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SITE INVESTIGATION REPORT

VACAIR ALLOYS DIVISION

FREWSBURG, NEW YORK

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SITE INVESTIGATION REPORT

VACAIR ALLOYS DIVISION

FREWSBURG, NEW YORK

OCTOBER 1991

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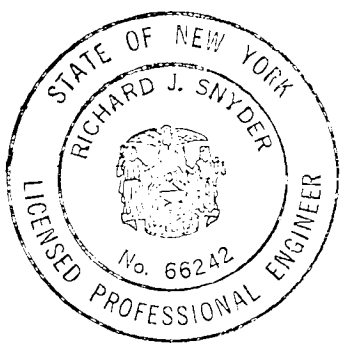
CONESTOGA-ROVERS & ASSOCIATES

CERTIFICATION

I, Richard J. Snyder, a Professional Engineer in the State of New York, certify, based on a review of documentation submitted to me and interviews with persons directly responsible for performing the work, that the activities which comprised the Site Investigation at the VacAir alloys Division of Keywell Corporation located in Frewsburg, New York, were performed in full accordance with the document entitled, "Site Investigation Work Plan, Volume I-III, VacAir Alloys Corporation, Frewsburg, New York", dated December 7, 1990 and subsequent revisions. Due to field conditions encountered during the implementation of field activities, some modifications were made to the program with approval of the New York State Department of Environmental Conservation; these modifications are described in the Site Investigation Report.

Richard J. Snyder

Richard J. Snyder, P.E.



10-1-91

Date

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1.0 INTRODUCTION

1.1 GENERAL

The VacAir Alloys Division (VacAir) of the Keywell Corporation (Keywell) owns and operates a high grade scrap metal processing plant site (Site) located on the outskirts of Frewsburg, New York. VacAir conducted an environmental investigation program of the Site at the request of the New York State Department of Environmental Conservation (NYSDEC) in accordance with an Order on Consent (Index #B9-0333-90-05) entered into by Keywell and the NYSDEC. The scope of work and the associated procedures and protocols for this Site Investigation (SI) program (after giving all known responsible parties an opportunity to comment) were approved by NYSDEC and were presented in the Site Investigation Work Plan, Volume I; Volume II, Quality Assurance Project Plan (QAPP); and Volume III, Health and Safety Plan (HASP), all dated December 7, 1990 and in subsequent submittals dated January 8, 1991 and April 5, 1991.

The SI program was developed to investigate the potential presence of environmental contamination at the Site, and if found, to define the nature and extent of contamination and the potential migration pathways of the contaminants.

This report has been prepared to describe the activities conducted as part of the SI, and to present the results of the SI and an evaluation of the data obtained during the SI.

1.2 PROGRAM DESCRIPTION

The goals of the SI were to determine:

i) the extent of contamination and/or waste material, if any, on Site;

ii) the environmental impact of historical operations at the Site;

iii) the nature of chemical contamination, if found; and

vi) the potential migration pathways for chemical contamination, if present.

The details of the SI program were developed in consultation with the NYSDEC and are described in the approved SI Work Plan documents.

In order to accomplish the goals of the SI, the following tasks were undertaken:

i) summarize the existing Site and regional conditions, including geologic and hydrogeologic settings, demographics, climatology;

ii) review of available aerial photographs of the Site;

iii) development of a Site map delineating the property boundary and Site features;

iv) installation and sampling of groundwater monitoring wells;

v) collection of sediment, surface water and potable water samples;

vi) collection of subsurface and surficial soil samples;

vii) excavation and sampling of test pits; and

viii) analysis and evaluation of the collected data.

Areas investigated included potential areas of contamination located on Site; the Conewango Creek; the low lying areas north of the plant facilities; and the adjacent municipal water supply wells.

2.0 BACKGROUND

2.1 SITE DESCRIPTION

VacAir owns approximately 93 acres (VacAir Property) on the outskirts of Frewsburg, New York (see Figure 2.1); of the 93 acres, approximately 15 acres were developed into the present VacAir plant Site. The remaining 78 acres consists of undeveloped low lying and wooded areas. A layout of the Site and the VacAir Property boundaries is shown on Figure 2.2.

The Site is bounded to the north by the Conewango Creek, to the east by low lying areas, to the south by residential development and to the west by the Frewsburg-Falconer Road. The Frewsburg Water District municipal supply wells (Well Nos. 1 and 2a) are located approximately 300 feet west of the Site. The Site is within an area which is zoned for industrial development. A small plastics manufacturing plant is located approximately 800 feet southwest of the Site. Other businesses are located west of the Site and include construction, highway maintenance and auto repair businesses. A small industrial park is also located approximately 3/4 of a mile south of the Site.

Buildings on the Site include a guard house at the plant entrance, a 112,000 square foot building complex (Main Building) that houses the main process operation and administration offices, and an 8,000 square foot metal clad building (Metal Building) that houses additional process operations. An active septic tank and sandbed (constructed in about the mid

1980's) are located south of the Main Building. A partially covered drainage ditch/swale runs through the center of the Site immediately east of the main building complex. The ditch collects runoff from lands south of Site and drains into a low swampy area which discharges to the Conewango Creek. A fresh water pond is located in the southwest corner of the Site.

Operations at the Site consist of grading, sorting, cleaning, blending and packaging high grade scrap metal. Scrap metal handled consists of stainless steel, titanium alloys and nickel bearing materials. Some scrap metal is cleaned after sorting by either shot blasting or degreasing with trichloroethylene (trichloroethene or TCE). Waste produced from the process operations include iron dust, TCE sludge, spent TCE, waste lubricating oil and hydraulic oil. Surface water runoff from the concrete pads (where scrap metal is stored) is treated on Site by two oil-water separators and discharged to the Conewango Creek under the terms and conditions of the facility's State Pollutant Discharge Elimination System (SPDES) permit.

2.2 SITE HISTORY

VacAir began its metal processing/recycling operations in 1969. Prior to 1969, the Site was used for the manufacturing of wafer board.

In early 1990, the NYSDEC initiated an ongoing investigation of possible environmental contamination at the Site and decided that a field investigation was warranted. VacAir agreed to conduct the SI to investigate potential areas of contamination at the Site, as identified

by NYSDEC. Figure 2.3 presents the approximate locations of the areas of potential contamination, and Table 2.1 describes these areas.

A review of aerial photographs shows that the Site has undergone many changes over the past 30 years. An aerial photo dated November 25, 1961 (on display in the Town of Carroll Town Hall) shows that the Site was not developed in 1961. The Main Building was constructed in the 1960's and was expanded in stages to its present configuration. An aerial photograph dated May 17, 1971 indicated that a section of the Main Building was constructed and that material (believed to be scrap metal) was being staged north and east of the Main Building. In addition, a drainage swale was present in a partially wooded area and along the eastern portion of the Site. An aerial photograph dated June 8, 1983 indicated the presence of large additions to the north and south sides of the Main Building; a separate Metal Building constructed to the east of the Main Building; a pond located at the southeast of the Main Building; and a concrete pad over the drainage swale located between the Main Building and the Metal Building.

2.3 REGIONAL SETTING

2.3.1 Demographics

The Site is located approximately one mile north of the Village of Frewsburg in the Town of Carroll in Chautauqua County, New York. The Town of Carroll has a population of approximately 3,500 including approximately 1,800 residents in the Village of Frewsburg. The Village of

Frewsburg primarily consists of residential areas, business areas and agricultural areas. Dairy farming and agriculture are major occupations in this area.

2.3.2 Physiography

The Frewsburg area is located in a broad, flat-bottomed valley between areally extensive rolling uplands. The elevation of the valley bottom is approximately 1,250 feet above mean sea level (AMSL). The uplands in the area rise to heights of 1,500 feet AMSL or greater. The Conewango Creek flows through the valley in a generally southward direction.

2.3.3 Climate

The climate of the Frewsburg area is classified as humid-continental, characterized by cold, wet winters and warm, wet summers. Table 2.2 presents a summary of the 1990 precipitation and temperature data. The 1990 total precipitation, as provided by the Northeast Regional Climate Center for Jamestown, New York, is approximately 63 inches. The average temperature in 1990 was approximately 50°F with the coldest average temperature occurring in February and the warmest average temperature occurring in July. Mean monthly temperature and precipitation data have not been tabulated by the Northeast Regional Climate Center and are not available. However, based on 1960 data compiled by the United States

Weather Bureau (as referenced in Crain, 1966), the average annual precipitation for Jamestown is 42.65 inches and the mean annual temperature is 49.1°F.

2.3.4 Regional Geology

The regional geology of the Chautauqua County area consists of unconsolidated deposits over bedrock which originated during the Ice Age.

In pre-glacial times, streams flowed north through the area creating valleys. During the time of glaciation, fingers of the ice sheets advancing and retreating through the area deepened and widened the valleys. As the glaciers advanced, huge amounts of soil and bedrock were moved. At the end of the Ice Age, moraines were formed. As the glaciers retreated, glacial debris (till) was deposited directly upon the bedrock. As the glaciers melted, lakes laden with sediment, were formed. Over time, the sediments settled to the lake bottom forming beds of clays and silts. Within these lacustrine deposits, interbeds of sands and gravels were formed from tributaries flowing into the glacial lakes and from the erratic movements of the glaciers. As the warming of the climate continued, the glaciers continued to melt back until eventually the lakes overflowed their morianic dams and began to flow toward the south. As the overflow streams continue, the moraines were severed by the overflow streams and eventually the lakes were drained, leaving behind broad flat valleys containing unconsolidated deposits, hundreds of feet in depth.

The unconsolidated deposits in the lower Conewango Valley, estimated to be approximately 200 to 600 feet thick (Crain, 1966) include glacial till which overlies the bedrock. The till is generally a heterogeneous mixture of varying proportions of clays, silts, sands, gravels and boulders. Overlying the till are lacustrine deposits consisting of clays and silts. Within the lacustrine deposits are interbeds of coarse-textured sediments, mostly sand and gravel, which resulted from stream flow into the lakes, glacial outwash and glacial drift (Crain, 1966). Overlying the lacustrine deposits is a surficial mantle of sands and gravels. These deposits of sand and gravel probably were the results of weathering and erosion of the bedrock in the surrounding uplands and from glacial melt water.

The upper bedrock underlying the overburden in Chautauqua County, New York, consists of sandstones, siltstones and shales of the Upper Devonian Conewango Group of the Chautauqua Series. Siltstone and sandstone outcrop in the extreme southeast part of the County and soft fissile shales outcrop along a northeast-trending section in the northern part of Chautauqua County. The upper bedrock dips to the south at 50 feet per mile and is approximately 2,000 feet thick (Crain, 1966).

2.3.5 Regional Hydrogeology

Availability of groundwater in any part of Chautauqua County is largely dependent on the areal extent of the underlying sediments,

their stratigraphic arrangement and the relative location of groundwater recharge and discharge zones. The topography and the surface drainage determine to a large extent the direction of groundwater movement through permeable sediments from areas of recharge to areas of discharge along streams.

The topography of Chautauqua County is variable showing gentle and sharp undulations which largely reflect the rapid environmental changes of the Quaternary Period. Elevations in excess of 2,000 feet AMSL are encountered on the east part of Chautauqua County. The lowest elevations, on the order of 600 feet AMSL are encountered parallel to the shoreline of Lake Erie.

The main body of surface water within the County is Chautauqua Lake. Several rivers and creeks run across Chautauqua County, such as the Conewango and Cassadaga Creeks and the Chadakoin River. These creeks and rivers flow south and discharge into the Allegheny-Ohio-Mississippi River System (Crain, 1966).

Local groundwater flow takes place toward local discharge areas, namely Chautauqua Lake and major rivers and creeks (Crain, 1966). Unconsolidated glacial sediments consisting of sands and/or gravel form aquifers within the Conewango and Cassadaga Valleys. The Jamestown Aquifer, located within the Cassadaga Valley, is the most important source of groundwater in the area (Crain, 1966).

The main components of the Jamestown Aquifer are sand and gravel deposits which exhibit high permeabilities. The Jamestown Aquifer extends from the Towerville Corners area to the Hartson swamp, along the Cassadaga Creek Valley (Crain, 1966). The Jamestown Aquifer is closer to the surface to the south and dips to depths of 100 feet BGS toward the north (Crain, 1966). The Jamestown Aquifer is generally overlain by silt and clay glacial lake deposits that act as a confining layer which results in artesian conditions in certain areas of the aquifer (USGS, 1982). The saturated thickness of the Jamestown Aquifer is generally less than 20 feet in the confined areas of the aquifer and is in excess of 20 feet in unconfined areas (uplands) of the aquifer.

The major source of recharge for the Jamestown Aquifer is precipitation which enters the groundwater system through permeable stratas which originate in the uplands, particularly from stream tributary deltas and coarse deposits along the valley walls (Crain, 1966). As the groundwater moves from the unconfined portion of the aquifer, pressure is created. This pressure is known as artesian pressure. In areas where artesian pressure is great, the water level of the aquifer may be above the ground surface.

The major source of discharge from the Jamestown Aquifer historically was a slow upward flow through the confining layer. In recent times, the Jamestown Aquifer has been tapped as a source of municipal water and the Jamestown municipal well network is now presumably the major source of groundwater discharge.

Groundwater flow in the Jamestown Aquifer is strongly influenced by the pumping of drinking water supply well fields installed in area municipalities. Pumping of the Jamestown well field has resulted in a cone of depression around the well field. The perennial yield of the Jamestown Aquifer range from about 6,000,000 gpd to 30,000,000 gpd (Crain, 1966).

One of the largest and most important aquifers with the Conewango Valley is the Poland Center Aquifer (Crain, 1966) which consists of sand and gravel deposits. The thickness of the Poland Center Aquifer range from 5 to 70 feet (Crain, 1966). The Poland Center Aquifer exhibits both artesian and unconfined conditions which may yield from 20 to 100 gallons per minute (USGS, 1982). Groundwater in the Conewango Valley generally flows toward the slight cone of depression created by the Poland Center well field and, in the vicinity of the Hartsen swamp, toward the cone of depression within Cassadaga Valley created by the Jamestown well field (USGS, 1982).

The Village of Frewsburg and the Site are situated within the lower Conewango Creek Valley, south of Poland Center. The main aquifer studied within the lower Conewango Valley is the sand and gravel unit from which the Frewsburg Municipal wells draw. Section 5.0 presents a discussion on this unit.

2.3.6 Groundwater Usage

The Frewsburg public water supply has been obtained from two wells, Well Nos. 1 and 2a (Well No. 2a was installed in January 1991 to replace Well No. 2), installed in a sand and gravel aquifer at depths of about 35-41 feet below ground surface (BGS). Available stratigraphic and instrumentation logs for these wells, as provided by the Frewsburg Municipal Water Supply District, are presented in Appendix A. These two wells are located approximately 300 feet west of the Site. Two other water supply wells (Well Nos. 3 and 4) are also used by the Frewsburg Water District. Well No. 3 is located north of the Conewango Creek approximately 1/2 mile northwest of the Site. Well No. 4 is located approximately 1 1/2 mile southwest of the Site.

The two wells (Well Nos. 1 and 2a) located west of the Site were the primary supply wells for Frewsburg and are pumped alternately. The Frewsburg Water Supply Wells produce approximately 190,000 gallons per day (GPD). The well north of the Conewango Creek (Well No. 3) was used as a backup well and/or used to supplement water from Wells No. 1 and 2a. Well No. 3 is capable of pumping up 288,000 GPD.

3.0 FIELD INVESTIGATION ACTIVITIES

3.1 GENERAL

The SI field investigation activities were conducted in several phases beginning in December 1990. These activities were as follows:

i) excavation and sampling of test pits;

ii) collection of surficial and subsurface soil samples;

iii) implementation of a hydrogeologic investigation program including the installation and sampling of groundwater monitoring wells; and

iv) collection of surface water and sediment samples.

The field investigation activities generally focussed on the suspected areas of potential contamination (see Figure 2.3). Area 13, the approximate location of a former septic field for the Metal Building, was also investigated during the SI.

All samples were collected as described in Section 4.0. Samples were analyzed for all or some of the following parameters:

i) Target Compound List (TCL) Volatile Organic Compounds (VOCs);

ii) TCL base neutral, acid extractable compounds (BNAs);

iii) TCL pesticides and polychlorinated biphenyls (PCBs);

iv) Target Analyte List (TAL) metals (total);

v) TAL cyanide; and/or

vi) total petroleum hydrocarbons (TPHs).

Detailed descriptions of the field activities conducted and the sampling locations are presented in the sections to follow. Figures 3.1 to 3.4, inclusive illustrate all of the sample locations. Table 3.1 presents a sample key which describes the sample locations and the samples collected for chemical analyses. A photographic log was maintained during field activities; Appendix B presents pertinent photographs taken in the field.

At the completion of field activities, a Site survey was performed by a licensed surveyor. The survey information was used to develop a current and accurate Site plan. During the survey, all of the sampling locations were located on a grid-coordinate system. Ground elevations and reference elevations were also established. Due to very heavy undergrowth and the large amount of forested areas outside of the developed area of the VacAir Property, a Site topographic map cannot be completed for several months.

During field activities, representative(s) of the NYSDEC, VacAir, and Techna Corporation (representing Mr. Daniel C. Weinstein) were

present to observe the work being performed. Split samples were also collected by NYSDEC at selected sample locations.

3.2 TEST PITS

Seventeen test pits were excavated in the following areas suspected to be contaminated: Areas 1, 2, 3, 4, 8, 10A, 10B and 11. All test pit locations were selected in conjunction with the NYSDEC Field Representatives and are presented on Figure 3.1. Test pit excavation work began on December 11, 1990 and was completed on December 14, 1990. Organic vapor readings of the excavation and/or excavated materials were measured and recorded during excavation activities. The organic vapor readings, associated depth and a description of the materials encountered are summarized for each test pit and are presented on Table 3.2.

Fill material primarily consisting of gravel, slag, metal debris (i.e. turnings and filings), wood debris and some silty soils were encountered in the majority of the test pits. Crushed drums or parts of drums were encountered in test pits excavated in Areas 1, 2 and 4, all of which also exhibited elevated organic vapor readings. Most of the drums appeared to be empty. Some groundwater or liquids were noted in and/or around a few drums found in the test pits. No efforts were made to remove any of the drums from the excavations. Efforts were made to visually determine the vertical extent of the presence of fill material or contamination during excavation activities.

Ten samples were collected for chemical analyses from the areas investigated; no samples were collected from Area 10A as no obvious contamination was encountered. Eight samples (sample numbers TP-1A, TP-2A, TP-2AA (a duplicate of sample TP-2A), TP-3A, TP-4C, TP-8A, TP-10BB and TP-11A) were analyzed for TPHs and the TCL and TAL parameters. Two samples (sample numbers TP-2A-2 and TP-3B) were submitted for analyses of the TCL VOCs only.

3.3 SOIL SAMPLING

Subsurface soil samples were collected from areas of potential contamination: Areas 5A, 5B, 6, 12 and 13. In addition, surficial and subsurface soil samples were collected from three locations south of the Site's south fenceline to represent background soil conditions for the area. Figure 3.2 illustrates the soil sampling locations. Stratigraphic logs for boreholes are provided in Appendix C. Soil samples from the boreholes were screened for organic vapors at the time of collection. Table 3.3 presents these organic vapor readings.

Three boreholes were advanced through concrete in each of Areas 5A and 5B. Fill material primarily consisting of sand, silt, and gravel was encountered to depths up to 9 feet in Areas 5A and 5B. Some slag, asphalt and metal turnings were also encountered in Area 5B. Organic vapor readings were generally at background levels with some peaks up to 8 ppm. Native soil materials were generally encountered in Areas 5A and 5B at approximately 7 to 9 feet below ground surface (BGS). Boreholes in these two

areas were generally completed at approximately 11 feet BGS. Soil samples (BH5B-1, BH5B-2, BH5B-3, and BH5A-3) from Areas 5A and 5B were collected from below the native/fill soil interface and submitted for analyses of the TCL and TAL parameters and TPH. Sample intervals were selected with concurrence from the NYSDEC field representative.

Three shallow boreholes (BH6-1, BH6-2 and BH6-3) were advanced through the concrete floor in Area 6 to approximate depths of 2.5 to 4.5 feet BGS. Native soil was encountered at approximately 2.5 feet BGS. Fill material primarily consisted of silt and sand. Organic vapor reading from these boreholes ranged from background levels to 2 ppm (above background). A sample (Sample No. 6-1) was collected for analyses of the TCL and TAL parameters and TPHs from the interval of 1.2 to 3.5 feet BGS.

One borehole (BH12-1) was advanced adjacent to the current septic system and sandbed to a depth of 8 feet BGS. Fill material consisting of silty soil was encountered up to a depth of 3.1 feet BGS. Native soil primarily consisting of silty clay was encountered below the fill layer. Organic vapors were not detected above background levels. A sample (Sample No. BH12-1) was collected for analyses of the TCL and TAL parameters and TPHs from the interval of 6.0 to-8.0 feet BGS.

One borehole (BH13-1) was advanced in Area 13, a former septic field for the Metal Building. Fill primarily consisting of silty soil, was encountered to an approximate depth of 7.2 feet BGS. The borehole was completed at 9 feet. A soil sample (Sample No. BH13-1) was collected for

analyses (TCL, TAL and TPH) from the 7 to 9 foot interval. Organic vapors were not detected above background levels.

Surficial and subsurface soil samples were collected from three locations south of the Site's south fence line to represent area soil background conditions. One borehole, BH-1, was advanced to a depth of 28 feet BGS to determine the general geologic stratigraphy at depth for the area. Appendix B contains the stratigraphic log for this borehole. Organic vapor readings of soils from borehole BH-1 were at background levels. Water was encountered at 4.2 feet BGS.

One subsurface soil sample (Sample No. BH-1) was collected at the 2 to 4 feet BGS from borehole BH-1 and a surficial soil sample (Sample No. SS-1) was collected from the 0 to 0.5 foot interval from a location adjacent to BH-1; these two samples were analyzed for TPHs and the TCL and TAL parameters. Two additional surficial soil samples from the 0 to 0.5 foot intervals were collected from locations 100 feet east (Sample No. SS-2) and west (Sample No. SS-3) of BH-1 and were analyzed for the TCL pesticides and TAL parameters.

3.4 HYDROGEOLOGIC INVESTIGATION

Six monitoring wells were installed to monitor the water table aquifer at the Site. Figure 3.3 presents the locations of the monitoring wells. Monitoring well MW-1, installed at the southeast portion of the property is hydraulically upgradient of the Site. The stratigraphic and

instrumentation logs for these monitoring wells are presented in Appendix D.

The length of the screen interval varied for each monitoring well so that as much of the waterbearing unit would be monitored at each well location as possible. Screen lengths varied from 5 to 10 feet. Total well depths varied from 13 to 20 feet BGS.

During the SI, a drinking water sample was collected from one (Well No. 1) of the two Frewsburg District Municipal Wells (Well Nos. 1 and 2a) located west of the Site. Well No. 1 was the only well in operation at the time of sampling. The drinking water sample (DW-1) and a duplicate sample (DW-2) were collected and analyzed for TPHs, and the TCL and TAL parameters. Additional drinking water samples were collected from Wells Nos. 1 and 2a before and after completion of the SI field activities by the State and/or the Frewsburg Water District.

Water levels in each of the monitoring wells and the Conewango Creek were measured on several occasions from April to August. Hydraulic conductivities of the monitored intervals were also calculated based on slug tests performed on each of the newly installed monitoring wells.

3.5 SURFACE WATER AND SEDIMENT SAMPLING

Surface water and sediment samples were collected for analyses of the TCL and TAL parameters and TPHs from the following areas:

i) the north/south drainage swale through the Site (Sample Nos. SED-5, SW-6, SW-7 and SED-4);

ii) the discharge (Sample No. SW-9), prior to chlorination, from the septic system and sandbed (Area 12);

iii) stained areas within the low lying wet area east of Area 4 at the northeast of the concrete bin area (Sample Nos. SED-1, SW-1, SW-2, SED-2 and SED-3);

iv) Conewango Creek upstream and downstream of the discharges from the Site (Sample Nos. SW-4 and SW-3);

v) the discharge point of the former large oil/water separator located north of the Site (Sample No. SED-7);

vi) a stained area (for TCL VOCs only) at the embankment of the northern end of the Site, west of the facility's existing outfall to the Conewango Creek (Sample No. SED-7); and

vii) a corrugated metal pipe at the northwest corner of the Site which collects stormwater drainage (sample I.D. SW-3).

Background sediment and water samples were collected from upstream locations in the drainage swale (Sample Nos. SED-5 and SW-8) and background surface water in the Conewango Creek (Sample No. SW-4). Sample locations are shown on Figure 3.4.

Fill material which included metal debris and some deteriorated drums were noted along the embankment of the northern perimeter of the Site along the Conewango Creek and outside of the northeast fenceline of the Site (immediately north of Area 4) during sample collection activities.

3.6 MODIFICATIONS

Some modifications to the Work Plan activities were made in the field based on the conditions encountered. All modifications were made with agreement and approval from NYSDEC. These modifications were as follows:

i) test pits were not excavated in Area 9 because this area was not believed to be an area of contamination;

ii) one test pit was excavated in Area 10A at the request of the NYSDEC field representative(s); however, no samples were collected from the test pit as no obvious contamination was observed;

iii) Area 13, a former septic field for the Metal Building, was investigated with a borehole (BH13-1) advanced in the area;

iv) one borehole and a sample of the discharge from the existing septic system and sandbed (Area 12) were used to investigate Area 12 instead of two boreholes;

v) the monitoring well proposed in the SI Work Plan to be located between the septic system/sandbed and the Main Building was moved to a location north of the Metal Building (Monitoring Well No. MW-6); any potential contamination resulting from discharges to the existing septic system and sandbed would have been collected and discharged to the drainage swale which is the discharge point for the septic system and sandbed;

vi) monitoring wells were all installed in the first waterbearing zone encountered, the water table aquifer; it was determined that no monitoring well should be installed in the aquifer from which the Frewsburg District water supply wells draw at the time of the SI field activities;

vii) a sample of the water discharge, prior to chlorination, was collected from the discharge of the septic system and sandbed within a manhole located at the southeast corner of the septic system and sandbed;

viii) sediment and surface water samples were not collected from the swampy area northeast of the plant facilities since it was dry at the time of sample collection;

ix) additional sediment samples were collected for chemical analyses from a stained area at the embankment of the northern end of the Site (west of the facility's existing outfall to the Conewango Creek) and from the discharge point of the former large oil/water separator located north of the Site; and

x) field determination of sulfide and oxidizers were not conducted on the water samples.

4.0 SAMPLE COLLECTION PROTOCOLS

4.1 GENERAL

Procedures used to collect the various environmental samples during the SI are described in the subsections which follow. All samples were collected in accordance with the approved SI Work Plan, QAPP and HASP.

4.2 TEST PIT SAMPLING

Test pit excavation work began on December 11, 1990 and was concluded on December 14, 1990. Test pit excavations were performed by Empire Soils Investigations.

At each test pit, a rubber tired backhoe was used to excavate soil and fill materials. The backhoe was decontaminated prior to initiating excavation activities and between test pit locations. Section 4.7 describes equipment decontamination procedures utilized. The test pit location(s) in each area was selected with concurrence from the NYSDEC field representative. The need to continue excavation and/or the need for additional test pits was determined through consultation with NYSDEC.

At each test pit, excavation continued until native soil was encountered. Excavated material was placed on plywood over polyethylene plastic sheeting adjacent to the test pit and/or in dumping

hoppers (provided by VacAir personnel) staged on plastic and plywood adjacent to the test pit. Clean excavated materials were segregated from potentially contaminated material, where possible.

As each test pit was excavated, the excavation and/or the encountered materials were screened for organic vapors with an HNU HW-101 and/or Foxboro OVA (which were calibrated daily in accordance with the QAPP). The organic vapor level, a description of materials encountered and pertinent visual observations were recorded in a log book. Since air purifying respirators were worn, olfactory observations were not possible. Table 3.2 summarizes the detected organic vapor concentrations and describes of the materials encountered in each test pit.

Representative grab samples were collected from each area investigated with test pits. Samples were collected for chemical analyses from selected test pits with concurrence of the NYSDEC field representative(s) based primarily on the organic vapor readings. Other factors included fill/waste type, color, and visual observations.

Samples of the excavated materials were collected as follows:

i) sampling equipment was decontaminated as described in Section 4.7;

ii) grab samples were collected of the excavated material from backhoe bucket, the stockpile of excavated material or directly from the test pit, where feasible, by use of a precleaned stainless steel spoon or trowel;

iii) the sample was placed in a precleaned stainless steel bowl, for homogenization, and transferred to the appropriate sample containers; the sample submitted for volatile organic analyses was not homogenized and was placed directly into the appropriate sample containers;

iv) test pit samples were labelled and prepared for shipment as described in Section 4.8; and

v) remaining soil/material samples were placed in clear wide mouth jars for geologic record.

4.3 SOIL SAMPLING

4.3.1 Overview

Soil samples were collected from January 22-28, 1991. Soil sampling locations are illustrated on Figure 3.2. Subsurface soil samples were collected from Areas 13, 12, 6, 5A and 5B. Background soil samples were also collected from three locations south of the Site. All soil sampling locations and samples submitted for chemical analyses were selected in conjunction with the NYSDEC field representative(s).

4.3.2 Subsurface Soil Samples

Subsurface soil samples were collected from boreholes advanced at selected locations. Drilling activities were conducted by Empire Soils Investigations.

Each of the boreholes was advanced by a truck-mounted drill rig using 4-1/4-inch inside diameter (ID) augers. Continuous spilt spoon samples were collected in advance of the augering operation following standard penetration test methods. Typically, the boreholes were advanced until native soils were encountered.

Soil samples were collected as follows:

i) prior to drilling the initial borehole and between all subsequent locations, the drill rig and associated equipment was cleaned as specified in Section 4.7;

ii) sampling tools were decontaminated as described in Section 4.7;

iii) the split spoon sampler was laid on a new piece of aluminum foil and/or plastic sheeting and carefully opened to avoid sample disturbance;

iv) the recovered portion of the sample was screened with an HNU meter or OVA meter (which had been calibrated on a daily basis); the detected

organic vapor concentration was recorded along with the sample depth;

v) the sample was then visually inspected and measured; the length of the recovered core, soil stratigraphy, any apparent fill or chemical materials, moisture content, and blowcounts were recorded;

vi) based on the detected organic vapor content and/or visual observations, samples were selected for chemical analyses; at a minimum, one sample was selected for analyses from each area being investigated;

vii) samples were collected for analyses by the following:

a) the soil core was trimmed with a precleaned stainless steel knife so that the soil which came in direct contact with the split spoon sampler was removed,

b) aliquots of soil from the core were placed directly in the appropriate sample jars for volatile organic analyses; the remaining soil core was placed into a precleaned stainless steel bowl, homogenized with a precleaned stainless steel spoon and transferred to appropriate sample jars,

c) any remaining soil was placed in a wide mouth clear jar for geologic record,

d) soil samples were labelled and prepared for shipment as described in Section 4.8; and

viii) boreholes were backfilled with the auger cuttings and capped with grout.

Subsurface soil samples were collected from Area 6 within the Main Building by coring through the concrete floor with a rotary concrete drill. The concrete was removed from the hole and 3-inch and/or 2-inch diameter split spoons were driven into the subsurface with a hand penetrometer. Soil samples were collected as described above.

Borehole stratigraphic logs are provided in Appendix C.

4.3.3 Surficial Soil Samples

Surficial soil samples were collected from selected sample locations in accordance with the following procedures:

i) all sampling tools were decontaminated as described in Section 4.7;

ii) a precleaned trowel or shovel was used to remove any surface cover (i.e. grass) and to remove soil to a depth of approximately 6 inches;

iii) soil was transferred to a precleaned stainless steel bowl, homogenized with a precleaned stainless steel spoon and placed in the appropriate

sample containers. The portion of the sample collected for VOC analyses was placed directly into the sample container without being homogenized; and

iv) soil samples were labelled and prepared for shipment as described in Section 4.8.

4.4 HYDROGEOLOGIC INVESTIGATION

4.4.1 Monitoring Well Installations

A total of six groundwater monitoring wells were installed beginning April 22, 1991. Drilling was conducted by Empire Soils Investigations. Monitoring well locations were selected in conjunction with the NYSDEC field representative and are illustrated on Figure 3.3.

The monitoring wells were installed as follows:

i) the drill rig and associated equipment was decontaminated prior to initiating drilling activities and between monitoring well locations in accordance with procedures described in Section 4.7;

ii) each borehole was advanced using 4-1/4-inch I.D. continuous flight hollow stem augers, continuous split spoon soil samples were collected in advance of the augering operation by standard penetration test

methods. Augering and sampling continued until a waterbearing zone and an underlying less permeable strata was encountered;

iii) a 2-inch diameter (#6 slot) stainless steel well screen (the length of the screen varied for each well and was selected to screen as much of the waterbearing unit as possible) was attached to a 2-inch diameter stainless steel (#304) riser pipe (by thread flush joint couples) and was lowered through the augers to the desired screened interval;

iv) suitability graded and washed silica sand (#4) was placed through the augers to a height of approximately 1 foot above the top of the screen;

v) a minimum 6-inch layer of fine grain "choker" sand was placed above the sandpack;

vi) a bentonite pellet seal measuring approximately 1.5 to 2 feet thick was installed above the choker sand layer;

vii) the remainder of the borehole was filled with a cement/bentonite grout; and

viii) a lockable protective casing was installed and grouted in place to protect the monitoring well.

A summary of the instrumentation for the monitoring wells is presented on Table 4.1. The monitoring well logs are included in Appendix D.

Each monitoring well was developed as follows:

i) all well development equipment (i.e. bailers) were decontaminated as specified in Section 4.7 prior to use and between use in each monitoring well;

ii) the static water level was measured in each of the newly installed monitoring wells prior to development;

iii) a precleaned bottom loading stainless steel bailer fitted with a three foot long stainless steel leader was attached to a new nylon cord; the bailer was used to surge the screened portion of the well;

iv) groundwater and suspended silt/sediment were removed from the well using the bailer or a peristaltic pump, as appropriate;

v) after each well volume was removed, a sample of the groundwater was collected and measured for pH, conductivity, and turbidity;

vi) since three consecutive and consistent readings of pH, conductivity and turbidity could not be obtained, ten well volumes were removed from each of the wells during development; and

vii) all groundwater generated was collected and containerized for disposal at an appropriate permitted off-Site disposal facility.

4.4.2 Groundwater Sample Collection

Groundwater samples were collected for analyses from each monitoring well according to the following protocols:

i) new disposable latex gloves were used during sampling and purging of each well;

ii) sampling and measuring equipment were decontaminated as specified in Section 4.7;

iii) prior to sampling, the static water level was measured in each monitoring well; the water level was referenced to the top of the individual well casing to ±0.01 foot;

iv) purging of the monitoring wells was conducted by removing a minimum of three well volumes of groundwater with a peristaltic pump; readings of pH, conductivity and temperature were obtained after removal of each well volume; purging was considered complete after three consecutive and consistent readings of pH, temperature and conductivity were obtained;

v) all purge water was collected and containerized for disposal at an appropriate permitted off-Site disposal facility;

vi) groundwater samples were collected as soon as possible after purging was completed using a bailer and a peristaltic pump; a bottom loading

stainless steel bailer was used to collect the samples for volatile organic analyses and the peristaltic pump was used to collect the samples for the remaining analyses; groundwater samples were poured directly into sample containers provided by the laboratory in the sample collection hierarchy established in the QAPP; and

vii) collected groundwater samples were labelled and prepared for shipment as described in Section 4.8.

Table 4.2 summarizes the collected groundwater data including pH, conductivity, and temperature readings, initial water level and purge volume.

4.4.3 Field Permeability Testing

Following monitoring well development, purging and sampling, slug tests were performed in each of the six monitoring wells installed in the overburden. The slug test involved displacement of the water in the wells by inserting or removing a "slug" of known volume. The slug that was used consisted of a section of solid PVC rod. Prior to slug testing the static water level in the well was measured and a continuous recording pressure transducer was installed in the well. The transducer and water level were monitored until the water level in the well returned to static. The slug was then quickly lowered into the water column, displacing a known volume of water and raising the water level instantaneously. The decrease in the water level (falling head test) was monitored continuously by the transducer.

Once the well returned to static, the slug was quickly removed from the well, instantaneously dropping the water level. The increasing water level (rising head test) was monitored continuously until the well returned to static. Upon completion of the slug testing the water level recorder data were down-loaded to a computer disc. The data were later used to calculate an estimated hydraulic conductivity using the methods developed by Bouwer and Rice (1979). A summary of the estimated hydraulic conductivities is provided in Table 4.3. Slug test data, graphs and calculations of hydraulic conductivity are provided in Appendix E.

Prior to use and between wells, the slug, pressure transducer and cable was thoroughly cleaned using a phosphate-free detergent wash and deionized demonstrated analyte-free water rinse.

4.4.4 Hydraulic Monitoring

Hydraulic monitoring was performed on the six wells installed at the Site. In addition, a monitoring point to measure the surface elevation of the Conewango Creek was established at the northwest corner of the south abutment for the former railroad which ran adjacent to the northwest corner of the Site. Water level rounds were measured as follows:

i) April 26 and 29, 1991 during well development;

ii) April 30, 1991 prior to well purging and sampling

iii) May 3, 1991 during slug testing;

iv) June 13, 1991;

v) June 25, 1991; and

vi) August 19, 1991.

Water levels were measured using either an electronic water level indicator or a tape and plopper. Water levels (to ±0.1 foot) were measured from the top of the well casing (reference elevation established during survey) to the water surface in the well. Water levels were recorded in a field book and were later reduced to elevations. Table 4.4 presents all the water level elevation data collected as part of the SI.

Prior to measuring water levels and between wells, the probe of the water level indicator or the plopper was decontaminated as specified in Section 4.7.

4.4.5 Municipal Well Sampling

A sample of the water from the Frewsburg municipal water supply well (Well No. 1) was collected from a sampling port. The sampling port was opened and water was allowed to flow from the sample port for 10 minutes. The samples were then collected directly into precleaned

laboratory provided sample containers in accordance with the sample collection hierarchy established in the QAPP.

Collected samples were labelled and prepared for shipment as described in Section 4.8.

4.5 SURFACE WATER SAMPLES

Surface water samples were collected by either of the following methods:

i) surface water samples were collected directly into the laboratory supplied sample containers; or

ii) surface water was collected into a new precleaned sample jar and then transferred into the appropriate sample containers.

All surface water samples were collected in accordance with the sample collection hierarchy prescribed in the QAPP. Collection of surface water samples proceeded from the furthest downstream location to the upstream locations to minimize sample disturbance.

Collected surface water samples were labelled and prepared for shipment as described in Section 4.8.

4.6 SEDIMENT SAMPLES

Sediment samples were collected from the upper six inches of material by using a precleaned stainless steel spoon. The sediment sample fraction for volatile organic analyses was placed directly into the appropriate laboratory supplied sample jars. Sediment samples for the remaining analyses were placed in a precleaned stainless steel bowl, homogenized and transferred to the appropriate laboratory supplied sample containers.

Sampling tools were decontaminated prior to use at each location by the procedures specified in Section 4.7. Sediment samples were labelled and prepared for shipment as specified in Section 4.8.

4.7 EQUIPMENT DECONTAMINATION

Prior to use, sampling equipment which came in direct contact with soil, sediment and/or liquid samples was cleaned by the following procedures:

i) brush off visible soil/dirt and wash with low phosphate detergent;

ii) tap water rinse;

iii) rinse with 10 percent nitric acid (HNO_3);

iv) tap water rinse;

v) methanol rinse;

vi) hexane rinse;

vii) methanol rinse;

viii) deionized demonstrated analyte-free water rinse;

ix) air dry; and

x) wrap in aluminum foil.

Large equipment (i.e. drilling rigs, backhoe bucket, augers, well casings and split spoons) was cleaned by removing all visible soil/dirt followed by high pressure wash or steam cleaning with detergent and a final rinse with potable water.

All decontamination water was collected and containerized for disposal at an appropriate permitted off-Site disposal facility.

4.8 SAMPLE PREPARATION AND HANDLING

All samples collected for chemical analyses were placed in precleaned laboratory supplied sample jars. Samples were preserved in accordance with laboratory instructions, where appropriate. Samples were labelled with a unique sample number, time and date of sample collection and instructions for analyses.

A new pair of disposable latex gloves was used to handle each sample between sample locations.

All samples were placed on ice or cooler packs in laboratory supplied coolers immediately after collection and labelling. The sample coolers were sealed with custody tape during overnight storage of samples and prior to shipping. Samples were shipped to Weston Analytics Division of Roy F. Weston, Inc. (Weston) in Lionville, Pennsylvania by overnight courier. Standard chain of custody procedures were followed. Completed chains of custody forms are included in Appendix F.

4.9 SAMPLE ANALYSES

Environmental samples were analyzed for all or some of the following parameters: TPHs, TAL metals (total) and cyanide, TCL VOCs, TCL BNAs, TCL pesticides and polychlorinated biphenyls (PCBs). Analytical methods used are provided on Table 4.5. Field measurements conducted included temperature, pH, conductivity and/or turbidity. All field instruments (i.e. HNU meter, pH meter, conductivity meter) were calibrated on a daily basis. Field determination of sulfide and oxidizers in the sample portion submitted for cyanide was not performed with the approval of the NYSDEC field representative.

All samples except for the drinking water samples (for volatile organic compounds and pesticides/PCBs), were analyzed by Weston. The drinking water samples were analyzed by Nytest Environmental Inc., a subcontractor to Weston, for the drinking water volatile organic compounds and pesticides/PCBs.

Field quality assurance/quality control (QA/QC) samples were collected at the following frequencies:

i) field duplicate - one per 10 investigative samples;

ii) field rinse blanks - one per 20 investigative samples;

iii) matrix spike/matrix spike duplicate (MS/MSD) - one per 20 investigative samples; and

iv) trip blanks - one per 20 investigative water samples.

Field rinse blanks were collected by pouring demonstrated analyte-free water over decontaminated equipment and into the appropriate laboratory supplied sample containers.

5.0 SITE GEOLOGIC AND HYDROGEOLOGIC EVALUATION

5.1 GENERAL

The Site geologic and hydrogeologic conditions are summarized in the sections to follow. The summaries are based on data obtained during the SI and available published literature on the area geology and hydrogeology. The regional geology and hydrogeology are summarized in Sections 2.3.4 and 2.3.5.

5.2 LOCAL GEOLOGY

The stratigraphic sequences encountered at the Site consist of the following:

i) surface overburden consisting of native and fill materials;

ii) shallow layer of sand, gravel and silt;

iii) upper silt and clay layer;

iv) sand and gravel layer;

v) glacial lake deposits of clay, gravel and sand; and

vi) shales and sandstones of the Upper Devonian Conewango Group.

Boreholes advanced during the SI provided data on the surface overburden layer, the underlying sand, silt and gravel layer and the top of the silt and clay layer beneath the Site. The distributions of the stratigraphic units beneath the Site, based on results of this SI, is presented on a series of cross-sections. The locations of the cross-sections are shown on Figure 5.1 while the cross-sections themselves are illustrated on Figures 5.2 to 5.5, inclusive.

The surface overburden at the Site consists of fill materials and/or silty topsoil. The fill material consists of a wide range of naturally and non-naturally occurring materials including sand, silt, gravel, clay, wood, slag, metal turnings and debris. Fill material was observed to be present at the Site to a maximum depth of about 9 feet.

The fill and/or topsoil are directly underlain by a layer of fine to medium grained sands, gravel and silts. This shallow sand, gravel and silt unit varies in thickness from 3.5 feet at the center of the Site to 21.6 feet at the southern end of the Site (see Table 5.1). These sediments are loosely packed and permeable and are oxidized. This shallow alluvial sand, gravel and silt unit (termed "Water Table Aquifer" herein) is the first waterbearing zone encountered beneath the Site.

Underlying the shallow alluvial sand, gravel and silt unit is a layer of silt and clay which is approximately 20 feet thick based on stratigraphic logs of the Frewsburg municipal Well Nos. 1 and 2 (see Appendix A). Because this layer is primarily comprised of silt and clay, the

permeability is assumed to be low. Table 5.1 provides the elevations for the top of the shallow sand/gravel silt unit and the clay/silt unit based on the boreholes advanced on site. Figure 5.6 illustrates the top of clay contours for the Site.

Underlying the clay/silt unit is a waterbearing zone consisting of a thin, confined strata of sand and various sizes of gravel (termed "Frewsburg Aquifer" herein) which exhibit artesian conditions (Crain, 1966). These coarse deposits are fairly uniform and continuous and produce a sufficient amount of groundwater sufficient to be used as a municipal water supply for the Village of Frewsburg. The depth to the Frewsburg aquifer, as defined in the stratigraphic logs of the Frewsburg Municipal wells and test borings, is approximately 35 to 41 feet BGS. The thickness of the Frewsburg Aquifer is about 5 feet (Crain, 1966). The origin of this sand and gravel unit is believed to be from glacial outwash (Crain, 1966). If this is true, then this unit would be geologically equivalent to the Jamestown Valley Aquifer (Crain, 1966).

A layer of clay, approximately 65 feet thick, is found beneath the Frewsburg Aquifer (based on the stratigraphic log for test borehole T-3 drilled to a depth of 190 feet BGS in the immediate vicinity of Municipal Well Nos. 1 and 2). This clay unit was found to extend to a depth of about 106 feet BGS. Beneath this clay layer is another 50 feet of varying amounts of sand, gravel and clay. Four waterbearing strata were noted within this zone; however, none of these strata yielded water of sufficient quantities for use as a municipal water supply.

At test boring T-3, bedrock was encountered at about 156 feet BGS. The bedrock was described as gray shale and fine grained sandstones. This bedrock unit is believed to be part of the Upper Devonian Conewango Group (Crain, 1966).

5.3 LOCAL HYDROGEOLOGY

Two hydrostratigraphic units have been identified at the Site during the SI. These units are:

i) Water Table Aquifer - shallow alluvial sand, gravel and silt materials;

ii) upper clay/silt aquitard; and

iii) Frewsburg Aquifer - sand and gravel.

The Water Table Aquifer was the only unit investigated as part of this SI. Information concerning properties of the upper clay/silt aquitard and the Frewsburg Aquifer was obtained from published literature and from stratigraphic logs of the Frewsburg Municipal wells and test borings.

During the SI, six monitoring wells were installed into the shallow upper alluvial sand and gravel unit (Water Table Aquifer) at the Site. Estimated hydraulic conductivities (see Table 4.3) for the wells installed within the Water Table Aquifer at the Site range from 2.6×10^{-3} cm/sec at MW-5 to 1.6×10^{-5} cm/sec at MW-3. The geometric mean hydraulic

conductivity was calculated to be 5.5×10^{-4} cm/sec. Appendix E presents the slug test data, graphs and calculations of hydraulic conductivities.

During pumping of Municipal Well Nos. 1 and 2a, the direction of groundwater flow in the Water Table Aquifer is in a northerly direction toward the Conewango Creek where local groundwater discharge is believed to take place. Table 4.4 presents water level elevations for the on-Site monitoring wells and Figures 5.7 to 5.9, inclusive, present the groundwater contours based on the water level data collected in May 1991, June 1991 and August 1991. The average horizontal gradient in the Water Table Aquifer across the Site is approximately 0.012.

The horizontal groundwater flow with the Water Table Aquifer is determined from a modified Darcy's equation:

$$v = \frac{Ki}{n}$$

Where:

K is the hydraulic conductivity (cm/sec);

i is the average hydraulic gradient;

n is the estimated effective porosity; and

v is the resultant average linear groundwater velocity (cm/sec).

Using the average horizontal gradient of 0.012, a hydraulic conductivity of 5.5×10^{-4} cm/sec and an estimated effective porosity of 0.30,

the average linear groundwater velocity of 2.2×10^{-5} cm/sec (0.062 ft./day) is derived.

Underlying the Water Table Aquifer is the upper silt and clay confining layer which may be considered to be an aquitard. Although not measured, the hydraulic conductivity of this confining silt and clay unit is presumed to be low given the nature of the silt and clay soil. This confining layer was not investigated during the SI.

Beneath the upper silt and clay unit, is the Frewsburg Aquifer which consists of sand and gravel. The Frewsburg Aquifer exhibits strong artesian effects according to the Frewsburg Water District personnel. Based on a pumping test conducted on Municipal Well No. 1 (Crain, 1966), it was noted that the Frewsburg Aquifer exhibited characteristics of a leaky artesian (confined) aquifer. The transmissivity of the Frewsburg Aquifer was calculated to range from 6,900 to 7,400 gpd per foot (Crain, 1966).

The Frewsburg Water District pumps approximately 190,000 gpd from the Frewsburg Aquifer. The direction of flow in the Frewsburg Aquifer has not been determined.

According to the Frewsburg Water District personnel, the static water level in the municipal wells (Well No. 1 and 2) is typically 5 feet BGS when the wells are not operational. Static water levels in the wells prior to a pumping test performed in 1962 by the USGS showed the static water levels in boring T-3 and Municipal Well No. 2 (recently replaced by Well No. 2a) to be 7.75 feet and 5.55 feet BGS, respectively. A plan provided

by the Frewsburg Water District and dated July 28, 1941, indicated that the water level in Well No. 1 was 8.7 feet BGS at a pumping rate of 150 GPM on January 30, 1941. The static water level noted for the well on that date was 3.3 feet above ground surface. The water level in Well No. 2 was similarily 3.2 feet above ground surface at static and 8.7 feet BGS during pumping at 158 GPM on February 10, 1941. All of this information indicates that the Frewsburg Aquifer is an artesian aquifer.

5.4 SITE HYDROLOGY

The major source of surface water discharge on Site is the partially covered drainage swale which runs through the Site. The swale (which originates south of the Site) presently receives discharge from the north end of the surface water pond and runoff from the lands south of the Site. The existing septic system and sandbed discharges (after chlorination) to the drainage swale under the terms and conditions of the facility's SPDES permit. The swale passes under the concrete pad between the Main Building and the Metal Building through an underground culvert. The swale drains into the low lying swampy area northeast of the Site which eventually discharges into the Conewango Creek.

The concrete pad/bin areas were constructed so that stormwater runoff would flow through a drainage system and into two oil/water separators which in turn discharge to the Conewango Creek under the terms and conditions of the facility's SPDES permit.

6.0 DATA PRESENTATION AND EVALUATION

6.1 GENERAL

A sample identification key is presented on Table 3.1 along with the analyses performed. Samples collected for chemical analyses included:

i) background surficial and subsurface soil samples;

ii) subsurface soil samples;

iii) test pit samples;

iv) groundwater samples;

v) surface water samples;

vi) sediment samples; and

vii) drinking water samples.

All samples were analyzed by Weston Analytics Division and Nytest Environmental, Inc. (drinking water samples only) in accordance with the NYSDEC September 1989 Analytical Services Protocols (ASP) and the approved QAPP. The analytical methods used are summarized in Table 4.5. Analytical data summary sheets provided by the laboratory are provided in Appendix F.

6.2 DATA QUALITY ASSURANCE EVALUATION

The analytical QA/QC performed for the analytical data collected during the SI was consistent with the respective methods and as specified in the NYSDEC September 1989 ASP. Assessment and validation of the analytical data obtained from Weston and Nytest were conducted in accordance with the criteria specified in the QAPP and the NYSDEC September 1989 ASP. The analytical data assessment and validation results are summarized and presented in Appendix G.

Approximately 82 percent of the analytical data met QA/QC criteria established in the QAPP and the NYSDEC September 1989 ASP and did not require qualification as specified in Appendix G. Approximately 14 percent of the data were qualified as being quantitatively estimated due to laboratory errors and/or inaccuracies; 2 percent of the analytical data were qualified as unusable due to poor surrogate spike recoveries or poor instrument response; and 2 percent of the analytical data were qualified by the laboratory as being quantitatively estimated since the detected value was below the practical quantitation limit.

The USEPA typically finds that 80 to 85 percent of analytical data generated during Remedial Investigation/Feasibility Studies studies meet associated QA/QC requirements. In comparison, the amount of analytical data meeting all QA/QC criteria (82 percent) falls within this acceptable range.

6.3 TEST PIT SAMPLES

Soil samples were collected from ten test pits. The locations of the test pits are shown in Figure 3.1. Table 3.1 describes the sample source and Table 6.1 presents the analytical data for the test pit samples.

Eleven Target Compound List (TCL) volatile organic compounds (VOCs) were detected in the test pit samples as shown below:

VOC	*Frequency of Detection*	*Range (mg/kg)*	*Samples Containing Highest Detection*
Acetone	1	0.220	TP-1A
2-Butanone	3	0.025-11J	TP-2A-2
Carbon Disulfide	3	0.019-500J	TP-1A
Total-1,2-Dichloroethane	8	0.002J-2,400J	TP-1A
Ethylbenzene	2	0.002-0.004	TP-10BB
4-Methyl-2-pentanone	1	0.004J	TP-10BB
Tetrachloroethene	5	0.004J-0.027	TP-4C
Trichloroethene	10	0.007-17,000J	TP-2A
Toluene	2	0.003J-0.004J	TP-4C
Vinyl Chloride	2	0.070-5.0J	TP-2AA
Total Xylenes	2	0.008J-0.016	TP-10BB

Note:
J Associated value is qualified as estimated based on the data validation and assessment results (see Appendix G).

Total 1,2-dichloroethene and trichloroethene were the most predominant VOCs detected. Total 1,2-dichloroethene was detected in eight test pit samples, and trichloroethene was detected in all ten test pit samples. All remaining detections of these VOCs were at least one order of magnitude lower.

The total VOC content for each test pit is presented as follows:

Test Pit Samples	*Total VOC Concentration (mg/kg)*
TP-1A	3,280
TP-2A	17,620
TP-2AA (duplicate of sample TP-2A)	16,405
TP-2A-2	681
TP-3A	0.027
TP-3B	0.011
TP-4C	1.476
TP-8A	0.027
TP-10BB	0.099
TP-11A	0.032

Test pit samples TP-1A, TP-2A, TP-2AA, and TP-2A-2 contained the higher amounts of total VOC concentrations. The remaining test pits yielded total VOC concentrations at least one order of magnitude lower.

One or more of the TCL base, neutral, acid extractable compounds (BNAs) were detected in all test pit samples except for Sample No. TP-11A. Bis(2-ethylhexyl) phthalate was the only BNA detected in samples TP-1A, TP-2A, TP-2AA, TP-8A (di-n-butylphthate was also detected), and TP-10BB. Other BNAs identified in the test pit samples TP-3A and TP-4C included phenolic compounds, phthalate esters, polynuclear aromatic hydrocarbons. All detected BNA concentrations were below the practical quantitation limit and are therefore estimated.

None of the TCL pesticides were not detected in any of the test pit samples. However, polychlorinated biphenyls (PCB or aroclor) were detected in six test pit samples. Aroclor 1254 was detected in TP-1A

(12J mg/kg), TP-2A (2.3 mg/kg), TP-2AA (2.2 mg/kg), TP-3A (0.044J mg/kg), and TP-8A (0.190 mg/kg). Arochlor 1260 was detected in TP-11A (0.013J mg/kg). PCBs were not detected in TP-4C and TP-8A. The PCB concentrations in samples TP-1A, TP-3A and TP-11A were below the detection limits and therefore estimated.

All TAL metals except for antimony, silver, and thallium were detected in the test pit samples. Only arsenic, calcium, and sodium were identified at concentrations consistent with those concentrations of the background soil samples (see Section 6.4.1). The presence of many of the TAL metals may be attributable to the presence of many metal chips/turnings in the test pit samples. Cyanide was detected in only one test pit sample (TP-4C, 1.5 mg/kg).

All test pit samples yielded positive concentrations of total petroleum hydrocarbons (TPHs) ranging from 18 mg/kg (TP-8A) to 56,000 mg/kg (TP-1A).

6.4 SOIL SAMPLES

6.4.1 Background Data

Background soil data was collected from the 2 to 4 foot-interval of one borehole (BH-1) and four surficial (0 to 0.5 foot interval) soil samples (SS-1, SS-2, SS-3 and SS-4). The locations of these

samples are shown in Figure 3.2. Table 6.2 presents the results for sample no. BH-1 and Table 6.3, sample nos. SS-1, SS-2, SS-3 and SS-4.

Sample BH-1 showed a detection of trichloroethene at an estimated concentration of 0.014J mg/kg (the quantity is estimated due to outlying surrogate spike recoveries). No other VOCs were detected in this sample.

Low levels of BNAs were detected in BH-1 and consisted of phthalate esters and polynuclear aromatic hydrocarbons. All concentrations of these compounds were below the practical quantitation limit and therefore are estimated. TCL pesticides and PCBs were not detected in the subsurface soil sample BH-1.

Antimony, cadmium, mercury, nickel, selenium, silver, thallium, vanadium, and cyanide were not detected in the subsurface soil sample BH-1. Calcium, magnesium, potassium, and sodium were detected at 2,180 mg/kg, 2,050 mg/kg, 345 mg/kg, and 164 mg/kg, respectively. The remaining metal concentrations that were detected were within the published concentration ranges for various types of soils throughout the United States and are summarized on Table 6.4. Sample BH-1 contained TPHs at a concentration of 10 mg/kg.

Four surficial soil samples were collected from one location immediately adjacent to borehole BH-1 and two locations 100 feet east and west of borehole BH-1. These samples were analyzed for the following parameters:

Soil Sample I.D.	*Parameters*
SS-1	TCL VOCs, TCL BNAs, TCL Pesticides/PCBs, TAL Metals, Cyanide, TPHs
SS-2	TCL Pesticides/PCBs, TAL Metals, and Cyanide
SS-3	TCL Pesticides/PCBs, TAL Metals, and Cyanide
SS-4 (Dup. of SS-2)	TCL Pesticides/PCBs, TAL Metals, and Cyanide

Soil sample SS-1 showed a detection of trichloroethene of 0.038 mg/kg. All remaining TCL VOCs were not detected in this sample nor the other three surficial soil samples. Low levels of BNAs were detected in SS-1 and consisted of phenolic compounds, phthalate esters, and polynuclear aromatic hydrocarbons. All concentrations of these compounds were below the practical quantitation limit and therefore are quantitatively estimated. Phthalate esters and polynuclear aromatic hydrocarbons were found at similar concentrations in the adjacent subsurface soil sample BH-1. Pesticides were only detected in one surficial soil sample, SS-2, which showed detections of alpha-BHC, beta-BHC, and delta-BHC. All remaining pesticides/PCBs were not detected in any of the surficial soil samples.

Metals were detected in the background soil samples at concentrations similar to published concentrations for uncontaminated soils; Table 6.4 summarizes these background metal concentrations in soils. Antimony, cadmium, mercury, selenium, thallium, vanadium, and cyanide were not detected in any of the four surficial soil samples. Potassium and silver were only detected in sample SS-3 at 192 mg/kg and 2.30 mg/kg, respectively. Detected calcium concentrations ranged from 8520 mg/kg to 72,800J mg/kg; detected magnesium concentrations, 2160 mg/kg to 3790 mg/kg; and detected sodium concentrations, 149 mg/kg to 227 mg/kg.

Sample SS-1 contained TPH concentrations of 34 mg/kg.

The detected trichloroethene concentration in samples BH-1 and SS-1 is not likely to be representative of area background soil conditions. The reason for the presence of trichloroethene in this area of the Site is not known at this time.

6.4.2 Subsurface Soil Samples

Subsurface soil samples (Sample Nos. 6-1 (from BH6-1), BH5A-3, BH5B-1, BH5B-2, BH5B-3, BH12-1, BH13-1 and BHA-1 (duplicate of BH13-1)) were collected from seven boreholes advanced in areas of potential contamination (Areas 6, 5A, 5B, 12 and 13). The locations of the boreholes are shown in Figure 3.2. Table 3.1 describes the sample source and the sample interval, and Table 6.2 presents the data for the subsurface soils samples.

Six VOCs were detected in the subsurface soil samples as shown below:

VOC	Frequency of Detection	Range (mg/kg)	Borehole Containing Highest Detection
Acetone	1	0.400J	BH5A-3
Methylene Chloride	1	0.290	BH5A-3
Tetrachloroethene	3	0.003J-0.006	BH5B-3
Total 1,2-Dichloroethene	3	0.005J-0.780	BH5A-3
Trichloroethene	6	0.004J-12.0	BH5A-3
Vinyl Chloride	1	0.041	BH5A-3

Note:
J Associated value is qualified as estimated based on the data validation and assessment results (see Appendix G).

Acetone, methylene chloride, and vinyl chloride were only detected in sample no. BH5A-3 (9 to 11 foot interval). Tetrachloroethylene was detected in sample nos. BH5B-1, BH5B-2, and BH5B-3 at low levels at or below the detection limit. Total 1,2-dichloroethane was detected in BH5A-3, BH5B-1, and BH5B-3. While the highest detection of trichloroethene was in BH5A-3, elevated concentrations were also detected in BH5B-3 (4.9 mg/kg) and BH5B-1 (2.0 mg/kg). Lower level concentrations of trichloroethene were observed in sample nos. 6-1 (0.11 mg/kg), BH5B-2 (0.013 mg/kg), and BHA-1 (duplicate sample of BH13-1) (0.004J mg/kg).

Total VOC content for each borehole sample is as follows:

Borehole Sample No.	Total VOC Concentration (mg/kg)
6-1	0.11
BH5A-3	13.511
BH5B-1	2.026
BH5B-2	0.016
BH5B-3	4.911
BH12-1	ND
BH13-1	ND
BHA-1 (Dup. of BH13-1)	0.004J

No BNAs were detected in soil samples BH5A-3, BH5B-1, and BH5B-3. Bis(2-ethylhexyl) phthalate was the only BNA detected in samples 6-1, BH12-1 and BHA-1. Sample BH13-1 and BH5B-2 contain detectable levels of phenolic compounds, phthalate esters and polynuclear aromatic hydrocarbons. All detected BNA levels were below the practical quantitation limits and therefore are estimated quantities.

TCL pesticides and PCBs were not detected in any of the subsurface soil samples. Antimony, cadmium, mercury, selenium, thallium, and cyanide were not detected in any of the subsurface soil samples. All remaining metals were detected at concentrations similar to those concentrations found in the background soil samples.

TPHs were detected in all subsurface soil samples except BH12-1 and BHA-1. Detected concentrations of TPHs ranged from 3.3J mg/kg (BH5B-3) to 55 mg/kg (BH5B-2). Detected TPH concentrations were similar to those concentrations present in the background soil samples.

6.5 GROUNDWATER SAMPLES

Groundwater samples (Sample Nos. MW-1, MW-2, MW-3, MW-4, MW-6 and MW-7 (duplicate of MW-6))were collected from six monitoring wells. The locations of these monitoring wells are shown in Figure 3.3. Table 6.5 presents the analytical results from these samples. The concentrations of compounds identified in the monitoring wells have been compared to the New York State Class GA (potable water) groundwater

Maximum Contaminant Levels (MCLs) (see Table 6.6). The results of these comparisons are presented in the following discussions.

Samples from wells MW-1 and MW-6 did not contain any VOCs. However, 12 VOCs were detected in wells MW-2, MW-3, MW-4, and MW-5 as shown below:

VOC	*Frequency of Detection*	*Range (µg/L)*	*Monitoring Well Containing Highest Detection*	*NYS MCLs (µg/L)*
Bromodichloromethane	1	4J	MW-4	100
Chloroform	1	2J	MW-4	100
Chloromethane	1	2J	MW-4	5
1,2-Dichloroethane	1	19J	MW-2	5
1,1-Dichloroethene	2	2J-450	MW-2	5
Total 1,2-Dichloroethene	4	1J-170,000	MW-2	5
Ethylbenzene	1	14J	MW-2	5
Tetrachloroethane	1	10	MW-4	5
Toluene	1	14J	MW-2	5
1,1,1-Trichloroethane	1	3	MW-4	5
1,1,2-Trichloroethane	1	13J	MW-2	5
Trichloroethene	4	41-55,000	MW-4	5
Vinyl Chloride	2	8J-17,000	MW-2	2

Note:
J Associated value is qualified as estimated based on the data validation and assessment results (see Appendix G).

Total 1,2-dichloroethene, vinyl chloride and trichloroethene were the most predominant VOCs detected in the groundwater samples. Only one detection (MW-5, 1J µg/L) of total 1,2-dichloroethene was below the MCL of 5 µg/L. The remaining detections of total 1,2-dichloroethene in MW-2 (170,000 µg/L), MW-3 (1,400 µg/L), and MW-4 (940 µg/L) were above the MCL. Trichloroethene was

detected in wells MW-2, MW-3, MW-4 and MW-5 above the MCL of 5 µg/L for this compound.

All detections of bromodichloromethane, chloroform, chloromethane, and 1,1,1-trichloroethane were below their respective MCLs (100 µg/L for bromodichloromethane and chloroform; 5 µg/L for chloromethane and 1,1,1-trichloroethane).

Ethylbenzene (14J µg/L), 1,2-dichloroethane (19J µg/L), toluene (12J µg/L) and 1,1,2-trichloroethane (13J µg/L) were detected only once in MW-2 at levels slightly above the MCLs of 5 µg/L for these compounds. Vinyl chloride and 1,1-dichloroethene were detected in MW-2 above the respective MCLs. Tetrachloroethane was detected in MW-4 above the MCL but the detected 1,1-dichloroethene level in MW-4 was below the MCL.

The total VOC level detected in the monitoring wells are as follows:

Monitoring Well	*Total VOC Content (µg/L)*
MW-1	ND
MW-2	190,108
MW-3	35,400
MW-4	55,971
MW-5	45
MW-6	ND

No BNAs were detected in samples from wells MW-1, MW-4, MW-5 and MW-6. Wells MW-2 and MW-3 contained phthalate

esters (di-n-butyl phthalate and bis(2-ethylhexyl) phthalate). Benzoic acid, phenolic compounds, and polynuclear aromatic hydrocarbons were also identified in sample MW-2. The concentrations of di-n-butyl phthalate and bis(2-ethylhexyl) phthalate in MW-2 (4 µg/L and 2 µg/L, respectively) and MW-3 (2 µg/L and 2 µg/L, respectively) were below the MCL of 50 µg/L for each of these compounds. The detected levels of benzoic acid (15J µg/L), napthalene (1 µg/L), 4-chloro-3-methyl phenol (3J µg/L), and 2-methyl napthalene (3J µg/L) in MW-3 were below their respective MCLs (50 µg/L for benzoic acid and napthalene; 5 µg/L for 4-chloro-3-methyl phenol and 2-methyl napthalene). The detected levels of phenol (16 µg/L) and 4-methylphenol (34 µg/L) in MW-2 were above their respective MCL (1 µg/L for phenol and 5 µg/L for 4-methylphenol).

Pesticides and PCBs were not detected in any of the groundwater samples.

Metals results from the groundwater wells were compared to available MCLs (see Table 6.6) for groundwater. Antimony, cadmium, mercury, selenium, thallium, and cyanide were not detected in any of the groundwater samples.

A comparison of the detected metals levels to the New York State MCLs and to background levels detected in upgradient monitoring well MW-1 is as follows:

	NYS MCL (µg/L)	*Background Well MW-1 (µg/L)*	*Detected Ranges (µg/L)*	*Well With Highest Level*
Aluminum	NA	193	971-21,200	MW-5
Arsenic	25	ND	ND-7.7	MW-3
Barium	1000	111	106-845	MW-5
Beryllium	3	ND	ND-1.4	MW-5
Calcium	NA	57700	95,000-179,0000	MW-2
Chromium	50	ND	ND-31.6	MW-3
Cobalt	NA	ND	ND-41.2	MW-5
Copper	200	ND	ND-99.6	MW-5
Iron	300	545	1,690-88,600	MW-2
Lead	25	ND	ND-61.2	MW-5
Magnesium	35,000	9,150	18,000-38,400	MW-2
Manganese	300	92.4	861-33,700	MW-2
Nickel	NA	ND	ND-81.2	MW-5
Potassium	NA	ND	ND-8,250	MW-2
Silver	50	ND	ND-8.4	MW-2
Sodium	50,000	3,600	12,700-26,400	MW-3
Vanadium	NA	ND	ND-16.9	MW-5
Zinc	300	56.1	18.4-158	MW-5

Note:
NA Not Available

Monitoring well MW-2 contained the following metals at levels above those detected in upgradient well MW-1: aluminum, arsenic, barium, calcium, cobalt, iron, magnesium, manganese, nickel, potassium, silver, sodium, and zinc. However, only iron, magnesium, and manganese levels exceeded established MCLs, where available.

Monitoring well MW-3 contained the following metals at levels above those detected in upgradient well MW-1: aluminum, arsenic, barium, calcium, chromium, cobalt, copper, iron, lead, manganese, magnesium, nickel, potassium, sodium, vanadium, and zinc. However, only iron and manganese levels exceeded established MCLs, where available.

Monitoring well MW-4 contained the following metals at levels above those detected in upgradient well MW-1: aluminum, arsenic,

barium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc. However, only iron and manganese levels exceeded established MCLs, where available.

Monitoring well MW-5 contained the following metals at levels above those detected in upgradient well MW-1: aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc. However, only iron, lead and manganese levels exceeded established MCLs, where available.

Monitoring well MW-6 contained the following metals at levels above those detected in upgradient well MW-1: aluminum, calcium, chromium, copper, iron, magnesium, manganese, sodium, and vanadium. However, only iron and manganese levels exceeded established MCL, where available.

TPHs were identified in one groundwater sample (MW-2) at an estimated concentration of 0.89J mg/L. TPHs were not identified in any remaining groundwater samples.

6.6 DRINKING WATER SAMPLES

During the SI, two drinking water samples (one investigative (Sample No. DW-1) and a duplicate sample (Sample No. DW-2)) were collected from municipal Well No. 1 in early May 1991. The

locations of these wells are shown in Figure 3.3. Table 6.7 presents the analytical results. The concentrations of compounds identified in the municipal wells have been compared to the New York State Class GA Groundwater Standard Maximum Contaminant Levels (MCLs). The results of these comparisons are presented in the following discussions.

No VOCs, BNAs, pesticides or PCBs were detected in the drinking water samples. Barium, calcium, magnesium, manganese, potassium, sodium, and zinc were detected in the drinking water samples. Barium, magnesium, manganese, sodium and zinc were all detected at levels less than their respective MCLs of 1,000 µg/L, 35,000 µg/L, 300 µg/L, 20,000 µg/L and 300 µg/L. There are no established MCLs for calcium and potassium for groundwater in New York State.

Cyanide was not detected in the drinking water samples. TPHs were not detected in the drinking water samples.

6.7 SURFACE WATER SAMPLES

Surface water samples (Sample Nos. SW-1, SW-2, SW-3, SW-4, SW-5, SW-6, SW-7 (duplicate of SW-6), SW-8, and SW-9) were collected from eight locations. These locations are shown in Figure 3.4. Table 3.1 describes the sample locations and Table 6.8 presents the analytical results. The concentrations of compounds identified in the surface water samples have been compared to the New York State Ambient Water Quality

Standards (NYSAWQS) or guidance values for Class A potable surface waters (see Table 6.6).

VOCs were detected in all surface water samples. The five VOCs detected in the surface water samples are shown below:

VOC	*Frequency of Detection*	*Range (µg/L)*	*Surface Water Location Containing Highest Detection*	*NYSAWQS (µg/L)*
1,1-Dichloroethene	1	10	SW-2	5
1,2-Dichloroethene (Total)	6	3J-130000	SW-1	5
1,2-Dichloroethane	1	1J	SW-2	5
Trichloroethene	9	3-62000	SW-1	5
Vinyl Chloride	4	10J-5300	SW-1	0.3

Note:
J Associated value is qualified as estimated based on the data validation and assessment results (see Appendix G).

Total 1,2-dichloroethene, trichloroethene, and vinyl chloride were the most predominant VOCs detected. These compounds were detected in more than one surface sample at elevated concentrations. The highest total VOC levels were detected in samples SW-1 and SW-2 which were collected from stained areas along the northeast portion of the Site.

Trichloroethene was detected above the NYSAWQS of 5 µg/L in sample SW-1 (62,000 µg/L), SW-5 (290 µg/L), SW-6 (890 µg/L) and SW-7 (850 µg/L). Total 1,2-dichloroethene was detected above the NYSAWQS of 5 µg/L in samples SW-1 (130,000 µg/L), SW-2 (13,000 µg/L), SW-5 (230 µg/L), SW-6 (250 µg/L), and SW-7 (250 µg/L). Vinyl chloride were above the NYSAWQS guidance value of 0.3 µg/L in samples SW-1

(5,300 µg/L), SW-2 (1,500 µg/L), SW-6 (14 µg/L), and SW-7 (10 µg/L). Sample SW-2 contained 1,1-dichloroethene at 10 µg/L which is above the NYSAWQS of 5 µg/L.

The total VOC content of each surface water sample is shown below:

Surface Water Sample	*Total VOC Content*
SW-1	197300 µg/L
SW-2	14515 µg/L
SW-3	6 µg/L
SW-4	4 µg/L
SW-5	520 µg/L
SW-6	1674 µg/L
SW-7 (Dup. of SW-6)	1110 µg/L
SW-8	3 µg/L
SW-9	4 µg/L

BNAs detected in the surface waters consisted of benzoic acid, phenolic compounds, and phthalate esters which were detected in SW-1, SW-2, and SW-4. BNAs were not detected in SW-3, SW-5, SW-6, SW-7, SW-8, and SW-9. Detected BNAs were estimated since they were less than the associated detection limits. All phenolic compounds (2-methyl phenol, 4-methyl phenol, and 4-chloro-3-methyl phenol) were detected above the NYSAWQS of 1 µg/L. The phthalate esters detected in the surface water samples consisted of di-n-butyl phthalate and bis(2-ethylhexyl) phthalate. Phthalate esters were detected in SW-1, SW-2, and SW-4, at concentrations ranging from 1 µg/L to 4 µg/L which were at or below the NYSAWQS of 50 µg/L for di-n-butyl phthalate and 4 µg/L for bis(2-ethylhexyl) phthalate.

Pesticides and PCBs were not detected in any of the surface water samples.

Antimony, beryllium, selenium, thallium, and vanadium were not detected in any of the surface water samples. Barium, calcium, iron, magnesium, manganese, potassium, sodium, and zinc were detected in all of the surface water samples. Barium was detected above the NYSAWQS of 1000 µg/L (see Table 6.6) in SW-2. All remaining surface water samples showed barium concentrations below the NYSAWQS. Iron was detected above the NYSAWQS of 100 µg/L in all surface water samples with the exception of SW-8. Concentrations of iron ranged from 60.2 µg/L (SW-8) to 115,000 µg/L (SW-1). Magnesium was detected above the NYSAWQS of 35,000 µg/L in SW-1 (60,100 µg/L) and SW-2 (136,000 µg/L). All remaining surface water samples showed magnesium concentrations below the NYSAWQS. Manganese was detected above the NYSAWQS of 300 µg/L in SW-1 (9780 µg/L), SW-2 (29900 µg/L), and SW-9 (544 µg/L). All remaining surface water samples yielded manganese concentrations below the NYSAWQS. Arsenic, cadmium, chromium, copper, lead, mercury, silver, zinc and cyanide were all detected at levels below the respective NYSAWQS. Aluminum, calcium, cobalt, nickel, potassium, and sodium were detected at various levels, but, no NYSAWQS are reported for potable surface water for these metals.

TPHs were detected in SW-1 (5.9 mg/L) and SW-2 (1.8 mg/L). TPHs were not detected in the remaining surface water samples.

6.8 SEDIMENT SAMPLES

Sediment samples (Sample Nos. SED-1, SED-2, SED-3 (duplicate of the SED-2), SED-4, SED-5, SED-6, SED-7) were collected from six locations on Site (see Figure 3.4). Table 3.1 describes the sample location and Table 6.9 presents the analytical results (sample SED-3 is a duplicate sample of SED-2). Sample SED-6 was analyzed for VOCs only.

VOCs were detected in all sediment samples. The ten VOCs detected in the sediment samples are shown below:

VOC	*Frequency Detection*	*Range (mg/kg)*	*Sediment Sample Containing Highest Detection*
Acetone	4	0.380J-1.7	SED-7
2-Butanone	3	0.110J-0.320J	SED-2
1,1-Dichloroethene	2	0.830J-1.30J	SED-4
Total 1,2-dichloroethene	6	0.045J-230.0	SED-4
1,2-dichloroethane	1	0.004J	SED-2
Methylene Chloride	2	0.110-0.120J	SED-4
1,1,1-Trichloroethane	1	0.032J	SED-5
Trichloroethene	2	0.740J-1.0J	SED-4
Toluene	3	0.002J-0.022J	SED-3
Vinyl Chloride	4	0.028J-31.0	SED-1
Total Xylenes	2	0.003J-0.022J	SED-3

Note:
J The associated value is qualified as estimated based on the data validation and assessment results (see Appendix G).

The total VOC content of each sediment sample is shown below:

Sediment Sample	*Total VOC Concentration (mg/kg)*
SED-1	32.57
SED-2	1.048
SED-3	1.060
SED-4	239.9
SED-5	0.482
SED-6	3.292
SED-7	1.888

The VOCs detected at the highest concentrations are 1,2-dichloroethene and vinyl chloride, and to a lesser degree, trichloroethene, acetone and 1,1-dichloroethene. The most predominant VOC is 1,2-dichloroethene. The highest total VOC concentration was detected in sample SED-4, collected in the drainage swale adjacent to the discharge of the underground culvert. Sample SED-5, collected from the drainage swale upstream of the underground culvert, contained the lowest total VOC concentration.

BNAs detected in the sediment samples consisted of benzoic acid, phenolic compounds, phthalate esters, and polynuclear aromatic hydrocarbons. The highest total BNA level was found in sample SED-4.

Pesticides were not detected in any of these sediment samples. However, PCBs were detected in two sediment samples. Arochlor 1260 was detected in SED-2 (0.16J mg/kg) and SED-3 (0.086J mg/kg). PCBs were not detected in the remaining sediment samples.

Antimony, potassium, thallium, and cyanide were not detected in any of the sediment samples. All sediments contained barium, cobalt, iron, and lead at levels higher than the background soil

concentrations. Samples SED-1, SED-2, SED-3, SED-4, and SED-7 showed concentrations of beryllium, cadmium, copper, and nickel higher than the background soil concentrations.

TPHs were detected in all sediment samples and ranged from 200 mg/kg (SED-5) to 8200 mg/kg (SED-7).

7.0 DISCUSSION

7.1 GENERAL

During the SI, a total of 45 investigative samples (including duplicates) were collected and analyzed for TPHs, and/or the TCL and/or TAL parameters. Based upon a review of the data, VOCs primarily consisting of trichloroethene and its degradation products were the most predominant contaminants detected at the Site. Degradation products of trichloroethene include 1,2-dichloroethene, vinyl chloride, 1,1-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane, and chloroethane. Trichloroethene was detected in 71 percent of the samples (32 of 45) of the samples; total 1,2-dichloroethene, 60 percent; and vinyl chloride, 29 percent.

Other major contaminants detected at elevated concentrations included metals and TPHs.

7.2 SOILS

Soil contamination may be attributable to the presence of fill material at the Site. Fill material consisting of silty soils, metal debris, wood, slag, and gravel were found in test pits/boreholes excavated/installed at the Site. Crushed drums and/or pieces of drums were found in Areas 1, 2 and 4. Deteriorated drums and metal debris were also found along the northern embankment of the Site along the low lying swampy area.

Soils at the Site were found to be contaminated with primarily VOCs, metals and TPHs. The most predominant contaminants in the Site soils are trichloroethene and its degradation product, 1,2-dichloroethene.

The highest levels of VOC contamination were found in Areas 1 and 2, at the northern end of the Site. Soil samples from Areas 3, 8, 11, 12 and 13 contained total VOC levels less than 0.050 mg/kg (no VOCs were detected in Areas 12 and 13). Low levels of trichloroethene (0.014J mg/kg and 0.038 mg/kg) were also detected at soil samples (sample nos. BH-1 and SS-1, respectively) intended to represent area background levels. The reason for the presence of low levels of trichloroethene at this sample location is not known at this time.

Elevated levels of metals in the soils are attributable to the presence of metallic chips, turnings and debris found in the fill soils at the Site. Metals detected above published levels for uncontaminated soils consist of cadmium, chromium, cobalt, copper, iron, lead, nickel, vanadium and manganese. Soil samples collected from Areas 11A, 8, 12 and 13 generally contained metals at levels similar to published values for uncontaminated soils.

TPHs were found in soils at elevated levels (980 mg/kg to 56,000 mg/kg) in Areas 1, 2, 3, 4 and 10B.

Low levels (0.013J mg/kg to 12J mg/kg) of PCBs were also detected in samples collected from Areas 1, 2, 3, 8 and 11. However, the detected PCB levels were less than the recommended action levels[1] (10-25 mg/kg) for PCBs in soils in an industrial area, as established by the United States Environmental Protection Agency (USEPA).

7.3 GROUNDWATER

Groundwater in the Water Table Aquifer generally flows in a northerly direction toward the Conewango Creek. It is believed that the groundwater in this aquifer discharges to the Conewango Creek and may also discharge to the low lying swampy area and/or the existing drainage swale which flows through the Site.

Groundwater in the shallow sand/gravel unit (Water Table Aquifer) beneath the Site is contaminated primarily with VOCs. The most predominant groundwater contaminants are trichloroethene and its degradation products, 1,2-dichloroethene and vinyl chloride.

The groundwater samples from wells MW-1 (upgradient well) and MW-6 did not exceed any established MCLs except for iron and manganese (MW-6 only). Upgradient well MW-1 did not contain any detectable quantities of VOCs, BNAs, pesticides, PCBs, or cyanide. Metals, VOCs and some BNAs were generally detected in downgradient wells at

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1 USEPA, "Guidance on Remedial Actions for Superfund Sites with PCB Contamination", August 1990.

levels above those detected in upgradient well MW-1. Low levels of BNAs were detected in only wells MW-2 and MW-3 at levels near the practical quantitation limits. Pesticides, PCBs, cyanide and some metals (antimony, cadmium, mercury, selenium, and thallium) were not detected in any of the wells.

New York State MCLs for metals (iron, lead, manganese and magnesium), VOCs (trichloroethene, 1,2-dichloroethene, ethylbenzene, 1,2-dichloroethane, toluene, 1,1,2-trichloroethane, vinyl chloride, 1,1-dichloroethene, and tetrachloroethane), phenol and 4-methylphenol were exceeded in one or more groundwater samples collected at the Site.

The highest levels of groundwater contamination were found in wells MW-2, MW-3 and MW-4. Monitoring well MW-2 is located within Area 1 where the highest levels of VOCs were found in the soil.

7.4 SURFACE WATER/SEDIMENTS

Surface water and sediment samples collected in and around the Site contained elevated levels of contaminants which primarily consisted of VOCs, metals and/or TPHs. The most predominant contaminants were trichloroethene and its degradation products, 1,2-dichloroethene and vinyl chloride.

Surface water samples (sample nos. SW-1, SW-2, SW-5, SW-6 and SW-7) exceeded established NYSAWQS for one or more of the

following: 1,1-dichloroethene, 1,2-dichloroethene (total), trichloroethene, vinyl chloride, 2-methylphenol, 4-methylphenol, 4-chloro-3-methylphenol, barium, iron, magnesium and manganese. Water samples collected from the Conewango Creek (Sample nos. SW-3 and SW-4) exceeded the NYSAWQS for iron only. Sample no. SW-9 also exceeded the NYSAWQS for iron and manganese. Sample no. SW-8 did not exceed any established New York State standards for surface water.

Many of the surface water and sediment samples were collected from stained areas situated on or adjacent to the embankment at the northern portion of the Site, along the Conewango Creek and the low lying swampy area north of the Site. These stained areas appeared to be groundwater discharge points from the fill layer at the northern portion of the Site. The highest levels of VOCs were detected in surface water and sediment samples from two stained areas and the drainage swale located in the low lying swampy area immediately east of Area 4.

Sediment in the swale is contaminated as illustrated by the elevated levels of VOCs (239.9 mg/kg total VOCs) found in the swale located in the low lying swampy area. The sediment sample (sample SED-5) collected upstream of the low lying area had a total VOC level of 0.482 mg/kg. Surface water samples collected from the drainage swale located on Site indicates that the soil/sediment contamination has impacted the water quality. The surface water sample (SW-8) collected from the drainage swale at the southern end of the Site, contained total VOCs at 3 µg/L. Surface water samples collected further downstream within the low lying swampy area

contained total VOCs at 1,674 µg/L (sample SW-6) and 1,110 µg/L (sample SW-7).

Surface water samples collected in the Conewango Creek upstream (sample no. SW-4) and downstream (sample no. SW-3) of the Site did not exceed any of the NYSAWQS for Class A waters (drinking water) except for iron. Detected iron levels in the upstream sample, SW-4, 1,090 µg/L of iron and the downstream sample, SW-3, contained 991 µg/L. Detected total VOCs (trichloroethene and 1,2-dichloroethene) levels in samples SW-3 and SW-4 were 6 µg/L and 4 µg/L, respectively. As such, the Site has not significantly impacted the water quality in the Conewango Creek.

7.5 POTENTIAL MIGRATION PATHWAYS

Potential migration pathways for Site contaminants include surface water transport, groundwater migration, physical contact and atmospheric dispersion.

Containment migration by air dispersion, physical contact and tracking is possible. However, these migration pathways are not considered to be significant pathways in comparison to surface water transport and groundwater migration. Since access to the Site is restricted, and since many contaminated areas are wet or moist and well vegetated, contaminant migration due to tracking or volatilization are minimal.

Surface water in the drainage swale/culvert which flows through the Site contains contaminants. Contaminants may be discharged to the swampy area northeast of the Site and into the Conewango Creek. Surface water may also be impacted by groundwater from the shallow sand/gravel aquifer (Water Table Aquifer) which may be discharging to the Conewango Creek and the low lying swampy area. Groundwater leaching from the northern embankment of the Site has resulted in the contamination of sediments and surface water in the low lying wet area.

Groundwater in the Water Table Aquifer is contaminated beneath the Site. The extent of off-Site groundwater contamination within the Water Table Aquifer, if any, has not been fully defined. It is unknown whether or not groundwater contamination from the Site has contaminated the Frewsburg Aquifer.

8.0 CONCLUSIONS

Based on the evaluation of the information and analytical results obtained during this SI, the following conclusions are made:

i) Fill material is evident over the developed portion of the Site (which is approximately 15 acres of the total 93 acres that the entire property occupies. Fill material primarily consists of silty soils, gravel, sand, wood and metal debris. Fill material were found on Site to depths up to 9 feet BGS.

ii) The first waterbearing zone encountered beneath the Site is an alluvial sand and gravel unit which varies in thickness from 3.5 feet to 20.5 feet. The hydraulic conductivities of this unit range from 2.6×10^{-3} cm/sec to 1.6×10^{-5} cm/sec with a geometric mean of 5.5×10^{-4} cm/sec. Groundwater flow in this shallow sand and gravel unit (Water Table Aquifer) is generally in a northerly direction towards the Conewango Creek. Underlying this unit is a confining layer of silt and clay which is believed to be approximately 15 to 20 feet thick. Underlying the confining layer, is a sand and gravel artesian aquifer (Frewsburg Aquifer) which is the drinking water source for the Village of Frewsburg.

iii) The most predominant contaminants found at the Site are VOCs, primarily consisting of trichloroethene, 1,2-dichloroethene (total), vinyl chloride and 1,1-dichloroethane (1,2-dichloroethene, vinyl

chloride and 1,1-dichloroethene are degradation products of trichloroethene).

iv) The test pit investigation and soil sampling program revealed that the subsurface soils are primarily contaminated with VOCs, TPHs and metals to depths up to 11.0 feet BGS. The area with the highest level of contamination is the area north of the Main Building in the vicinity of Area 1 (adjacent to the large oil/water separator) and Area 2. The sample(s) collected from test pit(s) excavated in Area 1 contained total VOC concentrations of 3,280 mg/kg and in Area 2, 681 mg/kg to 17,620 mg/kg. To a lesser degree, subsurface soils in Areas 4, 5A and 5B were also contaminated.

v) The groundwater in the Water Table Aquifer (shallow sand/gravel unit) is contaminated with VOCs, some BNAs and metals. MCLs were exceeded for 1,2-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, ethylbenzene, tetrachloroethane, toluene, 1,1,2-trichloroethane, trichloroethene vinyl chloride, phenol, 4-methylphenol, iron, lead, sodium, manganese, and magnesium in one or more of the monitoring wells. The most predominant groundwater contaminants in the Water Table Aquifer are trichloroethene, 1,2-dichloroethene and vinyl chloride. Monitoring wells MW-2, MW-3 and MW-4 contained the highest levels of contaminants. Monitoring wells MW-1 (upgradient well) and MW-6 did not exceed established MCLs except for iron.

The extent of any groundwater contamination off Site has not been defined.

vi) The municipal water samples collected in May 1991 as part of the SI did not contain contaminants above drinking water standards.

vii) The sediment samples collected from the Site are contaminated with primarily VOCs which predominately consist of TCE and its degradation products (1,2-dichloroethene and vinyl chloride). Sediment samples collected from the drainage swale (Sample SED-4) and stained area (Sample SED-1) along the northern perimeter of the Site contained the highest total VOCs levels. Sample SED-5, collected upstream of the location from Sample SED-4 was collected, contained substantially lower levels of VOCs than Sample SED-4.

viii) Surface water samples collected on Site contained elevated levels of VOCs and metals. Trichloroethene and its degradation products (1,2-dichloroethene and vinyl chloride) are the most predominant VOCs detected in surface water at the Site. The highest VOC concentrations were detected in surface water samples (SW-1 and SW-2) collected from the low lying area in the northeast portion of the Site. To a lesser degree, VOCs contamination was also evident in surface water at the discharge point of the drainage swale/culvert in the northeast portion of the Site and from the stormwater culvert at the northwest corner of the Site.

Total VOC concentrations (4 µg/L) in the surface water samples collected in the Conewango Creek upstream of the Site (SW-4) is consistent with the total VOC concentration (6 µg/L) in the sample (SW-3) collected downstream of the Site. Surface water samples collected from the Conewango Creek did not exceed any established NYSAWQS except for iron. Surface water quality in the Conewango Creek has not been significantly impacted by the Site contaminants based on the data collected during the SI.

REFERENCES

Crain, Leslie J., "Ground-water Resources of the Jamestown Area, New York with Emphasis on the Hydrology of the Major Stream Valleys", U.S. Geological Survey, 1966.

McGovern, Carol, "Background and Concentrations of 20 Elements in Soils with Special Regard to New York State", NYSDEC.

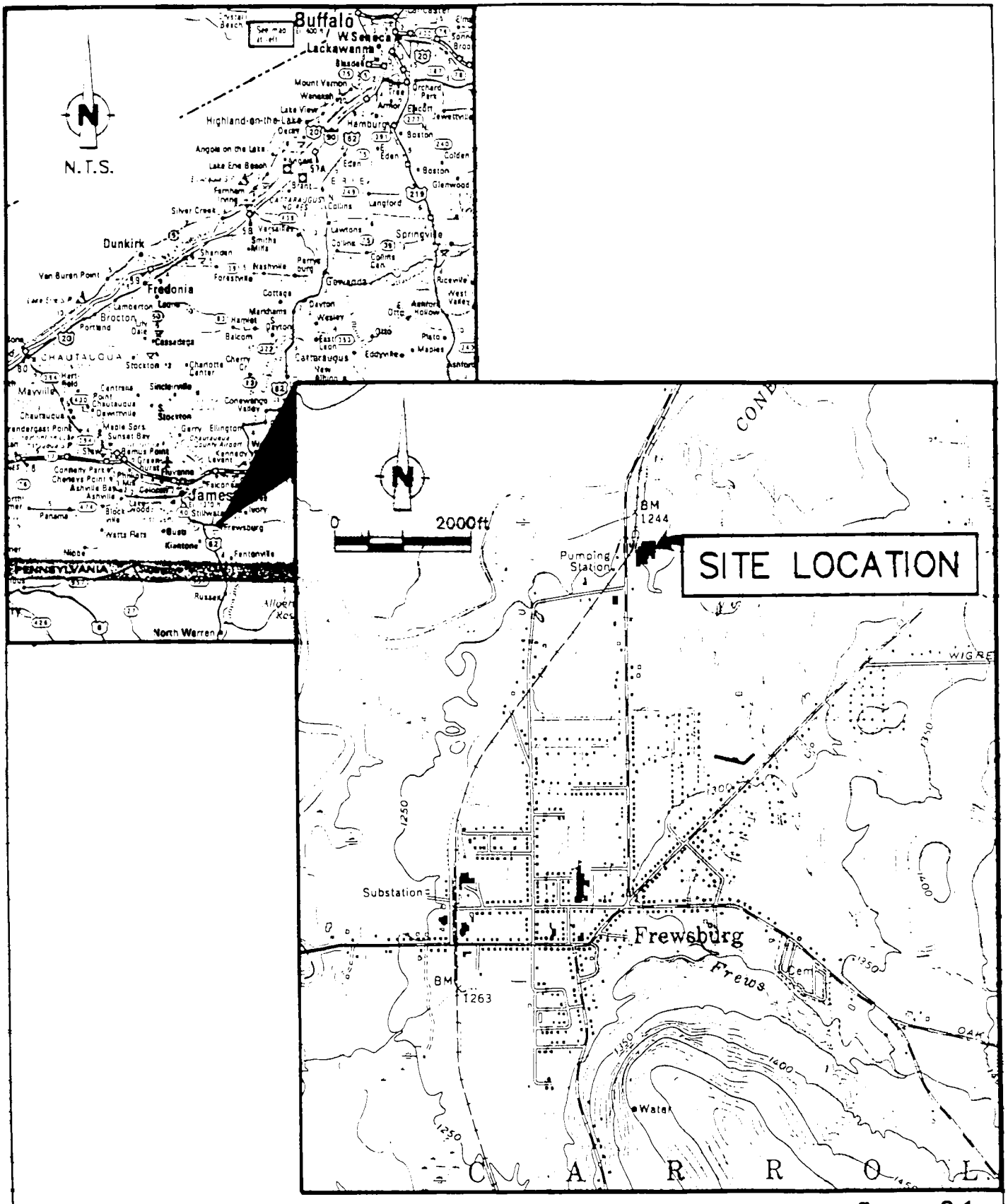
NYSDEC, "Ambient Water Quality Standards and Guidance Values", Division of Water, TOGS1.1.1, September 25, 1990.

