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

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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.

2

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. Verfication 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		
Area 1A- 5- Hot Spots	25' x 25' x 1' (3) 35' x 35' x 1' (2)	220 Tons
Area-2		
Area 2-2- Former Boiler Wash Disposal Area	145' x 90' x 8'	5,413 Tons
Area 2-3- Lab Septic	34' x 20' x 8'	283 Tons
Area 2-4- 23 kV Substation	56' x 12' x 2' 20' x 10' x 2' 20' x 100' x 2'	354 Tons
Area 2- 6- 4 kV Substation	35' x 25' x 2'	91 Tons
Area 2-7- Construction Debris Piles	75' x 75' x 3'	900 Tons
Area-3		
Area 3-1- Former Wastewater/ Condensate Area	100' x 90' x 8'	3,600 Tons
Area 3-8- Compressor Building/Gas Holder	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 implmented.

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 personel 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 coarse 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 coarse 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 coarse 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 coarse 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 coarse 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 coarse 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 coarse 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 coarse 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 coarse 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 occurance 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/m^3 were above their respective PELs of 0.27 and 0.23 mg/m^3. 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/m^3, 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/cm^2 PCB, the pipe was deemed clean. If the results yielded greater than 100 mg/cm^2 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 are will be used for industrial purposes. Accordingly, it has been concluded that in this area, no further action is required considering the current industria luse.

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.

7

Certification

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

I, MATTHEW WAWROWSKI, 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.

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 8270 (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	390 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

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 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	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 UB	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
Dibenzo(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	320 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	530	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	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	0.89 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	2.8	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	0.001 U	0.18 B	0.086 B	0.47 B	0.75 B	0.098 B	0.17 B	0.24 B	0.46 B	0.18 B	0.17 B	0.094 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	254. 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	2.6 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	17.6	19.5	10.	29.6	2.2 B	4.1 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	7820	4180	4060	5950	6210	4380	8160	5200	8060	4430	2660	6860	5900	4050	4040	3230	6170	10200	9670	12800	6810 H^	4840 H^
Lead	4.1	2.2 B	9.0	6.1 B	7.0	30.4	1.7	11.5	22.3	17.0	2.3	7.2 ^	11.9 ^	124.	2.0	1.1	3.1	2.6	2.6 B	2.5 B	1.3 B	22.0	24.2	74.8	90.3	10 H^	5.7 BH^
Magnesium	156. B	152	156. B	341	944. B	966.	401. B	386. B	628. B	366. B	324. B	608	484	949.	348. B	242. B	261. B	188. B	189	137	258	513. B	717	1010	1190	488 H	370 H
Manganese	19.1 *	5.6	28.0 *	14.8	162.	119.	111. *	60.9 *	128.	66.9	155.	124	112	99.6	110.	54.3 *	71.2 *	42.9 *	39.5	25.0	72.1	125. *	191	244. *	172	98.3 H^	100 H^
Mercury	0.053	0.014 B	0.039	0.0055 U	0.0045 U	0.24	0.0036 U	0.0055 B	0.013	0.0092 U	0.0034 U	0.0045 U	0.0043 U	0.095	0.0032 U	0.0033 U	0.0025 U	0.0028 U	0.0047 B	0.0047 U	0.0052 U	0.0045 B	0.045 B	0.12	0.0058 U	0.011 B	0.0053 B
Nickel	6.2 B	6.7	20.3	10.7	9.7	255.	2.2 B	7.1 B	5.4 B	142.	2.5 B	7.4	4.6	64.1	4.9 B	2.9 B	11.7	6.3 B	7.8	6.0	1.6 B	5.6 B	7.2	13.0	10.9	11.6	5.2
Potassium	79.1 B	104 B^	89.2 B	239 ^	375. B	390. B	270. B	199. B	457. B	210. B	179. B	328 ^	275 ^	456. B	229. B	164. B	155. B	118. B	169 B^	97.5 B^	171 ^	328. B	324 ^	417. B	463 ^	245 H^	246 H^
Selenium	1.0 UN	0.68 B	0.82 UN	0.44 B	0.95 U	0.90	0.76 UN	0.93 UN	0.85 U	1.2	0.78 U	0.17 B	0.12 B	1.0	0.90 U	0.93 UN	0.94 UN	0.92 UN	0.36 B	0.14 B	0.29 B	0.91 UN	0.4 B	0.94 UN	0.39 B	1.2 UH^	1.4 UH^
Silver	0.21 U	0.14 B	0.17 U	0.037 B	0.19 U	0.26 B	0.15 U	0.19 U	0.17 U	0.18 U	0.16 U	0.014 B	0.026 B	0.17 U	0.18 U	0.19 U	0.19 U	0.19 U	0.072 B	0.038 B	0.035 B	0.19 U	0.00092 U	0.19 U	0.079 B	0.20 UH^	0.23 UH^
Sodium	11.0 B	10.4 B	26.6 B	12.5 B	24.7 B	75.9 B	16.2 B	18.5 B	17.9 B	59.7 B	12.2 B	25.4 B	15.7 B	43.8 B	13.1 B	8.8 B	11.4 B	12.0 B	10.5 B	22.8 B	12.2 B	22.7 B	24.4 B	32.2 B	38.2 B	15.1 BH^	22.1 BH^
Thallium	4.0 U	2.3 U	3.1 U	2.0 U	3.6 U	3.3 U	2.9 U	3.5 U	3.2 U	3.3 U	3.0 U	1.7 U	1.9 U	3.2 U	2.4 U	3.5 U	3.6 U	3.5 U	2.0 U	2.1 U	1.6 U	3.5 U	1.9 U	3.6 U	1.9 U	1.7 U	2 U
Vanadium	92.5	48.2	178.	120	208.	681.	11.9	61.2	.	463.	55.6	13.1	68.0	348.	73.6	12.1	428.	175.	274	298	41.2	7.3 B	10.8	31.0	33.1	15.8 H	17.5 H
Zinc	4.9 B	4.9 B	6.5	9.4 B	13.8	35.6	6.6	9.8	14.5	12.8	7.3	10.6 B	9.3 B	34.6	6.2	5.2 B	8.5	7.4	7.4 B	4.3 B	4.7 B	23.7	23.3	71.0	85.1	12.2 BH^	13.2 BH^
PCB 8082 (ug/kg)																											
Aroclor-1242	3900 U	12000	3800 U	22 U	34. U	34. U	33. U	35. U	34. U	68. U	34. U	18 U	18 U	33. U	34. U	34. U	670 U	3400 U	17 U	18 U	18 U	34. U	17 U	8.8 J	20 U	NS	NS
Aroclor-1248	7100	1000 U	10000	22 U	230	180	3.1 J	7.1 J	34. U	380	34. U	18 U	18 U	67.	24. J	23. J	1100	18000	340	470	18 U	34. U	17 U	37. U	20 U	NS	NS
Aroclor-1254	3900 U	1000 U	3800 U	320	99.	230	33. U	7.0 J	34. U	610	34. U	18 U	18 U	96.	21. J	34. U	670 U	3400 U	17 U	18 U	18 U	34. U	17 U	21. J	20 U	NS	NS
Aroclor-1260	850 J	1000 U	1000 J	22 U	68.	170	1.2 J	6.9 J	3.3 J	280	34. U	18 U	18 U	96.	12. J	2.2 J	. 100 J	1800 J	17 U	18 U	18 U	34. U	17 U	32. J	82	NS	NS

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 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-Methylnaphthalenene	170 U	33 U	33 U	29 U	28 U	29 U	29 U	29 U	29 U	29 U	29 Ua	33 U	29 Ua
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 Ua	22 U	22 U	23 Ua	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	13.3	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 (µg/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	6 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	360 U	98 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	360 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	360 U	110 U	12 Ua	38 Ja	1100 Ja	330 U	52 J	2400	800 J	40 J	410 U	350 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	360 U	150 U	37 UaB	47 JaB	360 JaB	57 J	17 J	1700 U	1800 U	59 J	410 U	350 U	29 J	100 J	340 U
Butyl benzyl phthalate	330 U	180 U	13 U	180 U	13 U	38 Ja	330 U	350 U	13000 U	360 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
Dibenzo(a,h)anthracene	330 U	130 U	18 U	130 U	18 U	70 Ja	330 U	350 U	4300 J	360 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	360 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
Di-n-butyl phthalate	330 U	120 U	14 U	120 U	14 U	16 Ua	330 U	350 U	13000 U	360 U	120 U	14 U	15 U	59 Ua	330 U	91 BJ	1700 U	1800 U	13 BJ	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	8800	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	360 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	360 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	260 J	410 U	350 U	160 J	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	1.5	0.99 B	1.3	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	0.086	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	0.19 B	0.15 B	0.18 B	0.15 B	0.17 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	171 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	3.7	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	9860	5100	4830	6210 H	4370	4830	4840	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	470	479	1060	573. B	576 B	591	3690	413 B	558 BE	610 E	506 BE	449 BE
Manganese	114.	145	91.1	75.2	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	0.013 U	0.021 B	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	90.8	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	213	335. B	215 B	274 B	780	248 B	334 B	322 B	269 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 ^	0.00084 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	0.48 U	0.42 U	0.72 B	0.41 U
Vanadium	8.0 B	13.7	3.0	56.8	6.1	98.0	11.4	4.9 B	23.1	7.8 H	6.2	9.2	8.5	307	7.0 B	12.2	9.1	20.6	48.4	114	9.6	7.2	56.1
Zinc	48.3	17.0	11.7	274	12.2	341	221.	14.4	44.4	32.1 H	46.7	33.1	42.9	328	19.8	69.2	75.5	58	717	186 *	32.3 *	125 *	14.1 *
PCB 8082 (ug/kg)																							
Aroclor-1248	17 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	18 U	18 U	18 U	18 U	72	18 U	85 U	85 U	85 U	85 U	98 U	84 U	83 U	82 U
Aroclor-1254	17 U	18 U	18 U	33	18 U	42	18 U	18 U	17 U	18 U	18 U	18 U	18 U	150	18 U	85 U	85 U	85 U	85 U	98 U	84 U	83 U	82 U
Aroclor-1260	17 U	18 U	18 U	21	18 U	31	18 U	18 U	52	68	18 U	18 U	18 U	100	18 U	85 U	85 U	85 U	85 U	98 U	84 U	83 U	82 U

SVOC and PCB analytical results reported in micrograms per kilogram (µg/kg), or parts per billion (ppb).

Metals analytical results reported in milligrams per kilogram (mg/kg), or parts per million (ppm).

U - Indicates anelyte 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

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
Dibenzo(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	1.8 H	1.0 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

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 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	20 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	360 U	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	20 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^	889 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	0.011	0.049	0.016 B	0.40 B	0.025 B	0.038 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 (µg/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
na- 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 (µg/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

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	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	84 J
Dibenzo(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	0.39 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	9830	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	0.0056 B	0.39	0.0054 U	0.13	0.0052 U	0.0050 U	0.047	0.0049 U	0.64	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	0.19 U	0.18 U	0.19 U	0.18 U	0.20 U	0.00091 U	0.16 U	0.001 U	0.072 B	0.21 U	0.023 B	0.17 U	0.00091 U	0.16 U
Sodium	74.1 B	94.2 B	30.7 B	20.0 B	44.4 B	15.7 B	70.9 B	61.9 B	36.7 B	19.0 B	33.8 B	19.3 B	41.7 B	29.3 B	36.1 B	30.2 B	37.5 B	63.8 B	22.0 B	196. B	527	47.6 B
Thallium	3.3 U	3.3 U	3.4 U	3.5 U	3.2 U	3.3 U	3.5 U	3.5 U	3.5 U	3.3 U	3.6 U	3.3 U	3.6 U	0.0073 U	3.0 U	0.0081 U	0.0092 U	3.8 U	0.0073 U	3.2 U	0.0073 U	3.0 U
Vanadium	14.6	15.6	8.6 B	11.2	70.0	5.8 B	373.	202.	13.9	37.0	60.4	7.4 B	235.	166	18.0	11.8	32.8	35.5	5.8	35.9	36.7	139.
Zinc	33.1	39.4	11.0	13.7	44.9	8.0	55.7	31.1	18.9	17.1	37.2	14.0	56.3	66.7	69.3	14.2 B	21.3	44.6	11.8 B	48.1	36.1	54.2
PCB 8082 (ug/kg)																						
Aroclor-1242	34. U	34. U	35. U	34. U	34. U	33. U	36. U	34. U	35. U	34. U	35. U	33. U	35. U	18 U	43.	18 U	18 U	35. U	18 U	35. U	19 U	34. U
Aroclor-1248	34. U	34. U	35. U	34. U	34. U	33. U	35. J	42.	35. U	34. U	15. J	33. U	35. U	18 U	34. U	18 U	18 U	35. U	18 U	35. U	19 U	34. U
Aroclor-1254	34. U	34. U	35. U	34. U	34. U	33. U	69.	50.	35. U	34. U	35.	33. U	19. J	18 U	46.	18 U	18 U	35. U	18 U	35. U	19 U	34. U
Aroclor-1260	34. U	34. U	35. U	34. U	13. J	33. U	41.	29. J	4.7 J	34. U	53.	33. U	17. J	18 U	30. J	18 U	18 U	12. J	18 U	11. J	19 U	30. 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.

^ - Instrument quality control not within control limits.

* - Batch quality control not within control limits.

NS- Not Sampled

na- not analyzed

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 UN	0.82 UN	0.84 U	0.82 U	0.77 U	0.88 U	0.93 UN	0.86 UN	0.86 UN	0.82 UN
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	1410	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 (µg/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

na- 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 10/26/01	GLDPE-02 10/26/01	GLDPE-03 10/26/01	GLDPE-04 10/26/01	GLDPN-01 10/26/01	GLDPN-02 10/26/01	GLDPN-03 10/26/01	GLDPN-04 10/26/01	GLDPS-01 10/26/01	GLDPS-02 10/26/01	GLDPS-03 10/26/01	GLDPS-04 10/26/01	GLDPW-01 10/26/01	GLDPW-02 10/26/01	GLDPW-03 10/26/01	GLDPW-04 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	350 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	0.17 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	1.8 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 *	10800 *	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	118. 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	3.2 J
Aroclor-1260	38. U	35. U	120 J	39. U	110	34.	4.7 J	34. U	35. U	3.3 J	35. U	6.6 J	34. U	38. U	34. U	2.0 J

SVOC and PCB analytical results reported in micrograms per kilogram (µg/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

na- not analyzed

Table 10
Summary of Analytical Results From the Manholes and Outfall Pipes
KeySpan Energy - Glenwood Landing
Queens, NY

Analyte	Sample Collection Designation & Collection Date						
	M.H.#1 11/05/01	M.H.#2 11/05/01	M.H.#3 11/05/01	M.H.#4 11/05/01	OF#1 11/06/01	OF#2 11/06/01	OF#3 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
Dibenzo(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	6.6	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 (µg/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 - 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 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	<0.05	<0.04	ND	5.0	<0.01	-	30.0
	Personal-02	G. Sellers/247-25-0216	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	Shore Road	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Blank-48	-	<0.05 mg	-	-	-	<0.01 mg	-	-
9/26/2001	Ambient-49	North Perimeter	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Ambient-50	Shore Road	<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	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Ambient-53	Shore Road	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	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	Ambient-56	Shore Road	<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	<0.06	<0.05	100.0%	0.1	0.013	0.011	0.294
	Ambient-59	Shore Road	<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	<0.06	<0.05	100.0%	0.1	0.016	0.014	0.294
	Ambient-62	Shore Road	<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	0.18	0.158	9.8%	0.85	0.018	0.016	2.542
	Ambient-65	Shore Road	<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	<0.06	<0.05	ND	5.0	<0.01	<0.01	30.0
	10/11-02	Shore Road	<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	0.075	0.066	-	15.0	-	-	-
	Ambient-68	Shore Road	<0.06	<0.06	<0.05	15.0	-	-	-
	Blank-69	-	<0.05 mg	-	-	-	-	-	-
10/30/2001	Ambient-70	North Perimeter	0.091	0.072	-	15.0	-	-	-
	Ambient-71	Shore Road	<0.06	<0.05	-	15.0	-	-	-
	Blank-72	-	<0.05 mg	-	-	-	-	-	-
10/31/2002	Ambient-73	North Perimeter	<0.07	<0.05	-	15.0	-	-	-
	Ambient-74	Shore Road	<0.19	0.143	-	15.0	-	-	-
	Blank-75	-	<0.05 mg	-	-	-	-	-	-
11/1/2001	Ambient-76	North Perimeter	<0.13	<0.126	-	15.0	-	-	-
	Ambient-77	Shore Road	<0.05	<0.048	-	15.0	-	-	-
	Blank-78	-	<0.05 mg	-	-	-	-	-	-
11/2/2001	Ambient-79	North Perimeter	<0.06	<0.05	-	15.0	-	-	-
	Ambient-80	Shore Road	0.2	0.18	-	15.0	-	-	-
	Blank-81	-	<0.05 mg	-	-	-	-	-	-
11/5/2001	Ambient-82	North Perimeter	<0.06	<0.05	100.0%	0.1	0.024	0.021	0.294
	Ambient-83	Shore Road	<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	0.12	0.11	39.1%	0.24	0.046	0.04	0.73
	Ambient-86	Shore Road	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	<0.06	<0.05	100.0%	0.1	0.015	0.013	0.294
	Ambient-89	SW Shore Road	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	0.17	0.15	19.0%	0.48	0.032	0.028	1.429
	Ambient-92	SW Shore Road	<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	0.061	0.053	ND	5.0	<0.01	<0.01	15.0
	Ambient-95	SW Shore Road	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	<0.06	<0.05	100.0%	0.1	0.028	0.025	0.294
	Ambient-98	SW Shore Road	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	NW Shore Road	<0.06	<0.05	100.0%	0.1	0.012	0.011	0.294
	Ambient-101	SW Shore Road	<0.06	<0.05	ND	5.0	<0.01	<0.01	15.0
	Blank-102	-	<0.05 mg	-	-	-	<0.01 mg	-	-
11/21/2001	Ambient-103	NW Shore Road	<0.08	<0.05	100.0%	0.1	0.025	0.016	0.294
	Ambient-104	SW Shore Road	0.15	0.09	37.2%	0.26	0.056	0.035	0.766
	Blank-105	-	<0.05 mg	-	-	-	<0.01 mg	-	-
11/26/2001	Ambient-106	NW Shore Road	<0.06	<0.05	ND	5.0	<0.01	<0.01	15.0
	Ambient-107	SW Shore Road	0.17	0.15	45.6%	0.21	0.079	0.069	0.63
	Blank-108	-	<0.05 mg	-	-	-	<0.01 mg	-	-
11/27/2001	Ambient-109	NW Shore Road	<0.10	<0.09	100.0%	0.1	0.07	0.061	0.294
	Ambient-110	SW Shore Road	0.18	0.16	34.8%	0.27	0.061	0.053	0.815
	Blank-111	-	<0.05 mg	-	-	-	<0.01 mg	-	-
11/28/2001	Ambient-112	NW Shore Road	0.14	0.12	27.5%	0.34	0.039	0.034	1.017
	Ambient-113	SW Shore Road	<0.06	<0.05	100.0%	0.1	0.018	0.016	0.294
	Blank-114	-	<0.05 mg	-	-	-	<0.01 mg	-	-
11/29/2001	Ambient-115	NW Shore Road	0.018	0.11	9.8%	0.85	0.011	0.016	2.542
	Ambient-116	SW Shore Road	<0.08	<0.05	ND	5.0	<0.02	<0.01	15.0
	Blank-117	-	<0.05 mg	-	-	-	<0.01 mg	-	-
11/30/2001	Ambient-118	NW Shore Road	0.13	0.11	35.4%	0.27	0.048	0.042	0.802
	Ambient-119	SW Shore Road	<0.06	<0.05	100.0%	0.1	0.014	0.012	0.294
	Blank-120	-	<0.05 mg	-	-	-	<0.01 mg	-	-
12/1/2001	Ambient-121	NW Shore Road	0.08	0.07	15.0%	0.59	0.012	0.011	1.765
	Ambient-122	SW Shore Road	<0.06	<0.05	ND	5.0	<0.01	<0.01	15.0
	Blank-123	-	<0.05 mg	-	-	-	<0.01 mg	-	-
12/3/2001	Ambient-124	NW Shore Road	0.26	0.16	35.5%	0.27	0.093	0.058	0.8
	Ambient-125	SW Shore Road	0.11	0.07	45.0%	0.21	0.049	0.031	0.638
	Blank-126	-	<0.05 mg	-	-	-	<0.01 mg	-	-
12/4/2001	Ambient-127	NW Shore Road	0.32	0.2	34.5%	0.27	0.11	0.069	0.822
	Ambient-128	SW Shore Road	0.25	0.16	40.7%	0.23	0.1	0.063	0.703
	Blank-129	-	<0.05 mg	-	-		<0.01 mg	-	-

Results in mg/m^3

* PEL for silica depends upon % silica in total dust sample as determined by IH Laboratory; PEL for silica quartz = 30 $mg/m^3/(\%SiO_2 + 2)$

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	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Concentration (ug/m^3)	<0.5	<0.5	NA	<0.2	<0.2	NA	<0.2	<0.2	NA	<0.2	<0.2	NA	<0.3	<0.3	NA
Vanadium															
Total ug	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
Concentration (mg/m^3)	<0.002	<0.002	NA	<0.0008	<0.0008	NA	<0.0008	<0.0008	NA	<0.0008	<0.0008	NA	<0.0009	<0.0009	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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Back ug	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total ug	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Concentration (mg/m^3)	<0.001	<0.001	NA	<0.001	<0.001	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
Date	**Total Trucks Received**	**Total Tons Received**		
10/26/2001	13	421.89		
Sub total week ending 10/2701	**421.89/tons**	**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
Date	**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	38.04
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		
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		

Date	**Ticket**	**Truck**	**Manifest**	**Net Tons**
11/14/2001	68373	724	GW0079	31.72
11/14/2001	68397	720	GW166	30.19
11/14/2001	68398	730	GW165	27.84
11/14/2001	68401	723	GW167	29.1
11/14/2001	68402	727	GW164	28.88
11/14/2001	68405	718	GW168	28.71
11/14/2001	68417	112	GW175	26.14
11/14/2001	68418	15	GW172	29.37
11/14/2001	68419	17	GW170	25.42
11/14/2001	68420	18	GW173	28.7
11/14/2001	68421	141	GW177	28.85
11/14/2001	68422	10	GW174	26.48
11/14/2001	68423	103	GW176	28.21
11/14/2001	68425	102	GW178	29.55
11/14/2001	68426	16	GW169	29.29
11/14/2001	68428	8	GW179	28.96
11/14/2001	68429	#12	GW180	28.82
11/14/2001	68430	109	GW171	30.74
Date	**Total Trucks Received**	**Total Tons Received**		
11/14/01	18	516.97		
Date	**Ticket**	**Truck**	**Manifest**	**Net Tons**
11/15/2001	68465	110	GW182	22.03
11/15/2001	68466	109	GW183	21.9
11/15/2001	68467	106	GW181	27.1
11/15/2001	68468	112	GW185	21.89
11/15/2001	68469	105	GW184	22.84
11/15/2001	68472	723	GW187	30.35
11/15/2001	68476	727	GW186	20.92
11/15/2001	68479	111	GW191	22.82
11/15/2001	68480	718	GW188	22.06
11/15/2001	68484	141	GW190	23.97
11/15/2001	68485	102	GW192	22.08
11/15/2001	68486	103	GW193	20.86
Date	**Total Trucks Received**	**Total Tons Received**		
11/15/01	12	278.82		
Date	**Ticket**	**Truck**	**Manifest**	**Net Tons**
11/16/2001	68501	104	GW189	22.6
11/16/2001	68529	140	GW144	32.35
11/16/2001	68534	112	GW196	27.98
11/16/2001	68535	105	GW195	30.93

