ug/Kg =	2560835	40.0	1000	1.0	1.0
	<u>Ais</u>	<u>RRF</u>	<u>Vi</u>	<u>Ws</u>	<u>D</u>
	988775	1.087	2.0	30.0	1.000

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT : GLENWOOD

SDG No.: 200466

A. INITIAL CALIBRATION

CALIBRATION DATE :	01/30/02
FILE IDs :	P4073 - 4077
ALL RRFs > 0.05 ?	Yes
SPCC RRFs >0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds)===>	benzoic acid
SPCC Compounds	hexachlorocyclopentadiene
N-Nitroso-di-n-propylamine	2,4-dinitrophenol
Hexachlorocyclopentadiene	4-chlorophenyl-phenylether
2,4-Dinitrophenol	4,6-dinitro-2-methylphenol
4-Nitrophenol	bis(2-ethylhexyl)phthalate
MINIMUM RRF = 0.050	benzo(b)fluoranthene
CCC Compounds	
<u>Base/Neutrals</u>	
Acenaphthene	
1,4-Dichlorobenzene	
Hexachlorobutadiene	
Diphenylamine	
Di-n-octylphthalate	
Fluoranthene	
Benzo(a)pyrene	
<u>Acids</u>	
4-Chloro-3-methylphenol	
2,4-Dichlorophenol	
2-Nitrophenol	
Phenol	
Pentachlorophenol	
2,4,6-Trichlorophenol	
MAXIMUM %RSD = 30.0%	
MAXIMUM %D = 20.0%	

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in all associated samples.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	01/30/02
FILE ID :	P4079
ALL RRFs > 0.05 ?	Yes
SPCC RRFs >0.05 ?	Yes
CCC %Ds < 20% ?	Yes
All Targets < 20%D?	Yes
(If No, list compounds)	

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 200466METHOD: SW846 / 8082LAB NAME : STL - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA1-3SSA	Aroclor 1016		17 U	17 UJ	qualify	1
		Aroclor 1221		33 U	33 UJ	qualify	1
		Aroclor 1232		17 U	17 UJ	qualify	1
		Aroclor 1242		17 U	17 UJ	qualify	1
		Aroclor 1248		17 U	17 UJ	qualify	1
		Aroclor 1254		17 U	17 UJ	qualify	1
		Aroclor 1260		17 U	17 UJ	qualify	1, 2

FOOTNOTES

- 1 The reported value is qualified 'UJ' or 'J', because the sample was extracted outside the NYSDEC-ASP holding time of 10 days from laboratory receipt. Potential negative bias is suggested.
- 2 The reported result for this compound is qualified 'UJ', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 15.0%.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc. Project: Glenwood Laboratory
Project No.: 200466

Laboratory: STL - CT

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP : 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

Note: This sample was collected on 01/23/02, received on 01/28/02, and re-extracted on 02/11/02.
Re-extraction was performed 14 days from VTSR, and 19 days from collection; all reported data are
qualified 'UJ', with potential negative bias (i.e., false-negatives) suggested.

Note: Samples were collected on 01/23/02 and received at the lab on 01/28/02; this delay between collection
and VTSR is considered excessive. Further, the chain-of-custody was not signed or dated for sample
release or sample receipt. Sampling and lab staff should be trained in proper documentation procedures.

B. METHOD BLANKS

Blank ID:	3323-1MB
Extraction Date:	02/11/02
Analyte	Conc. ug/Kg
none found	
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>QA Action</u>
MB3323-1	TCX	high	n/a

D. MATRIX SPIKE / DUPLICATE

Note: No matrix spike / duplicate were performed; only a Blank Spike was run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (E01JSPK004)

Reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 200466Laboratory: STL - CT**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 02/06/02

Verification of ICAL Results

<u>Aroclor 1260</u>	<u>DB-1701</u>		
<u>Peak 5, RT = 15.40</u>	<u>Response</u>	<u>Cal Factor, Calc'd.</u>	<u>CF, reported</u>
0.05	8484383	169687660	169687660
0.1	15629431	156294310	156294310
0.2	43379447	216897235	216897235
0.4	71372470	178431175	178431175
0.8	152242904	190303630	190303630
Average		182322802	182322802
Calc'd. %RSD =	12.60		
Reported %RSD =	12.60		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	<u>02/25/02</u>	<u>02/25/02</u>
FILE ID :	<u>C5145113</u>	<u>C5145120</u>
All Targets < 15% D?	<u>Yes</u>	<u>NO</u>
(If No, list compounds) ==>		<u>Aroclor-1260</u>

QA ACTION : Qualify all reported non-detect results 'UJ'; qualify all reported positive values 'J'.**C. SAMPLE RESULT VERIFICATION**

SAMPLE ID: 3323-3 LCS
 COMPOUND: Aroclor-1260
 REPORTED VALUE: 184.9 ug/Kg column = DB-1701

<u>Peak RT</u>	<u>CF</u>	<u>Peak Area</u>	<u>conc., ng</u>
13.40	165354612	92414234	0.5589
14.01	368246078	181284033	0.4923
14.53	205455296	98655722	0.4802
14.94	222062945	135720758	0.6112
15.39	182322802	115099983	<u>0.6313</u>
	Average conc. =		0.5548

ug/Kg =	ng average conc.	extract, uL	Dilution factor
	0.5548	10000	1.0
	30.0	1.0	1.0
	wet wgt., gm	inject.vol, uL	%sol/100
ug/Kg =	184.92		

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 200466 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA1-3SSA	Aluminum		1520	1520		
		Antimony		1.1 U	1.1 U		
		Arsenic		1.5	1.5		
		Barium		8.3	8.3		
		Beryllium		0.45 U	0.45 U		
		Cadmium		0.91 U	0.91 U		
		Calcium		131	131		
		Chromium		3.7	3.7		
		Cobalt		1.1	1.1		
		Copper		2.9	2.9		
		Iron		4280	4280		
		Lead		2.6	2.6		
		Magnesium		284	284		
		Manganese		95.6	95.6		
		Mercury		0.13 U	0.13 U		
		Nickel		2.1	2.1		
		Potassium		178	178		
		Selenium		1.5 U	1.5 U		
		Silver		0.27 U	0.27 U		
		Sodium	55.5	34.5	34.5		
		Thallium		2.7 U	2.7 U		
		Vanadium		5.0	5.0		
		Zinc		5.7	5.7		
		Cyanide		Not analyzed			

FOOTNOTES

No footnotes were used, since no data qualifiers were applied.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200466**A. CALIBRATION**

ICP Analytes

ICV	90% - 110% recovery
CCV	90% - 110% recovery

Outliers ?

none
none

B. CRDL STANDARD

80 - 120% recovery

Outliers ?

none

C. BLANKS

ICB / CCB	< CRDL
Prep Blank	< CRDL

Outliers ?

none
none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

ICSA	Response < 2x CRDL for trace metals
ICSAB	80 - 120% recovery

Outliers ?

n/a
none

E. MATRIX SPIKE (MS)

75 - 125% recovery (if sample conc. < 4x spike conc.)

Outliers ?

n/a

Note: the matrix spike reported was not from this SDG; therefore, the results may not be representative of this SDG's sample matrix. No data qualifiers were assigned.

F. POST-DIGESTION SPIKE (PDS)

Required for analytes outside MS recovery range;
PDS conc. should be 2x CRDL or 2x sample conc.,
whichever is greater. Limits: 75 -125%

Outliers ?

n/a

G. MATRIX DUPLICATE (MD)

Max. 100% RPD for non-aqueous samples > 5x CRDL
Max. (+/-) CRDL value if either sample < 5x CRDL

Outliers ?

none
n/a

Note: the matrix duplicate reported was not from this SDG; therefore, the results may not be representative of this SDG's sample matrix. No data qualifiers were assigned.

H. LABORATORY CONTROL SAMPLE (LCS)

Recovery within control limits for non-aqueous samples
Recovery between 80 - 120% for aqueous samples

Outliers ?

none
n/a

I. SERIAL DILUTION SAMPLE (GLA1-3SSA)

Maximum 10.0% D if undiluted sample > 10x IDL

Outliers ?

none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

Instrument Detection Limits
Interelement Correction Factors
Linear Range Analysis

Frequency

Quarterly
Annually
Quarterly

Outliers ?

n/a
n/a
n/a

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200466

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ?

If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ?

If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ?

If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ?

If No, list affected analytes and samples, and QA action : _____

Note: No % solids raw data were present in the data package, since no moisture determination log was included. Therefore, the reported % solids value could not be verified. The Form 1 reported value was used in the quantitation recalculation below.

5. Show calculation for % Solids for one sample.

Sample ID: GLA1-3SSALab value : 99.4 %Dry weight : 0 gm% Solids = Dry weight x 100Wet weight : 0.00 gm

Wet weight

= #DIV/0! %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLA1-3SSAAnalyte : AsLab value : 1.5 mg/Kg% Solids : 99.4Raw value 0.0085 mg/LFinal volume 200 mLWet weight 1.11 gmmg/Kg dry weight = mg/L x FV (ml)

wet wgt x (%Sol/100) =

mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ?

If No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 28, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 7001-2734B

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLDPW-03	012734B-01	SOIL	10/26/01	X	X	X
GLDPW-04	012734B-02	SOIL	10/26/01	X	X	X

Sample Collection and Receipt

Samples were received at the laboratory at 19 degrees C; however, the samples were transported to the lab on the same day as collected, and likely did not have time to chill. No data qualifiers were applied.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

- 1) No GPC clean-up was performed on the soil samples for the semi-volatile or pesticide-PCB fractions, nor was Florisil clean-up performed for the PCB fraction. GPC clean-up can improve resolution for these fractions by removing a wide range of higher molecular weight interferences, and Florisil fractionation provides separation of interferent analytes from the Aroclor compounds of interest. Acid clean-up and copper clean-up were performed on the PCB fractions.
- 2) The matrix spike recovery for antimony was below 10%, indicating significant matrix suppression of this analyte; reported non-detect (U) values for Sb were rejected, 'R'.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-2734B

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 7001-2734BMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLDPW-03	Hexachlorocyclopentadiene		350 U	350 UJ	qualify	2, 3
		2,4-Dinitrophenol		1700 U	1700 UJ	qualify	3
		4-Nitrophenol		1700 U	1700 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	3
		Pentachlorophenol		1700 U	1700 UJ	qualify	3
	GLDPW-04	Fluoranthene		12 J	12 J	qualify	1
		Pyrene		24 J	24 J	qualify	1
		Hexachlorocyclopentadiene		340 U	340 UJ	qualify	2, 3
		2,4-Dinitrophenol		1700 U	1700 UJ	qualify	3
		4-Nitrophenol		1700 U	1700 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	3
		Pentachlorophenol		1700 U	1700 UJ	qualify	3

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.
- 3 The reported positive value for this compound is qualified 'J', or the reported non-detect value 'UJ', because the associated Laboratory Control Sample (Blank Spike) recovery for this compound was below the laboratory limit. Negative bias for positive results, or potential false-negatives for non-detects are suggested.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

PROJECT: GLENWOOD

SDG No.: 7001-2734B

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX:	10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
AQUEOUS MATRIX:	5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
ALL MATRICES:	40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within allowable holding times.

Note: All samples were received at 19 degrees C, since the samples were transported to the lab after collection. It is likely that the samples did not have an opportunity to become chilled; no data qualifiers were assigned. The data user is alerted to the potential for negative bias in samples maintained above the range of 2 to 6 degrees C.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
10/30/01	SBI-KDP	P3452	soil	none found	

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
All reported surrogate recoveries were within acceptable limits			

D. MATRIX SPIKE / DUPLICATE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.			

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
SBLKDP	hexaCyclopentadiene	low	Qualify; negative bias
	2,4-dinitrophenol	low	Qualify; negative bias
	4-nitrophenol	low	Qualify; negative bias
	4,6-diNO ₂ -2-Mephenol	low	Qualify; negative bias
	pentachlorophenol	low	Qualify; negative bias

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
All IS recoveries & RTs were within acceptable limits			

G.

<u>INSTRUMENT TUNES</u>	<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
	10/18/01	OK	yes	
	10/30/01	OK	yes	
	10/31/01	OK	yes	

H.

<u>SAMPLE RESULT</u>	<u>Sample ID</u>	<u>Compound</u>	<u>Reported</u> <u>Conc., ug/Kg</u>	<u>Calculated</u> <u>Conc., ug/Kg</u>	
<u>VERIFICATION</u>	GLDPW-04	pyrene	24 J	23.6	
	Ax	Is	Vt	Df	GPC
Conc., ug/Kg =	36410	40.0	500	1.0	1.0
	Ais	RRF	Vi	Ws	D
	805142	1.335	2.0	15.1	0.95

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2734B

A. INITIAL CALIBRATION

CALIBRATION DATE :	10/18/01
FILE IDs :	P3384 - 3388
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO

(If No, list compounds) =====> hexachlorocyclopentadiene

SPCC Compounds

N-Nitroso-di-n-propylamine
Hexachlorocyclopentadiene
2,4-Dinitrophenol
4-Nitrophenol

MINIMUM RRF = 0.050

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

CCC Compounds

Base/Neutrals

Acenaphthene
1,4-Dichlorobenzene
Hexachlorobutadiene
Diphenylamine
Di-n-octylphthalate
Fluoranthene
Benzo(a)pyrene

Acids

4-Chloro-3-methylphenol
2,4-Dichlorophenol
2-Nitrophenol
Phenol
Pentachlorophenol
2,4,6-Trichlorophenol

MAXIMUM %RSD = 30.0%

MAXIMUM %D = 20.0%

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	10/30/01	10/31/01
FILE ID :	P3430	P3451
ALL RRFs > 0.05 ?	Yes	Yes
SPCC RRFs > 0.05 ?	Yes	Yes
CCC %Ds < 20% ?	Yes	Yes
All Targets < 20%D?	NO	NO

(If No, list compounds) =====> hexachlorocyclopentadiene benzyl alcohol

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2734BMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLDPW-03	Aroclor 1016		34 U	34 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLDPW-04	Aroclor 1016		35 U	35 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		3.2 J	35 U	qualify	2
		Aroclor 1260		2.0 J	2.0 J	qualify	1

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported result is qualified 'U', and raised to the PQL, because the %D between analytical columns exceeded 50%, and the reported value was below the analyte's PQL. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc. Project: Glenwood Laboratory
Project No.: 7001-2734B

Laboratory: STL - CT

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP : 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	PBLK24
Extraction Date:	10/28/01
<u>Analyte</u>	<u>Conc. ug/Kg</u>
none found	
AFFECTS:	All

No target compounds were present; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE (GLDPW-02)

Comments: No matrix spike / duplicate were performed; only a Blank Spike was run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (PBLK24 QC2)

All reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)CALIBRATION SUMMARYSW-846 Method 8082For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 7001-2734BLaboratory: STL - BuffaloA. INITIAL CALIBRATIONSCALIBRATION DATE : 10/27/01

Verification of ICAL Results

<u>Aroclor 1260</u>	<u>DB-1701</u>		
<u>Peak 1, RT = 18.35</u>	<u>Response</u>	<u>Cal Factor, Calc'd.</u>	<u>CF, reported</u>
0.05	129770	2595400	2595400
0.1	268068	2680680	2680680
0.2	507335	2536675	2536675
0.4	981195	2452988	2452988
0.8	1801026	<u>2251283</u>	<u>2251282</u>
Average		2503405	2503405
Calc'd. %RSD =	6.54		
Reported %RSD =	6.5		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	10/30/01	10/30/01
FILE ID :	C5132087	C5132104
All Targets < 15% D?	Yes	Yes
(If No, list compounds) ==>		

QA ACTION : None necessaryC. SAMPLE RESULT VERIFICATION

SAMPLE ID: GLDPW04
 COMPOUND: Aroclor-1260
 REPORTED VALUE: 2.0 J ug/Kg column = RTX-35

<u>Peak RT</u>	<u>CF</u>	<u>Peak Area</u>	<u>conc., ng</u>
18.76	566177	3996	0.0071
19.77	473897	2614	0.0055
20.23	1012902	4590	0.0045
Average conc. =			0.0057

ug/Kg =

ng average conc.	extract, uL	Dilution factor
0.0057	10000	1.0
30.0	1.0	0.95
wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg =

2.00

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 7001-2734B Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLDPW-03	Aluminum	8.934	2470	2470		
		Antimony		0.92 UN	--- R	REJECT	2
		Arsenic		1.2 B	1.2 J	qualify	1
		Barium		13.8 B	13.8 J	qualify	1
		Beryllium		0.16 B	0.16 J	qualify	1
		Cadmium		0.16 U	0.16 U		
		Calcium	3.872	244 B	244 J	qualify	1
		Chromium		7.5	7.5		
		Cobalt		3.2 B	3.2 J	qualify	1
		Copper		4.0 B	4.0 J	qualify	1
		Iron		6490	6490		
		Lead		8.7	8.7		
		Magnesium		578 B	578 J	qualify	1
		Manganese		125	125		
		Mercury		0.023	0.023		
		Nickel		6.5 B	6.5 J	qualify	1
		Potassium	9.970	232 B	232 J	qualify	1
		Selenium		0.92 U	0.92 U		
		Silver		0.20 U	0.20 U		
		Sodium	25.660	19.3 B	19.3 J	qualify	1
		Thallium		2.7 U	2.7 U		
		Vanadium		7.5 B	7.5 J	qualify	1
		Zinc	2.885	11.7	11.7 J	qualify	3
		Cyanide		Not analyzed			
	GLDPW-04	Aluminum	8.934	1610	1610		
		Antimony		0.94 UN	--- R	REJECT	2
		Arsenic		1.0 U	1.0 U		
		Barium		8.9 B	8.9 J	qualify	1
		Beryllium		0.11 B	0.11 J	qualify	1
		Cadmium		0.16 U	0.16 U		
		Calcium	3.872	167 B	167 J	qualify	1
		Chromium		4.5	4.5		
		Cobalt		1.7 B	1.7 J	qualify	1
		Copper		2.9 B	2.9 J	qualify	1
		Iron		4140	4140		
		Lead		3.9	3.9		
		Magnesium		281 B	281 J	qualify	1
		Manganese		111	111		
		Mercury		0.0066	0.007		
		Nickel		2.3 B	2.3 J	qualify	1
		Potassium	9.970	179 B	179 J	qualify	1
		Selenium		0.94 U	0.94 U		
		Silver		0.20 U	0.20 U		
		Sodium	25.660	13.6 B	13.6 J	qualify	1
		Thallium		2.8 U	2.8 U		
		Vanadium		5.9 B	5.9 J	qualify	1
		Zinc	2.885	11.3	11.3 J	qualify	3
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2734B Method : SW-846
Lab Name : STL - CT Sample Matrix : Non-Aqueous

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value.
No bias direction is inferred.
- 2 The reported non-detect ('U') value for this analyte was Rejected, 'R', because the matrix spike recovery was below 10%.
- 3 The reported positive value for this analyte was qualified 'J', because the associated Serial Dilution standard precision exceeded 10.0%D, while the sample concentration was above 10x analyte IDL.

METALS ANALYSIS QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- CTLab Project No. : 7001-2734BA. CALIBRATION

ICP Analytes

ICV	90% - 110% recovery
CCV	90% - 110% recovery

Outliers ?

none
none

B. CRDL STANDARD

80 - 120% recovery

Outliers ?

Pb	CR1 121%
Tl	149%, 124%

QA Action : Qualify positive Pb & Tl values up to nominal 2.4 and 8.0 mg/Kg, respectively. Positive bias suggested.Affects: All samples.C. BLANKS

ICB / CCB	< CRDL
Prep Blank	< CRDL

Outliers ?

none
none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

ICSA	Response < 2x CRDL for trace metals
ICSAB	80 - 120% recovery

Outliers ?

none
none

E. MATRIX SPIKE (GLDPW-04)

75 - 125% recovery (if sample conc. < 4x spike conc.)

Outliers ?

Sb 7.7%

QA Action : Since Sb recovery was below 10%, all Sb non-detect ('U') values are Rejected, 'R'; all Sb positives are qualified 'J', with significant negative bias. All SDG samples are affected.F. POST-DIGESTION SPIKE (GLDPW-04)

75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.

Outliers ?Comments: Sb native sample was non-detect. PDS conc. should be 120 ppb. PDS concentration used was 500 ppb.G. MATRIX DUPLICATE (GLDPW-04)

Max. 100% RPD for non-aqueous samples > 5x CRDL
Max. (+/-) CRDL value if either sample < 5x CRDL

Outliers ?

none
none

H. LABORATORY CONTROL SAMPLE

Recovery within control limits for non-aqueous samples
Recovery between 80 - 120% for aqueous samples

Outliers ?

none
n/a

I. SERIAL DILUTION SAMPLE

Maximum 10.0% D if undiluted sample > 10x IDL

Outliers ?

Zn 45%

QA Action : Qualify 'J' positive Zn values > 10x IDL; negative bias suggested
Affects : All SDG samplesJ. VERIFICATION OF INSTRUMENTAL PARAMETERS

Instrument Detection Limits	Frequency
Interelement Correction Factors	Quarterly
Linear Range Analysis	Annually
	Quarterly

Outliers ?

none
none
none

Note : IDL & Linear Range determinations were six days beyond three-month frequency at time of analysis; no data qualifiers were applied, due to the marginal exceedance. The laboratory should ensure that updates are performed and documented.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL-CTLab Project No. : 7001-2734B

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ? Yes
If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ? Yes
If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ? Yes
If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ? Yes
If No, list affected analytes and samples, and QA action : _____
Note: % solids values below were taken from the raw data, and are within a reasonable error band.
5. Show calculation for % Solids for one sample.
Sample ID: GLDPW-03 (2734B-1) Lab value : 93.3 %
Dry weight : 9.85 gm % Solids = $\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$
Wet weight : 10.49 gm = **93.9** %
6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.
Sample ID: GLDPW-03 Analyte : Pb Lab value : 8.7 mg/Kg
% Solids : 93.9
Raw value 0.0434 mg/L
Final volume 200 mL
Wet weight 1.07 gm
mg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (ml)}}{\text{wet wgt} \times (\% \text{Sol}/100)} =$ **8.65** mg/ kg
7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ? n/a
If No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 28, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 200350

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA4-2SA	200350-1	SOIL	01/08/02	X	X	X
GLA4-2A	200350-2	SOIL	01/08/02	X	X	X

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

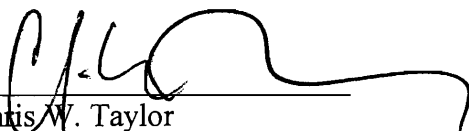
Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

- 1) No GPC clean-up was performed on the soil samples for the semi-volatile or pesticide-PCB fractions, nor was Florisil clean-up performed for the PCB fraction. GPC clean-up can improve resolution for these fractions by removing a wide range of higher molecular weight interferences, and Florisil fractionation provides separation of interferent analytes from the Aroclor compounds of interest. Acid clean-up and copper clean-up were performed on the PCB fractions.
- 2) The analysis of lead indicated opposing influences on sample results, in that a negative calibration blank response was present, while at the same time a positive bias was evident due to interelement correction standard results. The influences described may produce a canceling effect, however, reported lead values were qualified as quantitatively estimated due to these QC parameter excursions.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-200350

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 200350METHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC. ug/Kg	LAB REPORTED CONC. ug/Kg	QA REPORTED CONC. ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA4-2SA	Phenanthrene		49 J	49 J	qualify	1
		Anthracene		15 J	15 J	qualify	1
		Pyrene		36 J	36 J	qualify	1
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	2
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	2
		Hexachlorocyclopentadiene		340 U	340 UJ	qualify	3
	GLA4-2A	2,4-Dinitrophenol		1600 U	1600 UJ	qualify	2
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	2
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	3

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported positive value for this compound is qualified 'J', or the reported non-detect value 'UJ', because the associated Laboratory Control Sample (Blank Spike) recoveries for this compound were below the SW-846 suggested lower limit of 70%. Negative bias for positive values, or potential false-negatives for non-detects, are suggested.
- 3 The reported result for this compound is qualified 'UJ' or 'J', because the % D for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 200350

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within allowable holding times.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
01/09/02	MB2226-1	P3974	soil	none	n/a

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
 If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
 If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
------------------	------------------	-------------	---------------

All surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
------------------	-----------------------	-------------	---------------

Comments: 1) The reported MS/MSD were not from this SDG, and may not be representative of this SDG's sample matrix. Therefore, no inferences regarding potential sample matrix effects were made, and no data qualifiers were assigned.
 2) Only the CLP compound set were spiked in the MS/MSD and Blank Spikes. Recoveries for other target compounds reported are unknown.

E. BLANK SPIKE

See Comment 2 above

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
E01LSPK008	2,4-dinitrophenol	low	qualify; negative bias
	4,6-dinitro-2-methyl-phenol	low	qualify; negative bias

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
------------------	--------------------------	-------------	---------------

All IS recoveries & RTs were within acceptable limits

H. SAMPLE RESULT VERIFICATION

<u>Sample ID</u>	<u>Compound</u>	<u>Internal Standard</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>
GLA4-2SA	phenanthrene	phenanthrene-d10	49 J	48.8
Ax	Is	Vt	Df	GPC
60479	40.0	500	1.0	1.0
Ais	RRF	Vi	Ws	D
919705	0.914	2.0	15.4	0.958

Conc., ug/Kg =

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 200350

A. INITIAL CALIBRATION

CALIBRATION DATE :	01/02/02
FILE IDs :	P3909 - 3913
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds)====>	2-methylnaphthalene
SPCC Compounds	hexachlorocyclopentadiene
N-Nitroso-di-n-propylamine	2-chloronaphthalene
Hexachlorocyclopentadiene	2,4-dinitrophenol
2,4-Dinitrophenol	fluorene
4-Nitrophenol	4-chlorophenyl-phenylether
MINIMUM RRF = 0.050	

CCC Compounds
Base/Neutrals
Acenaphthene
1,4-Dichlorobenzene
Hexachlorobutadiene
Diphenylamine
Di-n-octylphthalate
Fluoranthene
Benzo(a)pyrene
Acids
4-Chloro-3-methylphenol
2,4-Dichlorophenol
2-Nitrophenol
Phenol
Pentachlorophenol
2,4,6-Trichlorophenol
MAXIMUM %RSD = 30.0%
MAXIMUM %D = 20.0%

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in all associated samples.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	01/10/02
FILE ID :	P3973
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %Ds < 20% ?	Yes
All Targets < 20%D?	NO
(If No, list compounds)	hexachlorocyclopentadiene

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 200350METHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA4-2A	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		18 U	18 U		
	GLA4-2SA	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		18 U	18 U		

FOOTNOTES

No footnotes were necessary for this SDG, since no data qualifiers were necessary, and both SDG samples were non-detect for Aroclors.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory

Project No.: 200350

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	PBLKS1
Extraction Date:	01/09/02
<u>Analyte</u>	<u>Conc. ug/Kg</u>
none found	
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Note: No matrix spike / duplicate were performed; only a Blank Spike / Blank Spike Duplicate were run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (S1LCS ; S1LCSD)

All reported recoveries and %RPD were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc. Project: Glenwood Laboratory
Project No.: 200350

Laboratory: STL - Buffalo

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 01/02/02 Verification of ICAL Results

Reviewer's Note : The laboratory utilized linear regression to generate a calibration line for the Aroclors, which is an allowable option under SW-846 protocols (see Method 8000B, pp. 20-21). All reported correlation coefficients were >0.99, which is the method acceptability criterion for acceptable fit.

	x	y	r ²	r ²
RTX-5, Aroclor 1260, Peak 1 RT = 10.84 minutes	Conc.	Response	Lab Value	Calc. Value
	50	6564	0.999176	0.9991760
	100	12379		
	200	24711		
	400	45014		
	800	93110		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	01/10/02	01/10/02
FILE ID :	10JAN021102-I0	10JAN021102-I1
All Targets < 15% D?	Yes	Yes

(If No, list compounds) ==>

QA ACTION : None necessary

C. SAMPLE RESULT VERIFICATION

SAMPLE ID: S1 LCS
COMPOUND: Aroclor-1260
REPORTED VALUE: 180 ug/Kg column = RTX-5

Response	b	m1	Calculated	Reported
63014	-7.0939	0.00872	542	543
34284	2.3397	0.01547	533	533
69187	0.75915	0.00776	538	538
151056	4.6437	0.00346	527	527
47445	-2.1084	0.01123	531	531
		average =	534	534

ug/Kg =	ng average conc.	extract, mL	Dilution factor
	534.150	10	1.0
	30.0	1.0	1.0
	wet wgt., gm	inject. vol, uL	%sol/100

ug/Kg = 178.0

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 200350 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA4-2SA	Aluminum		1600	1600		
		Antimony		0.29	0.29		
		Arsenic		1.2	1.2		
		Barium		11.5	11.5		
		Beryllium		0.20	0.20		
		Cadmium		0.20	0.20		
		Calcium		156	156		
		Chromium		38.9	38.9		
		Cobalt		2.4	2.4		
		Copper		6.3	6.3		
		Iron		9770	9770		
		Lead	-0.80	1.0	1.0 J	qualify	1, 2
		Magnesium		409	409		
		Manganese	0.40	202	202		
		Mercury		0.006 U	0.006 U		
		Nickel		14.8	14.8		
		Potassium		223	223		
		Selenium		0.23	0.23		
		Silver		0.0008 U	0.0008 U		
		Sodium	71.4	49.5	49.5		
		Thallium		0.007 U	0.007 U		
		Vanadium		6.1	6.1		
		Zinc		12.2	12.2		
		Cyanide		Not analyzed			
	GLA4-2A	Aluminum		1090	1090		
		Antimony		0.30	0.30		
		Arsenic		0.70	0.70		
		Barium		6.6	6.6		
		Beryllium		0.086	0.086		
		Cadmium		0.11	0.11		
		Calcium		95.1	95.1		
		Chromium		3.1	3.1		
		Cobalt		1.1	1.1		
		Copper		1.9	1.9		
		Iron		3150	3150		
		Lead	-0.80	1.0	1.0 J	qualify	1, 2
		Magnesium		304	304		
		Manganese	0.40	91.1	91.1		
		Mercury		0.005 U	0.005 U		
		Nickel		1.8	1.8		
		Potassium		141	141		
		Selenium		0.19	0.19		
		Silver		0.0009 U	0.0009 U		
		Sodium	71.4	36.1	36.1		
		Thallium		0.33	0.33		
		Vanadium		3.0	3.0		
		Zinc		11.7	11.7		
		Cyanide		Not analyzed			

FOOTNOTES

- The reported positive value was qualified 'J', as quantitatively estimated, because the ICSAB recovery exceeded the upper limit of 120%. Potential positive bias is suggested.
- The reported value is qualified 'J', because the associated CCB exceeded the (absolute) analyte CRDL value. Negative bias is suggested.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200350**A. CALIBRATION**

ICP Analytes

ICV 90% - 110% recovery

CCV 90% - 110% recovery

Outliers ?

none

none

B. CRDL STANDARD

80 - 120% recovery

Outliers ?

Pb CRI2 65%

QA Action: Qualify Pb values < nominal 1.2 mg/Kg.Affects: All samples.**C. BLANKS**

ICB / CCB < CRDL

Prep Blank < CRDL

Outliers ?

Pb CCB3, -4.6 ug/L

none

QA Action: Qualify Pb values < nominal 10 mg/Kg; negative biasAffects: All samples.**D. INTERELEMENT CORRECTION (ICSA / ICSAB)**

ICSA Response < 2x CRDL for trace metals

ICSAB 80 - 120% recovery

Outliers ?

n/a

Pb 123%, 126%

QA Action: Qualify positive Pb values.Affects: All samples.**E. MATRIX SPIKE (MS)**

75 - 125% recovery (if sample conc. < 4x spike conc.)

Outliers ?

n/a

Note: the matrix spike reported was not from this SDG; therefore, the results may not be representative of this SDG's sample matrix. No data qualifiers were assigned.

F. POST-DIGESTION SPIKE (PDS)

Required for analytes outside MS recovery range;
PDS conc. should be 2x CRDL or 2x sample conc.,
whichever is greater. Limits: 75 -125%

Outliers ?

n/a

G. MATRIX DUPLICATE (MD)

Max. 100% RPD for non-aqueous samples > 5x CRDL

Max. (+/-) CRDL value if either sample < 5x CRDL

Outliers ?

none

n/a

Note: the matrix duplicate reported was not from this SDG; therefore, the results may not be representative of this SDG's sample matrix. No data qualifiers were assigned.

H. LABORATORY CONTROL SAMPLE (LCS)

Recovery within control limits for non-aqueous samples

Recovery between 80 - 120% for aqueous samples

Outliers ?

none

n/a

I. SERIAL DILUTION SAMPLE (GLA4-2A)

Maximum 10.0% D if undiluted sample > 10x IDL

Outliers ?

none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

Instrument Detection Limits

Interelement Correction Factors

Linear Range Analysis

Frequency

Quarterly

Annually

Quarterly

Outliers ?

n/a

n/a

n/a

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200350

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ?

YesIf No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ?

YesIf No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ?

YesIf No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ?

Yes

If No, list affected analytes and samples, and QA action : _____

Note: % solids raw data were taken from the PCB section of the data package, since no moisture determination log was included with the metals data. Thus, there is some disparity due to different laboratories performing the % Solids determination at different times on different sub-samples. This is also reflected in the sample quantitation results below.

5. Show calculation for % Solids for one sample.

Sample ID: GLA4-2SALab value : 95.8 %Dry weight : 13.55 gm% Solids = Dry weight x 100Wet weight : 14.85 gm

Wet weight

= 91.2 %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLA4-2SAAnalyte : CrLab value : 38.9 mg/Kg% Solids : 91.2Raw value 0.2534 mg/LFinal volume 200 mLWet weight 1.36 gmmg/Kg dry weight = mg/L x FV (mL)

wet wgt x (%Sol/100) =

40.8

mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ?

n/aIf No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 28, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 200259

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

It is noted that the Semi-volatile analyses were performed by STL (Newburgh) New York, and the PCB analyses performed by STL (Colchester) Vermont. For the Semi-VOA report, sample GLA4-4SB was incorrectly identified as GLA4-43B; the sample is correctly identified on associated data review / summary forms.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA4-4SB	200259-1	SOIL	12/18/01	X	X	X
GLA4-2	200259-2	SOIL	12/18/01	X	X	X
GLA4-2S	200259-3	SOIL	12/18/01	X	X	X

Sample Collection and Receipt

It is noted that samples were received at STL-CT at 8 degrees C; the client was notified, and the lab instructed to proceed with analysis. The method-prescribed sample preservation temperature is 4 degrees C; EPA Region II validation guidelines call for qualification above 10 C. No data qualifiers were applied.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

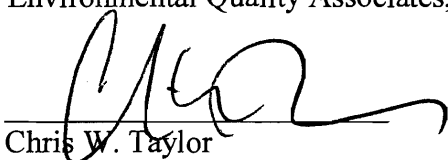
Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

- 1) No GPC clean-up was performed on the soil samples for the semi-volatile or pesticide-PCB fractions, nor was Florisil clean-up performed for the PCB fraction. GPC clean-up can improve resolution for these fractions by removing a wide range of higher molecular weight interferences, and Florisil fractionation provides separation of interferent analytes from the Aroclor compounds of interest. Acid clean-up and copper clean-up were performed on the PCB fractions.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-200259

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 200259METHOD: SW846 / 8270CLAB NAME : Severn Trent - NYCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA4-4SB	Phenanthrene		310 J	310 J	qualify	1
		Anthracene		86 J	86 J	qualify	1
		Fluoranthene		1000	1000		
		Pyrene		880	880		
		Benzo(a)anthracene		660	660		
		Chrysene		600	600		
		Benzo(b)fluoranthene		690	690 J	qualify	3
		Benzo(k)fluoranthene		270 J	270 J	qualify	1
		Benzo(a)pyrene		580	580 J	qualify	2
		Indeno(1,2,3-cd)pyrene		220 J	220 J	qualify	1
		Dibenzo(a,h)anthracene		66 J	66 J	qualify	1
		Benzo(g,h,i)perylene		220 J	220 J	qualify	1
		3-Nitroaniline		930 U	930 UJ	qualify	3
		2,4-Dinitrophenol		930 U	930 UJ	qualify	3
		2,4-Dinitrotoluene		370 U	370 UJ	qualify	3
		4-Nitrophenol		930 U	930 UJ	qualify	3
		4-Nitroaniline		930 U	930 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		930 U	930 UJ	qualify	3
		Pentachlorophenol		930 U	930 UJ	qualify	3
		Carbazole		370 U	370 UJ	qualify	3
	GLA4-2	3-Nitroaniline		920 U	920 UJ	qualify	3
		2,4-Dinitrophenol		920 U	920 UJ	qualify	3
		2,4-Dinitrotoluene		370 U	370 UJ	qualify	3
		4-Nitrophenol		920 U	920 UJ	qualify	3
		4-Nitroaniline		920 U	920 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		920 U	920 UJ	qualify	3
		Pentachlorophenol		920 U	920 UJ	qualify	3
		Carbazole		370 U	370 UJ	qualify	3
		Benzo(b)fluoranthene		370 U	370 UJ	qualify	3
	GLA4-2S	Naphthalene		41 J	41 J	qualify	1, 2
		Phenanthrene		660	660		
		Anthracene		45 J	45 J	qualify	1
		Fluoranthene		1200	1200		
		Pyrene		1200	1200		
		Benzo(a)anthracene		340 J	340 J	qualify	1
		Chrysene		470	470		
		bis(2-Ethylhexyl)phthalate		140 J	140 J	qualify	1
		Di-n-octylphthalate		360 U	360 UJ	qualify	4
		Benzo(b)fluoranthene		600	600 J	qualify	3, 4
		Benzo(k)fluoranthene		240 J	240 J	qualify	4
		Benzo(a)pyrene		400	400 J	qualify	2, 4
		Indeno(1,2,3-cd)pyrene		150 J	150 J	qualify	4
		N-Nitrosodimethylamine		360 U	360 UJ	qualify	4
		Dibenzo(a,h)anthracene		43 J	43 J	qualify	4
		Benzo(g,h,i)perylene		160 J	160 J	qualify	4
		3-Nitroaniline		910 U	910 UJ	qualify	3
		2,4-Dinitrophenol		910 U	910 UJ	qualify	3
		2,4-Dinitrotoluene		360 U	360 UJ	qualify	3
		4-Nitrophenol		910 U	910 UJ	qualify	3
		4-Nitroaniline		910 U	910 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		910 U	910 UJ	qualify	3
		Pentachlorophenol		910 U	910 UJ	qualify	3
		Carbazole		360 U	360 UJ	qualify	3

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICSSITE NAME : GLENWOODSDG No.: 200259METHOD: SW846 / 8270CLAB NAME : Severn Trent - NYCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- 3 The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.
- 4 The reported result for this compound is qualified 'UJ', or 'J', because recovery of the associated Internal Standard (IS) compound was below 50% of the response for that IS in the corresponding Continuing Calibration standard.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 200259

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within allowable holding times.

Note : Samples were received at 8 degrees C ; although no data qualifiers were applied, the data user is alerted to the potential for negative bias in samples maintained above the recommended range of 2 to 6 degrees C.

B. METHOD BLANKS

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
12/21/01	SBLK40	E23519	soil	none	n/a

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
 If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
 If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

Sample ID	Surrogate	Bias	ACTION
-----------	-----------	------	--------

All surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Sample ID	Spike Compound	Bias	ACTION
-----------	----------------	------	--------

Comments: 1) The reported MS/MSD were not from this SDG, and may not be representative of this SDG's sample matrix. Therefore, no inferences regarding potential sample matrix effects were made, and no data qualifiers were assigned.
 2) Only the CLP compound set were spiked in the MS/MSD and Blank Spikes. Recoveries for other target compounds reported are unknown.

E. BLANK SPIKE

See Comment 2 above

Sample ID	Spike Compound	Bias	ACTION
S BSPK40	All blank spike recoveries were within laboratory limits		

F. INTERNAL STANDARDS

Sample ID	Internal Standard	Bias	ACTION
GLA4-2S	perylene-d12	low	Use original results; qualify 'UJ' or 'J' all compounds quantitated from perylene-d12
GLA4-2S RE	perylene-d12	low	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Internal Standard	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA4-2S	pyrene	chrysene-d12	1200	1078
Ax	Is	Vt	Df	GPC
669497	40.0	1000	1.0	1.0
Ais	RRF	Vi	Ws	D
319186	1.415	2.0	30.0	0.917

Note : the laboratory utilized the RRF from the CCAL, as opposed to the ICAL average RRF for quantitation. Method 8270 stipulates quantitation from the ICAL average RRF. Use of the ICAL average RRF of 1.415, as above, results in a concentration of 1078 ug/Kg, vs. a concentration of 1250 ug/Kg using the daily CCAL RRF.

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 200259

A. GC/MS PERFORMANCE CHECK (DFTPP TUNE)

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>Comments</u>
11/27/01	OK	yes	The Form 5 tune summaries for all analytical sequences list incorrect m/z ratio windows for m/z 51, 127, 365 and 443; m/z windows are correct in the raw data. Although the actual ratios were within the acceptable ranges for Method 8270, the lab should take steps to implement the correct ranges in their software.
12/21/01	OK	yes	
12/26/01	OK	yes	

B. INITIAL CALIBRATION

CALIBRATION DATE :	11/27/01
FILE IDs :	ICS1051 - 1055
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds)	hexachloroethane
SPCC Compounds	N-nitroso-di-n-propylamine
N-Nitroso-di-n-propylamine	4-methylphenol
Hexachlorocyclopentadiene	benzoic acid
2,4-Dinitrophenol	naphthalene
4-Nitrophenol	hexachlorocyclopentadiene
MINIMUM RRF = 0.050	3-nitroaniline
CCC Compounds	2,4-dinitrophenol
<u>Base/Neutrals</u>	4-nitrophenol
Acenaphthene	4,6-dinitro-2-methylphenol
1,4-Dichlorobenzene	carbazole
Hexachlorobutadiene	benzo(a)pyrene
Diphenylamine	
Di-n-octylphthalate	
Fluoranthene	
Benzo(a)pyrene	
<u>Acids</u>	
4-Chloro-3-methylphenol	
2,4-Dichlorophenol	
2-Nitrophenol	
Phenol	
Pentachlorophenol	
2,4,6-Trichlorophenol	
MAXIMUM %RSD = 30.0%	
MAXIMUM %D = 20.0%	

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

C. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/21/01
FILE ID :	CCS2250
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %Ds < 20% ?	Yes
All Targets < 20%D?	NO
(If No, list compounds)	3-nitroaniline
	2,4-dinitrophenol
	2,4-dinitrotoluene
	4-nitrophenol
	4-nitroaniline
	4,6-dinitro-2-methylphenol
	pentachlorophenol (CCC)
	carbazole
	benzo(b)fluoranthene

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20% D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 200259METHOD: SW846 / 8082LAB NAME : STL - VTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA4-4SB	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		18 U	18 U		
	GLA4-2	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		18 U	18 U		
	GLA4-2S	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		33	33 J	qualify	2
		Aroclor 1260		21 P	21 J	qualify	2, 3

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the lower of the values from the two analytical columns was reported. This information is provided to the data end-user for potential utility in performing regulatory compliance assessment.
- 2 The reported result is qualified 'J', as quantitatively estimated, because the %D between analytical columns exceeded 25%, but was below 50%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory
Project No.: 200259

Laboratory: STL - VT

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP : 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

Note : Samples were received at 8 degrees C ; although no data qualifiers were applied, the data user is alerted to the potential for negative bias in samples maintained above the recommended preservation temperature range of 2 to 6 degrees C.

B. METHOD BLANKS

Blank ID:	PBLKP2
Extraction Date:	12/19/01
Analyte	Conc. ug/Kg
none found	n/a
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Note: No matrix spike / duplicate were performed; only Blank Spike / Duplicate were run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (LCS)

LCS and LCS duplicate were performed; results were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc. Project: Glenwood Laboratory: STL - VT
 Project No.: 200259

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 12/20/01 Verification of ICAL Results

Reviewer's Note : The laboratory used linear regression to generate a calibration line for the Aroclors, which is an allowable option under SW-846 protocols (see Method 8000B, pp. 20-21). All reported correlation coefficients were >0.99, which is the method criterion for acceptable curve fit.

12/20/01 Aroclor 1260, Peak 4 RTX-5, RT = 11.51 minutes	Conc.	Response	Lab R-squared	Calc. R-squared
	50	15257	0.999684	0.9996840
	100	28149		
	200	51153		
	400	97775		
	800	185853		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/21/01	12/21/01
RUN TIME :	17:48	22:32
All Target Peaks < 15% D?	Yes	Yes

(If No, list compounds) ==>

QA ACTION : None necessary

C. SAMPLE RESULT VERIFICATION

SAMPLE ID: GLA4-2S
 COMPOUND: Aroclor-1260
 REPORTED VALUE: 21 ug/Kg column = RTX-5

Peak RT	m1	peak height	+ b	ppb
10.18	0.00968	9220	-35.87457	53.375
10.31	0.01715	4442	-27.77059	48.410
10.80	0.0114	6441	-31.1148	42.313
11.51	0.00441	20669	-23.5252	67.625
12.44	0.01439	7597	-24.77451	84.546

conc., y = (m1*x) + b avg. ppb = 59.254

ug/Kg =	ppb avg. conc.	extract, mL	Dilution factor
	59.254	10	1.0
	30.3	1.0	0.93
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 21.03

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 200259Method : SW-846Lab Name : STL - ConnecticutSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA4-4SB	Aluminum		1610	1610		
		Antimony		1.1 U	1.1 U		
		Arsenic		0.80 U	0.80 U		
		Barium		13.2	13.2		
		Beryllium		0.23 U	0.23 U		
		Cadmium		0.28 U	0.28 U		
		Calcium		162	162		
		Chromium		3.5	3.5		
		Cobalt		1.4	1.4		
		Copper		4.3	4.3		
		Iron	16.9	4370	4370		
		Lead		9.8	9.8 J	qualify	3, 4
		Magnesium		474	474		
		Manganese	0.3	115	115		
		Mercury		0.014 B	0.014 J	qualify	1
		Nickel		4.0	4.0		
		Potassium		187	187		
		Selenium		1.6 U	1.6 U		
		Silver		0.25 U	0.25 U		
		Sodium	19.3	22	22		
		Thallium		2.2 U	2.2 U		
		Vanadium		6.2	6.2		
		Zinc		48.7	48.7		
		Cyanide		Not analyzed			
	GLA4-2	Aluminum		6090	6090		
		Antimony		1.1 U	1.1 U		
		Arsenic		1.5	1.5		
		Barium		24.4	24.4		
		Beryllium		0.29	0.29		
		Cadmium		0.25 U	0.25 U		
		Calcium		528	528		
		Chromium		9.6	9.6		
		Cobalt		3.2	3.2		
		Copper		5.7	5.7		
		Iron	16.9	10100	10100		
		Lead		11.6	11.6 J	qualify	3, 4
		Magnesium		1180	1180		
		Manganese	0.3	145	145		
		Mercury		0.015 B	0.015 J	qualify	1
		Nickel		7.3	7.3		
		Potassium		454	454		
		Selenium		1.4 U	1.4 U		
		Silver		0.23 U	0.23 U		
		Sodium	19.3	33.1	33.1		
		Thallium		2.0 U	2.0 U		
		Vanadium		13.7	13.7		
		Zinc		17.0	17.0		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 200259 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA4-2S	Aluminum		1530	1530		
		Antimony		8.7	8.7		
		Arsenic		0.99	0.99		
		Barium		26.4	26.4		
		Beryllium		0.21 U	0.21 U		
		Cadmium		0.51	0.51		
		Calcium		1340	1340		
		Chromium		8.4	8.4		
		Cobalt		2.2	2.2		
		Copper		59.3	59.3		
		Iron	16.9	6530	6530		
		Lead		335	335 J	qualify	3, 4
		Magnesium		881	881		
		Manganese	0.3	75.2	75.2		
		Mercury		0.095 B	0.095 J	qualify	1
		Nickel		19.2	19.2		
		Potassium		189	189		
		Selenium		1.5 U	1.5 U		
		Silver		0.43	0.43		
		Sodium	19.3	54.4	54.4		
		Thallium		2.0 U	2.0 U		
		Vanadium		56.8	56.8		
		Zinc		274	274		
		Cyanide		Not analyzed			

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value. No bias direction is inferred.
- 2 NOT USED FOR THIS SDG
- 3 The reported positive value was qualified 'J', as quantitatively estimated, because the ICSAB recovery exceeded the upper limit of 120%. Potential positive bias is suggested.
- 4 The reported value is qualified 'J', because the associated CCB exceeded the analyte CRDL value. Positive bias is suggested.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200259**A. CALIBRATION**ICP Analytes

ICV	90% - 110% recovery
CCV	90% - 110% recovery

Outliers ?

none
none

B. CRDL STANDARD

80 - 120% recovery

Outliers ?

Pb	146%, 137%
Se	127%, 149%
Tl	137%

QA Action: Qualify positive Pb, Se & values < nominal 2.4, 4.0 & 8.0 mg/Kg.Affects: All samples.**C. BLANKS**

ICB / CCB	< CRDL
Prep Blank	< CRDL

Outliers ?

Pb	3.1 ug/L	CCB 3
none		

QA Action: Qualify positive Pb values < nominal 6.0 mg/Kg.Affects: All samples.**D. INTERELEMENT CORRECTION (ICSA / ICSAB)**

ICSAB 80 - 120% recovery

Outliers ?

Pb	124%, 123%
----	------------

QA Action: Qualify positive Pb values.Affects: All samples.**E. MATRIX SPIKE (MS)**

75 - 125% recovery (if sample conc. < 4x spike conc.)

Outliers ?

n/a

Note: the matrix spike reported was not from this SDG; therefore, the results may not be representative of this SDG's sample matrix. No data qualifiers were assigned.

F. POST-DIGESTION SPIKE (PDS)

Required for analytes outside MS recovery range;
PDS conc. should be 2x CRDL or 2x sample conc.,
whichever is greater. Limits: 75 -125%

Outliers ?

n/a

G. MATRIX DUPLICATE (MD)

Max. 100% RPD for non-aqueous samples > 5x CRDL
Max. (+/-) CRDL value if either sample < 5x CRDL

Outliers ?

none
n/a

Note: the matrix duplicate reported was not from this SDG; therefore, the results may not be representative of this SDG's sample matrix. No data qualifiers were assigned.

H. LABORATORY CONTROL SAMPLE (LCS)

Recovery within control limits for non-aqueous samples
Recovery between 80 - 120% for aqueous samples

Outliers ?

none
n/a

I. SERIAL DILUTION SAMPLE (GLA3-1AD)

Maximum 10.0% D if undiluted sample > 10x IDL

Outliers ?

none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

Instrument Detection Limits	Quarterly
Interelement Correction Factors	Annually
Linear Range Analysis	Quarterly

Outliers ?

n/a
n/a
n/a

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200259

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ? Yes

If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ? Yes

If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ? Yes

If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ? Yes

If No, list affected analytes and samples, and QA action : _____

Note: % solids raw data were taken from the PCB section of the data package, since no moisture determination log was included with the metals data. Thus, there is some disparity due to different laboratories performing the %Solids determination at different times on different sub-samples. This is also reflected in the sample quantitation results below.

5. Show calculation for % Solids for one sample.

Sample ID: GLA4-2S Lab value : 94.3 %

Dry weight : 12.85 gm % Solids = $\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$

Wet weight : 14.22 gm = 90.4 %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLA4-2S Analyte : Pb Lab value : 335 mg/Kg

% Solids : 90.4

Raw value 1.7996 mg/L

Final volume 200 mL

Wet weight 1.14 gm

mg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (mL)}}{\text{wet wt} \times (\% \text{Sol}/100)} =$ **349.4** mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ? n/a

If No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 28, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 7001-2840A

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA7-3C	012840A-01	SOIL	11/21/01	X	X	X
GLA7-3E	012840A-02	SOIL	11/21/01	X	X	X
GLA7-1E	012840A-03	SOIL	11/21/01	X	X	X
GLA7-1F	012840A-04	SOIL	11/21/01	X	X	X

Sample Collection and Receipt

It is noted that samples were collected on 11/21/01, and received at the laboratory on 11/27 /01. This represents six days between collection and receipt, which is considered excessive. Since samples were received within acceptable temperature range, and processed and analyzed within a few days of receipt, no data qualifiers were applied.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

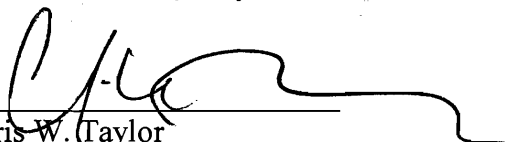
Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

- 1) No GPC clean-up was performed on the soil samples for the semi-volatile or pesticide-PCB fractions, nor was Florisil clean-up performed for the PCB fraction. GPC clean-up can improve resolution for these fractions by removing a wide range of higher molecular weight interferences, and Florisil fractionation provides separation of interferent analytes from the Aroclor compounds of interest. Acid clean-up and copper clean-up were performed on the PCB fractions.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-2840A

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2840AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA7-3C	Fluoranthene		16 J	16 J	qualify	1
		Pyrene		18 J	18 J	qualify	1
		Benzo(a)anthracene		11 J	11 J	qualify	1
		Chrysene		14 J	14 J	qualify	1
		Benzo(b)fluoranthene		12 J	12 J	qualify	1
		Benzo(k)fluoranthene		13 J	13 J	qualify	1
		Indeno(1,2,3-cd)pyrene		5 J	5 J	qualify	1, 2
		Benzoic acid		1600 U	1600 UJ	qualify	3
		2,4,5-Trichlorophenol		1600 U	1600 UJ	qualify	4
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	4
		Pentachlorophenol		1600 U	1600 UJ	qualify	4
	GLA7-3E	Phenanthrene		16 J	16 J	qualify	1
		Fluoranthene		37 J	37 J	qualify	1
		Pyrene		48 J	48 J	qualify	1
		Benzo(a)anthracene		19 J	19 J	qualify	1
		Chrysene		26 J	26 J	qualify	1
		Benzo(b)fluoranthene		26 J	26 J	qualify	1
		Benzo(k)fluoranthene		30 J	30 J	qualify	1
		Benzo(a)pyrene		35 J	35 J	qualify	1
		Indeno(1,2,3-cd)pyrene		25 J	25 J	qualify	1, 2
		Benzo(g,h,i)perylene		39 J	39 J	qualify	1, 2
		Benzoic acid		1600 U	1600 UJ	qualify	3
		2,4,5-Trichlorophenol		1600 U	1600 UJ	qualify	4
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	4
		Pentachlorophenol		1600 U	1600 UJ	qualify	4
	GLA7-1F	Fluoranthene		15 J	15 J	qualify	1
		Pyrene		14 J	14 J	qualify	1
		Benzoic acid		1600 U	1600 UJ	qualify	3
		2,4,5-Trichlorophenol		1600 U	1600 UJ	qualify	4
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	4
		Pentachlorophenol		1600 U	1600 UJ	qualify	4
	GLA7-1E	Benzoic acid		22 J	22 J	qualify	1, 2, 3
		Naphthalene		32 J	32 J	qualify	1
		2-Methylnaphthalene		36 J	36 J	qualify	1
		Acenaphthylene		25 J	25 J	qualify	1
		Phenanthrene		53 J	53 J	qualify	1
		Anthracene		18 J	18 J	qualify	1
		Fluoranthene		86 J	86 J	qualify	1
		Pyrene		120 J	120 J	qualify	1
		Benzo(a)anthracene		73 J	73 J	qualify	1
		Chrysene		100 J	100 J	qualify	1
		Benzo(b)fluoranthene		81 J	81 J	qualify	1
		Benzo(k)fluoranthene		78 J	78 J	qualify	1
		Benzo(a)pyrene		89 J	89 J	qualify	1
		Indeno(1,2,3-cd)pyrene		54 J	54 J	qualify	1, 2
		Dibenzo(a,h)anthracene		21 J	21 J	qualify	1, 2
		Benzo(g,h,i)perylene		55 J	55 J	qualify	1, 2
		2,4,5-Trichlorophenol		1600 U	1600 UJ	qualify	4
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	4
		Pentachlorophenol		1600 U	1600 UJ	qualify	4

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICSSITE NAME : GLENWOODSDG No.: 7001-2840AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-AqueousFOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- 3 The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%. No bias direction is inferred.
- 4 The reported value for this compound is qualified 'UJ' or 'J', because the recovery for this compound in the associated LCS (Blank Spike) was below the laboratory-established lower limit. Negative bias is suggested.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2840A

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
 All samples were extracted and analyzed within allowable holding times.

Note: Samples were collected on 11/21/01, and received at the laboratory on 11/27/01. This represents six days between collection and receipt, which is considered excessive. Since samples were received within acceptable temp. range (6 C) and extracted within seven days of collection, no data qualifiers were assigned.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>	<u>Affects</u>
11/28/01	SBLKYR	R2774	soil	none	n/a	All samples

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
 If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
 If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
All reported surrogate recoveries were within acceptable limits			

D. MATRIX SPIKE / DUPLICATE

Comments: No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
SBLKYR	2,4,5-trichlorophenol	low	Qualify 'UJ' or 'J' in all affected samples
	2,4-dinitrophenol	low	Qualify 'UJ' or 'J' in all affected samples
	4,6-diNO ₂ -2-Mephenol	low	Qualify 'UJ' or 'J' in all affected samples
	pentachlorophenol	low	Qualify 'UJ' or 'J' in all affected samples

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
All IS recoveries & RTs were within acceptable limits			

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
11/27/01	OK	yes	
11/29/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

<u>Sample ID</u>	<u>Compound</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>
GLA7-1E	benzo(a)pyrene	89 J	88.7

	<u>Ax</u>	<u>Is</u>	<u>Vt</u>	<u>Df</u>	<u>GPC</u>
Conc., ug/Kg =	102907	40.0	500	1.0	1.0
	Ais	RRF	Vi	Ws	D
	724523	1.105	2.0	15.1	0.96

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2840A

A. INITIAL CALIBRATION

CALIBRATION DATE :	11/27/01
FILE IDs :	R2751 - 2755
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds) ----->	benzoic acid
SPCC Compounds	hexachlorocyclopentadiene
N-Nitroso-di-n-propylamine	2,4-dinitrophenol
Hexachlorocyclopentadiene	pentachlorophenol
2,4-Dinitrophenol	indeno(1,2,3-cd)pyrene
4-Nitrophenol	dibenzo(a,h)anthracene
MINIMUM RRF = 0.050	benzo(g,h,i)perylene

CCC Compounds
Base/Neutrals
Acenaphthene
1,4-Dichlorobenzene
Hexachlorobutadiene
Diphenylamine
Di-n-octylphthalate
Fluoranthene
Benzo(a)pyrene
Acids
4-Chloro-3-methylphenol
2,4-Dichlorophenol
2-Nitrophenol
Phenol
Pentachlorophenol
2,4,6-Trichlorophenol
MAXIMUM %RSD = 30.0%
MAXIMUM %D = 20.0%

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/29/01
FILE ID :	R2773
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %Ds < 20% ?	Yes
All Targets < 20%D?	NO
(If No, list compounds) ----->	benzoic acid

ACTION : Qualify 'J' or 'JJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2840AMETHOD: SW846 / 8082LAB NAME : STL - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA7-3C	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA7-3E	Aroclor 1016		33 U	33 U		
		Aroclor 1221		67 U	67 U		
		Aroclor 1232		33 U	33 U		
		Aroclor 1242		33 U	33 U		
		Aroclor 1248		33 U	33 U		
		Aroclor 1254		33 U	33 U		
		Aroclor 1260		33 U	33 U		
	GLA7-1E	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		13 J	13 J	qualify	1
	GLA7-1F	Aroclor 1016		33 U	33 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		33 U	33 U		
		Aroclor 1242		33 U	33 U		
		Aroclor 1248		33 U	33 U		
		Aroclor 1254		33 U	33 U		
		Aroclor 1260		33 U	33 U		

FOOTNOTES

1

The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.

POLYCHLORINATED BIPHENYLS (PCBs)

QC PARAMETER / QUALIFIER SUMMARY

SW846 METHOD 8082

For: Vanasse, Hanger, Brustlin, Inc.

Project: Glenwood

Laboratory

Project No.: 7001-2840A

Laboratory: STL - CT

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	D4142050
Extraction Date:	11/28/01
Analyte	Conc. ug/Kg
none found	n/a
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Comments: No matrix spike / duplicate were performed; only a Blank Spike was run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (PBLK06QC2)

All reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 7001-2840ALaboratory: STL - CT**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 11/30/01 Verification of ICAL Results

<u>Aroclor 1260</u>	<u>RTX-35</u>		
<u>Peak 1, RT = 22.36</u>	<u>Response</u>	<u>Cal Factor, Calc'd.</u>	<u>CF, reported</u>
0.05	20111	402220	402220
0.1	40448	404480	404480
0.2	77493	387465	387465
0.4	149445	373613	373612
0.8	272654	340818	340818
Average		381719	381719
Calc'd. %RSD =	6.82		
Reported %RSD =	6.8		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/01/01	12/02/01
FILE ID :	D4142047	D4142053
All Targets < 15% D?	Yes	Yes
(If No, list compounds) ==>		

QA ACTION : None necessary**C. SAMPLE RESULT VERIFICATION**

SAMPLE ID: GLA7-1E
 COMPOUND: Aroclor-1260
 REPORTED VALUE: 13 ug/Kg column = RTX-35

<u>Peak RT</u>	<u>CF</u>	<u>Peak Area</u>	<u>conc., ng</u>
24.19	691154	26638	0.0385
25.64	187001	6614	0.0354
25.82	440310	19419	0.0441
Average conc. =			0.0393

ug/Kg =	ng average conc.	extract, uL	Dilution factor
	0.0393	10000	1.0
	30.4	1.0	0.96
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 13.48

Comments: The laboratory reported the highest of the two values between analytical columns, per SW-846 protocol. However, the laboratory did not use all 5 calibration peaks for quantitation, but used 3, which is the minimum allowable number of peaks. Chromatographic evaluation revealed that the 1st and 2nd peaks used in calibration were present on each column, and were within established RT windows. However, the 1st peaks were very large in comparison with the other peaks, indicating potential interference. The reviewer agrees with the lab's selection of peaks for quantitation.

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2840A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-3C	Aluminum	4.257	1580	1580		
		Antimony		0.82 U	0.82 U		
		Arsenic		1.2 B	1.2 J	qualify	1
		Barium		9.6 B	9.6 J	qualify	1
		Beryllium		0.17 B	0.17 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	5.698	446 B	446 J	qualify	1
		Chromium		4.6	4.6		
		Cobalt		1.4 B	1.4 J	qualify	1
		Copper		7.0	7.0		
		Iron		5650	5650		
		Lead		4.3	4.3 J	qualify	4
		Magnesium		475 B	475 J	qualify	1
		Manganese		96.5 *	96.5		
		Mercury		0.0041 U	0.004 U		
		Nickel		4.5 B	4.5 J	qualify	1
		Potassium		187 B	187 J	qualify	1
		Selenium		0.87 UN	0.87 U		
		Silver		0.18 U	0.18 U		
		Sodium	12.477	19.0 B	19.0 J	qualify	1
		Thallium		3.3 U	3.3 U		
		Vanadium		37.0	37.0		
		Zinc	1.345	17.1	17.1 J	qualify	4
		Cyanide		Not analyzed			
	GLA7-3E	Aluminum	4.257	2340	2340		
		Antimony		0.82 U	0.82 U		
		Arsenic		1.3 B	1.3 J	qualify	1
		Barium		15.6 B	15.6 J	qualify	1
		Beryllium		0.19 B	0.19 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	5.698	388 B	388 J	qualify	1
		Chromium		4.5	4.5		
		Cobalt		1.8 B	1.8 J	qualify	1
		Copper		3.8 B	3.8 J	qualify	1
		Iron		5780	5780		
		Lead		4.5	4.5 J	qualify	4
		Magnesium		602 B	602 J	qualify	1
		Manganese		127 *	127		
		Mercury		0.0056 B	0.006 J	qualify	1
		Nickel		4.6 B	4.6 J	qualify	1
		Potassium		345 B	345 J	qualify	1
		Selenium		0.87 UN	0.87 U		
		Silver		0.18 U	0.18 U		
		Sodium	12.477	19.3 B	19.3 J	qualify	1
		Thallium		3.3 U	3.3 U		
		Vanadium		7.4 B	7.4 J	qualify	1
		Zinc	1.345	14.0	14.0 J	qualify	4
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2840A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-1E	Aluminum	4.257	5710	5710		
		Antimony		0.78 U	0.78 U		
		Arsenic		3.2	3.2		
		Barium		29.3 B	29.3 J	qualify	1
		Beryllium		0.39 B	0.39 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	5.698	1310	1310		
		Chromium		13.8	13.8		
		Cobalt		4.0 B	4.0 J	qualify	1
		Copper		13.5	13.5		
		Iron		11400	11400		
		Lead		24.5	24.5 J	qualify	4
		Magnesium		1680	1680		
		Manganese		189 *	189		
		Mercury		0.17	0.17		
		Nickel		23.6	23.6		
		Potassium		569 B	569 J	qualify	1
		Selenium		0.98 N	0.98 J	qualify	2, 3
		Silver		0.17 U	0.17 U		
		Sodium	12.477	44.4 B	44.4 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		70.0	70.0		
		Zinc	1.345	44.9	44.9 J	qualify	4
		Cyanide		Not analyzed			
	GLA7-1F	Aluminum	4.257	1440	1440		
		Antimony		0.83 U	0.83 U		
		Arsenic		1.2 B	1.2 J	qualify	1
		Barium		7.9 B	7.9 J	qualify	1
		Beryllium		0.094 B	0.094 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	5.698	563 B	563 J	qualify	1
		Chromium		8.1	8.1		
		Cobalt		1.1 B	1.1 J	qualify	1
		Copper		3.1 B	3.1 J	qualify	1
		Iron		3620	3620		
		Lead		4.0	4.0 J	qualify	4
		Magnesium		592 B	592 J	qualify	1
		Manganese		65.9 *	66		
		Mercury		0.0048 B	0.005 J	qualify	1
		Nickel		3.8 B	3.8 J	qualify	1
		Potassium		177 B	177 J	qualify	1
		Selenium		0.88 UN	0.88 U		
		Silver		0.18 U	0.18 U		
		Sodium	12.477	15.7 B	15.7 J	qualify	1
		Thallium		3.3 U	3.3 U		
		Vanadium		5.8 B	5.8 J	qualify	1
		Zinc	1.345	8.0	8.0		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**Site Name : GlenwoodSDG No.: 7001-2840AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous**FOOTNOTES**

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value. No bias direction is inferred.
- 2 The reported positive value for this analyte was qualified 'J', because the associated CRDL standard recovery exceeded the upper limit. Potential positive bias is suggested.
- 3 The reported positive value for this analyte was qualified 'J', because the associated matrix spike recovery exceeded the upper limit. Potential positive bias is suggested.
- 4 The reported positive value for this analyte was qualified 'J', because the associated Serial Dilution standard precision exceeded 10.0%D, while the sample concentration was above 10x analyte IDL. Since undiluted values were below dilution concentrations, negative bias is suggested.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- CTLab Project No. : 7001-2840A

- A. **CALIBRATION**
 ICP Analytes
- | | | |
|-----|---------------------|-------------------|
| ICV | 90% - 110% recovery | <u>Outliers ?</u> |
| CCV | 90% - 110% recovery | none |
- B. **CRDL STANDARD**
- | | |
|--------------------|-------------------|
| 80 - 120% recovery | <u>Outliers ?</u> |
| | Se CRI 1 120.4% |
- QA Action : Qualify 'J' positive Se values up to nominal 4.0 mg/Kg, with positive bias suggested.
 Affects : All samples.
- C. **BLANKS**
- | | |
|-------------------|-------------------|
| ICB / CCB < CRDL | <u>Outliers ?</u> |
| Prep Blank < CRDL | none |
- D. **INTERELEMENT CORRECTION (ICSA / ICSAB)**
- | | | |
|-------|-------------------------------------|-------------------|
| ICSA | Response < 2x CRDL for trace metals | <u>Outliers ?</u> |
| ICSAB | 80 - 120% recovery | none |
- E. **MATRIX SPIKE** (GLA7-1F)
- | | |
|---|-------------------|
| 75 - 125% recovery (if sample conc. < 4x spike conc.) | <u>Outliers ?</u> |
| | Se 142% |
- QA Action : Qualify positive Se values 'J', with positive bias suggested.
 Affects : All samples.
- F. **POST-DIGESTION SPIKE** (GLA7-1F)
- | | |
|---|-------------------|
| 75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >. | <u>Outliers ?</u> |
| | none |
- G. **MATRIX DUPLICATE** (GLA7-1F)
- | | |
|--|-------------------|
| Max. 100% RPD for non-aqueous samples > 5x CRDL | <u>Outliers ?</u> |
| Max. (+/-) CRDL value if either sample < 5x CRDL | none |
- H. **LABORATORY CONTROL SAMPLE**
- | | |
|--|-------------------|
| Recovery within control limits for non-aqueous samples | <u>Outliers ?</u> |
| Recovery between 80 - 120% for aqueous samples | K (5260 vs. 5000) |
| | n/a |
- QA Action : Qualify positive K values 'J', with positive bias suggested.
 Affects : All samples.
- I. **SERIAL DILUTION SAMPLE**
- | | |
|---|-------------------|
| Maximum 10.0% D if undiluted sample > 10x IDL | <u>Outliers ?</u> |
| | Pb 18% |
| | Zn 55% |
- QA Action : Qualify positive Pb & Zn values > 10x IDLs; negative bias suggested.
 Affects : All samples.
- J. **VERIFICATION OF INSTRUMENTAL PARAMETERS**
- | | <u>Frequency</u> | <u>Outliers ?</u> |
|---------------------------------|------------------|-------------------|
| Instrument Detection Limits | Quarterly | none |
| Interelement Correction Factors | Annually | none |
| Linear Range Analysis | Quarterly | none |

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL-CTLab Project No. : 7001-2840A

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ? Yes
 If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ? Yes
 If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ? Yes
 If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ? Yes
 If No, list affected analytes and samples, and QA action : _____
 Note: % solids values below were taken from the PCB Prep Log.

5. Show calculation for % Solids for one sample.

Sample ID:	<u>GLA7-1E</u> (2840A-03)		Lab value :	<u>96</u> %
Dry weight :	<u>9.9</u> gm	% Solids = $\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$		
Wet weight :	<u>10.31</u> gm		=	<u>96.0</u> %
6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID:	<u>GLA7-1E</u>	Analyte :	<u>Pb</u>	Lab value :	<u>24.5</u> mg/Kg
% Solids :	<u>96.0</u>				
Raw value	<u>0.1436</u> mg/L	$\text{mg/Kg dry weight} = \frac{\text{mg/L} \times \text{FV (ml)}}{\text{wet wgt} \times (\% \text{Sol}/100)} =$			
Final volume	<u>200</u> mL				
Wet weight	<u>1.22</u> gm				
				24.5	mg/ kg
7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ? n/a
 If No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 26, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 200290

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA3-4A	200290-1	SOIL	12/21/01	X	X	X
GLA3-8A	200290-2	SOIL	12/21/01	X	X	X
GLA3-1A	200290-3	SOIL	12/21/01	X	X	X
GLA3-1AD	200290-4	SOIL	12/21/01	X	X	X

Sample Collection and Receipt

The chain-of-custody was left blank in both the sample release and sample receipt areas (i.e., no printed names, signatures or dates were present). The chain-of-custody is a critical forensic document for establishing sample collection dates and holding-time compliance. Both the sample collection and laboratory staff should be counseled on correct documentation and signature procedures.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary


Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

- 1) No GPC clean-up was performed on the soil samples for the semi-volatile or pesticide-PCB fractions, nor was Florisil clean-up performed for the PCB fraction. GPC clean-up can improve resolution for these fractions by removing a wide range of higher molecular weight interferences, and Florisil fractionation provides separation of interferent analytes from the Aroclor compounds of interest. Acid clean-up and copper clean-up were performed on the PCB fractions.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-200290

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 200290METHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA3-4A	4-Chlorophenyl phenyl ether		340 U	340 UJ	qualify	2
	GLA3-8A	4-Chlorophenyl phenyl ether		390 U	390 UJ	qualify	2
	GLA3-1A	Acenaphthylene		18 J	18 J	qualify	1
		Phenanthrene		32 J	32 J	qualify	1
		Fluoranthene		72 J	72 J	qualify	1
		Pyrene		98 J	98 J	qualify	1
		Benzo(a)anthracene		33 J	33 J	qualify	1
		Chrysene		41 J	41 J	qualify	1
		4-Chlorophenyl phenyl ether		380 U	380 UJ	qualify	2
	GLA3-1AD	Pyrene		36 J	36 J	qualify	1
		4-Chlorophenyl phenyl ether		380 U	380 UJ	qualify	2

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 200290

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
All samples were extracted and analyzed within allowable holding times.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
01/09/02	1876-1MB	P3894	soil	none	n/a

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
All reported surrogate recoveries were within acceptable limits			

D. MATRIX SPIKE / DUPLICATE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.			

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
1876-2LCS	All blank spike recoveries were within laboratory limits		

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
All IS recoveries & RTs were within acceptable limits			

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
12/29/01	OK	yes	n/a
12/29/01	OK	yes	n/a

H. SAMPLE RESULT VERIFICATION

<u>Sample ID</u>	<u>Compound</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>
GLA3-1A	pyrene	98 J	97.6
Ax	Is	Vt	Df
105703	40.0	1000	1.0
Ais	RRF	Vi	Ws
513474	1.63913	2.0	30.3
			GPC
			1.0
			D
			0.849

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 200290

A. INITIAL CALIBRATION

CALIBRATION DATE :	<u>12/29/01</u>
FILE IDs :	<u>P3887 - 3891</u>
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds)====>	benzyl alcohol
SPCC Compounds	1,2-dichlorobenzene
N-Nitroso-di-n-propylamine	N-nitroso-di-n-propylamine
Hexachlorocyclopentadiene	4-methylphenol
2,4-Dinitrophenol	hexachloroethane
4-Nitrophenol	2-methylnaphthalene
MINIMUM RRF = 0.050	hexachlorocyclopentadiene
	dibenzofuran
CCC Compounds	fluorene
Base/Neutrals	4-chlorophenylphenylether
Acenaphthene	
1,4-Dichlorobenzene	
Hexachlorobutadiene	
Diphenylamine	
Di-n-octylphthalate	
Fluoranthene	
Benzo(a)pyrene	
Acids	
4-Chloro-3-methylphenol	
2,4-Dichlorophenol	
2-Nitrophenol	
Phenol	
Pentachlorophenol	
2,4,6-Trichlorophenol	
MAXIMUM %RSD = 30.0%	
MAXIMUM %D = 20.0%	

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in all associated samples.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	<u>01/14/02</u>
FILE ID :	<u>Q4547</u>
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %Ds < 20% ?	Yes
All Targets < 20%D?	NO
(If No, list compounds)	4-chlorophenylphenylether

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 200290METHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA3-1A	Aroclor 1016		19 U	19 U		
		Aroclor 1221		19 U	19 U		
		Aroclor 1232		19 U	19 U		
		Aroclor 1242		38 P	38 J	qualify	1, 2, 3
		Aroclor 1248		19 U	19 U		
		Aroclor 1254		19 U	19 U		
		Aroclor 1260		19 U	19 U		
	GLA3-1AD	Aroclor 1016		19 U	19 U		
		Aroclor 1221		19 U	19 U		
		Aroclor 1232		19 U	19 U		
		Aroclor 1242		19 U	19 U		
		Aroclor 1248		19 U	19 U		
		Aroclor 1254		19 U	19 U		
		Aroclor 1260		19 U	19 U		
	GLA3-4A	Aroclor 1016		17 U	17 U		
		Aroclor 1221		17 U	17 U		
		Aroclor 1232		17 U	17 U		
		Aroclor 1242		17 U	17 U		
		Aroclor 1248		17 U	17 U		
		Aroclor 1254		17 U	17 U		
		Aroclor 1260		17 U	17 U		
	GLA3-8A	Aroclor 1016		20 U	20 U		
		Aroclor 1221		20 U	20 U		
		Aroclor 1232		20 U	20 U		
		Aroclor 1242		20 U	20 U		
		Aroclor 1248		20 U	20 U		
		Aroclor 1254		20 U	20 U		
		Aroclor 1260		20 U	20 U		

FOOTNOTES

- 1 The laboratory reported the lower of the values between the two analytical columns. Per SW-846 guidance, the higher of the column results should be reported.
- 2 The laboratory narrative indicated the probability for positive bias due to the potential presence of other Aroclors, and peaks which are shared between one or more Aroclors. The relatively abbreviated run time is a likely contributor to this effect, which somewhat mitigates the reporting of the lower values as noted in (1) above.
- 3 The reported value is qualified 'J', as quantitatively estimated, because the % Difference between analytical columns exceeded 25% (but was < 70%); see (1) above.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory
Project No.: 200290

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP : 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	PBLKQ4	Blank ID:	PBLK_SCU
Extraction Date:	12/22/01	Extraction Date:	12/22/01
<u>Analyte</u>	<u>Conc. ug/Kg</u>	<u>Analyte</u>	<u>Conc. ug/Kg</u>
none found		none found	
AFFECTS:	GLA3-4A, 8A	AFFECTS:	GLA3-1A, 1AD

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

Note: PBLK_SCU is the sulfur clean-up blank associated with GLA3-1A & -1AD.