Pendias, K., A. Pendias, and I. Pendias, "Trace Elements in Soils and Plants", CRC Press, Inc., Boca Raton, Florida, 1985.

U.S. Geological Survey, "Atlas of Eleven Selected Aquifers in New York", File Report 82-553, 1982.

FIGURES

FIGURES



SOURCE: JAMESTOWN, N.Y.
N4200—W7907.5/7.5

figure 2.1
SITE LOCATION
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

CRA

2326-18/09/91-6-0 (NF)

DRAWING BASED ON A SURVEY
DONE BY GARY E. KRULL,
MARILLA, NEW YORK
DATED 24 JULY, 1991

A Survey of the Lands of
Samuel G. Keywell Company, Inc.
Part of Lot 55, Township 1, Range 10
Holland Land Company Survey
Town of Carroll
County of Chautauqua
State of New York
July 24, 1991, Scale: 1"=100'

Title References for Boundary Survey Preparation:

L 1812 — P 159, Oct. 10, 1978, Edward F. Moore to Vac Air Alloys Corp. Current Parcel is the same as described in this deed exclusive of exceptions listed there in.

L 2147 — P 300, Dec. 18, 1987, Vac Air Alloys Corp. to Samuel G Keywell Company, Inc.

* Area at northwest corner of this survey which lies east of Frewsburg Road and west of the former west line of the Dunkirk, Allegany Valley and Pittsburg Railroad Company (see L 172 — P 85) is not covered by the above mentioned deed. Chautauqua County Tax Mapping lists this area as being owned by Samuel G. Keywell Company Inc.

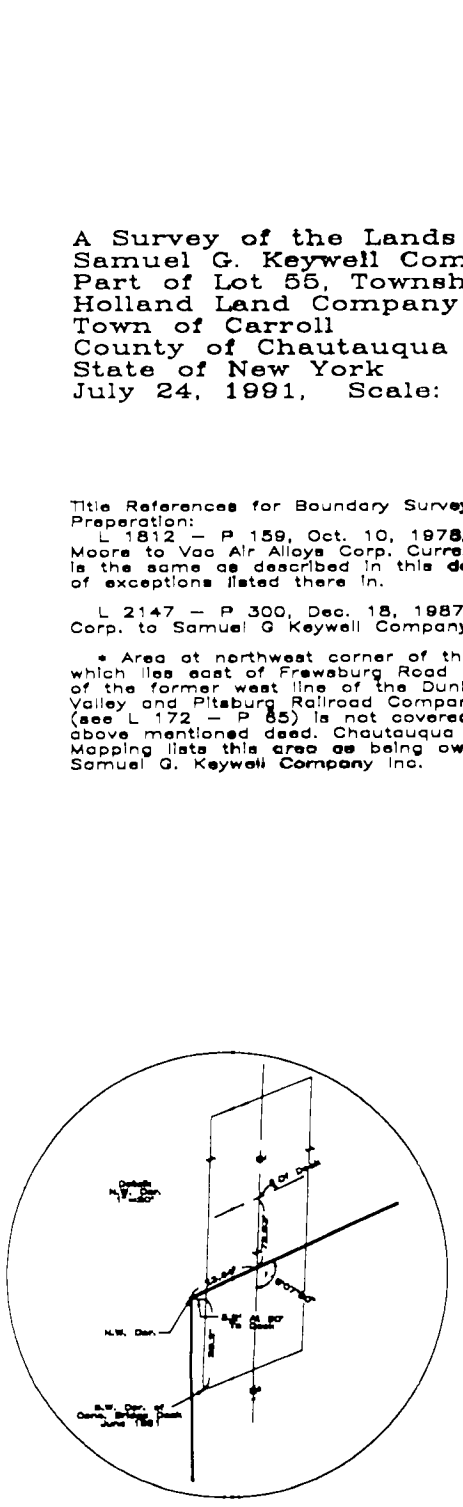


figure 2.2

SITE LAYOUT
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

CRA

2326-18/09/91-6-0 (NF)

COMMUNITY WELL #3

ACTUAL LOCATION APPROX. 1/2 MILE NORTH

LEGEND

AREA OF POTENTIAL CONTAMINATION

DRAINAGE SWALE

N

0 50 100 200 ft

DRAWING BASED ON A SURVEY DONE BY GARY E. KRULL, MARILLA, NEW YORK DATED 24 JULY, 1991

Creek

Conewango

LOW LYING WET AREA

TBM

1 2 3 4 5A 5B 6 7 8 9 10A 10B 11 12 13

Fr. Shed

In Ground Fiber Glass Tank Unit

Conc. Pad

Ramp

Conc. Block Building

Scale

Gas Meter

Drain

Conc. Blk. Shed

Metal Building

Overhang

Bridge

Horseshoe Pits

Planters

Asphalt Lot

Stone Lot

Tank

COMMUNITY WELL #1

COMMUNITY WELL #2

FORMER RAILROAD LINE

Frewsburg Road

Pond

FENCE

figure 2.3

AREAS OF POTENTIAL CONTAMINATION
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

CRA

2326-18/09/91-6-0 (NF)

LEGEND

TP3-A — TEST PIT

SAMPLE COLLECTED FOR CHEMICAL ANALYSIS

DRAINAGE SWALE

COMMUNITY WELL #3

ACTUAL LOCATION APPROX. 1/2 MILE NORTH

0 50 100 200 ft

DRAWING BASED ON A SURVEY DONE BY GARY E. KRULL, MARILLA, NEW YORK DATED 24 JULY, 1991

Creek

Conewango

TBM

TP3-A
TP3-B
TP1-A
TP2-A
TP4-B
TP4-A
TP4-C
TP4-C
TP4-D
TP4-E
TP4-F
In Ground Fiber Glass Tank Unit
Fr. Shed
MH

TP10B-A
TP10B-B

Conc. Pad

In Ground Fiber Glass Tank Unit
TP10A-A

TP11-A

LOW LYING WET AREA

Ramp
DI
Conc. Pad
MH
DI
Conc. Block Building
MH
Scale
Gas Meter
Hyd
DIa
Drain
Fr. Shed
Conc. Blk. Shed
Gas Meter
Bridge
Metal Building
Overhang
DI
Ramp
MH

COMMUNITY WELL #1

COMMUNITY WELL #2

Guard Shed

Horseshoe Pits
Planters
Conc. Pad

TP8-B
TP8-A

Asphalt Lot

Bridge

Conc. Blk. Shed

Tank

MH

Stone Lot

Asp.

Pond

FENCE

FORMER RAILROAD LINE

Frewsburg Road

figure 3.1

TEST PIT LOCATIONS
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

CRA

2326-18/09/91-6-0 (NF)

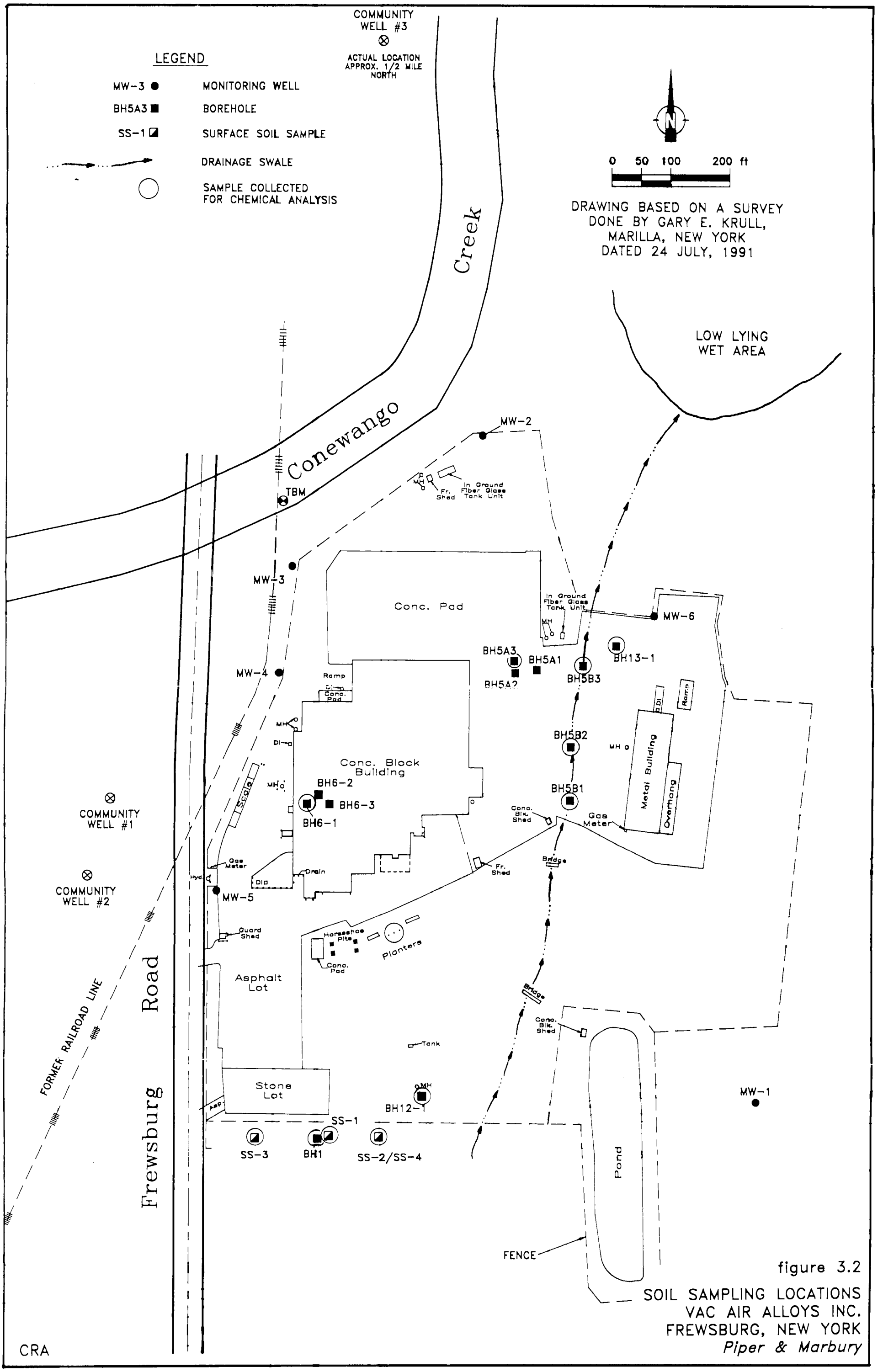


figure 3.2

SOIL SAMPLING LOCATIONS
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

2326-18/09/91-6-0 (NF)

LEGEND

MW-3 ● MONITORING WELL

⊗ COMMUNITY DRINKING WATER WELL

MEASURING POINT FOR WATER LEVEL IN CREEK

DRAINAGE SWALE

COMMUNITY WELL #3 ⊗

ACTUAL LOCATION APPROX. 1/2 MILE NORTH

N

0 50 100 200 ft

DRAWING BASED ON A SURVEY DONE BY GARY E. KRULL, MARILLA, NEW YORK DATED 24 JULY, 1991

Creek

Conewango

LOW LYING WET AREA

MW-2

In Ground Fiber Glass Tank Unit

Fr. Shed

TBM ⊗

MW-3

Conc. Pad

In Ground Fiber Glass Tank Unit

MH

MW-6

MW-4

Ramp

Conc. Pad

DI

MH

Conc. Block Building

Scale

MH

Ramp

DI

Metal Building

Overhang

Conc. Blk. Shed

Gas Meter

COMMUNITY WELL #1 ⊗

COMMUNITY WELL #2 ⊗

Gas Meter

Drain

DIa

Fr. Shed

Bridge

MW-5

Guard Shed

Horseshoe Pits

Planters

Conc. Pad

Asphalt Lot

Bridge

Conc. Blk. Shed

FORMER RAILROAD LINE

Frewsburg Road

Tank

MH

Stone Lot

MW-1

Pond

FENCE

figure 3.3

MONITORING WELL LOCATIONS
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

CRA

2326-18/09/91-6-0 (NF)

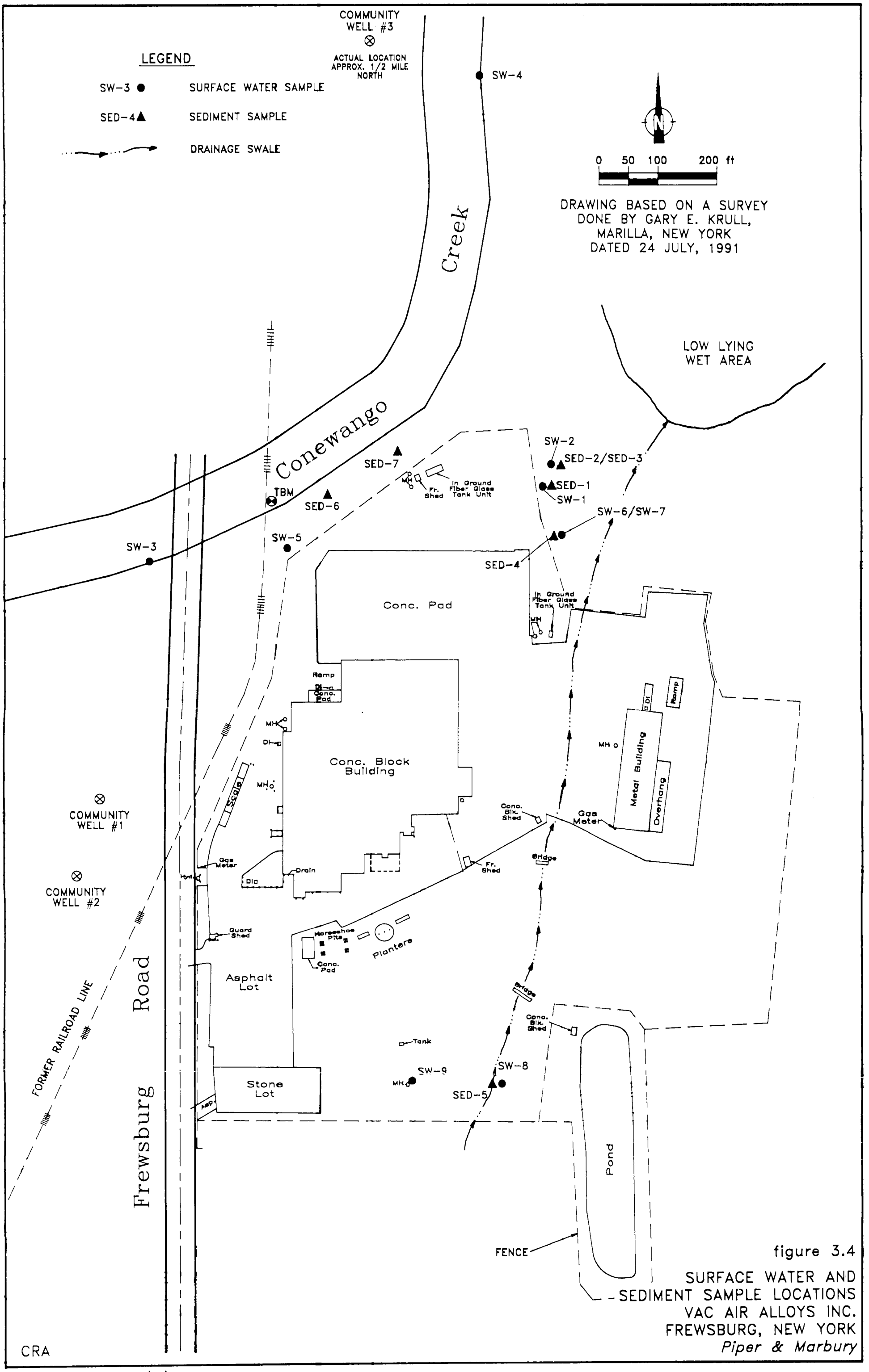


figure 3.4

SURFACE WATER AND SEDIMENT SAMPLE LOCATIONS
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK

CRA

Piper & Marbury

2326-18/09/91-6-0 (NF)

LEGEND

MW-3 ● MONITORING WELL

⊗ COMMUNITY DRINKING WATER WELL

⊗ MEASURING POINT FOR WATER LEVEL IN CREEK

DRAINAGE SWALE

COMMUNITY WELL #3 ⊗ ACTUAL LOCATION APPROX. 1/2 MILE NORTH

N

0 50 100 200 ft

DRAWING BASED ON A SURVEY DONE BY GARY E. KRULL, MARILLA, NEW YORK DATED 24 JULY, 1991

Creek

Conewango

LOW LYING WET AREA

A

B

C

C'

D

D'

A'

B'

MW-1

MW-2

MW-3

MW-4

MW-5

MW-6

BH5B-3

BH12-1

BH-1

TBM

COMMUNITY WELL #1

COMMUNITY WELL #2

FORMER RAILROAD LINE

Frewsburg Road

Conc. Pad

Conc. Block Building

Metal Building

Overhang

Ramp

Gas Meter

Asphalt Lot

Stone Lot

Guard Shed

Horseshoe Pits

Planters

Tank

Pond

FENCE

Fr. Shed

Drain

Bridge

In Ground Fiber Glass Tank Unit

figure 5.1

GEOLOGIC CROSS SECTION LOCATIONS
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

CRA

2326-18/09/91-6-0 (NF)

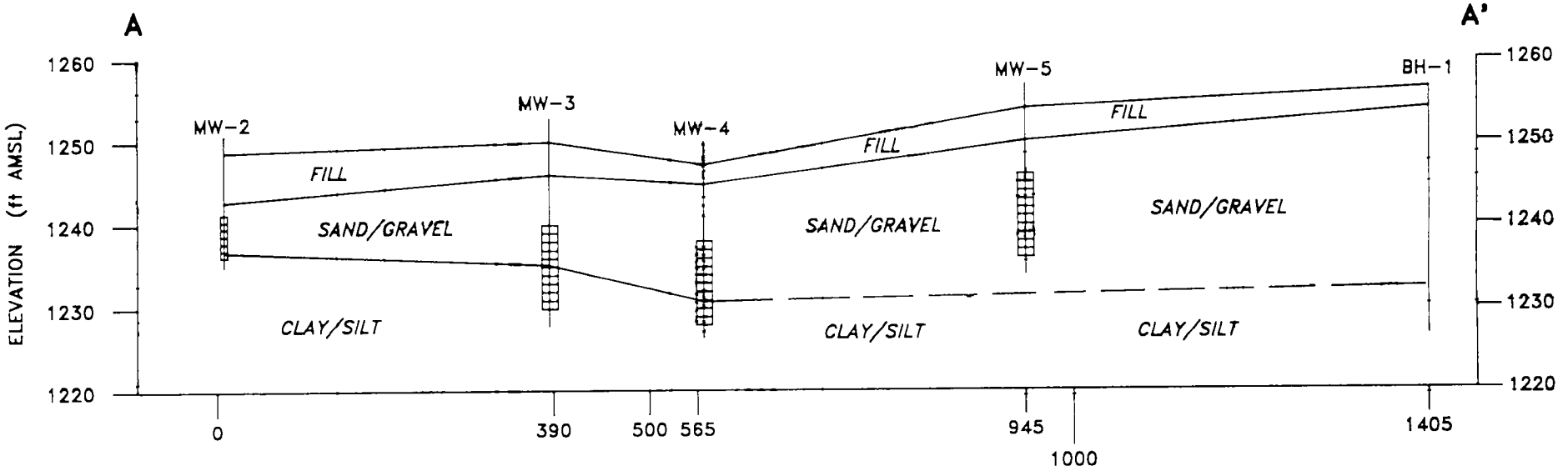


figure 5.2

GEOLOGIC CROSS SECTION A–A'
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

CRA

2326-01/10/91-(NF)-6 (X-01)

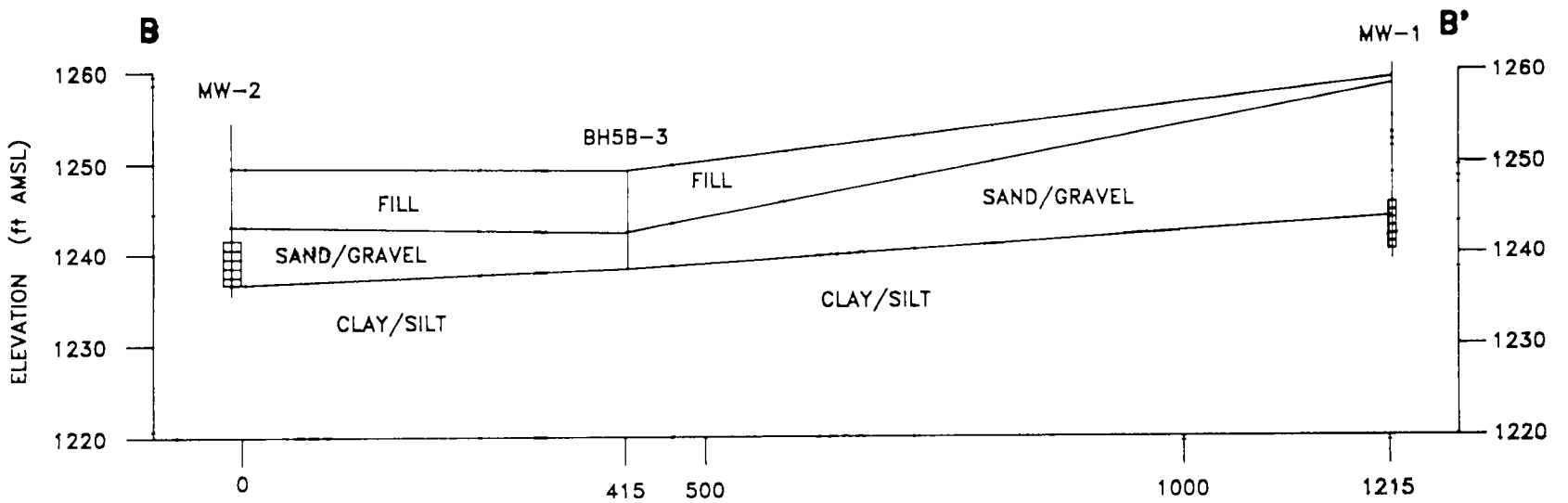


figure 5.3

GEOLOGIC CROSS SECTION B–B'
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK

CRA

Piper & Marbury

2326-01/10/91-(NF)-6 (X-02)

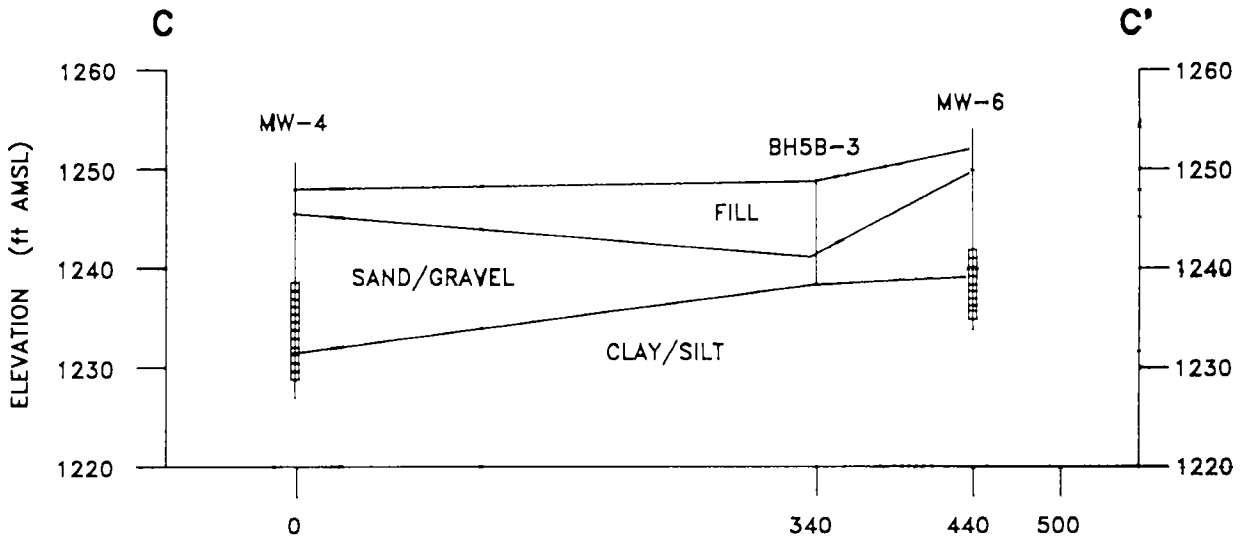


figure 5.4

GEOLOGIC CROSS SECTION C–C'
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK

CRA

Piper & Marbury

2326-01/10/91-(NF)-6 (X-03)

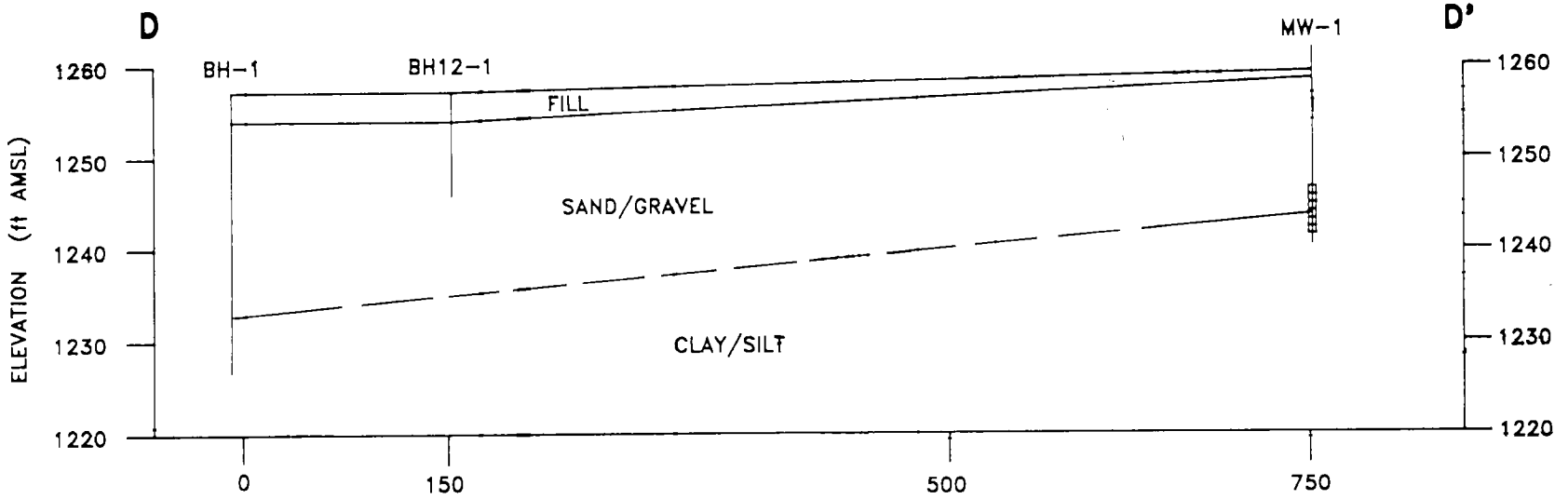


figure 5.5

GEOLOGIC CROSS SECTION D-D'
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK

Piper & Marbury

CRA

2326-01/10/91-(NF)-6 (X-04)

LEGEND

MW-3 ● MONITORING WELL

BH5A3 ■ BOREHOLE

DRAINAGE SWALE

COMMUNITY WELL #3 ⊗

ACTUAL LOCATION APPROX. 1/2 MILE NORTH

N

0 50 100 200 ft

DRAWING BASED ON A SURVEY DONE BY GARY E. KRULL, MARILLA, NEW YORK DATED 24 JULY, 1991

Creek

Conewango

1236

1238

1240

1242

LOW LYING WET AREA

1236.2 MW-2

TBM

In Ground Fiber Glass Tank Unit

Fr. Shed

1235.6 MW-3

Conc. Pad

In Ground Fiber Glass Tank Unit

MW-6 1238.7

BH5A3

BH5A1

BH5A2

BH13-1

BH5B3 1237.8

1231.1 MW-4

Ramp

Dl

Conc. Pad

MH

BH5B2

Conc. Block Building

MH

Metal Building

Overhang

Ramp

Dl

BH5B1

Conc. Blk. Shed

Gas Meter

Scale

COMMUNITY WELL #1

COMMUNITY WELL #2

Gas Meter

Hyd

Dla

Drain

Fr. Shed

Bridge

MW-5

Guard Shed

Horseshoe Pits

Conc. Pad

Planters

Asphalt Lot

Bridge

Conc. Blk. Shed

Tank

Stone Lot

MH

BH12-1

1242.9 MW-1

BH-1 1232.2

Pond

FENCE

FORMER RAILROAD LINE

Frewsburg Road

1232

1234

1236

1238

1240

1242

CRA

figure 5.6

TOP OF CLAY CONTOURS
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

2326-18/09/91-6-0 (NF)

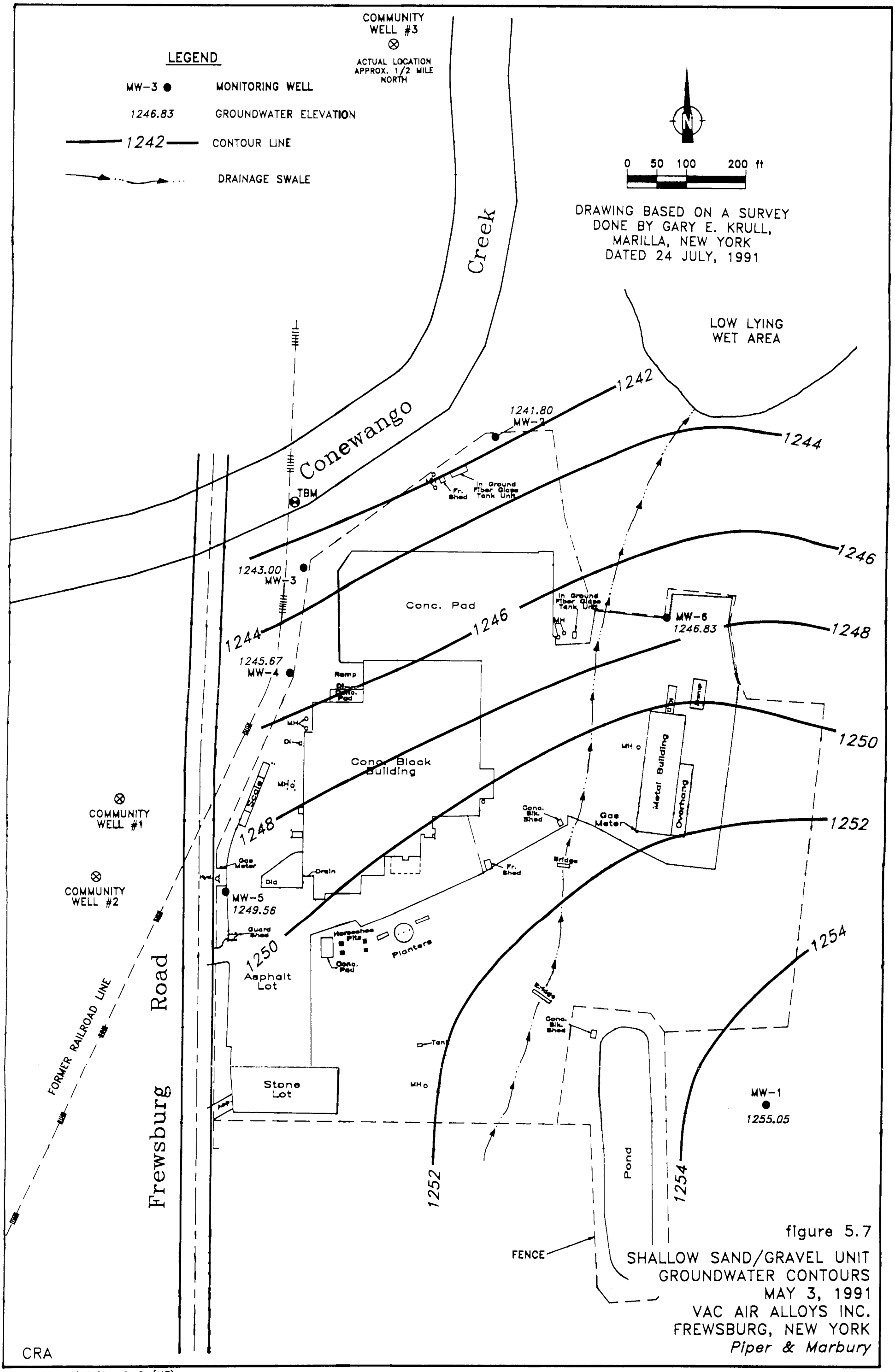


figure 5.7

SHALLOW SAND/GRAVEL UNIT GROUNDWATER CONTOURS
MAY 3, 1991
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

CRA

2326-18/09/91-6-0 (NF)

LEGEND

MW-3 ● MONITORING WELL

1244.64 GROUNDWATER ELEVATION

1232 CONTOUR LINE

DRAINAGE SWALE

COMMUNITY WELL #3 ⊗

ACTUAL LOCATION APPROX. 1/2 MILE NORTH

N

0 50 100 200 ft

DRAWING BASED ON A SURVEY DONE BY GARY E. KRULL, MARILLA, NEW YORK DATED 24 JULY, 1991

Creek

Conewango

1230.72 TBM

1239.00 MW-2

1241.01 MW-3

1243.60 MW-4

MW-5 1248.11

MW-6 1244.64

MW-1 1253.40

1232 1234 1236 1238 1240 1242 1244 1246 1248 1250 1252

LOW LYING WET AREA

Conc. Pad

Conc. Block Building

Ramp

Dk

Comp. Pad

MH

Scale

Gas Meter

Drain

Guard Shed

Horseshoe Pits

Planters

Asphalt Lot

Stone Lot

Tank

In Ground Fiber Glass Tank Unit

Fr. Shed

Conc. Blk. Shed

Metal Building

Overhang

Bridge

Pond

FENCE

COMMUNITY WELL #1 ⊗

COMMUNITY WELL #2 ⊗

FORMER RAILROAD LINE

Frewsburg Road

figure 5.8

SHALLOW SAND/GRAVEL UNIT GROUNDWATER CONTOURS JUNE 25, 1991 VAC AIR ALLOYS INC. FREWSBURG, NEW YORK

Piper & Marbury

CRA

2326-18/09/91-6-0 (NF)

COMMUNITY WELL #3

ACTUAL LOCATION APPROX. 1/2 MILE NORTH

LEGEND

MW-3 ● MONITORING WELL

1244.32 GROUNDWATER ELEVATION

1238 CONTOUR LINE

DRAINAGE SWALE

N

0 50 100 200 ft

DRAWING BASED ON A SURVEY DONE BY GARY E. KRULL, MARILLA, NEW YORK DATED 24 JULY, 1991

Creek

Conewango

1230.47 TBM

1239.23 MW-2

1240.77 MW-3

1243.14 MW-4

MW-5 1247.48

MW-6 1244.32

MW-1 1252.30

1232

1234

1236

1238

1240

1242

1244

1246

1248

1250

1252

LOW LYING WET AREA

Conc. Pad

Ramp

Conc. Block Building

Scale

Gas Meter

Drain

Guard Shed

Fr. Shed

In Ground Fiber Glass Tank Unit

MH

Metal Building

Overhang

Conc. Blk. Shed

Bridge

Horseshoe Pits

Planters

Asphalt Lot

Stone Lot

Tank

Pond

FENCE

COMMUNITY WELL #1

COMMUNITY WELL #2

FORMER RAILROAD LINE

Frewsburg Road

figure 5.9

SHALLOW SAND/GRAVEL UNIT GROUNDWATER CONTOURS AUGUST 19, 1991 VAC AIR ALLOYS INC. FREWSBURG, NEW YORK

Piper & Marbury

CRA

2326-18/09/91-6-O (NF)

TABLES

TABLES

TABLE 2.1

POTENTIAL AREAS OF CONTAMINATION
VACAIR ALLOYS
FREWSBURG, NEW YORK

Location I.D.	*Description*
Area 1	1,000 gallon oil/water separator.
Area 2	Area 20 feet south of the northern fence line and 80 feet west of the east fence line.
Area 3	Bank of the Conewango River north of the Site.
Area 4	Area suspected to be contaminated with TCE.
Area 5A	Suspected fill area (20 feet square) 15 to 20 feet deep.
Area 5B	Area over the underground culvert pipe which was reportedly backfilled with construction/demolition debris.
Area 6	Degreaser room in the Main Building.
Area 7	Concrete Bin Area for unprocessed scrap metal.
Area 8	Area east of the frame building potentially backfilled with soils/materials encountered in Area 1.
Area 9	Suspected fill area north of the Bin Area.
Area 10A	500 gallon oil/water separator north of Area 5B.
Area 10B	Low area east of Area 10A potentially contaminated with oily wastes from Area 7.
Area 11	Area west of Area 7 outside the fence line potentially contaminated with oily wastes from Area 7.
Area 12	Septic tank and tile bed field east of the parking lot.
Area 13	Former location of a small septic field/sandbed for the Metal Building.

Note:
Based on allegations made by the New York State Department of Environmental Conservation.

TABLE 2.2

CLIMATOLOGICAL DATA SUMMARY
VACAIR ALLOYS
FREWSBURG, NEW YORK

Total Precipitation
(Inches)

1/90	4.17
2/90	5.56
3/90	1.67
4/90	4.08
5/90	6.88
6/90	3.94
7/90	6.97
8/90	3.65
9/90	7.70
10/90	8.26
11/90	2.80
12/90	7.31
1990 Total Precipitation	**62.99**

Average Temperature
(°F)

1/90	33.5
2/90	31.8
3/90	38.1
4/90	49.3
5/90	55.9
6/90	65.7
7/90	70.2
8/90	69.1
9/90	61.1
10/90	52.0
11/90	43.8
12/90	34.2
1990 Average Temperature	**50.4**

Note: Climatological data from the Northeast Regional Climate Center for Jamestown, New York

TABLE 3.1
SAMPLE IDENTIFICATION KEY
SITE INVESTIGATION
VACAIR ALLOYS
FREWSBURG, NEW YORK

Sample I.D.	*Sample Date*	*Sample Matrix*	*Sample Source*	*Sample Interval (ft. BGS)*	*Sample Analyses*	*Notes*
TP-1A	12/11/90	Soil	Area 1, Test Pit A	6.0	TCL, TAL, TPH	Collected from pile of excavated material.
TP-2A	12/12/90	Soil	Area 2, Test Pit A	2.0	TCL, TAL, TPH	
TP-2AA	12/12/90	Soil	Area 2, Test Pit A	2.0	TCL, TAL, TPH	Duplicate of TP-2A.
TP-2A-2	12/12/90	Soil	Area 2, Test Pit A	6.0	TCL VOCs	East end of Test Pit 2A.
TP-3A	12/14/90	Soil	Area 3, Test Pit A	6.0 - 6.5	TCL, TAL, TPH	Collected from pile of excavated material.
TP-3B	12/14/90	Soil	Area 3, Test Pit A	6.0 - 7.0	TCL, VOCs	Collected from pile of excavated material.
TP-4C	12/14/90	Soil	Area 4, Test Pit C	1.5 - 2.0	TCL, TAL, TPH	
TP-8A	12/13/90	Soil	Area 8, Test Pit A	-	TCL, TAL, TPH	Collected from pile of excavated material.
TP-10BB	12/13/90	Soil	Area 10B, Test Pit B	5.0	TCL, TAL, TPH	
TP-11A	12/14/90	Soil	Area 11, Test Pit A	3.0	TCL, TAL, TPH	
WS-1	12/13/90	Water	Rinsate Blank	-	TCL, TAL, TPH	Collected after collection of TP10BB.
BH-1	1/22/91	Soil	Background, Borehole BH-1	2.0 - 4.0	TCL, TAL, TPH	South of septic tank and sand bed

TABLE 3.1
SAMPLE IDENTIFICATION KEY
SITE INVESTIGATION
VACAIR ALLOYS
FREWSBURG, NEW YORK

Sample I.D.	*Sample Date*	*Sample Matrix*	*Sample Source*	*Sample Interval (ft. BGS)*	*Sample Analyses*	*Notes*
6-1	1/23/91	Soil	Area 6, Borehole S6-1	1.2 - 3.5	TCL, TAL, TPH	In TCE degreaser area within the main building
BH5B-1	1/24/91	Soil	Area 5B, Borehole BH5B-1	7.2 - 9.0	TCL, TAL, TPH	
BH5B-2	1/24/91	Soil	Area 5B, Borehole BH5B-2	9.0 - 11.0	TCL, TAL, TPH	
BH5B-3	1/24/91	Soil	Area 5B, Borehole BH5B-3	7.3 - 9.0	TCL, TAL, TPH	
BH5A-3	1/25/91	Soil	Area 5A, Borehole BH5A-3	9.0 - 11.0	TCL, TAL, TPH	
BH13-1	1/28/91	Soil	Area 13, Borehole BH13-1	7.2 - 9.0	TCL, TAL, TPH	
BHA-1	1/28/91	Soil	Area 13, Borehole BH13-1	7.2 - 9.0	TCL, TAL, TPH	Duplicate of BH13-1
BH12-1	1/28/91	Soil	Area 12, Borehole BH12-1	6.0 - 8.0	TCL, TAL, TPH	Southeast corner of septic tank and sand bed
SS-1	1/28/91	Soil	Background, next to Borehole BH-1	0 - 0.5	TCL, TAL, TPH	South of septic tank and sand bed
SS-2	1/28/91	Soil	Background, Location SS-2	0 - 0.5	TCL pesticides, TAL	East of location SS-1
SS-3	1/28/91	Soil	Background, Location SS-3	0 - 0.5	TCL pesticides, TAL	West of location SS-1
SS-4	1/28/91	Soil	Background, Location SS-2	0 - 0.5	TCL pesticides, TAL	Duplicate of SS-2
BHRB-1	1/28/91	Soil	Rinsate Blank	-	TCL, TAL, TPH	

TABLE 3.1
SAMPLE IDENTIFICATION KEY
SITE INVESTIGATION
VACAIR ALLOYS
FREWSBURG, NEW YORK

Sample I.D.	*Sample Date*	*Sample Matrix*	*Sample Source*	*Sample Interval (ft. BGS)*	*Sample Analyses*	*Notes*
MW1	4/30/91	Groundwater	Monitoring Well MW1	-	TCL, TAL, TPH	
MW6	4/30/91	Groundwater	Monitoring Well MW6	-	TCL, TAL, TPH	
MW7	4/30/91	Groundwater	Monitoring Well MW6	-	TCL, TAL, TPH	Duplicate of MW6
Rinsate Blank 1	4/30/91	Water	Rinsate Blank	-	TCL, TAL, TPH	Collected after MW7 and before MW2
MW2	4/30/91	Groundwater	Monitoring Well MW2	-	TCL, TAL, TPH	MS/MSD sample
MW4	4/30/91	Groundwater	Monitoring Well MW4	-	TCL, TAL, TPH	
MW5	4/30/91	Groundwater	Monitoring Well MW5	-	TCL, TAL, TPH	
MW3	4/30/91	Groundwater	Monitoring Well MW3	-	TCL, TAL, TPH	
DW-1	5/1/91	Drinking water	Frewsburg Municipal Well 1	-	TCL, TAL, TPH	MS/MSD
DW-2	5/1/91	Drinking water	Frewsburg Municipal Well 1	-	TCL, TAL, TPH	Duplicate sample of DW-1
SW-1	5/1/91	Surface water	Stained location in the low lying area east of the south end of Area 4	-	TCL, TAL, TPH	Stained area
SW-2	5/1/91	Surface water	Stained location in the low lying area east of the north end of Area 4	-	TCL, TAL, TPH	Stained area

TABLE 3.1
SAMPLE IDENTIFICATION KEY
SITE INVESTIGATION
VACAIR ALLOYS
FREWSBURG, NEW YORK

Sample I.D.	*Sample Date*	*Sample Matrix*	*Sample Source*	*Sample Interval (ft. BGS)*	*Sample Analyses*	*Notes*
SED-1	5/1/91	Sediment	Stained location in the low lying area east of the south end of Area 4	0 - 0.5	TCL, TAL, TPH	Same location as SW-1
SED-2	5/1/91	Sediment	Stained location in the low lying area east of the north end of Area 4	0 - 0.5	TCL, TAL, TPH	Same location as SW-2
SED-3	5/1/91	Sediment	Stained location in the low lying area east of the north end of Area 4	0 - 0.5	TCL, TAL, TPH	Duplicate of SED-2
SW-3	5/6/91	Surface water	Downstream of the Site in the Conewango River 30 feet west west of the Route 380 Bridge	-	TCL, TAL, TPH	MS/MSD sample
SW-4	5/6/91	Surface water	Upstream of the Site in the Conewango River from approximately 180 feet east of the swamp discharge ditch	-	TCL, TAL, TPH	
SW-5	5/6/91	Surface water	Discharge from a corrugated metal pipe at the northwest corner of the Site	-	TCL, TAL, TPH	
SW-6	5/6/91	Surface water	2 to 8 feet downstream of the discharge from the underground culvert east of the main building	-	TCL, TAL, TPH	

TABLE 3.1
SAMPLE IDENTIFICATION KEY
SITE INVESTIGATION
VACAIR ALLOYS
FREWSBURG, NEW YORK

Sample I.D.	*Sample Date*	*Sample Matrix*	*Sample Source*	*Sample Interval (ft. BGS)*	*Sample Analyses*	*Notes*
SW-7	5/6/91	Surface water	2 to 8 feet downstream of the discharge from the underground culvert east of the main building	-	TCL, TAL, TPH	Duplicate of SW-6
SED-4	5/6/91	Sediment	4 locations 2 to 8 feet downstream of the discharge from the underground culvert east of the main building	0 - 0.5	TCL, TAL, TPH	Same location as SW-6/SW-7
SED-5	5/6/91	Sediment	Upstream location in the drainage swale through the Site adjacent to the south fence	0 - 0.5	TCL, TAL, TPH	
SW-8	5/6/91	Surface water	Upstream location in the drainage swale thorugh the Site adjacent to the south fence	-	TCL, TAL, TPH	
SW-9	5/7/91	Surface water	Manhole for discharge from the septic tank and sand bed upstream of the chlorinator	-	TCL, TAL, TPH	
SED-6	5/7/91	Sediment/soil	Stained area adjacent to the Conewango River and west of the oil/water separator discharge	0 - 0.5	TCL VOCs	

TABLE 3.1
SAMPLE IDENTIFICATION KEY
SITE INVESTIGATION
VACAIR ALLOYS
FREWSBURG, NEW YORK

Sample I.D.	*Sample Date*	*Sample Matrix*	*Sample Source*	*Sample Interval (ft. BGS)*	*Sample Analyses*	*Notes*
SED-7	5/7/91	Sediment	Stained area approximately 1 foot from the former PVC oil/water separator	0 - 0.5	TCL, TAL, TPH	Next to the Conewango River, MS/MSD sample
SEDRB	5/7/91	Water	Rinsate Blank	-	TCL, TAL, TPH	Collected before SED4
SWRB	5/7/91	Water	Rinsate Blank/Bottle Blank	-	TCL, TAL, TPH	Collected from a clean pesticide/PCB sample water bottle

Notes:
BGS Below Ground Surface.
TCL USEPA Target Compound List
TAL USEPA Target Analyte List
TPH Total Petroleum Hydrocarbons
VOCs Volatile Organic Compounds
MS/MSD Matrix Spike/Matrix Spike duplicate Sample also
TCE Trichloroethylene

TABLE 3.2
TEST PIT LOG - DECEMBER 1990
VACAIR ALLOYS
FREWSBURG, NEW YORK

Test Pit I.D.	*Depth (ft. BGS)*	*Organic Vapor Content (1) (ppm)*	*Description*
TP-1A	0 - 2.0		FILL. Gravel with some sand and silt. Brown. Moist
	2.0 - 4.0		FILL. Same except some metal turnings and filings; one large block of metallic slag. Gray. Moist, some seepage.
	4.0 - 6.0		FILL. Same; crushed, deteriorated metal drum with some liquid.
	4.5	2	
	5	70	
	6.0	500 - 600	NATIVE Contact. Topsoil; sandy silt with some gravel and metal filings. Black. Immediately below, mottled brown clayey silt.
TP-4A	0 - 0.5		FILL. Gravel.
	0.5 - 2.0	15	FILL. Gravel; some slag-like material, wood, metal filings. Red-Black. Dry.
	1.0	<20	Oily-like liquid at side of excavation.
	2.0 - 4.0		FILL. Same; large pieces of metal, wood. Gray. Dry.
	4.0 - 6.0		FILL. Same.
	6.0 - 8.0		FILL. Same; some cloth rags and clayey soils.
	6.5	30 - 50	
TP-4B	0 - 0.5		FILL. Gravel.
	0.5 - 2.0		FILL. Gravel with some clayey silt, metal, slag and wood debris. Brown.
	1.5	40	
	2.0 - 4.0	20 - 24 (inside drum)	FILL. Same; crushed drum with 2-3 abrasive cutting wheels.
	3.0	5	
	4.0 - 5.0		FILL. Same; tree log.
	5.5	20 - 30	

TABLE 3.2
TEST PIT LOG - DECEMBER 1990
VACAIR ALLOYS
FREWSBURG, NEW YORK

Test Pit I.D.	*Depth (ft. BGS)*	*Organic Vapor Content (1) (ppm)*	*Description*
TP-4C	0 - 0.5		FILL. Gravel.
	0.5 - 1.0	NAB	FILL. Gravel, some red soil, metal filings. Little oily liquid.
	1.0 - 2.0		FILL. Same; some wood, slag.
	1.5	5 (20-60)	
	2.0 - 4.0	<2	FILL. Same.
TP-4D	0 - 0.5		FILL. Gravel.
	0.5 - 1.0	8 - 10	FILL. Gravel, some metal filings, wood, soil.
	1.0 - 2.0	<1	FILL. Same.
	2.0 - 3.0		FILL. Same, more metal filings and pieces.
	3.0 - 4.5		FILL. Same.
TP-4E	0 - 0.5		FILL. Gravel.
	0.5 - 1.0		FILL. Gravel, some soil, metal filings, slag.
	1.0 - 2.0	20	FILL. Same, large piece of metal.
	2.0 - 3.0	20 - 150 (1,000) 40 - 60 (inside drum) NAB (headspace analyses of soil w/liquid)	FILL. Same, crushed drum, bottom of another drum noted in side of excavation. Liquid seeping around drum. (Soil with liquid sampled for head space analyses.)
TP-4F	0 - 0.5		FILL. Gravel.
	0.5 - 1.0		FILL. Gravel, some soil, metal slag. Dry.
	1.0 - 2.0	30 - 40	FILL. Same, drum at 2.0 ft. BGS.
	2.0 - 4.0		

TABLE 3.2
TEST PIT LOG - DECEMBER 1990
VACAIR ALLOYS
FREWSBURG, NEW YORK

Test Pit I.D.	*Depth (ft. BGS)*	*Organic Vapor Content (1) (ppm)*	*Description*
TP-2A	0 - 0.5	-	FILL. Gravel.
	0.5 - 1.0		FILL. Gravel, some slag-like soil, metal. Black.
	1.0 - 2.0		FILL. Same.
	1.5	50 - 100	
	2.0 - 3.0	300 - 1500	FILL. Same, drum in side of excavation at 2.5 - 3.0 ft. BGS.
		2000 (soil around drum)	Some oily liquid around sides of drum.
		1000 (through hole in drum)	
	3.0 - 5.0		FILL. Same.
	4.5 - 5.0	1200 - 1300	
	5.0 - 6.0		FILL. Same.
TP-8A	0 - 0.5		FILL. Vegetated topsoil.
	0.5 - 2.0		FILL. Brown soil with metal sheets, filings, chips.
	2.0 - 3.0	{1 - 38}	FILL. Silty clay with some sand, peat; little gravel; some metal.
	3.0 - 4.5	{2 - 14}	FILL. Same.
	4.5 - 5.0		NATIVE. Topsoil.
	5.0 - 5.5		NATIVE. Sandy silt, some clay.
TP-8B	0 - 0.5		FILL. Vegetated topsoil.
	0.5 - 1.0		FILL. Gravel, some sandy silt, metal filings, and scrap, peat. Brown.
	1.0 - 2.0		FILL. Same, some wood. Black.
	2.0 - 4.0	NAB	FILL. Same, seep at 3 ft. BGS.
	4.0		NATIVE. Topsoil layer over sandy silt with some clay.
TP-10BA	0 - 1.0	{NAB}	FILL. Gravel with some sand, large pieces of metal, wood, some black soil intermixed. Dry to moist.
	1.0 - 5.0	{NAB}	FILL. Same.

TABLE 3.2
TEST PIT LOG - DECEMBER 1990
VACAIR ALLOYS
FREWSBURG, NEW YORK

Test Pit I.D.	*Depth (ft. BGS)*	*Organic Vapor Content (1) (ppm)*	*Description*
TP-10BB	0 - 1.0		FILL. Gravel with some sandy silt, metal, wood, pipes.
	1.0 - 2.0	(4 - 5)	FILL. Same, layer of black soil at 1 ft. BGS.
	2.0 - 3.0		FILL. Same. Dark brown.
	3.0 - 4.0	(10 - 15)	FILL. Same.
	4.0 - 5.0		FILL. Same. Gray.
	4.5	(0 - 70)	
	5.0	(0 - 80)	
TP-3A	0 - 2.0		FILL. Gravel, some silt, metal filings and chip. Brown. Dry.
	2.0 - 4.0		FILL. Same, concrete slab and pieces.
	4.0 - 5.0		FILL. Same.
	5.0 - 6.0		FILL. Gray soil-like material with some sand, metal, gravel, wood.
	5 1/2	(5 - 10)	
	6.0 - 8.0		FILL. Same.
	6.5	(600)	
	8.0 - 9.5		NATIVE. Clayey-silt with some sand. Gray, mottled with brown sand layers.
TP-3B	0 - 2.0		FILL. Gravel with some silt, metal, wood. Brown.
	2.0 - 4.0	1 - 10	FILL. Same.
	4.0 - 6.0	20 - 40	FILL. Gray soil-like material with some sand, metal.
	6.0 - 7.0	<200	FILL. Same.
	7.0	-	NATIVE. Clayey silt with some sand. Gray, mottled with brown sand layers.
TP-10AA	0 - 1.0		FILL. Silty sand with some gravel, stones, metal. Brown.
	1.0 - 2.0	20	FILL. Same.
	2.0 - 3.0		FILL. Same.

TABLE 3.2
TEST PIT LOG - DECEMBER 1990
VACAIR ALLOYS
FREWSBURG, NEW YORK

Test Pit I.D.	*Depth (ft. BGS)*	*Organic Vapor Content (1) (ppm)*	*Description*
TP-11A	0 - 2.3	NAB	FILL. Sandy silt and gravel with some stones. Brown. Dry to moist.
	2.3 - 3.0	NAB	NATIVE. Topsoil. Black.
	3.0 - 3.5		NATIVE. Silty sand with little clay, trace gravel. Gray.
	3.5 - 4.0		NATIVE. Silty gray. Mottled brown.

Notes:
(1) Organic vapor readings were measured with an HNU meter or an Foxboro OVA meter.
{} Associated reading was measured with a Foxboro OVA meter.

TABLE 3.3
ORGANIC VAPOR READINGS - BOREHOLES
VACAIR ALLOYS
FREWSBURG, NEW YORK

Borehole No.	*Sample Interval (Ft. BGS)*	*HNU Reading Above Background (Meter Units) (ppm)*	*OVA Reading Above Background (Meter Units) (ppm)*
BH-1	0 - 2	1.0	-
	2 - 4	0	-
	4 - 6	0	-
	6 - 8	0	-
	8 - 10	0	-
	10 - 12	0	-
	12 - 14	0	-
	14 - 16	0	-
	16 - 18	0	-
	18 - 19	0.2	-
	19 - 20	0	-
	20 - 22	0	-
	22 - 24	0	-
	24 - 26	0	-
	26 - 28	0	-
BH-5A-1	1 - 3	0	-
	3 - 5	0	-
	5 - 7	0	0
	7 - 9	0	0
	9 - 11	0	0
BH-5A-2	1 - 3	-	8.0
	3 - 5	-	1.2
	5 - 7	-	0
	7 - 9	-	0
	9 - 11	-	0
BH-5A-3	1 - 3	-	0.5
	3 - 5	-	0.4
	5 - 7	-	1.5
	7 - 9	-	1.5 - 2.0
BH-5B-1	1 - 3	0	-
	3 - 5	0	-
	5 - 7	-	0
	7 - 9	-	0

TABLE 3.3
ORGANIC VAPOR READINGS - BOREHOLES
VACAIR ALLOYS
FREWSBURG, NEW YORK

Borehole No.	*Sample Interval (Ft. BGS)*	*HNU Reading Above Background (Meter Units) (ppm)*	*OVA Reading Above Background (Meter Units) (ppm)*
BH-5B-2	1 - 3	-	0
	3 - 5	-	0
	5 - 7	-	0
	7 - 9	-	0
	9 - 11	-	0
BH-5B-3	1 - 1.8 (1)	-	1.0
	1 - 3	-	0
	3 - 5	-	0
	5 - 7	-	0
	7 - 9	-	0
	9 - 11	-	0
BH-12-1	0 - 2	0	0
	2 - 4	0	0
	4 - 6	0	0
	6 - 8	0	0
BH-13-1	1 - 1.9	0	-
	3 - 5	0	10 - 20
	5 - 7	0	3
	7 - 9	0	0
MW-1	0 - 2	0	1
	2 - 4	0	1
	4 - 6	0	1
	6 - 8	0	1
	8 - 10	0	1
	10 - 12	0	1
	12 - 14	0	1
	14 - 16	0	1
	16 - 18	0	1
	18 - 20	0	1

TABLE 3.3
ORGANIC VAPOR READINGS - BOREHOLES
VACAIR ALLOYS
FREWSBURG, NEW YORK

Borehole No.	*Sample Interval (Ft. BGS)*	*HNU Reading Above Background (Meter Units) (ppm)*	*OVA Reading Above Background (Meter Units) (ppm)*
MW-2	0 - 2	0.4	-
	2 - 4	0.7	-
	4 - 6	0.7 - 0.8	-
	6 - 8	10	-
	8 - 10	4.5 - 5.0	-
	10 - 12	-	-
	12 - 14	1.0	-
MW-3	0 - 2	0	-
	2 - 4	0	-
	4 - 6	0	-
	6 - 8	0	-
	8 - 10	0	-
	10 - 12	0	-
	12 - 14	2.0	-
	14 - 16	3.0	-
	16 - 18	1 - 2	-
	18 - 20	-	-
	20 - 22	-	-
MW-4	0 - 2	0	-
	2 - 4	0	-
	4 - 6	0	-
	6 - 8	-	-
	8 - 10	3.0	-
	10 - 12	1.0	-
	12 - 14	1.5	-
	14 - 16	6 - 8	-
	16 - 18	30 - 35	-
	18 - 20	45	-

TABLE 3.3
ORGANIC VAPOR READINGS - BOREHOLES
VACAIR ALLOYS
FREWSBURG, NEW YORK

Borehole No.	*Sample Interval (Ft. BGS)*	*HNU Reading Above Background (Meter Units) (ppm)*	*OVA Reading Above Background (Meter Units) (ppm)*
MW-5	0 - 2	0	-
	2 - 4 (2)	-	-
	4 - 6	0	-
	6 - 8	0	-
	8 - 10	0	-
	10 - 12	0	-
	12 - 14	-	-
	14 - 16	0	-
	16 - 18	-	-
	18 - 20	-	-
MW-6	0 - 2	0	-
	2 - 4	0	-
	4 - 6	-	-
	6 - 8	-	-
	8 - 10	0	-
	10 - 12	0	-
	12 - 14	0	-
	14 - 16	0	-
	16 - 18	0	-

Notes:
- Not screened with instrument.
(1) Interval resampled after moving borehole 3 feet.
(2) No sample recovered in split spoon sampler.

TABLE 4.1
MONITORING WELL INSTRUMENTATION SUMMARY
VACAIR ALLOYS
FREWSBURG, NEW YORK

Well No.	*Ground Elevation (Ft. AMSL)*	*Top of Casing Elevation (Ft. AMSL)*	*Sandpack Interval (Ft. BGS)*	*Sandpack Interval (Ft. AMSL)*	*Well Screen Interval (Ft. BGS)*	*Well Screen Interval (Ft. AMSL)*	*Bottom of Well (Ft. AMSL)*
MW-1	1258.4	1260.6	10.0 - 18.0	1248.4 - 1240.4	13.0 - 18.0	1245.4 - 1240.4	1240.4
MW-2	1249.1	1251.6	6.5 - 14.0	1242.6 - 1235.1	8.0 - 13.0	1241.1 - 1236.1	1234.1
MW-3	1250.1	1252.3	7.0 - 20.0	1243.1 - 1230.1	10.0 - 20.0	1240.1 - 1230.1	1230.1
MW-4	1247.5	1250.1	6.6 - 18.0	1240.9 - 1229.5	8.0 - 18.0	1239.5 - 1229.5	1229.5
MW-5	1253.9	1256.5	6.0 - 20.0	1247.9 - 1233.9	8.0 - 18.0	1245.9 - 1235.9	1233.9
MW-6	1251.5	1253.7	6.5 - 16.0	1245.0 - 1235.5	9.8 - 16.0	1242.5 - 1235.5	1235.5

Notes:
Ft. AMSL - Feet above mean sea level.
Ft. BGS - Feet below groundwater surface.

TABLE 4.2
MONITORING WELL PURGING SUMMARY
VACAIR ALLOYS
FREWSBURG, NEW YORK

Well No.	*Date*	*Time*	*Water Level (Ft. BTOC)*	*Initial Well Volume (Gallons)*	*Total Volume Purged (Gallons)*	*pH*	*Cond. (µmhos/cm3)*	*Temp. (°C)*
MW-1	04/30/91	0930	5.62	2.3	8.0	7.78	400	9.3
MW-2	04/30/91	1250	9.26	0.9	5.0	6.26	2100	9.1
MW-3	04/30/91	1930	9.02	2.1	6.3	7.72	780	10.9
MW-4	04/30/91	1600	4.08	2.7	8.1	7.47	740	9.2
MW-5	04/30/91	1800	6.68	2.2	6.6	7.53	580	9.9
MW-6	04/30/91	1130	6.26	1.9	8.0	6.42	870	9.9

Note:
BTOC - Below top of casing.

TABLE 4.3

SUMMARY OF CALCULATED HYDRAULIC CONDUCTIVITY
VACAIR ALLOYS
FREWSBURG, NEW YORK

Well No.	*Date of Test*	*Type of Test*[1]	*Elevations Tested Interval (Ft. AMSL)*	*Calculated Hydraulic Conductivity*[2]
MW-1	4/29/91	Rising Head	1248.4 - 1240.4	5.3×10^{-4} cm/sec
MW-2	4/26/91	Rising Head	1242.6 - 1235.1	3.5×10^{-3} cm/sec
MW-3	4/29/91	Rising Head	1243.1 - 1230.1	1.6×10^{-5} cm/sec
MW-4	4/29/91	Falling Head	1240.9 - 1229.5	7.4×10^{-4} cm/sec
MW-5	4/29/91	Rising Head	1247.9 - 1233.9	2.6×10^{-3} cm/sec
MW-6	4/29/91	Rising Head	1245.0 - 1235.5	4.9×10^{-4} cm/sec

Geometric Mean = 5.5×10^{-4} cm/sec

(1) Based on slug tests performed on the monitoring wells.
(2) Hydraulic conductivity calculated using Bouwer and Rice (1976) method.

TABLE 4.4
WATER LEVEL DATA
VACAIR ALLOYS
FREWSBURG, NEW YORK

	Water Level Elevation (Ft. AMSL)						
	4/26/91 (1)	*4/29/91 (1)*	*4/30/91 (1)*	*05/03/91*	*06/13/91*	*06/25/91*	*08/19/91*
MW-1	-	1255.41	1254.98	1255.05	1253.76	1253.40	1252.30
MW-2	1242.5	-	1242.34	1241.80	1239.22	1239.00	1239.23
MW-3	-	1242.95	1243.28	1243.00	1241.71	1241.01	1240.77
MW-4	-	1246.02	1246.02	1245.67	1243.95	1243.60	1243.14
MW-5	-	1249.85	1249.82	1249.56	1248.38	1248.11	1247.48
MW-6	-	1247.33	1247.44	1246.83	1244.91	1244.64	1244.32
Conewango River	-	-	-	-	1230.95	1230.72	1230.47

Note:
(1) Measured prior to development.
(2) Measured prior to purging.

TABLE 4.5
ANALYTICAL METHODS
VACAIR ALLOYS
FREWSBURG, NEW YORK

Matrix	*Analytical Parameters*	*Methodology (1)*
Groundwater/	TCL VOCs	89-1
Surface Water/Soil/	TCL BNAs	89-2
Sediment/Test Pits	TCL Pesticides/PCBs	89-3
	TAL Metals	200 Series CLP-M (2)
	Cyanide	Method 335.2 CLP-M
	TPHs	Method 418.1
Drinking Water	VOCs	Method 524.2
	TCL-BNAs	Method 89-2
	Pesticides/PCBs	Method 508
	TAL Metals	200 Series CLP-M
	Cyanide	Method 352.2 CLP-M
	TPHs	Method 418.1

Note:
(1) All methods referenced from NYSDEC September 1989 Analytical Services Protocols (ASP).
(2) CLP-M - Modified for the NYSDEC Contract Laboratory Program.

TABLE 5.1
OVERBURDEN STRATIGRAPHIC SUMMARY
VACAIR ALLOYS
FREWSBURG, NEW YORK

Well/ Borehole No.	Ground Elevation (Ft. AMSL)	Shallow Sand/Gravel Layer			Confining Clay Layer	
		Depth (Ft. BGS)	Elevation (1) (Ft. AMSL)	Thickness (Feet)	Depth (Ft. BGS)	Elevation (1) (Ft. AMSL)
BH-1	1256.2	2.4	1253.8	21.6	24.0	1232.2
BH-5A-1	1250.6	7.0	1243.6	-	-	-
BH-5A-2	1250.6	9.0	1241.6	-	-	-
BH-5A-3	1250.4	1.9	1248.5	-	-	-
BH-5B-1	1250.1	7.2	1242.9	-	-	-
BH-5B-2	1250.6	7.0	1243.6	-	-	-
BH-5B-3	1248.6	7.3	1241.3	3.5	10.8	1237.8
BH-12-1	1256.6	3.1	1253.5	-	-	-
BH-13-1	1250.0	7.2	1242.8	-	-	-
MW-1	1258.4	0.7	1257.7	14.8	15.5	1242.9
MW-2	1249.1	6.5	1242.6	6.4	12.9	1236.2
MW-3	1250.1	4.0	1246.1	10.5	14.5	1235.6
MW-4	1247.5	2.3	1245.2	14.1	16.4	1231.1
MW-5	1253.9	4.0	1249.9	>16.0	-	-
MW-6	1251.5	2.0	1249.5	10.8	12.8	1238.7

Notes:
Ft. BGS - Feet below ground surface.
Ft. AMSL - Feet above mean sea level.
(1) Elevation at top of stratigraphic layer.

TABLE 6.1
TEST PIT SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

VOLATILE ORGANIC COMPOUNDS	TP-1A (µg/kg)	TP-2A (µg/kg)	TP-2AA (µg/kg)	TP-2A-2 (1) (µg/kg)	TP-3A (µg/kg)	TP-3B (1) (µg/kg)	TP-4C (µg/kg)	TP-8A (µg/kg)	TP-10BB (µg/kg)	TP-11A (µg/kg)	WS-1 (mg/L)
Chloromethane	ND (43000) J	ND (1600000) J	ND (27000)	ND (79000)	ND (12)	ND (11)	ND (12)	ND (12)	ND (11)	ND (11)	ND (10)
Bromomethane	ND (43000) J	ND (1600000) J	ND (27000)	ND (79000)	ND (12)	ND (11)	ND (12)	ND (12)	ND (11)	ND (11)	ND (10)
Vinyl Chloride	ND (43000) J	ND (1600000) J	5000 J	ND (79000)	ND (12)	ND (11)	70	ND (12)	ND (11)	ND (11)	ND (10)
Chloroethane	ND (43000) J	ND (1600000) J	ND (27000)	ND (79000)	ND (12)	ND (11)	ND (12)	ND (12)	ND (11)	ND (11)	ND (10)
Methylene Chloride	ND (5100000) J	ND (8600000) J	ND (6300000) J	ND (280000)	ND (30)	ND (32)	ND (32)	ND (33)	ND (48)	ND (34)	ND (5) J
Acetone	ND (2400000) J	ND (2400000) J	ND (1900000) J	ND (46000) J	ND (100)	ND (71)	220	ND (16) J	ND (110) J	ND (44)	ND (10)
Carbon Disulfide	500000 J	ND (810000) J	ND (5400) J	ND (39000)	ND (5) J	ND (6)	23	ND (5) J	19	ND (5) J	ND (5)
1,1-Dichloroethene	ND (21000) J	ND (810000) J	ND (3300) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
1,1-Dichloroethane	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
1,2-Dichloroethene (total)	2400000 J	620000 J	400000 J	210000	ND (6)	ND (6)	900	9	19	2 J	ND (5)
Chloroform	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
1,2-Dichloroethane	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
2-Butanone	ND (43000) J	ND (1600000) J	ND (27000) J	11000 J	25	ND (11)	52	ND (12)	ND (25)	ND (11)	ND (10)
1,1,1-Trichloroethane	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Carbon Tetrachloride	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Vinyl Acetate	ND (43000) J	ND (1600000) J	ND (27000) J	ND (79000)	ND (12)	ND (11)	ND (12)	ND (12)	ND (11)	ND (11)	ND (10)
Bromodichloromethane	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
1,2-Dichloropropane	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
cis-1,3-Dichloropropene	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Trichloroethene	380000 J	17000000 J	16000000 J	460000	2 J	7	170	11	20	22 J	ND (5)
Dibromochloromethane	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
1,1,2-Trichloroethane	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Benzene	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Trans-1,3-Dichloropropene	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Bromoform	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
4-Methyl-2-pentanone	ND (43000) J	ND (1600000) J	ND (27000) J	ND (79000)	ND (12)	ND (11)	ND (12) J	ND (12)	4 J	ND (11)	ND (10)
2-Hexanone	ND (43000) J	ND (1600000) J	ND (27000) J	ND (79000)	ND (12)	ND (11)	ND (12) J	ND (12)	ND (11)	ND (11)	ND (10)
Tetrachloroethene	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	4 J	27	7	14	8	ND (5)
1,1,2,2-Tetrachloroethane	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6) J	ND (6)	ND (6)	ND (6)	ND (5)
Toluene	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	4 J	ND (6)	3 J	ND (6)	ND (5)
Chlorobenzene	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6) J	ND (6)	ND (6)	ND (6)	ND (5)
Ethylbenzene	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	2 J	ND (6)	4 J	ND (6)	ND (5)
Styrene	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	ND (6) J	ND (6)	ND (6)	ND (6)	ND (5)
Xylene (total)	ND (21000) J	ND (810000) J	ND (13000) J	ND (39000)	ND (6)	ND (6)	8 J	ND (6)	16	ND (6)	ND (5)

TABLE 6.1
TEST PIT SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*TP-1A* (µg/kg)	*TP-2A* (µg/kg)	*TP-2AA* (µg/kg)	*TP-3A* (µg/kg)	*TP-4C* (µg/kg)	*TP-8A* (µg/kg)	*TP-10BB* (µg/kg)	*TP-11A* (µg/kg)	*WS-1* (mg/L)
Phenol	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
bis(2-Chloroethyl) ether	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
2-Chlorophenol	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
1,3-Dichlorobenzene	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
1,4-Dichlorobenzene	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Benzyl alcohol	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
1,2-Dichlorobenzene	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
2-Methylphenol	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
bis(2-Chloroisopropyl) ether	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
4-Methylphenol	ND (31000)	ND (23000)	ND (23000)	ND (460)	170 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
N-Nitroso-Di-n-propylamine	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Hexachloroethane	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Nitrobenzene	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Isophorone	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
2-Nitrophenol	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
2,4-Dimethylphenol	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Benzoic acid	ND (150000)	ND (110000)	ND (120000)	48 J	420 J	ND (2200) J	ND (10000) J	ND (2100)	ND (50) J
bis(2-Chloroethoxy) methane	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
2,4-Dichlorophenol	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
1,2,4-Trichlorobenzene	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Napthalene	ND (31000)	ND (23000)	ND (23000)	ND (460)	150 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
4-Chloroaniline	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Hexachlorobutadiene	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
4-Chloro-3-methylphenol	ND (31000)	ND (23000)	ND (23000)	ND (460)	380 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
2-Methylnaphthalene	ND (31000)	ND (23000)	ND (23000)	ND (460)	320 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Hexachlorocyclopentadiene	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
2,4,6-Trichlorophenol	ND (31000)	ND (23000)	ND (23000)	ND (460)	79 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
2,4,5-Trichlorophenol	ND (150000)	ND (110000)	ND (120000)	ND (2300)	150 J	ND (2200) J	ND (10000) J	ND (2100)	ND (50) J
2-Chloronapthalene	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
2-Nitroaniline	ND (150000)	ND (110000)	ND (120000)	ND (2300)	ND (2300)	ND (2200) J	ND (10000) J	ND (2100)	ND (50) J
Dimethylphthalate	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Acenaphthylene	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
2,6-Dinitrotoluene	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
3-Nitroaniline	ND (150000)	ND (110000)	ND (120000)	ND (2300)	ND (2300)	ND (2200) J	ND (10000) J	ND (2100)	ND (50) J
Acenapthene	ND (31000)	ND (23000)	ND (23000)	ND (460)	77 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
2,4-Dinitrophenol	ND (150000)	ND (110000)	ND (120000)	ND (2300)	ND (2300)	ND (2200) J	ND (10000) J	ND (2100)	ND (50) J
4-Nitrophenol	ND (150000)	ND (110000)	ND (120000)	ND (2300)	ND (2300)	ND (2200) J	ND (10000) J	ND (2100)	ND (50) J
Dibenzofuran	ND (31000)	ND (23000)	ND (23000)	ND (460)	71 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
2,4-Dinitrotoluene	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J

TABLE 6.1
TEST PIT SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*TP-1A* (µg/kg)	*TP-2A* (µg/kg)	*TP-2AA* (µg/kg)	*TP-3A* (µg/kg)	*TP-4C* (µg/kg)	*TP-8A* (µg/kg)	*TP-10BB* (µg/kg)	*TP-11A* (µg/kg)	*WS-1* (mg/L)
Diethylphthalate	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
4-Chlorophenyl-phenylether	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Fluorene	ND (31000)	ND (23000)	ND (23000)	ND (460)	80 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
4-Nitroaniline	ND (150000)	ND (110000)	ND (120000)	ND (2300)	ND (2300)	ND (2200) J	ND (10000) J	ND (2100)	ND (50) J
4,6-Dinitro-2-methylphenol	ND (150000)	ND (110000)	ND (120000)	ND (2300)	ND (2300)	ND (2200) J	ND (10000) J	ND (2100)	ND (50) J
N-Nitrosodiphenylamine	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
4-Bromophenyl-phenylether	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Hexachlorobenzene	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Pentachlorophenol	ND (150000)	ND (110000)	ND (120000)	51 J	ND (2300)	ND (2200) J	ND (10000) J	ND (2100)	ND (50) J
Phenanthrene	ND (31000)	ND (23000)	ND (23000)	85 J	250 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Anthracene	ND (31000)	ND (23000)	ND (23000)	ND (460)	73 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Di-n-Butylphthalate	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	63 J	ND (2000) J	ND (420)	ND (10) J
Fluoranthene	ND (31000)	ND (23000)	ND (23000)	120 J	110 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Pyrene	ND (31000)	ND (23000)	ND (23000)	130 J	280 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Butylbenzylphthalate	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
3,3'-Dichlorobenzidine	ND (62000)	ND (46000)	ND (46000)	ND (920)	ND (910)	ND (880) J	ND (4100) J	ND (830)	ND (20) J
Benzo(a)anthracene	ND (31000)	ND (23000)	ND (23000)	80 J	87 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Chrysene	ND (31000)	ND (23000)	ND (23000)	110 J	110 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
bis(2-Ethylhexyl) phthalate	5200 J	3400 J	4300 J	78 J	450 J	93 J	1200 J	ND (420)	ND (10) J
Di-n-Octyl phthalate	ND (31000)	ND (23000)	ND (23000)	ND (460)	ND (460)	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Benzo(b)fluoroanthene	ND (31000)	ND (23000)	ND (23000)	75 J	120 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Benzo(k)fluoroanthene	ND (31000)	ND (23000)	ND (23000)	71 J	110 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Benzo(a)pyrene	ND (31000)	ND (23000)	ND (23000)	65 J	120 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Indeno(1,2,3-cd)pyrene	ND (31000)	ND (23000)	ND (23000)	ND (460)	300 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Dibenzo(a,h)anthracene	ND (31000)	ND (23000)	ND (23000)	ND (460)	85 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J
Benzo(g,h,i)perylene	ND (31000)	ND (23000)	ND (23000)	ND (460)	410 J	ND (440) J	ND (2000) J	ND (420)	ND (10) J

TABLE 6.1
TEST PIT SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

METALS	TP-1A (mg/kg)	TP-2A (mg/kg)	TP-2AA (mg/kg)	TP-3A (mg/kg)	TP-4C (mg/kg)	TP-8A (mg/kg)	TP-10BB (mg/kg)	TP-11A (mg/kg)	WS-1 (µg/L)
Aluminum	6650	11000	9040	6710	6270	10100	6130	7240	ND (123)
Antimony	ND (5.8)	ND (5.2)	ND (3.1)	ND (4.3)	ND (72.8)	NA	ND (3.7)	ND (3.6)	ND (49.0)
Arsenic	6.3	4.4 J	6.3 J	5.2	5	7.1	4.8	3.6	ND (2)
Barium	296	130	93.7	65.5	71.7	74.5	84.6	37.2	ND (4)
Beryllium	0.61	0.73	0.77	0.85	5.2	0.51	0.42	0.38	ND (1)
Cadmium	4.2	3.4 J	1.9 J	1.8	4	0.7	1.5	ND (0.54)	ND (3)
Calcium	6670	11000	12800	4900	17400	1730	7080	902 J	307
Chromium	162	568 J	287 J	36.4	3050	2.3	216	3.3	ND (3)
Cobalt	144	146 J	94.5 J	26.4	1020	15.1	68.3	6.9	ND (5)
Copper	112	338 J	84.1 J	36.9	339	11.9	53.3	10.7	ND (4)
Iron	64800	26200 J	18000 J	17600	74000	26200	19800	12700	ND (55)
Lead	121	181 J	94 J	111	178	21.6	47.2	13.2 J	ND (3)
Magnesium	1820	3400	4460	2030	4060	1890	2860	1580	ND (89)
Manganese	1220	645	532	690	1460	3600	529	406 J	ND (1)
Mercury	0.69	0.32 J	0.18 J	ND (0.12)	0.33	ND (0.12)	0.23	ND (0.11)	ND (0.2)
Nickel	896	1760 J	805 J	220	1530	16.2	440	12.1 J	ND (8)
Potassium	757	537	444	278	390	475	655	413	ND (815)
Selenium	1.8	0.57	0.44	ND (0.5)	0.79	ND (0.46)	ND (0.43)	ND (0.39)	ND (2)
Silver	ND (1.4)	ND (1.0)	ND (0.77)	ND (1.1)	0.93	ND (1.1)	ND (1.0)	ND (0.90) J	ND (5)
Sodium	122	89.9	90	57.8	101	57.1	58.1	36.4	648
Thallium	ND (12.1)	ND (8.1)	ND (8.3)	ND (9.9)	7.8	ND (9.2)	ND (8.6)	ND (7.8) J	ND (4)
Vanadium	4.4	ND (21.8)	ND (13.3) J	ND (10.8)	961	ND (9.8)	ND (19.1)	ND (3.9)	ND (4)
Zinc	310	288 J	141 J	60.5	103	48.1	64.8	29.6 J	9.5
Cyanide	ND (0.86)	ND (0.64)	ND (0.53)	ND (0.62)	1.5	ND (0.61)	ND (0.57)	ND (0.56)	ND (5)

TABLE 6.1
TEST PIT SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

PESTICIDES AND PCBS	*TP-1A* (µg/kg)	*TP-2A* (µg/kg)	*TP-2AA* (µg/kg)	*TP-3A* (µg/kg)	*TP-4C* (µg/kg)	*TP-8A* (µg/kg)	*TP-10BB* (µg/kg)	*TP-11A* (µg/kg)	*WS-1* (µg/L)
Alpha-BHC	ND (670)	ND (100)	ND (85)	ND (5.0)	ND (86)	ND (9.7)	ND (8.8)	ND (4.5)	ND (0.050)
Beta-BHC	ND (670)	ND (100)	ND (85)	ND (5.0)	ND (86)	ND (9.7)	ND (8.8)	ND (4.5)	ND (0.050)
Delta-BHC	ND (670)	ND (100)	ND (85)	ND (5.0)	ND (86)	ND (9.7)	ND (8.8)	ND (4.5)	ND (0.050)
gamma-BHC (Lindane)	ND (670)	ND (100)	ND (85)	ND (5.0)	ND (86)	ND (9.7)	ND (8.8)	ND (4.5)	ND (0.05) J
Heptachlor	ND (670)	ND (100)	ND (85)	ND (5.0)	ND (86)	ND (9.7)	ND (8.8)	ND (4.5)	ND (0.05) J
Aldrin	ND (670)	ND (100)	ND (85)	ND (5.0)	ND (86)	ND (9.7)	ND (8.8)	ND (4.5)	ND (0.05) J
Heptachlor epoxide	ND (670)	ND (100)	ND (85)	ND (5.0)	ND (86)	ND (9.7)	ND (8.8)	ND (4.5)	ND (0.050)
Endosulfan I	ND (670)	ND (100)	ND (85)	ND (5.0)	ND (86)	ND (9.7)	ND (8.8)	ND (4.5)	ND (0.050)
Dieldrin	ND (1300)	ND (200)	ND (170)	ND (10)	ND (170)	ND (19)	ND (18)	ND (9.0)	ND (0.1) J
4,4'-DDE	ND (1300)	ND (200)	ND (170)	ND (10)	ND (170)	ND (19)	ND (18)	ND (9.0)	ND (0.10)
Endrin	ND (1300)	ND (200)	ND (170)	ND (10)	ND (170)	ND (19)	ND (18)	ND (9.0)	ND (0.1) J
Endosulfan II	ND (1300)	ND (200)	ND (170)	ND (10)	ND (170)	ND (19)	ND (18)	ND (9.0)	ND (0.10)
4,4'-DDD	ND (1300)	ND (200)	ND (170)	ND (10)	ND (170)	ND (19)	ND (18)	ND (9.0)	ND (0.10)
Endosulfan sulfate	ND (1300)	ND (200)	ND (170)	ND (10)	ND (170)	ND (19)	ND (18)	ND (9.0)	ND (0.10)
4,4'-DDT	ND (1300)	ND (200)	ND (170)	ND (10)	ND (170)	ND (19)	ND (18)	ND (9.0)	ND (0.10)
Methoxychlor	ND (6700)	ND (1000)	ND (850)	ND (50)	ND (860)	ND (97)	ND (88)	ND (45)	ND (0.50)
Endrin ketone	ND (1300)	ND (200)	ND (170)	ND (10)	ND (170)	ND (19)	ND (18)	ND (9.0)	ND (0.10)
alpha-Chlordane	ND (6700)	ND (1000)	ND (850)	ND (50)	ND (860)	ND (97)	ND (88)	ND (45)	ND (0.50)
gamma-Chlordane	ND (6700)	ND (1000)	ND (850)	ND (50)	ND (860)	ND (97)	ND (88)	ND (45)	ND (0.50)
Toxaphene	ND (13000)	ND (2000)	ND (1700)	ND (100)	ND (1700)	ND (190)	ND (180)	ND (90)	ND (1.0)
Aroclor-1016	ND (6700)	ND (1000)	ND (850)	ND (50)	ND (860)	ND (97)	ND (88)	ND (45)	ND (0.50)
Aroclor-1221	ND (6700)	ND (1000)	ND (850)	ND (50)	ND (860)	ND (97)	ND (88)	ND (45)	ND (0.50)
Aroclor-1232	ND (6700)	ND (1000)	ND (850)	ND (50)	ND (860)	ND (97)	ND (88)	ND (45)	ND (0.50)
Aroclor-1242	ND (6700)	ND (1000)	ND (850)	ND (50)	ND (860)	ND (97)	ND (88)	ND (45)	ND (0.50)
Aroclor-1248	ND (6700)	ND (1000)	ND (850)	ND (50)	ND (860)	ND (97)	ND (88)	ND (45)	ND (0.50)
Aroclor-1254	12000 J	2300	2200	44 J	ND (1700)	190	ND (180)	ND (90)	ND (1.0)
Aroclor-1260	ND (13000)	ND (2000)	ND (1700)	ND (100)	ND (1700)	ND (190)	ND (180)	13 J	ND (1.0)

TABLE 6.1
TEST PIT SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

TOTAL PETROLEUM HYDROCARBONS	*TP-1A (mg/kg)*	*TP-2A (mg/kg)*	*TP-2AA (mg/kg)*	*TP-3A (mg/kg)*	*TP-4C (mg/kg)*	*TP-8A (mg/kg)*	*TP-10BB (mg/kg)*	*TP-11A (mg/kg)*	*WS-1 (mg/L)*
Total Petroleum Hydrocarbons	56000	21000	20000	1000	5500	18	980	26	ND(1.0)

Notes:
ND Not detected at the detection limit stated within the parenthesis.
J Associated value is estimated.
NA Not analyzed.
(1) Sample Nos. TP-3B and TP-2A-2 were only analyzed for the TCL VOCs.