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	**Total Trucks Received**	**Total Tons Received**		
11/20/01	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
				760.86
Date	**Total Trucks Received**	**Total Tons Received**		
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**	**Net Tons**
12/4/2001		61	GW303	30.12
12/4/2001		51	GW304	27.53
12/4/2001		53	GW305	29.46
12/4/2001		52	GW306	30.87
12/4/2001		63	GW307	28.5
12/4/2001		55	GW308	28.55
12/4/2001		62	GW309	32.36
				207.39
Date	**Total Trucks Received**	**Total Tons Received**		
12/4/01	7	207.39		
Date	**Ticket**	**Truck**	**Manifest**	**Net Tons**
12/5/2001		652	GW310	12.53
Date	**Total Trucks Received**	**Total Tons Received**		
12/5/01	1	12.53		
Date	**Ticket**	**Truck**	**Manifest**	**Net Tons**
12/7/2001		652	GW311	12.69
Date	**Total Trucks Received**	**Total Tons Received**		
12/7/01	1	12.69		
Date	**Ticket**	**Truck**	**Manifest**	**Net Tons**
12/12/2001		60	GW312	28.94
12/12/2001		54	GW313	32.45
12/12/2001		61	GW314	31.96
12/12/2001		51	GW315	28.91
12/12/2001		62	GW316	27.89
12/12/2001		64	GW317	28.89
12/12/2001		56	GW318	32.2
12/12/2001		65	GW319	28.65
12/12/2001		63	GW320	29.95
12/12/2001		53	GW321	34.78
12/12/2001		52	GW322	30.14
12/12/2001		58	GW323	32.32
12/12/2001		59	GW324	32.28
				399.36
Date	**Total Trucks Received**	**Total Tons Received**		
12/12/01	13	399.36		
Date	**Ticket**	**Truck**	**Manifest**	**Net Tons**
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**		

DATE	TIME LOADED	TICKET #	TRUCK	MANIFEST	NET TONS BEFORE 11AM	DEMURRAGE	ROLLOFF	NET TONS AFTER 11AM	CDR #
1/29/2003		65537	705		36.71				
1/29/2003		65538	706		34.3				
1/29/2003		67337	710		33.13				
1/29/2003		67338	711		28.88				
1/29/2003		67339	707		30.92				
1/29/2003		67340	730		28.27				
1/29/2003		67341	722		36.81				
1/29/2003		67342	713		34.92				
				TOTALS	263.12	0		0	

TOTAL TRUCKS RECEIVED:

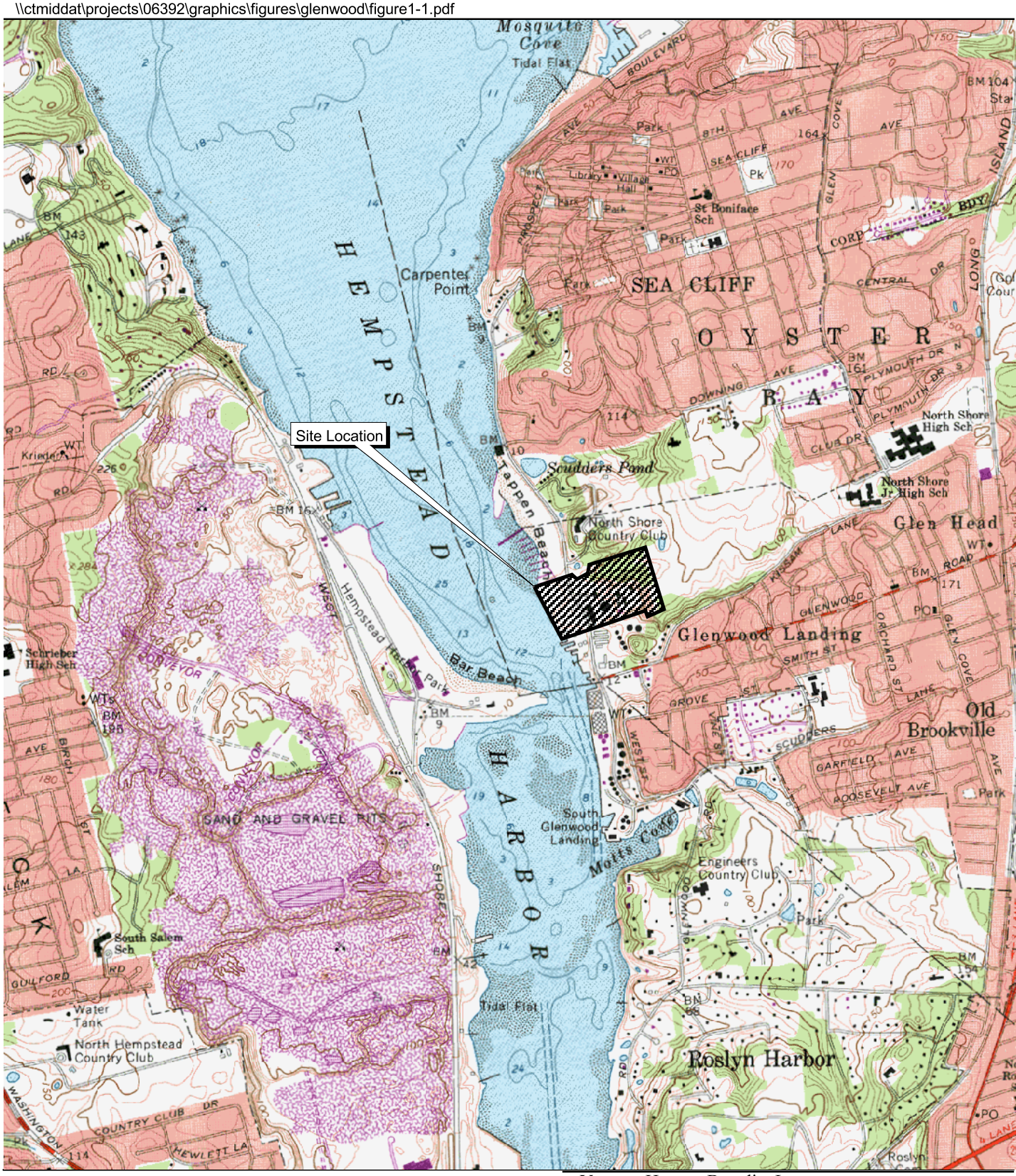
TOTAL TONS FOR DAY (Glenwood Substation)

BEFORE 11AM	263.12
AFTER 11 AM	0
TOTAL TONS 1/29/2003	263.12

JOB TOTAL AT PROJECT COMPLETION: 10,880.62 Tons

Figures

\\ctmiddat\projects\06392\graphics\figures\glenwood\figure1-1.pdf



BASE MAP SOURCE:

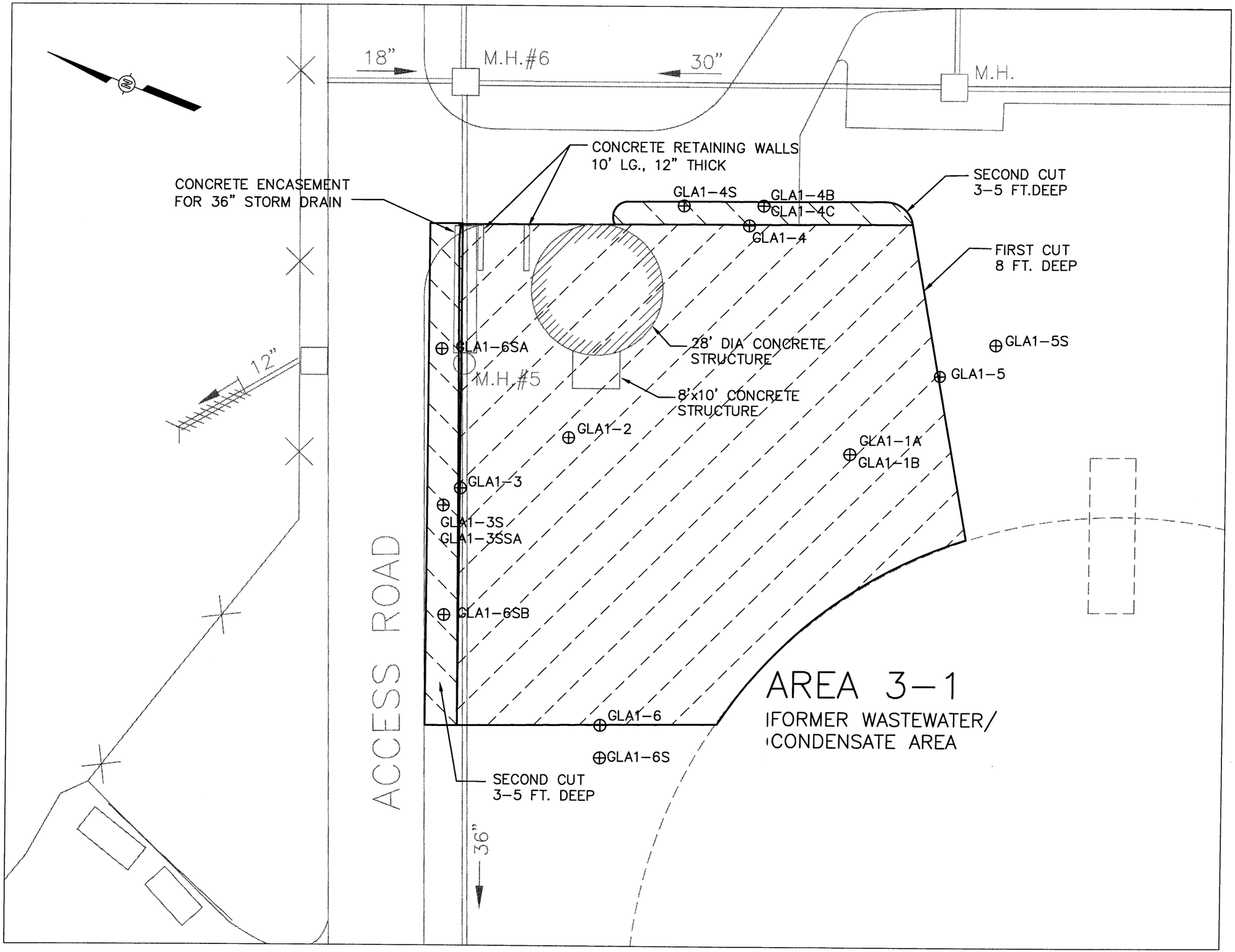
U.S.G.S. QUAD MAP
SEA CLIFF, N.Y. QUADRANGLE - 1979

N

0 0.25 0.5 0.75 1 Miles

Vanasse Hangen Brustlin, Inc.

Figure 1-1
Site Location Map
Glenwood Landing Gas Plant Site
Glenwood Landing, New York



CURRENT DATE: 04/01/02 by RCA
CAD FILE NAME: excava_limits.dwg

VHB
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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

Revision	Date	Appvd.
Designed by DKH	Drawn by RCA	Checked by DKH
CAD checked by RCA		Approved by MTW
Scale 1"=20'	Date November, 2002	

Project Title

Glenwood Landing
Gas Plant Site
Glenwood Landing, New York

Issued for

KEYSPAN ENERGY

Drawing Title

Sample Location Plan
Area 3-1
Former Wastewater/
Condensate Area

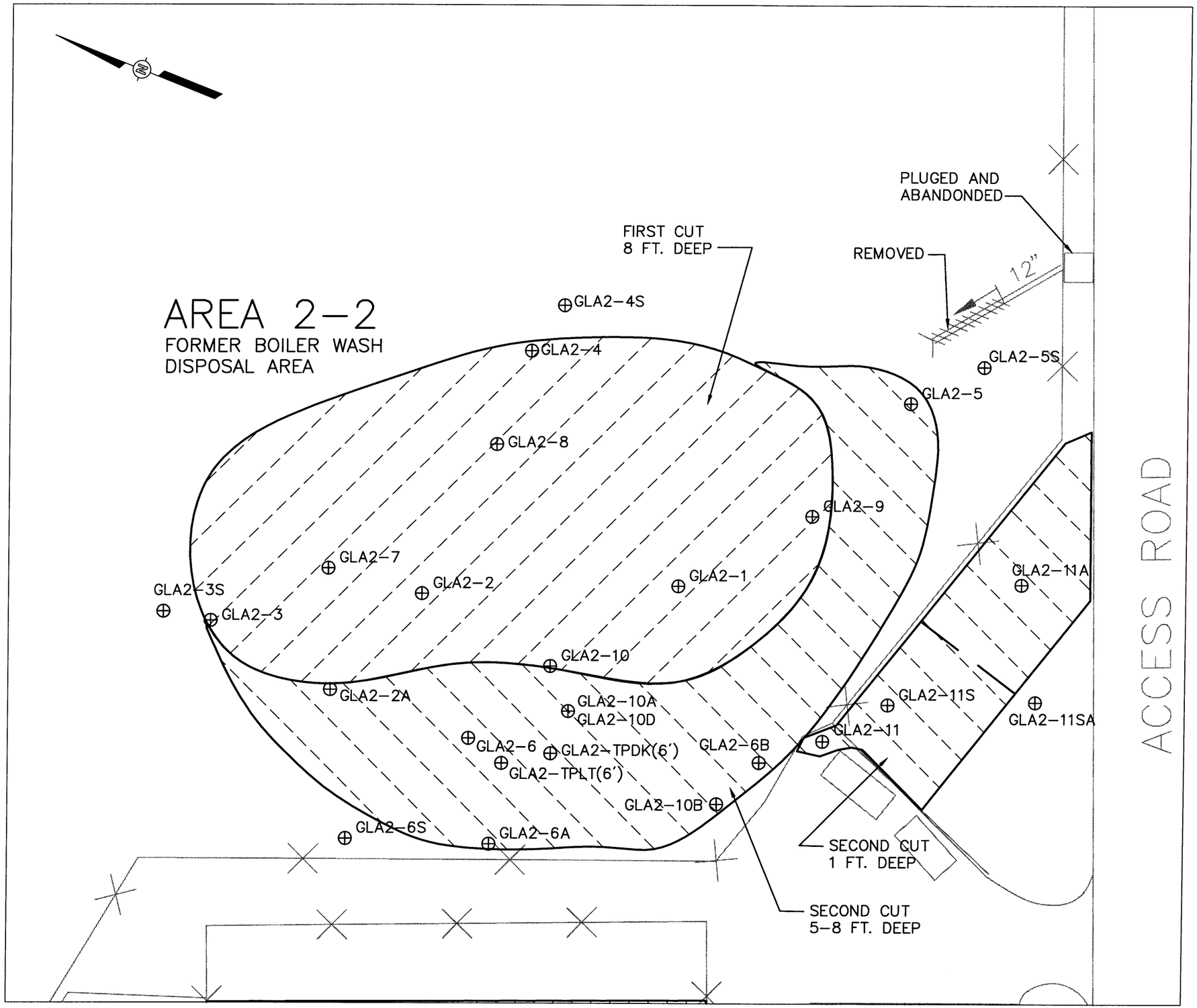
Drawing Number

Figure 2-1

Sheet of

Project Number
06392-26

excava_limits



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LEGEND

⊕ SAMPLE LOCATIONS

EXCAVATION LIMITS

FENCE LINE

EXCAVATION AREAS

FIRST CUT

SECOND CUT

Revision	Date	Appvd.

Designed by DKH	Drawn by RCA	Checked by DKH	
CAD checked by RCA		Approved by MJW	
Scale 1"=20'		Date November, 2002	

Project Title

Glenwood Landing
Gas Plant Site
Glenwood Landing, New York

Issued for

KEYSPAN ENERGY

Drawing Title

Sample Location Plan
Area 2-2
Former Boiler Wash
Disposal Area

Drawing Number

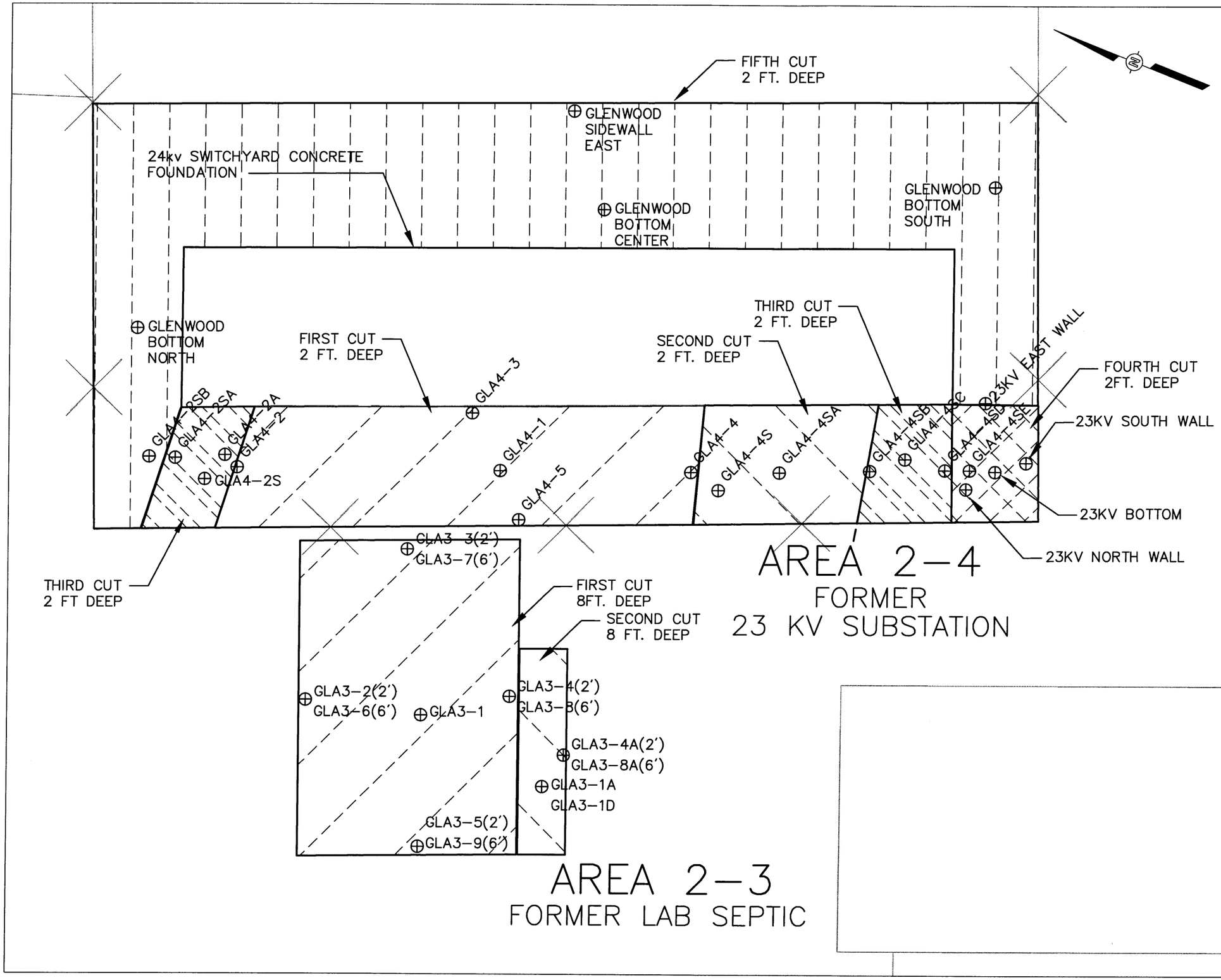
Figure 2-2

Sheet of

Project Number
06392-26

excavs_limits

CURRENT DATE: 04/03/02 by RCA
CAD FILE NAME: xxxxx_Jamaica.dwg



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CAD FILE NAME: excava_limits.dwg

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LEGEND

- ⊕ SAMPLE LOCATIONS
- EXCAVATION LIMITS
- FENCE LINE

EXCAVATION AREAS

- FIRST CUT
- SECOND CUT
- THIRD CUT
- FOURTH CUT
- FIFTH CUT

Revision	Date	Appvd.

Designed by DKH	Drawn by RCA	Checked by DKH	
CAD checked by RCA		Approved by MJW	
Scale 1"=10'		Date November, 2002	