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Note: No matrix spike / duplicate were performed; only a Blank Spike/ Blank Spike Duplicate were run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (Q4LCS ; Q4LCSD)

All reported recoveries and %RPD were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)

CALIBRATION SUMMARY

SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 200290Laboratory: STL - Buffalo

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 12/20/01

Verification of ICAL Results

Reviewer's Note : The laboratory utilized linear regression to generate a calibration line for the Aroclors, which is an allowable option under SW-846 protocols (see Method 8000B, pp. 20-21). All reported correlation coefficients were >0.99, which is the method acceptability criterion for acceptable fit.

	x	y	r ²	r ²
RTX-5, Aroclor 1260, Peak 1 RT = 10.84 minutes	<u>Conc.</u>	<u>Response</u>	<u>Lab Value</u>	<u>Calc. Value</u>
	50	7610	0.9991262	0.99912626
	100	14097		
	200	25426		
	400	45731		
	800	85836		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/26/02	12/26/02	12/26/02
FILE ID :	26DEC010957-I0	26DEC010957-I1	26DEC011625-I0
All Targets < 15% D?	Yes	Yes	Yes
(If No, list compounds) ==>			

QA ACTION : None necessary

C. SAMPLE RESULT VERIFICATION

SAMPLE ID:	GLA4-4SE			
COMPOUND:	Aroclor-1242			
REPORTED VALUE:	<u>38</u>	ug/Kg	column = RTX-5	
<u>Response (peak height)</u>	<u>b</u>	<u>m1</u>	<u>Calculated</u>	<u>Reported</u>
20000	0	0.01381	276.20	276
11140	0	0.00759	84.55	84.5
2220	0	0.02243	49.79	49.8
1773	0	0.02707	48.00	47.99
1586	0	0.03165	<u>50.20</u>	<u>50.18</u>
		average =	102	102

ug/Kg =	ng average conc.	extract, mL	Dilution factor
	101.7478	10	1.0
	30.0	1.0	0.89
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg =

38.1

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 200290 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA3-4A	Aluminum		821	821		
		Antimony		0.21	0.21		
		Arsenic		0.71	0.71		
		Barium		7.5	7.5		
		Beryllium		0.12	0.12		
		Cadmium		0.0089	0.009		
		Calcium		79.8	79.8		
		Chromium		2.8	2.8		
		Cobalt		1.3	1.3		
		Copper		2.3	2.3		
		Iron		4950	4950		
		Lead		3.8	3.8		
		Magnesium		168	168		
		Manganese		127	127		
		Mercury		0.0068 B	0.007 J	qualify	1
		Nickel		1.8	1.8		
		Potassium		119	119		
		Selenium		0.079	0.079 J	qualify	2
		Silver		0.03	0.03		
		Sodium		131	131		
		Thallium		0.31	0.31		
		Vanadium		3.5	3.5		
		Zinc		5.9	5.9		
		Cyanide		Not analyzed			
	GLA3-8A	Aluminum		1230	1230		
		Antimony		0.032	0.032		
		Arsenic		0.32	0.32		
		Barium		34.1	34.1		
		Beryllium		0.15	0.15		
		Cadmium		0.10	0.10		
		Calcium		151	151		
		Chromium		4.8	4.8		
		Cobalt		0.59	0.59		
		Copper		10.3	10.3		
		Iron		1360	1360		
		Lead		2.1	2.1		
		Magnesium		232	232		
		Manganese		7.5	7.5		
		Mercury		0.77 B	0.77 J	qualify	1
		Nickel		9.3	9.3		
		Potassium		147	147		
		Selenium		0.078	0.078 J	qualify	2
		Silver		0.001 U	0.001 U		
		Sodium		125	125		
		Thallium		0.008 U	0.008 U		
		Vanadium		101	101		
		Zinc		25.8	25.8		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 200290 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA3-1A	Aluminum		705	705		
		Antimony		0.004 U	0.004 U		
		Arsenic		0.35	0.35		
		Barium		11.5	11.5		
		Beryllium		0.033	0.033		
		Cadmium		0.069	0.069		
		Calcium		78.6	78.6		
		Chromium		4.1	4.1		
		Cobalt		0.65	0.65		
		Copper		45.5	45.5		
		Iron		1300	1300		
		Lead		3.1	3.1		
		Magnesium		170	170		
		Manganese		16.8	16.8		
		Mercury		0.90 B	0.90 J	qualify	1
		Nickel		9.9	9.9		
		Potassium		107	107		
		Selenium		0.0045 U	0.005 U		
		Silver		0.074	0.074		
		Sodium		92.4	92.4		
		Thallium		0.25	0.25		
		Vanadium		39.5	39.5		
		Zinc		10.9	10.9		
		Cyanide		Not analyzed			
	GLA3-1AD	Aluminum		1260	1260		
		Antimony		0.039	0.039		
		Arsenic		0.38	0.38		
		Barium		53.0	53.0		
		Beryllium		0.10	0.10		
		Cadmium		0.35	0.35		
		Calcium		174	174		
		Chromium		6.4	6.4		
		Cobalt		2.4	2.4		
		Copper		132	132		
		Iron		1930	1930		
		Lead		3.5	3.5		
		Magnesium		335	335		
		Manganese		13.3	13.3		
		Mercury		1.2 B	1.2		
		Nickel		49.5	49.5		
		Potassium		239	239		
		Selenium		0.20	0.20 J	qualify	2
		Silver		0.047	0.047		
		Sodium		113	113		
		Thallium		0.18	0.18		
		Vanadium		149	149		
		Zinc		38.0	38.0		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : Glenwood SDG No.: 200290 Method : SW-846
Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value. No bias direction is inferred.
- 2 The reported positive value for this analyte was qualified 'J', because the associated CRDL standard recovery exceeded the upper limit. Potential positive bias is suggested.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200290**A. CALIBRATION****ICP Analytes**

ICV	90% - 110% recovery
CCV	90% - 110% recovery

Outliers ?

none
none

B. CRDL STANDARD

80 - 120% recovery

Outliers ?

Se 145%

QA Action: Qualify positive Se values < nominal 4.0 mg/Kg.Affects: All samples.**C. BLANKS**

ICB / CCB	< CRDL
Prep Blank	< CRDL

Outliers ?

none
none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

ICSA	Response < 2x CRDL for trace metals
ICSAB	80 - 120% recovery

Outliers ?

n/a
none

E. MATRIX SPIKE (MS)

75 - 125% recovery (if sample conc. < 4x spike conc.)

Outliers ?

n/a

Note: the matrix spike reported was not from this SDG; therefore, the results may not be representative of this SDG's sample matrix. No data qualifiers were assigned.

F. POST-DIGESTION SPIKE (PDS)

Required for analytes outside MS recovery range;
PDS conc. should be 2x CRDL or 2x sample conc.,
whichever is greater. Limits: 75 -125%

Outliers ?

n/a

G. MATRIX DUPLICATE (MD)

Max. 100% RPD for non-aqueous samples > 5x CRDL
Max. (+/-) CRDL value if either sample < 5x CRDL

Outliers ?

none
n/a

Note: the matrix duplicate reported was not from this SDG; therefore, the results may not be representative of this SDG's sample matrix. No data qualifiers were assigned.

H. LABORATORY CONTROL SAMPLE (LCS)

Recovery within control limits for non-aqueous samples
Recovery between 80 - 120% for aqueous samples

Outliers ?

none
n/a

I. SERIAL DILUTION SAMPLE (GLA3-1AD)

Maximum 10.0% D if undiluted sample > 10x IDL

Outliers ?

none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	<u>Frequency</u>
Instrument Detection Limits	Quarterly
Interelement Correction Factors	Annually
Linear Range Analysis	Quarterly

Outliers ?

n/a
n/a
n/a

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200290

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ?

Yes

If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ?

Yes

If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ?

Yes

If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ?

Yes

If No, list affected analytes and samples, and QA action : _____

Note: No % solids raw data were present in the data package. The Form 1 reported
 % solids value was used for result recalculation below.

5. Show calculation for % Solids for one sample.

Sample ID: GLA3-1ADLab value : 84.9 %Dry weight : 0 gm% Solids = $\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$ Wet weight : 0.00 gm

Wet weight

= **#DIV/0!** %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLA3-1ADAnalyte : VLab value : 149 mg/Kg% Solids : 84.9Raw value 0.8148 mg/LFinal volume 200 mLWet weight 1.29 gmmg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (mL)}}{\text{wet wgt} \times (\% \text{Sol}/100)}$

wet wgt x (%Sol/100) =

148.8 mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ?

n/a

If No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 25, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 200343

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA4-4SC	200343-1	SOIL	01/07/02	X	X	X
GLA4-4SD	200343-2	SOIL	01/07/02	X	X	X
GLA4-4SE	200343-3	SOIL	01/07/02	X	X	X
GLA4-2SB	200343-4	SOIL	01/07/02	X	X	X

Sample Collection and Receipt

Samples were received within acceptable temperature range. The laboratory records indicated that the jars containing samples GLA4-4SD and GLA4-2SB were received broken; these samples were transferred to new containers upon receipt at the laboratory.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

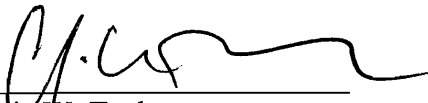
Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

- 1) No GPC clean-up was performed on the soil samples for the semi-volatile or pesticide-PCB fractions, nor was Florisil clean-up performed for the PCB fraction. GPC clean-up can improve resolution for these fractions by removing a wide range of higher molecular weight interferences, and Florisil fractionation provides separation of interferent analytes from the Aroclor compounds of interest. Acid clean-up and copper clean-up were performed on the PCB fractions.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-200343

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 200343METHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA4-4SC	Phenanthrene		34 J	34 J	qualify	1
		Fluoranthene		71 J	71 J	qualify	1
		Pyrene		64 J	64 J	qualify	1
		Benzo(a)anthracene		42 J	42 J	qualify	1
		Chrysene		54 J	54 J	qualify	1
		Benzo(k)fluoranthene		47 J	47 J	qualify	1
		Benzo(a)pyrene		41 J	41 J	qualify	1
		Benzo(g,h,i)perylene		18 J	18 J	qualify	1, 3
	GLA4-4SD	Phenanthrene		45 J	45 J	qualify	1
		Anthracene		38 J	38 J	qualify	1
		Fluoranthene		120 J	120 J	qualify	1
		Pyrene		120 J	120 J	qualify	1
		Benzo(a)anthracene		84 J	84 J	qualify	1
		Chrysene		120 J	120 J	qualify	1
		bis(2-ethylhexyl)phthalate	74 J	47 J	350 U	negate	2
		Benzo(b)fluoranthene		76 J	76 J	qualify	1
		Benzo(k)fluoranthene		85 J	85 J	qualify	1
		Benzo(a)pyrene		93 J	93 J	qualify	1
		Indeno(1,2,3-cd)pyrene		45 J	45 J	qualify	1, 3
		Dibenzo(a,h)anthracene		21 J	21 J	qualify	1, 3
		Benzo(g,h,i)perylene		48 J	48 J	qualify	1, 3
	GLA4-4SE (@ 4x dilution)	Naphthalene		310 J	310 J	qualify	1
		2-Methylnaphthalene		130 J	130 J	qualify	1
		Acenaphthylene		85 J	85 J	qualify	1
		Acenaphthene		450 J	450 J	qualify	1
		Dibenzofuran		370 J	370 J	qualify	1
		Fluorene		580 J	580 J	qualify	1
		Phenanthrene		6200	6200		
		Anthracene		1100 J	1100 J	qualify	1
		Carbazole		760 J	760 J	qualify	1
		Fluoranthene		5700	5700		
		Pyrene		7900	7900		
		Benzo(a)anthracene		2800	2800		
		Chrysene		3300	3300		
		bis(2-ethylhexyl)phthalate	74 J	360 JB	1400 U	negate	2
		Benzo(b)fluoranthene		1900	1900		
		Benzo(k)fluoranthene		2400	2400		
		Benzo(a)pyrene		2500	2500		
		Indeno(1,2,3-cd)pyrene		2100	2100 J	qualify	3
		Dibenzo(a,h)anthracene		720 J	720 J	qualify	1, 3
		Benzo(g,h,i)perylene		2400	2400 J	qualify	3
	GLA4-2SB	2,4,5-Trichlorophenol		20 J	20 J	qualify	1
		Acenaphthylene		22 J	22 J	qualify	1
		Phenanthrene		280 J	280 J	qualify	1
		Anthracene		48 J	48 J	qualify	1
		Carbazole		37 J	37 J	qualify	1
		Fluoranthene		410	410		
		Pyrene		640	640 J	qualify	4
		Butylbenzylphthalate		38 J	38 J	qualify	1, 4
		Benzo(a)anthracene		210 J	210 J	qualify	1, 4
		Chrysene		320 J	320 J	qualify	1, 4
		3,3'-Dichlorobenzidine		750 U	750 UJ	qualify	4
		bis(2-ethylhexyl)phthalate	74 J	250 JB	370 UJ	negate / qualify	2, 4

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 200343METHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC. ug/Kg	LAB REPORTED CONC. ug/Kg	QA REPORTED CONC. ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA4-2SB	Benzo(b)fluoranthene		160 J	160 J	qualify	1
	(cont'd.)	Benzo(k)fluoranthene		200 J	200 J	qualify	1
		Benzo(a)pyrene		190 J	190 J	qualify	1
		Indeno(1,2,3-cd)pyrene		190 J	190 J	qualify	1, 3
		Dibenzo(a,h)anthracene		70 J	70 J	qualify	1, 3
		Benzo(g,h,i)perylene		200 J	200 J	qualify	1, 3

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported result for this compound is negated, with 'U' qualifier applied at the compound's PQL, because the reported value is below 10x the concentration of this compound in the associated method Blank, OR, the compound is a common laboratory contaminant.
- 3 The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- 4 The reported result for this compound is qualified 'UJ' or 'J', as quantitatively estimated, because the response of the associated internal standard (IS) compound was below 50% of the response for this IS in the corresponding continuing calibration.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 200343

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
All samples were extracted and analyzed within allowable holding times.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
01/09/02	2194-1MB	Q4550	soil	bis(2-ethylhexyl)phthalate	74 J

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
All reported surrogate recoveries were within acceptable limits			

D. MATRIX SPIKE / DUPLICATE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.			

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
2194-2LCS	All blank spike recoveries were within laboratory limits		

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
GLA4-2SB	chrysene-d12	low	Qualify associated quant. compounds

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
01/14/02	OK	yes	n/a
01/14/02	OK	yes	n/a

H. SAMPLE RESULT VERIFICATION

<u>Sample ID</u>	<u>Compound</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>
GLA5C-4	pyrene	7900	7870

	<u>Ax</u>	<u>Is</u>	<u>Vt</u>	<u>Df</u>	<u>GPC</u>
Conc., ug/Kg =	1374374	40.0	1000	4.0	1.0
	<u>Ais</u>	<u>RRF</u>	<u>Vi</u>	<u>Ws</u>	<u>D</u>
	411097	1.198	2.0	30.7	0.924

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 200343

A. INITIAL CALIBRATION

CALIBRATION DATE :	01/14/02
FILE IDs :	Q4541 - 4545
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds)====>	hexachlorocyclopentadiene
SPCC Compounds	2,4-dinitrophenol
N-Nitroso-di-n-propylamine	indeno(123cd)pyrene
Hexachlorocyclopentadiene	dibenzo(ah)anthracene
2,4-Dinitrophenol	benzo(ghi)perylene
4-Nitrophenol	
MINIMUM RRF = 0.050	
CCC Compounds	
<u>Base/Neutrals</u>	
Acenaphthene	
1,4-Dichlorobenzene	
Hexachlorobutadiene	
Diphenylamine	
Di-n-octylphthalate	
Fluoranthene	
Benzo(a)pyrene	
<u>Acids</u>	
4-Chloro-3-methylphenol	
2,4-Dichlorophenol	
2-Nitrophenol	
Phenol	
Pentachlorophenol	
2,4,6-Trichlorophenol	
MAXIMUM %RSD = 30.0%	
MAXIMUM %D = 20.0%	

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in all associated samples.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	01/14/02
FILE ID :	Q4547
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %Ds < 20% ?	Yes
All Targets < 20%D?	Yes
(If No, list compounds)	

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 200343METHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA4-2SB	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		42	42 J	qualify	1, 2
		Aroclor 1260		31	31 J	qualify	1, 2
	GLA4-4SC	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		18 U	18 U		
	GLA4-4SD	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		18 U	18 U		
		Aroclor 1254		18 U	18 U		
		Aroclor 1260		18 U	18 U		
	GLA4-4SE	Aroclor 1016		18 U	18 U		
		Aroclor 1221		18 U	18 U		
		Aroclor 1232		18 U	18 U		
		Aroclor 1242		18 U	18 U		
		Aroclor 1248		72	72 J	qualify	1, 2
		Aroclor 1254		150	150 J	qualify	1, 2
		Aroclor 1260		100	100 J	qualify	1, 2

FOOTNOTES

- 1 The laboratory reported the lower of the values between the two analytical columns. Per SW-846 guidance, the higher of the column results should be reported.
- 2 The laboratory narrative indicated the probability for positive bias due to the potential presence of other Aroclors, and peaks which are shared between one or more Aroclors. The relatively abbreviated run time is a likely contributor to this effect, which somewhat mitigates the reporting of the lower values as noted in (1) above.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hanzen, Brustlin, Inc.

Project: Glenwood

Laboratory

Project No.: 200343

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	PBLKR9
Extraction Date:	01/08/02
Analyte	Conc. ug/Kg
none found	
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Note: No matrix spike / duplicate were performed; only a Blank Spike was run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (R9LCS ; R9LCSD)

All reported recoveries and %RPD were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: GlenwoodLaboratory
Project No.: 200343Laboratory: STL - Buffalo**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 01/02/02 Verification of ICAL Results

Reviewer's Note : The laboratory utilized linear regression to generate a calibration line for the Aroclors, which is an allowable option under SW-846 protocols (see Method 8000B, pp. 20-21). All reported correlation coefficients were >0.99, which is the method acceptability criterion for acceptable fit.

	x	y	r ²	r ²
RTX-5, Aroclor 1260, Peak 1	Conc.	Response	Lab Value	Calc. Value
RT = 10.84 minutes	50	6564	0.999176	0.9991760
	100	12379		
	200	24711		
	400	45014		
	800	93110		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	01/08/02	01/09/02
FILE ID :	08JAN021851,4,1	08JAN021851,16,1
All Targets < 15% D?	Yes	Yes
(If No, list compounds) ==>		

QA ACTION : None necessary**C. SAMPLE RESULT VERIFICATION**

SAMPLE ID: GLA4-4SE
 COMPOUND: Aroclor-1260
 REPORTED VALUE: 100 ug/Kg column = RTX-5

Response	b	m1	Calculated	Reported
34765	-7.0939	0.00872	296	296
17463	2.3397	0.01547	272	273
29775	0.75915	0.00776	232	232
86164	4.6437	0.00346	303	302
31767	-2.1084	0.01123	355	355
		average =	292	292

ug/Kg =	ng average conc.	extract, mL	Dilution factor
	291.5537	10	1.0
	30.0	1.0	0.93
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 104

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 200343Method : SW-846Lab Name : STL - ConnecticutSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA4-4SC	Aluminum		2350	2350		
		Antimony		0.42	0.42		
		Arsenic		1.6	1.6		
		Barium		15.6	15.6		
		Beryllium		0.13	0.13		
		Cadmium		0.14	0.14		
		Calcium		271	271		
		Chromium		5.3	5.3		
		Cobalt		1.9	1.9		
		Copper		5.1	5.1		
		Iron		4830	4830		
		Lead		8.1	8.1 J	qualify	2
		Magnesium		470	470		
		Manganese		133	133		
		Mercury		0.012 B	0.01 J	qualify	1
		Nickel		5.2	5.2		
		Potassium		291	291		
		Selenium		0.27	0.27		
		Silver		0.001 U	0.001 U		
		Sodium		65.9	65.9		
		Thallium		0.008 U	0.008 U		
		Vanadium		9.2	9.2		
		Zinc		33.1	33.1		
		Cyanide		Not analyzed			
	GLA4-4SD	Aluminum		2120	2120		
		Antimony		0.26	0.26		
		Arsenic		1.3	1.3		
		Barium		14.0	14.0		
		Beryllium		0.13	0.13		
		Cadmium		0.17	0.17		
		Calcium		268	268		
		Chromium		4.6	4.6		
		Cobalt		1.7	1.7		
		Copper		6.7	6.7		
		Iron		4840	4840		
		Lead		37.0	37.0 J	qualify	2
		Magnesium		479	479		
		Manganese		123	123		
		Mercury		0.039 B	0.04 J	qualify	1
		Nickel		3.5	3.5		
		Potassium		232	232		
		Selenium		0.29	0.29		
		Silver		0.02	0.02		
		Sodium		51.7	51.7		
		Thallium		0.009 U	0.009 U		
		Vanadium		8.5	8.5		
		Zinc		42.9	42.9		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 200343 Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA4-4SE	Aluminum		1940	1940		
		Antimony		3.4	3.4		
		Arsenic		3.0	3.0		
		Barium		27.7	27.7		
		Beryllium		0.17	0.17		
		Cadmium		1.6	1.6		
		Calcium		1290	1290		
		Chromium		33.6	33.6		
		Cobalt		4.1	4.1		
		Copper		63.0	63.0		
		Iron		9260	9260		
		Lead		450	450 J	qualify	2
		Magnesium		1060	1060		
		Manganese		97.1	97.1		
		Mercury		1.8 B	1.8		
		Nickel		90.8	90.8		
		Potassium		213	213		
		Selenium		0.61	0.61		
		Silver		0.56	0.56		
		Sodium		73.4	73.4		
		Thallium		0.048	0.048		
		Vanadium		307	307		
		Zinc		328	328		
		Cyanide		Not analyzed			
	GLA4-2SB	Aluminum		1910	1910		
		Antimony		4.7	4.7		
		Arsenic		3.4	3.4		
		Barium		26.5	26.5		
		Beryllium		0.14	0.14		
		Cadmium		0.70	0.70		
		Calcium		1030	1030		
		Chromium		12.4	12.4		
		Cobalt		2.8	2.8		
		Copper		44.7	44.7		
		Iron		9790	9790		
		Lead		408	408 J	qualify	2
		Magnesium		751	751		
		Manganese		111	111		
		Mercury		0.18 B	0.18 J	qualify	1
		Nickel		28.6	28.6		
		Potassium		227	227		
		Selenium		0.71	0.71		
		Silver		0.35	0.35		
		Sodium		84.3	84.3		
		Thallium		0.40	0.40		
		Vanadium		98.0	98.0		
		Zinc		341	341		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 200343 Method : SW-846
Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value. No bias direction is inferred.
- 2 The reported positive value was qualified 'J', as quantitatively estimated, because the ICSAB recovery exceeded the upper limit of 120%. Potential positive bias is suggested.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200343

- A. **CALIBRATION**
 ICP Analytes
- | | | |
|-----|---------------------|-------------------|
| ICV | 90% - 110% recovery | <u>Outliers ?</u> |
| CCV | 90% - 110% recovery | none |
- B. **CRDL STANDARD**
- Outliers ?
- 80 - 120% recovery
- Pb CR12 65%
- QA Action: Qualify Pb values < nominal 1.2 mg/Kg.
 Affects: All samples.
- C. **BLANKS**
- | | | |
|------------|--------|-------------------|
| ICB / CCB | < CRDL | <u>Outliers ?</u> |
| Prep Blank | < CRDL | none |
- D. **INTERELEMENT CORRECTION (ICSA / ICSAB)**
- | | | |
|-------|-------------------------------------|--------------------|
| ICSA | Response < 2x CRDL for trace metals | <u>Outliers ?</u> |
| ICSAB | 80 - 120% recovery | n/a |
| | | Pb ICSAB2, 126% |
- QA Action: Qualify positive Pb values.
 Affects: All samples.
- E. **MATRIX SPIKE (MS)**
- Outliers ?
- 75 - 125% recovery (if sample conc. < 4x spike conc.)
- n/a
- Note: the matrix spike reported was not from this SDG; therefore, the results may not be representative of this SDG's sample matrix. No data qualifiers were assigned.
- F. **POST-DIGESTION SPIKE (PDS)**
- Outliers ?
- Required for analytes outside MS recovery range;
 PDS conc. should be 2x CRDL or 2x sample conc.,
 whichever is greater. Limits: 75 -125%
- n/a
- G. **MATRIX DUPLICATE (MD)**
- | | | |
|--|--|-------------------|
| Max. 100% RPD for non-aqueous samples > 5x CRDL | | <u>Outliers ?</u> |
| Max. (+/-) CRDL value if either sample < 5x CRDL | | none |
| | | n/a |
- Note: method limit is 20% RPD; EPA Region II uses 100% RPD as qualification limit for non-aqueous matrix.
- H. **LABORATORY CONTROL SAMPLE (LCS)**
- | | | |
|--|--|-------------------|
| Recovery within control limits for non-aqueous samples | | <u>Outliers ?</u> |
| Recovery between 80 - 120% for aqueous samples | | none |
| | | n/a |
- I. **SERIAL DILUTION SAMPLE** (GLA4-2SB)
- Outliers ?
- Maximum 10.0% D if undiluted sample > 10x IDL
- none
- J. **VERIFICATION OF INSTRUMENTAL PARAMETERS**
- | | | |
|---------------------------------|------------------|-------------------|
| | <u>Frequency</u> | <u>Outliers ?</u> |
| Instrument Detection Limits | Quarterly | none |
| Interelement Correction Factors | Annually | none |
| Linear Range Analysis | Quarterly | none |

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 200343

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ? Yes
 If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ? Yes
 If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ? Yes
 If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ? Yes
 If No, list affected analytes and samples, and QA action : _____
 Note: % solids values below were taken from PCB raw data, and are within a reasonable error band.

5. Show calculation for % Solids for one sample.

Sample ID:	<u>GLA4-4SE</u>		Lab value :	<u>92.4</u> %
Dry weight :	<u>15.46</u> gm	% Solids =	$\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$	
Wet weight :	<u>16.65</u> gm		=	<u>92.9</u> %
6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID:	<u>GLA4-4SE</u>	Analyte :	<u>Pb</u>	Lab value :	<u>450</u> mg/Kg
% Solids :	<u>92.9</u>				
Raw value	<u>2.3509</u> mg/L				
Final volume	<u>200</u> mL				
Wet weight	<u>1.13</u> gm				
		mg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (mL)}}{\text{wet wgt} \times (\% \text{Sol}/100)}$			
				448	mg/ kg
7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ? n/a
 If No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 23, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 7001-2856B

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA5C-1	012856B-01	SOIL	11/28/01	X	X	X
GLA5C-2	012856B-02	SOIL	11/28/01	X	X	X
GLA5C-3	012856B-03	SOIL	11/28/01	X	X	X
GLA5C-4	012856B-04	SOIL	11/28/01	X	X	X
GLA5C-5	012856B-05	SOIL	11/28/01	X	X	X
GLA5C-1D	012856B-06	SOIL	11/28/01	X	X	X

Sample Collection and Receipt

It is noted that samples were received at STL-CT at 9 degrees C. The method-prescribed sample preservation temperature is 4 degrees C; EPA Region II validation guidelines call for qualification above 10 C. No data qualifiers were applied.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

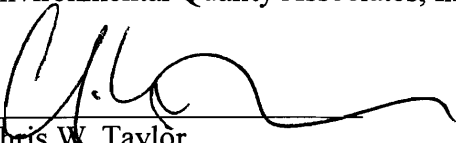
Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

- 1) No GPC clean-up was performed on the soil samples for the semi-volatile or pesticide-PCB fractions, nor was Florisil clean-up performed for the PCB fraction. GPC clean-up can improve resolution for these fractions by removing a wide range of higher molecular weight interferences, and Florisil fractionation provides separation of interferent analytes from the Aroclor compounds of interest. Acid clean-up and copper clean-up were performed on the PCB fractions.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.



Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-2856B

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME: GLENWOODSDG No.: 7001-2856BMETHOD: SW846 / 8270CLAB NAME: Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA5C-1	Phenanthrene		23 J	23 J	qualify	1
		Anthracene		7 J	7 J	qualify	1
		Fluoranthene		47 J	47 J	qualify	1
		Pyrene		45 J	45 J	qualify	1
		Benzo(a)anthracene		32 J	32 J	qualify	1
		Chrysene		43 J	43 J	qualify	1
		Benzo(b)fluoranthene		36 J	36 J	qualify	1
		Benzo(k)fluoranthene		36 J	36 J	qualify	1
		Benzo(a)pyrene		29 J	29 J	qualify	1
		Indeno(1,2,3-cd)pyrene		15 J	15 J	qualify	1, 3
		Benzo(g,h,i)perylene		18 J	18 J	qualify	1, 3
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	4
	GLA5C-2	Phenanthrene		33 J	33 J	qualify	1
		Anthracene		15 J	15 J	qualify	1
		Fluoranthene		140 J	140 J	qualify	1
		Pyrene		120 J	120 J	qualify	1
		Benzo(a)anthracene		79 J	79 J	qualify	1
		Chrysene		92 J	92 J	qualify	1
		Benzo(b)fluoranthene		74 J	74 J	qualify	1
		Benzo(k)fluoranthene		78 J	78 J	qualify	1
		Benzo(a)pyrene		70 J	70 J	qualify	1
		Indeno(1,2,3-cd)pyrene		32 J	32 J	qualify	1, 3
		Benzo(g,h,i)perylene		32 J	32 J	qualify	1, 3
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	4
	GLA5C-3	Phenanthrene		27 J	27 J	qualify	1
		Anthracene		9 J	9 J	qualify	1
		Fluoranthene		55 J	55 J	qualify	1
		Pyrene		55 J	55 J	qualify	1
		Benzo(a)anthracene		32 J	32 J	qualify	1
		Chrysene		42 J	42 J	qualify	1
		Benzo(b)fluoranthene		33 J	33 J	qualify	1
		Benzo(k)fluoranthene		48 J	48 J	qualify	1
		Benzo(a)pyrene		32 J	32 J	qualify	1
		Indeno(1,2,3-cd)pyrene		19 J	19 J	qualify	1, 3
		Benzo(g,h,i)perylene		21 J	21 J	qualify	1, 3
		Hexachlorocyclopentadiene		340 U	340 UJ	qualify	4
	GLA5C-4	Phenanthrene		38 J	38 J	qualify	1
		Anthracene		12 J	12 J	qualify	1
		Fluoranthene		81 J	81 J	qualify	1
		Pyrene		83 J	83 J	qualify	1
		Benzo(a)anthracene		52 J	52 J	qualify	1
		Chrysene		60 J	60 J	qualify	1
		bis(2-ethylhexyl)phthalate	84 J	2100 B	2100		
		Benzo(b)fluoranthene		55 J	55 J	qualify	1
		Benzo(k)fluoranthene		59 J	59 J	qualify	1
		Benzo(a)pyrene		54 J	54 J	qualify	1
		Indeno(1,2,3-cd)pyrene		34 J	34 J	qualify	1, 3
		Benzo(g,h,i)perylene		38 J	38 J	qualify	1, 3
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	4

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2856BMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA5C-5	Phenanthrene		24 J	24 J	qualify	1
		Anthracene		8 J	8 J	qualify	1
		Fluoranthene		56 J	56 J	qualify	1
		Pyrene		54 J	54 J	qualify	1
		Benzo(a)anthracene		34 J	34 J	qualify	1
		Chrysene		42 J	42 J	qualify	1
		Benzo(b)fluoranthene		37 J	37 J	qualify	1
		Benzo(k)fluoranthene		38 J	38 J	qualify	1
		Benzo(a)pyrene		34 J	34 J	qualify	1
		Indeno(1,2,3-cd)pyrene		19 J	19 J	qualify	1, 3
		Benzo(g,h,i)perylene		20 J	20 J	qualify	1, 3
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	4
	GLA5C-1D	Diethylphthalate	41 J	23 JB	330 U	negate	2
		Phenanthrene		20 J	20 J	qualify	1
		Anthracene		7 J	7 J	qualify	1
		Fluoranthene		50 J	50 J	qualify	1
		Pyrene		50 J	50 J	qualify	1
		Butylbenzylphthalate		18 J	18 J	qualify	1
		Benzo(a)anthracene		30 J	30 J	qualify	1
		Chrysene		37 J	37 J	qualify	1
		bis(2-ethylhexyl)phthalate	84 J	100 JB	330 U	negate	2
		Benzo(b)fluoranthene		32 J	32 J	qualify	1
		Benzo(k)fluoranthene		40 J	40 J	qualify	1
		Benzo(a)pyrene		28 J	28 J	qualify	1
		Indeno(1,2,3-cd)pyrene		17 J	17 J	qualify	1, 3
		Benzo(g,h,i)perylene		17 J	17 J	qualify	1, 3
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	4

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported result for this compound is negated, with 'U' qualifier applied at the compound's PQL, because the reported value is below 10x the concentration of this compound in the associated method Blank, OR, the compound is a common laboratory contaminant.
- The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- The reported positive value for this compound is qualified 'J', or the reported non-detect value 'UJ', because the associated Laboratory Control Sample (Blank Spike) recoveries for this compound were below the SW-846 suggested lower limit of 70%. Negative bias for positive values, or potential false-negatives for non-detects, are suggested.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2856B

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
All samples were extracted and analyzed within allowable holding times.

Note: All samples were received at 9 degrees C ; although no data qualifiers were applied, the data user is alerted to the potential for negative bias in samples maintained above the recommended range of 2 to 6 degrees C.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
12/04/01	SBLKIQ	Q4214	soil	diethylphthalate	41 J
				bis(2-ethylhexyl)phthalate	84 J

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
All reported surrogate recoveries were within acceptable limits			

D. MATRIX SPIKE / DUPLICATE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.			

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
SBLKIQ	benzyl alcohol	high	Qualify positives; all samples
	hexachlorocyclopentadiene	low	Qualify all samples

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
All IS recoveries & RTs were within acceptable limits			

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
12/05/01	OK	yes	
12/05/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

	<u>Sample ID</u>	<u>Compound</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>	
	GLA5C-4	bis(2-ethylhexyl)phthalate	2100	2082	
Conc., ug/Kg =	Ax	Is	Vt	Df	GPC
	1210935	40.0	1000	1.0	1.0
	Ais	RRF	Vi	Ws	D
	423423	0.907	2.0	30.9	0.98

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2856B

A. INITIAL CALIBRATION

CALIBRATION DATE :	12/05/01
FILE IDs :	Q4204 - 4208
ALL RRFs > 0.05 ?	Yes
SPCC RRFs >0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds)	benzyl alcohol
SPCC Compounds	hexachlorocyclopentadiene
N-Nitroso-di-n-propylamine	2,4-dinitrophenol
Hexachlorocyclopentadiene	4,6-dinitro-2-methylphenol
2,4-Dinitrophenol	indeno(123cd)pyrene
4-Nitrophenol	dibenzo(ah)anthracene
MINIMUM RRF = 0.050	benzo(ghi)perylene

CCC Compounds
Base/Neutrals
Acenaphthene
1,4-Dichlorobenzene
Hexachlorobutadiene
Diphenylamine
Di-n-octylphthalate
Fluoranthene
Benzo(a)pyrene
Acids
4-Chloro-3-methylphenol
2,4-Dichlorophenol
2-Nitrophenol
Phenol
Pentachlorophenol
2,4,6-Trichlorophenol
MAXIMUM %RSD = 30.0%
MAXIMUM %D = 20.0%

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in all associated samples.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/05/01
FILE ID :	Q4210
ALL RRFs > 0.05 ?	Yes
SPCC RRFs >0.05 ?	Yes
CCC %Ds < 20% ?	Yes
All Targets < 20%D?	Yes
(If No, list compounds)	

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2856BMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA5C-1	Aroclor 1016		33 U	33 UJ	qualify	1
		Aroclor 1221		68 U	68 UJ	qualify	1
		Aroclor 1232		33 U	33 UJ	qualify	1
		Aroclor 1242		33 U	33 UJ	qualify	1
		Aroclor 1248		33 U	33 UJ	qualify	1
		Aroclor 1254		33 U	33 UJ	qualify	1
		Aroclor 1260		33 U	33 UJ	qualify	1
	GLA5C-2	Aroclor 1016		34 U	34 UJ	qualify	1
		Aroclor 1221		68 U	68 UJ	qualify	1
		Aroclor 1232		34 U	34 UJ	qualify	1
		Aroclor 1242		34 U	34 UJ	qualify	1
		Aroclor 1248		34 U	34 UJ	qualify	1
		Aroclor 1254		34 U	34 UJ	qualify	1
		Aroclor 1260		34 U	34 UJ	qualify	1
	GLA5C-3	Aroclor 1016		33 U	33 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		33 U	33 U		
		Aroclor 1242		33 U	33 U		
		Aroclor 1248		33 U	33 U		
		Aroclor 1254		33 U	33 U		
		Aroclor 1260		33 U	33 U		
	GLA5C-4	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA5C-5	Aroclor 1016		33 U	33 U		
		Aroclor 1221		67 U	67 U		
		Aroclor 1232		33 U	33 U		
		Aroclor 1242		33 U	33 U		
		Aroclor 1248		33 U	33 U		
		Aroclor 1254		33 U	33 U		
		Aroclor 1260		33 U	33 U		
	GLA5C-1D	Aroclor 1016		33 U	33 UJ	qualify	1
		Aroclor 1221		68 U	68 UJ	qualify	1
		Aroclor 1232		33 U	33 UJ	qualify	1
		Aroclor 1242		33 U	33 UJ	qualify	1
		Aroclor 1248		33 U	33 UJ	qualify	1
		Aroclor 1254		33 U	33 UJ	qualify	1
		Aroclor 1260		33 U	33 UJ	qualify	1

FOOTNOTES

1

The reported result is qualified 'UJ', because the retention time of surrogate tetrachloro-m-xylene in this sample was outside the established RT window on at least one analytical column. No bias direction is inferred.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory
Project No.: 7001-2856B

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

Note : All samples were received at 9 degrees C ; although no data qualifiers were applied, the data user is alerted to the potential for negative bias in samples maintained above the recommended preservation temperature range of 2 to 6 degrees C.

B. METHOD BLANKS

Blank ID:	D4142187
Extraction Date:	12/03/01
<u>Analyte</u>	<u>Conc. ug/Kg</u>
none found	
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Note: No matrix spike / duplicate were performed; only a Blank Spike was run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (PBLK21QC2)

All reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 7001-2856BLaboratory: STL - Buffalo**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 11/30/01 Verification of ICAL Results

<u>Aroclor 1260</u>	<u>RTX-35</u>		
<u>Peak 1, RT = 22.36</u>	<u>Response</u>	<u>Cal Factor, Calc'd.</u>	<u>CF, reported</u>
0.05	20111	402220	402220
0.1	40448	404480	404480
0.2	77493	387465	387465
0.4	149445	373613	373612
0.8	272654	340818	340818
Average		381719	381719
Calc'd. %RSD =	6.82		
Reported %RSD =	6.8		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/07/01
FILE ID :	D4142175
All Targets < 15% D?	Yes

(If No, list compounds) ==>

12/07/01
D4142192
Yes

12/07/01
D4142208
Yes

QA ACTION : None necessary**C. SAMPLE RESULT VERIFICATION**

SAMPLE ID: PBLK21QC2
 COMPOUND: Aroclor-1260
 REPORTED VALUE: 120 ug/Kg column = RTX-35

<u>Peak RT</u>	<u>CF</u>	<u>Peak Area</u>	<u>conc., ng</u>
22.32	381719	110762	0.2902
23.53	309768	110482	0.3567
24.14	691154	251215	0.3635
25.58	187001	72434	0.3873
25.76	440310	163612	0.3716
Average conc. =			0.3538

ug/Kg =	ng average conc.	extract, uL	Dilution factor
	0.3538	10000	1.0
	30.0	1.0	1
	wet wgt., gm	inject.vol, uL	%sol/100
ug/Kg =	117.9		

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2856B Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5C-1	Aluminum	6.375	2220	2220		
		Antimony		0.72 UN	0.72 UJ	qualify	3
		Arsenic		0.69 U	0.69 U		
		Barium	0.289	17.0 B	17.0 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.12 U	0.12 U		
		Calcium	8.037	438 B	438 J	qualify	1
		Chromium		5.5	5.5		
		Cobalt		2.0 B	2.0 J	qualify	1
		Copper		5.5	5.5		
		Iron		5340	5340		
		Lead		14.6	14.6		
		Magnesium		652 B	652 J	qualify	1
		Manganese		85.4	85.4		
		Mercury		0.0093	0.009		
		Nickel		5.9 B	5.9 J	qualify	1
		Potassium		407 B	407 J	qualify	1, 4
		Selenium		0.77 U	0.77 U		
		Silver		0.16 U	0.16 U		
		Sodium	17.864	25.9 B	25.9 J	qualify	1
		Thallium		2.9 U	2.9 U		
		Vanadium		7.3 B	7.3 J	qualify	1
		Zinc	2.084	16.9	16.9 J	qualify	5
		Cyanide		Not analyzed			
	GLA5C-2	Aluminum	6.375	2410	2410		
		Antimony		0.79 UN	0.79 UJ	qualify	3
		Arsenic		0.76 U	0.76 U		
		Barium	0.289	29.5 B	29.5 J	qualify	1
		Beryllium		0.21 B	0.21 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	8.037	563 B	563 J	qualify	1
		Chromium		6.4	6.4		
		Cobalt		2.3 B	2.3 J	qualify	1
		Copper		6.5	6.5		
		Iron		6980	6980		
		Lead		21.0	21.0		
		Magnesium		750 B	750 J	qualify	1
		Manganese		184	184		
		Mercury		0.0087	0.009		
		Nickel		6.0 B	6.0 J	qualify	1
		Potassium		428 B	428 J	qualify	1, 4
		Selenium		0.84 U	0.84 U		
		Silver		0.17 U	0.17 U		
		Sodium	17.864	29.6 B	29.6 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		9.0	9.0		
		Zinc	2.084	18.2	18.2 J	qualify	5
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2856B Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5C-3	Aluminum	6.375	3160	3160		
		Antimony		0.79 UN	0.79 UJ	qualify	3
		Arsenic		0.97 B	0.97 J	qualify	1
		Barium	0.289	22.8 B	22.8 J	qualify	1
		Beryllium		0.25 B	0.25 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	8.037	698 B	698 J	qualify	1
		Chromium		7.4	7.4		
		Cobalt		2.5 B	2.5 J	qualify	1
		Copper		6.9	6.9		
		Iron		7660	7660		
		Lead		15.7	15.7		
		Magnesium		958	958		
		Manganese		112	112		
		Mercury		0.0088	0.009		
		Nickel		7.2	7.2		
		Potassium		556 B	556 B	qualify	1, 4
		Selenium		0.86	0.86 J	qualify	2
		Silver		0.17 U	0.17 U		
		Sodium	17.864	41.3 B	41.3 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		9.9	9.9		
		Zinc	2.084	20.8	20.8 J	qualify	5
		Cyanide		Not analyzed			
	GLA5C-4	Aluminum	6.375	2920	2920		
		Antimony		0.73 UN	0.73 UJ	qualify	3
		Arsenic		3.2	3.2		
		Barium	0.289	20.5 B	20.5 J	qualify	1
		Beryllium		0.26 B	0.26 J	qualify	1
		Cadmium		0.13 U	0.13 U		
		Calcium	8.037	570 B	570 J	qualify	1
		Chromium		6.2	6.2		
		Cobalt		2.0 B	2.0 J	qualify	1
		Copper		6.5	6.5		
		Iron		7350	7350		
		Lead		16.7	16.7		
		Magnesium		693 B	693 J	qualify	1
		Manganese		90.2	90.2		
		Mercury		0.010	0.010		
		Nickel		6.7	6.7		
		Potassium		418 B	418 J	qualify	1, 4
		Selenium		0.78 U	0.78 U		
		Silver		0.16 U	0.16 U		
		Sodium	17.864	32.6 B	32.6 J	qualify	1
		Thallium		3.0 U	3.0 U		
		Vanadium		8.2	8.2		
		Zinc	2.084	20.3	20.3 J	qualify	5
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2856B Method : SW-846
 Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA5C-5	Aluminum	6.375	2510	2510		
		Antimony		0.80 UN	0.80 UJ	qualify	3
		Arsenic		0.77 U	0.77 U		
		Barium	0.289	20.5 B	20.5 J	qualify	1
		Beryllium		0.21 B	0.21 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	8.037	805 B	805 J	qualify	1
		Chromium		6.1	6.1		
		Cobalt		2.1 B	2.1 J	qualify	1
		Copper		6.8	6.8		
		Iron		6410	6410		
		Lead		16.3	16.3		
		Magnesium		821 B	821 J	qualify	1
		Manganese		103	103		
		Mercury		0.0084 B	0.008 J	qualify	1
		Nickel		6.4 B	6.4 J	qualify	1
		Potassium		439 B	439 J	qualify	1, 4
		Selenium		0.86 U	0.86 U		
		Silver		0.17 U	0.17 U		
		Sodium	17.864	41.9 B	41.9 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		8.5 B	8.5 J	qualify	1
		Zinc	2.084	19.0	19.0 J	qualify	5
		Cyanide		Not analyzed			
	GLA5C-1D	Aluminum	6.375	2460	2460		
		Antimony		0.68 UN	0.68 UJ	qualify	3
		Arsenic		0.65 U	0.65 U		
		Barium	0.289	19.9 B	19.9 J	qualify	1
		Beryllium		0.20 B	0.20 J	qualify	1
		Cadmium		0.12 U	0.12 U		
		Calcium	8.037	596 B	596 J	qualify	1
		Chromium		6.3	6.3		
		Cobalt		2.1 B	2.1 J	qualify	1
		Copper		6.2	6.2		
		Iron		6270	6270		
		Lead		17.6	17.6		
		Magnesium		757	757		
		Manganese		92.3	92.3		
		Mercury		0.0086	0.009		
		Nickel		6.1	6.1		
		Potassium		441 B	441 J	qualify	1, 4
		Selenium		0.73 U	0.73 U		
		Silver		0.15 U	0.15 U		
		Sodium	17.864	28.3 B	28.3 J	qualify	1
		Thallium		2.8 U	2.8 U		
		Vanadium		8.6	8.6		
		Zinc	2.084	18.6	18.6 J	qualify	5
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : Glenwood SDG No.: 7001-2856B Method : SW-846
Lab Name : STL - Connecticut Sample Matrix : Non-Aqueous

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value. No bias direction is inferred.
- 2 The reported positive value for this analyte was qualified 'J', because the associated CRDL standard recovery exceeded the upper limit. Potential positive bias is suggested.
- 3 The reported value for this analyte was qualified 'UJ' or 'J', because the matrix spike recovery was below the lower limit of 75%. Potential negative bias is suggested.
- 4 The reported positive value for this analyte was qualified 'J', because the associated LCS recovery exceeded the upper limit. Potential positive bias is suggested.
- 5 The reported positive value for this analyte was qualified 'J', because the associated Serial Dilution standard precision exceeded 10.0%D, while the sample concentration was above 10x analyte IDL.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 7001-2856B

- A. **CALIBRATION**
 ICP Analytes
- | | | | |
|--|-----|---------------------|-------------------|
| | ICV | 90% - 110% recovery | <u>Outliers ?</u> |
| | CCV | 90% - 110% recovery | none |
- B. **CRDL STANDARD**
- | | | | |
|--|--------------------|-------------------|-----------|
| | 80 - 120% recovery | <u>Outliers ?</u> | |
| | | Se | CR11 124% |
- QA Action: Qualify positive Se values < nominal 4.0 mg/Kg; positive bias suggested.
 Affects: All samples.
- C. **BLANKS**
- | | | | |
|--|-------------------|-------------------|------|
| | ICB / CCB < CRDL | <u>Outliers ?</u> | |
| | Prep Blank < CRDL | none | none |
- D. **INTERELEMENT CORRECTION (ICSA / ICSAB)**
- | | | | |
|--|-------|-------------------------------------|-------------------|
| | ICSA | Response < 2x CRDL for trace metals | <u>Outliers ?</u> |
| | ICSAB | 80 - 120% recovery | none |
- E. **MATRIX SPIKE (MS) (GLA5C-1D)**
- | | | | |
|--|---|-------------------|-----|
| | 75 - 125% recovery (if sample conc. < 4x spike conc.) | <u>Outliers ?</u> | |
| | | Sb | 72% |
- QA Action: Qualify all Sb results; negative bias suggested.
 Affects: All samples.
- F. **POST-DIGESTION SPIKE (PDS) (GLA5C-1D)**
- | | | | |
|--|---|-------------------|--|
| | Required for analytes outside MS recovery range;
PDS conc. should be 2x CRDL or 2x sample conc.,
whichever is greater. Limits: 75 -125% | <u>Outliers ?</u> | |
| | | none | |
- G. **MATRIX DUPLICATE (MD) (GLA5C-1D)**
- | | | | |
|--|--|-------------------|-----|
| | Max. 100% RPD for non-aqueous samples > 5x CRDL | <u>Outliers ?</u> | |
| | Max. (+/-) CRDL value if either sample < 5x CRDL | none | n/a |
- Note: method limit is 20% RPD; EPA Region II uses 100% RPD as qualification limit for non-aqueous matrix.
- H. **LABORATORY CONTROL SAMPLE (LCS)**
- | | | | |
|--|--|-------------------|---------------|
| | Recovery within control limits for non-aqueous samples | <u>Outliers ?</u> | |
| | Recovery between 80 - 120% for aqueous samples | K | 5350 vs. 5000 |
- QA Action: Qualify positive K results; positive bias suggested.
 Affects: All samples.
- I. **SERIAL DILUTION SAMPLE (GLA5C-1D)**
- | | | | |
|--|---|-------------------|-------|
| | Maximum 10.0% D if undiluted sample > 10x IDL | <u>Outliers ?</u> | |
| | | Zn | (25%) |
- QA Action: Qualify 'J' positive Zn values > 10x IDL; negative bias suggested
 Affects: All SDG samples
- J. **VERIFICATION OF INSTRUMENTAL PARAMETERS**
- | | | | |
|---------------------------------|------------------|-------------------|--|
| | <u>Frequency</u> | <u>Outliers ?</u> | |
| Instrument Detection Limits | Quarterly | none | |
| Interelement Correction Factors | Annually | none | |
| Linear Range Analysis | Quarterly | none | |

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- ConnecticutLab Project No. : 7001-2856B

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ? Yes

If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ? Yes

If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ? Yes

If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ? Yes

If No, list affected analytes and samples, and QA action : _____

Note: % solids values below were taken from PCB raw data, and are within a reasonable error band.

5. Show calculation for % Solids for one sample.

Sample ID: GLA5C-1D Lab value : 97.7 %Dry weight : 8.86 gm % Solids = $\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$ Wet weight : 9.07 gm = **97.7** %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLA5C-1D Analyte : Pb Lab value : 17.6 mg/Kg% Solids : 97.7Raw value 0.1184 mg/LFinal volume 200 mLWet weight 1.38 gmmg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (ml)}}{\text{wet wgt} \times (\% \text{Sol}/100)} =$ **17.57** mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ? n/a

If No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 14, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 7001-2783A

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis			
				VOA	Semi-VOA	PCBs	Metals
M.H.#1	012783A-01	SOIL	11/05/01	X	X	X	X
M.H.#2	012783A-02	SOIL	11/05/01	X	X	X	X
M.H.#3	012783A-03	SOIL	11/05/01	X	X	X	X
M.H.#4	012783A-04	SOIL	11/05/01	X	X	X	X
OF#1	012783A-05	SOIL	11/06/01	X	X	X	X
OF#2	012783A-06	SOIL	11/06/01	X	X	X	X
OF#3	012783A-07	SOIL	11/06/01	X	X	X	X

Sample Collection and Receipt

Samples were received at the laboratory within two days of collection, under custody seal and within acceptable temperature range.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

Other Issues

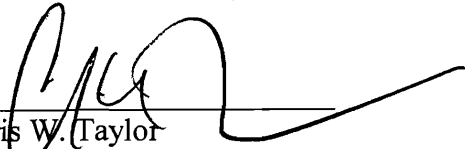
It is noted that no matrix spike or matrix spike duplicates were reported for the organic fractions; therefore no assessment could be made of potential sample matrix effects on the reported results for the volatile, semi-volatile and PCB fractions. Also, the reported inorganic matrix spike and matrix duplicate samples were not from this SDG, and therefore may not be representative of this SDG's matrix characteristics. No data qualifiers were applicable on the basis of MS/MD recoveries; further, potential matrix effects could not be assessed.

Several samples exhibited pattern / peak RT matches for multiple Aroclor compounds. The data user is alerted that accurate representation of total Aroclors may be impacted when this situation occurs, since the analyst must choose peaks for quantitation which may be shared by one or more Aroclor compounds, or eliminate peaks in the quantitation which are shared.

The continuing calibration (CCAL) %D values for several individual Aroclor-1260 peaks were outside the +/- 15% limits. Since reported CCAL values were within limits, it is apparent that the laboratory is reporting an average value for %D to determine compliance. Although this issue has been and continues to be widely discussed between laboratories, data reviewers and regulatory staff, a recent conversation between an EPA SW846 methods hotline staffer and the reviewer indicated that the forthcoming Method 8000 update will include a specific restriction of the peak-averaging practice. All reported Aroclor 1260 results were qualified 'J', as quantitatively estimated values.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-2783A

TARGET ANALYTE SUMMARY
VOLATILE ORGANICS

SITE NAME : GlenwoodSDG No.: 7001-2783AMETHOD: SW846 / 8260BLAB NAME : Severn Trent - CTSAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
VOA	M.H.#1	Methylene chloride	3 J	4 JB	6 UJ	negate	2, 4
		Acetone	8 J	8 JB	12 UJ	negate	2, 4
	M.H.#2	Methylene chloride	3 J	11 B	11 UJ	negate	2, 4
		Acetone	8 J	19 B	19 UJ	negate	2, 4
	M.H.#3	Methylene chloride	3 J	9 B	9 UJ	negate	2, 4
		Acetone	8 J	11 JB	12 UJ	negate	2, 4
		Tetrachloroethene		3 J	3 J	qualify	1
	M.H.#4	Methylene chloride	3 J	9	9 UJ	negate	2, 4
		Acetone	8 J	10 J	12 UJ	negate	2, 4
		Tetrachloroethene		6 U	3 J	qualify	1
	OF#1	Methylene chloride	3 J	10 B	10 UJ	negate	2, 4
		Acetone	8 J	18 B	18 UJ	negate	2, 4
		2-Butanone	5 J	7 JB	12 UJ	negate	2
	OF#2	Methylene chloride	3 J	18 B	18 UJ	negate	2, 4
		Acetone	8 J	31 B	31 UJ	negate	2, 4
		Trichloroethene		2 J	2 J	qualify	1
		Tetrachloroethene		7	7		
	OF#3	Methylene chloride	3 J	5 JB	6 UJ	negate	2, 4
		Acetone	8 J	13 U	13 UJ	qualify	4
		Tetrachloroethene		29	29		

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported result is negated, and reported with a 'U' qualifier, because the concentration was below 10x the value present in the associated Method Blank.
- 3 NOT USED FOR THIS SDG
- 4 The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%. No bias direction is inferred.

VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8260 B

For: Vanasse, Hangen Brustlin, Inc.

Project: Glenwood

SDG No.: 7001-2783A

Laboratory: STL - CT

A. HOLDING TIMES (NYSDEC - ASP)

NON-AQUEOUS MATRIX: 10 DAYS FROM VTSR

AQUEOUS MATRIX: 7 DAYS FROM VTSR

No data qualifiers were necessary; holding times were met for all samples.

B. METHOD BLANKS

Blank ID:	VBLKLG
Date:	11/13/01
Analyte	Conc. ug/Kg
methylene chloride	3 J
acetone	8 J
2-butanone	5 J

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'

If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'

If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

SAMPLE ID

SURROGATE ID

ACTION

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

SAMPLE ID

OUTLIERS

Note: No MS/MSD were reported for this SDG; therefore, no assessment may be made of potential sample matrix effects on the reported results.

E. LABORATORY QC SPIKE (QC check sample; 20 ppb)

QCS FILE ID
L9730

DATE
11/13/01

OUTLIERS
none reported

BIAS

ACTION
n/a

F. INTERNAL STANDARDS

SAMPLE ID

DATE

OUTLIERS

BIAS

ACTION

All reported IS recoveries and RTs were within acceptable limits.

VOLATILE ORGANICS
CALIBRATION SUMMARY
SW846 METHOD 8260B

For: Vanasse, Hanzen Brustlin, Inc.

Project: Glenwood

SDG No.: 7001-2783A

Laboratory: STL - CT

A. INSTRUMENT PERFORMANCE (BFB TUNE)

TUNE DATE:	11/12/01	11/13/01
BFB INJECTION TIME:	11:28	7:58
LAST SAMPLE INJECTION:	19:31	14:28
m/z RATIOS ACCEPTABLE ?	Yes	Yes

B. INITIAL CALIBRATION

CALIBRATION DATE :	11/12/01
FILE IDs :	L9719 - 9727
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > min. values?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds)====>	bromomethane methylene chloride acetone

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

C. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/13/01
FILE ID :	L9728
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > min. values?	Yes
CCC %Ds < 20% ?	Yes
All Targets < 20%D?	NO
(If No, list compounds)====>	methylene chloride acetone

ACTION : Qualify 'J' or 'JJ' all reported results for compounds which exceed 20%D in associated samples.

D. SAMPLE RESULT VERIFICATION

SAMPLE ID : QF#3
COMPOUND : tetrachloroethene Int. Std. : chlorobenzene-d5
REPORTED VALUE : 29 ug/Kg

ug/Kg =	229334	250	1.0	
	1124265	0.450	4.97	0.78

ug/Kg = 29.23

Non-Aqueous (low-level)
(Ax) (Is) (Df)
(Ais) (RRF) (Ws) (D)

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2783AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	M.H.#1	Phenanthrene		28 J	28 J	qualify	1
		Anthracene		6 J	6 J	qualify	1
		Fluoranthene		43 J	43 J	qualify	1, 4
		Pyrene		40 J	40 J	qualify	1, 3
		Benzo(a)anthracene		19 J	19 J	qualify	1
		Chrysene		32 J	32 J	qualify	1
		Benzo(b)fluoranthene		24 J	24 J	qualify	1
		Benzo(k)fluoranthene		26 J	26 J	qualify	1
		Benzo(a)pyrene		19 J	19 J	qualify	1
		Benzyl alcohol		380 U	380 UJ	qualify	3
		bis(2-ethylhexyl)phthalate		380 U	380 UJ	qualify	3
	M.H.#2 (@ 50x dilution)	Naphthalene		21000	21000		
		2-Methylnaphthalene		5400 J	5400 J	qualify	1, 4
		Acenaphthene		14000 J	14000 J	qualify	1
		Dibenzofuran		12000 J	12000 J	qualify	1
		Fluorene		26000	26000		
		Phenanthrene		140000	140000		
		Anthracene		41000	41000		
		Carbazole		22000	22000		
		Fluoranthene		150000	150000 J	qualify	4
		Pyrene		120000	120000		
		Benzo(a)anthracene		68000	68000		
		Chrysene		64000	64000		
		Benzo(b)fluoranthene		58000	58000		
		Benzo(k)fluoranthene		47000	47000		
		Benzo(a)pyrene		63000	63000		
		Indeno(1,2,3-cd)pyrene		41000	41000 J	qualify	2, 3
		Dibenzo(a,h)anthracene		18000 J	18000 J	qualify	2, 3
		Benzo(g,h,i)perylene		45000	45000 J	qualify	2, 3
		Benzyl alcohol		20000 U	20000 UJ	qualify	3
		Benzoic acid		98000 U	98000 UJ	qualify	3
		Hexachlorocyclopentadiene		20000 U	20000 UJ	qualify	3
	M.H.#3	2-Methylnaphthalene		10 J	10 J	qualify	1, 4
		Fluoranthene		9 J	9 J	qualify	1, 4
		Pyrene		11 J	11 J	qualify	1
		Benzo(b)fluoranthene		8 J	8 J	qualify	1
		Benzo(k)fluoranthene		8 J	8 J	qualify	1
		Benzo(a)pyrene		8 J	8 J	qualify	1
		Indeno(1,2,3-cd)pyrene		5 J	5 J	qualify	2, 3
		Dibenzo(a,h)anthracene		370 U	370 UJ	qualify	3
		Benzo(g,h,i)perylene		8 J	8 J	qualify	2, 3
		Benzyl alcohol		370 U	370 UJ	qualify	3
		Benzoic acid		1800 U	1800 UJ	qualify	3
		Hexachlorocyclopentadiene		370 U	370 UJ	qualify	3
	M.H.#4	2-Methylnaphthalene		9 J	9 J	qualify	1, 4
		Phenanthrene		100 J	100 J	qualify	1
		Anthracene		24 J	24 J	qualify	1
		Fluoranthene		98 J	98 J	qualify	1, 4
		Pyrene		120 J	120 J	qualify	1
		Benzo(a)anthracene		50 J	50 J	qualify	1
		Chrysene		96 J	96 J	qualify	1
		bis(2-ethylhexyl)phthalate		65 J	65 J	qualify	1

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2783AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	M.H.#4 (cont'd.)	Benzo(b)fluoranthene		60 J	60 J	qualify	1
		Benzo(k)fluoranthene		60 J	60 J	qualify	1
		Benzo(a)pyrene		53 J	53 J	qualify	1
		Indeno(1,2,3-cd)pyrene		7 J	7 J	qualify	1, 2, 3
		Dibenzo(a,h)anthracene		380 U	380 UJ	qualify	3
		Benzo(g,h,i)perylene		380 U	380 UJ	qualify	3
		Benzyl alcohol		380 U	380 UJ	qualify	3
		Benzoic acid		1800 U	1800 UJ	qualify	3
		Hexachlorocyclopentadiene		380 U	380 UJ	qualify	3
	OF#1	Acenaphthylene		10 J	10 J	qualify	1
		Acenaphthene		27 J	27 J	qualify	1
		Dibenzofuran		15 J	15 J	qualify	1
		Phenanthrene		140 J	140 J	qualify	1
		Anthracene		62 J	62 J	qualify	1
		Carbazole		19 J	19 J	qualify	1
		Fluoranthene		250 J	250 J	qualify	1, 4
		Pyrene		190 J	190 J	qualify	1
		Benzo(a)anthracene		120 J	120 J	qualify	1
		Chrysene		140 J	140 J	qualify	1
		Benzo(b)fluoranthene		97 J	97 J	qualify	1
		Benzo(k)fluoranthene		110 J	110 J	qualify	1
		Benzo(a)pyrene		100 J	100 J	qualify	1
		Indeno(1,2,3-cd)pyrene		31 J	31 J	qualify	1, 2, 3
		Dibenzo(a,h)anthracene		12 J	12 J	qualify	1, 2, 3
		Benzo(g,h,i)perylene		28 J	28 J	qualify	1, 2, 3
		Benzyl alcohol		390 U	390 UJ	qualify	3
		Benzoic acid		1900 U	1900 UJ	qualify	3
		Hexachlorocyclopentadiene		390 U	390 UJ	qualify	3
	OF#2	Fluoranthene		46 J	46 J	qualify	1, 4
		Pyrene		38 J	38 J	qualify	1
		Benzo(a)anthracene		18 J	18 J	qualify	1
		Chrysene		30 J	30 J	qualify	1
		Benzo(b)fluoranthene		14 J	14 J	qualify	1
		Benzo(k)fluoranthene		15 J	15 J	qualify	1
		Benzo(a)pyrene		14 J	14 J	qualify	1
		Indeno(1,2,3-cd)pyrene		5 J	5 J	qualify	1, 2, 3
		Dibenzo(a,h)anthracene		400 U	400 UJ	qualify	3
		Benzo(g,h,i)perylene		400 U	400 UJ	qualify	3
		Benzyl alcohol		400 U	400 UJ	qualify	3
		Benzoic acid		2000 U	2000 UJ	qualify	3
	OF#3	Hexachlorocyclopentadiene		400 U	400 UJ	qualify	3
		Fluoranthene		22 J	22 J	qualify	1, 4
		Pyrene		17 J	17 J	qualify	1
		Indeno(1,2,3-cd)pyrene		3 J	3 J	qualify	1, 2, 3
		Dibenzo(a,h)anthracene		400 U	400 UJ	qualify	3
		Benzo(g,h,i)perylene		400 U	400 UJ	qualify	3
		Benzyl alcohol		400 U	400 UJ	qualify	3
		Benzoic acid		1900 U	1900 UJ	qualify	3
		Hexachlorocyclopentadiene		400 U	400 UJ	qualify	3

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICSSITE NAME : GLENWOODSDG No.: 7001-2783AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-AqueousFOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- 3 The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%. No bias direction is inferred.
- 4 The reported positive value for this compound is qualified 'J', because the recovery for this compound in the associated LCS (Blank Spike) was above the laboratory-established limit. Positive bias is suggested.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2783A

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX:	10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
AQUEOUS MATRIX:	5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
ALL MATRICES:	40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
	All samples were extracted and analyzed within allowable holding times.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>	<u>Affects</u>
11/11/01	SBLKSR	R2659	soil	i-n-butylphthalate	36 J	All SDG samples

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
Blank Spike	246-tribromophenol	high	none necessary

D. MATRIX SPIKE / DUPLICATE

Comments: No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
SBLKSR	<u>Note: 17 of 65 compound recoveries were above limits. See attached sheets for details.</u>		Qualify positives for affected compounds in all SDG samples.

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
All IS recoveries & RTs were within acceptable limits			n/a

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
10/30/01	OK	yes	n/a
11/12/01	OK	yes	n/a
11/13/01	OK	yes	n/a
11/15/01	OK	yes	n/a

H. SAMPLE RESULT
VERIFICATION

ULT	Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg	
N	M.H.#2	pyrene	120000	122645	
	Ax	Is	Vt	Df	GPC
Conc., ug/Kg =	5319883	40.0	500	50	1.0
	Ais	RRF	Vi	Ws	D
	1204624	1.472	2.0	15.1	0.81

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2783A

A. INITIAL CALIBRATION

CALIBRATION DATE :	10/30/01
FILE IDs :	R2576 - 2580
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds) =====>	benzoic acid
SPCC Compounds	hexachlorocyclopentadiene
N-Nitroso-di-n-propylamine	2,4-dinitrophenol
Hexachlorocyclopentadiene	indeno(1,2,3-cd)pyrene
2,4-Dinitrophenol	dibenzo(a,h)anthracene
4-Nitrophenol	benzo(g,h,i)perylene
MINIMUM RRF = 0.050	

CCC Compounds
<u>Base/Neutrals</u>
Acenaphthene
1,4-Dichlorobenzene
Hexachlorobutadiene
Diphenylamine
Di-n-octylphthalate
Fluoranthene
Benzo(a)pyrene
<u>Acids</u>
4-Chloro-3-methylphenol
2,4-Dichlorophenol
2-Nitrophenol
Phenol
Pentachlorophenol
2,4,6-Trichlorophenol
MAXIMUM %RSD = 30.0%
MAXIMUM %D = 20.0%

ACTION: Qualify 'J' all positive compounds which exceed 15% RSD in associated samples

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/12/01	11/13/01	11/15/01
FILE ID :	R2658	R2678	R2696
ALL RRFs > 0.05 ?	Yes	Yes	Yes
SPCC RRFs > 0.05 ?	Yes	Yes	Yes
CCC %Ds < 20% ?	Yes	Yes	Yes
All Targets < 20%D?	NO	NO	NO
(If No, list compounds) =====>	benzyl alcohol	benzyl alcohol	benzyl alcohol
	pyrene	benzoic acid	benzoic acid
	bis(2-ethylhexyl)phthalate	hexachlorocyclopentadiene	hexachlorocyclopentadiene
		indeno(1,2,3-cd)pyrene	indeno(1,2,3-cd)pyrene
		dibenzo(a,h)anthracene	dibenzo(a,h)anthracene
		benzo(g,h,i)perylene	benzo(g,h,i)perylene
		2-fluorophenol (surrogate)	

ACTION: Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

3D
SOIL SEMIVOLATILE SPIKE/SPIKE DUPLICATE RECOVERY SUMMARY

Lab Name: STL/CT

Contract: _____

Lab Code: IEACT

Case No.: 2783A

SAS No.: _____

SDG No.: A2783

Matrix Spike - EPA Sample No.: SBLKSR

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	SPIKE CONCENTRATION (ug/Kg)	SPIKE % REC #	QC. LIMITS REC.
Phenol	1300	0	1600	123	48-146
bis(2-Chloroethyl) ether	1300	0	1600	123*	60-119
2-Chlorophenol	1300	0	1800	138	58-139
1,3-Dichlorobenzene	1300	0	1400	108	55-113
1,4-Dichlorobenzene	1300	0	1500	115*	54-114
Benzyl alcohol	1300	0	1700	131	58-137
1,2-Dichlorobenzene	1300	0	1600	123*	59-116
2-Methylphenol	1300	0	1300	100	50-126
bis(2-Chloroisopropyl) ether	1300	0	1600	123*	64-120
4-Methylphenol	1300	0	1400	108	51-147
N-Nitroso-di-n-propylamine	1300	0	1700	131*	61-121
Hexachloroethane	1300	0	1400	108	54-108
Nitrobenzene	1300	0	1600	123*	62-119
Isophorone	1300	0	1600	123	63-123
2-Nitrophenol	1300	0	1600	123*	64-119
2,4-Dimethylphenol	1300	0	1700	131*	57-130
Benzoic acid	4000	0	570	14	0-88
bis(2-Chloroethoxy) methane	1300	0	1400	108	64-123
2,4-Dichlorophenol	1300	0	1900	146*	67-129
1,2,4-Trichlorobenzene	1300	0	1500	115	59-115
Naphthalene	1300	0	1600	123	63-124
4-Chloroaniline	1300	0	1600	123	0-139
Hexachlorobutadiene	1300	0	1400	108	54-124
4-Chloro-3-methylphenol	1300	0	1800	138*	62-136
2-Methylnaphthalene	1300	0	1700	131*	56-120
Hexachlorocyclopentadiene	1300	0	430	33	20-114
2,4,6-Trichlorophenol	1300	0	1600	123	64-129
2,4,5-Trichlorophenol	1300	0	1200	92	52-119
2-Chloronaphthalene	1300	0	1900	146*	70-138
2-Nitroaniline	1300	0	1800	138	59-140

Column to be used to flag recovery with an asterisk

* Values outside of QC limits.

Spike Recovery: 9/17 out of 65 outside limits

COMMENTS: SP 11-20-01

3D
SOIL SEMIVOLATILE SPIKE/SPIKE DUPLICATE RECOVERY SUMMARY

Lab Name: STL/CT

Contract: _____

Lab Code: IEACT

Case No.: 2783A

SAS No.: _____

SDG No.: A2783

Matrix Spike - EPA Sample No.: SBLKSR

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	SPIKE CONCENTRATION (ug/Kg)	SPIKE % REC #	QC. LIMITS REC.
Dimethylphthalate	1300	0	1700	131	62-139
Acenaphthylene	1300	0	1500	115	57-127
2,6-Dinitrotoluene	1300	0	1700	131	58-146
3-Nitroaniline	1300	0	1700	131	24-172
Acenaphthene	1300	0	1600	123	63-131
2,4-Dinitrophenol	1300	0	1200	92	8-220
4-Nitrophenol	1300	0	2200	169	37-164
Dibenzofuran	1300	0	1700	131	58-131
2,4-Dinitrotoluene	1300	0	1800	138	46-146
Diethylphthalate	1300	0	1700	131	56-142
4-Chlorophenyl-phenylether	1300	0	1500	115	58-133
Fluorene	1300	0	1700	131	56-133
4-Nitroaniline	1300	0	1900	146	35-174
4,6-Dinitro-2-methylphenol	1300	0	1400	108	49-186
N-Nitrosodiphenylamine (1)	1300	0	1500	115	69-142
4-Bromophenyl-phenylether	1300	0	1600	123	63-139
Hexachlorobenzene	1300	0	1800	138	63-134
Pentachlorophenol	1300	0	2000	154	68-124
Phenanthrene	1300	0	1800	138	64-140
Anthracene	1300	0	1700	131	67-134
Di-n-butylphthalate	1300	36	1900	143	70-139
Fluoranthene	1300	0	2100	162	63-145
Pyrene	1300	0	1600	123	55-146
Butylbenzylphthalate	1300	0	1800	138	65-149
3,3'-Dichlorobenzidine	1300	0	1200	92	23-124
Benzo(a)anthracene	1300	0	1800	138	58-148
Chrysene	1300	0	1700	131	60-151
bis(2-Ethylhexyl)phthalate	1300	0	1600	123	60-146
Di-n-octylphthalate	1300	0	1700	131	66-154
Benzo(b)fluoranthene	1300	0	2000	154	37-191

Column to be used to flag recovery with an asterisk

* Values outside of QC limits.

Spike Recovery: 617 out of 65 outside limits

COMMENTS:

SV 11-20-11

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2783AMETHOD: SW846 / 8082LAB NAME : STL - CTCLIENT: Vanasse, Hanzen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	M.H.#1	Aroclor 1016		38 U	38 U		
		Aroclor 1221		77 U	77 U		
		Aroclor 1232		38 U	38 U		
		Aroclor 1242		38 U	38 U		
		Aroclor 1248		75	75		
		Aroclor 1254		38 U	38 U		
		Aroclor 1260		14 J	14 J	qualify	1, 2
	M.H.#2 (@ 5x dilution)	Aroclor 1016		200 U	200 U		
		Aroclor 1221		400 U	400 U		
		Aroclor 1232		200 U	200 U		
		Aroclor 1242		200 U	200 U		
		Aroclor 1248		1200	1200		
		Aroclor 1254		200 U	200 U		
		Aroclor 1260		160 J	160 J	qualify	1, 2
	M.H.#3 (@ 5x dilution)	Aroclor 1016		180 U	180 U		
		Aroclor 1221		370 U	370 U		
		Aroclor 1232		180 U	180 U		
		Aroclor 1242		180 U	180 U		
		Aroclor 1248		1000	1000		
		Aroclor 1254		180 U	180 U		
		Aroclor 1260		27 J	27 J	qualify	1, 2
	M.H.#4	Aroclor 1016		37 U	37 U		
		Aroclor 1221		75 U	75 U		
		Aroclor 1232		37 U	37 U		
		Aroclor 1242		37 U	37 U		
		Aroclor 1248		53	53		
		Aroclor 1254		37 U	37 U		
		Aroclor 1260		13 J	13 J	qualify	1, 2
	OF#1	Aroclor 1016		39 U	39 U		
		Aroclor 1221		79 U	79 U		
		Aroclor 1232		39 U	39 U		
		Aroclor 1242		39 U	39 U		
		Aroclor 1248		65	65		
		Aroclor 1254		39 U	39 U		
		Aroclor 1260		16 J	16 J	qualify	1, 2
	OF#2	Aroclor 1016		40 U	40 U		
		Aroclor 1221		82 U	82 U		
		Aroclor 1232		40 U	40 U		
		Aroclor 1242		40 U	40 U		
		Aroclor 1248		13 J	13 J	qualify	1
		Aroclor 1254		40 U	40 U		
		Aroclor 1260		3.4 J	3.4 J	qualify	1, 2
	OF#3	Aroclor 1016		39 U	39 U		
		Aroclor 1221		80 U	80 U		
		Aroclor 1232		39 U	39 U		
		Aroclor 1242		39 U	39 U		
		Aroclor 1248		7.7 J	7.7 J	qualify	1
		Aroclor 1254		39 U	39 U		
		Aroclor 1260		2.2 J	2.2 J	qualify	1, 2, 3

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME :	<u>Glenwood</u>	SDG No.:	<u>7001-2783A</u>	METHOD:	<u>SW846 / 8082</u>
LAB NAME :	<u>STL - Buffalo</u>	CLIENT:	<u>Vanasse, Hangen, Brustlin, Inc.</u>	SAMPLE MATRIX:	<u>Non-Aqueous</u>

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported result for this analyte is qualified 'UJ' or 'J', because the % Difference for at least one of the calibration peaks for this analyte in the Calibration Verification standard exceeded the method limit of 15.0%.
- 3 The reported result is qualified 'J', as quantitatively estimated, because the %D between analytical columns exceeded 25%, but was below 50%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory

Project No.: 7001-2783A

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	PBLK51
Extraction Date:	11/12/01
Analyte	Conc. ug/Kg
none found	
AFFECTS:	All

Blank ID:	PCBLK51
Extraction Date:	11/12/01
Analyte	Conc. ug/Kg
none found	
AFFECTS:	OF1 & OF2

No target compounds present in blanks; no data qualifiers or negations were necessary

Comments: PCBLK51 is a sulfur-cleanup blank extracted with samples OF1 & OF2.