TABLE 6.2
BOREHOLE SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

VOLATILE ORGANIC COMPOUNDS	*BH-1* 2'-4' (µg/kg)	*6-1* 1.2'-3.5' (µg/kg)	*BH5A-3* 9.0'-11.0' (µg/kg)	*BH5B-1* 7.2'-9.0' (µg/kg)	*BH5B-2* 9.0'-11.0' (µg/kg)	*BH5B-3* 7.3'-9.0' (µg/kg)	*BH12-1* 6.0'-8.0' (µg/kg)	*BH13-1* 7.2'-9.0' (µg/kg)	*BHA-1* 7.2'-9.0' (µg/kg)	*BHRB-1* Rinse Blank (µg/L)
Chloromethane	ND (12) J	ND (12)	ND (61)	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (12)	ND (10)
Bromomethane	ND (12) J	ND (12)	ND (61)	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (12)	ND (10)
Vinyl Chloride	ND (12) J	ND (12)	41 J	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (12)	ND (10)
Chloroethane	ND (12) J	ND (12)	ND (61)	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (12)	ND (10)
Methylene Chloride	ND (60) J	ND (65)	290	ND (24)	ND (56)	ND (50)	ND (28)	ND (35)	ND (34)	ND (11)
Acetone	ND (40) J	ND (22)	400 J	ND (16)	ND (58)	ND (37)	ND (33)	ND (29)	ND (43)	ND (10)
Carbon Disulfide	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
1,1-Dichloroethene	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
1,1-Dichloroethane	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
1,2-Dichloroethene (total)	ND (6) J	ND (6)	780	22	ND (6)	5J	ND (6)	ND (6)	ND (6)	ND (5)
Chloroform	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
1,2-Dichloroethane	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
2-Butanone	ND (12) J	ND (12)	ND (61)	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (12)	ND (10)
1,1,1-Trichloroethane	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Carbon Tetrachloride	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Vinyl Acetate	ND (12) J	ND (12)	ND (61)	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (12)	ND (10)
Bromodichloromethane	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
1,2-Dichloropropane	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
cis-1,3-Dichloropropene	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Trichloroethene	14 J	110	12000	2000	13	4900	ND (6)	ND (6)	4 J	3 J
Dibromochloromethane	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
1,1,2-Trichloroethane	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Benzene	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Trans-1,3,-Dichloropropene	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Bromoform	ND (6) J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
4-Methyl-2-pentanone	ND (12) J	ND (12)	ND (61)	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (12)	ND (10)
2-Hexanone	ND (12) J	ND (12)	ND (61)	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (12)	ND (10)
Tetrachloroethene	ND(6)J	ND (6)	ND (30)	4 J	3 J	6	ND (6)	ND (6)	ND (6)	ND (5)
1,1,2,2-Tetrachloroethane	ND(6)J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Toluene	ND(6)J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Chlorobenzene	ND(6)J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Ethylbenzene	ND(6)J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Styrene	ND(6)J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)
Xylene (total)	ND(6)J	ND (6)	ND (30)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (5)

TABLE 6.2
BOREHOLE SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*BH-1* *2'-4'* *(µg/kg)*	*6-1* *1.2'-3.5'* *(µg/kg)*	*BH5A-3* *9.0'-11.0'* *(µg/kg)*	*BH5B-1* *7.2'-9.0'* *(µg/kg)*	*BH5B-2* *9.0'-11.0'* *(µg/kg)*	*BH5B-3* *7.3'-9.0'* *(µg/kg)*	*BH12-1* *6.0'-8.0'* *(µg/kg)*	*BH13-1* *7.2'-9.0'* *(µg/kg)*	*BHA-1* *7.2'-9.0'* *(µg/kg)*	*BHRB-1* *Rinse Blank* *(µg/L)*
Phenol	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10) J
bis(2-Chloroethyl)ether	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
2-Chlorophenol	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10) J
1,3-Dichlorobenzene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
1,4-Dichlorobenzene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Benzyl alcohol	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
1,2-Dichlorobenzene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
2-Methylphenol	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
bis(2-Chloroisopropyl)ether	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
4-Methylphenol	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
N-Nitroso-Di-n-propylamine	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Hexachloroethane	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Nitrobenzene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Isophorone	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
2-Nitrophenol	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
2,4-Dimethylphenol	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Benzoic acid	ND (2100)	ND (2000)	ND (2400)	ND (2300)	ND (2200)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (50)
bis(2-Chloroethoxy)methane	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
2,4-Dichlorophenol	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
1,2,4-Trichlorobenzene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Napthalene4-Chloroaniline	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Hexachlorobutadiene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
4-Chloro-3-methylphenol	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10) J
2-Methylnapthalene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Hexachlorocyclopentadiene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
2,4,6,-Trichlorophenol	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
2,4,5-Trichlorophenol	ND (2100)	ND (2000)	ND (2400)	ND (2300)	ND (2200)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (50)
2-Chloronapthalene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
2-Nitroaniline	ND (2100)	ND (2000)	ND (2400)	ND (2300)	ND (2200)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (50)
Dimethylphthalate	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Acenaphthylene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
2,6-Dinitrotoluene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
3-Nitroaniline	ND (2100)	ND (2000)	ND (2400)	ND (2300)	ND (2200)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (50)
Acenaphthene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
2,4-Dinitrophenol	ND (2100)	ND (2000)	ND (2400)	ND (2300)	ND (2200)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (50)

TABLE 6.2
BOREHOLE SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*BH-1* **2'-4'** (µg/kg)	*6-1* **1.2'-3.5'** (µg/kg)	*BH5A-3* **9.0'-11.0'** (µg/kg)	*BH5B-1* **7.2'-9.0'** (µg/kg)	*BH5B-2* **9.0'-11.0'** (µg/kg)	*BH5B-3* **7.3'-9.0'** (µg/kg)	*BH12-1* **6.0'-8.0'** (µg/kg)	*BH13-1* **7.2'-9.0'** (µg/kg)	*BHA-1* **7.2'-9.0'** (µg/kg)	*BHRB-1* **Rinse Blank** (µg/L)
4-Nitrophenol	ND (2100)	ND (2000)	ND (2400)	ND (2300)	ND (2200)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (50) J
Dibenzofuran	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
2,4-Dinitrotoluene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Diethylphthalate	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
4-Chlorophenyl-phenylether	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Fluorene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10) J
4-Nitroaniline	ND (2100)	ND (2000)	ND (2400)	ND (2300)	ND (2200)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (50)
4,6-Dinitro-2-methylphenol	ND (2100)	ND (2000)	ND (2400)	ND (2300)	ND (2200)	ND (2000)	ND (1800)	ND (2000)	ND (2000)	ND (50)
N-Nitrosodiphenylamine (1)	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
4-Bromophenyl-phenylether	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Hexachlorobenzene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Pentachlorophenol	ND (2100)	ND (2000)	ND (2400)	ND (2300)	ND (2200)	ND (2000)	ND (1800)	56 J	ND (2000)	ND (50) J
Phenanthrene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	44 J	ND (400)	ND (10)
Antracene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Di-n-Butylphthalate	54 J	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	50 J	ND (400)	ND (10)
Fluoranthene	62 J	ND (400)	ND (480)	ND (450)	50 J	ND (400)	ND (350)	55 J	ND (400)	ND (10)
Pyrene	60 J	ND (400)	ND (480)	ND (450)	47 J	ND (400)	ND (350)	71 J	ND (400)	ND (10)
Butylbenzylphthalate	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
3,3'-Dichlorobenzidine	ND (850)	ND (800)	ND (960)	ND (900)	ND (870)	ND (810)	ND (700)	ND (810)	ND (810)	ND (20)
Benzo(a)anthracene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Chrysene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
bis(2-Ethylhexyl)phthalate	ND (120) J	ND (78) J	ND (480)	ND (450)	ND (430)	ND (400)	61 J	65 J	42 J	ND (10)
Di-n-Octyl phthalate	56 J	63 J	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	41 J	ND (400)	ND (10)
Benzo(b)fluoranthene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Benzo(k)fluoranthene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Benzo(a)pyrene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Indeno(1,2,3-cd)pyrene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Dibenzo(a,h)anthracene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)
Benzo(g,h,i)perylene	ND (420)	ND (400)	ND (480)	ND (450)	ND (430)	ND (400)	ND (350)	ND (410)	ND (400)	ND (10)

TABLE 6.2
BOREHOLE SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

METALS	*BH-1* **2'-4'** *(mg/kg)*	*6-1* **1.2'-3.5'** *(mg/kg)*	*BH5A-3* **9.0'-11.0'** *(mg/kg)*	*BH5B-1* **7.2'-9.0'** *(mg/kg)*	*BH5B-2* **9.0'-11.0'** *(mg/kg)*	*BH5B-3* **7.3'-9.0'** *(mg/kg)*	*BH12-1* **6.0'-8.0'** *(mg/kg)*	*BH13-1* **7.2'-9.0'** *(mg/kg)*	*BHA-1* **7.2'-9.0'** *(mg/kg)*	*BHRB-1* **Rinse Blank** *(µg/L)*
Aluminum	8900 J	6270	3100	3680	3120	4330	3220	4780	5600	ND (123)
Antimony	ND (4.93) J	ND (3.55)	ND (5.28)	ND (4.34)	ND (3.47)	ND (4.24)	ND (3.79)	ND (4.15)	ND (4.20)	ND (20.0)
Arsenic	18.9 J	6.20	2.0	3.20	1.90	1.90	2.80	3.20	3.90	ND (2.00)
Barium	71.7	35.10	47.9	29.7	57.3	37.1	46.0	32.6	38.2	ND (4.00)
Beryllium	0.52	0.43	ND (0.264)	0.26	ND (0.174)	ND (0.212)	ND (0.189)	0.250	0.340	ND (1.00)
Cadmium	ND (0.739)	ND (0.532)	ND (0.792)	ND (0.651)	ND (0.521)	0.637	ND (0.568)	ND (0.623)	ND (0.630)	ND (3.00)
Calcium	2180	564	25800	20800	29000	21000	64100	20100	18700	367
Chromium	2.3	21.5	ND (0.792)	1.2	1.20	13.5	1.50	1.40	2.50	ND (3.00)
Cobalt	8.3	9.50	3.9	5.00	4.30	23.3	3.90	6.30	7.20	ND (5.00)
Copper	11.9 J	16.2	7.9	11.3	9.20	13.6	7.50	12.9	13.8	ND (4.00)
Iron	21900 J	14500	9330	10500	8700	11600	9460	13500	14900	ND (55.0)
Lead	16.7	5.70	4.6	6.90	5.30	5.90	5.80	8.0	10.1	ND (3.00)
Magnesium	2050	1740	4250	5570	3480	4360	2640	5330	5780	ND (89.0)
Manganese	400 J	390	324	299	389	226	2670	449	619	ND (1.00)
Mercury	ND (0.125) J	ND (0.115) J	ND (0.134) J	ND (0.125) J	ND (0.124) J	ND (0.114) J	ND (0.109)	ND (0.122)	ND (0.125)	ND (0.200)
Nickel	ND (15.4)	73.6	ND (8.10)	ND (9.20)	ND (8.90)	51.8	ND (8.50)	ND (12.6)	ND (16.5)	ND (10.0)
Potassium	345	270	401	321	210	347	ND (154)	388	548	ND (815)
Selenium	ND (0.352)	ND (0.396)	ND (0.499)	ND (0.477)	ND (0.371)	ND (0.316)	ND (0.397)	ND (0.391)	ND (0.454)	ND (2.00)
Silver	ND (1.23)	ND (0.888)	ND (1.32)	ND (1.08)	ND (0.868)	ND (1.06)	ND (0.947)	ND (1.04)	ND (1.05)	5.40
Sodium	164	148	229	200	143	163	142	166	164	767
Thallium	ND (0.703)	ND (0.792)	ND (0.997)	ND (0.955)	ND (0.741)	ND (0.631)	ND (0.794)	ND (0.782)	ND (0.908)	ND (4.00)
Vanadium	ND (12.5)	ND (8.00)	ND (11.0)	ND (9.60)	ND (8.60)	9.7	ND (10.3)	ND (9.70)	ND (9.80)	ND (4.10)
Zinc	54.3	32.1	26.2	25.5	25.0	31.4	21.4	30.9	36.3	9.90
Cyanide	ND (0.624)	ND (0.577)	ND (0.671)	ND (0.624)	ND (0.618)	ND (0.568)	ND (0.544)	ND (0.61)	ND (0.623)	ND (10.00)

TABLE 6.2
BOREHOLE SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

PESTICIDES AND PCBS	*BH-1* 2'-4' (µg/kg)	*6-1* 1.2'-3.5' (µg/kg)	*BH5A-3* 9.0'-11.0' (µg/kg)	*BH5B-1* 7.2'-9.0' (µg/kg)	*BH5B-2* 9.0'-11.0' (µg/kg)	*BH5B-3* 7.3'-9.0' (µg/kg)	*BH12-1* 6.0'-8.0' (µg/kg)	*BH13-1* 7.2'-9.0' (µg/kg)	*BHA-1* 7.2'-9.0' (µg/kg)	*BHRB-1* Rinse Blank (µg/L)
Alpha - BHC	ND (4.6)	ND (4.3)	ND (5.2)	ND (4.9)	ND (4.7)	ND (4.4)	ND (7.8)	ND (9.5)	ND (8.8)	ND (0.050)
Beta - BHC	ND (4.6)	ND (4.3)	ND (5.2)	ND (4.9)	ND (4.7)	ND (4.4)	ND (7.8)	ND (9.5)	ND (8.8)	ND (0.050)
Delta - BHC	ND (4.6)	ND (4.3)	ND (5.2)	ND (4.9)	ND (4.7)	ND (4.4)	ND (7.8)	ND (9.5)	ND (8.8)	ND (0.050)
Gamma - BHC (Lindane)	ND (4.6) J	ND (4.3) J	ND (5.2) J	ND (4.9) J	ND (4.7) J	ND (4.4) J	ND (7.8)	ND (9.5)	ND (8.8)	ND (0.050)
Heptachlor	ND (4.6) J	ND (4.3)	ND (5.2) J	ND (4.9) J	ND (4.7) J	ND (4.4) J	ND (7.8)	ND (9.5)	ND (8.8)	ND (0.050) J
Aldrin	ND (4.6)	ND (4.3)	ND (5.2) J	ND (4.9) J	ND (4.7) J	ND (4.4) J	ND (7.8)	ND (9.5)	ND (8.8)	ND (0.050)
Heptachlor epoxide	ND (4.6)	ND (4.3)	ND (5.2)	ND (4.9)	ND (4.7)	ND (4.4)	ND (7.8)	ND (9.5)	ND (8.8)	ND (0.050)
Endosulfan I	ND (4.6)	ND (4.3)	ND (5.2)	ND (4.9)	ND (4.7)	ND (4.4)	ND (7.8)	ND (9.5)	ND (8.8)	ND (0.050)
Dieldrin	ND (9.2)	ND (8.6)	ND (10) J	ND (9.8) J	ND (9.4) J	ND (8.8) J	ND (16)	ND (19)	ND (18)	ND (0.10)
4,4'-DDE	ND (9.2)	ND (8.6)	ND (10)	ND (9.8)	ND (9.4)	ND (8.8)	ND (16)	ND (19)	ND (18)	ND (0.10)
Endrin	ND (9.2)	ND (8.6)	ND (10) J	ND (9.8) J	ND (9.4) J	ND (8.8) J	ND (16)	ND (19)	ND (18)	ND (0.10)
Endosulfan II	ND (9.2)	ND (8.6)	ND (10)	ND (9.8)	ND (9.4)	ND (8.8)	ND (16)	ND (19)	ND (18)	ND (0.10)
4,4'-DDD	ND (9.2)	ND (8.6)	ND (10)	ND (9.8)	ND (9.4)	ND (8.8)	ND (16)	ND (19)	ND (18)	ND(10)
Endosulfan Sulfate	ND (9.2)	ND (8.6)	ND (10)	ND (9.8)	ND (9.4)	ND (8.8)	ND (16)	ND (19)	ND (18)	ND(1.0)
4,4'-DDT	ND (9.2) J	ND (8.6)	ND (10) J	ND (9.8) J	ND (9.4) J	ND (8.8) J	ND (16)	ND (19)	ND (18)	ND (0.10)
Methoxychlor	ND (46)	ND (43)	ND (52)	ND (49)	ND (47)	ND (44)	ND (78)	ND (95)	ND (88)	ND (0.50)
Endrin ketone	ND (9.2)	ND (8.6)	ND (10)	ND (9.8)	ND (9.4)	ND (8.8)	ND (16)	ND (19)	ND (18)	ND (0.10)
Alpha - Chlordane	ND (46)	ND (43)	ND (52)	ND (49)	ND (47)	ND (44)	ND (78)	ND (95)	ND (88)	ND (0.50)
Gamma - Chlordane	ND (46)	ND (43)	ND (52)	ND (49)	ND (47)	ND (44)	ND (78)	ND (95)	ND (88)	ND (0.50)
Toxaphene	ND (92)	ND (86)	ND (100)	ND (98)	ND (9.4)	ND (88)	ND (160)	ND (190)	ND (180)	ND (1.0)
Aroclor-1016	ND (46)	ND (43)	ND (52)	ND (49)	ND (47)	ND (44)	ND (78)	ND (95)	ND (88)	ND (0.50)
Aroclor-1221	ND (46)	ND (43)	ND (52)	ND (49)	ND (47)	ND (44)	ND (78)	ND (95)	ND (88)	ND (0.50)
Aroclor-1232	ND (46)	ND (43)	ND (52)	ND (49)	ND (47)	ND (44)	ND (78)	ND (95)	ND (88)	ND (0.50)
Aroclor-1242	ND (46)	ND (43)	ND (52)	ND (49)	ND (47)	ND (44)	ND (78)	ND (95)	ND (88)	ND (0.50)
Aroclor-1248	ND (46)	ND (43)	ND (52)	ND (49)	ND (47)	ND (44)	ND (78)	ND (95)	ND (88)	ND (0.50)
Aroclor-1254	ND (100)	ND (86)	ND (100)	ND (98)	ND (94)	ND (88)	ND (160)	ND (190)	ND (180)	ND (1.0)
Aroclor-1260	ND (92)	ND (86)	ND (100)	ND (98)	ND (94)	ND (88)	ND (160)	ND (190)	ND (180)	ND (1.0)

TABLE 6.2
BOREHOLE SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

TOTAL PETROLEUM HYDROCARBONS	BH-1 2'-4' (mg/kg)	6-1 1.2'-3.5' (mg/kg)	BH5A-3 9.0'-11.0' (mg/kg)	BH5B-1 7.2'-9.0' (mg/kg)	BH5B-2 9.0'-11.0' (mg/kg)	BH5B-3 7.3'-9.0' (mg/kg)	BH12-1 6.0'-8.0' (mg/kg)	BH13-1 7.2'-9.0' (mg/kg)	BHA-1 7.2'-9.0' (mg/kg)	BHRB-1 Rinse Blank (mg/L)
Total Petroleum Hydrocarbons	10	19	6.2	4.6 J	55	3.3 J	ND (4.4)	5.2	ND (4.7)	ND (1.1)

ND - Not detected at the detection limit stated within the parenthesis.
J - Associated value is estimated.
NA - Not analyzed.
R - Data is unusable.

TABLE 6.3
SURFACE SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

VOLATILE ORGANIC COMPOUNDS	*SS-1* *(µg/kg)*	*SS-2* *(µg/kg)*	*SS-3* *(µg/kg)*	*SS-4* *(µg/kg)*
Chloromethane	ND (16)	NA	NA	NA
Bromomethane	ND (16)	NA	NA	NA
Vinyl Chloride	ND (16)	NA	NA	NA
Chloroethane	ND (16)	NA	NA	NA
Methylene Chloride	ND (82)	NA	NA	NA
Acetone	ND (19)	NA	NA	NA
Carbon Disulfide	ND (8)	NA	NA	NA
1,1-Dichloroethene	ND (8)	NA	NA	NA
1,1-Dichloroethane	ND (8)	NA	NA	NA
1,2-Dichloroethene (total)	ND (8)	NA	NA	NA
Chloroform	ND (8)	NA	NA	NA
1,2-Dichloroethane	ND (8)	NA	NA	NA
2-Butanone	ND (16)	NA	NA	NA
1,1,1-Trichloroethane	ND (8)	NA	NA	NA
Carbon Tetrachloride	ND (8)	NA	NA	NA
Vinyl Acetate	ND (16)	NA	NA	NA
Bromodichloromethane	ND (8)	NA	NA	NA
1,2-Dichloropropane	ND (8)	NA	NA	NA
cis-1,3-Dichloropropene	ND (8)	NA	NA	NA
Trichloroethene	38	NA	NA	NA
Dibromochloromethane	ND (8)	NA	NA	NA
11,12-Trichloroethane	ND (8)	NA	NA	NA
Benzene	ND (8)	NA	NA	NA
Trans-1,3-Dichloropropene	ND (8)	NA	NA	NA
Bromoform	ND (8)	NA	NA	NA
4-Methyl-2-pentanone	ND (16)	NA	NA	NA
2-Hexanone	ND (16)	NA	NA	NA
Tetrachloroethene	ND (8)	NA	NA	NA
1,1,2,2-Tetrachloroethane	ND (8)	NA	NA	NA
Toluene	ND (8)	NA	NA	NA
Chlorobenzene	ND (8)	NA	NA	NA
Ethylbenzene	ND (8)	NA	NA	NA
Styrene	ND (8)	NA	NA	NA
Xylene (total)	ND (8)	NA	NA	NA

TABLE 6.3
SURFACE SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*SS-1* *(µg/kg)*	*SS-2* *(µg/kg)*	*SS-3* *(µg/kg)*	*SS-4* *(µg/kg)*
Phenol	ND (570)	NA	NA	NA
bis(2-Chloroethyl)ether	ND (570)	NA	NA	NA
2-Chlorophenol	ND (570)	NA	NA	NA
1,3-Dichlorobenzene	ND (570)	NA	NA	NA
1,4-Dichlorobenzene	ND (570)	NA	NA	NA
Benzyl alcohol	ND (570)	NA	NA	NA
1,2-Dichlorobenzene	ND (570)	NA	NA	NA
2-Methylphenol	ND (570)	NA	NA	NA
bis(2-Chloroisopropyl)ether	ND (570)	NA	NA	NA
4-Methylphenol	ND (570)	NA	NA	NA
N-Nitroso-Di-n-propylamine	ND (570)	NA	NA	NA
Hexachloroethane	ND (570)	NA	NA	NA
Nitrobenzene	ND (570)	NA	NA	NA
Isophorone	ND (570)	NA	NA	NA
2-Nitrophenol	ND (570)	NA	NA	NA
2,4-Dimethylphenol	ND (570)	NA	NA	NA
Benzoic acid	ND (2800)	NA	NA	NA
bis(2-Chloroethoxy)methane	ND (570)	NA	NA	NA
2,4-Dichlorophenol	ND (570)	NA	NA	NA
1,2,4-Trichlorobenzene	ND (570)	NA	NA	NA
Naphthalene	ND (570)	NA	NA	NA
4-Chloroaniline	ND (570)	NA	NA	NA
Hexachlorobutadiene	ND (570)	NA	NA	NA
4-Chloro-3-methylphenol	60 J	NA	NA	NA
2-Methylnaphthalene	ND (570)	NA	NA	NA
Hexachlorocyclopentadiene	ND (570)	NA	NA	NA
2,4,6-Trichlorophenol	ND (570)	NA	NA	NA
2,4,5-Trichlorophenol	ND (2800)	NA	NA	NA
2-Chloronaphthalene	ND (570)	NA	NA	NA
2-Nitroaniline	ND (2800)	NA	NA	NA
Dimethylphthalate	ND (570)	NA	NA	NA
Acenaphthylene	ND (570)	NA	NA	NA
2,5-Dinitrotoluene	ND (570)	NA	NA	NA
3-Nitroaniline	ND (2800)	NA	NA	NA
Acenaphthene	ND (570)	NA	NA	NA
2,4-Dinitrophenol	ND (2800)	NA	NA	NA
4-Nitrophenol	250 J	NA	NA	NA
Dibenzofuran	ND (570)	NA	NA	NA
2,4-Dinitrotoluene	ND (570)	NA	NA	NA
Diethylphthalate	ND (570)	NA	NA	NA
4-Chlorophenyl-phenylether	ND (570)	NA	NA	NA

TABLE 6.3
SURFACE SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*SS-1* *(µg/kg)*	*SS-2* *(µg/kg)*	*SS-3* *(µg/kg)*	*SS-4* *(µg/kg)*
Fluorene	ND (570)	NA	NA	NA
4-Nitroaniline	ND (2800)	NA	NA	NA
4,6-Dinitro-2-methylphenol	ND (2800)	NA	NA	NA
N-Nitrosodiphenylamine(1)	ND (570)	NA	NA	NA
4-Bromophenyl-phenylether	ND (570)	NA	NA	NA
Hexachlorobenzene	ND (570)	NA	NA	NA
Pentachlorophenol	220 J	NA	NA	NA
Phenanthrene	220 J	NA	NA	NA
Anthracene	ND (570)	NA	NA	NA
Di-n-Butylphthalate	ND(1100)J	NA	NA	NA
Fluoranthene	480 J	NA	NA	NA
Pyrene	480 J	NA	NA	NA
Butylbenzylphthalate	89 J	NA	NA	NA
3,3'-Dichlorobenzidine	ND (1100)	NA	NA	NA
Benzo(a)anthracene	160 J	NA	NA	NA
Chrysene	190 J	NA	NA	NA
bis(2-Ethylhexyl)phthalate	240 J	NA	NA	NA
Di-n-Octyl phthalate	190 J	NA	NA	NA
Benzo(b)fluoranthene	170 J	NA	NA	NA
Benzo(k)fluoranthene	190 J	NA	NA	NA
Benzo(a)pyrene	170 J	NA	NA	NA
Indeno(1,2,3-cd)pyrene	90 J	NA	NA	NA
Dibenzo(a,h)anthracene	ND (570)	NA	NA	NA
Benzo(g,h,i)perylene	96 J	NA	NA	NA

TABLE 6.3
SURFACE SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

PESTICIDES AND PCBS	*SS-1* *(µg/kg)*	*SS-2* *(µg/kg)*	*SS-3* *(µg/kg)*	*SS-4* *(µg/kg)*
Alpha-BHC	ND(13)	190J	ND(9.2)	ND(9.0)J
Beta-BHC	ND(13)	9.0	ND(9.2)	ND(9.0)
Delta-BHC	ND(13)	2.3J	ND(9.2)	ND(9.0)
Gamma-BHC (Lindane)	ND(13)	ND(9)	ND(9.2)	ND(9.0)J
Heptachlor	ND(13)	ND(9)	ND(9.2)	ND(9.0)J
Aldrin	ND(13)	ND(9)	ND(9.2)	ND(9.0)J
Heptachlor Epoxide	ND(13)	ND(9)	ND(9.2)	ND(9.0)
Endosulfan I	ND(13)	ND(9)	ND(9.2)	ND(9.0)
Dieldrin	ND(27)	ND(18)	ND(18)	ND(18)J
4,4'-DDE	ND(27)	ND(18)	ND(18)	ND(18)
Endrin	ND(27)	ND(18)	ND(18)	ND(18)J
Endosulfan II	ND(27)	ND(18)	ND(18)	ND(18)
4,4'-DDD	ND(27)	ND(18)	ND(18)	ND(18)
Endosulfan Sulfate	ND(27)	ND(18)	ND(18)	ND(18)
4,4'-DDT	ND(27)	ND(18)	ND(18)	ND(18)J
Methoxychlor	ND(130)	ND(90)	ND(92)	ND(90)
Endrin Ketone	ND(27)	ND(18)	ND(18)	ND(18)
Alpha-Chlordane	ND(130)	ND(90)	ND(92)	ND(90)
Gamma-Chlordane	ND(130)	ND(90)	ND(92)	ND(90)
Toxaphene	ND(270)	ND(180)	ND(180)	ND(180)
Aroclor-1016	ND(130)	ND(90)	ND(92)	ND(90)
Aroclor-1221	ND(130)	ND(90)	ND(92)	ND(90)
Aroclor-1232	ND(130)	ND(90)	ND(92)	ND(90)
Aroclor-1242	ND(130)	ND(90)	ND(92)	ND(90)
Aroclor-1248	ND(130)	ND(90)	ND(92)	ND(90)
Aroclor-1254	ND(270)	ND(180)	ND(180)	ND(180)
Aroclor-1260	ND(270)	ND(180)	ND(180)	ND(180)

TABLE 6.3
SURFACE SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

METALS	*SS-1* *(mg/kg)*	*SS-2* *(mg/kg)*	*SS-3* *(mg/kg)*	*SS-4* *(mg/kg)*
Aluminum	4050	4360	5020	4650
Antimony	ND (6.09)	ND (4.36)	ND (4.37)	ND (3.34)
Arsenic	4.90	1.40	3.00	4.70
Barium	4.66	90.6 J	53.0	61.4 J
Beryllium	ND (0.305)	0.330	0.220	0.270
Cadmium	ND (0.914)	ND (0.655)	ND (0.656)	ND (0.501)
Calcium	8520	72800 J	8990	17100 J
Chromium	5.80	1.50	9.70	1.30
Cobalt	7.10	5.80	12.5	4.50
Copper	16.0	10.9	18.7	12.6
Iron	11400	12500	12700	12100
Lead	19.2	5.20 J	25.9	10.6 J
Magnesium	3450	3260	2160	3790
Manganese	439	1890 J	420	441 J
Mercury	ND (0.162)	ND (0.115)	ND (0.114)	ND (0.118)
Nickel	ND (25.7)	ND (11.1)	84.2	ND (10.0)
Potassium	ND (248)	ND (178)	192	ND (136)
Selenium	ND (0.582)	ND (0.396)	ND (0.455)	ND (0.39)
Silver	ND (1.52)	ND (1.09)	2.30	ND (0.836)
Sodium	227	218	166	149
Thallium	ND (1.16)	ND (0.792)	ND (0.911)	ND (0.779)
Vanadium	ND (15.0)	ND (12.1)	ND (13.1)	ND (9.70)
Zinc	40.4	38.2	38.2	30.0
Cyanide	ND (0.811)	ND (0.577)	ND (0.571)	ND (0.59)

TABLE 6.3
SURFACE SOIL SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

TOTAL PETROLEUM HYDROCARBONS	*SS-1 (mg/kg)*	*SS-2 (mg/kg)*	*SS-3 (mg/kg)*	*SS-4 (mg/kg)*
Total Petroleum Hydrocarbons	34	NA	NA	NA

Notes:
ND Not detected at the detection limit stated within the parenthesis.
J Associated value is estimated.
R Associated value is unusable.

TABLE 6.4
BACKGROUND METAL CONCENTRATIONS IN SOILS
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

Chemical Parameter	Published Concentrations (1) (2)		NYSDEC (3) (4) Published Concentrations		VacAir Background (5) (6) Concentrations	
	Range	Mean	Range	Mean	Range	Mean
Silver	NR	NR	NR	NR	ND - 2.3	2.3
Aluminum	4,500-100,000	NR	1,000-2,000	33,000	4,050 - 8,900	5,396
Arsenic	<1.0 - 93.2	7.0	3 - 12	5	1.40 - 18.9	6.6
Barium	>0 - 3,000	560	15 - 600	290	4.66 - 90.6	56.3
Beryllium	<1 - 5	1.6	0 - 1.75	0.6	ND - 0.52	0.34 (4)
Calcium	NR	NR	130 - 35,000	1,651	2,180 - 72,800	21,918
Cadmium	0.4 - 1.1	0.5	0.01 - 0.88	0.21	ND	ND
Cobalt	3 - 50	10.5	2.5 - 60	5.9	4.50 - 12.5	7.6
Chromium	7 - 1500	50	1.5 - 40	33	1.50 - 9.70	4.1
Copper	3 - 300	26	5 - 38	13	10.9 - 18.7	14.0
Iron	0.5 - 5%	NR	2,000-550,000	14,000	11,400 - 21,900	14,120
Mercury	0.02 - 1.5	0.17	0.042-0.066	0.081	ND	ND
Potassium	NR	NR	8,500-43,000	12,000	ND - 345	269 (4)
Magnesium	NR	NR	100 - 5,000	2,300	2,050 - 3,790	2,942
Manganese	20 - 3,000	490	50 - 5,000	285	400 - 1,890	718
Sodium	NR	NR	<500-50,000	2,500	149 - 227	185
Nickel	<5 - 150	18.5	0.5 - 25	19.5	ND - 84.2	84.2
Lead	<10 - 70	26	4 - 61	17	5.20 - 25.9	15.5
Antimony	0.25 - 0.6	NR	NR	NR	ND	ND
Selenium	<0.1 - 4.0	0.31	<1 - 3.9	0.3	ND	ND
Thallium	0.02 - 2.8	NR	NR	NR	ND	ND
Vanadium	0.7 - 98	NR	1 - 300	43	ND	ND
Zinc	13 - 300	73.5	9 - 50	40	30.0 - 54.3	40.2
Cyanide	NR	NR	NR	NR	ND	ND

Notes:
(1) Data are reported in "Trace Elements in Soils and Plants", Kabata Pendias, Alina and Itenryk Pendias, CRC Press, Inc., Boca Raton, Florida, 1985.
(2) Data are reported for various types of surface soils in the United States.
(3) Data reported in "Background concentrations of 20 Elements in Soils with Special Regard to New York State", E. Carol McGovern, NYSDEC.
(4) Data reported for uncontaminated soils in New York State or eastern United States.
(5) Based on soil sample nos. BH-1, SS-1, SS-2, SS-3 and SS-4 collected during the SI.
(6) Mean of detected concentrations.
NR Not Reported.
ND Not Detected.

TABLE 6.5
GROUNDWATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

VOLATILE ORGANIC COMPOUNDS	*MW-1* (µg/L)	*MW-2* (µg/L)	*MW-3* (µg/L)	*MW-4* (µg/L)	*MW-5* (µg/L)	*MW-6* (µg/L)	*MW-7* (µg/L)	*Rinse Blank* (µg/L)
Chloromethane	ND (10)	ND (100)	ND (2000)	2 J	ND (10)	ND (10)	ND (10)	ND (10)
Bromomethane	ND (10)	ND (100)	ND (2000)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Vinyl Chloride	ND (10)	17000	ND (2000)	8 J	ND (10)	ND (10)	ND (10)	ND (10)
Chloroethane	ND (10)	ND (100)	ND (2000)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Methylene Chloride	ND (17)	ND (140)	ND (3100)	ND (5)	ND (7)	ND (5)	ND (5)	ND (9)
Acetone	ND (12)	ND (320)	ND (5100)	ND (25)	ND (10)	ND (10)	ND (10)	ND (10)
Carbon Disulfide	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,1-Dichloroethene	ND (5)	450	ND (1000)	2 J	ND (5)	ND (5)	ND (5)	ND (5)
1,1-Dichloroethane	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,2-Dichloroethene (total)	ND (5)	170000	1400	940 J	1 J	ND (5)	ND (5)	ND (5)
Chloroform	ND (5)	ND (50)	ND (1000)	2 J	ND (5)	ND (5)	ND (5)	ND (5)
1,2-Dichloroethane	ND (5)	19 J	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
2-Butanone	ND (10) R	ND (100) R	ND (2000) R	ND (10) R	ND (10) R	ND (10) R	ND (10) R	ND (10) R
1,1,1-Trichloroethane	ND (5)	ND (50)	ND (1000)	3 J	ND (5)	ND (5)	ND (5)	ND (5)
Carbon Tetrachloride	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Vinyl Acetate	ND (10)	ND (100)	ND (2000)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Bromodichloromethane	ND (5)	ND (50)	ND (1000)	4 J	ND (5)	ND (5)	ND (5)	ND (5)
1,2-Dichloropropane	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
cis-1,3-Dichloropropene	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Trichloroethene	ND (5)	2600 J	34000	55000	41	ND (5)	ND (5)	ND (5)
Dibromochloromethane	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,1,2-Trichloroethane	ND (5)	13 J	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Benzene	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Trans-1,3-Dichloropropene	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Bromoform	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
4-Methyl-2-pentanone	ND (10)	ND (100)	ND (2000)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Hexanone	ND (10)	ND (100)	ND (2000)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Tetrachloroethene	ND (5)	ND (50)	ND (1000)	10	ND (5)	ND (5)	ND (5)	ND (5)
1,1,2,2-Tetrachloroethane	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Toluene	ND (5)	12 J	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	1 J
Chlorobenzene	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Ethylbenzene	ND (5)	14 J	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Styrene	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Xylene (total)	ND (5)	ND (50)	ND (1000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)

TABLE 6.5
GROUNDWATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	MW-1 (µg/L)	MW-2 (µg/L)	MW-3 (µg/L)	MW-4 (µg/L)	MW-5 (µg/L)	MW-6 (µg/L)	MW-7 (µg/L)	Blank (µg/L)
Phenol	ND (10)	16	ND (10)	ND (10)	ND (10)	ND (10) R	ND (10) R	ND (10)
bis (2-Chloroethyl) ether	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Chlorophenol	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) R	ND (10) R	ND (10)
1,3-Dichlorobenzene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
1,4-Dichlorobenzene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Benzyl alcohol	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) R	ND (10) R	ND (10)
1,2-Dichlorobenzene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Methylphenol	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) R	ND (10) R	ND (10)
bis (2-Chloroisopropyl) ether	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Methylphenol	ND (10)	34	ND (10)	ND (10)	ND (10)	ND (10) R	ND (10) R	ND (10)
N-Nitroso-Di-n-propylamine	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Hexachloroethane	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Nitrobenzene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Isophorone	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Nitrophenol	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) R	ND (10) R	ND (10)
2,4-Dimethylphenol	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) R	ND (10) R	ND (10)
Benzoic acid	ND(50)	15 J	ND(50)	ND(50)	ND(50)	ND (50) R	ND (50) R	ND(50)
bis (2-Chloroethoxy) methane	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4-Dichlorophenol	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) R	ND (10) R	ND (10)
1,2,4-Trichlorobenzene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Napthalene	ND (10)	1 J	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Chloroaniline	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Hexachlorobutadiene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Chloro-3-methylphenol	ND (10)	3 j	ND (10)	ND (10)	ND (10)	ND (10) R	ND (10) R	ND (10)
2-Methylnaphthalene	ND (10)	3 j	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Hexachlorocyclopentadiene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4,6-Trichlorophenol	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) R	ND (10) R	ND (10)
2,4,5-Trichlorophenol	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) R	ND (50) R	ND (50)
2-Chloronaphthalene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Nitroaniline	ND (50)	ND (50) R	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)
Dimethylphthalate	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Acenaphthylene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,6-Dinitrotoluene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
3-Nitroaniline	ND (50)	ND (50) R	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)
Acenaphthene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4-Dinitrophenol	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) R	ND (50) R	ND (50)
4-Nitrophenol	ND (50)	ND(50)J	ND (50)	ND (50)	ND (50)	ND (50) R	ND (50) R	ND (50)
Dibenzofuran	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4-Dinitrotoluene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Diethylphthalate	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Chlorophenyl-phenylether	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Fluorene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Nitroaniline	ND(50)	ND (50) R	ND (50) J	ND (50)	ND (50)	ND (50) J	ND (50)	ND (50)
4,6-Dinitro-2-methylphenol	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) R	ND (50) R	ND (50)
N-Nitrosodiphenylamine (1)	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Bromophenyl-phenylether	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Hexachlorobenzene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Pentachlorophenol	ND (50)	ND (50) J	ND (50)	ND (50)	ND (50)	ND (50) R	ND (50) R	ND (50)
Phenanthrene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Anthracene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Di-n-butylphthalate	ND (10)	4 J	2 J	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Fluoranthene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Pyrene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Butylbenzylphthalate	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
3,3'-Dichlorobenzidine	ND (20)	ND (20) R	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
Benzo(a)anthracene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Chrysene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
bis(2-Ethylhexyl)phthalate	ND (10)	2 J	2 J	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 6.5
GROUNDWATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*MW-1* (µg/L)	*MW-2* (µg/L)	*MW-3* (µg/L)	*MW-4* (µg/L)	*MW-5* (µg/L)	*MW-6* (µg/L)	*MW-7* (µg/L)	*Blank* (µg/L)
Di-n-Octyl phthalate	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Benzo(b)fluoranthene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Benzo(k)fluoranthene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Benzo(a)pyrene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Indeno(1,2,3-cd)pyrene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Dibenzo(a,h)anthracene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Benzo(g,h,i)perylene	ND (10)	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 6.5
GROUNDWATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

PESTICIDES AND PCBS	*MW-1* (µg/L)	*MW-2* (µg/L)	*MW-3* (µg/L)	*MW-4* (µg/L)	*MW-5* (µg/L)	*MW-6* (µg/L)	*MW-7* (µg/L)	*Blank* (µg/L)
Alpha-BHC	ND (0.051)	ND (0.052)	ND (0.050)	ND (0.052)	ND (0.053)	ND (0.052)	ND (0.052)	ND (0.051)
Beta-BHC	ND (0.051)	ND (0.052)	ND (0.050)	ND (0.052)	ND (0.053)	ND (0.052)	ND (0.052)	ND (0.051)
Delta-BHC	ND (0.051)	ND (0.052)	ND (0.050)	ND (0.052)	ND (0.053)	ND (0.052)	ND (0.052)	ND (0.051)
gamma-BHC (Lindane)	ND (0.051)	ND (0.052)	ND (0.050)	ND (0.052)	ND (0.053)	ND (0.052)	ND (0.052)	ND (0.051)
Heptachlor	ND (0.051)	ND (0.052)	ND (0.050)	ND (0.052)	ND (0.053)	ND (0.052)	ND (0.052)	ND (0.051)
Aldrin	ND (0.051)	ND (0.052)	ND (0.050)	ND (0.052)	ND (0.053)	ND (0.052)	ND (0.052)	ND (0.051)
Heptachlor epoxide	ND (0.051)	ND (0.052)	ND (0.050)	ND (0.052)	ND (0.053)	ND (0.052)	ND (0.052)	ND (0.051)
Endosulfan I	ND (0.051)	ND (0.052)	ND (0.050)	ND (0.052)	ND (0.053)	ND (0.052)	ND (0.052)	ND (0.051)
Dieldrin	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.10)	ND (0.10)	ND (0.10)
4,4'-DDE	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.10)	ND (0.10)	ND (0.10)
Endrin	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.10)	ND (0.10)	ND (0.10)
Endosulfan II	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.10)	ND (0.10)	ND (0.10)
4,4'-DDD	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.10)	ND (0.10)	ND (0.10)
Endosulfan sulfate	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.10)	ND (0.10)	ND (0.10)
4,4'-DDT	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.10)	ND (0.10)	ND (0.10)
Methoxychlor	ND (0.51)	ND (0.52)	ND (0.50)	ND (0.52)	ND (0.53)	ND (0.52)	ND (0.52)	ND (0.51)
Endrin ketone	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.10)	ND (0.10)	ND (0.10)
alpha-Chlordane	ND (0.51)	ND (0.52)	ND (0.50)	ND (0.52)	ND (0.53)	ND (0.52)	ND (0.52)	ND (0.51)
gamma-Chlordane	ND (0.51)	ND (0.52)	ND (0.50)	ND (0.52)	ND (0.53)	ND (0.52)	ND (0.52)	ND (0.51)
Toxaphene	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.1)	ND (1.0)	ND (1.0)	ND (1.0)
Arochlor-1016	ND (0.51)	ND (0.52)	ND (0.50)	ND (0.52)	ND (0.53)	ND (0.52)	ND (0.52)	ND (0.51)
Arochlor-1221	ND (0.51)	ND (0.52)	ND (0.50)	ND (0.52)	ND (0.53)	ND (0.52)	ND (0.52)	ND (0.51)
Arochlor-1232	ND (0.51)	ND (0.52)	ND (0.50)	ND (0.52)	ND (0.53)	ND (0.52)	ND (0.52)	ND (0.51)
Arochlor-1242	ND (0.51)	ND (0.52)	ND (0.50)	ND (0.52)	ND (0.53)	ND (0.52)	ND (0.52)	ND (0.51)
Arochlor-1248	ND (0.51)	ND (0.52)	ND (0.50)	ND (0.52)	ND (0.53)	ND (0.52)	ND (0.52)	ND (0.51)
Arochlor-1254	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.1)	ND (1.0)	ND (1.0)	ND (1.0)
Arochlor-1260	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.1)	ND (1.0)	ND (1.0)	ND (1.0)

TABLE 6.5
GROUNDWATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

METALS	*MW-1* (µg/L)	*MW-2* (µg/L)	*MW-3* (µg/L)	*MW-4* (µg/L)	*MW-5* (µg/L)	*MW-6* (µg/L)	*MW-7 (Dup.)* (µg/L)	*Rinse Blank* (µg/L)
Aluminum	193	2990	8350	4520	21200	1140	971	ND (77.00)
Antimony	ND (19.0)	ND (19.0)	ND (19.0)	ND (31.0)	ND (19.0)	ND (25.1)	ND (19.0)	ND (19.0)
Arsenic	ND (2.00)	4.7	7.70	2.50	4.20	ND (2.00)	ND (2.00)	ND (2.00)
Barium	111	704	440	217	845	112	106	ND (5.00)
Beryllium	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	1.40	ND (1.00)	ND (1.00)	ND (1.00)
Cadmium	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)
Calcium	57700	179000	110000	98400	113000	95200	95000	495
Chromium	ND (3.00)	ND (3.00)	31.6	17.2	18.9	4.50	4.60	ND (3.00)
Cobalt	ND (4.00)	12.2	12.0	6.1	41.2	ND (4.00)	ND (4.00)	ND (4.00)
Copper	ND (7.00)	ND (7.00)	53.8	24.3	99.6	9.90	8.90	ND (7.00)
Iron	545	88600	20200	11400	52900	2030	1690	40.0
Lead	ND (2.00)	ND (2.00)	9.60	7.10	61.2	ND (2.00)	ND (2.00)	ND (2.00)
Magnesium	9150	38400	24500	19500	30400	18000	18100	ND (84.0)
Manganese	92.4	33700	861	1470	7190	9080	9000	5.70
Mercury	ND (0.200) J	ND (0.200) J	ND (0.200) J	ND (0.200) J	ND (0.200) J	ND (0.200) J	ND (0.200) J	ND (0.200) J
Nickel	ND (7.00)	14.4	40.6	22.6	81.2	ND (7)	ND (7)	ND (7)
Potassium	ND (1010)	8250	5180	5750	6380	ND (1010)	ND (1010)	ND (1010)
Selenium	ND (1.00)	ND (1.00) J	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)
Silver	ND (4.00)	8.40 J	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)
Sodium	3600	12700	26400	23000	13100	22800	22600	930
Thallium	ND (5.00)	ND (50.0) J	ND (5.00)	ND (5.00)	ND (5.00)	ND (4.00)	ND (50.0)	ND (5.00)
Vanadium	ND (8.00)	ND (8.00) J	9.30	8.20	16.9	11.8	11.4	ND (8)
Zinc	56.1	26.1 J	78.0	49.1	158	18.4	18.9	4.50
Cyanide	ND (10.00)	ND (10.00)	ND (10.00)	ND (10.00)	ND (10.00)	ND (10.00)	ND (10.00)	ND (10.00)

TABLE 6.5
GROUNDWATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

TOTAL PETROLEUM HYDROCARBONS	MW-1 (mg/L)	MW-2 (mg/L)	MW-3 (mg/L)	MW-4 (mg/L)	MW-5 (mg/L)	MW-6 (mg/L)	MW-7 (mg/L)	Rinse Blank (mg/L)
Total Petroleum Hydrocarbon	ND (1.1)	0.89 J	ND (1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.0)

Notes:
ND Not detected at the detection limit stated within the parenthesis.
J Associated value is estimated.
R Data is unusable.

TABLE 6.6
MAXIMUM CONTAMINANT LEVELS
FOR METALS IN DRINKING WATER
VACAIR ALLOYS
FREWSBURG, NEW YORK

	New York State Water Quality Standards (1)(2)	
Aluminum	*Class GA Groundwater (µg/L)*	*Class A Surface Water (µg/L*
Aluminum	NA	100
Antimony	3 (3)	3 (2)
Arsenic	25	50
Barium	1000	1000
Beryllium	3 (3)	3 (3)
Cadmium	10	10
Calcium	NA (4)	NA
Chromium	50	50
Cobalt	NA	NA
Copper	200	200
Iron	300 (5)	300 (5)
Lead	25	50
Magnesium	35000	35000 (3)
Manganese	300 (5)	300 (5)
Mercury	2	2
Nickel	NA	NA
Potassium	NA	NA
Selenium	10	10
Silver	50	50
Sodium	50000	NA
Thallium	4 (3)	4 (3)
Vanadium	NA	NA
Zinc	300	300
Cyanide	100	100

Notes:

(1) From NYSDEC "Ambient Water Quality Standards and Guidance Values", Division Water, Technical Operational Guidance Series (1.1.1), dated September 25, 1990.

(2) Standards are for drinking (potable) water: Class GA - groundwater and Class A - surface water.

(3) Value is a guidance value.

(4) NA - Not Available.

(5) Standard is 500 µg/L for the combined total of iron and manganese.

TABLE 6.7
DRINKING WATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

VOLATILE ORGANIC COMPOUNDS	*DW-1* *(µg/L)*	*DW-2* *(µg/L)*
Benzene	ND (1.0)	ND (1.0)
Bromobenzene	ND (1.0)	ND (1.0)
Bromochloromethane	ND (1.0) R	ND (1.0) R
Bromodichloromethane	ND (1.0)	ND (1.0)
Bromoform	ND (1.0) R	ND (1.0) R
Bromomethane	ND (1.0)	ND (1.0)
sec-Butylbenzene	ND (1.0)	ND (1.0)
tert-Butylbenzene	ND (1.0)	ND (1.0)
Carbon Tetrachloride	ND (1.0)	ND (1.0)
Chlorobenzene	ND (1.0)	ND (1.0)
Chloroethane	ND (1.0)	ND (1.0)
Chloroform	ND (1.0)	ND (1.0)
Chloromethane	ND (1.0)	ND (1.0)
2-Chlorotoluene	ND (1.0)	ND (1.0)
4-Chlorotoluene	ND (1.0)	ND (1.0)
Dibromochloromethane	ND (1.0)	ND (1.0)
1,2-Dibromo-3-Chloropropane	ND (1.0) R	ND (1.0) R
1,2-Dibromoethane	ND (1.0)	ND (1.0)
Dibromethane	ND (1.0)	ND (1.0)
1,2-Dichlorobenzene	ND (1.0)	ND (1.0)
1,3-Dichlorobenzene	ND (1.0)	ND (1.0)
1,4-Dichlorobenzene	ND (1.0)	ND (1.0)
Dichlorodifluoromethane	ND (1.0) R	ND (1.0) R
1,1-Dichloroethane	ND (1.0)	ND (1.0)
1,3,5-Trimethylbenzene	ND (1.0)	ND (1.0)
1,2,4-Trimethylbenzene	ND (1.0)	ND (1.0)
n-Butylbenzene	ND (1.0)	ND (1.0)
1,2-Dichloroethane	ND (1.0)	ND (1.0)
1,1-Dichloroethene	ND (1.0)	ND (1.0)
Trans+cis 1,2-Dichloroethene	ND (1.0)	ND (1.0)
1,2-Dichloropropane	ND (1.0)	ND (1.0)
1,3-Dichloropropane	ND (1.0)	ND (1.0)
2,2-Dichloropropane	ND (1.0)	ND (1.0)
1,1-Dichloropropene	ND (1.0)	ND (1.0)
Ethylbenzene	ND (1.0)	ND (1.0)
Hexachlorobutadiene	ND (1.0)	ND (1.0)
Isopropylbenzene	ND (1.0)	ND (1.0)
Methylene Chloride	ND (1.0)	ND (2.3)
n-Propylbenzene	ND (1.0)	ND (1.0)
Styrene	ND (1.0)	ND (1.0)
1,1,1,2-Tetrachloroethane	ND (1.0)	ND (1.0)

TABLE 6.7
DRINKING WATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

VOLATILE ORGANIC COMPOUNDS	*DW-1* *(µg/L)*	*DW-2* *(µg/L)*
1,1,2,2-Tetrachloroethane	ND (1.0)	ND (1.0)
Tetrachloroethene	ND (1.0)	ND (1.0)
Toluene	ND (1.0)	ND (1.0)
Total Xylenes	ND (1.0)	ND (1.0)
1,1,1-Trichloroethane	ND (1.0)	ND (1.0)
1,1,2-Trichloroethane	ND (1.0)	ND (1.0)
Trichloroethene	ND (1.0)	ND (1.0)
Trichlorofluoromethane	ND (1.0)	ND (1.0)
1,2,3-Trichloropropane	ND (1.0)	ND (1.0)
Vinyl Chloride	ND (1.0)	ND (1.0)
p-Isopropyltoluene	ND (1.0)	ND (1.0)
1,2,4 Trichlorobenzene	ND (1.0)	ND (1.0)
1,2,3 Trichlorobenzene	ND (1.0)	ND (1.0)
cis-1,3 Dichloropropylene	ND (1.0)	ND (1.0)
trans-1,3 Dichloropropene	ND (1.0) R	ND (1.0) R
Naphthalene	ND (1.0)	ND (1.0)

TABLE 6.7
DRINKING WATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*DW-1* *(µg/L)*	*DW-2* *(µg/L)*
Phenol	ND (10)	ND (10)
bis(2-Chloroethyl)ether	ND (10)	ND (10)
2-Chlorophenol	ND (10)	ND (10)
1,3-Dichlorobenzene	ND (10)	ND (10)
1,4-Dichlorobenzene	ND (10)	ND (10)
Benzyl alcohol	ND (10)	ND (10)
1,2-Dichlorobenzene	ND (10)	ND (10)
2-Methylphenol	ND (10)	ND (10)
bis(2-Chloroisopropyl)ether	ND (10)	ND (10)
4-Methylphenol	ND (10)	ND (10)
N-Nitroso-Di-n-propylamine	ND (10)	ND (10)
Hexachloroethane	ND (10)	ND (10)
Nitrobenzene	ND (10)	ND (10)
Isophorone	ND (10)	ND (10)
2-Nitrophenol	ND (10)	ND (10)
2,4-Dimethylphneol	ND (10)	ND (10)
Benzoic acid	ND(50)	ND(50)
bis(2-Chloroethoxy)methane	ND (10)	ND (10)
2,4-Dichlorophenol	ND (10)	ND (10)
1,2,4-Trichlorobenzene	ND (10)	ND (10)
Naphthalene	ND (10)	ND (10)
4-Chloroaniline	ND (10)	ND (10)
Hexachlorobutadiene	ND (10)	ND (10)
4-Chloro-3-methylphenol	ND (10)	ND (10)
2-Methylnaphthalene	ND (10)	ND (10)
Hexachlorocyclopentadiene	ND (10)	ND (10)
2,4,6-Trichlorophenol	ND (10)	ND (10)
2,4,5-Trichlorophenol	ND (50)	ND (50)
2-Chloronaphthalene	ND (10)	ND (10)
2-Nitroaniline	ND (50)	ND (50)
Dimethylphthalate	ND (10)	ND (10)
Acenaphthylene	ND (10)	ND (10)
2,6-Dinitrotoluene	ND (10)	ND (10)
3-Nitroaniline	ND (50)	ND (50)
Acenaphthene	ND (10)	ND (10)
2,4-Dinitrophenol	ND (50)	ND (50)
4-Nitrophenol	ND(50)	ND(50)
Dibenzofuran	ND (10)	ND (10)
2,4-Dinitrotoluene	ND (10)	ND (10)
Diethylphthalate	ND (10)	ND (10)
4-Chlorophenyl-phenylether	ND (10)	ND (10)

TABLE 6.7
DRINKING WATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*DW-1* *(µg/L)*	*DW-2* *(µg/L)*
Fluorene	ND (10)	ND (10)
4-Nitroaniline	ND (50)	ND (50)
4,6-Dinitro-2-methylphenol	ND (50)	ND (50)
N-Nitrosodiphenylamine(1)	ND (10)	ND (10)
4-Bromophenyl-phenylether	ND (10)	ND (10)
Hexachlorobenzene	ND (10)	ND (10)
Pentachlorophenol	ND (50)	ND (50)
Phenanthrene	ND (10)	ND (10)
Di-n-Butylphthalate	ND (10)	ND (10)
Fluoranthene	ND (10)	ND (10)
Pyrene	ND (10)	ND (10)
Butylbenzylphthalate	ND (10)	ND (10)
3,3'-Dichlorobenzidine	ND (20)	ND (20)
Benzo(a)anthracene	ND (10)	ND (10)
Chrysene	ND (10)	ND (10)
bis(2-Ethylhexyl)phthalate	ND (10)	ND (10)
Di-n-Octyl phthalate	ND (10)	ND (10)
Benzo(b)fluoranthene	ND (10)	ND (10)
Benzo(k)fluoranthene	ND (10)	ND (10)
Benzo(a)pyrene	ND (10)	ND (10)
Indeno(1,2,3-cd)pyrene	ND (10)	ND (10)
Dibenzo(a,h)anthracene	ND (10)	ND (10)
Benzo(g,h,i)perylene	ND (10)	ND (10)

TABLE 6.7
DRINKING WATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

PESTICIDES AND PCBS	*DW-1* *(µg/L)*	*DW-2* *(µg/L)*
Alpha-BHC	ND (0.05) J	ND (0.05) J
Beta-BHC	ND (0.05) J	ND (0.05) J
Delta-BHC	ND (0.05) J	ND (0.05) J
Gamma-BHC (Lindane)	ND (0.05) J	ND (0.05) J
Heptachlor	ND (0.05) J	ND (0.05) J
Aldrin	ND (0.05) J	ND (0.05) J
Heptachlor epoxide	ND (0.05) J	ND (0.05) J
Endosulfan I	ND (0.05) J	ND (0.05) J
Dieldrin	ND (0.1) J	ND (0.1) J
4,4'-DDE	ND (0.1) J	ND (0.1) J
Endrin	ND (0.1) J	ND (0.1) J
Endosulfan II	ND (0.1) J	ND (0.1) J
4,4'-DDD	ND (0.1) J	ND (0.1) J
Endosulfan sulfate	ND (0.1) J	ND (0.1) J
4,4'-DDT	ND (0.1) J	ND (0.1) J
Endrin ketone	ND (0.1) J	ND (0.1) J
Methoxychlor	ND (0.5) J	ND (0.5) J
Chlordane	ND (0.5) J	ND (0.5) J
Toxaphene	ND (1) J	ND (1) J
Aroclor-1016	ND (0.5) J	ND (0.5) J
Aroclor-1221	ND (0.5) J	ND (0.5) J
Aroclor-1232	ND (0.5) J	ND (0.5) J
Aroclor-1242	ND (0.5) J	ND (0.5) J
Aroclor-1248	ND (0.5) J	ND (0.5) J
Aroclor-1254	ND (1) J	ND (1) J
Aroclor-1260	ND (1) J	ND (1) J
Chlorneb	ND (0.5) J	ND (0.5) J
Chlorobenzilate	ND (5) J	ND (5) J
Chlorothionil	ND (0.025) J	ND (0.025) J
DCPA	ND (0.025) J	ND (0.025) J
Etridiazole	ND (0.025) J	ND (0.025) J
Hexachlorobenzene	ND (0.0077) J	ND (0.0077) J
cis-Permethrin	ND (0.5) J	ND (0.5) J
trans-Permethrin	ND (0.5) J	ND (0.5) J
Propachlor	ND (0.5) J	ND (0.5) J
Trifluralin	ND (0.025) J	ND (0.025) J

TABLE 6.7
DRINKING WATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

METALS	*DW-1* *(µg/L)*	*DW-2* *(µg/L)*
Aluminum	ND (77.0)	ND (77.0)
Antimony	ND (19.0)	ND (19.0)
Arsenic	ND (2.00)	ND (2.00)
Barium	257	261
Beryllium	ND (1.00)	ND (1.00)
Cadmium	ND (3.00)	ND (3.00)
Calcium	79400	80300
Chromium	ND (3.00)	ND (3.00)
Cobalt	ND (4.00)	ND (4.00)
Copper	ND (7.00)	ND (7.00)
Iron	ND (37.0)	ND (37.0)
Lead	ND (2.00)	ND (2.00)
Magnesium	13100	13200
Manganese	22.0	ND (2)
Mercury	ND (0.200)	ND (0.200)
Nickel	ND (7.00)	ND (7.00)
Potassium	2310	1990
Selenium	ND (1.00)	ND (1.00)
Silver	ND (4.00)	ND (4.00)
Sodium	13300	13600
Thallium	ND (5.00)	ND (5.00)
Vanadium	ND (8.00)	ND (8.00)
Zinc	16.7	21.0
Cyanide	ND (10.00)	ND (10.00)

TABLE 6.7
DRINKING WATER DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

TOTAL PETROLEUM HYDROCARBONS	*DW-1* *(mg/L)*	*DW-2* *(mg/L)*
Total Petroleum Hydrocarbons	ND (1.0)	ND (1.0)

Notes:
ND Not detected at the detection limit stated within the parenthesis.
J Associated value is estimated.
R The data is unusable.

TABLE 6.8
SURFACE WATER SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

VOLATILE ORGANIC COMPOUNDS	*SW-1* *(µg/L)*	*SW-2* *(µg/L)*	*SW-3* *(µg/L)*	*SW-4* *(µg/L)*	*SW-5* *(µg/L)*	*SW-6* *(µg/L)*	*SW-7* *(µg/L)*	*SW-8* *(µg/L)*	*SW-9* *(µg/L)*	*SW-RB* *(µg/L)*
Chloromethane	ND (10000)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Bromomethane	ND (10000)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Vinyl Chloride	5300 J	1500	ND (10)	ND (10)	ND (10)	14 J	10 J	ND (10)	ND (10)	ND (10)
Chloroethane	ND (10000)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Methylene Chloride	ND (11000)	ND (7)	ND (5) J	ND (5)	ND (4)	ND (9)	ND (5)	ND (7)	ND (6)	ND (7)
Acetone	ND (14000)	ND (23)	ND (13)	ND (18)	ND (15)	ND (10)	ND (10)	ND (10)	ND (10)	ND (12)
Carbon Disulfide	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,1-Dichloroethene	ND (5000)	10	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,1-Dichloroethane	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,2-Dichloroethene (total)	130000	13000	3 J	ND (5)	230	250	250	ND (5)	ND (5)	1 J
Chloroform	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6
1,2-Dichloroethane	ND (5000)	1 J	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
2-Butanone	ND (10000)	ND (10)	ND (10)	ND (10) R	ND (10) R	ND (10) R	ND (10) R	ND (10) R	ND (10) R	ND (10) R
1,1,1-Trichloroethane	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Carbon Tetrachloride	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Vinyl Acetate	ND (10000) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Bromodichloromethane	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,2-Dichloropropane	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
cis-1,3-Dichloropropene	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Trichloroethene	62000	4 J	3 J	4 J	290	890	850	3 J	4 J	14
Dibromochloromethane	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,1,2-Trichloroethane	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Benzene	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Trans-1,3,-Dichloropropene	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Bromoform	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
4-Methyl-2-pentanone	ND (10000)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Hexanone	ND (10000)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Tetrachloroethene	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,1,2,2-Tetrachloroethane	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Toluene	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Chlorobenzene	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Ethylbenzene	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Styrene	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Xylene (total)	ND (5000)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)

TABLE 6.8
SURFACE WATER SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*SW-1* (µg/L)	*SW-2* (µg/L)	*SW-3* (µg/L)	*SW-4* (µg/L)	*SW-5* (µg/L)	*SW-6* (µg/L)	*SW-7* (µg/L)	*SW-8* (µg/L)	*SW-9* (µg/L)	*SW-RB* (µg/L)
Phenol	ND (10)	ND (10) J	ND (10)	ND (10)	ND(10)J	ND (10)	ND (10)	ND (10)	ND(10)	ND (10)
bis(2-Chloroethyl)ether	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Chlorophenol	ND (10)	ND (10) J	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
1,3-Dichlorobenzene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
1,4-Dichlorobenzene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Benzyl alcohol	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10) J	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)
1,2-Dichlorobenzene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Methylphenol	1 J	ND (10) J	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
bis(2-Chloroisopropyl)ether	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Methylphenol	4 J	ND (10) J	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
N-Nitroso-di-n-propylamine	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Hexachloroethane	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
Nitrobenzene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
Isophorone	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
2-Nitrophenol	ND (10)	ND (10) J	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
2,4-Dimethylphenol	ND (10)	ND (10) J	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
Benzoic acid	ND(50)	4 J	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) J	ND (50)	ND (50)
bis(2-Chloroethoxy)methane	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
2,4-Dichlorophenol	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
1,2,4-Trichlorobenzene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
Naphthalene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
4-Chloroaniline	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
Hexachlorobutadiene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
4-Chloro-3-methylphenol	3 J	ND (10) J	ND (10) J	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
2-Methylnaphthalene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)
Hexachlorocyclopentadiene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
2,4,6-Trichlorophenol	ND (10)	ND (10) J	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
2,4,5-Trichlorophenol	ND (50)	ND (50) J	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) J	ND (50) J	ND (50)	ND (50)
2-Chloronaphthalene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
2-Nitroaniline	ND (50) R	ND (50) R	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) J	ND (50) J	ND (50)	ND (50)
Dimethylphthalate	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
Acenaphthylene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
2,6-Dinitrotoluene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
3-Nitroaniline	ND (50) R	ND (50) R	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) J	ND (50) J	ND (50)	ND (50)
Acenaphthene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
2,4-Dinitrophenol	ND (50)	ND (50) J	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) J	ND (50) J	ND (50)	ND (50)

TABLE 6.8
SURFACE WATER SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*SW-1* *(µg/L)*	*SW-2* *(µg/L)*	*SW-3* *(µg/L)*	*SW-4* *(µg/L)*	*SW-5* *(µg/L)*	*SW-6* *(µg/L)*	*SW-7* *(µg/L)*	*SW-8* *(µg/L)*	*SW-9* *(µg/L)*	*SW-RB* *(µg/L)*
4-Nitrophenol	ND(50)	ND(50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) J	ND (50) J	ND (50)	ND (50)
Dibenzofuran	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
2,4-Dinitrotoluene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
Diethylphthalate	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
4-Chlorophenyl-phenylether	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
Fluorene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
4-Nitroaniline	ND (50) R	ND (50) R	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) J	ND (50) J	ND (50)	ND (50)
4,6-Dinitro-2-methylphenol	ND (50) J	ND (50) J	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) J	ND (50) J	ND (50)	ND (50)
N-Nitrosodiphenylamine(1)	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
4-Bromophenyl-phenylether	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
Hexachlorobenzene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
Pentachlorophenol	ND (50) J	ND (50) J	ND (50)	ND (50)	ND (50)	ND (50)	ND (50) J	ND (50) J	ND (50)	ND (50)
Phenanthrene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
Anthracene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
Di-n-Butylphthalate	4 J	3 J	ND (10)	1 J	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
Fluoranthene	ND (10) R	ND (10) R	ND (10)	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10) J	ND (10)	ND (10)
Pyrene	ND (10) R	ND (10) R	ND (10) J	ND (10) J	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)
Butylbenzylphthalate	ND (10) R	ND (10) R	ND (10) J	ND (10) J	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)
3,3'-Dichlorobenzidine	ND (20) R	ND (20) R	ND (20) J	ND (20) J	ND (20) J	ND (20) J	ND (20) J	ND (20) J	ND (20)	ND (20)
Benzo(a)anthracene	ND (10) R	ND (10) R	ND (10) J	ND (10) J	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)
Chrysene	ND (10) R	ND (10) R	ND (10) J	ND (10) J	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)
bis(2-Ethylhexyl)phthalate	3 J	2 J	ND (10) J	ND (10) J	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)
Di-n-Octyl phthalate	ND (10) R	ND (10) R	ND (10) J	ND (10) J	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)
Benzo(b)fluoranthene	ND (10) R	ND (10) R	ND (10) J	ND (10) J	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)
Benzo(k)fluoranthene	ND (10) R	ND (10) R	ND (10) J	ND (10) J	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)
Benzo(a)pyrene	ND (10) R	ND (10) R	ND (10) J	ND (10) J	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)
Indeno(1,2,3-cd)pyrene	ND (10) R	ND (10) R	ND (10) J	ND (10) J	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)
Dibenzo(a,h)anthracene	ND (10) R	ND (10) R	ND (10) J	ND (10) J	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)
Benzo(g,h,i)perylene	ND (10) R	ND (10) R	ND (10) J	ND (10) J	ND (10)	ND (10) J	ND (10) J	ND (10) J	ND (10)	ND (10)

TABLE 6.8
SURFACE WATER SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

METALS	SW-1 (µg/L)	SW-2 (µg/L)	SW-3 (µg/L)	SW-4 (µg/L)	SW-5 (µg/L)	SW-6 (µg/L)	SW-7 (µg/L)	SW-8 (µg/L)	SW-9 (µg/L)	SW-RB (µg/L)
Aluminum	1800 J	1290	ND (209) J	ND (297)	ND (122)	ND (77.0)	ND (77.0)	ND (77.0)	ND (528)	77
Antimony	ND (19) J	ND (19.0)	ND (19.0)	ND (19.0)	ND (19.0)	ND (19.0)	ND (37.7)	ND (19.0)	ND (19.0)	ND (23.8)
Arsenic	11.4	2.80	ND (2.00)	ND (2.00)	ND (2.00)	ND (2.00)	ND (2.00)	ND (2.00)	3.50	ND (2.00)
Barium	783	1390	95.5	96.5	116	146	155	152	119	ND (5.00)
Beryllium	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)
Cadmium	3.10 J	ND (3.00)	ND (3.00)	ND (3.00)	ND (3.00)	ND (3.00)	ND (3.00)	ND (3.00)	ND (3.00)	ND (3.00)
Calcium	164000	403000	36100	35500	73300	74900	79300	76600	72100	172
Chromium	21.8 J	ND (3.00)	ND (3.00)	ND (3.00)	3.50	4.20	ND (3.00)	ND (3.00)	14.4	ND (3.00)
Cobalt	95.5	66.7	ND (4.00)	ND (4.00)	7.20	4.40	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)
Copper	99.3	38.9	ND (7.00)	ND (7.00)	7.80	ND (7.00)	ND (7.00)	ND (7.00)	11.7	ND (7.00)
Iron	115000	103000	991	1090	571	537	565	60.2	4240	39.7
Lead	37.3 J	17.8	ND (2.00)	ND (2.00)	ND (2.00)	ND (2.00)	ND (2.00)	ND (2.00)	ND (2.00)	ND (2.00)
Magnesium	60100	136000	6380	6310	11600	10200	10800	9540	10900	ND (84)
Manganese	9780	29900	176	164	178	228	251	6.10	544	ND (2)
Mercury	0.490 J	ND (0.200) J	ND (0.200)	ND (0.200)	ND (0.200)	ND (0.200)	ND (0.200)	ND (0.200)	ND (0.200)	ND (0.200)
Nickel	540	262	ND (7.00)	ND (7.00)	14.9	ND (7.00)	8.00	ND (7.00)	72.7	ND (7.00)
Potassium	6620	13100	1150	1630	3780	1820	1800	1490	8340	ND (1010)
Selenium	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)
Silver	13.0 J	9.10	ND (4.00) J	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)	ND (4.00)
Sodium	14700	15900	8480	8400	15800	12500	12900	10200	42500	423
Thallium	ND (50.0) R	ND (50.0)	ND (5.00)	ND (5.00)	ND (5.00)	ND (5.00)	ND (5.00)	ND (5.00)	ND (5.00)	ND (5.00)
Vanadium	ND (8.00)	ND (8.00)	ND (8.00)	ND (8.00)	ND (8.00)	ND (8.00)	ND (8.00)	ND (8.00)	ND (8.00)	ND (8.00)
Zinc	258	99.4	14.7	15.2	46.4	14.3	10.8	12.3	22.4	5.50
Cyanide	ND (10.00)	ND (10.00)	ND (10.00)	ND (10.00)	ND (10.00)	ND (10.00)	ND (10.00)	ND (10.00)	23.6	ND (10.00)

TABLE 6.8
SURFACE WATER SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

PESTICIDES AND PCBS	*SW-1* *(µg/L)*	*SW-2* *(µg/L)*	*SW-3* *(µg/L)*	*SW-4* *(µg/L)*	*SW-5* *(µg/L)*	*SW-6* *(µg/L)*	*SW-7* *(µg/L)*	*SW-8* *(µg/L)*	*SW-9* *(µg/L)*	*SW-RB* *(µg/L)*
Alpha-BHC	ND (1.0) J	ND (0.050) J	ND (0.050)	ND (0.050)	ND (0.25)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.10)	ND (0.050)
Beta-BHC	ND (1.0) J	ND (0.050) J	ND (0.050)	ND (0.050)	ND (0.25)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.10)	ND (0.050)
Delta-BHC	ND (1.0) J	ND (0.050) J	ND (0.050)	ND (0.050)	ND (0.25)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.10)	ND (0.050)
gamma-BHC (Lindane)	ND (1.0) J	ND (0.050) J	ND (0.050)	ND (0.050)	ND (0.25)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.10)	ND (0.050)
Heptachlor	ND (1.0) J	ND (0.050) J	ND (0.050)	ND (0.050)	ND (0.25)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.10)	ND (0.050)
Aldrin	ND (1.0) J	ND (0.050) J	ND (0.050)	ND (0.050)	ND (0.25)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.10)	ND (0.050)
Heptachlor epoxide	ND (1.0) J	ND (0.050) J	ND (0.050)	ND (0.050)	ND (0.25)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.10)	ND (0.050)
Endosulfan I	ND (1.0) J	ND (0.050) J	ND (0.050)	ND (0.050)	ND (0.25)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.10)	ND (0.050)
Dieldrin	ND (2.0) J	ND (0.10) J	ND (0.10)	ND (0.10)	ND (0.50)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.10)
4,4'-DDE	ND (2.0) J	ND (0.10) J	ND (0.10)	ND (0.10)	ND (0.50)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.10)
Endrin	ND (2.0) J	ND (0.10) J	ND (0.10)	ND (0.10)	ND (0.50)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.10)
Endosulfan II	ND (2.0) J	ND (0.10) J	ND (0.10)	ND (0.10)	ND (0.50)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.10)
4,4'-DDD	ND (2.0) J	ND (0.10) J	ND (0.10)	ND (0.10)	ND (0.50)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.10)
Endosulfan sulfate	ND (2.0) J	ND (0.10) J	ND (0.10)	ND (0.10)	ND (0.50)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.10)
4,4'-DDT	ND (2.0) J	ND (0.10) J	ND (0.10)	ND (0.10)	ND (0.50)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.10)
Methoxychlor	ND (10) J	ND (0.50) J	ND (0.50)	ND (0.50)	ND (2.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.0)	ND (0.50)
Endrin ketone	ND (2.0) J	ND (0.10) J	ND (0.10)	ND (0.10)	ND (0.50)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.10)
alpha-Chlordane	ND (10) J	ND (0.50) J	ND (0.50)	ND (0.50)	ND (2.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.0)	ND (0.50)
gamma-Chlordane	ND (10) J	ND (0.50) J	ND (0.50)	ND (0.50)	ND (2.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.0)	ND (0.50)
Toxaphene	ND (20) J	ND (1.0) J	ND (1.0)	ND (1.0)	ND (5.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.0)	ND (1.0)
Arodor-1016	ND (10) J	ND (0.50) J	ND (0.50)	ND (0.50)	ND (2.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.0)	ND (0.50)
Arodor-1221	ND (10) J	ND (0.50) J	ND (0.50)	ND (0.50)	ND (2.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.0)	ND (0.50)
Arodor-1232	ND (10) J	ND (0.50) J	ND (0.50)	ND (0.50)	ND (2.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.0)	ND (0.50)
Arodor-1242	ND (10) J	ND (0.50) J	ND (0.50)	ND (0.50)	ND (2.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.0)	ND (0.50)
Arodor-1248	ND (10) J	ND (0.50) J	ND (0.50)	ND (0.50)	ND (2.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.0)	ND (0.50)
Arodor-1254	ND (20) J	ND (1.0) J	ND (1.0)	ND (1.0)	ND (5.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.0)	ND (1.0)
Arodor-1260	ND (20) J	ND (1.0) J	ND (1.0)	ND (1.0)	ND (5.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.0)	ND (1.0)

TABLE 6.8
SURFACE WATER SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

TOTAL PETROLEUM HYDROCARBONS	SW-1 (mg/L)	SW-2 (mg/L)	SW-3 (mg/L)	SW-4 (mg/L)	SW-5 (mg/L)	SW-6 (mg/L)	SW-7 (mg/L)	SW-8 (mg/L)	SW-9 (mg/L)	SW-RB (mg/L)
Total Petroleum Hydrocarbons	5.9	1.8	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)

Notes:
ND - Not detected at the detection limit stated within the parenthesis.
J - Associated value is estimated.
R - Associated value is unusable.

TABLE 6.9
SEDIMENT SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

VOLATILE ORGANIC COMPOUNDS	*SED-1* (µg/kg)	*SED-2* (µg/kg)	*SED-3* (µg/kg)	*SED-4* (µg/kg)	*SED-5* (µg/kg)	*SED-6* (µg/kg)	*SED-7* (µg/kg)	*SED-RB* (µg/L)
Chloromethane	ND (2400)	ND (29)	ND (75)	ND (4700)	ND (64) J	ND (19) J	ND (94)	ND (10)
Bromomethane	ND (2400)	ND (29)	ND (75)	ND (4700)	ND (64) J	ND (19) J	ND (94)	ND (10)
Vinyl Chloride	31000	ND (29)	28 J	7600	ND (64) J	2300 J	ND (94)	ND (10)
Chloroethane	ND (2400)	ND (29)	ND (75)	ND (4700)	ND (64) J	ND (19) J	ND (94)	ND (10)
Methylene Chloride	ND (3300)	110	ND (170)	ND (9800)	120 J	ND (39) J	ND (88)	ND (11)
Acetone	ND (6000)	850	750	ND (10000)	ND (2500) J	380 J	1700	ND (18)
Carbon Disulfide	ND (1200)	ND (14)	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47)	ND (5)
1,1-Dichloroethene	830 J	ND (14)	ND (38)	1300 J	ND (32) J	ND (10) J	ND (47)	ND (5)
1,1-Dichloroethane	ND (1200)	ND (14)	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47)	ND (5)
1,2-Dichloroethene (total)	110000	45 J	150 J	230000	330 J	610 J	ND (47)	ND (5)
Chloroform	ND (1200)	ND (14)	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47)	5
1,2-Dichloroethane	ND (1200)	4 J	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47)	ND (5)
2-Butanone	ND (2400)	320 J	110 J	ND (4700) R	ND (200) J	ND (19) J	160	ND (10)
1,1,1-Trichloroethane	ND (1200)	ND (14)	ND (38)	ND (2300)	32 J	ND (10) J	ND (47)	ND (5)
Carbon Tetrachloride	ND (1200)	ND (14)	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47)	ND (5)
Vinyl Acetate	ND (2400)	ND (29)	ND (75)	ND (4700)	ND (64) J	ND (19) J	ND (94)	ND (10)
Bromodichloromethane	ND (1200)	ND (14)	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47)	ND (5)
1,2-Dichloropropane	ND (1200)	ND (14)	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47)	ND (5)
cis-1,3-Dichloropropene	ND (1200)	ND (14)	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47) J	ND (5)
Trichloroethene	740 J	ND (14)	ND (38)	1000 J	ND (32) J	ND (10) J	ND (47)	32
Dibromochloromethane	ND (1200)	ND (14)	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47)	ND (5)
1,1,2-Trichloroethane	ND (1200)	ND (14)	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47)	ND (5)
Benzene	ND (1200)	ND (14)	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47)	ND (5)
Trans-1,3,-Dichloropropene	ND (1200)	ND (14)	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47)	ND (5)
Bromoform	ND (1200)	ND (14)	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47)	ND (5)
4-Methyl-2-pentanone	ND (2400)	ND (29)	ND (75)	ND (4700)	ND (64) J	ND (19) J	ND (94) J	ND (10)
2-Hexanone	ND (2400)	ND (29) J	ND (75)	ND (4700)	ND (64) J	ND (19) J	ND (94) J	ND (10)

TABLE 6.9
SEDIMENT SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

VOLATILE ORGANIC COMPOUNDS	*SED-1* (µg/kg)	*SED-2* (µg/kg)	*SED-3* (µg/kg)	*SED-4* (µg/kg)	*SED-5* (µg/kg)	*SED-6* (µg/kg)	*SED-7* (µg/kg)	*SED-RB* (µg/L)
Tetrachloroethene	ND (1200)	ND (14) J	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47) J	ND (5)
1,1,2,2-Tetrachloroethane	ND (1200)	ND (14) J	ND (38)	ND (2300)	ND (32) J	ND (10) J	ND (47) J	ND (5)
Toluene	ND (1200)	18 J	22 J	ND (2300)	ND (32) J	2J	ND (47) J	ND (5)
Chlorobenzene	ND (1200)	ND (14) J	ND (38)	ND (2300)	ND (32) J	ND (10)	ND (47) J	ND (5)
Ethylbenzene	ND (1200)	ND (14) J	ND (38)	ND (2300)	ND (32) J	ND (10)	ND (47) J	ND (5)
Styrene	ND (1200)	ND (14) J	ND (38)	ND (2300)	ND (32) J	ND (10)	ND (47) J	ND (5)
Xylene (total)	ND (1200)	3 J	ND (38)	ND (2300)	ND (32) J	ND (10)	22 J	ND (5)

TABLE 6.9
SEDIMENT SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*SED-1* *(µg/kg)*	*SED-2* *(µg/kg)*	*SED-3* *(µg/kg)*	*SED-4* *(µg/kg)*	*SED-5* *(µg/kg)*	*SED-7* *(µg/kg)*	*SED-RB* *(µg/L)*
Phenol	ND (3500)	ND (5700)	ND (5200)	ND (800)	1900 J	ND (860) J	ND (10)
bis(2-Chloroethyl)ether	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
2-Chlorophenol	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860) J	ND (10)
1,3-Dichlorobenzene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
1,4-Dichlorobenzene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860) J	ND (10)
Benzyl alcohol	ND (3500)	ND (5700)	ND (5200)	ND(800)J	ND (2300)	ND (860)	ND(10)
1,2-Dichlorobenzene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
2-Methylphenol	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
bis(2-Chloroisopropyl)ether	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
4-Methylphenol	ND (3500)	ND (5700)	ND (5200)	110 J	ND (2300)	ND (860)	ND (10)
N-Nitroso-di-n-propylamine	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860) J	ND (10)
Hexachloroethane	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
Nitrobenzene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
Isophorone	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
2-Nitrophenol	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
2,4-Dimethylphneol	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
Benzoic acid	ND (18000)	ND(29000)	ND(26000)	650 J	3000 J	410 J	ND (50)
bis(2-Chloroethoxy)methane	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
2,4-Dichlorophenol	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
1,2,4-Trichlorobenzene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860) J	ND (10)
Naphthalene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
4-Chloroaniline	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
Hexachlorobutadiene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
4-Chloro-3-methylphenol	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860) J	ND (10)
2-Methylnaphthalene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
Hexachlorocyclopentadiene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
2,4,6-Trichlorophenol	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)

TABLE 6.9
SEDIMENT SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*SED-1* (µg/kg)	*SED-2* (µg/kg)	*SED-3* (µg/kg)	*SED-4* (µg/kg)	*SED-5* (µg/kg)	*SED-7* (µg/kg)	*SED-RB* (µg/L)
2,4,5-Trichlorophenol	ND (18000)	ND (29000)	ND (26000)	ND (4000)	ND (11000)	ND (4300)	ND (50)
2-Chloronaphthalene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
2-Nitroaniline	ND (18000)	ND (29000)	ND (26000)	ND (4000)	ND (11000)	ND (4300)	ND (50)
Dimethylphthalate	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
Acenaphthylene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
2,6-Dinitrotoluene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
3-Nitroaniline	ND (18000)	ND (29000)	ND (26000)	ND (4000)	ND (11000)	ND (4300)	ND (50)
Acenaphthene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
2,4-Dinitrophenol	ND (18000)	ND (29000)	ND (26000)	ND (4000)	ND (11000)	ND (4300) J	ND (10)
4-Nitrophenol	ND (18000)	ND (29000)	ND (26000)	ND (4000)	ND (11000)	ND (4300)	ND (10)
Dibenzofuran	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
2,4-Dinitrotoluene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860) J	ND (10)
Diethylphthalate	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
4-Chlorophenyl-phenylether	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
Fluorene	ND (3500)	ND (5700)	ND (5200)	ND (800)	ND (2300)	ND (860)	ND (10)
4-Nitroaniline	ND (18000)	ND (29000)	ND (26000)	ND (4000)	ND (11000)	ND (4300)	ND (50)
4,6-Dinitro-2-methylphenol	ND (18000) J	ND (29000)	ND (26000) J	ND (4000)	ND (11000)	ND (4300)	ND (50)
N-Nitrosodiphenylamine(1)	ND (3500) J	ND (5700)	ND (5200) J	ND (800)	ND (2300)	ND (860)	ND (10)
4-Bromophenyl-phenylether	ND (3500) J	ND (5700)	ND (5200) J	ND (800)	ND (2300)	ND (860)	ND (10)
Hexachlorobenzene	ND (3500) J	ND (5700)	ND (5200) J	ND (800)	ND (2300)	ND (860)	ND (10)
Pentachlorophenol	ND (18000) J	ND (29000)	ND (26000) J	ND (4000)	ND (11000)	ND (4300) J	ND (50)
Phenanthrene	ND (3500) J	ND (5700)	ND (5200) J	620 J	ND (2300)	120 J	ND (10)
Anthracene	ND (3500) J	ND (5700)	ND (5200) J	ND (800)	ND (2300)	ND (860)	ND (10)
Di-n-Butylphthalate	ND (3500) J	ND (5700)	ND (5200) J	340 J	3500	330 J	ND (10)
Fluoranthene	ND (3500) J	ND (5700)	ND (5200) J	1200	ND (2300)	230 J	ND (10)
Pyrene	ND (3500) J	ND (5700)	ND (5200)	1300	ND (2300)	280 J	ND (10)
Butylbenzylphthalate	ND (3500) J	ND (5700)	ND (5200) J	360 J	ND (2300)	ND (860)	ND (10)

TABLE 6.9
SEDIMENT SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

BASE NEUTRAL ACID EXTRACTABLE COMPOUNDS	*SED-1* (µg/kg)	*SED-2* (µg/kg)	*SED-3* (µg/kg)	*SED-4* (µg/kg)	*SED-5* (µg/kg)	*SED-7* (µg/kg)	*SED-RB* (µg/L)
3,3'-Dichlorobenzidine	ND (7100) J	ND (11000)	ND (10000)	ND (1600)	ND (4500)	ND (1700)	ND(20)
Benzo(a)anthracene	ND (3500) J	ND (5700)	ND (5200)	550 J	ND (2300)	ND (860)	ND (10)
Chrysene	ND (3500) J	ND (5700)	ND (5200)	530 J	ND (2300)	150 J	ND (10)
bis(2-Ethylhexyl)phthalate	2000 J	ND (5700)	1200 J	34000J	ND (2300)	1200	ND (10)
Di-n-octyl phthalate	ND (3500) J	ND (5700)	ND (5200) J	270 J	ND (2300)	ND (860)	ND (10)
Benzo(b)fluoranthene	ND (3500) J	ND (5700)	ND (5200) J	520 J	ND (2300)	ND (860)	ND (10)
Benzo(k)fluoranthene	ND (3500) J	ND (5700)	ND (5200) J	320 J	ND (2300)	ND (860)	ND (10)
Benzo(a)pyrene	ND (3500) J	ND (5700)	ND (5200) J	400 J	ND (2300)	ND (860)	ND (10)
Indeno(1,2,3-cd)pyrene	ND (3500) J	ND (5700)	ND (5200) J	ND (800) J	ND (2300)	ND (860)	ND (10)
Dibenzo(a,h)anthracene	ND (3500) J	ND (5700)	ND (5200) J	ND (800) J	ND (2300)	ND (860)	ND (10)
Benzo(g,h,i)perylene	ND (3500) J	ND (5700)	ND (5200) J	ND (800) J	ND (2300)	ND (860)	ND (10)

TABLE 6.9
SEDIMENT SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

PESTICIDES AND PCBS	*SED-1* (µg/kg)	*SED-2* (µg/kg)	*SED-3* (µg/kg)	*SED-4* (µg/kg)	*SED-5* (µg/kg)	*SED-7* (µg/kg)	*SED-RB* (µg/L)
Alpha-BHC	ND (38)	ND (25) J	ND (23) J	ND (86)	ND (98)	ND (190)	ND (0.050)
Beta-BHC	ND (38)	ND (25) J	ND (23) J	ND (86)	ND (98)	ND (190)	ND (0.050)
Delta-BHC	ND (38)	ND (25) J	ND (23) J	ND (86)	ND (98)	ND (190)	ND (0.050)
gamma-BHC (Lindane)	ND (38)	ND (25) J	ND (23) J	ND (86)	ND (98)	ND (190)	ND (0.050)
Heptachlor	ND (38)	ND (25) J	ND (23) J	ND (86)	ND (98)	ND (190)	ND (0.050)
Aldrin	ND (38)	ND (25) J	ND (23) J	ND (86)	ND (98)	ND (190) J	ND (0.050)
Heptachlor	ND (38)	ND (25) J	ND (23) J	ND (86)	ND (98)	ND (190)	ND (0.050)
Endosulfan I	ND (38)	ND (25) J	ND (23) J	ND (86)	ND (98)	ND (190)	ND (0.050)
Dieldrin	ND (77)	ND (50) J	ND (45) J	ND (170)	ND (200)	ND (370) J	ND (0.10)
4,4'-DDE	ND (77)	ND (50) J	ND (45) J	ND (170)	ND (200)	ND (370)	ND (0.10)
Endrin	ND (77)	ND (50) J	ND (45) J	ND (170)	ND (200)	ND (370) J	ND (0.10)
Endosulfan II	ND (77)	ND (50) J	ND (45) J	ND (170)	ND (200)	ND (370)	ND (0.10)
4,4'-DDD	ND (77)	ND (50) J	ND (45) J	ND (170)	ND (200)	ND (370)	ND (0.10)
Endosulfan sulfate	ND (77)	ND (50) J	ND (45) J	ND (170)	ND (200)	ND (370)	ND (0.10)
4,4'-DDT	ND (77)	ND (50) J	ND (45) J	ND (170)	ND (200)	ND (370)	ND (0.10)
Methoxychlor	ND (380)	ND (250) J	ND (230) J	ND (860)	ND (980)	ND (1900)	ND (0.50)
Endrin ketone	ND (77)	ND (50) J	ND (45) J	ND (170)	ND (200)	ND (370)	ND (0.10)
alpha-Chlordane	ND (380)	ND (250) J	ND (230) J	ND (860)	ND (980)	ND (1900)	ND (0.50)
gamma-Chlordane	ND (380)	ND (250) J	ND (230) J	ND (860)	ND (980)	ND (1900)	ND (0.50)
Toxaphene	ND (770)	ND (500) J	ND (450) J	ND (1700)	ND (2000)	ND (3700)	ND (1.0)
Aroclor-1016	ND (380)	ND (250) J	ND (230) J	ND (860)	ND (980)	ND (1900)	ND (0.50)
Aroclor-1221	ND (380)	ND (250) J	ND (230) J	ND (860)	ND (980)	ND (1900)	ND (0.50)
Aroclor-1232	ND (380)	ND (250) J	ND (230) J	ND (860)	ND (980)	ND (1900)	ND (0.50)
Aroclor-1242	ND (380)	ND (250) J	ND (230) J	ND (860)	ND (980)	ND (1900)	ND (0.50)
Aroclor-1248	ND (380)	ND (250) J	ND (230) J	ND (860)	ND (980)	ND (1900)	ND (0.50)
Aroclor-1254	ND (770)	ND (500) J	ND (450) J	ND (1700)	ND (2000)	ND (3700)	ND (1.0)
Aroclor-1260	ND (770)	160 J	86 J	ND (1700)	ND (2000)	ND (3700)	ND (1.0)

TABLE 6.9
SEDIMENT SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

METALS	*SED-1* *(mg/kg)*	*SED-2* *(mg/kg)*	*SED-3* *(mg/kg)*	*SED-4* *(mg/kg)*	*SED-5* *(mg/kg)*	*SED-7* *(mg/kg)*	*SED-RB* *(mg/kg)*
Aluminum	2290	5510	6300	3890	4930	5190	ND (77.0)
Antimony	ND (4.99)	ND (7.61)	ND (8.38)	ND (6.81)	ND (23.1)	ND (7.55) J	ND (19.0)
Arsenic	15.9	18.7	16.6	9.00	11.1	12.5 J	ND (2.00)
Barium	682	218	277	138	197	129	ND (5.00)
Beryllium	0.710	0.680	0.600	1.10	ND (1.22)	0.520	ND (1.00)
Cadmium	4.60	2.80	2.80	4.90	ND (3.65)	1.90	ND (3.00)
Calcium	5570	9660	7600	22200	20200	9270	295
Chromium	ND (0.788)	59.3	6.40	441	6.30	30.8	ND (3.00)
Cobalt	78.0	73.6	62.3	149	11.4	29.6	ND (4.00)
Copper	90.2	94.1	89.2	323	2.80	31.3	ND (7.00)
Iron	143000	86500	89000	26800	22400	32300	46.1
Lead	38.2	72.7	75.1	129	24.7	29.9	ND (2.00)
Magnesium	859	1900	2080	3450	2080	2600	ND (84.0)
Manganese	1230	3440 J	1800 J	992	498	855	ND (2.00)
Mercury	ND (0.194) J	0.439 J	0.431 J	1.84 J	ND (0.658) J	ND (0.227) J	ND (0.200)
Nickel	481	399	325	1320	44.1	131	ND (7.00)
Potassium	ND (265)	ND (403)	ND (444)	ND (361)	ND (1230)	ND (400)	ND (1010)
Selenium	ND (0.341)	0.61	0.560	ND (0.29)	ND (1.27)	ND (0.369)	ND (1.00)
Silver	10.6	9.10	9.50	2.90	ND (4.87)	ND (1.59) J	ND (4.00)
Sodium	58.0	91.5	89.6	128	237	145	783
Thallium	ND (1.70)	ND (2.56)	ND (2.32)	ND (1.45)	ND (6.37)	ND (1.85)	ND (5.00)
Vanadium	ND (2.10)	ND (3.20)	ND (3.53)	15.5	ND (9.74)	ND (3.18)	ND (8.00)
Zinc	388	144	117	491	214	90.5	10.6
Cyanide	ND (0.971)	ND (1.47)	ND (1.49)	ND (0.934)	ND (3.29)	ND (1.13)	ND (10.00)

TABLE 6.9
SEDIMENT SAMPLE DATA
VACAIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK

TOTAL PETROLEUM HYDROCARBONS	*SED-1* *(mg/kg)*	*SED-2* *(mg/kg)*	*SED-3* *(mg/kg)*	*SED-4* *(mg/kg)*	*SED-5* *(mg/kg)*	*SED-7* *(mg/kg)*	*SED-RB* *(mg/L)*
Total Petroleum Hydrocarbons	6300	950	820	2900	200	8200	ND (1.0)

ND - Not detected at the detection limit stated within the parenthesis.
J - Associated value is estimated.
R - Data is unusable.

A

APPENDIX A

FREWSBURG DISTRICT MUNICIPAL WELLS AND TEST BORINGS

STRATIGRAPHIC AND INSTRUMENTATION LOGS

LOGS OF FREWSBURG PUBLIC SUPPLY WELLS

Frewsburg Well No. 1 (north well)

Material	Depth (feet)
Yellow clay and sand	9 to 19
Soft blue clay	19 to 27
Firm blue clay	27 to 34.5
Sand and clay (water-bearing)	34.5 to 35.7
Yellow clay and gravel (water-bearing)	35.7 to 36.2
Gravel, sand and water	36.2 to 37
Sand and gravel, some clay and water	37 to 40.2

Five (5) feet of well screen installed from 35 to 40 feet.

Frewsburg Well No. 2 (south well)

Material	Depth (feet)
Yellow clay	4 to 8
Yellow clay, sand and gravel, some water	8 to 14
Clay and sand, yellow	14 to 19
Blue clay	19 to 34.5
Sand and gravel, water	34.5 to 35
Sand and gravel, clay, water	35 to 36
Sand and gravel, water	36 to 40

Five (5) feet of well screen installed from 35 to 40 feet.

Log of Permanent Well No. P-1
(Bertha Catlin Andersen property)

Frewsburg Water District No. 1
New York

Well location: 50.0' W. of Test boring No. T-3
133.0' CL Falconer Street
187.0' N.W. of intersection of N.Y.C.R.R. tracks and Falconer Street

Elevation: 1248' (about 2.0' below Test boring No. T-3)

Date: January 23 - 30, 1941

Crew: Homer R. Dorker, Clarence Henry

Diameter: 12" outer casing
8" inner casing, back-off @ 24.89'

Formations	Top	Bottom	Thick.	Elev.
Top soil, clay, gravel	0.0'	4.0'	4.0'	1248'
Clay, yellow	4.0	8.0	4.0	1244
Clay, yellow, streaks sand & gravel, water	8.0	14.0	6.0	1240
Clay & sand, yellow	14.0	19.0	5.0	1234
Clay, blue	19.0	34.5	15.5	1229
Sand & gravel, small % clay, water	34.5	40.0	5.5	1213.5
Clay	40.0			

6" x 12" well made, obtaining 150 GPM @ 12' pumping level.

See attached sheets for details of pumping test conducted.

For mation samples filed with Town Clerk & Engineer.

Static level about 1.3' above ground level.

Log of Test Borings No. T-3 (Martha Catlin Anderson property)

Frewsburg Water District No. 1

New York

Well location: 1.1 mile N. of T-2 on Jonhson property.
154' E. of CL of N.Y.C.R.R. (D.A.V.&P.) tracks.
96' W. of Falconer Road.
Approx. 300' S. of Conewango Creek near bridge

Elevation: 1250' (topo. map, Jamestown quad.)

Date: November 25 - December 27, 1940

Crew: Henry Cranston, Chas. Lee, Homer Bowker, Clarence Henry

Diameter: 10" casing to 01'
8" casing to 118'
6" casing to 156'
6" open hole to 190'

Formations	Top	Bottom	Thick.	Elev.
Top soil	0.0'	1.5'	1.5'	1250'
Clay, some gravel	1.5	10.0	8.5	1248.5
Sand & gravel, dirty, water	10.0	14.0	4.0	1240
Clay, soft	14.0	26.0	12.0	1236
Clay, firm	26.0	35.0	9.0	1224
Sand & gravel, dirty, clay, water	35.0	41.0	6.0	1215
Clay, fairly firm, some gravel	41.0	53.0	12.0	1209
Clay, soft	53.0	106.0	53.0	1197
Sand & gravel, water	106.0	107.0	1.0	1144
Sand & gravel, clay	107.0	111.0	4.0	1143
Clay, some gravel	111.0	113.0	2.0	1139
Shale gravel & firm clay, drill shead	113.0	136.0	23.0	1137
Shale gravel & soft clay, water	136.0	139.0	3.0	1114
Sand & shale gravel, hard	139.0	141.0	2.0	1111
Sand & gravel (glacial), water	141.0	145.0	4.0	1109
Sand & gravel, clay	145.0	148.0	3.0	1105
Sand & fine gravel, clay	148.0	149.0	1.0	1102
Sand & fine gravel, water	149.0	153.0	4.0	1101
Sand & clay	153.0	156.0	3.0	1097
	156.0			
Bedrock	156.0	172.0	16.0	1094
Grey shale	172.0	190.0	18.0	1078
Fine grained sandstone				1060
Total depth	190.0			

Screen set and formation tested @ 141 - 153' but obtained only about 10 GPM @ 95' pumping level.
Screen set and formation t ested @ 35 - 41', obtained up to 65 GPM @ 22' pumping level over 8 hour interval.

Formation samples filed with engineer.

2" perforated pipe installed to 41' depth, all well

H.H.C.
Jan. 7 -'41

LAYNE-NEW YORK CO., INC.

1250 WEST ELIZABETH AVE., LINDEN, N. J.

LOG OF WELL

Log of Well for VILLAGE OF FREWSBURG Well No. Test No. 1

Address 75' SOUTH PEARL STREET FREWSBURG

Well Located at 1500' WEST FALCONER, ROAD, In CHAUTAUQUA County, State of NEW YORK

Date Drilling started 10-30-63 Date Test Hole Completed 10-31-63

Total depth to bottom of Well 95' Diameter Test Hole 6"

Water stands when not pumping ..... feet ..... inches from the surface of the ground

THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	FORMATION FOUND EACH STRATUM	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	FORMATION FOUND EACH STRATUM
19'	19'	GRAVEL, SAND & BROWN CLAY			
7'	26'	GRAY CLAY			
2'	28'	GRAVEL & SAND			
2'	30'	GRAVEL, SAND & GRAY CLAY			
39'	69'	GRAY CLAY & GRAVEL			
17'	96'	GRAY CLAY			
9'	95'	GRAY CLAY & GRAVEL			

Remarks and opinion of Test

CHECK TYPE OF RIG USED { Rotary }

NORMAN E. HENDRICH
Driller

LAYNE-NEW YORK CO., INC.