Project Title

Glenwood Landing
Gas Plant Site
Glenwood Landing, New York

Issued for

KEYSPAN ENERGY

Drawing Title

Sample Location Plan
Area 2-3
Former 23KV Substation
Area 2-4
Former Lab Septic

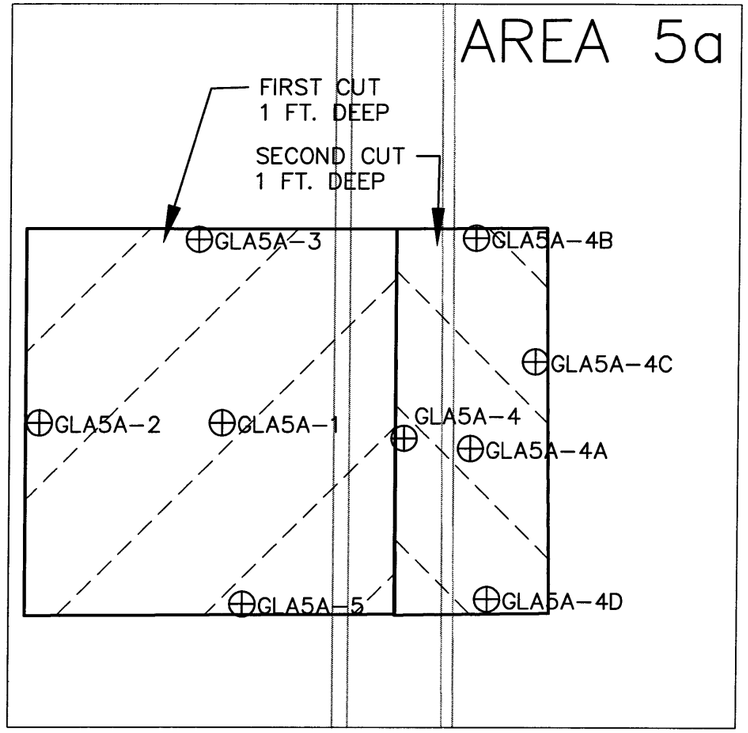
Drawing Number

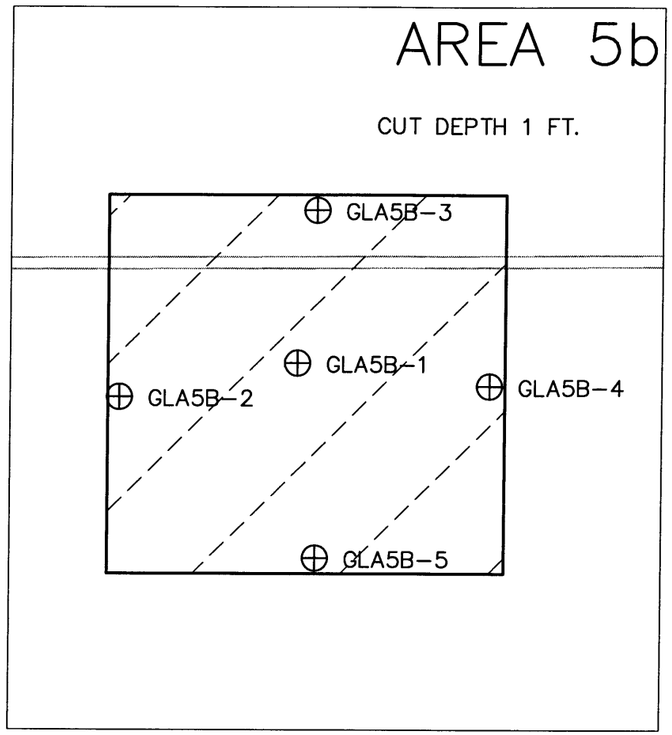
Figure 2-3

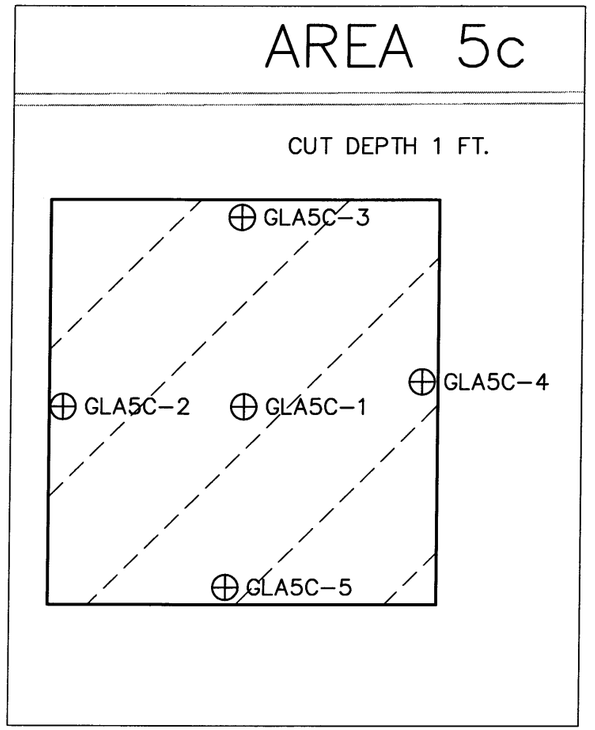
Sheet 3 of 6

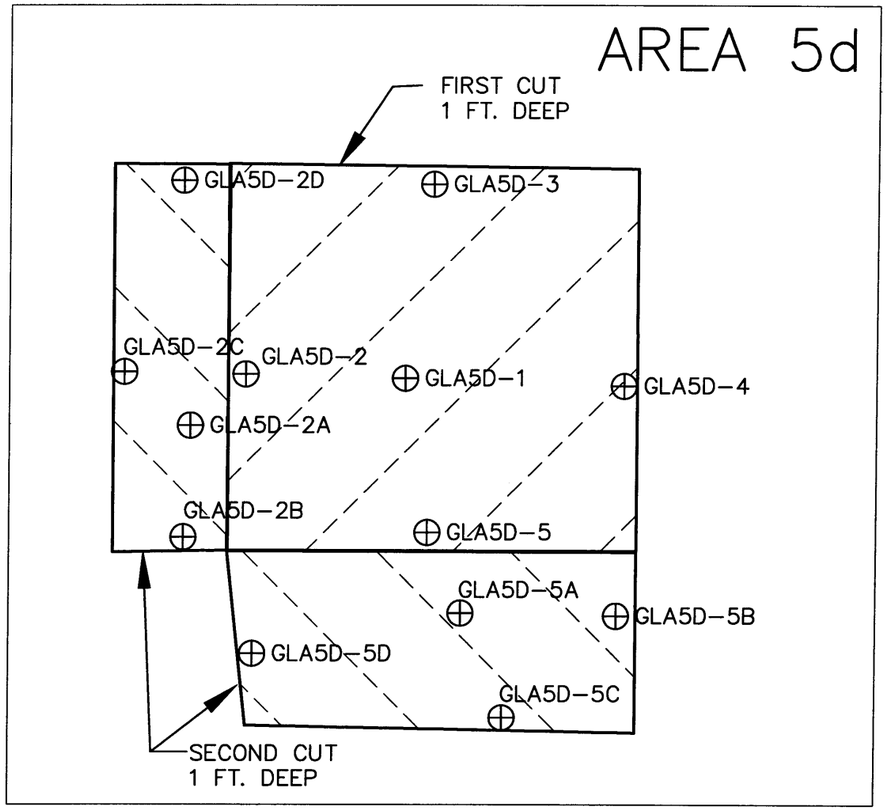
Project Number 06392-26

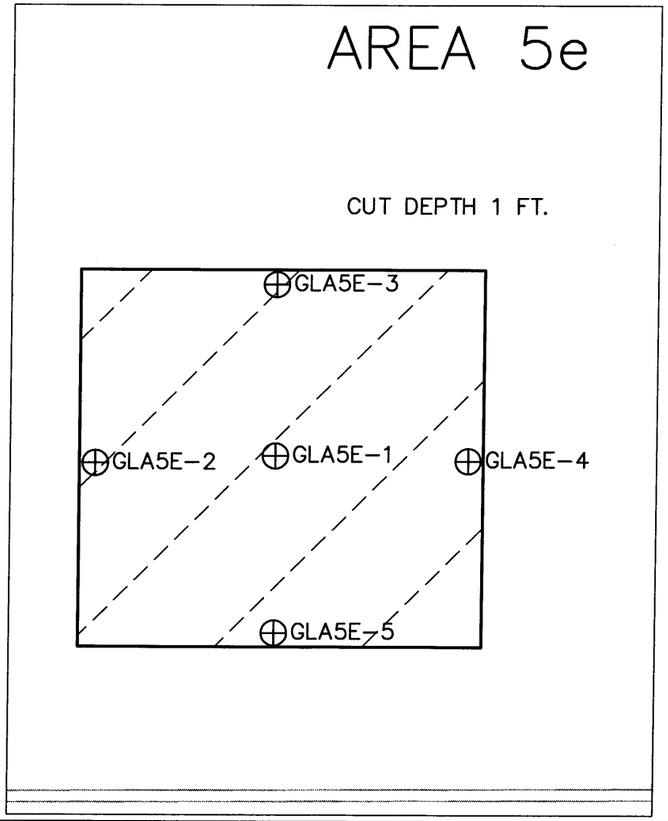
excava_limits











LEGEND

⊕ SAMPLE LOCATIONS

EXCAVATION LIMITS

FENCE LINE

EXCAVATION AREAS

FIRST CUT

SECOND CUT

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Revision	Date	Appvd.

Designed by DKH	Drawn by RCA	Checked by DKH	
CAD checked by RCA	Approved by MJW		
Scale 1"=10'	Date November, 2002		

Project Title

Glenwood Landing
Gas Plant Site
Glenwood Landing, New York

Issued for

KEYSPAN ENERGY

Drawing Title

Sample Location Plan
Area 1-A Hot Spots
5a,5b,5c,5d,5e

Drawing Number

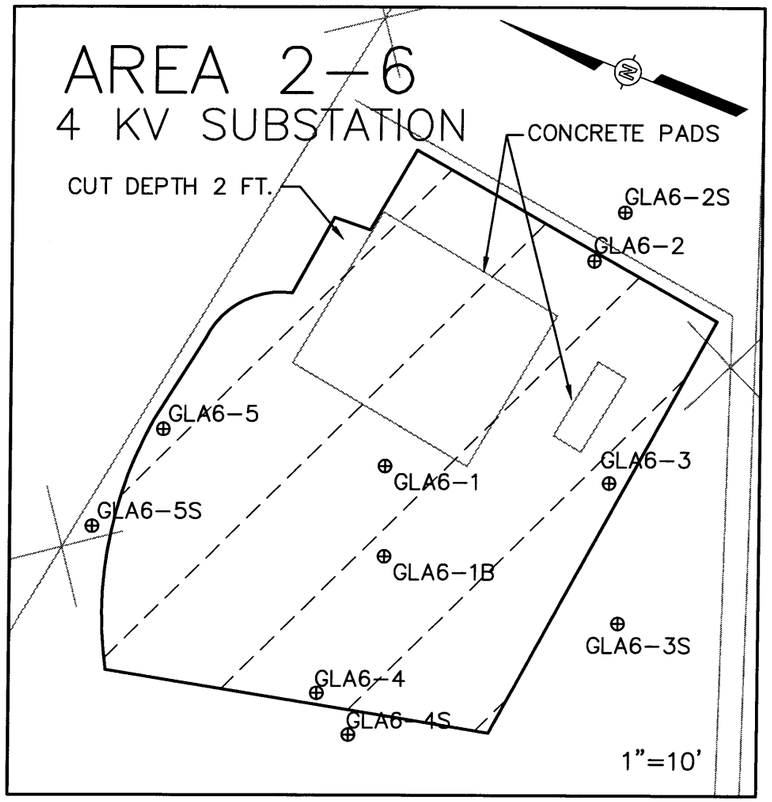
Figure 2-4

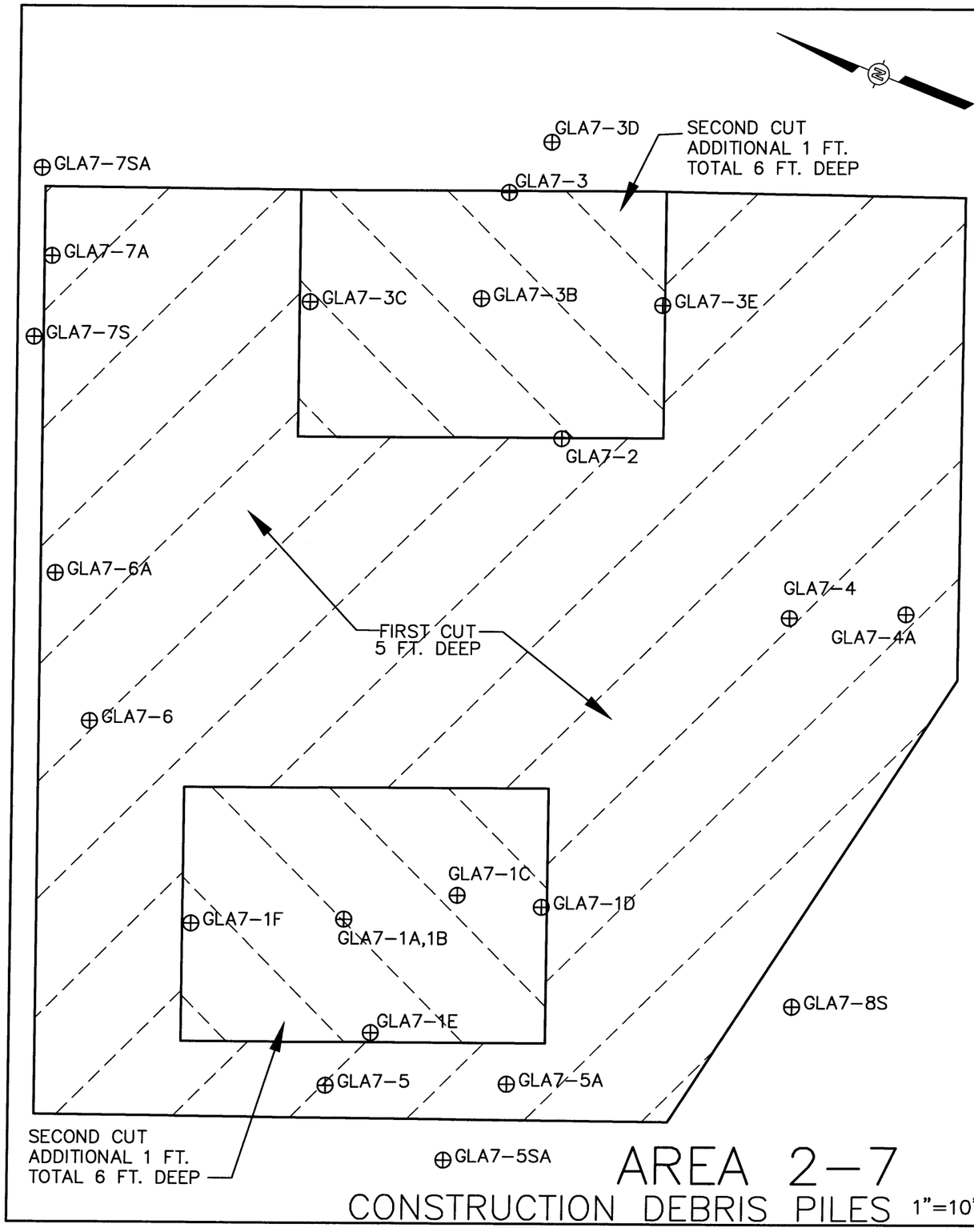
Sheet of

Project Number
06392-26

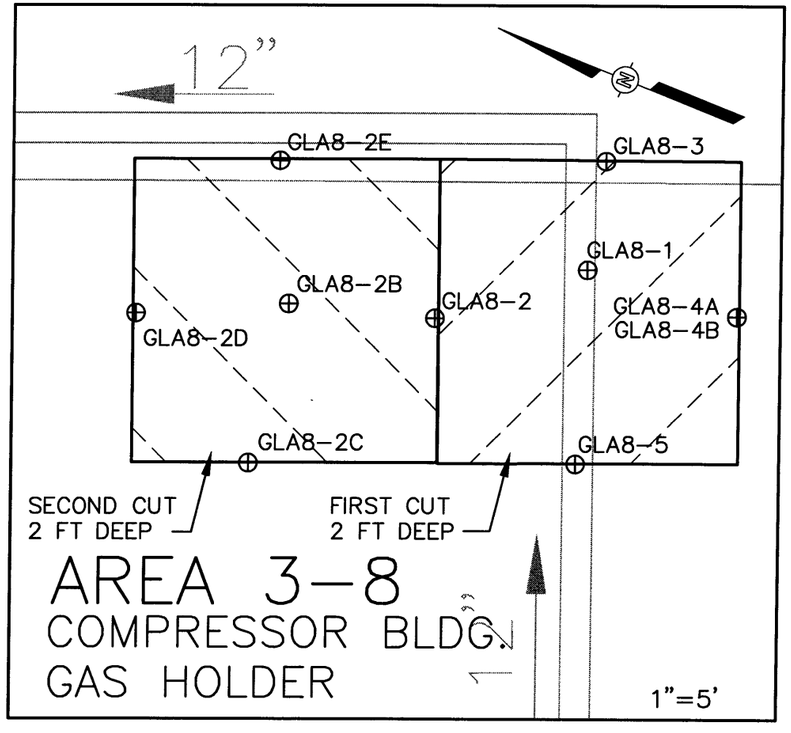
CURRENT DATE: 04-AUG-03 by RCA
CAD FILE NAME: xxxxxx_Soils.dwg

AREA 2-6
4 KV SUBSTATION





AREA 2-7
CONSTRUCTION DEBRIS PILES
1"=10'



AREA 3-8
COMPRESSOR BLDG.
GAS HOLDER
1"=5'

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LEGEND
- ⊕ SAMPLE LOCATIONS
- EXCAVATION LIMITS
- FENCE LINE

EXCAVATION AREAS
- FIRST CUT
- SECOND CUT

Revision	Date	Appvd.

Designed by DKH	Drawn by RCA	Checked by DKH	
CAD checked by RCA		Approved by MJW	
Scale As Noted		Date November, 2002	

Project Title
Glenwood Landing
Gas Plant Site
Glenwood Landing, New York

Issued for
KEYSPAN ENERGY

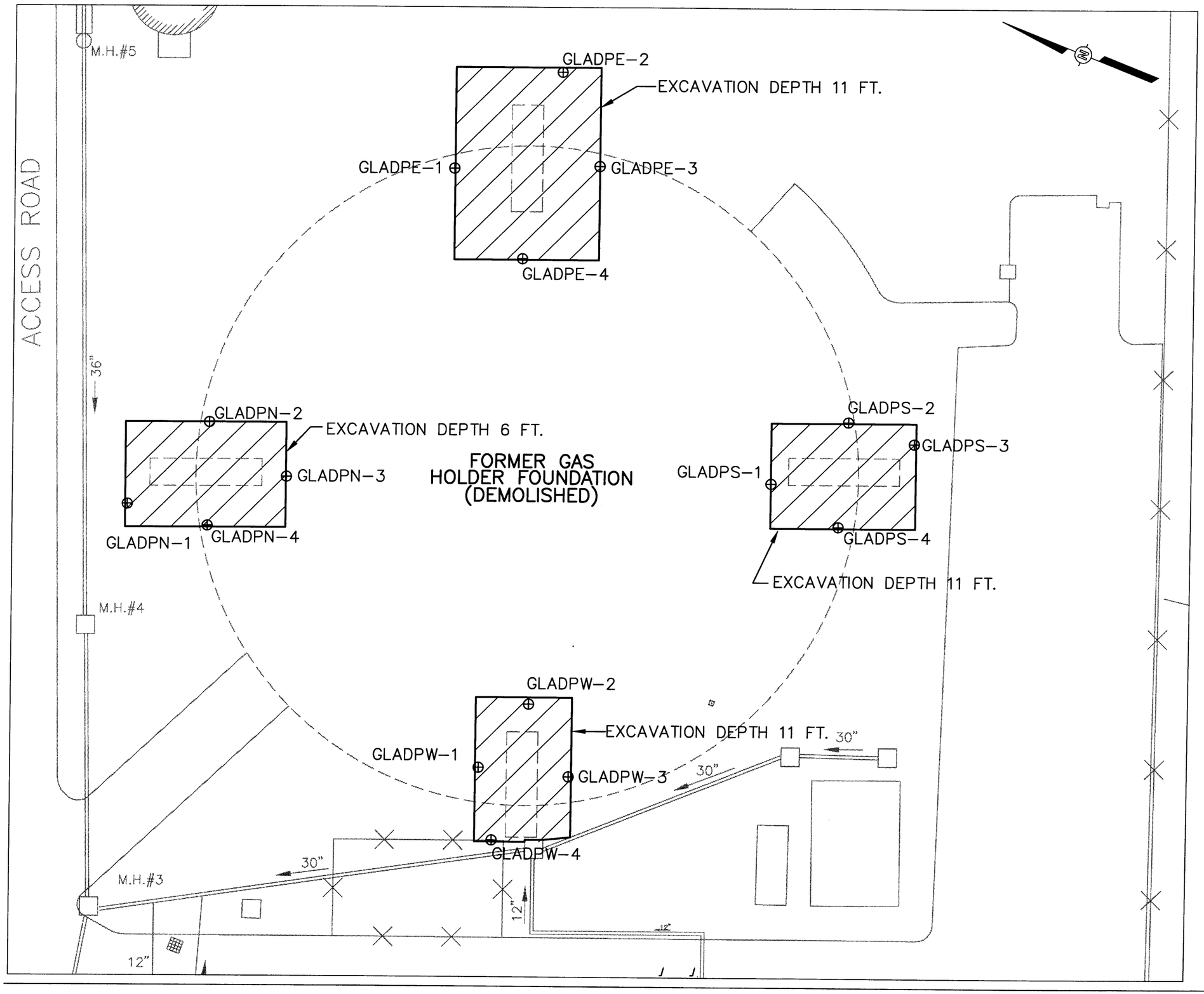
Drawing Title
Sample Location Plan
Area 2-6 4-KV Substation
Area 2-7 Constr. Debris Piles
Area 2-8 Comp. Bldg. Gas Holder

Drawing Number
Figure 2-5

Sheet of

Project Number
06392-26

CURRENT DATE: 04/03/03 by RCA
CAD FILE NAME: swarm_2mile.dwg



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Environmental Services
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Middletown, Connecticut 06457
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LEGEND

⊕ SAMPLE LOCATIONS

EXCAVATION LIMITS

FENCE LINE

EXCAVATION AREAS

FIRST CUT

Revision	Date	Appvd.

Designed by DKH	Drawn by RCA	Checked by DKH	
CAD checked by RCA		Approved by MJW	
Scale 1"=30'		Date November, 2002	

Project Title

Glenwood Landing
Gas Plant Site
Glenwood Landing, New York

Issued for

KEYSPAN ENERGY

Drawing Title

Sample Location Plan
at Drip Pits
AREA 3-1

Drawing Number

Figure 3-1

Sheet of

Project Number
06392-26

excavs_limits

CURRENT DATE: 04/02/03 by RCA
CAD FILE NAME: I:\06392\06392-26\CAD\Figures\Fig3-1_excavs_limits.dwg

Appendix A

Sample of Non-Hazardous Waste Manifest

In 9:30 AM
Out 11:00 AM
Wells
#3

CLEAN EARTH OF NEW CASTLE, INC.

94 Pyles Lane, New Castle, DE 19720
Tele# (302) 427-6633/800-30EARTH
Fax# (302) 427-6634

NON-HAZARDOUS MATERIALS MANIFEST

(TYPE OR PRINT CLEARLY)

APPROVAL # 12287

TRUCK NUMBER 810

MANIFEST # GW 302

CENC TICKET # _____

GENERATOR'S NAME & ADDRESS:

Kaysten Energy
175 E. Old County Rd.
Hicksville, NY 11801

Site Address:

Glenwood Landing, NY 11547

GENERATOR'S PHONE #: 516-515-2500

Est. Quantity: 10 tons

DESCRIPTION OF MATERIAL: Load Out Start 10:00 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 Blaschke Title: Project Mgr. Code Env

Signature: [signature] Date: 11/27/01

TRANSPORTER

Company: B. W. Clark Phone #: _____

Address: Benwell, NJ Gross Weight: _____

DE SW HAULERS PERMIT # 1001 Tare Weight: _____

Driver: Frank Knuths 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: [signature] 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

NO. 34138

N.Y. State 364 Permit No. 1A-041

#1 MEG ID # 5216

#1 Truck License Number P457122

#2 MEG ID # _____

#2 Truck License Number _____

IDENTIFICATION

Company name, mailing address and telephone number

Generator: [illegible]

Transporter: **Miller Environmental Group, Inc.**
538 Edwards Avenue
Calverton, New York 11933

TSDF Treatment Storage or Disposal Facility: [illegible]

WASTE INFORMATION

NON-HAZARDOUS WASTE SHIPPING DESCRIPTION	Containers No.	Containers Type	Total Quantity Gals./Lbs./Yds./Bgs.	NYSDEC Code	TSDF Code
[illegible]	1	DT	8 YD	non	

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.

[illegible]
Generator's Signature — Date 1/30/12

[illegible]
Transporter's Signature #1 — Date 1-30-12

Transporter's Signature #2 — Date

TSDF Signature — Date

326

NYDCA 483056

NYDEC 1A-371

Asbestos Transportation Co., Inc.

P.O. BOX 1044
HAMPTON BAYS, N.Y. 11946

TOLL FREE
1-800-755-ØATC
"EMERGENCY NUMBER"

PHONE 631-924-5050
FAX 631-924-5085

Waste Manifest #	Job #	Floor or Location	Cust #
33475			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 Other ☐

U.S. EPA REGION II, 290 BROADWAY, NEW YORK, NY 10007

Description of Materials	Bags -	Cubic Yds. -
☒ RQ Waste Asbestos, Class 9, NA2212, PGIII ☐ Other	Drums or Tons -	OTHER -
☐ RQ Waste White Asbestos, Class 9, UN2590, PGIII		

30

Special Handling Instructions and Additional Information

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.

K Southgate Agent For Gramercy X [signature] 11/28

Printed/Typed Name | Title | Signature | Date (M/DD/YY)

Transporter 1 (Acknowledgement of Receipt of Materials)

Company Name and Address	Signature	Telephone No.
ASBESTOS TRANSPORTATION CO., INC. P.O. BOX 1044 HAMPTON BAYS, NY 11946	Printed Name: [illegible] Title: DRIVER	631-924-5050 Date 11/28

Transporter 2 (Acknowledgement of Receipt of Materials)

Company Name and Address	Signature	Telephone No.
ASBESTOS TRANSPORTATION CO., INC. P.O. BOX 1044 HAMPTON BAYS, NY 11946	Printed Name: JERRY PUCCI Title: DRIVER	631-924-5050 Date 11/29

Discrepancy Indication Space:

Waste Disposal Site Owner or Operator's Certification (Receipt of Above Waste Accepted)

Company Name and Address	Signature	Telephone No.
SOUTHERN ALLEGHENIES DISP. SVCS (814)479-2483	Printed Name: MICHAEL MACK Title: WM	Date 11/30/01

MILLER ENVIRONMENTAL GROUP, INC.