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Compound</u>	<u>Bias</u>	<u>Action</u>
M.H.#2	DCB	high	Exceedance due to peak interference; no action taken

D. MATRIX SPIKE / DUPLICATE

Comments: No matrix spike / duplicate were performed; only a Blank Spike was run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (PBLK51 QC2)

All reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 7001-2783ALaboratory: STL - Buffalo**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 11/21/01

Verification of ICAL Results

<u>Aroclor 1260</u>	<u>DB-1701</u>		
<u>Peak 1, RT = 18.32</u>	<u>Response</u>	<u>Cal Factor, Calc'd.</u>	<u>CF, reported</u>
0.05	170328	3406560	3406560
0.1	361999	3619990	3619990
0.2	618814	3094070	3094070
0.4	1195786	2989465	2989465
0.8	2177066	2721333	2721332
Average		3166284	2985152
Calc'd. %RSD =	11.14		
Reported %RSD =	11.1		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/26/01	11/27/01	11/27/01
FILE ID :	C5134081	C5134097	C5134110
All Targets < 15% D?	NO	NO	NO
(If No, list compounds) ==>	Aroclor 1260	Aroclor 1260	Aroclor 1260

QA ACTION : Qualify all reported non-detect results 'UJ'; qualify all reported positive values 'J'.**C. SAMPLE RESULT VERIFICATION**

SAMPLE ID: M.H.#1
 COMPOUND: Aroclor-1260
 REPORTED VALUE: 14 ug/Kg DB-1701

<u>Peak RT</u>	<u>CF</u>	<u>Peak Area</u>	<u>conc., ng</u>
18.31	2985152	134643	0.0451
22.49	1827071	54737	0.0300
23.88	3243039	93646	0.0289
Average conc. =			0.0346

ug/Kg =	ng average conc.	extract, uL	Dilution factor
	0.0346	10000	1.0
	30.4	1.0	0.86
	wet wgt., gm	inject.vol, uL	%sol/100
ug/Kg =	13.3		

Comments: The laboratory reported the highest of the two values between analytical columns, per SW-846 protocol. However, the laboratory did not use all 5 calibration peaks for quantitation, but used 3, which is the minimum allowable number of peaks. Chromatographic evaluation revealed that the 3rd and 5th peaks used in calibration were present, but exhibited interference. It is the reviewer's opinion that the peaks chosen by the lab are resonable for minimizing bias due to interference.

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2783A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	M.H.#1	Aluminum		1850	1850		
		Antimony		1.0 U	1.0 U		
		Arsenic		0.99 U	0.99 U		
		Barium		4.8 B	4.8 J	qualify	1
		Beryllium		0.11 U	0.11 U		
		Cadmium		0.18 U	0.18 U		
		Calcium	23.923	19800	19800		
		Chromium		1.6 B	1.6 J	qualify	1
		Cobalt		3.5 B	3.5 J	qualify	1
		Copper		54.6	54.6		
		Iron		9630	9630		
		Lead		6.6	6.6 J	qualify	2
		Magnesium		11400	11400		
		Manganese		89.4	89.4		
		Mercury		0.0077	0.008		
		Nickel		2.8 B	2.8 J	qualify	1
		Potassium		541 B	541 J	qualify	1, 2
		Selenium		1.1 U	1.1 U		
		Silver		0.22 U	0.22 U		
		Sodium	7.185	1000 B	1000 J	qualify	1
		Thallium		4.2 U	4.2 U		
		Vanadium		14.2	14.2		
		Zinc	1.894	28.4	28.4 J	qualify	2
		Cyanide		Not analyzed			
	M.H.#2	Aluminum		1910	1910		
		Antimony		0.96 U	0.96 U		
		Arsenic		3.5	3.5		
		Barium		29.5 B	29.5 J	qualify	1
		Beryllium		0.10 U	0.10 U		
		Cadmium		0.23 B	0.23 J	qualify	1
		Calcium	23.923	19700	19700		
		Chromium		14.7	14.7		
		Cobalt		2.8 B	2.8 J	qualify	1
		Copper		82.0	82.0		
		Iron		13800	13800		
		Lead		58.4	58.4 J	qualify	2
		Magnesium		10500	10500		
		Manganese		132	132		
		Mercury		0.36	0.36		
		Nickel		16.7	16.7		
		Potassium		308 B	308 J	qualify	1, 2
		Selenium		1.0 U	1.0 U		
		Silver		0.21 U	0.21 U		
		Sodium	7.185	81.4 B	81.4 J	qualify	1
		Thallium		3.9 U	3.9 U		
		Vanadium		36.0	36.0		
		Zinc	1.894	87.4	87.4 J	qualify	2
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2783A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	M.H.#3	Aluminum		1260	1260		
		Antimony		0.94 U	0.94 U		
		Arsenic		2.9	2.9		
		Barium		13.9 B	13.9 J	qualify	1
		Beryllium		0.17 B	0.17 J	qualify	1
		Cadmium		0.16 U	0.16 U		
		Calcium	23.923	7100	7100		
		Chromium		47.8	47.8		
		Cobalt		2.4 B	2.4 J	qualify	1
		Copper		72.1	72.1		
		Iron		26600	26600		
		Lead		68.7	68.7 J	qualify	2
		Magnesium		4160	4160		
		Manganese		200	200		
		Mercury		0.13	0.13		
		Nickel		56.0	56.0		
		Potassium		132 B	132 J	qualify	1
		Selenium		1.1	1.1		
		Silver		0.20 U	0.20 U		
		Sodium	7.185	73.2 B	73.2 J	qualify	1
		Thallium		3.8 U	3.8 U		
		Vanadium		62.2	62.2		
		Zinc	1.894	109	109 J	qualify	2
		Cyanide		Not analyzed			
	M.H.#4	Aluminum		1640	1640		
		Antimony		1.0 U	1.0 U		
		Arsenic		3.6	3.6		
		Barium		14.6 B	14.6 J	qualify	1
		Beryllium		0.11 U	0.11 U		
		Cadmium		0.18 U	0.18 U		
		Calcium	23.923	27200	27200		
		Chromium		13.6	13.6		
		Cobalt		2.9 B	2.9 J	qualify	1
		Copper		99.9	99.9		
		Iron		15500	15500		
		Lead		15.7	15.7 J	qualify	2
		Magnesium		15800	15800		
		Manganese		187	187		
		Mercury		0.029	0.03		
		Nickel		101	101		
		Potassium		201 B	201 J	qualify	1, 2
		Selenium		1.1 U	1.1 U		
		Silver		0.23 U	0.23 U		
		Sodium	7.185	103 B	103 J	qualify	1
		Thallium		4.2 U	4.2 U		
		Vanadium		17.4	17.4		
		Zinc	1.894	88.4	88.4 J	qualify	2
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 7001-2783A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	OF#1	Aluminum		987	987		
		Antimony		1.0 U	1.0 U		
		Arsenic		0.99 B	0.99 J	qualify	1
		Barium		5.6 B	5.6 J	qualify	1
		Beryllium		0.11 U	0.11 U		
		Cadmium		0.17 U	0.17 U		
		Calcium	23.923	22100	22100		
		Chromium		3.9	3.9		
		Cobalt		1.2 B	1.2 J	qualify	1
		Copper		43.0	43.0		
		Iron		7450	7450		
		Lead		8.7	8.7 J	qualify	2
		Magnesium		1820	1820		
		Manganese		92.3	92.3		
		Mercury		0.035	0.04		
		Nickel		2.4 B	2.4 J	qualify	1
		Potassium		286 B	286 J	qualify	1, 2
		Selenium		1.1 U	1.1 U		
		Silver		0.22 U	0.22 U		
		Sodium	7.185	1640	1640		
		Thallium		4.0 U	4.0 U		
		Vanadium		6.9 B	6.9 J	qualify	1
		Zinc	1.894	29.1	29.1 J	qualify	2
		Cyanide		Not analyzed			
	OF#2	Aluminum		645	645		
		Antimony		0.87 U	0.87 U		
		Arsenic		0.84 U	0.84 U		
		Barium		3.3 B	3.3 J	qualify	1
		Beryllium		0.095 U	0.095 U		
		Cadmium		0.15 U	0.15 U		
		Calcium	23.923	2890	2890		
		Chromium		3.5	3.5		
		Cobalt		0.42 B	0.42 J	qualify	1
		Copper		4.9	4.9		
		Iron		3250	3250		
		Lead		10.3	10.3 J	qualify	2
		Magnesium		508 B	508 J	qualify	1
		Manganese		40.3	40.3		
		Mercury		0.010	0.01		
		Nickel		2.2 B	2.2 J	qualify	1
		Potassium		128 B	128 J	qualify	1
		Selenium		0.93 U	0.93 U		
		Silver		0.19 U	0.19 U		
		Sodium	7.185	251 B	251 J	qualify	1
		Thallium		3.5 U	3.5 U		
		Vanadium		3.3 B	3.3 J	qualify	1
		Zinc	1.894	13.5	13.5 J	qualify	2
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 7001-2783A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	OF#3	Aluminum		1250	1250		
		Antimony		0.80 U	0.80 U		
		Arsenic		1.3 B	1.3 J	qualify	1
		Barium		2.1 B	2.1 J	qualify	1
		Beryllium		0.087 U	0.087 U		
		Cadmium		0.14 U	0.14 U		
		Calcium	23.923	1170	1170		
		Chromium		4.7	4.7		
		Cobalt		0.88 B	0.88 J	qualify	1
		Copper		4.9	4.9		
		Iron		7190	7190		
		Lead		6.6	6.6 J	qualify	2
		Magnesium		643 B	643 J	qualify	1
		Manganese		97.2	97.2		
		Mercury		0.008	0.01		
		Nickel		2.3 B	2.3 J	qualify	1
		Potassium		153 B	153 J	qualify	1
		Selenium		0.86 U	0.86 U		
		Silver		0.17 U	0.17 U		
		Sodium	7.185	42.2 B	42.2 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		6.9 B	6.9 J	qualify	1
		Zinc	1.894	19.7	19.7 J	qualify	2
		Cyanide		Not analyzed			

FOOTNOTES

- The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value.
No bias direction is inferred.
- The reported positive value for this analyte was qualified 'J', because the associated Serial Dilution standard precision exceeded 10.0%D, while the sample concentration was above 10x analyte IDL.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- CTLab Project No. : 7001-2783A

- A. **CALIBRATION**
 ICP Analytes
- | | | |
|-----|---------------------|-------------------|
| ICV | 90% - 110% recovery | <u>Outliers ?</u> |
| CCV | 90% - 110% recovery | none |
- B. **CRDL STANDARD**
- | | |
|--------------------|-------------------|
| 80 - 120% recovery | <u>Outliers ?</u> |
| | Pb CRI 2, 122% |
- Comments: All SDG samples were analyzed within 90 minutes of CRI 1, which was compliant for all analytes (CRI 2 was analyzed seven hours after CRI 1). No data qualifiers were applicable.
- C. **BLANKS**
- | | |
|-------------------|-------------------|
| ICB / CCB < CRDL | <u>Outliers ?</u> |
| Prep Blank < CRDL | none |
- D. **INTERELEMENT CORRECTION (ICSA / ICSAB)**
- | | | |
|-------|-------------------------------------|-------------------|
| ICSA | Response < 2x CRDL for trace metals | <u>Outliers ?</u> |
| ICSAB | 80 - 120% recovery | none |
- E. **MATRIX SPIKE**
- | | |
|---|-------------------|
| 75 - 125% recovery (if sample conc. < 4x spike conc.) | <u>Outliers ?</u> |
| | n/a |
- Comments: The reported MS / MD were not from this SDG and likely are not reflective of this SDG's matrix characteristics. No assessment of potential matrix effects may be made.
- F. **POST-DIGESTION SPIKE**
- | | |
|---|-------------------|
| 75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >. | <u>Outliers ?</u> |
| | n/a |
- Comments: See comments in 'E.' above.
- G. **MATRIX DUPLICATE**
- | | |
|--|-------------------|
| Max. 100% RPD for non-aqueous samples > 5x CRDL | <u>Outliers ?</u> |
| Max. (+/-) CRDL value if either sample < 5x CRDL | n/a |
- Comments: See comments in 'E.' above.
- H. **LABORATORY CONTROL SAMPLE**
- | | |
|--|-------------------|
| Recovery within control limits for non-aqueous samples | <u>Outliers ?</u> |
| Recovery between 80 - 120% for aqueous samples | none |
- I. **SERIAL DILUTION SAMPLE**
- | | |
|---|-------------------|
| Maximum 10.0% D if undiluted sample > 10x IDL | <u>Outliers ?</u> |
| | Pb 12% |
| | K 32% |
| | Zn 21% |
- QA Action : Qualify 'J' positive Pb, K & Zn results > 10x IDL values.
 Comments: Pb, K & Zn were not 'E' qualified by the lab.
- J. **VERIFICATION OF INSTRUMENTAL PARAMETERS**
- | | | |
|---------------------------------|------------------|-------------------|
| | <u>Frequency</u> | <u>Outliers ?</u> |
| Instrument Detection Limits | Quarterly | none |
| Interelement Correction Factors | Annually | none |
| Linear Range Analysis | Quarterly | none |

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- CTLab Project No. : 7001-2783A

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ?

YesIf No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ?

YesIf No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ?

YesIf No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ?

Yes

If No, list affected analytes and samples, and QA action : _____

Note: % solids values below were taken from the raw data, and are within a reasonable error band. % Solids data taken from PCB Prep Log. No other solids logs present.

5. Show calculation for % Solids for one sample.

Sample ID: M.H.#3 (2783A-03)Lab value : 85.8 %Dry weight : 8.92 gm% Solids = Dry weight x 100Wet weight : 9.97 gm

Wet weight

= 89.5 %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: M.H.#3Analyte : PbLab value : 68.7 mg/Kg% Solids : 89.5Raw value 0.3359 mg/LFinal volume 200 mLWet weight 1.14 gmmg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (mL)}}{\text{wet wgt} \times (\% \text{Sol}/100)}$

wet wgt x (%Sol/100) =

65.88

mg/ kg

Comments: The disparity between reported values is due to the discrepancy between % Solids values used in the calculation. See note at 4. above.

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ?

n/aIf No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 08, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 7001-2807A

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA7-1A	012807A-01	SOIL	11/09/01	X	X	X
GLA7-1B	012807A-02	SOIL	11/09/01	X	X	X
GLA7-2	012807A-03	SOIL	11/09/01	X	X	X
GLA7-3	012807A-04	SOIL	11/09/01	X	X	X
GLA7-4	012807A-05	SOIL	11/09/01	X	X	X
GLA7-5	012807A-06	SOIL	11/09/01	X	X	X
GLA7-6	012807A-07	SOIL	11/09/01	X	X	X
GLA7-7S	012807A-08	SOIL	11/09/01	X	X	X
GLA7-8S	012807A-09	SOIL	11/09/01	X	X	X

Sample Collection and Receipt

Samples were received at the laboratory at 9 degrees C, which exceeds the acceptable temperature range of 4 +/- 2 degrees C. The laboratory narrative indicated that the client was notified of this excursion, and directed the lab to proceed with analysis. No data qualifiers were applied, since EPA Region II validation guidelines designate 10 degrees C as the cutoff point for qualification.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

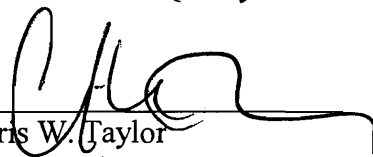
Other Issues

It is noted that no matrix spike or matrix spike duplicates were reported for the organic fractions; therefore no assessment could be made of potential sample matrix effects on the reported results for the semi-volatile and PCB fractions.

Several samples exhibited pattern / peak RT matches for multiple Aroclor compounds. The data user is alerted that accurate representation of total Aroclors may be impacted when this situation occurs, since the analyst must choose peaks for quantitation which may be shared by one or more Aroclor compounds, or eliminate peaks in the quantitation which are shared.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.



Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-2807A

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 7001-2807AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA7-1A (@ 5x dilution)	Naphthalene		490 J	490 J	qualify	1
		2-Methylnaphthalene		460 J	460 J	qualify	1, 5
		Acenaphthylene		890 J	890 J	qualify	1
		Acenaphthene		620 J	620 J	qualify	1
		Dibenzofuran		310 J	310 J	qualify	1
		Fluorene		710 J	710 J	qualify	1
		Phenanthrene		5700	5700		
		Anthracene		2200	2200		
		Carbazole		320 J	320 J	qualify	1
		Fluoranthene		9900	9900 J	qualify	5
		Pyrene		14000	14000 J	qualify	3
		Benzo(a)anthracene		9700	9700		
		Chrysene		9600	9600		
		Benzo(b)fluoranthene		9600	9600		
		Benzo(k)fluoranthene		7200	7200		
		Benzo(a)pyrene		11000	11000		
		Indeno(1,2,3-cd)pyrene		1300 J	1300 J	qualify	1, 2, 3
		Dibenzo(a,h)anthracene		580 J	580 J	qualify	1, 2, 3
		Benzo(g,h,i)perylene		870 J	870 J	qualify	1, 2, 3
		Benzyl alcohol		1700 U	1700 UJ	qualify	3
		bis(2-ethylhexyl)phthalate		1700 U	1700 UJ	qualify	3
	GLA7-1B (@ 25x dilution)	Naphthalene		450 J	450 J	qualify	1
		2-Methylnaphthalene		300 J	300 J	qualify	1, 5
		Acenaphthylene		1300 J	1300 J	qualify	1
		Acenaphthene		950 J	950 J	qualify	1
		Dibenzofuran		490 J	490 J	qualify	1
		Fluorene		1100 J	1100 J	qualify	1
		Phenanthrene		12000	12000		
		Anthracene		4700 J	4700 J	qualify	1
		Fluoranthene		30000	30000 J	qualify	5
		Pyrene		37000	37000		
		Benzo(a)anthracene		22000	22000		
		Chrysene		22000	22000		
		Benzo(b)fluoranthene		18000	18000		
		Benzo(k)fluoranthene		18000	18000		
		Benzo(a)pyrene		24000	24000		
		Indeno(1,2,3-cd)pyrene		14000	14000 J	qualify	2, 3
		Dibenzo(a,h)anthracene		5100 J	5100 J	qualify	1, 2, 3
		Benzo(g,h,i)perylene		12000	12000 J	qualify	2, 3
		Benzyl alcohol		8500 U	8500 UJ	qualify	3
		Benzoic acid		41000 U	41000 UJ	qualify	3
		Hexachlorocyclopentadiene		8500 U	8500 UJ	qualify	3
	GLA7-2	Phenol		40 J	40 J	qualify	1, 4
		4-Methylphenol		39 J	39 J	qualify	1, 4
		2,4-Dimethylphenol		210 J	210 J	qualify	1, 4, 5
		Benzoic acid		120 J	120 J	qualify	1, 4
		Naphthalene		62 J	62 J	qualify	1
		2-Methylnaphthalene		98 J	98 J	qualify	1, 5
		Acenaphthylene		51 J	51 J	qualify	1
		Acenaphthene		15 J	15 J	qualify	1
		Dibenzofuran		18 J	18 J	qualify	1
		Fluorene		15 J	15 J	qualify	1
		N-Nitrosodiphenylamine		35 J	35 J	qualify	1

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 7001-2807AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA7-2	Phenanthrene		230 J	230 J	qualify	1
	(cont'd.)	Anthracene		57 J	57 J	qualify	1
		Fluoranthene		260 J	260 J	qualify	1
		Pyrene		400	400 J	qualify	3
		Benzo(a)anthracene		190 J	190 J	qualify	1
		Chrysene		260 J	260 J	qualify	1
		bis(2-ethylhexyl)phthalate		310 J	310 J	qualify	3
		Benzo(b)fluoranthene		210 J	210 J	qualify	1
		Benzo(k)fluoranthene		200 J	200 J	qualify	1
		Benzo(a)pyrene		220 J	220 J	qualify	1
		Indeno(1,2,3-cd)pyrene		34 J	34 J	qualify	1, 2
		Benzo(g,h,i)perylene		26 J	26 J	qualify	1, 2
		Benzyl alcohol		360 U	360 UJ	qualify	3
		ALL OTHER TARGET PHENOLICS		U	UJ	qualify	4
	GLA7-3	Phenol		4 J	4 J	qualify	1
		4-Methylphenol		8 J	8 J	qualify	1
		Benzoic acid		36 J	36 J	qualify	1
		Naphthalene		230 J	230 J	qualify	1
		2-Methylnaphthalene		320 J	320 J	qualify	1, 5
		Acenaphthylene		66 J	66 J	qualify	1
		Acenaphthene		51 J	51 J	qualify	1
		Dibenzofuran		68 J	68 J	qualify	1
		Fluorene		54 J	54 J	qualify	1
		Phenanthrene		900	900	qualify	1
		Anthracene		290 J	290 J	qualify	1
		Carbazole		44 J	44 J	qualify	1
		Fluoranthene		1700	1700 J	qualify	5
		Pyrene		1800	1800 J	qualify	3
		Benzo(a)anthracene		1300	1300		
		Chrysene		1400	1400		
		Benzo(b)fluoranthene		1300	1300		
		Benzo(k)fluoranthene		1200	1200		
		Benzo(a)pyrene		1200	1200		
		Indeno(1,2,3-cd)pyrene		140 J	140 J	qualify	1, 2
		Dibenzo(a,h)anthracene		51 J	51 J	qualify	1, 2
		Benzo(g,h,i)perylene		100 J	100 J	qualify	1, 2
		Benzyl alcohol		350 U	350 UJ	qualify	3
		bis(2-ethylhexyl)phthalate		350 U	350 UJ	qualify	3
		ALL OTHER TARGET PHENOLICS		U	UJ	qualify	4
	GLA7-4	Naphthalene		48 J	48 J	qualify	1
		2-Methylnaphthalene		65 J	65 J	qualify	1, 5
		Acenaphthylene		60 J	60 J	qualify	1
		Acenaphthene		7 J	7 J	qualify	1
		Dibenzofuran		13 J	13 J	qualify	1
		Phenanthrene		130 J	130 J	qualify	1
		Anthracene		46 J	46 J	qualify	1
		Fluoranthene		220 J	220 J	qualify	1, 5
		Pyrene		330 J	330 J	qualify	1
		Benzo(a)anthracene		170 J	170 J	qualify	1
		Chrysene		230 J	230 J	qualify	1
		bis(2-ethylhexyl)phthalate		72 J	72 J	qualify	1
		Benzo(b)fluoranthene		140 J	140 J	qualify	1
		Benzo(k)fluoranthene		180 J	180 J	qualify	1

VHB-2807A-htsv

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 7001-2807AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA7-7S	Fluoranthene		290 J	290 J	qualify	1, 5
	(cont'd.)	Pyrene		340 J	340 J	qualify	1
		Benzo(a)anthracene		190 J	190 J	qualify	1
		Chrysene		230 J	230 J	qualify	1
		Benzo(b)fluoranthene		140 J	140 J	qualify	1
		Benzo(k)fluoranthene		190 J	190 J	qualify	1
		Benzo(a)pyrene		180 J	180 J	qualify	1
		Indeno(1,2,3-cd)pyrene		46 J	46 J	qualify	1, 2
		Dibenzo(a,h)anthracene		20 J	20 J	qualify	1, 2
		Benzo(g,h,i)perylene		38 J	38 J	qualify	1, 2
		Benzyl alcohol		350 U	350 UJ	qualify	3
		bis(2-ethylhexyl)phthalate		350 U	350 UJ	qualify	3
		ALL TARGET PHENOLICS		U	UJ	qualify	4
	GLA7-8S	Benzoic acid		70 J	70 J	qualify	1
		2-Methylnaphthalene		13 J	13 J	qualify	1, 5
		Acenaphthylene		23 J	23 J	qualify	1
		Phenanthrene		38 J	38 J	qualify	1
		Anthracene		17 J	17 J	qualify	1
		Fluoranthene		76 J	76 J	qualify	1, 5
		Pyrene		100 J	100 J	qualify	1, 3
		Benzo(a)anthracene		58 J	58 J	qualify	1
		Chrysene		84 J	84 J	qualify	1
		Benzo(b)fluoranthene		72 J	72 J	qualify	1
		Benzo(k)fluoranthene		62 J	62 J	qualify	1
		Benzo(a)pyrene		70 J	70 J	qualify	1
		Indeno(1,2,3-cd)pyrene		18 J	18 J	qualify	1, 2
		Benzo(g,h,i)perylene		15 J	15 J	qualify	1, 2
		Benzyl alcohol		340 U	340 UJ	qualify	3
		bis(2-ethylhexyl)phthalate		340 U	340 UJ	qualify	3
		ALL TARGET PHENOLICS		U	UJ	qualify	4

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%. No bias direction is inferred.
- The reported phenolic compound result is qualified 'UJ' or 'J', as quantitatively estimated, because the recovery of one or more acid fraction surrogates recovered below the acceptable limit(s), but above 10%. Potential negative bias is suggested due to matrix effects.
- The reported positive value for this compound is qualified 'J', because the recovery for this compound in the associated LCS (Blank Spike) was above the laboratory-established limit. Positive bias is suggested.
- The reported result for this compound is qualified 'UJ', or 'J', because the recovery of the associated Internal Standard compound was below 50% of the response of that IS in the corresponding Continuing Calibration standard.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2807A

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
 All samples were extracted and analyzed within allowable holding times.

Note : All samples were received at 9 degrees C ; although no data qualifiers were applied, the data user is alerted to the potential for negative bias in samples maintained above the recommended range of 2 to 6 degrees C. The lab narrative indicated that the client was notified; client directed lab to proceed with sample analysis.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
11/11/01	SBLKSR	R2659	soil	di-n-butylphthalate	36 J

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
 If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
 If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
GLA7-2	246-tribromophenol	low, >10%	Qualify positive phenolics 'J'; positive bias suggested
GLA7-3	246-tribromophenol	low, >10%	
GLA7-6	246-tribromophenol	low, >10%	
GLA7-7S	246-tribromophenol	low, >10%	
GLA7-8S	246-tribromophenol	low, >10%	
GLA7-4	246-tribromophenol	low, >10%	

D. MATRIX SPIKE / DUPLICATE

Comments: No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
SBLKSR	17 of 65 compounds; see attached list	high	Qualify 'J' positives; positive bias

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
GLA7-5	perylene-d12	low	Qualify 'UJ' or 'J' associated compounds

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
10/30/01	OK	yes	
11/12/01	OK	yes	
11/13/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

<u>Sample ID</u>	<u>Compound</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>
GLA7-1A	benzo(a)pyrene	11000	10632

	<u>Ax</u>	<u>Is</u>	<u>Vt</u>	<u>Df</u>	<u>GPC</u>
Conc., ug/Kg =	3821760	40.0	500	5.0	1.0
	Ais	RRF	Vi	Ws	D
	1085488	1.138	2.0	15	0.97

3D
SOIL SEMIVOLATILE SPIKE/SPIKE DUPLICATE RECOVERY SUMMARY

Lab Name: STL/CT

Contract: _____

Lab Code: IEACT

Case No.: 2807A

SAS No.: _____

SDG No.: A2807

Matrix Spike - EPA Sample No.: SBLKSR

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	SPIKE CONCENTRATION (ug/Kg)	SPIKE % REC #	QC. LIMITS REC.
Phenol	1300	0	1600	123	48-146
bis(2-Chloroethyl) ether	1300	0	1600	123*	60-119
2-Chlorophenol	1300	0	1800	138	58-139
1,3-Dichlorobenzene	1300	0	1400	108	55-113
1,4-Dichlorobenzene	1300	0	1500	115*	54-114
Benzyl alcohol	1300	0	1700	131	58-137
1,2-Dichlorobenzene	1300	0	1600	123*	59-116
2-Methylphenol	1300	0	1300	100	50-126
bis(2-Chloroisopropyl) ether	1300	0	1600	123*	64-120
4-Methylphenol	1300	0	1400	108	51-147
N-Nitroso-di-n-propylamine	1300	0	1700	131*	61-121
Hexachloroethane	1300	0	1400	108	54-108
Nitrobenzene	1300	0	1600	123*	62-119
Isophorone	1300	0	1600	123	63-123
2-Nitrophenol	1300	0	1600	123*	64-119
2,4-Dimethylphenol	1300	0	1700	131*	57-130
Benzoic acid	4000	0	570	14	0-88
bis(2-Chloroethoxy) methane	1300	0	1400	108	64-123
2,4-Dichlorophenol	1300	0	1900	146*	67-129
1,2,4-Trichlorobenzene	1300	0	1500	115	59-115
Naphthalene	1300	0	1600	123	63-124
4-Chloroaniline	1300	0	1600	123	0-139
Hexachlorobutadiene	1300	0	1400	108	54-124
4-Chloro-3-methylphenol	1300	0	1800	138*	62-136
2-Methylnaphthalene	1300	0	1700	131*	56-120
Hexachlorocyclopentadiene	1300	0	430	33	20-114
2,4,6-Trichlorophenol	1300	0	1600	123	64-129
2,4,5-Trichlorophenol	1300	0	1200	92	52-119
2-Chloronaphthalene	1300	0	1900	146*	70-138
2-Nitroaniline	1300	0	1800	138	59-140

Column to be used to flag recovery with an asterisk

* Values outside of QC limits.

Spike Recovery: 817 out of 65 outside limits

COMMENTS:

[Signature] 11-24-11

FORM III SV-2

0000020

3D
SOIL SEMIVOLATILE SPIKE/SPIKE DUPLICATE RECOVERY SUMMARY

Lab Name: STL/CT

Contract: _____

Lab Code: IEACT

Case No.: 2807A

SAS No.: _____

SDG No.: A2807

Matrix Spike - EPA Sample No.: SBLKSR

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	SPIKE CONCENTRATION (ug/Kg)	SPIKE % REC #	QC. LIMITS REC.
Dimethylphthalate	1300	0	1700	131	62-139
Acenaphthylene	1300	0	1500	115	57-127
2,6-Dinitrotoluene	1300	0	1700	131	58-146
3-Nitroaniline	1300	0	1700	131	24-172
Acenaphthene	1300	0	1600	123	63-131
2,4-Dinitrophenol	1300	0	1200	92	8-220
4-Nitrophenol	1300	0	2200	169*	37-164
Dibenzofuran	1300	0	1700	131	58-131
2,4-Dinitrotoluene	1300	0	1800	138	46-146
Diethylphthalate	1300	0	1700	131	56-142
4-Chlorophenyl-phenylether	1300	0	1500	115	58-133
Fluorene	1300	0	1700	131	56-133
4-Nitroaniline	1300	0	1900	146	35-174
4,6-Dinitro-2-methylphenol	1300	0	1400	108	49-186
N-Nitrosodiphenylamine (1)	1300	0	1500	115	69-142
4-Bromophenyl-phenylether	1300	0	1600	123	63-139
Hexachlorobenzene	1300	0	1800	138*	63-134
Pentachlorophenol	1300	0	2000	154*	68-124
Phenanthrene	1300	0	1800	138	64-140
Anthracene	1300	0	1700	131	67-134
Di-n-butylphthalate	1300	36	1900	143*	70-139
Fluoranthene	1300	0	2100	162*	63-145
Pyrene	1300	0	1600	123	55-146
Butylbenzylphthalate	1300	0	1800	138	65-149
3,3'-Dichlorobenzidine	1300	0	1200	92	23-124
Benzo(a)anthracene	1300	0	1800	138	58-148
Chrysene	1300	0	1700	131	60-151
bis(2-Ethylhexyl)phthalate	1300	0	1600	123	60-146
Di-n-octylphthalate	1300	0	1700	131	66-154
Benzo(b)fluoranthene	1300	0	2000	154	37-191

Column to be used to flag recovery with an asterisk

* Values outside of QC limits.

Spike Recovery: 61.7 out of 65 outside limits

COMMENTS:

QW 11-24-11

FORM III SV-2

01000001

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2807A

A. INITIAL CALIBRATION

CALIBRATION DATE :	10/30/01
FILE IDs :	R2576 - 2580
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds) =====>	benzoic acid
SPCC Compounds	hexachlorocyclopentadiene
N-Nitroso-di-n-propylamine	2,4-dinitrophenol
Hexachlorocyclopentadiene	indeno(1,2,3-cd)pyrene
2,4-Dinitrophenol	dibenzo(a,h)anthracene
4-Nitrophenol	benzo(g,h,i)perylene
MINIMUM RRF = 0.050	

CCC Compounds
<u>Base/Neutrals</u>
Acenaphthene
1,4-Dichlorobenzene
Hexachlorobutadiene
Diphenylamine
Di-n-octylphthalate
Fluoranthene
Benzo(a)pyrene
<u>Acids</u>
4-Chloro-3-methylphenol
2,4-Dichlorophenol
2-Nitrophenol
Phenol
Pentachlorophenol
2,4,6-Trichlorophenol
MAXIMUM %RSD = 30.0%
MAXIMUM %D = 20.0%

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/12/01	11/13/01
FILE ID :	R2658	R2678
ALL RRFs > 0.05 ?	Yes	Yes
SPCC RRFs > 0.05 ?	Yes	Yes
CCC %Ds < 20% ?	Yes	Yes
All Targets < 20%D?	NO	NO
(If No, list compounds) =====>	benzyl alcohol	benzyl alcohol
	pyrene	benzoic acid
	bis(2-ethylhexyl)phthalate	hexachlorocyclopentadiene
		indeno(1,2,3-cd)pyrene
		dibenzo(a,h)anthracene
		benzo(g,h,i)perylene
		2-fluorophenol (surrogate)

ACTION : Qualify 'J' or 'JJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2807AMETHOD: SW846 / 8082LAB NAME : STL - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB. REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA7-1A	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA7-1B	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA7-2	Aroclor 1016		36 U	36 U		
		Aroclor 1221		72 U	72 U		
		Aroclor 1232		36 U	36 U		
		Aroclor 1242		36 U	36 U		
		Aroclor 1248		35 J	35 J	qualify	1, 2
		Aroclor 1254		69	69		
		Aroclor 1260		41	41		
	GLA7-3	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		42	42 J	qualify	2
		Aroclor 1254		50	50		
		Aroclor 1260		29 J	29 J	qualify	1
	GLA7-4	Aroclor 1016		35 U	35 U		
		Aroclor 1221		71 U	71 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		19 J	19 J	qualify	1
		Aroclor 1260		17 J	17 J	qualify	1
	GLA7-5	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		43	43 J	qualify	2
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		46	46 NJ	qualify	3
		Aroclor 1260		30 J	30 J	qualify	1
	GLA7-6	Aroclor 1016		35 U	35 U		
		Aroclor 1221		71 U	71 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		12 J	35 U	qualify	4

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2807AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA7-7S	Aroclor 1016		35 U	35 U		
		Aroclor 1221		72 U	72 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		11 J	35 U	qualify	4
	GLA7-8S	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		30 J	30 J	qualify	1

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported result is qualified 'J', as quantitatively estimated, because the %D between analytical columns exceeded 25%, but was below 70%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.
- 3 The reported result is qualified 'NJ', as quantitatively estimated, because the %D between analytical columns exceeded 100%, but was below 200%. The Aroclor pattern was confirmed, but peak interference was detected, and the lower value from the analytical columns was reported. This qualifier is taken from Sect. 12.6 of EPA Region II, SOP HW-23B, Rev. 1.0.
- 4 The reported result is qualified 'U', and raised to the PQL, because the %D between analytical columns exceeded 50%, and the reported value was below the analyte's PQL. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory

Project No.: 7001-2807A

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP : 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	PBL51
Extraction Date:	11/06/01
Analyte	Conc. ug/Kg
none found	
AFFECTS:	All

No target compounds present in blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Compound</u>	<u>Bias</u>	<u>Action</u>
GLA7-1A	DCB	high	No positive Aroclors identified; no action necessary
GLA7-2A	DCB	high	No positive Aroclors identified; no action necessary

D. MATRIX SPIKE / DUPLICATE

Comments: No matrix spike / duplicate were performed; only a Blank Spike was run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (PBLK51 QC2)

All reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 7001-2807ALaboratory: STL - Buffalo**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 11/01/01

Verification of ICAL Results

<u>Aroclor 1260</u>	<u>DB-1701</u>		
<u>Peak 1, RT = 18.31</u>	<u>Response</u>	<u>Cal Factor, Calc'd.</u>	<u>CF, reported</u>
0.05	157024	3140480	3140480
0.1	316803	3168030	3168030
0.2	601750	3008750	3008750
0.4	1164323	2910808	2910808
0.8	2158155	2697694	2697694
Average		2985152	2985152
Calc'd. %RSD =	6.41		
Reported %RSD =	6.4		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/16/01	11/16/01
FILE ID :	C513377	C5133392
All Targets < 15% D?	Yes	Yes
(If No, list compounds) ==>		

QA ACTION : None necessary; %Ds for all CCAL peaks were below 15%.**C. SAMPLE RESULT VERIFICATION**

SAMPLE ID: GLA7-2
 COMPOUND: Aroclor-1254
 REPORTED VALUE: 69 ug/Kg DB-1701

<u>Peak RT</u>	<u>CF</u>	<u>Peak Area</u>	<u>conc., ng</u>
10.54	1613450	425055	0.2634
12.85	3792700	555537	0.1465
15.97	3560740	604324	0.1697
Average conc. =			0.1932

ug/Kg =

<u>ng average conc.</u>	<u>extract, uL</u>	<u>Dilution factor</u>
0.1932	10000	1.0
30.3	1.0	0.92
wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg =

69.3

Comments: The laboratory reported the highest of the two values between analytical columns, per SW-846 protocol. However, the laboratory did not use all 5 calibration peaks for quantitation, but used 3, which is the minimum allowable number of peaks. Chromatographic evaluation revealed that the 3rd and 5th peaks used in calibration were present on each column, and were within established RT windows. These peaks were added by the reviewer in verifying the reported Aroclor value; the result using all 5 peaks was 1.5x the reported value.

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 7001-2807A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-1A	Aluminum		6460	6460		
		Antimony		0.81 UN	0.81 UJ	qualify	4
		Arsenic		3.2	3.2 J	qualify	6
		Barium	0.134	44.3	44.3		
		Beryllium		0.51 B	0.51 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium		3490	3490		
		Chromium		10.4	10.4		
		Cobalt		3.2 B	3.2 J	qualify	1
		Copper		10.0	10.0		
		Iron		9390 *	9390		
		Lead		20.5 *	20.5		
		Magnesium		2100	2100		
		Manganese		204	204		
		Mercury		0.051	0.051		
		Nickel		7.2	7.2 J	qualify	4, 5
		Potassium		494 B	494 J	qualify	1, 7
		Selenium		0.87 U	0.87 U		
		Silver		0.18 U	0.18 U		
		Sodium	9.094	74.1 B	74.1 J	qualify	1
		Thallium		3.3 U	3.3 U		
		Vanadium		14.6	14.6		
		Zinc	0.936	33.1	33.1 J	qualify	7
		Cyanide		Not analyzed			
	GLA7-1B	Aluminum		7160	7160		
		Antimony		0.81 UN	0.81 UJ	qualify	4
		Arsenic		2.9	2.9 J	qualify	6
		Barium	0.134	46.0	46.0		
		Beryllium		0.52 B	0.52 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium		13400	13400		
		Chromium		10.4	10.4		
		Cobalt		3.5 B	3.5 J	qualify	1
		Copper		11.0	11.0		
		Iron		10100 *	10100		
		Lead		24.4 *	24.4		
		Magnesium		3060	3060		
		Manganese		222	222		
		Mercury		0.046	0.046		
		Nickel		8.3	8.3 J	qualify	4, 5
		Potassium		554 B	554 J	qualify	1, 7
		Selenium		0.86 U	0.86 U		
		Silver		0.18 U	0.18 U		
		Sodium	9.094	94.2 B	94.2 J	qualify	1
		Thallium		3.3 U	3.3 U		
		Vanadium		15.6	15.6		
		Zinc	0.936	39.4	39.4 J	qualify	7
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2807A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-2	Aluminum		6090	6090		
		Antimony		0.88 UN	0.88 UJ	qualify	4
		Arsenic		5.5	5.5 J	qualify	6
		Barium	0.134	42.1	42.1		
		Beryllium		0.62 B	0.62 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium		5900	5900		
		Chromium		15.0	15.0		
		Cobalt		5.4 B	5.4 J	qualify	1
		Copper		76.4	76.4		
		Iron		12200 *	12200		
		Lead		43.8 *	43.8		
		Magnesium		1680	1680		
		Manganese		202	202		
		Mercury		0.17	0.17		
		Nickel		71.4	71.4 J	qualify	4, 5
		Potassium		743 B	743 J	qualify	1, 7
		Selenium		0.94 U	0.94 U		
		Silver		0.19 U	0.19 U		
		Sodium	9.094	70.9 B	70.9 J	qualify	1
		Thallium		3.5 U	3.5 U		
		Vanadium		373	373		
		Zinc	0.936	55.7	55.7 J	qualify	7
		Cyanide		Not analyzed			
	GLA7-3	Aluminum		3520	3520		
		Antimony		0.87 UN	0.87 UJ	qualify	4
		Arsenic		3.4	3.4 J	qualify	6
		Barium	0.134	28.6 B	28.6 J	qualify	1
		Beryllium		0.43 B	0.43 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium		3530	3530		
		Chromium		9.5	9.5		
		Cobalt		4.6 B	4.6 J	qualify	1
		Copper		46.7	46.7		
		Iron		7790 *	7790		
		Lead		24.6 *	24.6		
		Magnesium		1440	1440		
		Manganese		128	128		
		Mercury		0.12	0.12		
		Nickel		86.9	86.9 J	qualify	4, 5
		Potassium		498 B	498 J	qualify	1, 7
		Selenium		1.2	1.2		
		Silver		0.19 U	0.19 U		
		Sodium	9.094	61.9 B	61.9 J	qualify	1
		Thallium		3.5 U	3.5 U		
		Vanadium		202	202		
		Zinc	0.936	31.1	31.1 J	qualify	7
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 7001-2807A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-4	Aluminum		4440	4440		
		Antimony		0.90 UN	0.90 UJ	qualify	4
		Arsenic		3.7	3.7 J	qualify	6
		Barium	0.134	24.6 B	24.6 J	qualify	1
		Beryllium		0.59 B	0.59 J	qualify	1
		Cadmium		0.16 U	0.16 U		
		Calcium		1290	1290		
		Chromium		10.8	10.8		
		Cobalt		4.1 B	4.1 J	qualify	1
		Copper		15.6	15.6		
		Iron		10000 *	10000		
		Lead		49.4 *	49.4		
		Magnesium		1370	1370		
		Manganese		148	148		
		Mercury		0.39	0.39		
		Nickel		45.2	45.2 J	qualify	4, 5
		Potassium		517 B	517 J	qualify	1, 7
		Selenium		0.96 U	0.96 U		
		Silver		0.20 U	0.20 U		
		Sodium	9.094	41.7 B	41.7 J	qualify	1
		Thallium		3.6 U	3.6 U		
		Vanadium		235	235		
		Zinc	0.936	56.3	56.3 J	qualify	7
		Cyanide		Not analyzed			
	GLA7-5	Aluminum		3170	3170		
		Antimony		0.75 UN	0.75 UJ	qualify	4
		Arsenic		3.3	3.3 J	qualify	6
		Barium	0.134	23.7 B	23.7 J	qualify	1
		Beryllium		0.35 B	0.35 J	qualify	1
		Cadmium		0.13 U	0.13 U		
		Calcium		7000	7000		
		Chromium		130	130		
		Cobalt		2.3 B	2.3 J	qualify	1
		Copper		12.8	12.8		
		Iron		11900 *	11900		
		Lead		95.2 *	95.2		
		Magnesium		3940	3940		
		Manganese		155	155		
		Mercury		0.13	0.13		
		Nickel		9.0	9.0 J	qualify	4, 5
		Potassium		395 B	395 J	qualify	1, 7
		Selenium		0.80 U	0.80 U		
		Silver		0.16 U	0.16 U		
		Sodium	9.094	36.1 B	36.1 J	qualify	1
		Thallium		3.0 U	3.0 U		
		Vanadium		18.0	18.0		
		Zinc	0.936	69.3	69.3 J	qualify	7
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2807AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-6	Aluminum		7200	7200		
		Antimony		0.95 UN	0.95 UJ	qualify	4
		Arsenic		3.1	3.1 J	qualify	6
		Barium	0.134	29.6 B	29.6 J	qualify	1
		Beryllium		0.62 B	0.62 J	qualify	1
		Cadmium		0.16 U	0.16 U		
		Calcium		2250	2250		
		Chromium		10.5	10.5		
		Cobalt		4.7 B	4.7 J	qualify	1
		Copper		30.2	30.2		
		Iron		13300 *	13300		
		Lead		35.4 *	35.4		
		Magnesium		1850	1850		
		Manganese		173	173		
		Mercury		0.047	0.047		
		Nickel		11.3	11.3 J	qualify	4, 5
		Potassium		820 B	820 J	qualify	1, 7
		Selenium		1.0 U	1.0 U		
		Silver		0.21 U	0.21 U		
		Sodium	9.094	63.8 B	63.8 J	qualify	1
		Thallium		3.8 U	3.8 U		
		Vanadium		35.5	35.5		
		Zinc	0.936	44.6	44.6 J	qualify	7
		Cyanide		Not analyzed			
	GLA7-7S	Aluminum		5600	5600		
		Antimony		0.79 UN	0.79 UJ	qualify	4
		Arsenic		3.9	3.9 J	qualify	6
		Barium	0.134	34.2 B	34.2 J	qualify	1
		Beryllium		0.47 B	0.47 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium		8040	8040		
		Chromium		8.9	8.9		
		Cobalt		3.4 B	3.4 J	qualify	1
		Copper		27.2	27.2		
		Iron		11200 *	11200		
		Lead		28.4 *	28.4		
		Magnesium		2680	2680		
		Manganese		153	153		
		Mercury		0.64	0.64		
		Nickel		10.7	10.7 J	qualify	4, 5
		Potassium		735 B	735 J	qualify	1, 7
		Selenium		0.84 U	0.84 U		
		Silver		0.17 U	0.17 U		
		Sodium	9.094	196 B	196 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		35.9	35.9		
		Zinc	0.936	48.1	48.1 J	qualify	7
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 7001-2807A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-8S	Aluminum		5540	5540		
		Antimony		0.75 UN	0.75 UJ	qualify	4
		Arsenic		4.8	4.8 J	qualify	6
		Barium	0.134	41.3	41.3		
		Beryllium		0.57 B	0.57 J	qualify	1
		Cadmium		0.13 U	0.13 U		
		Calcium		1010	1010		
		Chromium		12.8	12.8		
		Cobalt		4.1 B	4.1 J	qualify	1
		Copper		36.4	36.4		
		Iron		10200 *	10200		
		Lead		51.8 *	51.8		
		Magnesium		1110	1110		
		Manganese		157	157		
		Mercury		0.10	0.10		
		Nickel		40.6	40.6 J	qualify	4, 5
		Potassium		609 B	609 J	qualify	1, 7
		Selenium		0.96	0.96		
		Silver		0.16 U	0.16 U		
		Sodium	9.094	47.6 B	47.6 J	qualify	1
		Thallium		3.0 U	3.0 U		
		Vanadium		139	139		
		Zinc	0.936	54.2	54.2 J	qualify	7
		Cyanide		Not analyzed			

FOOTNOTES

- The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value. No bias direction is inferred.
- NOT USED FOR THIS SDG
- NOT USED FOR THIS SDG
- The reported value for this analyte was qualified 'UJ' or 'J', because the matrix spike recovery was below the lower limit of 75%. Potential negative bias is suggested.
- The reported value for this analyte was qualified 'UJ' or 'J', because the matrix spike recovery was below the lower limit of 75%, and no Post-Digestion Spike was analyzed to verify matrix effects.
- The reported value for this analyte was qualified 'UJ' or 'J', because the absolute difference between sample and duplicate results exceeded the CRDL value, and one or both results were below 5x CRDL. No bias direction is inferred.
- The reported positive value for this analyte was qualified 'J', because the associated Serial Dilution standard precision exceeded 10.0%D, while the sample concentration was above 10x analyte IDL.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL-CTLab Project No. : 7001-2807A**A. CALIBRATION**

ICP Analytes

ICV	90% - 110% recovery	Outliers ?	none
CCV	90% - 110% recovery	Co	89.6%

Comments: The Co recovery in the closing CCV was below 90%; however, all SDG sample analyses were bracketed by acceptable CCVs. No data qualifiers were applied.

B. CRDL STANDARD

80 - 120% recovery

Outliers ?

Pb	CRI 1, 120.2%
Tl	CRI 1, 79.6%

QA Action : Qualify 'UJ' or 'J' Pb values up to nominal 2.4 mg/Kg, with negative bias suggested for qualified values.

QA Action : Qualify 'J' positive Tl values up to nominal 8.0 mg/Kg, with positive bias suggested for qualified values.

Affects : GLA7- 1A, 1B, 2 and 3.

C. BLANKS

ICB / CCB < CRDL
 Prep Blank < CRDL

Outliers ?

none
 none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

ICSA Response < 2x CRDL for trace metals
 ICSAB 80 - 120% recovery

Outliers ?

none
 none

E. MATRIX SPIKE (GLA7-3)

75 - 125% recovery (if sample conc. < 4x spike conc.)

Outliers ?

Sb 64%
 Ni 52%

QA Action : Qualify Sb & Ni values 'UJ' or 'J', with negative bias suggested. Affects all SDG samples.

Comments: Ni was not 'N' qualified by the lab; however, the sample was <4x spike concentration and therefore should have been qualified.

F. POST-DIGESTION SPIKE (GLA7-3)

75 - 125% recovery; PDS conc. should be 2x CRDL or
 2x sample conc., whichever is >.

Outliers ?

Comments: Sb native sample was non-detect, PDS conc. should be 120 ppb. PDS concentration used was 500 ppb. Also, no PDS run for Ni.

G. MATRIX DUPLICATE (GLA7-3)

Max. 100% RPD for non-aqueous samples > 5x CRDL
 Max. (+/-) CRDL value if either sample < 5x CRDL

Outliers ?

As > 1.8

QA Action : Qualify As values 'UJ' or 'J' ; no bias direction inferred.

H. LABORATORY CONTROL SAMPLE

Recovery within control limits for non-aqueous samples
 Recovery between 80 - 120% for aqueous samples

Outliers ?

none
 n/a

I. SERIAL DILUTION SAMPLE

Maximum 10.0% D if undiluted sample > 10x IDL

Outliers ?

K 12%
 Zn 27%

QA Action : Qualify 'J' positive K & Zn results > 10x IDL values.

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

Instrument Detection Limits Quarterly
 Interelement Correction Factors Annually
 Linear Range Analysis Quarterly

Outliers ?

none
 none
 none

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- CTLab Project No. : 7001-2807A

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ?

Yes

If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ?

Yes

If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ?

Yes

If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ?

Yes

If No, list affected analytes and samples, and QA action : _____

Note: % solids values below were taken from the raw data, and are within a reasonable error band. % Solids data taken from PCB Prep Log. _____

5. Show calculation for % Solids for one sample.

Sample ID: GLA7-2 (2807A-03) Lab value : 91.9 %

Dry weight : <u>9.58</u> gm	%	Solids = <u>Dry weight</u>	x 100			
Wet weight : <u>10.40</u> gm		Wet weight		=	<u>92.1</u>	%

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLA7-2 Analyte : As Lab value : 5.5 mg/Kg% Solids : 92.1Raw value 0.0288 mg/LFinal volume 200 mLWet weight 1.14 gmmg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (mL)}}{\text{wet wgt} \times (\% \text{Sol}/100)}$

wet wgt x (%Sol/100) =

5.49

mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ?

n/a

If No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 07, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 7001-2818A

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA2-5	012818A-01	SOIL	11/15/01	X	X	X
GLA2-5S	012818A-02	SOIL	11/15/01	X	X	X
GLA2-6	012818A-03	SOIL	11/15/01	X	X	X
GLA2-6S	012818A-04	SOIL	11/15/01	X	X	X
GLA2-3	012818A-05	SOIL	11/15/01	X	X	X
GLA2-7	012818A-06	SOIL	11/15/01	X	X	X
GLA2-3S	012818A-07	SOIL	11/15/01	X	X	X
GLA6-1	012818A-08	SOIL	11/15/01	X	X	X
GLA6-2	012818A-09	SOIL	11/15/01	X	X	X

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.


Other Issues

It is noted that no matrix spike or matrix spike duplicates were reported for the organic fractions; therefore no assessment could be made of potential sample matrix effects on the reported results for the semi-volatile and PCB fractions. Further, the reported metals MS/MD were not from this SDG, and are therefore likely not representative of this SDG's matrix characteristics. No assessment of potential matrix effects could be made; no data qualifiers were assigned.

Several samples exhibited pattern / peak RT matches for multiple Aroclor compounds. The data user is alerted that accurate representation of total Aroclors may be impacted when this situation occurs, since the analyst must choose peaks for quantitation which may be shared by one or more Aroclor compounds, or eliminate peaks in the quantitations which are shared.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-2818A

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2818AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA2-5	Benzyl alcohol		330 U	330 UJ	qualify	3
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	4
	GLA2-5S	2,4-Dimethylphenol		16 J	16 J	qualify	1
		Naphthalene		14 J	14 J	qualify	1
		2-Methylnaphthalene		10 J	10 J	qualify	1
		Acenaphthylene		110 J	110 J	qualify	1
		Acenaphthene		6 J	6 J	qualify	1
		Fluorene		17 J	17 J	qualify	1
		Phenanthrene		180 J	180 J	qualify	1
		Anthracene		46 J	46 J	qualify	1
		Carbazole		4 J	4 J	qualify	1
		Fluoranthene		120 J	120 J	qualify	1
		Pyrene		270 J	270 J	qualify	1
		Benzo(a)anthracene		72 J	72 J	qualify	1
		Chrysene		100 J	100 J	qualify	1
		bis(2-ethylhexyl)phthalate		26 J	26 J	qualify	1, 5
		Benzo(b)fluoranthene		65 J	65 J	qualify	1
		Benzo(k)fluoranthene		77 J	77 J	qualify	1
		Benzo(a)pyrene		67 J	67 J	qualify	1
		Indeno(1,2,3-cd)pyrene		92 J	92 J	qualify	1, 2
		Dibenzo(a,h)anthracene		28 J	28 J	qualify	1, 2
		Benzo(g,h,i)perylene		130 J	130 J	qualify	1, 2
		Benzyl alcohol		340 U	340 UJ	qualify	3
		Hexachlorocyclopentadiene		340 U	340 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	4
	GLA2-6	Benzyl alcohol		330 U	330 UJ	qualify	3
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	4
	GLA2-6S	2,4-Dimethylphenol		21 J	21 J	qualify	1
		Benzoic acid		110 J	110 J	qualify	1
		Naphthalene		14 J	14 J	qualify	1
		2-Methylnaphthalene		23 J	23 J	qualify	1
		Acenaphthylene		63 J	63 J	qualify	1
		Dibenzofuran		6 J	6 J	qualify	1
		Phenanthrene		61 J	61 J	qualify	1
		Anthracene		27 J	27 J	qualify	1
		Carbazole		6 J	6 J	qualify	1
		Fluoranthene		68 J	68 J	qualify	1
		Pyrene		110 J	110 J	qualify	1
		Butylbenzylphthalate		8 J	8 J	qualify	1, 5
		Benzo(a)anthracene		42 J	42 J	qualify	1
		Chrysene		56 J	56 J	qualify	1
		Benzo(b)fluoranthene		40 J	40 J	qualify	1
		Benzo(k)fluoranthene		36 J	36 J	qualify	1
		Benzo(a)pyrene		42 J	42 J	qualify	1
		Indeno(1,2,3-cd)pyrene		40 J	40 J	qualify	1, 2
		Benzo(g,h,i)perylene		37 J	37 J	qualify	1, 2
		Benzyl alcohol		340 U	340 UJ	qualify	3
		Hexachlorocyclopentadiene		340 U	340 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	4

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 7001-2818AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA2-3	Acenaphthylene		11 J	11 J	qualify	1
		Pyrene		9 J	9 J	qualify	1
		Benzyl alcohol		330 U	330 UJ	qualify	3
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	4
	GLA2-7	Benzyl alcohol		320 U	320 UJ	qualify	3
		Hexachlorocyclopentadiene		320 U	320 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		1500 U	1500 UJ	qualify	4
	GLA2-3S	2,4-Dimethylphenol		42 J	42 J	qualify	1
		Benzoic acid		32 J	32 J	qualify	1
		2-Methylnaphthalene		9 J	9 J	qualify	1
		Acenaphthylene		75 J	75 J	qualify	1
		Phenanthrene		54 J	54 J	qualify	1
		Anthracene		30 J	30 J	qualify	1
		Fluoranthene		55 J	55 J	qualify	1
		Pyrene		130 J	130 J	qualify	1
		Benzo(a)anthracene		42 J	42 J	qualify	1
		Chrysene		58 J	58 J	qualify	1
		Benzo(b)fluoranthene		37 J	37 J	qualify	1
		Benzo(k)fluoranthene		41 J	41 J	qualify	1
		Benzo(a)pyrene		43 J	43 J	qualify	1
		Indeno(1,2,3-cd)pyrene		56 J	56 J	qualify	1, 2
		Dibenzo(a,h)anthracene		18 J	18 J	qualify	1, 2
		Benzo(g,h,i)perylene		68 J	68 J	qualify	1, 2
		Benzyl alcohol		320 U	320 UJ	qualify	3
		Hexachlorocyclopentadiene		320 U	320 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		1500 U	1500 UJ	qualify	4
	GLA6-1	Phenanthrene		10 J	10 J	qualify	1
		Fluoranthene		22 J	22 J	qualify	1
		Pyrene		16 J	16 J	qualify	1
		Chrysene		12 J	12 J	qualify	1
		Benzo(b)fluoranthene		8 J	8 J	qualify	1
		Benzo(k)fluoranthene		8 J	8 J	qualify	1
		Benzo(a)pyrene		5 J	5 J	qualify	1
		Benzyl alcohol		330 U	330 UJ	qualify	3
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	4
	GLA6-2	Fluoranthene		10 J	10 J	qualify	1
		Pyrene		8 J	8 J	qualify	1
		Benzo(a)anthracene		5 J	5 J	qualify	1
		Chrysene		7 J	7 J	qualify	1
		Benzo(b)fluoranthene		5 J	5 J	qualify	1
		Benzo(k)fluoranthene		6 J	6 J	qualify	1
		Benzyl alcohol		340 U	340 UJ	qualify	3
		Hexachlorocyclopentadiene		340 U	340 UJ	qualify	3
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	4

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICSSITE NAME : GLENWOODSDG No.: 7001-2818AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-AqueousFOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- 3 The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%. No bias direction is inferred.
- 4 The reported value for this compound is qualified 'UJ' or 'J', because the recovery for this compound in the associated LCS (Blank Spike) was below the laboratory-established lower limit. Negative bias is suggested.
- 5 The reported value is qualified because although it was not found in the associated extraction (method) blank, it is a common laboratory contaminant, and may not be present in the native sample. The data user is alerted to potential positive bias.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2818A

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
 All samples were extracted and analyzed within allowable holding times.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
11/19/01	SBLKIQ	Q4056	soil	diethylphthalate	30 J

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
 If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
 If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
GLA2-6	2-fluorophenol	high	Qualify positive phenolics 'J'; positive bias suggested
GLA2-7	2-fluorophenol	high	

D. MATRIX SPIKE / DUPLICATE

Comments: No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
SBLKIQ	benzyl alcohol	high	Qualify 'J' positives; positive bias
	4,6-diNO ₂ -2Mephenol	low	Qualify 'UJ' or 'J'; negative bias

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
All IS recoveries & RTs were within acceptable limits			

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
11/13/01	OK	yes	
11/20/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

<u>Sample ID</u>	<u>Compound</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>
GLA2-5S	benzo(ghi)perylene	130 J	127.5

	<u>Ax</u>	<u>Is</u>	<u>Vt</u>	<u>Df</u>	<u>GPC</u>
Conc., ug/Kg =	140763	40.0	500	1.0	1.0
	<u>Ais</u>	<u>RRF</u>	<u>Vi</u>	<u>Ws</u>	<u>D</u>
	570191	1.341	2.0	15.2	0.95

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2818A

A. INITIAL CALIBRATION

CALIBRATION DATE :	11/13/01
FILE IDs :	Q3984 - 3988
ALL RRFs > 0.05 ?	Yes
SPCC RRFs >0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds) ----->	2,4-dinitrophenol
SPCC Compounds	indeno(123cd)pyrene
N-Nitroso-di-n-propylamine	dibenzo(ah)anthracene
Hexachlorocyclopentadiene	benzo(ghi)perylene
2,4-Dinitrophenol	
4-Nitrophenol	
MINIMUM RRF = 0.050	
CCC Compounds	
<u>Base/Neutrals</u>	
Acenaphthene	
1,4-Dichlorobenzene	
Hexachlorobutadiene	
Diphenylamine	
Di-n-octylphthalate	
Fluoranthene	
Benzo(a)pyrene	
<u>Acids</u>	
4-Chloro-3-methylphenol	
2,4-Dichlorophenol	
2-Nitrophenol	
Phenol	
Pentachlorophenol	
2,4,6-Trichlorophenol	
MAXIMUM %RSD = 30.0%	
MAXIMUM %D = 20.0%	

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/20/01
FILE ID :	R2757
ALL RRFs > 0.05 ?	Yes
SPCC RRFs >0.05 ?	Yes
CCC %Ds < 20% ?	Yes
All Targets < 20%D?	NO
(If No, list compounds) ----->	benzyl alcohol
	hexachlorocyclopentadiene

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2818AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA2-5	Aroclor 1016		34 U	34 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		3.3 J	3.3 JN	qualify	1, 2, 3
	GLA2-5S (@ 2x dilution)	Aroclor 1016		68 U	68 U		
		Aroclor 1221		140 U	140 U		
		Aroclor 1232		68 U	68 U		
		Aroclor 1242		68 U	68 U		
		Aroclor 1248		380	380 J	qualify	6
		Aroclor 1254		610 E	610 NJ	qualify	4, 5
		Aroclor 1260		280	280 J	qualify	2
	GLA2-6	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 UJ	qualify	2
	GLA2-6S	Aroclor 1016		33 U	33 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		33 U	33 U		
		Aroclor 1242		33 U	33 U		
		Aroclor 1248		67	67		
		Aroclor 1254		96	96 J	qualify	6
		Aroclor 1260		96	96 J	qualify	2
	GLA2-3	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		230	230 J	qualify	7
		Aroclor 1254		99	99		
		Aroclor 1260		68	68 J	qualify	2
	GLA2-7	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		24 J	24 J	qualify	1
		Aroclor 1254		21 J	21 J	qualify	1
		Aroclor 1260		12 J	12 J	qualify	1, 2
	GLA2-3S	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		180	180		
		Aroclor 1254		230	230		
		Aroclor 1260		170	170 J	qualify	2

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2818AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA6-1	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		1.9 J	1.9 J	qualify	1, 2, 6
	GLA6-2	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		1.8 J	1.8 J	qualify	1, 2

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported result is qualified 'JN' as presumptively present, at estimated concentration, because the result was not confirmed by secondary column analysis.
- 3 The reported result for this analyte is qualified 'UJ' or 'J', because the % Difference for one or more calibration peaks in the associated Continuing Calibration standard exceeded the method limit of 15.0%.
- 4 The reported result is qualified 'J', as quantitatively estimated, because the result was above the analyte's calibration range, and the sample extract was not re-analyzed at dilution.
- 5 The reported result is qualified 'NJ', as quantitatively estimated, because the %D between analytical columns exceeded 70%, but was below 100%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.
- 6 The reported result is qualified 'J', as quantitatively estimated, because the %D between analytical columns exceeded 25%, but was below 70%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.
- 7 The reported result is qualified 'J', as quantitatively estimated, because the %D between analytical columns exceeded 100%. Retention times were within acceptable windows. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory
Project No.: 7001-2818A

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	D1142036
Extraction Date:	11/19/01
Analyte	Conc. ug/Kg
none found	
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Comments: No matrix spike / duplicate were performed, only a Blank Spike was run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (PBLK69QC2)

All reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc. Project: Glenwood Laboratory
Project No.: 7001-2818A
Laboratory: STL - Buffalo

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 11/14/01 Verification of ICAL Results

<u>Aroclor 1260</u>	<u>DB-1701</u>		
<u>Peak 1, RT = 21.42</u>	<u>Response</u>	<u>Cal Factor, Calc'd.</u>	<u>CF, reported</u>
0.05	93885	1877700	1877700
0.1	169066	1690660	1690660
0.2	340601	1703005	1703005
0.4	691366	1728415	1728415
0.8	1342748	1678435	1678435
Average		1735643	1735643
Calc'd. %RSD =	4.70		
Reported %RSD =	4.7		

Comments: Two peaks in Aroclor-1016 on the RTX-35 ICAL exhibited %RSD >20.0%; these peaks were calibrated using linear regression, which is an acceptable alternative under SW-846, w/ Cv >0.99.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/21/01	11/21/21
FILE ID :	C4114139	C4114158
All Targets < 15% D?	NO	NO
(If No, list compounds) ==>	Aroclor-1260	Aroclor-1260

QA ACTION : Qualify Aroclor-1260 results 'UJ' or 'J' in all SDG samples.

C. SAMPLE RESULT VERIFICATION

SAMPLE ID: GLA2-5S
COMPOUND: Aroclor-1260
REPORTED VALUE: 280 ug/Kg column = DB-1701

<u>Peak RT</u>	<u>CF</u>	<u>Peak Area</u>	<u>conc., ng</u>
21.39	1735643	682146	0.3930
22.21	360942	169412	0.4694
22.36	1289464	486647	0.3774
		Average conc. =	0.4133

ug/Kg =	ng average conc.	extract, uL	Dilution factor
	0.4133	10000	2.0
	30.6	1.0	0.95
	wet wgt., gm	inject.vol, uL	%sol/100
ug/Kg =	284.3		

Comments: The laboratory reported the highest of the two values between analytical columns, per SW-846 protocol. However, the laboratory did not use all 5 calibration peaks for quantitation, but used 3, which is the minimum allowable number of peaks. Chromatographic evaluation revealed that the 1st and 2nd peaks used in calibration were present on each column, and were within established RT windows. These peaks were added by the reviewer in verifying the reported Aroclor value; the result using all 5 peaks was within 1% of the reported value.

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 7001-2818A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-5	Aluminum		2440	2440		
		Antimony		0.80 UN	0.80 U		3
		Arsenic		0.81 B	0.81 J	qualify	1
		Barium		16.6 B	16.6 J	qualify	1
		Beryllium		0.24 B	0.24 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	9.032	367 B	367 J	qualify	1
		Chromium		5.8	5.8		
		Cobalt		1.9 B	1.9 J	qualify	1
		Copper		4.1 B	4.1 J	qualify	1
		Iron		5950	5950		
		Lead		22.3	22.3		
		Magnesium		628 B	628 J	qualify	1
		Manganese		128	128		
		Mercury		0.013	0.013		
		Nickel		5.4 B	5.4 J	qualify	1
		Potassium		457 B	457 J	qualify	1, 2
		Selenium		0.85 U	0.85 U		
		Silver		0.17 U	0.17 U		
		Sodium	4.503	17.9 B	17.9 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		75.3	75.3		
		Zinc	0.943	14.5	14.5		
		Cyanide		Not analyzed			
	GLA2-5S	Aluminum		1190	1190		
		Antimony		0.82 UN	0.82 U		3
		Arsenic		2.8	2.8		
		Barium		17.1 B	17.1 J	qualify	1
		Beryllium		0.46 B	0.46 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	9.032	302 B	302 J	qualify	1
		Chromium		12.4	12.4		
		Cobalt		3.9 B	3.9 J	qualify	1
		Copper		96.4	96.4		
		Iron		6210	6210		
		Lead		17.0	17.0		
		Magnesium		366 B	366 J	qualify	1
		Manganese		66.9	66.9		
		Mercury		0.0092 U	0.009 U		
		Nickel		142	142		
		Potassium		210 B	210 J	qualify	1, 2
		Selenium		1.2	1.2		
		Silver		0.18 U	0.18 U		
		Sodium	4.503	59.7 B	59.7 J	qualify	1
		Thallium		3.3 U	3.3 U		
		Vanadium		463	463		
		Zinc	0.943	12.8	12.8		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : Glenwood SDG No.: 7001-2818A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-6	Aluminum		1170	1170		
		Antimony		0.73 UN	0.73 U		3
		Arsenic		0.70 U	0.70 U		
		Barium		9.9 B	9.9 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.13 U	0.13 U		
		Calcium	9.032	197 B	197 J	qualify	1
		Chromium		2.6	2.6		
		Cobalt		1.7 B	1.7 J	qualify	1
		Copper		4.7	4.7		
		Iron		4380	4380		
		Lead		2.3	2.3		
		Magnesium		324 B	324 J	qualify	1
		Manganese		155	155		
		Mercury		0.0034 U	0.0034 U		
		Nickel		2.5 B	2.5 J	qualify	1
		Potassium		179 B	179 J	qualify	1, 2
		Selenium		0.78 U	0.78 U		
		Silver		0.16 U	0.16 U		
		Sodium	4.503	12.2 B	12.2 J	qualify	1
		Thallium		3.0 U	3.0 U		
		Vanadium		55.6	55.6		
		Zinc	0.943	7.3	7.3		
		Cyanide		Not analyzed			
	GLA2-6S	Aluminum		4190	4190		
		Antimony		1.2 BN	1.2 J	qualify	1, 3
		Arsenic		3.2	3.2		
		Barium		16.8 B	16.8 J	qualify	1
		Beryllium		0.58 B	0.58 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	9.032	197 B	197 J	qualify	1
		Chromium		20.4	20.4		
		Cobalt		3.8 B	3.8 J	qualify	1
		Copper		27.2	27.2		
		Iron		8060	8060		
		Lead		124	124		
		Magnesium		949	949		
		Manganese		99.6	99.6		
		Mercury		0.095	0.095		
		Nickel		64.1	64.1		
		Potassium		456 B	456 J	qualify	1, 2
		Selenium		1.0	1.0		
		Silver		0.17 U	0.17 U		
		Sodium	4.503	43.8 B	43.8 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		348	348		
		Zinc	0.943	34.6	34.6		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 7001-2818A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-3	Aluminum		3650	3650		
		Antimony		0.89 UN	0.89 U		3
		Arsenic		1.8 B	1.8 J	qualify	1
		Barium		14.4 B	14.4 J	qualify	1
		Beryllium		0.47 B	0.47 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	9.032	558 B	558 J	qualify	1
		Chromium		8.0	8.0		
		Cobalt		2.6 B	2.6 J	qualify	1
		Copper		10	10.0		
		Iron		10100	10100		
		Lead		7.0	7.0		
		Magnesium		944 B	944 J	qualify	1
		Manganese		162	162		
		Mercury		0.0045 U	0.005 U		
		Nickel		9.7	9.7		
		Potassium		375 B	375 J	qualify	1, 2
		Selenium		0.95 U	0.95 U		
		Silver		0.19 U	0.19 U		
		Sodium	4.503	24.7 B	24.7 J	qualify	1
		Thallium		3.6 U	3.6 U		
		Vanadium		208	208		
		Zinc	0.943	13.8	13.8		
		Cyanide		Not analyzed			
	GLA2-7	Aluminum		1260	1260		
		Antimony		0.84 UN	0.84 U		3
		Arsenic		0.80 U	0.80 U		
		Barium		8.8 B	8.8 J	qualify	1
		Beryllium		0.17 B	0.17 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	9.032	160 B	160 J	qualify	1
		Chromium		3.2	3.2		
		Cobalt		1.0 B	1.0 J	qualify	1
		Copper		3.9 B	3.9 J	qualify	1
		Iron		4430	4430		
		Lead		2.0	2.0		
		Magnesium		348 B	348 J	qualify	1
		Manganese		110	110		
		Mercury		0.0032 U	0.003 U		
		Nickel		4.9 B	4.9 J	qualify	1
		Potassium		229 B	229 J	qualify	1, 2
		Selenium		0.90 U	0.90 U		
		Silver		0.18 U	0.18 U		
		Sodium	4.503	13.1 B	13.1 J	qualify	1
		Thallium		3.4 U	3.4 U		
		Vanadium		73.6	73.6		
		Zinc	0.943	6.2	6.2		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : Glenwood SDG No.: 7001-2818A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-3S	Aluminum		2650	2650		
		Antimony		0.81 UN	0.81 U		3
		Arsenic		2.9	2.9		
		Barium		20.7 B	20.7 J	qualify	1
		Beryllium		0.75 B	0.75 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	9.032	604 B	604 J	qualify	1
		Chromium		23.7	23.7		
		Cobalt		9.0	9.0		
		Copper		29.6	29.6		
		Iron		7820	7820		
		Lead		30.4	30.4		
		Magnesium		966	966		
		Manganese		119	119		
		Mercury		0.24	0.24		
		Nickel		255	255		
		Potassium		390 B	390 J	qualify	1, 2
		Selenium		0.90	0.90		
		Silver		0.26 B	0.26 J	qualify	1
		Sodium	4.503	75.9 B	75.9 J	qualify	1
		Thallium		3.3 U	3.3 U		
		Vanadium		681	681		
		Zinc	0.943	35.6	35.6		
		Cyanide		Not analyzed			
	GLA6-1	Aluminum		2640	2640		
		Antimony		0.80 UN	0.80 U		3
		Arsenic		1.5 B	1.5 J	qualify	1
		Barium		14.6 B	14.6 J	qualify	1
		Beryllium		0.22 B	0.22 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	9.032	498 B	498 J	qualify	1
		Chromium		5.2	5.2		
		Cobalt		1.9 B	1.9 J	qualify	1
		Copper		4.5	4.5		
		Iron		7490	7490		
		Lead		11.4	11.4		
		Magnesium		714 B	714 J	qualify	1
		Manganese		133	133		
		Mercury		0.0068 B	0.007 J	qualify	1
		Nickel		5.4 B	5.4 J	qualify	1
		Potassium		318 B	318 J	qualify	1, 2
		Selenium		0.85 U	0.85 U		
		Silver		0.17 U	0.17 U		
		Sodium	4.503	15.4 B	15.4 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		8.4 B	8.4 J	qualify	1
		Zinc	0.943	27.1	27.1		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : Glenwood SDG No.: 7001-2818A Method : SW-846
 Lab Name : STL - CT Sample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA6-2	Aluminum		3490	3490		
		Antimony		0.98 BN	0.98 J	qualify	1, 3
		Arsenic		2.2	2.2		
		Barium		16.5 B	16.5 J	qualify	1
		Beryllium		0.25 B	0.25 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	9.032	423 B	423 J	qualify	1
		Chromium		6.4	6.4		
		Cobalt		2.2 B	2.2 J	qualify	1
		Copper		6.1	6.1		
		Iron		7660	7660		
		Lead		11.6	11.6		
		Magnesium		779 B	779 J	qualify	1
		Manganese		130	130		
		Mercury		0.019	0.019		
		Nickel		6.2 B	6.2 J	qualify	1
		Potassium		352 B	352 J	qualify	1, 2
		Selenium		0.85 U	0.85 U		
		Silver		0.17 U	0.17 U		
		Sodium	4.503	18.1 B	18.1 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		11.3	11.3		
		Zinc	0.943	89.4	89.4		
		Cyanide		Not analyzed			

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value.
No bias direction is inferred.
- 2 The reported positive value for this analyte was qualified 'J', because the associated Serial Dilution standard precision exceeded 10.0%D, while the sample concentration was above 10x analyte IDL.
- 3 The matrix spike / matrix duplicate reported were not from this SDG, and therefore are not likely representative of this SDG's sample matrix.
No data qualifiers are applicable; potential sample matrix effects cannot be assessed.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- CTLab Project No. : 7001-2818A

- A. CALIBRATION
 ICP Analytes

ICV	90% - 110% recovery	<u>Outliers ?</u>
CCV	90% - 110% recovery	none
- B. CRDL STANDARD

80 - 120% recovery	<u>Outliers ?</u>
	none
- C. BLANKS

ICB / CCB	< CRDL	<u>Outliers ?</u>
Prep Blank	< CRDL	none
- D. INTERELEMENT CORRECTION (ICSA / ICSAB)

ICSA	Response < 2x CRDL for trace metals	<u>Outliers ?</u>
ICSAB	80 - 120% recovery	none
- E. MATRIX SPIKE

75 - 125% recovery (if sample conc. < 4x spike conc.)	<u>Outliers ?</u>
Comments: <u>The MS/MD reported were not from this SDG. Therefore, the reported results may not be representative of this SDG's matrix. No assessment of potential sample matrix effects can be made.</u>	
- F. POST-DIGESTION SPIKE

75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.	<u>Outliers ?</u>
Comments: <u>See comments above.</u>	
- G. MATRIX DUPLICATE

Max. 100% RPD for non-aqueous samples > 5x CRDL Max. (+/-) CRDL value if either sample < 5x CRDL	<u>Outliers ?</u>
Comments: <u>The MS/MD reported were not from this SDG. Therefore, the reported results may not be representative of this SDG's matrix. No assessment of potential sample matrix effects can be made.</u>	
- H. LABORATORY CONTROL SAMPLE

Recovery within control limits for non-aqueous samples	<u>Outliers ?</u>
Recovery between 80 - 120% for aqueous samples	none
	n/a
- I. SERIAL DILUTION SAMPLE

Maximum 10.0% D if undiluted sample > 10x IDL	<u>Outliers ?</u>
	K 31%
QA Action : <u>Qualify 'J' positive K results > 10x IDL value.</u>	
- J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	<u>Frequency</u>	<u>Outliers ?</u>
Instrument Detection Limits	Quarterly	none
Interelement Correction Factors	Annually	none
Linear Range Analysis	Quarterly	none

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- CTLab Project No. : 7001-2818A

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ? Yes
 If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ? Yes
 If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ? Yes
 If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ? Yes
 If No, list affected analytes and samples, and QA action : _____

5. Show calculation for % Solids for one sample.
 Sample ID: GLA2-6S (2818A-04) Lab value : 95.8 %
 Dry weight : 9.18 gm % Solids = $\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$
 Wet weight : 9.58 gm = 95.8 %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.
 Sample ID: GLA2-6S Analyte : Pb Lab value : 124 mg/Kg
 % Solids : 95.8
 Raw value 0.7320 mg/L
 Final volume 200 mL mg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (ml)}}{\text{wet wgt} \times (\% \text{Sol}/100)}$
 Wet weight 1.23 gm = 124.2 mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ? n/a
 If No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 05, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 7001-2771A

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA1-1A	012771A-01	SOIL	11/02/01	X	X	X
GLA1-1B	012771A-02	SOIL	11/02/01	X	X	X
GLA1-2	012771A-03	SOIL	11/02/01	X	X	X
GLA1-3	012771A-04	SOIL	11/02/01	X	X	X
GLA1-3S	012771A-05	SOIL	11/02/01	X	X	X
GLA1-4	012771A-06	SOIL	11/02/01	X	X	X
GLA1-4S	012771A-07	SOIL	11/02/01	X	X	X
GLA1-5	012771A-08	SOIL	11/02/01	X	X	X
GLA1-5S	012771A-09	SOIL	11/02/01	X	X	X
GLA1-6	012771A-10	SOIL	11/02/01	X	X	X
GLA1-6S	012771A-11	SOIL	11/02/01	X	X	X

Sample Collection and Receipt

Samples were collected on 11/02/01, and received at the laboratory on 11/05/01. This delay between collection and lab receipt is considered excessive. Samples were received at the laboratory at 9 degrees C, which exceeds the acceptable temperature range of 4 +/- 2 degrees C. The laboratory narrative indicated that the client was notified of this excursion, and directed the lab to proceed with analysis. No data qualifiers were applied, since EPA Region II validation guidelines designate 10 degrees C as the cutoff point for qualification.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

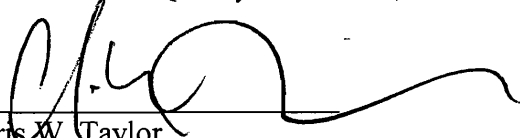
Other Issues

It is noted that no matrix spike or matrix spike duplicates were reported for the organic fractions; therefore no assessment could be made of potential sample matrix effects on the reported results for the semi-volatile and PCB fractions.