1250 WEST ELIZABETH AVE., LINDEN, N. J.

LOG OF WELL

Log of Well for VILLAGE OF FREWSBURG Well No. Test No. 2

Address 350' EAST PEARL STREET

Well Located at 400' SOUTH R.R. TRACKS In CHAUTAUQUA County, State of NEW YORK

Date Drilling started 10-31-63 Date Test Hole Completed 11-4-63

Total depth to bottom of Well 118' Diameter Test Hole 6"

Water stands when not pumping ..... feet ..... inches from the surface of the ground

THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	FORMATION FOUND EACH STRATUM	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	FORMATION FOUND EACH STRATUM
6'	6'	GRAVEL, SAND & BROWN CLAY			
32'	38'	GRAVEL & SAND			
7'	45'	GRAVEL & GRAY CLAY			
73'	118'	GRAY CLAY & GRAVEL			
					1 BAG LAYNITE USED TO START #2
					25' - 1 PIT WATER - 2 BAGS CLAY, 1 BAG
					LAYNITE ADDED
		OBSERVATION WELL #2-A DRILLED 4' EAST OF SITE #2			

Remarks and opinion of Test

SET SCREEN, ATTEMPTED TO PUMP WELL - NO RESULTS

CHECK TYPE OF RIG USED { Reverse Rotary / Cable Tool / [illegible] }

NORMAN E. HENDRICH
Driller

LAYNE-NEW YORK CO., INC.

1250 WEST ELIZABETH AVE., LINDEN, N. J.

LOG OF WELL

Log of Well for VILLAGE OF FREWSBURG Well No. 4 Test No.

Address 50' EAST PEARL STREET

Well Located at 150' SOUTH R. R. TRACKS In CHAUTAUQUA County, State of NEW YORK

Date Drilling started 11-6-63 Date Test Hole Completed 11-11-63

Total depth to bottom of Well 75' Diameter Test Hole 6"

Water stands when not pumping feet inches from the surface of the ground

THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	FORMATION FOUND EACH STRATUM	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	FORMATION FOUND EACH STRATUM
9'	9'	YELLOW & BROWN CLAY & GRAVEL			
7'	16'	BROWN CLAY & GRAVEL			
59'	75'	GRAY CLAY & GRAVEL			
					1 BAG LAYRITE 1 PIT WATER USED TO BEGIN
		45' -			1 BARREL WATER, 2 BAGS CLAY ADDED

Remarks and opinion of Test

CHECK TYPE OF RIG USED: Reverse Rotary, Cable Tool, Wash, Dug

NORMAN E. HENDRICH Driller

SM-1-63WP

LAYNE-NEW YORK CO., INC.

1250 WEST ELIZABETH AVE., LINDEN, N. J.

LOG OF WELL

Log of Well for VILLAGE OF FREWSBURG Well No. Test No. 3

Address 900' WEST FALCONER, FREWSBURG ROAD

Well Located at 700' EAST PEARL STREET in CHAUTAUQUA County, State of NEW YORK

Date Drilling started 11-5-63 Date Test Hole Completed 11-5-63

Total depth to bottom of Well 45' Diameter Test Hole 6"

Water stands when not pumping ..... feet ..... inches from the surface of the ground

THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	FORMATION FOUND EACH STRATUM	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	FORMATION FOUND EACH STRATUM
8'	8'	BROWN CLAY			
2'	10'	GRAY CLAY & GRAVEL			
2'	12'	BROWN CLAY & GRAVEL			
3'	15'	GRAVEL & SAND			
30'	45'	GRAY CLAY & GRAVEL			
		1 BAG LAYNITE - 1 PIT WATER USED TO BEGIN			
		15' - 2 BARREL WATER, 1 BAG CLAY 1/2 BAG LAYNITE ADDED			

Remarks and opinion of Test

CHECK TYPE OF RIG USED: Reverse Rotary, Cable Tool, Auger, Other

NORMAN E. HENDRICH
Driller

6M-1-61WP

LAYNE-NEW YORK CO., INC.

1250 WEST ELIZABETH AVE., LINDEN, N. J.

LOG OF WELL

Well No. ..... Job No. 056905 ..... Test No. T-4-74

Log of Well for (Owner) Village of Frewsburg

Address Frewsburg, New York

Representative, if any .....

Well Located at ..... in ..... County, State of .....

Furnish sketch of location ..... Date Drilling started 2-26-74 ..... Date Test Hole Completed 2-26-74

Total depth to bottom of Well 73' ..... Diameter Test Hole 8" ..... Elevation at Ground Level, if available .....

Elevation at Ground Level, if available ..... Distance from where measurements were taken to ground level .....

Water stands when not pumping ..... feet ..... inches from the surface of the ground

All Measurements taken from G.L.

THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	Length of Core Taken	FORMATION FOUND EACH STRATUM	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	Length of Core Taken	FORMATION FOUND EACH STRATUM
3'	3'		clay				
2'	5'		sand and gravel				
68'	73'		clay				
			Located 300' West of Cranston Wells				Rec'd

Remarks and opinion of Test

XXXXXXXXX

CHECK TYPE OF RIG USED { Reverse Rotary / Cable Tool / Wash / Other? }

I.W.Sheatz

Driller

LAYNE-NEW YORK CO., INC.

1250 WEST ELIZABETH AVE., LINDEN, N. J.

LOG OF WELL

Log of Well for VILLAGE OF FREWSBURG Well No. 3 Test No.

Address 900' EAST FALCONER, FREWSBURG ROAD

Well Located at WHITE FARM In CHAUTAUQUA County, State of NEW YORK

Date Drilling started 11-14-63 Date Test Hole Completed 11-18-63

Total depth to bottom of Well 84' Diameter Test Hole 6"

Water stands when not pumping feet inches from the surface of the ground

THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	FORMATION FOUND EACH STRATUM	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	FORMATION FOUND EACH STRATUM
7'	7'	GRAVEL, SAND & BROWN CLAY			
7'	14'	SAND & GRAVEL			
7'	21'	BROWN CLAY & GRAVEL			
57'	78'	GRAY CLAY & GRAVEL			
2'	80'	GRAVEL & GRAY CLAY			
1'	81'	GRAY CLAY & GRAVEL			
2'	83'	GRAVEL & GRAY CLAY			
1'	84'	HARD GRAY CLAY & GRAVEL			
		2 - BAGS CLAY 1 PIT WATER TO START			
		15' - 2 - BAGS BAYLITE 1 PIT WATER ADDED			

Remarks and opinion of Test

SET SCREEN, ATTEMPTED TO PUMP WELL, NO RESULTS

CHECK TYPE OF RIG USED { Reverse XXXX Rotary / Cable Tool XXXXXXX / Other? XXX }

NORMAN E. HEINRICH Driller

SM-1-61WP

LAYNE-NEW YORK CO., INC.

1250 WEST ELIZABETH AVE., LINDEN, N. J.

LOG OF WELL

Log of Well for VILLAGE OF FRENSBURG Well No. 9 Test No.

Address 1500' EAST FALCONER FRENSBURG ROAD

Well Located at REAR END WHITE FARM in CHAUTAUQUA County, State of NEW YORK

Date Drilling started 11-19-63 Date Test Hole Completed 11-20-63

Total depth to bottom of Well 20' Diameter Test Hole 6"

Water stands when not pumping ..... feet ..... inches from the surface of the ground

THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	FORMATION FOUND EACH STRATUM	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATA	FORMATION FOUND EACH STRATUM
6'	6'	SAND, GRAVEL & BROWN CLAY			
8'	14'	SAND & GRAVEL			
7'	21'	GRAVEL & GRAY CLAY			
59'	20'	GRAY CLAY & GRAVEL			
		2 - BAGS CLAY, 1 PIT WATER TO START #9			
		15' - 1 - BAG LAYNITE, 1 PIT WATER ADDED			

Remarks and opinion of Test

CHECK TYPE OF RIG USED: ~~Reverse~~ ~~Air~~ Rotary ~~Mud~~ Cable Tool ~~Auger~~ ~~Other~~

NORMAN E. HENDRICH
Driller

SM-1-63WP

Moody and ASSOCIATES, Inc.
GROUND WATER RESOURCE SPECIALISTS

PROFESSIONAL GROUND WATER AND ENVIRONMENTAL SERVICES

R.D. 4, Box 412, Cotton Road
Meadville, PA 16335
(814) 724-4970
FAX (814) 724-4975

CLIENT: E & M ENGINEERS
PROJECT NAME: TOWN OF CARROLL
PROJECT NUMBER: 90-455
LOCATION: FREWSBURG WATER DISTRICT, N.Y.

DATE 1/23/91 WELL NUMBER NO.2

DRILLER: MOODY AND ASSOCIATES, INC.

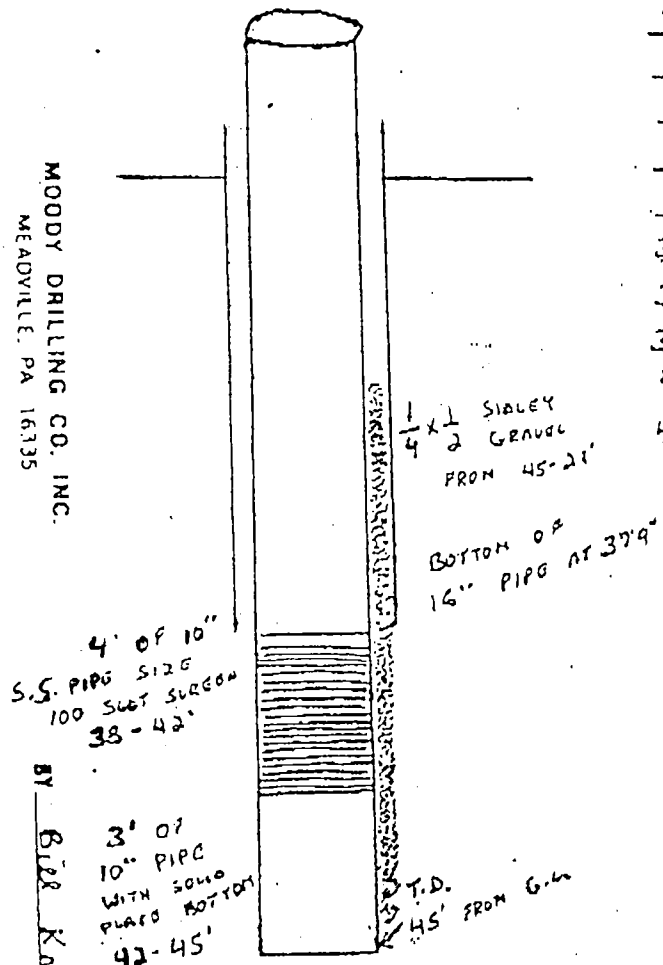
CASED FROM TOC TO 34.25' WITH 10" steel
SCREENED FROM 34.25' TO 38.5' WITH 100 Slot
WELL DEPTH 41.54' WELL DIAMETER 10"
ELEVATION
ANNULUS COMPLETION
OTHER 3.04' of steel casing with a bottom on the bottom of the screen

DRILL RIG
DRILL METHOD CABLE TOOL
DATE(S) DRILLED
LOGGED BY BILL KNIGHT

WELL DETAIL	DEPTH	GRAPHIC COLUMN	LITHOLOGICAL DESCRIPTION	SAMPLE	PID or FID	COMMENTS
			Brown clay with minor gravel			
	17		Grey clay and gravel			
	34		Medium to coarse sand and gravel with minor clay			
	38.5		Grey clay			
T.D. 41.54'	48					

90455 U
2/25/91 - 3/1/91

WELL SKETCH TO DATE



MOODY DRILLING CO. INC.
MEADVILLE, PA 16335
BS-MWD 03

BY Bill Knight

Replacement Well No. 21A

DEPTH FR.	DEPTH TO	WELL LOG	GPM	SWL	Ft. Wtr. Anal.
0	4	TOP SOIL + FILL			
4	9	BROWN SAND			
9	18	BROWN CLAY + GRAVEL			
18	31	GREY CLAY - STREAK OF BROWN SAND AT 31'			
31	37	GREY CLAY			
37	37.5	BROWN SAND - SILT - CLAY SOME GRAVEL			
37.5	41	BROWN SAND + ALL SIZES OF GRAVEL - SOME BROWN SAND & GRAVEL		3'	
41	42.5	WITH LITTLE STREAKS OF CLAY			
42.5	43	BROWN CLAY + GRAVEL			

B

APPENDIX B

PHOTOGRAPHIC LOG



11 DEC 90 – EQUIPMENT DECONTAMINATION PAD



11 DEC 90 – TEST PIT TP1–A



12 DEC 90 – DRUM AT BOTTOM OF TEST PIT TP2–A

PHOTOGRAPHIC LOG
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury



14 DEC 90 – SPOIL PILE FROM TEST PIT TP3–A



12 DEC 90 – CRUSHED DRUM IN TEST PIT TP4–E



13 DEC 90 – TEST PIT TP10B–B

PHOTOGRAPHIC LOG
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

CRA



14 DEC 90 – TEST PIT TP11–A



13 DEC 90 – TEST PIT TP8–B



23 JAN 91 – BOREHOLE BH6–1 LOCATION

PHOTOGRAPHIC LOG
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

CRA



25 JAN 91 – BOREHOLE BH5A–2 LOCATION



SLUG TEST AT WELL MW–4

PHOTOGRAPHIC LOG
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

CRA



1 MAY 91 – SURFACE WATER SAMPLE SW1 AND SEDIMENT SAMPLE SED1 LOCATION



7 MAY 91 – SEDIMENT SAMPLE SED-6 LOCATION AT THE FORMER DISCHARGE PIPE OF THE OIL/WATER SEPARATOR

PHOTOGRAPHIC LOG
VAC AIR ALLOYS INC.
FREWSBURG, NEW YORK
Piper & Marbury

APPENDIX C

BOREHOLE STRATIGRAPHIC LOGS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-01)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: SOUTH OF THE SEPTIC TILE BED, SOUTH OF THE SOUTH FENCE

HOLE DESIGNATION: BH-1
DATE COMPLETED: JANUARY 22, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	GROUND SURFACE	1256.2					
	Brown SILT, some fine to medium sand, little clay and fine to medium gravel, trace vegetation, moist, FILL		BENTONITE GROUT	1SS		15	1
2.5	Green brown to brown mottled SILT, some fine sand, little clay, trace medium gravel, moist, NATIVE	1253.8		2SS		12	–
5.0	Brown SILT, some clay, little fine sand, trace fine gravel, moist	1252.0		3SS		12	–
	Brown fine to medium GRAVEL, some medium to coarse sand, little silt, moist to wet	1250.2		4SS		13	–
7.5	Dark brown, medium to coarse SAND, trace fine to medium gravel, wet Brown, fine to medium SAND, little silt, wet			5SS		13	–
10.0	Same with trace silt		8" BOREHOLE	6SS		10	–
12.5	Brown, medium to coarse SAND, little fine gravel, trace medium gravel, wet. Encountered running sands-Abandon borehole, move 3 to 4' to west. Auger to 14.0' BGS			7SS		10	–
15.0	Brown SAND and SILT in alternating beds of silty fine sand, and fine to medium sand with trace gravel, wet		CUTTINGS	8SS		9	–
	Brown, fine to coarse SAND, little fine angular to subround gravel, wet	1239.4					
17.5	Brown Silt, some fine sand, trace fine gravel, wet	1238.9		9SS		13	–
	Brown, fine to medium SAND, little silt, wet Encountered running sands.			10SS		6	0.2
20.0	Brown, fine to medium SAND, some silt, wet Brown, very fine SAND, some silt, wet	1235.5		11SS		7	–
	Brown, fine to medium SAND, trace very fine gravel, wet	1234.2					
22.5	Brown SILT, some very fine sand, trace clay in very thin lenses, wet	1233.5		12SS		10	–
	Brown, fine SAND, some silt, occasional thin clay lenses, wet						
25.0	Brown to gray SILT, some fine sand, little clay in frequent thin lenses, wet			13SS		7	–
	Gray SILT, some clay, little fine sand, thinly laminated with frequent clay lenses, moist to wet						
27.5	Same with some fine sand, little clay, thinly laminated with frequent clay lenses, moist to wet	1228.2		14SS		13	–
30.0	END OF HOLE @ 28.0 FT. BGS						
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS (○) WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-02)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: SUSPECTED DISPOSAL AREA 5A

HOLE DESIGNATION: BH5A-1
DATE COMPLETED: JANUARY 25, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE	SAMPLE HNU (ppm)
	GROUND SURFACE	1250.6					
	Concrete	1249.6	BENTONITE GROUT				
2.5	Brown, fine to medium SAND, some fine to medium gravel, little silt, trace clay, moist, FILL	1247.4	8" ø BOREHOLE	1SS		14	–
	Gray mottled SILT, some fine sand, trace clay and fine gravel, moist	1246.2		2SS		14	–
5.0	Gray, fine GRAVEL, little fine to medium sand, trace silt, moist to wet	1245.6	CUTTINGS	3SS		20	–
	Brown SILT, some fine sand, and fine gravel, little clay, moist	1243.6		4SS		21	–
7.5	Brown, mottled SILT, some fine sand, little fine angular gravel, trace clay, wet, NATIVE						
	Same, moist to wet	1241.3		5SS		40	–
10.0	Brown, fine to medium SAND, little silt, fine to medium gravel, trace coarse gravel, wet	1241.0					
	Brown SILT, some fine sand, little medium sand, trace fine gravel	1239.6					
12.5	END OF HOLE @ 11.0 FT. BGS						
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-03)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: SUSPECTED DISPOSAL AREA 5A

HOLE DESIGNATION: BH5A-2
DATE COMPLETED: JANUARY 25, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE	SAMPLE HNU (ppm)
	GROUND SURFACE	1250.6					
	Concrete	1249.6	BENTONITE GROUT				
2.5	Dark brown, SILT, some fine sand, and fine to medium gravel, trace clay, moist, FILL Brown mottled SILT, some fine sand and clay, trace fine gravel, moist	1247.2	8"ø BOREHOLE	1SS		12	8
5.0	Brown to gray, fine to medium GRAVEL, some fine to coarse sand, little silt, moist to wet	1245.6		2SS		23	1.2
7.5	Brown, fine to medium SAND, some fine gravel, little silt, wet	1243.1	CUTTINGS	3SS		18	–
10.0	Brown SILT, some fine sand, little clay, trace fine gravel, moist to wet	1241.6		4SS		23	–
12.5	Brown, fine to medium SAND and fine GRAVEL, little silt, wet, NATIVE	1239.6		5SS		40	–
15.0	END OF HOLE @ 11.0 FT. BGS						
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-04)

PROJECT NAME: VAC-AIR ALLOYS
HOLE DESIGNATION: BH5A-3

PROJECT NO.: 2326
DATE COMPLETED: JANUARY 25, 1991

CLIENT: VAC-AIR ALLOYS
DRILLING METHOD: 4 1/4" ID HSA

LOCATION: SUSPECTED DISPOSAL AREA 5A
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	GROUND SURFACE	1250.4					
	Concrete	1249.4	BENTONITE GROUT				
	Brown, fine to coarse sand, some fine gravel, little silt, moist, FILL	1248.5					
2.5	Brown mottled SILT, some very fine sand, trace clay and fine gravel, moist, NATIVE		8" ø BOREHOLE	1SS		26	0.5
	Same with little clay	1246.7		2SS		19	0.4
5.0	Brown mottled, fine to medium SAND, little fine to coarse gravel, trace silt, moist to wet		CUTTINGS	3SS		21	1.5
7.5	Same with little silt, trace coarse gravel, thin beds of sand with silt inclusions, moist to wet			4SS		16	2
	Same with beds of medium sand and silty sand, wet	1241.4					
10.0	END OF HOLE @ 9.0 FT. BGS						
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-05)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: SUSPECTED DISPOSAL AREA 5B

HOLE DESIGNATION: BH5B-1
DATE COMPLETED: JANUARY 24, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	GROUND SURFACE	1250.1					
	Concrete	1249.1	BENTONITE GROUT				
2.5	Brown SILT, some fine to medium sand, little subangular to rounded gravel, trace clay, moist, FILL		8" ø BOREHOLE	1SS		33	–
5.0	Same, except brown to black, with trace wood, slag	1244.7	CUTTINGS	2SS		11	–
	Brown, fine to medium subangular to round GRAVEL, little fine to medium sand, trace silt, wet	1242.9		3SS		38	–
7.5	Dark brown to gray, fine to medium GRAVEL, little sand, trace silt, wood, wet			4SS		36	–
	Brown, fine to medium SAND, trace silt, fine rounded gravel, wet, NATIVE	1241.1					
10.0	Same, except gray, with little silt						
	END OF HOLE @ 9.0 FT. BGS						
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-06)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: SUSPECTED DISPOSAL AREA 5B

HOLE DESIGNATION: BH5B-2
DATE COMPLETED: JANUARY 24, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
	GROUND SURFACE	1250.0					
	Concrete	1249.0	BENTONITE GROUT				
	Gray brown, fine SAND, some silt, little rounded gravel, moist, FILL	1248.5		1SS		40	–
2.5	Black ASPHALT	1247.0	8" ø BOREHOLE	2SS		20	–
	Green gray SILT, some fine sand, little fine gravel, moist						
5.0	Same, except dark brown to black with trace wood	1244.4	CUTTINGS	3SS		19	–
	Yellow to gray, very fine SAND, some silt, trace rounded gravel	1243.0					
7.5	Black SILT, some fine sand, little gravel, trace vegetation, moist to wet, NATIVE	1242.4		4SS		47	1
	Brown, fine SAND, little silt, trace gravel, 1 large stone, wet						
10.0	Brown, fine to medium SAND, little silt, trace coarse gravel	1239.0		(5SS)		15	–
	END OF HOLE @ 11.0 FT. BGS						
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS (○) WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-07)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: SUSPECTED DISPOSAL AREA 5B

HOLE DESIGNATION: BH5B-3
DATE COMPLETED: JANUARY 24, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	GROUND SURFACE	1248.6					
	Concrete	1247.6	BENTONITE GROUT				
2.5	Brown and gray, fine to medium GRAVEL, some slag, little fine to medium sand, trace silt metal turnings, moist			1SS		>100	1.0
	Gray SLAG, some fine gravel, little silt, moist	1245.6	8" ø BOREHOLE	2SS		92	–
5.0	Black, fine SAND, some silt, little fine gravel, trace metal turnings, moist to wet	1243.6	CUTTINGS	3SS		7	–
7.5	Dark brown to black, fine SAND, some silt, trace metal turnings, little angular to fine round gravel, moist to wet	1241.3		4SS		29	–
	Brown, fine to medium SAND, some silt, trace round to subround gravel, wet, NATIVE						
10.0	Brown, medium SAND, some silt, little round to subround fine gravel and coarse sand, wet	1237.8		5SS		21	–
	Gray CLAY, some silt, trace fine sand, plastic, wet	1237.6					
12.5	END OF HOLE @ 11.0 FT. BGS						
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-08)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: NEW SAND FILTER, SUSPECTED DISPOSAL AREA 12

HOLE DESIGNATION: BH12-1
DATE COMPLETED: JANUARY 28, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE	SAMPLE HNU (ppm)
	GROUND SURFACE	1256.6					
	Dark brown SILT, some clay, little fine gravel, trace fine sand, trace vegetation, moist, FILL		BENTONITE GROUT	1SS		10	–
2.5	Same, except brown gray	1253.5	8" ø BOREHOLE	2SS		5	0.8
	Green gray CLAY, some silt, trace fine sand, and fine gravel, moist, NATIVE	1252.6	CUTTINGS				
5.0	Brown mottled SILT, some fine sand, little angular to rounded fine to medium gravel, moist	1250.3		3SS		37	–
	Green brown, fine SAND, some silt, wet	1250.0		4SS		53	–
7.5	Gray brown, fine to medium GRAVEL, some fine sand, trace silt, wet	1248.6					
	END OF HOLE @ 8.0 FT. BGS						
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS (◯) WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-09)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: OLD TILE FIELD BY RE-MELT BLDG SUSPECTED DISPOSAL AREA 13

HOLE DESIGNATION: BH13-1
DATE COMPLETED: JANUARY 28, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE	SAMPLE HNu (ppm)
	GROUND SURFACE	1250.0					
	Concrete	1249.0	BENTONITE GROUT				
2.5	Brown SILT, some fine sand, little fine to medium gravel, trace clay, moist, FILL	1248.1		1SS		>100	–
	Black, fine SAND, little silt, trace fine gravel, metal turnings, moist	1246.7	8" ø BOREHOLE	2SS		10	20
5.0	Dark brown SILT, some clay, trace fine sand and gravel, trace slag, moist	1245.0	CUTTINGS				
	Same, except brown mottled, with little fine sand, no slag			3SS		26	–
7.5	Brown, fine to medium SAND, some silt, little fine gravel, trace clay, moist to wet	1242.8					
	Brown, fine SAND, some silt, wet, NATIVE	1242.2		4SS		14	–
	Brown SILT, some fine sand, little clay, moist	1241.0					
10.0	END OF HOLE @ 9.0 FT. BGS						
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-16)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: DEGREASER ROOM

HOLE DESIGNATION: BH6-1
DATE COMPLETED: JANUARY 23, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
2.5	Concrete Gray brown SILT, some clay and fine sand, little fine to medium gravel, trace clay, metal filings, moist, FILL	-0.5 -1.2	CONCRETE SEAL 8"ø BOREHOLE NATIVE MATERIAL	1SS		61	–
5.0	Mottled brown SILT, some fine sand, trace clay, fine gravel, moist, NATIVE Mottled brown to dark brown, fine to medium SAND, some to little silt, trace fine gravel moist to wet	-4.5		2SS		46	–
7.5	END OF HOLE @ 4.5 FT. BGS NOTES: 1. Plastic noted in hole below concrete 2. 3" and 2" spoons were hand driven						
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-17)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: DEGREASER ROOM

HOLE DESIGNATION: BH6-2
DATE COMPLETED: JANUARY 23, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	Concrete	-0.7	CONCRETE SEAL	1SS		56	-
2.5	Brown, fine to medium SAND, some silt, moist, FILL		8"ø BOREHOLE				
	Brown SILT, some fine to medium sand, little clay, trace fine to medium gravel, moist	-2.7	NATIVE MATERIAL				
5.0	Brown, medium to coarse SAND, some fine to medium gravel, trace silt, dry to moist						
	END OF HOLE @ 2.7 FT. BGS						
7.5	NOTES: 1. Plastic adhering to the bottom of the concrete core 2. 3" split spoon was hand driven						
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-18)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: DEGREASER ROOM

HOLE DESIGNATION: BH6-3
DATE COMPLETED: JANUARY 23, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	Concrete	-0.5	CONCRETE SEAL				
	Brown, fine to medium SAND, some silt, trace fine rounded gravel, plastic, wet to moist, FILL		8"ø BOREHOLE	1SS	X	58	-
2.5		-2.5	NATIVE MATERIAL				
	END OF HOLE @ 2.5 FT. BGS						
	NOTES:						
	1. Plastic in spoon on top of soil core						
5.0	1. 3" split spoon was hand driven						
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

APPENDIX D

MONITORING WELL STRATIGRAPHIC AND INSTRUMENTATION LOGS

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

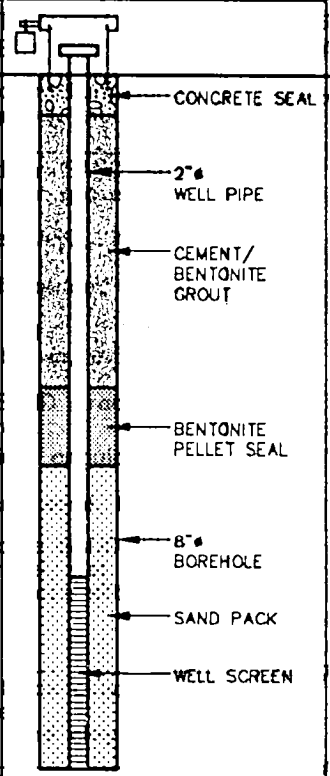
(L-10)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: EAST OF THE COOLING WATER POND

HOLE DESIGNATION: MW-1
DATE COMPLETED: APRIL 22, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	1260.6
	GROUND SURFACE	1258.4
	Dark brown SILT, some fine to medium sand, trace vegetation, trace fine gravel, moist, NATIVE	1257.7
2.5	Orange to brown, fine to medium SAND, some silt, little fine to medium angular gravel, moist	
5.0	Brown, fine to medium coarse SAND, little silt, trace fine gravel, moist	
	Same, with some angular and rounded gravel, trace silt, wet	
7.5	Brown, fine SAND, some silt, wet	
	Same, except brown to dark brown, with trace fine gravel, wet	
10.0	Gray brown, fine to medium SAND, trace fine to medium rounded pebbles, wet	
	Same, with little fine to medium angular to subangular gravel, wet	
12.5	Brown, fine SAND, little medium sand, little silt, trace coarse sand, wet	
	Orange brown, medium to coarse SAND, little fine to medium subangular gravel, wet	
15.0	Brown, fine to medium SAND, trace silt, wet	
	Brown SILT, some fine sand, trace clay, wet	1242.9
17.5	Gray SILT, some fine sand, wet	
	some, except some fine sand and clay	
	END OF HOLE @ 18.0 FT. BGS	1240.4
20.0		
22.5		
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
13.0 to 18.0' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
10.0 to 18.0' BGS
Material -#1 QROC, #4 QROC

SAMPLE NUMBER	STATE	'N' VALUE	HNU (ppm)
1SS	X	10	-
2SS	X	19	-
3SS	X	7	-
4SS	X	11	-
5SS	X	3	-
6SS	X	8	-
7SS	X	7	-
8SS	X	14	-
9SS	X	4	-

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

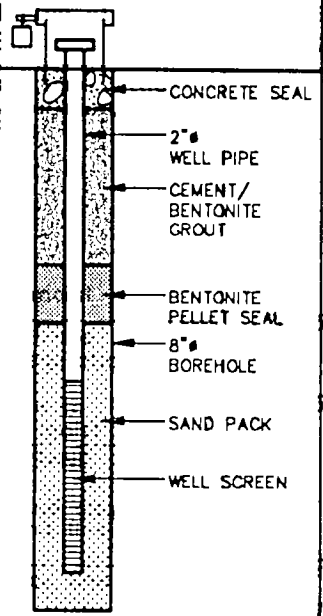
(L-11)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: NORTH END OF SITE NEAR LARGE OIL-WATER SEPARATOR

HOLE DESIGNATION: MW-2
DATE COMPLETED: APRIL 23, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	1251.6
	GROUND SURFACE	1249.1
2.5	Brown and gray SILT, some fine sand, little fine to medium gravel, little vegetation, trace metal turnings, moist, FILL	
	Same, except gray	
5.0		
	Same, with little medium sand, moist	
		1242.6
7.5	Gray SILT, little clay, fine sand, trace medium rounded gravel, trace vegetation, moist, NATIVE	
	Gray mottled SILT, little clay, fine to medium sand, trace fine gravel, moist	1240.5
10.0	Brown mottled, fine to medium SAND, little silt, moist	
	Same, with brown, little gravel and clay, wet	
12.5	Brown, fine to medium SAND, and fine GRAVEL, little silt, wet	
	Gray brown, SILT, and CLAY, trace fine rounded gravel, moist	1236.2
		1235.1
15.0	END OF HOLE @ 14.0 FT. BGS	
17.5		
20.0		
22.5		
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
8.0 to 13.0' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material. -Stainless Steel
Sand pack interval:
6.5 to 14.0' BGS
Material -#1 QROC, #4 QROC

SAMPLE NUMBER	STATE	N VALUE	HNu (ppm)
1SS		9	0.4
2SS		8	0.7
3SS		4	0.8
4SS		4	10
5SS		13	5
6SS		14	-
7SS		15	1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

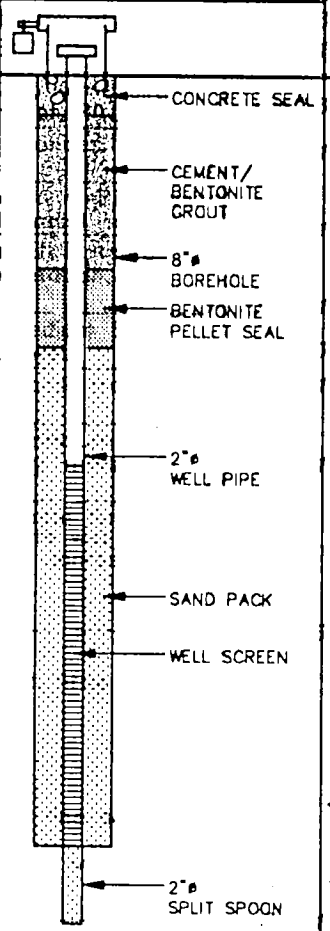
(L-12)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: NORTHWEST CORNER OF THE SITE

HOLE DESIGNATION: MW-3
DATE COMPLETED: APRIL 23, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	1252.3
	GROUND SURFACE	1250.1
	Dark brown to brown, fine SAND, some silt, little fine to medium gravel, moist, FILL	1249.3
2.5	Black cindery SLAG, little fine rounded gravel, trace sand, moist	1248.1
	Brown mottled SILT, some fine to medium sand and clay, trace angular gravel, moist to wet	1246.1
5.0	Brown mottled to yellow brown SILT, some fine sand, trace clay, trace vegetation, moist to wet, NATIVE	1244.1
	Brown to gray brown, fine to medium SAND, trace silt, fine gravel, moist to wet	1243.0
7.5	Brown mottled SILT, little fine sand, trace clay, trace fine gravel, moist	1242.1
10.0	Brown and gray brown, fine to medium SAND and GRAVEL, little silt, trace clay, moist to wet	1240.1
12.5	Brown, fine to medium SAND, some fine to medium gravel, little silt, moist to wet Same, except grading to fine to coarse, wet	
15.0	Gray brown SILT and CLAY, wet	1235.6
	Gray brown SILT, some fine sand, little clay wet	
17.5		
20.0	Brown gray SILT and CLAY, little fine sand, wet Same, except some clay, moist to wet	
22.5	END OF HOLE @ 22.0 FT. BGS	1228.1
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
10.0 to 20.0' BGS
Length -10.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
7.0 to 20.0' BGS
Material -#1 QROC, #4 QROC

SAMPLE NUMBER	STATE	N VALUE	HNU (ppm)
1SS		7	-
2SS		6	-
3SS		6	-
4SS		-	-
5SS		24	-
6SS		26	0
7SS		29	2
8SS		16	3
9SS		9	2
10SS		4	-
11SS		-	-

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-13)

PROJECT NAME: VAC-AIR ALLOYS
HOLE DESIGNATION: MW-4

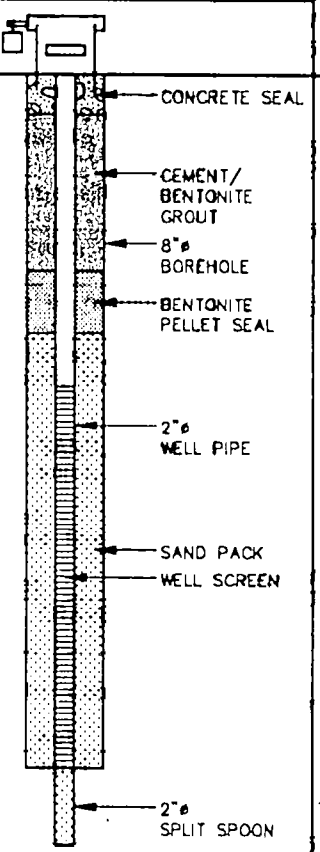
PROJECT NO.: 2326
DATE COMPLETED: APRIL 25, 1991

CLIENT: VAC-AIR ALLOYS
DRILLING METHOD: 4 1/4" ID HSA

LOCATION: WEST OF THE NORTHWEST CORNER OF THE MAIN PRODUCTION BUILDING
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	1250.1
	GROUND SURFACE	1247.5
	Brown and black SILT and fine to medium SAND, little fine to medium gravel, trace metal turnings, cinders, vegetation, moist to wet, FILL	
2.5	Brown, fine to medium SAND, some silt, little angular gravel, moist	1245.5 / 1245.2
	Gray SILT, some clay, little fine sand, moist, NATIVE	1243.5
5.0	Brown CLAY, some silt, little fine to medium sand, moist	1241.5
7.5	Brown, fine to medium SAND, little silt, little coarse sand, trace fine gravel, trace clay, moist	
	Same, except, little silt, wet	
10.0	Brown and gray, fine to medium SAND, some fine rounded gravel, little coarse sand, trace silt, wet	
	Brown, fine to medium SAND, wet	
12.5	Brown, fine to coarse SAND, some fine gravel, trace silt, wet	
	Brown, fine to medium SAND, wet	1234.4
	Brown and gray, fine to medium GRAVEL, trace fine to medium sand, wet	1234.0
15.0	Brown, fine SAND, little silt, wet	
	Brown, fine to medium SAND, little coarse sand, wet	1231.1
17.5	Same, with little silt, trace clay, wet	
	Gray SILT, some clay, some fine sand, wet	
	Same, except moist to wet	
20.0	END OF HOLE @ 20.0 FT. BGS	1227.5
22.5		
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
8.0 to 18.0' BGS
Length -10.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
6.6 to 18.0' BGS
Material -#1 QROC, #4 QROC

SAMPLE NUMBER	STATE	'N' VALUE	HNu (ppm)
1SS		9	-
2SS		22	-
3SS		15	-
4SS		19	-
5SS		11	3
6SS		4	1
7SS		10	1.5
8SS		8	8
9SS		11	35
10SS		5	45

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

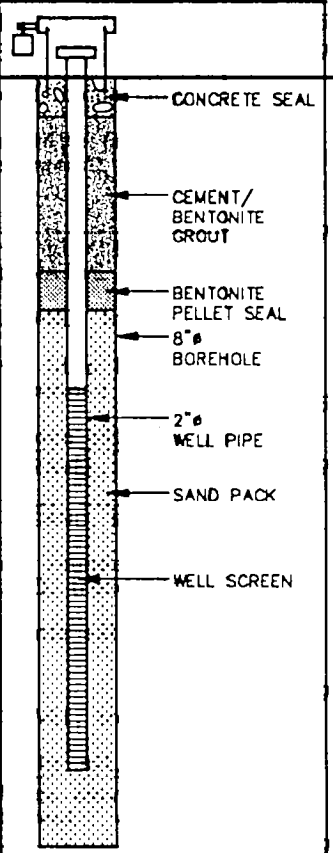
(L-14)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: BETWEEN GUARD HOUSE AND SCALE

HOLE DESIGNATION: MW-5
DATE COMPLETED: APRIL 25, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	1256.5
	GROUND SURFACE	1253.9
2.5	Dark brown SILT, some fine sand, trace clay, trace vegetation, moist, FILL Brown mottled SILT, some clay, little fine to medium sand, little fine gravel, moist	
		1249.9
5.0	Brown, medium to coarse SAND, little fine rounded gravel, trace silt, wet, NATIVE	
	Brown to gray, fine to coarse SAND, trace fine gravel, trace silt, wet	
7.5	Brown, medium to coarse SAND, little fine rounded gravel, trace medium rounded gravel, trace silt, wet	
		1245.5
	Brown, fine to medium SAND, trace silt, wet	
10.0	Brown and gray, fine rounded GRAVEL, some medium to coarse sand, wet	1243.9
	Gray brown, medium to coarse SAND, little fine rounded gravel, wet	
12.5	Same, with some fine to medium rounded gravel	
	Gray brown fine to medium SAND, trace silt, wet	
	Brown, fine to medium Sand, some silt, trace clay, wet	
15.0	Same, with little silt	
		1237.9
	Orange brown, fine rounded GRAVEL, trace sand and silt, wet	
17.5	Brown, fine to medium SAND, little silt, wet	
	Brown SILT, some fine sand, trace clay, wet	
	Same, with little clay, moist to wet	
20.0	END OF HOLE @ 20.0 FT. BGS	1233.9
22.5		
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
8.0 to 18.0' BGS
Length -10.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
6.0 to 20.0' BGS
Material -#1 QROC, #4 QROC

SAMPLE NUMBER	STATE	'N' VALUE	HNU (ppm)
1SS	X	7	-
2SS	X	20	-
3SS	X	7	-
4SS	X	13	-
5SS	X	8	-
6SS	X	5	-
7SS	X	7	-
8SS	X	6	-
9SS	X	15	-
10SS	X	10	-

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

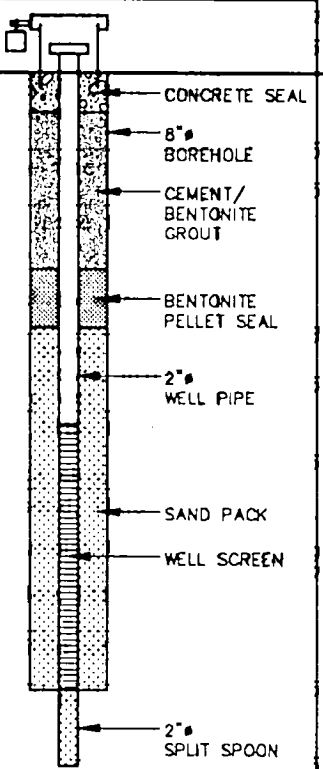
(L-15)

PROJECT NAME: VAC-AIR ALLOYS
PROJECT NO.: 2326
CLIENT: VAC-AIR ALLOYS
LOCATION: NORTH OF THE RE-MELT BUILDING

HOLE DESIGNATION: MW-6
DATE COMPLETED: APRIL 26, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	1253.7
	GROUND SURFACE	1251.5
	Brown and red and green gray SILT, some fine sand, little gravel, clay, trace metal turnings, dry to moist, FILL	
		1249.5
2.5	Dark brown SILT, little clay, trace fine sand and gravel, moist, NATIVE	1248.5
	Brown mottled CLAY, some silt, trace fine sand, fine gravel, moist	
5.0	Same, with little fine sand, moist to wet	
		1244.8
7.5	Brown and dark brown and grey brown SILT, some fine to medium sand and gravel, little coarse sand, trace clay, moist to wet	1243.5
	Brown, medium to coarse SAND, little fine gravel, trace silt, wet	
10.0	Brown, fine SAND, little silt, trace clay, wet	1241.5
	Brown mottled SILT, some fine sand, little clay, moist	
12.5	Grey SILT, little fine sand, clay, moist to wet	1238.9
	Grey to grey brown SILT, little clay, little fine sand, moist to wet	1238.7
15.0	Orange, fine to medium SAND, little silt, moist to wet	
	Brown to grey SILT, some clay, little fine sand, moist to wet	1235.5
17.5	Same, except grey	
	Gray CLAY, some silt, trace fine sand, moist	1233.5
	END OF HOLE @ 18.0 FT. BGS	
20.0		
22.5		
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
9.0 to 16.0' BGS
Length -7.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
6.5 to 16.0' BGS
Material -#1 QROC, #4 QROC

SAMPLE NUMBER	STATE	'N' VALUE	HNu (ppm)
1SS	X	33	-
2SS	X	11	-
3SS	X	18	-
4SS	X	25	-
5SS	X	8	-
6SS	X	10	-
7SS	X	9	-
8SS	X	7	-
9SS	X	4	-

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

APPENDIX E

SLUG TEST DATA

==========

TEST DESCRIPTION

Data set..... A:\MW-1.SLG
Data set title..... MW-1

Knowns and Constants:

No. of data points	28
Radius of well casing	2.54
Radius of well	10.15
Aquifer saturated thickness	449.3
Well screen length	243.8
Static height of water in well	449.3
Log(Re/Rw)	2.744
A, B, C	0.000, 0.000, 1.783

==========

ANALYTICAL METHOD

Bouwer and Rice (unconfined aquifer slug test)

==========

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	5.2598E-004	+/-	1.3650E-005
y0 =	2.1500E+001	+/-	2.0749E-001

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:

Number of residuals	28
Number of estimated parameters	2
Degrees of freedom	26
Residual mean	0.0429
Residual standard deviation	0.5889
Residual variance	0.3468

Model Residuals:

Time	Observed	Calculated	Residual
1	21.03	21.19	-0.16027
2	21.64	20.885	0.75458
3	21.03	20.585	0.44504
4	19.51	20.289	-0.77882
5	19.51	19.997	-0.48694
6	20.42	19.709	0.71074
7	19.51	19.426	0.08428
8	20.42	19.146	1.2737
9	18.9	18.871	0.029183
10	18.29	18.599	-0.30934
15	16.76	17.299	-0.53942
20	16.15	16.09	0.059654
25	14.02	14.966	-0.94578
30	14.02	13.92	0.10019
35	11.89	12.947	-1.0569
40	12.5	12.042	0.45793
50	10.36	10.418	-0.057634
60	8.23	9.0123	-0.78233
70	7.01	7.7966	-0.78659
80	7.01	6.7449	0.26514
90	6.1	5.835	0.265
100	5.49	5.0479	0.44213
110	4.88	4.3669	0.51307
120	3.96	3.7778	0.18215
130	3.35	3.2682	0.081773
140	3.35	2.8274	0.52265
150	2.74	2.446	0.29405
160	2.74	2.116	0.624

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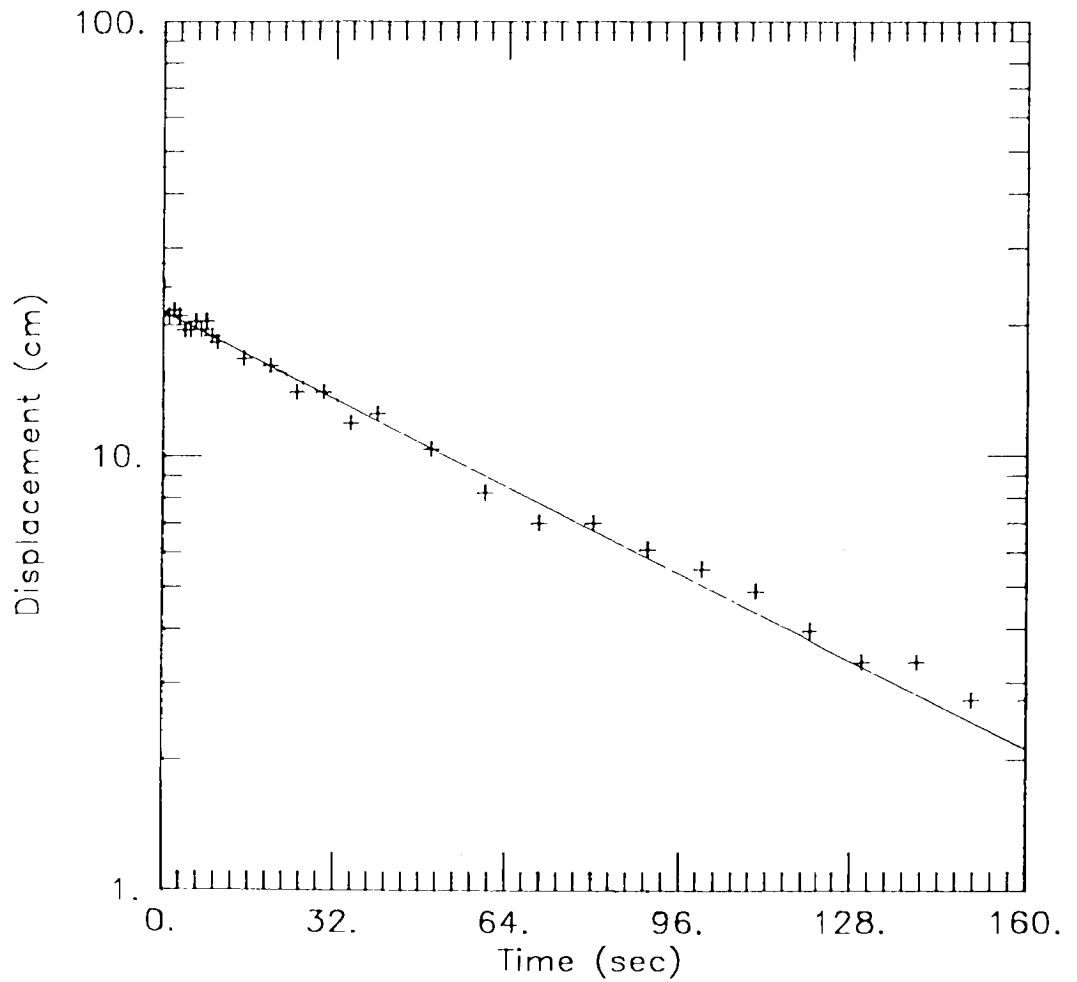
RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	5.2598E-004
y0 =	2.1500E+001

<<

MW-1



DATA SET:
A: \MW-1.SLG
09/11/91

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

ESTIMATED PARAMETERS:
K = 0.000526 cm/sec
y0 = 21.5 cm

TEST DATA:
H0 = 24.43 cm
rc = 2.54 cm
rw = 10.15 cm
L = 243.8 cm
b = 449.3 cm
H = 449.3 cm

TEST DESCRIPTION

Data set..... a:\mw-2.slg
Data set title..... MW-2

Knowns and Constants:

No. of data points	16
Radius of well casing	2.54
Radius of well	10.15
Aquifer saturated thickness	182.9
Well screen length	198.1
Static height of water in well	182.9
Log(Re/Rw)	2.152
A, B, C	0.000, 0.000, 1.646

ANALYTICAL METHOD

Bouwer and Rice (unconfined aquifer slug test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	3.5483E-003	+/-	2.7855E-004
y0 =	1.7533E+001	+/-	7.3717E-001

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:

Number of residuals	16
Number of estimated parameters	2
Degrees of freedom	14
Residual mean	0.2504
Residual standard deviation	0.8951
Residual variance	0.8012

Model Residuals:

Time	Observed	Calculated	Residual
1	17.37	15.844	1.5258
2	14.63	14.318	0.31197
3	12.5	12.939	-0.43887
4	11.28	11.693	-0.41256
5	9.75	10.566	-0.81629
6	9.14	9.5485	-0.40851
7	7.62	8.6288	-1.0088
8	7.62	7.7976	-0.17761
9	7.01	7.0465	-0.03652
10	6.1	6.3678	-0.26778
15	3.96	3.8375	0.12246
20	3.35	2.3127	1.0373
25	2.74	1.3937	1.3463
30	1.83	0.83994	0.99006
35	1.83	0.50619	1.3238
40	1.22	0.30506	0.91494

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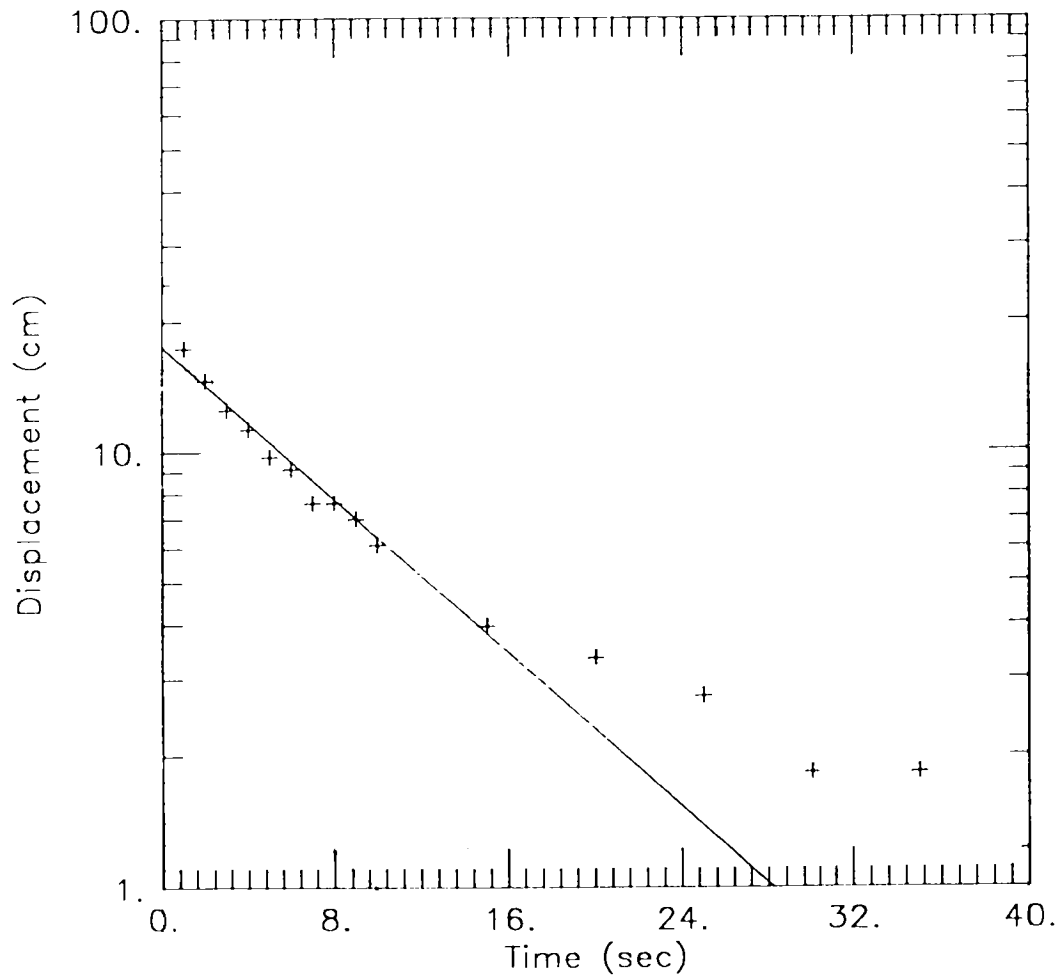
RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	3.5483E-003
y0 =	1.7533E+001

<<

MW-2



DATA SET:
a: \mw-2.slg
09/11/91

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

ESTIMATED PARAMETERS:
K = 0.003548 cm/sec
y0 = 17.53 cm

TEST DATA:
H0 = 24.43 cm
rc = 2.54 cm
rw = 10.15 cm
L = 198.1 cm
b = 182.9 cm
H = 182.9 cm

TEST DESCRIPTION

Data set..... A:\MW-3.SLG
Data set title..... MW-3

Knowns and Constants:

No. of data points	17
Radius of well casing	2.54
Radius of well	10.15
Aquifer saturated thickness	394.7
Well screen length	396.2
Static height of water in well	394.7
Log(Re/Rw)	2.789
A, B, C	0.000, 0.000, 2.264

ANALYTICAL METHOD

Bouwer and Rice (unconfined aquifer slug test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	1.6073E-005	+/-	9.6985E-007
y0 =	2.1978E+001	+/-	4.9640E-001

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:

Number of residuals	17
Number of estimated parameters	2
Degrees of freedom	15
Residual mean	-0.01537
Residual standard deviation	1.153
Residual variance	1.329

Model Residuals:

Time	Observed	Calculated	Residual
10	23.77	21.823	1.9474
30	22.25	21.516	0.73415
50	19.51	21.213	-1.7034
75	19.51	20.841	-1.3314
100	19.51	20.476	-0.96585
200	18.29	19.077	-0.78673
300	18.29	17.773	0.51678
500	16.76	15.427	1.3327
700	15.24	13.391	1.849
900	12.5	11.624	0.87646
1100	9.75	10.089	-0.33934
1200	8.23	9.3999	-1.1699
1500	7.01	7.6017	-0.5917
1700	5.49	6.5983	-1.1083
2000	5.49	5.3361	0.15394
2500	3.96	3.7457	0.21431
3000	2.74	2.6293	0.11069

==========

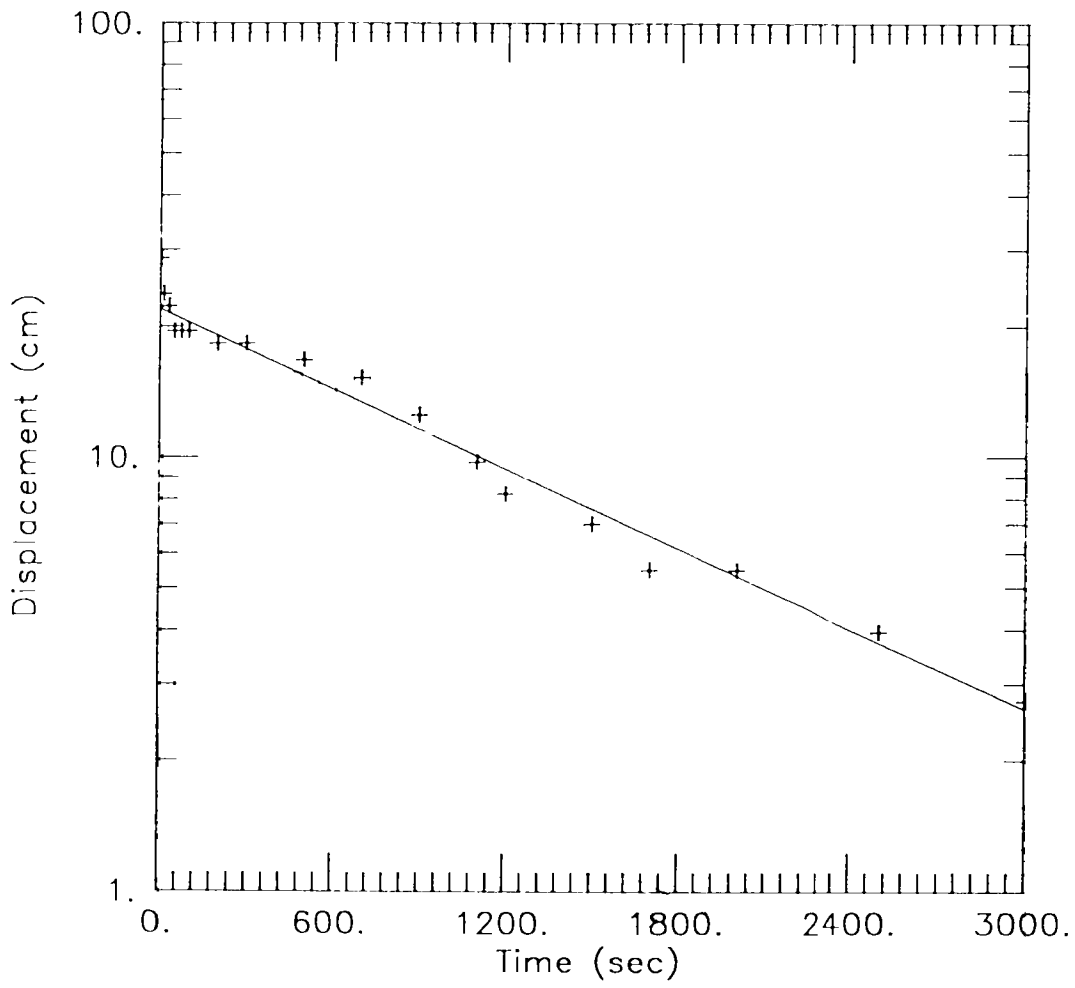
RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	1.6073E-005
y0 =	2.1978E+001

<<

MW-3



DATA SET:
A:\MW-3.SLG
09/11/91

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

ESTIMATED PARAMETERS:
K = 1.6073E-05 cm/sec
y0 = 21.98 cm

TEST DATA:
H0 = 28.65 cm
rc = 2.54 cm
rw = 10.15 cm
L = 396.2 cm
b = 394.7 cm
H = 394.7 cm

==========

TEST DESCRIPTION

Data set..... A:\MW-4.SLG
Data set title..... MW-4

Knowns and Constants:

No. of data points	32
Radius of well casing	2.54
Radius of well	10.15
Aquifer saturated thickness	510.2
Well screen length	347.5
Static height of water in well	510.2
Log(Re/Rw)	2.921
A, B, C	0.000, 0.000, 2.105

==========

ANALYTICAL METHOD

Bouwer and Rice (unconfined aquifer slug test)

==========

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	7.3887E-004	+/-	4.6136E-005
y0 =	1.8013E+001	+/-	4.7951E-001

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:

Number of residuals	32
Number of estimated parameters	2
Degrees of freedom	30
Residual mean	0.047
Residual standard deviation	1.351
Residual variance	1.825

Model Residuals:

Time	Observed	Calculated	Residual
1	21.03	17.529	3.5011
2	18.9	17.058	1.8422
3	15.54	16.599	-1.0594
4	14.02	16.153	-2.1332
5	14.02	15.719	-1.6991
10	12.8	13.717	-0.9172
15	11.28	11.97	-0.69028
20	9.75	10.446	-0.69584
25	9.14	9.1155	0.024463
30	8.53	7.9547	0.57535
35	7.01	6.9416	0.068392
40	6.4	6.0576	0.34242
45	5.79	5.2861	0.50387
50	4.88	4.6129	0.26707
60	4.27	3.5128	0.75719
70	2.74	2.6751	0.064947
1	21.03	17.529	3.5011
2	18.9	17.058	1.8422
3	15.54	16.599	-1.0594
4	14.02	16.153	-2.1332
5	14.02	15.719	-1.6991
10	12.8	13.717	-0.9172
15	11.28	11.97	-0.69028
20	9.75	10.446	-0.69584
25	9.14	9.1155	0.024463
30	8.53	7.9547	0.57535
35	7.01	6.9416	0.068392
40	6.4	6.0576	0.34242
45	5.79	5.2861	0.50387
50	4.88	4.6129	0.26707
60	4.27	3.5128	0.75719
70	2.74	2.6751	0.064947

==========

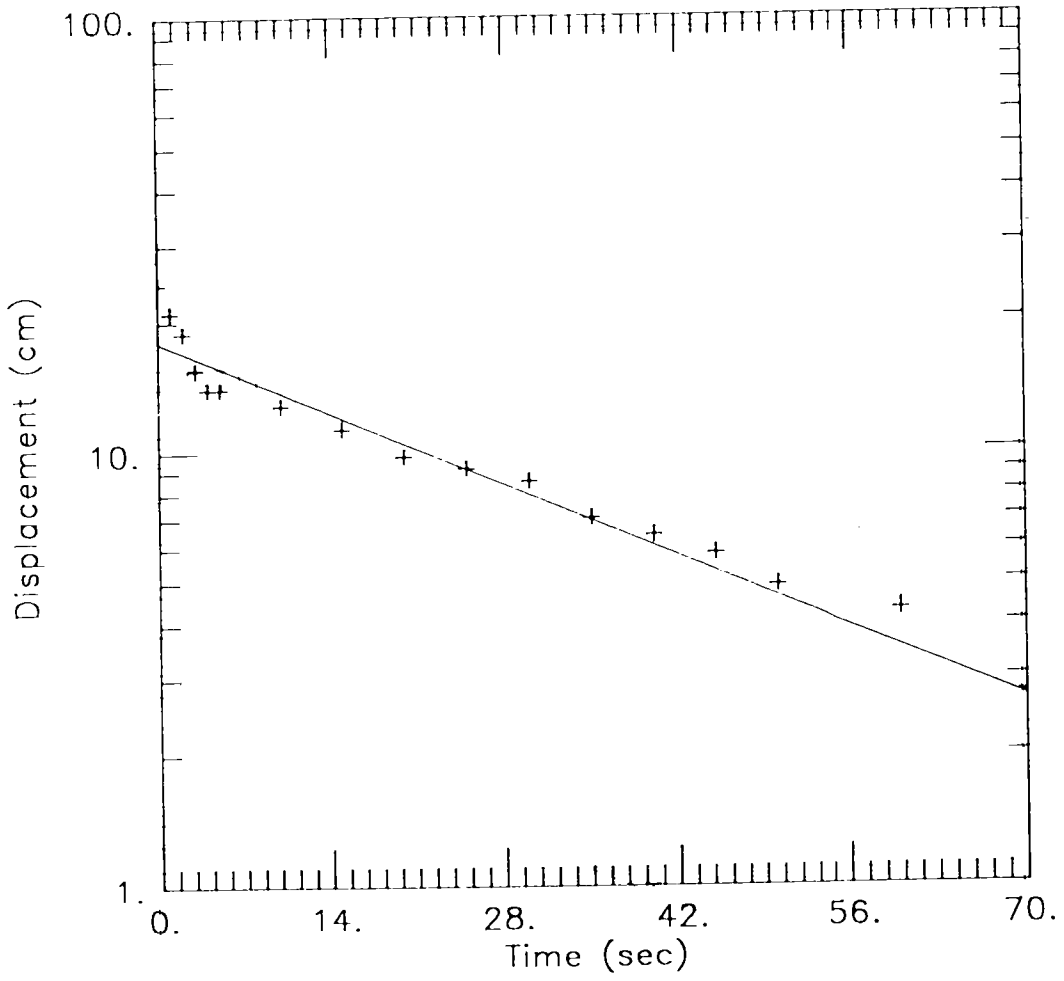
RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	7.3887E-004
y0 =	1.8013E+001

<<

MW-4



DATA SET:
A: \MW-4.SLG
09/11/91

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

ESTIMATED PARAMETERS:
K = 0.0007389 cm/sec
y0 = 18.01 cm

TEST DATA:
H0 = 24.43 cm
rc = 2.54 cm
rw = 10.15 cm
L = 347.5 cm
b = 510.2 cm
H = 510.2 cm

TEST DESCRIPTION

Data set..... A:\MW-5.SLG
Data set title..... MW-5

Knowns and Constants:

No. of data points	48
Radius of well casing	2.54
Radius of well	10.15
Aquifer saturated thickness	416.1
Well screen length	365.8
Static height of water in well	416.1
Log(Re/Rw)	2.807
A, B, C	0.000, 0.000, 2.164

ANALYTICAL METHOD

Bouwer and Rice (unconfined aquifer slug test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	2.5628E-003	+/-	2.5535E-005
y0 =	1.9200E+001	+/-	1.1144E-001

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:

Number of residuals	48
Number of estimated parameters	2
Degrees of freedom	46
Residual mean	-0.03059
Residual standard deviation	0.2368
Residual variance	0.05607

Model Residuals:

Time	Observed	Calculated	Residual
1	17.37	17.312	0.058036
2	15.24	15.609	-0.36927
3	14.02	14.074	-0.054034
4	12.5	12.69	-0.1898
5	11.89	11.442	0.44829
6	10.36	10.316	0.043629
7	9.75	9.3017	0.44828
8	8.23	8.3869	-0.15686
9	7.62	7.562	0.058023
10	7.01	6.8182	0.19177
11	6.1	6.1476	-0.047628
12	5.49	5.543	-0.052985
15	3.96	4.063	-0.10305
20	2.13	2.4212	-0.29121
25	1.22	1.4428	-0.22282
30	0.61	0.85979	-0.24979
1	17.37	17.312	0.058036
2	15.24	15.609	-0.36927
3	14.02	14.074	-0.054034
4	12.5	12.69	-0.1898
5	11.89	11.442	0.44829
6	10.36	10.316	0.043629
7	9.75	9.3017	0.44828
8	8.23	8.3869	-0.15686
9	7.62	7.562	0.058023
10	7.01	6.8182	0.19177
11	6.1	6.1476	-0.047628
12	5.49	5.543	-0.052985
15	3.96	4.063	-0.10305
20	2.13	2.4212	-0.29121
25	1.22	1.4428	-0.22282
30	0.61	0.85979	-0.24979
1	17.37	17.312	0.058036
2	15.24	15.609	-0.36927
3	14.02	14.074	-0.054034
4	12.5	12.69	-0.1898
5	11.89	11.442	0.44829
6	10.36	10.316	0.043629
7	9.75	9.3017	0.44828
8	8.23	8.3869	-0.15686
9	7.62	7.562	0.058023
10	7.01	6.8182	0.19177
11	6.1	6.1476	-0.047628
12	5.49	5.543	-0.052985
15	3.96	4.063	-0.10305
20	2.13	2.4212	-0.29121
25	1.22	1.4428	-0.22282
30	0.61	0.85979	-0.24979

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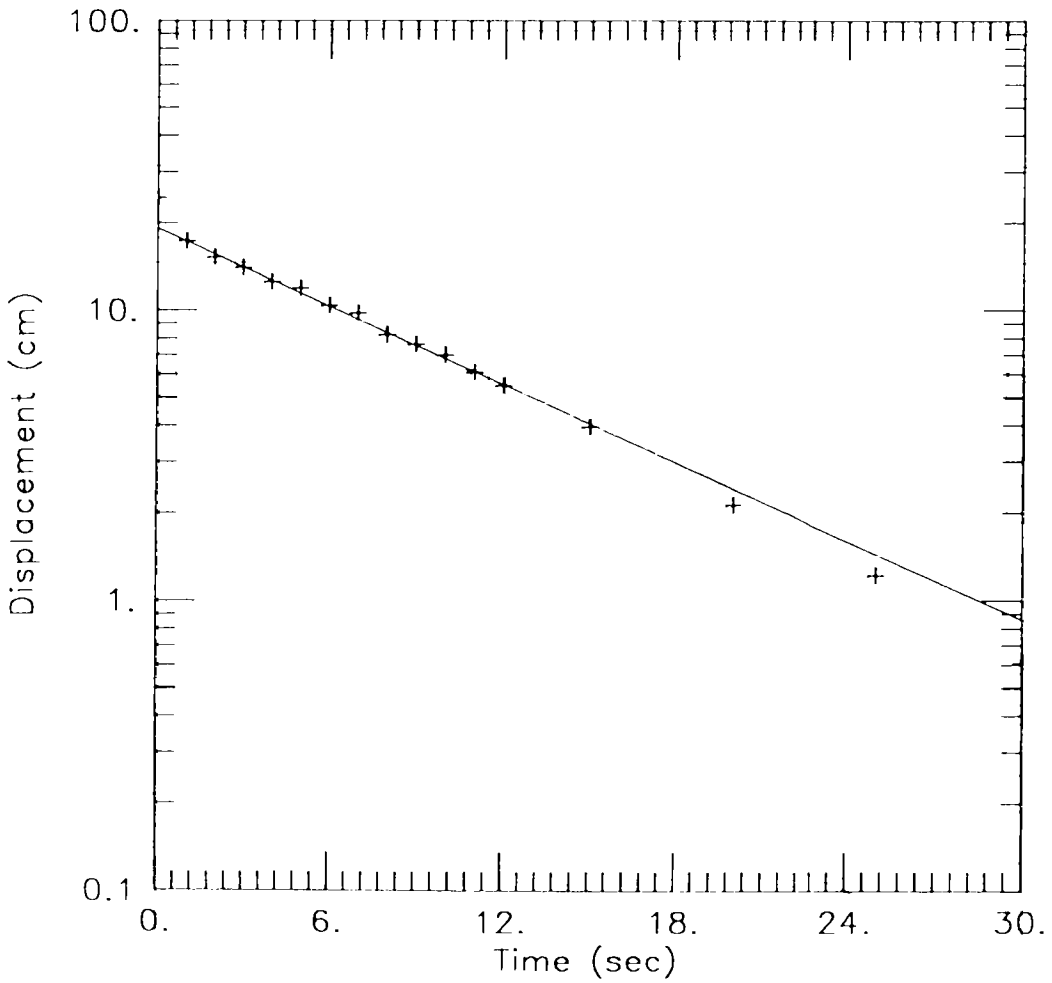
RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	2.5628E-003
y0 =	1.9200E+001

<<

MW-5



DATA SET:
A: \MW-5.SLG
09/11/91

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

ESTIMATED PARAMETERS:
K = 0.002563 cm/sec
y0 = 19.2 cm

TEST DATA:
H0 = 24.43 cm
rc = 2.54 cm
rw = 10.15 cm
L = 365.8 cm
b = 416.1 cm
H = 416.1 cm

==========

TEST DESCRIPTION

Data set..... MW-6.SLG
Data set title..... VAC AIR WELL MW-6

Knowns and Constants:

No. of data points	23
Radius of well casing	2.54
Radius of well	10.15
Aquifer saturated thickness	353.3
Well screen length	289.6
Static height of water in well	353.3
Log(Re/Rw)	2.651
A, B, C	0.000, 0.000, 1.923

==========

ANALYTICAL METHOD

Bouwer and Rice (unconfined aquifer slug test)

==========

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	4.8979E-004	+/-	2.2617E-005
y0 =	1.9371E+001	+/-	3.7510E-001

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:

Number of residuals	23
Number of estimated parameters	2
Degrees of freedom	21
Residual mean	0.09382
Residual standard deviation	0.86
Residual variance	0.7396

Model Residuals:

Time	Observed	Calculated	Residual
1	21.95	19.052	2.8981
2	19.2	18.739	0.46148
3	17.07	18.43	-1.3603
4	18.29	18.127	0.16291
5	17.68	17.829	-0.1489
10	15.54	16.41	-0.86991
15	14.94	15.104	-0.16387
20	13.41	13.902	-0.49177
25	11.89	12.795	-0.90534
30	11.28	11.777	-0.49697
35	10.67	10.84	-0.16966
40	9.75	9.9769	-0.22694
45	8.53	9.1829	-0.65289
50	8.53	8.452	0.077967
60	7.01	7.1602	-0.1502
70	6.4	6.0658	0.33419
80	5.79	5.1387	0.65131
90	4.88	4.3533	0.52673
100	4.27	3.6879	0.58209
125	2.74	2.4361	0.30393
150	2.13	1.6092	0.52084
175	1.52	1.0629	0.45706
200	1.52	0.70213	0.81787

==========

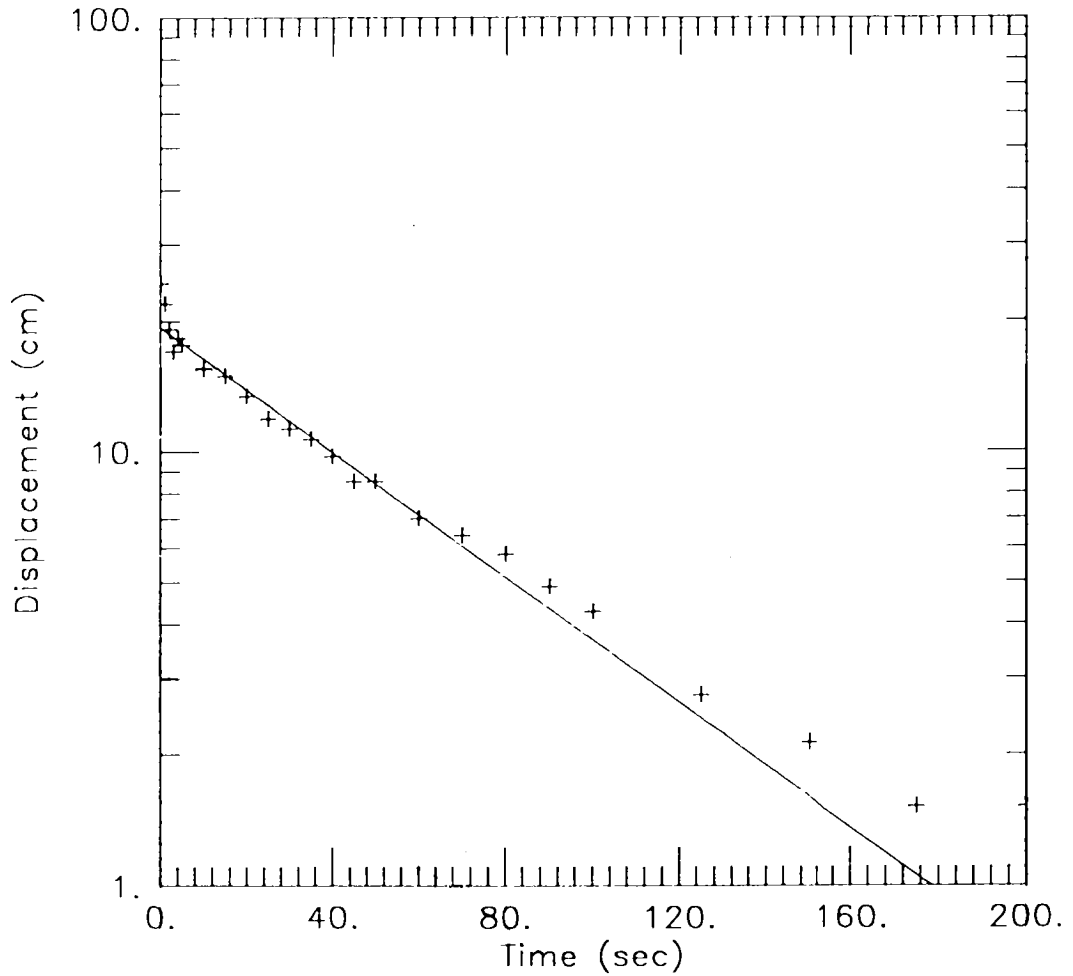
RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	4.8979E-004
y0 =	1.9371E+001

<<

MW-6



DATA SET:
A: \MW-6.SLG
09/11/91

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

ESTIMATED PARAMETERS:
K = 0.0004898 cm/sec
y0 = 19.37 cm

TEST DATA:
H0 = 24.43 cm
rc = 2.54 cm
rw = 10.15 cm
L = 289.6 cm
b = 353.3 cm
H = 353.3 cm

APPENDIX F

ANALYTICAL DATA SUMMARY SHEETS

AND COMPLETED CHAIN OF CUSTODY FORMS

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List
Report Date: 02/22/91 17:39

RFW Batch Number: 9101L288 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1a

	Cust ID:	BH-1 1/30	BH-1 1/30	6-1 1/30	VBLK V
Sample Information	RFW#:	001	001	002	91LVX007-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	0.980	1.02	1.00	1.00
	Units:	ug/Kg	ug/Kg REPREP	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	69 * %	69 * %	83 %	99 %
	Bromofluorobenzene	64 * %	69 * %	83 %	97 %
	1,2-Dichloroethane-d4	69 * %	77 %	93 %	103 %
Chloromethane		12 U	13 U	12 U	10 U
Bromomethane		12 U	13 U	12 U	10 U
Vinyl Chloride		12 U	13 U	12 U	10 U
Chloroethane		12 U	13 U	12 U	10 U
Methylene Chloride		60 B	53 B	65 B	7
Acetone		34 B	40 B	22 B	13
Carbon Disulfide		6 U	6 U	6 U	5 U
1,1-Dichloroethene		6 U	6 U	6 U	5 U
1,1-Dichloroethane		6 U	6 U	6 U	5 U
1,2-Dichloroethene (total)		6 U	6 U	6 U	5 U
Chloroform		6 U	6 U	6 U	5 U
1,2-Dichloroethane		6 U	6 U	6 U	5 U
2-Butanone		12 U	13 U	12 U	10 U
1,1,1-Trichloroethane		6 U	6 U	6 U	5 U
Carbon Tetrachloride		6 U	6 U	6 U	5 U
Vinyl Acetate		12 U	13 U	12 U	10 U
Bromodichloromethane		6 U	6 U	6 U	5 U
1,2-Dichloropropane		6 U	6 U	6 U	5 U
cis-1,3-Dichloropropene		6 U	6 U	6 U	5 U
Trichloroethene		14	14	110	5 U
Dibromochloromethane		6 U	6 U	6 U	5 U
1,1,2-Trichloroethane		6 U	6 U	6 U	5 U
Benzene		6 U	6 U	6 U	5 U
Trans-1,3-Dichloropropene		6 U	6 U	6 U	5 U
Bromoform		6 U	6 U	6 U	5 U
4-Methyl-2-pentanone		12 U	13 U	12 U	10 U
2-Hexanone		12 U	13 U	12 U	10 U
Tetrachloroethene		6 U	6 U	6 U	5 U
1,1,2,2-Tetrachloroethane		6 U	6 U	6 U	5 U

*= Outside of EPA CLP QC limits.

Cust ID:	BH-1	BH-1	6-1	VBLK
RFW#:	001	001 REPREP	002	91LVX007-MB1
Toluene	6 U	6 U	6 U	5 U
Chlorobenzene	6 U	6 U	6 U	5 U
Ethylbenzene	6 U	6 U	6 U	5 U
Styrene	6 U	6 U	6 U	5 U
Xylene (total)	6 U	6 U	6 U	5 U

*= Outside of EPA CLP QC limits.

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Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List
Report Date: 04/16/91 15:36

RFW Batch Number: 9101L328 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1a

	Cust ID:	BH5B-1 1/31	BH5B-1 1/31	BH5B-2 1/30	BH5B-2 1/30	BH5B-2 1/30	BH5B-3 1/30
Sample Information	RFW#:	001	001 DL	002	002 MS	002 MSD	003
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	0.980	1.25	1.00	1.02	1.02	0.980
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
	Level:	LOW	MED	LOW	LOW	LOW	LOW
Surrogate Recovery	Toluene-d8	89 %	90 %	95 %	99 %	106 %	100 %
	Bromofluorobenzene	78 %	90 %	92 %	98 %	103 %	88 %
	1,2-Dichloroethane-d4	92 %	103 %	110 %	119 %	123 * %	116 %
Chloromethane		12 U	NA	12 U	13 U	13 U	11 U
Bromomethane		12 U	NA	12 U	13 U	13 U	11 U
Vinyl Chloride		12 U	NA	12 U	13 U	13 U	11 U
Chloroethane		12 U	NA	12 U	13 U	13 U	11 U
Methylene Chloride		24 B	NA	56 B	52 B	63 B	50 B
Acetone		16 B	NA	58 B	58 B	54 B	37 B
Carbon Disulfide		6 U	NA	6 U	6 U	6 U	6 U
1,1-Dichloroethene		6 U	NA	6 U	92 %	98 %	6 U
1,1-Dichloroethane		6 U	NA	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)		22	NA	6 U	6 U	6 U	5 J
Chloroform		6 U	NA	6 U	6 U	6 U	6 U
1,2-Dichloroethane		6 U	NA	6 U	6 U	6 U	6 U
2-Butanone		12 U	NA	12 U	13 U	13 U	11 U
1,1,1-Trichloroethane		6 U	NA	6 U	6 U	6 U	6 U
Carbon Tetrachloride		6 U	NA	6 U	6 U	6 U	6 U
Vinyl Acetate		12 U	NA	12 U	13 U	13 U	11 U
Bromodichloromethane		6 U	NA	6 U	6 U	6 U	6 U
1,2-Dichloropropane		6 U	NA	6 U	6 U	6 U	6 U
cis-1,3-Dichloropropene		6 U	NA	6 U	6 U	6 U	6 U
Trichloroethene		E	2000	13	102 %	99 %	E
Dibromochloromethane		6 U	NA	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane		6 U	NA	6 U	6 U	6 U	6 U
Benzene		6 U	NA	6 U	87 %	88 %	6 U
Trans-1,3-Dichloropropene		6 U	NA	6 U	6 U	6 U	6 U
Bromoform		6 U	NA	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone		12 U	NA	12 U	13 U	13 U	11 U
2-Hexanone		12 U	NA	12 U	13 U	13 U	11 U
Tetrachloroethene		4 J	NA	3 J	2 J	6 U	6
1,1,2,2-Tetrachloroethane		6 U	NA	6 U	6 U	6 U	6 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9101L328 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1b

Cust ID:	BH5B-1	BH5B-1	BH5B-2	BH5B-2	BH5B-2	BH5B-3
RFW#:	001	001 DL	002	002 MS	002 MSD	003
Level:	LOW	MED	LOW	LOW	LOW	LOW
Toluene	6 U	NA	6 U	88 %	92 %	6 U
Chlorobenzene	6 U	NA	6 U	91 %	99 %	6 U
Ethylbenzene	6 U	NA	6 U	6 U	6 U	6 U
Styrene	6 U	NA	6 U	6 U	6 U	6 U
Xylene (total)	6 U	NA	6 U	6 U	6 U	6 U

** Outside of EPA CLP QC limits.

5 0 0 0 0 0 0

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List

RFW Batch Number: 9101L328 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 03/09/91 21:49 Page: 2a

	Cust ID:	BH5B-3	BH5A-3	BH5A-3	TRIP BLANK	VBLK	VBLK
		1/30	1/30	1/31	1/28		
Sample	RFW#:	003 DL	004	004 DL	005	91LVX009-MB1	91LVX008-MB1
Information	Matrix:	SOIL	SOIL	SOIL	WATER	SOIL	SOIL
	D.F.:	1.22	4.55	1.28	1.00	1.00	1.25
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg
	Level:	MED	LOW	MED	LOW	LOW	MED
	Toluene-d8	93 %	94 %	89 %	105 %	99 %	100 %
Surrogate	Bromofluorobenzene	90 %	89 %	86 %	99 %	96 %	97 %
Recovery	1,2-Dichloroethane-d4	99 %	119 %	100 %	103 %	108 %	104 %
		fl	fl	fl	fl	fl	fl
Chloromethane		NA	61 U	NA	10 U	10 U	1200 U
Bromomethane		NA	61 U	NA	10 U	10 U	1200 U
Vinyl Chloride		NA	41 J	NA	10 U	10 U	1200 U
Chloroethane		NA	61 U	NA	10 U	10 U	1200 U
Methylene Chloride		NA	290 B	NA	4 JB	3 J	2300
Acetone		NA	400 B	NA	14	7 J	1500
Carbon Disulfide		NA	30 U	NA	5 U	5 U	620 U
1,1-Dichloroethene		NA	30 U	NA	5 U	5 U	620 U
1,1-Dichloroethane		NA	30 U	NA	5 U	5 U	620 U
1,2-Dichloroethene (total)		NA	780	NA	5 U	5 U	620 U
Chloroform		NA	30 U	NA	5 U	5 U	620 U
1,2-Dichloroethane		NA	30 U	NA	5 U	5 U	620 U
2-Butanone		NA	61 U	NA	10 U	10 U	1200 U
1,1,1-Trichloroethane		NA	30 U	NA	5 U	5 U	620 U
Carbon Tetrachloride		NA	30 U	NA	5 U	5 U	620 U
Vinyl Acetate		NA	61 U	NA	10 U	10 U	1200 U
Bromodichloromethane		NA	30 U	NA	5 U	5 U	620 U
1,2-Dichloropropane		NA	30 U	NA	5 U	5 U	620 U
cis-1,3-Dichloropropene		NA	30 U	NA	5 U	5 U	620 U
Trichloroethene		4900	E	12000	5 U	5 U	620 U
Dibromochloromethane		NA	30 U	NA	5 U	5 U	620 U
1,1,2-Trichloroethane		NA	30 U	NA	5 U	5 U	620 U
Benzene		NA	30 U	NA	5 U	5 U	620 U
Trans-1,3-Dichloropropene		NA	30 U	NA	5 U	5 U	620 U
Bromoform		NA	30 U	NA	5 U	5 U	620 U
4-Methyl-2-pentanone		NA	61 U	NA	10 U	10 U	1200 U
2-Hexanone		NA	61 U	NA	10 U	10 U	1200 U
Tetrachloroethene		NA	30 U	NA	5 U	5 U	620 U
1,1,2,2-Tetrachloroethane		NA	30 U	NA	5 U	5 U	620 U

*= Outside of EPA CLP QC limits.

Cust ID:	BH5B-3	BH5A-3	BH5A-3	TRIP BLANK	VBLK	VBLK
RFW#:	003 DL	004	004 DL	005	91LVX009-MB1	91LVX008-MB1
Level:	MED	LOW	MED	LOW	LOW	MED
Toluene	NA	30 U	NA	5 U	5 U	620 U
Chlorobenzene	NA	30 U	NA	5 U	5 U	620 U
Ethylbenzene	NA	30 U	NA	5 U	5 U	620 U
Styrene	NA	30 U	NA	5 U	5 U	620 U
Xylene (total)	NA	30 U	NA	5 U	5 U	620 U

* Outside of EPA CLP QC limits.

000007

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List
Report Date: 03/09/91 21:49

RFW Batch Number: 9101L328 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 3a

	Cust ID:	VBLK	VBLK
Sample Information	RFW#:	91LVX007-MB1	91LVK017-MB1
	Matrix:	SOIL	WATER
	D.F.:	1.00	1.00
	Units:	ug/Kg	ug/L
	Level:	LOW	LOW

Surrogate Recovery	Toluene-d8	99	%	102	%
	Bromofluorobenzene	97	%	99	%
	1,2-Dichloroethane-d4	103	%	101	%
	Chloromethane	10	U	10	U
	Bromomethane	10	U	10	U
	Vinyl Chloride	10	U	10	U
	Chloroethane	10	U	10	U
	Methylene Chloride	7		2	J
	Acetone	13		10	U
	Carbon Disulfide	5	U	5	U
	1,1-Dichloroethene	5	U	5	U
	1,1-Dichloroethane	5	U	5	U
	1,2-Dichloroethene (total)	5	U	5	U
	Chloroform	5	U	5	U
	1,2-Dichloroethane	5	U	5	U
	2-Butanone	10	U	10	U
	1,1,1-Trichloroethane	5	U	5	U
	Carbon Tetrachloride	5	U	5	U
	Vinyl Acetate	10	U	10	U
	Bromodichloromethane	5	U	5	U
	1,2-Dichloropropane	5	U	5	U
	cis-1,3-Dichloropropene	5	U	5	U
	Trichloroethene	5	U	5	U
	Dibromochloromethane	5	U	5	U
	1,1,2-Trichloroethane	5	U	5	U
	Benzene	5	U	5	U
	Trans-1,3-Dichloropropene	5	U	5	U
	Bromoform	5	U	5	U
	4-Methyl-2-pentanone	10	U	10	U
	2-Hexanone	10	U	10	U
	Tetrachloroethene	5	U	5	U
	1,1,2,2-Tetrachloroethane	5	U	5	U

*= Outside of EPA CLP QC limits.

	Cust ID:	VBLK	VBLK
	RFW#:	91LVX007-MB1	91LVK017-MB1
	Level:	LOW	LOW
Toluene		5 U	5 U
Chlorobenzene		5 U	5 U
Ethylbenzene		5 U	5 U
Styrene		5 U	5 U
Xylene (total)		5 U	5 U

*= Outside of EPA CLP QC limits.

0000000

Roy F. Weston, Inc. - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 03/14/91 15:33

RFW Batch Number: 9101L350 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1a

	Cust ID:	BH13-1 2/4	BHA-1 2/4	BH12-1 2/4	SS-1 2/5	BHRB-1 1/31	VBLK
Sample Information	RFW#:	001	002	003	004	008	91LVX011-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	WATER	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg
Surrogate Recovery	Toluene-d8	93 %	93 %	94 %	105 %	104 %	98 %
	Bromofluorobenzene	87 %	84 %	96 %	97 %	102 %	97 %
	1,2-Dichloroethane-d4	94 %	93 %	100 %	99 %	100 %	99 %
Chloromethane		12 U	12 U	11 U	16 U	10 U	10 U
Bromomethane		12 U	12 U	11 U	16 U	10 U	10 U
Vinyl Chloride		12 U	12 U	11 U	16 U	10 U	10 U
Chloroethane		12 U	12 U	11 U	16 U	10 U	10 U
Methylene Chloride		35 B	34 B	28 B	82 B	11 B	5
Acetone		29 B	43 B	33 B	19 B	10 U	14
Carbon Disulfide		6 U	6 U	6 U	8 U	5 U	5 U
1,1-Dichloroethene		6 U	6 U	6 U	8 U	5 U	5 U
1,1-Dichloroethane		6 U	6 U	6 U	8 U	5 U	5 U
1,2-Dichloroethene (total)		6 U	6 U	6 U	8 U	5 U	5 U
Chloroform		6 U	6 U	6 U	8 U	5 U	5 U
1,2-Dichloroethane		6 U	6 U	6 U	8 U	5 U	5 U
2-Butanone		12 U	12 U	11 U	16 U	10 U	10 U
1,1,1-Trichloroethane		6 U	6 U	6 U	8 U	5 U	5 U
Carbon Tetrachloride		6 U	6 U	6 U	8 U	5 U	5 U
Vinyl Acetate		12 U	12 U	11 U	16 U	10 U	10 U
Bromodichloromethane		6 U	6 U	6 U	8 U	5 U	5 U
1,2-Dichloropropane		6 U	6 U	6 U	8 U	5 U	5 U
cis-1,3-Dichloropropene		6 U	6 U	6 U	8 U	5 U	5 U
Trichloroethene		6 U	4 J	6 U	38	3 J	5 U
Dibromochloromethane		6 U	6 U	6 U	8 U	5 U	5 U
1,1,2-Trichloroethane		6 U	6 U	6 U	8 U	5 U	5 U
Benzene		6 U	6 U	6 U	8 U	5 U	5 U
Trans-1,3-Dichloropropene		6 U	6 U	6 U	8 U	5 U	5 U
Bromoform		6 U	6 U	6 U	8 U	5 U	5 U
4-Methyl-2-pentanone		12 U	12 U	11 U	16 U	10 U	10 U
2-Hexanone		12 U	12 U	11 U	16 U	10 U	10 U
Tetrachloroethene		6 U	6 U	6 U	8 U	5 U	5 U
1,1,2,2-Tetrachloroethane		6 U	6 U	6 U	8 U	5 U	5 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9101L350 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1b

Cust ID:	BH13-1	BHA-1	BH12-1	SS-1	BHRB-1	VBLK
RFW#:	001	002	003	004	008	91LVX011-MB1
Toluene	6 U	6 U	6 U	8 U	5 U	5 U
Chlorobenzene	6 U	6 U	6 U	8 U	5 U	5 U
Ethylbenzene	6 U	6 U	6 U	8 U	5 U	5 U
Styrene	6 U	6 U	6 U	8 U	5 U	5 U
Xylene (total)	6 U	6 U	6 U	8 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory

Volatiles by GC/MS, HSL List — Report Date: 03/14/91 15:33

RFW Batch Number: 9101L350 — Client: CRA-FREWSBERG — Work Order: 5335-03-01-0000 — Page: 2a

	Cust ID:	VBLK		VBLK		
Sample Information	RFW#:	91LVX012-MB1		91LVX020-MB1		
	Matrix:	SOIL		WATER		
	D.F.:	1.00		1.00		
	Units:	ug/Kg		ug/L		
Surrogate Recovery	Toluene-d8	106	%	106	%	
	Bromofluorobenzene	104	%	102	%	
	1,2-Dichloroethane-d4	104	%	102	%	
Chloromethane		10	U	10	U	
Bromomethane		10	U	10	U	
Vinyl Chloride		10	U	10	U	
Chloroethane		10	U	10	U	
Methylene Chloride		10		8		
Acetone		12		10	U	
Carbon Disulfide		5	U	5	U	
1,1-Dichloroethene		5	U	5	U	
1,1-Dichloroethane		5	U	5	U	
1,2-Dichloroethene (total)		5	U	5	U	
Chloroform		5	U	5	U	
1,2-Dichloroethane		5	U	5	U	
2-Butanone		10	U	10	U	
1,1,1-Trichloroethane		5	U	5	U	
Carbon Tetrachloride		5	U	5	U	
Vinyl Acetate		10	U	10	U	
Bromodichloromethane		5	U	5	U	
1,2-Dichloropropane		5	U	5	U	
cis-1,3-Dichloropropene		5	U	5	U	
Trichloroethene		5	U	5	U	
Dibromochloromethane		5	U	5	U	
1,1,2-Trichloroethane		5	U	5	U	
Benzene		5	U	5	U	
Trans-1,3-Dichloropropene		5	U	5	U	
Bromoform		5	U	5	U	
4-Methyl-2-pentanone		10	U	10	U	
2-Hexanone		10	U	10	U	
Tetrachloroethene		5	U	5	U	
1,1,2,2-Tetrachloroethane		5	U	5	U	

*= Outside of EPA CLP QC limits.