Daily Job Report

DATE: 27 Nov 01 PAGE _____ OF _____

CUSTOMER: _____ JOB#: _____

CONTACT AND PHONE: _____ CLIENT CODE: _____

BILLING ADDRESS: _____ PO#: _____

LOCATION OF WORK: _____ PHONE: _____

JOB DESCRIPTION: _____ SERVICE CODE: _____

MATERIALS _____

PURCHASED ITEMS: _____

EQUIPMENT _____

SUBCONTRACTORS: _____

PERSONNEL	HRS	PPE		HRS	PPE

MEALS: _____ SUBSISTENCE: _____

START TIME: _____ SECURED TIME: _____

DISPOSAL/NOTES: _____

PCB/water mixture from west 42" pipe pumped from frac tank & cleaned frac tank

APPROVED _____ 11/27/01

CUSTOMER REPRESENTATIVE DATED

69556

NYG 3156246

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALS

HAZARDOUS WASTE MANIFEST

P.O. Box 12820, Albany, New York 12212

Please type or print. Do not staple

(Hazardous Waste Manifest 1/5/99)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: NYD980648232 | Manifest Doc. No.: 56219 | 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

4. Generator's Telephone Number: (516) 759-8520

5. Transporter 1 (Company Name): HAZMAT ENVIRONMENTAL GROUP | 6. US EPA ID Number: NYD980769947

7. Transporter 2 (Company Name) | 8. US EPA ID Number

9. Designated Facility Name and Site Address: TRANSCYCLE IND. INC, 101 PARKWAY EAST, COGSHELL, PELL CITY, AL 35125 | 10. US EPA ID Number: INDUSTRIAL PARK ALD983167891

A. NYG 3156246

B. Generator's ID: GLENWOOD GAS PLANT

C. State Transporter's ID: (516) 545-5511 etc.

D. Transporter's Telephone: (716) 827-7200

E. State Transporter's ID: 11458 P NY

F. Transporter's Telephone ( )

G. State Facility ID: SAME

H. Facility Telephone: (516) 545-5511

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers Number	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. POLYCHLORINATED BIPHENYLS, SOLUTION 9 UN 2315, II	1	TT	16697	K	EPA STATE B002
b.					EPA STATE
c					EPA STATE
d.					EPA STATE

J. Additional Descriptions for Materials listed Above: a PCB OILY-WATER MIXTURE

K. Handling Codes for Wastes Listed Above: a T

15. Special Handling Instructions and Additional Information: 4/9/11 pw
IN CASE OF EMERGENCY, CALL 516-545-4007/2000 ERG #171 11/27/01 GAL/ACCUMULATION START DATE: (DATE SHIPPED: MIKE O'NEILL)
PLEASE RETURN COPY 4 TO KEYSPAN ENERGY (ENVIRONMENTAL) 445 BROADHOLLOW ROAD (MELVILLE, N.Y. 11747)

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 DOnofrio | Signature: Louis D'Onofrio | Mo. 1 | Day 27 | Year 01

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: JOHN A. REED | Signature: John A. Reed | Mo. 1 | Day 27 | Year 01

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Mo. | Day | Year

FACILITY

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

GENERATOR

In case of emergency or spill immediately call the National Response Center (800) 424-8802 and the NYS Department of Environmental Conservation (518) 457-7362

COPY 1—Disposer State—Mailed by TSD Facility

HAZMAT
ENVIRONMENTAL GROUP, INC
50 Commerce Drive, Buffalo, NY 14218
www.hazmatinc.com
FAX (716) 827-7217
(716) 827-7200

HAZMAT

NYDEC #9A-278
EPA ID# NYD980769847

DATE 11/27/2001

221824

PICK UP

SHIPPER

NAME KEYSPAN
STREET 400 SHORE RD
CITY GLENWOOD STATE NY ZIP CODE
CONTACT NAME J. EICHAND PHONE 516-545-4306
SCHEDULED TIME 11/27/2001 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.

DELIVERY

CONSIGNEE

NAME TRANS CYCLE INC (TCI)
STREET 101 PARKWAY EAST
CITY PELL CITY STATE AL ZIP CODE 35125
CONTACT NAME [illegible] PHONE 205-338-[illegible]

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.	WORK ORDER NUMBER	MANIFEST NUMBER	H.M. NUMBER
VERBAL SUE AN		NYG 3156246	178579

LOAD NUMBER	TRACTOR	TRAILER	ROLL OFF BOX	DRIVER NUMBER	DRIVER'S NAME
178579				1312	

EQUIPMENT	MATERIAL DESCRIPTION / MANIFEST NUMBER	QUANTITY
EQUIPMENT TYPE VAC UNIT# DROPPED ____ UNIT# PICKED UP ____ CONDITION REPORT ____	PCB'S UN 2315, PG II ERG # 171 OSD 11/27/01	EST. 4911 G. 16.697 K

PICK UP

PICK UP DATE 11/27/01
ARRIVAL TIME 7:15 AM PM RELEASE TIME 10:15 AM PM
DAY #2 DATE ____
ARRIVAL TIME ____ AM PM RELEASE TIME ____ AM PM

TRAILER EMPTY UPON ARRIVAL ☒ YES
(if not, explain below—)
DIP MEASUREMENT (Tankers Only) 51 INCHES
COMMENTS: (EXPLAIN ALL DELAYS)
CUSTOMER NOT EARLY LOAD. WAS LOAD AND POUR.

HAZMAT MATERIALS USED (ex. overpacks, etc.): ☐ YES ☒ NO
IF YES EXPLAIN:
I, THE UNDERSIGNED, CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND COMPLETE.
[signature] 11/27/01
SHIPPER'S SIGNATURE Date

DELIVERY

DRIVER ____ DAY #1 DATE ____
ARRIVAL TIME ____ AM PM RELEASE TIME ____ AM PM
DAY #2 DATE ____ ARRIVAL TIME ____ AM PM RELEASE TIME ____ AM PM
DAY #3 DATE ____ ARRIVAL TIME ____ AM PM RELEASE TIME ____ AM PM

TRAILER CLEAN AND EMPTY UPON DEPARTURE ☐ YES ☐ NO
(if not, explain below—)
COMMENTS: (Explain all delays or discrepancies))

IF YES EXPLAIN:
I, THE UNDERSIGNED, CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND COMPLETE.
X
CONSIGNEE'S SIGNATURE Date

GENERATOR COPY

KEYSPAN ENERGY
LAND DISPOSAL RESTRICTION NOTIFICATION

MANIFEST #: NYG3156246 DATE OF SHIPMENT: 11/27/01

GENERATOR ADDRESS: 84 OAK ROAD GLENWOOD LANDING NY. 11547 EPA ID NUMBER: NYD980648232

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	B002		X	POLYCHLORINATED BIPHENYLS
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 D'Onofrio 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.

H2M LABS, INC.

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

2291

EXTERNAL CHAIN OF CUSTODY

CLIENT: MGE

H2M SDG NO:

PROJECT NAME/NUMBER: KEYSTAN
MERCER WRECKING CO.

SAMPLERS: (signature)/Client

DELIVERABLES: RT-CC

TURNAROUND TIME: 10 WORKING DAYS

NOTES:

Project Contact: CHECKER
JERRY

Phone Number:

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	ANALYSIS REQUESTED: ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB	INORG. Metal	INORG. CN	LAB I.D. NO.	REMARKS:
9-18	10:00	soil	AREA #1 SAMPLE #1	1							TCLP
9-18	10:00	soil	AREA #1 SAMPLE #2	1							TCLP
9-18	11:00	soil	AREA #2 SAMPLE #1	1							TCLP
9-18	13:00	soil	AREA #2 SAMPLE #5	1							TCLP
9-18	13:00	soil	AREA #3 SAMPLE #6	1							TCLP
9-18	14:00	soil	AREA #11 SAMPLE #7	1							TCLP
9-18	15:00	soil	AREA #3 SAMPLE #8	1							TCLP
9-18	15:00	soil	AREA #6 SAMPLE #9	1							TCLP
9-18	16:00	soil	AREA #3 SAMPLE #10	1							TCLP

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

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 Tape 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

WHITE COPY - ORIGINAL YELLOW COPY - CLIENT PINK COPY - LABORATORY

Sep 26 01 07:36a ry and Becky Holleran p.3

H2M LABS, INC.

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

2292

EXTERNAL CHAIN OF CUSTODY

CLIENT: MGT

H2M SDG NO:

PROJECT NAME/NUMBER: KEYSPAN MERCER WRECKING CO

SAMPLERS: (signature)/Client

DELIVERABLES: RT-00

TURNAROUND TIME: 10 WORKING DAYS

NOTES:

Project Contact: CIECIERS

Phone Number: 609-269-1683

DATE	TIME	MATRIX	FIELD I.D.	Sample Container Description	Total No. of Containers	ANALYSIS REQUESTED: ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB	INORG. Metal	INORG. CN	LAB I.D. NO.	REMARKS:
1 FEB	9:10	SO	[illegible]					4				PCB
2 FEB	9:15	SO	[illegible]					4				VOA
3 FEB	9:20	SO	[illegible]					4				PCB

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	2/1/01	4:20			
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	2-1-01	11:00			
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

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 Tape 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

ORIGINAL — YELLOW COPY - CLIENT — PINK COPY - LABORATORY

Sep 26 01 07:36a ry and Becky Holleran p.4

H2M LABS, INC.

575 Broad Hollow Road, Melville NY 11747
(631) 694-3040 FAX (631) 420-8436 NYSDOH ID# 10478

ABORATORY 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

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

Joann M. Slavin

Date Reported : 10/1/01

H2M LABS, INC.
575 Broad Hollow Road, Melville NY 11747
(631) 694-3040. FAX: (631) 420-8436 NYSDOH ID# 10478

ABORATORY 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

Parameter(s)	Results	Units	Method Number	Analyzed
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

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**
Client ID. : AREA #1 SAMPLE #1

Sample Information...
Type : Soil
Origin:

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

Joann M. Slavin

Date Reported : 10/5/01

H2M LABS, INC.

575 Broad Hollow Road, Melville NY 11747
(631) 694-3040 FAX: (631) 420-8436 NYSDOH ID# 10478

ABORATORY 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

Parameter(s)	Results	Units	Method Number	Analyzed
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

Joann M. Slavin

Date Reported : 10/1/01

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 Werner-Else
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 8082/608

Sample: L3722-1
Client Sample ID: Work Area #4
Matrix: Soil
Remarks:
Analyzed Date: 10/26/2001

Type: Grab

Collected: 10/24/2001
% Solid: 95.3%

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
12674-11-2	PCB 1016	G391-7	2.14	2.14	ppb	U
11104-28-2	PCB 1221	G391-7	10.1	10.1	ppb	U
11141-16-5	PCB 1232	G391-7	2.24	2.24	ppb	U
53469-21-9	PCB 1242	G391-7	1.68	1.68	ppb	U
12672-29-6	PCB 1248	G391-7	3.76	3.76	ppb	U
11097-69-1	PCB 1254	G391-7	5.72	5.72	ppb	U
11096-82-5	PCB 1260	G391-7	6.57	6.57	ppb	U

Cas No						
877-09-8	Tetrachloro-m-xylene					
2051-24-3	Decachlorobiphenyl					

Sample: L3722-2
Client Sample ID: Work Area #5
Matrix: Soil
Remarks:
Analyzed Date: 10/26/2001

Type: Grab

Collected: 10/24/2001
% Solid: 94.6%

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
12674-11-2	PCB 1016	G391-8	2.16	2.16	ppb	U
11104-28-2	PCB 1221	G391-8	10.1	10.1	ppb	U
11141-16-5	PCB 1232	G391-8	2.25	2.25	ppb	U
53469-21-9	PCB 1242	G391-8	1.69	1.69	ppb	U
12672-29-6	PCB 1248	G391-8	3.81	3.81	ppb	U
11097-69-1	PCB 1254	G391-8	5.76	5.76	ppb	U
11096-82-5	PCB 1260	G391-8	6.62	6.62	ppb	U

Cas No						
877-09-8	Tetrachloro-m-xylene					
2051-24-3	Decachlorobiphenyl					

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10/29/2001

PCB (Aroclor) Compounds - EPA 8082/608

Sample: L3722-3 Collected: 10/24/2001
Client Sample ID: Work Area #6 Type: Grab % Solid: 95.1%
Matrix: Soil
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	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
877-09-8	Tetrachloro-m-xylene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2051-24-3	Decachlorobiphenyl	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Sample: L3722-4 Collected: 10/24/2001
Client Sample ID: Work Area #7 Type: Grab % Solid: 90.7%
Matrix: Soil
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	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
877-09-8	Tetrachloro-m-xylene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2051-24-3	Decachlorobiphenyl	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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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	G391-11	2.16	2.16	ppb	U
11104-28-2	PCB 1221	G391-11	10.3	10.3	ppb	U
11141-16-5	PCB 1232	G391-11	2.28	2.28	ppb	U
53469-21-9	PCB 1242	G391-11	1.71	1.71	ppb	U
12672-29-6	PCB 1248	G391-11	3.86	3.85	ppb	U
11097-69-1	PCB 1254	G391-11	5.83	5.83	ppb	U
11096-82-5	PCB 1260	G391-11	6.70	6.70	ppb	U

Cas No	Surrogate				
877-09-8	Tetrachloro-m-xylene				
2051-24-3	Decachlorobiphenyl				

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10/29/2001

BTEX - EPA 602/8021B

Sample: L3722-1
Client Sample ID: Work Area #4
Matrix: Soil
Remarks:
Analyzed Date: 10/25/2001

Type: Grab

Collected: 10/24/2001
% Solid: 95.3%

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
71-43-2	Benzene	D638-8	1.01	1.01	ppb	U
108-88-3	Toluene	D638-8	1.24	1.24	ppb	U
100-41-4	Ethylbenzene	D638-8	1.05	1.05	ppb	U
108-38-3	m,p-xylene	D638-8	2.08	2.08	ppb	U
95-47-6	o-xylene	D638-8	1.36	1.36	ppb	U

Cas No	[illegible]
460-00-4	[illegible]

Sample: L3722-2
Client Sample ID: Work Area #5
Matrix: Soil
Remarks:
Analyzed Date: 10/25/2001

Type: Grab

Collected: 10/24/2001
% Solid: 94.6%

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
71-43-2	Benzene	D638-9	1.01	1.01	ppb	U
108-88-3	Toluene	D638-9	1.25	1.25	ppb	U
100-41-4	Ethylbenzene	D638-9	1.06	1.06	ppb	U
108-38-3	m,p-xylene	D638-9	2.09	2.09	ppb	U
95-47-6	o-xylene	D638-9	1.37	1.37	ppb	U

Cas No	[illegible]
460-00-4	[illegible]

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10/29/2001

BTEX - EPA 602/8021B

Sample: L3722-3 Collected: 10/24/2001
Client Sample ID: Work Area #6 Type: Grab % Solid: 95.1%
Matrix: Soil
Remarks:
Analyzed Date: 10/25/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
71-43-2	Benzene	D638-10	1.01	1.01	ppb	U
108-88-3	Toluene	D638-10	1.24	1.24	ppb	U
100-41-4	Ethylbenzene	D638-10	1.05	1.05	ppb	U
108-38-3	m,p-xylene	D638-10	2.08	2.08	ppb	U
95-47-6	o-xylene	D638-10	1.37	1.37	ppb	U

Cas No						
460-00-4	4-Bromofluorobenzene					

Sample: L3722-4 Collected: 10/24/2001
Client Sample ID: Work Area #7 Type: Grab % Solid: 90.7%
Matrix: Soil
Remarks:
Analyzed Date: 10/25/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
71-43-2	Benzene	D638-11	1.06	1.06	ppb	U
108-88-3	Toluene	D638-11	1.30	1.30	ppb	U
100-41-4	Ethylbenzene	D638-11	1.10	1.10	ppb	U
108-38-3	m,p-xylene	D638-11	2.18	2.18	ppb	U
95-47-6	o-xylene	D638-11	1.43	1.43	ppb	U

Cas No						
460-00-4	4-Bromofluorobenzene					

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10/29/2001

BTEX - EPA 602/8021B

Sample: L3722-5 Collected: 10/24/2001
Client Sample ID: Work Area #8 % Solid: 93.5%
Matrix: Soil Type: Grab
Remarks:
Analyzed Date: 10/26/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
71-43-2	Benzene	D639-3	1.03	1.03	ppb	U
108-88-3	Toluene	D639-3	1.26	1.26	ppb	U
100-41-4	Ethylbenzene	D639-3	1.07	1.07	ppb	U
108-38-3	m,p-xylene	D639-3	2.12	2.12	ppb	U
95-47-6	o-xylene	D639-3	1.39	1.39	ppb	U

Cas No	Analyte
460-00-4	4-Bromofluorobenzene

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10/29/2001

% Moisture

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
	% Moisture	NA	4.700	%	
	% Solid	NA	95.300	%	

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
	% Moisture	NA	5.400	%	
	% Solid	NA	94.600	%	

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
	% Moisture	NA	4.900	%	
	% Solid	NA	95.100	%	

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
	% Moisture	NA	9.300	%	
	% Solid	NA	90.700	%	

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10/29/2001

% Moisture

Sample: L3722-5
Client Sample ID: Work Area #8
Matrix: Soil
Remarks:
Analyzed Date: 10/24/2001

Type: Grab

Collected: 10/24/2001
% Solid: 93.5%

Cas No	Analyte	MDL	Result	Units	Q
	% Moisture	NA	6.500	%	
	% Solid	NA	93.500	%	

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10/29/2001

Total Petroleum Hydrocarbons - EPA 418.1

Sample: L3722-1
Client Sample ID: Work Area #4
Matrix: Soil
Remarks:
Analyzed Date: 10/26/2001
Type: Grab
Collected: 10/24/2001
% Solid: 95.3%

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
Remarks:
Analyzed Date: 10/26/2001
Type: Grab
Collected: 10/24/2001
% Solid: 94.6%

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
Remarks:
Analyzed Date: 10/26/2001
Type: Grab
Collected: 10/24/2001
% Solid: 95.1%

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
Remarks:
Analyzed Date: 10/26/2001
Type: Grab
Collected: 10/24/2001
% Solid: 90.7%

Cas No	Analyte	MDL	Result	Units	Q
	Total Rec.Petr. Hydrocarbons	3.42	258	ppm	

Environmental Testing Laboratories, Inc.
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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

Cas No	Analyte	MDL	Result	Units	Q
	Total Rec.Petr. Hydrocarbons	3.42	42.8	ppm	

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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%

Cas 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%

Cas 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%

Cas 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%

Cas No	Analyte	MDL	Result	Units	Q
	Flash Point	1.00	>100	deg C	

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10/29/2001

Flash Point (Ignitability)

Sample: L3722-5
Client Sample ID: Work Area #8
Matrix: Soil
Remarks:
Analyzed Date: 10/29/2001

Type: Grab

Collected: 10/24/2001
% Solid: 93.5%

Cas No	Analyte	MDL	Result	Units	Q
	Flash Point	1.00	>100	deg C	

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10/29/2001

pH - Soil in Water @ 20 Degrees C

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
	pH over-aged	NA	8.70		
	Temperature	NA	21.4	C	

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
	pH over-aged	NA	7.99		
	Temperature	NA	21.0	C	

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
	pH over-aged	NA	7.61		
	Temperature	NA	20.9	C	

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
	pH over-aged	NA	8.03		
	Temperature	NA	19.3	C	

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10/29/2001

pH - Soil in Water @ 20 Degrees C

Sample: L3722-5
Client Sample ID: Work Area #8
Matrix: Soil
Remarks:
Analyzed Date: 10/24/2001

Type: Grab

Collected: 10/24/2001
% Solid: 93.5%

Cas No	Analyte	MDL	Result	Units	Q
	pH over-aged	NA	7.66		
	Temperature	NA	21.0	C	

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10/29/2001

Reactivity - EPA 9010

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
	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
Remarks:
Analyzed Date: 10/24/2001
Type: Grab
Collected: 10/24/2001
% Solid: 94.6%

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
Remarks:
Analyzed Date: 10/24/2001
Type: Grab
Collected: 10/24/2001
% Solid: 95.1%

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		

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10/29/2001

Reactivity - EPA 9010

Sample: L3722-4 Collected: 10/24/2001
Client Sample ID: Work Area #7 % Solid: 90.7%
Matrix: Soil Type: Grab
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 Collected: 10/24/2001
Client Sample ID: Work Area #8 % Solid: 93.5%
Matrix: Soil Type: Grab
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		

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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 concentratipn 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)

H2M LABS, INC.
575 Broadhollow 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 :

Lab No. : **0110099-001A**

Client ID. : **COMPOSITE DRIP AREAS #1 & #2**

Sample Information...
Type : Soil
Origin:

Collected : 10/2/01 2:00:00 PM
Received : 10/3/01 3:35:00 PM
Collected By : CLIENT
Copies To : JERRY CIECIERSKI

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 (Silvex)	< 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	SW8270B	10/9/01 7:18:00 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	9.1	wt%	D2216	10/8/01 5:10:00 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution.

Date Reported :

KEYSPAN
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

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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.

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Received: 10/11/01 11:18AM; Keyspan Energy; Page 1

KEYSPAN
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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

Sample ID: BL0110029-01 Matrix: Oil Customer Sample #: 1
Collect Date and Time: 10/2/2001 10:30 AM Collector: R. Kalberer
Location: 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

Sample ID: BL0110029-02 Matrix: Solid Customer Sample #: 2
Collect Date and Time: 10/2/2001 10:40 AM Collector: R. Kalberer
Location: 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

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Lab Report #: BL0110029

ELAP Number: 11173

KeySpan Laboratory Services
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Sample ID: BL0110029-03 Matrix: Solid Customer Sample #: 3

Collect Date and Time: 10/2/2001 10:50 AM Collector: R. Kalberer

Location: 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

Sample ID: BL0110029-04 Matrix: Solid Customer Sample #: 4

Collect Date and Time: 10/2/2001 11:00 AM Collector: R. Kalberer

Location: East/West Crossover

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)	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

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Lab Report #: BL0110029

ELAP Number: 11173

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Sample ID: **BL0110029-05** Matrix: Solid Customer Sample #: 5

Collect Date and Time: 10/2/2001 11:10 AM Collector: R. Kalberer

Location: Debris In West Pipe

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082		Analysis Date: 10/10/2001		D.F. 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

Sample ID: **BL0110029-06** Matrix: Solid Customer Sample #: 6

Collect Date and Time: 10/2/2001 11:20 AM Collector: R. Kalberer

Location: Valve Grease

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082		Analysis Date: 10/10/2001		D.F. 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

NOTE: The liability of KeySpan Energy shall in no event exceed the amount of the invoice with respect to the services charged for therein.

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Lab Report #: BL0110029
ELAP Number: 11173

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Sample ID: **BL0110029-07** Matrix: Solid Customer Sample #: 7

Collect Date and Time: 10/2/2001 11:30 AM Collector: R. Kalberer

Location: Air Line Grease

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082		Analysis Date: 10/10/2001		D.F. 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

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Results relate only to the sample "As Received" by the laboratory.

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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 Clecierski

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

208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

11/05/2001

TCLP Volatile Compounds - EPA 8240

Sample: M2357-2
Client Sample ID: Comp A
Matrix: Soil
Remarks: See Case Narrative
Analyzed Date: 11/02/2001

Collected: 10/26/2001
Type: Composite

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
67-66-3	Chloroform	C 302-4702	0.0022	0.0022	ppm	U
107-06-2	1,2-Dichloroethane	C 302-4702	0.0016	0.0016	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	Surrogate	File ID	[illegible]	[illegible]	[illegible]	[illegible]
460-00-4	4-BROMOFLUOROBENZENE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2037-26-5	TOLUENE-D8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4773-33-8	DIBROMOFLUOROMETHANE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Environmental Testing Laboratories
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
Matrix: Soil
Remarks:
Analyzed Date: 11/01/2001

Collected: 10/26/2001
Type: Composite

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	0.0076	0.0076	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	Surrogate	[illegible]	[illegible]
118-79-6	2,4,6-TRIBROMOPHENOL	[illegible]	
321-60-8	2-FLUOROBIPHENYL	[illegible]	
367-12-4	2-FLUOROPHENOL	[illegible]	
1718-51-0	TERPHENYL-D14	[illegible]	
4165-60-0	NITROBENZENE-D5	[illegible]	
13127-88-3	PHENOL-D6	[illegible]	

Environmental Testing Laboratories, Inc.
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
Matrix: Soil
Remarks:
Analyzed Date: 11/01/2001

Collected: 10/26/2001
Type: Composite

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	Surrogate	[illegible]	[illegible]
118-79-6	2,4,6-TRIBROMOPHENOL	[illegible]	[illegible]
321-60-8	2-FLUOROBIPHENYL	[illegible]	[illegible]
367-12-4	2-FLUOROPHENOL	[illegible]	[illegible]
1718-51-0	TERPHENYL-D14	[illegible]	[illegible]
4165-60-0	NITROBENZENE-D5	[illegible]	[illegible]
13127-88-3	PHENOL-D6	[illegible]	[illegible]

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
Matrix: Soil
Remarks:
Analyzed Date: 11/05/2001

Collected: 10/26/2001
Type: Composite

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
Matrix: Soil
Remarks:
Analyzed Date: 11/05/2001

Collected: 10/26/2001
Type: Composite

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 Laboratory
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
Matrix: Soil
Remarks:
Analyzed Date: 11/05/2001

Collected: 10/26/2001
Type: Composite

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	Surrogate	File ID				
877-09-8	Tetrachloro-m-xylene	G 398-13				
2051-24-3	Decachlorobiphenyl	G 398-13				

Sample: M2357-2
Client Sample ID: Comp A
Matrix: Soil
Remarks:
Analyzed Date: 11/05/2001

Collected: 10/26/2001
Type: Composite

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	Surrogate	File ID				
877-09-8	Tetrachloro-m-xylene	G 398-14				
2051-24-3	Decachlorobiphenyl	G 398-14				

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
Matrix: Soil
Remarks:
Analyzed Date: 11/01/2001

Collected: 10/26/2001

Type: Composite

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
Matrix: Soil
Remarks:
Analyzed Date: 11/01/2001

Collected: 10/26/2001

Type: Composite

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 Collected: 10/26/2001
Client Sample ID: Comp B
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 Collected: 10/26/2001
Client Sample ID: Comp A
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 #:** **Date:**	01MWR-002 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.	Specification Max.
1"	100	-	-
½"	97.8	-	-
¼"	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: -

Remarks:
Lab #4702

Reported To: --

Submitted By: Materials Testing Lab, Inc.