Several samples exhibited pattern / peak RT matches for multiple Aroclor compounds. The data user is alerted that accurate representation of total Aroclors may be impacted when this situation occurs, since the analyst must choose peaks for quantitation which may be shared by one or more Aroclor compounds, or eliminate peaks in the quantitation which are shared.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-2771A

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2771AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA1-1A	Benzyl alcohol		390 U	390 UJ	qualify	4
	GLA1-1B	Benzyl alcohol		390 U	390 UJ	qualify	4
	GLA1-2 (@ 100x dilution)	Naphthalene		43000	43000		
		2-Methylnaphthalene		22000 J	22000 J	qualify	1
		Acenaphthylene		10000 J	10000 J	qualify	1
		Acenaphthene		2000 J	2000 J	qualify	1
		Fluorene		5700 J	5700 J	qualify	1
		Phenanthrene		15000 J	15000 J	qualify	1
		Anthracene		3700 J	3700 J	qualify	1
		Fluoranthene		3600 J	3600 J	qualify	1
		Pyrene		5800 J	5800 J	qualify	1
		Benzo(a)anthracene		1500 J	1500 J	qualify	1
		Chrysene		1600 J	1600 J	qualify	1
		Benzo(b)fluoranthene		680 J	680 J	qualify	1
		Benzo(k)fluoranthene		690 J	690 J	qualify	1
		Benzo(a)pyrene		1200 J	1200 J	qualify	1
	GLA1-3	Benzyl alcohol		340 U	340 UJ	qualify	4
	GLA1-3S	Benzoic acid		190 J	190 J	qualify	1
		Naphthalene		34 J	34 J	qualify	1
		2-Methylnaphthalene		36 J	36 J	qualify	1
		Acenaphthylene		1400	1400		
		Acenaphthene		18 J	18 J	qualify	1
		Dibenzofuran		12 J	12 J	qualify	1
		Phenanthrene		230 J	230 J	qualify	1
		Anthracene		400	400		
		Carbazole		16 J	16 J	qualify	1
		Di-n-butylphthalate		12 J	12 J	qualify	1
		Fluoranthene		280 J	280 J	qualify	1
		Pyrene		330 J	330 J	qualify	1
		Butylbenzylphthalate		14 J	14 J	qualify	1
		Benzo(a)anthracene		220 J	220 J	qualify	1
		Chrysene		260 J	260 J	qualify	1
		bis(2-ethylhexyl)phthalate		38 J	38 J	qualify	1
		Benzo(b)fluoranthene		300 J	300 J	qualify	1
		Benzo(k)fluoranthene		320 J	320 J	qualify	1
		Benzo(a)pyrene		300 J	300 J	qualify	1
		Indeno(1,2,3-cd)pyrene		100 J	100 J	qualify	1, 3
		Dibenzo(a,h)anthracene		20 J	20 J	qualify	1, 3
		Benzo(g,h,i)perylene		140 J	140 J	qualify	1, 3
	GLA1-4	2-Methylnaphthalene		28 J	28 J	qualify	1
		Acenaphthylene		60 J	60 J	qualify	1
		Benzo(g,h,i)perylene		89 J	89 J	qualify	1
		Benzyl alcohol		360 U	360 UJ	qualify	4

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2771AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA1-4S	4-Methylphenol		10 J	10 J	qualify	1
		Benzoic acid		130 J	130 J	qualify	1
		Naphthalene		16 J	16 J	qualify	1
		2-Methylnaphthalene		14 J	14 J	qualify	1
		Acenaphthylene		58 J	58 J	qualify	1
		Acenaphthene		9 J	9 J	qualify	1
		Dibenzofuran		6 J	6 J	qualify	1
		Fluorene		15 J	15 J	qualify	1
		Phenanthrene		220 J	220 J	qualify	1
		Anthracene		51 J	51 J	qualify	1
		Carbazole		17 J	17 J	qualify	1
		Di-n-butylphthalate		45 J	45 J	qualify	1
		Fluoranthene		250 J	250 J	qualify	1
		Pyrene		320 J	320 J	qualify	1
		Butylbenzylphthalate		16 J	16 J	qualify	1
		Benzo(a)anthracene		150 J	150 J	qualify	1
		Chrysene		180 J	180 J	qualify	1
		bis(2-ethylhexyl)phthalate		49 J	49 J	qualify	1
		Benzo(b)fluoranthene		120 J	120 J	qualify	1
		Benzo(k)fluoranthene		140 J	140 J	qualify	1
		Benzo(a)pyrene		150 J	150 J	qualify	1
		Indeno(1,2,3-cd)pyrene		89 J	89 J	qualify	1, 3
		Dibenzo(a,h)anthracene		29 J	29 J	qualify	1, 3
		Benzo(g,h,i)perylene		78 J	78 J	qualify	1, 3
	GLA1-5	2-Methylnaphthalene		76 J	76 J	qualify	1
		Acenaphthylene		39 J	39 J	qualify	1
		Acenaphthene		7 J	7 J	qualify	1
		Fluorene		18 J	18 J	qualify	1
		Phenanthrene		77 J	77 J	qualify	1
		Anthracene		20 J	20 J	qualify	1
		Carbazole		2 J	2 J	qualify	1
		Fluoranthene		30 J	30 J	qualify	1
		Pyrene		52 J	52 J	qualify	1
		Benzo(a)anthracene		26 J	26 J	qualify	1
		Chrysene		27 J	27 J	qualify	1
		Benzo(b)fluoranthene		16 J	16 J	qualify	1
		Benzo(k)fluoranthene		17 J	17 J	qualify	1
		Benzo(a)pyrene		27 J	27 J	qualify	1
		Indeno(1,2,3-cd)pyrene		13 J	13 J	qualify	1, 3
		Benzo(g,h,i)perylene		25 J	25 J	qualify	1, 3
		ALL TARGET PHENOLIC COMPOUNDS		U	--- R	REJECT	2
	GLA1-5S	Phenanthrene		16 J	16 J	qualify	1
		Anthracene		4 J	4 J	qualify	1
		Fluoranthene		19 J	19 J	qualify	1
		Pyrene		19 J	19 J	qualify	1
		Benzo(a)anthracene		10 J	10 J	qualify	1
		Chrysene		10 J	10 J	qualify	1
		Benzo(b)fluoranthene		9 J	9 J	qualify	1
		Benzo(k)fluoranthene		9 J	9 J	qualify	1
		Benzo(a)pyrene		9 J	9 J	qualify	1
		Indeno(1,2,3-cd)pyrene		4 J	4 J	qualify	1, 3
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	5
		Pentachlorophenol		1600 U	1600 UJ	qualify	5

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 7001-2771AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA1-6	Benzyl alcohol		340 U	340 UJ	qualify	4
	GLA1-6S	Benzyl alcohol		330 U	330 UJ	qualify	4

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported phenolic compound non-detect (U) value is Rejected, 'R', because the recovery of one or more acid surrogates were below 10%. This low recovery is likely the result of matrix interference, since sample re-extraction yielded similar low results.
- 3 The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- 4 The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.
- 5 The reported positive value for this compound is qualified 'J', or the reported non-detect value 'UJ', because the associated Laboratory Control Sample (Blank Spike) recovery for this compound was below the laboratory limit. Negative bias for positive results, or potential false-negatives for non-detects are suggested.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2771A

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
 All samples were extracted and analyzed within allowable holding times.

Comments: 1) Samples were collected on 11/02/01 and received at the laboratory on 11/05/01. This delay between collection and receipt may be considered excessive, especially in view of the elevated cooler temperature on receipt (9 C).
 2) Samples were received at 9 degrees C, which exceeds the industry-standard range of 4 +/- 2 degrees C. The data user is alerted to the potential for analyte loss or degradation at temperatures in excess of this range.

B. METHOD BLANKS

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg	Affects
11/05/01	SBLKIP	P3511	soil	none	n/a	GLA1- 1A, 1B, 3, 6, 6S, 4
11/05/01	SBLKIQ	Q3938	soil	none	n/a	GLA1- 2, 3S, 4S
11/07/01	SBLKOQ	Q3940	soil	none	n/a	GLA1- 5, 5S

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
 If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
 If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

Sample ID	Surrogate	Bias	ACTION
GLA1-5	2-fluorophenol	low (<10%)	Reject phenolic non-detects; qualify positives
	246-tribromophenol	low (>10%)	
	phenol-d5	high	

D. MATRIX SPIKE / DUPLICATE

Comments: No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.

E. BLANK SPIKE

Sample ID	Spike Compound	Bias	ACTION
SBLKIP	all within limits	n/a	n/a
SBLKOQ	4,6-diNO ₂ -2-Mephenol	low	Qualify 'UJ' or 'J' in all affected samples
	pentachlorophenol	low	Qualify 'UJ' or 'J' in all affected samples

F. INTERNAL STANDARDS

Sample ID	Internal Standard	Bias	ACTION
All IS recoveries & RTs were within acceptable limits			

G. INSTRUMENT TUNES

Date	m/z abundance	< 12-hrs.	ACTION
10/18/01	OK	yes	
11/06/01	OK	yes	
11/08/01	OK	yes	
11/08/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

ULT	Sample ID	Compound	Reported	Calculated	
N	GLA1-2	naphthalene	Conc., ug/Kg	Conc., ug/Kg	
			43000	42883	
Conc., ug/Kg =	Ax	Is	Vt	Df	GPC
	611615	40.0	500	100	1.0
	Ais	RRF	Vi	Ws	D
	1170479	0.917	2.0	15.1	0.88

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2771A

A. INITIAL CALIBRATION

CALIBRATION DATE :	10/18/01	11/08/01
FILE IDs :	P3384 - 3388	Q3931 - 3935
ALL RRFs > 0.05 ?	Yes	Yes
SPCC RRFs > 0.05 ?	Yes	Yes
CCC %RSDs < 30% ?	Yes	Yes
All Targets < 15% RSD?	NO	NO
(If No, list compounds) =====>	hexachlorocyclopentadiene	indeno(1,2,3-cd)pyrene dibenzo(a,h)anthracene benzo(g,h,i)perylene
SPCC Compounds		
N-Nitroso-di-n-propylamine		
Hexachlorocyclopentadiene		
2,4-Dinitrophenol		
4-Nitrophenol		
MINIMUM RRF = 0.050		
CCC Compounds		
Base/Neutrals		
Acenaphthene		
1,4-Dichlorobenzene		
Hexachlorobutadiene		
Diphenylamine		
Di-n-octylphthalate		
Fluoranthene		
Benzo(a)pyrene		
Acids		
4-Chloro-3-methylphenol		
2,4-Dichlorophenol		
2-Nitrophenol		
Phenol		
Pentachlorophenol		
2,4,6-Trichlorophenol		
MAXIMUM %RSD = 30.0%		
MAXIMUM %D = 20.0%		

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/06/01	11/08/01
FILE ID :	P3510	Q3937
ALL RRFs > 0.05 ?	Yes	Yes
SPCC RRFs > 0.05 ?	Yes	Yes
CCC %Ds < 20% ?	Yes	Yes
All Targets < 20%D?	NO	Yes
(If No, list compounds) =====>	benzyl alcohol	

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2771AMETHOD: SW846 / 8082LAB NAME : STL - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA1-1A	Aroclor 1016		40 U	40 U		
		Aroclor 1221		81 U	81 U		
		Aroclor 1232		40 U	40 U		
		Aroclor 1242		40 U	40 U		
		Aroclor 1248		22 J	22 J	qualify	1
		Aroclor 1254		40 U	40 U		
		Aroclor 1260		40 U	40 UJ	qualify	2
	GLA1-1B	Aroclor 1016		40 U	40 U		
		Aroclor 1221		80 U	80 U		
		Aroclor 1232		40 U	40 U		
		Aroclor 1242		40 U	40 U		
		Aroclor 1248		2.9 J	2.9 J	qualify	1
		Aroclor 1254		40 U	40 U		
		Aroclor 1260		40 U	40 UJ	qualify	2
	GLA1-2 (@ 200x dilution)	Aroclor 1016		7300 U	7300 U		
		Aroclor 1221		15000 U	15000 U		
		Aroclor 1232		7300 U	7300 U		
		Aroclor 1242		35000	35000		
		Aroclor 1248		7300 U	7300 U		
		Aroclor 1254		7300 U	7300 U		
		Aroclor 1260		2100 J	2100 J	qualify	1
	GLA1-3	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		24 J	24 J	qualify	1
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA1-3S	Aroclor 1016		35 U	35 U		
		Aroclor 1221		72 U	72 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		59	59		
		Aroclor 1254		90	90 J	qualify	3
		Aroclor 1260		180	180		
	GLA1-4 (@ 20x dilution)	Aroclor 1016		740 U	740 U		
		Aroclor 1221		1500 U	1500 U		
		Aroclor 1232		740 U	740 U		
		Aroclor 1242		740 U	740 U		
		Aroclor 1248		3700	3700		
		Aroclor 1254		740 U	740 U		
		Aroclor 1260		480 J	480 J	qualify	1
	GLA1-4S	Aroclor 1016		35 U	35 U		
		Aroclor 1221		71 U	71 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		86	86		
		Aroclor 1254		150	150 J	qualify	3
		Aroclor 1260		120	120		

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2771AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA1-5 (@ 5x dilution)	Aroclor 1016		190 U	190 U		
		Aroclor 1221		380 U	380 U		
		Aroclor 1232		190 U	190 U		
		Aroclor 1242		480	480		
		Aroclor 1248		190 U	190 U		
		Aroclor 1254		190 U	190 U		
		Aroclor 1260		59 J	59 J	qualify	1
	GLA1-5S	Aroclor 1016		36 U	36 U		
		Aroclor 1221		72 U	72 U		
		Aroclor 1232		36 U	36 U		
		Aroclor 1242		36 U	36 U		
		Aroclor 1248		21 J	21 J	qualify	1
		Aroclor 1254		36 U	36 U		
		Aroclor 1260		36 U	36 U		
	GLA1-6	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		3.9 J	3.9 J	qualify	1
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA1-6S	Aroclor 1016		33 U	33 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		33 U	33 U		
		Aroclor 1242		33 U	33 U		
		Aroclor 1248		18 J	18 J	qualify	1, 3
		Aroclor 1254		33 U	33 U		
		Aroclor 1260		33 U	33 U		

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 The reported result for this analyte is qualified 'UJ' or 'J', because the % Difference for at least one of the calibration peaks for this analyte in the Calibration Verification standard exceeded the method limit of 15.0%.
- 3 The reported result is qualified 'J', as quantitatively estimated, because the %D between analytical columns exceeded 25%, but was below 70%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory
Project No.: 7001-2771A

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	PBLK43
Extraction Date:	11/06/01
Analyte	Conc. ug/Kg
none found	
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Comments: No matrix spike / duplicate were performed; only a Blank Spike was run.
No estimation may be made of potential matrix effects on associated samples.

E. LABORATORY QC SPIKE (PBLK43 QC2)

All reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 7001-2771ALaboratory: STL - Buffalo**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 11/01/01 Verification of ICAL Results

<u>Aroclor 1260</u>	<u>DB-1701</u>		
<u>Peak 1, RT = 18.31</u>	<u>Response</u>	<u>Cal Factor, Calc'd.</u>	<u>CF, reported</u>
0.05	157024	3140480	3140480
0.1	316803	3168030	3168030
0.2	601750	3008750	3008750
0.4	1164323	2910808	2910808
0.8	2158155	<u>2697694</u>	<u>2697694</u>
Average		2985152	2985152
Calc'd. %RSD =	6.41		
Reported %RSD =	6.4		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/06/01
FILE ID :	C5133113
All Targets < 15% D?	NO
(If No, list compounds) ==>	Aroclor-1260

11/07/01
C5133131
Yes

11/07/01
C5133136
Yes

CALIBRATION DATE :	11/07/01
FILE ID :	C5133153
All Targets < 15% D?	Yes
(If No, list compounds) ==>	

11/08/01
C5133171
Yes

11/08/01
C5133187
Yes

QA ACTION : Qualify Aroclor-1260 results 'UJ' or 'J' in samples GLA1- 1A and 1B.**C. SAMPLE RESULT VERIFICATION**

SAMPLE ID: GLA1-4S
 COMPOUND: Aroclor-1260
 REPORTED VALUE: 120 ug/Kg column = DB-1701

<u>Peak RT</u>	<u>CF</u>	<u>Peak Area</u>	<u>conc., ng</u>
22.50	1827071	543126	0.2973
23.90	3243039	1062696	0.3277
25.34	2408272	932615	0.3873
Average conc. =			0.3374

ng average conc.	extract, uL	Dilution factor
0.3374	10000	1.0
30.2	1.0	0.94
wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 118.9

Comments: The laboratory reported the highest of the two values between analytical columns, per SW-846 protocol. However, the laboratory did not use all 5 calibration peaks for quantitation, but used 3, which is the minimum allowable number of peaks. Chromatographic evaluation revealed that the 1st and 2nd peaks used in calibration were present on each column, and were within established RT windows. These peaks were added by the reviewer in verifying the reported Aroclor value; the result using all 5 peaks was within 3% of the reported value.

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2771AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA1-1A	Aluminum		1450 *	1450 J	qualify	3
		Antimony		1.1 UN	1.1 UJ	qualify	2
		Arsenic		1.1 U	1.1 U		
		Barium		4.1 B	4.1 J	qualify	1
		Beryllium		0.17 B	0.17 J	qualify	1
		Cadmium		0.19 U	0.19 U		
		Calcium	0.083	141 B	141 J	qualify	1
		Chromium		2.6	2.6		
		Cobalt		0.43 B	0.43 J	qualify	1
		Copper		2.3 B	2.3 J	qualify	1
		Iron		1090	1090		
		Lead		3.7 N	3.7 J	qualify	3
		Magnesium		40.4 B	40.4 J	qualify	1
		Manganese		8.3	8.3 J	qualify	4
		Mercury		0.0032 U	0.003 U		
		Nickel		0.52 B	0.52 J	qualify	1
		Potassium		156 B	156 J	qualify	1
		Selenium		1.2 U	1.2 U		
		Silver		0.24 U	0.24 U		
		Sodium		11.8 B	11.8 J	qualify	1
		Thallium		2.4 U	2.4 U		
		Vanadium		8.5 B	8.5 J	qualify	1
		Zinc	0.035	6.6 BE	6.6 J	qualify	1, 4
		Cyanide		Not analyzed			
	GLA1-1B	Aluminum		578 *	578 J	qualify	3
		Antimony		1.1 UN	1.1 UJ	qualify	2
		Arsenic		1.0 U	1.0 U		
		Barium		1.5 B	1.5 J	qualify	1
		Beryllium		0.11 U	0.11 U		
		Cadmium		0.18 U	0.18 U		
		Calcium	0.083	64.3 B	64.3 J	qualify	1
		Chromium		1.4 B	1.4 J	qualify	1
		Cobalt		0.29 U	0.29 U		
		Copper		1.2 B	1.2 J	qualify	1
		Iron		704	704		
		Lead		1.2 N	1.2 J	qualify	3
		Magnesium		13.8 B	13.8 J	qualify	1
		Manganese		3.3 B	3.3 J	qualify	4
		Mercury		0.0029 U	0.003 U		
		Nickel		0.32 U	0.32 U		
		Potassium		65.8 B	65.8 J	qualify	1
		Selenium		1.1 U	1.1 U		
		Silver		0.23 U	0.23 U		
		Sodium		9.5 B	9.5 J	qualify	1
		Thallium		2.3 U	2.3 U		
		Vanadium		3.9 B	3.9 J	qualify	1
		Zinc	0.035	2.9 BE	2.9 J	qualify	1, 4
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2771AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA1-2	Aluminum		3000 *	3000 J	qualify	3
		Antimony		0.91 UN	0.91 UJ	qualify	2
		Arsenic		2.2	2.2		
		Barium		18.4 B	18.4 J	qualify	1
		Beryllium		0.26 B	0.26 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	0.083	1620	1620		
		Chromium		12.6	12.6		
		Cobalt		2.2 B	2.2 J	qualify	1
		Copper		6.8	6.8		
		Iron		5200	5200		
		Lead		13.6 N	13.6 J	qualify	3
		Magnesium		463 B	463 J	qualify	1
		Manganese		113	113 J	qualify	4
		Mercury		0.016	0.016		
		Nickel		4.0 B	4.0 J	qualify	1
		Potassium		330 B	330 J	qualify	1
		Selenium		0.92 U	0.92 U		
		Silver		0.19 U	0.19 U		
		Sodium		29.6 B	29.6 J	qualify	1
		Thallium		1.9 U	1.9 U		
		Vanadium		10.7	10.7		
		Zinc	0.035	40.4 E	40.4 J	qualify	4, 5
		Cyanide		Not analyzed			
	GLA1-3	Aluminum		1620 *	1620 J	qualify	3
		Antimony		0.86 UN	0.86 UJ	qualify	2
		Arsenic		1.2 B	1.2 J	qualify	1
		Barium		6.6 B	6.6 J	qualify	1
		Beryllium		0.17 B	0.17 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	0.083	168 B	168 J	qualify	1
		Chromium		4.4	4.4		
		Cobalt		0.78 B	0.78 J	qualify	1
		Copper		3.8 B	3.8 J	qualify	1
		Iron		2940	2940		
		Lead		6.0 N	6.0 J	qualify	3
		Magnesium		185 B	185 J	qualify	1
		Manganese		51.8	51.8 J	qualify	4
		Mercury		0.0037 B	0.004 J	qualify	1
		Nickel		1.8 B	1.8 J	qualify	1
		Potassium		144 B	144 J	qualify	1
		Selenium		0.88 U	0.88 U		
		Silver		0.18 U	0.18 U		
		Sodium		9.8 B	9.8 J	qualify	1
		Thallium		1.8 U	1.8 U		
		Vanadium		6.7 B	6.7 J	qualify	1
		Zinc	0.035	8.5 E	8.5 J	qualify	4
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2771AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA1-3S	Aluminum		9340 *	9340 J	qualify	3
		Antimony		0.97 UN	0.97 UJ	qualify	2
		Arsenic		11.6	11.6 J	qualify	5
		Barium		34.7 B	34.7 J	qualify	1
		Beryllium		0.41 B	0.41 J	qualify	1
		Cadmium		0.19 B	0.19 J	qualify	1
		Calcium	0.083	1210	1210		
		Chromium		24.8	24.8		
		Cobalt		3.0 B	3.0 J	qualify	1
		Copper		17.4	17.4		
		Iron		12900	12900		
		Lead		103 N	103 J	qualify	3
		Magnesium		1390	1390		
		Manganese		177	177 J	qualify	4
		Mercury		0.36	0.36		
		Nickel		10.6	10.6		
		Potassium		479 B	479 J	qualify	1, 5
		Selenium		0.99 U	0.99 U		
		Silver		0.21 U	0.21 U		
		Sodium		29.0 B	29.0 J	qualify	1
		Thallium		2.1 U	2.1 U		
		Vanadium		38.0	38.0		
		Zinc	0.035	143 E	143 J	qualify	4, 5
		Cyanide		Not analyzed			
	GLA1-4	Aluminum		970 *	970 J	qualify	3
		Antimony		0.96 UN	0.96 UJ	qualify	2
		Arsenic		1.0 B	1.0 J	qualify	1
		Barium		3.0 B	3.0 J	qualify	1
		Beryllium		0.10 U	0.10 U		
		Cadmium		0.16 U	0.16 U		
		Calcium	0.083	573 B	573 J	qualify	1
		Chromium		3.0	3.0		
		Cobalt		0.26 U	0.26 U		
		Copper		1.6 B	1.6 J	qualify	1
		Iron		809	809		
		Lead		2.6 N	2.6 J	qualify	3
		Magnesium		303 B	303 J	qualify	1
		Manganese		4.9	4.9 J	qualify	4
		Mercury		0.0032 U	0.003 U		
		Nickel		0.65 B	0.65 J	qualify	1
		Potassium		88.9 B	88.9 J	qualify	1
		Selenium		0.98 U	0.98 U		
		Silver		0.20 U	0.20 U		
		Sodium		5.9 B	5.9 J	qualify	1
		Thallium		2.0 U	2.0 U		
		Vanadium		6.4 B	6.4 J	qualify	1
		Zinc	0.035	5.6 BE	5.6 J	qualify	1, 4
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2771AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA1-4S	Aluminum		5360 *	5360 J	qualify	3
		Antimony		0.95 UN	0.95 UJ	qualify	2
		Arsenic		4.9	4.9		
		Barium		36.8 B	36.8 J	qualify	1
		Beryllium		0.42 B	0.42 J	qualify	1
		Cadmium		0.17 B	0.17 J	qualify	1
		Calcium	0.083	2880	2880		
		Chromium		59.0	59.0		
		Cobalt		3.0 B	3.0 J	qualify	1
		Copper		18.1	18.1		
		Iron		11800	11800		
		Lead		206 N	206 J	qualify	3
		Magnesium		1610	1610		
		Manganese		186	186 J	qualify	4
		Mercury		0.13	0.13		
		Nickel		11.5	11.5		
		Potassium		416 B	416 J	qualify	1, 5
		Selenium		0.97 U	0.97 U		
		Silver		0.20 U	0.20 U		
		Sodium		28.3 B	28.3 J	qualify	1
		Thallium		2.0 U	2.0 U		
		Vanadium		29.8	29.8		
		Zinc	0.035	140 E	140 J	qualify	4, 5
		Cyanide		Not analyzed			
	GLA1-5	Aluminum		2040 *	2040 J	qualify	3
		Antimony		1.0 UN	1.0 UJ	qualify	2
		Arsenic		6.6	6.6		
		Barium		8.0 B	8.0 J	qualify	1
		Beryllium		0.13 B	0.13 J	qualify	1
		Cadmium		0.18 U	0.18 U		
		Calcium	0.083	5450	5450		
		Chromium		25.8	25.8		
		Cobalt		0.85 B	0.85 J	qualify	1
		Copper		4.7 B	4.7 J	qualify	1
		Iron		3270	3270		
		Lead		14.6 N	14.6 J	qualify	3
		Magnesium		462 B	462 J	qualify	1
		Manganese		31.0	31.0 J	qualify	4
		Mercury		0.0054	0.005		
		Nickel		1.8 B	1.8 J	qualify	1
		Potassium		193 B	193 J	qualify	1
		Selenium		1.1 U	1.1 U		
		Silver		0.22 U	0.22 U		
		Sodium		23.8 B	23.8 J	qualify	1
		Thallium		2.2 U	2.2 U		
		Vanadium		7.8 B	7.8 J	qualify	1
		Zinc	0.035	17.6 E	17.6 J	qualify	4, 5
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2771AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA1-5S	Aluminum		1270 *	1270 J	qualify	3
		Antimony		0.95 UN	0.95 UJ	qualify	2
		Arsenic		1.1 B	1.1 J	qualify	1
		Barium		4.0 B	4.0 J	qualify	1
		Beryllium		0.10 B	0.10 J	qualify	1
		Cadmium		0.16 U	0.16 U		
		Calcium	0.083	134 B	134 J	qualify	1
		Chromium		2.4	2.4		
		Cobalt		0.26 U	0.26 U		
		Copper		2.1 B	2.1 J	qualify	1
		Iron		1300	1300		
		Lead		2.4 N	2.4 J	qualify	3
		Magnesium		35.3 B	35.3 J	qualify	1
		Manganese		6.6	6.6 J	qualify	4
		Mercury		0.0027 U	0.003 U		
		Nickel		0.51 B	0.51 J	qualify	1
		Potassium		191 B	191 J	qualify	1
		Selenium		0.97 U	0.97 U		
		Silver		0.20 U	0.20 U		
		Sodium		13.4 B	13.4 J	qualify	1
		Thallium		2.0 U	2.0 U		
		Vanadium		5.3 B	5.3 J	qualify	1
		Zinc	0.035	3.7 BE	3.7 J	qualify	1, 4
		Cyanide		Not analyzed			
	GLA1-6	Aluminum		930 *	930 J	qualify	3
		Antimony		0.98 UN	0.98 UJ	qualify	2
		Arsenic		0.92 U	0.92 U		
		Barium		3.9 B	3.9 J	qualify	1
		Beryllium		0.16 B	0.16 J	qualify	1
		Cadmium		0.17 U	0.17 U		
		Calcium	0.083	67.1 B	67.1 J	qualify	1
		Chromium		2.9	2.9		
		Cobalt		0.68 B	0.68 J	qualify	1
		Copper		1.7 B	1.7 J	qualify	1
		Iron		2310	2310		
		Lead		0.95 N	0.95 J	qualify	3
		Magnesium		124 B	124 J	qualify	1
		Manganese		28.8	28.8 J	qualify	4
		Mercury		0.0028 U	0.003 U		
		Nickel		1.2 B	1.2 J	qualify	1
		Potassium		90.5 B	90.5 J	qualify	1
		Selenium		1.0 U	1.0 U		
		Silver		0.21 U	0.21 U		
		Sodium		7.0 B	7.0 J	qualify	1
		Thallium		2.1 U	2.1 U		
		Vanadium		3.1 B	3.1 J	qualify	1
		Zinc	0.035	3.8 BE	3.8 J	qualify	1, 4
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2771AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA1-6S	Aluminum		1240 *	1240 J	qualify	3
		Antimony		0.84 UN	0.84 UJ	qualify	2
		Arsenic		1.0 B	1.0 J	qualify	1
		Barium		5.5 B	5.5 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	0.083	96.3 B	96.3 J	qualify	1
		Chromium		4.1	4.1		
		Cobalt		0.97 B	0.97 J	qualify	1
		Copper		2.0 B	2.0 J	qualify	1
		Iron		3060	3060		
		Lead		1.8 N	1.8 J	qualify	3
		Magnesium		188 B	188 J	qualify	1
		Manganese		54.4	54.4 J	qualify	4
		Mercury		0.0037 U	0.004 U		
		Nickel		1.9 B	1.9 J	qualify	1
		Potassium		138 B	138 J	qualify	1
		Selenium		0.86 U	0.86 U		
		Silver		0.18 U	0.18 U		
		Sodium		8.0 B	8.0 J	qualify	1
		Thallium		1.8 U	1.8 U		
		Vanadium		3.6 B	3.6 J	qualify	1
		Zinc	0.035	6.2 E	6.2 J	qualify	4
		Cyanide		Not analyzed			

FOOTNOTES

- The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value. No bias direction is inferred.
- The reported value for this analyte was qualified 'UJ' or 'J', because the matrix spike recovery was below the lower limit of 75%. Potential negative bias is suggested.
- The reported positive value for this analyte was qualified 'J', because the matrix spike recovery exceeded the upper limit of 125%. Potential positive bias is suggested.
- The reported value for this analyte was qualified 'UJ' or 'J', because the absolute difference between sample and duplicate results exceeded the CRDL value, and one or both results were below 5x CRDL. No bias direction is inferred.
- The reported positive value for this analyte was qualified 'J', because the associated Serial Dilution standard precision exceeded 10.0%D, while the sample concentration was above 10x analyte IDL.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- CTLab Project No. : 7001-2771A

- A. CALIBRATION
 ICP Analytes
- | | | |
|-----|---------------------|-------------------|
| ICV | 90% - 110% recovery | <u>Outliers ?</u> |
| CCV | 90% - 110% recovery | none |
- B. CRDL STANDARD
- | | |
|--------------------|-------------------|
| 80 - 120% recovery | <u>Outliers ?</u> |
| | none |
- C. BLANKS
- | | | |
|------------|--------|-------------------|
| ICB / CCB | < CRDL | <u>Outliers ?</u> |
| Prep Blank | < CRDL | none |
- D. INTERELEMENT CORRECTION (ICSA / ICSAB)
- | | | |
|-------|-------------------------------------|-------------------|
| ICSA | Response < 2x CRDL for trace metals | <u>Outliers ?</u> |
| ICSAB | 80 - 120% recovery | none |
- E. MATRIX SPIKE (GLA1-1A)
- | | |
|---|-------------------|
| 75 - 125% recovery (if sample conc. < 4x spike conc.) | <u>Outliers ?</u> |
| | Al 2200% * |
| | Sb 56% |
| | Pb 142% |
- QA Action : Qualify Sb values 'UJ' or 'J', with negative bias suggested.
Qualify positive Al & Pb values 'J', with positive bias suggested.
Affects all SDG samples.
- Comments: * Al is not required to be spiked; however it was spiked, and the sample concentration was < 4x spike.
- F. POST-DIGESTION SPIKE
- | | |
|---|-------------------|
| 75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >. | <u>Outliers ?</u> |
| | |
- Comments: Sb native sample was non-detect, PDS conc. should be 120 ppb.
PDS concentration used was 500 ppb.
- G. MATRIX DUPLICATE (GLA1-4B)
- | | |
|--|-------------------|
| Max. 100% RPD for non-aqueous samples > 5x CRDL | <u>Outliers ?</u> |
| Max. (+/-) CRDL value if either sample < 5x CRDL | |
| | Mn |
| | Zn |
- QA Action : Qualify Mn & Zn values 'UJ' or 'J' ; no bias direction inferred.
- H. LABORATORY CONTROL SAMPLE
- | | |
|--|-------------------|
| Recovery within control limits for non-aqueous samples | <u>Outliers ?</u> |
| Recovery between 80 - 120% for aqueous samples | none |
| | n/a |
- I. SERIAL DILUTION SAMPLE
- | | |
|---|-------------------|
| Maximum 10.0% D if undiluted sample > 10x IDL | <u>Outliers ?</u> |
| | As 12% |
| | K 14% |
| | Zn 13% |
- QA Action : Qualify 'J' positive As, K & Zn results > 10x IDL values.
- J. VERIFICATION OF INSTRUMENTAL PARAMETERS
- | | | |
|---------------------------------|------------------|-------------------|
| | <u>Frequency</u> | <u>Outliers ?</u> |
| Instrument Detection Limits | Quarterly | none |
| Interelement Correction Factors | Annually | none |
| Linear Range Analysis | Quarterly | none |

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL-CTLab Project No. : 7001-2771A

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ? Yes
 If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ? Yes
 If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ? Yes
 If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ? Yes
 If No, list affected analytes and samples, and QA action : _____
Note: % solids values below were taken from the raw data, and are within a reasonable error band. % Solids data taken from PCB Prep Log; discrepancy between reported and calculated values below are due to quantitation using calculated vs. reported dry-weight.
5. Show calculation for % Solids for one sample.

Sample ID:	<u>GLA1-3S</u> (2771A-05)		Lab value :	<u>92</u> %
Dry weight :	<u>9.04</u> gm	% Solids = $\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$	=	<u>93.4</u> %
Wet weight :	<u>9.68</u> gm			
6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID:	<u>GLA1-3S</u>	Analyte :	<u>As</u>	Lab value :	<u>11.6</u> mg/Kg
% Solids :	<u>93.4</u>				
Raw value	<u>0.0538</u> mg/L				
Final volume	<u>200</u> mL				
Wet weight	<u>1.05</u> gm				
		mg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (mL)}}{\text{wet wgt} \times (\% \text{Sol}/100)}$			
				<u>11.0</u>	mg/ kg
7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ? n/a
 If No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

October 04, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 7001-2850A

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA7-1D	012850A-01	SOIL	11/27/01	X	X	X
GLA7-3B	012850A-02	SOIL	11/27/01	X	X	X
GLA7-3D	012850A-03	SOIL	11/27/01	X	X	X
GLA2-11S	012850A-04	SOIL	11/27/01	X	X	X
GLA2-11	012850A-05	SOIL	11/27/01	X	X	X
GLA2-10	012850A-06	SOIL	11/27/01	X	X	X
GLA2-8	012850A-07	SOIL	11/27/01	X	X	X
GLA2-9	012850A-08	SOIL	11/27/01	X	X	X
GLA2-4	012850A-09	SOIL	11/27/01	X	X	X
GLA2-4S	012850A-10	SOIL	11/27/01	X	X	X
GLA2-2	012850A-11	SOIL	11/27/01	X	X	X
GLA2-1	012850A-12	SOIL	11/27/01	X	X	X

Data Deliverables

No PCB extraction log or % Solids logs were present in the data package. The laboratory was contacted and requested to submit the missing data.

Sample Collection and Receipt

Samples were received at the laboratory at acceptable temperature, one day after collection. No data qualifiers were necessary.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

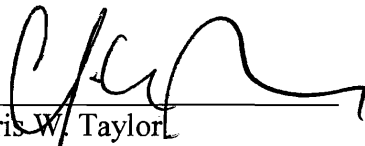
Other Issues

It is noted that no matrix spike or matrix spike duplicates were reported for the organic fractions; therefore no assessment could be made of potential sample matrix effects on the reported results for the semi-volatile and PCB fractions.

It is noted that the matrix spike and matrix duplicate for the metals fraction were not from this SDG, but did appear to be from this site (based on sample ID). Since sample matrices can vary widely throughout a given area, the reported spike and duplicate recoveries may not necessarily be representative of this group's matrix characteristics. Therefore, no data qualifiers were assigned based upon reported MS / MD recoveries.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-2850A

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2850AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA7-1D	Naphthalene		28 J	28 J	qualify	1
		2-Methylnaphthalene		30 J	30 J	qualify	1
		Acenaphthylene		50 J	50 J	qualify	1
		Dibenzofuran		5 J	5 J	qualify	1
		Fluorene		5 J	5 J	qualify	1
		Phenanthrene		33 J	33 J	qualify	1
		Anthracene		20 J	20 J	qualify	1
		Fluoranthene		43 J	43 J	qualify	1
		Pyrene		78 J	78 J	qualify	1
		Benzo(a)anthracene		37 J	37 J	qualify	1
		Chrysene		56 J	56 J	qualify	1
		Benzo(b)fluoranthene		41 J	41 J	qualify	1
		Benzo(k)fluoranthene		39 J	39 J	qualify	1
		Benzo(a)pyrene		46 J	46 J	qualify	1
		Indeno(1,2,3-cd)pyrene		26 J	26 J	qualify	1, 3
		Dibenzo(a,h)anthracene		13 J	13 J	qualify	1, 3
		Benzo(g,h,i)perylene		33 J	33 J	qualify	1, 3, 4
		Hexachlorocyclopentadiene		320 U	320 UJ	qualify	4
		3-Nitroaniline		1500 U	1500 UJ	qualify	4
		2,4,5-Trichlorophenol		1500 U	1500 UJ	qualify	6
		2,4-Dinitrophenol		1500 U	1500 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1500 U	1500 UJ	qualify	6
	GLA7-3B	Benzoic acid		24 J	24 J	qualify	1
		2-Methylnaphthalene		4 J	4 J	qualify	1
		Acenaphthylene		10 J	10 J	qualify	1
		Phenanthrene		10 J	10 J	qualify	1
		Fluoranthene		8 J	8 J	qualify	1
		Pyrene		10 J	10 J	qualify	1
		bis(2-ethylhexyl)phthalate		29 J	29 J	qualify	1
		Benzo(g,h,i)perylene		350 U	350 UJ	qualify	4
		Hexachlorocyclopentadiene		350 U	350 UJ	qualify	4
		3-Nitroaniline		1700 U	1700 UJ	qualify	4
		2,4,5-Trichlorophenol		1700 U	1700 UJ	qualify	6
		2,4-Dinitrophenol		1700 U	1700 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	6
	GLA7-3D	2,4-Dimethylphenol		46 J	46 J	qualify	1, 5
		Benzoic acid		64 J	64 J	qualify	1
		Naphthalene		56 J	56 J	qualify	1
		2-Methylnaphthalene		77 J	77 J	qualify	1
		Acenaphthylene		50 J	50 J	qualify	1
		Acenaphthene		14 J	14 J	qualify	1
		Dibenzofuran		18 J	18 J	qualify	1
		Fluorene		15 J	15 J	qualify	1
		Phenanthrene		200 J	200 J	qualify	1
		Anthracene		62 J	62 J	qualify	1
		Carbazole		20 J	20 J	qualify	1
		Di-n-butylphthalate		7 J	7 J	qualify	1
		Fluoranthene		370	370		
		Pyrene		570	570		
		Benzo(a)anthracene		340	340		
		Chrysene		360	360		
		bis(2-ethylhexyl)phthalate		47 J	47 J	qualify	1
		Benzo(b)fluoranthene		230 J	230 J	qualify	1

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2850AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA7-3D	Benzo(k)fluoranthene		300 J	300 J	qualify	1
	(cont'd.)	Benzo(a)pyrene		330 J	330 J	qualify	1
		Indeno(1,2,3-cd)pyrene		180 J	180 J	qualify	1, 3
		Dibenzo(a,h)anthracene		67 J	67 J	qualify	1, 3
		Benzo(g,h,i)perylene		150 J	150 J	qualify	1, 3, 4
		Hexachlorocyclopentadiene		340 U	340 UJ	qualify	4
		3-Nitroaniline		1600 U	1600 UJ	qualify	4
		2,4,5-Trichlorophenol		1600 U	1600 UJ	qualify	5, 6
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	5, 6
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	5, 6
		ALL OTHER PHENOLIC TARGETS		U	UJ	qualify	5
	GLA2-11S	4-Methylphenol		17 J	17 J	qualify	1
		Benzoic acid		280 J	280 J	qualify	1
		2-Methylnaphthalene		7 J	7 J	qualify	1
		Acenaphthylene		19 J	19 J	qualify	1
		Phenanthrene		63 J	63 J	qualify	1
		Anthracene		24 J	24 J	qualify	1
		Carbazole		19 J	19 J	qualify	1
		Di-n-butylphthalate		13 J	13 J	qualify	1
		Fluoranthene		140 J	140 J	qualify	1
		Pyrene		210 J	210 J	qualify	1
		Benzo(a)anthracene		110 J	110 J	qualify	1
		Chrysene		130 J	130 J	qualify	1
		bis(2-ethylhexyl)phthalate		66 J	66 J	qualify	1
		Benzo(b)fluoranthene		87 J	87 J	qualify	1
		Benzo(k)fluoranthene		110 J	110 J	qualify	1
		Benzo(a)pyrene		100 J	100 J	qualify	1
		Indeno(1,2,3-cd)pyrene		24 J	24 J	qualify	1, 3
		Benzo(g,h,i)perylene		16 J	16 J	qualify	1, 3, 4
		Hexachlorocyclopentadiene		370 U	370 UJ	qualify	4
		3-Nitroaniline		1800 U	1800 UJ	qualify	4
		2,4,5-Trichlorophenol		1800 U	1800 UJ	qualify	6
		2,4-Dinitrophenol		1800 U	1800 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1800 U	1800 UJ	qualify	6
	GLA2-11	Hexachlorocyclopentadiene		330 U	330 UJ	qualify	4
		3-Nitroaniline		1600 U	1600 UJ	qualify	4
		2,4,5-Trichlorophenol		1600 U	1600 UJ	qualify	6
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	6
	GLA2-10	2,4-Dimethylphenol		13 J	13 J	qualify	1
		Benzoic acid		200 J	200 J	qualify	1
		Naphthalene		11 J	11 J	qualify	1
		2-Methylnaphthalene		840	840		
		Acenaphthylene		1300	1300		
		Acenaphthene		14 J	14 J	qualify	1
		Phenanthrene		29 J	29 J	qualify	1
		Anthracene		320 J	320 J	qualify	1
		Fluoranthene		130 J	130 J	qualify	1
		Pyrene		410	410		
		Benzo(a)anthracene		170 J	170 J	qualify	1
		Chrysene		120 J	120 J	qualify	1
		Benzo(b)fluoranthene		100 J	100 J	qualify	1

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 7001-2850AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA2-10	Benzo(k)fluoranthene		270 J	270 J	qualify	1
	(cont'd.)	Benzo(a)pyrene		290 J	290 J	qualify	1
		Indeno(1,2,3-cd)pyrene		530	530		
		Dibenzo(a,h)anthracene		160 J	160 J	qualify	1
		Benzo(g,h,i)perylene		560	560 J	qualify	3, 4
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	4
		3-Nitroaniline		1600 U	1600 UJ	qualify	4
		2,4,5-Trichlorophenol		1600 U	1600 UJ	qualify	6
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	6
	GLA2-8	Benzo(g,h,i)perylene		330 U	330 UJ	qualify	4
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	4
		3-Nitroaniline		1600 U	1600 UJ	qualify	4
		2,4,5-Trichlorophenol		1600 U	1600 UJ	qualify	6
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	6
	GLA2-9	Acenaphthylene		24 J	24 J	qualify	1
		Phenanthrene		14 J	14 J	qualify	1
		Benzo(g,h,i)perylene		64 J	64 J	qualify	3, 4
		Hexachlorocyclopentadiene		330 U	330 UJ	qualify	4
		3-Nitroaniline		1600 U	1600 UJ	qualify	4
		2,4,5-Trichlorophenol		1600 U	1600 UJ	qualify	6
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	6
	GLA2-4S	Benzoic acid		66 J	66 J	qualify	1
		Pyrene		18 J	18 J	qualify	1
		Chrysene		14 J	14 J	qualify	1
		Hexachlorocyclopentadiene		350 U	350 UJ	qualify	4
		3-Nitroaniline		1700 U	1700 UJ	qualify	4
		Benzo(g,h,i)perylene		350 U	350 UJ	qualify	4
		2,4,5-Trichlorophenol		1700 U	1700 UJ	qualify	6
		2,4-Dinitrophenol		1700 U	1700 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	6
	GLA2-2	2,4-Dimethylphenol		160 J	160 J	qualify	1
		Benzoic acid		120 J	120 J	qualify	1
		Acenaphthylene		560	560	qualify	1
		Acenaphthene		74 J	74 J	qualify	1
		Fluorene		120 J	120 J	qualify	1
		Phenanthrene		370 J	370 J	qualify	1
		Anthracene		290 J	290 J	qualify	1
		Fluoranthene		780	780	qualify	1
		Pyrene		1800	1800	qualify	1
		Benzo(a)anthracene		410	410	qualify	1
		Chrysene		470	470	qualify	1
		bis(2-ethylhexyl)phthalate		20 J	20 J	qualify	1
		Benzo(b)fluoranthene		200 J	200 J	qualify	1
		Benzo(k)fluoranthene		290 J	290 J	qualify	1
		Benzo(a)pyrene		280 J	280 J	qualify	1
		Indeno(1,2,3-cd)pyrene		160 J	160 J	qualify	1, 3

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2850AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC. ug/Kg	LAB REPORTED CONC. ug/Kg	QA REPORTED CONC. ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA2-2	Dibenzo(a,h)anthracene		36 J	36 J	qualify	1, 3
	(cont'd.)	Benzo(g,h,i)perylene		170 J	170 J	qualify	1, 3, 4
		Hexachlorocyclopentadiene		380 U	380 UJ	qualify	4
		3-Nitroaniline		1800 U	1800 UJ	qualify	4
		2,4,5-Trichlorophenol		1800 U	1800 UJ	qualify	6
		2,4-Dinitrophenol		1800 U	1800 UJ	qualify	6
		4,6-Dinitro-2-methylphenol		1800 U	1800 UJ	qualify	6
	GLA2-1	Acenaphthylene		280 J	280 J	qualify	1
	(@ 4x dilution)	Acenaphthene		300 J	300 J	qualify	1
		Fluorene		1800	1800		
		Phenanthrene		4000	4000		
		Anthracene		670 J	670 J	qualify	1
		Fluoranthene		820 J	820 J	qualify	1
		Pyrene		1600	1600		
		Benzo(a)anthracene		390 J	390 J	qualify	1
		Chrysene		430 J	430 J	qualify	1
		Benzo(b)fluoranthene		250 J	250 J	qualify	1
		Benzo(k)fluoranthene		360 J	360 J	qualify	1
		Benzo(a)pyrene		310 J	310 J	qualify	1
		2,4,5-Trichlorophenol		6100 U	6100 UJ	qualify	6
		Hexachlorocyclopentadiene		1300 U	1300 UJ	qualify	4
		2,4-Dinitrophenol		6100 U	6100 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		1300 U	1300 UJ	qualify	4
		Benzo(g,h,i)perylene		1300 U	1300 UJ	qualify	4
	GLA2-4	2,4,5-Trichlorophenol		1600 U	1600 UJ	qualify	6
		Hexachlorocyclopentadiene		320 U	320 UJ	qualify	4
		2,4-Dinitrophenol		1600 U	1600 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		320 U	320 UJ	qualify	4
		Benzo(g,h,i)perylene		320 U	320 UJ	qualify	4

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported value is qualified because although it was not found in the associated extraction (method) blank, it is a common laboratory contaminant, and may not be present in the native sample. The data user is alerted to potential positive bias.
- The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%. No bias direction is inferred.
- The reported phenolic compound result is qualified 'UJ' or 'J', as quantitatively estimated, because the recovery of one or more acid fraction surrogates recovered below the acceptable limit(s), but above 10%. Potential negative bias is suggested due to matrix effects.
- The reported value for this compound is qualified 'UJ' or 'J', because the recovery for this compound in the associated LCS (Blank Spike) was below the laboratory-established lower limit. Negative bias is suggested.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2850A

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
 All samples were extracted and analyzed within allowable holding times.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>	<u>Affects</u>
11/28/01	SBLKYQ	Q4157	soil	none		(All except GLA2-4)
11/29/01	SBLKA1	Q4182	soil	dibenzofuran	6 J	(GLA2-4)
				benzo(a)anthracene	9 J	
				chrysene	8 J	
				benzo(b)fluoranthene	5 J	
				benzo(k)fluoranthene	8 J	

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
 If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
 If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
GLA7-3D	246-tribromophenol	low (>10%)	Qualify phenolics 'UJ' or 'J'; negative bias suggested

D. MATRIX SPIKE / DUPLICATE

Comments: No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
SBLKYQ	2,4,5-trichlorophenol	low	Qualify 'UJ' or 'J' in all affected samples (All except GLA2-4)
	2,4-dinitrophenol	low	Qualify 'UJ' or 'J' in all affected samples (All except GLA2-4)
	4,6-diNO ₂ -2-Mephenol	low	Qualify 'UJ' or 'J' in all affected samples (All except GLA2-4)
SBLKA1	bis(2-Clisopropyl)ether	low	Qualify 'UJ' or 'J' in all affected samples (GLA2-4)
	2,4,5-trichlorophenol	low	Qualify 'UJ' or 'J' in all affected samples (GLA2-4)

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
All IS recoveries & RTs were within acceptable limits			

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
11/13/01	OK	yes	
11/29/01	OK	yes	
12/03/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

<u>Sample ID</u>	<u>Compound</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>	
GLA7-3D	pyrene	570	574.7	
Ax	Is	Vt	Df	GPC
483787	40.0	500	1.0	1.0
Ais	RRF	Vi	Ws	D
532781	1.089	2.0	15.6	0.93

Conc., ug/Kg =

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2850A

A. INITIAL CALIBRATION

CALIBRATION DATE :	11/13/01
FILE IDs :	Q3984 -3988
ALL RRFs > 0.05 ?	Yes
SPCC RRFs >0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds) ----->	2,4-dinitrophenol
SPCC Compounds	indeno(123cd)pyrene
N-Nitroso-di-n-propylamine	dibenzo(ah)anthracene
Hexachlorocyclopentadiene	benzo(ghi)perylene
2,4-Dinitrophenol	
4-Nitrophenol	
MINIMUM RRF = 0.050	
CCC Compounds	
Base/Neutrals	
Acenaphthene	
1,4-Dichlorobenzene	
Hexachlorobutadiene	
Diphenylamine	
Di-n-octylphthalate	
Fluoranthene	
Benzo(a)pyrene	
Acids	
4-Chloro-3-methylphenol	
2,4-Dichlorophenol	
2-Nitrophenol	
Phenol	
Pentachlorophenol	
2,4,6-Trichlorophenol	
MAXIMUM %RSD = 30.0%	
MAXIMUM %D = 20.0%	

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/29/01	12/03/01
FILE ID :	Q4156	Q4156
ALL RRFs > 0.05 ?	Yes	Yes
SPCC RRFs >0.05 ?	Yes	Yes
CCC %Ds < 20% ?	Yes	Yes
All Targets < 20%D?	NO	NO
(If No, list compounds) ----->	hexachlorocyclopentadiene	hexachlorocyclopentadiene
	3-nitroaniline	2,4-dinitrophenol
	benzo(ghi)perylene	indeno(123cd)pyrene
		benzo(ghi)perylene

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2850AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA7-1D	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA7-3B	Aroclor 1016		35 U	35 U		
		Aroclor 1221		71 U	71 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		4.7 J	4.7 J	qualify	1
	GLA7-3D	Aroclor 1016		35 U	35 U		
		Aroclor 1221		71 U	71 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		15 J	15 J	qualify	1, 2
		Aroclor 1254		35	35		
		Aroclor 1260		53	53		
	GLA2-11S	Aroclor 1016		37 U	37 U		
		Aroclor 1221		75 U	75 U		
		Aroclor 1232		37 U	37 U		
		Aroclor 1242		8.8 J	8.8 J	qualify	1
		Aroclor 1248		37 U	37 U		
		Aroclor 1254		21 J	21 J	qualify	1
		Aroclor 1260		32 J	32 J	qualify	1
	GLA2-11	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA2-10 (@ 100x diution)	Aroclor 1016		3400 U	3400 U		
		Aroclor 1221		6800 U	6800 U		
		Aroclor 1232		3400 U	3400 U		
		Aroclor 1242		3400 U	3400 U		
		Aroclor 1248		18000	18000		
		Aroclor 1254		3400 U	3400 U		
		Aroclor 1260		1800 J	1800 J	qualify	1
	GLA6-4S	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		23 J	23 JN	qualify	1, 4
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		2.2 J	2.2 J	qualify	1, 2

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2850AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA2-9	Aroclor 1016		670 U	670 U		
	(@ 20x dilution)	Aroclor 1221		1400 U	1400 U		
		Aroclor 1232		670 U	670 U		
		Aroclor 1242		670 U	670 U		
		Aroclor 1248		1100	1100		
		Aroclor 1254		670 U	670 U		
		Aroclor 1260		100 J	100 J	qualify	1
	GLA2-4	Aroclor 1016		33 U	33 U		
		Aroclor 1221		67 U	67 U		
		Aroclor 1232		33 U	33 U		
		Aroclor 1242		33 U	33 U		
		Aroclor 1248		3.1 J	33 U	negate	3
		Aroclor 1254		33 U	33 U		
		Aroclor 1260		1.2 J	33 U	negate	3
	GLA2-4S	Aroclor 1016		35 U	35 U		
		Aroclor 1221		71 U	71 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		7.1 J	7.1 J	qualify	1
		Aroclor 1254		7.0 J	7.0 J	qualify	1
		Aroclor 1260		6.9 J	6.9 J	qualify	1
	GLA2-2	Aroclor 1016		3800 U	3800 U		
	(@ 100x dilution)	Aroclor 1221		7800 U	7800 U		
		Aroclor 1232		3800 U	3800 U		
		Aroclor 1242		3800 U	3800 U		
		Aroclor 1248		10000	10000		
		Aroclor 1254		3800 U	3800 U		
		Aroclor 1260		1000 J	1000 J	qualify	1
	GLA2-1	Aroclor 1016		3900 U	3900 U		
	(@ 100x dilution)	Aroclor 1221		7900 U	7900 U		
		Aroclor 1232		3900 U	3900 U		
		Aroclor 1242		3900 U	3900 U		
		Aroclor 1248		7100	7100		
		Aroclor 1254		3900 U	3900 U		
		Aroclor 1260		850 J	850 J	qualify	1

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported result is qualified 'J', as quantitatively estimated, because the %D between analytical columns exceeded 25%, but was below 50%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.
- The reported result is qualified 'U', and raised to the PQL, because the %D between analytical columns exceeded 50%, and the reported value was below the analyte's PQL. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.
- The %Difference between analytical columns for this analyte exceeded 100%; however, interference was present which likely elevated the reported value, which is the higher of the two values. The reported Aroclor should be considered as presumptively present, and quantitatively qualified, with positive bias suggested.

POLYCHLORINATED BIPHENYLS (PCBs)
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory

Project No.: 7001-2850A

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	C5135037
Extraction Date:	11/28/01
Analyte	Conc. ug/Kg
none found	
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Comments: ~~No matrix spike / duplicate were performed; only a Blank Spike was run.~~
~~No estimation may be made of potential matrix effects on associated samples.~~

E. LABORATORY QC SPIKE (PBLK09QC2)

All reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: GlenwoodLaboratory
Project No.: 7001-2850ALaboratory: STL - BuffaloA. INITIAL CALIBRATIONSCALIBRATION DATE : 12/01/01 Verification of ICAL Results

<u>Aroclor 1260</u>	<u>DB-1701</u>		
<u>Peak 1, RT = 18.31</u>	<u>Response</u>	<u>Cal Factor, Calc'd.</u>	<u>CF, reported</u>
0.05	151725	3034500	3034500
0.1	304249	3042490	3042490
0.2	557381	2786905	2786905
0.4	1058053	2645133	2645132
0.8	1943788	<u>2429735</u>	<u>2429735</u>
Average		2787753	2787752
Calc'd. %RSD =	9.39		
Reported %RSD =	9.4		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/01/01	12/02/01	12/07/01
FILE ID :	C5136042	C5136052	C5138043
All Targets < 15% D?	Yes	Yes	Yes
(If No, list compounds) ==>			

QA ACTION : None necessaryC. SAMPLE RESULT VERIFICATION

SAMPLE ID: GLA2-10
 COMPOUND: Aroclor-1248
 REPORTED VALUE: 18000 ug/Kg column = DB-1701

<u>Peak RT</u>	<u>CF</u>	<u>Peak Area</u>	<u>conc., ng</u>
10.52	4783850	2642038	0.5523
11.30	3136100	1762685	0.5621
12.88	6223390	3140606	0.5046
Average conc. =			0.5397

ug/Kg =	ng average conc.	extract, uL	Dilution factor
	0.5397	10000	100
	30.4	1.0	0.97
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 18301.13

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2850AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-1D	Aluminum	4.257	2050	2050		
		Antimony		0.87 U	0.87 U		
		Arsenic		1.1 B	1.1 J	qualify	1
		Barium		12.7 B	12.7 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	5.698	254 B	254 J	qualify	1
		Chromium		4.6	4.6		
		Cobalt		1.5 B	1.5 J	qualify	1
		Copper		4.4 B	4.4 J	qualify	1
		Iron		6890	6890		
		Lead		6.5	6.5		
		Magnesium		477 B	477 J	qualify	1
		Manganese		105 *	105		2
		Mercury		0.043	0.043		
		Nickel		6.0 B	6.0 J	qualify	1
		Potassium		302 B	302 J	qualify	1, 3
		Selenium		0.93 UN	0.93 U		
		Silver		0.19 U	0.19 U		
		Sodium	12.477	20.0 B	20.0 J	qualify	1
		Thallium		3.5 U	3.5 U		
		Vanadium		11.2	11.2		
		Zinc	1.345	13.7	13.7		
		Cyanide		Not analyzed			
	GLA7-3B	Aluminum	4.257	5330	5330		
		Antimony		0.86 U	0.86 U		
		Arsenic		2.2	2.2		
		Barium		24.4 B	24.4 J	qualify	1
		Beryllium		0.34 B	0.34 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	5.698	662 B	662 J	qualify	1
		Chromium		14.0	14.0		
		Cobalt		3.5 B	3.5 J	qualify	1
		Copper		7.3	7.3		
		Iron		10800	10800		
		Lead		8.0	8.0		
		Magnesium		1170	1170		
		Manganese		206 *	206		2
		Mercury		0.011	0.011		
		Nickel		8.0	8.0		
		Potassium		571 B	571 J	qualify	1, 3
		Selenium		0.91 UN	0.91 U		
		Silver		0.19 U	0.19 U		
		Sodium	12.477	36.7 B	36.7 J	qualify	1
		Thallium		3.5 U	3.5 U		
		Vanadium		13.9	13.9		
		Zinc	1.345	18.9	18.9		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2850AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-3D	Aluminum	4.257	3580	3580		
		Antimony		0.89 U	0.89 U		
		Arsenic		2.2	2.2		
		Barium		24.2 B	24.2 J	qualify	1
		Beryllium		0.32 B	0.32 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	5.698	1210	1210		
		Chromium		8.4	8.4		
		Cobalt		2.9 B	2.9 J	qualify	1
		Copper		18.6	18.6		
		Iron		8910	8910		
		Lead		27.3	27.3		
		Magnesium		1030	1030		
		Manganese		180 *	180		2
		Mercury		0.046	0.046		
		Nickel		16.9	16.9		
		Potassium		403 B	403 J	qualify	1, 3
		Selenium		0.95 UN	0.95 U		
		Silver		0.19 U	0.19 U		
		Sodium	12.477	33.8 B	33.8 J	qualify	1
		Thallium		3.6 U	3.6 U		
		Vanadium		60.4	60.4		
		Zinc	1.345	37.2	37.2		
		Cyanide		Not analyzed			
	GLA2-11S	Aluminum	4.257	6540	6540		
		Antimony		0.88 U	0.88 U		
		Arsenic		5.2	5.2		
		Barium		36.8 B	36.8 J	qualify	1
		Beryllium		0.41 B	0.41 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	5.698	1340	1340		
		Chromium		13.2	13.2		
		Cobalt		2.8 B	2.8 J	qualify	1
		Copper		13.7	13.7		
		Iron		9670	9670		
		Lead		74.8	74.8		
		Magnesium		1010	1010		
		Manganese		244 *	244		2
		Mercury		0.12	0.12		
		Nickel		13.0	13.0		
		Potassium		417 B	417 J	qualify	1, 3
		Selenium		0.94 UN	0.94 U		
		Silver		0.19 U	0.19 U		
		Sodium	12.477	32.2 B	32.2 J	qualify	1
		Thallium		3.6 U	3.6 U		
		Vanadium		31.0	31.0		
		Zinc	1.345	71.0	71.0		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2850AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-11	Aluminum	4.257	2320	2320		
		Antimony		0.86 U	0.86 U		
		Arsenic		0.82 U	0.82 U		
		Barium		13.6 B	13.6 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	5.698	282 B	282 J	qualify	1
		Chromium		5.7	5.7		
		Cobalt		2.2 B	2.2 J	qualify	1
		Copper		4.7	4.7		
		Iron		6170	6170		
		Lead		22.0	22.0		
		Magnesium		513 B	513 J	qualify	1
		Manganese		125 *	125		2
		Mercury		0.0045 B	0.005 J	qualify	1
		Nickel		5.6 B	5.6 J	qualify	1
		Potassium		328 B	328 J	qualify	1, 3
		Selenium		0.91 UN	0.91 U		
		Silver		0.19 U	0.19 U		
		Sodium	12.477	22.7 B	22.7 J	qualify	1
		Thallium		3.5 U	3.5 U		
		Vanadium		7.3 B	7.3 J	qualify	1
		Zinc	1.345	23.7	23.7		
		Cyanide		Not analyzed			
	GLA2-10	Aluminum	4.257	824	824		
		Antimony		0.86 U	0.86 U		
		Arsenic		1.2 B	1.2 J	qualify	1
		Barium		5.7 B	5.7 J	qualify	1
		Beryllium		0.28 B	0.28 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	5.698	191 B	191 J	qualify	1
		Chromium		4.0	4.0		
		Cobalt		0.83 B	0.83 J	qualify	1
		Copper		15.8	15.8		
		Iron		5900	5900		
		Lead		2.6	2.6		
		Magnesium		188 B	188 J	qualify	1
		Manganese		42.9 *	42.9		2
		Mercury		0.0028 U	0.003 U		
		Nickel		6.3 B	6.3 J	qualify	1
		Potassium		118 B	118 J	qualify	1, 3
		Selenium		0.92 UN	0.92 U		
		Silver		0.19 U	0.19 U		
		Sodium	12.477	12.0 B	12.0 J	qualify	1
		Thallium		3.5 U	3.5 U		
		Vanadium		175	175		
		Zinc	1.345	7.4	7.4		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2850AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-8	Aluminum	4.257	923	923		
		Antimony		0.87 U	0.87 U		
		Arsenic		0.84 U	0.84 U		
		Barium		7.6 B	7.6 J	qualify	1
		Beryllium		0.096 B	0.096 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	5.698	96.9 B	96.9 J	qualify	1
		Chromium		2.3	2.3		
		Cobalt		0.66 B	0.66 J	qualify	1
		Copper		1.9 B	1.9 J		
		Iron		2660	2660		
		Lead		1.1	1.1		
		Magnesium		242 B	242 J	qualify	1
		Manganese		54.3 *	54.3		2
		Mercury		0.0033 U	0.003 U		
		Nickel		2.9 B	2.9 J	qualify	1
		Potassium		164 B	164 J	qualify	1, 3
		Selenium		0.93 UN	0.93 U		
		Silver		0.19 U	0.19 U		
		Sodium	12.477	8.8 B	8.8 J	qualify	1
		Thallium		3.5 U	3.5 U		
		Vanadium		12.1	12.1		
		Zinc	1.345	5.2 B	5.2 J	qualify	1
		Cyanide		Not analyzed			
	GLA2-9	Aluminum	4.257	1090	1090		
		Antimony		0.88 U	0.88 U		
		Arsenic		1.3 B	1.3 J	qualify	1
		Barium		3.6 B	3.6 J	qualify	1
		Beryllium		0.36 B	0.36 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	5.698	254 B	254 J	qualify	1
		Chromium		7.2	7.2		
		Cobalt		0.69 B	0.69 J	qualify	1
		Copper		8.9	8.9		
		Iron		6860	6860		
		Lead		3.1	3.1		
		Magnesium		261 B	261 J	qualify	1
		Manganese		71.2 *	71.2		2
		Mercury		0.0025 U	0.003 U		
		Nickel		11.7	11.7		
		Potassium		155 B	155 J	qualify	1, 3
		Selenium		0.94 UN	0.94 U		
		Silver		0.19 U	0.19 U		
		Sodium	12.477	11.4 B	11.4 J	qualify	1
		Thallium		3.6 U	3.6 U		
		Vanadium		428	428		
		Zinc	1.345	8.5	8.5		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2850AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-4	Aluminum	4.257	1210	1210		
		Antimony		0.71 U	0.71 U		
		Arsenic		0.94 B	0.94 J	qualify	1
		Barium		9.2 B	9.2 J	qualify	1
		Beryllium		0.098 B	0.098 J	qualify	1
		Cadmium		0.12 U	0.12 U		
		Calcium	5.698	185 B	185 J	qualify	1
		Chromium		2.5	2.5		
		Cobalt		1.2 B	1.2 J	qualify	1
		Copper		2.2 B	2.2 J	qualify	1
		Iron		4180	4180		
		Lead		1.7	1.7		
		Magnesium		401 B	401 J	qualify	1
		Manganese		111 *	111		2
		Mercury		0.0036 U	0.004 U		
		Nickel		2.2 B	2.2 J	qualify	1
		Potassium		270 B	270 J	qualify	1, 3
		Selenium		0.76 UN	0.76 U		
		Silver		0.15 U	0.15 U		
		Sodium	12.477	16.2 B	16.2 J	qualify	1
		Thallium		2.9 U	2.9 U		
		Vanadium		11.9	11.9		
		Zinc	1.345	6.6	6.6		
		Cyanide		Not analyzed			
	GLA2-4S	Aluminum	4.257	1540	1540		
		Antimony		0.87 U	0.87 U		
		Arsenic		0.83 U	0.83 U		
		Barium		7.9 B	7.9 J	qualify	1
		Beryllium		0.17 B	0.17 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	5.698	184 B	184 J	qualify	1
		Chromium		4.5	4.5		
		Cobalt		1.1 B	1.1 J	qualify	1
		Copper		4.1 B	4.1 J	qualify	1
		Iron		4060	4060		
		Lead		11.5	11.5		
		Magnesium		386 B	386 J	qualify	1
		Manganese		60.9 *	60.9		2
		Mercury		0.0055 B	0.006 J	qualify	1
		Nickel		7.1 B	7.1 J	qualify	1
		Potassium		199 B	199 J	qualify	1, 3
		Selenium		0.93 UN	0.93 U		
		Silver		0.19 U	0.19 U		
		Sodium	12.477	18.5 B	18.5 J	qualify	1
		Thallium		3.5 U	3.5 U		
		Vanadium		61.2	61.2		
		Zinc	1.345	9.8	9.8		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2850AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA2-2	Aluminum	4.257	690	690		
		Antimony		0.77 U	0.77 U		
		Arsenic		0.73 U	0.73 U		
		Barium		9.9 B	9.9 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.13 U	0.13 U		
		Calcium	5.698	210 B	210 J	qualify	1
		Chromium		3.7	3.7		
		Cobalt		0.75 B	0.75 J	qualify	1
		Copper		17.6	17.6		
		Iron		3400	3400		
		Lead		9.0	9.0		
		Magnesium		156 B	156 J	qualify	1
		Manganese		28.0 *	28.0		2
		Mercury		0.039	0.039		
		Nickel		20.3	20.3		
		Potassium		89.2 B	89.2 J	qualify	1, 3
		Selenium		0.82 UN	0.82 U		
		Silver		0.17 U	0.17 U		
		Sodium	12.477	26.6 B	26.6 J	qualify	1
		Thallium		3.1 U	3.1 U		
		Vanadium		178	178		
		Zinc	1.345	6.5	6.5		
		Cyanide		Not analyzed			
	GLA2-1	Aluminum	4.257	495	495		
		Antimony		0.98 U	0.98 U		
		Arsenic		0.94 U	0.94 U		
		Barium		4.7 B	4.7 J	qualify	1
		Beryllium		0.11 U	0.11 U		
		Cadmium		0.17 U	0.17 U		
		Calcium	5.698	138 B	138 J	qualify	1
		Chromium		4.0	4.0		
		Cobalt		0.30 B	0.30 J	qualify	1
		Copper		34.6	34.6		
		Iron		2850	2850		
		Lead		4.1	4.1		
		Magnesium		156 B	156 J	qualify	1
		Manganese		19.1 *	19.1		2
		Mercury		0.053	0.053		
		Nickel		6.2 B	6.2 J	qualify	1
		Potassium		79.1 B	79.1 J	qualify	1, 3
		Selenium		1.0 UN	1.0 U		
		Silver		0.21 U	0.21 U		
		Sodium	12.477	11.0 B	11.0 J	qualify	1
		Thallium		4.0 U	4.0 U		
		Vanadium		92.5	92.5		
		Zinc	1.345	4.9 B	4.9 J	qualify	1
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : Glenwood SDG No.: 7001-2850A Method : SW-846
Lab Name : STL - CT Sample Matrix : Non-Aqueous

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value.
No bias direction is inferred.
- 2 The reported value for this analyte was qualified by the laboratory, based upon matrix spike or matrix duplicate recoveries outside method limits. However, the MS and MD samples were not from this SDG, and may not be reflective of the sample matrix. Therefore, no data qualifiers were assigned by the reviewer.
- 3 The reported positive value for this analyte was qualified 'J', because the associated LCS standard recovery exceeded the designated upper control limit.
Potential positive bias is suggested.

METALS ANALYSIS QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- CTLab Project No. : 7001-2850A

- A. CALIBRATION
- | | | |
|--------------|---------------------|-------------------|
| ICP Analytes | | <u>Outliers ?</u> |
| ICV | 90% - 110% recovery | none |
| CCV | 90% - 110% recovery | none |
- B. CRDL STANDARD
- | | |
|--------------------|-------------------|
| 80 - 120% recovery | <u>Outliers ?</u> |
| | none |
- C. BLANKS
- | | | |
|------------|--------|-------------------|
| ICB / CCB | < CRDL | <u>Outliers ?</u> |
| Prep Blank | < CRDL | none |
| | | none |
- D. INTERELEMENT CORRECTION (ICSA / ICSAB)
- | | | |
|-------|-------------------------------------|-------------------|
| ICSA | Response < 2x CRDL for trace metals | <u>Outliers ?</u> |
| ICSAB | 80 - 120% recovery | none |
| | | none |
- E. MATRIX SPIKE (GLA7-1F)
- | | |
|---|-------------------|
| 75 - 125% recovery (if sample conc. < 4x spike conc.) | <u>Outliers ?</u> |
| | Se 142% |
- QA Action : Qualify positive Se values 'J', with positive bias suggested.
Affects all SDG samples. See Comments below.
- Comments: The spiked sample was not from this SDG, although it was from the same site. Reported recoveries may not be representative of this sample group's matrix characteristics.
- F. POST-DIGESTION SPIKE (GLA7-1F)
- | | |
|---|-------------------|
| 75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >. | <u>Outliers ?</u> |
| | none |
- G. MATRIX DUPLICATE (GLA7-1F)
- | | |
|--|-------------------|
| Max. 100% RPD for non-aqueous samples > 5x CRDL | <u>Outliers ?</u> |
| Max. (+/-) CRDL value if either sample < 5x CRDL | none |
| | none |
- Comments: The duplicate sample was not from this SDG, although it was from the same site. Reported recoveries may not be representative of this sample group's matrix characteristics.
- H. LABORATORY CONTROL SAMPLE
- | | |
|--|-------------------|
| Recovery within control limits for non-aqueous samples | <u>Outliers ?</u> |
| Recovery between 80 - 120% for aqueous samples | K (5260 / 5000) |
| | n/a |
- QA Action : Qualify positive K values 'J', with positive bias suggested.
Affects all SDG samples.
- I. SERIAL DILUTION SAMPLE
- | | |
|---|-------------------|
| Maximum 10.0% D if undiluted sample > 10x IDL | <u>Outliers ?</u> |
| | none |
- J. VERIFICATION OF INSTRUMENTAL PARAMETERS
- | | | |
|---------------------------------|------------------|-------------------|
| | <u>Frequency</u> | <u>Outliers ?</u> |
| Instrument Detection Limits | Quarterly | none |
| Interelement Correction Factors | Annually | none |
| Linear Range Analysis | Quarterly | none |

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For: Vanasse, Hangen, Brustlin, Inc.Project: GlenwoodLaboratory: STL-CTLab Project No.: 7001-2850A

Sample Result Verification

Associated Samples: All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ? Yes

If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ? Yes

If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ? Yes

If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ? Yes

If No, list affected analytes and samples, and QA action : _____

Note: No % solids logs / info. were present in the data package. Logs were requested from the laboratory. The concentration verification below was performed using the % Solids value reported on Form 1 for this sample.