	Cust ID:	VBLK	VBLK
	RFW#:	91LVX012-MB1	91LVK020-MB1
Toluene		5 U	5 U
Chlorobenzene		5 U	5 U
Ethylbenzene		5 U	5 U
Styrene		5 U	5 U
Xylene (total)		5 U	5 U

*= Outside of EPA CLP QC limits.

000007

Report Date: 02/11/91 10:25

Cust ID: VBLK

Sample Information

RFW#: 90LVK202-MB1
Matrix: WATER
D.F.: 1.00
Units: ug/L
Level: LOW

Surrogate Recovery	Toluene-d8	109	%
	Bromofluorobenzene	101	%
	1,2-Dichloroethane-d4	108	%

Chloromethane	10	U
Bromomethane	10	U
Vinyl Chloride	10	U
Chloroethane	10	U
Methylene Chloride	10	
Acetone	12	
Carbon Disulfide	5	U
1,1-Dichloroethene	5	U
1,1-Dichloroethane	5	U
1,2-Dichloroethene (total)	5	U
Chloroform	5	U
1,2-Dichloroethane	5	U
2-Butanone	10	U
1,1,1-Trichloroethane	5	U
Carbon Tetrachloride	5	U
Vinyl Acetate	10	U
Bromodichloromethane	5	U
1,2-Dichloropropane	5	U
cis-1,3-Dichloropropene	5	U
Trichloroethene	5	U
Dibromochloromethane	5	U
1,1,2-Trichloroethane	5	U
Benzene	5	U
Trans-1,3-Dichloropropene	5	U
Bromoform	5	U
4-Methyl-2-pentanone	10	U
2-Hexanone	10	U
Tetrachloroethene	5	U
1,1,2,2-Tetrachloroethane	5	U

*= Outside of EPA CLP QC limits.

C07

Cust ID: VBLK

RFW#: 90LVK202-MB1

Level: LOW

Toluene	5	U
Chlorobenzene	5	U
Ethylbenzene	5	U
Styrene	5	U
Xylene (total)	5	U

** Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List
Report Date: 02/11/91 10:25

RFW Batch Number: 9012L952 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1a

	Cust ID:	TP-2A-2		TP-8A		TP-10BB		WS-1		VBLK		VBLK	
Sample	RFW#:	001		002		003		004		90LVW272-MB1		90LVX226-MB1	
Information	Matrix:	SOIL		SOIL		SOIL		WATER		SOIL		SOIL	
	D.F.:	61.0		1.00		0.980		1.00		1.25		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/L		ug/Kg		ug/Kg	
	Level:	MED		LOW		LOW		LOW		MED		LOW	
	Toluene-d8	D	%	86	%	90	%	97	%	97	%	102	%
Surrogate	Bromofluorobenzene	D	%	78	%	88	%	92	%	98	%	97	%
Recovery	1,2-Dichloroethane-d4	D	%	86	%	101	%	97	%	91	%	100	%
Chloromethane		79000	U	12	U	11	U	10	U	1200	U	10	U
Bromomethane		79000	U	12	U	11	U	10	U	1200	U	10	U
Vinyl Chloride		79000	U	12	U	11	U	10	U	1200	U	10	U
Chloroethane		79000	U	12	U	11	U	10	U	1200	U	10	U
Methylene Chloride		280000	B	33	B	48	B	2	JB	3100		10	
Acetone		46000	JB	16	B	110	B	10	U	1300		15	
Carbon Disulfide		39000	U	1	JB	19	B	5	U	620	U	1	J
1,1-Dichloroethene		39000	U	6	U	6	U	5	U	620	U	5	U
1,1-Dichloroethane		39000	U	6	U	6	U	5	U	620	U	5	U
1,2-Dichloroethene (total)		210000		9		19		5	U	620	U	5	U
Chloroform		39000	U	6	U	6	U	5	U	620	U	5	U
1,2-Dichloroethane		39000	U	6	U	6	U	5	U	620	U	5	U
2-Butanone		11000	J	12	U	25		10	U	1200	U	10	U
1,1,1-Trichloroethane		39000	U	6	U	6	U	5	U	620	U	5	U
Carbon Tetrachloride		39000	U	6	U	6	U	5	U	620	U	5	U
Vinyl Acetate		79000	U	12	U	11	U	10	U	1200	U	10	U
Bromodichloromethane		39000	U	6	U	6	U	5	U	620	U	5	U
1,2-Dichloropropane		39000	U	6	U	6	U	5	U	620	U	5	U
cis-1,3-Dichloropropene		39000	U	6	U	6	U	5	U	620	U	5	U
Trichloroethene		460000		11		20		5	U	620	U	5	U
Dibromochloromethane		39000	U	6	U	6	U	5	U	620	U	5	U
1,1,2-Trichloroethane		39000	U	6	U	6	U	5	U	620	U	5	U
Benzene		39000	U	6	U	6	U	5	U	620	U	5	U
Trans-1,3-Dichloropropene		39000	U	6	U	6	U	5	U	620	U	5	U
Bromoform		39000	U	6	U	6	U	5	U	620	U	5	U
4-Methyl-2-pentanone		79000	U	12	U	4	J	10	U	200	J	10	U
2-Hexanone		79000	U	12	U	11	U	10	U	210	J	10	U
Tetrachloroethene		39000	U	7		14		5	U	620	U	5	U
1,1,2,2-Tetrachloroethane		39000	U	6	U	6	U	5	U	180	J	5	U

*= Outside of EPA CLP QC limits.

	Cust ID:	TP-2A-2	TP-8A	TP-10BB	WS-1	VBLK	VBLK
005	RFW#:	001	002	003	004	90LVW272-MB1	90LVX226-MB1
	Level:	MED	LOW	LOW	LOW	MED	LOW
Toluene		39000 U	6 U	3 J	5 U	620 U	5 U
Chlorobenzene		39000 U	6 U	6 U	5 U	620 U	5 U
Ethylbenzene		39000 U	6 U	4 J	5 U	620 U	5 U
Styrene		39000 U	6 U	6 U	5 U	620 U	5 U
Xylene (total)		39000 U	6 U	16	5 U	620 U	5 U

** Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 02/18/91 10:13

RFW Batch Number: 9012L972 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000

	Cust ID:	TP4C	TP4C	TP3A	TP3B	TP11A	TP11A
Sample Information	RFW#:	001	001 DL	002	003	004	004 MS
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	0.980	4.55	0.980	0.980	1.00	1.02
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	84 %	98 %	105 %	104 %	106 %	95 %
	Bromofluorobenzene	70 * %	81 %	80 %	91 %	88 %	85 %
	1,2-Dichloroethane-d4	91 %	96 %	111 %	114 %	111 %	97 %
Chloromethane		12 U	NA	12 U	11 U	11 U	12 U
Bromomethane		12 U	NA	12 U	11 U	11 U	12 U
Vinyl Chloride		E	70	12 U	11 U	11 U	12 U
Chloroethane		12 U	NA	12 U	11 U	11 U	12 U
Methylene Chloride		32 B	NA	30 B	32 B	34 B	41 B
Acetone		220 B	NA	100 B	71 B	44 B	35 B
Carbon Disulfide		23 B	NA	2 JB	6 U	1 JB	1 J
1,1-Dichloroethene		6 U	NA	6 U	6 U	6 U	81 %
1,1-Dichloroethane		6 U	NA	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)		E	900	6 U	6 U	2 J	10
Chloroform		6 U	NA	6 U	6 U	6 U	6 U
1,2-Dichloroethane		6 U	NA	6 U	6 U	6 U	6 U
2-Butanone		52	NA	25	11 U	11 U	12 U
1,1,1-Trichloroethane		6 U	NA	6 U	6 U	6 U	6 U
Carbon Tetrachloride		6 U	NA	6 U	6 U	6 U	6 U
Vinyl Acetate		12 U	NA	12 U	11 U	11 U	12 U
Bromodichloromethane		6 U	NA	6 U	6 U	6 U	6 U
1,2-Dichloropropane		6 U	NA	6 U	6 U	6 U	6 U
cis-1,3-Dichloropropene		6 U	NA	6 U	6 U	6 U	6 U
Trichloroethene		170	NA	2 J	7	22	155 * %
Dibromochloromethane		6 U	NA	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane		6 U	NA	6 U	6 U	6 U	6 U
Benzene		6 U	NA	6 U	6 U	6 U	97 %
Trans-1,3-Dichloropropene		6 U	NA	6 U	6 U	6 U	6 U
Bromoform		6 U	NA	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone		12 U	NA	12 U	11 U	11 U	12 U
2-Hexanone		12 U	NA	12 U	11 U	11 U	12 U
Tetrachloroethene		27	NA	6 U	4 J	8	3 J
1,1,2,2-Tetrachloroethane		6 U	NA	6 U	6 U	6 U	6 U

*= Outside of EPA CLP QC limits.

Cust ID:	TP4C	TP4C	TP3A	TP3B	TP11A	TP11A
RFW#:	001	001 DL	002	003	004	004 MS
Toluene	4 J	NA	6 U	6 U	6 U	103 %
Chlorobenzene	6 U	NA	6 U	6 U	6 U	97 %
Ethylbenzene	2 J	NA	6 U	6 U	6 U	6 U
Styrene	6 U	NA	6 U	6 U	6 U	6 U
Xylene (total)	8 J	NA	6 U	6 U	6 U	6 U

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List
Report Date: 02/18/91 10:13

RFW Batch Number: 9012L972 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 2a

	Cust ID:	TP11A	VBLK	VBLK	VBLK BS
Sample Information	RFW#:	004 MSD	90LVX226-MB1	90LVX227-MB1	90LVX227-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.04	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	100 %	102 %	99 %	99 %
	Bromofluorobenzene	87 %	97 %	95 %	94 %
	1,2-Dichloroethane-d4	102 %	100 %	104 %	97 %
Chloromethane		12 U	10 U	10 U	10 U
Bromomethane		12 U	10 U	10 U	10 U
Vinyl Chloride		12 U	10 U	10 U	10 U
Chloroethane		12 U	10 U	10 U	10 U
Methylene Chloride		41 B	10	6	8 B
Acetone		37 B	15	19	12 B
Carbon Disulfide		2 J	1 J	5 U	1 J
1,1-Dichloroethene		81 %	5 U	5 U	94 %
1,1-Dichloroethane		6 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		8	5 U	5 U	5 U
Chloroform		6 U	5 U	5 U	5 U
1,2-Dichloroethane		6 U	5 U	5 U	5 U
2-Butanone		12 U	10 U	10 U	10 U
1,1,1-Trichloroethane		6 U	5 U	5 U	5 U
Carbon Tetrachloride		6 U	5 U	5 U	5 U
Vinyl Acetate		12 U	10 U	10 U	10 U
Bromodichloromethane		6 U	5 U	5 U	5 U
1,2-Dichloropropane		6 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		6 U	5 U	5 U	5 U
Trichloroethene		159 * %	5 U	1 J	103 %
Dibromochloromethane		6 U	5 U	5 U	5 U
1,1,2-Trichloroethane		6 U	5 U	5 U	5 U
Benzene		98 %	5 U	5 U	97 %
Trans-1,3-Dichloropropene		6 U	5 U	5 U	5 U
Bromoform		6 U	5 U	5 U	5 U
4-Methyl-2-pentanone		12 U	10 U	10 U	10 U
2-Hexanone		12 U	10 U	10 U	10 U
Tetrachloroethene		4 J	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		6 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Cust ID:	TP11A	VBLK	VBLK	VBLK BS
RFW#:	004 MSD	90LVX226-MB1	90LVX227-MB1	90LVX227-MB1
Toluene	100 %	5 U	5 U	99 %
Chlorobenzene	101 %	5 U	5 U	98 %
Ethylbenzene	6 U	5 U	5 U	5 U
Styrene	6 U	5 U	5 U	5 U
Xylene (total)	6 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List
Report Date: 02/18/91 14:18

RFW Batch Number: 9012L935 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1a

	Cust ID:	TP-1A	TP-1A	TP-2A	TP-2A	TP-2AA	TP-2AA
Sample Information	RFW#:	001	001 DL	002	002	003	003 DL
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	25.0	1250	1250	1280	25.0	1250
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
	Level:	MED	MED	MED	MED REPREP	MED	MED
Surrogate Recovery	Toluene-d8	82 %	0 D %	0 D %	0 D %	94 %	0 D %
	Bromofluorobenzene	87 %	0 D %	0 D %	0 D %	99 %	0 D %
	1,2-Dichloroethane-d4	94 %	0 D %	0 D %	0 D %	106 %	0 D %
Chloromethane		43000 U	2100000 U	1600000 U	1700000 U	27000 U	1300000 U
Bromomethane		43000 U	2100000 U	1600000 U	1700000 U	27000 U	1300000 U
Vinyl Chloride		43000 U	2100000 U	1600000 U	1700000 U	5000 J	1300000 U
Chloroethane		43000 U	2100000 U	1600000 U	1700000 U	27000 U	1300000 U
Methylene Chloride		200000 B	5100000 BD	4300000 B	8600000 B	85000 B	6300000 BD
Acetone		43000 B	2400000 BD	2400000 B	2200000 B	93000 B	1900000 BD
Carbon Disulfide		21000 U	500000 JBD	330000 JB	830000 U	5400 JB	670000 U
1,1-Dichloroethene		21000 U	1100000 U	810000 U	830000 U	3300 J	670000 U
1,1-Dichloroethane		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
1,2-Dichloroethene (total)		2200000 E	2400000 D	620000 J	670000 J	400000	360000 JD
Chloroform		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
1,2-Dichloroethane		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
2-Butanone		43000 U	2100000 U	1600000 U	1700000 U	27000 U	1300000 U
1,1,1-Trichloroethane		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
Carbon Tetrachloride		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
Vinyl Acetate		43000 U	2100000 U	1600000 U	1700000 U	27000 U	1300000 U
Bromodichloromethane		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
1,2-Dichloropropane		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
cis-1,3-Dichloropropene		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
Trichloroethene		260000	380000 JD	0.15E+08	0.17E+08	5500000 E	0.16E+08 D
Dibromochloromethane		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
1,1,2-Trichloroethane		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
Benzene		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
Trans-1,3-Dichloropropene		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
Bromoform		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
4-Methyl-2-pentanone		43000 U	2100000 U	1600000 U	1700000 U	27000 U	1300000 U
2-Hexanone		43000 U	2100000 U	1600000 U	1700000 U	27000 U	1300000 U
Tetrachloroethene		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
1,1,2,2-Tetrachloroethane		21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U

*= Outside of EPA CLP QC limits.

Cust ID:	TP-1A	TP-1A	TP-2A	TP-2A	TP-2AA	TP-2AA
RFW#:	001	001 DL	002	002	003	003 DL
Level:	MED	MED	MED	MED REPREP	MED	MED
Toluene	21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
Chlorobenzene	21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
Ethylbenzene	21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
Styrene	21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U
Xylene (total)	21000 U	1100000 U	810000 U	830000 U	13000 U	670000 U

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List

RFW Batch Number: 9012L935 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 02/18/91 14:18 Page: 2a

	Cust ID:	VBLK		VBLK	
Sample Information	RFW#:	90LVW272-MB1		90LVY255-MB1	
	Matrix:	SOIL		SOIL	
	D.F.:	1.25		1.25	
	Units:	ug/Kg		ug/Kg	
	Level:	MED		MED	
Surrogate Recovery	Toluene-d8	97	%	104	%
	Bromofluorobenzene	98	%	98	%
	1,2-Dichloroethane-d4	91	%	104	%
Chloromethane		1200	U	1200	U
Bromomethane		1200	U	1200	U
Vinyl Chloride		1200	U	1200	U
Chloroethane		1200	U	1200	U
Methylene Chloride		3100		990	
Acetone		1300		1400	
Carbon Disulfide		620	U	240	J
1,1-Dichloroethene		620	U	620	U
1,1-Dichloroethane		620	U	620	U
1,2-Dichloroethene (total)		620	U	620	U
Chloroform		620	U	620	U
1,2-Dichloroethane		620	U	620	U
2-Butanone		1200	U	1200	U
1,1,1-Trichloroethane		620	U	620	U
Carbon Tetrachloride		620	U	620	U
Vinyl Acetate		1200	U	1200	U
Bromodichloromethane		620	U	620	U
1,2-Dichloropropane		620	U	620	U
cis-1,3-Dichloropropene		620	U	620	U
Trichloroethene		620	U	620	U
Dibromochloromethane		620	U	620	U
1,1,2-Trichloroethane		620	U	620	U
Benzene		620	U	620	U
Trans-1,3-Dichloropropene		620	U	620	U
Bromoform		620	U	620	U
4-Methyl-2-pentanone		200	J	1200	U
2-Hexanone		210	J	1200	U
Tetrachloroethene		620	U	620	U
1,1,2,2-Tetrachloroethane		180	J	620	U

** Outside of EPA CLP QC limits.

Cust ID:	VBLK	VBLK
RFW#:	90LVW272-MB1	90LVY255-MB1
Level:	MED	MED

Toluene	620	U	620	U
Chlorobenzene	620	U	620	U
Ethylbenzene	**620**	**U**	**620**	**U**
Styrene	620	U	620	U
Xylene (total)	620	U	620	U

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List
Report Date: 06/20/91 15:56

RFW Batch Number: 9105L456 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1a

	Cust ID:	MW-1		MW-6		MW-7		RINSE BLANK		MW-2		MW-2	
Sample Information	RFW#:	001		002		003		004		005		005 DL	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		10.0		1000	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	103	%	99	%	105	%	101	%	99	%	105	%
	Bromofluorobenzene	97	%	99	%	104	%	101	%	94	%	100	%
	1,2-Dichloroethane-d4	105	%	114	%	114	%	106	%	99	%	106	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	10	U	10	U	10	U	100	U	NA	
Bromomethane		10	U	10	U	10	U	10	U	100	U	NA	
Vinyl Chloride		10	U	10	U	10	U	10	U		E	17000	
Chloroethane		10	U	10	U	10	U	10	U	100	U	NA	
Methylene Chloride		17	B	4	JB	5	B	9	B	140	B	NA	
Acetone		12	B	9	JB	8	JB	4	JB	320	B	NA	
Carbon Disulfide		5	U	5	U	5	U	5	U	50	U	NA	
1,1-Dichloroethene		5	U	5	U	5	U	5	U	450		NA	
1,1-Dichloroethane		5	U	5	U	5	U	5	U	50	U	NA	
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U		E	170000	
Chloroform		5	U	5	U	5	U	5	U	50	U	NA	
1,2-Dichloroethane		5	U	5	U	5	U	5	U	19	J	NA	
2-Butanone		10	U	10	U	10	U	10	U	100	U	NA	
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	50	U	NA	
Carbon Tetrachloride		5	U	5	U	5	U	5	U	50	U	NA	
Vinyl Acetate		10	U	10	U	10	U	10	U	100	U	NA	
Bromodichloromethane		5	U	5	U	5	U	5	U	50	U	NA	
1,2-Dichloropropane		5	U	5	U	5	U	5	U	50	U	NA	
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	50	U	NA	
Trichloroethene		5	U	5	U	5	U	5	U		E	2600	J
Dibromochloromethane		5	U	5	U	5	U	5	U	50	U	NA	
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	13	J	NA	
Benzene		5	U	5	U	5	U	5	U	50	U	NA	
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	50	U	NA	
Bromoform		5	U	5	U	5	U	5	U	50	U	NA	
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	100	U	NA	
2-Hexanone		10	U	10	U	10	U	10	U	100	U	NA	
Tetrachloroethene		5	U	5	U	5	U	5	U	50	U	NA	
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	50	U	NA	

*= Outside of EPA CLP QC limits.

Cust ID:	MW-1	MW-6	MW-7	RINSE BLANK	MW-2	MW-2
RFW#:	001	002	003	004	005	005 DL
Toluene	5 U	5 U	5 U	1 J	12 J	NA
Chlorobenzene	5 U	5 U	5 U	5 U	50 U	NA
Ethylbenzene	5 U	5 U	5 U	5 U	14 J	NA
Styrene	5 U	5 U	5 U	5 U	50 U	NA
Xylene (total)	5 U	5 U	5 U	5 U	50 U	NA

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List
Report Date: 06/20/91 15:56

RFW Batch Number: 9105L456 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 2a

	Cust ID:	MW-2		MW-2		MW-4		MW-4		MW-5		MW-3	
Sample Information	RFW#:	005 MS		005 MSD		006		006 DL		007		008	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1000		1000		1.00		400		1.00		200	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	104	%	108	%	96	%	105	%	103	%	99	%
	Bromofluorobenzene	100	%	100	%	101	%	96	%	95	%	95	%
	1,2-Dichloroethane-d4	101	%	100	%	107	%	103	%	93	%	106	%
Chloromethane		10000	U	10000	U	2	J	NA		10	U	2000	U
Bromomethane		10000	U	10000	U	10	U	NA		10	U	2000	U
Vinyl Chloride		15000		14000		8	J	NA		10	U	2000	U
Chloroethane		10000	U	10000	U	10	U	NA		10	U	2000	U
Methylene Chloride		11000	B	13000	B	5	B	NA		7	B	3100	B
Acetone		16000	B	8300	JB	25	B	NA		7	JB	5100	B
Carbon Disulfide		5000	U	5000	U	5	U	NA		5	U	1000	U
1,1-Dichloroethene		92	%	92	%	2	J	NA		5	U	1000	U
1,1-Dichloroethane		5000	U	5000	U	5	U	NA		5	U	1000	U
1,2-Dichloroethene (total)		170000		160000			E	940	J	1	J	1400	
Chloroform		5000	U	5000	U	2	J	NA		5	U	1000	U
1,2-Dichloroethane		5000	U	5000	U	5	U	NA		5	U	1000	U
2-Butanone		10000	U	10000	U	10	U	NA		10	U	2000	U
1,1,1-Trichloroethane		5000	U	5000	U	3	J	NA		5	U	1000	U
Carbon Tetrachloride		5000	U	5000	U	5	U	NA		5	U	1000	U
Vinyl Acetate		10000	U	10000	U	10	U	NA		10	U	2000	U
Bromodichloromethane		5000	U	5000	U	4	J	NA		5	U	1000	U
1,2-Dichloropropane		5000	U	5000	U	5	U	NA		5	U	1000	U
cis-1,3-Dichloropropene		5000	U	5000	U	5	U	NA		5	U	1000	U
Trichloroethene		118	%	114	%		E	55000		41		34000	
Dibromochloromethane		5000	U	5000	U	5	U	NA		5	U	1000	U
1,1,2-Trichloroethane		5000	U	5000	U	5	U	NA		5	U	1000	U
Benzene		111	%	113	%	5	U	NA		5	U	1000	U
Trans-1,3-Dichloropropene		5000	U	5000	U	5	U	NA		5	U	1000	U
Bromoform		5000	U	5000	U	5	U	NA		5	U	1000	U
4-Methyl-2-pentanone		10000	U	10000	U	10	U	NA		10	U	2000	U
2-Hexanone		10000	U	10000	U	10	U	NA		10	U	2000	U
Tetrachloroethene		5000	U	5000	U	10		NA		5	U	1000	U
1,1,2,2-Tetrachloroethane		5000	U	5000	U	5	U	NA		5	U	1000	U

*= Outside of EPA CLP QC limits.

Cust ID:	MW-2	MW-2	MW-4	MW-4	MW-5	MW-3
RFW#:	005 MS	005 MSD	006	006 DL	007	008
Toluene	114 %	119 %	5 U	NA	5 U	1000 U
Chlorobenzene	115 %	119 %	5 U	NA	5 U	1000 U
Ethylbenzene	5000 U	5000 U	5 U	NA	5 U	1000 U
Styrene	5000 U	5000 U	5 U	NA	5 U	1000 U
Xylene (total)	5000 U	5000 U	5 U	NA	5 U	1000 U

*= Outside of EPA CLP QC limits.

	Cust ID:	TRIP BLANK		VBLK		VBLK BS		VBLK		VBLK	
Sample Information	RFW#:	009		91LVK077-MB1		91LVK077-MB1		91LVK078-MB1		91LVK079-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	105	%	102	%	107	%	100	%	104	%
	Bromofluorobenzene	101	%	104	%	104	%	97	%	99	%
	1,2-Dichloroethane-d4	113	%	111	%	113	%	97	%	100	%
Chloromethane		10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U
Methylene Chloride		5	B	7		15	B	11		10	
Acetone		10	U	6	J	11	B	11		18	
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	98	%	5	U	5	U
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U
Vinyl Acetate		10	U	10	U	10	U	10	U	10	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U
Trichloroethene		1	J	5	U	111	%	5	U	5	U
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	108	%	5	U	5	U
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

	Cust ID: TRIP BLANK	VBLK	VBLK BS	VBLK	VBLK
	RFW#: 009	91LVK077-MB1	91LVK077-MB1	91LVK078-MB1	91LVK079-MB1
Toluene	5 U	5 U	103 %	5 U	5 U
Chlorobenzene	5 U	5 U	100 %	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List
Report Date: 06/20/91 16:18

RFW Batch Number: 9105L477 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1a

	Cust ID:	SW-1	SW-2	SW-2	TRIP BLANK	SED-1	SED-1
Sample Information	RFW#:	001	002	002 DL	003	004	004 DL
	Matrix:	WATER	WATER	WATER	WATER	SOIL	SOIL
	D.F.:	1000	1.00	100	1.00	1.22	9.76
	Units:	ug/L	ug/L	ug/L	ug/L	ug/Kg	ug/Kg
	Level:	LOW	LOW	LOW	LOW	MED	MED
Surrogate Recovery	Toluene-d8	100 %	106 %	95 %	98 %	84 %	41 * %
	Bromofluorobenzene	94 %	97 %	91 %	93 %	81 %	42 * %
	1,2-Dichloroethane-d4	99 %	91 %	96 %	96 %	86 %	48 * %
Chloromethane		10000 U	10 U	NA	10 U	2400 U	NA
Bromomethane		10000 U	10 U	NA	10 U	2400 U	NA
Vinyl Chloride		5300 J	E	1500	10 U	31000	NA
Chloroethane		10000 U	10 U	NA	10 U	2400 U	NA
Methylene Chloride		11000 B	7 B	NA	5 B	3300 B	NA
Acetone		14000 B	23 B	NA	8 JB	6000 B	NA
Carbon Disulfide		5000 U	5 U	NA	5 U	1200 U	NA
1,1-Dichloroethene		5000 U	10	NA	5 U	830 J	NA
1,1-Dichloroethane		5000 U	5 U	NA	5 U	1200 U	NA
1,2-Dichloroethene (total)		130000	E	13000	5 U	E	110000
Chloroform		5000 U	5 U	NA	5 U	1200 U	NA
1,2-Dichloroethane		5000 U	1 J	NA	5 U	1200 U	NA
2-Butanone		10000 U	10 U	NA	10 U	2400 U	NA
1,1,1-Trichloroethane		5000 U	5 U	NA	5 U	1200 U	NA
Carbon Tetrachloride		5000 U	5 U	NA	5 U	1200 U	NA
Vinyl Acetate		10000 U	10 U	NA	10 U	2400 U	NA
Bromodichloromethane		5000 U	5 U	NA	5 U	1200 U	NA
1,2-Dichloropropane		5000 U	5 U	NA	5 U	1200 U	NA
cis-1,3-Dichloropropene		5000 U	5 U	NA	5 U	1200 U	NA
Trichloroethene		62000	4 J	NA	5 U	740 J	NA
Dibromochloromethane		5000 U	5 U	NA	5 U	1200 U	NA
1,1,2-Trichloroethane		5000 U	5 U	NA	5 U	1200 U	NA
Benzene		5000 U	5 U	NA	5 U	1200 U	NA
Trans-1,3-Dichloropropene		5000 U	5 U	NA	5 U	1200 U	NA
Bromoform		5000 U	5 U	NA	5 U	1200 U	NA
4-Methyl-2-pentanone		10000 U	10 U	NA	10 U	2400 U	NA
2-Hexanone		10000 U	10 U	NA	10 U	2400 U	NA
Tetrachloroethene		5000 U	5 U	NA	5 U	1200 U	NA
1,1,2,2-Tetrachloroethane		5000 U	5 U	NA	5 U	1200 U	NA

*= Outside of EPA CLP QC limits.

Cust ID:	SW-1	SW-2	SW-2	TRIP BLANK	SED-1	SED-1
RFW#:	001	002	002 DL	003	004	004 DL
Level:	LOW	LOW	LOW	LOW	MED	MED
Toluene	5000 U	5 U	NA	5 U	1200 U	NA
Chlorobenzene	5000 U	5 U	NA	5 U	1200 U	NA
Ethylbenzene	5000 U	5 U	NA	5 U	1200 U	NA
Styrene	5000 U	5 U	NA	5 U	1200 U	NA
Xylene (total)	5000 U	5 U	NA	5 U	1200 U	NA

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List
Report Date: 06/20/91 16:18

RFW Batch Number: 9105L477 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 2a

	Cust ID:	SED-1	SED-1	SED-2	SED-2	SED-3	VBLK
Sample Information	RFW#:	004 MS	004 MSD	005	005 DL	006	91LVK079-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	WATER
	D.F.:	10.0	10.0	1.00	5.00	2.50	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L
	Level:	MED	MED	LOW	LOW	LOW	LOW
Surrogate Recovery	Toluene-d8	77 * %	80 * %	127 * %	109 %	115 %	104 %
	Bromofluorobenzene	76 %	80 %	90 %	98 %	100 %	99 %
	1,2-Dichloroethane-d4	83 %	79 %	117 %	112 %	120 %	100 %
Chloromethane		19000 U	19000 U	29 U	NA	75 U	10 U
Bromomethane		19000 U	19000 U	29 U	NA	75 U	10 U
Vinyl Chloride		19000 U	19000 U	29 U	NA	28 J	10 U
Chloroethane		19000 U	19000 U	29 U	NA	75 U	10 U
Methylene Chloride		18000 B	37000 B	110 B	NA	170 B	10
Acetone		25000 B	43000 B	E	850 B	750 B	18
Carbon Disulfide		9700 U	9700 U	14 U	NA	38 U	5 U
1,1-Dichloroethene		74 %	68 %	14 U	NA	38 U	5 U
1,1-Dichloroethane		9700 U	9700 U	14 U	NA	38 U	5 U
1,2-Dichloroethene (total)		190000	190000	45	NA	150	5 U
Chloroform		9700 U	9700 U	14 U	NA	38 U	5 U
1,2-Dichloroethane		9700 U	9700 U	4 J	NA	38 U	5 U
2-Butanone		19000 U	19000 U	320	NA	110	10 U
1,1,1-Trichloroethane		9700 U	9700 U	14 U	NA	38 U	5 U
Carbon Tetrachloride		9700 U	9700 U	14 U	NA	38 U	5 U
Vinyl Acetate		19000 U	19000 U	29 U	NA	75 U	10 U
Bromodichloromethane		9700 U	9700 U	14 U	NA	38 U	5 U
1,2-Dichloropropane		9700 U	9700 U	14 U	NA	38 U	5 U
cis-1,3-Dichloropropene		9700 U	9700 U	14 U	NA	38 U	5 U
Trichloroethene		82 %	80 %	14 U	NA	38 U	5 U
Dibromochloromethane		9700 U	9700 U	14 U	NA	38 U	5 U
1,1,2-Trichloroethane		9700 U	9700 U	14 U	NA	38 U	5 U
Benzene		88 %	85 %	14 U	NA	38 U	5 U
Trans-1,3-Dichloropropene		9700 U	9700 U	14 U	NA	38 U	5 U
Bromoform		9700 U	9700 U	14 U	NA	38 U	5 U
4-Methyl-2-pentanone		19000 U	19000 U	29 U	NA	75 U	10 U
2-Hexanone		19000 U	19000 U	29 U	NA	75 U	10 U
Tetrachloroethene		9700 U	9700 U	14 U	NA	38 U	5 U
1,1,2,2-Tetrachloroethane		9700 U	9700 U	14 U	NA	38 U	5 U

*= Outside of EPA CLP QC limits.

Cust ID:	SED-1	SED-1	SED-2	SED-2	SED-3	VBLK
RFW#:	004 MS	004 MSD	005	005 DL	006	91LVK079-MB1
Level:	MED	MED	LOW	LOW	LOW	LOW
Toluene	88 %	87 %	18	NA	22 J	5 U
Chlorobenzene	82 %	82 %	14 U	NA	38 U	5 U
Ethylbenzene	9700 U	9700 U	14 U	NA	38 U	5 U
Styrene	9700 U	9700 U	14 U	NA	38 U	5 U
Xylene (total)	9700 U	9700 U	3 J	NA	38 U	5 U

*= Outside of EPA CLP QC limits.

Sample Information	Cust ID:	VBLK	VBLK	VBLK	VBLK BS	VBLK
	RFW#:	91LVK080-MB1	91LVK078-MB1	91LVX074-MB1	91LVX074-MB1	91LVX076-MB1
	Matrix:	WATER	WATER	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.25	1.25	1.00
	Units:	ug/L	ug/L	ug/Kg	ug/Kg	ug/Kg
	Level:	LOW	LOW	MED	MED	LOW
Surrogate Recovery	Toluene-d8	99 %	100 %	102 %	90 %	103 %
	Bromofluorobenzene	94 %	97 %	96 %	85 %	100 %
	1,2-Dichloroethane-d4	104 %	97 %	103 %	87 %	104 %
Chloromethane		10 U	10 U	1200 U	1200 U	10 U
Bromomethane		10 U	10 U	1200 U	1200 U	10 U
Vinyl Chloride		10 U	10 U	1200 U	1200 U	10 U
Chloroethane		10 U	10 U	1200 U	1200 U	10 U
Methylene Chloride		5	11	2300	1800 B	8
Acetone		18	11	3200	2300 B	10
Carbon Disulfide		5 U	5 U	620 U	620 U	5 U
1,1-Dichloroethene		5 U	5 U	620 U	110 %	5 U
1,1-Dichloroethane		5 U	5 U	620 U	620 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	620 U	620 U	5 U
Chloroform		5 U	5 U	620 U	620 U	5 U
1,2-Dichloroethane		5 U	5 U	620 U	620 U	5 U
2-Butanone		10 U	10 U	1200 U	1200 U	10 U
1,1,1-Trichloroethane		5 U	5 U	620 U	620 U	5 U
Carbon Tetrachloride		5 U	5 U	620 U	620 U	5 U
Vinyl Acetate		10 U	10 U	1200 U	1200 U	10 U
Bromodichloromethane		5 U	5 U	620 U	620 U	5 U
1,2-Dichloropropane		5 U	5 U	620 U	620 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	620 U	620 U	5 U
Trichloroethene		1	5 U	620 U	106 %	5 U
Dibromochloromethane		5 U	5 U	620 U	620 U	5 U
1,1,2-Trichloroethane		5 U	5 U	620 U	620 U	5 U
Benzene		5 U	5 U	620 U	108 %	5 U
Trans-1,3-Dichloropropene		5 U	5 U	620 U	620 U	5 U
Bromoform		5 U	5 U	620 U	620 U	5 U
4-Methyl-2-pentanone		10 U	10 U	1200 U	1200 U	10 U
2-Hexanone		10 U	10 U	1200 U	1200 U	10 U
Tetrachloroethene		5 U	5 U	620 U	620 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	620 U	620 U	5 U

*= Outside of EPA CLP QC limits.

Cust ID:	VBLK	VBLK	VBLK	VBLK BS	VBLK
RFW#:	91LVK080-MB1	91LVK078-MB1	91LVX074-MB1	91LVX074-MB1	91LVX076-MB1
Level:	LOW	LOW	MED	MED	LOW
Toluene	5 U	5 U	620 U	100 %	5 U
Chlorobenzene	5 U	5 U	620 U	104 %	5 U
Ethylbenzene	5 U	5 U	620 U	620 U	5 U
Styrene	5 U	5 U	620 U	620 U	5 U
Xylene (total)	5 U	5 U	620 U	620 U	5 U

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
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RFW Batch Number: 9105L541 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1a

	Cust ID:	SW-3	SW-3	SW-3	SW-4	SW-5	SW-5
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	003 DL
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	2.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Level:	LOW	LOW	LOW	LOW	LOW	LOW
Surrogate Recovery	Toluene-d8	100 %	95 %	103 %	98 %	100 %	97 %
	Bromofluorobenzene	99 %	93 %	102 %	96 %	98 %	93 %
	1,2-Dichloroethane-d4	98 %	89 %	103 %	90 %	93 %	93 %
Chloromethane		10 U	10 U	1 J	10 U	10 U	NA
Bromomethane		10 U	10 U	10 U	10 U	10 U	NA
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	NA
Chloroethane		10 U	10 U	10 U	10 U	10 U	NA
Methylene Chloride		2 JB	6 B	10 B	5 B	4 JB	NA
Acetone		13 B	3 JB	5 JB	18 B	15 B	NA
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	NA
1,1-Dichloroethene		5 U	98 %	101 %	5 U	5 U	NA
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U	NA
1,2-Dichloroethene (total)		3 J	3 J	3 J	5 U	E	230
Chloroform		5 U	5 U	5 U	5 U	5 U	NA
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U	NA
2-Butanone		10 U	10 U	10 U	10 U	10 U	NA
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U	NA
Carbon Tetrachloride		5 U	5 U	5 U	5 U	5 U	NA
Vinyl Acetate		10 U	10 U	10 U	10 U	10 U	NA
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U	NA
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U	NA
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	NA
Trichloroethene		3 J	108 %	109 %	4 J	E	290
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U	NA
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U	NA
Benzene		5 U	96 %	107 %	5 U	5 U	NA
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	NA
Bromoform		5 U	5 U	5 U	5 U	5 U	NA
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	NA
2-Hexanone		10 U	10 U	10 U	10 U	10 U	NA
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U	NA
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U	NA

*= Outside of EPA CLP QC limits.

Cust ID:	SW-3	SW-3	SW-3	SW-4	SW-5	SW-5
RFW#:	001	001 MS	001 MSD	002	003	003 DL
Level:	LOW	LOW	LOW	LOW	LOW	LOW
Toluene	5 U	104 %	109 %	5 U	5 U	NA
Chlorobenzene	5 U	106 %	109 %	5 U	5 U	NA
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	NA
Styrene	5 U	5 U	5 U	5 U	5 U	NA
Xylene (total)	5 U	5 U	5 U	5 U	5 U	NA

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
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RFW Batch Number: 9105L541 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 2a

	Cust ID:	SW-6	SW-6	SW-7	SW-7	SW-8	SED-4
Sample Information	RFW#:	004	004 DL	005	005 DL	006	007
	Matrix:	WATER	WATER	WATER	WATER	WATER	SOIL
	D.F.:	1.00	5.00	1.00	5.00	1.00	2.50
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/Kg
	Level:	LOW	LOW	LOW	LOW	LOW	MED
Surrogate Recovery	Toluene-d8	100 %	99 %	101 %	101 %	94 %	89 %
	Bromofluorobenzene	96 %	96 %	99 %	97 %	92 %	89 %
	1,2-Dichloroethane-d4	93 %	97 %	89 %	88 %	92 %	85 %
Chloromethane		10 U	NA	10 U	NA	10 U	4700 U
Bromomethane		10 U	NA	10 U	NA	10 U	4700 U
Vinyl Chloride		14	NA	10	NA	10 U	7600
Chloroethane		10 U	NA	10 U	NA	10 U	4700 U
Methylene Chloride		9 B	NA	5 B	NA	7 B	9800 B
Acetone		4 JB	NA	4 JB	NA	8 JB	10000 B
Carbon Disulfide		5 U	NA	5 U	NA	5 U	2300 U
1,1-Dichloroethene		5 U	NA	5 U	NA	5 U	1300 J
1,1-Dichloroethane		5 U	NA	5 U	NA	5 U	2300 U
1,2-Dichloroethene (total)		E	250	E	250	5 U	E
Chloroform		5 U	NA	5 U	NA	5 U	2300 U
1,2-Dichloroethane		5 U	NA	5 U	NA	5 U	2300 U
2-Butanone		10 U	NA	10 U	NA	10 U	4700 U
1,1,1-Trichloroethane		5 U	NA	5 U	NA	5 U	2300 U
Carbon Tetrachloride		5 U	NA	5 U	NA	5 U	2300 U
Vinyl Acetate		10 U	NA	10 U	NA	10 U	4700 U
Bromodichloromethane		5 U	NA	5 U	NA	5 U	2300 U
1,2-Dichloropropane		5 U	NA	5 U	NA	5 U	2300 U
cis-1,3-Dichloropropene		5 U	NA	5 U	NA	5 U	2300 U
Trichloroethene		E	890	E	850	3 J	1000 J
Dibromochloromethane		5 U	NA	5 U	NA	5 U	2300 U
1,1,2-Trichloroethane		5 U	NA	5 U	NA	5 U	2300 U
Benzene		5 U	NA	5 U	NA	5 U	2300 U
Trans-1,3-Dichloropropene		5 U	NA	5 U	NA	5 U	2300 U
Bromoform		5 U	NA	5 U	NA	5 U	2300 U
4-Methyl-2-pentanone		10 U	NA	10 U	NA	10 U	4700 U
2-Hexanone		10 U	NA	10 U	NA	10 U	4700 U
Tetrachloroethene		5 U	NA	5 U	NA	5 U	2300 U
1,1,2,2-Tetrachloroethane		5 U	NA	5 U	NA	5 U	2300 U

*= Outside of EPA CLP QC limits.

Cust ID:	SW-6	SW-6	SW-7	SW-7	SW-8	SED-4
RFW#:	004	004 DL	005	005 DL	006	007
Level:	LOW	LOW	LOW	LOW	LOW	MED
Toluene	5 U	NA	5 U	NA	5 U	2300 U
Chlorobenzene	5 U	NA	5 U	NA	5 U	2300 U
Ethylbenzene	5 U	NA	5 U	NA	5 U	2300 U
Styrene	5 U	NA	5 U	NA	5 U	2300 U
Xylene (total)	5 U	NA	5 U	NA	5 U	2300 U

*= Outside of EPA CLP QC limits.

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RFW Batch Number: 9105L541 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 3a

	Cust ID:	SED-4	SED-5	SED-5	SW-9	SED-6	SED-6
Sample Information	RFW#:	007 DL	008	008 DL	009	010	010 DL
	Matrix:	SOIL	SOIL	SOIL	WATER	SOIL	SOIL
	D.F.:	12.5	0.980	5.00	1.00	1.00	1.25
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg
	Level:	MED	LOW	LOW	LOW	LOW	MED
Surrogate Recovery	Toluene-d8	D %	108 %	108 %	101 %	114 %	90 %
	Bromofluorobenzene	D %	81 %	103 %	100 %	94 %	84 %
	1,2-Dichloroethane-d4	D %	104 %	114 %	92 %	119 %	88 %
Chloromethane		NA	64 U	NA	10 U	19 U	NA
Bromomethane		NA	64 U	NA	10 U	19 U	NA
Vinyl Chloride		NA	64 U	NA	10 U	E	2300 J
Chloroethane		NA	64 U	NA	10 U	19 U	NA
Methylene Chloride		NA	120 B	NA	6 B	39 B	NA
Acetone		NA	E	2500	10 B	380	NA
Carbon Disulfide		NA	32 U	NA	5 U	10 U	NA
1,1-Dichloroethene		NA	32 U	NA	5 U	10 U	NA
1,1-Dichloroethane		NA	32 U	NA	5 U	10 U	NA
1,2-Dichloroethene (total)		230000	330	NA	5 U	E	610 J
Chloroform		NA	32 U	NA	5 U	10 U	NA
1,2-Dichloroethane		NA	32 U	NA	5 U	10 U	NA
2-Butanone		NA	200	NA	10 U	19 U	NA
1,1,1-Trichloroethane		NA	32 U	NA	5 U	10 U	NA
Carbon Tetrachloride		NA	32 U	NA	5 U	10 U	NA
Vinyl Acetate		NA	64 U	NA	10 U	19 U	NA
Bromodichloromethane		NA	32 U	NA	5 U	10 U	NA
1,2-Dichloropropane		NA	32 U	NA	5 U	10 U	NA
cis-1,3-Dichloropropene		NA	32 U	NA	5 U	10 U	NA
Trichloroethene		NA	32 U	NA	4 J	10 U	NA
Dibromochloromethane		NA	32 U	NA	5 U	10 U	NA
1,1,2-Trichloroethane		NA	32 U	NA	5 U	10 U	NA
Benzene		NA	32 U	NA	5 U	10 U	NA
Trans-1,3-Dichloropropene		NA	32 U	NA	5 U	10 U	NA
Bromoform		NA	32 U	NA	5 U	10 U	NA
4-Methyl-2-pentanone		NA	64 U	NA	10 U	19 U	NA
2-Hexanone		NA	64 U	NA	10 U	19 U	NA
Tetrachloroethene		NA	32 U	NA	5 U	10 U	NA
1,1,2,2-Tetrachloroethane		NA	32 U	NA	5 U	10 U	NA

*= Outside of EPA CLP QC limits.

Cust ID:	SED-4	SED-5	SED-5	SW-9	SED-6	SED-6
RFW#:	007 DL	008	008 DL	009	010	010 DL
Level:	MED	LOW	LOW	LOW	LOW	MED
Toluene	NA	32 U	NA	5 U	2 J	NA
Chlorobenzene	NA	32 U	NA	5 U	10 U	NA
Ethylbenzene	NA	32 U	NA	5 U	10 U	NA
Styrene	NA	32 U	NA	5 U	10 U	NA
Xylene (total)	NA	32 U	NA	5 U	10 U	NA

*= Outside of EPA CLP QC limits.

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RFW Batch Number: 9105L541 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 4a

	Cust ID:	SED-7	SED-7	SED-7	SED-RB	SW-RB	SW-TRIP BLANK
Sample Information	RFW#:	011	011 MS	011 MSD	012	013	014
	Matrix:	SOIL	SOIL	SOIL	WATER	WATER	WATER
	D.F.:	4.17	5.00	5.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/L	ug/L
	Level:	LOW	LOW	LOW	LOW	LOW	LOW
Surrogate Recovery	Toluene-d8	114 %	107 %	108 %	101 %	100 %	99 %
	Bromofluorobenzene	85 %	88 %	95 %	96 %	101 %	97 %
	1,2-Dichloroethane-d4	127 * %	112 %	119 %	95 %	104 %	88 %
Chloromethane		94 U	110 U	110 U	10 U	10 U	10 U
Bromomethane		94 U	110 U	110 U	10 U	10 U	10 U
Vinyl Chloride		94 U	110 U	110 U	10 U	10 U	10 U
Chloroethane		94 U	110 U	110 U	10 U	10 U	10 U
Methylene Chloride		88 B	280 B	270 B	11 B	7 B	7 B
Acetone		1700 B	410	680	18 B	12 B	7 JB
Carbon Disulfide		47 U	56 U	56 U	5 U	5 U	5 U
1,1-Dichloroethene		47 U	100 %	99 %	5 U	5 U	5 U
1,1-Dichloroethane		47 U	56 U	56 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		47 U	56 U	56 U	5 U	1 J	5 U
Chloroform		47 U	56 U	56 U	5	6	5 U
1,2-Dichloroethane		47 U	56 U	56 U	5 U	5 U	5 U
2-Butanone		160	110 U	110 U	10 U	10 U	10 U
1,1,1-Trichloroethane		47 U	56 U	56 U	5 U	5 U	5 U
Carbon Tetrachloride		47 U	56 U	56 U	5 U	5 U	5 U
Vinyl Acetate		94 U	110 U	110 U	10 U	10 U	10 U
Bromodichloromethane		47 U	56 U	56 U	5 U	5 U	5 U
1,2-Dichloropropane		47 U	56 U	56 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		47 U	56 U	56 U	5 U	5 U	5 U
Trichloroethene		47 U	100 %	94 %	32	14	5 U
Dibromochloromethane		47 U	56 U	56 U	5 U	5 U	5 U
1,1,2-Trichloroethane		47 U	56 U	56 U	5 U	5 U	5 U
Benzene		47 U	116 %	114 %	5 U	5 U	5 U
Trans-1,3-Dichloropropene		47 U	56 U	56 U	5 U	5 U	5 U
Bromoform		47 U	56 U	56 U	5 U	5 U	5 U
4-Methyl-2-pentanone		94 U	110 U	110 U	10 U	10 U	10 U
2-Hexanone		94 U	110 U	110 U	10 U	10 U	10 U
Tetrachloroethene		47 U	56 U	56 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		47 U	56 U	56 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Cust ID:	SED-7	SED-7	SED-7	SED-RB	SW-RB	SW-TRIP BLANK
RFW#:	011	011 MS	011 MSD	012	013	014
Level:	LOW	LOW	LOW	LOW	LOW	LOW
Toluene	47 U	122 %	118 %	5 U	5 U	5 U
Chlorobenzene	47 U	120 %	115 %	5 U	5 U	5 U
Ethylbenzene	47 U	56 U	56 U	5 U	5 U	5 U
Styrene	47 U	56 U	56 U	5 U	5 U	5 U
Xylene (total)	22 J	56 U	19 J	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

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RFW Batch Number: 9105L541 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 5a

	Cust ID:	VBLK		VBLK		VBLK BS		VBLK		VBLK		VBLK	
Sample Information	RFW#:	91LVK083-MB1		91LVK084-MB1		91LVK084-MB1		91LVK085-MB1		91LVX080-MB1		91LVX078-MB1	
	Matrix:	WATER		WATER		WATER		WATER		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.25		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/Kg		ug/Kg	
	Level:	LOW		LOW		LOW		LOW		MED		LOW	
Surrogate Recovery	Toluene-d8	102	%	98	%	102	%	102	%	111	%	107	%
	Bromofluorobenzene	102	%	97	%	97	%	98	%	101	%	105	%
	1,2-Dichloroethane-d4	103	%	95	%	94	%	102	%	100	%	102	%
Chloromethane		10	U	10	U	10	U	10	U	1200	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	1200	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	1200	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	1200	U	10	U
Methylene Chloride		8		9		17	B	6		1900		11	
Acetone		20		8	J	8	JB	19		2500		14	
Carbon Disulfide		5	U	5	U	5	U	5	U	620	U	5	U
1,1-Dichloroethene		5	U	5	U	104	%	5	U	620	U	5	U
1,1-Dichloroethane		5	U	5	U	5	U	5	U	620	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	620	U	5	U
Chloroform		5	U	5	U	5	U	5	U	620	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	620	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	1200	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	620	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	620	U	5	U
Vinyl Acetate		10	U	10	U	10	U	10	U	1200	U	10	U
Bromodichloromethane		5	U	5	U	5	U	5	U	620	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	620	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	620	U	5	U
Trichloroethene		5	U	5	U	112	%	5	U	620	U	5	U
Dibromochloromethane		5	U	5	U	5	U	5	U	620	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	620	U	5	U
Benzene		5	U	5	U	104	%	5	U	620	U	5	U
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	620	U	5	U
Bromoform		5	U	5	U	5	U	5	U	620	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	1200	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	1200	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	620	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	620	U	5	U

*= Outside of EPA CLP QC limits.

Cust ID:	VBLK	VBLK	VBLK BS	VBLK	VBLK	VBLK
RFW#:	91LVK083-MB1	91LVK084-MB1	91LVK084-MB1	91LVK085-MB1	91LVX080-MB1	91LVX078-MB1
Level:	LOW	LOW	LOW	LOW	MED	LOW
Toluene	5 U	5 U	109 %	5 U	620 U	5 U
Chlorobenzene	5 U	5 U	109 %	5 U	620 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	620 U	5 U
Styrene	5 U	5 U	5 U	5 U	620 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	620 U	5 U

*= Outside of EPA CLP QC limits.

Cust ID: VBLK

Sample Information
RFW#: 91LVX079-MB1
Matrix: SOIL
D.F.: 1.00
Units: ug/Kg
Level: LOW

	Toluene-d8	110	%
Surrogate	Bromofluorobenzene	105	%
Recovery	1,2-Dichloroethane-d4	105	%

Chloromethane	10	U
Bromomethane	10	U
Vinyl Chloride	10	U
Chloroethane	10	U
Methylene Chloride	7	
Acetone	10	U
Carbon Disulfide	5	U
1,1-Dichloroethene	5	U
1,1-Dichloroethane	5	U
1,2-Dichloroethene (total)	5	U
Chloroform	5	U
1,2-Dichloroethane	5	U
2-Butanone	10	U
1,1,1-Trichloroethane	5	U
Carbon Tetrachloride	5	U
Vinyl Acetate	10	U
Bromodichloromethane	5	U
1,2-Dichloropropane	5	U
cis-1,3-Dichloropropene	5	U
Trichloroethene	5	U
Dibromochloromethane	5	U
1,1,2-Trichloroethane	5	U
Benzene	5	U
Trans-1,3-Dichloropropene	5	U
Bromoform	5	U
4-Methyl-2-pentanone	10	U
2-Hexanone	10	U
Tetrachloroethene	5	U
1,1,2,2-Tetrachloroethane	5	U

*= Outside of EPA CLP QC limits.

Cust ID: VBLK

RFW#: 91LVX079-MB1
Level: LOW

Toluene	5	U
Chlorobenzene	5	U
Ethylbenzene	5	U
Styrene	5	U
Xylene (total)	5	U

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 9101L288 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 03/14/91 14:45 Page: 1a

	Cust ID:	BH-1	6-1	6-1	6-1	SBLK	SBLK BS
Sample Information	RFW#:	001	002	002 MS	002 MSD	91LE0082-MB1	91LE0082-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.11	1.11	1.11	1.11	1.11	1.11
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	88 %	82 %	78 %	90 %	92 %	92 %
	2-Fluorobiphenyl	89 %	81 %	74 %	90 %	96 %	94 %
	p-Terphenyl-d14	91 %	86 %	80 %	92 %	104 %	90 %
	Phenol-d5	80 %	74 %	70 %	83 %	89 %	90 %
	2-Fluorophenol	85 %	76 %	75 %	87 %	95 %	91 %
	2,4,6-Tribromophenol	89 %	66 %	73 %	83 %	71 %	78 %
		fl	fl	fl	fl	fl	fl
Phenol		420 U	400 U	71 %	84 %	370 U	91 * %
bis(2-Chloroethyl)ether		420 U	400 U	410 U	420 U	370 U	370 U
2-Chlorophenol		420 U	400 U	70 %	79 %	370 U	88 %
1,3-Dichlorobenzene		420 U	400 U	410 U	420 U	370 U	370 U
1,4-Dichlorobenzene		420 U	400 U	67 %	80 %	370 U	86 %
Benzyl alcohol		420 U	400 U	410 U	420 U	370 U	370 U
1,2-Dichlorobenzene		420 U	400 U	410 U	420 U	370 U	370 U
2-Methylphenol		420 U	400 U	410 U	420 U	370 U	370 U
bis(2-Chloroisopropyl)ether		420 U	400 U	410 U	420 U	370 U	370 U
4-Methylphenol		420 U	400 U	410 U	420 U	370 U	370 U
N-Nitroso-Di-n-propylamine		420 U	400 U	69 %	82 %	370 U	90 %
Hexachloroethane		420 U	400 U	410 U	420 U	370 U	370 U
Nitrobenzene		420 U	400 U	410 U	420 U	370 U	370 U
Isophorone		420 U	400 U	410 U	420 U	370 U	370 U
2-Nitrophenol		420 U	400 U	410 U	420 U	370 U	370 U
2,4-Dimethylphenol		420 U	400 U	410 U	420 U	370 U	370 U
Benzoic acid		2100 U	2000 U	2000 U	2100 U	1800 U	1800 U
bis(2-Chloroethoxy)methane		420 U	400 U	410 U	420 U	370 U	370 U
2,4-Dichlorophenol		420 U	400 U	410 U	420 U	370 U	370 U
1,2,4-Trichlorobenzene		420 U	400 U	72 %	83 %	370 U	86 %
Naphthalene		420 U	400 U	410 U	420 U	370 U	370 U
4-Chloroaniline		420 U	400 U	410 U	420 U	370 U	370 U
Hexachlorobutadiene		420 U	400 U	410 U	420 U	370 U	370 U
4-Chloro-3-methylphenol		420 U	400 U	410 U	420 U	370 U	370 U
2-Methylnaphthalene		420 U	400 U	71 %	80 %	370 U	80 %
Hexachlorocyclopentadiene		420 U	400 U	410 U	420 U	370 U	370 U

*= Outside of EPA CLP QC limits.

Cust ID:	BH-1		6-1		6-1		6-1		SBLK		SBLK BS	
RFW#:	001		002		002 MS		002 MSD		91LE0082-MB1		91LE0082-MB1	
2,4,6-Trichlorophenol	420	U	400	U	410	U	420	U	370	U	370	U
2,4,5-Trichlorophenol	2100	U	2000	U	2000	U	2100	U	1800	U	1800	U
2-Chloronaphthalene	420	U	400	U	410	U	420	U	370	U	370	U
2-Nitroaniline	2100	U	2000	U	2000	U	2100	U	1800	U	1800	U
Dimethylphthalate	420	U	400	U	410	U	420	U	370	U	370	U
Acenaphthylene	420	U	400	U	410	U	420	U	370	U	370	U
2,6-Dinitrotoluene	420	U	400	U	410	U	420	U	370	U	370	U
3-Nitroaniline	2100	U	2000	U	2000	U	2100	U	1800	U	1800	U
Acenaphthene	420	U	400	U	73	%	85	%	370	U	96	%
2,4-Dinitrophenol	2100	U	2000	U	2000	U	2100	U	1800	U	1800	U
4-Nitrophenol	2100	U	2000	U	90	%	111	%	1800	U	85	%
Dibenzofuran	420	U	400	U	410	U	420	U	370	U	370	U
2,4-Dinitrotoluene	420	U	400	U	70	%	84	%	370	U	87	%
Diethylphthalate	420	U	400	U	410	U	420	U	370	U	370	U
4-Chlorophenyl-phenylether	420	U	400	U	410	U	420	U	370	U	370	U
Fluorene	420	U	400	U	410	U	420	U	370	U	370	U
4-Nitroaniline	2100	U	2000	U	2000	U	2100	U	1800	U	1800	U
4,6-Dinitro-2-methylphenol	2100	U	2000	U	2000	U	2100	U	1800	U	1800	U
N-Nitrosodiphenylamine (1)	420	U	400	U	410	U	420	U	370	U	370	U
4-Bromophenyl-phenylether	420	U	400	U	410	U	420	U	370	U	370	U
Hexachlorobenzene	420	U	400	U	410	U	420	U	370	U	370	U
Pentachlorophenol	2100	U	2000	U	91	%	108	%	1800	U	90	%
Phenanthrene	420	U	400	U	410	U	420	U	370	U	370	U
Anthracene	420	U	400	U	410	U	420	U	370	U	370	U
Di-n-Butylphthalate	54	J	400	U	410	U	1600		370	U	370	U
Fluoranthene	62	J	400	U	410	U	420	U	370	U	370	U
Pyrene	60	J	400	U	75	%	88	%	370	U	84	%
Butylbenzylphthalate	420	U	400	U	410	U	420	U	370	U	370	U
3,3'-Dichlorobenzidine	850	U	800	U	820	U	840	U	740	U	740	U
Benzo(a)anthracene	420	U	400	U	410	U	420	U	370	U	370	U
Chrysene	420	U	400	U	410	U	420	U	370	U	370	U
bis(2-Ethylhexyl)phthalate	120	JB	78	JB	65	JB	170	JB	90	J	73	JB
Di-n-Octyl phthalate	56	J	63	J	43	J	53	J	370	U	370	U
Benzo(b)fluoranthene	420	U	400	U	410	U	420	U	370	U	370	U
Benzo(k)fluoranthene	420	U	400	U	410	U	420	U	370	U	370	U
Benzo(a)pyrene	420	U	400	U	410	U	420	U	370	U	370	U
Indeno(1,2,3-cd)pyrene	420	U	400	U	410	U	420	U	370	U	370	U
Dibenzo(a,h)anthracene	420	U	400	U	410	U	420	U	370	U	370	U
Benzo(g,h,i)perylene	420	U	400	U	410	U	420	U	370	U	370	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List
Report Date: 05/09/91 11:34

L350 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1

Cust ID:	BH13-1		BHA-1		BH12-1		SS-1		SS-2		SS-3	
RFW#:	001		002		003		004		005		006	
Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surro	i-n-butylchlorendate	98	%	101	%	111	%	105	%	108	%	111	%
			fl		fl		fl		fl		fl		fl
Alpha-BHC		9.5	U	8.8	U	7.8	U	13	U	190		9.2	U
Beta-BHC		9.5	U	8.8	U	7.8	U	13	U	9.0		9.2	U
Delta-BHC		9.5	U	8.8	U	7.8	U	13	U	2.3	J	9.2	U
gamma-BHC (Lindane)		9.5	U	8.8	U	7.8	U	13	U	9.0	U	9.2	U
Heptachlor		9.5	U	8.8	U	7.8	U	13	U	9.0	U	9.2	U
Aldrin		9.5	U	8.8	U	7.8	U	13	U	9.0	U	9.2	U
Heptachlor epoxide		9.5	U	8.8	U	7.8	U	13	U	9.0	U	9.2	U
Endosulfan I		9.5	U	8.8	U	7.8	U	13	U	9.0	U	9.2	U
Dieldrin		19	U	18	U	16	U	27	U	18	U	18	U
4,4'-DDE		19	U	18	U	16	U	27	U	18	U	18	U
Endrin		19	U	18	U	16	U	27	U	18	U	18	U
Endosulfan II		19	U	18	U	16	U	27	U	18	U	18	U
4,4'-DDD		19	U	18	U	16	U	27	U	18	U	18	U
Endosulfan sulfate		19	U	18	U	16	U	27	U	18	U	18	U
4,4'-DDT		19	U	18	U	16	U	27	U	18	U	18	U
Methoxychlor		95	U	88	U	78	U	130	U	90	U	92	U
Endrin ketone		19	U	18	U	16	U	27	U	18	U	18	U
alpha-Chlordane		95	U	88	U	78	U	130	U	90	U	92	U
gamma-Chlordane		95	U	88	U	78	U	130	U	90	U	92	U
Toxaphene		190	U	180	U	160	U	270	U	180	U	180	U
Aroclor-1016		95	U	88	U	78	U	130	U	90	U	92	U
Aroclor-1221		95	U	88	U	78	U	130	U	90	U	92	U
Aroclor-1232		95	U	88	U	78	U	130	U	90	U	92	U
Aroclor-1242		95	U	88	U	78	U	130	U	90	U	92	U
Aroclor-1248		95	U	88	U	78	U	130	U	90	U	92	U
Aroclor-1254		190	U	180	U	160	U	270	U	180	U	180	U
Aroclor-1260		190	U	180	U	160	U	270	U	180	U	180	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Cust ID:	SS-4	SS-4	SS-4	BHRB-1	PBLK	PBLK BS
RFW#:	007	007 MS	007 MSD	008	91LE0107-MB1	91LE0107-MB1
Matrix:	SOIL	SOIL	SOIL	WATER	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00	1.00	2.00
Units:	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg
Surrog- n-butylchlorendate	121 % fl	99 % fl	58 % fl	85 % fl	101 % fl	105 % fl
Alpha-BHC	9.0 U	9.0 U	9.0 U	0.050 U	8.0 U	16 U
Beta-BHC	9.0 U	9.0 U	9.0 U	0.050 U	8.0 U	16 U
Delta-BHC	9.0 U	9.0 U	9.0 U	0.050 U	8.0 U	16 U
gamma-BHC (Lindane)	9.0 U	122 %	62 %	0.050 U	8.0 U	120 %
Heptachlor	9.0 U	110 %	62 %	0.050 U	8.0 U	100 %
Aldrin	9.0 U	110 %	65 %	0.050 U	8.0 U	100 %
Heptachlor epoxide	9.0 U	9.0 U	9.0 U	0.050 U	8.0 U	16 U
Endosulfan I	9.0 U	9.0 U	9.0 U	0.050 U	8.0 U	16 U
Dieldrin	18 U	108 %	65 %	0.10 U	16 U	107 %
4,4'-DDE	18 U	18 U	18 U	0.10 U	16 U	32 U
Endrin	18 U	111 %	67 %	0.10 U	16 U	109 %
Endosulfan II	18 U	18 U	18 U	0.10 U	16 U	32 U
4,4'-DDD	18 U	18 U	18 U	0.10 U	16 U	32 U
Endosulfan sulfate	18 U	18 U	18 U	0.10 U	16 U	32 U
4,4'-DDT	18 U	145 * %	41 %	0.10 U	16 U	120 %
Methoxychlor	90 U	90 U	90 U	0.50 U	80 U	160 U
Endrin ketone	18 U	18 U	18 U	0.10 U	16 U	32 U
alpha-Chlordane	90 U	90 U	90 U	0.50 U	80 U	160 U
gamma-Chlordane	90 U	90 U	90 U	0.50 U	80 U	160 U
Toxaphene	180 U	180 U	180 U	1.0 U	160 U	320 U
Aroclor-1016	90 U	90 U	90 U	0.50 U	80 U	160 U
Aroclor-1221	90 U	90 U	90 U	0.50 U	80 U	160 U
Aroclor-1232	90 U	90 U	90 U	0.50 U	80 U	160 U
Aroclor-1242	90 U	90 U	90 U	0.50 U	80 U	160 U
Aroclor-1248	90 U	90 U	90 U	0.50 U	80 U	160 U
Aroclor-1254	180 U	180 U	180 U	1.0 U	160 U	320 U
Aroclor-1260	180 U	180 U	180 U	1.0 U	160 U	320 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 9101L328 Client: CRA-FRFWSBRRG Work Order: 5335-03-01-0000 Report Date: 03/15/91 17:33 Page: 1a

	Cust ID:	BH5B-1	BH5B-2	BH5B-2	BH5B-2	BH5B-3	BH5A-3
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.11	1.11	1.11	1.11	1.11	1.11
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	40 %	62 %	60 %	71 %	67 %	64 %
	2-Fluorobiphenyl	62 %	77 %	64 %	76 %	79 %	71 %
	p-Terphenyl-d14	112 %	111 %	78 %	86 %	102 %	103 %
	Phenol-d5	48 %	62 %	59 %	70 %	66 %	63 %
	2-Fluorophenol	45 %	64 %	56 %	63 %	73 %	67 %
	2,4,6-Tribromophenol	87 %	92 %	72 %	76 %	86 %	70 %
		fl	fl	fl	fl	fl	fl
Phenol		450 U	430 U	59 %	69 %	400 U	480 U
bis(2-Chloroethyl)ether		450 U	430 U	450 U	450 U	400 U	480 U
2-Chlorophenol		450 U	430 U	56 %	66 %	400 U	480 U
1,3-Dichlorobenzene		450 U	430 U	450 U	450 U	400 U	480 U
1,4-Dichlorobenzene		450 U	430 U	53 %	60 %	400 U	480 U
Benzyl alcohol		450 U	430 U	450 U	450 U	400 U	480 U
1,2-Dichlorobenzene		450 U	430 U	450 U	450 U	400 U	480 U
2-Methylphenol		450 U	430 U	450 U	450 U	400 U	480 U
bis(2-Chloroisopropyl)ether		450 U	430 U	450 U	450 U	400 U	480 U
4-Methylphenol		450 U	430 U	450 U	450 U	400 U	480 U
N-Nitroso-Di-n-propylamine		450 U	430 U	52 %	61 %	400 U	480 U
Hexachloroethane		450 U	430 U	450 U	450 U	400 U	480 U
Nitrobenzene		450 U	430 U	450 U	450 U	400 U	480 U
Isophorone		450 U	430 U	450 U	450 U	400 U	480 U
2-Nitrophenol		450 U	430 U	450 U	450 U	400 U	480 U
2,4-Dimethylphenol		450 U	430 U	450 U	450 U	400 U	480 U
Benzoic acid		2300 U	2200 U	2200 U	2200 U	2000 U	2400 U
bis(2-Chloroethoxy)methane		450 U	430 U	450 U	450 U	400 U	480 U
2,4-Dichlorophenol		450 U	430 U	450 U	450 U	400 U	480 U
1,2,4-Trichlorobenzene		450 U	430 U	55 %	64 %	400 U	480 U
Naphthalene		450 U	430 U	450 U	450 U	400 U	480 U
4-Chloroaniline		450 U	430 U	450 U	450 U	400 U	480 U
Hexachlorobutadiene		450 U	430 U	450 U	450 U	400 U	480 U
4-Chloro-3-methylphenol		450 U	430 U	62 %	72 %	400 U	480 U
2-Methylnaphthalene		450 U	430 U	450 U	450 U	400 U	480 U
Hexachlorocyclopentadiene		450 U	430 U	450 U	450 U	400 U	480 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9101L328 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1b

Cust ID:	BH5B-1	BH5B-2	BH5B-2	BH5B-2	BH5B-3	BH5A-3
RFW#:	001	002	002 MS	002 MSD	003	004
2,4,6-Trichlorophenol	450 U	430 U	450 U	450 U	400 U	480 U
2,4,5-Trichlorophenol	2300 U	2200 U	2200 U	2200 U	2000 U	2400 U
2-Chloronaphthalene	450 U	430 U	450 U	450 U	400 U	480 U
2-Nitroaniline	2300 U	2200 U	2200 U	2200 U	2000 U	2400 U
Dimethylphthalate	450 U	430 U	450 U	450 U	400 U	480 U
Acenaphthylene	450 U	430 U	450 U	450 U	400 U	480 U
2,6-Dinitrotoluene	450 U	430 U	450 U	450 U	400 U	480 U
3-Nitroaniline	2300 U	2200 U	2200 U	2200 U	2000 U	2400 U
Acenaphthene	450 U	430 U	63 %	74 %	400 U	480 U
2,4-Dinitrophenol	2300 U	2200 U	2200 U	2200 U	2000 U	2400 U
4-Nitrophenol	2300 U	2200 U	81 %	86 %	2000 U	2400 U
Dibenzofuran	450 U	430 U	450 U	450 U	400 U	480 U
2,4-Dinitrotoluene	450 U	430 U	72 %	80 %	400 U	480 U
Diethylphthalate	450 U	430 U	450 U	450 U	400 U	480 U
4-Chlorophenyl-phenylether	450 U	430 U	450 U	450 U	400 U	480 U
Fluorene	450 U	430 U	450 U	450 U	400 U	480 U
4-Nitroaniline	2300 U	2200 U	2200 U	2200 U	2000 U	2400 U
4,6-Dinitro-2-methylphenol	2300 U	2200 U	2200 U	2200 U	2000 U	2400 U
N-Nitrosodiphenylamine (1)	450 U	430 U	450 U	450 U	400 U	480 U
4-Bromophenyl-phenylether	450 U	430 U	450 U	450 U	400 U	480 U
Hexachlorobenzene	450 U	430 U	450 U	450 U	400 U	480 U
Pentachlorophenol	2300 U	2200 U	88 %	99 %	2000 U	2400 U
Phenanthrene	450 U	430 U	84 J	92 J	400 U	480 U
Anthracene	450 U	430 U	450 U	450 U	400 U	480 U
Di-n-Butylphthalate	450 U	430 U	69 J	79 J	400 U	480 U
Fluoranthene	450 U	50 J	89 J	110 J	400 U	480 U
Pyrene	450 U	47 J	71 %	82 %	400 U	480 U
Butylbenzylphthalate	450 U	430 U	450 U	450 U	400 U	480 U
3,3'-Dichlorobenzidine	900 U	870 U	890 U	890 U	810 U	960 U
Benzo(a)anthracene	450 U	430 U	450 U	450 U	400 U	480 U
Chrysene	450 U	430 U	450 U	450 U	400 U	480 U
bis(2-Ethylhexyl)phthalate	450 U	430 U	66 J	64 J	400 U	480 U
Di-n-Octyl phthalate	450 U	430 U	450 U	450 U	400 U	480 U
Benzo(b)fluoranthene	450 U	430 U	450 U	450 U	400 U	480 U
Benzo(k)fluoranthene	450 U	430 U	450 U	450 U	400 U	480 U
Benzo(a)pyrene	450 U	430 U	450 U	450 U	400 U	480 U
Indeno(1,2,3-cd)pyrene	450 U	430 U	450 U	450 U	400 U	480 U
Dibenzo(a,h)anthracene	450 U	430 U	450 U	450 U	400 U	480 U
Benzo(g,h,i)perylene	450 U	430 U	450 U	450 U	400 U	480 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 9101L328 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 03/15/91 17:33 Page: 2a

	Cust ID:	SBLK		SBLK BS		SBLK BSD	
Sample Information	RFW#:	91LE0097-MB1		91LE0097-MB1		91LE0097-MB1	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	1.11		1.11		1.11	
	Units:	ug/Kg		ug/Kg		ug/Kg	
	Nitrobenzene-d5	67	%	78	%	83	%
Surrogate Recovery	2-Fluorobiphenyl	69	%	80	%	86	%
	p-Terphenyl-d14	88	%	92	%	102	%
	Phenol-d5	64	%	74	%	78	%
	2-Fluorophenol	68	%	75	%	81	%
	2,4,6-Tribromophenol	52	%	68	%	75	%
Phenol		370	U	74	%	78	%
bis(2-Chloroethyl)ether		370	U	370	U	370	U
2-Chlorophenol		370	U	72	%	76	%
1,3-Dichlorobenzene		370	U	370	U	370	U
1,4-Dichlorobenzene		370	U	70	%	75	%
Benzyl alcohol		370	U	370	U	370	U
1,2-Dichlorobenzene		370	U	370	U	370	U
2-Methylphenol		370	U	370	U	370	U
bis(2-Chloroisopropyl)ether		370	U	370	U	370	U
4-Methylphenol		370	U	370	U	370	U
N-Nitroso-Di-n-propylamine		370	U	67	%	68	%
Hexachloroethane		370	U	370	U	370	U
Nitrobenzene		370	U	370	U	370	U
Isophorone		370	U	370	U	370	U
2-Nitrophenol		370	U	370	U	370	U
2,4-Dimethylphenol		370	U	370	U	370	U
Benzoic acid		1800	U	1800	U	1800	U
bis(2-Chloroethoxy)methane		370	U	370	U	370	U
2,4-Dichlorophenol		370	U	370	U	370	U
1,2,4-Trichlorobenzene		370	U	74	%	78	%
Naphthalene		370	U	370	U	370	U
4-Chloroaniline		370	U	370	U	370	U
Hexachlorobutadiene		370	U	370	U	370	U
4-Chloro-3-methylphenol		370	U	62	%	66	%
2-Methylnaphthalene		370	U	370	U	370	U
Hexachlorocyclopentadiene		370	U	370	U	370	U

** Outside of EPA CLP QC limits.

Cust ID:	SBLK	SBLK BS	SBLK BSD
RFW#:	91LE0097-MB1	91LE0097-MB1	91LE0097-MB1
2,4,6-Trichlorophenol	370 U	370 U	370 U
2,4,5-Trichlorophenol	1800 U	1800 U	1800 U
2-Chloronaphthalene	370 U	370 U	370 U
2-Nitroaniline	1800 U	1800 U	1800 U
Dimethylphthalate	370 U	370 U	370 U
Acenaphthylene	370 U	370 U	370 U
2,6-Dinitrotoluene	370 U	370 U	370 U
3-Nitroaniline	1800 U	1800 U	1800 U
Acenaphthene	370 U	77 %	83 %
2,4-Dinitrophenol	1800 U	1800 U	1800 U
4-Nitrophenol	1800 U	60 %	62 %
Dibenzofuran	370 U	370 U	370 U
2,4-Dinitrotoluene	370 U	68 %	72 %
Diethylphthalate	370 U	370 U	370 U
4-Chlorophenyl-phenylether	370 U	370 U	370 U
Fluorene	370 U	370 U	370 U
4-Nitroaniline	1800 U	1800 U	1800 U
4,6-Dinitro-2-methylphenol	1800 U	1800 U	1800 U
N-Nitrosodiphenylamine (1)	370 U	370 U	370 U
4-Bromophenyl-phenylether	370 U	370 U	370 U
Hexachlorobenzene	370 U	370 U	370 U
Pentachlorophenol	1800 U	61 %	70 %
Phenanthrene	370 U	370 U	370 U
Anthracene	370 U	370 U	370 U
Di-n-Butylphthalate	370 U	370 U	370 U
Fluoranthene	370 U	370 U	370 U
Pyrene	370 U	82 %	90 %
Butylbenzylphthalate	370 U	370 U	370 U
3,3'-Dichlorobenzidine	740 U	740 U	740 U
Benzo(a)anthracene	370 U	370 U	370 U
Chrysene	370 U	370 U	370 U
bis(2-Ethylhexyl)phthalate	370 U	370 U	370 U
Di-n-Octyl phthalate	370 U	370 U	370 U
Benzo(b)fluoranthene	370 U	370 U	370 U
Benzo(k)fluoranthene	370 U	370 U	370 U
Benzo(a)pyrene	370 U	370 U	370 U
Indeno(1,2,3-cd)pyrene	370 U	370 U	370 U
Dibenzo(a,h)anthracene	370 U	370 U	370 U
Benzo(g,h,i)perylene	370 U	370 U	370 U

(1) - Cannot be separated from Diphenylamine. * = Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory

Semivolatiles by GC/MS, HSL List — Report Date: 05/11/91 15:10

RFW Batch Number: 9101L350 — Client: CRA-FREWSBERG — Work Order: 5335-03-01-0000 — Page: 1a

	Cust ID:	BH13-1	BH13-1	BH13-1	BHA-1	BH12-1	SS-1
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	74 %	80 %	89 %	86 %	99 %	98 %
	2-Fluorobiphenyl	84 %	86 %	99 %	94 %	100 %	97 %
	p-Terphenyl-d14	99 %	93 %	99 %	86 %	91 %	106 %
	Phenol-d5	78 %	81 %	88 %	86 %	91 %	89 %
	2-Fluorophenol	77 %	76 %	81 %	77 %	76 %	76 %
	2,4,6-Tribromophenol	87 %	86 %	94 %	84 %	87 %	95 %
Phenol		410 U	81 %	85 %	400 U	350 U	570 U
bis(2-Chloroethyl)ether		410 U	410 U	400 U	400 U	350 U	570 U
2-Chlorophenol		410 U	79 %	88 %	400 U	350 U	570 U
1,3-Dichlorobenzene		410 U	410 U	400 U	400 U	350 U	570 U
1,4-Dichlorobenzene		410 U	76 %	86 %	400 U	350 U	570 U
Benzyl alcohol		410 U	410 U	400 U	400 U	350 U	570 U
1,2-Dichlorobenzene		410 U	410 U	400 U	400 U	350 U	570 U
2-Methylphenol		410 U	410 U	400 U	400 U	350 U	570 U
bis(2-Chloroisopropyl)ether		410 U	410 U	400 U	400 U	350 U	570 U
4-Methylphenol		410 U	410 U	400 U	400 U	350 U	570 U
N-Nitroso-Di-n-propylamine		410 U	74 %	80 %	400 U	350 U	570 U
Hexachloroethane		410 U	410 U	400 U	400 U	350 U	570 U
Nitrobenzene		410 U	410 U	400 U	400 U	350 U	570 U
Isophorone		410 U	410 U	400 U	400 U	350 U	570 U
2-Nitrophenol		410 U	410 U	400 U	400 U	350 U	570 U
2,4-Dimethylphenol		410 U	410 U	400 U	400 U	350 U	570 U
Benzoic acid		2000 U	2000 U	2000 U	2000 U	1800 U	2800 U
bis(2-Chloroethoxy)methane		410 U	410 U	400 U	400 U	350 U	570 U
2,4-Dichlorophenol		410 U	410 U	400 U	400 U	350 U	570 U
1,2,4-Trichlorobenzene		410 U	75 %	87 %	400 U	350 U	570 U
Naphthalene		410 U	410 U	400 U	400 U	350 U	570 U
4-Chloroaniline		410 U	410 U	400 U	400 U	350 U	570 U
Hexachlorobutadiene		410 U	410 U	400 U	400 U	350 U	570 U
4-Chloro-3-methylphenol		410 U	85 %	88 %	400 U	350 U	60 J
2-Methylnaphthalene		410 U	410 U	400 U	400 U	350 U	570 U
Hexachlorocyclopentadiene		410 U	410 U	400 U	400 U	350 U	570 U

* Outside of EPA CLP QC limits.

000027

Cust ID:	BH13-1		BH13-1		BH13-1		BHA-1		BH12-1		SS-1	
RFW#:	001		001 MS		001 MSD		002		003		004	
2,4,6-Trichlorophenol	410	U	410	U	400	U	400	U	350	U	570	U
2,4,5-Trichlorophenol	2000	U	2000	U	2000	U	2000	U	1800	U	2800	U
2-Chloronaphthalene	410	U	410	U	400	U	400	U	350	U	570	U
2-Nitroaniline	2000	U	2000	U	2000	U	2000	U	1800	U	2800	U
Dimethylphthalate	410	U	410	U	400	U	400	U	350	U	570	U
Acenaphthylene	410	U	410	U	400	U	400	U	350	U	570	U
2,6-Dinitrotoluene	410	U	410	U	400	U	400	U	350	U	570	U
3-Nitroaniline	2000	U	2000	U	2000	U	2000	U	1800	U	2800	U
Acenaphthene	410	U	85	%	93	%	400	U	350	U	570	U
2,4-Dinitrophenol	2000	U	2000	U	2000	U	2000	U	1800	U	2800	U
4-Nitrophenol	2000	U	111	%	117 *	%	2000	U	1800	U	250	J
Dibenzofuran	410	U	410	U	400	U	400	U	350	U	570	U
2,4-Dinitrotoluene	410	U	99 *	%	111 *	%	400	U	350	U	570	U
Diethylphthalate	410	U	410	U	400	U	400	U	350	U	570	U
4-Chlorophenyl-phenylether	410	U	410	U	400	U	400	U	350	U	570	U
Fluorene	410	U	410	U	400	U	400	U	350	U	570	U
4-Nitroaniline	2000	U	2000	U	2000	U	2000	U	1800	U	2800	U
4,6-Dinitro-2-methylphenol	2000	U	2000	U	2000	U	2000	U	1800	U	2800	U
N-Nitrosodiphenylamine (1)	410	U	410	U	400	U	400	U	350	U	570	U
4-Bromophenyl-phenylether	410	U	410	U	400	U	400	U	350	U	570	U
Hexachlorobenzene	410	U	410	U	400	U	400	U	350	U	570	U
Pentachlorophenol	56	J	97	%	104	%	2000	U	1800	U	220	J
Phenanthrene	44	J	410	U	400	U	400	U	350	U	220	J
Anthracene	410	U	410	U	400	U	400	U	350	U	570	U
Di-n-Butylphthalate	50	JB	410	U	58	JB	400	U	350	U	110	JB
Fluoranthene	55	J	410	U	400	U	400	U	350	U	480	J
Pyrene	71	J	78	%	83	%	400	U	350	U	480	J
Butylbenzylphthalate	410	U	410	U	400	U	400	U	350	U	89	J
3,3'-Dichlorobenzidine	810	U	810	U	810	U	810	U	700	U	1100	U
Benzo(a)anthracene	410	U	410	U	400	U	400	U	350	U	160	J
Chrysene	410	U	410	U	400	U	400	U	350	U	190	J
bis(2-Ethylhexyl)phthalate	65	J	56	J	59	J	42	J	61	J	240	J
Di-n-Octyl phthalate	41	J	410	U	400	U	400	U	350	U	190	J
Benzo(b)fluoranthene	410	U	410	U	400	U	400	U	350	U	170	J
Benzo(k)fluoranthene	410	U	410	U	400	U	400	U	350	U	190	J
Benzo(a)pyrene	410	U	410	U	400	U	400	U	350	U	170	J
Indeno(1,2,3-cd)pyrene	410	U	410	U	400	U	400	U	350	U	90	J
Dibenzo(a,h)anthracene	410	U	410	U	400	U	400	U	350	U	570	U
Benzo(g,h,i)perylene	410	U	410	U	400	U	400	U	350	U	96	J

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 9101L350 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 05/11/91 15:10 Page: 2a

	Cust ID:	BHRB-1		SBLK		SBLK BS		SBLK BSD		SBLK		SBLK BS	
Sample Information	RFW#:	008		91LE0106-MB1		91LE0106-MB1		91LE0106-MB1		91LE0104-MB1		91LE0104-MB1	
	Matrix:	WATER		SOIL		SOIL		SOIL		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/Kg		ug/Kg		ug/Kg		ug/L		ug/L	
Surrogate Recovery	Nitrobenzene-d5	112	%	86	%	83	%	85	%	78	%	92	%
	2-Fluorobiphenyl	106	%	89	%	87	%	90	%	76	%	94	%
	p-Terphenyl-d14	110	%	94	%	93	%	95	%	94	%	128	%
	Phenol-d5	49	%	90	%	87	%	88	%	39	%	44	%
	2-Fluorophenol	74	%	102	%	92	%	94	%	62	%	69	%
	2,4,6-Tribromophenol	93	%	93	%	91	%	88	%	69	%	91	%
			fl		fl		fl		fl		fl		fl
Phenol		10	U	330	U	79	%	80	%	10	U	41	%
bis(2-Chloroethyl)ether		10	U	330	U	330	U	330	U	10	U	10	U
2-Chlorophenol		10	U	49	J	86	%	86	%	10	U	93	%
1,3-Dichlorobenzene		10	U	330	U	330	U	330	U	10	U	10	U
1,4-Dichlorobenzene		10	U	330	U	80	%	83	%	10	U	76	%
Benzyl alcohol		10	U	330	U	330	U	330	U	10	U	10	U
1,2-Dichlorobenzene		10	U	330	U	330	U	330	U	10	U	10	U
2-Methylphenol		10	U	330	U	330	U	330	U	10	U	10	U
bis(2-Chloroisopropyl)ether		10	U	330	U	330	U	330	U	10	U	10	U
4-Methylphenol		10	U	330	U	330	U	330	U	10	U	10	U
N-Nitroso-Di-n-propylamine		10	U	330	U	76	%	78	%	10	U	85	%
Hexachloroethane		10	U	330	U	330	U	330	U	10	U	10	U
Nitrobenzene		10	U	330	U	330	U	330	U	10	U	10	U
Isophorone		10	U	330	U	330	U	330	U	10	U	10	U
2-Nitrophenol		10	U	330	U	330	U	330	U	10	U	10	U
2,4-Dimethylphenol		10	U	330	U	330	U	330	U	10	U	10	U
Benzoic acid		50	U	1700	U	1700	U	1700	U	50	U	50	U
bis(2-Chloroethoxy)methane		10	U	330	U	330	U	330	U	10	U	10	U
2,4-Dichlorophenol		10	U	330	U	330	U	330	U	10	U	10	U
1,2,4-Trichlorobenzene		10	U	330	U	86	%	90	%	10	U	84	%
Naphthalene		10	U	330	U	330	U	330	U	10	U	10	U
4-Chloroaniline		10	U	330	U	330	U	330	U	10	U	10	U
Hexachlorobutadiene		10	U	330	U	330	U	330	U	10	U	10	U
4-Chloro-3-methylphenol		10	U	330	U	82	%	83	%	10	U	95	%
2-Methylnaphthalene		10	U	330	U	330	U	330	U	10	U	10	U
Hexachlorocyclopentadiene		10	U	330	U	330	U	330	U	10	U	10	U

*= Outside of EPA CLP QC limits.

Cust ID:	BHRB-1	SBLK	SBLK BS	SBLK BSD	SBLK	SBLK BS
RFW#:	008	91LE0106-MB1	91LE0106-MB1	91LE0106-MB1	91LE0104-MB1	91LE0104-MB1
2,4,6-Trichlorophenol	10 U	330 U	330 U	330 U	10 U	10 U
2,4,5-Trichlorophenol	50 U	1700 U	1700 U	1700 U	50 U	50 U
2-Chloronaphthalene	10 U	330 U	330 U	330 U	10 U	10 U
2-Nitroaniline	50 U	1700 U	1700 U	1700 U	50 U	50 U
Dimethylphthalate	10 U	330 U	330 U	330 U	10 U	10 U
Acenaphthylene	10 U	330 U	330 U	330 U	10 U	10 U
2,6-Dinitrotoluene	10 U	330 U	330 U	330 U	10 U	10 U
3-Nitroaniline	50 U	1700 U	1700 U	1700 U	50 U	50 U
Acenaphthene	10 U	330 U	83 %	87 %	10 U	95 %
2,4-Dinitrophenol	50 U	1700 U	1700 U	1700 U	50 U	50 U
4-Nitrophenol	50 U	1700 U	71 %	72 %	50 U	27 %
Dibenzofuran	10 U	330 U	330 U	330 U	10 U	10 U
2,4-Dinitrotoluene	10 U	330 U	80 %	82 %	10 U	105 * %
Diethylphthalate	10 U	330 U	330 U	330 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	330 U	330 U	330 U	10 U	10 U
Fluorene	10 U	330 U	330 U	330 U	10 U	10 U
4-Nitroaniline	50 U	1700 U	1700 U	1700 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	1700 U	1700 U	1700 U	50 U	50 U
N-Nitrosodiphenylamine (1)	10 U	62 J	68 JB	69 JB	10 U	10 U
4-Bromophenyl-phenylether	10 U	330 U	330 U	330 U	10 U	10 U
Hexachlorobenzene	10 U	330 U	330 U	330 U	10 U	10 U
Pentachlorophenol	50 U	1700 U	77 %	79 %	50 U	78 %
Phenanthrene	10 U	330 U	330 U	330 U	10 U	10 U
Anthracene	10 U	330 U	330 U	330 U	10 U	10 U
Di-n-Butylphthalate	10 U	170 J	330 U	330 U	10 U	10 U
Fluoranthene	10 U	330 U	330 U	330 U	10 U	10 U
Pyrene	10 U	330 U	83 %	85 %	10 U	120 %
Butylbenzylphthalate	10 U	330 U	330 U	330 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	670 U	670 U	670 U	20 U	20 U
Benzo(a)anthracene	10 U	330 U	330 U	330 U	10 U	10 U
Chrysene	10 U	330 U	330 U	330 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	330 U	330 U	330 U	10 U	10 U
Di-n-Octyl phthalate	10 U	330 U	330 U	330 U	10 U	10 U
Benzo(b)fluoranthene	10 U	330 U	330 U	330 U	10 U	10 U
Benzo(k)fluoranthene	10 U	330 U	330 U	330 U	10 U	10 U
Benzo(a)pyrene	10 U	330 U	330 U	330 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	330 U	330 U	330 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	330 U	330 U	330 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	330 U	330 U	330 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Cust ID: SBLK BSD

Sample Information

RFW#: 91LE0104-MB1
Matrix: WATER
D.F.: 1.00
Units: ug/L

Surrogate Recovery	Nitrobenzene-d5	92	%
	2-Fluorobiphenyl	92	%
	p-Terphenyl-d14	111	%
	Phenol-d5	25	%
	2-Fluorophenol	33	%
	2,4,6-Tribromophenol	47	%
Phenol		24	%
bis(2-Chloroethyl)ether		10	U
2-Chlorophenol		53	%
1,3-Dichlorobenzene		10	U
1,4-Dichlorobenzene		77	%
Benzyl alcohol		10	U
1,2-Dichlorobenzene		10	U
2-Methylphenol		10	U
bis(2-Chloroisopropyl)ether		10	U
4-Methylphenol		10	U
N-Nitroso-Di-n-propylamine		89	%
Hexachloroethane		10	U
Nitrobenzene		10	U
Isophorone		10	U
2-Nitrophenol		10	U
2,4-Dimethylphenol		10	U
Benzoic acid		50	U
bis(2-Chloroethoxy)methane		10	U
2,4-Dichlorophenol		10	U
1,2,4-Trichlorobenzene		85	%
Naphthalene		10	U
4-Chloroaniline		10	U
Hexachlorobutadiene		10	U
4-Chloro-3-methylphenol		57	%
2-Methylnaphthalene		10	U
Hexachlorocyclopentadiene		10	U

* = Outside of EPA CLP QC limits.