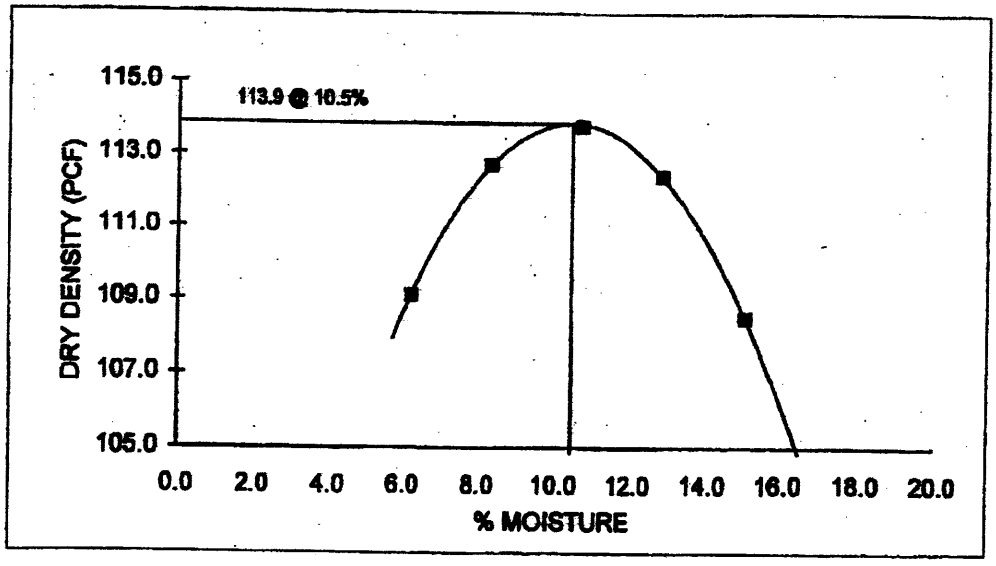
The above reported data is the property of the client. No reproduction of the above data without the sole permission of Materials Testing Lab, Inc. Materials Testing accepts no liability for work executed by others.

Report #: 01MWR-002
Date: 11/21/2001

Client: Mercer Wrecking & Recycling Corp.
853 Nottingham Way
Trenton, NJ 08638
Project: New Keyspan Bldg.
Sample: Sany 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.

234TH STR. & MERRICK BLVD.
QUEENS, NY.

Project:

P.S. 270 Queens
Laurelton, NY

NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY

Milo Riverso, Ph.D., P.E., President & CEO

Board of Trustees

Howard Wilson, Chairman
Harold O. 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)

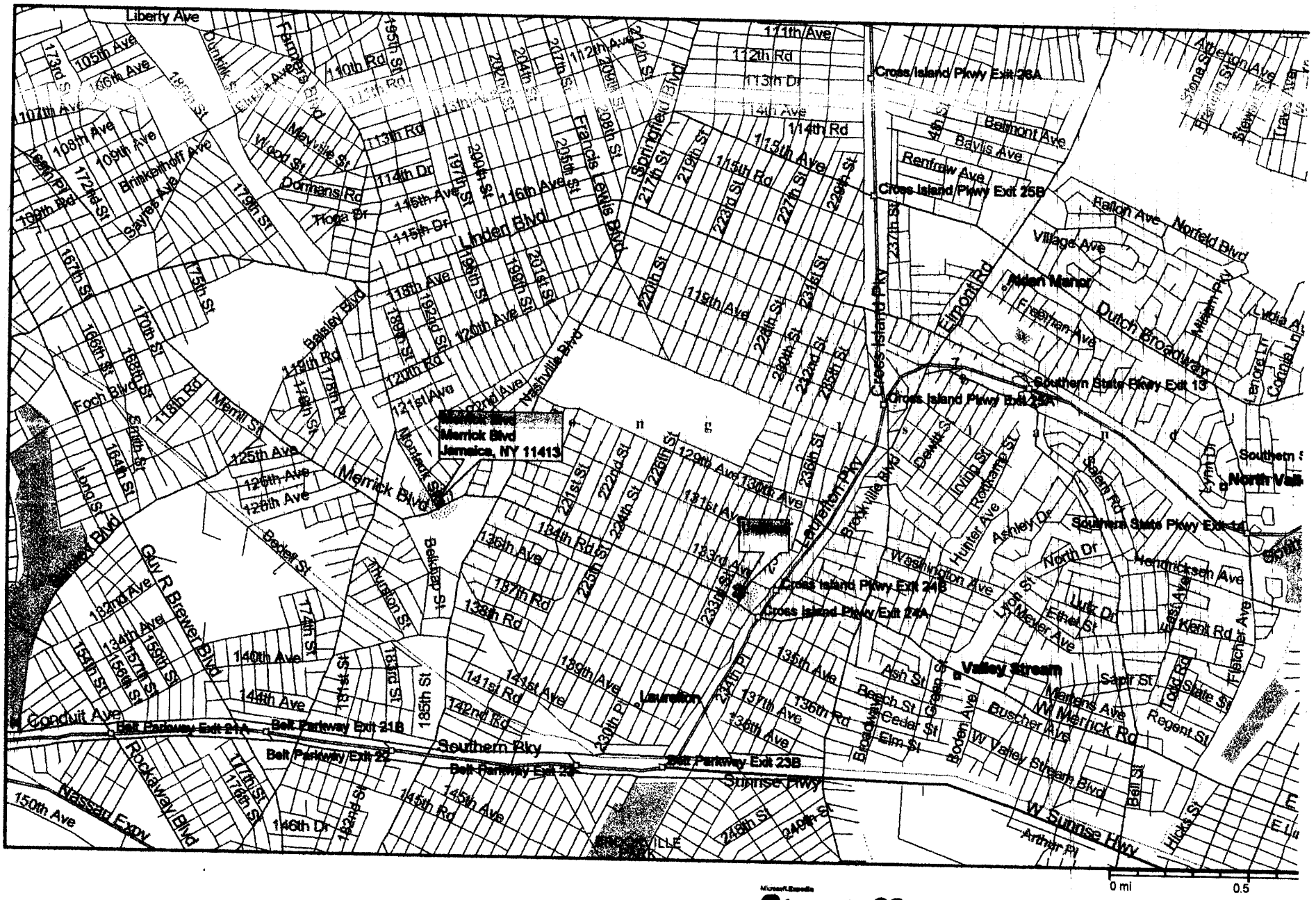
- The site survey did not indicate the presence of PCB-containing equipment or material on Site and no REC was identified.

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, (<2pCi/L). Of the 81sites tested for radon in Queens, the average indoor activity for all of the sites tested was less than 0.970 picoCuries per Liter (<0.970pCi/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.



Microsoft Expedia
Streets98

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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
GLENOAKS 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

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 Jerry	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
Matrix: Soil Type: Grab
Collected: 11/26/2001 10:00
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	Surrogate	File ID	% Recovery	QC Limits	Q
460-00-4	4-BROMOFLUOROBENZENE	B642-8295	100.0 %	77- 121	
2037-26-5	TOLUENE-D8	B642-8295	101.0 %	86- 110	
4174-33-8	DIBROMOFLUOROMETHANE	B642-8295	100.0 %	76- 117	

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
Matrix: Soil Type: Grab Collected: 11/26/2001 10:00
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

Cas No	Surrogate	File ID	% Recovery	QC Limits	Q
118-79-6	2,4,6-TRIBROMOPHENOL	C607-7845	85.3 %	(10 - 123)	
321-60-8	2-FLUOROBIPHENYL	C607-7845	58.3 %	(43 - 116)	
367-12-4	2-FLUOROPHENOL	C607-7845	50.6 %	(21 - 100)	
1718-51-0	TERPHENYL-D14	C607-7845	69.2 %	(33 - 141)	
4165-60-0	NITROBENZENE-D5	C607-7845	81.7 %	(35 - 114)	
13127-88-3	PHENOL-D6	C607-7845	48.9 %	(10 - 110)	

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
Matrix: Soil
Type: Grab
Collected: 11/26/2001 10:00
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
Matrix: Soil
Type: Grab
Collected: 11/26/2001 10:00
Remarks:
Analyzed Date: 11/30/2001

Cas No	Analyte	File ID	MDL	Concentration	Units	Q
57-74-9	Chlordane	G413-57	0.00014	0.00014	ppm	U
72-20-8	Endrin	G413-57	0.0000020	0.0000020	ppm	U
76-44-8	Heptachlor	G413-57	0.0000040	0.0000040	ppm	U
1024-57-3	Heptachlor epoxide	G413-57	0.0000030	0.0000030	ppm	U
58-89-9	Lindane	G413-57	0.0000030	0.0000030	ppm	U
72-43-5	Methoxychlor	G413-57	0.0000040	0.0000040	ppm	U
8001-35-2	Toxaphene	G413-57	0.0011	0.0011	ppm	U

Cas No	Surrogate	File ID	% Recovery	QC Limits	Q
877-09-8	Tetrachloro-m-xylene	G413-57	88.3 %	(30 - 150)	
2051-24-3	Decachlorobiphenyl	G413-57	88.5 %	(30 - 150)	

Environmental Testing Laboratories, Inc.
208 Route 109, Farmingdale NY 11735
Phone - 631-249-1456 Fax - 631-249-8344

TCLP Mercury

12/03/2001

Sample: L3723-1
Client Sample ID: Clay Backfill Material
Matrix: Soil
Type: Grab
Collected: 11/26/2001 10:00
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
Matrix: Soil Type: Grab Collected: 11/26/2001 10:00
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 mointoring 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 [illegible] does not require any specific specifications, it is our company policy to supply all state and county approved material.

If you have any further questions [illegible]

Very truly yours,

Gary De Rosa

Chemical Consulting of Babylon
41 East Main Street
Babylon, NY 11702
Phone (631) 587-4632 Fax (631) 587-4827

Dr. Hans L. Helmprecht, Ph. D

SOIL TESTING REPORT

SAMPLE	PH	SALT	NO3	NH4	CA	P	K	MG	FE	MN	B	CU	ZN	SO4	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 %	4.0 %
#50	30.3 %	52.1 %
#100	26.3 %	13.0 %
PAN		26.3 %

ORGANIC MATTER CONTENT - 4.2 %

Sample Analyzed by: Hans L. Helmprecht

Hans L. Helmprecht, Ph D

P. 002
5164711616
HOLTSVILLE I. C.
DEC-21' 01(FRI) 12:26

Chemical Consulting of Babylon
41 East Main Street
Babylon, NY 11702
Phone (631) 587-0632 Fax (631) 587-0827
E-Mail ccofb@mymailstation.com

Dr Hans L Helmpreicht Ph D

SOIL ANALYSIS REPORT

[illegible] CUSTOM CLAY

Ph - 5.8

SOLUBLE SALT - 130 MMHOS/CM

ORGANIC MATTER CONTENT - 5.2 %

SIEVE ANALYSIS

SIEVE SIZE	% PASSING	% RETAINED	
1"	100.0 %	0.0 %	GRAVEL
1/4"	98.2 %	1.8 %	FINE GRAVEL
# 10	89.0 %	9.2 %	VERY COARSE SAND
# 20	69.0 %	19.1 %	COARSE SAND
# 40	39.0 %	30.3 %	COARSE SAND
# 60	27.0 %	12.6 %	MEDIUM SAND
# 80	20.3 %	6.7 %	FINE SAND
# 100	16.4 %	3.9 %	VERY FINE SAND
# 200	6.3 %	10.1 %	VERY FINE SAND
PAN	6.10 %		SILT, CLAY

P. 003
5164711616
HOLTSVILLE I. C.
DEC-21' 01 (FRI) 12:26

Chemical Consulting of Babylon
41 East Main Street
Babylon, NY 11702
Phone (516) 587-9653 Fax (516) 587-9827

Dr. Hans L. Heimprecht, Ph. D

SOIL TESTING REPORT

SAMPLE	PH	SALT	NO3	NH4	CA	P	K	MG	FE	MN	B	CU					AL	NA
SAMPLE D	6.3																	

ORGANIC MATTER CONTENT -4.9 %

SIEVE ANALYSIS

SIEVE SIZE	% PASSING
1/4"	100.0 %
#50	54.1 %
#100	45.4 %
PAN	

SAMPLE	PH	SALT	NO3	NH4	CA	P	K	MG	FE	MN	B	CU					AL	NA
SAMPLE L	6.0																	

ORGANIC MATTER CONTENT - 7.3 %

SIEVE ANALYSIS

SIEVE SIZE	% PASSING
1/4"	98.8 %
#50	47.5 %
#100	34.7 %
PAN	

***Nutrient levels are in parts per million (ppm)

GOOD NUTRIENT LEVELS FOR SOIL

Nitrates	20-60 ppm	Calcium	100-200 ppm
Ammonium	2-10 ppm	Manganese	0.5 ppm plus
Potassium	8-30 ppm	Iron	0.5 ppm plus
Phosphate	5-25 ppm	Magnesium	10-30 ppm
Boron	0.05-.5 ppm	Copper	0.001-.5 ppm
Zinc	1-3.0 ppm		

***Salt levels are in mhos / cm x 10^3

GOOD NUTRIENT LEVELS FOR ARTIFICIAL MIXES

Nitrates	80-100 ppm	[illegible]	[illegible] ppm
Ammonium	2-15 ppm	[illegible]	[illegible] ppm plus
Potassium	15-60 ppm	[illegible]	[illegible] ppm plus
Phosphate	9-25 ppm	[illegible]	10-30 ppm

P. 004
5164711616
HOLTSVILLE I. C.
DEC-21' 01(FRI) 12:27

Hans L. Heimpreich
CHEMICAL CONSULTING OF BABYLON
41 EAST MAIN STREET
BABYLON, NY 11702
FAX 587-0877
(516) 587-0612

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 %
¾"	100.0 %	0.0 %
#100	42.8 %	57.2 %
PAN		42.8 %

pH 6.3

Organic Matter Content - 5.5 %

Sample Analyzed by _____
Hans L. Heimpreich, Ph. D

Rip-Rap Source

TILCON NEW YORK INC. 162 Old Mill Road West Nyack, NY 10994 (845) 358-4600 Fax (845) 358-4789

December 6, 2001

New York Dirt Contracting Corp.
121 East 2nd St.
Mineola, NY 11501

RE: Rip Rap 6" to 1' 6"

Quantity: Approximately 500 Tons

Destination: Mercer Wrecking Recycling Corp.
400 Shore Road
Glenwood Landing, NY 11547

Job Super: Jerry Ciecierski

Dear Sir:

The 620.03 Light Stone Fill at the Tilcon New York Haverstraw Quarry, Source# 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 Cascione.

Best Regards,

Morsia Thomas (AR)

Morsia Thomas
Technical Services Manager

MT/ar

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-4632	90 LBS
Grab Elongation:	ASTM D-4632	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 oz

Amoco Fabrics and Fibers Company

4508		4510		4512		4514		4516		
American Standard	Metric	American Standard	Metric	American Standard	Metric	American Standard	Metric	American Standard	Metric	Properties[1]
										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
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	3460	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	95 315	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.
1980-2000
INSPECTION - ENGINEERING

MATERIALS TESTING LAB INC.
NEW YORK DIVISION
1529 JERICHO TURNPIKE • NEW HYDE PARK, NEW YORK 11040 • (516) 354-6600 • FAX (516) 354-6690

Client: MERCER WRECKAGE & RECYCLING LLC **Report #:**
Date: 11/15/2001
Project: NEW KEYSPAN BLDG @ 400 STORE RD **Technician:** FRED HAMELIC
Test: In Place Density Test GLENWOOD LANDING LI. **Permit #:**
Method: ASTM D2922 **Job #:**
ARR. 10:00 DEP. 5:00 pm

Depth	Location	% Moisture	Dry Density PCF	Max. Dry Density PCF	% Comp.
2' GRADE	WORK AREA #1, NE CORNER OF GAS HOLDER PAD 36' W/E EDGE & 42'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 & 45'S/N END	6.7	107.9	108.6	99.4%

Remarks: (1) TEST PER LOFT IS ALL THAT IS REQUIRED AS PER KEYSPAN ENGINEER

Material Type: SAND
Item #:
Min. Comp. Req.: 95%
Proctor Dated: 11/15/2001
Max. Dry Density: 108.6
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 Wrecking & Keystone Corp PHONE JERRY - Cell # (609) 209-168 Fax # (516) 759-627

PROJECT New Keystone Bldg @ 400 Store Rd, Glenwood Landing, L.I.

TOTAL NUMBER OF SAMPLES (1) Bag LAB NO. _____

DATE OF SAMPLING 11/5/2001 SAMPLED BY [illegible] OF MTL

DELIVERED BY [illegible] OF MTL DATE/TIME 11/5/2001

RECEIVED BY _____ OF _____ DATE/TIME _____

SAMPLE I.D. NUMBER	NUMBER OF CONTAINERS	TYPE OF SAMPLE	LOCATION OF SAMPLE	TYPE OF TEST METHOD NUMBER
1	(1) Bag	Soil (for Bricks)	On Site Stockpile	Gradation / Sieve
				Analysis + MDC

REMARKS: _____

DATE TESTED _____ BILL AMOUNT _____

(FOR OFFICIAL USE ONLY)

MTL-COC REV. 3/95

MATERIALS TESTING LAB INC.
NEW YORK DIVISION
1529 JERICHO TURNPIKE • NEW HYDE PARK, NEW YORK 11040 • (516) 354-6600 • FAX (516) 354-6690

Client: Mercer wrecking	**Report #:**
	Date: 12/7/01
	Technician: Franklin Ramos
Project: New keyspan building, 400 Shore Rd.	**Permit #:**
Test: In Place Density Test	**Job #:**
Method: ASTM D2922	

1' below grade	Gas compressor building area	7.6	106.8	108.6	98.2
grade	" " " " " "		107.3		98.7
grade	work area #1	↓	106.9	↓	98.3

Remarks:

Material Type: Sand	**Proctor Dated:** 11/15/01
Item #:	**Max. Dry Density:** 108.6
Min. Comp. Req.: 95%	**Optimum Moisture**

Complies: √

Appendix E

Manhole As-Built

2. ALL STRUCTURAL STEEL
RUBBINGED AND GREEN
THE LATEST AISC SPEC
3. ALL BOLTS SHALL BE
OTHERWISE NOTED.
4. TIMBER
AND ARE TO BE STANDARD
FOR CONSTRUCTION.
5. ALL STRUCTURAL STEEL SHALL
IN ACCORD WITH ASTM
6. ALL STEEL
DIP GALVANIZED IN ACCORD
7. ALL CAULKING COMPOUND
BASE COMPOUND THAT MEETS
TT-S-00637, TYPE ONE, BUCKAS
OR EQUAL.

EMBED WEIR PLATE IN HEAVY COATING OF DAP BUTYL-FL
PART BUTYL-RUBBER BASED
TO FACE OF TIMBERS WITH
STAINLESS STL SCREWS. ALL HOLES TO BE

TINE TIMBER

14"
4" 3" 3" 4"
2 @ 2'-2" O.C.
4 @ 2 3/4" O.C.
1½"
1½"

SECTION F-F

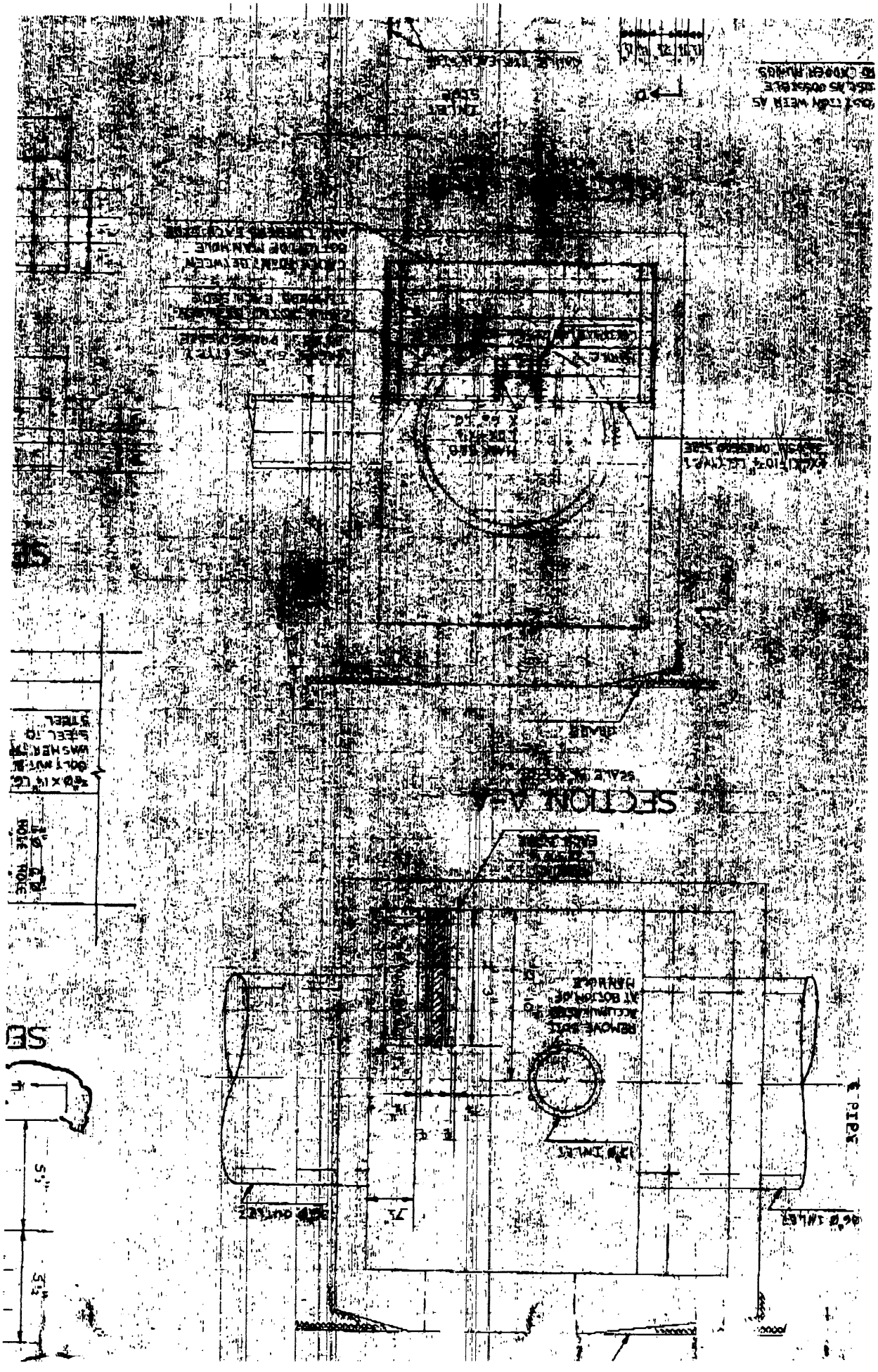
SHOWING TRIANGULAR WEIR PLATE

SCORE FACE OF PLATE WITH GRADUATION MARKINGS
INCH INCREMENTS FROM BASE OF V-NOTCH. LOCATIONS
PAINT MARKING LINES AND FLOW VALUES RED.