5. Show calculation for % Solids for one sample.

Sample ID: GLA2-10 (2850A-06) *out 10/6/10* Lab value: 96.9 %
 Dry weight: 0 gm % Solids = $\frac{\text{Dry weight}}{\text{Wet weight}} \times 100$
 Wet weight: 0.00 gm = **#DIV/0!** %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLA2-10 Analyte: V Lab value: 175 mg/Kg
 % Solids: 96.9
 Raw value 0.9317 mg/L
 Final volume 200 mL
 Wet weight 1.10 gm
 mg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (mL)}}{\text{wet wt} \times (\% \text{Sol}/100)} = \span style="border: 1px solid black; padding: 2px;">174.82 mg/kg$

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ? n/a

If No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

September 28, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 7001-2734A

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA8-01	012734A-01	SOIL	10/26/01	X	X	X
GLA8-02	012734A-02	SOIL	10/26/01	X	X	X
GLA8-03	012734A-03	SOIL	10/26/01	X	X	X
GLA8-04A	012734A-04	SOIL	10/26/01	X	X	X
GLA8-04B	012734A-05	SOIL	10/26/01	X	X	X
GLA8-05	012734A-06	SOIL	10/26/01	X	X	X
GLDPE-01	012734A-07	SOIL	10/26/01	X	X	X
GLDPE-02	012734A-08	SOIL	10/26/01	X	X	X
GLDPE-03	012734A-09	SOIL	10/26/01	X	X	X
GLDPE-04	012734A-10	SOIL	10/26/01	X	X	X
GLDPN-01	012734A-11	SOIL	10/26/01	X	X	X
GLDPN-02	012734A-12	SOIL	10/26/01	X	X	X
GLDPN-03	012734A-13	SOIL	10/26/01	X	X	X
GLDPN-04	012734A-14	SOIL	10/26/01	X	X	X
GLDPS-01	012734A-15	SOIL	10/26/01	X	X	X
GLDPS-02	012734A-16	SOIL	10/26/01	X	X	X
GLDPS-03	012734A-17	SOIL	10/26/01	X	X	X
GLDPS-04	012734A-18	SOIL	10/26/01	X	X	X
GLDPW-01	012734A-19	SOIL	10/26/01	X	X	X
GLDPW-02	012734A-20	SOIL	10/26/01	X	X	X

Sample Collection and Receipt

Samples were received at the laboratory at 19 degrees C; however, the samples were transported to the lab on the same day as collected, and likely did not have time to chill. No data qualifiers were applied.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

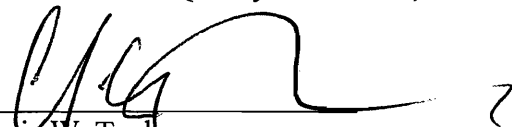
SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-2734A

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2734AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA8-01	Phenanthrene		26 J	26 J	qualify	1
		Anthracene		6 J	6 J	qualify	1
		Fluoranthene		52 J	52 J	qualify	1
		Pyrene		78 J	78 J	qualify	1
		Benzyl alcohol		350 U	350 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	5
	GLA8-02	2-Methylnaphthalene		11 J	11 J	qualify	1
		Acenaphthylene		13 J	13 J	qualify	1
		Acenaphthene		44 J	44 J	qualify	1
		Dibenzofuran		37 J	37 J	qualify	1
		Fluorene		72 J	72 J	qualify	1
		Phenanthrene		590	590		
		Anthracene		160 J	160 J	qualify	1
		Carbazole		78 J	78 J	qualify	1
		Fluoranthene		450	450		
		Pyrene		930	930 J	qualify	6
		Butylbenzylphthalate		340 U	340 UJ	qualify	6
		3,3'-Dichlorobenzidine		680 U	680 UJ	qualify	6
		Benzo(a)anthracene		310 J	310 J	qualify	1, 6
		Chrysene		310 J	310 J	qualify	1, 6
		bis(2-ethylhexyl)phthalate		340 U	340 UJ	qualify	6
		Di-n-octylphthalate		340 U	340 UJ	qualify	6
		Benzo(b)fluoranthene		200 J	200 J	qualify	1, 6
		Benzo(k)fluoranthene		240 J	240 J	qualify	1, 6
		Benzo(a)pyrene		260 J	260 J	qualify	1, 6
		Indeno(1,2,3-cd)pyrene		190 J	190 J	qualify	1, 6
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	6
		Benzo(g,h,i)perylene		220 J	220 J	qualify	1, 6
		Benzyl alcohol		340 U	340 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	5
	GLA8-03	2-Methylnaphthalene		13 J	13 J	qualify	1
		Phenanthrene		58 J	58 J	qualify	1
		Anthracene		12 J	12 J	qualify	1
		Fluoranthene		120 J	120 J	qualify	1
		Pyrene		210 J	210 J	qualify	1
		Benzo(a)anthracene		83 J	83 J	qualify	1
		Chrysene		120 J	120 J	qualify	1
		Benzo(b)fluoranthene		96 J	96 J	qualify	1
		Benzo(k)fluoranthene		97 J	97 J	qualify	1
		Benzo(a)pyrene		95 J	95 J	qualify	1
		Indeno(1,2,3-cd)pyrene		66 J	66 J	qualify	1
		Benzo(g,h,i)perylene		75 J	75 J	qualify	1
		Benzyl alcohol		330 U	330 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	5
	GLA8-04A	Benzyl alcohol		340 U	340 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	5
	GLA8-04B	Benzyl alcohol		340 U	340 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		340 U	340 UJ	qualify	4
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	4
		Benzo(g,h,i)perylene		340 U	340 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	5

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 7001-2734AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA8-05	Fluoranthene		21 J	21 J	qualify	1
		Benzyl alcohol		340 U	340 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	5
	GLDPE-01	Benzyl alcohol		380 U	380 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1800 U	1800 UJ	qualify	5
	GLDPE-02	Benzyl alcohol		340 U	340 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	5
	GLDPE-03	Phenanthrene		50 J	50 J	qualify	1
		Anthracene		23 J	23 J	qualify	1
		Fluoranthene		68 J	68 J	qualify	1
		Pyrene		160 J	160 J	qualify	1
		Benzo(a)anthracene		45 J	45 J	qualify	1
		Chrysene		56 J	56 J	qualify	1
		Indeno(1,2,3-cd)pyrene		24 J	24 J	qualify	1
		Benzyl alcohol		350 U	350 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	5
	GLDPE-04	Benzyl alcohol		390 U	390 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1900 U	1900 UJ	qualify	5
	GLDPN-01	Naphthalene		31 J	31 J	qualify	1
		2-Methylnaphthalene		41 J	41 J	qualify	1
		Acenaphthylene		150 J	150 J	qualify	1
		Acenaphthene		8 J	8 J	qualify	1
		Phenanthrene		250 J	250 J	qualify	1
		Anthracene		58 J	58 J	qualify	1
		Fluoranthene		100 J	100 J	qualify	1
		Pyrene		370	370 J	qualify	6
		Butylbenzylphthalate		350 U	350 UJ	qualify	6
		3,3'-Dichlorobenzidine		700 U	700 UJ	qualify	6
		Benzo(a)anthracene		140 J	140 J	qualify	1, 6
		Chrysene		170 J	170 J	qualify	1, 6
		bis(2-ethylhexyl)phthalate		350 U	350 UJ	qualify	6
		Di-n-octylphthalate		350 U	350 UJ	qualify	6
		Benzo(b)fluoranthene		87 J	87 J	qualify	1, 6
		Benzo(k)fluoranthene		130 J	130 J	qualify	1, 6
		Benzo(a)pyrene		160 J	160 J	qualify	1, 6
		Indeno(1,2,3-cd)pyrene		150 J	150 J	qualify	1, 6
		Dibenzo(a,h)anthracene		350 U	350 UJ	qualify	6
		Benzo(g,h,i)perylene		320 J	320 J	qualify	1, 6
		Benzyl alcohol		350 U	350 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	5
	GLDPN-02	Isophorone		260 J	260 J	qualify	1
		Fluoranthene		26 J	26 J	qualify	1
		Pyrene		42 J	42 J	qualify	1
		Benzyl alcohol		340 U	340 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	5

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2734AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLDPN-03	Benzyl alcohol		360 U	360 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1800 U	1800 UJ	qualify	5
	GLDPN-04	Benzyl alcohol		330 U	330 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1600 U	1600 UJ	qualify	5
	GLDPS-01	Benzoic acid		21 J	21 J	qualify	1
		Phenanthrene		32 J	32 J	qualify	1
		Anthracene		11 J	11 J	qualify	1
		Fluoranthene		47 J	47 J	qualify	1
		Pyrene		100 J	100 J	qualify	1, 6
		Butylbenzylphthalate		340 U	340 UJ	qualify	6
		3,3'-Dichlorobenzidine		690 U	690 UJ	qualify	6
		Benzo(a)anthracene		36 J	36 J	qualify	1, 6
		Chrysene		52 J	52 J	qualify	1, 6
		bis(2-ethylhexyl)phthalate		340 U	340 UJ	qualify	6
		Di-n-octylphthalate		340 U	340 UJ	qualify	6
		Benzo(b)fluoranthene		340 U	340 UJ	qualify	6
		Benzo(k)fluoranthene		340 U	340 UJ	qualify	6
		Benzo(a)pyrene		340 U	340 UJ	qualify	6
		Indeno(1,2,3-cd)pyrene		340 U	340 UJ	qualify	6
		Dibenzo(a,h)anthracene		340 U	340 UJ	qualify	6
		Benzo(g,h,i)perylene		340 U	340 UJ	qualify	6
		Hexachlorocyclopentadiene		340 U	340 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1700 U	1700 U	qualify	5
	GLDPS-02	Benzoic acid		25 J	25 J	qualify	1
		Naphthalene		29 J	29 J	qualify	1
		2-Methylnaphthalene		6 J	6 J	qualify	1
		Phenanthrene		16 J	16 J	qualify	1
		Anthracene		5 J	5 J	qualify	1
		Fluoranthene		19 J	19 J	qualify	1
		Pyrene		45 J	45 J	qualify	1
		Di-n-octylphthalate		350 U	350 UJ	qualify	6
		Benzo(b)fluoranthene		350 U	350 UJ	qualify	6
		Benzo(k)fluoranthene		350 U	350 UJ	qualify	6
		Benzo(a)pyrene		350 U	350 UJ	qualify	6
		Indeno(1,2,3-cd)pyrene		350 U	350 UJ	qualify	6
		Dibenzo(a,h)anthracene		350 U	350 UJ	qualify	6
		Benzo(g,h,i)perylene		350 U	350 UJ	qualify	6
		Hexachlorocyclopentadiene		350 U	350 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	5
	GLDPS-03	Benzyl alcohol		350 U	350 UJ	qualify	4
		Indeno(1,2,3-cd)pyrene		350 U	350 UJ	qualify	4
		Dibenzo(a,h)anthracene		350 U	350 UJ	qualify	4
		Benzo(g,h,i)perylene		350 U	350 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	5

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOODSDG No.: 7001-2734AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLDPS-04	Benzoic acid		28 J	28 J	qualify	1
		Naphthalene		11 J	11 J	qualify	1
		2-Methylnaphthalene		11 J	11 J	qualify	1
		Acenaphthylene		87 J	87 J	qualify	1
		Fluorene		10 J	10 J	qualify	1
		Phenanthrene		62 J	62 J	qualify	1
		Anthracene		39 J	39 J	qualify	1
		Fluoranthene		120 J	120 J	qualify	1
		Pyrene		380	380	qualify	6
		Butylbenzylphthalate		380 U	380 UJ	qualify	6
		3,3'-Dichlorobenzidine		760 U	760 UJ	qualify	6
		Benzo(a)anthracene		120 J	120 J	qualify	1, 6
		Chrysene		140 J	140 J	qualify	1, 6
		bis(2-ethylhexyl)phthalate		380 U	380 UJ	qualify	6
		Di-n-octylphthalate		380 U	380 UJ	qualify	6
		Benzo(b)fluoranthene		98 J	98 J	qualify	1, 6
		Benzo(k)fluoranthene		130 J	130 J	qualify	1, 6
		Benzo(a)pyrene		150 J	150 J	qualify	1, 6
		Indeno(1,2,3-cd)pyrene		120 J	120 J	qualify	1, 6
		Dibenzo(a,h)anthracene		380 U	380 UJ	qualify	6
		Benzo(g,h,i)perylene		170 J	170 J	qualify	1, 6
		Hexachlorocyclopentadiene		380 U	380 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1800 U	1800 UJ	qualify	5
	GLDPW-01	Benzyl alcohol		350 U	350 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1700 U	1700 UJ	qualify	5
	GLDPW-02	Benzoic acid		29 J	29 J	qualify	1
		Phenanthrene		16 J	16 J	qualify	1
		Anthracene		7 J	7 J	qualify	1
		Fluoranthene		25 J	25 J	qualify	1
		Pyrene		61 J	61 J	qualify	1, 6
		Butylbenzylphthalate		360 U	360 UJ	qualify	6
		3,3'-Dichlorobenzidine		720 U	720 UJ	qualify	6
		Benzo(a)anthracene		360 U	360 UJ	qualify	6
		Chrysene		360 U	360 UJ	qualify	6
		bis(2-ethylhexyl)phthalate		360 U	360 UJ	qualify	6
		Di-n-octylphthalate		360 U	360 UJ	qualify	6
		Benzo(b)fluoranthene		360 U	360 UJ	qualify	6
		Benzo(k)fluoranthene		360 U	360 UJ	qualify	6
		Benzo(a)pyrene		360 U	360 UJ	qualify	6
		Indeno(1,2,3-cd)pyrene		360 U	360 UJ	qualify	6
		Dibenzo(a,h)anthracene		360 U	360 UJ	qualify	6
		Benzo(g,h,i)perylene		360 U	360 UJ	qualify	6
		Hexachlorocyclopentadiene		360 U	360 UJ	qualify	4
		4,6-Dinitro-2-methylphenol		1800 U	1800 UJ	qualify	5

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICSSITE NAME : GLENWOODSDG No.: 7001-2734AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FOOTNOTES

- 1 The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- 2 NOT USED FOR THIS SDG
- 3 NOT USED FOR THIS SDG
- 4 The reported result for this compound is qualified 'UJ', or 'J', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.
- 5 The reported positive value for this compound is qualified 'J', or the reported non-detect value 'UJ', because the associated Laboratory Control Sample (Blank Spike) recovery for this compound was below the laboratory limit. Negative bias for positive results, or potential false-negatives for non-detects are suggested.
- 6 The reported result for this compound is qualified 'UJ', or 'J', because the recovery of the associated Internal Standard (IS) compound was below 50% of the recovery for this IS in the corresponding Continuing Calibration.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

PROJECT: GLENWOOD

SDG No.: 7001-2734A

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX:	10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
AQUEOUS MATRIX:	5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
ALL MATRICES:	40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within allowable holding times.

Note : All samples were received at 19 degrees C, since the samples were transported to the lab after collection. It is likely that the samples did not have an opportunity to become chilled; no data qualifiers were assigned. The data user is alerted to the potential for negative bias in samples maintained above the range of 2 to 6 degrees C.

B.

METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
10/29/01	SBLKCP	P3431	soil	none found	

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C.

SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
All reported surrogate recoveries were within acceptable limits			

D.

MATRIX SPIKE / DUPLICATE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
GLDPW-02 MS			
GLDPW-02 MSD			

Comments: Only CLP compounds were spiked in the MS/MSD

E.

BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
SBLKCP	4,6-diNO ₂ -2-Mephenol	low	Qualify this compound in all SDG samples; potential negative bias suggested.

F.

INTERNAL STANDARDS

Sample_ID	Internal Standard	Bias	ACTION
GLDPS-01	chrysene & perylene	low	Qualify associated compounds 'UJ' or 'J'
GLDPS-02	perylene	low	Qualify associated compounds 'UJ' or 'J'
GLDPS-04	chrysene & perylene	low	Qualify associated compounds 'UJ' or 'J'
GLDPW-02	chrysene & perylene	low	Qualify associated compounds 'UJ' or 'J'
GLDPN-02	chrysene & perylene	low	Qualify associated compounds 'UJ' or 'J'
GLA8-01	chrysene & perylene	low	Qualify associated compounds 'UJ' or 'J'

Comments: The lab narrative stated that all low IS recoveries were confirmed by re-analysis, with matrix effects likely.

G.

INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
10/18/01	OK	yes	
10/30/01	OK	yes	
10/31/01	OK	yes	
11/01/01	OK	yes	

H.

SAMPLE RESULT
VERIFICATION

ULT	Sample ID	Compound	Reported	Calculated	
N	GLA8-02	pyrene	Conc., ug/Kg	Conc., ug/Kg	
			930	929	
	Ax	Is	Vt	Df	GPC
Conc., ug/Kg =	426208	40.0	500	1.0	1.0
	Ais	RRF	Vi	Ws	D
	239035	1.335	2.0	15.3	0.94

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2734A

A. INITIAL CALIBRATION

CALIBRATION DATE :	10/18/01
FILE IDs :	P3384 - 3388
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO

(If No, list compounds) =====> hexachlorocyclopentadiene

SPCC Compounds

N-Nitroso-di-n-propylamine
Hexachlorocyclopentadiene
2,4-Dinitrophenol
4-Nitrophenol

MINIMUM RRF = 0.050

CCC Compounds

Base/Neutrals

Acenaphthene
1,4-Dichlorobenzene
Hexachlorobutadiene
Diphenylamine
Di-n-octylphthalate
Fluoranthene
Benzo(a)pyrene

Acids

4-Chloro-3-methylphenol
2,4-Dichlorophenol
2-Nitrophenol
Phenol
Pentachlorophenol
2,4,6-Trichlorophenol

MAXIMUM %RSD = 30.0%

MAXIMUM %D = 20.0%

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	10/30/01	10/31/01	11/01/01
FILE ID :	P3430	P3451	P3472
ALL RRFs > 0.05 ?	Yes	Yes	Yes
SPCC RRFs > 0.05 ?	Yes	Yes	Yes
CCC %Ds < 20% ?	Yes	Yes	Yes
All Targets < 20%D?	NO	NO	NO
(If No, list compounds) =====>	hexachlorocyclopentadiene	benzyl alcohol	benzyl alcohol indeno(123cd)pyrene dibenzo(ah)anthracene benzo(ghi)perylene

ACTION : Qualify 'J' or 'JJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2734AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA8-01	Aroclor 1016		35 U	35 U		
		Aroclor 1221		72 U	72 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		35 U	35 U		
	GLA8-02	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		3.9 J	3.9 J	qualify	1, 2
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		5.3 J	5.3 J	qualify	1
	GLA8-03	Aroclor 1016		34 U	34 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		9.3 J	34 U	qualify	3
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		4.2 J	4.2 J	qualify	1
	GLA8-04A	Aroclor 1016		34 U	34 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA8-04B	Aroclor 1016		35 U	35 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		35 U	35 U		
	GLA8-05	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLDPE-01	Aroclor 1016		38 U	38 U		
		Aroclor 1221		78 U	78 U		
		Aroclor 1232		38 U	38 U		
		Aroclor 1242		38 U	38 U		
		Aroclor 1248		3.7 J	3.7 J	qualify	1
		Aroclor 1254		38 U	38 U		
		Aroclor 1260		38 U	38 U		

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2734AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC. ug/Kg	LAB REPORTED CONC. ug/Kg	QA REPORTED CONC. ug/Kg	QA DECISION	FOOTNOTE
PCB	GLDPE-02	Aroclor 1016		35 U	35 U		
		Aroclor 1221		71 U	71 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		35 U	35 U		
	GLDPE-03 (@ 10x dilution)	Aroclor 1016		350 U	350 U		
		Aroclor 1221		720 U	720 U		
		Aroclor 1232		350 U	350 U		
		Aroclor 1242		350 U	350 U		
		Aroclor 1248		1100	1100		
		Aroclor 1254		350 U	350 U		
		Aroclor 1260		120 J	120 J	qualify	1
	GLDPE-04	Aroclor 1016		39 U	39 U		
		Aroclor 1221		80 U	80 U		
		Aroclor 1232		39 U	39 U		
		Aroclor 1242		39 U	39 U		
		Aroclor 1248		39 U	39 U		
		Aroclor 1254		39 U	39 U		
		Aroclor 1260		39 U	39 U		
	GLDPN-01 (@ 2x dilution)	Aroclor 1016		70 U	70 U		
		Aroclor 1221		140 U	140 U		
		Aroclor 1232		70 U	70 U		
		Aroclor 1242		70 U	70 U		
		Aroclor 1248		390	390		
		Aroclor 1254		70 U	70 U		
		Aroclor 1260		110	110		
	GLDPN-02	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		74	74 J	qualify	2
		Aroclor 1254		56	56 J	qualify	2
		Aroclor 1260		34	34		
	GLDPN-03	Aroclor 1016		37 U	37 U		
		Aroclor 1221		74 U	74 U		
		Aroclor 1232		37 U	37 U		
		Aroclor 1242		37 U	37 U		
		Aroclor 1248		17 J	17 J	qualify	1
		Aroclor 1254		37 U	37 U		
		Aroclor 1260		4.7 J	4.7 J	qualify	1
	GLDPN-04	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2734AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLDPS-01	Aroclor 1016		35 U	35 U		
		Aroclor 1221		71 U	71 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		6.4 J	35 U	qualify	3
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		35 U	35 U		
	GLDPS-02	Aroclor 1016		35 U	35 U		
		Aroclor 1221		72 U	72 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		3.3 J	3.3 J	qualify	1
	GLDPS-03	Aroclor 1016		35 U	35 U		
		Aroclor 1221		71 U	71 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		35 U	35 U		
	GLDPS-04	Aroclor 1016		38 U	38 U		
		Aroclor 1221		78 U	78 U		
		Aroclor 1232		38 U	38 U		
		Aroclor 1242		38 U	38 U		
		Aroclor 1248		8.2 J	8.2 J	qualify	1, 2
		Aroclor 1254		38 U	38 U		
		Aroclor 1260		6.6 J	38 U	qualify	3
	GLDPW-01	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLDPW-02	Aroclor 1016		38 U	38 U		
		Aroclor 1221		76 U	76 U		
		Aroclor 1232		38 U	38 U		
		Aroclor 1242		38 U	38 U		
		Aroclor 1248		1.6 J	1.6 J	qualify	1, 2
		Aroclor 1254		38 U	38 U		
		Aroclor 1260		38 U	38 U		

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported result is qualified 'J', as quantitatively estimated, because the %D between analytical columns exceeded 25%, but was below 50%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.
- The reported result is qualified 'U', and raised to the PQL, because the %D between analytical columns exceeded 50%, and the reported value was below the analyte's PQL. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

POLYCHLORINATED BIPHENYLS (PCBs)

QC PARAMETER / QUALIFIER SUMMARY

SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory

Project No.: 7001-2734A

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	PBLK23
Extraction Date:	10/28/01
Analyte	Conc. ug/Kg
none found	
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE (GLDPW-02)

All reported recoveries and %RPD were within acceptable limits.

E. LABORATORY QC SPIKE (PBLK23 QC2)

All reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 7001-2734ALaboratory: STL - BuffaloA. INITIAL CALIBRATIONSCALIBRATION DATE : 10/27/01

Verification of ICAL Results

<u>Aroclor 1260</u>	<u>DB-1701</u>		
<u>Peak 1, RT = 18.35</u>	<u>Response</u>	<u>Cal Factor, Calc'd.</u>	<u>CF, reported</u>
0.05	129770	2595400	2595400
0.1	268068	2680680	2680680
0.2	507335	2536675	2536675
0.4	981195	2452988	2452988
0.8	1801026	<u>2251283</u>	<u>2251282</u>
Average		2503405	2503405
Calc'd. %RSD =	6.54		
Reported %RSD =	6.5		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	10/29/01	10/30/01	10/30/01
FILE ID :	C5132070	C5132087	C5132104
All Targets < 15% D?	Yes	Yes	Yes
(If No, list compounds) ==>			

QA ACTION : None necessaryC. SAMPLE RESULT VERIFICATION

SAMPLE ID: GLDPE03
 COMPOUND: Aroclor-1248
 REPORTED VALUE: 1100 ug/Kg column = DB-1701

<u>Peak RT</u>	<u>CF</u>	<u>Peak Area</u>	<u>conc., ng</u>
8.41	708310	210915	0.2978
10.54	2944160	1035355	0.3517
11.33	2135520	669006	0.3133
Average conc. =			0.3209

ug/Kg =

<u>ng average conc.</u>	<u>extract, uL</u>	<u>Dilution factor</u>
0.3209	10000	10.0
30.5	1.0	0.92
wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg =

1143.6

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2734AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA8-01	Aluminum		3130	3130		
		Antimony		0.94 UN	--- R	REJECT	3
		Arsenic		1.2 B	1.2 J	qualify	1
		Barium		12.3 B	12.3 J	qualify	1
		Beryllium		0.27 B	0.27 J	qualify	1
		Cadmium		0.16 U	0.16 U		
		Calcium	6.256	494 B	494 J	qualify	1
		Chromium		10.8	10.8 J	qualify	4
		Cobalt		1.8 B	1.8 J	qualify	1
		Copper		5.3	5.3		
		Iron		7210 *	7210		
		Lead		10.8	10.8		
		Magnesium		457 B	457 J	qualify	1
		Manganese		80.5	80.5		
		Mercury		0.019	0.019		
		Nickel		4.8 B	4.8 J	qualify	1
		Potassium		209 B	209 J	qualify	1
		Selenium		0.94 U	0.94 U		
		Silver		0.20 U	0.20 U		
		Sodium		35.6 B	35.6 J	qualify	1
		Thallium		2.8 U	2.8 U		
		Vanadium		7.4 B	7.4 J	qualify	1
		Zinc	1.562	16.0	16.0 J	qualify	5
		Cyanide		Not analyzed			
	GLA8-02	Aluminum		3140	3140		
		Antimony		0.82 UN	--- R	REJECT	3
		Arsenic		1.3 B	1.3 J	qualify	1
		Barium		13.0 B	13.0 J	qualify	1
		Beryllium		0.25 B	0.25 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	6.256	370 B	370 J	qualify	1
		Chromium		8.2	8.2 J	qualify	4
		Cobalt		2.0 B	2.0 J	qualify	1
		Copper		7.3	7.3		
		Iron		7270 *	7270		
		Lead		15.5	15.5		
		Magnesium		710 B	710 J	qualify	1
		Manganese		81.0	81.0		
		Mercury		0.024	0.024		
		Nickel		4.1 B	4.1 J	qualify	1
		Potassium		173 B	173 J	qualify	1
		Selenium		0.82 U	0.82 U		
		Silver		0.18 U	0.18 U		
		Sodium		20.2 B	20.2 J	qualify	1
		Thallium		2.4 U	2.4 U		
		Vanadium		8.2 B	8.2 J	qualify	1
		Zinc	1.562	18.9	18.9 J	qualify	5
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2734AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA8-03	Aluminum		2720	2720		
		Antimony		0.93 UN	— R	REJECT	3
		Arsenic		1.9 B	1.9 J	qualify	1
		Barium		14.5 B	14.5 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.24 B	0.24 J	qualify	1
		Calcium	6.256	820 B	820 J	qualify	1
		Chromium		6.5	6.5 J	qualify	4
		Cobalt		1.9 B	1.9 J	qualify	1
		Copper		7.6	7.6		
		Iron		5360 *	5360		
		Lead		28.1	28.1		
		Magnesium		749 B	749 J	qualify	1
		Manganese		99.3	99.3		
		Mercury		0.088	0.088		
		Nickel		4.1 B	4.1 J	qualify	1
		Potassium		262 B	262 J	qualify	1
		Selenium		0.93 U	0.93 U		
		Silver		0.20 U	0.20 U		
		Sodium		20.3 B	20.3 J	qualify	1
		Thallium		2.8 U	2.8 U		
		Vanadium		8.3 B	8.3 J	qualify	1
		Zinc	1.562	97.7	97.7 J	qualify	5
		Cyanide		Not analyzed			
	GLA8-04A	Aluminum		1400	1400		
		Antimony		0.86 UN	— R	REJECT	3
		Arsenic		0.92 U	0.92 U		
		Barium		7.7 B	7.7 J	qualify	1
		Beryllium		0.10 B	0.10 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	6.256	301 B	301 J	qualify	1
		Chromium		5.2	5.2 J	qualify	4
		Cobalt		1.5 B	1.5 J	qualify	1
		Copper		3.7 B	3.7 J	qualify	1
		Iron		5150 *	5150		
		Lead		2.0	2.0 J	qualify	2
		Magnesium		501 B	501 J	qualify	1
		Manganese		72.9	72.9		
		Mercury		0.0066 B	0.007 J	qualify	1
		Nickel		4.7 B	4.7 J	qualify	1
		Potassium		260 B	260 J	qualify	1
		Selenium		0.86 U	0.86 U		
		Silver		0.19 U	0.19 U		
		Sodium		15.5 B	15.5 J	qualify	1
		Thallium		2.6 U	2.6 U		
		Vanadium		5.1 B	5.1 J	qualify	1
		Zinc	1.562	14.9	14.9 J	qualify	5
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2734AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA8-04B	Aluminum		1530	1530		
		Antimony		0.86 UN	--- R	REJECT	3
		Arsenic		0.92 U	0.92 U		
		Barium		10.5 B	10.5 J	qualify	1
		Beryllium		0.095 B	0.095 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	6.256	370 B	370 J	qualify	1
		Chromium		4.7	4.7 J	qualify	4
		Cobalt		1.6 B	1.6 J	qualify	1
		Copper		3.7 B	3.7 J	qualify	1
		Iron		5500 *	5500		
		Lead		2.5	2.5		
		Magnesium		637 B	637 J	qualify	1
		Manganese		79.7	79.7		
		Mercury		0.014	0.014		
		Nickel		4.5 B	4.5 J	qualify	1
		Potassium		372 B	372 J	qualify	1
		Selenium		0.86 U	0.86 U		
		Silver		0.19 U	0.19 U		
		Sodium		17.1 B	17.1 J	qualify	1
		Thallium		2.6 U	2.6 U		
		Vanadium		5.8 B	5.8 J	qualify	1
		Zinc	1.562	15.2	15.2 J	qualify	5
		Cyanide		Not analyzed			
	GLA8-05	Aluminum		2270	2270		
		Antimony		0.82 UN	--- R	REJECT	3
		Arsenic		2.6	2.6		
		Barium		6.1 B	6.1 J	qualify	1
		Beryllium		0.15 B	0.15 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	6.256	185 B	185 J	qualify	1
		Chromium		13.0	13.0 J	qualify	4
		Cobalt		1.2 B	1.2 J	qualify	1
		Copper		3.9 B	3.9 J	qualify	1
		Iron		4720 *	4720		
		Lead		7.3	7.3		
		Magnesium		293 B	293 J	qualify	1
		Manganese		46.4	46.4		
		Mercury		0.026	0.026		
		Nickel		2.4 B	2.4 J	qualify	1
		Potassium		130 B	130 J	qualify	1
		Selenium		0.82 U	0.82 U		
		Silver		0.18 U	0.18 U		
		Sodium		19.1 B	19.1 J	qualify	1
		Thallium		2.4 U	2.4 U		
		Vanadium		6.5 B	6.5 J	qualify	1
		Zinc	1.562	11.2	11.2 J	qualify	5
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2734AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLDPE-01	Aluminum		1020	1020		
		Antimony		0.97 UN	--- R	REJECT	3
		Arsenic		1.0 U	1.0 U		
		Barium		3.9 B	3.9 J	qualify	1
		Beryllium		0.10 U	0.10 U		
		Cadmium		0.17 U	0.17 U		
		Calcium	6.256	927 B	927 J	qualify	1
		Chromium		3.1	3.1 J	qualify	4
		Cobalt		0.46 B	0.46 J	qualify	1
		Copper		2.0 B	2.0 J	qualify	1
		Iron		1060 *	1060		
		Lead		2.8	2.8 J	qualify	2
		Magnesium		36.4 B	36.4 J	qualify	1
		Manganese		10.4	10.4		
		Mercury		0.0059 B	0.006 J	qualify	1
		Nickel		0.90 B	0.90 J	qualify	1
		Potassium		137 B	137 J	qualify	1
		Selenium		0.97 U	0.97 U		
		Silver		0.21 U	0.21 U		
		Sodium		13.8 B	13.8 J	qualify	1
		Thallium		2.9 U	2.9 U		
		Vanadium		5.8 B	5.8 J	qualify	1
		Zinc	1.562	6.5	6.5		
		Cyanide		Not analyzed			
	GLDPE-02	Aluminum		1810	1810		
		Antimony		0.88 UN	--- R	REJECT	3
		Arsenic		0.94 U	0.94 U		
		Barium		9.2 B	9.2 J	qualify	1
		Beryllium		0.11 B	0.11 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	6.256	345 B	345 J	qualify	1
		Chromium		4.1	4.1 J	qualify	4
		Cobalt		2.0 B	2.0 J	qualify	1
		Copper		4.4 B	4.4 J	qualify	1
		Iron		5040 *	5040		
		Lead		5.1	5.1		
		Magnesium		440 B	440 J	qualify	1
		Manganese		52.9	52.9		
		Mercury		0.0061 B	0.006 J	qualify	1
		Nickel		4.0 B	4.0 J	qualify	1
		Potassium		246 B	246 J	qualify	1
		Selenium		0.88 U	0.88 U		
		Silver		0.19 U	0.19 U		
		Sodium		12.7 B	12.7 J	qualify	1
		Thallium		2.6 U	2.6 U		
		Vanadium		6.1 B	6.1 J	qualify	1
		Zinc	1.562	8.1	8.1		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2734AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLDPE-03	Aluminum		1700	1700		
		Antimony		0.98 UN	--- R	REJECT	3
		Arsenic		1.1 B	1.1 J		
		Barium		8.4 B	8.4 J	qualify	1
		Beryllium		0.11 U	0.11 U		
		Cadmium		0.17 U	0.17 U		
		Calcium	6.256	1470	1470		
		Chromium		18.6	18.6 J	qualify	4
		Cobalt		1.6 B	1.6 J	qualify	1
		Copper		5.2 B	5.2 J	qualify	1
		Iron		3460 *	3460		
		Lead		12.4	12.4		
		Magnesium		393 B	393 J	qualify	1
		Manganese		54.9	54.9		
		Mercury		0.011	0.011	qualify	1
		Nickel		2.4 B	2.4 J	qualify	1
		Potassium		205 B	205 J	qualify	1
		Selenium		0.98 U	0.98 U		
		Silver		0.21 U	0.21 U		
		Sodium		17.4 B	17.4 J	qualify	1
		Thallium		2.9 U	2.9 U		
		Vanadium		7.6 B	7.6 J	qualify	1
		Zinc	1.562	15.8	15.8 J	qualify	5
		Cyanide		Not analyzed			
	GLDPE-04	Aluminum		748	748		
		Antimony		1.0 UN	--- R	REJECT	3
		Arsenic		1.1 U	1.1 U		
		Barium		2.3 B	2.3 J	qualify	1
		Beryllium		0.11 U	0.11 U		
		Cadmium		0.18 U	0.18 U		
		Calcium	6.256	135 B	135 J	qualify	1
		Chromium		2.0 B	2.0 J	qualify	1, 4
		Cobalt		0.27 U	0.27 U		
		Copper		2.0 B	2.0 J	qualify	1
		Iron		1100 *	1100		
		Lead		2.0	2.0 J	qualify	2
		Magnesium		20.2 B	20.2 J	qualify	1
		Manganese		7.2	7.2		
		Mercury		0.0040 B	0.004 J	qualify	1
		Nickel		0.39 B	0.39 J	qualify	1
		Potassium		105 B	105 J	qualify	1
		Selenium		1.0 U	1.0 U		
		Silver		0.23 U	0.23 U		
		Sodium		11.1 B	11.1 J	qualify	1
		Thallium		3.1 U	3.1 U		
		Vanadium		6.0 B	6.0 J	qualify	1
		Zinc	1.562	4.2 B	4.2 J	qualify	1
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2734AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLDPN-01	Aluminum		2190	2190		
		Antimony		0.94 UN	--- R	REJECT	3
		Arsenic		2.6	2.6		
		Barium		12.4 B	12.4 J	qualify	1
		Beryllium		0.13 B	0.13 J	qualify	1
		Cadmium		0.31 B	0.31 J	qualify	1
		Calcium	6.256	5850	5850		
		Chromium		105	105 J	qualify	4
		Cobalt		1.8 B	1.8 J	qualify	1
		Copper		8.7	8.7		
		Iron		10700 *	10700		
		Lead		54.0	54.0		
		Magnesium		3000	3000		
		Manganese		128	128		
		Mercury		0.025	0.025		
		Nickel		4.8 B	4.8 J	qualify	1
		Potassium		230 B	230 J	qualify	1
		Selenium		0.94 U	0.94 U		
		Silver		0.20 U	0.20 U		
		Sodium		30.2 B	30.2 J	qualify	1
		Thallium		2.8 U	2.8 U		
		Vanadium		7.6 B	7.6 J	qualify	1
		Zinc	1.562	40.8	40.8 J	qualify	5
		Cyanide		Not analyzed			
	GLDPN-02	Aluminum		1400	1400		
		Antimony		0.93 UN	--- R	REJECT	3
		Arsenic		0.99 U	0.99 U		
		Barium		7.2 B	7.2 J	qualify	1
		Beryllium		0.13 B	0.13 J	qualify	J
		Cadmium		0.16 U	0.16 U		
		Calcium	6.256	511 B	511 J	qualify	1
		Chromium		7.1	7.1 J	qualify	4
		Cobalt		1.4 B	1.4 J	qualify	1
		Copper		3.2 B	3.2 J	qualify	1
		Iron		3970 *	3970		
		Lead		6.6	6.6		
		Magnesium		298 B	298 J	qualify	1
		Manganese		71.6	71.6		
		Mercury		0.0087	0.009		
		Nickel		2.0 B	2.0 J	qualify	1
		Potassium		143 B	143 J	qualify	1
		Selenium		0.93 U	0.93 U		
		Silver		0.20 U	0.20 U		
		Sodium		12.2 B	12.2 J	qualify	1
		Thallium		2.8 U	2.8 U		
		Vanadium		4.6 B	4.6 J	qualify	1
		Zinc	1.562	12.4	12.4 J	qualify	5
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2734AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLDPN-03	Aluminum		2150	2150		
		Antimony		0.98 UN	--- R	REJECT	3
		Arsenic		1.4 B	1.4 J	qualify	1
		Barium		12.5 B	12.5 J	qualify	1
		Beryllium		0.14 B	0.14 J	qualify	1
		Cadmium		0.17 U	0.17 U		
		Calcium	6.256	3820	3820		
		Chromium		10.2	10.2 J	qualify	4
		Cobalt		1.4 B	1.4 J	qualify	1
		Copper		4.3 B	4.3 J	qualify	1
		Iron		4170 *	4170		
		Lead		14.1	14.1		
		Magnesium		1050 B	1050 J	qualify	1
		Manganese		71.4	71.4		
		Mercury		0.016	0.016		
		Nickel		2.3 B	2.3 J	qualify	1
		Potassium		204 B	204 J	qualify	1
		Selenium		0.98 U	0.98 U		
		Silver		0.21 U	0.21 U		
		Sodium		24.7 B	24.7 J	qualify	1
		Thallium		2.9 U	2.9 U		
		Vanadium		7.2 B	7.2 J	qualify	1
		Zinc	1.562	13.3	13.3 J	qualify	5
		Cyanide		Not analyzed			
	GLDPN-04	Aluminum		1370	1370		
		Antimony		0.86 UN	--- R	REJECT	3
		Arsenic		0.91 U	0.91 U		
		Barium		14.7 B	14.7 J	qualify	1
		Beryllium		0.11 B	0.11 J	qualify	J
		Cadmium		0.15 U	0.15 U		
		Calcium	6.256	171 B	171 J	qualify	1
		Chromium		3.7	3.7 J	qualify	4
		Cobalt		0.82 B	0.82 J	qualify	1
		Copper		2.2 B	2.2 J	qualify	1
		Iron		2820 *	2820		
		Lead		2.2	2.2 J	qualify	2
		Magnesium		210 B	210 J	qualify	1
		Manganese		110	110		
		Mercury		0.0038 B	0.004 J	qualify	1
		Nickel		2.2 B	2.2 J	qualify	1
		Potassium		118 B	118 J	qualify	1
		Selenium		0.86 U	0.86 U		
		Silver		0.19 U	0.19 U		
		Sodium		11.8 B	11.8 J	qualify	1
		Thallium		2.6 U	2.6 U		
		Vanadium		3.1 B	3.1 J	qualify	1
		Zinc	1.562	5.4 B	5.4 J	qualify	1
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2734AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLDPS-01	Aluminum		2460	2460		
		Antimony		0.86 UN	--- R	REJECT	3
		Arsenic		1.8 B	1.8 J	qualify	1
		Barium		11.6 B	11.6 J	qualify	1
		Beryllium		0.16 B	0.16 J	qualify	1
		Cadmium		0.22 B	0.22 J	qualify	1
		Calcium	6.256	2510	2510		
		Chromium		32.4	32.4 J	qualify	4
		Cobalt		1.6 B	1.6 J	qualify	1
		Copper		6.9	6.9		
		Iron		5600 *	5600		
		Lead		15.9	15.9		
		Magnesium		505 B	505 J	qualify	1
		Manganese		84.6	84.6		
		Mercury		0.018	0.018		
		Nickel		3.6 B	3.6 J	qualify	1
		Potassium		224 B	224 J	qualify	1
		Selenium		0.86 U	0.86 U		
		Silver		0.19 U	0.19 U		
		Sodium		21.2 B	21.2 J	qualify	1
		Thallium		2.6 U	2.6 U		
		Vanadium		7.4 B	7.4 J	qualify	1
		Zinc	1.562	24.6	24.6 J	qualify	5
		Cyanide		Not analyzed			
	GLDPS-02	Aluminum		2810	2810		
		Antimony		0.99 UN	--- R	REJECT	3
		Arsenic		1.3 B	1.3 J	qualify	1
		Barium		14.9 B	14.9 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	J
		Cadmium		0.17 U	0.17 U		
		Calcium	6.256	1100	1100		
		Chromium		17.9	17.9 J	qualify	4
		Cobalt		3.0 B	3.0 J	qualify	1
		Copper		5.9	5.9		
		Iron		6440 *	6440		
		Lead		18.9	18.9		
		Magnesium		483 B	483 J	qualify	1
		Manganese		133	133		
		Mercury		0.010	0.010		
		Nickel		4.2 B	4.2 J	qualify	1
		Potassium		325 B	325 J	qualify	1
		Selenium		0.99 U	0.99 U		
		Silver		0.22 U	0.22 U		
		Sodium		20.5 B	20.5 J	qualify	1
		Thallium		2.9 U	2.9 U		
		Vanadium		8.3 B	8.3 J	qualify	1
		Zinc	1.562	26.2	26.2 J	qualify	5
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2734AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLDPS-03	Aluminum		2620	2620		
		Antimony		0.88 UN	--- R	REJECT	3
		Arsenic		1.4 B	1.4 J	qualify	1
		Barium		11.8 B	11.8 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	6.256	284 B	284 J	qualify	1
		Chromium		5.7	5.7 J	qualify	4
		Cobalt		2.3 B	2.3 J	qualify	1
		Copper		4.5 B	4.5 J	qualify	1
		Iron		7300 *	7300		
		Lead		4.7	4.7		
		Magnesium		381 B	381 J	qualify	1
		Manganese		81.6	81.6		
		Mercury		0.0036 U	0.004 U		
		Nickel		4.0 B	4.0 J	qualify	1
		Potassium		409 B	409 J	qualify	1
		Selenium		0.88 U	0.88 U		
		Silver		0.19 U	0.19 U		
		Sodium		12.3 B	12.3 J	qualify	1
		Thallium		2.6 U	2.6 U		
		Vanadium		8.4 B	8.4 J	qualify	1
		Zinc	1.562	12.0	12.0 J	qualify	5
		Cyanide		Not analyzed			
	GLDPS-04	Aluminum		1960	1960		
		Antimony		0.92 UN	--- R	REJECT	3
		Arsenic		1.6 B	1.6 J	qualify	1
		Barium		8.3 B	8.3 J	qualify	1
		Beryllium		0.16 B	0.16 J	qualify	1
		Cadmium		0.18 B	0.18 J	qualify	1
		Calcium	6.256	582 B	582 J	qualify	1
		Chromium		110	110 J	qualify	4
		Cobalt		1.3 B	1.3 J	qualify	1
		Copper		6.7	6.7		
		Iron		7930 *	7930		
		Lead		28.9	28.9		
		Magnesium		392 B	392 J	qualify	1
		Manganese		66.9	66.9		
		Mercury		0.017	0.017		
		Nickel		3.4 B	3.4 J	qualify	1
		Potassium		186 B	186 J	qualify	1
		Selenium		0.92 U	0.92 U		
		Silver		0.20 U	0.20 U		
		Sodium		11.0 B	11.0 J	qualify	1
		Thallium		2.7 U	2.7 U		
		Vanadium		8.7 B	8.7 J	qualify	1
		Zinc	1.562	31.3	31.3 J	qualify	5
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2734AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLDPW-01	Aluminum		2330	2330		
		Antimony		0.84 UN	--- R	REJECT	3
		Arsenic		0.92 B	0.92 J	qualify	1
		Barium		10.6 B	10.6 J	qualify	1
		Beryllium		0.16 B	0.16 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	6.256	239 B	239 J	qualify	1
		Chromium		4.4	4.4 J	qualify	4
		Cobalt		1.4 B	1.4 J	qualify	1
		Copper		17.4	17.4		
		Iron		4980 *	4980		
		Lead		6.7	6.7		
		Magnesium		284 B	284 J	qualify	1
		Manganese		78.9	78.9		
		Mercury		0.0072	0.0070		
		Nickel		3.3 B	3.3 J	qualify	1
		Potassium		221 B	221 J	qualify	1
		Selenium		0.84 U	0.84 U		
		Silver		0.18 U	0.18 U		
		Sodium		15.0 B	15.0 J	qualify	1
		Thallium		2.5 U	2.5 U		
		Vanadium		6.8 B	6.8 J	qualify	1
		Zinc	1.562	10.4	10.4 J	qualify	5
		Cyanide		Not analyzed			
	GLDPW-02	Aluminum		3520	3520		
		Antimony		0.92 UN	--- R	REJECT	3
		Arsenic		20.2	20.2		
		Barium		16.9 B	16.9 J	qualify	1
		Beryllium		0.24 B	0.24 J	qualify	1
		Cadmium		0.31 B	0.31 J	qualify	1
		Calcium	6.256	828 B	828 J	qualify	1
		Chromium		45.4	45.4 J	qualify	4
		Cobalt		2.4 B	2.4 J	qualify	1
		Copper		9.0	9.0		
		Iron		10800 *	10800		
		Lead		35.9	35.9		
		Magnesium		685 B	685 J	qualify	1
		Manganese		124	124		
		Mercury		0.027	0.027		
		Nickel		5.1 B	5.1 J	qualify	1
		Potassium		270 B	270 J	qualify	1
		Selenium		0.92 U	0.92 U		
		Silver		0.20 U	0.20 U		
		Sodium		21.1 B	21.1 J	qualify	1
		Thallium		2.7 U	2.7 U		
		Vanadium		18.0	18.0		
		Zinc	1.562	51.4	51.4 J	qualify	5
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY
INORGANICS

Site Name : Glenwood SDG No.: 7001-2734A Method : SW-846
Lab Name : STL - CT Sample Matrix : Non-Aqueous

FOOTNOTES

- 1 The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value. No bias direction is inferred.
- 2 The reported value for this analyte was qualified 'UJ' or 'J', because the associated CRDL standard recovery was below the lower limit. Potential negative bias is suggested.
- 3 The reported non-detect ('U') value for this analyte was Rejected, 'R', because the matrix spike recovery was below 10%.
- 4 The reported value for this analyte was qualified 'UJ' or 'J', because the duplicate precision value exceeded the applicable criterion of +/- CRDL value between sample and duplicate results (either or both results were < 5x CRDL value). No bias direction is inferred.
- 5 The reported positive value for this analyte was qualified 'J', because the associated Serial Dilution standard precision exceeded 10.0%D, while the sample concentration was above 10x analyte IDL.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- CTLab Project No. : 7001-2734A**A. CALIBRATION**ICP Analytes

ICV	90% - 110% recovery
CCV	90% - 110% recovery

Outliers ?

none
none

B. CRDL STANDARD

80 - 120% recovery

Outliers ?

Pb	CRI 1	74%
Se	CRI 2	127%

QA Action : Qualify 'UJ' or 'J' Pb values up to nominal 2.4 mg/Kg, with negative bias suggested. Affects samples 01 - 05.QA Action : Note: no positive Se values were noted; therefore, no data qualifiers were applicable for Se.**C. BLANKS**

ICB / CCB	< CRDL
Prep Blank	< CRDL

Outliers ?

none
none

D. INTERELEMEN CORRECTION (ICSA / ICSAB)

ICSA	Response < 2x CRDL for trace metals
ICSAB	80 - 120% recovery

Outliers ?

none
Se ICSAB 1 79%

QA Action : No action is necessary, since interferent concentrations in all samples were well below ICS solution values.**E. MATRIX SPIKE (GLA8-01)**

75 - 125% recovery (if sample conc. < 4x spike conc.)

Outliers ?

Sb 5%

QA Action : Since Sb recovery was below 10%, all Sb non-detect ('U') values are Rejected, 'R'; all Sb positives are qualified 'J', with significant negative bias. All SDG samples are affected.**F. POST-DIGESTION SPIKE**

75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.

Outliers ?Comments : Sb native sample was non-detect, PDS conc. should be 120 ppb. PDS concentration used was 500 ppb.**G. MATRIX DUPLICATE (GLA8-01)**

Max. 100% RPD for non-aqueous samples > 5x CRDL
Max. (+/-) CRDL value if either sample < 5x CRDL

Outliers ?

Cr

QA Action : Qualify Cr values in all samples; no bias direction inferred.**H. LABORATORY CONTROL SAMPLE**

Recovery within control limits for non-aqueous samples
Recovery between 80 - 120% for aqueous samples

Outliers ?

none
n/a

I. SERIAL DILUTION SAMPLE

Maximum 10.0% D if undiluted sample > 10x IDL

Outliers ?

Zn 58%

QA Action : Qualify 'J' positive Pb values > 10x IDL; negative bias suggestedAffects : All SDG samples**J. VERIFICATION OF INSTRUMENTAL PARAMETERS**

Instrument Detection Limits	Frequency
Interelement Correction Factors	Quarterly
Linear Range Analysis	Annually
	Quarterly

Outliers ?

none
none
none

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For: Vanasse, Hangen, Brustlin, Inc.Project: GlenwoodLaboratory: STL-CTLab Project No.: 7001-2734A

Sample Result Verification

Associated Samples: All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ?

YesIf No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ?

YesIf No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ?

YesIf No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ?

Yes

If No, list affected analytes and samples, and QA action : _____

Note: % solids values below were taken from the raw data, and are within a reasonable error band.

5. Show calculation for % Solids for one sample.

Sample ID: GLDPN-01 (2734A-11)Lab value: 92.1 %Dry weight: 10.11 gm% Solids = Dry weight x 100Wet weight: 10.91 gm

Wet weight

= **92.7** %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLDPN-01Analyte: PbLab value: 54.0 mg/Kg% Solids: 92.7Raw value 0.2636 mg/LFinal volume 200 mLWet weight 1.06 gmmg/Kg dry weight = mg/L x FV (ml)

wet wgt x (%Sol/100) =

53.7

mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ?

n/aIf No, list affected analytes and samples, and QA action : _____

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
THE SOURCE FOR QUALITY ASSURANCE EXPERTISE

September 25, 2002

Mr. Matthew Wawrowski, PE
Vanasse Hangen Brustlin, Inc.
13470 Bear Road
Cowlesville, NY 14037

Re: Review of Laboratory Data from Glenwood Site; SDG No. 7001-2835A

Environmental Quality Associates, Inc. (EQA) was retained by Vanasse Hangen Brustlin, Inc. (VHB) to perform data review and verification on samples from the above-referenced site, analyzed by Severn Trent Laboratories, Shelton, CT, and associated subcontractors.

A tabular summary of all field samples collected and fractions analyzed appears below for the data user's reference; please note that method-required QC samples analyzed (blanks, MS/MSD/MD) by the laboratory are not included in this listing, but are addressed in the attached QC summaries for each fraction.

Sample Field ID	Sample Lab ID	Sample Matrix	Collection Date	Sample Analysis		
				Semi-VOA	PCBs	Metals
GLA6-1B	012835A-01	SOIL	11/20/01	X	X	X
GLA6-3	012835A-02	SOIL	11/20/01	X	X	X
GLA6-4	012835A-03	SOIL	11/20/01	X	X	X
GLA6-5	012835A-04	SOIL	11/20/01	X	X	X
GLA6-2S	012835A-05	SOIL	11/20/01	X	X	X
GLA6-3S	012835A-06	SOIL	11/20/01	X	X	X
GLA6-4S	012835A-07	SOIL	11/20/01	X	X	X
GLA6-5S	012835A-08	SOIL	11/20/01	X	X	X
GLA7-1C	012835A-09	SOIL	11/20/01	X	X	X
GLA1-4B	012835A-10	SOIL	11/20/01	X	X	X
GLA1-4C	012835A-11	SOIL	11/20/01	X	X	X

Sample Collection and Receipt

Samples were received at the laboratory within acceptable temperature range.

Sample Preparation and Analysis

Sample preparation and analysis evaluations are included in the QC summaries for each analytical fraction. It is noted that holding time compliance was determined from the NYSDEC-ASP holding times schedule, which is based upon sample laboratory receipt (VTSR) date, as opposed to SW-846 guidance, which is based upon sample collection dates.

Quality Control

SW-846 quality control parameter compliance for all applicable methods and analytical fractions are summarized on the attached QC summary sheets. Typically, only those parameters which exhibited exceedances or non-compliances are addressed on the forms, with details, affected samples and QA reviewer's action taken. Calibration exceedances and/or non-compliances are summarized on the attached Calibration summary sheets. Where available, USEPA Region II data validation procedures were utilized, since the NYSDEC-ASP defers to these procedures.

Sample Results Summary

Target analyte summaries for each discrete SDG, sample and analytical fraction are attached. These summaries list each sample, all reported positive results (whether qualified or not), and all non-detect results which were qualified (UJ) or rejected (R). Each qualified value is listed with an associated footnote, which explains the reason for the qualifier (or rejection) and any associated bias direction.

EQA appreciates the opportunity for providing this data evaluation service to VHB, and look forward to supplying similar services in the future. Please do not hesitate to contact me should you have any questions or comments pertaining to this narrative or the associated documentation.

Very truly yours,
Environmental Quality Associates, Inc.


Chris W. Taylor
Vice President

/cwt

Attachments

C:\VHB-Glen-Narr-2835A

**TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS**

SITE NAME : GLENWOODSDG No.: 7001-2835AMETHOD: SW846 / 8270CLAB NAME : Severn Trent - CTCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
SEMI-VOA	GLA6-1B	No target compounds found					
	GLA6-3	No target compounds found					
	GLA6-4	No target compounds found					
	GLA6-5	No target compounds found					
	GLA6-2S	2-Methylnaphthalene		3 J	3 J	qualify	1
		Fluoranthene		13 J	13 J	qualify	1
		Pyrene		15 J	15 J	qualify	1
	GLA6-3S	No target compounds found					
	GLA6-4S	Fluoranthene		11 J	11 J	qualify	1
		Pyrene		17 J	17 J	qualify	1
		Indeno(1,2,3-cd)pyrene		5 J	5 J	qualify	1, 3
	GLA6-5S	Fluoranthene		8 J	8 J	qualify	1
		Pyrene		12 J	12 J	qualify	1
	GLA7-1C	No target compounds found					
	GLA1-4B	Phenol		11 J	11 J	qualify	1, 4
		All other phenolic target compounds		U	UJ	qualify	4
		Butylbenzylphthalate		470	470 J	qualify	2
		bis(2-ethylhexyl)phthalate		320 J	320 J	qualify	1, 2
	GLA1-4B	Phenol		5 J	5 J	qualify	1, 4
		All other phenolic target compounds		U	UJ	qualify	4
		Naphthalene		18 J	18 J	qualify	1
		4-Chloroaniline		4 J	4 J	qualify	1
		Phenanthrene		25 J	25 J	qualify	1
		Butylbenzylphthalate		400	400 J	qualify	2
		bis(2-ethylhexyl)phthalate		240 J	240 J	qualify	1, 2
		Di-n-octylphthalate		11 J	11 J	qualify	1, 2

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported value is qualified because although it was not found in the associated extraction (method) blank, it is a common laboratory contaminant, and may not be present in the native sample. The data user is alerted to potential positive bias.
- The reported positive result for this compound is qualified 'J', because the % RSD for this compound in the associated Initial Calibration sequence exceeded the method limit of 15.0%. No bias direction is inferred.
- The reported phenolic compound result is qualified 'UJ' or 'J', as quantitatively estimated, because the recovery of one or more acid fraction surrogates recovered below the acceptable limit(s), but above 10%. Potential negative bias is suggested due to matrix effects.

SEMI-VOLATILE ORGANICS
QC PARAMETER / QUALIFIER SUMMARY
SW846 METHOD 8270 C

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2835A

A. HOLDING TIMES (NYSDEC-ASP)

NON-AQUEOUS MATRIX: 10 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 AQUEOUS MATRIX: 5 DAYS MAXIMUM FROM VTSR TO EXTRACTION
 ALL MATRICES: 40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS
 All samples were extracted and analyzed within allowable holding times.

B. METHOD BLANKS

<u>Date Extracted</u>	<u>Blank ID</u>	<u>File ID</u>	<u>Matrix</u>	<u>Analytes Present</u>	<u>Conc., ug/Kg</u>
11/26/01	SBLKSR	R2758	soil	none	

ACTION: If sample concentration >CRQL, but <10x Blank value, flag result with 'U'
 If sample concentration <CRQL, and <10x Blank value, report CRQL and flag with 'U'
 If sample concentration >CRQL, and >10x Blank value, no qualification necessary

C. SURROGATE RECOVERY

<u>Sample ID</u>	<u>Surrogate</u>	<u>Bias</u>	<u>ACTION</u>
GLA1-4B	246-tribromophenol	low (>10%)	Qualify phenolics 'UJ' or 'J';
GLA1-4C	246-tribromophenol	low (>10%)	negative bias suggested

D. MATRIX SPIKE / DUPLICATE

Comments: No MS/MSD were prepared or analyzed for this SDG; therefore no assessment of potential sample matrix effects may be made.

E. BLANK SPIKE

<u>Sample ID</u>	<u>Spike Compound</u>	<u>Bias</u>	<u>ACTION</u>
SBLKSR	All blank spike recoveries were within laboratory limits		

F. INTERNAL STANDARDS

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Bias</u>	<u>ACTION</u>
All IS recoveries & RTs were within acceptable limits			

G. INSTRUMENT TUNES

<u>Date</u>	<u>m/z abundance</u>	<u>< 12-hrs.</u>	<u>ACTION</u>
11/27/01	OK	yes	
11/27/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

<u>Sample ID</u>	<u>Compound</u>	<u>Reported Conc., ug/Kg</u>	<u>Calculated Conc., ug/Kg</u>
GLA1-4C	naphthalene	18 J	17.53

<u>Conc., ug/Kg =</u>	<u>Ax</u>	<u>Is</u>	<u>Vt</u>	<u>Df</u>	<u>GPC</u>
	48285	40.0	500	1.0	1.0
	Ais	RRF	Vi	Ws	D
	2083903	1.011	2.0	15.2	0.86

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB

PROJECT: GLENWOOD

SDG No.: 7001-2835A

A. INITIAL CALIBRATION

CALIBRATION DATE :	11/27/01
FILE IDs :	R2751 - 2755
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %RSDs < 30% ?	Yes
All Targets < 15% RSD?	NO
(If No, list compounds) ---->	benzoic acid
SPCC Compounds	hexachlorocyclopentadiene
N-Nitroso-di-n-propylamine	2,4-dinitrophenol
Hexachlorocyclopentadiene	indeno(123cd)pyrene
2,4-Dinitrophenol	dibenzo(ah)anthracene
4-Nitrophenol	benzo(ghi)perylene
MINIMUM RRF = 0.050	

CCC Compounds
<u>Base/Neutrals</u>
Acenaphthene
1,4-Dichlorobenzene
Hexachlorobutadiene
Diphenylamine
Di-n-octylphthalate
Fluoranthene
Benzo(a)pyrene
<u>Acids</u>
4-Chloro-3-methylphenol
2,4-Dichlorophenol
2-Nitrophenol
Phenol
Pentachlorophenol
2,4,6-Trichlorophenol
MAXIMUM %RSD = 30.0%
MAXIMUM %D = 20.0%

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/27/01
FILE ID :	R2757
ALL RRFs > 0.05 ?	Yes
SPCC RRFs > 0.05 ?	Yes
CCC %Ds < 20% ?	Yes
All Targets < 20%D?	Yes

(If No, list compounds) ---->

ACTION : Qualify 'J' or 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2835AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA6-1B	Aroclor 1016		35 U	35 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		35 U	35 U		
	GLA6-3	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		34 U	34 U		
	GLA6-4	Aroclor 1016		38 U	38 U		
		Aroclor 1221		78 U	78 U		
		Aroclor 1232		38 U	38 U		
		Aroclor 1242		38 U	38 U		
		Aroclor 1248		38 U	38 U		
		Aroclor 1254		38 U	38 U		
		Aroclor 1260		38 U	38 U		
	GLA6-5	Aroclor 1016		33 U	33 U		
		Aroclor 1221		68 U	68 U		
		Aroclor 1232		33 U	33 U		
		Aroclor 1242		33 U	33 U		
		Aroclor 1248		33 U	33 U		
		Aroclor 1254		33 U	33 U		
		Aroclor 1260		33 U	33 U		
	GLA6-2S	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		2.2 J	2.2 J	qualify	1
	GLA6-3S	Aroclor 1016		38 U	38 U		
		Aroclor 1221		76 U	76 U		
		Aroclor 1232		38 U	38 U		
		Aroclor 1242		38 U	38 U		
		Aroclor 1248		38 U	38 U		
		Aroclor 1254		38 U	38 U		
		Aroclor 1260		2.4 J	2.4 J	qualify	1
	GLA6-4S	Aroclor 1016		34 U	34 U		
		Aroclor 1221		69 U	69 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		1.6 J	1.6 J	qualify	1, 2

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : GlenwoodSDG No.: 7001-2835AMETHOD: SW846 / 8082LAB NAME : STL - BuffaloCLIENT: Vanasse, Hangen, Brustlin, Inc.SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE ID	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
PCB	GLA6-5S	Aroclor 1016		34 U	34 U		
		Aroclor 1221		70 U	70 U		
		Aroclor 1232		34 U	34 U		
		Aroclor 1242		34 U	34 U		
		Aroclor 1248		34 U	34 U		
		Aroclor 1254		34 U	34 U		
		Aroclor 1260		3.0 J	34 U	negate	3
	GLA7-1C	Aroclor 1016		35 U	35 U		
		Aroclor 1221		71 U	71 U		
		Aroclor 1232		35 U	35 U		
		Aroclor 1242		35 U	35 U		
		Aroclor 1248		35 U	35 U		
		Aroclor 1254		35 U	35 U		
		Aroclor 1260		35 U	35 U		
	GLA1-4B	Aroclor 1016		36 U	36 U		
		Aroclor 1221		72 U	72 U		
		Aroclor 1232		36 U	36 U		
		Aroclor 1242		36 U	36 U		
		Aroclor 1248		36 U	36 U		
		Aroclor 1254		7.0 J	7.0 J	qualify	1, 2
		Aroclor 1260		6.4 J	6.4 J	qualify	1, 2
	GLA1-4C	Aroclor 1016		38 U	38 U		
		Aroclor 1221		77 U	77 U		
		Aroclor 1232		38 U	38 U		
		Aroclor 1242		38 U	38 U		
		Aroclor 1248		38 U	38 U		
		Aroclor 1254		38 U	38 U		
		Aroclor 1260		2.6 J	2.6 J	qualify	1

FOOTNOTES

- The reported result is qualified 'J', as quantitatively estimated, because the result was above the compounds detection limit, but below the compounds quantitation limit. No bias direction is inferred.
- The reported result is qualified 'J', as quantitatively estimated, because the %D between analytical columns exceeded 25%, but was below 50%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.
- The reported result is qualified 'U', and raised to the PQL, because the %D between analytical columns exceeded 50%, and the reported value was below the analyte's PQL. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

POLYCHLORINATED BIPHENYLS (PCBs)

QC PARAMETER / QUALIFIER SUMMARY

SW846 METHOD 8082

For: Vanasse, Hangen, Brustlin, Inc.

Project: Glenwood

Laboratory

Project No.: 7001-2835A

Laboratory: STL - Buffalo

A. HOLDING TIMES

NON-AQUEOUS MATRIX: 14 DAYS MAXIMUM FROM COLLECTION TO EXTRACTION
NYSDEC ASP: 10 DAYS MAXIMUM FROM LAB RECEIPT (VTSR) TO EXTRACTION
40 DAYS MAXIMUM FROM EXTRACTION TO ANALYSIS

All samples were extracted and analyzed within NYSDEC-ASP holding times.

B. METHOD BLANKS

Blank ID:	C1160101
Extraction Date:	11/24/01
Analyte	Conc. ug/Kg
none found	
AFFECTS:	All

No target compounds were present in extraction blanks; no data qualifiers or negations were necessary

C. SURROGATE RECOVERY

All reported surrogate recoveries were within acceptable limits.

D. MATRIX SPIKE / DUPLICATE

Comments: ~~No matrix spike / duplicate were performed; only a Blank Spike was run.~~
~~No estimation may be made of potential matrix effects on associated samples.~~

E. LABORATORY QC SPIKE (PBLK84QC2)

All reported recoveries were within acceptable limits.

POLYCHLORINATED BIPHENYLS (PCBs)
CALIBRATION SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc.Project: Glenwood

Laboratory

Project No.: 7001-2835ALaboratory: STL - Buffalo**A. INITIAL CALIBRATIONS**CALIBRATION DATE : 11/22/01 Verification of ICAL Results

<u>Aroclor 1260</u>	<u>RTX-35</u>		
<u>Peak 1, RT = 18.78</u>	<u>Response</u>	<u>Cal Factor, Calc'd.</u>	<u>CF, reported</u>
0.05	31713	634260	634260
0.1	63792	637920	637920
0.2	114133	570665	570665
0.4	234670	586675	586675
0.8	418035	<u>522544</u>	<u>522544</u>
Average		590413	590413
Calc'd. %RSD =	8.12		
Reported %RSD =	8.1		

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	11/27/01	11/28/01
FILE ID :	C1160098	C1160116
All Targets < 15% D?	Yes	Yes

(If No, list compounds) ==>

QA ACTION : None necessary**C. SAMPLE RESULT VERIFICATION**

SAMPLE ID: GLA1-4B
 COMPOUND: Aroclor-1260
 REPORTED VALUE: 6.4 ug/Kg column = RTX-35

<u>Peak RT</u>	<u>CF</u>	<u>Peak Area</u>	<u>conc., ng</u>
19.76	485096	10017	0.0206
21.29	646439	10778	0.0167
22.78	247482	3886	0.0157
Average conc. =			0.0177

ug/Kg =

<u>ng average conc.</u>	<u>extract, uL</u>	<u>Dilution factor</u>
0.0177	10000	1.0
30.1	1.0	0.92
wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg =

6.38

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2835AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA6-1B	Aluminum		1850	1850		
		Antimony		0.92 UN	0.92 UJ	qualify	2
		Arsenic	1.03	1.6 B	1.6 J	qualify	1
		Barium		10.4 B	10.4 J	qualify	1
		Beryllium		0.20 B	0.20 J	qualify	1
		Cadmium		0.16 U	0.16 U		
		Calcium	4.66	217 B	217 J	qualify	1
		Chromium		7.5	7.5		
		Cobalt		2.0 B	2.0 J	qualify	1
		Copper		9.5	9.5		
		Iron		9200	9200		
		Lead		1.9	1.9		
		Magnesium		454 B	454 J	qualify	1
		Manganese		112	112		
		Mercury		0.0037 U	0.004 UJ	qualify	3
		Nickel		6.4 B	6.4 J	qualify	1
		Potassium	28.28	260 B	260 J	qualify	1
		Selenium		0.98 U	0.98 U		
		Silver		0.20 U	0.20 U		
		Sodium	8.69	16.0 B	16.0 J	qualify	1
		Thallium		3.7 U	3.7 U		
		Vanadium		6.3 B	6.3 J	qualify	1
		Zinc	0.96	8.6	8.6		
		Cyanide		Not analyzed			
	GLA6-3	Aluminum		1870	1870		
		Antimony		0.88 UN	0.88 UJ	qualify	2
		Arsenic	1.03	1.2 B	1.2 J	qualify	1
		Barium		13.4 B	13.4 J	qualify	1
		Beryllium		0.16 B	0.16 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	4.66	217 B	217 J	qualify	1
		Chromium		4.3	4.3		
		Cobalt		1.6 B	1.6 J	qualify	1
		Copper		3.2 B	3.2 J	qualify	1
		Iron		5070	5070		
		Lead		1.5	1.5		
		Magnesium		554 B	554 J	qualify	1
		Manganese		138	138		
		Mercury		0.0037 U	0.004 UJ	qualify	3
		Nickel		3.5 B	3.5 J	qualify	1
		Potassium	28.28	349 B	349 J	qualify	1
		Selenium		0.94 U	0.94 U		
		Silver		0.19 U	0.19 U		
		Sodium	8.69	21.0 B	21.0 J	qualify	1
		Thallium		3.6 U	3.6 U		
		Vanadium		5.7 B	5.7 J	qualify	1
		Zinc	0.96	7.9	7.9		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2835AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA6-4	Aluminum		1370	1370		
		Antimony		0.92 UN	0.92 UJ	qualify	2
		Arsenic	1.03	1.0 B	1.0 J	qualify	1
		Barium		11.9 B	11.9 J	qualify	1
		Beryllium		0.10 U	0.10 U		
		Cadmium		0.16 U	0.16 U		
		Calcium	4.66	310 B	310 J	qualify	1
		Chromium		5.2	5.2		
		Cobalt		2.8 B	2.8 J	qualify	1
		Copper		3.4 B	3.4 J	qualify	1
		Iron		7070	7070		
		Lead		2.0	2.0		
		Magnesium		371 B	371 J	qualify	1
		Manganese		150	150		
		Mercury		0.0031 U	0.003 UJ	qualify	3
		Nickel		6.1 B	6.1 J	qualify	1
		Potassium	28.28	315 B	315 J	qualify	1
		Selenium		0.98 U	0.98 U		
		Silver		0.20 U	0.20 U		
		Sodium	8.69	35.4 B	35.4 J	qualify	1
		Thallium		3.7 U	3.7 U		
		Vanadium		6.4 B	6.4 J	qualify	1
		Zinc	0.96	12.8	12.8		
		Cyanide		Not analyzed			
	GLA6-5	Aluminum		1610	1610		
		Antimony		0.79 UN	0.79 UJ	qualify	2
		Arsenic	1.03	1.3 B	1.3 J	qualify	1
		Barium		11.2 B	11.2 J	qualify	1
		Beryllium		0.13 B	0.13 J	qualify	1
		Cadmium		0.14 U	0.14 U		
		Calcium	4.66	225 B	225 J	qualify	1
		Chromium		5.5	5.5		
		Cobalt		2.0 B	2.0 J	qualify	1
		Copper		4.4	4.4		
		Iron		6280	6280		
		Lead		1.9	1.9		
		Magnesium		450 B	450 J	qualify	1
		Manganese		111	111		
		Mercury		0.0031 U	0.003 UJ	qualify	3
		Nickel		5.7 B	5.7 J	qualify	1
		Potassium	28.28	279 B	279 J	qualify	1
		Selenium		0.85 U	0.85 U		
		Silver		0.17 U	0.17 U		
		Sodium	8.69	20.2 B	20.2 J	qualify	1
		Thallium		3.2 U	3.2 U		
		Vanadium		6.2 B	6.2 J	qualify	1
		Zinc	0.96	6.6	6.6		
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY INORGANICS

Site Name : GlenwoodSDG No.: 7001-2835AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA6-2S	Aluminum		2090	2090		
		Antimony		1.8 BN	1.8 J	qualify	1, 2
		Arsenic	1.03	1.5 B	1.5 J	qualify	1
		Barium		10.7 B	10.7 J	qualify	1
		Beryllium		0.15 B	0.15 J	qualify	1
		Cadmium		0.17 B	0.17 J	qualify	1
		Calcium	4.66	250 B	250 J	qualify	1
		Chromium		5.9	5.9		
		Cobalt		1.9 B	1.9 J	qualify	1
		Copper		5.6	5.6		
		Iron		6290	6290		
		Lead		17.3	17.3		
		Magnesium		557 B	557 J	qualify	1
		Manganese		92.2	92.2		
		Mercury		0.011	0.011 J	qualify	3
		Nickel		5.1 B	5.1 J	qualify	1
		Potassium	28.28	316 B	316 J	qualify	1
		Selenium		0.88 U	0.88 U		
		Silver		0.18 U	0.18 U		
		Sodium	8.69	19.9 B	19.9 J	qualify	1
		Thallium		3.3 U	3.3 U		
		Vanadium		11.7	11.7		
		Zinc	0.96	404	404		
		Cyanide		Not analyzed			
	GLA6-3S	Aluminum		3400	3400		
		Antimony		0.98 UN	0.98 UJ	qualify	2
		Arsenic	1.03	1.7 B	1.7 J	qualify	1
		Barium		26.5 B	26.5 J	qualify	1
		Beryllium		0.25 B	0.25 J	qualify	1
		Cadmium		0.17 U	0.17 U		
		Calcium	4.66	414 B	414 J	qualify	1
		Chromium		7.2	7.2		
		Cobalt		2.4 B	2.4 J	qualify	1
		Copper		6.3	6.3		
		Iron		8540	8540		
		Lead		10.6	10.6		
		Magnesium		777 B	777 J	qualify	1
		Manganese		150	150		
		Mercury		0.012	0.012 J	qualify	3
		Nickel		6.4 B	6.4 J	qualify	1
		Potassium	28.28	333 B	333 J	qualify	1
		Selenium		1.0 U	1.0 U		
		Silver		0.21 U	0.21 U		
		Sodium	8.69	31.7 B	31.7 J	qualify	1
		Thallium		4.0 U	4.0 U		
		Vanadium		9.7 B	9.7 J	qualify	1
		Zinc	0.96	17.2	17.2		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2835AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA6-4S	Aluminum		2570	2570		
		Antimony		0.76 UN	0.76 UJ	qualify	2
		Arsenic	1.03	1.7	1.7		
		Barium		16.5 B	16.5 J	qualify	1
		Beryllium		0.20 B	0.20 J	qualify	1
		Cadmium		0.13 U	0.13 U		
		Calcium	4.66	427 B	427 J	qualify	1
		Chromium		5.1	5.1		
		Cobalt		2.2 B	2.2 J	qualify	1
		Copper		9.7	9.7		
		Iron		6530	6530		
		Lead		50.4	50.4		
		Magnesium		729 B	729 J	qualify	1
		Manganese		126	126		
		Mercury		0.036	0.036 J	qualify	3
		Nickel		5.3 B	5.3 J	qualify	1
		Potassium	28.28	308 B	308 J	qualify	1
		Selenium		0.80 U	0.80 U		
		Silver		0.16 U	0.16 U		
		Sodium	8.69	22.6 B	22.6 J	qualify	1
		Thallium		3.0 U	3.0 U		
		Vanadium		10.1	10.1		
		Zinc	0.96	22.7	22.7		
		Cyanide		Not analyzed			
	GLA6-5S	Aluminum		2330	2330		
		Antimony		0.98 BN	0.98 J	qualify	1, 2
		Arsenic	1.03	1.8 B	1.8 J	qualify	1
		Barium		18.2 B	18.2 J	qualify	1
		Beryllium		0.15 B	0.15 J	qualify	1
		Cadmium		0.16 U	0.16 U		
		Calcium	4.66	290 B	290 J	qualify	1
		Chromium		5.2	5.2		
		Cobalt		2.4 B	2.4 J	qualify	1
		Copper		5.3	5.3		
		Iron		7320	7320		
		Lead		22.9	22.9		
		Magnesium		496 B	496 J	qualify	1
		Manganese		141	141		
		Mercury		0.016	0.016 J	qualify	3
		Nickel		5.4 B	5.4 J	qualify	1
		Potassium	28.28	310 B	310 J	qualify	1
		Selenium		0.98 U	0.98 U		
		Silver		0.20 U	0.20 U		
		Sodium	8.69	22.1 B	22.1 J	qualify	1
		Thallium		3.7 U	3.7 U		
		Vanadium		9.7 B	9.7 J	qualify	1
		Zinc	0.96	18.2	18.2		
		Cyanide		Not analyzed			

**TARGET ANALYTE DATA SUMMARY
INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2835AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA7-1C	Aluminum		3020	3020		
		Antimony		0.86 UN	0.86 UJ	qualify	2
		Arsenic	1.03	1.6 B	1.6 J	qualify	1
		Barium		25.9 B	25.9 J	qualify	1
		Beryllium		0.18 B	0.18 J	qualify	1
		Cadmium		0.15 U	0.15 U		
		Calcium	4.66	404 B	404 J	qualify	1
		Chromium		6.0	6.0		
		Cobalt		3.0 B	3.0 J	qualify	1
		Copper		4.8	4.8		
		Iron		7540	7540		
		Lead		5.2	5.2		
		Magnesium		647 B	647 J	qualify	1
		Manganese		199	199		
		Mercury		0.0074 B	0.007 J	qualify	1, 3
		Nickel		5.2 B	5.2 J	qualify	1
		Potassium	28.28	343 B	343 J	qualify	1
		Selenium		0.91 U	0.91 U		
		Silver		0.18 U	0.18 U		
		Sodium	8.69	30.7 B	30.7 J	qualify	1
		Thallium		3.4 U	3.4 U		
		Vanadium		8.6 B	8.6 J	qualify	1
		Zinc	0.96	11.0	11.0		
		Cyanide		Not analyzed			
	GLA1-4B	Aluminum		1060	1060		
		Antimony		0.96 UN	0.96 UJ	qualify	2
		Arsenic	1.03	1.1 B	1.1 J	qualify	1
		Barium		3.4 B	3.4 J	qualify	1
		Beryllium		0.10 U	0.10 U		
		Cadmium		0.17 U	0.17 U		
		Calcium	4.66	109 B	109 J	qualify	1
		Chromium		1.9 B	1.9 J	qualify	1
		Cobalt		0.27 U	0.27 U		
		Copper		2.3 B	2.3 J	qualify	1
		Iron		912	912		
		Lead		2.2	2.2		
		Magnesium		27.2 B	27.2 J	qualify	1
		Manganese		2.4 B	2.4 J	qualify	1
		Mercury		0.077	0.077 J	qualify	3
		Nickel		0.36 B	0.36 J	qualify	1
		Potassium	28.28	82.0 B	82.0 J	qualify	1
		Selenium		1.0 U	1.0 U		
		Silver		0.21 U	0.21 U		
		Sodium	8.69	13.7 B	13.7 J	qualify	1
		Thallium		3.9 U	3.9 U		
		Vanadium		5.0 B	5.0 J	qualify	1
		Zinc	0.96	3.1 B	3.1 J	qualify	1
		Cyanide		Not analyzed			

TARGET ANALYTE DATA SUMMARY **INORGANICS**

Site Name : GlenwoodSDG No.: 7001-2835AMethod : SW-846Lab Name : STL - CTSample Matrix : Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC. mg/Kg	LAB REPORTED CONC. mg/Kg	QA REPORTED CONC. mg/Kg	QA DECISION	FOOTNOTE
Inorganic	GLA1-4C	Aluminum		1120	1120		
		Antimony		0.83 UN	0.83 UJ	qualify	2
		Arsenic	1.03	1.2 B	1.2 J	qualify	1
		Barium		3.8 B	3.8 J	qualify	1
		Beryllium		0.090 U	0.090 U		
		Cadmium		0.14 U	0.14 U		
		Calcium	4.66	121 B	121 J	qualify	1
		Chromium		1.9	1.9		
		Cobalt		0.27 B	0.27 J	qualify	1
		Copper		2.2 B	2.2 J	qualify	1
		Iron		750	750		
		Lead		2.0	2.0		
		Magnesium		24.8 B	24.8 J	qualify	1
		Manganese		1.7 B	1.7 J	qualify	1
		Mercury		0.26	0.26 J	qualify	3
		Nickel		0.39 B	0.39 J	qualify	1
		Potassium	28.28	78.2 B	78.2 J	qualify	1
		Selenium		0.88 U	0.88 U		
		Silver		0.18 U	0.18 U		
		Sodium	8.69	13.4 B	13.4 J	qualify	1
		Thallium		3.3 U	3.3 U		
		Vanadium		4.2 B	4.2 J	qualify	1
		Zinc	0.96	3.1 B	3.1 J	qualify	1
		Cyanide		Not analyzed			

FOOTNOTES

- The reported value was above the analyte IDL, but below CRDL, and is quantitatively qualified 'J', as an estimated value. No bias direction is inferred.
- The reported value for this analyte was qualified 'UJ' or 'J', because the matrix spike recovery was below the lower limit of 75%. Potential negative bias is suggested.
- The reported value for this analyte was qualified 'UJ' or 'J', because the duplicate precision value exceeded the EPA Region II validation guidance value for non-aqueous samples of 100%. No bias direction is inferred.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For: Vanasse, Hangen, Brustlin, Inc.Project: GlenwoodLaboratory: STL- CTLab Project No.: 7001-2835A

- A. **CALIBRATION**
 ICP Analytes
- | | | | |
|--|-----|---------------------|-------------------|
| | ICV | 90% - 110% recovery | <u>Outliers ?</u> |
| | CCV | 90% - 110% recovery | none |
| | | | none |
- B. **CRDL STANDARD**
- | | | |
|--------------------|-------------------|------------|
| | <u>Outliers ?</u> | |
| 80 - 120% recovery | Se | CRI 1 125% |
- QA Action: Qualify 'J' positive Se values up to nominal 4.0 mg/Kg, with positive bias suggested.
 Affects: Samples 01 -08. Note: no positive Se values were noted; therefore, no data qualifiers were applicable for Se.
- C. **BLANKS**
- | | |
|-------------------|-------------------|
| | <u>Outliers ?</u> |
| ICB / CCB < CRDL | none |
| Prep Blank < CRDL | none |
- D. **INTERELEMENT CORRECTION (ICSA / ICSAB)**
- | | | |
|-------|-------------------------------------|-------------------|
| | Response < 2x CRDL for trace metals | <u>Outliers ?</u> |
| ICSA | | none |
| ICSAB | 80 - 120% recovery | none |
- E. **MATRIX SPIKE** (GLA1-4B)
- | | |
|---|-------------------|
| | <u>Outliers ?</u> |
| 75 - 125% recovery (if sample conc. < 4x spike conc.) | Sb 71% |
- QA Action: Qualify Sb values 'UJ' or 'J', with negative bias suggested. Affects all SDG samples.
- F. **POST-DIGESTION SPIKE**
- | | |
|---|-------------------|
| | <u>Outliers ?</u> |
| 75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >. | |
- Comments: Sb native sample was non-detect, PDS conc. should be 120 ppb. PDS concentration used was 500 ppb.
- G. **MATRIX DUPLICATE** (GLA1-4B)
- | | |
|--|-------------------|
| | <u>Outliers ?</u> |
| Max. 100% RPD for non-aqueous samples > 5x CRDL | |
| Max. (+/-) CRDL value if either sample < 5x CRDL | Hg 104% |
- QA Action: Qualify Hg values 'UJ' or 'J' ; no bias direction inferred.
- H. **LABORATORY CONTROL SAMPLE**
- | | |
|--|-------------------|
| | <u>Outliers ?</u> |
| Recovery within control limits for non-aqueous samples | none |
| Recovery between 80 - 120% for aqueous samples | n/a |
- I. **SERIAL DILUTION SAMPLE**
- | | |
|---|-------------------|
| | <u>Outliers ?</u> |
| Maximum 10.0% D if undiluted sample > 10x IDL | none |
- J. **VERIFICATION OF INSTRUMENTAL PARAMETERS**
- | | | |
|---------------------------------|------------------|-------------------|
| | <u>Frequency</u> | <u>Outliers ?</u> |
| Instrument Detection Limits | Quarterly | none |
| Interelement Correction Factors | Annually | none |
| Linear Range Analysis | Quarterly | none |

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc.Project : GlenwoodLaboratory : STL- CTLab Project No. : 7001-2835A

Sample Result Verification

Associated Samples : All SDG samples.