Cust ID: SBLK BSD

RFW#: 91LE0104-MB1

2,4,6-Trichlorophenol	10	U
2,4,5-Trichlorophenol	50	U
2-Chloronaphthalene	10	U
2-Nitroaniline	50	U
Dimethylphthalate	10	U
Acenaphthylene	10	U
2,6-Dinitrotoluene	10	U
3-Nitroaniline	50	U
Acenaphthene	93	%
2,4-Dinitrophenol	50	U
4-Nitrophenol	9 *	%
Dibenzofuran	10	U
2,4-Dinitrotoluene	90	%
Diethylphthalate	10	U
4-Chlorophenyl-phenylether	10	U
Fluorene	10	U
4-Nitroaniline	50	U
4,6-Dinitro-2-methylphenol	50	U
N-Nitrosodiphenylamine (1)	2	J
4-Bromophenyl-phenylether	10	U
Hexachlorobenzene	10	U
Pentachlorophenol	30	%
Phenanthrene	10	U
Anthracene	10	U
Di-n-Butylphthalate	10	U
Fluoranthene	10	U
Pyrene	104	%
Butylbenzylphthalate	10	U
3,3'-Dichlorobenzidine	20	U
Benzo(a)anthracene	10	U
Chrysene	10	U
bis(2-Ethylhexyl)phthalate	10	U
Di-n-Octyl phthalate	10	U
Benzo(b)fluoranthene	10	U
Benzo(k)fluoranthene	10	U
Benzo(a)pyrene	10	U
Indeno(1,2,3-cd)pyrene	10	U
Dibenzo(a,h)anthracene	10	U
Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine. *- Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List
Report Date: 03/05/91 08:15

RFW Batch Number: 9012L952 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1a

	Cust ID:	TP-8A	TP-10BB	WS-1	SBLK	SBLK BS	SBLK BSD
Sample Information	RFW#:	002	003	004	90LE1485-MB1	90LE1485-MB1	90LE1485-MB1
	Matrix:	SOIL	SOIL	WATER	SOIL	SOIL	SOIL
	D.F.:	1.11	5.55	1.00	1.11	1.11	1.11
	Units:	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	92 %	86 %	125 * %	60 %	93 %	94 %
	2-Fluorobiphenyl	91 %	103 %	116 %	92 %	95 %	94 %
	p-Terphenyl-d14	95 %	120 %	126 %	104 %	100 %	92 %
	Phenol-d5	77 %	76 %	39 %	66 %	84 %	84 %
	2-Fluorophenol	77 %	78 %	62 %	43 %	80 %	80 %
	2,4,6-Tribromophenol	96 %	70 %	81 %	78 %	79 %	54 %
Phenol		440 U	2000 U	10 U	370 U	81 %	79 %
bis(2-Chloroethyl)ether		440 U	2000 U	10 U	370 U	370 U	370 U
2-Chlorophenol		440 U	2000 U	10 U	370 U	78 %	76 %
1,3-Dichlorobenzene		440 U	2000 U	10 U	370 U	370 U	370 U
1,4-Dichlorobenzene		440 U	2000 U	10 U	370 U	83 %	81 %
Benzyl alcohol		440 U	2000 U	10 U	370 U	370 U	370 U
1,2-Dichlorobenzene		440 U	2000 U	10 U	370 U	370 U	370 U
2-Methylphenol		440 U	2000 U	10 U	370 U	370 U	370 U
bis(2-Chloroisopropyl)ether		440 U	2000 U	10 U	370 U	370 U	370 U
4-Methylphenol		440 U	2000 U	10 U	370 U	370 U	370 U
N-Nitroso-Di-n-propylamine		440 U	2000 U	10 U	370 U	80 %	78 %
Hexachloroethane		440 U	2000 U	10 U	370 U	370 U	370 U
Nitrobenzene		440 U	2000 U	10 U	370 U	370 U	370 U
Isophorone		440 U	2000 U	10 U	370 U	370 U	370 U
2-Nitrophenol		440 U	2000 U	10 U	370 U	370 U	370 U
2,4-Dimethylphenol		440 U	2000 U	10 U	370 U	370 U	370 U
Benzoic acid		2200 U	10000 U	50 U	1800 U	1800 U	1800 U
bis(2-Chloroethoxy)methane		440 U	2000 U	10 U	370 U	370 U	370 U
2,4-Dichlorophenol		440 U	2000 U	10 U	370 U	370 U	370 U
1,2,4-Trichlorobenzene		440 U	2000 U	10 U	370 U	85 %	84 %
Naphthalene		440 U	2000 U	10 U	370 U	370 U	370 U
4-Chloroaniline		440 U	2000 U	10 U	370 U	370 U	370 U
Hexachlorobutadiene		440 U	2000 U	10 U	370 U	370 U	370 U
4-Chloro-3-methylphenol		440 U	2000 U	10 U	370 U	73 %	72 %
2-Methylnaphthalene		440 U	2000 U	10 U	370 U	370 U	370 U
Hexachlorocyclopentadiene		440 U	2000 U	10 U	370 U	370 U	370 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9012L952 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1b

Cust ID:	TP-8A		TP-10BB		WS-1		SBLK		SBLK BS		SBLK BSD	
RFW#:	002		003		004		90LE1485-MB1		90LE1485-MB1		90LE1485-MB1	
2,4,6-Trichlorophenol	440	U	2000	U	10	U	370	U	370	U	370	U
2,4,5-Trichlorophenol	2200	U	10000	U	50	U	1800	U	1800	U	1800	U
2-Chloronaphthalene	440	U	2000	U	10	U	370	U	370	U	370	U
2-Nitroaniline	2200	U	10000	U	50	U	1800	U	1800	U	1800	U
Dimethylphthalate	440	U	2000	U	10	U	370	U	370	U	370	U
Acenaphthylene	440	U	2000	U	10	U	370	U	370	U	370	U
2,6-Dinitrotoluene	440	U	2000	U	10	U	370	U	370	U	370	U
3-Nitroaniline	2200	U	10000	U	50	U	1800	U	1800	U	1800	U
Acenaphthene	440	U	2000	U	10	U	370	U	90	%	87	%
2,4-Dinitrophenol	2200	U	10000	U	50	U	1800	U	1800	U	1800	U
4-Nitrophenol	2200	U	10000	U	50	U	1800	U	89	%	76	%
Dibenzofuran	440	U	2000	U	10	U	370	U	370	U	370	U
2,4-Dinitrotoluene	440	U	2000	U	10	U	370	U	86	%	78	%
Diethylphthalate	440	U	2000	U	10	U	370	U	370	U	370	U
4-Chlorophenyl-phenylether	440	U	2000	U	10	U	370	U	370	U	370	U
Fluorene	440	U	2000	U	10	U	370	U	370	U	370	U
4-Nitroaniline	2200	U	10000	U	50	U	1800	U	1800	U	1800	U
4,6-Dinitro-2-methylphenol	2200	U	10000	U	50	U	1800	U	1800	U	1800	U
N-Nitrosodiphenylamine (1)	440	U	2000	U	10	U	370	U	370	U	370	U
4-Bromophenyl-phenylether	440	U	2000	U	10	U	370	U	370	U	370	U
Hexachlorobenzene	440	U	2000	U	10	U	370	U	370	U	370	U
Pentachlorophenol	2200	U	10000	U	50	U	1800	U	99	%	88	%
Phenanthrene	440	U	2000	U	10	U	370	U	370	U	370	U
Anthracene	440	U	2000	U	10	U	370	U	370	U	370	U
Di-n-Butylphthalate	63	J	2000	U	10	U	370	U	370	U	370	U
Fluoranthene	440	U	2000	U	10	U	370	U	370	U	370	U
Pyrene	440	U	2000	U	10	U	370	U	94	%	84	%
Butylbenzylphthalate	440	U	2000	U	10	U	370	U	370	U	370	U
3,3'-Dichlorobenzidine	880	U	4100	U	20	U	740	U	740	U	740	U
Benzo(a)anthracene	440	U	2000	U	10	U	370	U	370	U	370	U
Chrysene	440	U	2000	U	10	U	370	U	370	U	370	U
bis(2-Ethylhexyl)phthalate	93	J	1200	J	10	U	370	U	40	J	62	J
Di-n-Octyl phthalate	440	U	2000	U	10	U	370	U	370	U	370	U
Benzo(b)fluoranthene	440	U	2000	U	10	U	370	U	370	U	370	U
Benzo(k)fluoranthene	440	U	2000	U	10	U	370	U	370	U	370	U
Benzo(a)pyrene	440	U	2000	U	10	U	370	U	370	U	370	U
Indeno(1,2,3-cd)pyrene	440	U	2000	U	10	U	370	U	370	U	370	U
Dibenzo(a,h)anthracene	440	U	2000	U	10	U	370	U	370	U	370	U
Benzo(g,h,i)perylene	440	U	2000	U	10	U	370	U	370	U	370	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 9012L952 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 03/05/91 08:15 Page: 2a

		Cust ID:	SBLK	SBLK BS	SBLK BSD
Sample Information		RFW#:	90LE1493-MB1	90LE1493-MB1	90LE1493-MB1
		Matrix:	WATER	WATER	WATER
		D.F.:	1.00	1.00	1.00
		Units:	ug/L	ug/L	ug/L
Surrogate Recovery	Nitrobenzene-d5		95 %	93 %	83 %
	2-Fluorobiphenyl		102 %	91 %	83 %
	p-Terphenyl-d14		117 %	90 %	86 %
	Phenol-d5		37 %	36 %	49 %
	2-Fluorophenol		52 %	36 %	69 %
	2,4,6-Tribromophenol		65 %	36 %	94 %
Phenol			10 U	38 %	51 %
bis(2-Chloroethyl)ether			10 U	10 U	10 U
2-Chlorophenol			10 U	55 %	90 %
1,3-Dichlorobenzene			10 U	10 U	10 U
1,4-Dichlorobenzene			10 U	70 %	66 %
Benzyl alcohol			10 U	10 U	10 U
1,2-Dichlorobenzene			10 U	10 U	10 U
2-Methylphenol			10 U	10 U	10 U
bis(2-Chloroisopropyl)ether			10 U	10 U	10 U
4-Methylphenol			10 U	10 U	10 U
N-Nitroso-Di-n-propylamine			10 U	92 %	85 %
Hexachloroethane			10 U	10 U	10 U
Nitrobenzene			10 U	10 U	10 U
Isophorone			10 U	10 U	10 U
2-Nitrophenol			10 U	10 U	10 U
2,4-Dimethylphenol			10 U	10 U	10 U
Benzoic acid			50 U	50 U	50 U
bis(2-Chloroethoxy)methane			10 U	10 U	10 U
2,4-Dichlorophenol			10 U	10 U	10 U
1,2,4-Trichlorobenzene			10 U	79 %	72 %
Naphthalene			10 U	10 U	10 U
4-Chloroaniline			10 U	10 U	10 U
Hexachlorobutadiene			10 U	10 U	10 U
4-Chloro-3-methylphenol			10 U	70 %	91 %
2-Methylnaphthalene			10 U	10 U	10 U
Hexachlorocyclopentadiene			10 U	10 U	10 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9012L952 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 2b

	Cust ID: SBLK	SBLK BS	SBLK BSD
	RFW#: 90LE1493-MB1	90LE1493-MB1	90LE1493-MB1
2,4,6-Trichlorophenol	10 U	10 U	10 U
2,4,5-Trichlorophenol	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U
2-Nitroaniline	50 U	50 U	50 U
Dimethylphthalate	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U
3-Nitroaniline	50 U	50 U	50 U
Acenaphthene	10 U	97 %	92 %
2,4-Dinitrophenol	50 U	50 U	50 U
4-Nitrophenol	50 U	11 %	40 %
Dibenzofuran	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	99 * %	89 %
Diethylphthalate	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U
Pentachlorophenol	50 U	4 * %	70 %
Phenanthrene	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U
Di-n-Butylphthalate	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U
Pyrene	10 U	81 %	82 %
Butylbenzylphthalate	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U
Benzo(a)anthracene	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	10 U	10 U
Di-n-Octyl phthalate	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 9012L935 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 03/04/91 12:14 Page: 1a

	Cust ID:	TP-1A	TP-2A	TP-2AA	SBLK ✓	SBLK BS	SBLK BSD
Sample Information	RFW#:	001	002	003	90LE1485-MB1	90LE1485-MB1	90LE1485-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	55.5	55.5	55.5	1.11	1.11	1.11
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	D %	D %	D %	60 %	93 %	94 %
	2-Fluorobiphenyl	D %	D %	D %	92 %	95 %	94 %
	p-Terphenyl-d14	D %	D %	D %	104 %	100 %	92 %
	Phenol-d5	D %	D %	D %	66 %	84 %	84 %
	2-Fluorophenol	D %	D %	D %	43 %	80 %	80 %
	2,4,6-Tribromophenol	D %	D %	D %	78 %	79 %	54 %
		fl	fl	fl	fl	fl	fl
Phenol		31000 U	23000 U	23000 U	370 U	81 %	79 %
bis(2-Chloroethyl)ether		31000 U	23000 U	23000 U	370 U	370 U	370 U
2-Chlorophenol		31000 U	23000 U	23000 U	370 U	78 %	76 %
1,3-Dichlorobenzene		31000 U	23000 U	23000 U	370 U	370 U	370 U
1,4-Dichlorobenzene		31000 U	23000 U	23000 U	370 U	83 %	81 %
Benzyl alcohol		31000 U	23000 U	23000 U	370 U	370 U	370 U
1,2-Dichlorobenzene		31000 U	23000 U	23000 U	370 U	370 U	370 U
2-Methylphenol		31000 U	23000 U	23000 U	370 U	370 U	370 U
bis(2-Chloroisopropyl)ether		31000 U	23000 U	23000 U	370 U	370 U	370 U
4-Methylphenol		31000 U	23000 U	23000 U	370 U	370 U	370 U
N-Nitroso-Di-n-propylamine		31000 U	23000 U	23000 U	370 U	80 %	78 %
Hexachloroethane		31000 U	23000 U	23000 U	370 U	370 U	370 U
Nitrobenzene		31000 U	23000 U	23000 U	370 U	370 U	370 U
Isophorone		31000 U	23000 U	23000 U	370 U	370 U	370 U
2-Nitrophenol		31000 U	23000 U	23000 U	370 U	370 U	370 U
2,4-Dimethylphenol		31000 U	23000 U	23000 U	370 U	370 U	370 U
Benzoic acid		150000 U	110000 U	120000 U	1800 U	1800 U	1800 U
bis(2-Chloroethoxy)methane		31000 U	23000 U	23000 U	370 U	370 U	370 U
2,4-Dichlorophenol		31000 U	23000 U	23000 U	370 U	370 U	370 U
1,2,4-Trichlorobenzene		31000 U	23000 U	23000 U	370 U	85 %	84 %
Naphthalene		31000 U	23000 U	23000 U	370 U	370 U	370 U
4-Chloroaniline		31000 U	23000 U	23000 U	370 U	370 U	370 U
Hexachlorobutadiene		31000 U	23000 U	23000 U	370 U	370 U	370 U
4-Chloro-3-methylphenol		31000 U	23000 U	23000 U	370 U	73 %	72 %
2-Methylnaphthalene		31000 U	23000 U	23000 U	370 U	370 U	370 U
Hexachlorocyclopentadiene		31000 U	23000 U	23000 U	370 U	370 U	370 U

*= Outside of EPA CLP QC limits.

Client: CRA-FRKWSBKRG Work Order: 5335-03-01-0000 Page: 1b

Cust ID:	TP-1A	TP-2A	TP-2AA	SBLK	SBLK BS	SBLK BSD
RFW#:	001	002	003	90LE1485-MB1	90LE1485-MB1	90LE1485-MB1
2,4,6-Trichlorophenol	31000 U	23000 U	23000 U	370 U	370 U	370 U
2,4,5-Trichlorophenol	150000 U	110000 U	120000 U	1800 U	1800 U	1800 U
2-Chloronaphthalene	31000 U	23000 U	23000 U	370 U	370 U	370 U
2-Nitroaniline	150000 U	110000 U	120000 U	1800 U	1800 U	1800 U
Dimethylphthalate	31000 U	23000 U	23000 U	370 U	370 U	370 U
Acenaphthylene	31000 U	23000 U	23000 U	370 U	370 U	370 U
2,6-Dinitrotoluene	31000 U	23000 U	23000 U	370 U	370 U	370 U
3-Nitroaniline	150000 U	110000 U	120000 U	1800 U	1800 U	1800 U
Acenaphthene	31000 U	23000 U	23000 U	370 U	90 %	87 %
2,4-Dinitrophenol	150000 U	110000 U	120000 U	1800 U	1800 U	1800 U
4-Nitrophenol	150000 U	110000 U	120000 U	1800 U	89 %	76 %
Dibenzofuran	31000 U	23000 U	23000 U	370 U	370 U	370 U
2,4-Dinitrotoluene	31000 U	23000 U	23000 U	370 U	86 %	78 %
Diethylphthalate	31000 U	23000 U	23000 U	370 U	370 U	370 U
4-Chlorophenyl-phenylether	31000 U	23000 U	23000 U	370 U	370 U	370 U
Fluorene	31000 U	23000 U	23000 U	370 U	370 U	370 U
4-Nitroaniline	150000 U	110000 U	120000 U	1800 U	1800 U	1800 U
4,6-Dinitro-2-methylphenol	150000 U	110000 U	120000 U	1800 U	1800 U	1800 U
N-Nitrosodiphenylamine (1)	31000 U	23000 U	23000 U	370 U	370 U	370 U
4-Bromophenyl-phenylether	31000 U	23000 U	23000 U	370 U	370 U	370 U
Hexachlorobenzene	31000 U	23000 U	23000 U	370 U	370 U	370 U
Pentachlorophenol	150000 U	110000 U	120000 U	1800 U	99 %	88 %
Phenanthrene	31000 U	23000 U	23000 U	370 U	370 U	370 U
Anthracene	31000 U	23000 U	23000 U	370 U	370 U	370 U
Di-n-Butylphthalate	31000 U	23000 U	23000 U	370 U	370 U	370 U
Fluoranthene	31000 U	23000 U	23000 U	370 U	370 U	370 U
Pyrene	31000 U	23000 U	23000 U	370 U	370 U	370 U
Butylbenzylphthalate	31000 U	23000 U	23000 U	370 U	94 %	84 %
3,3'-Dichlorobenzidine	62000 U	46000 U	46000 U	740 U	740 U	740 U
Benzo(a)anthracene	31000 U	23000 U	23000 U	370 U	370 U	370 U
Chrysene	31000 U	23000 U	23000 U	370 U	370 U	370 U
bis(2-Ethylhexyl)phthalate	5200 J	3400 J	4300 J	370 U	40 J	62 J
Di-n-Octyl phthalate	31000 U	23000 U	23000 U	370 U	370 U	370 U
Benzo(b)fluoranthene	31000 U	23000 U	23000 U	370 U	370 U	370 U
Benzo(k)fluoranthene	31000 U	23000 U	23000 U	370 U	370 U	370 U
Benzo(a)pyrene	31000 U	23000 U	23000 U	370 U	370 U	370 U
Indeno(1,2,3-cd)pyrene	31000 U	23000 U	23000 U	370 U	370 U	370 U
Dibenzo(a,h)anthracene	31000 U	23000 U	23000 U	370 U	370 U	370 U
Benzo(g,h,i)perylene	31000 U	23000 U	23000 U	370 U	370 U	370 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

Report Date: 03/18/91 20:17

RFW Batch Number: 9012L972 Client: CRA-FREWSHERG Work Order: 5335-03-01-0000 Page: 1a

	Cust ID:	TP4C		TP3A		TP11A		TP11A		TP11A		SBLK	
Sample Information	RFW#:	001		002		004		004 MS		004 MSD		90LL1490-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.11		1.11		1.11		1.11		1.11		1.11	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	113	%	91	%	89	%	98	%	105	%	104	%
	2-Fluorobiphenyl	110	%	94	%	92	%	93	%	100	%	106	%
	p-Terphenyl-d14	118	%	105	%	102	%	107	%	98	%	96	%
	Phenol-d5	90	%	81	%	79	%	85	%	85	%	98	%
	2-Fluorophenol	94	%	85	%	83	%	90	%	88	%	97	%
	2,4,6-Tribromophenol	99	%	101	%	94	%	141 *	%	94	%	80	%
			fl		fl		fl		fl		fl		fl
Phenol		460	U	460	U	420	U	89	%	87	%	370	U
bis(2-Chloroethyl)ether		460	U	460	U	420	U	410	U	410	U	370	U
2-Chlorophenol		460	U	460	U	420	U	88	%	84	%	370	U
1,3-Dichlorobenzene		460	U	460	U	420	U	410	U	410	U	370	U
1,4-Dichlorobenzene		460	U	460	U	420	U	83	%	83	%	370	U
Benzyl alcohol		460	U	460	U	420	U	410	U	410	U	370	U
1,2-Dichlorobenzene		460	U	460	U	420	U	410	U	410	U	370	U
2-Methylphenol		460	U	460	U	420	U	410	U	410	U	370	U
bis(2-Chloroisopropyl)ether		460	U	460	U	420	U	410	U	410	U	370	U
4-Methylphenol		170	J	460	U	420	U	410	U	410	U	370	U
N-Nitroso-Di-n-propylamine		460	U	460	U	420	U	86	%	91	%	370	U
Hexachloroethane		460	U	460	U	420	U	410	U	410	U	370	U
Nitrobenzene		460	U	460	U	420	U	410	U	410	U	370	U
Isophorone		460	U	460	U	420	U	410	U	410	U	370	U
2-Nitrophenol		460	U	460	U	420	U	410	U	410	U	370	U
2,4-Dimethylphenol		460	U	460	U	420	U	47	J	410	U	370	U
Benzoic acid		420	J	48	J	2100	U	2100	U	2100	U	1800	U
bis(2-Chloroethoxy)methane		460	U	460	U	420	U	410	U	410	U	370	U
2,4-Dichlorophenol		460	U	460	U	420	U	53	J	410	U	370	U
1,2,4-Trichlorobenzene		460	U	460	U	420	U	92	%	96	%	370	U
Naphthalene		150	J	460	U	420	U	410	U	410	U	370	U
4-Chloroaniline		460	U	460	U	420	U	410	U	410	U	370	U
Hexachlorobutadiene		460	U	460	U	420	U	410	U	410	U	370	U
4-Chloro-3-methylphenol		380	J	460	U	420	U	105 *	%	92	%	370	U
2-Methylnaphthalene		320	J	460	U	420	U	410	U	410	U	370	U
Hexachlorocyclopentadiene		460	U	460	U	420	U	410	U	410	U	370	U

*= Outside of EPA CLP QC limits.

Cust ID:	TP4C		TP3A		TP11A		TP11A		TP11A		SBLK	
RFW#:	001		002		004		C04 MS		004 MSD		90LE1490-MB1	
2,4,6-Trichlorophenol	79	J	460	U	420	U	200	J	51	J	370	U
2,4,5-Trichlorophenol	150	J	2300	U	2100	U	290	J	75	J	1800	U
2-Chloronaphthalene	460	U	460	U	420	U	410	U	410	U	370	U
2-Nitroaniline	2300	U	2300	U	2100	U	2100	U	2100	U	1800	U
Dimethylphthalate	460	U	460	U	420	U	410	U	410	U	370	U
Acenaphthylene	460	U	460	U	420	U	410	U	410	U	370	U
2,6-Dinitrotoluene	460	U	460	U	420	U	410	U	410	U	370	U
3-Nitroaniline	2300	U	2300	U	2100	U	2100	U	2100	U	1800	U
Acenaphthene	77	J	460	U	420	U	92	%	92	%	370	U
2,4-Dinitrophenol	2300	U	2300	U	2100	U	2100	U	2100	U	1800	U
4-Nitrophenol	2300	U	2300	U	2100	U	220 *	%	158 *	%	1800	U
Dibenzofuran	71	J	460	U	420	U	410	U	410	U	370	U
2,4-Dinitrotoluene	460	U	460	U	420	U	100 *	%	100 *	%	370	U
Diethylphthalate	460	U	460	U	420	U	410	U	410	U	370	U
4-Chlorophenyl-phenylether	460	U	460	U	420	U	410	U	410	U	370	U
Fluorene	80	J	460	U	420	U	410	U	410	U	370	U
4-Nitroaniline	2300	U	2300	U	2100	U	2100	U	2100	U	1800	U
4,6-Dinitro-2-methylphenol	2300	U	2300	U	2100	U	1400	J	73	J	1800	U
N-Nitrosodiphenylamine (1)	460	U	460	U	420	U	410	U	410	U	370	U
4-Bromophenyl-phenylether	460	U	460	U	420	U	410	U	410	U	370	U
Hexachlorobenzene	460	U	460	U	420	U	410	U	410	U	370	U
Pentachlorophenol	2300	U	51	J	2100	U	231 *	%	158 *	%	1800	U
Phenanthrene	250	J	85	J	420	U	57	J	59	J	370	U
Anthracene	73	J	460	U	420	U	410	U	410	U	370	U
Di-n-Butylphthalate	460	U	460	U	420	U	66	J	57	J	370	U
Fluoranthene	110	J	120	J	420	U	88	J	85	J	370	U
Pyrene	280	J	130	J	420	U	98	%	90	%	370	U
Butylbenzylphthalate	460	U	460	U	420	U	42	J	410	U	370	U
3,3'-Dichlorobenzidine	910	U	920	U	830	U	830	U	820	U	740	U
Benzo(a)anthracene	87	J	80	J	420	U	62	J	54	J	370	U
Chrysene	110	J	110	J	420	U	61	J	57	J	370	U
bis(2-Ethylhexyl)phthalate	450	J	78	J	420	U	90	J	56	J	370	U
Di-n-Octyl phthalate	460	U	460	U	420	U	95	J	410	U	370	U
Benzo(b)fluoranthene	120	J	75	J	420	U	52	J	47	J	370	U
Benzo(k)fluoranthene	110	J	71	J	420	U	49	J	49	J	370	U
Benzo(a)pyrene	120	J	65	J	420	U	410	U	42	J	370	U
Indeno(1,2,3-cd)pyrene	300	J	460	U	420	U	410	U	410	U	370	U
Dibenzo(a,h)anthracene	85	J	460	U	420	U	410	U	410	U	370	U
Benzo(g,h,i)perylene	410	J	460	U	420	U	410	U	410	U	370	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Cust ID: SBLK BS

Sample Information

RFW#: 90LE1490-MB1
Matrix: SOIL
D.F.: 1.11
Units: ug/Kg

Surrogate Recovery	Nitrobenzene-d5	108	%
	2-Fluorobiphenyl	104	%
	p-Terphenyl-d14	88	%
	Phenol-d5	100	%
	2-Fluorophenol	97	%
	2,4,6-Tribromophenol	80	%

Phenol	98	*	%
bis(2-Chloroethyl)ether	370	U	
2-Chlorophenol	94		%
1,3-Dichlorobenzene	370	U	
1,4-Dichlorobenzene	94		%
Benzyl alcohol	370	U	
1,2-Dichlorobenzene	370	U	
2-Methylphenol	370	U	
bis(2-Chloroisopropyl)ether	370	U	
4-Methylphenol	370	U	
N-Nitroso-Di-n-propylamine	103		%
Hexachloroethane	370	U	
Nitrobenzene	370	U	
Isophorone	370	U	
2-Nitrophenol	370	U	
2,4-Dimethylphenol	370	U	
Benzoic acid	1800	U	
bis(2-Chloroethoxy)methane	370	U	
2,4-Dichlorophenol	370	U	
1,2,4-Trichlorobenzene	96		%
Naphthalene	370	U	
4-Chloroaniline	370	U	
Hexachlorobutadiene	370	U	
4-Chloro-3-methylphenol	87		%
2-Methylnaphthalene	370	U	
Hexachlorocyclopentadiene	370	U	

*= Outside of EPA CLP QC limits.

Cust ID: SBLK BS

RFW#: 90LB1490-MB1

2,4,6-Trichlorophenol	370	U
2,4,5-Trichlorophenol	1800	U
2-Chloronaphthalene	370	U
2-Nitroaniline	1800	U
Dimethylphthalate	370	U
Acenaphthylene	370	U
2,6-Dinitrotoluene	370	U
3-Nitroaniline	1800	U
Acenaphthene	102	%
2,4-Dinitrophenol	1800	U
4-Nitrophenol	76	%
Dibenzofuran	370	U
2,4-Dinitrotoluene	98 *	%
Diethylphthalate	370	U
4-Chlorophenyl-phenylether	370	U
Fluorene	370	U
4-Nitroaniline	1800	U
4,6-Dinitro-2-methylphenol	1800	U
N-Nitrosodiphenylamine (1)	370	U
4-Bromophenyl-phenylether	370	U
Hexachlorobenzene	370	U
Pentachlorophenol	92	%
Phenanthrene	370	U
Anthracene	370	U
Di-n-Butylphthalate	370	U
Fluoranthene	370	U
Pyrene	82	%
Butylbenzylphthalate	370	U
3,3'-Dichlorobenzidine	740	U
Benzo(a)anthracene	370	U
Chrysene	370	U
bis(2-Ethylhexyl)phthalate	370	U
Di-n-Octyl phthalate	370	U
Benzo(b)fluoranthene	370	U
Benzo(k)fluoranthene	370	U
Benzo(a)pyrene	370	U
Indeno(1,2,3-cd)pyrene	370	U
Dibenzo(a,h)anthracene	370	U
Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List
Report Date: 06/18/91 11:19

RFW Batch Number: 9105L456 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1a

	Cust ID:	MW-1	MW-6	MW-7	RINSE BLANK	MW-2	MW-2
Sample Information	RFW#:	001	002	003	004	005	005 MS
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate Recovery	Nitrobenzene-d5	60 %	56 %	53 %	69 %	0 * %	0 * %
	2-Fluorobiphenyl	63 %	69 %	60 %	68 %	52 %	61 %
	p-Terphenyl-d14	79 %	80 %	65 %	94 %	71 %	65 %
	Phenol-d5	43 %	3 * %	4 * %	72 %	91 %	81 %
	2-Fluorophenol	49 %	3 * %	4 * %	65 %	74 %	70 %
	2,4,6-Tribromophenol	39 %	0 * %	4 * %	77 %	78 %	78 %
Phenol		10 U	10 U	10 U	10 U	16	71 %
bis(2-Chloroethyl)ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	75 %
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	54 %
Benzyl alcohol		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether		10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		10 U	10 U	10 U	10 U	34	20
N-Nitroso-Di-n-propylamine		10 U	10 U	10 U	10 U	10 U	83 %
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid		50 U	50 U	50 U	50 U	15 J	12 J
bis(2-Chloroethoxy)methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	58 %
Naphthalene		10 U	10 U	10 U	10 U	1 J	1 J
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U	3 J	72 %
2-Methylnaphthalene		10 U	10 U	10 U	10 U	3 J	3 J
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U

*= Outside of EPA CLP QC limits.

000003

RFW Batch Number: 9105L456 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1b

Cust ID:	MW-1	MW-6	MW-7	RINSE BLANK	MW-2	MW-2
RFW#:	001	002	003	004	005	005 MS
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	81 %
2,4-Dinitrophenol	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50 U	50 U	50 U	50 U	50 U	0 * %
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	0 * %
Diethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	50 U	50 U	50 U	50 U	102 %
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-Butylphthalate	10 U	10 U	10 U	10 U	4 J	4 J
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	99 %
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	10 U	10 U	10 U	2 J	2 J
Di-n-Octyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

000004

	Cust ID:	MW-2	MW-4	MW-5	MW-3	SBLK	SBLK BS
Sample Information	RFW#:	005 MSD	006	007	008	91LE0585-MB1	91LE0585-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
Surrogate Recovery	Nitrobenzene-d5	0 * %	68 %	61 %	66 %	68 %	76 %
	2-Fluorobiphenyl	60 %	70 %	60 %	70 %	57 %	65 %
	p-Terphenyl-d14	66 %	79 %	86 %	77 %	88 %	92 %
	Phenol-d5	83 %	62 %	64 %	71 %	58 %	71 %
	2-Fluorophenol	75 %	55 %	58 %	62 %	54 %	68 %
	2,4,6-Tribromophenol	76 %	82 %	50 %	85 %	46 %	61 %
Phenol		74 %	10 U	10 U	10 U	10 U	75 %
bis(2-Chloroethyl)ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		78 %	10 U	10 U	10 U	10 U	71 %
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		59 %	10 U	10 U	10 U	10 U	36 %
Benzyl alcohol		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether		10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		19	10 U	10 U	10 U	10 U	10 U
N-Nitroso-Di-n-propylamine		86 %	10 U	10 U	10 U	10 U	72 %
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid		18 J	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		64 %	10 U	10 U	10 U	10 U	43 %
Naphthalene		1 J	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		66 %	10 U	10 U	10 U	10 U	53 %
2-Methylnaphthalene		3 J	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U

*= Outside of EPA CLP QC limits.

000005

Cust ID:	MW-2	MW-4	MW-5	MW-3	SBLK	SBLK BS
RFW#:	005 MSD	006	007	008	91LE0585-MB1	91LE0585-MB1
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	77 %	10 U	10 U	10 U	10 U	80 %
2,4-Dinitrophenol	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	0 * %	50 U	50 U	50 U	50 U	67 %
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	0 * %	10 U	10 U	10 U	10 U	69 %
Diethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	104 * %	50 U	50 U	50 U	50 U	68 %
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-Butylphthalate	5 J	10 U	10 U	2 J	10 U	1 J
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	91 %	10 U	10 U	10 U	10 U	92 %
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	3 J	10 U	10 U	2 J	10 U	1 J
Di-n-Octyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

000006

Cust ID: SBLK BSD

Sample Information
RFW#: 91LE0585-MB1
Matrix: WATER
D.F.: 1.00
Units: ug/L

Surrogate Recovery	Nitrobenzene-d5	79	%
	2-Fluorobiphenyl	69	%
	p-Terphenyl-d14	92	%
	Phenol-d5	79	%
	2-Fluorophenol	73	%
	2,4,6-Tribromophenol	68	%

Phenol	82	%
bis(2-Chloroethyl)ether	10	U
2-Chlorophenol	79	%
1,3-Dichlorobenzene	10	U
1,4-Dichlorobenzene	52	%
Benzyl alcohol	10	U
1,2-Dichlorobenzene	10	U
2-Methylphenol	10	U
bis(2-Chloroisopropyl)ether	10	U
4-Methylphenol	10	U
N-Nitroso-Di-n-propylamine	77	%
Hexachloroethane	10	U
Nitrobenzene	10	U
Isophorone	10	U
2-Nitrophenol	10	U
2,4-Dimethylphenol	10	U
Benzoic acid	50	U
bis(2-Chloroethoxy)methane	10	U
2,4-Dichlorophenol	10	U
1,2,4-Trichlorobenzene	59	%
Naphthalene	10	U
4-Chloroaniline	10	U
Hexachlorobutadiene	10	U
4-Chloro-3-methylphenol	72	%
2-Methylnaphthalene	10	U
Hexachlorocyclopentadiene	10	U

*= Outside of EPA CLP QC limits.

Cust ID: SBLK BSD

RFW#: 91LE0585-MB1

2,4,6-Trichlorophenol	10	U
2,4,5-Trichlorophenol	50	U
2-Chloronaphthalene	10	U
2-Nitroaniline	50	U
Dimethylphthalate	10	U
Acenaphthylene	10	U
2,6-Dinitrotoluene	10	U
3-Nitroaniline	50	U
Acenaphthene	83	%
2,4-Dinitrophenol	50	U
4-Nitrophenol	69	%
Dibenzofuran	10	U
2,4-Dinitrotoluene	76	%
Diethylphthalate	10	U
4-Chlorophenyl-phenylether	10	U
Fluorene	10	U
4-Nitroaniline	50	U
4,6-Dinitro-2-methylphenol	50	U
N-Nitrosodiphenylamine (1)	10	U
4-Bromophenyl-phenylether	10	U
Hexachlorobenzene	10	U
Pentachlorophenol	60	%
Phenanthrene	10	U
Anthracene	10	U
Di-n-Butylphthalate	10	U
Fluoranthene	10	U
Pyrene	95	%
Butylbenzylphthalate	10	U
3,3'-Dichlorobenzidine	20	U
Benzo(a)anthracene	10	U
Chrysene	10	U
bis(2-Ethylhexyl)phthalate	1	J
Di-n-Octyl phthalate	10	U
Benzo(b)fluoranthene	10	U
Benzo(k)fluoranthene	10	U
Benzo(a)pyrene	10	U
Indeno(1,2,3-cd)pyrene	10	U
Dibenzo(a,h)anthracene	10	U
Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

0000008

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 9105L457 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 06/17/91 15:36 Page: 1a

	Cust ID:	DW-1	DW-1	DW-1	DW-2	SBLK	SBLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	003	91LE0585-MB1	91LE0585-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate Recovery	Nitrobenzene-d5	62 %	80 %	75 %	67 %	68 %	76 %
	2-Fluorobiphenyl	63 %	81 %	78 %	74 %	57 %	65 %
	p-Terphenyl-d14	79 %	99 %	89 %	84 %	88 %	92 %
	Phenol-d5	85 %	70 %	89 %	80 %	58 %	71 %
	2-Fluorophenol	79 %	64 %	82 %	74 %	54 %	68 %
	2,4,6-Tribromophenol	70 %	83 %	109 %	76 %	46 %	61 %
Phenol		10 U	66 %	87 %	10 U	10 U	75 %
bis(2-Chloroethyl)ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	63 %	85 %	10 U	10 U	71 %
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	65 %	53 %	10 U	10 U	36 %
Benzyl alcohol		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether		10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-Di-n-propylamine		10 U	60 %	52 %	10 U	10 U	72 %
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid		50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	70 %	60 %	10 U	10 U	43 %
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	58 %	65 %	10 U	10 U	53 %
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U

*= Outside of EPA CLP QC limits.

000007

RFW Batch Number: 9105L457 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1b

Cust ID:	DW-1	DW-1	DW-1	DW-2	SBLK	SBLK BS
RFW#:	001	001 MS	001 MSD	003	91LE0585-MB1	91LE0585-MB1
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10 U	95 %	89 %	10 U	10 U	80 %
2,4-Dinitrophenol	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50 U	21 %	74 %	50 U	50 U	67 %
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	99 * %	88 %	10 U	10 U	69 %
Diethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	15 %	80 %	50 U	50 U	68 %
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-Butylphthalate	10 U	10 U	10 U	10 U	10 U	1 J
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	85 %	83 %	10 U	10 U	92 %
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	10 U	10 U	10 U	10 U	1 J
Di-n-Octyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

000005

		Cust ID:	SBLK BSD		SBLK	
Sample Information		RFW#:	91LE0585-MB1		91LE0601-MB1	
		Matrix:	WATER		WATER	
		D.F.:	1.00		1.00	
		Units:	ug/L		ug/L	
	Nitrobenzene-d5		79	%	77	%
Surrogate	2-Fluorobiphenyl		69	%	83	%
Recovery	p-Terphenyl-d14		92	%	98	%
	Phenol-d5		79	%	87	%
	2-Fluorophenol		73	%	83	%
	2,4,6-Tribromophenol		68	%	64	%
Phenol			82	%	10	U
bis(2-Chloroethyl)ether			10	U	10	U
2-Chlorophenol			79	%	10	U
1,3-Dichlorobenzene			10	U	10	U
1,4-Dichlorobenzene			52	%	10	U
Benzyl alcohol			10	U	10	U
1,2-Dichlorobenzene			10	U	10	U
2-Methylphenol			10	U	10	U
bis(2-Chloroisopropyl)ether			10	U	10	U
4-Methylphenol			10	U	10	U
N-Nitroso-Di-n-propylamine			77	%	10	U
Hexachloroethane			10	U	10	U
Nitrobenzene			10	U	10	U
Isophorone			10	U	10	U
2-Nitrophenol			10	U	10	U
2,4-Dimethylphenol			10	U	10	U
Benzoic acid			50	U	50	U
bis(2-Chloroethoxy)methane			10	U	10	U
2,4-Dichlorophenol			10	U	10	U
1,2,4-Trichlorobenzene			59	%	10	U
Naphthalene			10	U	10	U
4-Chloroaniline			10	U	10	U
Hexachlorobutadiene			10	U	10	U
4-Chloro-3-methylphenol			72	%	10	U
2-Methylnaphthalene			10	U	10	U
Hexachlorocyclopentadiene			10	U	10	U

*= Outside of EPA CLP QC limits.

000006

	Cust ID:	SBLK BSD		SBLK	
	RFW#:	91LE0585-MB1		91LE0601-MB1	
2,4,6-Trichlorophenol		10	U	10	U
2,4,5-Trichlorophenol		50	U	50	U
2-Chloronaphthalene		10	U	10	U
2-Nitroaniline		50	U	50	U
Dimethylphthalate		10	U	10	U
Acenaphthylene		10	U	10	U
2,6-Dinitrotoluene		10	U	10	U
3-Nitroaniline		50	U	50	U
Acenaphthene		83	%	10	U
2,4-Dinitrophenol		50	U	50	U
4-Nitrophenol		69	%	50	U
Dibenzofuran		10	U	10	U
2,4-Dinitrotoluene		76	%	10	U
Diethylphthalate		10	U	10	U
4-Chlorophenyl-phenylether		10	U	10	U
Fluorene		10	U	10	U
4-Nitroaniline		50	U	50	U
4,6-Dinitro-2-methylphenol		50	U	50	U
N-Nitrosodiphenylamine (1)		10	U	10	U
4-Bromophenyl-phenylether		10	U	10	U
Hexachlorobenzene		10	U	10	U
Pentachlorophenol		60	%	50	U
Phenanthrene		10	U	10	U
Anthracene		10	U	10	U
Di-n-Butylphthalate		10	U	10	U
Fluoranthene		10	U	10	U
Pyrene		95	%	10	U
Butylbenzylphthalate		10	U	10	U
3,3'-Dichlorobenzidine		20	U	20	U
Benzo(a)anthracene		10	U	10	U
Chrysene		10	U	10	U
bis(2-Ethylhexyl)phthalate		1	J	10	U
Di-n-Octyl phthalate		10	U	10	U
Benzo(b)fluoranthene		10	U	10	U
Benzo(k)fluoranthene		10	U	10	U
Benzo(a)pyrene		10	U	10	U
Indeno(1,2,3-cd)pyrene		10	U	10	U
Dibenzo(a,h)anthracene		10	U	10	U
Benzo(g,h,i)perylene		10	U	10	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

000007

Roy F. Weston, Inc. - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

Report Date: 06/27/91 10:14

RFW Batch Number: 9105L477 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1a

	Cust ID:	SW-1	SW-1 REPREP	SW-2	SW-2 REPREP	SED-1	SED-1
Sample Information	RFW#:	001	001	002	002	004	004 MS
	Matrix:	WATER	WATER	WATER	WATER	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	5.55	5.55
	Units:	ug/L	ug/L	ug/L	ug/L	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	4 * %	4 * %	5 * %	26 * %	40 %	74 %
	2-Fluorobiphenyl	45 %	65 %	60 %	81 %	65 %	65 %
	p-Terphenyl-d14	19 * %	27 * %	47 %	44 %	95 %	82 %
	Phenol-d5	77 %	71 %	86 %	2 * %	62 %	71 %
	2-Fluorophenol	60 %	59 %	73 %	0 * %	61 %	63 %
	2,4,6-Tribromophenol	91 %	59 %	106 %	0 * %	102 %	125 * %
Phenol		10 U	10 U	10 U	10 U	3500 U	63 %
bis(2-Chloroethyl)ether		10 U	10 U	10 U	10 U	3500 U	3600 U
2-Chlorophenol		10 U	10 U	10 U	10 U	3500 U	67 %
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	3500 U	3600 U
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	3500 U	61 %
Benzyl alcohol		10 U	10 U	10 U	10 U	3500 U	3600 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	3500 U	3600 U
2-Methylphenol		1 J	10 U	10 U	10 U	3500 U	3600 U
bis(2-Chloroisopropyl)ether		10 U	10 U	10 U	10 U	3500 U	3600 U
4-Methylphenol		4 J	2 J	10 U	10 U	3500 U	3600 U
N-Nitroso-Di-n-propylamine		10 U	10 U	10 U	10 U	3500 U	55 %
Hexachloroethane		10 U	10 U	10 U	10 U	3500 U	3600 U
Nitrobenzene		10 U	10 U	10 U	10 U	3500 U	3600 U
Isophorone		10 U	10 U	10 U	10 U	3500 U	3600 U
2-Nitrophenol		10 U	10 U	10 U	10 U	3500 U	3600 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	3500 U	3600 U
Benzoic acid		50 U	50 U	4 J	50 U	18000 U	18000 U
bis(2-Chloroethoxy)methane		10 U	10 U	10 U	10 U	3500 U	3600 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	3500 U	3600 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	3500 U	87 %
Naphthalene		10 U	10 U	10 U	10 U	3500 U	3600 U
4-Chloroaniline		10 U	10 U	10 U	10 U	3500 U	3600 U
Hexachlorobutadiene		10 U	10 U	10 U	10 U	3500 U	3600 U
4-Chloro-3-methylphenol		3 J	2 J	10 U	10 U	3500 U	79 %
2-Methylnaphthalene		10 U	10 U	10 U	10 U	3500 U	3600 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	3500 U	3600 U

*= Outside of EPA CLP QC limits.

00004

RFW Batch Number: 9105L477 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1b

Cust ID:	SW-1	SW-1	SW-2	SW-2	SED-1	SED-1
RFW#:	001	001 REPREP	002	002 REPREP	004	004 MS
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	3500 U	3600 U
2,4,5-Trichlorophenol	50 U	50 U	50 U	50 U	18000 U	18000 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	3500 U	3600 U
2-Nitroaniline	50 U	50 U	50 U	50 U	18000 U	18000 U
Dimethylphthalate	10 U	10 U	10 U	10 U	3500 U	3600 U
Acenaphthylene	10 U	10 U	10 U	10 U	3500 U	3600 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	3500 U	3600 U
3-Nitroaniline	50 U	50 U	50 U	50 U	18000 U	18000 U
Acenaphthene	10 U	10 U	10 U	10 U	3500 U	83 %
2,4-Dinitrophenol	50 U	50 U	50 U	50 U	18000 U	18000 U
4-Nitrophenol	50 U	50 U	50 U	50 U	18000 U	109 %
Dibenzofuran	10 U	10 U	10 U	10 U	3500 U	3600 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	3500 U	100 * %
Diethylphthalate	10 U	10 U	10 U	10 U	3500 U	3600 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	3500 U	3600 U
Fluorene	10 U	10 U	10 U	10 U	3500 U	3600 U
4-Nitroaniline	50 U	50 U	50 U	50 U	18000 U	18000 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	50 U	18000 U	18000 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	10 U	3500 U	3600 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	3500 U	3600 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	3500 U	3600 U
Pentachlorophenol	50 U	50 U	50 U	50 U	18000 U	126 * %
Phenanthrene	10 U	10 U	10 U	10 U	3500 U	3600 U
Anthracene	10 U	10 U	10 U	10 U	3500 U	3600 U
Di-n-Butylphthalate	4 J	2 JB	3 J	1 JB	3500 U	3600 U
Fluoranthene	10 U	10 U	10 U	10 U	3500 U	370 J
Pyrene	10 U	10 U	10 U	10 U	3500 U	90 %
Butylbenzylphthalate	10 U	10 U	10 U	10 U	3500 U	3600 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U	7100 U	7200 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	3500 U	3600 U
Chrysene	10 U	10 U	10 U	10 U	3500 U	3600 U
bis(2-Ethylhexyl)phthalate	3 J	3 J	2 J	10 U	2000 J	3000 J
Di-n-Octyl phthalate	10 U	10 U	10 U	10 U	3500 U	3600 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	3500 U	3600 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	3500 U	3600 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	3500 U	3600 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	3500 U	3600 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	3500 U	3600 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	3500 U	3600 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

000005

	Cust ID:	SED-1		SED-2		SED-3		SED-3		SBLK		SBLK BS	
Sample	RFW#:	004 MSD		005		006		006 RE		91LE0585-MB1		91LE0585-MB1	
Information	Matrix:	SOIL		SOIL		SOIL		SOIL		WATER		WATER	
	D.F.:	5.55		5.55		5.55		5.55		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/L		ug/L	
	Nitrobenzene-d5	71	%	56	%	65	%	69	%	68	%	76	%
Surrogate	2-Fluorobiphenyl	80	%	74	%	70	%	72	%	57	%	65	%
Recovery	p-Terphenyl-d14	68	%	81	%	71	%	79	%	88	%	92	%
	Phenol-d5	81	%	52	%	72	%	82	%	58	%	71	%
	2-Fluorophenol	73	%	50	%	67	%	79	%	54	%	68	%
	2,4,6-Tribromophenol	88	%	51	%	101	%	84	%	46	%	61	%
Phenol		76	%	5700	U	5200	U	5200	U	10	U	75	%
bis(2-Chloroethyl)ether		3500	U	5700	U	5200	U	5200	U	10	U	10	U
2-Chlorophenol		77	%	5700	U	5200	U	5200	U	10	U	71	%
1,3-Dichlorobenzene		3500	U	5700	U	5200	U	5200	U	10	U	10	U
1,4-Dichlorobenzene		67	%	5700	U	5200	U	5200	U	10	U	36	%
Benzyl alcohol		3500	U	5700	U	5200	U	5200	U	10	U	10	U
1,2-Dichlorobenzene		3500	U	5700	U	5200	U	5200	U	10	U	10	U
2-Methylphenol		3500	U	5700	U	5200	U	5200	U	10	U	10	U
bis(2-Chloroisopropyl)ether		3500	U	5700	U	5200	U	5200	U	10	U	10	U
4-Methylphenol		3500	U	5700	U	5200	U	5200	U	10	U	10	U
N-Nitroso-Di-n-propylamine		68	%	5700	U	5200	U	5200	U	10	U	72	%
Hexachloroethane		3500	U	5700	U	5200	U	5200	U	10	U	10	U
Nitrobenzene		3500	U	5700	U	5200	U	5200	U	10	U	10	U
Isophorone		3500	U	5700	U	5200	U	5200	U	10	U	10	U
2-Nitrophenol		3500	U	5700	U	5200	U	5200	U	10	U	10	U
2,4-Dimethylphenol		3500	U	5700	U	5200	U	5200	U	10	U	10	U
Benzoic acid		17000	U	29000	U	26000	U	26000	U	50	U	50	U
bis(2-Chloroethoxy)methane		3500	U	5700	U	5200	U	5200	U	10	U	10	U
2,4-Dichlorophenol		3500	U	5700	U	5200	U	5200	U	10	U	10	U
1,2,4-Trichlorobenzene		87	%	5700	U	5200	U	5200	U	10	U	43	%
Naphthalene		3500	U	5700	U	5200	U	5200	U	10	U	10	U
4-Chloroaniline		3500	U	5700	U	5200	U	5200	U	10	U	10	U
Hexachlorobutadiene		3500	U	5700	U	5200	U	5200	U	10	U	10	U
4-Chloro-3-methylphenol		91	%	5700	U	5200	U	5200	U	10	U	53	%
2-Methylnaphthalene		3500	U	5700	U	5200	U	5200	U	10	U	10	U
Hexachlorocyclopentadiene		3500	U	5700	U	5200	U	5200	U	10	U	10	U

** Outside of EPA CLP QC limits.

000006

Cust ID:	SED-1	SED-2	SED-3	SED-3	SBLK	SBLK BS
RFW#:	004 MSD	005	006	006 RE	91LE0585-MB1	91LE0585-MB1
2,4,6-Trichlorophenol	3500 U	5700 U	5200 U	5200 U	10 U	10 U
2,4,5-Trichlorophenol	17000 U	29000 U	26000 U	26000 U	50 U	50 U
2-Chloronaphthalene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
2-Nitroaniline	17000 U	29000 U	26000 U	26000 U	50 U	50 U
Dimethylphthalate	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Acenaphthylene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
2,6-Dinitrotoluene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
3-Nitroaniline	17000 U	29000 U	26000 U	26000 U	50 U	50 U
Acenaphthene	80 %	5700 U	5200 U	5200 U	10 U	80 %
2,4-Dinitrophenol	17000 U	29000 U	26000 U	26000 U	50 U	50 U
4-Nitrophenol	108 %	29000 U	26000 U	26000 U	50 U	67 %
Dibenzofuran	3500 U	5700 U	5200 U	5200 U	10 U	10 U
2,4-Dinitrotoluene	98 * %	5700 U	5200 U	5200 U	10 U	69 %
Diethylphthalate	3500 U	5700 U	5200 U	5200 U	10 U	10 U
4-Chlorophenyl-phenylether	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Fluorene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
4-Nitroaniline	17000 U	29000 U	26000 U	26000 U	50 U	50 U
4,6-Dinitro-2-methylphenol	17000 U	29000 U	26000 U	26000 U	50 U	50 U
N-Nitrosodiphenylamine (1)	3500 U	5700 U	5200 U	5200 U	10 U	10 U
4-Bromophenyl-phenylether	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Hexachlorobenzene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Pentachlorophenol	141 * %	29000 U	26000 U	26000 U	50 U	68 %
Phenanthrene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Anthracene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Di-n-Butylphthalate	3500 U	5700 U	5200 U	5200 U	10 U	1 J
Fluoranthene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Pyrene	67 %	5700 U	5200 U	5200 U	10 U	92 %
Butylbenzylphthalate	3500 U	5700 U	5200 U	5200 U	10 U	10 U
3,3'-Dichlorobenzidine	6900 U	11000 U	10000 U	10000 U	20 U	20 U
Benzo(a)anthracene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Chrysene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	2600 J	5700 U	1200 J	630 J	10 U	1 J
Di-n-Octyl phthalate	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Benzo(b)fluoranthene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Benzo(k)fluoranthene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Benzo(a)pyrene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Dibenzo(a,h)anthracene	3500 U	5700 U	5200 U	5200 U	10 U	10 U
Benzo(g,h,i)perylene	3500 U	5700 U	5200 U	5200 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List
Report Date: 06/27/91 10:14

RFW Batch Number: 9105L477 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 3a

	Cust ID:	SBLK BSD		SBLK		SBLK		SBLK BS	
Sample Information	RFW#:	91LE0585-MB1		91LE0753-MB1		91LE0586-MB1		91LE0586-MB1	
	Matrix:	WATER		WATER		SOIL		SOIL	
	D.F.:	1.00		1.00		1.11		1.11	
	Units:	ug/L		ug/L		ug/Kg		ug/Kg	
	Nitrobenzene-d5	79	%	65	%	75	%	68	%
Surrogate Recovery	2-Fluorobiphenyl	69	%	67	%	92	%	67	%
	p-Terphenyl-d14	92	%	123	%	103	%	76	%
	Phenol-d5	79	%	86	%	92	%	86	%
	2-Fluorophenol	73	%	81	%	81	%	74	%
	2,4,6-Tribromophenol	68	%	97	%	65	%	48	%
Phenol		82	%	10	U	370	U	91 *	%
bis(2-Chloroethyl)ether		10	U	10	U	370	U	370	U
2-Chlorophenol		79	%	10	U	370	U	69	%
1,3-Dichlorobenzene		10	U	10	U	370	U	370	U
1,4-Dichlorobenzene		52	%	10	U	370	U	71	%
Benzyl alcohol		10	U	10	U	370	U	370	U
1,2-Dichlorobenzene		10	U	10	U	370	U	370	U
2-Methylphenol		10	U	10	U	370	U	370	U
bis(2-Chloroisopropyl)ether		10	U	10	U	370	U	370	U
4-Methylphenol		10	U	10	U	370	U	370	U
N-Nitroso-Di-n-propylamine		77	%	10	U	370	U	69	%
Hexachloroethane		10	U	10	U	370	U	370	U
Nitrobenzene		10	U	10	U	370	U	370	U
Isophorone		10	U	10	U	370	U	370	U
2-Nitrophenol		10	U	10	U	370	U	370	U
2,4-Dimethylphenol		10	U	10	U	370	U	370	U
Benzoic acid		50	U	50	U	1800	U	71	
bis(2-Chloroethoxy)methane		10	U	10	U	370	U	370	U
2,4-Dichlorophenol		10	U	10	U	370	U	370	U
1,2,4-Trichlorobenzene		59	%	10	U	370	U	72	%
Naphthalene		10	U	10	U	370	U	370	U
4-Chloroaniline		10	U	10	U	370	U	370	U
Hexachlorobutadiene		10	U	10	U	370	U	370	U
4-Chloro-3-methylphenol		72	%	10	U	370	U	65	%
2-Methylnaphthalene		10	U	10	U	370	U	370	U
Hexachlorocyclopentadiene		10	U	10	U	370	U	370	U

* Outside of EPA CLP QC limits.

000008

RFW Batch Number: 9105L477 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 3b

Cust ID:	SBLK BSD		SBLK		SBLK		SBLK BS	
RFW#:	91LE0585-MB1		91LE0753-MB1		91LE0586-MB1		91LE0586-MB1	
2,4,6-Trichlorophenol	10	U	10	U	370	U	370	U
2,4,5-Trichlorophenol	50	U	50	U	1800	U	1800	U
2-Chloronaphthalene	10	U	10	U	370	U	370	U
2-Nitroaniline	50	U	50	U	1800	U	1800	U
Dimethylphthalate	10	U	10	U	370	U	370	U
Acenaphthylene	10	U	10	U	370	U	370	U
2,6-Dinitrotoluene	10	U	10	U	370	U	370	U
3-Nitroaniline	50	U	50	U	1800	U	1800	U
Acenaphthene	83	%	10	U	370	U	74	%
2,4-Dinitrophenol	50	U	50	U	1800	U	1800	U
4-Nitrophenol	69	%	50	U	1800	U	69	%
Dibenzofuran	10	U	10	U	370	U	370	U
2,4-Dinitrotoluene	76	%	10	U	370	U	69	%
Diethylphthalate	10	U	10	U	370	U	370	U
4-Chlorophenyl-phenylether	10	U	10	U	370	U	370	U
Fluorene	10	U	10	U	370	U	370	U
4-Nitroaniline	50	U	50	U	1800	U	1800	U
4,6-Dinitro-2-methylphenol	50	U	50	U	1800	U	1800	U
N-Nitrosodiphenylamine (1)	10	U	10	U	370	U	370	U
4-Bromophenyl-phenylether	10	U	10	U	370	U	370	U
Hexachlorobenzene	10	U	10	U	370	U	370	U
Pentachlorophenol	60	%	50	U	1800	U	79	%
Phenanthrene	10	U	10	U	370	U	370	U
Anthracene	10	U	10	U	370	U	370	U
Di-n-Butylphthalate	10	U	1	J	370	U	370	U
Fluoranthene	10	U	10	U	370	U	370	U
Pyrene	95	%	10	U	370	U	75	%
Butylbenzylphthalate	10	U	10	U	370	U	370	U
3,3'-Dichlorobenzidine	20	U	20	U	740	U	740	U
Benzo(a)anthracene	10	U	10	U	370	U	370	U
Chrysene	10	U	10	U	370	U	370	U
bis(2-Ethylhexyl)phthalate	1	J	10	U	370	U	370	U
Di-n-Octyl phthalate	10	U	10	U	370	U	370	U
Benzo(b)fluoranthene	10	U	10	U	370	U	370	U
Benzo(k)fluoranthene	10	U	10	U	370	U	370	U
Benzo(a)pyrene	10	U	10	U	370	U	370	U
Indeno(1,2,3-cd)pyrene	10	U	10	U	370	U	370	U
Dibenzo(a,h)anthracene	10	U	10	U	370	U	370	U
Benzo(g,h,i)perylene	10	U	10	U	370	U	370	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

0000009

Roy F. Weston, Inc. - Lionville Laboratory

Semivolatiles by GC/MS, HSL List — Report Date: 06/27/91 18:51

RFW Batch Number: 9105L541 — Client: CRA-FREWSBERG — Work Order: 5335-03-01-0000 — Page: 1a

	Cust ID:	SW-3	SW-3	SW-3	SW-4	SW-4	SW-5
Sample Information	RFW#:	001	001 MS	001 MSD	002	002 RE	003
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
Surrogate Recovery	Nitrobenzene-d5	57 %	84 %	78 %	57 %	53 %	56 %
	2-Fluorobiphenyl	63 %	67 %	61 %	52 %	48 %	59 %
	p-Terphenyl-d14	72 %	80 %	75 %	77 %	89 %	72 %
	Phenol-d5	48 %	64 %	67 %	62 %	71 %	73 %
	2-Fluorophenol	25 %	57 %	68 %	50 %	59 %	62 %
	2,4,6-Tribromophenol	32 %	94 %	59 %	55 %	59 %	86 %
Phenol		10 U	60 %	65 %	10 U	10 U	10 U
bis(2-Chloroethyl)ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	62 %	67 %	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	42 %	39 %	10 U	10 U	10 U
Benzyl alcohol		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether		10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-Di-n-propylamine		10 U	51 %	67 %	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid		50 U	50 U	1	50 U	50 U	50 U
bis(2-Chloroethoxy)methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	50 %	51 %	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	59 %	35 %	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U

*= Outside of EPA CLP QC limits.

0000036

RFW Batch Number: 9105L541 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1b

Cust ID:	SW-3	SW-3	SW-3	SW-4	SW-4	SW-5
RFW#:	001	001 MS	001 MSD	002	002 RE	003
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10 U	86 %	74 %	10 U	10 U	10 U
2,4-Dinitrophenol	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50 U	81 * %	53 %	50 U	50 U	50 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	99 * %	88 %	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	74 %	60 %	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-Butylphthalate	10 U	1 J	10 U	10 U	10 U	1 J
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	96 %	86 %	10 U	10 U	10 U
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-Octyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

0000069

Roy F. Weston, Inc. - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

Report Date: 06/27/91 18:51

RFW Batch Number: 9105L541 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 2a

	Cust ID:	SW-6	SW-6	SW-7	SW-7	SW-8	SW-8
Sample Information	RFW#:	004	004 RE	005	005 RE	006	006 RE
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate Recovery	Nitrobenzene-d5	54 %	48 %	56 %	52 %	59 %	53 %
	2-Fluorobiphenyl	63 %	60 %	65 %	58 %	72 %	66 %
	p-Terphenyl-d14	80 %	93 %	82 %	92 %	55 %	64 %
	Phenol-d5	69 %	75 %	64 %	73 %	58 %	68 %
	2-Fluorophenol	65 %	70 %	59 %	63 %	55 %	58 %
	2,4,6-Tribromophenol	67 %	69 %	77 %	69 %	68 %	64 %
Phenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether		10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-Di-n-propylamine		10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid		50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U

*= Outside of EPA CLP QC limits.

Cust ID:	SW-6	SW-6	SW-7	SW-7	SW-8	SW-8
RFW#:	004	004 RE	005	005 RE	006	006 RE
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-Butylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-Octyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

	Cust ID:	SED-4	SED-4	SED-5	SW-9	SED-7	SED-7
Sample Information	RFW#:	007	007 DL	008	009	011	011 MS
	Matrix:	SOIL	SOIL	SOIL	WATER	SOIL	SOIL
	D.F.:	1.11	5.55	1.11	1.00	1.11	1.11
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	63 %	71 %	83 %	64 %	84 %	106 %
	2-Fluorobiphenyl	83 %	79 %	86 %	49 %	132 * %	94 %
	p-Terphenyl-d14	100 %	100 %	79 %	33 %	93 %	106 %
	Phenol-d5	94 %	83 %	108 %	58 %	101 %	114 * %
	2-Fluorophenol	85 %	73 %	96 %	64 %	95 %	102 %
	2,4,6-Tribromophenol	109 %	42 %	140 * %	49 %	129 * %	210 * %
Phenol		800 U	NA	1900 J	10 U	860 U	114 * %
bis(2-Chloroethyl)ether		800 U	NA	2300 U	10 U	860 U	850 U
2-Chlorophenol		800 U	NA	2300 U	10 U	860 U	100 %
1,3-Dichlorobenzene		800 U	NA	2300 U	10 U	860 U	850 U
1,4-Dichlorobenzene		800 U	NA	2300 U	10 U	860 U	94 %
Benzyl alcohol		800 U	NA	2300 U	10 U	860 U	850 U
1,2-Dichlorobenzene		800 U	NA	2300 U	10 U	860 U	850 U
2-Methylphenol		800 U	NA	2300 U	10 U	860 U	850 U
bis(2-Chloroisopropyl)ether		800 U	NA	2300 U	10 U	860 U	850 U
4-Methylphenol		110 J	NA	2300 U	10 U	860 U	850 U
N-Nitroso-Di-n-propylamine		800 U	NA	2300 U	10 U	860 U	97 %
Hexachloroethane		800 U	NA	2300 U	10 U	860 U	850 U
Nitrobenzene		800 U	NA	2300 U	10 U	860 U	850 U
Isophorone		800 U	NA	2300 U	10 U	860 U	850 U
2-Nitrophenol		800 U	NA	2300 U	10 U	860 U	850 U
2,4-Dimethylphenol		800 U	NA	2300 U	10 U	860 U	850 U
Benzoic acid		650 J	NA	3000 J	50 U	410 J	4200 U
bis(2-Chloroethoxy)methane		800 U	NA	2300 U	10 U	860 U	850 U
2,4-Dichlorophenol		800 U	NA	2300 U	10 U	860 U	850 U
1,2,4-Trichlorobenzene		800 U	NA	2300 U	10 U	860 U	115 * %
Naphthalene		800 U	NA	2300 U	10 U	860 U	850 U
4-Chloroaniline		800 U	NA	2300 U	10 U	860 U	850 U
Hexachlorobutadiene		800 U	NA	2300 U	10 U	860 U	850 U
4-Chloro-3-methylphenol		800 U	NA	2300 U	10 U	860 U	129 * %
2-Methylnaphthalene		800 U	NA	2300 U	10 U	860 U	850 U
Hexachlorocyclopentadiene		800 U	NA	2300 U	10 U	860 U	850 U

*= Outside of EPA CLP QC limits.

Cust ID:	SED-4		SED-4		SED-5		SW-9		SED-7		SED-7	
RFW#:	007		007 DL		008		009		011		011 MS	
2,4,6-Trichlorophenol	800	U	NA		2300	U	10	U	860	U	850	U
2,4,5-Trichlorophenol	4000	U	NA		11000	U	50	U	4300	U	4200	U
2-Chloronaphthalene	800	U	NA		2300	U	10	U	860	U	850	U
2-Nitroaniline	4000	U	NA		11000	U	50	U	4300	U	4200	U
Dimethylphthalate	800	U	NA		2300	U	10	U	860	U	850	U
Acenaphthylene	800	U	NA		2300	U	10	U	860	U	850	U
2,6-Dinitrotoluene	800	U	NA		2300	U	10	U	860	U	850	U
3-Nitroaniline	4000	U	NA		11000	U	50	U	4300	U	4200	U
Acenaphthene	800	U	NA		2300	U	10	U	860	U	112	%
2,4-Dinitrophenol	4000	U	NA		11000	U	50	U	4300	U	4200	U
4-Nitrophenol	4000	U	NA		11000	U	50	U	4300	U	128 *	%
Dibenzofuran	800	U	NA		2300	U	10	U	860	U	850	U
2,4-Dinitrotoluene	800	U	NA		2300	U	10	U	860	U	103 *	%
Diethylphthalate	800	U	NA		2300	U	10	U	860	U	850	U
4-Chlorophenyl-phenylether	800	U	NA		2300	U	10	U	860	U	850	U
Fluorene	800	U	NA		2300	U	10	U	860	U	850	U
4-Nitroaniline	4000	U	NA		11000	U	50	U	4300	U	4200	U
4,6-Dinitro-2-methylphenol	4000	U	NA		11000	U	50	U	4300	U	4200	U
N-Nitrosodiphenylamine (1)	800	U	NA		2300	U	10	U	860	U	850	U
4-Bromophenyl-phenylether	800	U	NA		2300	U	10	U	860	U	850	U
Hexachlorobenzene	800	U	NA		2300	U	10	U	860	U	850	U
Pentachlorophenol	4000	U	NA		11000	U	50	U	4300	U	194 *	%
Phenanthrene	620	J	NA		2300	U	10	U	120	J	850	U
Anthracene	800	U	NA		2300	U	10	U	860	U	850	U
Di-n-Butylphthalate	340	J	NA		3500		10	U	330	J	550	J
Fluoranthene	1200		NA		2300	U	10	U	230	J	350	J
Pyrene	1300		NA		2300	U	10	U	280	J	113	%
Butylbenzylphthalate	360	J	NA		2300	U	10	U	860	U	850	U
3,3'-Dichlorobenzidine	1600	U	NA		4500	U	20	U	1700	U	1700	U
Benzo(a)anthracene	550	J	NA		2300	U	10	U	860	U	850	U
Chrysene	530	J	NA		2300	U	10	U	150	J	110	J
bis(2-Ethylhexyl)phthalate		E	34000		2300	U	10	U	1200		1300	
Di-n-Octyl phthalate	270	J	NA		2300	U	10	U	860	U	850	U
Benzo(b)fluoranthene	520	J	NA		2300	U	10	U	860	U	850	U
Benzo(k)fluoranthene	320	J	NA		2300	U	10	U	860	U	850	U
Benzo(a)pyrene	400	J	NA		2300	U	10	U	860	U	850	U
Indeno(1,2,3-cd)pyrene	800	U	NA		2300	U	10	U	860	U	850	U
Dibenzo(a,h)anthracene	800	U	NA		2300	U	10	U	860	U	850	U
Benzo(g,h,i)perylene	800	U	NA		2300	U	10	U	860	U	850	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List
Report Date: 06/27/91 18:51

RFW Batch Number: 9105L541 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 4a

	Cust ID:	SED-7		SED-RB		SW-RB		SBLK		SBLK BS		SBLK	
Sample Information	RFW#:	011 MSD		012		013		91LE0610-MB1		91LE0610-MB1		91LE0611-MB1	
	Matrix:	SOIL		WATER		WATER		WATER		WATER		SOIL	
	D.F.:	1.11		1.00		1.00		1.00		1.00		1.11	
	Units:	ug/Kg		ug/L		ug/L		ug/L		ug/L		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	42	%	75	%	93	%	81	%	77	%	77	%
	2-Fluorobiphenyl	49	%	73	%	67	%	59	%	64	%	79	%
	p-Terphenyl-d14	55	%	99	%	94	%	112	%	104	%	86	%
	Phenol-d5	50	%	51	%	75	%	91	%	77	%	83	%
	2-Fluorophenol	46	%	33	%	79	%	86	%	71	%	78	%
	2,4,6-Tribromophenol	57	%	34	%	71	%	58	%	65	%	92	%
Phenol		53	%	10	U	10	U	10	U	73	%	370	U
bis(2-Chloroethyl)ether		850	U	10	U	10	U	10	U	10	U	370	U
2-Chlorophenol		45	%	10	U	10	U	10	U	75	%	370	U
1,3-Dichlorobenzene		850	U	10	U	10	U	10	U	10	U	370	U
1,4-Dichlorobenzene		44	%	10	U	10	U	10	U	27 *	%	370	U
Benzyl alcohol		850	U	10	U	10	U	10	U	10	U	370	U
1,2-Dichlorobenzene		850	U	10	U	10	U	10	U	10	U	370	U
2-Methylphenol		850	U	10	U	10	U	10	U	10	U	370	U
bis(2-Chloroisopropyl)ether		850	U	10	U	10	U	10	U	10	U	370	U
4-Methylphenol		850	U	10	U	10	U	10	U	10	U	370	U
N-Nitroso-Di-n-propylamine		39 *	%	10	U	10	U	10	U	56	%	370	U
Hexachloroethane		850	U	10	U	10	U	10	U	10	U	370	U
Nitrobenzene		850	U	10	U	10	U	10	U	10	U	370	U
Isophorone		850	U	10	U	10	U	10	U	10	U	370	U
2-Nitrophenol		850	U	10	U	10	U	10	U	10	U	370	U
2,4-Dimethylphenol		850	U	10	U	10	U	10	U	10	U	370	U
Benzoic acid		130	J	50	U	50	U	2	J	50	U	1800	U
bis(2-Chloroethoxy)methane		850	U	10	U	10	U	10	U	10	U	370	U
2,4-Dichlorophenol		850	U	10	U	10	U	10	U	10	U	370	U
1,2,4-Trichlorobenzene		48	%	10	U	10	U	10	U	33 *	%	370	U
Naphthalene		850	U	10	U	10	U	10	U	10	U	370	U
4-Chloroaniline		850	U	10	U	10	U	10	U	10	U	370	U
Hexachlorobutadiene		850	U	10	U	10	U	10	U	10	U	370	U
4-Chloro-3-methylphenol		54	%	10	U	10	U	10	U	57	%	370	U
2-Methylnaphthalene		850	U	10	U	10	U	10	U	10	U	370	U
Hexachlorocyclopentadiene		850	U	10	U	10	U	10	U	10	U	370	U

*= Outside of EPA CLP QC limits.

Cust ID:	SED-7	SED-RB	SW-RB	SBLK	SBLK BS	SBLK
RFW#:	011 MSD	012	013	91LE0610-MB1	91LE0610-MB1	91LE0611-MB1
2,4,6-Trichlorophenol	850 U	10 U	10 U	10 U	10 U	370 U
2,4,5-Trichlorophenol	4200 U	50 U	50 U	50 U	50 U	1800 U
2-Chloronaphthalene	850 U	10 U	10 U	10 U	10 U	370 U
2-Nitroaniline	4200 U	50 U	50 U	50 U	50 U	1800 U
Dimethylphthalate	850 U	10 U	10 U	10 U	10 U	370 U
Acenaphthylene	850 U	10 U	10 U	10 U	10 U	370 U
2,6-Dinitrotoluene	850 U	10 U	10 U	10 U	10 U	370 U
3-Nitroaniline	4200 U	50 U	50 U	50 U	50 U	1800 U
Acenaphthene	62 %	10 U	10 U	10 U	78 %	370 U
2,4-Dinitrophenol	4200 U	50 U	50 U	50 U	50 U	1800 U
4-Nitrophenol	24 %	50 U	50 U	2 J	61 %	1800 U
Dibenzofuran	850 U	10 U	10 U	10 U	10 U	370 U
2,4-Dinitrotoluene	38 %	10 U	10 U	10 U	90 %	370 U
Diethylphthalate	850 U	10 U	10 U	10 U	10 U	370 U
4-Chlorophenyl-phenylether	850 U	10 U	10 U	10 U	10 U	370 U
Fluorene	850 U	10 U	10 U	10 U	10 U	370 U
4-Nitroaniline	4200 U	50 U	50 U	50 U	50 U	1800 U
4,6-Dinitro-2-methylphenol	4200 U	50 U	50 U	50 U	50 U	1800 U
N-Nitrosodiphenylamine (1)	850 U	10 U	10 U	10 U	10 U	370 U
4-Bromophenyl-phenylether	850 U	10 U	10 U	10 U	10 U	370 U
Hexachlorobenzene	850 U	10 U	10 U	10 U	10 U	370 U
Pentachlorophenol	85 %	50 U	50 U	50 U	50 %	1800 U
Phenanthrene	850 U	10 U	10 U	10 U	10 U	370 U
Anthracene	850 U	10 U	10 U	10 U	10 U	370 U
Di-n-Butylphthalate	140 J	10 U	3 J	10 U	10 U	370 U
Fluoranthene	110 J	10 U	10 U	10 U	10 U	370 U
Pyrene	51 %	10 U	10 U	10 U	93 %	370 U
Butylbenzylphthalate	850 U	10 U	10 U	10 U	10 U	370 U
3,3'-Dichlorobenzidine	1700 U	20 U	20 U	20 U	20 U	740 U
Benzo(a)anthracene	850 U	10 U	10 U	10 U	10 U	370 U
Chrysene	87 J	10 U	10 U	10 U	10 U	370 U
bis(2-Ethylhexyl)phthalate	580 J	10 U	10 U	10 U	10 U	370 U
Di-n-Octyl phthalate	850 U	10 U	10 U	10 U	10 U	370 U
Benzo(b)fluoranthene	850 U	10 U	10 U	10 U	10 U	370 U
Benzo(k)fluoranthene	850 U	10 U	10 U	10 U	10 U	370 U
Benzo(a)pyrene	850 U	10 U	10 U	10 U	10 U	370 U
Indeno(1,2,3-cd)pyrene	850 U	10 U	10 U	10 U	10 U	370 U
Dibenzo(a,h)anthracene	850 U	10 U	10 U	10 U	10 U	370 U
Benzo(g,h,i)perylene	850 U	10 U	10 U	10 U	10 U	370 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

0000012

Cust ID: SBLK BS

Sample Information

RFW#: 91LE0611-MB1
Matrix: SOIL
D.F.: 1.11
Units: ug/Kg

	Nitrobenzene-d5	80		%
Surrogate	2-Fluorobiphenyl	84		%
Recovery	p-Terphenyl-d14	101		%
	Phenol-d5	85		%
	2-Fluorophenol	77		%
	2,4,6-Tribromophenol	92		%
Phenol		92	*	%
bis(2-Chloroethyl)ether		370	U	
2-Chlorophenol		81		%
1,3-Dichlorobenzene		370	U	
1,4-Dichlorobenzene		83		%
Benzyl alcohol		370	U	
1,2-Dichlorobenzene		370	U	
2-Methylphenol		370	U	
bis(2-Chloroisopropyl)ether		370	U	
4-Methylphenol		370	U	
N-Nitroso-Di-n-propylamine		68		%
Hexachloroethane		370	U	
Nitrobenzene		370	U	
Isophorone		370	U	
2-Nitrophenol		370	U	
2,4-Dimethylphenol		370	U	
Benzoic acid		1800	U	
bis(2-Chloroethoxy)methane		370	U	
2,4-Dichlorophenol		370	U	
1,2,4-Trichlorobenzene		90		%
Naphthalene		370	U	
4-Chloroaniline		370	U	
Hexachlorobutadiene		370	U	
4-Chloro-3-methylphenol		87		%
2-Methylnaphthalene		370	U	
Hexachlorocyclopentadiene		370	U	

*= Outside of EPA CLP QC limits.

Cust ID: SBLK BS

RFW#: 91LE0611-MB1

2,4,6-Trichlorophenol	370	U
2,4,5-Trichlorophenol	1800	U
2-Chloronaphthalene	370	U
2-Nitroaniline	1800	U
Dimethylphthalate	370	U
Acenaphthylene	370	U
2,6-Dinitrotoluene	370	U
3-Nitroaniline	1800	U
Acenaphthene	99	%
2,4-Dinitrophenol	1800	U
4-Nitrophenol	110	%
Dibenzofuran	370	U
2,4-Dinitrotoluene	97 *	%
Diethylphthalate	370	U
4-Chlorophenyl-phenylether	370	U
Fluorene	370	U
4-Nitroaniline	1800	U
4,6-Dinitro-2-methylphenol	1800	U
N-Nitrosodiphenylamine (1)	370	U
4-Bromophenyl-phenylether	370	U
Hexachlorobenzene	370	U
Pentachlorophenol	106	%
Phenanthrene	370	U
Anthracene	370	U
Di-n-Butylphthalate	370	U
Fluoranthene	370	U
Pyrene	102	%
Butylbenzylphthalate	370	U
3,3'-Dichlorobenzidine	740	U
Benzo(a)anthracene	370	U
Chrysene	370	U
bis(2-Ethylhexyl)phthalate	370	U
Di-n-Octyl phthalate	370	U
Benzo(b)fluoranthene	370	U
Benzo(k)fluoranthene	370	U
Benzo(a)pyrene	370	U
Indeno(1,2,3-cd)pyrene	370	U
Dibenzo(a,h)anthracene	370	U
Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

0 0 0 0 1 4

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List
Report Date: 02/25/91 16:09
Page: 1

Batch Number: 9101L288 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000

Sample Information	Cust ID:	BH-1	6-1	6-1	6-1	PBLK	PBLK BS
	RFW#:	001	002	002 MS	002 MSD	91LE0082-MB2	91LE0082-MB2
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	0.500	0.500	2.50	2.50	0.500	2.50
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg

Surrogate: Di-n-butylchlorendate	70	%	44	%	63	%	91	%	73	%	112	%	
Alpha-BHC	4.6	U	4.3	U	22	U	23	U	4.0	U	20	U	
Beta-BHC	4.6	U	4.3	U	22	U	23	U	4.0	U	20	U	
Delta-BHC	4.6	U	4.3	U	22	U	23	U	4.0	U	20	U	
gamma-BHC (Lindane)	4.6	U	4.3	U	31	* %	61	%	4.0	U	41	* %	
Heptachlor	4.6	U	4.3	U	54	%	78	%	4.0	U	56	%	
Aldrin	4.6	U	4.3	U	49	%	64	%	4.0	U	49	%	
Heptachlor epoxide	4.6	U	4.3	U	22	U	23	U	4.0	U	20	U	
Endosulfan I	9.2	U	8.6	U	22	U	23	U	4.0	U	20	U	
Dieldrin	9.2	U	8.6	U	47	%	66	%	8.0	U	71	%	
4,4'-DDE	9.2	U	8.6	U	11	J	45	U	8.0	U	4.0	J	
Endrin	9.2	U	8.6	U	62	%	73	%	8.0	U	86	%	
Endosulfan II	9.2	U	8.6	U	44	U	45	U	8.0	U	40	U	
4,4'-DDD	9.2	U	8.6	U	44	U	45	U	8.0	U	40	U	
Endosulfan sulfate	9.2	U	8.6	U	44	U	45	U	8.0	U	40	U	
4,4'-DDT	46	U	43	U	40	%	73	%	8.0	U	76	%	
Methoxychlor	9.2	U	8.6	U	220	U	230	U	40	U	200	U	
Endrin ketone	46	U	43	U	44	U	45	U	8.0	U	40	U	
alpha-Chlordane	46	U	43	U	220	U	230	U	40	U	200	U	
gamma-Chlordane	92	U	86	U	220	U	230	U	40	U	200	U	
Toxaphene	46	U	43	U	440	U	450	U	80	U	400	U	
Aroclor-1016	46	U	43	U	220	U	230	U	40	U	200	U	
Aroclor-1221	46	U	43	U	220	U	230	U	40	U	200	U	
Aroclor-1232	46	U	43	U	220	U	230	U	40	U	200	U	
Aroclor-1242	46	U	43	U	220	U	230	U	40	U	200	U	
Aroclor-1248	92	U	86	U	220	U	230	U	40	U	200	U	
Aroclor-1254	92	U	86	U	440	U	450	U	80	U	400	U	
Aroclor-1260					440	U	450	U	80	U	400	U	

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List
Report Date: 05/09/91 11:34

RFW Batch Number: 9101L350 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 3

	Cust ID:	PBLK	PBLK BS	PBLK BSD
Sample Information	RFW#:	91LE0105-MB1	91LE0105-MB1	91LE0105-MB1
	Matrix:	WATER	WATER	WATER
	D.F.:	1.00	2.00	2.00
	Units:	ug/L	ug/L	ug/L

Surrogate: Di-n-butylchlorendate	98	%	92	%	96	%
Alpha-BHC	0.050	U	0.10	U	0.10	U
Beta-BHC	0.050	U	0.10	U	0.10	U
Delta-BHC	0.050	U	0.10	U	0.10	U
gamma-BHC (Lindane)	0.050	U	105	%	105	%
Heptachlor	0.050	U	75	%	60	%
Aldrin	0.050	U	70	%	60	%
Heptachlor epoxide	0.050	U	0.10	U	0.10	U
Endosulfan I	0.050	U	0.10	U	0.10	U
Dieldrin	0.10	U	104	%	102	%
4,4'-DDE	0.10	U	0.20	U	0.20	U
Endrin	0.10	U	106	%	104	%
Endosulfan II	0.10	U	0.20	U	0.20	U
4,4'-DDD	0.10	U	0.20	U	0.20	U
Endosulfan sulfate	0.10	U	0.20	U	0.20	U
4,4'-DDT	0.10	U	108	%	108	%
Methoxychlor	0.50	U	1.0	U	1.0	U
Endrin ketone	0.10	U	0.20	U	0.20	U
alpha-Chlordane	0.50	U	1.0	U	1.0	U
gamma-Chlordane	0.50	U	1.0	U	1.0	U
Toxaphene	1.0	U	2.0	U	2.0	U
Aroclor-1016	0.50	U	1.0	U	1.0	U
Aroclor-1221	0.50	U	1.0	U	1.0	U
Aroclor-1232	0.50	U	1.0	U	1.0	U
Aroclor-1242	0.50	U	1.0	U	1.0	U
Aroclor-1248	0.50	U	1.0	U	1.0	U
Aroclor-1254	1.0	U	2.0	U	2.0	U
Aroclor-1260	1.0	U	2.0	U	2.0	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List
Report Date: 03/05/91 13:06

RFW Batch Number: 9101L328 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1

	Cust ID:	BH5B-1	BH5B-2	BH5B-2	BH5B-2	BH5B-3	BH5A-3
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	0.500	0.500	5.00	5.00	0.500	0.500
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate: Di-n-butylchlorendate		I % fl	146 % fl	285 * % fl	140 % fl	48 % fl	I % fl
Alpha-BHC		4.9 U	4.7 U	48 U	48 U	4.4 U	5.2 U
Beta-BHC		4.9 U	4.7 U	48 U	48 U	4.4 U	5.2 U
Delta-BHC		4.9 U	4.7 U	48 U	48 U	4.4 U	5.2 U
gamma-BHC (Lindane)		4.9 U	4.7 U	235 * %	88 %	4.4 U	5.2 U
Heptachlor		4.9 U	4.7 U	308 * %	71 %	4.4 U	5.2 U
Aldrin		4.9 U	4.7 U	244 * %	102 %	4.4 U	5.2 U
Heptachlor epoxide		4.9 U	4.7 U	48 U	48 U	4.4 U	5.2 U
Endosulfan I		4.9 U	4.7 U	48 U	48 U	4.4 U	5.2 U
Dieldrin		9.8 U	9.4 U	266 * %	108 %	8.8 U	10 U
4,4'-DDE		9.8 U	9.4 U	96 U	96 U	8.8 U	10 U
Endrin		9.8 U	9.4 U	302 * %	110 %	8.8 U	10 U
Endosulfan II		9.8 U	9.4 U	96 U	96 U	8.8 U	10 U
4,4'-DDD		9.8 U	9.4 U	14 J	96 U	8.8 U	10 U
Endosulfan sulfate		9.8 U	9.4 U	96 U	96 U	8.8 U	10 U
4,4'-DDT		9.8 U	9.4 U	253 * %	110 %	8.8 U	10 U
Methoxychlor		49 U	47 U	480 U	480 U	44 U	52 U
Endrin ketone		9.8 U	9.4 U	96 U	96 U	8.8 U	10 U
alpha-Chlordane		49 U	47 U	480 U	480 U	44 U	52 U
gamma-Chlordane		49 U	47 U	480 U	480 U	44 U	52 U
Toxaphene		98 U	94 U	960 U	960 U	88 U	100 U
Aroclor-1016		49 U	47 U	480 U	480 U	44 U	52 U
Aroclor-1221		49 U	47 U	480 U	480 U	44 U	52 U
Aroclor-1232		49 U	47 U	480 U	480 U	44 U	52 U
Aroclor-1242		49 U	47 U	480 U	480 U	44 U	52 U
Aroclor-1248		49 U	47 U	480 U	480 U	44 U	52 U
Aroclor-1254		98 U	94 U	960 U	960 U	88 U	100 U
Aroclor-1260		98 U	94 U	960 U	960 U	88 U	100 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List

Report Date: 03/05/91 13:06

RFW Batch Number: 9101L328 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000

	Cust ID:	PBLK	PBLK BS	PBLK BSD
Sample Information	RFW#:	91LE0097-MB2	91LE0097-MB2	91LE0097-MB2
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	0.500	2.50	5.00
	Units:	ug/Kg	ug/Kg	ug/Kg

Surrogate: Di-n-butylchlorendate	I	%	214 *	%	121	%
Alpha-BHC	4.0	U	20	U	40	U
Beta-BHC	4.0	U	20	U	40	U
Delta-BHC	4.0	U	20	U	40	U
gamma-BHC (Lindane)	4.0	U	181 *	%	116	%
Heptachlor	4.0	U	191 *	%	82	%
Aldrin	4.0	U	180 *	%	109	%
Heptachlor epoxide	4.0	U	20	U	40	U
Endosulfan I	4.0	U	20	U	40	U
Dieldrin	8.0	U	206 *	%	122	%
4,4'-DDE	8.0	U	40	U	80	U
Endrin	8.0	U	212 *	%	137	%
Endosulfan II	8.0	U	40	U	80	U
4,4'-DDD	8.0	U	40	U	80	U
Endosulfan sulfate	8.0	U	40	U	80	U
4,4'-DDT	8.0	U	214 *	%	109	%
Methoxychlor	40	U	200	U	400	U
Endrin ketone	8.0	U	40	U	80	U
alpha-Chlordane	40	U	200	U	400	U
gamma-Chlordane	40	U	200	U	400	U
Toxaphene	80	U	400	U	800	U
Aroclor-1016	40	U	200	U	400	U
Aroclor-1221	40	U	200	U	400	U
Aroclor-1232	40	U	200	U	400	U
Aroclor-1242	40	U	200	U	400	U
Aroclor-1248	40	U	200	U	400	U
Aroclor-1254	80	U	400	U	800	U
Aroclor-1260	80	U	400	U	800	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List

Report Date: 03/04/91 17:07

RFW Batch Number: 9012L972 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1

	Cust ID:	TP4C	TP3A	TP11A	TP11A	TP11A	SBLK
Sample Information	RFW#:	001	002	004	004 MS	004 MSD	90LE1490-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	10.0	0.500	0.500	5.00	5.00	0.500
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate: Di-n-butylchlorendate		106 % fl	86 % fl	82 % fl	90 % fl	87 % fl	72 % fl
Alpha-BHC		86 U	5.0 U	4.5 U	45 U	44 U	4.0 U
Beta-BHC		86 U	5.0 U	4.5 U	45 U	44 U	4.0 U
Delta-BHC		86 U	5.0 U	4.5 U	45 U	44 U	4.0 U
gamma-BHC (Lindane)		86 U	5.0 U	4.5 U	66 %	75 %	4.0 U
Heptachlor		86 U	5.0 U	4.5 U	70 %	70 %	4.0 U
Aldrin		86 U	5.0 U	4.5 U	69 %	74 %	4.0 U
Heptachlor epoxide		86 U	5.0 U	4.5 U	45 U	44 U	4.0 U
Endosulfan I		86 U	5.0 U	4.5 U	45 U	44 U	4.0 U
Dieldrin		170 U	10 U	9.0 U	72 %	80 %	8.0 U
4,4'-DDE		170 U	10 U	9.0 U	89 U	89 U	8.0 U
Endrin		170 U	10 U	9.0 U	82 %	92 %	8.0 U
Endosulfan II		170 U	10 U	9.0 U	89 U	89 U	8.0 U
4,4'-DDD		170 U	10 U	9.0 U	89 U	89 U	8.0 U
Endosulfan sulfate		170 U	10 U	9.0 U	89 U	89 U	8.0 U
4,4'-DDT		170 U	10 U	9.0 U	76 %	85 %	8.0 U
Methoxychlor		860 U	50 U	45 U	450 U	440 U	40 U
Endrin ketone		170 U	10 U	9.0 U	89 U	89 U	8.0 U
alpha-Chlordane		860 U	50 U	45 U	450 U	440 U	40 U
gamma-Chlordane		860 U	50 U	45 U	450 U	440 U	40 U
Toxaphene		1700 U	100 U	90 U	890 U	890 U	80 U
Aroclor-1016		860 U	50 U	45 U	450 U	440 U	40 U
Aroclor-1221		860 U	50 U	45 U	450 U	440 U	40 U
Aroclor-1232		860 U	50 U	45 U	450 U	440 U	40 U
Aroclor-1242		860 U	50 U	45 U	450 U	440 U	40 U
Aroclor-1248		860 U	50 U	45 U	450 U	440 U	40 U
Aroclor-1254		1700 U	44 J	90 U	890 U	890 U	80 U
Aroclor-1260		1700 U	100 U	13 J	890 U	890 U	80 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Cust ID: SBLK BS

Sample Information

RFW#: 90LE1490-MB1
Matrix: SOIL
D.F.: 0.500
Units: ug/Kg

Surrogate: Di-n-butylchlorendate	72	%
Alpha-BHC	4.0	U
Beta-BHC	4.0	U
Delta-BHC	4.0	U
gamma-BHC (Lindane)	45 *	%
Heptachlor	70	%
Aldrin	92	%
Heptachlor epoxide	4.0	U
Endosulfan I	4.0	U
Dieldrin	84	%
4,4'-DDE	8.0	U
Endrin	64	%
Endosulfan II	8.0	U
4,4'-DDD	8.0	U
Endosulfan sulfate	8.0	U
4,4'-DDT	22 *	%
Methoxychlor	40	U
Endrin ketone	8.0	U
alpha-Chlordane	40	U
gamma-Chlordane	40	U
Toxaphene	80	U
Aroclor-1016	40	U
Aroclor-1221	40	U
Aroclor-1232	40	U
Aroclor-1242	40	U
Aroclor-1248	40	U
Aroclor-1254	80	U
Aroclor-1260	80	U

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%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List

RFW Batch Number: 9012L952 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 02/14/91 13:13 Page: 1

	Cust ID:	TP-8A	TP-10BB	WS-1	PBLK ✓	PBLK BS	PBLK BSD
Sample Information	RFW#:	002	003	004	90LE1485-MB2	90LE1485-MB2	90LE1485-MB2
	Matrix:	SOIL	SOIL	WATER	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg	ug/Kg