MARK B

MARK C

DEC-13'01(THU) 15:52 HOLTSVILLE I.C. 5164711616 P.001


SECTION A-A
REMOVE DIRT ACCUMULATIONS AT BOTTOM OF MANHOLE
12" INLET
24" OUTLET
PIPE

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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2856A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2856A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2856A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2856A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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-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 : GLENWOOD SDG No.: 7001-2856A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2856A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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
	Note: this sample	Pyrene		190 J	190 J	qualify	1, 4
	extract would not	Benzo(a)anthracene		110 J	110 J	qualify	1
	concentrate below	Chrysene		210 J	210 J	qualify	1
	10,000 uL; reported	Benzo(b)fluoranthene		90 J	90 J	qualify	1
	PQL values are therefore	Benzo(k)fluoranthene		77 J	77 J	qualify	1
	10x higher than normal	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 : GLENWOOD SDG No.: 7001-2856A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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	2-Methylnaphthalene		12 J	12 J	qualify	1
	(@ 5x dilution)	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

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', 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION

All reported surrogate recoveries were within acceptable limits

D. MATRIX SPIKE / DUPLICATE

Sample ID	Spike Compound	Bias	ACTION
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

Sample ID	Spike Compound	Bias	ACTION
SBLKHR	All blank spike recoveries were within laboratory limits		

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
11/27/01	OK	yes	
12/05/01	OK	yes	
12/06/01	OK	yes	
12/07/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA5D-5	fluoranthene	3000	**2989**

Conc., ug/Kg = (Ax x Is x Vt x Df x GPC) / (Ais x RRF x Vi x Ws x D)

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

SPCC Compounds	
N-Nitroso-di-n-propylamine	hexachlorocyclopentadiene
Hexachlorocyclopentadiene	2,4-dinitrophenol
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%

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

B. CONTINUING CALIBRATIONS

SPCC Compounds	CALIBRATION DATE :	12/05/01	12/06/01	12/07/01
N-Nitroso-di-n-propylamine	FILE ID :	R2825	R2844	R2862
Hexachlorocyclopentadiene	ALL RRFs > 0.05 ?	Yes	Yes	Yes
2,4-Dinitrophenol	SPCC RRFs >0.05 ?	Yes	Yes	Yes
4-Nitrophenol	CCC %Ds < 20% ?	Yes	Yes	Yes
MINIMUM RRF = 0.050	All Targets < 20%D?	NO	NO	NO
	(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

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%

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 : Glenwood SDG No.: 7001-2856A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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 : Glenwood SDG No.: 7001-2856A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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 : Glenwood SDG No.: 7001-2856A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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 :	Glenwood	SDG No.:	7001-2856A	METHOD:	SW846 / 8082
LAB NAME :	STL - Buffalo	CLIENT:	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 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
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 (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.: 7001-2856A

Laboratory: STL - Buffalo

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 11/30/01 Verification of ICAL Results

Aroclor 1260 Peak 1, RT = 22.36	RTX-35 Response	Cal Factor, Calc'd.	CF, reported
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

Peak RT	CF	Peak Area	conc., ng
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 : 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	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 : 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	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 : 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-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 : 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-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 anlyte 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 : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 7001-2856A

A. CALIBRATION

ICP Analytes

		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

80 - 120% recovery

	Outliers ?
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

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	none
ICSAB	80 - 120% recovery	none

E. MATRIX SPIKE (MS) GLA5B-5

	Outliers ?
75 - 125% recovery (if sample conc. < 4x spike conc.)	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

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	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)

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE GLA5B-5

	Outliers ?	
Maximum 10.0% D if undiluted sample > 10x IDL	Zn	(29%)

QA Action : Qualify 'J' positive Zn values > 10x IDL; negative bias suggested
Affects : All SDG samples

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- Connecticut Lab 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 ? **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: GLA5B-5 Lab value : 96.1 %

   Dry weight : 8.86 gm % Solids = Dry weight x 100
   Wet 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-5 Analyte : Pb Lab value : 15.6 mg/Kg

   % Solids : 97.0

   Raw value 0.0920 mg/L
   Final volume 200 mL mg/Kg dry weight = mg/L x FV (ml)
   Wet weight 1.23 gm wet wgt x (%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/a**

   If 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 $\pm$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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
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TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2876A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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	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	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

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2876A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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	GLA8-2E	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 : GLENWOOD SDG No.: 7001-2876A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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	GLA4-4S	Naphthalene		5000 J	5000 J	qualify	1, 3
	(@ 40x dilution)	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

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 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.

4 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.

5 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION
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

Sample ID	Spike Compound	Bias	ACTION
SBLKRQ	benzyl alcohol	high	Qualify positives in associated samples
SBLKAQ	none	n/a	n/a

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
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

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA4-4S	benzo(a)pyrene	22000	21763

Conc., ug/Kg = (Ax / Ais) * (Is / RRF) * (Vt / Vi) * (Df / Ws) * GPC * D

Ax	Is	Vt	Df	GPC
130818	40.0	500	40.0	1.0
Ais	**RRF**	**Vi**	**Ws**	**D**
156532	1.039	2.0	15.4	0.96

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB PROJECT : GLENWOOD SDG No.: 7001-2876A

A. INITIAL CALIBRATION

CALIBRATION DATE :	12/05/01	12/19/01	12/17/01
FILE IDs :	Q4204 - 4208	Q4292 - 4296	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
	hexachlorocyclopentadiene	2,4-dinitrophenol	hexachlorocyclopentadiene
	2,4-dinitrophenol	2,4-dinitrotoluene	2,4-dinitrophenol
	4,6-dinitro-2-methylphenol	4,6-dinitro-2-methylphenol	N-nitrosodiphenylamine
	indeno(123cd)pyrene		pentachlorophenol
	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
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%

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in associated samples.

B. CONTINUING CALIBRATIONS

CALIBRATION DATE :	12/12/01	12/19/01	12/26/01
FILE IDs :	Q4260	Q4298	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
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%

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 : Glenwood SDG No.: 7001-2876A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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 : Glenwood SDG No.: 7001-2876A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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 rerported results.

B. METHOD BLANKS

Blank ID:	A1B1115502
Extraction Date:	12/10/01
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

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.: 7001-2876A

Laboratory: 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?	NO	NO	NO
(If No, list compounds) ==>	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

	ng average conc.	extract, uL	Dilution factor
ug/Kg =	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 : 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	GLA8-2D	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 : 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	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 : 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	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 : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 7001-2876A

A. CALIBRATION

ICP Analytes		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

80 - 120% recovery — Outliers ? Tl CRI 1 & 2, 120.2, %, 125.4%

QA Action : Qualify 'J' positive Tl values up to nominal 8.0 mg/Kg, with positive bias suggested.
Affects : All SDG samples.

C. BLANKS

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
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

Outliers ?

Recovery within control limits for non-aqueous samples none
Recovery between 80 - 120% for aqueous samples n/a

I. SERIAL DILUTION SAMPLE

Outliers ?

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

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- Connecticut Lab 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 ? **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: GLA8-2E Lab value : 94.2 %

   Dry weight : 8.53 gm
   Wet weight : 9.12 gm

   % Solids = Dry weight / Wet weight x 100 = **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: GLA8-2E Analyte : Pb Lab value : 63.4 mg/Kg

   % Solids : 93.5

   Note: Pb analyzed at 50x dilution

   Raw value 0.3314 mg/L
   Final volume 200 mL
   Wet weight 1.1100 gm

   mg/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/a**

   If 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 aceptability 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." 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 : GLENWOOD SDG No.: 200230 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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	GLA7-6A	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 : GLENWOOD SDG No.: 200230 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 200230 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - NY CLIENT: 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

10/30/07

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 200230 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - NY CLIENT: 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

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', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.

5 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.

6 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.

7 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 resuults 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

Samples	Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION
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 2,4,6-TBP & 2-FBP	high	Qualify all positives

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. 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

Samples	BlankSpike ID	Spike Compound	Bias	ACTION
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

Sample ID	Internal Standard	Bias	ACTION
GLA2-1A	perylene-d12	low	Qualify all compounds quantitated from perylene-d12

Note: lab stated re-analysis confirmed matrix effects

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Internal Standard	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA2-11SA	pyrene	chrysene-d12	120 J	**120.2**

	Ax	Is	Vt	Df	GPC
Conc., ug/Kg =	127555	40.0	500	1.0	1.0
	Ais	RRF	Vi	Ws	D
	641921	1.288	2.0	15.0	0.856

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
12/17/01	OK	yes	ratio windows for m/z 51, 127, 365 and 443. These windows are incorrect
12/19/01	OK	yes	in both the summary forms and raw data.
12/19/01	OK	yes	Although the actual ratios were within the acceptable ranges for 8270,
12/26/01	OK	yes	the lab should take steps to implement the correct ranges in their software.
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
	hexachlorocyclopentadiene	benzoic acid	hexachlorocyclopentadiene
	2,4-dinitrophenol	hexachlorocyclopentadiene	2,4-dinitrophenol
	indeno(123cd)pyrene	2,4-dinitrophenol	benzo(ghi)perylene
	dibenzo(ah)anthracene	4-nitrophenol	
	benzo(ghi)perylene	butylbenzylphthalate	
		3,3'-dichlorobenzidine	
		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
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.

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 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : Glenwood SDG No.: 200230 METHOD: SW846 / 8082

LAB NAME : STL - Buffalo, NY & STL - VT CLIENT: 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 : Glenwood SDG No.: 200230 METHOD: SW846 / 8082

LAB NAME : STL - Buffalo, NY & STL - VT CLIENT: 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	Aroclor 1016		1000 U	1000 UJ	qualify	1
	(@ 50x dilution)	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 : Glenwood SDG No.: 200230 METHOD: SW846 / 8082

LAB NAME : STL - Buffalo, NY & STL - VT CLIENT: 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

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 concentration is qualified 'NJ', as presumptively present at a quantitatively estimated concentration, because the %D between analytical columns exceedeed 70%, but was below 100%. This qualifier is taken from Sect. 12.6 of the USEPA Region II SOP HW-23B, Rev.1.

3 The laboratory incorrectly reported the Aroclor present in this sample as 1254. The correct identification is Aroclor 1248;concentration is correct.

4 The laboratory incorrectly reported the concentration of Aroclor 1242 in this sample as 12000; the correct concentration is 12,500 ug/Kg.

5 The reported concentration is qualified 'J', as a quantitatively estimated concentration, because the %D between analytical columns exceedeed 25%, but was below 70%. This qualifier is taken from Sect. 12.6 of the USEPA Region II SOP HW-23B, Rev.1.

6 The reported concentration is qualified 'JN', as presumptively present at a quantitatively estimated concentration, because the %D between analytical columns exceedeed 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	Conc. ug/Kg	Analyte	Conc. ug/Kg
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.: 200230

Laboratory: 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 CALIBRATIONS

CALIBRATION 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 Aroclor 1260, Peak 1	Conc.	Response	Lab R-squared	Calc. R-squared
	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 VERIFICATION

SAMPLE ID: GLA2-1A
COMPOUND: Aroclor-1242
REPORTED VALUE: 12000 ug/Kg Primary column

ug/Kg =	ng avg. conc.	extract, mL	Dilution factor
	0.623	10000	50.0
	30.0	1.0	0.83
	wet wgt., gm	inject.vol, uL	%sol/100

ug/Kg = 12502

Confirmation column

ug/Kg =	ng avg. conc.	extract, mL	Dilution factor
	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.

12/14/01		(peak height)		Calc.
Aroclor 1260, Peak 4	Conc.	Response	Lab R-squared	R-squared
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

Peak RT	m1	peak height	+ b	ppb
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

	ppb avg. conc.	extract, mL	Dilution factor
ug/Kg =	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 : 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-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 anlyte 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 Continuin Calibration standard recovery exceeded the upper limit. Positive bias is suggested.

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc. Project : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 200230

A. **CALIBRATION**

ICP Analytes		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. **CRDL STANDARD**

80 - 120% recovery

Outliers ?	Samples (01 - 16)	Outliers ?	Samples (17 - 20)
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 - 16

QA 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**

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. **INTERELEMENT CORRECTION (ICSA / ICSAB)**

		Outliers ?	
ICSA	Response < 2x CRDL for trace metals	n/a	
ICSAB	80 - 120% recovery	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

	Outliers ?
75 - 125% recovery (if sample conc. < 4x spike conc.)	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

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	none

H. **LABORATORY CONTROL SAMPLE (LCS)**

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. **SERIAL DILUTION SAMPLE**

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	none

J. **VERIFICATION OF INSTRUMENTAL PARAMETERS**

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- Connecticut Lab 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
   Wet weight : 0.00 gm

   % Solids = Dry weight / Wet weight x 100 = **#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
   Wet weight 1.09 gm

   mg/Kg dry weight = mg/L x FV (ml) / wet wgt x (%Sol/100) = **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 $\pm$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'.

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 : GLENWOOD SDG No.: A02-9356 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - Buffalo CLIENT: 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

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 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.: A02-9356

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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION
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

Note: * next to the compound name indicates that it was out of limits in both Blank Spike and Duplicate

Sample ID	Spike Compound	Bias	ACTION
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

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
09/11/02	OK	yes	
09/23/02	OK	yes	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
Glenwood Bottom So.	pyrene	160 J	**159**

Conc., ug/Kg = (Ax / Ais) × (Is / RRF) × (Vt / Vi) × (Df / Ws) × GPC × D

Ax	Is	Vt	Df	GPC
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 :	09/11/02
FILE IDs :	Z52906 - 910
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
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 :	09/23/02
FILE ID :	Z53059
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 : Glenwood SDG No.: A02-9356 METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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	Aroclor 1016		83 U	83 U		
	SOUTH	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	Aroclor 1016		98 U	98 U		
	CENTER	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	Aroclor 1016		84 U	84 U		
	NORTH	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	Aroclor 1016		82 U	82 U		
	EAST	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
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 / 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.: A02-9356

Laboratory: 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	Conc.	Response	Lab Value	Calc.Value
RT = 10.46 minutes	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 :	09/21/02	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	Aluminum	7.111	2200 E	2200 J	qualify	8, 9
	SOUTH	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	Aluminum	7.111	2040 E	2040 J	qualify	8, 9
	CENTER	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	Aluminum	7.111	2400 E	2400 J	qualify	8, 9	
	NORTH	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	Aluminum	7.111	1430 E	1430 J	qualify	8, 9	
	EAST	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 : Glenwood SDG No.: A02-9356 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 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 ICSA 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 anlyte 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 : Glenwood

Laboratory : STL- Buffalo Lab Project No. : A02-9356

A. CALIBRATION

ICP Analytes		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	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

		Outliers ?	
ICB / CCB	< CRDL	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)

		Outliers ?	
ICSA	Response < 2x CRDL for trace metals	Tl	-35, -34 ppb
ICSAB	80 - 120% recovery	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

	Outliers ?
75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.	none

G. MATRIX DUPLICATE (Glen. Bottom North)

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	none

H. LABORATORY CONTROL SAMPLE

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE

Maximum 10.0% D if undiluted sample > 10x IDL
Outliers: Al, Ba, Cr, Cu, Fe, Pb, Zn

QA Action : Qualify 'J' positive results for above metals > 10x IDL values.

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
Instrument Detection Limits	Quarterly	Hg
Interelement Correction Factors	Annually	
Linear Range Analysis	Quarterly	*

* 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 : Glenwood

Laboratory : STL- Buffalo Lab 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 ? **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: GLEN. BOTTOM CENTER Lab value : 79 %

   Dry weight : 5.15 gm % Solids = Dry weight x 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 CENTER Analyte : Pb Lab value : 31.7 mg/Kg

   % Solids : 79.1

   Raw value 0.2562 mg/L
   Final volume 50 mL
   Wet weight 0.51 gm

   mg/Kg dry weight = mg/L x FV (ml) / 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/a**

   If 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 $\pm$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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
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TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: A02-8815 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - Buffalo CLIENT: 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 : GLENWOOD SDG No.: A02-8815 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - Buffalo CLIENT: 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

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 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION

All reported surrogate recoveries were within acceptable limits

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

Note: * next to the compound name indicates that it was out of limits in both Blank Spike and Duplicate

Sample ID	Spike Compound	Bias	ACTION
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

Sample ID	Internal Standard	Bias	ACTION

All IS recoveries & RTs were within acceptable limits

G. INSTRUMENT TUNES

Date	m/z abundance	< 12-hrs.	ACTION
06/25/02	OK	yes	
09/09/02	OK	yes	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
23KV-EAST WALL	benzo(a)pyrene	3900	**4041**

	Ax	Is	Vt	Df	GPC
Conc., ug/Kg =	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 :	06/25/02
FILE IDs :	Z52051-52, 54-56
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
	2,4-dinitrophenol

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
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 :	09/09/02
FILE ID :	Z52896
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 : Glenwood SDG No.: A02-8815 METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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: Glenwood Laboratory Project No.: A02-8815

Laboratory: 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	Conc.	Response	Lab Value	Calc.Value
RT = 10.46 minutes	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

	ng average conc.	extract, mL	Dilution factor
ug/Kg =	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 : 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-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 : Glenwood

Laboratory : STL- Buffalo Lab Project No. : A02-8815

A. CALIBRATION

ICP Analytes

		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	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

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	none
ICSAB	80 - 120% recovery	none

E. MATRIX SPIKE (23KV-SOUTH WALL)

	Outliers ?
75 - 125% recovery (if sample conc. < 4x spike conc.)	Mn 66%

QA Action : Qualify Mn values 'UJ' or 'J', with negative bias suggested.

F. POST-DIGESTION SPIKE

	Outliers ?
75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.	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)

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	none

H. LABORATORY CONTROL SAMPLE

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	Al 11% Cu 12%

QA Action : Qualify 'J' positive Al & Cu results > 10x IDL values.

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
Instrument Detection Limits	Quarterly	none
Interelement Correction Factors	Annually	*
Linear Range Analysis	Quarterly	*

* 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 : Glenwood

Laboratory : STL- Buffalo Lab 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 ? **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: 23KV-NORTH WALL Lab value : 92 %

   Dry weight : 8.10 gm % Solids = Dry weight x 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 WALL Analyte : Pb Lab value : 61.7 mg/Kg

   % Solids : 91.7

   Raw value 0.5433 mg/L
   Final volume 50 mL mg/Kg dry weight = mg/L x FV (ml)
   Wet weight 0.48 gm 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/a**

   If 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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 200242 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 200242 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 200242 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - NY CLIENT: 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 : GLENWOOD SDG No.: 200242 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - NY CLIENT: 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

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', because the % Difference for this compound in the associated Continuing Calibration standard exceeded the method limit of 20.0%.

5 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

	Sample ID	Spike Compound	Bias	ACTION
See Comment 2 above	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
GLA5A-4A RE	perylene-d12	low	compounds quantitated from phenanthrene-d10

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**

Conc., ug/Kg = (Ax x Is x Vt x Df x GPC) / (Ais x RRF x Vi x Ws x D)

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	The Form 5 tune summaries for all analytical sequences list incorrect m/z
12/18/01	OK	yes	ratio windows for m/z 51, 127, 365 and 443. For the CT lab, ratios are incorrect
11/14/01	OK	yes	in both the summary forms and raw data; for the NY lab, the windows are listed
12/19/01	OK	yes	correctly in the raw data. Although the actual ratios were within the acceptable
12/20/01	OK	yes	ranges for Method 8270, the labs should take steps to implement the correct
11/27/01	OK	yes	ranges in their software.
12/21/01	OK	yes	

B. INITIAL CALIBRATION

CALIBRATION DATE : / FILE IDs :	12/17/01	11/14/01	11/27/01
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

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.

C. CONTINUING CALIBRATIONS

CALIBRATION DATE : / FILE ID :	12/18/01	12/19/01 CCS2169	12/20/01 CCS2170	12/21/01 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	benzoic acid	N-nitrosodimethylamine	3-nitroaniline
	benzyl alcohol	4-chloroaniline	2-fluorophenol	2,4-dinitrophenol
		3-nitroaniline	2,4-dinitrophenol	2,4-dinitrotoluene
		4-nitroaniline		4-nitrophenol
		N-nitrosodiphenylamine		4-nitroaniline
		3,3'-dichlorobenzidine		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 : Glenwood SDG No.: 200242 METHOD: SW846 / 8082

LAB NAME : STL - VT CLIENT: 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 : Glenwood SDG No.: 200242 METHOD: SW846 / 8082

LAB NAME : STL - VT CLIENT: 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 : Glenwood SDG No.: 200242 METHOD: SW846 / 8082

LAB NAME : STL - VT CLIENT: 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 :	Glenwood	SDG No.:	200242	METHOD:	SW846 / 8082
LAB NAME :	STL - VT	CLIENT:	Vanasse, Hangen, Brustlin, Inc.	SAMPLE MATRIX:	Non-Aqueous

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.: 200242

Laboratory: 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	Conc.	Response	Lab R-squared	R-squared
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: GLA4-4SA
COMPOUND: Aroclor-1260
REPORTED VALUE: 68 ug/Kg column = RTX-5

Peak RT	m1	peak height	+ b	ppb
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

	ppb avg. conc.	extract, mL	Dilution factor
ug/Kg =	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 : 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	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 : 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	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.J	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 anlyte 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 : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 200242

A. CALIBRATION

ICP Analytes

		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

80 - 120% recovery

Outliers ?	Samples (01 - 14)	Outliers ?	Samples (15 - 20)
Pb	CRI 2 76%	As	CRI 2 129%
Se	All > 120%	Se	CRI 1 133%
		Tl	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 & Tl values up to 4x CRDL; positive bias suggested.
Affects : 200242 15 - 20

Note : No Se or Tl values were positive; therefore no data qualifiers were applicable.

C. BLANKS

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	n/a
ICSAB	80 - 120% recovery	none

E. MATRIX SPIKE (MS) GLA5A-4A

	Outliers ?
75 - 125% recovery (if sample conc. < 4x spike conc.)	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

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	n/a

H. LABORATORY CONTROL SAMPLE (LCS)

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 200242

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 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-5A Lab value : 91.7 %

   Dry weight : 0.00 gm % Solids = Dry weight x 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-5A Analyte : Pb Lab value : 76.7 mg/Kg

   % Solids : 91.7

   Raw value 0.4958 mg/L
   Final volume 200 mL mg/Kg dry weight = mg/L x FV (ml)
   Wet weight 1.41 gm 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/a**

   If 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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 200466 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION
2752-1MB	2-fluorophenol	high	Qualify positive phenols
GLA1-3SSA	2-fluorophenol	high	Qualify positive phenols

D. MATRIX SPIKE / DUPLICATE

Sample ID	Spike Compound	Bias	ACTION

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

Sample ID	Spike Compound	Bias	ACTION
E02ASPK001	2-methylnaphthalene	high	qualify positives only
	fluorene	high	qualify positives only

F. INTERNAL STANDARDS

Sample ID	Internal Standard	Bias	ACTION

All IS recoveries & RTs were within acceptable limits

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Internal Standard	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
E02ASPK001	phenanthrene	phenanthrene-d10	1588	**1588**

Conc., ug/Kg = (Ax / Ais) × (Is / RRF) × (Vt / Vi) × (Df / Ws) × GPC × D

Ax	Is	Vt	Df	GPC
2560835	40.0	1000	1.0	1.0
Ais	**RRF**	**Vi**	**Ws**	**D**
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
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 :	01/30/02
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 : Glenwood SDG No.: 200466 METHOD: SW846 / 8082

LAB NAME : STL - CT CLIENT: 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

Sample ID	Surrogate	Bias	QA Action
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.: 200466

Laboratory: STL - CT

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 02/06/02 Verification of ICAL Results

Aroclor 1260 Peak 5, RT = 15.40	DB-1701 Response	Cal Factor, Calc'd.	CF, reported
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 :	02/25/02	02/25/02
FILE ID :	C5145113	C5145120
All Targets < 15% D?	Yes	NO
(If No, list compounds) ===>		Aroclor-1260

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

Peak RT	CF	Peak Area	conc., ng
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	0.6313
		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 : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 200466

A. CALIBRATION

ICP Analytes		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

	Outliers ?
80 - 120% recovery	none

C. BLANKS

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	n/a
ICSAB	80 - 120% recovery	none

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)

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	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)

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE (GLA1-3SSA)

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
Instrument Detection Limits	Quarterly	n/a
Interelement Correction Factors	Annually	n/a
Linear Range Analysis	Quarterly	n/a

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc. Project : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 200466

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 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: GLA1-3SSA Lab value : 99.4 %

   Dry weight : 0 gm % Solids = Dry weight x 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: GLA1-3SSA Analyte : As Lab value : 1.5 mg/Kg

   % Solids : 99.4

   Raw value 0.0085 mg/L
   Final volume 200 mL mg/Kg dry weight = mg/L x FV (ml)
   Wet weight 1.11 gm wet wgt x (%Sol/100) = **1.549** 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. 7001-2734B

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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2734B METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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

CLIENT: VHB 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
10/30/01	SBLKDP	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

Sample ID	Surrogate	Bias	ACTION

All reported surrogate recoveries were within acceptable limits

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

Sample ID	Spike Compound	Bias	ACTION
SBLKDP	hexaClcyclopentadiene	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

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	
10/30/01	OK	yes	
10/31/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
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

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
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 : Glenwood SDG No.: 7001-2734B METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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
Analyte	Conc. ug/Kg
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 SUMMARY
SW-846 Method 8082

For: Vanasse, Hangen, Brustlin, Inc. Project: Glenwood Laboratory Project No.: 7001-2734B

Laboratory: STL - Buffalo

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 10/27/01 Verification of ICAL Results

Aroclor 1260 Peak 1, RT = 18.35	DB-1701 Response	Cal Factor, Calc'd.	CF, reported
0.05	129770	2595400	2595400
0.1	268068	2680680	2680680
0.2	507335	2536675	2536675
0.4	981195	2452988	2452988
0.8	1801026	2251283	2251282
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 necessary

C. SAMPLE RESULT VERIFICATION

SAMPLE ID: GLDPW04
COMPOUND: Aroclor-1260
REPORTED VALUE: 2.0 J ug/Kg column = RTX-35

Peak RT	CF	Peak Area	conc., ng
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 anlyte 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 : Glenwood

Laboratory : STL- CT Lab Project No. : 7001-2734B

A. CALIBRATION

ICP Analytes		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

80 - 120% recovery	Outliers ?	
	Pb	CRI 1 121%
	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

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	none
ICSAB	80 - 120% recovery	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)

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	none

H. LABORATORY CONTROL SAMPLE

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	Zn 45%

QA Action : Qualify 'J' positive Zn values > 10x IDL; negative bias suggested

Affects : All SDG samples

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
Instrument Detection Limits	Quarterly	none
Interelement Correction Factors	Annually	none
Linear Range Analysis	Quarterly	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 : Glenwood

Laboratory : STL- CT Lab 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
   Wet weight : 10.49 gm

   % Solids = Dry weight / Wet weight x 100 = **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 = mg/L x FV (ml) / wet wgt x (%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.