1. Were all reported analytes in all samples within the applicable calibration range ?

Yes

If No, list affected analytes and samples, and QA action : _____

2. Was the raw data free of any anomalies ?

Yes

If No, list affected analytes and samples, and QA action : _____

3. Was the data package free of any computational or transcription errors ?

Yes

If No, list affected analytes and samples, and QA action : _____

4. Was a % Solids analysis performed for all non-aqueous samples ?

Yes

If No, list affected analytes and samples, and QA action : _____

Note: % solids values below were taken from the raw data, and are within a reasonable error band.

5. Show calculation for % Solids for one sample.

Sample ID: GLA6-4S (2835A-07)Lab value : 95.9 %Dry weight : 8.65 gm% Solids = Dry weight x 100Wet weight : 9.02 gm

Wet weight

= **95.9** %

6. Verify that non-aqueous samples were reported on a dry-weight basis by recalculating the result for one analyte in a sample.

Sample ID: GLA6-4SAnalyte : PbLab value : 50.4 mg/Kg% Solids : 95.9

Note: Pb analyzed at 50x dilution

Raw value 0.3070 mg/LFinal volume 200 mLWet weight 1.27 gmmg/Kg dry weight = $\frac{\text{mg/L} \times \text{FV (ml)}}{\text{wet wgt} \times (\% \text{Sol}/100)}$

wet wgt x (%Sol/100) =

50.4

mg/ kg

7. If two analytical methods were used to obtain values for the same element, were results < 20% RPD ?

n/a

If No, list affected analytes and samples, and QA action : _____

Appendix G

Photo Log

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



Asbestos enclosure constructed over drip line for abatement - View south from lab roof



View looking east at demolition of East Drip Pit

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking southwest at beginning of demolition of compressor building. Brick facade is being stripped off of structural steel



View looking southeast at backhoe loading soil into trucks, concrete segregated in hot zone and CRZ, pipe segregated on poly in CRZ

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking west at abandoned 45" da. Cast iron gas main from vicinity of south drip pit excavation



View looking west at PS - 270 - foundation excavation. This is NY Dirt fill source

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



Backfill area 3-1



View looking northeast at area 2-2 excavation - former boiler wash area

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking southeast of area 3-1 at sand backfill compaction



View looking southwest at grapple and hoeram during demo of comp. bldg. foundation

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking east northeast at area 2-2 dig



View looking north at area 2-6 hand dig

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking south at 3' wide re-dig in area (2nd cut) 3-1 to water table



View looking north at area 2-2 at completion of dig

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking north northwest at area 2-6



View looking south at comp. bldg. demo and backfilling

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking west at surveyors and excavator during consolidation in area 1B



View looking northwest at slope preparation for rip rap along edge of area 1B

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking north at area 3-8 re-dig, 10'x10'x1'+, north side of area 3-8 original dig



View looking southwest at comp. bldg. demo, digging and backfilling

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking northeast performing magnetometer survey in area 1B



View lookng southwest at 1B rip rap prep. area

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking northwest at contouring of debris fill in area 1B



View looking southeast at area 1B rip rap placements

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking southeast at geotextile and rip rap placements in area 1B



View looking southeast at area 2-3 dig after 1st cut

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking south at area 2-4 after 1st cut



View looking south at fabric/fill area 2-2

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking northeast at clay and topsoil placements in area 1B



View looking southeast at dozer spreading clay soils in area 1B

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



View looking southeast at area 1B, hydroseeding in progress



View looking northeast at area 1B from across the "sunken barge pond"

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Glenwood Landing
Soil Remediation



Cleaning MH#2

APPENDIX E

SITE MANAGEMENT PLAN



Site Management Plan

Glenwood Landing Former Gas Plant Site



May 2012

SITE MANAGEMENT PLAN

**NATIONAL GRID GLENWOOD LANDING FORMER GAS PLANT SITE
GLENWOOD LANDING, NEW YORK**

VOLUNTARY CLEANUP AGREEMENT NO. R1-0001-01-01

Prepared for:

**NATIONAL GRID
HICKSVILLE, NEW YORK**

Prepared by:

**DVIRKA AND BARTILUCCI CONSULTING ENGINEERS
WOODBURY, NEW YORK**

MAY 2012

**SITE MANAGEMENT PLAN
NATIONAL GRID GLENWOOD LANDING FORMER GAS PLANT SITE**

TABLE OF CONTENTS

<u>Section</u>	<u>Description</u>	<u>Page</u>
	EXECUTIVE SUMMARY	ES-1
1.0	INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM	1-1
1.1	Introduction.....	1-1
1.1.1	General.....	1-1
1.1.2	Purpose.....	1-4
1.1.3	Revisions.....	1-5
1.2	Site Background.....	1-5
1.2.1	Site Location and Description.....	1-5
1.2.2	Site History	1-6
1.2.3	Geologic Conditions	1-7
1.3	Summary of Previous Investigation Findings.....	1-10
1.4	Summary of Remedial Actions.....	1-15
1.4.1	Removal of Contaminated Materials from the Site	1-16
1.4.2	On-Site and Off-Site Treatment Systems	1-18
1.4.3	Remaining Contamination	1-18
1.4.3.1	Soil	1-18
1.4.3.2	Groundwater	1-21
1.4.4	Engineering and Institutional Controls	1-22
2.0	ENGINEERING AND INSTITUTIONAL CONTROL PLAN.....	2-1
2.1	Introduction.....	2-1
2.1.1	General.....	2-1
2.1.2	Purpose.....	2-1
2.2	Engineering Controls	2-2
2.2.1	Engineering Control Systems	2-2
2.2.2	Criteria for Completion of Remediation/ Termination of Remedial Systems.....	2-2
2.3	Institutional Controls	2-4
2.3.1	Excavation Work Plan	2-5
2.3.2	Soil Vapor Intrusion Evaluation	2-6
2.4	Inspections and Notifications.....	2-7
2.4.1	Inspections	2-7
2.4.2	Notifications.....	2-7

TABLE OF CONTENTS (continued)

<u>Section</u>	<u>Description</u>	<u>Page</u>
2.5	Contingency Plan	2-8
2.5.1	Emergency Telephone Numbers	2-9
2.5.2	Map and Directions to Nearest Health Facility	2-9
2.5.3	Response Procedures	2-9
3.0	MONITORING PLAN	3-1
3.1	Introduction	3-1
3.1.1	General	3-1
3.1.2	Purpose and Schedule	3-1
3.2	Engineering Control System Monitoring	3-3
3.2.1	Monitoring Schedule	3-3
3.2.2	Repair Schedule	3-3
3.3	Site-Wide Inspection	3-4
3.4	Monitoring Reporting Requirements	3-5
4.0	SITE MANAGEMENT REPORTING PLAN	4-1
4.1	Introduction	4-1
4.2	Certification of Engineering and Institutional Controls	4-1
4.3	Site Inspections	4-2
4.3.1	Inspection Frequency	4-2
4.3.2	Inspection Forms	4-2
4.3.3	Evaluation of Records and Reporting	4-3
4.4	Periodic Review Report	4-3
4.5	Corrective Measures Plan	4-4

List of Appendices

Deed Restriction	A
As-Built Drawing	B
Excavation Endpoint Sample Results	C
Excavation Work Plan	D
Institutional and Engineering Control Inspection Form	E

TABLE OF CONTENTS (continued)

List of Figures

1-1	Site Plan	1-2
1-2	Site Location Map	1-3
1-3	Cross Section Key Map	1-8
1-4	Geologic Cross Section of Site and Upgradient Areas	1-9
2-1	Hospital Route Map	2-10

List of Tables

1-1	Soil Disposal Summary	1-17
1-2	Site-Specific Soil Cleanup Objectives	1-19
2-1	Soil Cover System Summary	2-3
2-2	Emergency Contact Numbers	2-11
3-1	Monitoring/Inspection Schedule	3-2

List of Drawings

1	Site Plan	Map Pocket at end of Section 1.0
---	-----------------	----------------------------------

EXECUTIVE SUMMARY

The National Grid Glenwood Landing Gas Plant Site, located in Glenwood Landing, Nassau County, New York, was remediated in accordance with New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Agreement (VCA) No. R1-0001-01-01 and completed in September 2002. The site remediation included the excavation and off-site disposal of approximately 10,880 tons of nonhazardous contaminated soil, and demolition and removal of several on-site buildings and structures. In accordance with the VCA, a limited amount of soil contamination was left in place after completion of the remedy. This Site Management Plan (SMP) is required under the NYSDEC Voluntary Cleanup Program. The SMP documents the procedures that will be implemented in the monitoring and management of any residual contamination remaining at the Site.

The Glenwood Landing Gas Plant Site was initially developed as a natural gas reforming plant to reduce the BTU value of pipeline natural gas using a gas catalytic cracking process. The plant started operating in 1951. Subsequent development included a natural gas regulating station (compressor station), laboratory, and propane storage field. The gas facilities and propane storage tank field have since been decommissioned and demolished. The compressor station and associated site features have also been decommissioned and demolished. Laboratory services have been terminated, and a portion of the site is currently being used as an electric power generating station.

This Site Management Plan provides a detailed description of all long-term requirements to manage the remaining contamination at the Site in accordance with the Voluntary Cleanup Agreement including: (1) implementation and management of the Engineering and Institutional Controls; (2) monitoring; (3) performance of periodic inspections; and (4) submittal of Periodic Review Reports. The following provides a brief summary of each required portion of the Site Management Plan and the section of the plan where further details are provided:

Engineering and Institutional Control Plan (Section 2.0)

This section describes the procedures for the implementation and management of all Engineering and Institutional Controls at the site. Engineering controls installed at the site include a soil cover system in Areas 1B and 3. The soil cover system placed in Area 1B is comprised of a 10 oz./square yard geotextile, 1 foot of clean clay/soil cover, 6 inches of topsoil and vegetation. The soil cover system placed in Area 3 is comprised of clean fill from the bottom of the excavation area to approximately 6 inches below grade, 6 inches of topsoil and vegetation. An as-built drawing detailing the location of the engineering controls is provided in Appendix B. Institutional controls implemented at the site include a Deed Restriction, which enforces the execution of this Site Management Plan, limits site use to industrial (Areas 2 and 3) and restricted residential (Areas 1A and 1B), restricts the use of on-site groundwater, restricts the excavation of any contamination remaining on the site and prevents the construction of any new structures in Area 1A and 1B without the assessment for potential vapor intrusion. It should be noted that although Areas 2 and 3 are classified for industrial use, approximately 94% of the VCA related property located to the east of Shore Road meets restricted-residential use standards. A copy of the Deed Restriction will be provided in Appendix A after the SMP is finalized. Once the SMP is finalized, the Deed Restriction will be put into place.

Monitoring Plan (Section 3.0)

This section describes the measures for evaluating the performance and effectiveness of the remedy in reducing or mitigating contamination at the site, including all Engineering Controls and all affected site media. Engineering Controls at the site include a soil cover system in Areas 1B and 3, as described above. Annual monitoring of the soil cover system in each area will be conducted for the first 5 years, unless a less frequent schedule is otherwise approved by the NYSDEC. After 5 years, the monitoring frequency will be reviewed with the NYSDEC to determine any change in frequency. Monitoring programs are summarized in Table 3-1 and outlined in detail in Sections 3.2 and 3.3.

Site Management Reporting Plan (Section 4.0)

A Periodic Review Report will be submitted to NYSDEC annually, beginning eighteen months after the No Further Action letter is issued by the NYSDEC. The Periodic Review Report will be prepared in accordance with NYSDEC DER-10 “Technical Guidance for Site Investigation and Remediation” requirements. The report will include an assessment of the Engineering and Institutional Control Plan and Monitoring Plan, results of the annual site inspections, a compilation of deliverables generated during the reporting period and a certification of the Engineering and Institutional Controls. Periodic review certification and reporting requirements are outlined in Sections 4.2 and 4.4.

If any portion of the Site is sold, the property owner for the sold property will then be responsible for meeting all the requirements of this SMP for the sold property portion, and National Grid and its successors and/or assigns will no longer have any responsibility for the sold portion of the property.

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 Introduction

This document is required as an element of the remedial program at the National Grid Glenwood Landing Gas Plant Site under the New York State (NYS) Voluntary Cleanup Program (VCP) administered by New York State Department of Environmental Conservation (NYSDEC). The term “Site” as referenced herein, shall refer to the portions of the Glenwood Landing Gas Plant Site that were subject to the VCA related soil remediation, as shown on Figure 1-1 and on Drawing 1 (located in map pocket at end of Section 1.0). The site was remediated in accordance with Voluntary Cleanup Agreement (VCA) No. R1-0001-01-01, which was executed on March 27, 2001.

1.1.1 General

National Grid’s corporate predecessor, KeySpan Corporation, entered into a VCA with the NYSDEC to remediate the Site, which is located in Glenwood Landing, Nassau County, New York (Figure 1-2). This VCA required the investigation and remediation of contaminated media at the site. A map showing the site location and boundaries of the Site is provided as Figure 1-1 and in Drawing 1 (located in the map pocket at the end of this section). The boundaries of the site are more fully described in the metes and bounds site description that will accompany the Deed Restriction once it is finalized (see Appendix A).

After completion of the remedial work described in the September 2001 Supplemental Environmental Site Assessment Report, some contamination was left in the subsurface at this site, which is hereafter referred to as “remaining contamination.” This Site Management Plan (SMP) was prepared to manage remaining contamination at the Site in perpetuity or until extinguishment of the Deed Restriction in accordance with ECL Article 71, Title 36. All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

LEGEND



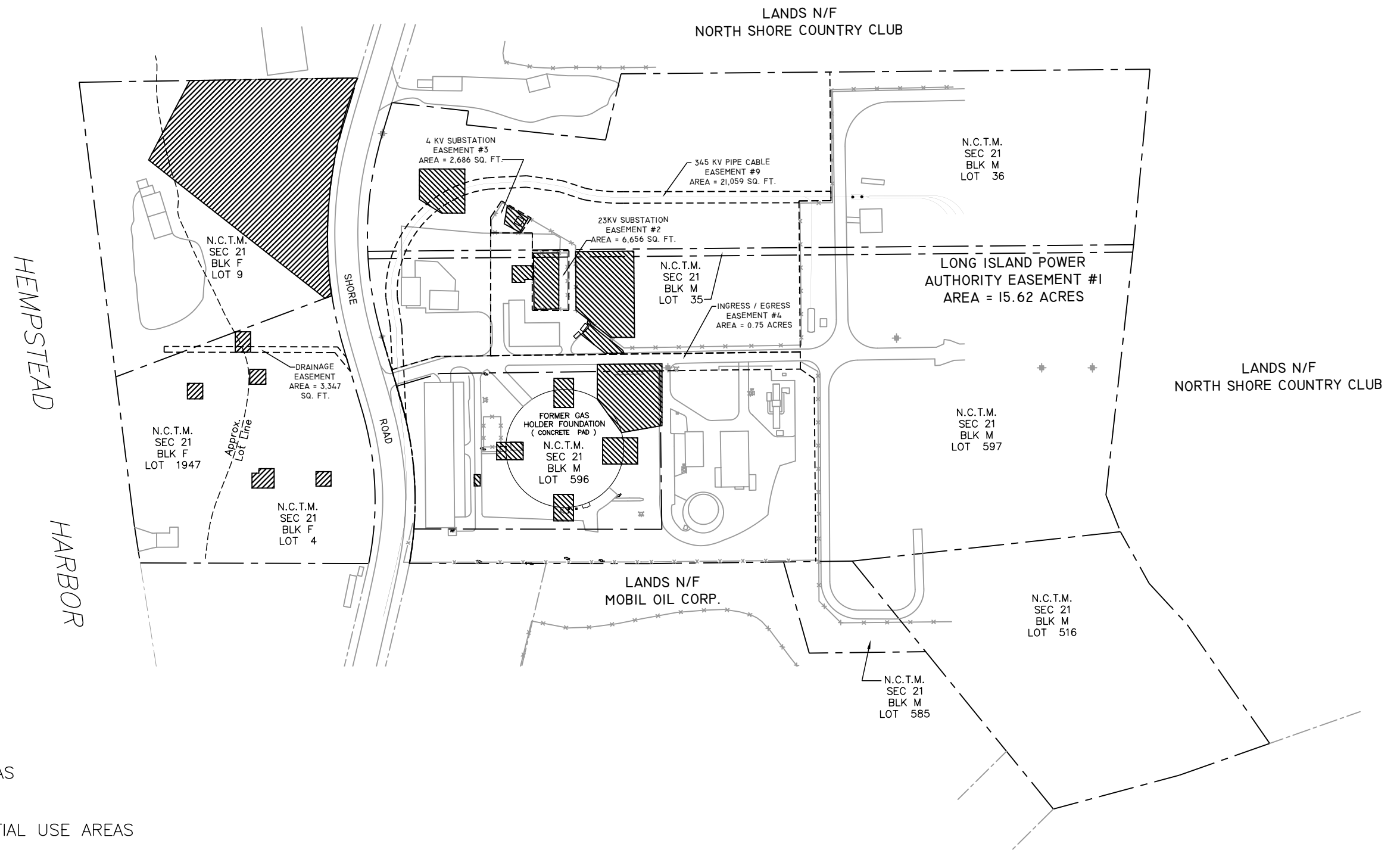
INDUSTRIAL USE AREAS



RESTRICTED RESIDENTIAL USE AREAS

--- NASSAU COUNTY TAX MAP LOT BOUNDARY

----- EASEMENT BOUNDARY



NATIONAL GRID GLENWOOD LANDING

SITE PLAN

SCALE: 1" = 200'

FIGURE 1-1



This SMP was prepared by Dvirka and Bartilucci Consulting Engineers (D&B), on behalf of National Grid, in accordance with the requirements in NYSDEC DER-10 “Technical Guidance for Site Investigation and Remediation,” dated May 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Deed Restriction for the Site.

1.1.2 Purpose

The Site has some contamination remaining after completion of the remedial action. Engineering Controls have been incorporated into the Site remedy to provide proper management of remaining contamination in the future to ensure protection of public health and the environment. A Deed Restriction will be recorded with the Nassau County Clerk, that provides an enforceable legal instrument to ensure compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on site use, and mandate maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the Deed Restriction for contamination that remains at the Site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Deed Restriction and the grantor’s successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the Site after completion of the Remedial Action, including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) performance of periodic inspections, certification of results; and (4) submittal of Periodic Review Reports.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; and (3) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Deed Restriction. Failure to properly implement the SMP is a violation of the Deed Restriction, which is grounds for revocation of the No Further Action determination;
- Noncompliance with this SMP is also a violation of Environmental Conservation Law, 6 NYCRR Part 375 and the VCA (Index No. R1-0001-01-01) for the Site, and thereby subject to applicable penalties; and
- At the time the SMP was prepared, the SMP and all site documents related to Remedial Investigation and Remedial Action are maintained at the NYSDEC Central Office in Albany, New York, and the NYSDEC - Region 1 office in Stony Brook, New York.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. In accordance with the Deed Restriction for the Site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 **Site Background**

1.2.1 Site Location and Description

The Site is located on Shore Road in Glenwood Landing, County of Nassau, New York, and is identified as Section 21, Block F, P/O Lots 4, 9 and 1947, and Section 21, Block M, P/O Lots 35, 36, 596 and 597 on Nassau County Tax maps. The approximately 3-acre property is located on approximately 800 feet of waterfront on the east shore of Hempstead Harbor, and extends east across Shore Road. The property is bounded on the south by a Mobil Oil/Storage Terminal, to the west by Hempstead Harbor, and on the north and east by the North Shore Country Club (see Figure 1-1 and Drawing 1 located in map pocket at end of Section 1.0). The boundaries of the Site are more fully described in the Deed Restriction, which is included in Appendix A.

1.2.2 Site History

Prior to 1951, a hotel was operated at the site. The site was then developed as a natural gas reforming plant to reduce the BTU value of pipeline natural gas using a gas catalytic cracking process. The plant started operating in 1951. Subsequent development included a natural gas regulating station (compressor station), laboratory, and propane storage field. The gas facilities and propane storage tank field have since been decommissioned and demolished. The compressor station and associated site features have also been decommissioned and demolished. Laboratory services have been terminated, and a portion of the site was redeveloped for electric power generation.

Previous investigations were conducted at the Site, as detailed in the reports identified below.

- A Phase I Environmental Site Assessment (ESA) was performed by Fluor Daniel GTI, Inc. and reported in January 1999;
- A Phase II ESA was performed by Fluor Daniel GTI Inc. and reported in May 1999;
- A Supplemental ESA was performed by IT Corporation and reported in June 1999;
- A Supplemental ESA of Area-1, including a Human Health and Ecological Risk Analysis, was performed by Vanasse Hangen Brustlin, Inc. (VHB) and reported in December 1999;
- An upgradient Shallow Groundwater Investigation was performed by VHB in March 2000 and reported in September 2001; and
- A VCA Investigation was performed in two phases by VHB in November of 2000 and April of 2001 and reported in September 2001;
- A Geophysical Investigation and Supplemental Environmental Sampling was performed by VHB in March 2003 and reported in October 2003;
- Upgradient Groundwater Contamination Sources Investigation Findings Report, prepared by D&B in August 2006; and
- Groundwater Investigation Findings Report, prepared by D&B in June 2008.
- Groundwater Modeling Report, prepared by D&B in September 2009.

1.2.3 Geologic Conditions

Topography

The westernmost portion of the Site is located adjacent to Hempstead Harbor and is approximately 8 feet above mean sea level (msl). Moving inland from Hempstead Harbor and across Shore Road, surface topography increases steeply with the eastern boundary of the property at approximately 80 feet above msl.

Stratigraphy

A key map and associated hydrogeologic cross section, which runs from Hempstead Harbor at the approximate location of the Site property and upgradient to the east, are provided as Figures 1-3 and 1-4, respectively. As depicted on the cross section, the Site is immediately underlain by the Upper Glacial aquifer, a Pleistocene-aged unit consisting of glacial till and outwash deposits. It consists mainly of a poorly to moderately sorted fine-coarse sand and gravel with variable amounts of clay and silt and is considered to have excellent groundwater transmitting properties. The Upper Glacial aquifer is approximately 225 feet thick in the Site area and generally overlies the Magothy aquifer. However, in the immediate vicinity of the Site property, the Magothy aquifer has been completely eroded away and, as a result, the Upper Glacial aquifer directly overlies the Raritan Clay confining unit. A review of soil borings indicates that the glacial sediments underlying the Site property consist of primarily fine to medium sand with varying amounts of silt and gravel, with fairly good water transmitting properties. However, the available information also indicates that there exists a number of low-permeable clay-rich zones interbedded with the more permeable sand-rich zones.

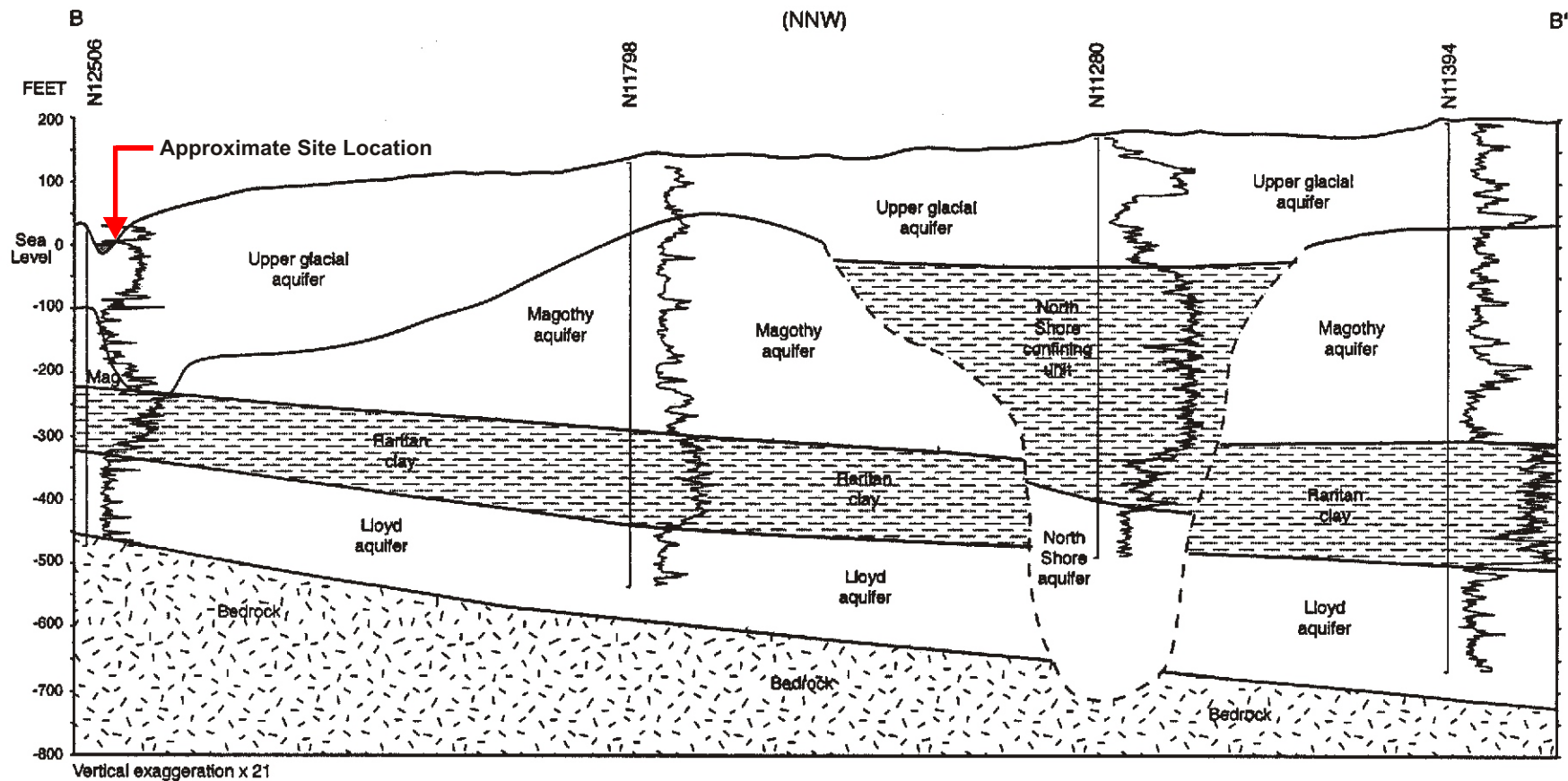
The Magothy aquifer is a Cretaceous-aged unit consisting of alternating layers of fine sand, silts and clays considered to have moderate groundwater transmitting properties. However, due to the numerous clay-rich zones, it is highly anisotropic with vertical hydraulic conductivities being approximately 0.01 of horizontal values. Note that, as depicted on Figure 1-4, the Magothy aquifer appears to be completely eroded in the vicinity of the Site



SOURCE: USGS WATER RESOURCES INVESTIGATIONS REPORT 03-4288

APPROXIMATE SCALE: 1"=1.25MI

1620 - Cross Section Key Map.cdr (10/07/11)



EXPLANATION

Mag

Magothy aquifer



GEOLOGICAL CONTACT—dashed
where approximately located

WELL BORING AND TRACE OF
GEOPHYSICAL (GAMMA RAY) LOG —
well locations are shown in figure 2

0 0.5 1 MILE
0 0.5 1 KILOMETER

SOURCE: USGS WATER RESOURCES INVESTIGATIONS REPORT 03-4288

1620 - Hydrogeologic Map.cdr (10/07/11)

db Dvirka
and
Bartilucci
CONSULTING ENGINEERS
a Division of D&B Engineers and Architects, P.C.

GLENWOOD LANDING FORMER GAS PLANT SITE GLENWOOD LANDING, NEW YORK GEOLOGIC CROSS-SECTION OF SITE AND UPGRADIENT AREAS

FIGURE 1-4

property and gradually thickens upgradient to the east with a thickness of approximately 75 feet at a distance of 1 mile from Hempstead Harbor. The Magothy aquifer is the principal source for public water for Nassau County.

Underlying the Magothy aquifer are additional Cretaceous-aged units, including, in descending order, the Raritan Clay confining unit and the Lloyd aquifer. Consolidated bedrock is located approximately 475 feet below grade at the Site. The Raritan Clay beneath the Site consists of solid, compact clay at least 100 feet thick.

Groundwater Flow

The water table is located within the Upper Glacial aquifer and is found at depths ranging from less than 6 feet at the Area 1A Parcel, adjacent to Hempstead Harbor, to approximately 115 feet below grade, approximately 1 mile to the east of the Site. Regional horizontal groundwater flow is westward toward Hempstead Harbor. Therefore, areas to the east of the Site property are considered upgradient to the site with respect to groundwater flow. At the Area 1A Parcel, hydraulic head measurements from deep and shallow groundwater monitoring wells identify a strong upward vertical gradient, indicating this is an area of groundwater discharge.

1.3 Summary of Previous Investigation Findings

The Phase I ESA completed by Fluor Daniel GTI suggested the presence of several potential Recognized Environmental Conditions (RECs) in each of the three site areas. These RECs included leach fields, former above ground storage tanks (ASTs), fill deposits/areas, debris piles, structures, and gas handling/processing facilities.

The Phase II ESA completed by Fluor Daniel GTI investigated the proposed RECs reported in the Phase I ESA. Analytical results from samples collected during the Phase II ESA were compared to referenced background concentrations published by state and federal sources. Analytical results from the Phase II ESA suggested the following:

- Volatile organic compounds (VOCs) were present in groundwater in Area-1A at concentrations above published background levels;
- Inorganics were present in soil in Area-1B at concentrations above published background levels;
- Inorganics and polychlorinated biphenyls (PCBs) were present in soil in Area-2 at concentrations above published background levels; and
- VOCs, semivolatile organic compounds (SVOCs), and inorganics were present in soil in Area-3 at concentrations above published background levels.

The Supplemental ESA completed by IT Corporation was conducted to "delineate the chemicals detected during the Phase II ESA, and determine remediation cost estimates based on the delineation of chemical impacts." Analytical results from the Supplemental ESA suggested the following:

- VOCs were present in shallow groundwater on the west side of Area-1A at concentrations exceeding NYSDEC groundwater standards;
- Ash, asbestos and inorganics (particularly arsenic and vanadium) were present in surface and subsurface soils in the central portion of Area-1B. Arsenic and vanadium were present in concentrations above eastern United States background levels;
- In Area-2, mercury and polycyclic aromatic hydrocarbons (PAHs) were detected in debris piles along the western portion of the property above NYSDEC guidance values. Mercury was detected in soil borings from the former septic system in excess of NYSDEC guidance values. PCBs and PAHs were detected in soil borings in the boiler waste pit area;
- In Area-3, PAHs and PCBs were detected in the wastewater/condensate accumulation area above NYSDEC guidance values. One boring contained VOCs marginally above NYSDEC guidance values. PCBs were also detected above NYSDEC guidance values in the yard storage area.

A supplemental ESA and risk analysis was performed by VHB to evaluate VOCs in groundwater and inorganics in soil in Area-1. Analytical results from this investigation suggested the following:

- The arsenic and vanadium present in the surface and shallow subsurface soils in Area-1B was evaluated relative to certain site development scenarios. However, there was no immediate threat, and there was no evidence of migration from the site or into groundwater at that time, and access to the site was currently controlled. Additional characterization of the area was not necessary since the analytes of concern were associated with the presence of ash, which could be easily distinguished through visual inspection.
- VOCs were present in shallow groundwater in Area-1A above NYSDEC guidance values.

An upgradient Shallow Groundwater Investigation was performed on March 2 and 3, 2000 to determine whether a source of VOCs was present in shallow groundwater areas adjacent to Shore Road, and adjacent to former and existing septic tanks and leach fields.

- Nineteen groundwater samples were collected from temporary wells approximately 8 to 12 feet in depth installed using direct-push technology. In addition, four existing monitoring wells were sampled. These samples were analyzed for VOCs.
- Analytical results indicated the presence of chlorinated VOCs (tetrachloroethene (PCE), trichloroethene (TCE)) in shallow groundwater upgradient of Area-1, however the concentrations detected are well below the levels found in Area-1, and are also below applicable regulatory criteria.
- There appears to be no existing sources of VOCs in subsurface soils and shallow groundwater adjacent to Shore Road, the compressor building, storage sheds, laboratory, and associated septic structures.

Specific objectives of the VCA investigation included: determining if the storm sewers were a conduit or source of VOCs to shallow groundwater in Area-1A; verify presence of VOCs in shallow groundwater in Area- 1A; determine if a sinking dense non-aqueous phase liquids (DNAPL) plume exists in Area-1A; determine potential impact to shallow groundwater in Area-1B associated with overlying fill materials; collection of co-located surface water/sediment samples from the tidal pond in Area 1B to determine potential for surface water discharges; sampling under gas holder to determine if VOCs and/or SVOCs were present, and determine if inorganics were migrating or exist under the holder pad. The results from this investigation suggested the following:

- Geotechnical and analytical results from shallow groundwater samples in Area- 1A were consistent with previous investigations. The compounds and concentrations detected were consistent with previous data. No substantial confining layer was found in Area-1A. Analytical results indicated VOCs at depth in the Area-1A upgradient well. Based on the comprehensive investigation conducted in this area, there was no evidence of DNAPL or a sunken plume. Sufficient characterization was performed for the purpose of performing a preliminary remedial design. The shallow subsurface area between the drywells and Hempstead Harbor appeared to be a source of VOCs to shallow groundwater. Analytical results from Area-1A surface soil samples indicated five locations with SVOCs above site-specific action levels.
- Analytical results indicated an isolated area of VOCs in shallow groundwater in the northeast corner of Area-1B. The compounds detected were typically associated with the degradation of PCE and TCE. The primary 36-inch reinforced-concrete pipe (RCP) main that runs between Area-1A/1B serves as a shallow groundwater divide. No VOCs were found in the sewer or adjacent tidal pond. Analytical results for surface water samples collected from the pond in Area-1B indicated SVOCs were present in both samples at concentrations below action levels. Sediment samples collected from the pond indicated SVOCs were present in one of the two samples, but at concentrations below action levels.
- Discrete surface soil samples from areas 2 and 3 contained SVOCs, but at concentrations below action levels.
- Analytical results from subsurface soil samples collected from Area-2 confirmed the presence of SVOCs and PCBs at concentrations above site-specific action levels in isolated hotspots as previously defined.
- Analytical results from the subsurface soils collected from beneath the gas holder foundation in Area-3 indicated there were no compounds present at levels which require action. Analytical results of the grab groundwater sample contained no compounds that require action or indicate a migration of material from the drip storage area.
- The storm sewers were constructed consistent with as-built documentation. A 36-inch diameter RCP running east to west down the main site access road, between Areas- 1A and 1B, carries most of the storm runoff from the site to Hempstead Harbor. Analytical results from the storm sewer system indicated that there were no sources of VOCs in, or migrating from Area-2, Area-3, and off-site sources via the sewer.
- The survey conducted on the compressor building sub-floor found no evidence of a release or potential release to the subsurface from the building. All compressor equipment was removed from the building. A thorough examination of the sub-floor was conducted. The building sumps and roofs drains were connected to the main 36-inch site storm sewer.

A groundwater investigation was completed in three separate phases between March 2006 and December 2007 by National Grid to determine the likelihood that the chlorinated VOCs previously detected in groundwater at the Area 1A Parcel are actually associated with upgradient sources and do not originate from the Glenwood Landing Site. The findings of the first two phases were presented to the NYSDEC in a report dated August 2006. The combined findings of all three phases were then presented to the NYSDEC in a June 2008 Groundwater Investigation Findings report. A total of 15 groundwater probes, five membrane interface probes (MIPs) and one temporary monitoring well were completed as part of this investigation. A total of 110 groundwater samples were collected from the completed groundwater probes and temporary well for VOC analysis.

Based on the westerly direction of groundwater flow toward Hempstead Harbor, a minimum of five potential sources of chlorinated VOCs have been identified approximately 1 mile directly upgradient of the National Grid property including four dry cleaning businesses and an electronics manufacturer. The chlorinated VOC groundwater contamination located in the vicinity of the upgradient sites is referred to as the Glen Head groundwater plume by the NYSDEC. Based on currently available information, the total length, width and vertical thickness of the Glen Head groundwater plume has not been defined by the NYSDEC. However, based on regional ground flow, the National Grid property is clearly within the projected path of the plume.

The completed groundwater investigation identified contamination in groundwater consistent with the suspected upgradient sources extending well to the north and south of the National Grid Site. The identified contamination consists predominantly of PCE (a dry cleaning solvent) and, to a lesser degree, related contaminants such as TCE and 1,2-dichloroethene (1,2-DCE). Total chlorinated VOC concentrations were detected up to 1,347 ug/l along Shore Road, a minimum of 600 feet north and sidegradient of the National Grid property. The investigation data clearly indicates that the Glen Head groundwater plume, or other groundwater contaminant sources located upgradient of the National Grid Site, is impacting groundwater quality over a relatively large area, including the National Grid Site. Based on regional groundwater flow, the groundwater contaminant plume associated with these upgradient sources

migrates under the National Grid Site and is likely discharging to Hempstead Harbor. Based on D&B's assessment of the data generated by the NYSDEC in 2006 (and the results presented in the June 2008 report from D&B), the plume appears to be at least 2,800 feet in width along Shore Road, and well north and south (sidegradient) of the National Grid property.

1.4 Summary of Remedial Actions

The Site was remediated in accordance with the Conceptual Remedial Action Plan provided in the NYSDEC-approved Supplemental Environmental Assessment Report dated September 2001. The remedial work was documented in the Remedial Action Summary Report – Surface and Shallow Subsurface Soil, dated August 2003.

The following is a summary of the Remedial Actions performed at the Site:

- Area-1A: Hot spot removal (excavation and off-site disposal) of surface soils (designated discrete areas 1A-5a through 1A-5e) with concentrations of carcinogenic polycyclic aromatic hydrocarbons (CPAHs) above the site cleanup objectives.
- Area-1B: The fill area of 1B was consolidated and covered with a clean fill cover to isolate detected levels of inorganics with concentrations above the site cleanup objectives.
- Area-2: Hot spot removal (excavation and off-site disposal) of surface and subsurface soils with concentrations of PCBs, CPAHs, and inorganics above the site cleanup objectives was completed down to the water table.
- Area-3: Hot spot removal (excavation and off-site disposal) of surface and subsurface soils with concentrations of PCBs, CPAHs, and inorganics above the site cleanup objectives was completed down to the water table.
- Demolition and removal of four Drip Pits located on the north, south, east, and west sides of the former gas holder foundation. Contaminated soil above the site cleanup objectives was also excavated from the Drip Pit footprints.
- Demolition and removal of the holder pad, compressor building, and ancillary facilities, utilizing proper environmental controls and techniques.
- Execution and recording of a Deed Restriction to restrict land use and prevent future exposure to any contamination remaining at the Site.

- Development and implementation of a Site Management Plan for long-term management of remaining contamination as required by the Deed Restriction, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring and (3) reporting.

Remedial activities were completed at the Site from October 2001 through January 2002, and completed in September 2002. The Deed Restriction will be executed and recorded once the SMP is finalized. At that time the Deed Restriction will be provided in Appendix A.

1.4.1 Removal of Contaminated Materials from the Site

As part of the remedial activities at the Site, approximately 10,880 tons of non-hazardous contaminated soil was excavated and transported off-site for disposal at Clean Earth of New Castle, Inc., a permitted waste disposal facility located in New Castle, Delaware. A summary of the total amount of soil removed by remedial area is shown on Table 1-1.

Areas of soil contamination were excavated based on the concentrations of contaminants detected above applicable site specific cleanup goals. The site specific cleanup goals were based on a residential site reuse scenario using the following guidance documents: United States Environmental Protection Agency (USEPA) Region III Risk Based Concentrations; NYSDEC Technical and Administrative Guidance Memorandum (TAGM) No. 4046 Soil Cleanup Objectives (SCOs); and Association for Environmental Health and Sciences (AEHS) background levels for PAHs and selected metals in New England urban soils. A list of the SCOs for the Site is shown on Table 1-2.

Upon completion of the initial excavations, excavation endpoint samples were collected from each excavation area. One sample was collected from the bottom of the excavation, one outside each horizontal limit on the surface, and one sidewall sample per 5 feet of depth (i.e., an 8-foot deep excavation had two samples collected from each sidewall). Duplicate samples were collected from this matrix at a rate of 1 per 10. Samples collected were analyzed for SVOCs, PCBs, and Inorganics by Method 8270C, 8020, and NYS ASP 95 TAL Metals, respectively, at a

Table 1-1
SOIL DISPOSAL SUMMARY

Excavation Area	Estimated Soil Removal Quantity (tons)
AREA 1-A	220
AREA 2-2	5,413
AREA 2-3	283
AREA 2-4	354
AREA 2-6	91
AREA 2-7	900
AREA 3-1	3,600
AREA 3-8 (DRIP PITS)	22

New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) facility. Results were compared to the SCOs for the Site, as shown on Table 1-2.

Based on the results of the excavation endpoint samples, several areas were re-excavated in order to address the full extent of the contamination. Excavation endpoint samples were collected again in the same fashion as described above. A map showing areas where excavation was performed is shown on the as-built drawing for the Site (see Appendix B).

1.4.2 On-Site and Off-Site Treatment Systems

No long-term treatment systems were installed as part of the site remedy.

1.4.3 Remaining Contamination

1.4.3.1 – Soil

As discussed in Section 4.3, the property east of Shore Road was remediated to site-specific residential use SCOs established under the Department-approved conceptual RAP, dated September 2001. Excavations were limited to surface and shallow subsurface and did not extend below the water table in accordance with the conceptual RAP. At three locations, the site-specific residential use SCOs were not achieved because the excavations reached the water table. A summary of the excavation endpoint sample results from each area of the Site, as presented in the August 2003 “Remedial Action Summary Report – Surface and Shallow Subsurface Soil” (VHB, 2003), is included in Appendix C.

Table 1-2

SITE SPECIFIC SOIL CLEANUP OBJECTIVES

Contaminant	Soil Cleanup Objective (mg/kg)
Arsenic	20
Lead	400
Vanadium	500
Benzo(a)anthracene	1.0
Benzo(b)fluoranthene	1.0
Benzo(a)pyrene	0.1
Indeno(1,2,3-cd)pyrene	1.0
Benzo(g,h,i)perylene	310
Dibenzo(a,h)anthracene	0.1
PCBs	2.0

It should be noted that since the time the remedial excavation activities were completed, the NYSDEC has adopted new soil cleanup standards, which are presented in 6 NYCRR Part 375-6. As per this standard, different SCOs have been defined based on the intended future use of the property. Therefore, based on this new standard, the soil sample results collected from the area located to the west of Shore Road, which is intended to be used as open space, were compared to the restricted-residential use criteria and the soil sample results collected from the area located to the east of Shore Road, which is intended to be used as an electric generating station, were compared to the industrial use criteria. Although the endpoint soil samples collected in the areas located to the east of Shore Road are compared to the industrial use criteria, it should be noted that 94% of the VCA related property located to the east of Shore Road meets the restricted-residential criteria. As presented on the tables in Appendix C, several excavation endpoint samples were detected above the applicable 6 NYCRR Part 375 SCOs:

- Sample GLA1-2, collected from excavation Area 3-1, exhibited concentrations of benzo(a)pyrene and total PCBs above their applicable industrial use SCO;
- Samples GLDPW-02 and GLDPW-04S, collected from the drips pits west area, exhibited concentrations of arsenic above its applicable industrial use SCO; and
- Lastly, four soil samples collected from Area 2-2 had concentrations of PCBs above the site-specific cleanup goal of 2 mg/kg. However, the PCB concentrations were below the industrial use SCO for total PCBs of 25 mg/kg.

Excavation endpoint samples were not collected from Area 1B as part of the remedial activities; however, samples collected during previous investigations throughout Area 1B exhibited concentrations of arsenic, chromium, copper, mercury and nickel, above their applicable restricted residential use SCOs. Vanadium was also detected at elevated concentrations above the Site Specific Soil Cleanup Objectives, however 6 NYCRR Part 375 does not contain an applicable soil cleanup objective for vanadium.

The location of the areas with residual contamination above the application SCOs, as discussed above, is provided on the as-built drawing provided in Appendix B.

1.4.3.2 – Groundwater

A groundwater investigation was completed in three separate phases between March 2006 and December 2007 by National Grid to determine the likelihood that the chlorinated VOCs previously detected in groundwater at the Area 1A Parcel are actually associated with upgradient sources and do not originate from the Glenwood Landing Site. The findings of the first two phases were presented to the NYSDEC in a report dated August 2006. The combined findings of all three phases were then presented to the NYSDEC in a June 2008 Groundwater Investigation Findings report. A total of 15 groundwater probes, five membrane interface probes (MIPs) and one temporary monitoring well were completed as part of this investigation. A total of 110 groundwater samples were collected from the completed groundwater probes and temporary well for VOC analysis.

Based on the westerly direction of groundwater flow toward Hempstead Harbor, a minimum of five potential sources of chlorinated VOCs have been identified approximately 1 mile directly upgradient of the Site including four dry cleaning businesses and an electronics manufacturer. The chlorinated VOC groundwater contamination located in the vicinity of the upgradient sites is referred to as the Glen Head groundwater plume by the NYSDEC. Based on currently available information, the total length, width and vertical thickness of the Glen Head groundwater plume has not been defined by the NYSDEC. However, based on regional ground flow, the Site is clearly within the projected path of the plume.

The completed groundwater investigation identified contamination in groundwater consistent with the suspected upgradient sources extending well to the north and south of the Site. The identified contamination consists predominantly of PCE (a dry cleaning solvent) and, to a lesser degree, related contaminants such as TCE and 1,2-dichloroethene (1,2-DCE). Total chlorinated VOC concentrations were detected up to 1,347 ug/l along Shore Road, a minimum of 600 feet north and sidegradient of the Site. The investigation data clearly indicates that the Glen Head groundwater plume, or other groundwater contaminant sources located upgradient of the Site, is impacting groundwater quality over a relatively large area, including the Site. Based on regional groundwater flow, the groundwater contaminant plume associated with these upgradient

sources migrates under the Site and is likely discharging to Hempstead Harbor. Based on D&B's assessment of the data generated by the NYSDEC in 2006 (and the results presented in the June 2008 report from D&B), the plume appears to be at least 2,800 feet in width along Shore Road, and well north and south (sidegradient) of the Site.

1.4.4 Engineering and Institutional Controls

Since remaining contamination is present at this site, Engineering Controls and Institutional Controls have been implemented to protect public health and the environment for the applicable future use. The Site has the following Engineering Controls:

- A cover system in Area 3 consisting of clean fill from the bottom of the excavation area to approximately 6 inches below grade and 6 inches of topsoil and seed; and
- A cover system in Area 1B consisting of 10 oz./square yard geotextile, 1 foot of clean clay/soil cover and 6 inches of topsoil and seed, including perimeter drainage improvements.
- The potential for vapor intrusion must be evaluated for any new buildings proposed on the Site, and mitigated as necessary to allow for safe construction;

A series of Institutional Controls are required to implement, maintain and monitor these Engineering Controls. The Deed Restriction requires compliance with these Institutional Controls, to ensure that:

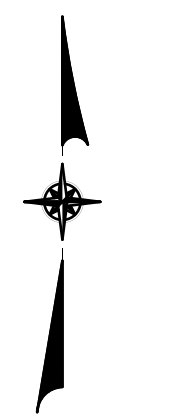
- All Engineering Controls are maintained as specified in this SMP;
- All Engineering Controls on the Site are inspected and certified at a frequency and in a manner defined in this SMP;
- Soil vapor and other environmental or public health monitoring is performed as defined in this SMP; and
- Data and information pertinent to Site Management for the Site is reported at the frequency and in a manner defined in this SMP.

In addition, the Deed Restriction places the following restrictions on the property:

- Any future activities on the property that will disturb remaining contamination in Areas 3 and 1B must be conducted in accordance with the Excavation Work Plan included in this SMP;
- The portion of the property located to the east of Shore Road may be used for industrial use, provided that the long-term Engineering and Institutional Controls remain in use as described in this SMP;
- The portion of the property located to the west of Shore Road may be used for restricted residential use, provided that the long-term Engineering and Institutional Controls, in particular the Area 1B soil cover system, remain in use as described in this SMP;
- Any proposed changes to the portions of the property that are subject to Engineering and Institutional Controls must be approved by NYSDEC; and
- Use of groundwater underlying the Site property is prohibited without testing and/or treatment to ensure it is safe for the intended use.

These EC/ICs are designed to:

- Prevent ingestion/direct contact with contaminated soil;
- Prevent ingestion of groundwater with contaminant levels that exceed drinking water standards;
- Prevent contact with or inhalation of volatiles from contaminated groundwater;
- Prevent the discharge of site-related contaminants to surface water; and
- Prevent migration of site-related contaminants that would result in off-site groundwater or surface water contamination.



HEMPSTEAD
HARBOR

- LEGEND**
- INDUSTRIAL USE AREAS
 - RESTRICTED RESIDENTIAL USE AREAS
 - NASSAU COUNTY TAX MAP LOT BOUNDARY
 - EASEMENT BOUNDARY

SOURCE:
AUGUST 8, 2001 GLENWOOD LANDING SURVEY, KEYSPAN ENGINEERING & SURVEY, INC.
MARCH 2003 SITE PLAN, VHB, INC.

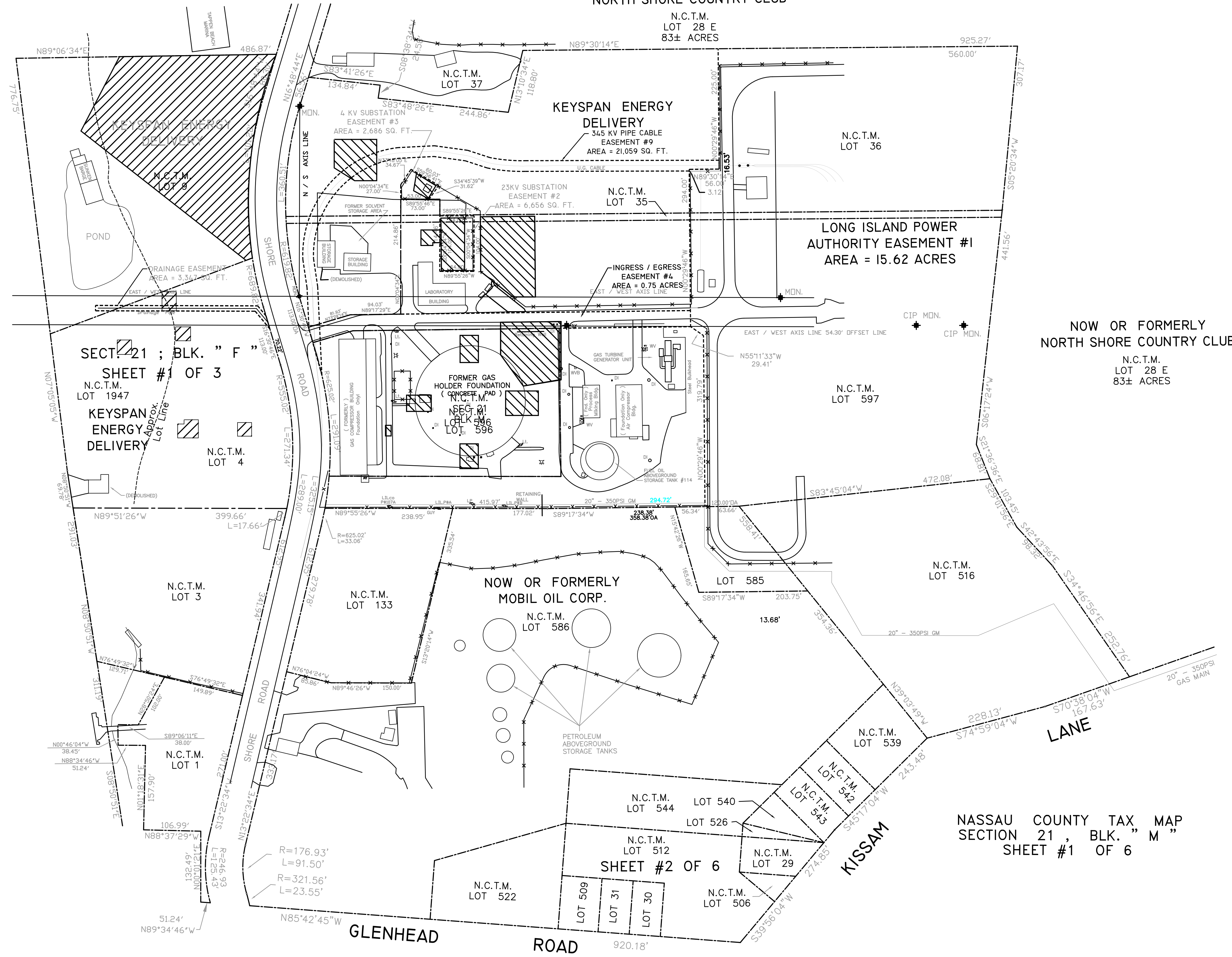


NATIONAL GRID GLENWOOD LANDING

SITE PLAN

NOW OR FORMERLY
NORTH SHORE COUNTRY CLUB

N.C.T.M.
LOT 28 E
83± ACRES



NOW OR FORMERLY
NORTH SHORE COUNTRY CLUB

N.C.T.M.
LOT 28 E
83± ACRES

NASSAU COUNTY TAX MAP
SECTION 21, BLK. "M"
SHEET #1 OF 6

SCALE: 1" = 100'

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 VCA Work Plan for the Site (September 2001) and the NYSDEC-approved Supplemental Environmental Assessment Report for the Site (September 2001). The remedial goals included attainment of site specific SCOs for on-site soils for residential use. However, the portion of the Site to the east of Shore Road was ultimately developed as an electric generating station following remedial actions, thus some contamination above the site specific SCOs for residential use, but less than the SCOs for industrial use, was left in place. Approximately 94% of the VCA related property located to the east of Shore Road meets restricted-residential use standards. The initial site specific SCOs and all changes to the site specific SCOs were approved by the NYSDEC and are listed in Table 1-2.

Since remaining contaminated soil and groundwater exists beneath the site, Engineering Controls and Institutional Controls (EC/ICs) exist to protect human health and the environment. It should be noted that while contaminated groundwater exists beneath the Site, it is due to an upgradient source; however, provisions to protect human health and the environment from this groundwater contamination is included in this Plan.

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 the Excavation Work Plan for the safe handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

2.2 Engineering Controls

2.2.1 Engineering Control Systems

Exposure to remaining soil/fill contamination in portions of the Site is prevented by two soil cover systems. A soil cover system was placed in Area 1B, which is comprised of a 10 oz./square yard geotextile, 1 foot of clean clay/soil cover and 6 inches of topsoil and seed and Area 3, which is comprised of clean fill from the bottom of the excavation area to approximately 6 inches below grade and 6 inches of topsoil and seed. A summary of the soil cover system thickness is provided on Table 2-1. The Excavation Work Plan that appears in Appendix D outlines the procedures required to be implemented in the event the soil cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this soil cover are provided in the Monitoring Plan included in Section 3.0 of this SMP.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

The soil cover systems are a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

Table 2-1

SOIL COVER SYSTEM SUMMARY

Area	Soil Cover System Thickness (feet from ground surface)
1B	1'-6"
3-1	8'
3 (Drip Pits West)	6'

2.3 Institutional Controls

A series of Institutional Controls is required by the Voluntary Cleanup Agreement 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 the east of Shore Road as industrial use only and to the west of Shore Road as restricted residential use only (unless other future uses are approved by the NYSDEC). 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;
- Soil vapor and other environmental or public health monitoring must be performed as defined in this SMP; and
- 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.

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 Site are:

- Use of groundwater underlying the Site property is prohibited without testing and/or treatment to ensure it is safe for the intended use;
- All future activities on the property that will disturb contaminated material are prohibited unless they are conducted in accordance with this SMP;

- The portion of the property located to the east of Shore Road may be used for industrial use, provided that the long-term Engineering and Institutional Controls remain in use as described in this SMP.
- The portion of the property located to the west of Shore Road may be used for restricted residential use, provided that the long-term Engineering and Institutional Controls, in particular the Area 1B soil cover system, remain in use as described in this SMP.
- The two portions of the property may not be used for a higher level of use, without NYSDEC approval, and amendment and approval of the Deed Restriction.
- The site owner or remedial party 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.

2.3.1 Excavation Work Plan

The Site has been fully remediated for industrial use to the east of Shore Road and restricted residential use to the west of Shore Road. Any future intrusive work that will penetrate, encounter or disturb the remaining contamination, and any modifications or repairs to the existing soil cover system, will be performed in compliance with the Excavation Work Plan (EWP) that is attached as Appendix D to this SMP. Intrusive construction work must also be conducted in accordance with a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Site, which shall be prepared by the contractor performing the excavation work in accordance with DER-10, 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. A summary of any intrusive construction work performed will also be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 4.0).

The Site owner and the contractor performing the excavation work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, the identification of any buried utilities within the excavation area and for structures that may be affected by excavations (such as building foundations and footings). In addition, the Site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.3.2 Soil Vapor Intrusion Evaluation

Prior to the construction of any new enclosed structures on the Area 1 part of the Site property, a soil vapor intrusion (SVI) evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. The design of the building foundation will also be considered in this type of evaluation. Alternatively, an SVI mitigation system can be installed as an element of the building foundation without first conducting an investigation. The mitigation system would potentially include a vapor barrier and passive sub-slab venting system that is capable of being converted to an active system.

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

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

SVI sampling results, evaluations, and follow-up actions will also be summarized in the subsequent Periodic Review Report (see Section 4.0).

2.4 Inspections and Notifications

2.4.1 Inspections

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

- Whether Engineering Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Deed Restriction;
- If site records are complete and up to date; and
- Changes, or needed changes, to the Engineering Controls.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3.0). The reporting requirements are outlined in the Management Reporting Plan (Section 4.0).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

Relative to areas of the Site covered by this SMP, notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the Voluntary Cleanup Agreement (VCA), 6 NYCRR Part 375, and/or Environmental Conservation Law.
- 15-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.
- Notice within 5 business days (48 hours) of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action to be taken to mitigate the damage or defect.
- Notice within 5 business days (48 hours) of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the site, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

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

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

2.5 Contingency Plan

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

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list as provided in Table 2-2. For emergencies, appropriate emergency response personnel should be contacted. These emergency contact lists must be maintained in an easily accessible location at the site.

2.5.2 Map and Directions to Nearest Health Facility

Site Location: Glenwood Landing Former Gas Plant Site

Nearest Hospital Name: Glen Cove Hospital

Hospital Location: 101 St. Andrews Lane, Glen Cove, NY 11542

Hospital Telephone: 516-674-7300

Directions to the Hospital: From the Site, head south on Shore Road. Turn left at Glen Cove Avenue (2.2 miles). Continue on Brewster Street (0.3 miles). Continue on Forest Avenue (0.6 miles). Turn right at Walnut Road (0.1 mile). Turn right at Saint Andrews Lane (472 feet). The hospital is located on the left.

Total Distance: 4.4 miles

Total Estimated Time: 12 minutes

A map depicting the route to the hospital is provided as Figure 2-1.

2.5.3 Response Procedures

As appropriate, the Fire Department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list can be found in Table 2-2. The list will also be posted prominently at the site and made readily available to all personnel at all times.

Table 2-2
EMERGENCY CONTACT NUMBERS

Agency	Phone Number
Police Department:	911
Fire Department:	911
Ambulance	911
Hospital	(516) 674-7300
One Call Center:	(800) 962-7962
Region 2 EPA Hotline	(800) 424-8802
Poison Control Center:	(800) 292-6678
National Response Center (NRC) for Oil/Chemical Spills	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

* Note: Contact numbers subject to change and should be updated as necessary

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 remedy to reduce or mitigate contamination at the site, including all engineering controls (ECs) and all affected site media. ECs at the site include a soil cover system. 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:

- 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:

- Inspection protocol and frequency;
- Reporting requirements; and
- Annual inspection and periodic certification.

Annual monitoring of the performance of the remedy will be conducted for the first 5 years. The frequency thereafter will be determined by NYSDEC. Monitoring programs are summarized in Table 3-1 and outlined in detail in Sections 3.2 and 3.3 below.

Table 3-1

MONITORING/INSPECTION SCHEDULE

Monitoring Program	Frequency*
Area 1B: Soil Cover System	Annual
Area 3: Soil Cover System	Annual

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

3.2 Engineering Control System Monitoring

Exposure to remaining contamination in soil/fill at the site is prevented by a soil cover system placed over portions of the Site. This cover system in Area 1B is comprised of a 10 oz./square yard geotextile, 1 foot of clean clay/soil cover and 6 inches of topsoil and seed, and Area 3 has clean fill from the bottom of the excavation area to approximately 6 inches below grade and 6 inches of topsoil and seed. In addition, a perimeter drainage swale, consisting of vegetated waterways and riprap, was installed along the north, east, and portions of the south side of the Area 1B soil cover system area to accommodate runoff. An as-built drawing depicting the soil cover system is provided in Appendix B.

3.2.1 Monitoring Schedule

As provided in Table 3-1, the inspection frequency for the soil cover systems will be on an annual basis. Inspection will consist of a visual observation of the cover systems to ensure it remains in place and has not been disturbed. Disturbances can include non-backfilled excavations, areas which do not show a uniform stand of vegetative cover or areas which appear to be eroding. In addition, the inspection of Area 1B will also include visual observation of the soil cover system perimeter drainage system to ensure nothing is impeding the system and it has not been disturbed.

Inspection frequency is subject to change with the approval of the NYSDEC. Unscheduled inspections may take place when a suspected failure of the soil cover system has been reported or an emergency occurs that is deemed likely to affect the operation of the system.

3.2.2 Repair Schedule

If after the completion of the inspections of the soil cover system a deficiency is noted, it shall be repaired by the Site owner in a timely manner, integrating appropriate engineering evaluation as necessary. Repair of the soil cover system in Area 1B will include the following:

- Placement of a 10 oz./square yard geotextile material if existing geotextile has been damaged;
- Placement of a clean fill/clay mixture to approximately 6 inches below grade;
- Placement of 6 inches of topsoil to grade;
- Seeding and/or the placement of sod in restored area;
- Watering and mowing of restored areas to ensure a uniform stand of vegetation is produced; and
- Placement of riprap within areas of the perimeter drainage swale.

Repair of the soil cover system in Area 3 will include the following:

- Placement of a clean fill to approximately 6 inches below grade;
- Placement of 6 inches of topsoil to grade;
- Seeding and/or the placement of sod in restored area; and
- Watering and mowing of restored areas to ensure a uniform stand of vegetation is produced.

All repairs completed will be verified by the qualified environmental professional as part of their inspection of the engineering controls (see Section 4.0).

3.3 Site-Wide Inspection

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect the Engineering Controls. During these inspections, an inspection form will be completed (Appendix E). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;

- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Confirm that site records are up to date.

3.4 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file at a central location. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP. Data will be reported in hard copy or digital format as determined by NYSDEC.

4.0 SITE MANAGEMENT REPORTING PLAN

4.1 Introduction

A Periodic Review Report will be submitted to NYSDEC annually, beginning eighteen months after the No Further Action letter is issued. The Periodic Review Report will be prepared in accordance with NYSDEC DER-10 “Technical Guidance for Site Investigation and Remediation” requirements. The frequency of submittal of the Periodic Review Report may be modified with the approval of the NYSDEC.

This report will include the following:

- Identification of all EC/ICs required for the site;
- An assessment of the effectiveness of all Institutional and Engineering Controls for the site;
- An evaluation of the Engineering and Institutional Control Plan and the Monitoring Plan for adequacy in meeting remedial goals;
- Results of the required annual site inspections and severe condition inspections, if any;
- A compilation of all deliverables generated during the reporting period, as specified in the EC/IC Plan and the Monitoring Plan; and
- Certification of the EC/ICs.

In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site as described in the Deed Restriction.

4.2 Certification of Engineering and Institutional Controls

Information on the EC/ICs can be found in the Engineering and Institutional Control Plan portion of the SMP. Inspection of the EC/ICs will occur at a frequency described in the Monitoring Plan. After the last inspection of the reporting period, a qualified environmental

professional or Professional Engineer licensed to practice in New York State will sign and certify the document. The document will certify that:

- On-site ECs/ICs are unchanged from the previous certification;
- Site use is compliant with the Deed Restriction;
- On-site ECs/ICs remain in-place and are effective;
- Nothing has occurred that would impair the ability of the controls to protect the public health and environment;
- Access is available to the site by NYSDEC and NYSDOH to evaluate continued maintenance of such controls;
- The inspection of the site to confirm the effectiveness of the IC/ECs was performed under the direction of the individual making this certification;
- To the best of their knowledge and belief, the work and conclusions described in the certification are in accordance with the requirements of the site remedial program;
- The information presented is accurate and complete; and
- The signed certification will be included in the Periodic Review Report (see Section 5.4).

4.3 Site Inspections

4.3.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in the Monitoring Plan section of this SMP. Inspections of remedial components will also be conducted whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

4.3.2 Inspection Forms

All inspections and monitoring events will be recorded on the forms which are contained in Appendix E. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records generated for the site during the reporting period will be included in the Periodic Review Report.

4.3.3 Evaluation of Records and Reporting

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

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

4.4 Periodic Review Report

A Periodic Review Report will be submitted on an annual basis, beginning eighteen months after the No Further Action Letter is issued and within 45 days of the end of each certification period. The report will include:

- EC/IC certification;
- All applicable inspection forms and other records generated for the site during the reporting period;
- A summary of any information generated during the reporting period with comments and conclusions;
- A site evaluation, which includes the following:
 - The compliance of the remedy with the requirements of the site-specific Conceptual Remedial Action Plan presented in the NYSDEC-approved Supplemental Environmental Site Assessment Report dated September 2001 and this SMP;

- The condition of all ECs, including identification of any needed repairs or modifications;
- Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan;
- Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
- The overall performance and effectiveness of the remedy.

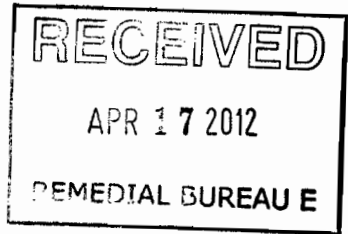
The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC - Region 1 Office, and in electronic format to NYSDEC Central Office and the NYSDOH Bureau of Environmental Exposure Investigation.

4.5 Corrective Measures Plan

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

APPENDIX A

DEED RESTRICTION



NASSAU COUNTY CLERK'S OFFICE
ENDORSEMENT COVER PAGE

Recorded Date: 02-24-2012
Recorded Time: 11:43:30 a

Record and Return To:
AECOM
ATTN TAMERA REBY
100 CORPORATE PKWY
SUITE 341
AMHERST, NY 14226

Liber Book: D 12804
Pages From: 723
To: 737 *A*

Control
Number: 747
Ref #:
Doc Type: D03 DECLARATION RESTRICTIONS

Location:	Section	Block	Lot	Unit
OYSTER BAY (2824)	0021	0000F-00	00004	
OYSTER BAY (2824)	0021	0000F-00	00009	
OYSTER BAY (2824)	0021	0000F-00	01947	

	Taxes Total	.00
GJS001	Recording Totals	190.00
	Total Payment	190.00

THIS PAGE IS NOW PART OF THE INSTRUMENT AND SHOULD NOT BE REMOVED
MAUREEN O'CONNELL
COUNTY CLERK



2012022400747

R/R AECOM
100 Corporate Pkwy
Suite 341
Amherst, N.Y. 14226
Attn: Tamara Reby

DECLARATION of COVENANTS and RESTRICTIONS

THIS COVENANT is made the 21st day of October 2011, by KeySpan Gas East Corporation d/b/a National Grid, a corporation of the State of New York, having its principal office at 175 East Old Country Road, Hicksville, New York 11801; and

WHEREAS, Glenwood Landing Propane Plant and Compressor Station is the subject of Voluntary Cleanup Agreement executed by KeySpan Energy Delivery Long Island, the former fictitious name (*i.e.*, d/b/a) of KeySpan Gas East Corporation as part of the New York State Department of Environmental Conservation's (the Department's) Voluntary Cleanup Program, namely that parcel of real property located On Nassau County Tax Map Section 21, Block F, Lots 4, 9 and 1947, located on Shore Road in the Town of Oyster Bay, County of Nassau, State of New York, which is part of lands conveyed by Long Island Lighting Company to MarketSpan Gas Corporation by deed dated May 27, 1998 and recorded in the Nassau County Clerk's Office in Liber 10921 from Page 0406 through Page 0415 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, KeySpan Gas East Corporation, for itself and its successors and/or assigns, covenants that:

First, the Property subject to this Declaration 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 approved Site Management Plan (the "SMP"), dated October 2011, there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property, which threatens the integrity of the soil cap, or which results in unacceptable human exposure to contaminated soils. The cover page and table of contents of the SMP is attached to this Declaration as Appendix "C" and made a part hereof.

Third, the Owner of the Property shall maintain the cap covering the Property by maintaining its grass cover or, after obtaining the written approval of the Department or Relevant Agency, by capping the Property with another material. The Owner of the Property shall not disturb, remove, or otherwise interfere with the installation, use,

operation, and maintenance of engineering controls required for the remedy, which are described in the SMP, unless in each instance the Owner obtains a written waiver of such prohibition from the Department or Relevant Agency.

Fourth, the Owner of the Property shall prohibit the Property from ever being used for purposes other than for Restricted Residential, Commercial or Industrial Use without the express written waiver of such prohibition by the Department or Relevant Agency.

Fifth, 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.

Sixth, the Owner of the Property shall continue in full force and effect any institutional and engineering controls required under the SMP and maintain such controls, unless the Owner first obtains permission to discontinue such controls from 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 SMP 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.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

Robert P Teetz
Name: Robert P Teetz

Title: vice president

::ODMA\PCDOCS\DOCS\287179\1

STATE OF NEW YORK)
)ss:
COUNTY OF Nassau)

On the 21st day of October in the year 2011, before me, the undersigned, personally appeared Robert D. Teetz, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) 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 signatures(s) on the instrument, the individual(s), or the person on behalf of which the individual(s) acted, executed the instrument.

Beth P Santanello
Notary Signature

Notary Stamp & Expiration Date:

BETH P. SANTANELLO
NOTARY PUBLIC, State of New York
No. 018A6197484
Qualified in Nassau County
Commission Expires December 1, 2012

Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #1
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
SBL Section 021; Block "F"; P/O Lot 4
Sheet #1 of 3
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
- Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence northerly along the westerly right-of-way line of Shore Road along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 153.69 feet to a point; Thence running through P/O Lot 4 along a Tie-Line Due West 76.44 feet to the true point or place of beginning;

Thence continuing running though P/O Lot 4 the following FOUR (4) bearings and distances:

1. Due West 26.34 feet to a point;
2. Due North 25.48 feet to a point;
3. Due East 26.34 feet to a point;
4. Due South 25.48 feet to the true point of place of beginning;

Containing within said bounds 671 Sq. Ft. more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revived: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #2
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "F"; P/O Lot 4
Sheet #1 of 3
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc Length of 91.50 feet to a point;
3. North 13° 22' 34" East 612.95 feet to a point;

Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence northerly along the westerly right-of-way line of Shore Road along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 150.21 feet to a point; Thence running through P/O Lot 4 along a Tie-Line Due West 176.23 feet to the true point or place of beginning;

Thence continuing running though P/O Lot 4 the following SIX (6) bearings and distances:

1. Due West 38.69 feet to a point;
2. Due North 25.99 feet to a point;
3. Due East 11.96 feet to a point;
4. Due North 7.93 feet to a point;
5. Due East 26.74 feet to a point;
6. Due South 33.93 feet to the true point of place of beginning;

Containing within said bounds 1,218 Sq. Ft. more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #3
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "F"; P/O Lot 1947
Sheet #1 of 3
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc Length of 91.50 feet to a point;
3. North 13° 22' 34" East 612.95 feet to a point;

Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence running northerly along the westerly right-of-way line of Shore Road the following TWO (2) bearings and distances:

1. Along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 288.53 feet to a point;
2. North 16° 30' 46" West 20.76 feet to a point;

Thence running through P/O Lots 4 and 1947 along a Tie-Line Due West 272.78 feet to the true point or place of beginning;

Thence continuing running though P/O Lot 1947 the following FOUR (4) bearings and distances:

1. Due West 26.75 feet to a point;
2. Due North 27.03 feet to a point;
3. Due East 26.75 feet to a point;
4. Due South 27.03 feet to the true point of place of beginning;

Containing within said bounds 723 Sq. Ft. more or less.