Surrogate: Di-n-butylchlorendate	130 % fl	59 % fl	49 % fl	141 % fl	100 % fl	150 % fl
Alpha-BHC	9.7 U	8.8 U	0.050 U	8.0 U	8.0 U	8.0 U
Beta-BHC	9.7 U	8.8 U	0.050 U	8.0 U	8.0 U	8.0 U
Delta-BHC	9.7 U	8.8 U	0.050 U	8.0 U	8.0 U	8.0 U
gamma-BHC (Lindane)	9.7 U	8.8 U	0.050 U	8.0 U	125 %	138 * %
Heptachlor	9.7 U	8.8 U	0.050 U	8.0 U	90 %	115 %
Aldrin	9.7 U	8.8 U	0.050 U	8.0 U	98 %	122 %
Heptachlor epoxide	9.7 U	8.8 U	0.050 U	8.0 U	8.0 U	8.0 U
Endosulfan I	9.7 U	8.8 U	0.050 U	8.0 U	8.0 U	8.0 U
Dieldrin	19 U	18 U	0.10 U	16 U	108 %	134 %
4,4'-DDE	19 U	18 U	0.10 U	16 U	16 U	16 U
Endrin	19 U	18 U	0.10 U	16 U	113 %	133 %
Endosulfan II	19 U	18 U	0.10 U	16 U	16 U	16 U
4,4'-DDD	19 U	18 U	0.10 U	16 U	16 U	16 U
Endosulfan sulfate	19 U	18 U	0.10 U	16 U	16 U	16 U
4,4'-DDT	19 U	18 U	0.10 U	16 U	116 %	143 * %
Methoxychlor	97 U	88 U	0.50 U	80 U	80 U	80 U
Endrin ketone	19 U	18 U	0.10 U	16 U	16 U	16 U
alpha-Chlordane	97 U	88 U	0.50 U	80 U	80 U	80 U
gamma-Chlordane	97 U	88 U	0.50 U	80 U	80 U	80 U
Toxaphene	190 U	180 U	1.0 U	160 U	160 U	160 U
Aroclor-1016	97 U	88 U	0.50 U	80 U	80 U	80 U
Aroclor-1221	97 U	88 U	0.50 U	80 U	80 U	80 U
Aroclor-1232	97 U	88 U	0.50 U	80 U	80 U	80 U
Aroclor-1242	97 U	88 U	0.50 U	80 U	80 U	80 U
Aroclor-1248	97 U	88 U	0.50 U	80 U	80 U	80 U
Aroclor-1254	190	180 U	1.0 U	160 U	160 U	160 U
Aroclor-1260	190 U	180 U	1.0 U	160 U	160 U	160 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Sample Information	Cust ID:	PBLK ✓	PBLK BS	PBLK BSD
	RFW#:	90LE1482-MB1	90LE1482-MB1	90LE1482-MB1
	Matrix:	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L

Surrogate: Di-n-butylchlorendate	94	%		83	%		87	%			
Alpha-BHC	0.050	U		0.050	U		0.050	U			
Beta-BHC	0.050	U		0.050	U		0.050	U			
Delta-BHC	0.050	U		0.050	U		0.050	U			
gamma-BHC (Lindane)	0.050	U		55	* %		100	%			
Heptachlor	0.050	U		45	%		75	%			
Aldrin	0.050	U		40	%		65	%			
Heptachlor epoxide	0.050	U		0.050	U		0.050	U			
Endosulfan I	0.050	U		0.050	U		0.050	U			
Dieldrin	0.10	U		70	%		90	%			
4,4'-DDE	0.10	U		0.10	U		0.10	U			
Endrin	0.10	U		78	%		98	%			
Endosulfan II	0.10	U		0.10	U		0.10	U			
4,4'-DDD	0.10	U		0.10	U		0.10	U			
Endosulfan sulfate	0.10	U		0.10	U		0.10	U			
4,4'-DDT	0.10	U		100	%		98	%			
Methoxychlor	0.50	U		0.50	U		0.50	U			
Endrin ketone	0.10	U		0.10	U		0.10	U			
alpha-Chlordane	0.50	U		0.50	U		0.50	U			
gamma-Chlordane	0.50	U		0.50	U		0.50	U			
Toxaphene	1.0	U		1.0	U		1.0	U			
Aroclor-1016	0.50	U		0.50	U		0.50	U			
Aroclor-1221	0.50	U		0.50	U		0.50	U			
Aroclor-1232	0.50	U		0.50	U		0.50	U			
Aroclor-1242	0.50	U		0.50	U		0.50	U			
Aroclor-1248	0.50	U		0.50	U		0.50	U			
Aroclor-1254	1.0	U		1.0	U		1.0	U			
Aroclor-1260	1.0	U		1.0	U		1.0	U			

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List
Report Date: 02/27/91 10:33

RFW Batch Number: 9012L935 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1

	Cust ID:	TP-1A		TP-2A		TP-2AA		PBLK ✓		PBLK BS		PBLK BSD	
Sample Information	RFW#:	001		002		003		90LE1485-MB2		90LE1485-MB2		90LE1485-MB2	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	50.0		10.0		10.0		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate: Di-n-butylchlorendate		D	%	32	%	101	%	141	%	100	%	150	%
			fl		fl		fl		fl		fl		fl
Alpha-BHC		670	ND	100	ND	85	ND	8.0	ND	8.0	ND	8.0	ND
Beta-BHC		670	ND	100	ND	85	ND	8.0	ND	8.0	ND	8.0	ND
Delta-BHC		670	ND	100	ND	85	ND	8.0	ND	8.0	ND	8.0	ND
gamma-BHC (Lindane)		670	ND	100	ND	85	ND	8.0	ND	125	%	138 *	%
Heptachlor		670	ND	100	ND	85	ND	8.0	ND	90	%	115	%
Aldrin		670	ND	100	ND	85	ND	8.0	ND	98	%	122	%
Heptachlor epoxide		670	ND	100	ND	85	ND	8.0	ND	8.0	ND	8.0	ND
Endosulfan I		670	ND	100	ND	85	ND	8.0	ND	8.0	ND	8.0	ND
Dieldrin		1300	ND	200	ND	170	ND	16	ND	108	%	134	%
4,4'-DDE		1300	ND	200	ND	170	ND	16	ND	16	ND	16	ND
Endrin		1300	ND	200	ND	170	ND	16	ND	113	%	133	%
Endosulfan II		1300	ND	200	ND	170	ND	16	ND	16	ND	16	ND
4,4'-DDD		1300	ND	200	ND	170	ND	16	ND	16	ND	16	ND
Endosulfan sulfate		1300	ND	200	ND	170	ND	16	ND	16	ND	16	ND
4,4'-DDT		1300	ND	200	ND	170	ND	16	ND	116	%	143 *	%
Methoxychlor		6700	ND	1000	ND	850	ND	80	ND	80	ND	80	ND
Endrin ketone		1300	ND	200	ND	170	ND	16	ND	16	ND	16	ND
alpha-Chlordane		6700	ND	1000	ND	850	ND	80	ND	80	ND	80	ND
gamma-Chlordane		6700	ND	1000	ND	850	ND	80	ND	80	ND	80	ND
Toxaphene		13000	ND	2000	ND	1700	ND	160	ND	160	ND	160	ND
Aroclor-1016		6700	ND	1000	ND	850	ND	80	ND	80	ND	80	ND
Aroclor-1221		6700	ND	1000	ND	850	ND	80	ND	80	ND	80	ND
Aroclor-1232		6700	ND	1000	ND	850	ND	80	ND	80	ND	80	ND
Aroclor-1242		6700	ND	1000	ND	850	ND	80	ND	80	ND	80	ND
Aroclor-1248		6700	ND	1000	ND	850	ND	80	ND	80	ND	80	ND
Aroclor-1254		12000	J	2300		2200		160	ND	160	ND	160	ND
Aroclor-1260		13000	ND	2000	ND	1700	ND	160	ND	160	ND	160	ND

ND= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP Q

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List
Report Date: 06/28/91 16:38

RFW Batch Number: 9105L477 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1

	Cust ID:	SW-1	SW-1	SW-2	SED-1	SED-1	SED-1
Sample Information	RFW#:	001	001 RE	002	004	004 MS	004 MSD
	Matrix:	WATER	WATER	WATER	SOIL	SOIL	SOIL
	D.F.:	20.0	5.00	1.00	2.50	5.00	5.00
	Units:	ug/L	ug/L	ug/L	ug/Kg	ug/Kg	ug/Kg

Surrogate: Di-n-butylchlorendate	44	%	70	%	27	%	120	%	149	%	140	%
	fl		fl		fl		fl		fl		fl	
Alpha-BHC	1.0	U	0.25	U	0.050	U	38	U	77	U	75	U
Beta-BHC	1.0	U	0.25	U	0.050	U	38	U	77	U	75	U
Delta-BHC	1.0	U	0.25	U	0.050	U	38	U	77	U	75	U
gamma-BHC (Lindane)	1.0	U	0.25	U	0.050	U	38	U	59	%	64	%
Heptachlor	1.0	U	0.25	U	0.050	U	38	U	52	%	58	%
Aldrin	1.0	U	0.25	U	0.050	U	38	U	56	%	56	%
Heptachlor epoxide	1.0	U	0.25	U	0.050	U	38	U	77	U	75	U
Endosulfan I	1.0	U	0.25	U	0.050	U	38	U	77	U	75	U
Dieldrin	2.0	U	0.50	U	0.10	U	77	U	56	%	58	%
4,4'-DDE	2.0	U	0.50	U	0.10	U	77	U	150	U	150	U
Endrin	2.0	U	0.50	U	0.10	U	77	U	83	%	88	%
Endosulfan II	2.0	U	0.50	U	0.10	U	77	U	150	U	150	U
4,4'-DDD	2.0	U	0.50	U	0.10	U	77	U	150	U	150	U
Endosulfan sulfate	2.0	U	0.50	U	0.10	U	77	U	150	U	150	U
4,4'-DDT	2.0	U	0.50	U	0.10	U	77	U	94	%	98	%
Methoxychlor	10	U	2.5	U	0.50	U	380	U	770	U	750	U
Endrin ketone	2.0	U	0.50	U	0.10	U	77	U	150	U	150	U
alpha-Chlordane	10	U	2.5	U	0.50	U	380	U	770	U	750	U
gamma-Chlordane	10	U	2.5	U	0.50	U	380	U	770	U	750	U
Toxaphene	20	U	5.0	U	1.0	U	770	U	1500	U	1500	U
Aroclor-1016	10	U	2.5	U	0.50	U	380	U	770	U	750	U
Aroclor-1221	10	U	2.5	U	0.50	U	380	U	770	U	750	U
Aroclor-1232	10	U	2.5	U	0.50	U	380	U	770	U	750	U
Aroclor-1242	10	U	2.5	U	0.50	U	380	U	770	U	750	U
Aroclor-1248	10	U	2.5	U	0.50	U	380	U	770	U	750	U
Aroclor-1254	20	U	5.0	U	1.0	U	770	U	1500	U	1500	U
Aroclor-1260	20	U	5.0	U	1.0	U	770	U	1500	U	1500	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

000003

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List
Report Date: 06/28/91 16:38

RFW Batch Number: 9105L477 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 2

	Cust ID:	SED-2	SED-3	PBLK	PBLK BS	PBLK BSD	PBLK
Sample Information	RFW#:	005	006	91LE0581-MB1	91LE0581-MB1	91LE0581-MB1	91LE0586-MB2
	Matrix:	SOIL	SOIL	WATER	WATER	WATER	SOIL
	D.F.:	1.00	1.00	1.00	2.00	2.00	5.00
	Units:	ug/Kg	ug/Kg	ug/L	ug/L	ug/L	ug/Kg
Surrogate: Di-n-butylchlorendate		102 %	75 %	151 %	131 %	137 %	76 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		25 U	23 U	0.050 U	0.020 J	0.10 U	40 U
Beta-BHC		25 U	23 U	0.050 U	0.10 U	0.10 U	40 U
Delta-BHC		25 U	23 U	0.050 U	0.10 U	0.10 U	40 U
gamma-BHC (Lindane)		25 U	23 U	0.050 U	180 * %	135 * %	40 U
Heptachlor		25 U	23 U	0.050 U	90 %	85 %	40 U
Aldrin		25 U	23 U	0.050 U	60 %	75 %	40 U
Heptachlor epoxide		25 U	23 U	0.050 U	0.10 U	0.10 U	40 U
Endosulfan I		25 U	23 U	0.050 U	0.10 U	0.10 U	40 U
Dieldrin		50 U	45 U	0.10 U	90 %	96 %	80 U
4,4'-DDE		50 U	45 U	0.10 U	0.20 U	0.20 U	80 U
Endrin		50 U	45 U	0.10 U	134 * %	124 * %	80 U
Endosulfan II		50 U	45 U	0.10 U	0.20 U	0.20 U	80 U
4,4'-DDD		50 U	45 U	0.10 U	0.20 U	0.20 U	80 U
Endosulfan sulfate		50 U	45 U	0.10 U	0.20 U	0.20 U	80 U
4,4'-DDT		50 U	45 U	0.10 U	154 * %	138 * %	80 U
Methoxychlor		250 U	230 U	0.50 U	1.0 U	1.0 U	400 U
Endrin ketone		50 U	45 U	0.10 U	0.20 U	0.20 U	80 U
alpha-Chlordane		250 U	230 U	0.50 U	1.0 U	1.0 U	400 U
gamma-Chlordane		250 U	230 U	0.50 U	1.0 U	1.0 U	400 U
Toxaphene		500 U	450 U	1.0 U	2.0 U	2.0 U	800 U
Aroclor-1016		250 U	230 U	0.50 U	1.0 U	1.0 U	400 U
Aroclor-1221		250 U	230 U	0.50 U	1.0 U	1.0 U	400 U
Aroclor-1232		250 U	230 U	0.50 U	1.0 U	1.0 U	400 U
Aroclor-1242		250 U	230 U	0.50 U	1.0 U	1.0 U	400 U
Aroclor-1248		250 U	230 U	0.50 U	1.0 U	1.0 U	400 U
Aroclor-1254		500 U	450 U	1.0 U	2.0 U	2.0 U	800 U
Aroclor-1260		160 J	86 J	1.0 U	2.0 U	2.0 U	800 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

00004

Cust ID: PBLK BS

Sample Information

RFW#: 91LE0586-MB2
Matrix: SOIL
D.F.: 1.00
Units: ug/Kg

Surrogate: Di-n-butylchlorendate	70	%
Alpha-BHC	8.0	U
Beta-BHC	8.0	U
Delta-BHC	8.0	U
gamma-BHC (Lindane)	111	%
Heptachlor	74	%
Aldrin	90	%
Heptachlor epoxide	8.0	U
Endosulfan I	8.0	U
Dieldrin	80	%
4,4'-DDE	6.3	J
Endrin	96	%
Endosulfan II	16	U
4,4'-DDD	3.7	J
Endosulfan sulfate	16	U
4,4'-DDT	56	%
Methoxychlor	80	U
Endrin ketone	16	U
alpha-Chlordane	80	U
gamma-Chlordane	80	U
Toxaphene	160	U
Aroclor-1016	80	U
Aroclor-1221	80	U
Aroclor-1232	80	U
Aroclor-1242	80	U
Aroclor-1248	80	U
Aroclor-1254	160	U
Aroclor-1260	160	U

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%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

WESTON

I. CASE NARRATIVE

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List
Report Date: 06/13/91 22:10

RFW Batch Number: 9105L456 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 2

	Cust ID:	MW-2		MW-4		MW-5		MW-3		PBLK		PBLK BS	
Sample Information	RFW#:	005 MSD		006		007		008		91LE0575-MB1		91LE0575-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	2.00		1.00		1.00		1.00		1.00		2.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate: Di-n-butylchlorendate		62	%	98	%	66	%	63	%	86	%	92	%
Alpha-BHC		0.10	U	0.052	U	0.053	U	0.050	U	0.050	U	0.10	U
Beta-BHC		0.10	U	0.052	U	0.053	U	0.050	U	0.050	U	0.10	U
Delta-BHC		0.10	U	0.052	U	0.053	U	0.050	U	0.050	U	0.10	U
gamma-BHC (Lindane)		110	%	0.052	U	0.053	U	0.050	U	0.050	U	110	%
Heptachlor		55	%	0.052	U	0.053	U	0.050	U	0.050	U	85	%
Aldrin		45	%	0.052	U	0.053	U	0.050	U	0.050	U	85	%
Heptachlor epoxide		0.10	U	0.052	U	0.053	U	0.050	U	0.050	U	0.10	U
Endosulfan I		0.10	U	0.052	U	0.053	U	0.050	U	0.050	U	0.10	U
Dieldrin		64	%	0.10	U	0.11	U	0.10	U	0.10	U	98	%
4,4'-DDE		0.21	U	0.10	U	0.11	U	0.10	U	0.10	U	0.20	U
Endrin		96	%	0.10	U	0.11	U	0.10	U	0.10	U	92	%
Endosulfan II		0.21	U	0.10	U	0.11	U	0.10	U	0.10	U	0.20	U
4,4'-DDD		0.21	U	0.10	U	0.11	U	0.10	U	0.10	U	0.20	U
Endosulfan sulfate		0.21	U	0.10	U	0.11	U	0.10	U	0.10	U	0.20	U
4,4'-DDT		68	%	0.10	U	0.11	U	0.10	U	0.10	U	96	%
Methoxychlor		1.0	U	0.52	U	0.53	U	0.50	U	0.50	U	1.0	U
Endrin ketone		0.21	U	0.10	U	0.11	U	0.10	U	0.10	U	0.20	U
alpha-Chlordane		1.0	U	0.52	U	0.53	U	0.50	U	0.50	U	1.0	U
gamma-Chlordane		1.0	U	0.52	U	0.53	U	0.50	U	0.50	U	1.0	U
Toxaphene		2.1	U	1.0	U	1.1	U	1.0	U	1.0	U	2.0	U
Aroclor-1016		1.0	U	0.52	U	0.53	U	0.50	U	0.50	U	1.0	U
Aroclor-1221		1.0	U	0.52	U	0.53	U	0.50	U	0.50	U	1.0	U
Aroclor-1232		1.0	U	0.52	U	0.53	U	0.50	U	0.50	U	1.0	U
Aroclor-1242		1.0	U	0.52	U	0.53	U	0.50	U	0.50	U	1.0	U
Aroclor-1248		1.0	U	0.52	U	0.53	U	0.50	U	0.50	U	1.0	U
Aroclor-1254		2.1	U	1.0	U	1.1	U	1.0	U	1.0	U	2.0	U
Aroclor-1260		2.1	U	1.0	U	1.1	U	1.0	U	1.0	U	2.0	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

000005

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List

RFW Batch Number: 9105L456 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 06/13/91 22:10 Page: 2

	Cust ID:	MW-2	MW-4	MW-5	MW-3	PBLK	PBLK BS
Sample Information	RFW#:	005 MSD	006	007	008	91LE0575-MB1	91LE0575-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	2.00	1.00	1.00	1.00	1.00	2.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate: Di-n-butylchlorendate		62 %	98 %	66 %	63 %	86 %	92 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		0.10 U	0.052 U	0.053 U	0.050 U	0.050 U	0.10 U
Beta-BHC		0.10 U	0.052 U	0.053 U	0.050 U	0.050 U	0.10 U
Delta-BHC		0.10 U	0.052 U	0.053 U	0.050 U	0.050 U	0.10 U
gamma-BHC (Lindane)		110 %	0.052 U	0.053 U	0.050 U	0.050 U	110 %
Heptachlor		55 %	0.052 U	0.053 U	0.050 U	0.050 U	85 %
Aldrin		45 %	0.052 U	0.053 U	0.050 U	0.050 U	85 %
Heptachlor epoxide		0.10 U	0.052 U	0.053 U	0.050 U	0.050 U	0.10 U
Endosulfan I		0.10 U	0.052 U	0.053 U	0.050 U	0.050 U	0.10 U
Dieldrin		64 %	0.10 U	0.11 U	0.10 U	0.10 U	98 %
4,4'-DDE		0.21 U	0.10 U	0.11 U	0.10 U	0.10 U	0.20 U
Endrin		96 %	0.10 U	0.11 U	0.10 U	0.10 U	92 %
Endosulfan II		0.21 U	0.10 U	0.11 U	0.10 U	0.10 U	0.20 U
4,4'-DDD		0.21 U	0.10 U	0.11 U	0.10 U	0.10 U	0.20 U
Endosulfan sulfate		0.21 U	0.10 U	0.11 U	0.10 U	0.10 U	0.20 U
4,4'-DDT		68 %	0.10 U	0.11 U	0.10 U	0.10 U	96 %
Methoxychlor		1.0 U	0.52 U	0.53 U	0.50 U	0.50 U	1.0 U
Endrin ketone		0.21 U	0.10 U	0.11 U	0.10 U	0.10 U	0.20 U
alpha-Chlordane		1.0 U	0.52 U	0.53 U	0.50 U	0.50 U	1.0 U
gamma-Chlordane		1.0 U	0.52 U	0.53 U	0.50 U	0.50 U	1.0 U
Toxaphene		2.1 U	1.0 U	1.1 U	1.0 U	1.0 U	2.0 U
Aroclor-1016		1.0 U	0.52 U	0.53 U	0.50 U	0.50 U	1.0 U
Aroclor-1221		1.0 U	0.52 U	0.53 U	0.50 U	0.50 U	1.0 U
Aroclor-1232		1.0 U	0.52 U	0.53 U	0.50 U	0.50 U	1.0 U
Aroclor-1242		1.0 U	0.52 U	0.53 U	0.50 U	0.50 U	1.0 U
Aroclor-1248		1.0 U	0.52 U	0.53 U	0.50 U	0.50 U	1.0 U
Aroclor-1254		2.1 U	1.0 U	1.1 U	1.0 U	1.0 U	2.0 U
Aroclor-1260		2.1 U	1.0 U	1.1 U	1.0 U	1.0 U	2.0 U

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00005

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List
Report Date: 06/24/91 15:04

RFW Batch Number: 9105L541 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1

	Cust ID:	SW-3	SW-3	SW-3	SW-4	SW-5	SW-6
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	2.00	2.00	1.00	5.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate: Di-n-butylchlorendate		104 % fl	108 % fl	115 % fl	93 % fl	104 % fl	100 % fl
Alpha-BHC		0.050 U	0.10 U	0.10 U	0.050 U	0.25 U	0.050 U
Beta-BHC		0.050 U	0.10 U	0.10 U	0.050 U	0.25 U	0.050 U
Delta-BHC		0.050 U	0.10 U	0.10 U	0.050 U	0.25 U	0.050 U
gamma-BHC (Lindane)		0.050 U	115 %	120 %	0.050 U	0.25 U	0.050 U
Heptachlor		0.050 U	80 %	80 %	0.050 U	0.25 U	0.050 U
Aldrin		0.050 U	105 %	95 %	0.050 U	0.25 U	0.050 U
Heptachlor epoxide		0.050 U	0.10 U	0.10 U	0.050 U	0.25 U	0.050 U
Endosulfan I		0.050 U	0.10 U	0.10 U	0.050 U	0.25 U	0.050 U
Dieldrin		0.10 U	106 %	112 %	0.10 U	0.50 U	0.10 U
4,4'-DDE		0.10 U	0.20 U	0.20 U	0.10 U	0.50 U	0.10 U
Endrin		0.10 U	104 %	106 %	0.10 U	0.50 U	0.10 U
Endosulfan II		0.10 U	0.20 U	0.20 U	0.10 U	0.50 U	0.10 U
4,4'-DDD		0.10 U	0.20 U	0.20 U	0.10 U	0.50 U	0.10 U
Endosulfan sulfate		0.10 U	0.20 U	0.20 U	0.10 U	0.50 U	0.10 U
4,4'-DDT		0.10 U	108 %	106 %	0.10 U	0.50 U	0.10 U
Methoxychlor		0.50 U	1.0 U	1.0 U	0.50 U	2.5 U	0.50 U
Endrin ketone		0.10 U	0.20 U	0.20 U	0.10 U	0.50 U	0.10 U
alpha-Chlordane		0.50 U	1.0 U	1.0 U	0.50 U	2.5 U	0.50 U
gamma-Chlordane		0.50 U	1.0 U	1.0 U	0.50 U	2.5 U	0.50 U
Toxaphene		1.0 U	2.0 U	2.0 U	1.0 U	5.0 U	1.0 U
Aroclor-1016		0.50 U	1.0 U	1.0 U	0.50 U	2.5 U	0.50 U
Aroclor-1221		0.50 U	1.0 U	1.0 U	0.50 U	2.5 U	0.50 U
Aroclor-1232		0.50 U	1.0 U	1.0 U	0.50 U	2.5 U	0.50 U
Aroclor-1242		0.50 U	1.0 U	1.0 U	0.50 U	2.5 U	0.50 U
Aroclor-1248		0.50 U	1.0 U	1.0 U	0.50 U	2.5 U	0.50 U
Aroclor-1254		1.0 U	2.0 U	2.0 U	1.0 U	5.0 U	1.0 U
Aroclor-1260		1.0 U	2.0 U	2.0 U	1.0 U	5.0 U	1.0 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List
Report Date: 06/24/91 15:04

RFW Batch Number: 9105L541 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 2

	Cust ID:	SW-7	SW-8	SED-4	SED-5	SW-9	SED-7
Sample Information	RFW#:	005	006	007	008	009	011
	Matrix:	WATER	WATER	SOIL	SOIL	WATER	SOIL
	D.F.:	**1.00**	**1.00**	**5.00**	**2.00**	**2.00**	**10.0**
	Units:	ug/L	ug/L	ug/Kg	ug/Kg	ug/L	ug/Kg

Surrogate: Di-n-butylchlorendate	191 *	% fl	118	% fl	I	% fl	113	% fl	80	% fl	95	% fl
Alpha-BHC	0.050	U	0.050	U	86	U	98	U	0.10	U	190	U
Beta-BHC	0.050	U	0.050	U	86	U	98	U	0.10	U	190	U
Delta-BHC	0.050	U	0.050	U	86	U	98	U	0.10	U	190	U
gamma-BHC (Lindane)	0.050	U	0.050	U	86	U	98	U	0.10	U	190	U
Heptachlor	0.050	U	0.050	U	86	U	98	U	0.10	U	190	U
Aldrin	0.050	U	0.050	U	86	U	98	U	0.10	U	190	U
Heptachlor epoxide	0.050	U	0.050	U	86	U	98	U	0.10	U	190	U
Endosulfan I	0.050	U	0.050	U	86	U	98	U	0.10	U	190	U
Dieldrin	0.10	U	0.10	U	170	U	200	U	0.20	U	370	U
4,4'-DDE	0.10	U	0.10	U	170	U	200	U	0.20	U	370	U
Endrin	0.10	U	0.10	U	170	U	200	U	0.20	U	370	U
Endosulfan II	0.10	U	0.10	U	170	U	200	U	0.20	U	370	U
4,4'-DDD	0.10	U	0.10	U	170	U	200	U	0.20	U	370	U
Endosulfan sulfate	0.10	U	0.10	U	170	U	200	U	0.20	U	370	U
4,4'-DDT	0.10	U	0.10	U	170	U	200	U	0.20	U	370	U
Methoxychlor	0.50	U	0.50	U	860	U	980	U	1.0	U	1900	U
Endrin ketone	0.10	U	0.10	U	170	U	200	U	0.20	U	370	U
alpha-Chlordane	0.50	U	0.50	U	860	U	980	U	1.0	U	1900	U
gamma-Chlordane	0.50	U	0.50	U	860	U	980	U	1.0	U	1900	U
Toxaphene	1.0	U	1.0	U	1700	U	2000	U	2.0	U	3700	U
Aroclor-1016	0.50	U	0.50	U	860	U	980	U	1.0	U	1900	U
Aroclor-1221	0.50	U	0.50	U	860	U	980	U	1.0	U	1900	U
Aroclor-1232	0.50	U	0.50	U	860	U	980	U	1.0	U	1900	U
Aroclor-1242	0.50	U	0.50	U	860	U	980	U	1.0	U	1900	U
Aroclor-1248	0.50	U	0.50	U	860	U	980	U	1.0	U	1900	U
Aroclor-1254	1.0	U	1.0	U	1700	U	2000	U	2.0	U	3700	U
Aroclor-1260	1.0	U	1.0	U	1700	U	2000	U	2.0	U	3700	U

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%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

	Cust ID:	SED-7	SED-7	SED-RB	SW-RB	PBLK	PBLK BS
Sample Information	RFW#:	011 MS	011 MSD	012	013	91LE0605-MB1	91LE0605-MB1
	Matrix:	SOIL	SOIL	WATER	WATER	WATER	WATER
	D.F.:	10.0	10.0	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/L	ug/L	ug/L	ug/L
Surrogate: Di-n-butylchlorendate		117 % fl	79 % fl	117 % fl	99 % fl	103 % fl	52 % fl
Alpha-BHC		180 U	180 U	0.050 U	0.050 U	0.050 U	0.050 U
Beta-BHC		180 U	180 U	0.050 U	0.050 U	0.050 U	0.050 U
Delta-BHC		180 U	180 U	0.050 U	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)		68 %	85 %	0.050 U	0.050 U	0.050 U	I %
Heptachlor		I %	I %	0.050 U	0.050 U	0.050 U	60 %
Aldrin		60 %	35 %	0.050 U	0.050 U	0.050 U	I %
Heptachlor epoxide		180 U	180 U	0.050 U	0.050 U	0.050 U	0.050 U
Endosulfan I		180 U	180 U	0.050 U	0.050 U	0.050 U	0.050 U
Dieldrin		103 %	62 %	0.10 U	0.10 U	0.10 U	66 %
4,4'-DDE		370 U	370 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin		98 %	58 %	0.10 U	0.10 U	0.10 U	80 %
Endosulfan II		370 U	370 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD		370 U	370 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate		370 U	370 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT		I %	I %	0.10 U	0.10 U	0.10 U	68 %
Methoxychlor		1800 U	1800 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone		370 U	370 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane		1800 U	1800 U	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane		1800 U	1800 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene		3700 U	3700 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016		1800 U	1800 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221		1800 U	1800 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232		1800 U	1800 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242		1800 U	1800 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248		1800 U	1800 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254		3700 U	3700 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260		3700 U	3700 U	1.0 U	1.0 U	1.0 U	1.0 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

0000007

	Cust ID:	PBLK	PBLK BS
Sample Information	RFW#:	91LE0611-MB2	91LE0611-MB2
	Matrix:	SOIL	SOIL
	D.F.:	1.00	4.00
	Units:	ug/Kg	ug/Kg

Surrogate: Di-n-butylchlorendate	107	%	113	%	
Alpha-BHC	8.0	U	32	U	
Beta-BHC	8.0	U	32	U	
Delta-BHC	8.0	U	32	U	
gamma-BHC (Lindane)	8.0	U	75	%	
Heptachlor	8.0	U	78	%	
Aldrin	8.0	U	70	%	
Heptachlor epoxide	8.0	U	32	U	
Endosulfan I	8.0	U	32	U	
Dieldrin	16	U	79	%	
4,4'-DDE	16	U	64	U	
Endrin	16	U	90	%	
Endosulfan II	16	U	64	U	
4,4'-DDD	16	U	64	U	
Endosulfan sulfate	16	U	64	U	
4,4'-DDT	16	U	87	%	
Methoxychlor	80	U	320	U	
Endrin ketone	16	U	64	U	
alpha-Chlordane	80	U	320	U	
gamma-Chlordane	80	U	320	U	
Toxaphene	160	U	640	U	
Aroclor-1016	80	U	320	U	
Aroclor-1221	80	U	320	U	
Aroclor-1232	80	U	320	U	
Aroclor-1242	80	U	320	U	
Aroclor-1248	80	U	320	U	
Aroclor-1254	160	U	640	U	
Aroclor-1260	160	U	640	U	

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

I. CASE NARRATIVE

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BH-1

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):soil Lab Sample ID:9101288001

Level (low/med): low Date Received:

% Solids: 80.1

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8900		*	P
7440-36-0	Antimony	4.93	U	N	P
7440-38-2	Arsenic	18.9		*N	F
7440-39-3	Barium	71.7			P
7440-41-7	Beryllium	0.520	B		P
7440-43-9	Cadmium	0.739	U		P
7440-70-2	Calcium	2180			P
7440-47-3	Chromium	2.30	B		P
7440-48-4	Cobalt	8.30	B		P
7440-50-8	Copper	11.9			P
7439-89-6	Iron	21900		*	P
7439-92-1	Lead	16.7		WN	F
7439-95-4	Magnesium	2050			P
7439-96-5	Manganese	400		*N	P
7439-97-6	Mercury	0.125	U		CV
7440-02-0	Nickel	15.4			P
7440-09-7	Potassium	345	B		P
7782-49-2	Selenium	0.352	U		F
7440-22-4	Silver	1.23	U		P
7440-23-5	Sodium	164	B		P
7440-28-0	Thallium	0.703	U	N	F
7440-62-2	Vanadium	12.5			P
7440-66-6	Zinc	54.3		E	P
	Cyanide	0.624	U		C

Color Before:BROWN Clarity Before: Texture:FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN

USE U B elev to CRDL

> 5x blk

2x 15.4U

12.5U

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U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

6-1

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (Soil/water):SOIL Lab Sample ID:9101288002

Level (low/med): low Date Received:01/24/91

% Solids: 86.7

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6270		X	P
7440-36-0	Antimony	3.55	U	N	P
7440-38-2	Arsenic	6.20		N X	F
7440-39-3	Barium	35.1	B		P
7440-41-7	Beryllium	0.430	B		P
7440-43-9	Cadmium	0.532	U		P
7440-70-2	Calcium	564	B		P
7440-47-3	Chromium	21.5			P
7440-48-4	Cobalt	9.50			P
7440-50-8	Copper	16.2			P
7439-89-6	Iron	14500		X	P
7439-92-1	Lead	5.70		SN	F
7439-95-4	Magnesium	1740			P
7439-96-5	Manganese	390		N X	P
7439-97-6	Mercury	0.115	U		CV
7440-02-0	Nickel	73.6			P
7440-09-7	Potassium	270	B		P
7782-49-2	Selenium	0.396	U		F
7440-22-4	Silver	0.888	U		P
7440-23-5	Sodium	148	B		P
7440-28-0	Thallium	0.792	U	N	F
7440-62-2	Vanadium	8.00	B		P
7440-66-6	Zinc	32.1		E	P
	Cyanide	0.577	U		C

→ Find CRDL 5

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

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U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BH5B-1

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):soil Lab Sample ID:9101328001

Level (low/med): low Date Received:01/26/91

% Solids: 80.1

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3680		*	P
7440-36-0	Antimony	4.34	U	N	P
7440-38-2	Arsenic	3.20		N *	F
7440-39-3	Barium	29.7	B		P
7440-41-7	Beryllium	0.260	B		P
7440-43-9	Cadmium	0.651	U		P
7440-70-2	Calcium	20800			P
7440-47-3	Chromium	1.20	B		P
7440-48-4	Cobalt	5.00	B		P
7440-50-8	Copper	11.3			P
7439-89-6	Iron	10500		*	P
7439-92-1	Lead	6.90		N	F
7439-95-4	Magnesium	5570			P
7439-96-5	Manganese	299		N *	P
7439-97-6	Mercury	0.125	U		CV
7440-02-0	Nickel	9.20			P
7440-09-7	Potassium	321	B		P
7782-49-2	Selenium	0.477	U		F
7440-22-4	Silver	1.08	U		P
7440-23-5	Sodium	200	B		P
7440-28-0	Thallium	0.955	U	MW	F
7440-62-2	Vanadium	9.60	B		P
7440-66-6	Zinc	25.5		E	P
[illegible]	Cyanide	0.624	U		C

Color Before:BROWN Clarity Before: Texture:FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN

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U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BH5B-2

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):soil Lab Sample ID:9101328002

Level (low/med): low Date Received:01/26/91

% Solids: 80.9

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3120		X	P
7440-36-0	Antimony	3.47	U	N	P
7440-38-2	Arsenic	1.90		N X	F
7440-39-3	Barium	57.3			P
7440-41-7	Beryllium	0.174	U		P
7440-43-9	Cadmium	0.521	U		P
7440-70-2	Calcium	29000			P
7440-47-3	Chromium	1.20	B		P
7440-48-4	Cobalt	4.30	B		P
7440-50-8	Copper	9.20			P
7439-89-6	Iron	8700		X	P
7439-92-1	Lead	5.30		N	F
7439-95-4	Magnesium	3480			P
7439-96-5	Manganese	389		N X	P
7439-97-6	Mercury	0.124	U		CV
7440-02-0	Nickel	8.90			P
7440-09-7	Potassium	210	B		P
7782-49-2	Selenium	0.371	U	N	F
7440-22-4	Silver	0.868	U		P
7440-23-5	Sodium	143	B		P
7440-28-0	Thallium	0.741	U	WN	F
7440-62-2	Vanadium	8.60	B		P
7440-66-6	Zinc	25.0		E	P
	Cyanide	0.618	U		C

Color Before:BROWN Clarity Before: Texture:FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN

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U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BH5B-3

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):soil Lab Sample ID:9101328003

Level (low/med): low Date Received:01/26/91

% Solids: 88.1

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4330		K	P
7440-36-0	Antimony	4.24	U	N	P
7440-38-2	Arsenic	1.90		SN K	F
7440-39-3	Barium	37.1	B		P
7440-41-7	Beryllium	0.212	U		P
7440-43-9	Cadmium	0.637	U		P
7440-70-2	Calcium	21000			P
7440-47-3	Chromium	13.5			P
7440-48-4	Cobalt	23.3			P
7440-50-8	Copper	13.6			P
7439-89-6	Iron	11600		K	P
7439-92-1	Lead	5.90		N	F
7439-95-4	Magnesium	4360			P
7439-96-5	Manganese	226		N K	P
7439-97-6	Mercury	0.114	U		CV
7440-02-0	Nickel	51.8			P
7440-09-7	Potassium	347	B		P
7782-49-2	Selenium	0.316	U	W	F
7440-22-4	Silver	1.06	U		P
7440-23-5	Sodium	163	B		P
7440-28-0	Thallium	0.631	U	W	F
7440-62-2	Vanadium	9.70	B		P
7440-66-6	Zinc	31.4		E	P
	Cyanide	0.568	U		C

Color Before:BROWN Clarity Before: Texture:FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN

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U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BH5A-3

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):SOIL Lab Sample ID:9101328004

Level (low/med): low Date Received:01/26/91

% Solids: 74.6

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3100		X	P
7440-36-0	Antimony	5.28	U	N	P
7440-38-2	Arsenic	2.00	B	N X	F
7440-39-3	Barium	47.9	B		P
7440-41-7	Beryllium	0.264	U		P
7440-43-9	Cadmium	0.792	U		P
7440-70-2	Calcium	25800			P
7440-47-3	Chromium	0.792	U		P
7440-48-4	Cobalt	3.90	B		P
7440-50-8	Copper	7.90			P
7439-89-6	Iron	9330		X	P
7439-92-1	Lead	4.60		M	F
7439-95-4	Magnesium	4250			P
7439-96-5	Manganese	324		N X	P
7439-97-6	Mercury	0.134	U		CV
7440-02-0	Nickel	8.10	B		P
7440-09-7	Potassium	401	B		P
7782-49-2	Selenium	0.499	U		F
7440-22-4	Silver	1.32	U		P
7440-23-5	Sodium	229	B		P
7440-28-0	Thallium	0.997	U	MM	F
7440-62-2	Vanadium	11.0	B		P
7440-66-6	Zinc	26.2		E	P
	Cyanide	0.671	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

0000014

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BH13-1

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):SOIL Lab Sample ID:9101350001

Level (low/med): low Date Received:01/26/91

% Solids: 82.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4780		*	P
7440-36-0	Antimony	4.15	U	N	P
7440-38-2	Arsenic	3.20		N *	F
7440-39-3	Barium	32.6	B		P
7440-41-7	Beryllium	0.250	B		P
7440-43-9	Cadmium	0.623	U		P
7440-70-2	Calcium	20100			P
7440-47-3	Chromium	1.40	B		P
7440-48-4	Cobalt	6.30	B		P
7440-50-8	Copper	12.9			P
7439-89-6	Iron	13500		*	P
7439-92-1	Lead	8.0		SN	F
7439-95-4	Magnesium	5330			P
7439-96-5	Manganese	449		N *	P
7439-97-6	Mercury	0.122	U		CV
7440-02-0	Nickel	12.6			P
7440-09-7	Potassium	388	B		P
7782-49-2	Selenium	0.391	U	W	F
7440-22-4	Silver	1.04	U		P
7440-23-5	Sodium	166	B		P
7440-28-0	Thallium	0.782	U	MW	F
7440-62-2	Vanadium	9.70	B		P
7440-66-6	Zinc	30.9		E	P
	Cyanide	0.610	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

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U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BHA-1

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):SOIL Lab Sample ID:9101350002

Level (low/med): low Date Received:01/26/91

% Solids: 80.2

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5600		X	P
7440-36-0	Antimony	4.20	U	N	P
7440-38-2	Arsenic	3.90		N X	F
7440-39-3	Barium	38.2	B		P
7440-41-7	Beryllium	0.340	B		P
7440-43-9	Cadmium	0.630	U		P
7440-70-2	Calcium	18700			P
7440-47-3	Chromium	2.50			P
7440-48-4	Cobalt	7.20	B		P
7440-50-8	Copper	13.8			P
7439-89-6	Iron	14900		X	P
7439-92-1	Lead	10.1		M	F
7439-95-4	Magnesium	5780			P
7439-96-5	Manganese	619		N X	P
7439-97-6	Mercury	0.125	U		CV
7440-02-0	Nickel	16.5			P
7440-09-7	Potassium	548	B		P
7782-49-2	Selenium	0.454	U	W	F
7440-22-4	Silver	1.05	U		P
7440-23-5	Sodium	164	B		P
7440-28-0	Thallium	0.908	U	WN	F
7440-62-2	Vanadium	9.80	B		P
7440-66-6	Zinc	36.3		E	P
	Cyanide	0.623	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

0000016

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BH12-1

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):SOIL Lab Sample ID:9101350003

Level (low/med): low Date Received:01/26/91

% Solids: 91.9

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3220		X	P
7440-36-0	Antimony	3.79	U	X	P
7440-38-2	Arsenic	2.80		N X	F
7440-39-3	Barium	46.0			P
7440-41-7	Beryllium	0.189	U		P
7440-43-9	Cadmium	0.568	U		P
7440-70-2	Calcium	64100			P
7440-47-3	Chromium	1.50	B		P
7440-48-4	Cobalt	3.90	B		P
7440-50-8	Copper	7.50			P
7439-89-6	Iron	9460		X	P
7439-92-1	Lead	5.80		N	F
7439-95-4	Magnesium	2640			P
7439-96-5	Manganese	2670		N X	P
7439-97-6	Mercury	0.109	U		CV
7440-02-0	Nickel	8.50			P
7440-09-7	Potassium	154	U		P
7782-49-2	Selenium	0.397	U	W	F
7440-22-4	Silver	0.947	U		P
7440-23-5	Sodium	142	B		P
7440-28-0	Thallium	0.794	U	WN	F
7440-62-2	Vanadium	10.3			P
7440-66-6	Zinc	21.4		E	P
	Cyanide	0.544	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

0000017

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):SOIL Lab Sample ID:9101350004

Level (low/med): low Date Received:01/26/91

% Solids: 61.6

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4050		K	P
7440-36-0	Antimony	6.09	U	N	P
7440-38-2	Arsenic	4.90		N K	F
7440-39-3	Barium	46.6	B		P
7440-41-7	Beryllium	0.305	U		P
7440-43-9	Cadmium	0.914	U		P
7440-70-2	Calcium	8520			P
7440-47-3	Chromium	5.80			P
7440-48-4	Cobalt	7.10	B		P
7440-50-8	Copper	16.0			P
7439-89-6	Iron	11400		K	P
7439-92-1	Lead	19.2		N	F
7439-95-4	Magnesium	3450			P
7439-96-5	Manganese	439		N K	P
7439-97-6	Mercury	0.162	U		CV
7440-02-0	Nickel	25.7			P
7440-09-7	Potassium	248	U		P
7782-49-2	Selenium	0.582	U		F
7440-22-4	Silver	1.52	U		P
7440-23-5	Sodium	227	B		P
7440-28-0	Thallium	1.16	U	MN	F
7440-62-2	Vanadium	15.0	B		P
7440-66-6	Zinc	40.4		E	P
	Cyanide	0.811	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

000018

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-2

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):SOIL Lab Sample ID:9101350005

Level (low/med): low Date Received:01/26/91

% Solids: 86.6

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4360		K	P
7440-36-0	Antimony	4.36	U	N	P
7440-38-2	Arsenic	1.40	B	N K	F
7440-39-3	Barium	90.6			P
7440-41-7	Beryllium	0.330	B		P
7440-43-9	Cadmium	0.655	U		P
7440-70-2	Calcium	72800			P
7440-47-3	Chromium	1.50	B		P
7440-48-4	Cobalt	5.80	B		P
7440-50-8	Copper	10.9			P
7439-89-6	Iron	12500		K	P
7439-92-1	Lead	5.20		N	F
7439-95-4	Magnesium	3260			P
7439-96-5	Manganese	1890		N K	P
7439-97-6	Mercury	0.115	U		CV
7440-02-0	Nickel	11.1			P
7440-09-7	Potassium	178	U		P
7782-49-2	Selenium	0.396	U		F
7440-22-4	Silver	1.09	U		P
7440-23-5	Sodium	218	B		P
7440-28-0	Thallium	0.792	U	WN	F
7440-62-2	Vanadium	12.1			P
7440-66-6	Zinc	38.2		E	P
	Cyanide	0.577	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

000019

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-3

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):SOIL Lab Sample ID:9101350006

Level (low/med): low Date Received:01/26/91

% Solids: 87.6

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5020		*	P
7440-36-0	Antimony	4.37	U	N	P
7440-38-2	Arsenic	3.00		SN*	F
7440-39-3	Barium	53.0			P
7440-41-7	Beryllium	0.220	B		P
7440-43-9	Cadmium	0.656	U		P
7440-70-2	Calcium	8990			P
7440-47-3	Chromium	9.70			P
7440-48-4	Cobalt	12.5			P
7440-50-8	Copper	18.7			P
7439-89-6	Iron	12700		*	P
7439-92-1	Lead	25.9		N	F
7439-95-4	Magnesium	2160			P
7439-96-5	Manganese	420		N*	P
7439-97-6	Mercury	0.114	U		CV
7440-02-0	Nickel	84.2			P
7440-09-7	Potassium	192	B		P
7782-49-2	Selenium	0.455	U	W	F
7440-22-4	Silver	2.30			P
7440-23-5	Sodium	166	B		P
7440-28-0	Thallium	0.911	U	N	F
7440-62-2	Vanadium	13.1			P
7440-66-6	Zinc	38.2		*	P
	Cyanide	0.571	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

0000020

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-4

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):SOIL Lab Sample ID:9101350007

Level (low/med): low Date Received:01/26/91

% Solids: 84.7

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4650		*	P
7440-36-0	Antimony	3.34	U	N	P
7440-38-2	Arsenic	4.70		N *	F
7440-39-3	Barium	61.4			P
7440-41-7	Beryllium	0.270	B		P
7440-43-9	Cadmium	0.501	U		P
7440-70-2	Calcium	17100			P
7440-47-3	Chromium	1.30	B		P
7440-48-4	Cobalt	4.50	B		P
7440-50-8	Copper	12.6			P
7439-89-6	Iron	12100		*	P
7439-92-1	Lead	10.6		N	F
7439-95-4	Magnesium	3790			P
7439-96-5	Manganese	441		N *	P
7439-97-6	Mercury	0.118	U		CV
7440-02-0	Nickel	10.0			P
7440-09-7	Potassium	136	U		P
7782-49-2	Selenium	0.390	U	W	F
7440-22-4	Silver	0.836	U		P
7440-23-5	Sodium	149	B		P
7440-28-0	Thallium	0.779	U	W	F
7440-62-2	Vanadium	9.70			P
7440-66-6	Zinc	30.0		E	P
	Cyanide	0.590	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

0000021

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BHRB-1

Lab Name:Roy F. Weston, Inc. Contract:5335-02-04

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP288

Matrix (soil/water):WATER Lab Sample ID:9101350008

Level (low/med): low Date Received:01/30/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	123	U		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	4.00	U		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	367	B		P
7440-47-3	Chromium	3.00	U		P
7440-48-4	Cobalt	5.00	U		P
7440-50-8	Copper	4.00	U		P
7439-89-6	Iron	55.0	U		P
7439-92-1	Lead	3.00	U		F
7439-95-4	Magnesium	89.0	U		P
7439-96-5	Manganese	1.00	U		P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	10.0	B		P
7440-09-7	Potassium	815	U		P
7782-49-2	Selenium	2.00	U		F
7440-22-4	Silver	5.40	B		P
7440-23-5	Sodium	767	B		P
7440-28-0	Thallium	4.00	U		F
7440-62-2	Vanadium	4.10	B		P
7440-66-6	Zinc	9.90	B		P
	Cyanide	10.00	U		C

Color Before:BROWN Clarity Before: Texture:FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

0000022

U.S. EPA - CLP

EPA SAMPLE NO. 01

1

INORGANIC ANALYSIS DATA SHEET

TP-1A

Lab Name: WESTON-LIONVILLE Contract: 5335-03-01

Lab Code: WESTON Case No.: CRA SAS No.: SDG No.: CLP935

Matrix (soil/water): SOIL Lab Sample ID: 9012935001

Level (low/med): LOW Date Received: 12/13/90

% Solids: 58.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6650			P
7440-36-0	Antimony	5.8	U		P
7440-38-2	Arsenic	6.3		S	F
7440-39-3	Barium	296			P
7440-41-7	Beryllium	0.61	B		P
7440-43-9	Cadmium	4.2			P
7440-70-2	Calcium	6670			P
7440-47-3	Chromium	162			P
7440-48-4	Cobalt	144			P
7440-50-8	Copper	112			P
7439-89-6	Iron	64800			P
7439-92-1	Lead	121		N*	P
7439-95-4	Magnesium	1820			P
7439-96-5	Manganese	1220		*	P
7439-97-6	Mercury	0.69			CV
7440-02-0	Nickel	896			P
7440-09-7	Potassium	757	B		P
7782-49-2	Selenium	1.8	B	S	F
7440-22-4	Silver	1.4	U	N	P
7440-23-5	Sodium	122	B		P
7440-28-0	Thallium	12.1	U	N	F
7440-62-2	Vanadium	4.4	B		P
7440-66-6	Zinc	310		E*	P
	Cyanide	0.86	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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EPA SAMPLE NO. 01

1

INORGANIC ANALYSIS DATA SHEET

TP-2A

Lab Name: WESTON-LIONVILLE Contract: 5335-03-01

Lab Code: WESTON Case No.: CRA SAS No.: SDG No.: CLP935

Matrix (soil/water): SOIL Lab Sample ID: 9012935002

Level (low/med): LOW Date Received: 12/13/90

% Solids: 77.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	5.2	B		P
7440-38-2	Arsenic	4.4			F
7440-39-3	Barium	130			P
7440-41-7	Beryllium	0.73	B		P
7440-43-9	Cadmium	3.4			P
7440-70-2	Calcium	11000			P
7440-47-3	Chromium	568			P
7440-48-4	Cobalt	146			P
7440-50-8	Copper	338			P
7439-89-6	Iron	26200			P
7439-92-1	Lead	181		N*	P
7439-95-4	Magnesium	3400			P
7439-96-5	Manganese	645		*	P
7439-97-6	Mercury	0.32			CV
7440-02-0	Nickel	1760			P
7440-09-7	Potassium	537	B		P
7782-49-2	Selenium	0.57	B	W	F
7440-22-4	Silver	1.0	U	N	P
7440-23-5	Sodium	89.9	B		P
7440-28-0	Thallium	8.1	U	N	F
7440-62-2	Vanadium	21.8			P
7440-66-6	Zinc	288		E*	P
	Cyanide	0.64	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO. 012

1

INORGANIC ANALYSIS DATA SHEET

TP-2AA

Lab Name: WESTON-LIONVILLE Contract: 5335-03-01

Lab Code: WESTON Case No.: CRA SAS No.: SDG No.: CLP935

Matrix (soil/water): SOIL Lab Sample ID: 9012935003

Level (low/med): LOW Date Received: 12/13/90

% Solids: 93.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9040			P
7440-36-0	Antimony	3.1	U		P
7440-38-2	Arsenic	6.3		S	F
7440-39-3	Barium	93.7			P
7440-41-7	Beryllium	0.77	B		P
7440-43-9	Cadmium	1.9			P
7440-70-2	Calcium	12800			P
7440-47-3	Chromium	287			P
7440-48-4	Cobalt	94.5			P
7440-50-8	Copper	84.1			P
7439-89-6	Iron	18000			P
7439-92-1	Lead	94.0		N*	P
7439-95-4	Magnesium	4460			P
7439-96-5	Manganese	532		*	P
7439-97-6	Mercury	0.18			CV
7440-02-0	Nickel	805			P
7440-09-7	Potassium	444	B		P
7782-49-2	Selenium	0.44	B	W	F
7440-22-4	Silver	0.77	U	N	P
7440-23-5	Sodium	90.0	B		P
7440-28-0	Thallium	8.3	U	N	F
7440-62-2	Vanadium	13.3			P
7440-66-6	Zinc	141		E*	P
	Cyanide	0.53	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO. 013

1

INORGANIC ANALYSIS DATA SHEET

TP-SA

Lab Name: WESTON-LIONVILLE Contract: 5335-03-01

Lab Code: WESTON Case No.: CRA SAS No.: SDG No.: CLP935

Matrix (soil/water): SOIL Lab Sample ID: 9012952002

Level (low/med): LOW Date Received: 12/13/90

% Solids: 81.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10100			P
7440-36-0	Antimony		U		P
7440-38-2	Arsenic	7.1			F
7440-39-3	Barium	74.5			P
7440-41-7	Beryllium	0.51	B		P
7440-43-9	Cadmium	0.70	B		P
7440-70-2	Calcium	1730			P
7440-47-3	Chromium	2.3			P
7440-48-4	Cobalt	15.1			P
7440-50-8	Copper	11.9			P
7439-89-6	Iron	26200			P
7439-92-1	Lead	21.6		N*	P
7439-95-4	Magnesium	1890			P
7439-96-5	Manganese	3600		*	P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	16.2			P
7440-09-7	Potassium	475	B		P
7782-49-2	Selenium	0.46	U	W	F
7440-22-4	Silver	1.1	U	N	P
7440-23-5	Sodium	57.1	B		P
7440-28-0	Thallium	9.2	U	N	F
7440-62-2	Vanadium	9.8	B		P
7440-66-6	Zinc	48.1		E*	P
	Cyanide	0.61	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE No. 01

1

INORGANIC ANALYSIS DATA SHEET

TP-1063

Lab Name: WESTON-LIONVILLE Contract: 5335-03-01

Lab Code: WESTON Case No.: CRA SAS No.: SDG No.: CLP935

Matrix (soil/water): SOIL Lab Sample ID: 9012952003

Level (low/med): LOW Date Received: 12/13/90

% Solids: 88.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6130			P
7440-36-0	Antimony	3.7	B		P
7440-38-2	Arsenic	4.8		N	F
7440-39-3	Barium	84.6			P
7440-41-7	Beryllium	0.42	B		P
7440-43-9	Cadmium	1.5			P
7440-70-2	Calcium	7080			P
7440-47-3	Chromium	216			P
7440-48-4	Cobalt	68.3			P
7440-50-8	Copper	53.3			P
7439-89-6	Iron	19800			P
7439-92-1	Lead	47.2		N*	P
7439-95-4	Magnesium	2860			P
7439-96-5	Manganese	529		*	P
7439-97-6	Mercury	0.23			CV
7440-02-0	Nickel	440			P
7440-09-7	Potassium	655	B		P
7782-49-2	Selenium	0.43	U	W	F
7440-22-4	Silver	1.0	B	N	P
7440-23-5	Sodium	58.1	B		P
7440-28-0	Thallium	8.6	U	N	F
7440-62-2	Vanadium	19.1			P
7440-66-6	Zinc	64.8		E*	P
	Cyanide	0.57	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO. 01

1

INORGANIC ANALYSIS DATA SHEET

WS-1

Lab Name: WESTON-LIONVILLE Contract: 5335-03-01

Lab Code: WESTON Case No.: CRA SAS No.: SDG No.: CLP935

Matrix (soil/water): WATER Lab Sample ID: 9012952004

Level (low/med): LOW Date Received: 12/13/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	123	U		P
7440-36-0	Antimony	49.0	B		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	4.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	307	B		P
7440-47-3	Chromium	3.0	U		P
7440-48-4	Cobalt	5.0	U		P
7440-50-8	Copper	4.0	U		P
7439-89-6	Iron	55.0	U		P
7439-92-1	Lead	3.0	U		F
7439-95-4	Magnesium	89.0	U		P
7439-96-5	Manganese	1.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	815	U		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	648	B		P
7440-28-0	Thallium	4.0	U		F
7440-62-2	Vanadium	4.0	U		P
7440-66-6	Zinc	9.5	B		P
	Cyanide	5.0	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO. 016

1

INORGANIC ANALYSIS DATA SHEET

TP-4C

Lab Name: WESTON-LIONVILLE Contract: 5335-03-01

Lab Code: WESTON Case No.: CRA SAS No.: SDG No.: CLP935

Matrix (soil/water): SOIL Lab Sample ID: 9012972001

Level (low/med): LOW Date Received: 12/13/90

% Solids: 92.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6270			P
7440-36-0	Antimony	72.8			P
7440-38-2	Arsenic	5.0			F
7440-39-3	Barium	71.7			P
7440-41-7	Beryllium	5.2			P
7440-43-9	Cadmium	4.0			P
7440-70-2	Calcium	17400			P
7440-47-3	Chromium	3050			P
7440-48-4	Cobalt	1020			P
7440-50-8	Copper	339			P
7439-89-6	Iron	74000			P
7439-92-1	Lead	178		N*	P
7439-95-4	Magnesium	4060			P
7439-96-5	Manganese	1460		*	P
7439-97-6	Mercury	0.33			CV
7440-02-0	Nickel	1530			P
7440-09-7	Potassium	390	B		P
7782-49-2	Selenium	0.79	B	S	F
7440-22-4	Silver	0.93	U	N	P
7440-23-5	Sodium	101	B		P
7440-28-0	Thallium	7.8	U	N	F
7440-62-2	Vanadium	961			P
7440-66-6	Zinc	103		E*	P
	Cyanide	1.5			C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO. 017

1

INORGANIC ANALYSIS DATA SHEET

TP-3A

Lab Name: WESTON-LIONVILLE Contract: 5335-03-01

Lab Code: WESTON Case No.: CRA SAS No.: SDG No.: CLP935

Matrix (soil/water): SOIL Lab Sample ID: 9012972002

Level (low/med): LOW Date Received: 12/13/90

% Solids: 80.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6710			P
7440-36-0	Antimony	4.3	U		P
7440-38-2	Arsenic	5.2			F
7440-39-3	Barium	65.5			P
7440-41-7	Beryllium	0.85	B		P
7440-43-9	Cadmium	1.8			P
7440-70-2	Calcium	4900			P
7440-47-3	Chromium	36.4			P
7440-48-4	Cobalt	26.4			P
7440-50-8	Copper	36.9			P
7439-89-6	Iron	17600			P
7439-92-1	Lead	111		N*	P
7439-95-4	Magnesium	2030			P
7439-96-5	Manganese	690		*	P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	220			P
7440-09-7	Potassium	278	B		P
7782-49-2	Selenium	0.50	U	W	F
7440-22-4	Silver	1.1	B	N	P
7440-23-5	Sodium	57.8	B		P
7440-28-0	Thallium	9.9	U	N	F
7440-62-2	Vanadium	10.8	B		P
7440-66-6	Zinc	60.5		E*	P
	Cyanide	0.62	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO. 018

1

INORGANIC ANALYSIS DATA SHEET

TP-11A

Lab Name: WESTON-LIONVILLE Contract: 5335-03-01

Lab Code: WESTON Case No.: CRA SAS No.: SDG No.: CLP935

Matrix (soil/water): SOIL Lab Sample ID: 9012972004

Level (low/med): LOW Date Received: 12/13/90

% Solids: 88.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7240			P
7440-36-0	Antimony	3.6	U		P
7440-38-2	Arsenic	3.6			F
7440-39-3	Barium	37.2			P
7440-41-7	Beryllium	0.38	B		P
7440-43-9	Cadmium	0.54	U		P
7440-70-2	Calcium	902			P
7440-47-3	Chromium	3.3			P
7440-48-4	Cobalt	6.9	B		P
7440-50-8	Copper	10.7			P
7439-89-6	Iron	12700			P
7439-92-1	Lead	13.2		N*	F
7439-95-4	Magnesium	1580			P
7439-96-5	Manganese	406		*	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	12.1			P
7440-09-7	Potassium	413	B		P
7782-49-2	Selenium	0.39	U	W	F
7440-22-4	Silver	0.90	U	N	P
7440-23-5	Sodium	36.4	B		P
7440-28-0	Thallium	7.8	U	N	F
7440-62-2	Vanadium	3.9	B		P
7440-66-6	Zinc	29.6		E*	P
	Cyanide	0.56	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

DW-1

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105457001

Level (low/med): LOW Date Received:05/02/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	77.0	U	N E	P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	2.00	U	N	F
7440-39-3	Barium	257		E	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	79400		E	P
7440-47-3	Chromium	3.00	U	*	P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	37.0	U	E	P
7439-92-1	Lead	2.00	U	W N	F
7439-95-4	Magnesium	13100		E	P
7439-96-5	Manganese	2.20	B	E	P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	2310	B		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	13300			P
7440-28-0	Thallium	5.00	U		F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	16.7	B		P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

DW-2

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105457003

Level (low/med): LOW Date Received:05/02/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	77.0	U	N E	P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	2.00	U	N	F
7440-39-3	Barium	261		E	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	80300		E	P
7440-47-3	Chromium	3.00	U	*	P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	37.0	U	E	P
7439-92-1	Lead	2.00	U	W N	F
7439-95-4	Magnesium	13200		E	P
7439-96-5	Manganese	2.00	U	E	P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	1990	B		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	13600			P
7440-28-0	Thallium	5.00	U		F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	21.0			P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-1

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105477001

Level (low/med): LOW Date Received:05/03/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1800		N E	P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	11.4		N	F
7440-39-3	Barium	783		E	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.10	B		P
7440-70-2	Calcium	164000		E	P
7440-47-3	Chromium	21.8		*	P
7440-48-4	Cobalt	95.5			P
7440-50-8	Copper	99.3			P
7439-89-6	Iron	115000		E	P
7439-92-1	Lead	37.3		SN	F
7439-95-4	Magnesium	60100		E	P
7439-96-5	Manganese	9780		E	P
7439-97-6	Mercury	0.490			CV
7440-02-0	Nickel	540			P
7440-09-7	Potassium	6620			P
7782-49-2	Selenium	1.00	U	W	F
7440-22-4	Silver	13.0			P
7440-23-5	Sodium	14700			P
7440-28-0	Thallium	50.0	U	EWN	F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	258			P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-2

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105477002

Level (low/med): LOW Date Received:05/03/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1290		NE	P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	2.80	B	N	F
7440-39-3	Barium	1390		E	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	403000		E	P
7440-47-3	Chromium	3.00	U	*	P
7440-48-4	Cobalt	66.7			P
7440-50-8	Copper	38.9			P
7439-89-6	Iron	103000		E	P
7439-92-1	Lead	17.8		NS	F
7439-95-4	Magnesium	136000		E	P
7439-96-5	Manganese	29900		E	P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	262			P
7440-09-7	Potassium	13100			P
7782-49-2	Selenium	1.00	U	W	F
7440-22-4	Silver	9.10	B		P
7440-23-5	Sodium	15900			P
7440-28-0	Thallium	50.0	U	NE	F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	99.4			P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED-1

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):SOIL Lab Sample ID:9105477004

Level (low/med): LOW Date Received:05/03/91

% Solids: 51.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2290		N E	P
7440-36-0	Antimony	4.99	U		P
7440-38-2	Arsenic	15.9		N	F
7440-39-3	Barium	682		E	P
7440-41-7	Beryllium	0.710	B		P
7440-43-9	Cadmium	4.60			P
7440-70-2	Calcium	5570		E	P
7440-47-3	Chromium	0.788	U	*	P
7440-48-4	Cobalt	78.0			P
7440-50-8	Copper	90.2			P
7439-89-6	Iron	143000		E	P
7439-92-1	Lead	38.2		N	F
7439-95-4	Magnesium	859	B	E	P
7439-96-5	Manganese	1230		E	P
7439-97-6	Mercury	0.194	U		CV
7440-02-0	Nickel	481			P
7440-09-7	Potassium	265	U		P
7782-49-2	Selenium	0.341	U		F
7440-22-4	Silver	10.6		N	P
7440-23-5	Sodium	58.0	B		P
7440-28-0	Thallium	1.70	U		F
7440-62-2	Vanadium	2.10	U		P
7440-66-6	Zinc	388			P
	Cyanide	0.971	U		C

Color Before:BROWN Clarity Before: Texture:FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED-2

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):SOIL Lab Sample ID:9105477005

Level (low/med): LOW Date Received:05/03/91

% Solids: 33.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5510		NE	P
7440-36-0	Antimony	7.61	U		P
7440-38-2	Arsenic	18.7		N	F
7440-39-3	Barium	218		E	P
7440-41-7	Beryllium	0.680	B		P
7440-43-9	Cadmium	2.80			P
7440-70-2	Calcium	9660		E	P
7440-47-3	Chromium	59.3		*	P
7440-48-4	Cobalt	73.6			P
7440-50-8	Copper	94.1			P
7439-89-6	Iron	86500		E	P
7439-92-1	Lead	72.7		N	F
7439-95-4	Magnesium	1900	B	E	P
7439-96-5	Manganese	3440		E	P
7439-97-6	Mercury	0.439			CV
7440-02-0	Nickel	399			P
7440-09-7	Potassium	403	U		P
7782-49-2	Selenium	0.610	B		F
7440-22-4	Silver	9.10		N	P
7440-23-5	Sodium	91.5	B		P
7440-28-0	Thallium	2.56	U	W	F
7440-62-2	Vanadium	3.20	U		P
7440-66-6	Zinc	144			P
	Cyanide	1.47	U		C

Color Before:BROWN Clarity Before: Texture:FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED-3

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):SOIL Lab Sample ID:9105477006

Level (low/med): LOW Date Received:05/03/91

% Solids: 33.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6300		NE	P
7440-36-0	Antimony	8.38	U		P
7440-38-2	Arsenic	16.6		N	F
7440-39-3	Barium	277			P
7440-41-7	Beryllium	0.660	B		P
7440-43-9	Cadmium	2.80			P
7440-70-2	Calcium	7600		E	P
7440-47-3	Chromium	64.0		*	P
7440-48-4	Cobalt	62.3			P
7440-50-8	Copper	89.2			P
7439-89-6	Iron	89000		E	P
7439-92-1	Lead	75.1		N	F
7439-95-4	Magnesium	2080	B	E	P
7439-96-5	Manganese	1800		E	P
7439-97-6	Mercury	0.431			CV
7440-02-0	Nickel	325			P
7440-09-7	Potassium	444	U		P
7782-49-2	Selenium	0.560	B		F
7440-22-4	Silver	9.50		N	P
7440-23-5	Sodium	89.6	B		P
7440-28-0	Thallium	2.32	U	W	F
7440-62-2	Vanadium	3.53	U		P
7440-66-6	Zinc	117			P
	Cyanide	1.49	U		C

Color Before:BROWN Clarity Before: Texture:FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-3

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105541001

Level (low/med): LOW Date Received:05/09/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	209		N E	P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	2.00	U	N	F
7440-39-3	Barium	95.5	B	E	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	36100		N E	P
7440-47-3	Chromium	3.00	U	*	P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	991		E	P
7439-92-1	Lead	2.00	U	W N	F
7439-95-4	Magnesium	6380		E	P
7439-96-5	Manganese	176		E	P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	1150	B		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	4.00	U	N N	P
7440-23-5	Sodium	8480			P
7440-28-0	Thallium	5.00	U		F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	14.7	B		P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-4

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105541002

Level (low/med): LOW Date Received:05/09/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	297		NE	P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	2.00	U	N	F
7440-39-3	Barium	96.5	B	E	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	35500		E	P
7440-47-3	Chromium	3.00	U	*	P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	1090		E	P
7439-92-1	Lead	2.00	U	WN	F
7439-95-4	Magnesium	6310		E	P
7439-96-5	Manganese	164		E	P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	1630	B		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	8400			P
7440-28-0	Thallium	5.00	U		F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	15.2	B		P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-5

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105541003

Level (low/med): LOW Date Received:05/09/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	122	B	NE	P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	2.00	U	N	F
7440-39-3	Barium	116	B	E	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	73300		E	P
7440-47-3	Chromium	3.50	B	*	P
7440-48-4	Cobalt	7.20	B		P
7440-50-8	Copper	7.80	B		P
7439-89-6	Iron	571		E	P
7439-92-1	Lead	2.00	U	WN	F
7439-95-4	Magnesium	11600		E	P
7439-96-5	Manganese	178		E	P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	14.9	B		P
7440-09-7	Potassium	3780	B		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	15800			P
7440-28-0	Thallium	5.00	U	W	F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	46.4			P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-6

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105541004

Level (low/med): LOW Date Received:05/09/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	77.0	U	N E	P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	2.00	U	N	F
7440-39-3	Barium	146	B	E	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	74900		E	P
7440-47-3	Chromium	4.20	B	*	P
7440-48-4	Cobalt	4.40	B		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	537		E	P
7439-92-1	Lead	2.00	U	W N	F
7439-95-4	Magnesium	10200		E	P
7439-96-5	Manganese	228		E	P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	1820	B		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	12500			P
7440-28-0	Thallium	5.00	U	W	F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	14.3	B		P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

SW-7

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105541005

Level (low/med): LOW Date Received:05/09/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	77.0	U	NE	P
7440-36-0	Antimony	37.7	B		P
7440-38-2	Arsenic	2.00	U	N	F
7440-39-3	Barium	155	B	E	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	79300		E	P
7440-47-3	Chromium	3.00	U	*	P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	565		E	P
7439-92-1	Lead	2.00	U	WN	F
7439-95-4	Magnesium	10800		E	P
7439-96-5	Manganese	251		E	P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	8.00	B		P
7440-09-7	Potassium	1800	B		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	12900			P
7440-28-0	Thallium	5.00	U		F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	10.8	B		P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-8

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105541006

Level (low/med): LOW Date Received:05/09/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	77.0	U	N E	P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	2.00	U	N	F
7440-39-3	Barium	152	B	E	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	76600		E	P
7440-47-3	Chromium	3.00	U	*	P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	60.2	B	E	P
7439-92-1	Lead	2.00	U	W N	F
7439-95-4	Magnesium	9540		E	P
7439-96-5	Manganese	6.10	B	E	P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	1490	B		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	10200			P
7440-28-0	Thallium	5.00	U		F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	12.3	B		P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED-4

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):SOIL Lab Sample ID:9105541007

Level (low/med): LOW Date Received:05/09/91

% Solids: 53.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3890		N∈	P
7440-36-0	Antimony	6.81	U		P
7440-38-2	Arsenic	9.00		N	F
7440-39-3	Barium	138		∈	P
7440-41-7	Beryllium	1.10	B		P
7440-43-9	Cadmium	4.90			P
7440-70-2	Calcium	22200		∈	P
7440-47-3	Chromium	441		*	P
7440-48-4	Cobalt	159			P
7440-50-8	Copper	323			P
7439-89-6	Iron	26800		∈	P
7439-92-1	Lead	129		N	F
7439-95-4	Magnesium	3450		∈	P
7439-96-5	Manganese	992		∈	P
7439-97-6	Mercury	1.84			CV
7440-02-0	Nickel	1320			P
7440-09-7	Potassium	361	U		P
7782-49-2	Selenium	0.290	U		F
7440-22-4	Silver	2.90	B	N	P
7440-23-5	Sodium	128	B		P
7440-28-0	Thallium	1.45	U		F
7440-62-2	Vanadium	15.5	B		P
7440-66-6	Zinc	491			P
	Cyanide	0.934	U		C

Color Before:BROWN Clarity Before: Texture:FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED-5

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):SOIL Lab Sample ID:9105541008

Level (low/med): LOW Date Received:05/09/91

% Solids: 15.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4930		N	P
7440-36-0	Antimony	23.1	U		P
7440-38-2	Arsenic	11.1	B	N	F
7440-39-3	Barium	197	B	E	P
7440-41-7	Beryllium	1.22	U		P
7440-43-9	Cadmium	3.65	U		P
7440-70-2	Calcium	20200		E	P
7440-47-3	Chromium	6.30	B	*	P
7440-48-4	Cobalt	11.4	B		P
7440-50-8	Copper	28.0	B		P
7439-89-6	Iron	22400		E	P
7439-92-1	Lead	24.7		N	F
7439-95-4	Magnesium	2080	B	E	P
7439-96-5	Manganese	498		E	P
7439-97-6	Mercury	0.658	U		CV
7440-02-0	Nickel	44.1	B		P
7440-09-7	Potassium	1230	U		P
7782-49-2	Selenium	1.27	U		F
7440-22-4	Silver	4.87	U	N	P
7440-23-5	Sodium	237	B		P
7440-28-0	Thallium	6.37	U		F
7440-62-2	Vanadium	9.74	U		P
7440-66-6	Zinc	214			P
	Cyanide	3.29	U		C

Color Before:BROWN Clarity Before: Texture:FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-9

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105541009

Level (low/med): LOW Date Received:05/09/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	528		NE	P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	3.50	B	N	F
7440-39-3	Barium	119	B	E	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	72100		E	P
7440-47-3	Chromium	14.4		*	P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	11.7	B		P
7439-89-6	Iron	4240		E	P
7439-92-1	Lead	2.00	U	WN	F
7439-95-4	Magnesium	10900		E	P
7439-96-5	Manganese	544		E	P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	72.7			P
7440-09-7	Potassium	8340			P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	42500			P
7440-28-0	Thallium	5.00	U	W	F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	22.4			P
	Cyanide	23.6			C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

SED-7

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):SOIL Lab Sample ID:9105541011

Level (low/med): LOW Date Received:05/09/91

% Solids: 44.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5190		N E	P
7440-36-0	Antimony	7.55	U	N	P
7440-38-2	Arsenic	12.5		N	F
7440-39-3	Barium	129		E	P
7440-41-7	Beryllium	0.520	B		P
7440-43-9	Cadmium	1.90	B		P
7440-70-2	Calcium	9270		E	P
7440-47-3	Chromium	30.8		*	P
7440-48-4	Cobalt	29.6			P
7440-50-8	Copper	31.3			P
7439-89-6	Iron	32300		E	P
7439-92-1	Lead	29.9		N	F
7439-95-4	Magnesium	2600		E	P
7439-96-5	Manganese	855		E	P
7439-97-6	Mercury	0.227	U		CV
7440-02-0	Nickel	131			P
7440-09-7	Potassium	400	U		P
7782-49-2	Selenium	0.369	U	N	F
7440-22-4	Silver	1.59	U	N	P
7440-23-5	Sodium	145	B		P
7440-28-0	Thallium	1.85	U		F
7440-62-2	Vanadium	3.18	U		P
7440-66-6	Zinc	90.5			P
	Cyanide	1.13	U		C

Color Before:BROWN Clarity Before: Texture:FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED-RB

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105541012

Level (low/med): LOW Date Received:05/09/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	77.0	U	N∈	P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	2.00	U	N	F
7440-39-3	Barium	5.00	U	∈	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	295	B	∈	P
7440-47-3	Chromium	3.00	U	✗	P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	46.1	B	∈	P
7439-92-1	Lead	2.00	U	W/N	F
7439-95-4	Magnesium	84.0	U	∈	P
7439-96-5	Manganese	2.00	U	∈	P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	1010	U		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	783	B		P
7440-28-0	Thallium	5.00	U		F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	10.6	B		P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-RB

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP457

Matrix (soil/water):WATER Lab Sample ID:9105541013

Level (low/med): LOW Date Received:05/09/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	77.0	U	NE	P
7440-36-0	Antimony	23.8	B		P
7440-38-2	Arsenic	2.00	U	N	F
7440-39-3	Barium	5.00	U	E	P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium	172	B	E	P
7440-47-3	Chromium	3.00	U	*	P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	39.7	B	E	P
7439-92-1	Lead	2.00	U	WN	F
7439-95-4	Magnesium	84.0	U	E	P
7439-96-5	Manganese	2.00	U	E	P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	1010	U		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	423	B		P
7440-28-0	Thallium	5.00	U		F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	5.50	B		P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MW-1

Lab Name: Roy F. Weston, Inc. Contract: 5335-03-01

Lab Code: WESTON Case No: CRA SAS No.: SDG No.: CLP456

Matrix (soil/water): WATER Lab Sample ID: 9105456001

Level (low/med): LOW Date Received: 05/02/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	193	B		P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	111	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	4.00	U		P
7440-70-2	Calcium	57700			P
7440-47-3	Chromium	3.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	545			P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	9150			P
7439-96-5	Manganese	92.4			P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	1010	U		P
7782-49-2	Selenium	1.00	U	N	F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	3600	B		P
7440-28-0	Thallium	5.00	U	N	F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	56.1		*	P
	Cyanide	10.00	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MW-6

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP456

Matrix (soil/water):WATER Lab Sample ID:9105456002

Level (low/med): LOW Date Received:05/02/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1140			P
7440-36-0	Antimony	25.1	B		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	112	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	4.00	U		P
7440-70-2	Calcium	95200			P
7440-47-3	Chromium	4.50	B		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	9.90	B		P
7439-89-6	Iron	2030			P
7439-92-1	Lead	2.00	U	W	F
7439-95-4	Magnesium	18000			P
7439-96-5	Manganese	9080			P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	1010	U		P
7782-49-2	Selenium	1.00	U	N	F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	22800			P
7440-28-0	Thallium	5.00	U	WN	F
7440-62-2	Vanadium	11.8	B		P
7440-66-6	Zinc	18.4	B	*	P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-7

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP456

Matrix (soil/water):WATER Lab Sample ID:9105456003

Level (low/med): LOW Date Received:05/02/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	971			P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	106	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	4.00	U		P
7440-70-2	Calcium	95000			P
7440-47-3	Chromium	4.60	B		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	8.90	B		P
7439-89-6	Iron	1690			P
7439-92-1	Lead	2.00	U	W	F
7439-95-4	Magnesium	18100			P
7439-96-5	Manganese	9000			P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	1010	U		P
7782-49-2	Selenium	1.00	U	N	F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	22600			P
7440-28-0	Thallium	50.0	U	N	F
7440-62-2	Vanadium	11.4	B		P
7440-66-6	Zinc	18.9	B	W	P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

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Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP456

Matrix (soil/water):WATER Lab Sample ID:9105456004

Level (low/med): LOW Date Received:05/02/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	77.0	U		P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	5.00	U		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	4.00	U		P
7440-70-2	Calcium	495	B		P
7440-47-3	Chromium	3.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	40.0	B		P
7439-92-1	Lead	2.00	U	W	F
7439-95-4	Magnesium	84.0	U		P
7439-96-5	Manganese	5.70	B		P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	1010	U		P
7782-49-2	Selenium	1.00	U	N	F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	930	B		P
7440-28-0	Thallium	5.00	U	N	F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	4.50	B		P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MW-2

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP456

Matrix (soil/water):WATER Lab Sample ID:9105456005

Level (low/med): LOW Date Received:05/02/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2990			P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	4.70	B		F
7440-39-3	Barium	704			P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	4.00	U		P
7440-70-2	Calcium	179000			P
7440-47-3	Chromium	3.00	U		P
7440-48-4	Cobalt	12.2	B		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	88600			P
7439-92-1	Lead	2.00	U	W	F
7439-95-4	Magnesium	38400			P
7439-96-5	Manganese	33700			P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	14.4	B		P
7440-09-7	Potassium	8250			P
7782-49-2	Selenium	1.00	U	WN	F
7440-22-4	Silver	8.40	B	N	P
7440-23-5	Sodium	12700			P
7440-28-0	Thallium	50.0	U	EN	F
7440-62-2	Vanadium	8.00	U		P
7440-66-6	Zinc	26.1		*	P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MW-4

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP456

Matrix (soil/water):WATER Lab Sample ID:9105456006

Level (low/med): LOW Date Received:05/02/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4520			P
7440-36-0	Antimony	31.0	B		P
7440-38-2	Arsenic	2.50	B		F
7440-39-3	Barium	217			P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	4.00	U		P
7440-70-2	Calcium	98400			P
7440-47-3	Chromium	17.2			P
7440-48-4	Cobalt	6.10	B		P
7440-50-8	Copper	24.3	B		P
7439-89-6	Iron	11400			P
7439-92-1	Lead	7.10		S	F
7439-95-4	Magnesium	19500			P
7439-96-5	Manganese	1470			P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	22.6	B		P
7440-09-7	Potassium	5750			P
7782-49-2	Selenium	1.00	U	N	F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	23000			P
7440-28-0	Thallium	5.00	U	NW	F
7440-62-2	Vanadium	8.20	B		P
7440-66-6	Zinc	49.1		*	P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MW-5

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP456

Matrix (soil/water):WATER Lab Sample ID:9105456007

Level (low/med): LOW Date Received:05/02/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	21200			P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	4.20	B		F
7440-39-3	Barium	845			P
7440-41-7	Beryllium	1.40	B		P
7440-43-9	Cadmium	4.00	U		P
7440-70-2	Calcium	113000			P
7440-47-3	Chromium	18.9			P
7440-48-4	Cobalt	41.2	B		P
7440-50-8	Copper	99.6			P
7439-89-6	Iron	52900			P
7439-92-1	Lead	61.2		S	F
7439-95-4	Magnesium	30400			P
7439-96-5	Manganese	7190			P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	81.2			P
7440-09-7	Potassium	6380			P
7782-49-2	Selenium	1.00	U	N	F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	13100			P
7440-28-0	Thallium	5.00	U	NW	F
7440-62-2	Vanadium	16.9	B		P
7440-66-6	Zinc	158		*	P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-3

Lab Name:Roy F. Weston, Inc. Contract:5335-03-01

Lab Code:WESTON Case No:CRA SAS No.: SDG No.:CLP456

Matrix (soil/water):WATER Lab Sample ID:9105456008

Level (low/med): LOW Date Received:05/02/91

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8350			P
7440-36-0	Antimony	19.0	U		P
7440-38-2	Arsenic	7.70	B		F
7440-39-3	Barium	440			P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	4.00	U		P
7440-70-2	Calcium	110000			P
7440-47-3	Chromium	31.6			P
7440-48-4	Cobalt	12.0	B		P
7440-50-8	Copper	53.8			P
7439-89-6	Iron	20200			P
7439-92-1	Lead	9.60		S	F
7439-95-4	Magnesium	24500			P
7439-96-5	Manganese	861			P
7439-97-6	Mercury	0.200	U		CV
7440-02-0	Nickel	40.6			P
7440-09-7	Potassium	5180			P
7782-49-2	Selenium	1.00	U	N	F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	26400			P
7440-28-0	Thallium	5.00	U	NW	F
7440-62-2	Vanadium	9.30	B		P
7440-66-6	Zinc	78.0		*	P
	Cyanide	10.00	U		C

Color Before:COLORLESS Clarity Before:CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Roy F. Weston, Inc. - Lionville Laboratory
Petroleum Hydrocarbons by IR

RFW Batch Number: 9101L328 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 02/01/91 15:03 Page: 1

	Cust ID:	BH5B-1	BH5B-2	BH5B-2	BH5B-2	BH5B-3	BH5A-3
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	2.00	2.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Petroleum Hydrocarbon		4.6 J	55	123 %	131 %	3.3 J	6.2

	Cust ID:	PBLK	PBLK BS
Sample Information	RFW#:	91DHC482-MB1	91DHC482-MB1
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	mg/Kg	mg/Kg
Petroleum Hydrocarbon		4.0 U	102 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Petroleum Hydrocarbons by IR

RFW Batch Number: 9101L288 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 01/29/91 08:12 Page: 1

	Cust ID:	BH-1	BH-1	BH-1	6-1	PBLK	PBLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	002	91DHC473-MB1	91DHC473-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Petroleum Hydrocarbon		10	91 %	90 %	19	4.0 U	104 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Petroleum Hydrocarbons by IR

RFW Batch Number: 9101L350 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 02/05/91 07:59 Page: 1

Sample Information	Cust ID:	BH13-1	BH13-1	BH13-1	BHA-1	BH12-1	SS-1
	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Petroleum Hydrocarbon		5.2	100 %	100 %	4.7 U	4.4 U	34

Sample Information	Cust ID:	BHRB-1	PBLK	PBLK BS	PBLK	PBLK BS	PBLK BSD
	RFW#:	008	91DHC481-MB1	91DHC481-MB1	91DHC484-MB1	91DHC484-MB1	91DHC484-MB1
	Matrix:	WATER	SOIL	SOIL	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/L	mg/Kg	mg/Kg	mg/L	mg/L	mg/L
Petroleum Hydrocarbon		1.1 U	4.0 U	97 %	1.0 U	68 %	80 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Petroleum Hydrocarbons by IR
Report Date: 12/19/90 13:06

RFW Batch Number: 9012L935 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Page: 1

	Cust ID:	TP-1A	TP-1A	TP-1A	TP-2A	TP-2AA	PBLK ✓
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	90DHC426-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	250	250	250	125	125	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Petroleum Hydrocarbon		56000	I	I	21000	20000	3.9 J

	Cust ID:	PBLK BS
Sample Information	RFW#:	90DHC426-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	mg/Kg
Petroleum Hydrocarbon		71 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Petroleum Hydrocarbons by IR

RFW Batch Number: 9012L952 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 12/20/90 09:56 Page: 1

	Cust ID:	TP-8A	TP-8A	TP-8A	TP-8A	TP-10BB	WS-1
Sample Information	RFW#:	002	002 REP	002 MS	002 MSD	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	WATER
	D.F.:	1.00	1.00	1.00	1.00	10.0	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L
Petroleum Hydrocarbon		14	18	58 %	83 %	980	1.0 U

	Cust ID:	PBLK	PBLK BS	PBLK BS	PBLK BS	PBLK	PBLK BS
Sample Information	RFW#:	90DHC428-MB1	90DHC428-MB1	90DHC428-MB2	90DHC428-MB3	90DHC429-MB1	90DHC429-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	WATER	WATER
	D.F.:	1.00	1.00	1.00	2.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L
Petroleum Hydrocarbon		2.5 J	94 %	92 %	95 %	0.39 J	70 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

	Cust ID:	PBLK BS	PBLK BSD	PBLK BS
Sample Information	RFW#:	90DHC429-MB2	90DHC429-MB2	90DHC429-MB3
	Matrix:	WATER	WATER	WATER
	D.F.:	1.00	1.00	2.00
	Units:	mg/L	mg/L	mg/L
Petroleum Hydrocarbon		68 %	78 %	92 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Petroleum Hydrocarbons by IR

RFW Batch Number: 9012L972 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 12/21/90 09:35 Page: 1

	Cust ID:	TP4C	TP3A	TP11A	TP11A	TP11A	PBLK
Sample Information	RFW#:	001	002	004	004 MS	004 MSD	90DHC431-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	50.0	10.0	1.00	2.00	2.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Petroleum Hydrocarbon		5500	1000	26	115 %	118 %	4.0 U

	Cust ID:	PBLK BS
Sample Information	RFW#:	90DHC431-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	mg/Kg
Petroleum Hydrocarbon		101 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Petroleum Hydrocarbons by IR

RFW Batch Number: 9105L456 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000

	Cust ID:	MW-1	MW-6	MW-7	RINSE BLANK	MW-2	MW-2
Sample Information	RFW#:	001	002	003	004	005	005 MS
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Petroleum Hydrocarbon		1.1 U	1.1 U	1.1 U	1.0 U	0.89 J	56 %

	Cust ID:	MW-2	MW-4	MW-5	MW-3	PBLK	PBLK BS
Sample Information	RFW#:	005 MSD	006	007	008	91DHC600-MB1	91DHC600-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Petroleum Hydrocarbon		60 %	1.1 U	1.1 U	1.0 U	1.0 U	100 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Petroleum Hydrocarbons by IR

RFW Batch Number: 9105L477 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000 Report Date: 05/14/91 15:14 Page: 1

	Cust ID:	SW-1	SW-2	SED-1	SED-2	SED-3	PBLK
Sample Information	RFW#:	001	002	004	005	006	91DHC603-MB1
	Matrix:	WATER	WATER	SOIL	SOIL	SOIL	WATER
	D.F.:	2.00	1.00	25.0	2.00	1.00	1.00
	Units:	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L
Petroleum Hydrocarbon		5.9	1.8	6300	950	820	1.0 U

	Cust ID:	PBLK BS	PBLK BSD	PBLK	PBLK BS
Sample Information	RFW#:	91DHC603-MB1	91DHC603-MB1	91DHC602-MB1	91DHC602-MB1
	Matrix:	WATER	WATER	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	mg/L	mg/L	mg/Kg	mg/Kg
Petroleum Hydrocarbon		67 %	52 %	4.8	94 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Petroleum Hydrocarbons by IR

RFW Batch Number: 9105L541 Client: CRA-FREWSBERG Work Order: 5335-03-01-0000

	Cust ID:	SW-3	SW-3	SW-3	SW-4	SW-5	SW-6
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Petroleum Hydrocarbon		1.0 U	58 %	94 %	1.0 U	1.0 U	1.0 U

	Cust ID:	SW-7	SW-8	SED-4	SED-5	SW-9	SED-7
Sample Information	RFW#:	005	006	007	008	009	011
	Matrix:	WATER	WATER	SOIL	SOIL	WATER	SOIL
	D.F.:	1.00	1.00	25.0	1.00	1.00	25.0
	Units:	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg
Petroleum Hydrocarbon		1.0 U	1.0 U	2900	200	1.0 U	8200

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

	Cust ID:	SED-7	SED-7	SED-RB	SW-RB	PBLK	PBLK BS
Sample Information	RFW#:	011 MS	011 MSD	012	013	91DHC608-MB1	91DHC608-MB1
	Matrix:	SOIL	SOIL	WATER	WATER	WATER	WATER
	D.F.:	25.0	25.0	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/L	mg/L	mg/L	mg/L
Petroleum Hydrocarbon		I	I	1.0 U	1.0 U	1.0 U	91 %

	Cust ID:	PBLK	PBLK BS
Sample Information	RFW#:	91DHC609-MB1	91DHC609-MB1
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	mg/Kg	mg/Kg
Petroleum Hydrocarbon		3.6 J	95 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

CRA Consulting Engineers
CONESTOGA-ROVERS & ASSOCIATES
651 Colby Drive, Waterloo, Ontario Canada N2V 1C2

SHIPPED TO (Laboratory name): WESTON ANALYTICAL LIONVILLE, PA (2 OF 2)

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC AIR FREWSBURG

SAMPLER'S SIGNATURE: Andrea P. Kent (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	DW-1 MS/MSD	5/1/91	1000		WATER	2	TCL VOC's
						2	TCL BNA
						1	TCL P/PCB
					w/HNO3	1	TAL METALS
					w/H2SO4	1	TPH
					w/NaOH	1	CN
	DW-2	5/1/91	1015		WATER	2	TCL VOC'S
						2	TCL BNA
						1	TCL P/PCB
					w/HNO3	1	TAL METALS
					w/H2SO4	1	TPH
					w/NaOH	1	CN
				TOTAL NUMBER OF CONTAINERS		16	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 Andrea P. Kent (SIGN)	DATE/TIME 5/1/91 1615	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED-X	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

WHITE – CRA OFFICE COPY
YELLOW – RECEIVING LABORATORY COPY
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

NE 011986

CRA Consulting Engineers
CONESTOGA-ROVERS & ASSOCIATES
651 Colby Drive, Waterloo, Ontario Canada N2V 1C2

SHIPPED TO (Laboratory name):
WESTON ANALYTICAL
LIONVILLE, PA (1 OF 2)

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC AIR FREMSBURG

SAMPLER'S SIGNATURE: Andrea P. Kratz (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	DW-1	5/1/91	1000		WATER	2	TCL VOC's
						2	TCL BNA
						1	TCL P/PCB
					w/HNO3	1	TAL METALS
					w/H2SO4	1	TPH
					w/NaOH	1	CN
	DW-1 MS	5/1/91	1000		WATER	2	TCL VOC'S
						2	TCL BNA
						1	TCL P/PCB
					w/HNO3	1	TAL METALS
					w/H2SO4	1	TPH
					w/NaOH	1	CN
	TRIP BLANK	5/1/91	1300		WATER	2	
				TOTAL NUMBER OF CONTAINERS		18	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] Andrea P. Kratz (SIGN)	DATE/TIME 5/1/91 1615	RECEIVED BY: (2) (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: (3) (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: (4) (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED-X	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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Nº 011985

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SHIPPED TO (Laboratory name): WESTON ANALYTICAL LIONVILLE PA (3 OF 3)

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC AIR - FREEBURG

SAMPLER'S SIGNATURE: (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	MW5	4/30/91	1800		Water	2	TCL VOCs
						1	TCL BNA
						1	TCL P/PCB
					w/ HNO_3	1	TAL Metals
					w/ H_2SO_4	1	TPH
					w/ NaOH	1	CN
	MW3	4/30/91	1930		Water	2	TCL VOCs
						1	TCL BNA
						1	TCL P/PCB
					w/ HNO_3	1	TAL Metals
					w/ H_2SO_4	1	TPH
					w/ NaOH	1	CN
	TRIP Blank	4/30/91	1957		Water	2	TCL VOCs
				TOTAL NUMBER OF CONTAINERS			

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] (SIGN)	DATE/TIME 4/30/91 1600	RECEIVED BY: [2] (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: [3] (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: [4] (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED-X	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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SHIPPED TO (Laboratory name): NESTON ANALTICAL
LIONVILLE PA (1 OF 3)

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC AIR FREWSBURG

SAMPLER'S SIGNATURE: Andrea P. Kent (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	Rinsate Blank	4/30/91	12:15		water	2	TCL VOCs
						1	TCL BNA
						1	TCL P/PCB
					w/ HNO3	1	TAL Metals
					w/ H2SO4	1	TPH
					w/ NaOH	1	CN-
	MW2	4/30/91	1250	MS/MSD	water	6	TCL VOCs
				MS/MSD		3	TCL BNAs
				MS/MSD		3	TCL P/PCBs
				MS/MSD	w/ HNO3	3	TAL Metals
				MS/MSD	w/ H2SO4	3	TPHs
				MS/MSD	w/ NaOH	3	CN-
	MW4	4/30/91	1600		Water	2	TCL VOCs
						1	TCL BNA
						1	TCL P/PCB
					w/ HNO3	1	TAL Metals
					w/ H2SO4	1	TPH
					w/ NaOH	1	CN-
				TOTAL NUMBER OF CONTAINERS		35	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] Andrea P. Kent (SIGN)	DATE/TIME 5/1/91 1600	RECEIVED BY: ② (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: ③ (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: ④ (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED-X	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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SHIPPED TO (Laboratory name): WESTON ANALYTICAL LIONVILLE, PA (2 OF 3)

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VACAIR FREWSBURG

SAMPLER'S SIGNATURE: Andrea P. Kent (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	MW1	4/30/91	9:30		Water	2	TCL VOCs
	MW1					1	TCL BNA
	MW1					1	TCL P/PCB
	MW1				w/HNO3	1	TAL Metals
	MW1				w/H2SO4	1	TPH
	MW1	4/30/91	9:30		w/NaOH	1	CN
	MW6	4/30/91	11:30		Water	2	TCL VOCs
						1	TCL BNA
						1	TCL P/PCB
					w/HNO3	1	TAL Metals
					w/H2SO4	1	TPH
					w/NaOH	1	CN-
	MW7	4/30/91	11:45		Water	2	TCL VOCs
						1	TCL BNA
						1	TCL P/PCB
					w/H2SO4	1	TPH
					w/NaOH	1	CN-
					w/HNO3	1	TAL Metals
				TOTAL NUMBER OF CONTAINERS		21	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] Andrea P. Kent (SIGN)	DATE/TIME 5/1/91 1600	RECEIVED BY: [2] (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: [3] (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: [4] (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED-X	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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SS-1	0-6"	1/28/91	1600	FULL LIST
SS-2	"	"	1610	TAL METALS, CN, TCL PEST.
SS-3	"	"	1625	" " " "
SS-4	"	"	1615	" " " "

SS-4 DUP OF SS-2

BH-12-1	S-4, 6-8'	1/28/91	1430	FULL LIST
BH 13-1	S-4, 7.2-9.0	"	1100	" "
BHA-1	-	-	1200	FULL LIST DUP OF BH13-1

BHTRB-1 RINSE BLANK 1/28/91 0815? FULL SET.