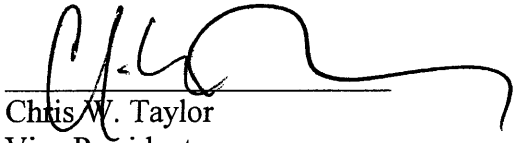
Other Issues

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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 200350 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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 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

	Sample ID	Spike Compound	Bias	ACTION
See Comment 2 above	E01LSPK008	2,4-dinitrophenol	low	qualify; negative bias
		4,6-dinitro-2-methyl-phenol	low	qualify; negative bias

F. INTERNAL STANDARDS Sample ID Internal Standard Bias ACTION
All IS recoveries & RTs were within acceptable limits

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Internal Standard	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA4-2SA	phenanthrene	phenanthrene-d10	49 J	**48.8**

	Ax	Is	Vt	Df	GPC
Conc., ug/Kg =	60479	40.0	500	1.0	1.0
	Ais	RRF	Vi	Ws	D
	919705	0.914	2.0	15.4	0.958

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
	hexachlorocyclopentadiene
	2-chloronaphthalene
	2,4-dinitrophenol
	fluorene
	4-chlorophenyl-phenylether

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 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 : Glenwood SDG No.: 200350 METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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
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 / 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	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 :	01/10/02	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

	ng average conc.	extract, mL	Dilution factor
ug/Kg =	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

1 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.

2 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 : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 200350

A. CALIBRATION

ICP Analytes		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

	Outliers ?	
80 - 120% recovery	Pb	CRI2 65%

QA Action: Qualify Pb values < nominal 1.2 mg/Kg.
Affects: All samples.

C. BLANKS

		Outliers ?	
ICB / CCB	< CRDL	Pb	CCB3, -4.6 ug/L
Prep Blank	< CRDL	none	

QA Action: Qualify Pb values < nominal 10 mg/Kg; negative bias
Affects: All samples.

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?	
ICSA	Response < 2x CRDL for trace metals	n/a	
ICSAB	80 - 120% recovery	Pb	123%, 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)

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	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)

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE (GLA4-2A)

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
Instrument Detection Limits	Quarterly	n/a
Interelement Correction Factors	Annually	n/a
Linear Range Analysis	Quarterly	n/a

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc. Project : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 200350

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: GLA4-2SA Lab value : 95.8 %

   Dry weight : 13.55 gm
   Wet weight : 14.85 gm

   % Solids = Dry weight / Wet weight x 100 = **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: GLA4-2SA Analyte : Cr Lab value : 38.9 mg/Kg

   % Solids : 91.2

   Raw value 0.2534 mg/L
   Final volume 200 mL
   Wet weight 1.36 gm

   mg/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/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. 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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 200259 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - NY CLIENT: 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 ORGANICS

SITE NAME : GLENWOOD SDG No.: 200259 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - NY CLIENT: 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

	Sample ID	Spike Compound	Bias	ACTION
See Comment 2 above	SBSPK40	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
GLA4-2S RE	perylene-d12	low	compounds quantitated from perylene-d12

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Internal Standard	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA4-2S	pyrene	chrysene-d12	1200	**1078**

Conc., ug/Kg = (Ax x Is x Vt x Df x GPC) / (Ais x RRF x Vi x Ws x D)

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)

Date	m/z abundance	< 12-hrs.	Comments
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
	2,4-dinitrophenol
CCC Compounds	4-nitrophenol
Base/Neutrals	4,6-dinitro-2-methylphenol
Acenaphthene	carbazole
1,4-Dichlorobenzene	benzo(a)pyrene
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 :	12/21/01
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 : Glenwood SDG No.: 200259 METHOD: SW846 / 8082

LAB NAME : STL - VT CLIENT: 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 Project No.: 200259

Laboratory: STL - VT

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				Calc.
Aroclor 1260, Peak 4	Conc.	Response	Lab R-squared	R-squared
RTX-5, RT = 11.51 minutes	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

	ppb avg. conc.	extract, mL	Dilution factor
ug/Kg =	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 : 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	GLA4-4SB	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 : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 200259

A. CALIBRATION

ICP Analytes

		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	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

		Outliers ?		
ICB / CCB	< CRDL	Pb	3.1 ug/L	CCB 3
Prep Blank	< CRDL	none		

QA Action: Qualify positive Pb values < nominal 6.0 mg/Kg.
Affects: All samples.

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?	
ICSAB	80 - 120% recovery	Pb	124%, 123%

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)

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	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)

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE (GLA3-1AD)

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
Instrument Detection Limits	Quarterly	n/a
Interelement Correction Factors	Annually	n/a
Linear Range Analysis	Quarterly	n/a

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc. Project : Glenwood

Laboratory : STL- Connecticut Lab 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
   Wet weight : 14.22 gm

   % Solids = Dry weight / Wet weight x 100 = **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 = mg/L x FV (ml) / wet wgt x (%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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2840A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 ORGANICS

SITE NAME : GLENWOOD | SDG No.: 7001-2840A | METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT | CLIENT: 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%. 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg	Affects
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

Sample ID	Surrogate	Bias	ACTION

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

Sample ID	Spike Compound	Bias	ACTION
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

Sample ID	Internal Standard	Bias	ACTION

All IS recoveries & RTs were within acceptable limits

G. INSTRUMENT TUNES

Date	m/z abundance	< 12-hrs.	ACTION
11/27/01	OK	yes	
11/29/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA7-1E	benzo(a)pyrene	89 J	**88.7**

Conc., ug/Kg = (Ax / Ais) x (Is / RRF) x (Vt / Vi) x Df x GPC / Ws x D

Ax	Is	Vt	Df	GPC
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	
N-Nitroso-di-n-propylamine	hexachlorocyclopentadiene
Hexachlorocyclopentadiene	2,4-dinitrophenol
2,4-Dinitrophenol	pentachlorophenol
4-Nitrophenol	indeno(1,2,3-cd)pyrene
MINIMUM RRF = 0.050	dibenzo(a,h)anthracene
	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 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : Glenwood SDG No.: 7001-2840A METHOD: SW846 / 8082

LAB NAME : STL - CT CLIENT: 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, Hangen, 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.: 7001-2840A

Laboratory: STL - CT

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 11/30/01 Verification of ICAL Results

Aroclor 1260 Peak 1, RT = 22.36	RTX-35 Response	Cal Factor, Calc'd.	CF, reported
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

Peak RT	CF	Peak Area	conc., ng
24.19	691154	26638	0.0385
25.64	187001	6614	0.0354
25.82	440310	19419	0.0441
		Average conc. =	0.0393

	ng average conc.	extract, uL	Dilution factor
ug/Kg =	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 : Glenwood SDG No.: 7001-2840A 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 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 : Glenwood

Laboratory : STL- CT Lab Project No. : 7001-2840A

A. CALIBRATION

ICP Analytes		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

	Outliers ?
80 - 120% recovery	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

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	none
ICSAB	80 - 120% recovery	none

E. MATRIX SPIKE (GLA7-1F)

	Outliers ?
75 - 125% recovery (if sample conc. < 4x spike conc.)	Se 142%

QA Action : Qualify positive Se values 'J', with positive bias suggested.
Affects : All samples.

F. POST-DIGESTION SPIKE (GLA7-1F)

	Outliers ?
75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.	none

G. MATRIX DUPLICATE (GLA7-1F)

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	none

H. LABORATORY CONTROL SAMPLE

	Outliers ?
Recovery within control limits for non-aqueous samples	K (5260 vs. 5000)
Recovery between 80 - 120% for aqueous samples	n/a

QA Action : Qualify positive K values 'J', with positive bias suggested.
Affects : All samples.

I. SERIAL DILUTION SAMPLE

	Outliers ?	
Maximum 10.0% D if undiluted sample > 10x IDL	Pb	18%
	Zn	55%

QA Action : Qualify positive Pb & Zn values > 10x IDLs; negative bias suggested.
Affects : All samples.

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- CT Lab 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: GLA7-1E (2840A-03) Lab value : 96 %

   Dry weight : 9.9 gm
   Wet weight : 10.31 gm

   % Solids = Dry weight / Wet weight x 100 = **96.0** %

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: GLA7-1E Analyte : Pb Lab value : 24.5 mg/Kg

   % Solids : 96.0

   Raw value 0.1436 mg/L
   Final volume 200 mL
   Wet weight 1.22 gm

   mg/Kg dry weight = mg/L x FV (ml) / wet wgt x (%Sol/100) = **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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 200290 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION

All reported surrogate recoveries were within acceptable limits

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

Sample ID	Spike Compound	Bias	ACTION
1876-2LCS	All blank spike recoveries were within laboratory limits		

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
12/29/01	OK	yes	n/a
12/29/01	OK	yes	n/a

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA3-1A	pyrene	98 J	**97.6**

Conc., ug/Kg = (Ax / Ais) * (Is / RRF) * (Vt / Vi) * (Df / Ws) * (GPC / D)

Ax	Is	Vt	Df	GPC
105703	40.0	1000	1.0	1.0
Ais	**RRF**	**Vi**	**Ws**	**D**
513474	1.63913	2.0	30.3	0.849

SEMI-VOLATILE ORGANICS
CALIBRATION SUMMARY
SW-846 8270

CLIENT: VHB PROJECT : GLENWOOD SDG No.: 200290

A. INITIAL CALIBRATION

CALIBRATION DATE :	12/29/01
FILE IDs :	P3887 - 3891
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
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%

1,2-dichlorobenzene
N-nitroso-di-n-propylamine
4-methylphenol
hexachloroethane
2-methylnaphthalene
hexachlorocyclopentadiene
dibenzofuran
fluorene
4-chlorophenylphenylether

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?	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 : Glenwood SDG No.: 200290 METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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
Analyte	Conc. ug/Kg	Analyte	Conc. ug/Kg
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.: 200290

Laboratory: 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	Conc.	Response	Lab Value	Calc.Value
RT = 10.84 minutes	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: 38 ug/Kg column = RTX-5

Response (peak height)	b	m1	Calculated	Reported
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	50.20	50.18
		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 : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 200290

A. CALIBRATION

ICP Analytes

		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	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

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	n/a
ICSAB	80 - 120% recovery	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)

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	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)

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE (GLA3-1AD)

Maximum 10.0% D if undiluted sample > 10x IDL Outliers ? none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
Instrument Detection Limits	Quarterly	n/a
Interelement Correction Factors	Annually	n/a
Linear Range Analysis	Quarterly	n/a

METALS ANALYSIS
QC PARAMETER / QUALIFIER SUMMARY

For : Vanasse, Hangen, Brustlin, Inc. Project : Glenwood

Laboratory : STL- Connecticut Lab 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: GLA3-1AD Lab value : 84.9 %

   Dry weight : 0 gm
   Wet weight : 0.00 gm

   % Solids = Dry weight / Wet weight x 100 = **#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: GLA3-1AD Analyte : V Lab value : 149 mg/Kg

   % Solids : 84.9

   Raw value 0.8148 mg/L
   Final volume 200 mL
   Wet weight 1.29 gm

   mg/Kg dry weight = mg/L x FV (ml) / 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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 200343 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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	Naphthalene		310 J	310 J	qualify	1
	(@ 4x dilution)	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 : GLENWOOD SDG No.: 200343 METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION

All reported surrogate recoveries were within acceptable limits

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

Sample ID	Spike Compound	Bias	ACTION
2194-2LCS	All blank spike recoveries were within laboratory limits		

F. INTERNAL STANDARDS

Sample ID	Internal Standard	Bias	ACTION
GLA4-2SB	chrysene-d12	low	Qualify associated quant. compounds

G. INSTRUMENT TUNES

Date	m/z abundance	< 12-hrs.	ACTION
01/14/02	OK	yes	n/a
01/14/02	OK	yes	n/a

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA5C-4	pyrene	7900	**7870**

Conc., ug/Kg = (Ax × Is × Vt × Df × GPC) / (Ais × RRF × Vi × Ws × D)

Ax	Is	Vt	Df	GPC
1374374	40.0	1000	4.0	1.0
Ais	**RRF**	**Vi**	**Ws**	**D**
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
	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
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 :	01/14/02
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 : Glenwood SDG No.: 200343 METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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, Hangen, 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: Glenwood Laboratory Project No.: 200343

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	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 : 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	GLA4-4SC	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 : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 200343

A. CALIBRATION

ICP Analytes

		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

	Outliers ?	
80 - 120% recovery	Pb	CRI2 65%

QA Action: Qualify Pb values < nominal 1.2 mg/Kg.
Affects: All samples.

C. BLANKS

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?	
ICSA	Response < 2x CRDL for trace metals	n/a	
ICSAB	80 - 120% recovery	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)

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	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)

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE (GLA4-2SB)

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- Connecticut Lab 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: GLA4-4SE Lab value : 92.4 %

   Dry weight : 15.46 gm % Solids = Dry weight x 100
   Wet weight : 16.65 gm Wet weight = **92.9** %

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: GLA4-4SE Analyte : Pb Lab value : 450 mg/Kg

   % Solids : 92.9

   Raw value 2.3509 mg/L
   Final volume 200 mL mg/Kg dry weight = mg/L x FV (ml)
   Wet weight 1.13 gm wet wgt x (%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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
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TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2856B METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2856B METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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

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 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION

All reported surrogate recoveries were within acceptable limits

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

Sample ID	Spike Compound	Bias	ACTION
SBLKIQ	benzyl alcohol	high	Qualify positives; all samples
	hexachlorocyclopentadiene	low	Qualify all 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
12/05/01	OK	yes	
12/05/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA5C-4	bis(2-ethylhexyl)phthalate	2100	**2082**

Conc., ug/Kg = (Ax x Is x Vt x Df x GPC) / (Ais x RRF x Vi x Ws x D)

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	
N-Nitroso-di-n-propylamine	hexachlorocyclopentadiene
Hexachlorocyclopentadiene	2,4-dinitrophenol
2,4-Dinitrophenol	4,6-dinitro-2-methylphenol
4-Nitrophenol	indeno(123cd)pyrene
MINIMUM RRF = 0.050	dibenzo(ah)anthracene
	benzo(ghi)perylene

ACTION : Qualify 'J' all positive compounds which exceed 15% RSD in all 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 :	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 : Glenwood SDG No.: 7001-2856B METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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
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 (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.: 7001-2856B

Laboratory: STL - Buffalo

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 11/30/01 Verification of ICAL Results

Aroclor 1260 Peak 1, RT = 22.36	RTX-35 Response	Cal Factor, Calc'd.	CF, reported
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	12/07/01	12/07/01
FILE ID :	D4142175	D4142192	D4142208
All Targets < 15% D?	Yes	Yes	Yes

(If No, list compounds) ==>

QA ACTION : None necessary

C. SAMPLE RESULT VERIFICATION

SAMPLE ID: PBLK21QC2
COMPOUND: Aroclor-1260
REPORTED VALUE: 120 ug/Kg column = RTX-35

Peak RT	CF	Peak Area	conc., ng
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 anlyte 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 : Glenwood

Laboratory : STL- Connecticut Lab Project No. : 7001-2856B

A. **CALIBRATION**

ICP Analytes

		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. **CRDL STANDARD**

80 - 120% recovery — Outliers ? Se CRI1 124%

QA Action: Qualify positive Se values < nominal 4.0 mg/Kg; positive bias suggested.
Affects: All samples.

C. **BLANKS**

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. **INTERELEMENT CORRECTION (ICSA / ICSAB)**

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	none
ICSAB	80 - 120% recovery	none

E. **MATRIX SPIKE (MS)** (GLA5C-1D)

75 - 125% recovery (if sample conc. < 4x spike conc.) — Outliers ? 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% — Outliers ? none

G. **MATRIX DUPLICATE (MD)** (GLA5C-1D)

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	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)**

	Outliers ?	
Recovery within control limits for non-aqueous samples	K	5350 vs. 5000
Recovery between 80 - 120% for aqueous samples	n/a	

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 — Outliers ? Zn (25%)

QA Action : Qualify 'J' positive Zn values > 10x IDL; negative bias suggested
Affects : All SDG samples

J. **VERIFICATION OF INSTRUMENTAL PARAMETERS**

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- Connecticut Lab 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
   Wet weight : 9.07 gm

   % Solids = Dry weight / Wet weight x 100 = **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 : 97.7

   Raw value 0.1184 mg/L
   Final volume 200 mL
   Wet weight 1.38 gm

   mg/Kg dry weight = mg/L x FV (ml) / wet wgt x (%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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
VOLATILE ORGANICS

SITE NAME : Glenwood SDG No.: 7001-2783A METHOD: SW846 / 8260B

LAB NAME : Severn Trent - CT 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
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:	VBLKLK
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	DATE	OUTLIERS	BIAS	ACTION
L9730	11/13/01	none reported		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, Hangen 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 'UJ' all reported results for compounds which exceed 20%D in associated samples.

D. SAMPLE RESULT VERIFICATION

SAMPLE ID : OF#3
COMPOUND : tetrachloroethene Int. Std. : chlorobenzene-d5
REPORTED VALUE : 29 ug/Kg

$$ug/Kg = \frac{229334}{1124265} \times \frac{250}{0.450} \times \frac{1.0}{4.97} \times 0.78$$

Non-Aqueous (low-level)
(Ax) (Is) (Df)
(Ais) (RRF) (Ws) (D)

ug/Kg = **29.23**

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2783A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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	Naphthalene		21000	21000		
	(@ 50x dilution)	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 : GLENWOOD SDG No.: 7001-2783A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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	Benzo(b)fluoranthene		60 J	60 J	qualify	1
	(cont'd.)	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
		Hexachlorocyclopentadiene		400 U	400 UJ	qualify	3
	OF#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 ORGANICS

SITE NAME : GLENWOOD | SDG No.: 7001-2783A | METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT | CLIENT: 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%. 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

Date Extracte	Blank ID	File ID	Matrix	Analytes Prese	Conc., ug/Kg	Affects
11/11/01	SBLKSR	R2659	soil	i-n-butylphthala	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

Sample ID	Surrogate	Bias	ACTION
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

Sample ID	Spike Compound	Bias	ACTION
SBLKSR	Note: 17 of 65 compound recoveries were above limits. See attached sheets for details.		Qualify positives for affected compounds in all SDG samples.

F. INTERNAL STANDARDS

Sample ID	Internal Standard	Bias	ACTION
All IS recoveries & RTs were within acceptable limits			n/a

G. INSTRUMENT TUNES

Date	m/z abundance	< 12-hrs.	ACTION
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

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
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
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 :	11/12/01	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: 0/17 out of 65 outside limits

COMMENTS: 11-20-01

FORM III SV-2

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: 017 out of 65 outside limits

COMMENTS: 11-20-11

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : Glenwood SDG No.: 7001-2783A METHOD: SW846 / 8082

LAB NAME : STL - CT CLIENT: 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	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	Aroclor 1016		200 U	200 U		
	(@ 5x dilution)	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	Aroclor 1016		180 U	180 U		
	(@ 5x dilution)	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 : Glenwood | SDG No.: 7001-2783A | METHOD: SW846 / 8082

LAB NAME : STL - Buffalo | CLIENT: 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 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

Sample ID	Compound	Bias	Action
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.: 7001-2783A

Laboratory: STL - Buffalo

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 11/21/01 Verification of ICAL Results

Aroclor 1260 Peak 1, RT = 18.32	DB-1701 Response	Cal Factor, Calc'd.	CF, reported
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

Peak RT	CF	Peak Area	conc., ng
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

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 : Glenwood

Laboratory : STL- CT Lab Project No. : 7001-2783A

A. CALIBRATION

ICP Analytes

		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

	Outliers ?	
80 - 120% recovery	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

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
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.)	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

	Outliers ?
75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.	n/a

Comments: See comments in 'E.' above.

G. MATRIX DUPLICATE

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	n/a
Max. (+/-) CRDL value if either sample < 5x CRDL	n/a

Comments: See comments in 'E.' above.

H. LABORATORY CONTROL SAMPLE

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	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

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- CT Lab 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 ? **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. 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 100
   Wet 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.#3 Analyte : Pb Lab value : 68.7 mg/Kg

   % Solids : 89.5

   Raw value 0.3359 mg/L
   Final volume 200 mL mg/Kg dry weight = mg/L x FV (ml)
   Wet weight 1.14 gm 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/a**

   If 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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2807A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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	Naphthalene		490 J	490 J	qualify	1
	(@ 5x dilution)	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	Naphthalene		450 J	450 J	qualify	1
	(@ 25x dilution)	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 : GLENWOOD SDG No.: 7001-2807A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2807A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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	GLA7-4	Benzo(a)pyrene		190 J	190 J	qualify	1
	(cont'd.)	Indeno(1,2,3-cd)pyrene		98 J	98 J	qualify	1, 2, 3
		Dibenzo(a,h)anthracene		40 J	40 J	qualify	1, 2, 3
		Benzo(g,h,i)perylene		91 J	91 J	qualify	1, 2, 3
		Benzyl alcohol		350 U	350 UJ	qualify	3
		Benzoic acid		1700 U	1700 UJ	qualify	3
		Hexachlorocyclopentadiene		350 U	350 UJ	qualify	3
		ALL TARGET PHENOLICS		U	UJ	qualify	4
	GLA7-5	Phenol		3 J	3 J	qualify	1
		Benzoic acid		39 J	39 J	qualify	1
		Naphthalene		34 J	34 J	qualify	1
		2-Methylnaphthalene		49 J	49 J	qualify	1, 5
		Acenaphthylene		100 J	100 J	qualify	1
		Acenaphthene		36 J	36 J	qualify	1
		Dibenzofuran		14 J	14 J	qualify	1
		Fluorene		41 J	41 J	qualify	1
		Phenanthrene		430	430		
		Anthracene		180 J	180 J	qualify	1
		Carbazole		26 J	26 J	qualify	1
		Fluoranthene		990	990 J	qualify	5
		Pyrene		730	730 J	qualify	3
		Benzo(a)anthracene		560	560		
		Chrysene		640	640		
		bis(2-ethylhexyl)phthalate		55 J	55 J	qualify	1, 3
		Di-n-octylphthalate		340 U	340 UJ	qualify	6
		Benzo(b)fluoranthene		890	890 J	qualify	6
		Benzo(k)fluoranthene		1000	1000 J	qualify	6
		Benzo(a)pyrene		640	640 J	qualify	6
		Indeno(1,2,3-cd)pyrene		58 J	58 J	qualify	1, 2, 6
		Benzo(g,h,i)perylene		59 J	59 J	qualify	1, 2, 6
		Benzyl alcohol		340 U	340 UJ	qualify	3
	GLA7-6	2-Methylnaphthalene		4 J	4 J	qualify	1, 5
		Phenanthrene		45 J	45 J	qualify	1
		Anthracene		19 J	19 J	qualify	1
		Fluoranthene		150 J	150 J	qualify	1, 5
		Pyrene		170 J	170 J	qualify	3
		Benzo(a)anthracene		120 J	120 J	qualify	1
		Chrysene		140 J	140 J	qualify	1
		Benzo(b)fluoranthene		120 J	120 J	qualify	1
		Benzo(k)fluoranthene		130 J	130 J	qualify	1
		Benzo(a)pyrene		140 J	140 J	qualify	1
		Indeno(1,2,3-cd)pyrene		44 J	44 J	qualify	1, 2
		Dibenzo(a,h)anthracene		16 J	16 J	qualify	1, 2
		Benzo(g,h,i)perylene		39 J	39 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
	GLA7-7S	2-Methylnaphthalene		20 J	20 J	qualify	1, 5
		Acenaphthylene		21 J	21 J	qualify	1
		Acenaphthene		14 J	14 J	qualify	1
		Dibenzofuran		7 J	7 J	qualify	1
		Phenanthrene		190 J	190 J	qualify	1
		Anthracene		53 J	53 J	qualify	1
		Carbazole		18 J	18 J	qualify	1

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2807A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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

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 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.