Being and intending to be a part the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #4
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "F"; P/O Lot 4
Sheet #1 of 3
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc Length of 91.50 feet to a point;
3. North 13° 22' 34" East 612.95 feet to a point;

Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence running northerly along the westerly right-of-way line of Shore Road the following TWO (2) bearings and distances:

1. Along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 288.53 feet to a point;
2. North 16° 30' 46" West 47.11 feet to a point;

Thence running through P/O Lot 4 along a Tie-Line Due West 154.91 feet to the true point or place of beginning;

Thence continuing running though P/O Lot 4 the following FOUR (4) bearings and distances:

1. Due West 28.07 feet to a point;
2. Due North 26.00 feet to a point;
3. Due East 28.07 feet to a point;
4. Due South 26.00 feet to the true point of place of beginning;

Containing within said bounds 730 Sq. Ft. more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #5
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "F"; P/O Lots 4 & 1947
Sheet #1 of 3
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc Length of 91.50 feet to a point;
3. North 13° 22' 34" East 612.95 feet to a point;

Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence running northerly along the westerly right-of-way line of Shore Road the following TWO (2) bearings and distances:

1. Along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 288.53 feet to a point;
2. North 16° 30' 46" West 105.64 feet to a point;

Thence running through P/O Lot 4 along a Tie-Line Due West 164.97 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 4 and Lot 1947 the following FOUR (4) bearings and distances:

1. Due West 26.75 feet to a point;
2. Due North 35.58 feet to a point;
3. Due East 26.75 feet to a point;
4. Due South 35.58 feet to the true point of place of beginning;

Containing within said bounds 952 Sq. Ft. more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #6
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "F"; P/O Lots 9 & 1947
Sheet #1 of 3
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc Length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
- Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence running northerly along the westerly right-of-way line of Shore Road the following THREE (3) bearings and distances:
1. Along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 288.53 feet to a point;
 2. North 16° 30' 46" West 113.00 feet to a point;
 3. Along the arc of a curve to the right having a radius of 689.82 feet an a arc length of 93.93 feet to the true point or place of beginning;

Thence running along the division line of Lots 4 and 9 South 69° 25' 48" West 12.76 feet to a point;

Thence running though P/O Lots 9 and Lot 1947 the following TWO (2) bearings and distances:

1. North 51° 55' 18" West 392.18 feet to a point;
2. North 27° 25' 15" East 156.50 feet to a point on the division line of Lots 9 and Lot 10-B (Town of Oyster Bay) ;

Thence running along said division line North 89° 06' 34" East 293.38 feet to a point on the westerly right-of-way line of Shore Road;

Thence running along said right-of-way the following TWO (2) bearings and distances:

1. South 16° 48' 44" West 80.30 feet to a point;
3. Along the arc of a curve to the left having a radius of 689.82 feet an a arc length of 307.29 feet to the true point of place of beginning;

Containing within said bounds 82,549 Sq. Ft. or 1.90 Acres more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #6
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "F"; P/O Lots 9 & 1947
Sheet #1 of 3
Situating in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southeasterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following THREE (3) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc Length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
- Thence running across Shore Road North 76° 37' 26" West 70.00 feet to a point on the westerly right-of-way line of Shore Road; Thence running northerly along the westerly right-of-way line of Shore Road the following THREE (3) bearings and distances:
1. Along the arc of a curve to the left having a radius of 555.02 feet an a arc length of 288.53 feet to a point;
 2. North 16° 30' 46" West 113.00 feet to a point;
 3. Along the arc of a curve to the right having a radius of 689.82 feet an a arc length of 93.93 feet to the true point or place of beginning;

Thence running along the division line of Lots 4 and 9 South 69° 25' 48" West 12.76 feet to a point;

Thence running though P/O Lots 9 and Lot 1947 the following TWO (2) bearings and distances:

1. North 51° 55' 18" West 392.18 feet to a point;
2. North 27° 25' 15" East 156.50 feet to a point on the division line of Lots 9 and Lot 10-B (Town of Oyster Bay) ;

Thence running along said division line North 89° 06' 34" East 293.38 feet to a point on the westerly right-of-way line of Shore Road;

Thence running along said right-of-way the following TWO (2) bearings and distances:

1. South 16° 48' 44" West 80.30 feet to a point;
3. Along the arc of a curve to the left having a radius of 689.82 feet an a arc length of 307.29 feet to the true point of place of beginning;

Containing within said bounds 82,549 Sq. Ft. or 1.90 Acres more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



SITE MANAGEMENT PLAN

**NATIONAL GRID GLENWOOD LANDING FORMER GAS PLANT SITE
GLENWOOD LANDING, NEW YORK**

VOLUNTARY CLEANUP AGREEMENT NO. R1-0001-01-01

Prepared for:

**NATIONAL GRID
HICKSVILLE, NEW YORK**

Prepared by:

**DVIRKA AND BARTILUCCI CONSULTING ENGINEERS
WOODBURY, NEW YORK**

OCTOBER 2011

**SITE MANAGEMENT PLAN
NATIONAL GRID GLENWOOD LANDING FORMER GAS PLANT SITE**

TABLE OF CONTENTS

<u>Section</u>	<u>Description</u>	<u>Page</u>
	EXECUTIVE SUMMARY	ES-1
1.0	INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM	1-1
1.1	Introduction.....	1-1
1.1.1	General.....	1-1
1.1.2	Purpose.....	1-4
1.1.3	Revisions.....	1-5
1.2	Site Background.....	1-5
1.2.1	Site Location and Description.....	1-5
1.2.2	Site History	1-6
1.2.3	Geologic Conditions	1-7
1.3	Summary of Previous Investigation Findings.....	1-10
1.4	Summary of Remedial Actions.....	1-15
1.4.1	Removal of Contaminated Materials from the Site	1-16
1.4.2	On-Site and Off-Site Treatment Systems	1-18
1.4.3	Remaining Contamination	1-18
1.4.3.1	Soil.....	1-18
1.4.3.2	Groundwater	1-20
1.4.4	Engineering and Institutional Controls	1-22
2.0	ENGINEERING AND INSTITUTIONAL CONTROL PLAN.....	2-1
2.1	Introduction.....	2-1
2.1.1	General.....	2-1
2.1.2	Purpose.....	2-1
2.2	Engineering Controls	2-2
2.2.1	Engineering Control Systems	2-2
2.2.2	Criteria for Completion of Remediation/ Termination of Remedial Systems.....	2-2
2.3	Institutional Controls	2-4
2.3.1	Excavation Work Plan.....	2-5
2.3.2	Soil Vapor Intrusion Evaluation	2-6
2.4	Inspections and Notifications.....	2-7
2.4.1	Inspections	2-7
2.4.2	Notifications.....	2-7

TABLE OF CONTENTS (continued)

<u>Section</u>	<u>Description</u>	<u>Page</u>
2.5	Contingency Plan	2-8
2.5.1	Emergency Telephone Numbers.....	2-9
2.5.2	Map and Directions to Nearest Health Facility.....	2-9
2.5.3	Response Procedures	2-9
3.0	MONITORING PLAN	3-1
3.1	Introduction.....	3-1
3.1.1	General	3-1
3.1.2	Purpose and Schedule	3-1
3.2	Engineering Control System Monitoring.....	3-3
3.2.1	Monitoring Schedule.....	3-3
3.2.2	Repair Schedule	3-3
3.3	Site-Wide Inspection.....	3-4
3.4	Monitoring Reporting Requirements	3-5
4.0	SITE MANAGEMENT REPORTING PLAN	4-1
4.1	Introduction.....	4-1
4.2	Certification of Engineering and Institutional Controls.....	4-1
4.3	Site Inspections	4-2
4.3.1	Inspection Frequency	4-2
4.3.2	Inspection Forms.....	4-2
4.3.3	Evaluation of Records and Reporting.....	4-3
4.4	Periodic Review Report	4-3
4.5	Corrective Measures Plan	4-4

List of Appendices

Deed Restriction.....	A
As-Built Drawing.....	B
Excavation Endpoint Sample Results	C
Excavation Work Plan	D
Institutional and Engineering Control Inspection Form	E

TABLE OF CONTENTS (continued)

List of Figures

1-1	Site Plan	1-2
1-2	Site Location Map	1-3
1-3	Cross Section Key Map	1-8
1-4	Geologic Cross Section of Site and Upgradient Areas	1-9
2-1	Hospital Route Map	2-10

List of Tables

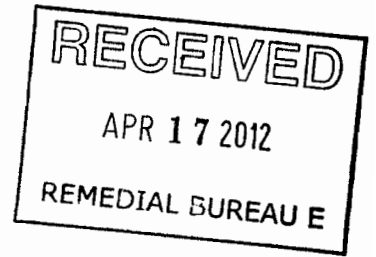
1-1	Soil Disposal Summary	1-17
1-2	Site-Specific Soil Cleanup Objectives	1-19
2-1	Soil Cover System Summary	2-3
2-2	Emergency Contact Numbers	2-11
3-1	Monitoring/Inspection Schedule	3-2

List of Drawings

1	Site Plan	Map Pocket at end of Section 1.0
---	-----------------	----------------------------------



NASSAU COUNTY CLERK'S OFFICE
ENDORSEMENT COVER PAGE



Recorded Date: 02-24-2012
Recorded Time: 11:43:30 a

Record and Return To:
AECOM
ATTN TAMERA REBY
100 CORPORATE PKWY
SUITE 341
AMHERST, NY 14226

Liber Book: D 12804
Pages From: 738
To: 758

Control
Number: 748
Ref #:

Doc Type: D03 DECLARATION RESTRICTIONS

Location:	Section	Block	Lot	Unit
OYSTER BAY (2824)	0021	0000M-00	00035	
OYSTER BAY (2824)	0021	0000M-00	00036	
OYSTER BAY (2824)	0021	0000M-00	00516	
OYSTER BAY (2824)	0021	0000M-00	00585	
OYSTER BAY (2824)	0021	0000M-00	00596-597	

	Taxes Total	.00
GJS001	Recording Totals	220.00
	Total Payment	220.00

THIS PAGE IS NOW PART OF THE INSTRUMENT AND SHOULD NOT BE REMOVED
MAUREEN O'CONNELL
COUNTY CLERK



R/R AECOM
100 Corporate Park
Suite 301
Amherst, N.Y. 14226
Attn: Tamara Raby

DECLARATION of COVENANTS and RESTRICTIONS

THIS COVENANT is made the 21st day of October 2011, by KeySpan Gas East Corporation d/b/a National Grid, a corporation of the State of New York, having its principal office at 175 East Old Country Road, Hicksville, New York 11801; and

WHEREAS, Glenwood Landing Propane Plant and Compressor Station is the subject of Voluntary Cleanup Agreement executed by KeySpan Energy Delivery Long Island, the former fictitious name (*i.e.*, d/b/a) of KeySpan Gas East Corporation as part of the New York State Department of Environmental Conservation's (the Department's) Voluntary Cleanup Program, namely that parcel of real property found on Nassau County Tax Map Section 21, Block M, Lots 35, 36, 516, 585, 596 and 597, located on Shore Road in the Town of Oyster Bay, County of Nassau, State of New York, which is part of lands conveyed by Long Island Lighting Company to MarketSpan Gas Corporation by deed dated May 27, 1998 and recorded in the Nassau County Clerk's Office in Liber 10921 from Page 0406 through Page 0415 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, KeySpan Gas East Corporation, for itself and its successors and/or assigns, covenants that:

First, the Property subject to this Declaration 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 approved Site Management Plan (the "SMP"), dated October 2011, there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property, which threatens the integrity of the soil cap, or which results in unacceptable human exposure to contaminated soils. The cover page and table of contents of the SMP is attached to this Declaration as Appendix "C" and made a part hereof.

Third, the Owner of the Property shall maintain the cap covering the Property by maintaining its grass cover or, after obtaining the written approval of the Department or Relevant Agency, by capping the Property with another material. The Owner of the Property shall not disturb, remove, or otherwise interfere with the installation, use,

operation, and maintenance of engineering controls required for the remedy, which are described in the SMP, unless in each instance the Owner obtains a written waiver of such prohibition from the Department or Relevant Agency.

Fourth, the Owner of the Property shall prohibit the Property from ever being used for purposes other than for Industrial Use without the express written waiver of such prohibition by the Department or Relevant Agency.

Fifth, 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.

Sixth, the Owner of the Property shall continue in full force and effect any institutional and engineering controls required under the SMP and maintain such controls, unless the Owner first obtains permission to discontinue such controls from 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 SMP 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.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

Robert D. Teetz
Name: Robert Teetz

Title: VICE President

::ODMA\PCDOCS\DOCS\287179\1

STATE OF NEW YORK)
)ss:
COUNTY OF Nassau)

On the 21st day of October in the year 2011, before me, the undersigned, personally appeared Robert D. Teetz, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) 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 signatures(s) on the instrument, the individual(s), or the person on behalf of which the individual(s) acted, executed the instrument.

Beth P. Santanello
Notary Signature

Notary Stamp & Expiration Date:

BETH P. SANTANELLO
NOTARY PUBLIC, State of New York
No. 01SA6197484
Qualified in Nassau County
Commission Expires December 1, 2012

SITE MANAGEMENT PLAN

**NATIONAL GRID GLENWOOD LANDING FORMER GAS PLANT SITE
GLENWOOD LANDING, NEW YORK**

VOLUNTARY CLEANUP AGREEMENT NO. R1-0001-01-01

Prepared for:

**NATIONAL GRID
HICKSVILLE, NEW YORK**

Prepared by:

**DVIRKA AND BARTILUCCI CONSULTING ENGINEERS
WOODBURY, NEW YORK**

OCTOBER 2011

**SITE MANAGEMENT PLAN
NATIONAL GRID GLENWOOD LANDING FORMER GAS PLANT SITE**

TABLE OF CONTENTS

<u>Section</u>	<u>Description</u>	<u>Page</u>
	EXECUTIVE SUMMARY	ES-1
1.0	INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM	1-1
1.1	Introduction.....	1-1
1.1.1	General.....	1-1
1.1.2	Purpose.....	1-4
1.1.3	Revisions.....	1-5
1.2	Site Background.....	1-5
1.2.1	Site Location and Description.....	1-5
1.2.2	Site History	1-6
1.2.3	Geologic Conditions	1-7
1.3	Summary of Previous Investigation Findings.....	1-10
1.4	Summary of Remedial Actions.....	1-15
1.4.1	Removal of Contaminated Materials from the Site	1-16
1.4.2	On-Site and Off-Site Treatment Systems	1-18
1.4.3	Remaining Contamination	1-18
1.4.3.1	Soil	1-18
1.4.3.2	Groundwater	1-20
1.4.4	Engineering and Institutional Controls	1-22
2.0	ENGINEERING AND INSTITUTIONAL CONTROL PLAN.....	2-1
2.1	Introduction.....	2-1
2.1.1	General.....	2-1
2.1.2	Purpose.....	2-1
2.2	Engineering Controls	2-2
2.2.1	Engineering Control Systems	2-2
2.2.2	Criteria for Completion of Remediation/ Termination of Remedial Systems.....	2-2
2.3	Institutional Controls	2-4
2.3.1	Excavation Work Plan	2-5
2.3.2	Soil Vapor Intrusion Evaluation	2-6
2.4	Inspections and Notifications.....	2-7
2.4.1	Inspections	2-7
2.4.2	Notifications.....	2-7

TABLE OF CONTENTS (continued)

<u>Section</u>	<u>Description</u>	<u>Page</u>
2.5	Contingency Plan	2-8
2.5.1	Emergency Telephone Numbers	2-9
2.5.2	Map and Directions to Nearest Health Facility	2-9
2.5.3	Response Procedures	2-9
3.0	MONITORING PLAN	3-1
3.1	Introduction	3-1
3.1.1	General	3-1
3.1.2	Purpose and Schedule	3-1
3.2	Engineering Control System Monitoring	3-3
3.2.1	Monitoring Schedule	3-3
3.2.2	Repair Schedule	3-3
3.3	Site-Wide Inspection	3-4
3.4	Monitoring Reporting Requirements	3-5
4.0	SITE MANAGEMENT REPORTING PLAN	4-1
4.1	Introduction	4-1
4.2	Certification of Engineering and Institutional Controls	4-1
4.3	Site Inspections	4-2
4.3.1	Inspection Frequency	4-2
4.3.2	Inspection Forms	4-2
4.3.3	Evaluation of Records and Reporting	4-3
4.4	Periodic Review Report	4-3
4.5	Corrective Measures Plan	4-4

List of Appendices

Deed Restriction	A
As-Built Drawing	B
Excavation Endpoint Sample Results	C
Excavation Work Plan	D
Institutional and Engineering Control Inspection Form	E

TABLE OF CONTENTS (continued)

List of Figures

1-1	Site Plan	1-2
1-2	Site Location Map.....	1-3
1-3	Cross Section Key Map	1-8
1-4	Geologic Cross Section of Site and Upgradient Areas	1-9
2-1	Hospital Route Map	2-10

List of Tables

1-1	Soil Disposal Summary.....	1-17
1-2	Site-Specific Soil Cleanup Objectives	1-19
2-1	Soil Cover System Summary	2-3
2-2	Emergency Contact Numbers	2-11
3-1	Monitoring/Inspection Schedule	3-2

List of Drawings

1	Site Plan	Map Pocket at end of Section 1.0
---	-----------------	----------------------------------

Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #7
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 596
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FOUR (4) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 169.97 feet to a point;
- Thence running through P/O Lot 596 Due East 103.93 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 596 the following FOUR (4) bearings and distances:

1. Due North 19.81 feet to a point;
2. Due East 10.54 feet to a point;
3. Due South 19.81 feet to a point;
4. Due West 10.54 feet to the true point of place of beginning;

Containing within said bounds 209 Sq. Ft. more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #8
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 596
Sheet #1 of 6
Situating in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FOUR (4) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
3. North 13° 22' 34" East 612.95 feet to a point;
4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 108.84 feet to a point;
Thence running through P/O Lot 596 Due East 243.69 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 596 the following FOUR (4) bearings and distances:

1. Due North 46.27 feet to a point;
2. Due East 34.31 feet to a point;
3. Due South 46.27 feet to a point;
4. Due West 34.31 feet to the true point of place of beginning;

Containing within said bounds 1,587 Sq. Ft. more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #9
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 596
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FOUR (4) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 215.96 feet to a point;
- Thence running through P/O Lot 596 Due East 146.83 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 596 the following FOUR (4) bearings and distances:

1. Due North 30.36 feet to a point;
2. Due East 46.22 feet to a point;
3. Due South 30.36 feet to a point;
4. Due West 46.22 feet to the true point of place of beginning;

Containing within said bounds 1,403 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area#10
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 596
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FOUR (4) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 309.06 feet to a point;
- Thence running through P/O Lot 596 Due East 264.36 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 596 the following FOUR (4) bearings and distances:

1. Due North 50.75 feet to a point;
2. Due East 34.20 feet to a point;
3. Due South 50.75 feet to a point;
4. Due West 34.20 feet to the true point of place of beginning;

Containing within said bounds 1,736 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Remediation Area #11
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 596
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FOUR (4) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 208.35 feet to a point;
- Thence running through P/O Lot 596 Due East 331.32 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 596 the following FOUR (4) bearings and distances:

1. Due North 45.74 feet to a point;
2. Due East 61.16 feet to a point;
3. Due South 45.74 feet to a point;
4. Due West 61.16 feet to the true point of place of beginning;

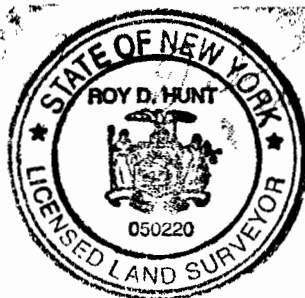
Containing within said bounds 2,798 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #12
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lots 596 and 597
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FOUR (4) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 263.96 feet to a point;
- Thence running through P/O Lot 596 Due East 372.47 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 596 and Lot 597 the following FIVE (5) bearings and distances:

1. North 36° 02' 25" West 72.15 to a point;
2. North 00° 04' 00" West 60.86 feet to a point;
3. North 89° 21' 15" East 113.21 feet to a point;
4. Due South 108.21 feet to a point;
5. South 80° 09' 18" West 71.73 feet to the true point of place of beginning;

Containing within said bounds 11,887 Sq. Ft or 0.27 Acres more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #13
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 597
Sheet #1 of 6
Situating in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FIVE (5) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
3. North 13° 22' 34" East 612.95 feet to a point;
4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 325.05 feet to a point;
5. North 16° 30' 46" West 82.98 feet to a point;
Thence running through P/O Lot 597 Due East 381.41 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 597 the following ELEVEN (11) bearings and distances:

1. North 51° 43' 22" West 52.57 feet to a point;
2. North 44° 59' 11" East 16.65 feet to a point;
3. North 12° 05' 22" East 2.08 feet to a point;
4. North 09° 27' 29" West 2.65 feet to a point;
5. North 19° 47' 24" West 3.86 feet to a point;
6. North 12° 43' 07" East 4.62 feet to a point;
7. South 63° 25' 28" East 2.92 feet to a point;
8. South 21° 06' 56" East 6.86 feet to a point;
9. South 51° 37' 10" East 71.19 feet to a point;
10. South 23° 11' 20" East 5.54 feet to a point;
11. South 89° 44' 59" West 33.28 feet to the true point of place of beginning;

Containing within said bounds 1,576 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #14
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lots 35 and Lot 597
Sheet #1 of 6
Situating in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following FIVE (5) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 325.05 feet to a point;
 5. North 16° 30' 46" West 111.91 feet to a point;
- Thence running through P/O Lot 597 Due East 398.98 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 35 and Lot 597 the following FIVE (5) bearings and distances:

1. North 51° 37' 16" West 76.40 feet to a point;
2. North 00° 24' 49" West 102.44 feet to a point;
3. North 89° 30' 14" East 101.71 feet to a point;
4. South 00° 29' 46" East 150.86 feet to a point;
5. North 89° 51' 02" West 42.38 feet to the true point of place of beginning;

Containing within said bounds 13,894 Sq. Ft or 0.32 Acres more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #15
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 597
Sheet #1 of 6
Situating in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following SIX (6) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 325.05 feet to a point;
 5. North 16° 30' 46" West 113.00 feet to a point;
 6. Along the arc of a curve to the right having a radius of 619.82 feet an a arc length of 97.34 feet to a point;
- Thence running through P/O Lot 597 Due East 247.85 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 597 the following SIX (6) bearings and distances:

1. Due North 28.98 feet to a point;
2. Due East 37.42 feet to a point;
3. South 00° 21' 34" East 23.72 feet to a point;
4. North 89° 55' 26" West 13.04 feet to a point;
5. Due South 5.27 feet to a point;
6. Due West 22.22 feet to the true point of place of beginning;

Containing within said bounds 1,006 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #16
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lots 35 and Lot 597
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following SIX (6) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 325.05 feet to a point;
 5. North 16° 30' 46" West 113.00 feet to a point;
 6. Along the arc of a curve to the right having a radius of 619.82 feet an a arc length of 49.57 feet to a point;
- Thence running through P/O Lot 597 Due East 277.69 feet to the true point or place of beginning;

Thence continuing running though P/O Lots 35 and Lot 597 the following FOUR (4) bearings and distances:

1. North 00° 36' 06" West 98.40 feet to a point;
2. North 89° 22' 50" East 44.31 feet to a point;
3. South 00° 01' 55" West 97.96 feet to a point;
4. South 88° 47' 36" West 43.23 feet to the true point of place of beginning;

Containing within said bounds 4,297 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #17
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 36
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following SIX (6) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 325.05 feet to a point;
 5. North 16° 30' 46" West 113.00 feet to a point;
 6. Along the arc of a curve to the right having a radius of 619.82 feet an a arc length of 199.93 feet to a point;
- Thence running through P/O Lot 36 Due East 239.05 feet to the true point or place of beginning;

Thence continuing running though P/O Lot 36 the following FOUR (4) bearings and distances:

1. North 09° 26' 19" East 32.49 feet to a point;
2. South 58° 09' 49" East 42.83 feet to a point;
3. South 30° 53' 08" West 28.24 feet to a point;
4. North 61° 29' 52" West 30.97 feet to the true point of place of beginning;

Containing within said bounds 1,080 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220



Schedule A

Quad 01327
Job - FE1106
Dated: 02/08/11

Description of NYSDEC Env. Remediation Area #18
Nassau County Tax Map (2010)
Glenwood Gas Plant - Parcel 177
Section 021; Block "M"; P/O Lot 36
Sheet #1 of 6
Situated in
Glenwood Landing, Town of Oyster Bay
Nassau County, State of New York

Beginning at the southwesterly corner of the herein described easement the said true point or place of beginning being more fully described and located as follows:

Beginning at the intersection of the northerly right-of-way line of Glenhead Road and the easterly right-of-way line of Shore Road; running thence northerly along the easterly right-of-way line of Shore Road the following SIX (6) bearings and distances:

1. Along the arc of a curve to the right having a radius of 321.56 feet an a arc length of 23.55 feet to a point;
 2. Along the arc of a curve to the right having a radius of 176.93 feet an a arc length of 91.50 feet to a point;
 3. North 13° 22' 34" East 612.95 feet to a point;
 4. Along the arc of a curve to the left having a radius of 625.02 feet an a arc length of 325.05 feet to a point;
 5. North 16° 30' 46" West 113.00 feet to a point;
 6. Along the arc of a curve to the right having a radius of 619.82 feet an a arc length of 242.72 feet to a point;
- Thence running through P/O Lot 36 Due East 87.65 feet to the true point or place of beginning;

Thence continuing running though P/O Lot 36 the following FIVE (5) bearings and distances:

1. Due North 53.22 feet to a point;
2. Due East 79.45 feet to a point;
3. Due South 77.16 feet to a point;
4. Due West 41.24 feet to a point;
5. North 57° 55' 43" West 45.09 feet to the true point of place of beginning;

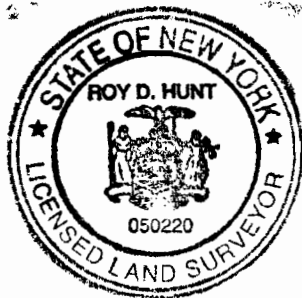
Containing within said bounds 5,673 Sq. Ft more or less.

Being and intending to be a part of the same premises conveyed to the party of the first part by deeds recorded in the Nassau County Clerks Office as follows;

<u>Deed Dated</u>	<u>Recorded</u>	<u>Recorded Date</u>
May 8, 1947	Liber 3330, Page 240	May 14, 1947
May 27, 1998	Liber 10921, Page 406	June 18, 1998

Legal Description was
Established From a Map By:
Nationgrid Survey Division
Dated: May 22, 2001
Revised: Feb. 8, 2011
Revised: Sept. 17, 2011

Bearings, Distances and Area
Of Easement were computed
By Nationalgrid System Surveyor
Roy D. Hunt L.S. #050220

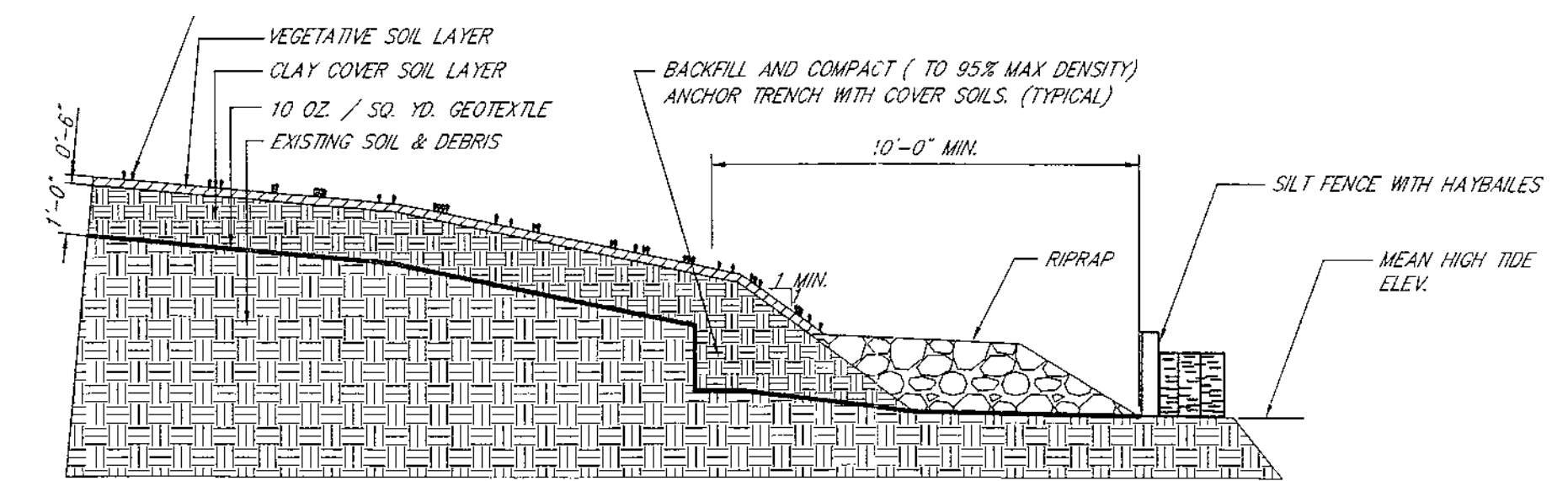


APPENDIX B

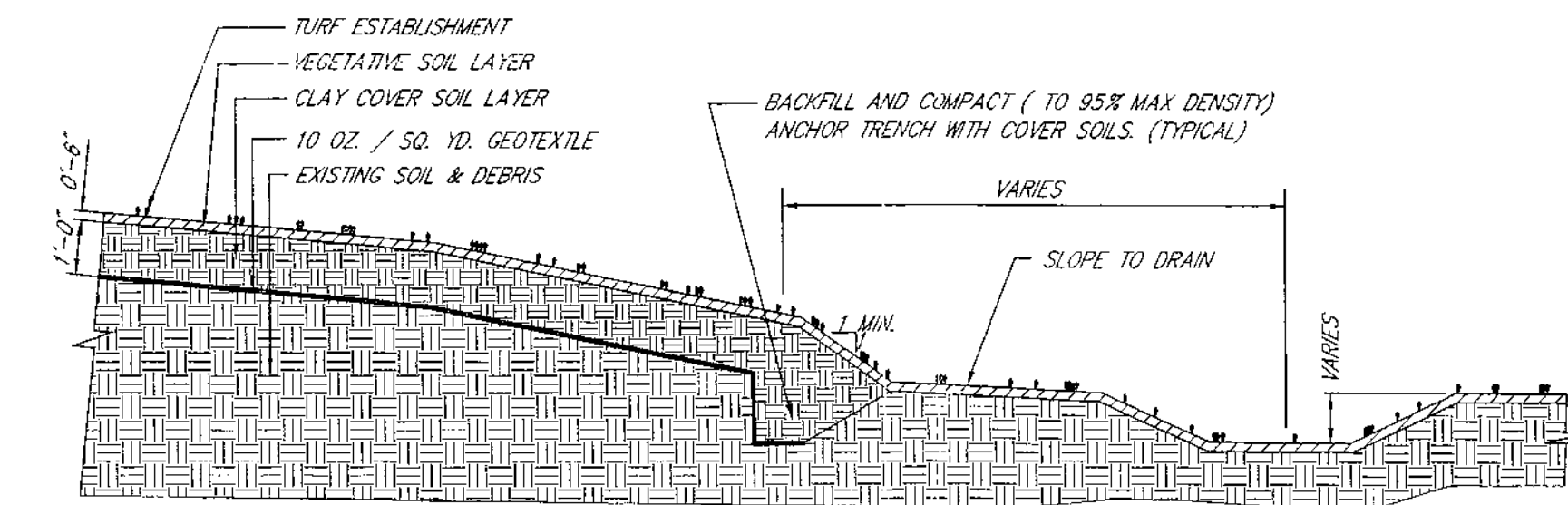
AS-BUILT DRAWING

LEGEND

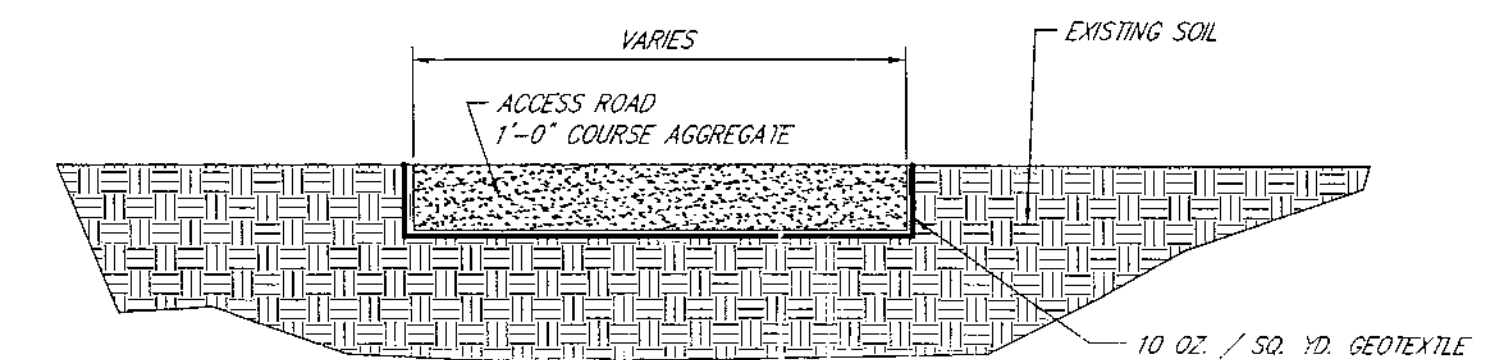
- MONITORING WELL
- SOIL BORING
- SURFACE SOIL SAMPLE
- GEOPROBE SAMPLE
- SURFACE WATER/SEDIMENT SAMPLE
- M.H. MANHOLE
- DW DRYWELL
- OF OUTFALL
- C.B. CATCH BASIN
- AS-BUILT MINOR CONTOUR
- AS-BUILT MAJOR CONTOUR
- FORMER MINOR CONTOUR
- FORMER MAJOR CONTOUR
- FORMER TOP OF BANK
- TREE/BRUSH LINE
- RIPRAP



TYPICAL COVER AND TRENCH DETAIL
SECTION 'C-C'
(Not To Scale)



TYPICAL COVER AND TRENCH DETAIL
SECTION 'B-B'
(Not To Scale)



TYPICAL GRAVEL ACCESS ROAD DETAIL
SECTION 'A-A'
(Not To Scale)

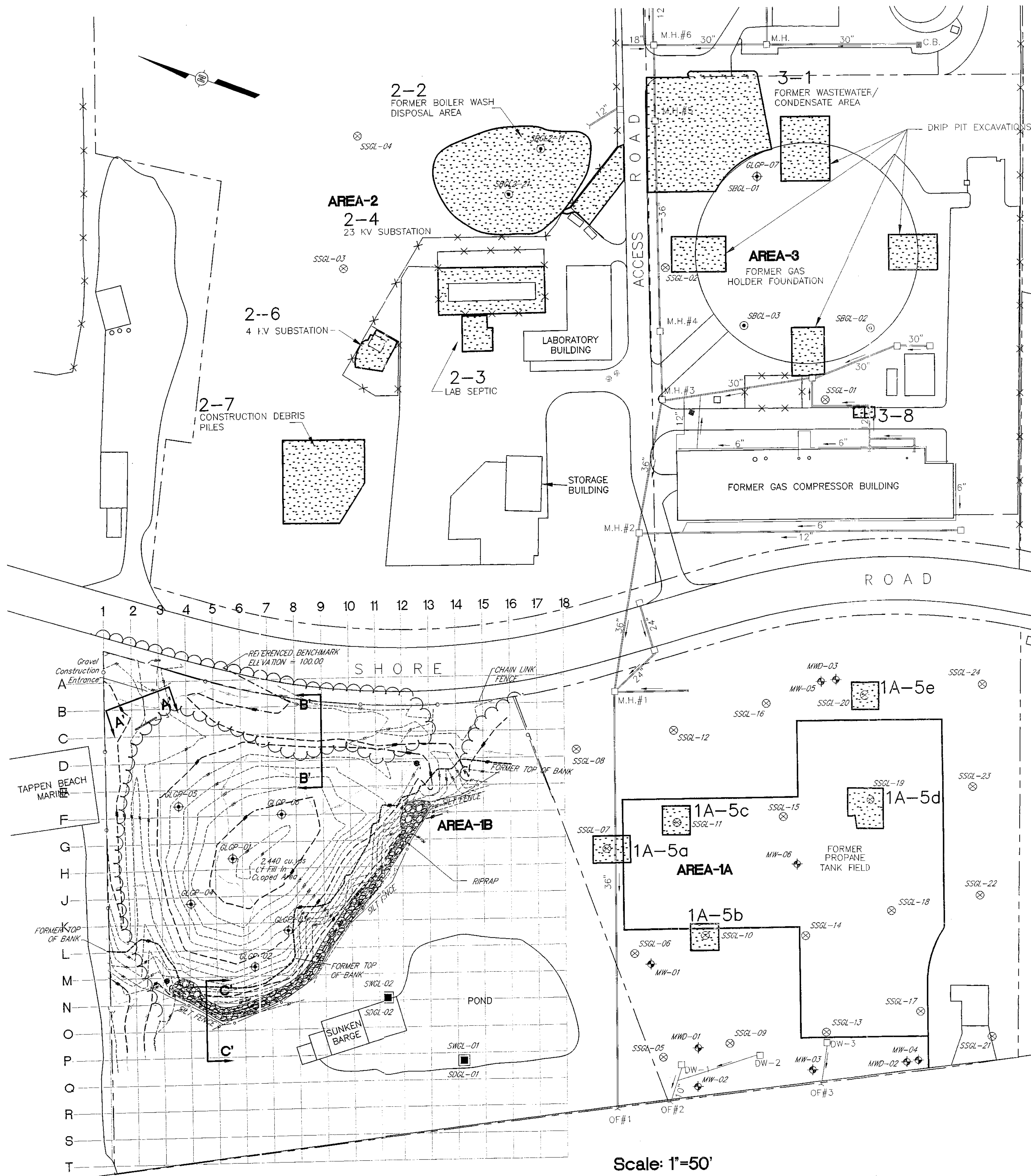
PROPOSED EXCAVATION VOLUMES				ACTUAL EXCAVATION VOLUMES		
AREA	AREA(FT.)	DEPTH (FT)	VOL.(C.Y.)	AREA(FT.)	DEPTH (FT)	VOL.(C.Y.)
AREA 1A-5 HOT SPOTS	25'x25' (5)	1'	12C	25'x25' (3) 35'x35' (2)	1'	161
AREA 2-2 FORMER BOILER WASH DISPOSAL AREA	90'x 100'	8'	2670	90'x 145'	8'	3867
AREA 2-3 LAB SEPTIC	30'x 20'	8'	18C	34'x 20'	8'	180
AREA 2-4 23 KV SUBSTATION	25'x 70'	2'	105	200'x 12' 15'x 18'	2'	198
AREA 2-6 4 KV SUBSTATION	35'x 25'	2'	65	35'x 25'	2'	65
AREA 2-7 CONSTRUCTION DEBRIS PILES	100'x 40'	5'	74C	100'x 40'	5'	740
AREA 3-1 FORMER WASTEWATER/CONDENSATE AREA	100'x90'	8'	2670	100'x90'	8'	2670
AREA 3-8 COMP. BLDG./GAS HOLDER	10'x 10'	2'	8	20'x 10'	2'	15

Proposed Remedial Action Objectives
For Soils in Areas 1, 2, and 3 (mg/kg)

Analyte	Objective
Benzo(a)anthracene	1
Benzo(b)fluoranthene	1
Benzo(a)pyrene	0.1
Indeno (1,2,3-cd)pyrene	1
Benzo(g,h,i)perylene	310
Dibenzo(a,h)anthracene	0.1
Arsenic	20
Lead	400
Vanadium	500
PCBs	2

Response actions should meet the designated values to the Groundwater Interface.

EXCAVATION AREAS



Scale: 1"=50'

Glenwood Landing
Gas Plant Site
Glenwood Landing, New York

Issued for
KETSPAN
ENERGY

Drawing Title

SITE PLAN

Drawing Number

1-2

Sheet of

1 1

Project Number

06392-26

APPENDIX C

EXCAVATION ENDPOINT SAMPLE RESULTS

Table 1
Summary of Analytical Results From Area 3-1
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date																
	GLA1-1A 11/02/01	GLA1-1B 11/02/01	GLA1-2 11/02/01	GLA1-3 11/02/01	GLA1-3S 11/02/01	GLA1-3SSA 1/23/02	GLA1-4 11/02/01	GLA1-4B 11/20/01	GLA1-4C 11/20/01	GLA1-4S 11/02/01	GLA1-5 11/02/01	GLA1-5S 11/02/01	GLA1-6 11/02/01	GLA1-6S 11/02/01	GLA1-6SA 12/12/01	GLA1-6SB 12/12/01	GLA1-6SB 12/12/01
SVOC 8170 (ug/kg)																	
2-Methylnaphthalene	390 U	390 U	22000 J	340 U	36 J	330 U	28 J	360 U	380 U	14 J	88 J	360 U	340 U	330 U	32 Ua	390 Ua	380 U
4-Chloroaniline	390 U	390 U	37000 U	340 U	340 U	330 U	360 U	360 U	4 J	350 U	360 U	360 U	340 U	330 U	28 U	390 U	380 U
4-Methylphenol	390 U	390 U	37000 U	340 U	340 U	330 U	360 U	360 U	380 U	10 J	360 U	360 U	340 U	330 U	20 U	390 Ua	380 U
Acenaphthene	390 U	390 U	2000 J	340 U	18 J	330 U	360 U	360 U	380 U	9 J	8 J	360 U	340 U	330 U	17 U	390 Ua	18 J
Acenaphthylene	390 U	390 U	10000 J	340 U	1400	330 U	60 J	360 U	380 U	58 J	44 J	360 U	340 U	330 U	12 U	61 Ja	55 J
Anthracene	390 U	390 U	3700 J	340 U	400	330 U	360 U	360 U	380 U	51 J	23 J	4 J	340 U	330 U	19 Ja	49 Ja	84 J
Benzo(a)anthracene	390 U	390 U	1500 J	340 U	220 J	330 U	360 U	360 U	380 U	150 J	30 J	11 J	340 U	330 U	51 Ja	160 Ja	310 J
Benzo(a)pyrene	390 U	390 U	1200 J	340 U	300 J	330 U	360 U	360 U	380 U	150 J	31 J	10 J	340 U	330 U	51 Ja	180 Ja	290 J
Benzo(b)fluoranthene	390 U	390 U	680 J	340 U	300 J	330 U	360 U	360 U	380 U	120 J	18 J	10 J	340 U	330 U	43 Ua	150 Ja	240 J
Benzo(g,h,i)perylene	390 U	390 U	37000 U	340 U	140 J	330 U	89 J	360 U	380 U	78 J	29 J	360 U	340 U	330 U	42 Ja	190 Ja	230 J
Benzo(k)fluoranthene	390 U	390 U	890 J	340 U	320 J	330 U	360 U	360 U	380 U	140 J	19 J	10 J	340 U	330 U	49 Ja	170 Ja	290 J
Benzoic acid	1900 U	1900 U	180000 U	1600 U	190 J	1600 U	1800 U	1700 U	1800 U	130 J	1800 U	1700 U	1600 U	1600 U	750 U	1900 U	1800 U
bis(2-Ethylhexyl)phthalate	390 U	390 U	37000 U	340 U	38 J	330 U	360 U	320 J	240 J	49 J	360 U	360 U	340 U	330 U	41 UB	390 U	380 U
Butylbenzylphthalate	390 U	390 U	37000 U	340 U	14 J	330 U	360 U	470	400	16 J	360 U	360 U	340 U	330 U	15 U	390 U	380 U
Carbazole	390 U	390 U	37000 U	340 U	16 J	330 U	360 U	360 U	380 U	17 J	2 J	360 U	340 U	330 U	25 U	390 Ua	380 U
Chrysene	390 U	390 U	1600 J	340 U	260 J	330 U	360 U	360 U	380 U	180 J	31 J	11 J	340 U	330 U	72 Ja	210 Ja	380 J
Dibenzo(a,h)anthracene	390 U	390 U	37000 U	340 U	20 J	330 U	360 U	360 U	380 U	29 J	360 U	360 U	340 U	330 U	20 Ua	53 Ja	85 J
Dibenzofuran	390 U	390 U	37000 U	340 U	12 J	330 U	360 U	360 U	380 U	6 J	360 U	360 U	340 U	330 U	17 U	390 Ua	380 U
Di-n-butylphthalate	390 U	390 U	37000 U	340 U	12 J	330 U	360 U	360 U	380 U	45 J	360 U	360 U	340 U	330 U	16 U	390 U	380 U
Di-n-octylphthalate	390 U	390 U	37000 U	340 U	340 U	330 U	360 U	360 U	11 J	350 U	360 U	360 U	340 U	330 U	14 U	390 U	380 U
Fluoranthene	390 U	390 U	3600 J	340 U	280 J	330 U	360 U	360 U	380 U	250 J	35 J	21 J	340 U	330 U	95 Ja	250 Ja	520
Fluorene	390 U	390 U	5700 J	340 U	340 U	330 U	360 U	360 U	380 U	15 J	20 J	360 U	340 U	330 U	23 U	380 U	380 U
Indeno(1,2,3-cd)pyrene	390 U	390 U	37000 U	340 U	100 J	330 U	360 U	360 U	380 U	89 J	15 J	5 J	340 U	330 U	37 Ja	150 Ja	210 J
Naphthalene	390 U	390 U	43000	340 U	34 J	330 U	360 U	360 U	18 J	16 J	360 U	360 U	340 U	330 U	36 U	390 Ua	380 U
Phenanthrene	390 U	390 U	15000 J	340 U	230 J	330 U	360 U	360 U	25 J	220 J	89 J	17 J	340 U	330 U	81 Ja	110 Ja	290 J
Phenol	390 U	390 U	37000 U	340 U	340 U	330 U	360 U	11 J	5 J	350 U	360 U	360 U	340 U	330 U	27 U	390 Ua	380 U
Pyrene	390 U	390 U	5800 J	340 U	330 J	330 U	360 U	360 U	380 U	320 J	60 J	21 J	340 U	330 U	120 Ja	320 Ja	680
CLP Metals (mg/kg)																	
Aluminum	1450 *	578 *	3000 *	1620 *	9340 *	1520	970 *	1060	1120	5360 *	2040 *	1270 *	930 *	1240 *	11000	7490	
Antimony	1.1 UN	1.1 UN	0.91 UN	0.86 UN	0.97 UN	1.1 U	0.96 UN	0.96 UN	0.83 UN	0.95 UN	1.0 UN	0.95 UN	0.98 UN	0.84 UN	0.24 B	0.37 B	
Arsenic	1.1 U	1.0 U	2.2	1.2 B	11.6	1.5	1.0 B	1.1 B	1.2 B	4.9	6.6	1.1 B	0.92 U	1.0 B	9.0	9.6	
Barium	4.1 B	1.5 B	18.4 B	6.6 B	34.7 B	8.3	3.0 B	3.4 B	3.8 B	36.8 B	8.0 B	4.0 B	3.9 B	5.5 B	34.3	34.1	
Beryllium	0.17 B	0.11 U	0.26 B	0.17 B	0.41 B	0.45 U	0.10 U	0.10 U	0.090 U	0.42 B	0.13 B	0.10 B	0.16 B	0.18 B	0.34 B	0.29 B	
Cadmium	0.19 U	0.18 U	0.15 U	0.15 U	0.19 B	0.91 U	0.16 U	0.17 U	0.14 U	0.17 B	0.18 U	0.16 U	0.17 U	0.14 U	0.0013 U	0.14 B	
Calcium	141. B	64.3 B	1620	168. B	1210	131	573. B	109. B	121. B	2880	5450	134. B	67.1 B	96.3 B	701	1800	
Chromium	2.6	1.4 B	12.6	4.4	24.8	3.7	3.0	1.9 B	1.9	59.0	25.8	2.4	2.9	4.1	29.1	14.7	
Cobalt	0.43 B	0.29 U	2.2 B	0.78 B	3.0 B	1.1	0.26 U	0.27 U	0.27 B	3.0 B	0.85 B	0.26 U	0.68 B	0.97 B	3.6	3.7	
Copper	2.3 B	1.2 B	6.8	3.8 B	17.4	2.9	1.6 B	2.3 B	2.2 B	18.1	4.7 B	2.1 B	1.7 B	2.0 B	15.6	15.8	
Iron	1090	704	5200	2940	12900	4280	809	912	750	11800	3270	1300	2310	3060	14500	11800	
Lead	3.7 N	1.2 N	13.6 N	6.0 N	103. N	2.6	2.6 N	2.2	2.0	206. N	14.6 N	2.4 N	0.95 N	1.8 N	68.8	52.2	
Magnesium	40.4 B	13.8 B	463. B	185. B	1390	284	303. B	27.2 B	24.8 B	1610	462. B	35.3 B	124. B	188. B	1280	1430	
Manganese	8.3	3.3 B	113.	51.8	177.	95.6	4.9	2.4 B	1.7 B	186.	31.0	6.6	28.8	54.4	175	209	
Mercury	0.0032 U	0.0029 U	0.016	0.0037 B	0.36	0.13 U	0.0032 U	0.077	0.26	0.13	0.0054	0.0027 U	0.0028 U	0.0037 U	0.25 B	0.39 B	
Nickel	0.52 B	0.32 U	4.0 B	1.8 B	10.6	2.1	0.65 B	0.36 B	0.39 B	11.5	1.8 B	0.51 B	1.2 B	1.9 B	11.6	12.0	
Potassium	156. B	65.8 B	330 B	144. B	479. B	178	88.9 B	82.0 B	78.2 B	416. B	193. B	191. B	90.5 B	138. B	541 ^	650 ^	
Selenium	1.2 U	1.1 U	0.92 U	0.88 U	0.99 U	1.5 U	0.98 U	1.0 U	0.88 U	0.97 U	1.1 U	0.97 U	1.0 U	0.86 U	0.24 B	0.37 B	
Silver	0.24 U	0.23 U	0.19 U	0.18 U	0.21 U	0.27 U	0.20 U	0.21 U	0.18 U	0.20 U	0.22 U	0.20 U	0.21 U	0.18 U	0.061 B	0.19 B	
Sodium	11.8 B	9.5 B	29.6 B	9.8 B	29.0 B	34.5	5.9 B	13.7 B	13.4 B	28.3 B	23.8 B	13.4 B	7.0 B	8.0 B	31.3 B	34.0 B	
Thallium	2.4 U	2.3 U	1.9 U	1.8 U	2.1 U	2.7 U	2.0 U	3.9 U	3.3 U	2.0 U	2.2 U	2.0 U	2.1 U	1.8 U	0.0091 U	0.0095 U	
Vanadium	8.5 B	3.9 B	10.7	6.7 B	38.0	5.0	6.4 B	5.0 B	4.2 B	29.8	7.8 B	5.3 B	3.1 B	3.6 B	40.5	34.2	
Zinc	6.6 BE	2.9 BE	40.4 E	8.5 E	143. E	5.7	5.6 BE	3.1 B	3.1 B	140. E	17.6 E	3.7 BE	3.8 BE	6.2 E	51.5	95.3	
PCB 8082 (ug/kg)																	
Aroclor-1242	40. U	40. U	35000	34. U	35. U	17. U	740 U	36. U	38. U	35. U	480	36. U	34. U	33. U	19 U	20 U	
Aroclor-1248	22. J	2.9 J	7300 U	24. J	59.	17. U	3700	36. U	38. U	86.	190 U	21. J	3.9 J	18. J	19 U	20 U	
Aroclor-1254	40. U	40. U	7300 U	34. U	90.	17. U	740 U	7.0 J	38. U	150	190 U	36. U	34. U	33. U	19 U	20 U	
Aroclor-1260	40. U	40. U	2100 J	34. U	180	17. U	480 J	6.4 J	2.6 J	120	59. J	36. U	34. U	33. U	46	36	

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).
Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).
U - Indicates analyte was not detected at or above the reporting limit.
J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.
B - Indicates result between instrument detection limit (IDL) and contract required detection limit (CRDL).
E - Indicates that the concentration is estimated due to matrix interferences.
N - Spiked sample recovery not within control limits.
^ - Concentration exceeds the instrument calibration range or is below the reporting limit.
^ - Instrument quality control not within control limits.
* - Batch quality control not within control limits.
NS - Not Sampled

Table 2
Summary of Analytical Results From Area 2-2
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date																											
	GLA2-1 11/27/01	GLA2-1A 12/12/01	GLA2-2 11/27/01	GLA2-2A 12/12/01	GLA2-3 11/15/01	GLA2-3S 11/15/01	GLA2-4 11/27/01	GLA2-4S 11/27/01	GLA2-5 11/15/01	GLA2-5S 11/15/01	GLA2-6 11/15/01	GLA2-6A 12/12/01	GLA2-6B 12/12/01	GLA2-6S 11/15/01	GLA2-7 11/15/01	GLA2-8 11/27/01	GLA2-9 11/27/01	GLA2-10 11/27/01	GLA2-10A 12/12/01	GLA2-10AD 12/12/01	GLA2-10B 12/12/01	GLA2-11 11/27/01	GLA2-11A 12/12/01	GLA2-11S 11/27/01	GLA2-11SA 12/12/01	GLA2-TPDK 12/13/01	GLA2-TPLT 12/13/01	
SVOC 8270 (ug/kg)																												
2-Methylnaphthalene	1300 U	40 U	160 J	42 U	330 U	42 J	320 U	350 U	330 U	16 J	330 U	34 U	33 U	21 J	320 U	330 U	330 U	13 J	33 U	33 U	33 U	330 U	33 U	370 U	37 U	33 U	33 U	
4-Chloroaniline	1300 U	210 Ja	380 U	36 U	330 U	9 J	320 U	350 U	330 U	10 J	330 U	29 U	29 U	23 J	320 U	330 U	330 U	840	29 U	29 U	28 U	330 U	29 Ua	7 J	37 Ja	29 U	28 U	
4-Methylphenol	1300 U	23 U	380 U	23 U	330 U	320 U	320 U	350 U	330 U	340 U	330 U	19 U	19 U	340 U	320 U	330 U	330 U	330 U	19 U	19 U	18 U	330 U	19 U	17 J	21 U	19 U	18 U	
Acenaphthene	300 J	60 Ja	74 J	20 U	330 U	320 U	320 U	350 U	330 U	6 J	330 U	16 U	16 U	340 U	320 U	330 U	330 U	14 J	16 U	16 U	15 U	330 U	16 U	370 U	18 U	11 U	15 U	
Acenaphthylene	280 J	640	560	14 U	11 J	75 J	320 U	350 U	330 U	110 J	330 U	12 U	11 U	63 J	320 U	330 U	24 J	1300	11 U	11 U	11 U	330 U	11 U	19 J	13 U	12 U	11 U	
Anthracene	670 J	740	290 J	16 U	330 U	30 J	320 U	350 U	330 U	46 J	330 U	13 U	12 U	27 J	320 U	330 U	330 U	320 J	12 U	12 U	12 U	330 U	13 U	24 J	14 Ja	15 U	12 U	
Benzo(a)anthracene	390 J	830 Q	410	20 U	330 U	42 J	320 U	350 U	330 U	72 J	330 U	16 U	16 U	42 J	320 U	330 U	330 U	170 J	16 U	16 U	15 U	330 U	19 Ja	110 J	51 Ja	16 U	15 U	
Benzo(a)pyrene	310 J	560 H	280 J	21 U	330 U	43 J	320 U	350 U	330 U	67 J	330 U	17 U	17 U	42 J	320 U	330 U	330 U	290 J	17 U	17 U	16 U	330 U	18 Ja	100 J	67 Ja	39 U	16 U	
Benzo(b)fluoranthene	250 J	700	200 J	49 U	330 U	37 J	320 U	350 U	330 U	65 J	330 U	40 U	39 U	40 J	320 U	330 U	330 U	100 J	39 U	39 U	39 U	330 U	40 Ua	87 J	55 Ja	17 U	38 U	
Benzo(g,h,i)perylene	1300 U	130 Ja	170 J	22 U	330 U	68 J	320 U	350 U	330 U	130 J	330 U	18 U	18 U	37 J	320 U	330 U	64 J	560	44 Ja	62 Ja	17 U	330 U	18 Ua	16 J	62 Ja	40 U	17 U	
Benzo(k)fluoranthene	360 J	430 Q	290 J	51 U	330 U	41 J	320 U	350 U	330 U	77 J	330 U	41 U	40 U	36 J	320 U	330 U	330 U	270 J	40 U	40 U	40 U	330 U	41 Ua	110 J	69 Ja	40 U	39 U	
Benzoic acid	6100 U	830 U	120 J	860 U	1600 U	32 J	1600 U	66 J	1600 U	1700 U	32 J	1600 U	700 U	680 U	110 J	1500 U	1600 U	1600 U	200 J	690 U	690 U	670 U	1600 U	690 U	280 J	770 U	680 U	670 U
bis(2-Ethylhexyl)phthalate	1300 U	200 JaB	20 J	250 JaB	330 U	320 U	320 U	350 U	330 U	26 J	330 U	200 JaB	37 Ua	340 U	320 U	330 U	330 U	330 U	230 JaB	260 JaB	390 B	330 U	220 JaB	66 J	240 JaB	37 U	36 U	
Butylbenzylphthalate	1300 U	16 U	380 U	17 U	330 U	320 U	320 U	350 U	330 U	340 U	330 U	14 U	13 U	8 J	320 U	330 U	330 U	330 U	13 U	13 U	13 U	330 U	14 U	370 U	15 U	13 U	13 U	
Carbazole	1300 U	28 U	380 U	29 U	330 U	320 U	320 U	350 U	330 U	4 J	330 U	23 U	23 U	6 J	320 U	330 U	330 U	330 U	23 U	23 U	22 U	330 U	23 U	19 J	26 U	23 U	22 U	
Chrysene	430 J	1000	470	22 U	330 U	58 J	320 U	14 J	330 U	100 J	330 U	18 U	18 U	56 J	320 U	330 U	330 U	120 J	18 U	18 U	17 U	330 U	24 Ja	130 J	81 Ja	17 U	17 U	
Dibenz(a,h)anthracene	1300 U	23 U	36 J	23 U	330 U	18 J	320 U	350 U	330 U	28 J	330 U	19 U	19 U	340 U	320 U	330 U	330 U	160 J	19 U	19 U	18 U	330 U	19 U	370 U	21 Ua	19 U	18 U	
Dibenzofuran	1300 U	19 U	380 U	20 U	330 U	320 U	320 U	350 U	330 U	340 U	330 U	16 U	16 U	6 J	320 U	330 U	330 U	330 U	16 U	16 U	15 U	330 U	16 U	370 U	18 U	19 U	18 U	
Di-n-butylphthalate	1300 U	18 U	380 U	18 U	330 U	330 U	320 U	350 U	330 U	340 U	330 U	15 U	14 U	340 U	320 U	330 U	330 U	330 U	15 U	15 U	14 U	330 U	15 U	13 J	16 U	14 U	14 U	
Fluoranthene	820 J	1600 H	780	29 U	330 U	55 J	320 U	350 U	330 U	120 J	330 U	23 U	23 U	68 J	320 U	330 U	330 U	130 J	23 U	23 U	22 U	330 U	28 Ja	140 J	79 Ja	23 U	22 U	
Fluorene	1800	340 Ja	120 J	26 U	330 U	320 U	320 U	350 U	330 U	17 J	330 U	21 U	21 U	340 U	320 U	330 U	330 U	330 U	21 U	21 U	20 U	330 U	21 U	370 U	23 U	21 U	20 U	
Indeno(1,2,3-cd)pyrene	1300 U	89 Ja	160 J	23 U	330 U	56 J	320 U	350 U	330 U	92 J	330 U	19 U	19 U	40 J	320 U	330 U	330 U	330 U	19 U	25 Ja	43 Ja	18 U	330 U	19 Ua	24 J	50 Ja	19 U	18 U
Naphthalene	1300 U	210 Ja	380 U	42 U	330 U	320 U	320 U	350 U	330 U	14 J	330 U	34 U	33 U	14 J	320 U	330 U	330 U	11 J	33 U	33 U	33 U	330 U	33 U	370 U	37 U	33 U	32 U	
Phenanthrene	4000	3200	370 J	31 U	330 U	54 J	320 U	350 U	330 U	180 J	330 U	25 U	25 U	61 J	320 U	330 U	14 J	29 J	25 U	25 U	24 U	330 U	25 U	63 J	50 Ja	25 U	24 U	
Pyrene	1600	3200	1800	25 U	9 J	130 J	320 U	18 J	330 U	270 J	330 U	20 U	20 U	110 J	320 U	330 U	330 U	410	20 U	20 U	19 U	330 U	37 Ja	210 J	120 Ja	20 U	19 U	
CLP Metals (mg/kg)																												
Aluminum	495	557	690	3350	3650	2690	1210	1540	2440	1190	1170	2310	1610	4190	1260	923	1090	824	781	602	904	2320	3630	6540	7420	1920 H^	1460 H^	
Antimony	0.98 U	0.68 B	0.77 U	0.44 B	0.99 UN	0.81 UN	0.71 U	0.87 U	0.80 UN	0.82 UN	0.73 UN	0.17 B	0.12 B	1.2 BN	0.84 UN	0.87 U	0.88 U	0.86 U	0.36 B	0.14 B	0.29 B	0.86 U	0.4 B	0.88 U	0.39 B	0.90 UH^	1.1 UH^	
Arsenic	0.94 U	1.1 B	0.73 U	1.6 B	1.8 B	2.9	0.94 B	0.83 U	0.81 B	2.6	0.70 U	1.1 B	0.83 B	3.2	0.80 U	0.84 U	1.3 B	1.2 B	0.71 B	0.43 B	0.85 B	0.82 U	4.4 B	5.2	10.4	0.81 BH^	1.2 BH^	
Barium	4.7 B	4.0	9.9 B	10.2	14.4 B	20.7 B	9.2 B	7.9 B	16.6 B	17.1 B	9.9 B	12.4	10.4	16.8 B	8.8 B	7.6 B	3.6 B	5.7 B	6.1	5.4	6.6	13.6 B	19.0	36.8 B	32.6	11.6 H^	11.3 H^	
Beryllium	0.11 U	0.007 U	0.16 B	0.086 B	0.47 B	0.75 B	0.098 B	0.17 B	0.24 B	0.46 B	0.16 B	0.17 B	0.096 B	0.58 B	0.17 B	0.096 B	0.36 B	0.28 B	0.042 B	0.036 B	0.042 B	0.18 B	0.28 B	0.41 B	0.28 B	0.18 U^	0.21 U^	
Cadmium	0.17 U	0.29 U	0.13 U	0.25 U	0.15 U	0.14 U	0.12 U	0.15 U	0.14 U	0.14 U	0.13 U	0.22 U	0.25 U	0.14 U	0.15 U	0.15 U	0.15 U	0.15 U	0.26 U	0.27 U	0.2 U	0.15 U	0.24 U	0.15 U	0.24 U	0.21 U	0.25 U	
Calcium	138 B	55.7 B	210 B	122	558 B	604 B	185 B	184 B	367 B	302 B	197 B	243	321	197 B	160 B	96.9 B	234 B	191 B	80.0	70.7 B	254	282 B	422	1340	2260	202 H^	160 H^	
Chromium	4.0	3.2	3.7	8.2	8.0	23.7	2.5	4.5	5.8	12.4	2.6	7.2	3.7	20.4	3.2	2.3	7.2	4.0	15.0	5.5	6.7	5.7	10.6	13.2	41.2	6.0 H^	4.2 H^	
Cobalt	0.30 B	0.41 B	0.75 B	0.89 B	2.4 B	9.0	1.2 B	1.1 B	1.9 B	3.9 B	1.7 B	2.2	1.6 B	3.8 B	1.0 B	0.66 B	0.69 B	0.83 B	0.67 B	0.43 B	1.0 B	2.2 B	2.3	2.8 B	3.8	1.7 H^	1.6 BH^	
Copper	34.6	42.3	17.4	19.5	10	29.6	2.2 B	4.1 B	96.4	4.7	3.9 B	2.6 B	27.2	3.9 B	1.9 B	8.9	15.8	21.5	21.7	1.5 B	4.7	19.3	13.7	21.3	5.4 H^	3.2 BH^		
Iron	2850	1500	3400	4260	10100	7830	4180	4060	5950	6210	4380	8160	5200	8060</														

Table 3
Summary of Analytical Results From Area 2-3
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date												
	GLA3-1 12/17/01	GLA3-1A 12/21/01	GLA3-1AD 12/21/01	GLA3-2 12/14/01	GLA3-3 12/14/01	GLA3-4 12/14/01	GLA3-4A 12/21/01	GLA3-5 12/14/01	GLA3-6 12/14/01	GLA3-7 12/14/01	GLA3-8 12/14/01	GLA3-8A 12/21/01	GLA3-9 12/14/01
SVOC 8270 (ug/kg)													
2,4-Dinitrophenol	260 U	59 U	59 U	52 U	52 U	54 U*	52 U	53 U*	52 U*	52 U*	53 U*	61 U	53 U*
4,6-Dinitro-2-methylphenol	250 U	33 U	33 U	29 U	28 U	29 U*	29 U	29 U*	29 U*	29 U*	29 U*	33 U	29 U*
2-Methylnaphthalene	170 U	33 U	33 U	29 U	28 U	29 U	29 U	29 U	29 U	29 U	29 U	33 U	29 U
Acenaphthene	110 U	17 U	17 U	15 U	15 U	16 U	15 U	16 U	15 U	15 U	15 U	18 U	15 U
Acenaphthylene	100 U	18 Ja	13 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U	13 U	11 U
Anthracene	120 U	14 Ja	14 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U	12 U	14 U	12 U
Benzo(a)anthracene	110 U	33 Ja	17 U	15 U	15 U	16 U	15 U	16 U	15 U	15 U	15 U	18 U	15 U
Benzo(a)pyrene	110 U	19 U	19 U	16 U	16 U	17 U	16 U	17 U	16 U	16 U	17 U	19 U	17 U
Benzo(b)fluoranthene	150 U	44 U	44 U	39 U	38 U	40 U	39 U	39 U	39 U	39 U	39 U	45 U	39 U
Benzo(ghi)perylene	160 U	20 U	20 U	17 U	17 U	18 U	17 U	18 U	17 U	17 U	18 U	20 U	18 U
Benzo(k)fluoranthene	130 U	44 U	45 U	40 U	39 U	41 U	40 U	40 U	40 U	40 U	40 U	47 U	40 U
Benzoic acid	130 U	770 U	770 U	680 U	670 U	700 Ua	680 U	690 U	680 U	680 U	680 U	790 U	680 U
bis-2-ethylhexyl-phthalate	170 UB	42 U	42 U	37 U	36 U	38 U	37 U	37 U	37 U	37 U	37 U	43 U	37 U
Chrysene	130 U	41 Ja	20 U	17 U	17 U	18 U	17 U	18 U	17 U	17 U	18 U	20 U	18 U
Dibenz(a,h)anthracene	150 U	21 U	21 U	18 U	18 U	19 U	18 U	19 U	19 U	18 U	19 U	21 U	19 U
Dibenzofuran	130 U	17 U	17 U	15 U	15 U	16 U	15 U	16 U	15 U	15 U	15 U	18 U	15 U
Fluoranthene	140 U	72 Ja	26 U	22 U	22 U	23 U	23 U	23 U	23 U	22 U	23 U	26 U	23 U
Fluorene	89 U	23 U	23 U	20 U	20 U	21 U	20 U	21 U	21 U	20 U	21 U	24 U	21 U
Indeno(1,2,3-cd)pyrene	160 U	21 U	21 U	18 U	18 U	19 Ua	18 U	19 U	19 U	18 U	19 U	21 U	19 U
Phenanthrene	120 U	32 Ja	28 U	25 U	24 U	25 U	25 U	25 U	25 U	25 U	25 U	29 U	25 U
Pyrene	310 U	98 Ja	36 Ja	19 U	19 U	20 U	19 U	20 U	20 U	19 U	20 U	23 U	20 U
CLP Metals (mg/kg)													
Aluminum	839 H	705	1260	722 H^	721 H^	1430 H^	821	1050 H^	896 H^	787 H^	566 H^	1230	867 H^
Antimony	0.93 UH	0.0041 U	0.039	0.83 UH^	1.2 UH^	0.98 UH^	0.21	0.82 UH^	1.0 UH^	1.1 UH^	1.1 UH^	0.032	0.86 UH^
Arsenic	0.64 UH	0.35	0.38	0.57 UH^	0.81 UH^	1.3 H^	0.71	0.57 UH^	0.70 UH^	1.7 H^	0.77 UH^	0.32	0.76 H^
Barium	6.9 H	11.5	53.0	5.6 H^	6.1 H^	10.6 H^	7.5	7.9 H^	4.8 H^	8.5 H^	3.6 H^	34.1	4.7 H^
Beryllium	0.18 UH	0.033	0.10	0.16 U^	0.23 U^	0.19 U^	0.12	0.16 U^	0.20 U^	0.21 U^	0.22 U^	0.15	0.17 U^
Cadmium	0.22 UH	0.069	0.35	0.20 UH	0.28 UH	0.23 UH	0.0089	0.20 UH	0.24 UH	0.26 UH	0.27 UH	0.10	0.21 UH
Calcium	220 H	78.6	174	105 H^	193 H^	170 H^	79.8	259 H^	79.5 H^	57.1 H^	43.1 H^	151	96.4 H^
Chromium	2.7	4.1	6.4	1.4 BH^	3.1 H^	3.4 H^	2.8	3.0 H^	2.7 H^	6.6 H^	2.1 H^	4.8	2.8 H^
Cobalt	0.56 H	0.65	2.4	0.84 BH^	0.85 BH^	1.4 H^	1.3	1.4 H^	0.94 H^	0.94 H^	0.26 H^	0.59	0.96 H^
Copper	10.8	45.5	132	1.6 BH^	1.5 BH^	2.8 H^	2.3	1.8 H^	4.9 H^	3.9 H^	26.1 H^	10.3	3.6 H^
Iron	3520 H	1300	1930	2600 H^	2790 H^	4630 H^	4950	3570 H^	3030 H^	4390 H^	1740 H^	1360	4100 H^
Lead	4.8 H	3.1	3.5	0.88 BH^	0.96 BH^	4.1 H^	3.8	1.2 H^	1.1 H^	1.0 H^	3.4 H^	2.1	0.86 H^
Magnesium	219 H	170	335	188 H	246 H	354 H	168	361 H	248 H	142 H	121 H	232	230 H
Manganese	51.0 H	16.8	133	92.5 H^	100 H^	135 H^	127	109 H^	95.2 H^	98.2 H^	12.7 H^	7.5	84.1 H^
Mercury	2.8 B^	0.90 B	1.2 B	0.012 B	0.0045 U	0.077 B	0.0068 B	0.0050 U	0.38 B	0.0040 U	3.0 B	0.77 B	0.35 B
Nickel	3.7 H	9.9	49.5	1.3 B	1.3 B	2.7	1.8	2.0	1.7	1.7	0.53	9.3	1.8
Potassium	111 H^	107	239	128 BH^	134 BH^	192 H^	119	243 H^	138 H^	104 H^	87.3 H^	147	188 H^
Selenium	1.3 UH	0.0045 U	0.20	1.1 UH^	1.6 UH^	1.3 UH^	0.079	1.1 UH^	1.4 UH^	1.5 UH^	1.5 UH^	0.078	1.2 UH^
Silver	0.20 UH^	0.074	0.047	0.18 UH^	0.26 UH^	0.21 UH^	0.030	0.18 UH^	0.22 UH^	0.24 UH^	0.24 UH^	0.0010 U	0.19 UH^
Sodium	12.3 H	92.4	113	16.6 BH^	13.7 BH^	27.0 H^	131	29.8 H^	40.9 H^	16.8 H^	14.4 H^	125	710 H^
Thallium	1.7 UH	0.25	0.18	1.6 UH^	2.2 UH^	1.8 UH^	0.31	1.5 UH^	1.9 UH^	2.0 UH^	2.1 UH^	0.0082 U	1.6 UH^
Vanadium	33.3 H	39.5	149	2.4 BH	2.7 BH	6.3 H	3.5	4.3 H	3.2 H	3.0 H	3.4 H	101	5.1 H
Zinc	9 H	10.9	38.0	4.1 BH^	4.2 BH^	8.4 H^	5.9	7.4 H^	6.8 H^	6.0 H^	9.4 H^	25.8	13.0 H^
PCB 8082 (ug/kg)													
Aroclor-1242	19 U	38 P	19 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	17 U	20 U	17 U
Aroclor-1248	19 U	19 U	19 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	17 U	20 U	17 U
Aroclor-1254	42 P	19 U	19 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	17 U	20 U	17 U
Aroclor-1260	19 U	19 U	19 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	17 U	20 U	17 U

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).
Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).
U - Indicates analyte was not detected at or above the reporting limit
J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.
B - Indicates result between instrument detection limit (IDL) and contract required detection limit (CRDL)
E - Indicates that the concentration is estimated due to matrix interferences.
N - Spiked sample recovery not within control limits
a - Concentration exceeds the instrument calibration range or is below the reporting limit.
^ - Instrument quality control not within control limits.
* - Batch quality control not within control limits.
NS - Not Sampled