5 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.

6 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 correspondind 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION
GLA7-2	246-tribromophenol	low, >10%	Qualify positive phenolics 'J';
GLA7-3	246-tribromophenol	low, >10%	positive bias suggested
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

Sample ID	Spike Compound	Bias	ACTION
SBLKSR	17 of 65 compounds; see attached list	high	Qualify 'J' positives; positive bias

F. INTERNAL STANDARDS

Sample ID	Internal Standard	Bias	ACTION
GLA7-5	perylene-d12	low	Qualify 'UJ' or 'J' associated compounds

G. INSTRUMENT TUNES

Date	m/z abundance	< 12-hrs.	ACTION
10/30/01	OK	yes	
11/12/01	OK	yes	
11/13/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA7-1A	benzo(a)pyrene	11000	**10632**

Conc., ug/Kg = $\frac{Ax \times Is \times Vt \times Df \times GPC}{Ais \times RRF \times Vi \times Ws \times D}$

Ax	Is	Vt	Df	GPC
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: 017 out of 65 outside limits

COMMENTS: 11-20-01

FORM III SV-2

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: 0/7 out of 65 outside limits

COMMENTS: 11-24-93

FORM III SV-2

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
	hexachlorocyclopentadiene
	2,4-dinitrophenol
	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 :	11/12/01	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 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : Glenwood SDG No.: 7001-2807A METHOD: SW846 / 8082

LAB NAME : STL - CT CLIENT: 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 : Glenwood SDG No.: 7001-2807A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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

Sample ID	Compound	Bias	Action
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.: 7001-2807A

Laboratory: STL - Buffalo

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 11/01/01 Verification of ICAL Results

Aroclor 1260 Peak 1, RT = 18.31	DB-1701 Response	Cal Factor, Calc'd.	CF, reported
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

Peak RT	CF	Peak Area	conc., ng
10.54	1613450	425055	0.2634
12.85	3792700	555537	0.1465
15.97	3560740	604324	0.1697
		Average conc. =	0.1932

ug/Kg =

ng average conc.	extract, uL	Dilution factor
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 : 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	GLA7-6	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

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 NOT USED FOR THIS SDG

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 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.

6 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.

7 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 : Glenwood

Laboratory : STL- CT Lab Project No. : 7001-2807A

A. CALIBRATION

ICP Analytes		Outliers ?	
ICV	90% - 110% recovery	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

	Outliers ?	
80 - 120% recovery	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

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	none
ICSAB	80 - 120% recovery	none

E. MATRIX SPIKE (GLA7-3)

	Outliers ?
75 - 125% recovery (if sample conc. < 4x spike conc.)	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)

	Outliers ?
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. Also, no PDS run for Ni.

G. MATRIX DUPLICATE (GLA7-3)

	Outliers ?	
Max. 100% RPD for non-aqueous samples > 5x CRDL		
Max. (+/-) CRDL value if either sample < 5x CRDL	As	> 1.8

QA Action : Qualify As values 'UJ' or 'J' ; no bias direction inferred.

H. LABORATORY CONTROL SAMPLE

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	K 12%
	Zn 27%

QA Action : Qualify 'J' positive K & Zn results > 10x IDL values.

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- CT Lab 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 : 9.58 gm % Solids = Dry weight x 100
   Wet weight : 10.40 gm Wet weight = **92.1** %

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: GLA7-2 Analyte : As Lab value : 5.5 mg/Kg

   % Solids : 92.1

   Raw value 0.0288 mg/L
   Final volume 200 mL mg/Kg dry weight = mg/L x FV (ml)
   Wet weight 1.14 gm 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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2818A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2818A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2818A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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%. 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION
GLA2-6	2-fluoroophenol	high	Qualify positive phenolics 'J';
GLA2-7	2-fluoroophenol	high	positive 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

Sample ID	Spike Compound	Bias	ACTION
SBLKIQ	benzyl alcohol	high	Qualify 'J' positives; positive bias
	4,6-diNO_2-2Mephenol	low	Qualify 'UJ' or 'J'; negative bias

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
11/13/01	OK	yes	
11/20/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA2-5S	benzo(ghi)perylene	130 J	**127.5**

Conc., ug/Kg = $\frac{Ax \times Is \times Vt \times Df \times GPC}{Ais \times RRF \times Vi \times Ws \times D}$

Ax	Is	Vt	Df	GPC
140763	40.0	500	1.0	1.0
Ais	**RRF**	**Vi**	**Ws**	**D**
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 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
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 :	11/20/01
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 : Glenwood SDG No.: 7001-2818A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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	Aroclor 1016		68 U	68 U		
	(@ 2x dilution)	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 : Glenwood SDG No.: 7001-2818A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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

Aroclor 1260 Peak 1, RT = 21.42	DB-1701 Response	Cal Factor, Calc'd.	CF, reported
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

Peak RT	CF	Peak Area	conc., ng
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 : Glenwood

Laboratory : STL- CT Lab Project No. : 7001-2818A

A. CALIBRATION

ICP Analytes

		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

	Outliers ?
80 - 120% recovery	none

C. BLANKS

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
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.)

Comments: 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.

F. POST-DIGESTION SPIKE

Outliers ?

75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.

Comments: See comments above.

G. MATRIX DUPLICATE

Outliers ?

Max. 100% RPD for non-aqueous samples > 5x CRDL
Max. (+/-) CRDL value if either sample < 5x CRDL

Comments: 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.

H. LABORATORY CONTROL SAMPLE

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	K 31%

QA Action : Qualify 'J' positive K results > 10x IDL value.

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- CT Lab 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 = Dry weight x 100
   Wet weight : 9.58 gm Wet weight = **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 = mg/L x FV (ml)
   Wet weight 1.23 gm wet wgt x (%Sol/100) = **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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2771A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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	Naphthalene		43000	43000		
	(@ 100x dilution)	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 : GLENWOOD SDG No.: 7001-2771A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2771A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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
	246-tribromophenol	low (>10%)	positives
	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

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA1-2	naphthalene	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 : Glenwood SDG No.: 7001-2771A METHOD: SW846 / 8082

LAB NAME : STL - CT CLIENT: 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	Aroclor 1016		7300 U	7300 U		
	(@ 200x dilution)	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	Aroclor 1016		740 U	740 U		
	(@ 20x dilution)	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 : Glenwood SDG No.: 7001-2771A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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	Aroclor 1016		190 U	190 U		
	(@ 5x dilution)	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.: 7001-2771A

Laboratory: STL - Buffalo

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 11/01/01 Verification of ICAL Results

Aroclor 1260 Peak 1, RT = 18.31	DB-1701 Response	Cal Factor, Calc'd.	CF, reported
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 :	11/06/01	11/07/01	11/07/01
FILE ID :	C5133113	C5133131	C5133136
All Targets < 15% D?	NO	Yes	Yes
(If No, list compounds) ===>	Aroclor-1260		

CALIBRATION DATE :	11/07/01	11/08/01	11/08/01
FILE ID :	C5133153	C5133171	C5133187
All Targets < 15% D?	Yes	Yes	Yes
(If No, list compounds) ===>			

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

Peak RT	CF	Peak Area	conc., ng
22.50	1827071	543126	0.2973
23.90	3243039	1062696	0.3277
25.34	2408272	932615	0.3873
		Average conc. =	0.3374

ug/Kg =

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 : Glenwood SDG No.: 7001-2771A 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	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 : Glenwood SDG No.: 7001-2771A 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	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 : Glenwood SDG No.: 7001-2771A 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	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 : Glenwood SDG No.: 7001-2771A 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	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 : Glenwood SDG No.: 7001-2771A 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	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 : Glenwood SDG No.: 7001-2771A 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	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

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 anlyte 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 anlyte was qualified 'J', because the matrix spike recovery exceeded the upper limit of 125%. Potential positive bias is suggested.

4 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.

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 : Glenwood

Laboratory : STL- CT Lab Project No. : 7001-2771A

A. CALIBRATION

ICP Analytes		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

	Outliers ?
80 - 120% recovery	none

C. BLANKS

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	none
ICSAB	80 - 120% recovery	none

E. MATRIX SPIKE (GLA1-1A)

	Outliers ?
75 - 125% recovery (if sample conc. < 4x spike conc.)	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

	Outliers ?
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)

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	
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

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	As 12%
	K 14%
	Zn 13%

QA Action : Qualify 'J' positive As, K & Zn results > 10x IDL values.

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- CT Lab 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: GLA1-3S (2771A-05) Lab value : 92 %

   Dry weight : 9.04 gm
   Wet weight : 9.68 gm

   % Solids = Dry weight / Wet weight x 100 = **93.4** %

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: GLA1-3S Analyte : As Lab value : 11.6 mg/Kg

   % Solids : 93.4

   Raw value 0.0538 mg/L
   Final volume 200 mL
   Wet weight 1.05 gm

   mg/Kg dry weight = mg/L x FV (ml) / wet wgt x (%Sol/100) = **11.0** 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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2850A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2850A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2850A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2850A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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

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 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.

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%. No bias direction is inferred.

5 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.

6 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg	Affects
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

Sample ID	Surrogate	Bias	ACTION
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

Sample ID	Spike Compound	Bias	ACTION
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

Sample ID	Internal Standard	Bias	ACTION

All IS recoveries & RTs were within acceptable limits

G. INSTRUMENT TUNES

Date	m/z abundance	< 12-hrs.	ACTION
11/13/01	OK	yes	
11/29/01	OK	yes	
12/03/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA7-3D	pyrene	570	**574.7**

Conc., ug/Kg = $\frac{Ax \times Is \times Vt \times Df \times GPC}{Ais \times RRF \times Vi \times Ws \times D}$

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

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
	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
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 : Glenwood SDG No.: 7001-2850A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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	Aroclor 1016		3400 U	3400 U		
	(@ 100x diution)	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 : Glenwood SDG No.: 7001-2850A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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

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 50%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

3 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.

4 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: Glenwood Laboratory Project No.: 7001-2850A

Laboratory: STL - Buffalo

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 12/01/01 Verification of ICAL Results

Aroclor 1260 Peak 1, RT = 18.31	DB-1701 Response	Cal Factor, Calc'd.	CF, reported
0.05	151725	3034500	3034500
0.1	304249	3042490	3042490
0.2	557381	2786905	2786905
0.4	1058053	2645133	2645132
0.8	1943788	2429735	2429735
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 necessary

C. SAMPLE RESULT VERIFICATION

SAMPLE ID: GLA2-10
COMPOUND: Aroclor-1248
REPORTED VALUE: 18000 ug/Kg column = DB-1701

Peak RT	CF	Peak Area	conc., ng
10.52	4783850	2642038	0.5523
11.30	3136100	1762685	0.5621
12.88	6223390	3140606	0.5046
		Average conc. =	0.5397

	ng average conc.	extract, uL	Dilution factor
ug/Kg =	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 : Glenwood SDG No.: 7001-2850A 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	GLA7-1D	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 : Glenwood SDG No.: 7001-2850A 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	GLA7-3D	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 : Glenwood SDG No.: 7001-2850A 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	GLA2-11	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 : Glenwood SDG No.: 7001-2850A 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	GLA2-8	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 : Glenwood SDG No.: 7001-2850A 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	GLA2-4	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 : Glenwood SDG No.: 7001-2850A 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	GLA2-2	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 : Glenwood

Laboratory : STL- CT Lab Project No. : 7001-2850A

A. CALIBRATION

ICP Analytes		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

	Outliers ?
80 - 120% recovery	none

C. BLANKS

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	none
ICSAB	80 - 120% recovery	none

E. MATRIX SPIKE (GLA7-1F)

	Outliers ?
75 - 125% recovery (if sample conc. < 4x spike conc.)	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)

	Outliers ?
75 - 125% recovery; PDS conc. should be 2x CRDL or 2x sample conc., whichever is >.	none

G. MATRIX DUPLICATE (GLA7-1F)

	Outliers ?
Max. 100% RPD for non-aqueous samples > 5x CRDL	none
Max. (+/-) CRDL value if either sample < 5x CRDL	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

	Outliers ?
Recovery within control limits for non-aqueous samples	K (5260 / 5000)
Recovery between 80 - 120% for aqueous samples	n/a

QA Action : Qualify positive K values 'J', with positive bias suggested. Affects all SDG samples.

I. SERIAL DILUTION SAMPLE

	Outliers ?
Maximum 10.0% D if undiluted sample > 10x IDL	none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- CT Lab 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-~~04~~ 06) Lab value : 96.9 %

   Dry weight : 0 gm % Solids = Dry weight x 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: GLA2-10 Analyte : V Lab value : 175 mg/Kg

   % Solids : 96.9

   Raw value 0.9317 mg/L
   Final volume 200 mL mg/Kg dry weight = mg/L x FV (ml)
   Wet weight 1.10 gm wet wgt x (%Sol/100) = **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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2734A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2734A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2734A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 : GLENWOOD SDG No.: 7001-2734A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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 ORGANICS

SITE NAME : GLENWOOD | SDG No.: 7001-2734A | METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT | CLIENT: 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

CLIENT: VHB 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION

All reported surrogate recoveries were within acceptable limits

D. MATRIX SPIKE / DUPLICATE

Sample ID	Spike Compound	Bias	ACTION
GLDPW-02 MS			
GLDPW-02 MSD			

Comments: Only CLP compounds were spiked in the MS/MSD

E. BLANK SPIKE

Sample ID	Spike Compound	Bias	ACTION
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-01	chrysene & perylene	low	Qualify associated compounds 'UJ' or 'J'
GLA8-02	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

Date	m/z abundance	< 12-hrs.	ACTION
10/18/01	OK	yes	
10/30/01	OK	yes	
10/31/01	OK	yes	
11/01/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA8-02	pyrene	930	**929**

Conc., ug/Kg = $\frac{Ax}{Ais} \cdot \frac{Is}{RRF} \cdot \frac{Vt}{Vi} \cdot \frac{Df}{Ws} \cdot \frac{GPC}{D}$

Ax	Is	Vt	Df	GPC
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 'UJ' all reported results for compounds which exceed 20%D in associated samples.

TARGET ANALYTE SUMMARY
POLYCHLORINATED BIPHENYLS (PCBs)

SITE NAME : Glenwood SDG No.: 7001-2734A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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 : Glenwood SDG No.: 7001-2734A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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	Aroclor 1016		350 U	350 U		
	(@ 10x dilution)	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	Aroclor 1016		70 U	70 U		
	(@ 2x dilution)	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 : Glenwood SDG No.: 7001-2734A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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

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 50%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

3 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.: 7001-2734A

Laboratory: STL - Buffalo

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 10/27/01 Verification of ICAL Results

Aroclor 1260 Peak 1, RT = 18.35	DB-1701 Response	Cal Factor, Calc'd.	CF, reported
0.05	129770	2595400	2595400
0.1	268068	2680680	2680680
0.2	507335	2536675	2536675
0.4	981195	2452988	2452988
0.8	1801026	2251283	2251282
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 necessary

C. SAMPLE RESULT VERIFICATION

SAMPLE ID: GLDPE03
COMPOUND: Aroclor-1248
REPORTED VALUE: 1100 ug/Kg column = DB-1701

Peak RT	CF	Peak Area	conc., ng
8.41	708310	210915	0.2978
10.54	2944160	1035355	0.3517
11.33	2135520	669006	0.3133
		Average conc. =	0.3209

ug/Kg =

ng average conc.	extract, uL	Dilution factor
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 : Glenwood SDG No.: 7001-2734A 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	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 : Glenwood SDG No.: 7001-2734A 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	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 : Glenwood SDG No.: 7001-2734A 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	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 : Glenwood SDG No.: 7001-2734A 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	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 : Glenwood SDG No.: 7001-2734A 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	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 : Glenwood SDG No.: 7001-2734A 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	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 : Glenwood SDG No.: 7001-2734A 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	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 : Glenwood SDG No.: 7001-2734A 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	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 : Glenwood SDG No.: 7001-2734A 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	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 : Glenwood SDG No.: 7001-2734A 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-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 anlyte was Rejected, 'R', because the matrix spike recovery was below 10%.

4 The reported value for this anlyte 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 : Glenwood

Laboratory : STL- CT Lab Project No. : 7001-2734A

A. CALIBRATION

ICP Analytes

		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	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

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	none
ICSAB	80 - 120% recovery	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

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	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 suggested
Affects : All SDG samples

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- CT Lab 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 ? **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: GLDPN-01 (2734A-11) Lab value : 92.1 %

   Dry weight : 10.11 gm
   Wet weight : 10.91 gm

   % Solids = Dry weight / Wet weight x 100 = **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-01 Analyte : Pb Lab value : 54.0 mg/Kg

   % Solids : 92.7

   Raw value 0.2636 mg/L
   Final volume 200 mL
   Wet weight 1.06 gm

   mg/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/a**

   If 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

ENVIRONMENTAL QUALITY ASSOCIATES, INC.
VOICE / FAX ... (845) 386 – 4705
E-MAIL ... ENVIROQA@FRONTIERNET.NET

TARGET ANALYTE SUMMARY
SEMI-VOLATILE ORGANICS

SITE NAME : GLENWOOD SDG No.: 7001-2835A METHOD: SW846 / 8270C

LAB NAME : Severn Trent - CT CLIENT: 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

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 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.

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 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

Date Extracted	Blank ID	File ID	Matrix	Analytes Present	Conc., ug/Kg
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

Sample ID	Surrogate	Bias	ACTION
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

Sample ID	Spike Compound	Bias	ACTION
SBLKSR	All blank spike recoveries were within laboratory limits		

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
11/27/01	OK	yes	
11/27/01	OK	yes	

H. SAMPLE RESULT VERIFICATION

Sample ID	Compound	Reported Conc., ug/Kg	Calculated Conc., ug/Kg
GLA1-4C	naphthalene	18 J	**17.53**

Conc., ug/Kg = (Ax × Is × Vt × Df × GPC) / (Ais × RRF × Vi × Ws × D)

Ax	Is	Vt	Df	GPC
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
	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
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 :	11/27/01
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 : Glenwood SDG No.: 7001-2835A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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 : Glenwood SDG No.: 7001-2835A METHOD: SW846 / 8082

LAB NAME : STL - Buffalo CLIENT: 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

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 50%. This qualifier is taken from Sect. 12.6 of EPA Region II SOP HW-23B, Rev. 1.0.

3 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.: 7001-2835A

Laboratory: STL - Buffalo

A. INITIAL CALIBRATIONS

CALIBRATION DATE : 11/22/01 Verification of ICAL Results

Aroclor 1260 Peak 1, RT = 18.78	RTX-35 Response	Cal Factor, Calc'd.	CF, reported
0.05	31713	634260	634260
0.1	63792	637920	637920
0.2	114133	570665	570665
0.4	234670	586675	586675
0.8	418035	522544	522544
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

Peak RT	CF	Peak Area	conc., ng
19.76	485096	10017	0.0206
21.29	646439	10778	0.0167
22.78	247482	3886	0.0157
		Average conc. =	0.0177

	ng average conc.	extract, uL	Dilution factor
ug/Kg =	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 : Glenwood SDG No.: 7001-2835A 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	GLA6-1B	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 : Glenwood SDG No.: 7001-2835A 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	GLA6-4	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 : Glenwood SDG No.: 7001-2835A 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	GLA6-2S	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 : Glenwood SDG No.: 7001-2835A 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	GLA6-4S	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 : Glenwood SDG No.: 7001-2835A 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	GLA7-1C	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 : Glenwood SDG No.: 7001-2835A 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	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

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 anlyte 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 value for this anlyte 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 : Glenwood

Laboratory : STL- CT Lab Project No. : 7001-2835A

A. CALIBRATION

ICP Analytes

		Outliers ?
ICV	90% - 110% recovery	none
CCV	90% - 110% recovery	none

B. CRDL STANDARD

80 - 120% recovery

Outliers ? 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

		Outliers ?
ICB / CCB	< CRDL	none
Prep Blank	< CRDL	none

D. INTERELEMENT CORRECTION (ICSA / ICSAB)

		Outliers ?
ICSA	Response < 2x CRDL for trace metals	none
ICSAB	80 - 120% recovery	none

E. MATRIX SPIKE (GLA1-4B)

75 - 125% recovery (if sample conc. < 4x spike conc.)

Outliers ? Sb 71%

QA Action : Qualify Sb values 'UJ' or 'J', with negative bias suggested. Affects all SDG samples.

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 (GLA1-4B)

Max. 100% RPD for non-aqueous samples > 5x CRDL

Max. (+/-) CRDL value if either sample < 5x CRDL

Outliers ? Hg 104%

QA Action : Qualify Hg values 'UJ' or 'J' ; no bias direction inferred.

H. LABORATORY CONTROL SAMPLE

	Outliers ?
Recovery within control limits for non-aqueous samples	none
Recovery between 80 - 120% for aqueous samples	n/a

I. SERIAL DILUTION SAMPLE

Maximum 10.0% D if undiluted sample > 10x IDL

Outliers ? none

J. VERIFICATION OF INSTRUMENTAL PARAMETERS

	Frequency	Outliers ?
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 : Glenwood

Laboratory : STL- CT Lab 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 100
   Wet 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: GLA6-4S Analyte : Pb Lab value : 50.4 mg/Kg

   % Solids : 95.9 Note: Pb analyzed at 50x dilution

   Raw value 0.3070 mg/L
   Final volume 200 mL mg/Kg dry weight = mg/L x FV (ml)
   Wet weight 1.27 gm 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

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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

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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

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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

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Soil Remediation

Backfill area 3-1

View looking northeast at area 2-2 excavation - former boiler wash area

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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

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Soil Remediation

View looking east northeast at area 2-2 dig

View looking north at area 2-6 hand dig

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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

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Soil Remediation

View looking north northwest at area 2-6

View looking south at comp. bldg. demo and backfilling

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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

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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

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Soil Remediation

View looking northeast performing magnetometer survey in area 1B

View lookng southwest at 1B rip rap prep. area

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Soil Remediation

View lookng northwest at contouring of debris fill in area 1B

View looking southeast at area 1B rip rap placements

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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

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Soil Remediation

View looking south at area 2-4 after 1st cut

View looking south at fabric/fill area 2-2

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Soil Remediation

View looking northeast at clay and topsoil placements in area 1B

View looking southeast at dozer spreading clay soils in area 1B

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Soil Remediation

View looking southeast at area 1B, hydroseeding in progress

View looking northeast at area 1B from across the "sunken barge pond"

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Soil Remediation

Cleaning MH#2

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