Table 4
Summary of Analytical Results From Area 2-4
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date																						
	GLA4-1 12/05/01	GLA4-2 12/18/01	GLA4-2A 1/8/02	GLA4-2S 12/18/01	GLA4-2SA 1/8/02	GLA4-2SB 1/7/02	GLA4-3 12/05/01	GLA4-4 12/05/01	GLA4-4S 12/05/01	GLA4-4SA 12/18/01	GLA4-4SB 12/18/01	GLA4-4SC 1/7/02	GLA4-4SD 1/7/02	GLA4-4SE 1/7/02	GLA4-5 12/05/01	23 KV Bottom 9/3/02	23 KV East Wall 9/3/02	23 KV North Wall 9/3/02	23 KV South Wall 9/3/02	Glenwood Bottom C 9/19/02	Glenwood Bottom N 9/19/02	Glenwood Bottom S 9/19/02	Glenwood Sidewall E 9/19/02
SVOC 8270 (ug/kg)																							
2-Methylnaphthalene	330 U	150 U	28 U	150 U	28 U	32 Ua	330 U	s J	2900 J	360 U	160 U	29 U	30 U	130 Ja	330 U	340 U	520 J	1800 U	340 U	410 U	350 U	340 U	340 U
2,4,5-Trichlorophenol	1600 U	93 U	10 U	93 U	10 U	20 Ja	1600 U	1700 U	65000 U	900 U	95 U	10 U	11 U	42 U	1600 U	840 U	4200 U	4300 U	830 U	990 U	840 U	830 U	820 U
Acenaphthene	330 U	96 U	15 U	96 U	15 U	17 Ua	330 U	350 U	9500 J	340 U	96 U	16 U	16 U	450 Ja	330 U	22 J	1600 J	110 J	13 J	410 U	350 U	340 U	340 U
Acenaphthylene	330 U	90 U	11 U	89 U	11 U	22 Ja	330 U	350 U	13000 U	340 U	92 U	11 U	12 U	85 Ja	330 U	340 U	1700 U	1800 U	340 U	410 U	350 U	340 U	340 U
Anthracene	330 U	110 U	15 Ja	110 U	12 U	48 Ja	330 U	350 U	14000	340 U	110 U	12 Ua	38 Ja	1100 Ja	330 U	52 J	2400	800 J	40 J	410 U	350 U	11 J	340 U
Benzo(a)anthracene	330 U	100 U	15 U	350 J	15 U	210 Ja	10 J	10 J	28000	160 J	660	42 Ja	84 Ja	2800	30 J	190 J	4800	3700	150 J	410 U	350 U	94 J	340 U
Benzo(a)pyrene	330 U	100 U	16 U	400	16 U	190 Ja	12 J	350 U	22000	130 J	590	41 Ja	93 Ja	2500	26 J	170 J	3900	2400	140 J	410 U	350 U	96 J	340 U
Benzo(b)fluoranthene	330 U	130 U	39 U	600	39 U	160 Ja	11 J	9 J	18000	140 J	690	39 Ua	76 Ja	1900	26 J	130 J	3700	3900	240 J	410 U	350 U	110 J	340 U
Benzo(g,h,i)perylene	330 U	140 U	17 U	160 J	17 U	200 Ja	330 U	350 U	9900 J	66 J	220 J	18 Ja	48 Ja	2400	330 U	100 J	1300 J	760 J	110 J	410 U	350 U	70 J	340 U
Benzo(k)fluoranthene	330 U	110 U	40 U	250 J	40 U	200 Ja	14 J	10 J	21000	63 J	270 J	47 Ja	85 Ja	2400	29 J	160 J	2600	1800 U	340 U	410 U	350 U	65 J	340 U
bis(2-Ethylhexyl)phthalate	330 U	150 U	36 U	150 U	37 U	250 JaB	330 U	120 JB	13000 U	340 U	150 U	37 UaB	47 JaB	340 JaB	57 J	17 J	1700 U	1800 U	99 J	410 U	350 U	29 J	340 U
Butyl benzyl phthalate	330 U	180 U	13 U	180 U	13 U	38 Ja	330 U	350 U	13000 U	340 U	190 U	13 U	14 U	55 U	330 U	340 U	1700 U	1800 U	340 U	410 U	350 U	340 U	340 U
Carbazole	330 U	na	22 U	na	22 U	37 Ja	330 U	350 U	4900 J	360 U	na	23 U	23 Ua	760 Ja	330 U	na	na	na	na	na	na	na	na
Chrysene	330 U	110 U	17 U	470	17 U	320 Ja	13 J	10 J	29000	140 J	610	54 Ja	120 Ja	3300	30 J	160 J	4200	2700	140 J	410 U	350 U	100 J	340 U
Dibenz(a,h)anthracene	330 U	130 U	18 U	130 U	18 U	70 Ja	330 U	350 U	4300 J	340 U	130 U	19 U	21 Ja	720 Ja	330 U	50 J	830 J	480 J	48 J	410 U	350 U	23 J	340 U
Dibenzofuran	330 U	110 U	15 U	110 U	15 U	17 Ua	330 U	350 U	3900 J	340 U	120 U	16 U	16 U	370 Ja	330 U	340 U	860 J	1800 U	340 U	410 U	350 U	340 U	340 U
D,n-butyl phthalate	330 U	120 U	14 U	120 U	14 U	16 Ua	330 U	350 U	13000 U	340 U	120 U	14 U	15 U	59 Ua	330 U	91 Bf	1700 U	1800 U	13 Bf	31 J	20 J	47 J	37 J
Fluoranthene	330 U	130 U	22 U	1200	22 Ua	410	330 U	15 J	56000	260 J	1000	71 Ja	120 Ja	5700	25 J	330 J	9800	6800	270 J	410 U	350 U	200 J	340 U
Fluorene	330 U	79 U	20 U	79 U	20 U	23 Ua	330 U	350 U	8200 J	340 U	80 U	21 U	21 U	580 Ja	330 U	17 J	1400 J	86 J	10 J	410 U	350 U	340 U	340 U
Indeno(1,2,3-cd)pyrene	330 U	140 U	18 U	150 J	18 U	190 Ja	330 U	350 U	10000 J	57 J	220 J	19 Ua	45 Ja	2100	10 J	96 J	1500 J	860 J	92 J	410 U	350 U	59 J	340 U
Naphthalene	330 U	80 U	32 U	80 U	33 U	36 Ua	330 U	350 U	5000 J	340 U	82 U	33 U	34 U	310 Ja	330 U	340 U	2200	1800 U	340 U	410 U	350 U	340 U	340 U
Phenanthrene	330 U	100 U	24 U	660	49 Ja	280 Ja	330 U	8 J	51000	95 J	310 J	34 Ja	45 Ja	6200	330 U	240 J	11000	1600 J	140 J	410 U	350 U	49 J	340 U
Pyrene	330 U	280 U	19 U	1300	36 Ja	640	330 U	16 J	42000	230 J	890	64 Ja	120 Ja	7900	32 J	280 J	7400	7000	410 U	350 U	160 J	340 U	340 U
CLP Metals (mg/kg)																							
Aluminum	1550	6090	1090	1530	1600	1910	1570	1620	1430	2200 H	1610	2350	2120	1940	2390	1850 E	2460 E	6140 E	2150 E	2040 E	2400 E	2200 E	1430 E
Antimony	0.90 U	1.1 U	0.30	8.7	0.29	4.7	0.78 U	0.83 U	0.71 U	0.77 UH	1.1 U	0.42	0.26	3.4	0.84 U	1.2 B	0.65 B	0.93 B	1.1 B	0.82 BN	0.59 NU	0.57 NU	0.56 NU
Arsenic	0.94 B	1.5	0.70	0.99	1.2	3.4	1.2 B	1.0 B	1.1 B	1.4 H	0.80 U	1.6	1.3	3.0	0.81 U	1.1	1.1	2.4	1.4	0.99 B	1.3	0.99 B	0.59 B
Barium	10.4 B	24.4	6.6	26.4	11.5	26.5	10.4 B	10.8 B	9.8 B	15.0 H	13.2	15.6	14.0	27.7	13.8 B	11.8 B	18.3 B	58.8	10.6 B	15.5 BE	14.4 BE	14.6 BE	9.5 BE
Beryllium	0.23 B	0.29	0.06	0.21 U	0.20	0.14	0.24 B	0.20 B	0.20 B	0.19 H	0.23 U	0.13	0.13	0.17	0.25 B	0.09 B	0.12 B	0.15 B	0.18 B	0.15 B	0.17 B	0.09 B	0.09 B
Cadmium	0.16 U	0.25 U	0.11	0.51	0.20	0.70	0.79 B	0.14 U	0.12 U	0.18 UH	0.28 U	0.14	0.17	1.6	0.15 U	0.04 B	0.08 B	0.03 B	0.47 B	0.17 B	0.03 U	0.11 B	0.03 U
Calcium	232 B	528	95.1	1340	156	1030	193 B	176 B	135 B	237 H	162	271	268	1290	351 B	194 B	221 B	7040	172 B	213 B	319 B	233 B	124 B
Chromium	3.6	9.6	3.1	8.4	38.9	12.4	3.8	3.3	4.6	6.1	3.5	5.3	4.6	33.6	4.7	3.7	5.3	10.6	4.7	6 E	4.4 E	4.5 E	4.5 E
Cobalt	1.4 B	3.2	1.1	2.2	2.4	2.8	1.5 B	1.4 B	1.8 B	1.7 H	1.4	1.9	1.7	4.1	2.1 B	1.6 B	2.7 B	4.8 B	2.4 B	2 B	5 B	1.9 B	1.4 B
Copper	15.4	5.7	1.9	59.3	6.3	44.7	6.1	3.5 B	11.8	10.3	4.3	5.1	6.7	63.0	4.3 B	5.1	6.9	31.4	3.7	7.8	5.8	7.5	2.6
Iron	4710	10100	3150	6530	9770	9790	9560	5100	4830	6210 H	4370	4830	4940	9260	6300	4960	5470	12400	6110	7020 E	6240 E	5540 E	3820 E
Lead	22.2	11.6 ^	1.0	335 ^	1.0	408	5.3	12.7	53.3	19.9 H	9.8 ^	8.1	37.0	450	5.9	17.2	16.6	61.7	5.2	31.7 *	12 *	29 *	7.4 *
Magnesium	377 B	1180	304	881	409	751	390 B	381 B	369 B	454 H	474	479	1060	573 B	376 B	591	3690	413 B	558 BE	610 E	506 BE	649 BE	649 BE
Manganese	114.	145	91.1	752	202	111	191.	129.	104.	143 H	115	133	123	97.1	123	121 N	140 N	192 N	152 N	126 N	150 N	125 N	94.7 NU
Mercury	0.0036 B	0.015 B	0.0052 U	0.095 B	0.0057 U	0.18 B	0.18	0.0081	0.19	0.095 B	0.014 B	0.012 B	0.039 B	1.8 B	0.022	0.013 U	0.015 U	0.087	0.014 U	0.016 U	0.021 B	0.014 U	0.014 U
Nickel	3.8 B	7.3	1.8	19.2	14.8	28.6	4.0 B	3.0 B	6.3	4.0 H	4.0	5.2	3.5	40.8	5.0 B	2.9 B	4.1 B	13.5	8.3	9.2	5.3	3.8 B	5.3
Potassium	207 B	454 ^	141	189 ^	223	227	232 B	202 B	206 B	265 H^	187 ^	291	232	335 B	215 B	274 B	780	248 B	334 B	322 B	249 B	218 B	218 B
Selenium	0.96 U	1.4 U^	0.19	1.5 U^	0.23	0.71	0.83 U	0.88 U	0.76 U	1.1 UH	1.6 U^	0.27	0.29	0.61	0.90 U	0.54 U	0.53 U	0.56 U	0.54 U	0.67	0.44 U	0.42 U	0.42 U
Silver	0.20 U	0.23 U^	0.00091 U	0.43 ^	0.00094 U	0.35	0.17 U	0.18 U	0.15 U	0.17 UH	0.25 U^	0.0010 U	0.020	0.56	0.18 U	0.1 U	0.1 U	0.1 U	0.1 U	0.06 U	0.05 U	0.05 U	0.05 U
Sodium	17.0 B	33.1	36.1	54.4	49.5	84.3	13.0 B	18.4 B	17.1 B	18.3 H	21.6	65.9	51.7	73.4	26.4 B	26.9 B	25.3 U	136 B	53 B	32 U	28.1 U	41.6 B	26.9 U
Thallium	3.6 U	2.0 U^	0.33	2.0 U^	0.0068 U	0.40	3.2 U	3.4 U	2.9 U	1.5 UH	2.2 U^	0.0081 U	0.0085 U	0.048	3.4 U	0.4 U	0.39 U	0.41 U	0.41 B	0.46 U	0.42 U	0.72 B	0.4

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).
Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).
U - Indicates analyte was not detected at or above the reporting limit.
J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.
B - Indicates result between instrument detection limit (IDL) and correct required detection limit (CRDL).
E - Indicates that the concentration is estimated due to matrix interference.
N - Spiked sample recovery not within control limits.
a - Concentration exceeds the instrument calibration range or is below the reporting limit.
^ - Instrument quality control not within control limits.
* - Batch quality control not within control limits.
NS- Not Sampled
na- not analyzed

Table 5
Summary of Analytical Results From Area 1A-5
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date																			
	GLA5A-1 11/28/01	GLA5A-2 11/28/01	GLA5A-3 11/28/01	GLA5A-4 11/28/01	GLA5A-4A 12/17/01	GLA5A-4B 12/17/01	GLA5A-4C 12/17/01	GLA5A-4D 12/17/01	GLA5A-5 11/28/01	GLA5B-1 11/28/01	GLA5B-1D 11/28/01	GLA5B-2 11/28/01	GLA5B-3 11/28/01	GLA5B-4 11/28/01	GLA5B-5 11/28/01	GLA5C-1 11/28/01	GLA5C-1D 11/28/01	GLA5C-2 11/28/01	GLA5C-3 11/28/01	GLA5C-4 11/28/01
SVOC 8270 (ug/kg)																				
2-Methylnaphthalene	4 J	5 J	4 J	10 J	350 U	350 U	350 U	350 U	4	2 J	350 U	340 U	4 J	3 J	4 J	330 U	330 U	330 U	340 U	330 U
Acenaphthene	340 U	340 U	330 U	340 U	350 U	350 U	350 U	350 U	330	340 U	350 U	340 U	340 U	330 U	340 U	330 U	330 U	330 U	340 U	330 U
Acenaphthylene	340 U	340 U	330 U	340 U	350 U	350 U	350 U	350 U	330	340 U	350 U	340 U	340 U	330 U	340 U	330 U	330 U	330 U	340 U	330 U
Anthracene	6 J	7 J	15 J	32 J	350 U	350 U	350 U	350 U	9	5 J	350 U	340 U	4 J	7 J	5 J	7 J	7 J	15 J	9 J	12 J
Benzo(a)anthracene	24 J	24 J	65 J	270 J	48 J	350 U	350 U	350 U	40	16 J	14 J	340 U	20 J	16 J	21 J	32 J	30 J	79 J	32 J	52 J
Benzo(a)pyrene	23 J	25 J	58 J	210 J	53 J	350 U	350 U	350 U	59	18 J	14 J	5 J	18 J	15 J	21 J	29 J	28 J	70 J	32 J	54 J
Benzo(b)fluoranthene	30 J	29 J	59 J	220 J	80 J	350 U	37 J	350 U	57	18 J	15 J	5 J	19 J	24 J	26 J	36 J	32 J	74 J	33 J	55 J
Benzo(g,h,i)perylene	11 J	14 J	29 J	110 J	350 U	350 U	350 U	350 U	29	9 J	9 J	3 J	8 J	8 J	10 J	18 J	17 J	32 J	21 J	38 J
Benzo(k)fluoranthene	25 J	30 J	74 J	260 J	350 U	350 U	350 U	350 U	60	18 J	17 J	8 J	23 J	20 J	23 J	36 J	40 J	78 J	48 J	59 J
bis(2-Ethylhexyl)phthalate	120 J	18 J	51 J	13 J	130 J	250 JB	49 JB	110 JB	330	92 J	210 J	13 J	14 J	36 J	26 J	330 U	100 JB	330 U	340 U	2100 B
Butylbenzylphthalate	340 U	340 U	330 U	340 U	350 U	350 U	350 U	350 U	330	340 U	350 U	340 U	340 U	330 U	340 U	330 U	18 J	330 U	340 U	330 U
Carbazole					na	na	na	na	330 U			340 U	340 U	330 U	340 U	330 U	330 U	330 U	340 U	330 U
Chrysene	31 J	29 J	83 J	280 J	57 J	350 U	350 U	350 U	48	19 J	17 J	340 U	23 J	25 J	25 J	43 J	37 J	92 J	42 J	60 J
Dibenz(a,h)anthracene	5 J	6 J	9 J	40 J	350 U	350 U	350 U	350 U	12	3 J	3 J	340 U	4 J	3 J	4 J	330 U	330 U	330 U	340 U	330 U
Dibenzofuran	340 U	340 U	330 U	340 U	350 U	350 U	350 U	350 U	330	340 U	350 U	340 U	340 U	330 U	340 U	330 U	330 U	330 U	340 U	330 U
Diethylphthalate	340 U	25 JB	31 JB	340 U	350 U	350 U	350 U	350 U	330	340 U	30 JB	340 U	340 U	330 U	37 JB	330 U	23 JB	330 U	340 U	330 U
Fluoranthene	39 J	41 J	130 J	460	73 J	36 J	41 J	350 U	64	32 J	23 J	9 J	37 J	48 J	32 J	47 J	50 J	140 J	55 J	81 J
Fluorene	340 U	340 U	330 U	340 U	350 U	350 U	350 U	350 U	330	340 U	350 U	340 U	340 U	330 U	340 U	330 U	330 U	330 U	340 U	330 U
Indeno(1,2,3-cd)pyrene	10 J	12 J	25 J	96 J	350 U	350 U	350 U	350 U	26	7 J	6 J	2 J	7 J	7 J	10 J	15 J	17 J	32 J	19 J	34 J
Phenanthrene	11 J	18 J	34 J	88 J	350 U	350 U	350 U	350 U	25	18 J	350 U	4 J	12 J	22 J	16 J	23 J	20 J	33 J	27 J	38 J
Pyrene	35 J	35 J	110 J	400	76 J	350 U	350 U	350 U	47	26 J	21 J	8 J	30 J	36 J	29 J	45 J	50 J	120 J	55 J	83 J
CLP Metals (mg/kg)																				
Aluminum	1850	2670	2350	2300	2940 H	2100 H	2270 H	2360 H	2230	2390	2700	2660	2510	2570	2280	2220	2460	2410	3160	2920
Antimony	0.67 U	0.79 U	0.75 U	0.66 U	1.1 UH	1.2 UH	1.2 UH	1.2 UH	0.77 U	0.83 U	0.88 U	0.83 U	0.83 U	0.76 U	0.76 U	0.72 UN	0.68 UN	0.79 UN	0.79 UN	0.73 UN
Arsenic	1.1 B	1.6 B	1.4 B	1.5	2.0 H	1.5 H	1.5 H	1.5 H	1.1 B	0.85 U	1.3 B	1.2 B	1.7 B	1.3 B	0.91 B	0.69 U	0.65 U	0.76 U	0.97 B	3.2
Barium	14.4 B	16.8 B	17.9 B	18.4 B	21.4 H	17.7 H	19.4 H	19.9 H	14.9 B	25.3 B	31.1 B	35.8 B	33.6 B	21.7 B	17.5 B	17.0 B	19.9 B	29.5 B	22.8 B	20.5 B
Beryllium	0.11 B	0.12 B	0.14 B	0.12 B	0.22 UH	0.23 UH	0.23 UH	0.24 H	0.11 B	0.13 B	0.18 B	0.23 B	0.18 B	0.15 B	0.12 B	0.18 B	0.20 B	0.21 B	0.25 B	0.26 B
Cadmium	0.12 U	0.14 U	0.16 B	0.12 U	0.27 UH	0.28 UH	0.28 UH	0.28 UH	0.17 B	0.15 B	0.17 B	0.15 U	0.25 B	0.17 B	0.14 U	0.12 U	0.12 U	0.14 U	0.14 U	0.13 U
Calcium	295. B	342. B	711. B	378. B	1180 H	459 H	609 H	646 H	356. B	1040	1110	2510	942.	769. B	451. B	438. B	596. B	563. B	698. B	570. B
Chromium	4.5	6.6	5.9	5.3	7.0	5.3	6.3	7.1	5.2	6.2	7.6	6.9	6.8	6.6	5.7	5.5	6.3	6.4	7.4	6.2
Cobalt	1.6 B	2.2 B	2.3 B	1.9 B	2.2 H	1.9 H	2.2 H	1.8 H	1.8 B	2.4 B	3.5 B	2.2 B	3.5 B	2.5 B	2.1 B	2.0 B	2.1 B	2.3 B	2.5 B	2.0 B
Copper	3.6 B	5.3	6.0	5.2	6.2	5.1	5.5	5.2	4.8	5.8	10.9	6.5	9.6	6.8	5.5	5.5	6.2	6.5	6.9	6.5
Iron	5370	7180	6430	6020	7380 H	5920 H	6360 H	6270 H	5320	6020	8710	7720	11700	7130	5980	5340	6270	6980	7660	7350
Lead	7.6	13.8	16.2	14.3	17.9 H	15.6 H	16.5 H	17.1 H	12.5	23.1	25.3	40.4	21.6	18.2	15.6	14.6	17.6	21.0	15.7	16.7
Magnesium	457. B	814. B	680. B	629. B	920 H	680 H	760 H	828 H	668. B	1050	1030	1420	981.	869.	686. B	652. B	757.	750. B	958.	693. B
Manganese	99.8 *	124. *	102. *	80.9 *	115 H	92.9 H	102 H	86.1 H	77.4 *	94.8 *	122. *	112. *	196. *	105. *	83.6 *	85.4	92.3	184.	112.	90.2
Mercury	0.0066 B	0.012	0.0099	0.0086 B	0.046 B	0.011 B	0.011 B	0.011 B^	0.0082 B	0.42	0.0090	0.0035 U	0.0048 B	0.0057 B	0.0076 B	0.0093	0.0086	0.0087	0.0088	0.010
Nickel	4.3 B	5.9 B	5.6 B	5.8	6.3 H	5.5 H	5.5 H	5.9 H	4.9 B	6.4 B	7.8	6.7 B	9.5	6.6 B	5.8 B	5.9 B	6.1	6.0 B	7.2	6.7
Potassium	294. B	442. B	407. B	440. B	551 H^	436 H^	482 H^	472 H^	402. B	534. B	579. B	588. B	554. B	530. B	439. B	407. B	441. B	428. B	556. B	418. B
Selenium	0.73 U	0.86 U	0.81 U	0.71 U	1.6 UH	1.6 UH	1.6 UH	1.6 UH	0.83 U	0.91 U	0.95 U	0.91 U	0.91 U	0.83 U	0.83 U	0.77 U	0.73 U	0.84 U	0.86	0.78 U
Silver	0.15 U	0.18 U	0.17 U	0.14 U	0.25 UH^	0.26 UH^	0.26 UH^	0.25 UH^	0.17 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.17 U	0.16 U	0.15 U	0.17 U	0.17 U	0.16 U
Sodium	23.4 B	29.8 B	33.9 B	33.7 B	40.0 H	31.8 H	33.9 H	30.2 H	33.4 B	44.9 B	60.1 B	79.3 B	52.4 B	45.8 B	36.0 B	25.9 B	28.3 B	29.6 B	41.3 B	32.6 B
Thallium	1.5 U	1.8 U	1.7 U	1.4 U	2.1 UH	2.2 UH	2.2 UH	2.2 UH	1.7 U	1.8 U	1.9 U	1.8 U	1.8 U	1.7 U	1.7 U	2.9 U	2.8 U	3.2 U	3.2 U	3.0 U
Vanadium	5.9 B	8.6 B	8.0 B	7.2 B	9.5 H	7.6 H	8.2 H	7.4 H	7.1 B	7.3 B	9.2 B	8.2 B	10.	8.3 B	7.5 B	7.3 B	8.6	9.0	9.9	8.2
Zinc	11.1	18.8	17.5	15.7	21.7 H	16.2 H	16.4 H	18.2 H	14.5	27.4	34.0	16.5	21.0	17.0	16.6	16.9	18.6	18.2	20.8	20.3
PCB 8082 (ug/kg)																				
Aroclor-1254	34 U	34 U	33 U	34 U	17 U	17 U	17 U	17 U	33 U	34 U	35 U	33 U	35 U	33 U	34 U	33 U	33 U	34 U	33 U	34 U
Aroclor-1260	34 U	34 U	33 U	34 U	17 U	17 U	17 U	17 U	33 U	34 U	35 U	33 U	35 U	33 U	34 U	33 U	33 U	34 U	33 U	34 U

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).

Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).

U - Indicates analyte was not detected at or above the reporting limit.

J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.

B - Indicates result between instrument detection limit (IDL) and contract required detection limit (CRDL).

E - Indicates that the concentration is estimated due to matrix interferences.

N - Spiked sample recovery not within control limits.

s - Concentration exceeds the instrument calibration range or is below the reporting limit.

^ - Instrument quality control not within control limits.

* - Batch quality control not within control limits.

NS- Not Sampled

na- not analyzed

Table 5 cont'd
Summary of Analytical Results From Area 1A-5
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation and Collection Date																			
	GLA5C-5 11/28/01	GLA5D-1 11/28/01	GLA5D-2 11/28/01	GLA5D-2A 12/14/01	GLA5D-2B 12/14/01	GLA5D-2C 12/14/01	GLA5D-2D 12/14/01	GLA5D-3 11/28/01	GLA5D-4 11/28/01	GLA5D-5 11/28/01	GLA5D-5A 12/14/01	GLA5D-5B 12/14/01	GLA5D-5C 12/14/01	GLA5D-5D 12/14/01	GLA5E-1 12/04/01	GLA5E-2 11/28/01	GLA5E-3 11/28/01	GLA5E-4 11/28/01	GLA5E-5 11/28/01	
SVOC 8270 (ug/kg)																				
2-Methylnaphthalene	330 U	4 J	3300 U	350 U	360 Ua	350 U	350 U	5 J	3 J	12 J	360 U	350 U	350 U	360 Ua	340 U	340 U	3 J	2 J	3 J	
Acenaphthene	330 U	340 U	3300 U	350 U	27 Ja	350 U	350 U	9 J	340 U	160 J	360 U	350 U	350 U	360 U	340 U	340 U	340 U	330 U	340 U	
Acenaphthylene	330 U	340 U	3300 U	350 U	22 Ja	350 U	350 U	340 U	340 U	J	360 U	350 U	350 U	360 U	340 U	340 U	340 U	12 J	340 U	
Anthracene	8 J	6 J	3300 U	350 U	120 Ja	350 U	350 U	20 J	10 J	450 J	360 U	350 U	350 U	360 U	340 U	7 J	8 J	5 J	5 J	
Benzo(a)anthracene	34 J	24 J	110 J	350 Ua	300 Ja	27 Ja	40 Ja	58 J	47 J	1300 J	45 Ja	48 Ja	45 Ja	68 Ja	17 J	37 J	42 J	25 J	19 J	
Benzo(a)pyrene	34 J	27 J	150 J	350 U	190 Ja	30 Ja	40 Ja	52 J	46 J	970 J	44 Ja	48 Ja	48 Ja	68 Ja	16 J	34 J	38 J	27 J	22 J	
Benzo(b)fluoranthene	37 J	36 J	90 J	350 Ua	170 Ja	350 Ua	44 Ja	64 J	50 J	1000 J	43 Ja	50 Ja	55 Ja	78 Ja	19 J	44 J	52 J	28 J	28 J	
Benzo(g,h,i)perylene	20 J	15 J	250 J	350 U	170 Ja	28 Ja	33 Ja	29 J	32 J	330 J	23 Ja	28 Ja	29 Ja	54 Ja	340 U	16 J	19 J	13 J	12 J	
Benzo(k)fluoranthene	38 J	35 J	77 J	350 Ua	200 Ja	350 Ua	41 Ja	63 J	59 J	1000 J	54 Ja	58 Ja	54 Ja	100 Ja	19 J	52 J	48 J	26 J	32 J	
bis(2-Ethylhexyl)phthalate	330 U	340 U	3300 U	350 U	360 U	350 U	350 U	88 J	150 J	1900 U	360 U	350 U	350 U	360 U	340 U	130 J	22 J	87 J	140 J	
Butylbenzylphthalate	330 U	340 U	3300 U	350 U	360 U	350 U	350 U	340 U	340 U	1900 U	360 U	350 U	350 U	360 U	340 U	340 U	340 U	330 U	340 U	
Carbazole	330 U	340 U	3300 U	350 U	360 U	350 U	350 U	340 U	340 U	1900 U	360 U	350 U	350 U	120 J	340 U					
Chrysene	42 J	31 J	210 J	22 Ja	490	39 Ja	59 Ja	68 J	62 J	1400 J	55 Ja	67 Ja	63 Ja	130 Ja	21 J	62 J	50 J	29 J	32 J	
Dibenzo(a,h)anthracene	330 U	340 U	3300 U	350 U	51 Ja	350 U	350 U	10 J	340 U	120 J	360 U	350 U	350 U	360 U	340 U	7 J	7 J	3 J	4 J	
Dibenzofuran	330 U	340 U	3300 U	350 U	16 Ja	350 U	350 U	340 U	340 U	58 J	360 U	350 U	350 U	28 Ja	340 U	340 U	340 U	330 U	340 U	
Diethylphthalate	330 U	340 U	3300 U	350 U	360 U	350 U	350 U	340 U	340 U	1900 U	360 U	350 U	350 U	360 U	340 U	67 JB	22 JB	330 U	21 JB	
Fluoranthene	56 J	34 J	75 J	350 Ua	480	40 Ja	54 Ja	110 J	89 J	3000	72 Ja	75 Ja	68 Ja	350 Ja	23 J	70 J	80 J	41 J	42 J	
Fluorene	330 U	340 U	3300 U	350 U	360 U	350 U	350 U	340 U	340 U	140 J	360 U	350 U	350 U	360 U	340 U	340 U	340 U	330 U	340 U	
Indeno(1,2,3-cd)pyrene	19 J	13 J	78 J	350 U	150 Ja	21 Ja	27 Ja	23 J	26 J	340 J	20 Ja	23 Ja	22 Ja	39 Ja	340 U	14 J	16 J	9 J	10 J	
Phenanthrene	24 J	13 J	3300 U	350 U	120 Ja	350 Ua	350 Ua	69 J	36 J	1900	360 Ua	350 Ua	350 Ua	340 Ja	340 U	12 J	28 J	19 J	14 J	
Pyrene	54 J	29 J	190 J	26 Ja	770	59 Ja	86 Ja	98 J	85 J	2200	76 Ja	86 Ja	82 Ja	320 Ja	340 U	52 J	72 J	60 J	35 J	
CLP Metals (mg/kg)																				
Aluminum	2510	3030	3320	2280 H^	5440 H^	3230 H^	3190 H^	3130	3390	2230	2850 H^	3030 H^	3340 H^	2930 H^	2540	2650	2920	2760	2860	
Antimony	0.80 UN	0.68 U	0.83 U	1.2 UH^	1.1 UH^	1.0 UH^	0.99 UH^	0.63 U	0.79 U	0.78 U	0.90 UH^	0.92 UH^	1.1 UH^	0.86 UH^	0.80 U	0.89 U	0.89 U	0.68 U	0.85 U	
Arsenic	0.77 U	1.6	2.5	1.2 H^	2.4 H^	2.0 H^	1.5 H^	3.3	3.0	1.6 B	2.2 H^	2.1 H^	1.6 H^	2.1 H^	0.89 B	1.2 B	1.7 B	1.3 B	1.7 B	
Barium	20.5 B	23.5 B	25.5 B	20.8 H^	39.1 H^	24.7 H^	24.5 H^	22.0 B	22.9 B	16.2 B	25.1 H^	22.0 H^	27.8 H^	22.4 H^	20.2 B	32.3 B	20.0 B	27.2 B	21.8 B	
Beryllium	0.21 B	0.14 B	0.18 B	0.23 U^	0.33 ^	0.20 U^	0.21 ^	0.18 B	0.17 B	0.11 B	0.18 ^	0.20 ^	0.23 ^	0.21 ^	0.26 B	0.15 B	0.16 B	0.14 B	0.15 B	
Cadmium	0.14 U	0.19 B	0.24 B	0.28 UH	0.27 UH	0.24 UH	0.27 H	0.25 B	0.16 B	0.22 B	0.22 UH	0.22 UH	0.26 UH	0.21 UH	0.14 U	0.16 B	0.30 B	0.18 B	0.20 B	
Calcium	805. B	1060	666. B	638 H^	2760 H^	899 H^	767 H^	610. B	916.	440. B	605 H^	490 H^	775 H^	694 H^	656. B	804. B	691. B	645. B	708. B	
Chromium	6.1	6.4	8.3	5.7 H^	12.6 H^	8.2 H^	7.4 H^	8.5	7.9	5.2	10.4 H^	10.4 H^	7.3 H^	6.7 H^	5.7	6.2	6.4	6.6	8.7	
Cobalt	2.1 B	2.4 B	2.8 B	2.1 H^	4.3 H^	2.8 H^	2.4 H^	2.9 B	6.5 B	1.8 B	2.5 H^	2.3 H^	3.0 H^	2.3 H^	2.2 B	2.8 B	2.8 B	2.8 B	2.9 B	
Copper	6.8	6.2	8.3	5.9 H^	12.5 H^	7.0 H^	7.8 H^	8.1	8.0	6.4	7.2 H^	8.0 H^	8.2 H^	7.3 H^	6.0	6.2	6.7	6.5	7.2	
Iron	6410	6510	9260	6070 H^	12400 H^	8090 H^	7740 H^	9220	6510	5270	7890 H^	7370 H^	9880 H^	7240 H^	7540	7040	6680	7550	7880	
Lead	16.3	19.7	37.1	28.0 H^	24.8 H^	23.3 H^	23.7 H^	25.9	37.4	23.2	76.7 H^	38.7 H^	25.7 H^	24.2 H^	18.2	23.6	19.1	31.5	23.8	
Magnesium	821. B	856.	881. B	801 H	2290 H	1190 H	995 H	811.	936.	614. B	923 H	718 H	929 H	892 H	752. B	877. B	837. B	850.	818. B	
Manganese	103.	112. *	147. *	105 H^	215 H^	122 H^	119 H^	144. *	130 *	92.5 *	113 H^	130 H^	153 H^	122 H^	129.	240. *	134. *	154. *	134. *	
Mercury	0.0084 B	0.01	0.049	0.016 B	0.40 B	0.025 B	0.088 B	0.042	0.043	0.036	0.016 B	0.043 B	0.035 B	0.035 B	0.010	0.0050 U	0.013	0.0070 B	0.015	
Nickel	6.4 B	10.5	7.3 B	5.9	12.5	8.2	6.7	8.6	6.6 B	5.2 B	7.9	6.5	7.0	6.4	6.2 B	7.0 B	6.4 B	8.2	9.8	
Potassium	439. B	545. B	558. B	520 H^	1380 H^	814 H^	744 H^	536. B	486. B	389. B	585 H^	450 H^	506 H^	574 H^	459. B	539. B	432. B	590. B	539. B	
Selenium	0.86 U	0.74 U	0.90 U	1.6 UH^	1.6 UH^	1.4 UH^	1.3 UH^	0.68 U	0.86 U	0.84 U	1.2 UH^	1.3 UH^	1.5 UH^	1.2 UH^	0.85 U	0.97 U	0.97 U	0.74 U	0.93 U	
Silver	0.17 U	0.15 U	0.18 U	0.25 UH^	0.25 UH^	0.22 UH^	0.22 UH^	0.14 U	0.18 U	0.17 U	0.20 UH^	0.20 UH^	0.24 UH^	0.19 UH^	0.17 U	0.20 U	0.20 U	0.15 U	0.19 U	
Sodium	41.9 B	47.7 B	43.4 B	37.2 H^	130 H^	47.0 H^	75.6 H^	38.2 B	47.2 B	46.5 B	60.0 H^	41.8 H^	55.2 H^	44.1 H^	36.8 B	39.5 B	31.5 B	41.3 B	38.1 B	
Thallium	3.2 U	1.5 U	1.8 U	2.2 UH^	2.2 UH^	1.9 UH^	1.9 UH^	1.4 U	1.8 U	1.7 U	1.7 UH^	1.7 UH^	2.0 UH^	1.6 UH^	3.2 U	2.0 U	2.0 U	1.5 U	1.9 U	
Vanadium	8.5 B	9.0	11.0	8.0 H	17.3 H	10.8 H	10 H	12.2	9.6	7.4 B	10.1 H	10.3 H	10.3 H	9.6 H	8.3 B	8.8 B	9.0 B	8.8	9.8	
Zinc	19.0	18.2	28.9	16.7 H^	34.4 H^	23.0 H^	26.0 H^	27.0	29.4	21.5	27.6 H^	26.4 H^	31.2 H^	26.9 H^	17.3	18.6	26.6	18.5	19.6	
PCB 8082 (ug/kg)																				
Aroclor-1254	33 U	34 U	34 U	18 U	18 U	180	18 U	34 U	34 U	39 U	18 U	18 U	17 U	18 U	17 U	34 U	34 U	34 U	34 U	
Aroclor-1260	33 U	34 U	9.9 J	18 U	36	18 U	18 U	6.8 J	5.9 J	7.0 J	18 U	18 U	17 U	18 U	17 U	34 U	34 U	15 J	34 U	

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).
Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).
U - indicates analyte was not detected at or above the reporting limit
J - indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.
B - indicates result between instrument detection limit (IDL) and contract required detection limit (CRL)
E - indicates that the concentration is estimated due to matrix interferences.
N - Spiked sample recovery not within control limits
a - Concentration exceeds the instrument calibration range or is below the reporting limit.
^ - Instrument quality control not within control limits.
* - Batch quality control not within control limits.
NS - Not Sampled
ne - not analyzed

Table 6
Summary of Analytical Results From Area 2-6
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date									
	GLA6-1 11/15/01	GLA6-1B 11/20/01	GLA6-2 11/15/01	GLA6-2S 11/20/01	GLA6-3 11/20/01	GLA6-3S 11/20/01	GLA6-4 11/20/01	GLA6-4S 11/20/01	GLA6-5 11/20/01	GLA6-5S 11/20/01
SVOC 8270 (ug/kg)										
2-Methylnaphthalene	330 U	350 U	340 U	3 J	340 U	380 U	380 U	340 U	330 U	350 U
Benzo(a)anthracene	330 U	350 U	5 J	340 U	340 U	380 U	380 U	340 U	330 U	350 U
Benzo(a)pyrene	5 J	350 U	340 U	340 U	340 U	380 U	380 U	340 U	330 U	350 U
Benzo(b)fluoranthene	8 J	350 U	5 J	340 U	340 U	380 U	380 U	340 U	330 U	350 U
Benzo(k)fluoranthene	8 J	350 U	6 J	340 U	340 U	380 U	380 U	340 U	330 U	350 U
Chrysene	12 J	350 U	7 J	340 U	340 U	380 U	380 U	340 U	330 U	350 U
Fluoranthene	22 J	350 U	10 J	13 J	340 U	380 U	380 U	11 J	330 U	8 J
Indeno(1,2,3-cd)pyrene	330 U	350 U	340 U	340 U	340 U	380 U	380 U	5 J	330 U	350 U
Phenanthrene	10 J	350 U	340 U	340 U	340 U	380 U	380 U	340 U	330 U	350 U
Pyrene	16 J	350 U	8 J	15 J	340 U	380 U	380 U	17 J	330 U	12 J
CLP Metals (mg/kg)										
Aluminum	2640	1850	3490	2090	1870	3400	1370	2570	1610	2330
Antimony	0.80 UN	0.92 UN	0.98 BN	1.8 BN	0.88 UN	0.98 UN	0.92 UN	0.76 UN	0.79 UN	0.98 BN
Arsenic	1.5 B	1.6 B	2.2	1.5 B	1.2 B	1.7 B	1.0 B	1.7	1.3 B	1.8 B
Barium	14.6 B	10.4 B	16.5 B	10.7 B	13.4 B	26.5 B	11.9 B	16.5 B	11.2 B	18.2 B
Beryllium	0.22 B	0.20 B	0.25 B	0.15 B	0.16 B	0.25 B	0.10 U	0.20 B	0.13 B	0.15 B
Cadmium	0.14 U	0.16 U	0.14 U	0.17 B	0.15 U	0.17 U	0.16 U	0.13 U	0.14 U	0.16 U
Calcium	498. B	217. B	423. B	250. B	217. B	414. B	310. B	427. B	225. B	290. B
Chromium	5.2	7.5	6.4	5.9	4.3	7.2	5.2	5.1	5.5	5.2
Cobalt	1.9 B	2.0 B	2.2 B	1.9 B	1.6 B	2.4 B	2.8 B	2.2 B	2.0 B	2.4 B
Copper	4.5	9.5	6.1	5.6	3.2 B	6.3	3.4 B	9.7	4.4	5.3
Iron	7490	9200	7660	6290	5070	8540	7070	6530	6280	7320
Lead	11.4	1.9	11.6	17.3	1.5	10.6	2.0	50.4	1.9	22.9
Magnesium	714. B	454. B	779. B	557. B	554. B	777. B	371. B	729. B	450. B	496. B
Manganese	133.	112.	130.	92.2	138.	150.	150.	126.	111.	141.
Mercury	0.0068 B	0.0037 U	0.019	0.011	0.0037 U	0.012	0.0031 U	0.036	0.0031 U	0.016
Nickel	5.4 B	6.4 B	6.2 B	5.1 B	3.5 B	6.4 B	6.1 B	5.3 B	5.7 B	5.4 B
Potassium	318. B	260. B	352. B	316. B	349. B	333. B	315. B	308. B	279. B	310. B
Selenium	0.85 U	0.98 U	0.85 U	0.88 U	0.94 U	1 U	0.98 U	0.8 U	0.85 U	0.98 U
Silver	0.17 U	0.2 Y	0.7 U	0.18 U	0.19 U	0.21 U	0.2 U	0.16 U	0.17 U	0.2 U
Sodium	15.4 B	16.0 B	18.1 B	19.9 B	21.0 B	31.7 B	35.4 B	22.6 B	20.2 B	22.1 B
Thallium	3.2 U	3.7 U	3.2 U	3.3 U	3.6 U	4 U	3.7 U	3 U	3.2 U	3.7 U
Vanadium	8.4 B	6.3 B	11.3	11.7	5.7 B	9.7 B	6.4 B	10.1	6.2 B	9.7 B
Zinc	27.1	8.6	89.4	404.	7.9	17.2	12.8	22.7	6.6	18.2
PCB 8082 (ug/kg)										
Aroclor-1260	1.9 J	35 U	1.8 J	2.2 J	34 U	2.4 J	38 U	1.6 J	33 U	3 J

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).

Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).

U - Indicates analyte was not detected at or above the reporting limit

J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.

B - Indicates result between instrument detection limit (IDL) and contract required detection limit (CRDL)

E - Indicates that the concentration is estimated due to matrix interferences.

N - Spiked sample recovery not within control limits

a - Concentration exceeds the instrument calibration range or is below the reporting limit.

A - Instrument quality control not within control limits.

* - Batch quality control not within control limits.

NS - Not Sampled

na - not analyzed

Table 7
Summary of Analytical Results From Area 2-7
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date																					
	GLA7-1A 11/09/01	GLA7-1B 11/09/01	GLA7-1C 11/20/01	GLA7-1D 11/27/01	GLA7-1E 11/21/01	GLA7-1F 11/21/01	GLA7-2 11/09/01	GLA7-3 11/09/01	GLA7-3B 11/27/01	GLA7-3C 11/21/01	GLA7-3D 11/27/01	GLA7-3E 11/21/01	GLA7-4 11/09/01	GLA7-4A 12/12/01	GLA7-5 11/09/01	GLA7-5A 12/12/01	GLA7-5SA 12/12/01	GLA7-6 11/09/01	GLA7-6A 12/12/01	GLA7-7S 11/09/01	GLA7-7SA 12/12/01	GLA7-8S 11/09/01
SVOC 8270 (ug/kg)																						
2,4-Dimethylphenol	1700 U	8500 U	350 U	320 U	340 U	330 U	210 J	350 U	350 U	340 U	46 J	330 U	350 U	35 U	340 U	33 U	34 U	350 U	31 U	350 U	35 U	340 U
2-Methylnaphthalene	460 J	300 J	350 U	30 J	36 J	330 U	98 J	320 J	4 J	340 U	77 J	330 U	65 J	30 U	49 J	28 U	30 Ua	4 J	29 U	20 J	30 Ua	13 J
4-Methylphenol	1700 U	8500 U	350 U	320 U	340 U	330 U	39 J	8 J	350 U	340 U	340 U	330 U	350 U	20 U	340 U	18 U	19 U	350 U	18 U	350 U	20 U	340 U
Acenaphthene	620 J	950 J	350 U	320 U	340 U	330 U	15 J	51 J	350 U	340 U	14 J	330 U	7 J	16 U	36 J	15 U	16 U	350 U	15 U	14 J	16 U	340 U
Acenaphthylene	890 J	1300 J	350 U	50 J	25 J	330 U	51 J	66 J	10 J	340 U	50 J	330 U	60 J	12 U	100 J	11 U	12 U	350 U	11 U	21 J	12 U	23 J
Anthracene	2200	4700 J	350 U	20 J	18 J	330 U	57 J	290 J	350 U	340 U	62 J	330 U	46 J	13 U	180 J	12 U	13 U	19 J	12 U	53 J	13 U	17 J
Benzo(a)anthracene	9700	22000	350 U	37 J	73 J	330 U	190 J	1300	350 U	11 J	340	19 J	170 J	16 U	560	15 U	16 U	120 J	15 U	190 J	16 U	58 J
Benzo(a)pyrene	11000	24000	350 U	46 J	89 J	330 U	220 J	1200	350 U	340 U	330 J	35 J	190 J	17 U	640	16 U	17 U	140 J	16 U	180 J	17 U	70 J
Benzo(b)fluoranthene	9600	18000	350 U	41 J	81 J	330 U	210 J	1300	350 U	12 J	230 J	26 J	140 J	41 U	890	39 U	41 U	120 J	39 U	140 J	41 U	72 J
Benzo(g,h,i)perylene	870 J	12000	350 U	33 J	55 J	330 U	26 J	100 J	350 U	340 U	150 J	39 J	91 J	18 U	59 J	17 U	18 Ua	39 J	17 U	38 J	18 Ua	15 J
Benzo(k)fluoranthene	7200	18000	350 U	39 J	78 J	330 U	200 J	1200	350 U	13 J	300 J	30 J	180 J	42 U	1000	40 U	42 U	130 J	40 U	190 J	42 U	62 J
Benzoic acid	8200 U	41000 U	1700 U	1500 U	22 J	1600 U	120 J	36 J	24 J	1600 U	64 J	1600 U	1700 U	720 U	39 J	670 U	710 U	1700 U	680 U	1700 U	730 U	70 J
bis(2-Ethylhexyl)phthalate	1700 U	8500 U	350 U	320 U	340 U	330 U	310 J	350 U	29 J	340 U	47 J	330 U	72 J	240 JaB	55 J	160 JaB	210 JaB	350 U	290 JaB	350 U	210 JaB	340 U
Carbazole	320 J	8500 U	350 U	320 U	340 U	330 U	360 U	44 J	350 U	340 U	20 J	330 U	350 U	24 U	26 J	22 U	24 U	350 U	23 U	18 J	24 U	340 U
Chrysene	9600	22000	350 U	56 J	109 J	330 U	260 J	1400	350 U	14 J	360	26 J	230 J	18 U	640	17 U	18 U	140 J	17 U	230 J	19 U	64 J
Dibenz(a,h)anthracene	580 J	5100 J	350 U	13 J	21 J	330 U	360 U	51 J	350 U	340 U	67 J	330 U	40 J	20 U	340 U	18 U	19 U	16 J	17 U	20 J	18 U	340 U
Dibenzofuran	310 J	490 J	350 U	5 J	340 U	330 U	18 J	68 J	350 U	340 U	18 J	330 U	13 J	18 U	14 J	15 U	16 U	350 U	18 U	7 J	19 U	340 U
Di-n-butylphthalate	1700 U	8500 U	350 U	320 U	340 U	330 U	360 U	350 U	350 U	340 U	7 J	330 U	350 U	15 U	340 U	14 U	15 U	350 U	14 U	350 U	15 U	340 U
Fluoranthene	9900	30000	350 U	43 J	86 J	15 J	260 J	1700	8 J	16 J	370	37 J	220 J	24 U	990	22 U	24 Ua	150 J	23 Ua	290 J	24 Ua	76 J
Fluorene	710 J	1100 J	350 U	5 J	340 U	330 U	15 J	54 J	350 U	340 U	15 J	330 U	350 U	22 U	41 J	20 U	22 U	350 U	20 U	350 U	22 U	340 U
Indeno(1,2,3-cd)pyrene	1300 J	14000	350 U	26 J	54 J	330 U	34 J	140 J	350 U	5 J	180 J	25 J	98 J	20 U	58 J	18 U	19 Ua	44 J	18 U	46 J	19 Ua	18 J
Naphthalene	490 J	450 J	350 U	28 J	32 J	330 U	62 J	230 J	350 U	340 U	56 J	330 U	48 J	35 U	34 J	33 U	34 U	350 U	33 U	350 U	34 U	340 U
N-Nitrosodiphenylamine (1)	1700 U	8500 U	350 U	320 U	340 U	330 U	35 J	350 U	350 U	340 U	340 U	330 U	350 U	17 U	340 U	16 U	17 U	350 U	16 U	350 U	18 U	340 U
Phenanthrene	5700	12000	350 U	33 J	53 J	330 U	230 J	900	10 J	340 U	200 J	16 J	130 J	26 U	430	24 U	26 U	45 J	25 U	190 J	26 U	38 J
Phenol	1700 U	8500 U	350 U	320 U	340 U	330 U	40 J	4 J	350 U	340 U	340 U	330 U	350 U	26 U	3 J	24 U	26 U	350 U	25 U	350 U	26 U	340 U
Pyrene	14000	37000	350 U	78 J	120 J	14 J	400	1800	10 J	18 J	570	48 J	330 J	21 U	730	19 U	25 Ja	170 J	19 Ua	340 J	25 Ja	100 J
CLP Metals (mg/kg)																						
Aluminum	6460	7160	3020	2050	5710	1440	6090	3520	5330	1580	3580	2340	4440	4330	3170	4280	3100	7200	1730	5600	7240	5540
Antimony	0.81 UN	0.81 UN	0.86 UN	0.87 U	0.78 U	0.83 U	0.88 UN	0.87 UN	0.86 U	0.82 U	0.89 U	0.82 U	0.90 UN	0.096 B	0.75 UN	0.071 B	0.53 B	0.95 UN	0.42 B	0.79 UN	0.17 B	0.75 UN
Arsenic	3.2	2.9	1.6 B	1.1 B	3.2	1.2 B	5.5	3.4	2.2	1.2 B	2.2	1.3 B	3.7	2.3 B	3.3	2.1 B	2.8 B	3.1	1.1 B	3.9	1.9 B	4.8
Barium	44.3	46.0	25.9 B	12.7 B	29.3 B	7.9 B	42.1	28.6 B	24.4 B	9.6 B	24.2 B	15.6 B	24.6 B	17.3	23.7 B	19.8	20.4	29.6 B	12.5	34.2 B	21.4	41.3
Beryllium	0.51 B	0.52 B	0.18 B	0.18 B	0.29 B	0.094 B	0.62 B	0.43 B	0.34 B	0.17 B	0.32 B	0.19 B	0.59 B	0.23 B	0.35 B	0.22 B	0.22 B	0.62 B	0.14 B	0.47 B	0.22 B	0.57 B
Cadmium	0.14 U	0.14 U	0.15 U	0.15 U	0.14 U	0.14 U	0.15 U	0.15 U	0.15 U	0.14 U	0.15 U	0.14 U	0.16 U	0.001 U	0.13 U	0.0011 U	0.011 B	0.16 U	0.001 U	0.14 U	0.001 U	0.13 U
Calcium	3490	13400	404 B	254 B	1310	563 B	5900	3530	662 B	446 B	1210	388 B	1290	625	7000	503	2640	2250	466	8040	4790	1010
Chromium	10.4	10.4	6.0	4.6	13.8	8.1	15.0	9.5	14.0	4.6	8.4	4.5	10.8	7.7	130	9.6	10.3	10.5	4.8	8.9	6.7	12.8
Cobalt	3.2 B	3.5 B	3.0 B	1.5 B	4.0 B	1.1 B	5.4 B	4.6 B	3.5 B	1.4 B	2.9 B	1.8 B	4.1 B	2.9	2.3 B	3.9	3.6	4.7 B	2.7	3.4 B	6.2	4.1 B
Copper	10.0	11.0	4.8	4.4 B	13.5	3.1 B	76.4	46.7	7.3	7.0	18.6	3.8 B	15.6	8.5	12.8	6.7	6.9	30.2	3.2 B	27.2	75.9	36.4
Iron	9390 *	10100 *	7540	6890	11400		12200 *	7790 *	10800	5650	8910	5780	10000 *	8430	11900 *	11700	9630	13300 *	5750	11200 *	17800	10200 *
Lead	20.5 *	24.4 *	5.2	6.5	24.5	4.0	43.8 *	24.6 *	8.0	4.3	27.3	4.5	49.4 *	7.4 B	95.2 *	4.8 B	14.4	35.4 *	5.1 B	28.4 *	13.6	51.8 *
Magnesium	2100	3060	647 B	477 B	1680	592 B	1680	1440	1170	475 B	1030	602 B	1370	868	3940	1100	1730	1850	484	2680	2350	1110
Manganese	204	222	199	105 *	189 *	65.9 *	202	128	206 *	96.5 *	180 *	127 *	148	153	155	191	166	173	155	153	207	157
Mercury	0.051	0.046	0.0074 B	0.043	0.17	0.0048 B	0.17	0.12	0.011	0.0041 U	0.046	0.0054 B	0.39	0.0054 U	0.13	0.0052 U	0.0050 U	0.047	0.0049 U	0.44	0.0055 U	0.10
Nickel	7.2	8.3	5.2 B	6.0 B	23.6	3.8 B	71.4	86.9	8.0	4.5 B	16.9	4.6 B	45.2	7.3	9.0	7.8	26.9	11.3	4.3	10.7	8.5	40.6
Potassium	494 B	554 B	343 B	302 B	569 B	177 B	743 B	498 B	571 B	187 B	403 B	345 B	517 B	416 ^	395 B	517 ^	521 ^	820 B	291 ^	735 B	833 ^	609 B
Selenium	0.87 U	0.86 U	0.91 U	0.93 UN	0.98 N	0.88 UN	0.94 U	1.2	0.91 UN	0.87 UN	0.95 UN	0.87 UN	0.96 U	0.096 B	0.80 U	0.071 B	0.53 B	1.0 U	0.42 B	0.84 U	0.17 B	0.96
Silver	0.18 U	0.18 U	0.18 U	0.19 U	0.17 U	0.18 U	0.19 U	0.19 U														

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).

Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).

U - Indicates analyte was not detected at or above the reporting limit.

J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.

B - Indicates result between instrument detection limit (IDL) and contract required detection limit (CRDL).

Table 8
Summary of Analytical Results From Area 3-8
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date									
	GLA8-01 10/26/01	GLA8-02 10/26/01	GLA8-2B 12/04/01	GLA8-2C 12/04/01	GLA8-2D 12/04/01	GLA8-2E 12/04/01	GLA8-03 10/26/01	GLA8-04A 10/26/01	GLA8-04B 10/26/01	GLA8-05 10/26/01
SVOC 8270 (ug/kg)										
2-Methylnaphthalene	350 U	11 J	11 J	330 U	24 J	9 J	13 J	340 U	340 U	340 U
Acenaphthene	350 U	44 J	11 J	330 U	350 U	9 J	330 U	340 U	340 U	340 U
Acenaphthylene	350 U	13 J	340 U	330 U	12 J	350 U	330 U	340 U	340 U	340 U
Anthracene	6 J	160 J	18 J	330 U	23 J	26 J	12 J	340 U	340 U	340 U
Benzo(a)anthracene	350 U	310 J	80 J	13 J	82 J	110 J	83 J	340 U	340 U	340 U
Benzo(a)pyrene	350 U	260 J	84 J	15 J	77 J	120 J	95 J	340 U	340 U	340 U
Benzo(b)fluoranthene	350 U	200 J	79 J	17 J	59 J	98 J	96 J	340 U	340 U	340 U
Benzo(g,h,i)perylene	350 U	220 J	64 J	17 J	69 J	110 J	75 J	340 U	340 U	340 U
Benzo(k)fluoranthene	350 U	240 J	94 J	15 J	75 J	130 J	97 J	340 U	340 U	340 U
Carbazole	350 U	78 J	340 U	330 U	350 U	11 J	330 U	340 U	340 U	340 U
Chrysene	350 U	310 J	110 J	23 J	96 J	140 J	120 J	340 U	340 U	340 U
Dibenzo(a,h)anthracene	350 U	340 U	23 J	330 U	23 J	44 J	330 U	340 U	340 U	340 U
Dibenzofuran	350 U	37 J	9 J	330 U	350 U	8 J	330 U	340 U	340 U	340 U
Fluoranthene	52 J	450	160 J	18 J	130 J	180 J	120 J	340 U	340 U	21 J
Fluorene	350 U	72 J	340 U	330 U	350 U	350 U	330 U	340 U	340 U	340 U
Indeno(1,2,3-cd)pyrene	350 U	190 J	58 J	14 J	58 J	100 J	66 J	340 U	340 U	340 U
Naphthalene	350 U	340 U	340 U	330 U	25 J	350 U	330 U	340 U	340 U	340 U
Phenanthrene	28 J	590	100 J	12 J	97 J	96 J	58 J	340 U	340 U	340 U
Pyrene	78 J	930	150 J	24 J	170 J	210 J	210 J	340 U	340 U	340 U
CLP Metals (mg/kg)										
Aluminum	3130	3140	4430	4680	3800	4100	2720	1400	1530	2270
Antimony	0.94 U/N	0.82 U/N	0.84 U	0.82 U	0.77 U	0.88 U	0.93 U/N	0.86 U/N	0.86 U/N	0.82 U/N
Arsenic	1.2 B	1.3 B	2.3	3.5	3.1	2.3	1.9 B	0.92 U	0.92 U	2.6
Barium	12.3 B	13.0 B	18.8 B	26.4 B	17.8 B	17.4 B	14.5 B	7.7 B	10.5 B	6.1 B
Beryllium	0.27 B	0.25 B	0.30 B	0.42 B	0.32 B	0.30 B	0.18 B	0.10 B	0.095 B	0.15 B
Cadmium	0.16 U	0.14 U	0.14 U	0.14 U	0.13 U	0.15 U	0.24 B	0.15 U	0.15 U	0.14 U
Calcium	494. B	370. B	1330	1040	438. B	1418	820. B	301. B	370. B	185. B
Chromium	10.8	8.2	9.6	7.5	7.8	11.6	6.5	5.2	4.7	13.0
Cobalt	1.8 B	2.0 B	2.2 B	2.4 B	2.1 B	2.4 B	1.9 B	1.5 B	1.6 B	1.2 B
Copper	5.3	7.3	8.1	10.7	6.0	7.5	7.6	3.7 B	3.7 B	3.9 B
Iron	7210 *	7270 *	6460	6770	6260	7210	5360 *	5150 *	5500 *	4720 *
Lead	10.8	15.5	48.0	32.8	17.8	63.4	28.1	2.0	2.5	7.3
Magnesium	457. B	710. B	896. B	922.	537. B	963.	749. B	501. B	637. B	293. B
Manganese	80.5	81.0	94.8	50.9	93.8	106.	99.3	72.9	79.7	46.4
Mercury	0.019	0.024	0.059	0.034	0.046	0.077	0.088	0.0066 B	0.014	0.026
Nickel	4.8 B	4.1 B	5.2 B	6.2 B	4.8 B	5.8 B	4.1 B	4.7 B	4.5 B	2.4 B
Potassium	209. B	173. B	335. B	283. B	281. B	326. B	262. B	260. B	372. B	130. B
Selenium	0.94 U	0.82 U	0.89 U	0.87 U	0.82 U	0.94 U	0.93 U	0.86 U	0.86 U	0.82 U
Silver	0.20 U	0.18 U	0.18 U	0.18 U	0.17 U	0.19 U	0.20 U	0.19 U	0.19 U	0.18 U
Sodium	35.6 B	20.2 B	37.5 B	48.6 B	26.3 B	49.6 B	20.3 B	15.5 B	17.1 B	19.1 B
Thallium	2.8 U	2.4 U	3.4 U	3.3 U	3.1 U	3.6 U	2.8 U	2.6 U	2.6 U	2.4 U
Vanadium	7.4 B	8.2 B	10.6	10.2	10.1	10.3	8.3 B	5.1 B	5.8 B	6.5 B
Zinc	16.0	18.9	79.9	29.6	33.0	81.2	97.7	14.9	15.2	11.2
PCB 8082 (ug/kg)										
Aroclor-1248	35 U	3.9 J	19 U	18 U	18 U	18 U	9.3 J	34 U	35 U	34 U
Aroclor-1260	35 U	5.3 J	19 U	18 U	18 U	18 U	4.2 J	34 U	35 U	34 U

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).

Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).

U - Indicates analyte was not detected at or above the reporting limit.

J - Indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.

B - Indicates result between Instrument detection limit (IDL) and contract required detection limit (CRDL).

E - Indicates that the concentration is estimated due to matrix interferences.

N - Spiked sample recovery not within control limits.

a - Concentration exceeds the instrument calibration range or is below the reporting limit.

^ - Instrument quality control not within control limits.

* - Batch quality control not within control limits.

NS- Not Sampled

ne- not analyzed

Table 9
Summary of Analytical Results From Drip Pits
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date															
	GLDPE-01	GLDPE-02	GLDPE-03	GLDPE-04	GLDPN-01	GLDPN-02	GLDPN-03	GLDPN-04	GLDPS-01	GLDPS-02	GLDPS-03	GLDPS-04	GLDPW-01	GLDPW-02	GLDPW-03	GLDPW-04
	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01	10/26/01
SVOC 8270 (ug/kg)																
2-Methylnaphthalene	380 U	340 U	350 U	390 U	41 J	340 U	360 U	330 U	340 U	6 J	350 U	11 J	350 U	360 U	350 U	340 U
Acenaphthene	380 U	340 U	350 U	390 U	8 J	340 U	360 U	330 U	340 U	350 U	350 U	380 U	350 U	360 U	350 U	340 U
Acenaphthylene	380 U	340 U	350 U	390 U	150 J	340 U	360 U	330 U	340 U	350 U	350 U	87 J	350 U	360 U	350 U	340 U
Anthracene	380 U	340 U	23 J	390 U	58 J	340 U	360 U	330 U	11 J	5 J	350 U	39 J	350 U	7 J	350 U	340 U
Benzo(a)anthracene	380 U	340 U	45 J	390 U	140 J	340 U	360 U	330 U	36 J	350 U	350 U	120 J	350 U	360 U	350 U	340 U
Benzo(a)pyrene	380 U	340 U	350 U	390 U	160 J	340 U	360 U	330 U	340 U	350 U	350 U	150 J	350 U	360 U	350 U	340 U
Benzo(b)fluoranthene	380 U	340 U	350 U	390 U	87 J	340 U	360 U	330 U	340 U	350 U	350 U	98 J	350 U	360 U	350 U	340 U
Benzo(g,h,i)perylene	380 U	340 U	350 U	390 U	320 J	340 U	360 U	330 U	340 U	350 U	350 U	170 J	350 U	360 U	350 U	340 U
Benzo(k)fluoranthene	380 U	340 U	350 U	390 U	130 J	340 U	360 U	330 U	340 U	350 U	350 U	130 J	350 U	360 U	350 U	340 U
Benzoic acid	1800 U	1700 U	1700 U	1900 U	1700 U	1600 U	1800 U	1600 U	21 J	25 J	1700 U	28 J	1700 U	29 J	1700 U	1700 U
Chrysene	380 U	340 U	56 J	390 U	170 J	340 U	360 U	330 U	52 J	350 U	350 U	140 J	350 U	360 U	350 U	340 U
Fluoranthene	380 U	340 U	68 J	390 U	100 J	26 J	360 U	330 U	47 J	19 J	350 U	120 J	350 U	25 J	350 U	12 J
Fluorene	380 U	340 U	350 U	390 U	390 U	340 U	360 U	330 U	340 U	350 U	350 U	10 J	350 U	360 U	350 U	340 U
Indeno(1,2,3-cd)pyrene	380 U	340 U	24 J	390 U	150 J	340 U	360 U	330 U	340 U	350 U	350 U	120 J	350 U	360 U	350 U	340 U
Isophorone	380 U	340 U	350 U	390 U	350 U	260 J	360 U	330 U	340 U	350 U	350 U	380 U	350 U	360 U	350 U	340 U
Naphthalene	380 U	340 U	350 U	390 U	31 J	340 U	360 U	330 U	340 U	29 J	350 U	11 J	350 U	360 U	350 U	340 U
Phenanthrene	380 U	340 U	50 J	390 U	250 J	340 U	360 U	330 U	32 J	16 J	350 U	62 J	350 U	16 J	350 U	340 U
Pyrene	380 U	340 U	160 J	390 U	370	42 J	360 U	330 U	100 J	45 J	350 U	380	350 U	61 J	350 U	24 J
CLP Metals (mg/kg)																
Aluminum	1020	1810	1700	748	2190	1400	2150	1370	2460	2810	2620	1960	2330	3520	2470	1610
Antimony	0.97 UN	0.88 UN	0.98 UN	1.0 UN	0.94 UN	0.93 UN	0.98 UN	0.86 UN	0.86 UN	0.99 UN	0.88 UN	0.92 UN	0.84 UN	0.92 UN	0.92 UN	0.94 UN
Arsenic	1.0 U	0.94 U	1.1 B	1.1 U	2.6	0.99 U	1.4 B	0.91 U	1.8 B	1.3 B	1.4 B	1.6 B	0.92 B	20.2	1.2 B	1.0 U
Barium	3.9 B	9.2 B	8.4 B	2.3 B	12.4 B	7.2 B	12.5 B	14.7 B	11.6 B	14.9 B	11.8 B	8.3 B	10.6 B	16.9 B	13.8 B	8.9 B
Beryllium	0.10 U	0.11 B	0.11 U	0.11 U	0.13 B	0.13 B	0.14 B	0.11 B	0.16 B	0.18 B	0.18 B	0.16 B	0.16 B	0.24 B	0.16 B	0.11 B
Cadmium	0.17 U	0.15 U	0.17 U	0.18 U	0.31 B	0.16 U	0.17 U	0.15 U	0.22 B	0.16 U	0.15 U	0.18 B	0.15 U	0.31 B	0.16 U	0.16 U
Calcium	927. B	345. B	1470	135. B	5850	511. B	3820	171. B	2510	1100	284. B	582. B	239. B	828. B	244. B	167. B
Chromium	3.1	4.1	18.6	2.0 B	105.	7.1	10.2	3.7	32.4	17.9	5.7	110.	4.4	45.4	7.5	4.5
Cobalt	0.46 B	2.0 B	1.6 B	0.27 U	1.6 B	1.4 B	1.4 B	0.82 B	1.6 B	3.0 B	2.3 B	1.3 B	1.4 B	2.4 B	3.2 B	1.7 B
Copper	2.0 B	4.4 B	5.2 B	2.0 B	8.7	3.2 B	4.3 B	2.2 B	6.9	5.9	4.5 B	6.7	17.4	9.0	4.0 B	2.9 B
Iron	1060 *	5040 *	3460 *	1100 *	10700 *	3970 *	4170 *	2820 *	5600 *	6440 *	7300 *	7930 *	4980 *	10600 *	6490	4140
Lead	2.8	5.1	12.4	2.0	54.0	6.6	14.1	2.2	15.9	18.9	4.7	28.9	6.7	35.9	8.7	3.9
Magnesium	36.4 B	440. B	393. B	20.2 B	3000	298. B	1050 B	210. B	505. B	483. B	381. B	392. B	284. B	685. B	578. B	281. B
Manganese	10.4	52.9	54.9	7.2	128.	71.6	71.4	110.	84.6	133.	81.6	66.9	78.9	124.	125.	111.
Mercury	0.0059 B	0.0061 B	0.011	0.0040 B	0.025	0.0087	0.016	0.0038 B	0.018	0.010	0.0036 U	0.017	0.0072	0.027	0.023	0.0066
Nickel	0.90 B	4.0 B	2.4 B	0.39 B	4.8 B	2.0 B	2.3 B	2.2 B	3.6 B	4.2 B	4.0 B	3.4 B	3.3 B	5.1 B	6.5 B	2.3 B
Potassium	137. B	246. B	205. B	105. B	230. B	143. B	204. B	116. B	224. B	325. B	409. B	186. B	221. B	270. B	232. B	179. B
Selenium	0.97 U	0.88 U	0.98 U	1.0 U	0.94 U	0.93 U	0.98 U	0.86 U	0.86 U	0.99 U	0.88 U	0.92 U	0.84 U	0.92 U	0.92 U	0.94 U
Silver	0.21 U	0.19 U	0.21 U	0.23 U	0.20 U	0.20 U	0.21 U	0.19 U	0.19 U	0.22 U	0.19 U	0.20 U	0.18 U	0.20 U	0.20 U	0.20 U
Sodium	13.8 B	12.7 B	17.4 B	11.1 B	30.2 B	12.2 B	24.7 B	11.8 B	21.2 B	20.5 B	12.3 B	11.0 B	15.0 B	21.1 B	19.3 B	13.6 B
Thallium	2.9 U	2.6 U	2.9 U	3.1 U	2.8 U	2.8 U	2.9 U	2.6 U	2.6 U	2.9 U	2.6 U	2.7 U	2.5 U	2.7 U	2.7 U	2.8 U
Vanadium	5.8 B	6.1 B	7.6 B	6.0 B	7.6 B	4.6 B	7.2 B	3.1 B	7.4 B	8.3 B	8.4 B	8.7 B	6.8 B	18.0	7.5 B	5.9 B
Zinc	6.5	8.1	15.8	4.2 B	40.8	12.4	13.3	5.4 B	24.6	26.2	12.0	31.3	10.4	51.4	11.7	11.3
PCB 8082 (ug/kg)																
Aroclor-1248	3.7 J	35. U	1100	39. U	390	74.	17. J	34. U	6.4 J	35. U	35. U	8.2 J	34. U	1.6 J	34. U	35. U
Aroclor-1254	38. U	35. U	350 U	39. U	70. U	56.	37. U	34. U	35. U	35. U	35. U	38. U	34. U	38. U	34. U	32 J
Aroclor-1260	38. U	35. U	120 J	39. U	110	34.	4.7 J	34. U	35. U	33 J	35. U	6.6 J	34. U	38. U	34. U	20 J

SVOC and PCB analytical results reported in micrograms per kilogram (ug/kg), or parts per billion (ppb).
Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).
U - indicates analyte was not detected at or above the reporting limit
J - indicates that the compound was analyzed for and determined to be present in the sample. However, the concentration indicated is an estimated value which is less than the specified minimum detection limit but greater than zero.
B - indicates result between instrument detection limit (IDL) and contract required detection limit (CROL)
E - indicates that the concentration is estimated due to matrix interferences.
N - Spiked sample recovery not within control limits
a - Concentration exceeds the instrument calibration range or is below the reporting limit.
^ - Instrument quality control not within control limits.
* - Batch quality control not within control limits.
NS- Not Sampled
na- not analyzed

APPENDIX D

EXCAVATION WORK PLAN

APPENDIX D

EXCAVATION WORK PLAN

D-1 Notification

At least 15 days prior to the start of any planned non-emergency activity that could encounter remaining contamination, the site owner or their representative will notify the NYSDEC and provide a Work Plan.

The Work Plan shall include the following:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's Health and Safety Plan (HASP), Community Air Monitoring Plan (CAMP) and other plans as specified in the EWP;
- Identification of disposal facilities for potential waste streams;
- Identification of sources of any anticipated backfill;
- Storm Water Pollution Prevention Plan (for projects that disturb more than 1 acre of the Site; and
- Odor and Dust Control Plan.

D-2 Excavation

At a minimum, the following requirements apply to excavations within the areas of residual soil contamination at the Site. Methods for compliance with these requirements shall be addressed in the Work Plan (see Section D-1):

1. A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material for the areas of residual soil contamination.
2. Excavated materials shall either be pre-characterized or be transported to a designated staging area such that they may be tested and properly managed.
3. Excavated materials must be staged on polyethylene sheeting to prevent contact with undisturbed soil.
4. Excavation shall be performed in a manner that will prevent spills and the potential for potentially contaminated soil to be mixed with uncontaminated material.

D-3 Material Storage

At a minimum, the following requirements apply to the storage of materials excavated from within the areas of residual soil contamination at the Site. Methods for compliance with these requirements shall be addressed in the Work Plan (see Section D-1):

1. Storage and handling of contaminated soil must comply with all applicable NYSDEC regulations.
2. Excavated material shall be placed in temporary storage or directly loaded for off-site disposal.
3. Inactive stockpiles shall be covered with appropriate tarps. Stockpiles shall be inspected periodically and damaged tarp covers shall be replaced.
4. Roll-off or equivalent units used to store contaminated material shall be covered.

D-4 Waste Transportation and Disposal

The following requirements apply to the transportation and disposal of material excavated from within the areas of residual soil contamination deemed to be unusable at the Site. Methods for compliance with these requirements shall be addressed in the Work Plan (see Section D-1):

1. Sampling, classification, manifesting, labeling, transporting and disposing of waste shall be performed in accordance with applicable federal, state, and local laws and regulations.
2. Materials removed from the site shall be transported directly to the disposal facility.

3. All transport of materials will be performed by licensed haulers in accordance with appropriate local, state and federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.
4. Loaded vehicles leaving the site shall be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).
5. Sampling frequency, analysis methods, and analytical laboratory should be in accordance with NYSDEC requirements prior to removal of any material from the site.
6. Vehicles shall be decontaminated prior to leaving the site.

D-5 Backfill

The following requirements apply to the fill material used to restore the Site after excavation has been completed. Methods for compliance with these requirements shall be addressed in the Work Plan (see Section D-1):

1. Fill shall be in accordance with the following criteria: areas to the west of Shore Road shall be backfilled with material that meets 6 NYCRR Part 375 restricted residential use criteria and areas to the east of Shore Road shall be backfilled with material that meets 6 NYCRR Part 375 industrial use criteria.
2. Fill material used to restore the site shall be similar in physical properties to the material removed. Fill used for building foundations or other construction is exempt from this requirement.

D-6 Fluids Management

All liquids to be removed from the site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, state and federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, but will be managed off-site.

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

D-7 Cover System Restoration

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the as-built drawings for the site (see Appendix B). If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this would constitute a modification of the cover element of the remedy and the upper surface of the 'Remaining Contamination.' A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the Site Management Plan.

D-8 Contingency Plan

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

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

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic reports prepared pursuant to Section 4.0 of the SMP.

D-9 Community Air Monitoring Plan

Based on the scope of the soil excavation, the contractor performing the excavation work shall be responsible for preparing a Community Air Monitoring Plan (CAMP) as part of the Work Plan (see Section D-1). Guidance can be obtained in Appendix 1A of DER-10, Generic Community Air Monitoring Plan.

APPENDIX E

INSTITUTIONAL AND ENGINEERING CONTROL INSPECTION FORM

INSTITUTIONAL AND ENGINEERING CONTROL EVALUATION FORM

I. Site Background Information

A. Site Name and Location:

Site name as it appears on the Environmental Easement: _____

Name of the current property owner(s): _____

Site Street Address: _____

Municipality (-ies): _____ County (-ies): _____

Blocks: _____

Lots: _____

Source information obtained from: _____

B. Person responsible for preparing Institutional and Engineering Control Evaluation Form:

Person's Name: _____

Person's Title: _____

Company Name: _____

Relationship to the Site (check as appropriate): Owner _____ Operator _____

Lessee _____ Person Who Conducted the Cleanup _____

Other (describe) _____

Street Address: _____

City: _____ State: _____

Telephone Number: (____) ____-____

Fax Number: (____) ____-____

E-mail Address: _____

C. Case Specific Information (Complete all that apply)

- Site Name: _____
- Site Registry Number: _____
- Date of final Remediation Report and/or Certificate of Completion: _____
- Name and program of assigned Project Manager at issuance of Environmental Easement:

D. Existing Site Conditions

- Describe the physical characteristics of the site (features, topography, drainage, vegetation, access, etc.). If necessary, attach additional sheets.

[illegible]

- Describe the current site operations/use. If necessary, attach additional sheets.

- Describe visual integrity/condition engineering control. If necessary, attach additional sheets.

II. Protectiveness Evaluation

A. Environmental Easement and Engineering Control Information (Complete below)

- Provide the following information for the recorded Environmental Easement:

Book Number: _____

Page Number: _____

Date the date the Environmental Easement was filed in the office of the county recording officer: _____

- Have any amendments and/or additional filings been recorded that may modify or supersede the Environmental Easement?

Yes ____ No ____

If “Yes”, provide an explanation. If necessary, attach additional sheets.

B. Evaluation of Institutional and Engineering Controls

1. Zoning or Land Use Changes (Complete below)

- a. Land use at the time the Environmental Easement was filed (check all that apply):

Non-Residential ____ Residential ____ Agricultural ____ Other ____

- b. Current land use (check all that apply):

Non-Residential ____ Residential ____ Agricultural ____ Other ____

- c. Has there been an actual or pending zoning or land-use change?

Yes ____ No ____

2. Inspections (Complete below)

Have periodic inspections of the site identified any excavation or other disturbance activities that have taken place within the restricted areas?

Yes ____ No ____

Date(s) of Disturbance: _____

Duration of Disturbance: Years ____ Months ____ Days ____

Date the NYSDEC was notified: _____

Date Work Plan Approved: _____

Description of the disturbance and methods to address the disturbance. If necessary, attach additional sheets.

Name of Contact Person Relative to the Disturbance:

Title: _____

Street Address: _____

City: _____ State: _____ Zip Code: _____

Telephone Number: _____

Email Address: _____

3. Changes to Laws and Regulations (Complete below)

- a. Are there any subsequently promulgated or modified environmental laws or regulations, which apply to the site?

Yes ____ No ____

- b. If "Yes", has the evaluation also determined that the Environmental Easement and engineering control, as applicable, meets the requirements of the new laws and regulations?

Yes ____ No ____

- c. The Environmental Easement and engineering control, as applicable that did not meet the requirements of the new laws and regulations has been addressed in the following manner to bring them into compliance. If necessary, attach additional sheets.

APPENDIX F

NYSDEC LETTER

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau E, 12th Floor
625 Broadway, Albany, New York 12233-7017
Phone: (518) 402-9814 • Fax: (518) 402-9819
Website: www.dec.ny.gov



Alexander B. Grannis
Commissioner

JAN 7 2010

Mr. Patrick J. Van Rossem
Project Manager
Site Investigation and Remediation Dept.
National Grid
175 East Old Country Road
Hicksville, New York 11801

Re: Glenwood Landing V00351-1 "Soil Management Plan"
and "Groundwater Model Report"

Dear Mr. Van Rossem:

We have reviewed the "Groundwater Model Report" that National Grid has submitted on October 5, 2009. After discussions, within the New York State Department of Environmental Conservation (NYSDEC) and with the New York State Department of Health (NYSDOH), based on the information that you have provided, we agree that the Glenwood Landing Site is not the source of the PERC contamination in groundwater found in Area 1A and 1B. National Grid will not be required to proceed with the groundwater treatment that was required in the ROD.

We have also reviewed the draft Site Management Plan that was submitted October 5, 2009. The following are our comments:

1. We have been told, that because of the date when you signed the order, you only need to get a deed restriction not an easement. Please make these adjustments to the text to reflect this change to the deed restriction.
2. Include the "Groundwater Model Report" onto the list of documents in the site history Section 1.2.2.
3. The last two (2) bullets in Section 1.4.4 should be changed to say "site derived contaminants" instead of just "contaminants."
4. In Section 2.2.1 you need to give the range of the depths you excavated down to in the various areas and indicate where contamination still exists below the excavated depths.
5. In Section 3.2 you show areas 1A, 1B, 2 and 3 as having cover systems while in Table 3-1 you only show 1B and 3. Please rectify this or explain better the reason for the difference.
6. In Section 3.2.1 it should be Table 3-1 not Table 2-1.

7. Currently our Office of General Council has come up with a new process for establishing deed restrictions. It will be a process that will be initiated by sending you a letter with a template for deed restrictions needing to be filled out by you. Because of the design of the language it will not address the vapor intrusion related restrictions directly but will through the Site Management Plan requirement. As a result, we must be sure we have adequately defined the need for construction restrictions and requirement for addressing potential vapor intrusion for any new building construction.

To close out the site investigation and remedial work, we will need:

- 1) approvable Site Management Plan;
- 2) an approved Final Engineering Report for the entire site (1A&B, 2 and 3) with the Site Management Plan included as an addendum (I have enclosed a CD with the current NYSDEC's template for the Final Engineering Report); and
- 3) the appropriate deed restrictions for the various parcels that make up the site.

Once we finalize the Site Management Plan, I will send you the new deed restriction language template that you will need to fill out for the various parcels that make up the site. You will then submit them to this office for further approval and processing. Once these are approved and in place, we will be able to provide you with a release.

If you should have any questions, please feel free to give me a call at (518) 402-9814 or e-mail me at vjwoodwa@gw.dec.state.ny.us.

Sincerely,



Valerie Woodward
Senior Engineering Geologist
Remedial Section C, Remedial Bureau E
Division of Environmental Remediation

Enclosure

cc: A. J. White
S. Shearer, NYSDOH