BILL/WAI —
"CRUDE" SAMPLE
SUMMARY FOR LAST
SHIPMENT TO WESTON.
NOTE DUPS.

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SHIPPED TO (Laboratory name): WESTON ANALYTICAL

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC AIR

SAMPLER'S SIGNATURE: (SIGN)

SEQ. Nº	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	SS-3	1/28/91	1625	0-6"	SOIL	1	TAL METALS, CN
	↓	↓	↓	↓	↓	1	TCL PEST ONLY
	SS-4	↓	1615	0-6"	SOIL	1	TAL METALS, CN
	↓	↓	↓	↓	↓	1	TCL PEST ONLY
	BHRB-1	1/28/91	0815	RINSE BLANK	WATER	2	TCL VOA
	↓	↓	↓	↓	↓	2	TCL BNA
						1	PEST/PCB
						1	TAL METALS
						1	CN
						1	TPHC
						13	DUP
				TOTAL NUMBER OF CONTAINERS		14	

ANTICIPATED CHEMICAL HAZARDS: UNKNOWN

RELINQUISHED BY: [1] (SIGN)	DATE/TIME 1/29/91 1700	RECEIVED BY: [2] (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: [3] (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: [4] (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED. EX.	SHIPPED BY: D. OSCAR	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
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SHIPPED TO (Laboratory name): WESTON ANALYTICAL

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC-AIR

SAMPLER'S SIGNATURE: Douglas J. Oscar (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	BH13-1	1/28/91	1100	5-4, 7.2-9.0'	SOIL	1	TCL VOA's
	↓	↓	↓	↓	↓	1	TCL BNA/PEST/ PCB's
						1	TPHC
						1	TAL METALS, CN
	BHA-1		1200	—	SOIL	1	TCL VOA's
	↓		↓	=	↓	1	TCL BNA/PEST/ PCB's
				=		1	TPHC
				=		1	TAL METALS, CN
	BH12-1		1430	5-4, 6-8'	SOIL	1	TCL VOA's
	↓		↓	↓	↓	1	TCL BNA/PEST/ PCB's
						1	TPHC
						1	TAL METALS, CN
	SS-1		1600	0-6"	SOIL	1	TCL VOA's
	↓		↓	↓	↓	1	TCL BNA/PEST/ PCB's
						1	TPHC
						1	TAL METALS, CN
	SS-2		1610	0-6"	SOIL	1	TAL METALS, CN
	↓	↓	↓	↓	↓	1	TCL PEST ONLY
				TOTAL NUMBER OF CONTAINERS		18	

ANTICIPATED CHEMICAL HAZARDS: UNKNOWN

RELINQUISHED BY: [1] Douglas J. Oscar (SIGN)	DATE/TIME 1/29/91 1700	RECEIVED BY: [2] (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: [3] (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: [4] (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED EX	SHIPPED BY: D. OSCAR	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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SHIPPED TO (Laboratory name): WESTON ANALYTICAL

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC-AIR

SAMPLER'S SIGNATURE: Douglas J. Oscar (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	BH-5B-1	1/24/91	1000	S-4, 7.2-9	SOIL	1	TCL VOA's
						1	TCL BNA/PCB/PEST
						1	TPHC
						1	TAL METALS, CN
	BH5B-2	1/24/91	1220	S-5, 9-11	SOIL	1	TCL VOA's
						1	TCL BNA/P/PCB
						1	TPHC
						1	TAL METALS/CN
	BH5B-3	1/24/91	1645	S-4, 7.3-9	SOIL	1	TCL VOA's
						1	TCL BNA/P/PCB
						1	TPHC
						1	TAL METALS/CN
	BH5A-3	1/25/91	1600	S-5, 9-11	SOIL	1	TCL VOA's
						1	TCL BNA/P/PCB
						1	TPHC
						1	TAL METALS+CN
	TRIP BLANK	—	—	—	—	2	TRIP BLANK
				TOTAL NUMBER OF CONTAINERS		18	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] Douglas J. Oscar (SIGN)	DATE/TIME 1/25/91 1440	RECEIVED BY: [2] (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: [3] (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: [4] (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED EX	SHIPPED BY: D. OSCAR	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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SHIPPED TO (Laboratory name): WESTON

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC-AIR

SAMPLER'S SIGNATURE: [signature] (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	BH-1	1/22/91	1500	SS-2, 2-4'	SOIL	1	VOA's TCL
	↓	↓	↓	↓	↓	1	TPHC
	↓	↓	↓	↓	↓	1	TCL BNA/PCB/PEST
	↓	↓	↓	↓	↓	1	TAL METALS/CN
	6-1	1/23/91	1200	1.2-3.5'	SOIL	1	TCL VOAS
	↓	↓	↓	↓	↓	1	TPHC
	↓	↓	↓	↓	↓	1	TCL BNA/PCB/PEST
	↓	↓	↓	↓	↓	1	TAL METALS/CN
				TOTAL NUMBER OF CONTAINERS		8	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] [signature] (SIGN)	DATE/TIME 1/23/91 1530	RECEIVED BY: ② (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: ③ (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: ④ (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED. EX.	SHIPPED BY: D. OSCAR.	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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SHIPPED TO (Laboratory name): WESTON ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC AIR

SAMPLER'S SIGNATURE: (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	TP4C	12/14/90	8:00	TP4C	125ml	1	VOCs TCL
					250ml	1	BNA Pest/PCB TCL
					250ml	1	Metals/CN
					125ml	1	TPH
	TP3A	12/14/90	10:00	TP3A	125ml	1	VOC TCL
					250ml	1	BNA Pest/PCB TCL
					250ml	1	Metals/CN TAL
					125ml	1	TPH
	TP3B	12/14/90	11:30	TP3B	125ml	1	VOCs TCL/can
	TP11A	12/14/90	14:30	TP11A	125ml	1	VOCs
				MS/MSD	250ml	1	BNA Pest/PCB
					250ml	1	Metals/CN
					125ml	1	TPH
X	7day Holding Time						
	MS/MSD on TP11A						
				TOTAL NUMBER OF CONTAINERS		13	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 (SIGN)	DATE/TIME 12/14/90 1545	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED EX.	SHIPPED BY: D. OSCAR	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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SHIPPED TO (Laboratory name): WESTON DONVILLE, PA

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2376

PROJECT NAME: VAC AIR TEST PITS

SAMPLER'S SIGNATURE: (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
1	TP-2A-2	12/12/90	1900	TP2A-2	SOIL	1	125ml/VOC
	TP8A	12/13/90	0915	TP8A	SOIL	1	125ml/VOC
						1	125ml/TPHC
						1	250ml/A BNA/PEST/PCB
						1	250ml/METALS/CN⁻
	TP-10BB	12/13/90	1215	TP-10B-B	SOIL	1	125ml/VOC
						1	125ml/TPHC
						1	250ml/A BNA/PEST/PCB
						1	250ml/METALS/CN⁻
	WS-1	12/13/90	1345	WS-1	WATER	2	40ml/VOCS
						2	1/A BNA
						1	1/A PEST. PCB
						1	1/A METALS w/HNO₃
						1	1/A CN⁻ w/NaOH
						1	1/A TPHC w/H₂SO₄
				TOTAL NUMBER OF CONTAINERS		17	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] (SIGN)	DATE/TIME: 12/13/90 1400	RECEIVED BY: [2] (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME:	RECEIVED BY: [3] (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME:	RECEIVED BY: [4] (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: Fed. Ex.	SHIPPED BY: OSCAR	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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SHIPPED TO (Laboratory name): WESTON - LIONVILLE, PA

CHAIN OF CUSTODY RECORD

PROJECT Nº: R336

PROJECT NAME: VACUUM TEST PITS

SAMPLER'S SIGNATURE: Douglas J. Cox (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	TP-1A	12/11/90	1435	TP-1A	SOIL	1	125ml VOC
						1	125ml TPHC
						1	250ml A BNA/PEST/PCB
						1	250ml METALS/CN-
	TP-2A DUP 12/12/90	12/12/90	1600	TP-2A DUP 12/12/90	SOIL	1	125ml VOC
						1	125ml TPHC
						1	250ml A BNA/PEST/PCB
						1	250ml METALS/CN-
	TP-2AA	12/12/90	1630	TP-2AA	SOIL	1	125ml VOC
						1	125ml TPHC
						1	250ml BNA/PEST/PCB
						1	250ml METALS/CN-
				TOTAL NUMBER OF CONTAINERS		12	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] Douglas J. Cox (SIGN)	DATE/TIME 12/13/90 1900	RECEIVED BY: [2] (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME 12/14/90 1410	RECEIVED BY: [3] (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: [4] (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED. EX.	SHIPPED BY: Tom Woodcock	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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SHIPPED TO (Laboratory name): WADSWORTH/ALERT

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: UAC-AIR FREWSBURG, NY

SAMPLER'S SIGNATURE: _____ (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	WCS-1	5/8/91	1200	DRUMS-COMPOSITE	WATER	4	TCLP VOA
						2	TCLP BNA
						1	TCLP METALS
						1	TOTAL CN
					**	1	TOTAL SULFIDE **
						1	TOTAL PCB's
						1	PH+FLAMABILITY
	** TOTAL SULFIDE TO BE PRESERVED WITH ZINC ACETATE + NAOH.				BY LAB		
	WCS-2	5/8/91	1200	DRUMS-COMPOSITE	SOIL	3	SEE NOTE
	NOTE: ANALYZE SOIL SAMPLE FOR;						
	- TCLP VOC's - FLAMABILITY						
	- TCLP BNA's - REACTIVITY						
	- TCLP METALS - CORROSIVITY						
	- PCB's						
	- PH						
				TOTAL NUMBER OF CONTAINERS		14	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] _____ (SIGN)	DATE/TIME: 5/8/91 1400	RECEIVED BY: (2) _____ (SIGN)
RELINQUISHED BY: [2] _____ (SIGN)	DATE/TIME: _____	RECEIVED BY: (3) _____ (SIGN)
RELINQUISHED BY: [3] _____ (SIGN)	DATE/TIME: _____	RECEIVED BY: (4) _____ (SIGN)
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SHIPPED TO (Laboratory name): WESTON ANALYTICAL LIONVILLE, PA (1 OF 2)

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC AIR FREDSBURG

SAMPLER'S SIGNATURE: Andrew P. Kent (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	SW-1	5/1/91	1200		SURFACE WATER	2	TCL VOC'S
						2	TCL BNA
						1	TCL P/PCB
					w/ HNO_3	1	TAL METALS
					w/ H_2SO_4	1	TPH
					w/ NAOH	1	CN
	SW-2	5/1/91	1745		SURFACE WATER	2	TCL VOC'S
						2	TCL BNA
						1	TCL P/PCB
						1	TAL METALS
						1	TPH
						1	CN
	TRIP BLANK	5/1/91	1830			2	
				TOTAL NUMBER OF CONTAINERS		18	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] Andrew P. Kent (SIGN)	DATE/TIME 5/2/91 1000	RECEIVED BY: [2] (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: [3] (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: [4] (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED-X	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
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SHIPPED TO (Laboratory name): WESTON ANALYTICAL LIONVILLE, PA (2 OF 2)

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC AIR, FREDSBURG

SAMPLER'S SIGNATURE: Andrea P. Knauf (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	SED-1	5/1/91	1230		SOIL	1	TCL VOC's
						1	TCL BNA/P/PCB
						1	~~TCL~~ TPHC
						1	TAL METALS/CN
	SED-2	5/1/91	1900		SOIL	1	TCL VOC's
						1	TCL BNA/P/PCB
						1	TPHC
						1	TAL METALS/CN
	SED-3	5/1/91	1815		SOIL	1	TCL VOC's
						1	TCL BNA/P/PCB
						1	TPHC
						1	TAL METALS/CN
				TOTAL NUMBER OF CONTAINERS		12	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 Andrea P. Knauf (SIGN)	DATE/TIME 5/2/91 1000	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED-X	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
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SHIPPED TO (Laboratory name): WESTON

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC-AIR FREWSBURG, NY

SAMPLER'S SIGNATURE: K Douglas (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	SW-3	5/6/91	0845		WATER	2	TCL VOA
						2	TCL BNA
						1	TCL P/PCB
						1	TPH
						1	TAL METALS
						1	CN
	SW-3 MS/MSD					4	TCL VOA
						4	TCL BNA
						2	TCL P/PCB } MS/MSD
						2	TPH
						2	TAL METALS
						2	CN
	SW-4	5/6/91	1000			2	TAL VOA's
						2	TCL BNA
						1	TCL B/PCB
						1	TPH
						1	TAL METALS
						1	CN
	X	X	X		X	X	
				TOTAL NUMBER OF CONTAINERS		32	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] K Douglas (SIGN)	DATE/TIME 5/7/91 1500	RECEIVED BY: [2] (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: [3] (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: [4] (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

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SHIPPED TO (Laboratory name): WESTON

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: UAC-AIR FREWSBURG, N.Y.

SAMPLER'S SIGNATURE: [signature] (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	SW-5	5/6/91	1200		WATER	2	TCL VOA's
						2	TCL BNA
						1	TCL P/PCB
						1	TPH
						1	TAL METALS
						1	CN
	SW-6		1300			2	TCL VOA's
						2	TCL BNA
						1	TCL P/PCB
						1	TPH
						1	TAL METALS
						1	CN
	SW-7		1330			2	TCL VOA's
						2	TCL BNA
						1	TCL P/PCB
						1	TPH
						1	TAL METALS
						1	CN
	X	X	X		X	X	
				TOTAL NUMBER OF CONTAINERS		24	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: ① [signature] (SIGN)	DATE/TIME 5/7/91 1500	RECEIVED BY: ② (SIGN)
RELINQUISHED BY: ② (SIGN)	DATE/TIME	RECEIVED BY: ③ (SIGN)
RELINQUISHED BY: ③ (SIGN)	DATE/TIME	RECEIVED BY: ④ (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: FED. EX.	SHIPPED BY: D. OSCAR	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
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CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC-AIR FREWSBURG, NY.

SAMPLER'S SIGNATURE: [signature] (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	SED-4	5/6/91	1400		SOIL	1	TCL VOA's
						1	TCL BNA, P/PCB
						1	TPH
						1	TAL METALS, CN
	SED-5		1515			1	TCL VOA's
						1	TCL BNA, P/PCB's
						1	TPH
						1	TAL METALS, CN
	SW-8		1500		WATER	2	TCL VOA's
						2	TCL BNA
						1	TCL P/PCB
						1	TPH
						1	TAL METALS
						1	CN
				TOTAL NUMBER OF CONTAINERS		16	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] [signature] (SIGN)	DATE/TIME 5/7/91, 1500	RECEIVED BY: ② (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: ③ (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: ④ (SIGN)
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CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: UAC - AIR FREWSBURG, NY.

SAMPLER'S SIGNATURE: [signature] (SIGN)

SEQ. Nº	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	SW-9	5/7/91	0900		WATER	2	TCL VOA's
						2	TCL BNA
						1	TCL P/PCB
						1	TPH
						1	TAL METALS
						1	CN
	SED-6		1030		SOIL	1	TCL VOA's
	SED-7		1045			1	TCL VOA's
						1	TCL BNA, P/PCB's
						1	TPH
						1	TAL METALS, CN
	SED-7 MS/MSD					1	TCL VOA's
						1	TCL BNA, P/PCB
						1	TPH
						1	TAL METALS, CN
				TOTAL NUMBER OF CONTAINERS		17	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 [signature] (SIGN)	DATE/TIME 5/7/91 1500	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

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SHIPPED TO (Laboratory name): WESTON

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2326

PROJECT NAME: VAC-AIR FREDSBURG, NY

SAMPLER'S SIGNATURE: [signature] (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	SED-RB	5/7/91	1230	RINSE BLANK	WATER	2	TCL VOA's
						2	TCL BNA
						1	TCL P/PCB
						1	TPH
						1	TAL METALS
						1	CN
	SW-RB		1300	RINSE BLANK		2	TCL VOA's
						2	TCL BNA
						1	TCL P/PCB
						1	TPH
						1	TAL METALS
						1	CN
	SW TRIP BLANK		1330	TRIP BLANK		2	TCL VOA's
				TOTAL NUMBER OF CONTAINERS		18	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: [1] [signature] (SIGN)	DATE/TIME 5/7/91 1500	RECEIVED BY: [2] (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: [3] (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: [4] (SIGN)
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APPENDIX G

ANALYTICAL DATA ASSESSMENT AND VALIDATION

APPENDIX G1

ANALYTICAL DATA ASSESSMENT AND VALIDATION

SOIL SAMPLES - SITE INVESTIGATION

VACAIR ALLOYS, FREWSBURG, NEW YORK

JANUARY 1991

APPENDIX G1

ANALYTICAL DATA ASSESSMENT AND VALIDATION
SOIL SAMPLES - SITE INVESTIGATION
VACAIR ALLOYS, FREWSBURG, NEW YORK
JANUARY 1991

The following details an assessment and validation of analytical results reported by Roy F. Weston, Inc. (Weston) for 26 soil samples collected at the VacAir Alloys Site during December 1990 and January 1991. Soil samples were collected from test pits, boreholes, and surface areas from various locations within the perimeter of the plant site and analyzed for one or more of the following parameters: Target Compound List (TCL) Volatile Organic Compounds (VOCs), TCL Base/Neutral Acid Extractables (BNAs), TCL Pesticides/PCBs, Total Petroleum Hydrocarbons (TPHs), Cyanide, and Target Analyte List (TAL) Metals. The samples submitted for analysis consisted of the following:

Matrix	*Investigative Samples*	*Field Duplicates*	*Rinsate Blanks*	*Trip Blanks*	*Total*
Soil	20	3	2	1	26

Table 1 presents a summary of the analytical methods and parameters as well as a summary sample key.

Evaluation of the data was based on information derived from the finished data sheets, chain of custody forms, blank data, and recovery data for matrix and surrogate spikes. The assessment of analytical and in-house data included checks for: data consistency (by observing comparability of duplicate analyses); adherence to accuracy and precision criteria; transmittal errors; and anomalously high and low parameter values.

The QA/QC criteria by which these data have been assessed are outlined in the methods listed in Table 1 and the documents entitled:

i) "Quality Assurance Project Plan (QAPP)
VacAir Alloys Corporation
Frewsburg, New York
November 1990"

ii) "Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses" (February 1, 1988)
Prepared by the USEPA Data Validation Work Group

iii) "Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses" (July 1, 1988)
Prepared by the USEPA Data Review Work Group

iv) "CLP Organics Data Review and Preliminary Review"
SOP HW-6, Revision No. 6 (March 1989)

Item i) will hereinafter be referred to as the "QAPP". Items ii) and iii) will hereinafter be referred to as the "Guidelines". Item iv) will hereinafter be referred to as the "USEPA Region II Guidelines". The data quality assessment and validation is presented in the subsections which follow:

1. SAMPLE HOLDING TIMES

Based on the criteria outlined in the relevant methods and NYSDEC sample holding time protocols, the following sample holding time requirements have been established for soil samples:

VOCs	7 days from VTSR[1] to analysis
BNAs/Pesticides/PCBs	5 days from VTSR to extraction 40 days from VTSR to analysis
Metals	6 months from collection to analysis
Mercury	26 days from VTSR to analysis
Cyanide	12 days from VTSR to analysis
Total Petroleum Hydrocarbons (TPHs)	26 days from VTSR to analysis

By comparing the sampling date and VTSR of all samples (from the notation appearing on the chain of custody documents) with the reported dates of extraction and/or analysis, it is noted that all samples submitted for pesticide/PCB, cyanide, and total petroleum hydrocarbon determinations were extracted and/or analyzed prior to expiration of their requisite holding times.

However, fifteen samples exceeded their established holding time criteria for their respective analyses as presented in Table 2 . In general, holding time exceedances tend to demonstrate a low bias in results due to potential loss of the analytes of concern. Therefore, those samples which exceeded their requisite holding time criteria require the following qualification of data:

[1] VTSR - Validated Time of Sample Receipt.

i) all positive results should be flagged as estimated (data qualifier J), indicating a low bias in sample results; and

ii) all practical quantitation limits for negative results should be flagged as estimated (data qualifier UJ), indicating a low bias in sample results.

Presented in Table 3 is qualification of the affected sample data.

It should be noted that in accordance with the QAPP, all soil samples were cooled to 4°C(±2°C) after sampling.

2. GC/MS TUNING AND MASS CALIBRATION

The analysis of VOCs and BNAs is based upon gas chromatographic/mass spectrometric (GC/MS) methods. To ensure that the data produced by the GC/MS instruments may be correctly interpreted, the tuning and performance criteria presented in the "Guidelines" have been assessed. These criteria have been established to ensure mass resolution, identification, and to some degree, sensitivity.

In general, a review of the GC/MS tuning and calibration data accompanying the Weston work orders indicated that all tuning and calibration criteria for bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP) were met for the analysis of VOCs and BNAs, respectively. In addition, comparison of the GC/MS tuning and mass calibration summary sheets (Form Vs) with each mass listing indicated that no transcription errors occurred. Therefore, the integrity of the GC/MS tuning and mass calibration data was not suspect.

3. GC/MS CALIBRATION (VOCs AND BNAs)

In order to ensure that satisfactory instrument performance has been established for the analysis of VOCs and BNAs, the laboratory generated calibration data have been assessed. Both initial and continuing data were compared against the compliance requirements established by Methods 89-1 and 89-2 NYSDEC September 1989 ASP and as presented in the "Guidelines". Based on the calibration data reported, the following observations were noted:

A. Initial Calibration

The following samples were analyzed for TCL VOCs at a low level:

BH-1	6-1
BH5B-1	BH5B-2
BH5B-3	BH5A-3
Trip Blank	BH13-1
BHA-1	BH12-1
SS-1	BHRB-1
TP-8A	TP-10BB
WS-1	TP4C
TP3A	TP3B
TP11A	

The following samples were analyzed for TCL VOCs at a medium level:

BH5B-1DL	BH5B-3DL
BH5A-3	TP-1A
TP-1ADL	TP-2A
TP-2ADL	TP-2AA
TP-2AADL	TP-2A-2

Based on recalculation of at least 20 percent of the initial calibration data, it is apparent that all Relative Response Factors (RRFs) and Relative Standard Deviations (RSDs) for all VOCs and BNAs were correctly determined. Upon review of the initial calibration data reported by Weston, it was noted that all criteria for Systems Performance Check Compounds (SPCCs) and Calibration Check Compounds (CCCs) were met for low level VOC and BNA analyses.

However, in the medium level analyses, one SPCC, chloromethane, showed an average RRF of .110 (12/20/90, Instrument I.D. - 5100Y), below the minimum acceptable limit of .300 .

The SPCCs are used to check compound stability which indicates the validity of the initial calibration. Therefore, failure to meet the compliance criteria for these compounds may affect the quantitation of all TCL compounds. Consequently, all sample data generated from an initial calibration which shows outlying SPCC criteria should be qualified as follows:

i) positive results are qualified as estimated (data qualifier J); and

ii) negative (non-detected) results are qualified as estimated (data qualifier J).

On this basis, all associated sample results are qualified as described above. Presented in Table 4 are qualifications of the affected sample data.

In accordance with the "Guidelines", it is recommended that all VOC and BNA data be evaluated by the following criteria:

i) all remaining VOCs and BNAs must demonstrate average RRFs greater than 0.050; and

ii) all remaining VOCs and BNAs must demonstrate RSD values less than 35 percent.

One TCL VOC, 2-butanone, showed an average RRF of 0.040 (on 12/21/90), less than the minimum acceptable limit of 0.050. Qualification of the associated data is performed as follows:

i) positive results for that compound are qualified as estimated (data qualifier J); and

ii) negative results for that compound are qualified as unusable (data qualifier R).

In addition, one VOC (acetone) demonstrated a Relative Standard Deviations (RSDs) greater than the maximum acceptable limit of 35 percent[1] .In accordance with the USEPA Region II Guidelines, the following qualification of data is recommended:

i) if the relative standard deviation (RSD) for any given compound(s) is between 35-50 percent, qualify the associated positive results for those compound(s) as estimated (data - qualifier J);

ii) if the RSD is between 50-90 percent for any given compound(s), qualify the associated positive and non detected results for those compound(s) as estimated (data qualifier J); and

iii) if the RSD for any given compound(s) is greater than 90 percent, qualify the associated positive results for those compound(s) as estimated (data qualifier J) and non-detected results as unusable (data qualifier R).

Qualification of the positive acetone and 2-butanone results as estimated (data qualifier J) is necessary as shown in the following table:

[1] Limit established by NYSDEC September 1989 ASP.

Sample I.D.	Calibration Date	Analysis Date	VOC	RSD	RRF	Concentration (µg/kg)	Qualifier
TP3A	12/19/90	12/19/90	Acetone	52.9	-	100B	J
TP3B	12/19/90	12/19/90	Acetone	52.9	-	71B	J
TP4C	12/19/90	12/19/90	Acetone	52.9	-	220B	J
TP-8A	12/19/90	12/19/90	Acetone	52.9	-	16B	J
TP-10BB	12/19/90	12/19/90	Acetone	52.9	-	110B	J
TP-2A-2	01/29/91	01/30/91	2-Butanone	-	0.04	11000	J
BH-5B-2	01/29/91	01/30/91	Acetone	39.9	-	58B	J
BH-5B-3	01/29/91	01/30/91	Acetone	39.9	-	37B	J
BH-5A-3	01/29/91	01/30/91	Acetone	39.9	-	400B	J
BH-1	01/29/91	01/30/91	Acetone	39.9	-	34B	J
BH-1RE	01/29/91	01/30/91	Acetone	39.9	-	40B	J
6-1	01/29/91	01/30/91	Acetone	39.9	-	22B	J

B Compound was detected in associated laboratory blank.
J Associated value is estimated due to outlying initial calibration data.
RE The associated sample is a reanalysis of BH-1.

B. Continuing Calibration

As a check on the instrument's ability to generate reproducible calibration data, the percent difference (%D) of compound RRFs between the initial calibration and continuing calibration was assessed. In addition, the RRF of a 50 nanogram continuing calibration check standard (RRF50) was evaluated for all SPCCs, CCCs, and remaining TCL compounds. Only compounds which yielded acceptable initial calibration data were evaluated by this criteria.

All continuing calibration criteria for SPCCs and CCCs were met for VOC analyses.

In accordance with the "Guidelines", it is recommended that all VOC and BNA data show RRF50s greater than 0.050. One TCL VOC, 2-butanone, showed an average RRF (0.044, 12/21/90) of less than the minimum acceptable limit of 0.050 . However, the associated data has been previously qualified due to outlying initial calibration criteria as mentioned in Section 3A of this memo.

The remaining non-calibration VOCs showed %Ds less than the maximum acceptable limit of 35 percent[1] . Therefore, qualification of VOC sample data due to outlying continuing calibration data was not required. However, several BNA compounds demonstrated %Ds greater than the maximum acceptable limit of 20 percent[1]. Those compounds are listed below:

[1] Control limits established by NYSDEC September 1989 ASP.

- benzyl alcohol
- benzo(k)fluoranthene
- benzo(g,h,i)perylene
- bis(2-chloroisopropyl)ether
- bis(2-ethylhexyl)phthalate
- 4-bromophenyl-phenylether
- chrysene
- dibenzo(a,h)anthracene
- 3,3'-dichlorobenzidine
- 4,6-dinitro-2-methylphenol
- 2,4-dinitrophenol
- hexachlorobenzene
- indeno(1,2,3-cd)pyrene
- pentachlorophenol
- pyrene

In accordance with the USEPA Region II Guidelines, the following qualification of data is recommended:

i) if the percent difference (%D) for any given compound(s) is between 20-50 percent, qualify the associated positive results for those compound(s) as estimated (data qualifier J);

ii) if the %D is between 50-90 percent for any given compound(s), qualify the associated positive and non detected results for those compound(s) as estimated (data qualifier J); and

iii) if the %D for any given compound(s) is greater than 90 percent, qualify the associated positive results for those compound(s) as estimated (data qualifier J) and non-detected results as unusable (data qualifier R).

A review of the affected sample data yielded non-detected results of the compounds of interest, or the concentrations were below the Practical Quantitation Limits (PQLs), and were previously qualified by the laboratory as estimated. As all %Ds were below 50 percent, qualification of the associated BNA data on the basis of outlying continuing calibration data was not required.

4. INTERNAL STANDARDS PERFORMANCE

In order to ensure that GC/MS sensitivity and response are stable during each analytical sequence, the internal standards performance criteria established by Methods 89-1 and 89-2 in the NYSDEC September 1989 ASP, and as presented in the "Guidelines" have been evaluated for the analysis of VOCs and BNAs. The criteria by which the internal standards have been assessed are as follows:

i) internal standards area counts must not vary by more than a factor of two (-50% to +100%) from the associated calibration standard; and

ii) the retention time of the internal standard must not vary more than $\pm$30 seconds from the associated calibration standard.

Upon review of the internal standard summary sheets (Form VIIIs), one sample (TP4C) demonstrated an outlying internal standard area count for chlorobenzene-d_5, as shown below:

Sample I.D.	*Internal Standard*	*Area*	*Upper Limit*	*Lower Limit*
TP4C	Chlorobenzene-d_5	53775	217934	54484

Qualification of data quantitated by this internal standard as estimated is shown in the following:

Sample I.D.	*Parameter*	*Internal Standard*	*Affected Compounds*	*Concentration (µg/kg)*
TP4C	VOCs	Chlorobenzene-d_5	2-Hexanone	12UJ
			4-Methyl-2-pentanone	12UJ
			1,1,2,2-Tetrachloroethene	6UJ
			Toluene	4J
			Chlorobenzene	6UJ
			Ethyl benzene	2J
			Styrene	6UJ
			Xylenes (total)	8J

J The associated value is estimated due to outlying internal standard area counts.
U Non-detected at the Practical Quantitation Limit (PQL).

All remaining samples yielded internal standard area counts within the upper and lower limits. This indicated a satisfactory level of GC/MS sensitivity was achieved for these analyses. All retention times for internal standards did not vary more than ±30 seconds from the associated calibration standard.

5. PESTICIDES/PCBs - INSTRUMENT PERFORMANCE

Samples submitted for pesticide/PCB determinations were analyzed in accordance with Method 89-3 NYSDEC September 1989 ASP. This method involves solvent extraction of the matrix, analysis of the extract by a gas chromatograph/electron capture detector (GC/ECD) using a packed or wide bore capillary column (primary column analysis), and confirmation by a second packed or wide bore capillary column (secondary column analysis).

A. 4,4'-DDT Retention Time Check

In order to ensure that adequate separation of pesticides/PCBs is achieved, 4,4'-DDT must have a retention time on packed or wide bore capillary columns greater than or equal to 12 minutes. Based upon

review of the standard chromatograms and the data reported on the pesticide/PCB standard summaries (Form IXs), it was established that the retention time of 4,4'-DDT was greater than 12 minutes for all primary and secondary column analyses.

B. 4,4'-DDT/Endrin Degradation Check

In order to measure the amount of decomposition that 4,4'-DDT and endrin undergo when analyzed by the chromatographic system, the percent breakdown of these two compounds is evaluated and compared against the control limit (20 percent) established by the method. Upon review of the pesticide evaluation standard summaries (Form VIIIs), it is noted that the 4,4'-DDT and endrin degradation criteria were met for all primary and secondary column analyses.

C. DBC Retention Time Check

Based on the method protocols, the maximum allowable retention time shift for dibutylchlorendate (DBC) is not to exceed $\pm$1.5 percent for wide-bore capillary columns and $\pm$2.0 for packed columns. Upon review of the DBC retention times reported, it is noted that all investigative samples showed retention time shifts within the method control limits.

6. PESTICIDE/PCB ANALYSES - CALIBRATION GC/ECD

In order to ensure that satisfactory instrument performance was established and maintained during the analyses of pesticides/PCBs, the criteria outlined in Method 89-3 NYSDEC September 1989 ASP, and as presented in the "Guidelines" have been evaluated. These evaluations include assessing the analytical sequence performed, initial calibration data, and continuing calibration data.

A. Analytical Sequence

Upon review of the pesticide/PCB evaluation standard summaries (Form VIIIs), it is noted that the proper 72 hour sequence was adhered to in all cases for primary column analyses. In addition, the evaluation standard mixtures, individual standard mixtures, and multi-response pesticide/PCB standards were analyzed at the frequencies prescribed by the method.

In addition, it should be noted that Retention Time (RT) windows were established for all pesticides/PCBs and properly reported on each Form IX. Upon examination of the Form IXs, it was noted that several

individual standard mixtures showed compounds outside the RT windows as shown in Table 5.

Upon review of the sample chromatograms, it is apparent that all qualitative identifications (based on RT windows) were correctly performed, and qualification of data was not required on this basis.

B. Initial Calibration

Based on the recalculation of approximately 20 percent of the initial calibration data, it is apparent that all calibration factors (CFs) for aldrin, endrin, 4,4'-DDT, and DBC were correctly determined. However, several analytical batches showed RSDs above the maximum control limit of 10 percent for aldrin, endrin, and 4,4'-DDT as shown in the following table:

Analytical Batch	*Column*	*Instrument I.D.*	*Pesticide*	*RSD*
9101L288	SP2100	#14	Aldrin	23.3
			Endrin	13.6
			4,4'-DDT	23.5
9101L328	SP2100	#14	Aldrin	24.0
			Endrin	15.2
			4,4'-DDT	25.2
9101L350	SP2100	#04	Aldrin	17.3
			4,4'-DDT	23.7
9012L935	2250/2401	#03	Aldrin	15.4
	SP2100	#04	4,4'-DDT	10.9
9012L952	2250/2401	#03	Aldrin	15.4
	SP2100	#04	4,4'-DDT	10.9
9012L972	2250/2401	#03	Aldrin	15.4
	SP2100	#04	4,4'-DDT	10.9

Outlying RSD values would have maximum impact on positive results, however all investigative samples showed non-detected results for aldrin, endrin, and 4,4'-DDT. Therefore, qualification of sample data was not required on this basis.

C. Continuing Calibration

In order to measure the linearity of the calibration over a specific time period, the percent difference between the CFs for the individual standard mixtures analyzed at the beginning of each 72 hour sequence and the CFs of the individual standard mixtures analyzed intermittently throughout the 72 hour sequence was evaluated. Several compounds showed percent differences greater than the maximum limit of 15 percent for quantitation and 20 percent for confirmation.

Therefore, in accordance with the "Guidelines", all positive pesticide results for samples showing percent differences greater than the above-mentioned control limits should be qualified as estimated (data qualifier J) due to outlying continuing calibration data. However, the samples associated with the outlying calibration data showed non-detected quantities of the compounds of interest. Therefore, qualification was not required on this basis.

7. SURROGATE SPIKE RECOVERIES

In accordance with Method 89-1, laboratory performance on individual samples is assessed on the basis of surrogate spike recoveries. Fortifying the sample with a known amount of the surrogate prior to sample preparation serves as an indicator of the efficiency of analyte extraction, dissolution, or other matrix modifying techniques. Based on the surrogate recoveries reported, the following observations were noted:

A. TCL VOCs

In accordance with Method 89-1, the surrogate compounds bromofluorobenzene, toluene-d_8, and 1,2-dichloroethane-d_4 were added all samples submitted for the analysis of TCL VOCs prior to analysis to monitor laboratory performance on an individual sample basis. Two samples submitted for TCL VOC determinations and one reanalysis showed outlying surrogate recoveries as shown in the following table:

Sample I.D.	*Matrix*	*Surrogate Compound*	*%Recovery*	*Control Limits*
BH-1	Soil	toluene-d_8	69	81-117
		bromofluorobenzene	64	74-121
		1,2-dichloroethane-d_4	69	70-121
BH-1RE	Soil	toluene-d_8	69	81-117
		bromofluorobenzene	69	74-121
TP4C	Soil	bromofluorobenzene	70	74-121

RE Associated sample is a reanalysis of BH-1

Sample TP4C was reanalyzed within holding times according to method protocols, and yielded surrogate recoveries within the method control limits. Therefore, qualification of sample TP4C on the basis of surrogate spike recoveries was not required. Sample BH-1 was also reanalyzed, but again yielded outlying surrogate recoveries. In addition, a matrix spike duplicate sample (BH5B-2MSD) showed outlying surrogate recoveries. However, as the associated sample showed surrogate recoveries within the method control limits, qualification of the associated data is not required.

Qualification of the remaining data is performed as follows:

i) all positive results should be flagged as estimated (data qualifier J); and

ii) all practical quantitation limits for negative results should be flagged as estimated (data qualifier UJ).

Presented in Table 6 is qualification of the affected sample data.

In addition, five samples (TP-1ADL, TP-2A, TP-2ARE, TP-2AADL, and TP-2A2) had the surrogates diluted out of solution due to high concentrations of the analytes of interest. Therefore, laboratory performance based on surrogate spike recoveries could not be assessed for these samples.

All remaining samples submitted for TCL VOC determinations yielded surrogate recoveries within the control limits, indicating acceptable laboratory performance for these analyses.

B. TCL BNAs

In accordance with Method 89-2, the following surrogate compounds were added to samples for the analyses of TCL BNAs prior to analysis to monitor laboratory performance on an individual sample basis: nitrobenzene-d_5, 2-fluorobiphenyl, p-terphenyl-d_{14}, phenol-d_5,

2-fluorophenol, and 2,4,6-tribromophenol. As stipulated by the Method, only one surrogate compound may show an outlying recovery in the base/neutral or acid fraction, and all surrogate compounds must show recoveries greater than 10 percent. Three samples (TP-1A, TP-2A, TP-2AA) had the surrogates diluted out of solution due to high concentrations of the analytes of interest. Therefore, laboratory performance based on surrogate spike recoveries could not be assessed for these samples. All remaining samples showed surrogate recoveries within the method control limits.

C. PESTICIDES/PCBs

All samples submitted for PCB determinations were fortified with the surrogate compound di-n-butylchlorendate (DBC) prior to sample preparation. Upon review of the Form IIFs and case narratives, it is noted that the DBC recovery for samples BH5B-1 and BH5A-3 could not be determined due to matrix interference, and DBC was diluted out of solution for sample TP-1A. In addition, the surrogate recovery for Method Blank 9101L328 could not be determined due to interference arising from laboratory contamination. Therefore, laboratory performance based on surrogate spike recoveries could not be assessed for these samples.

All remaining investigative samples showed DBC surrogate recoveries within the method control limits.

8. LABORATORY BLANK ANALYSES

The purpose of assessing the results of laboratory blank analyses is to determine the existence and magnitude of sample contamination problems. Laboratory blanks were analyzed at a minimum frequency of one per 20 investigative samples and/or one per analytical batch at the appropriate level of analysis. Based on the laboratory blank data reported, the following are noted:

A. TCL VOCs

According to the "Guidelines", any compound (other than the common laboratory contaminants methylene chloride, acetone, toluene and 2-butanone) detected in the sample which was also detected in any associated laboratory blank must be qualified when the sample concentration is less than five times the blank concentration. For the above-mentioned laboratory contaminants, the results are qualified when the sample concentration is less than ten times the blank concentration. The laboratory blanks containing contamination are listed in the following table:

Analytical Batch	*Blank Lab I.D.*	*Parameter*	*Compound*	*Concentration*	*Matrix*
9101L288	VX007	VOCs	Methylene chloride	7 µg/kg	Soil
			Acetone	13 µg/kg	Soil
9101L328	VX009	VOCs	Methylene chloride	3J µg/kg	Soil
			Acetone	7J µg/kg	Soil
	VX008	VOCs	Methylene chloride	2300 µg/kg(1)	Soil
			Acetone	1500 µg/kg(1)	Soil
	VX007	VOCs	Methylene chloride	7 µg/kg	Soil
			Acetone	13 µg/kg	Soil
	VK017	VOCs	Methylene chloride	2J µg/L	Water
9101L350	VX011	VOCs	Methylene chloride	5 µg/kg	Soil
			Acetone	14 µg/kg	Soil
	VX012	VOCs	Methylene chloride	10 µg/kg	Soil
			Acetone	12 µg/kg	Soil
	VK020	VOCs	Methylene chloride	8 µg/L	Water
9012L935	VW272	VOCs	Methylene chloride	3100 µg/kg(1)	Soil
			Acetone	1300 µg/kg(1)	Soil
			4-Methyl-2-pentanone	200J µg/kg(1)	Soil
			2-Hexanone	210J µg/kg	Soil
			1,1,2,2-Tetrachloroethane	180J µg/kg	Soil
	VY255	VOCs	Methylene chloride	990 µg/kg(1)	Soil
			Acetone	1400 µg/kg(1)	Soil
			Carbon disulfide	240J µg/kg(1)	Soil
9012L952	VX226	VOCs	Methylene chloride	10 µg/kg	Soil
			Acetone	15 µg/kg	Soil
			Carbon disulfide	1J µg/kg	Soil
	VK202	VOCs	Methylene chloride	10 µg/L	Water
			Acetone	12 µg/L	Water
	VX220	VOCs	Methylene chloride	6 µg/kg	Soil
			Acetone	19 µg/kg	Soil
			Trichloroethene	1J µg/kg	Soil

Notes:

(1) Sample concentration was reported for a medium level analysis.

J Concentration is below the Practical Quantitation Limit and therefore estimated.

The associated samples, consisting of twenty-one investigative samples, four reanalyses, one trip blank, and one rinsate blank showed positive concentrations of methylene chloride, acetone and/or carbon disulfide less than ten times the blank concentration; therefore these samples require qualification according to the "Guidelines". Qualification of sample data associated with laboratory blanks containing contamination is done by elevating the practical quantitation limits (PQLs) of the analytes of interest to the level found in the sample and reporting the sample results as non-detected (data qualifier U). In those cases where the sample concentration is less than the PQL, the sample concentration is adjusted to the PQL and reported

as non-detected (data qualifier U). Presented in Table 7 is qualification of the affected sample data.

All remaining blanks showed non-detected quantities of TCL VOCs.

B. TCL BNAs

According to the "Guidelines", any compound (other than the common phthalate esters) detected in the sample which was also detected in any associated laboratory blank must be qualified when the sample concentration is less than five times the blank concentration. For common phthalate esters, the results are qualified when the sample concentration is less than ten times the blank concentration. The blanks containing contamination is listed in the following:

Analytical Batch	*Blank Lab I.D.*	*Parameter*	*Compound*	*Concentration*
9101L288	MB1	BNAs	bis(2-Ethylhexyl)phthalate	90J µg/kg
9101L350	MB1	BNAs	Di-n-butylphthalate	170J µg/kg
			N-nitroso-diphenylamine	62J µg/kg
			2-Chlorophenol	49J µg/kg

J Concentration is below the Practical Quantitation Limit and therefore estimated.

Two investigative samples, BH-1 and 6-1, required qualification due to laboratory blank contamination. Qualification of the data is described in Section 8A of this memo and are presented in Table 7.

All remaining TCL BNA blanks showed non-detected quantities of the compounds of interest, indicating that sample contamination was minimal for these analyses.

C. Pesticides/PCBs

Upon review of the blank data reported by Weston, it was noted that all pesticide/PCB blanks showed non-detected quantities of the same, indicating that the potential for sample contamination attributable to laboratory conditions or procedures was minimal for these analyses.

D. TAL Metals and Cyanide

Upon review of the initial calibration blanks, continuing calibration blanks, and preparation blanks, it is noted that metals or cyanide concentrations were not observed above the CRDL. However, the following metals were detected below the CRDL but above the Instrument Detection Limit (IDL) in several calibration blanks:

- antimony
- calcium
- copper
- iron
- magnesium
- manganese
- nickel
- sodium
- silver
- vanadium
- zinc

The detections of calcium, copper, iron, magnesium, manganese, sodium and zinc are most likely representative of background conditions for the analyte-free water used for the analyses. However qualification of samples associated with laboratory blanks containing antimony, nickel, silver, and vanadium is necessary when the sample result is less than five times the blank result. The blank concentrations of these metals and qualification of the affected data is presented in Table 8.

The remaining laboratory blanks submitted for metals and cyanide determinations showed non-detected quantities of the same, indicating that the potential for contamination attributable to laboratory conditions and/or procedures was minimal during these analyses.

D. Total Petroleum Hydrocarbons (TPHs)

Upon review of the blank data reported, it is noted that three blanks yielded positive concentrations for total petroleum hydrocarbons as shown below:

Analytical Batch	*Blank Lab I.D.*	*Parameter*	*Compound*	*Concentration*	*Matrix*
9012L935	HC426	TPHs	Petroleum hydrocarbons	3.9 J mg/kg	Soil
9012L952	HC428	TPHs	Petroleum hydrocarbons	2.5j mg/kg	Soil
	HC429	TPHs	Petroleum hydrocarbons	.39J mg/L	Water

J - Concentration is below the Practical Quantitation Limit and therefore estimated.

Qualification of samples associated with the laboratory blank containing TPHs is necessary when the sample result is less than five times the blank result. However, the concentration of TPHs in the associated samples was greater than five times the associated blank concentration. Therefore, qualification of the associated data was not required.

The remaining laboratory blanks analyzed for TPHs showed non-detected quantities of the same, indicating that the potential for contamination attributable to laboratory conditions and/or procedures was minimal during these analyses.

9. BLANK SPIKE/BLANK SPIKE DUPLICATE (BS/BSD) ANALYSES

The recoveries of blank spike analyses are used to assess the analytical accuracy as achieved by the laboratory, while the Relative Percent Difference (RPD) between the BS and BSD indicates the analytical precision achieved for that sample. As blank spike analyses are independent of potential matrix effects, they give a true indication of the analytical accuracy achieved by the laboratory for the respective analyses performed. Blank spike analyses were performed for VOC, BNA, and pesticide/PCB determinations at a minimum frequency of one per 20 investigative samples.

Presented in Table 9 is a summary of BS/BSD analyses which demonstrated outlying percent recoveries and/or Relative Percent Differences (RPDs). Failure to achieve acceptable spike recoveries and or RPD values in laboratory/reagent grade water indicates a fundamental problem with the analytical process as performed by the laboratory. It is therefore recommended that all investigative samples analyzed in conjunction with the BS/BSD sample showing outlying spike recoveries and or RPD values should be qualified as follows:

i) If the BS/BSD recoveries for any compound(s) are greater than the established control limits, and the associated sample results for the compound(s) are reported as non-detected,qualification of data is not required.

ii) If the BS/BSD recoveries for any compound(s) are greater than the established control limits , and the associated sample results for those compound(s) are reported as positive, the associated sample results for those compounds are qualified as estimated (data qualifier J), indicating a potential high bias in results.

iii) If the BS/BSD recoveries for any compound(s) are less than the established control limits, all associated sample results (positive or non-detected) for those compounds are qualified as estimated (data qualifier J), indicating a potential low bias in results.

iv) If the RPD between the BS/BSD analyses for any compound is greater than the maximum acceptable control limit, all associated sample results for those compounds are qualified as estimated (data qualifier J), indicating a potential variability among the sample data.

Table 10 presents qualification of the affected sample data. All remaining BS/BSD analyses yielded spike recoveries and RPD values within the established control limits, indicating that acceptable laboratory accuracy and precision were achieved among the remaining respective analyses.

10. MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

The recoveries of MS/MSD analyses are used to assess the analytical recovery on an individual sample basis, while the RPD between the MS and MSD indicates the analytical precision achieved for that sample. MS/MSD analyses were performed at a minimum frequency of one per 20 investigative samples for VOC, BNA and pesticide/PCB determinations. Samples 6-1, BH5B-2, BH13-1, SS-4, and TP11A were analyzed as MS/MSD samples for this round.

A. TCL VOCs

Among the MS/MSD data reported for VOCs, sample TP11A yielded an outlying MS recovery of 155 percent, above the control limits of 62-137 percent. If the MS/MSD recoveries for any compound(s) are greater than the established control limits and the sample results for the compound(s) are reported as positive, the sample results are qualified as estimated, indicating a potential high bias in results. Qualification is shown in the following table:

Sample I.D.	*Parameter*	*Matrix*	*Compound*	*Qualified Sample Concentration (µg/kg)*
TP-11A	VOCs	Soil	Trichloroethene	22J

J Concentration is estimated due to outlying MS/MSD recovery.

All remaining samples submitted for VOC determinations yielded percent recoveries and RPD values within the control limits, indicating that acceptable accuracy and precision were achieved for the respective analyses in the MS/MSD samples.

B. TCL BNAs

One MS/MSD sample (BH13-1) yielded outlying percent recoveries for 2,4-dinitrotoluene and 4-nitrophenol as shown in the following table:

Sample I.D.	*Parameter*	*Compound*	*MS % Recovery*	*MSD % Recovery*	*Control Limits*
BH13-1	BNAs	2,4-Dinitrotoluene	99	111	28-89
		4-Nitrophenol		117	11-114

However, the associated results for these two compounds in BH13-1 are non-detected, and the recoveries indicated a high bias in results. Therefore, qualification of the associated data was not required on this basis.

C. Pesticides/PCBs

Three samples submitted for MS/MSD analyses showed outlying percent recoveries and/or RPD values as shown in the following:

Sample I.D.	Matrix	Compound	Outlying % MS Recovery	Outlying % MSD Recovery	% Recovery Control Limits [1]	Outlying RPD	RPD Control Limit [1]
6-1	Soil	gamma-BHC (Lindane)	31	-	46-127	65	50
		Heptachlor	-	-	-	36	31
		4,4'-DDT	-	-	-	56	50
BH5B-2	Soil	gamma-BHC (Lindane)	235	-	46-127	91	50
		Heptachlor	308	-	35-130	125	31
		Aldrin	244	-	34-132	81	43
		Dieldrin	266	-	31-134	83	38
		Endrin	303	-	42-139	93	45
		4,4'-DDT	253	-	23-134	79	50
SS-4	Soil	gamma-BHC (Lindane)	-	-	-	64	50
		Heptachlor	-	-	-	54	31
		Aldrin	-	-	-	51	43
		Dieldrin	-	-	-	50	38
		Endrin	-	-	-	49	45
		4,4'-DDT	145	-	23-134	111	50

[1] Control limits from Method 89-3 September 1989 ASP.

Qualification of the affected sample data requires all sample results to be qualified as estimated (data qualifier J) due to a potential variability among the sample data as indicated by outlying RPD values. Presented in Table 11 is qualification of the affected sample data.

11. INORGANICS CALIBRATION

Initial calibration of an instrument ensures that it is capable of producing satisfactory quantitative data at the beginning of a series of analyses. Continuing calibration of an instrument demonstrates that the initial calibration is still valid through the entire series of analyses, and ensures calibration accuracy during each analysis. The reported data was checked for calibration frequency, number and type of standards analyzed, and the use of initial and continuing calibration blanks.

For Inductively Coupled Plasma (ICP) analyses, a calibration blank and at least one standard must be run at each wavelength to establish the analytical curve. For Atomic Absorption (AA) and cyanide analyses, a calibration blank and a minimum of three standards must be used in establishing the analytical curve. The initial and continuing calibration verification control limits for inorganic analyses are as follows:

Analytical Method	*Inorganic Species*	*Low Limit*	*High Limit*
ICP/AA	Metals	90	110
Cold Vapor AA	Mercury	80	120
Semi-Automated Spectrophotometric	Cyanide	85	115

By comparing the calibration percent recoveries from Form II (Part I)-IN, it is noted that one continuing calibration yielded a percent recovery of 89.8 for arsenic, marginally outside the control limits of 90-110 percent. As all other continuing calibration percent recoveries showed values within the control limits, this was deemed to have a negligible effect upon the sample data. Therefore, qualification of associated data was not required on this basis.

All remaining initial and continuing calibration standards yielded values within the established control limits.

In accordance with the NYSDEC September 1989 ASP, all specified ICP analytes had at least one standard run at twice the CRDL or twice the IDL, whichever is greater, at the beginning and end of each sample analysis run with a minimum of twice per eight hour working shift. This was performed to verify the linearity near the CRDL for ICP analyses. In addition, to verify linearity near the CRDL for AA analyses, an AA standard was analyzed at the CRDL subsequent to initial verification.

12. INTERFERENCE CHECK SAMPLE - INORGANICS

To verify that proper interelement and background correction factors have been established by the laboratory, the laboratory must analyze an interference check sample prior to and after each analytical sequence. A review of the Form IV-INs revealed that interference check samples were analyzed at the prescribed frequency, and that the percent recovery values were within the established control limits of 80-120 percent.

13. LABORATORY CONTROL SAMPLE ANALYSES

The laboratory control sample serves as a monitor of the overall performance of all steps in the analysis, including the sample preparation. Laboratory control samples were analyzed for metals and cyanide parameters using the same sample preparation, analytical methods, and QA/QC procedures employed for the investigative samples. Upon recalculation of 20 percent of the laboratory control sample recoveries, it is apparent that recoveries were correctly calculated and reported. Based on the inorganic data reported, one laboratory control sample yielded a recovery for lead (1.2 percent) outside the control limits of 80-120 percent (except for antimony and silver). In accordance with NYSDEC September 1989 ASP protocols, these laboratory control samples were reanalyzed and yielded recoveries within the control

limits. Therefore, qualification of the associated data based on laboratory control sample analyses was not required.

14. MATRIX SPIKE(MS) ANALYSES - INORGANICS

In order to evaluate the effects that the matrix may have on the digestion, measurement procedures, and accuracy of a particular analysis, samples are fortified with a known concentration of the analytes of concern and analyzed as matrix spike samples. Matrix spike analyses were performed for metals and cyanide determinations at a minimum frequency of one per 20 investigative samples. For those analytes which yielded MS recoveries outside the established control limits of 75-125 percent[1] , the following qualification of data is recommended:

i) If matrix spike recoveries are less than 30 percent and the associated sample results are less than the detection limit, qualify the data for the affected sample as unusable (data qualifier R).

ii) If the matrix spike recovery falls within the range of 30-74 percent and the associated sample results are less than the detection limit, qualify the data for the affected sample as estimated (data qualifier J), indicating a low bias in results.

iii) If the matrix spike recovery is greater than 125 percent and the associated sample results are greater than the detection limit, qualify the associated the data for the affected sample as estimated (data qualifier J), indicating a high bias in results.

iv) If the matrix spike recovery is greater than 125 percent and the associated sample results are non-detected, qualification of the associated data is not required.

[1] The control limits of 75-125 percent do not apply when the sample concentration exceeds the spike concentration by a factor of four or more.

Two samples yielded MS recoveries outside the established control limits. Qualification of the affected sample data is shown in the following:

Sample I.D. (	*Analyte*	*% MS Recovery*	*Qualified Sample Results (mg/kg)*
BH-1	Antimony	45.6	4.93UJ
	Arsenic	-5.6[1]	18.9R
	Thallium	28.4	.703UR
TP11A	Lead	52.5	13.2J
	Silver	72.3	.90UJ
	Thallium	54.9	7.8UJ

(1) Severe matrix interference resulted in negative absorbances, which when entered into the linear curve caused negative MS recoveries. Therefore the associated value is unusable.
J Associated value is estimated due to outlying MS recoveries.
U Compound is non-detected at the Practical Quantitation Limit.
R Associated value is unusable due to low matrix spike recoveries.

The remaining sample submitted for inorganic MS analyses yielded spike recoveries within the established control limits.

15. DUPLICATE SAMPLE ANALYSES - INORGANICS

The method(s) precision (relative percent difference (RPD) of duplicate analyses) is determined from the analysis of duplicate samples. Duplicate samples were performed for metals and cyanide determinations at a minimum frequency of one per 20 investigative samples.

The duplicate analyses performed for cyanide yielded RPD values less than the maximum allowable limit of 20 percent, indicating an acceptable level of precision was achieved for cyanide determinations. However, among the duplicate data reported for metals, the samples listed in the following table showed RPDs outside the established control limits:

Sample I.D.	*Parameter*	*Analyte*	*Conc. (mg/kg)*	*Duplicate Conc. (mg/kg)*	*CRDL (mg/kg)*	*RPD*
BH-1	Metals	Aluminum	8898	6837	20	26.2
		Arsenic	18.9	21.4	0.5	21.8
		Chromium	2.3B	4.7	0.5	68.6
		Copper	11.9	15.1	.5	23.7
		Iron	21892	15221	5	36.0
		Manganese	400	261.3	0.5	41.9
TP-11A	Metals	Calcium	902	1191	500	27.6
		Lead	11.5	5.7	5	67.1
		Manganese	406	544	0.5	29.1
		Nickel	12.11	16.01	2	27.8
		Zinc	29.58	39.18	0.5	27.9

B The associated value is below the CRDL, but above the IDL.

The high RPD value achieved for chromium may be attributed to the variability of the sample data near or below the CRDL. Therefore, qualification of the chromium result for sample BH-1 was not required. However, the remaining above-mentioned results should be qualified as estimated (data qualifier J) due to a variability among the sample data.

All other investigative samples submitted for inorganic duplicate analyses yielded RPD values less than 20 percent.

16. FIELD QA/QC

The field QA/QC for this sampling event consisted of three field duplicates, two rinsate blanks, and one trip blank. All field QA/QC samples were collected at a minimum frequency of one per 20 investigative samples.

In order to assess the efficacy of sampling device cleansing protocols performed in the field, rinsate blanks were collected and submitted "blind" to the laboratory for analysis. The samples analyzed as rinsate blanks were BHRB-1 and WS-1. Both rinsate blanks showed positive concentrations of methylene chloride. However, these results have been previously qualified due to laboratory blank contamination per Section 8A of this memo. Sample BHRB-1 showed a positive concentration (3J µg/kg) of trichloroethene; however, the sample (BH13-1) collected immediately after the rinsate blank showed a non-detected result. Therefore, no qualification due to rinsate blank contamination was required.

Three field duplicates were taken to assess the aggregate analytical and sampling protocol precision. The field duplicates consisted of the following:

Source	*Sample I.D.*	*Field Duplicate I.D.*
S-4	BH13-1	BHA-1
SS-2	SS-2	SS-4
TP-2A	TP-2A	TP-2AA

The field duplicates demonstrated several discrepancies as shown in Table 12. All field duplicate results listed in Table 12 should be qualified as estimated (data qualifier J) due to a variability among the sample data.

To evaluate the possibility of contamination arising from sample transport, the environment, or shipping, one trip bank was submitted to the laboratory for TCL VOC analysis. The trip blank yielded positive concentrations of methylene chloride and acetone as shown below:

Sample I.D.	*Parameter*	*Matrix*	*Compound*	*Concentration (µg/L)*
Trip Blank	VOCs	Water	Methylene Chloride	4
			Acetone	14

However, the concentration of methylene chloride has been previously qualified as non-detected due to laboratory blank contamination as per Section 8 of this memo. The methylene chloride result for three of the four investigative samples associated with the trip blank have been previously qualified as non-detected as per Section 8 of this memo. The remaining sample has a methylene chloride concentration of 400 µg/L, more than 25 times the trip blank concentration. Therefore, contamination attributable to sample transport, the environment and/or shipping was considered an insignificant factor for this sample.

18. CONCLUSION

Based on the assessment detailed in the foregoing, the data produced by Weston is acceptable for use with the specific qualifications noted herein.

TABLE 1
SUMMARY OF SAMPLE COLLECTION AND ANALYTICAL PROGRAM
VACAIR ALLOYS
JANUARY 1991

Matrix	*Analytical Parameters*	*Methodology (1)*	*Associated Samples*
Soil	TCL VOCs	89-1	TP-1A, TP-2A
	TCL BNAs	89-2	TP-2AA, TP3A
	Pesticides/PCBs	89-3	TP3B, TP4C
	TAL Metals	200 Series CLP-M	TP-8A, TP-10BB
	Cyanide	335.2 CLP-M	TP11A, BH-1
	TPHs	418.1	BH-A1, BH5B-1
			BH5B-2, BH5B-3
			BH5A-3, BH13-1
			6-1, SS-1
Water	TCL VOCs	89-1	WS-1, BHRB-1
	TCL BNAs	89-2	
	Pesticides/PCBs	89-3	
	TAL Metals	200 Series CLP-M	
	Cyanide	335.2 CLP-M	
	TPHs	418.1	
Soil	TCL VOCs	89-1	TP2A-2, TP3B
Soil	Pesticides/PCBs	89-3	SS-2, SS-3
	TAL Metals	200 Series CLP-M	SS-4
	Cyanide	335.2 CLP-M	

Note:
(1) All methods referenced from NYSDEC September 1989 Analytical Services Protocols (ASP).

TABLE 2
SAMPLES WHICH EXCEEDED HOLDING TIME CRITERIA
VACAIR ALLOYS
JANUARY 1991

Sample I.D.	*Parameter*	*Prescribed(1) Holding Time (days)*	*Actual Holding Time (days)*
6-1	Mercury	26	29
BH-1	Mercury	26	29
BH-5B-2MS	Mercury	26	27
BH5A-3	Mercury	26	27
BH5B-1	Mercury	26	27
BH5B-2	Mercury	26	27
BH5B-2RE	Mercury	26	27
BH5B-3	Mercury	26	27
BHRB-1	Mercury	26	27
TP-10BB	BNAs	40(2)	42
TP-1A	VOCs	7	8
TP-2A	VOCs	7	8
TP-2AARE	VOCs	7	8
TP-8A	BNAs	40(2)	42
WS-1	BNAs	40(2)	41

Notes:

(1) All holding times measured from VTSR.

(2) Prescribed holding time from extraction to analysis.

DL Associated sample was analyzed at a dilution due to high concentrations of the analytes of interest.

MS Associated sample is a matrix spike sample.

RE Associated sample is a reextraction.

TABLE 3
QUALIFIED DATA DUE TO HOLDING TIME EXCEEDANCES
VACAIR ALLOYS
JANUARY 1991

Sample I.D.:	*TP-1A*	*TP-2ARE*	*TP-2AADL*
Units:	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*
VOCs			
Chloromethane	43,000UJ	1,700,000UJ	NA
Bromomethane	43,000UJ	1,700,000UJ	NA
Vinyl chloride	43,000UJ	1,700,000UJ	NA
Chloroethane	43,000UJ	1,700,000UJ	NA
Methylene chloride	200,000BJ	8,600,000BJ	6,300,000BJ
Acetone	43,000BJ	2,200,000BJ	1,900,000BJ
Carbon disulfide	21,000UJ	830,000UJ	NA
1,1-Dichloroethene	21,000UJ	830,000UJ	NA
1,1-Dichloroethane	21,000UJ	830,000UJ	NA
1,2-Dichloroethene (total)	E	670,000J	360,000J
Chloroform	21,000UJ	830,000UJ	NA
1,2-Dichloroethane	21,000UJ	830,000UJ	NA
2-Butanone	43,000UJ	1,700,000UJ	NA
1,1,1-Trichloroethane	21,000UJ	830,000UJ	NA
Carbon tetrachloride	21,000UJ	830,000UJ	NA
Vinyl acetate	43,000UJ	1,700,000UJ	NA
Bromodichloromethane	21,000UJ	830,000UJ	NA
1,2-Dichloropropane	21,000UJ	830,000UJ	NA
cis-1,3-Dichloropropene	21,000UJ	17,000,000J	16,000,000J
Trichloroethene	260,000J	830,000UJ	NA
Dibromochloromethane	21,000UJ	830,000UJ	NA
1,1,2-Trichloroethane	21,000UJ	830,000UJ	NA
Benzene	21,000UJ	830,000UJ	NA
trans-1,3-Dichloropropene	21,000UJ	830,000UJ	NA
Bromoform	21,000UJ	830,000UJ	NA
4-Methyl-2-pentanone	43,000UJ	1,700,000UJ	NA
2-Hexanone	43,000UJ	1,700,000UJ	NA
Tetrachloroethene	21,000UJ	830,000UJ	NA
1,1,2,2-Tetrachloroethane	21,000UJ	830,000UJ	NA
Toluene	21,000UJ	830,000UJ	NA
Chlorobenzene	21,000UJ	830,000UJ	NA
Ethyl benzene	21,000UJ	830,000UJ	NA
Styrene	21,000UJ	830,000UJ	NA
Total Xylenes	21,000UJ	830,000UJ	NA
Sample I.D.:	*TP-8A*	*TP-10BB*	*WS-1*
Units:	*(µg/kg)*	*(µg/kg)*	*(µg/L)*
BNAs			
Phenol	440UJ	2000UJ	10UJ
bis(2-Chloroethyl)ether	440UJ	2000UJ	10UJ
2-Chlorophenol	440UJ	2000UJ	10UJ
1,3-Dichlorobenzene	440UJ	2000UJ	10UJ

TABLE 3
QUALIFIED DATA DUE TO HOLDING TIME EXCEEDANCES
VACAIR ALLOYS
JANUARY 1991

Sample I.D.:	*TP-8A*	*TP-10BB*	*WS-1*
Units:	*(µg/kg)*	*(µg/kg)*	*(µg/L)*
BNAs			
1,4-Dichlorobenzene	440UJ	2000UJ	10UJ
Benzyl alcohol	440UJ	2000UJ	10UJ
1,2-Dichlorobenzene	440UJ	2000UJ	10UJ
2-Methylphenol	440UJ	2000UJ	10UJ
bis(2-chloroisopropyl)ether	440UJ	2000UJ	10UJ
4-Methylphenol	440UJ	2000UJ	10UJ
N-nitroso-di-n-propyl-amine	440UJ	2000UJ	10UJ
Hexachloroethane	440UJ	2000UJ	10UJ
Nitrobenzene	440UJ	2000UJ	10UJ
Isophorone	440UJ	2000UJ	10UJ
2-Nitrophenol	440UJ	2000UJ	10UJ
2,4-Dimethylphenol	440UJ	2000UJ	10UJ
Benzoic acid	2200UJ	10,000UJ	50UJ
bis(2-Chlorethoxy)methane	440UJ	2000UJ	10UJ
2,4-Dichlorophenol	440UJ	2000UJ	10UJ
1,2,4-Trichlorobenzene	440UJ	2000UJ	10UJ
Napthalene	440UJ	2000UJ	10UJ
4-Chloroaniline	440UJ	2000UJ	10UJ
Hexachlorobutadiene	440UJ	2000UJ	10UJ
4-Chloro-3-methylphenol	440UJ	2000UJ	10UJ
2-Methylnapthalene	440UJ	2000UJ	10UJ
Hexachlorocyclopentadiene	440UJ	2000UJ	10UJ
2,4,6-Trichlorophenol	440UJ	2000UJ	10UJ
2,4,5-Trichlorophenol	2200UJ	10,000UJ	50UJ
2-Chloronapthalene	440UJ	2000UJ	10UJ
2-Nitroaniline	2200UJ	10,000UJ	50UJ
Dimethylphthalate	440UJ	2000UJ	10UJ
Acenapthylene	440UJ	2000UJ	10UJ
2,6-Dinitrotoluene	440UJ	2000UJ	10UJ
3-Nitroaniline	2200UJ	10,000UJ	50UJ
Acenapthene	440UJ	2000UJ	10UJ
2,4-Dinitrophenol	2200UJ	10,000UJ	50UJ
4-Nitrophenol	2200UJ	10,000UJ	50UJ
Dibenzofuran	440UJ	2000UJ	10UJ
2,4-Dinitrotoluene	440UJ	2000UJ	10UJ
Diethylphthalate	440UJ	2000UJ	10UJ
4-Chlorophenyl-phenylether	440UJ	2000UJ	10UJ
Fluorene	440UJ	2000UJ	10UJ
4-Nitroaniline	2200UJ	10,000UJ	50UJ
4,6-Dinitro-2-methylphenol	2200UJ	10,000UJ	50UJ
N-nitrosodiphenylamine	440UJ	2000UJ	10UJ
4-Bromophenyl-phenylether	440UJ	2000UJ	10UJ

TABLE 3
QUALIFIED DATA DUE TO HOLDING TIME EXCEEDANCES
VACAIR ALLOYS
JANUARY 1991

Sample I.D.:	*TP-8A*	*TP-10BB*	*WS-1*
Units:	*(µg/kg)*	*(µg/kg)*	*(µg/L)*
BNAs			
Hexachlorobenzene	440UJ	2000UJ	10UJ
Pentachlorophenol	2200UJ	10,000UJ	50UJ
Phenanthrene	440UJ	2000UJ	10UJ
Anthracene	440UJ	2000UJ	10UJ
Di-n-butyl phthalate	Note(1)	2000UJ	10UJ
Fluoranthene	440UJ	2000UJ	10UJ
Pyrene	440UJ	2000UJ	10UJ
Butyl benzylphthalate	440UJ	2000UJ	10UJ
3,3'-Dichlorobenzidine	880UJ	4100UJ	20UJ
Benzo(a)anthracene	440UJ	2000UJ	10UJ
Chrysene	440UJ	2000UJ	10UJ
bis(2-Ethylhexyl)phthalate	Note(1)	Note(1)	10UJ
Di-n-octyl phthalate	440UJ	2000UJ	10UJ
Benzo(b)fluoranthene	440UJ	2000UJ	10UJ
Benzo(k)fluoranthene	440UJ	2000UJ	10UJ
Benzo(a)pyrene	440UJ	2000UJ	10UJ
Indeno(1,2,3-cd)pyrene	440UJ	2000UJ	10UJ
Dibenz(a,h)anthracene	440UJ	2000UJ	10UJ
Benzo(g,h,i)perylene	440UJ	2000UJ	10UJ

Sample I.D.:	*6-1*	*BH-1*	*BHRB-1*	*BH5B-1*
Units:	*(µg/kg)*	*(µg/kg)*	*(µg/L)*	*(µg/kg)*
Mercury	.115UJ	.125UJ	.200UJ	.125UJ

Sample I.D.:	*BH5B-2*	*BH5B-2RE*	*BH5B-3*	*BH5A-3*
Units:	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*
Mercury	.124UJ	.124UJ	.114UJ	.134UJ

Notes:

(1) The associated value is below the Practical Quantitation Limit (PQL) and has been previously qualified as estimated by the laboratory.

B Compound was detected in associated laboratory blank.

DL Sample was analyzed at a dilution due to high concentrations of the analytes of interest.

E The concentration for associated compound exceeded the instrument calibration range and was subsequently analyzed at a dilution.

J Associated value is estimated due to holding time exceedances.

NA Sample was not analyzed for the associated compound.

RE Sample was reanalyzed.

U Compound was non-detected at the Practical Quantitation Limit (PQL).

TABLE 4
QUALIFIED VOC DATA DUE TO LOW SPCC RRF VALUE
FOR MEDIUM LEVEL ANALYSES-INITIAL CALIBRATION
VACAIR ALLOYS
JANUARY 1991

Sample I.D.:	*TP-1ADL*	*TP-2A*	*TP-2AA*
Units:	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*
Chloromethane	2100000UJ	1600000UJ	27000UJ
Bromomethane	2100000UJ	1600000UJ	27000UJ
Vinyl chloride	2100000UJ	1600000UJ	5000J
Chloroethane	2100000UJ	1600000UJ	27000UJ
Methylene chloride	5100000BJ	4300000BJ	85000BJ
Acetone	2400000BJ	2400000BJ	93000BJ
Carbon disulfide	500000BJ	330000BJ	5400BJ
1,1-Dichloroethene	1100000UJ	810000UJ	3300J
1,1-Dichloroethane	1100000UJ	810000UJ	13000UJ
1,2-Dichloroethene (total)	2400000J	620000J	400000J
Chloroform	1100000UJ	810000UJ	13000UJ
1,2-Dichloroethane	1100000UJ	810000UJ	13000UJ
2-Butanone	2100000UJ	1600000UJ	27000UJ
1,1,1-Trichloroethane	1100000UJ	810000UJ	13000UJ
Carbon tetrachloride	110000UJ	810000UJ	13000UJ
Vinyl acetate	2100000UJ	1600000UJ	27000UJ
Bromodichloromethane	1100000UJ	810000UJ	13000UJ
1,2-Dichloropropane	1100000UJ	810000UJ	13000UJ
cis-1,3-Dichloropropene	1100000UJ	810000UJ	13000UJ
Trichloroethene	380000J	15000000J	5500000E
Dibromochloromethane	1100000UJ	810000UJ	13000UJ
1,1,2-Trichloroethane	1100000UJ	810000UJ	13000UJ
Benzene	1100000UJ	810000UJ	13000UJ
trans-1,3-Dichloropropene	1100000UJ	810000UJ	13000UJ
Bromoform	1100000UJ	810000UJ	13000UJ
4-Methyl-2-pentanone	2100000UJ	1600000UJ	27000UJ
2-Hexanone	2100000UJ	1600000UJ	27000UJ
Tetrachloroethene	1100000UJ	810000UJ	13000UJ
1,1,2,2-Tetrachloroethane	1100000UJ	810000UJ	13000UJ
Toluene	1100000UJ	810000UJ	13000UJ
Chlorobenzene	1100000UJ	810000UJ	13000UJ
Ethyl benzene	1100000UJ	810000UJ	13000UJ
Styrene	1100000UJ	810000UJ	13000UJ
Total Xylenes	1100000UJ	810000UJ	13000UJ

Notes:

B Compound was detected in the associated laboratory blank.

J Associated value is estimated due to low SPCC RRF value for medium level analyses on an inital calibration.

U Associated value is non-detected at the Practical Quantitation Limit (PQL).

TABLE 5
OUTLYING RETENTION TIME DATA AND POTENTIALLY AFFECTED SAMPLES
VACAIR ALLOYS
JANUARY 1991

Pesticide	*Column (1)*	*Retention Time (RT) (minutes)*	*RT Window (minutes)*	*Date/Time of Analysis*		*Potentially Affected Samples*
Methoxychlor	2250/2401	24.54	24.42-24.52	02/22/91	01:20	BH13-1, BHA-1, BH12-1, SS-1, SS-2
Endrin	SP2100	8.83	8.77-8.81	02/22/91	00:49	BH13-1, BHA-1, BH12-1, SS-1, SS-2
Endrin ketone	SP2100	14.57	14.49-14.55	02/22/91	00:49	BH13-1, BHA-1, BH12-1, SS-1, SS-2
4,4'-DDT	2250/2401	13.05	12.98-13.04	01/23/91	11:26	TP-1A, TP-2A, TP-2AA
Methoxychlor	2250/2401	24.79	24.65-24.75	01/23/91	11:26	TP-1A, TP-2A, TP-2AA
Endosulfan sulfate	2250/2401	16.61	16.56-16.60	01/23/91	19:02	TP-1A, TP-2A, TP-2AA
Aldrin	SP2100	5.58	5.53-5.57	01/23/91	23:16	TP-1A, TP-2A, TP-2AA
Endosulfan II	SP2100	9.04	8.97-9.03	01/23/91	23:16	TP-1A, TP-2A, TP-2AA
4,4'-DDT	SP2100	12.67	12.57-12.63	01/23/91	23:16	TP-1A, TP-2A, TP-2AA
Methoxychlor	SP2100	18.34	18.19-18.29	01/23/91	23:16	TP-1A, TP-2A, TP-2AA
Endrin	SP2100	8.89	8.83-8.87	01/23/91	14:39	TP-2A-2, TP-8A, TP-10BB, WS-1 TP4C, TP3A, TP3B, TP11A
Endosulfan sulfate	SP2100	11.48	11.41-11.47	01/23/91	14:39	TP-2A-2, TP-8A, TP-10BB, WS-1 TP4C, TP3A, TP3B, TP11A
Endrin ketone	SP2100	14.64	14.56-14.62	01/23/91	14:39	TP-2A-2, TP-8A, TP-10BB, WS-1 TP4C, TP3A, TP3B, TP11A
Heptachlor epoxide	SP2100	5.58	5.53-5.57	01/23/91	23:16	TP-2A-2, TP-8A, TP-10BB, WS-1 TP4C, TP3A, TP3B, TP11A
Endosulfan II	SP2100	9.04	8.97-9.03	01/23/91	23:16	TP-2A-2, TP-8A, TP-10BB, WS-1 TP4C, TP3A, TP3B, TP11A
4,4'-DDT	SP2100	12.67	12.57-12.63	01/23/91	23:16	TP-2A-2, TP-8A, TP-10BB, WS-1 TP4C, TP3A, TP3B, TP11A
Methoxychlor	SP2100	18.34	18.19-18.29	01/23/91	23:16	TP-2A-2, TP-8A, TP-10BB, WS-1 TP4C, TP3A, TP3B, TP11A
Methoxychlor	2250/2401	13.05	12.98-13.04	01/23/91	11:26	TP-2A-2, TP-8A, TP-10BB, WS-1
Endrin ketone	2250/2401	24.79	24.65-24.75	01/23/90	11:26	TP-2A-2, TP-8A, TP-10BB, WS-1
Endosulfan sulfate	2250/2401	16.61	16.56-16.60	01/23/91	19:02	TP-2A-2, TP-8A, TP-10BB, WS-1 TP4C, TP3A, TP3B, TP11A
4,4'-DDT	2250/2401	13.05	12.98-13.04	01/23/91	11:26	TP4C, TP3A, TP3B, TP11A
Methoxychlor	2250/2401	24.79	24.65-24.75	01/23/91	11:26	TP4C, TP3A, TP3B, TP11A

TABLE 5
OUTLYING RETENTION TIME DATA AND POTENTIALLY AFFECTED SAMPLES
VACAIR ALLOYS
JANUARY 1991

Pesticide	*Column (1)*	*Retention Time (RT) (minutes)*	*RT Window (minutes)*	*Date/Time of Analysis*		*Potentially Affected Samples*
Endrin	SP2100	8.89	8.83-8.87	01/24/91	11:11	TP4C, TP3A, TP3B, TP11A
Endrin ketone	SP2100	14.64	14.56-14.62	01/24/91	11:11	TP4C, TP3A, TP3B, TP11A
Endrin	SP2100	8.89	8.83-8.87	01/25/91	00:07	TP4C, TP3A, TP3B, TP11A
Endrin ketone	SP2100	14.64	14.56-14.62	01/25/91	00:07	TP4C, TP3A, TP3B, TP11A

Notes:
(1) Column 2250/2401 is for primary column analysis.
Column SP2100 is for secondary (confirmational) column analysis.

TABLE 6
QUALIFIED DATA DUE TO OUTLYING
SURROGATE SPIKE RECOVERIES
VACAIR ALLOYS
JANUARY 1991

Sample I.D.:	*BH-1*	*BH-1RE*
Units:	*(µg/kg)*	*(µg/kg)*
Compound		
Chloromethane	12UJ	13UJ
Bromomethane	12UJ	13UJ
Vinyl chloride	12UJ	13UJ
Chloroethane	12UJ	13UJ
Methylene chloride	60BJ	53BJ
Acetone	Note(1)	Note(1)
Carbon disulfide	6UJ	6UJ
1,1-Dichloroethene	6UJ	6UJ
1,1-Dichloroethane	6UJ	6UJ
1,2-Dichloroethene (total)	6UJ	6UJ
Chloroform	6UJ	6UJ
1,2-Dichloroethane	6UJ	6UJ
2-Butanone	12UJ	13UJ
1,1,1-Trichloroethane	6UJ	6UJ
Carbon tetrachloride	6UJ	6UJ
Vinyl acetate	12UJ	13UJ
Bromodichloromethane	6UJ	6UJ
1,2-Dichloropropane	6UJ	6UJ
cis-1,3-Dichloropropene	6UJ	6UJ
Trichloroethene	14J	14J
Dibromochloromethane	6UJ	6UJ
1,1,2-Trichloroethane	6UJ	6UJ
Benzene	6UJ	6UJ
trans-1,3-Dichloropropene	6UJ	6UJ
Bromoform	6UJ	6UJ
4-Methyl-2-pentanone	12UJ	13UJ
2-Hexanone	12UJ	13UJ
Tetrachloroethene	6UJ	6UJ
1,1,2,2-Tetrachloroethane	6UJ	6UJ
Toluene	6UJ	6UJ
Chlorobenzene	6UJ	6UJ
Ethyl benzene	6UJ	6UJ
Styrene	6UJ	6UJ
Total Xylenes	6UJ	6UJ

Notes:
(1) Previously qualified due to outlying initial calibration data.
B Compound was detected in the associated laboratory blank.
J Associated value is estimated due to outlying surrogate spike recoveries.
U Associated value is non-detected at the practical quantitation limit (PQL).

TABLE 7
QUALIFIED DATA DUE TO LABORATORY BLANK CONTAMINATION
VACAIR ALLOYS
JANUARY 1991

Sample I.D.	Parameter	Compound	Associated Blank Concentration	Sample Dilution	Sample Concentration	Units	Qualified Sample Results	Units
BH-1	VOCs	Methylene chloride	7	1.00	60B	µg/kg	60U	µg/kg
		Acetone	13	1.00	34B	µg/kg	34U	µg/kg
BH-1RE	VOCs	Methylene chloride	7	1.02	53B	µg/kg	53U	µg/kg
		Acetone	13	1.02	40B	µg/kg	40U	µg/kg
6-1	VOCs	Methylene chloride	7	1.00	65B	µg/kg	65U	µg/kg
		Acetone	13	1.00	22B	µg/kg	22U	µg/kg
BH5B-1	VOCs	Methylene chloride	3J	0.98	24B	µg/kg	24U	µg/kg
		Acetone	7J	0.98	16B	µg/kg	16U	µg/kg
BH5B-2	VOCs	Methylene chloride	13	1.00	56B	µg/kg	56U	µg/kg
	VOCs	Acetone	7	1.00	58B	µg/kg	58U	µg/kg
BH5B-3	VOCs	Methylene chloride	13	0.98	50B	µg/kg	50U	µg/kg
		Acetone	7	0.98	37B	µg/kg	37U	µg/kg
Trip Blank	VOCs	Methylene chloride	2J	1.00	4JB	µg/L	5U	µg/L
BH13-1	VOCs	Methylene chloride	5	1.00	35B	µg/kg	35U	µg/kg
		Acetone	14	1.00	29B	µg/kg	29U	µg/kg
BHA-1	VOCs	Methylene chloride	5	1.00	34B	µg/kg	34U	µg/kg
		Acetone	14	1.00	43B	µg/kg	43U	µg/kg
BH12-1	VOCs	Methylene chloride	5	1.00	28B	µg/kg	28U	µg/kg
		Acetone	14	1.00	33B	µg/kg	33U	µg/kg
SS-1	VOCs	Methylene chloride	10	1.00	82B	µg/kg	82U	µg/kg
		Acetone	12	1.00	19B	µg/kg	19U	µg/kg
BHRB-1	VOCs	Methylene chloride	8	1.00	11B	µg/L	11U	µg/L
TP-1A	VOCs	Acetone	1300	25.00	43000B	µg/kg	43000U	µg/kg
TP-1ADL	VOCs	Methylene chloride	990	1250.00	5100000B	µg/kg	5100000U	µg/kg
		Acetone	1400	1250.00	2400000B	µg/kg	2400000U	µg/kg
		Carbon disulfide	240J	1250.00	500000JB	µg/kg	500000UJ	µg/kg
TP-2A	VOCs	Methylene chloride	990	1250.00	4300000B	µg/kg	4300000U	µg/kg
		Acetone	1400	1250.00	2400000B	µg/kg	2400000U	µg/kg
		Carbon disulfide	240J	1250.00	330000JB	µg/kg	330000UJ	µg/kg
TP-2ARE	VOCs	Methylene chloride	3100	1280.00	8600000B	µg/kg	8600000U	µg/kg
		Acetone	1300	1280.00	2200000B	µg/kg	2200000U	µg/kg
TP-2AA	VOCs	Methylene chloride	990	25.00	85000B	µg/kg	85000U	µg/kg
		Acetone	1400	25.00	93000B	µg/kg	93000U	µg/kg
		Carbon disulfide	240J	25.00	5400JB	µg/kg	5400UJ	µg/kg
TP-2AADL	VOCs	Methylene chloride	3100	1250.00	6300000B	µg/kg	6300000U	µg/kg

TABLE 7
QUALIFIED DATA DUE TO LABORATORY BLANK CONTAMINATION
VACAIR ALLOYS
JANUARY 1991

Sample I.D.	Parameter	Compound	Associated Blank Concentration	Sample Dilution	Sample Concentration	Units	Qualified Sample Results	Units
		Acetone	1300	1250.00	1900000B	µg/kg	1900000U	µg/kg
TP-2A-2	VOCs	Methylene chloride	3100	61.00	280000B	µg/kg	280000U	µg/kg
		Acetone	1300	61.00	46000JB	µg/kg	46000UJ	µg/kg
TP-8A	VOCs	Methylene chloride	10	1.00	33B	µg/kg	33U	µg/kg
		Acetone	15	1.00	16B	µg/kg	16U	µg/kg
		Carbon disulfide	1J	1.00	1JB	µg/kg	5UJ	µg/kg
TP-10BB	VOCs	Methylene chloride	10	0.98	48B	µg/kg	48U	µg/kg
		Acetone	15	0.98	110B	µg/kg	110U	µg/kg
WS-1	VOCs	Methylene chloride	10	1.00	2JB	µg/L	5UJ	µg/L
TP4C	VOCs	Methylene chloride	10	0.98	32B	µg/kg	32U	µg/kg
TP3A	VOCs	Methylene chloride	10	0.98	30B	µg/kg	30U	µg/kg
		Acetone	15	0.98	100B	µg/kg	100U	µg/kg
		Carbon disulfide	1J	0.98	2JB	µg/kg	5U	µg/kg
TP3B	VOCs	Methylene chloride	10	0.98	32B	µg/kg	32U	µg/kg
		Acetone	15	0.98	71B	µg/kg	71U	µg/kg
TP11A	VOCs	Methylene chloride	10	1.00	34B	µg/kg	34U	µg/kg
		Acetone	15	1.00	44B	µg/kg	44U	µg/kg
		Carbon disulfide	1J	1.00	1JB	µg/kg	5UJ	µg/kg
BH13-1	BNAs	Di-n-butyl phthalate	170J	1.00	50JB	µg/kg	50UJ	µg/kg
BHA-1	BNAs	Di-n-butyl phthalate	170J	1.00	58JB	µg/kg	58UJ	µg/kg
SS-1	BNAs	Di-n-butyl phthalate	170J	1.00	110JB	µg/kg	110UJ	µg/kg
BH-1	BNAs	bis(2-Ethylhexyl)phthalate	90J	1.11	120JB	µg/kg	120UJ	µg/kg
6-1	BNAs	bis(2-Ethylhexyl)phthalate	90J	1.11	78JB	µg/kg	78UJ	µg/kg

Notes:
- B Compound was detected in the associated laboratory blank.
- DL Associated sample was analyzed at a dilution.
- J Associated value is below the PQL, and therefore estimated.
- RE Associated value is a reanalysis.
- U Associated compound is non-detected due to laboratory blank contamination.

TABLE 8
QUALIFIED METALS DATA DUE TO LABORATORY BLANK CONTAMINATION
VACAIR ALLOYS
JANUARY 1991

Sample I.D.	*Analyte*	*Calibration Blank Concentration*	*Units*	*Qualified Sample Concentration*	*Units*
BH-1	Nickel	8.1B	µg/kg	15.4U	µg/kg
	Vanadium	39.9B	µg/kg	12.5U	µg/kg
6-1	Vanadium	39.9B	µg/kg	8.00U	µg/kg
BH5B-1	Nickel	8.1B	µg/kg	9.20U	µg/kg
	Vanadium	39.9B	µg/kg	9.60U	µg/kg
BH5B-2	Nickel	8.1B	µg/kg	8.90U	µg/kg
	Vanadium	39.9B	µg/kg	8.60U	µg/kg
BH-5B-3	Vanadium	39.9B	µg/kg	9.70U	µg/kg
BH5A-3	Nickel	8.1B	µg/kg	8.10U	µg/kg
	Vanadium	39.9B	µg/kg	11.0U	µg/kg
BH13-1	Nickel	8.1B	µg/kg	12.6U	µg/kg
	Vanadium	39.9B	µg/kg	9.70U	µg/kg
BHA-1	Nickel	8.1B	µg/kg	16.5U	µg/kg
	Vanadium	39.9B	µg/kg	9.80U	µg/kg
BH12-1	Nickel	8.1B	µg/kg	8.50U	µg/kg
	Vanadium	39.9B	µg/kg	10.3U	µg/kg
SS-1	Nickel	8.1B	µg/kg	25.7U	µg/kg
	Vanadium	39.9B	µg/kg	15.0U	µg/kg
SS-2	Nickel	8.1B	µg/kg	11.1U	µg/kg
	Vanadium	39.9B	µg/kg	12.1U	µg/kg
SS-3	Vanadium	39.9B	µg/kg	13.1U	µg/kg
SS-4	Nickel	8.1B	µg/kg	10.0U	µg/kg
	Vanadium	39.9B	µg/kg	9.7U	µg/kg
BHRB-1	Nickel	8.1B	µg/L	10.0U	µg/L
	Vanadium	39.9B	µg/L	04.1U	µg/L
TP-1A	Antimony	25.8B	µg/kg	5.80U	µg/kg
	Vanadium	6.9B	µg/kg	4.40U	µg/kg
TP-2A	Antimony	25.8B	µg/kg	5.20U	µg/kg
	Vanadium	6.9B	µg/kg	21.8U	µg/kg
TP-2AA	Vanadium	6.9B	µg/kg	13.3U	µg/kg
TP-8A	Vanadium	6.9B	µg/kg	09.8U	µg/kg
TP-10BB	Antimony	25.8B	µg/kg	03.7U	µg/kg
	Silver	6.3B	µg/kg	01.0U	µg/kg
	Vanadium	6.9B	µg/kg	19.1U	µg/kg
WS-1	Antimony	25.8B	µg/L	49.0U	µg/L
TP4C	Antimony	25.8B	µg/kg	72.8U	µg/kg
TP3A	Silver	6.3B	µg/kg	01.1U	µg/kg
	Vanadium	6.9B	µg/kg	10.8U	µg/kg
TP11A	Vanadium	6.9B	µg/kg	03.9U	µg/kg

Notes:

B Associated value is below the Contract Required Detection Limit, but above the Instrument Detection Limit.

U Compound was non-detected due to laboratory blank contamination.

TABLE 9
OUTLYING BLANK SPIKE/BLANK SPIKE DUPLICATE DATA
VACAIR ALLOYS
JANUARY 1991

BS/BSD Sample I.D.	*Matrix*	*Compound*	*BS % Recovery*	*BSD % Recovery*	*RPD*	*Control Limits*	*RPD Control Limit*
		BNAs					
SBLK9101L288	Soil	Phenol	91	-	-	26-90	-
SBLK9101L350	Water	2,4-Dinitrotoluene	105	-	-	24-96	-
		Phenol	-	-	53	-	42
		2-Chlorophenol	-	-	54	-	40
		4-Chloro-3-methylphenol	-	-	50	-	42
		4-Nitrophenol	-	9	100	-	50
		Pentachlorophenol	-	-	88	-	50
		PESTICIDES/PCBs					
PBLK9101L288	Soil	gamma-BHC	41	-	-	46-127	-
PBLK 9101L328	Soil	gamma-BHC	181	-	-	46-127	-
		Heptachlor	191	-	78	35-150	31
		Aldrin	180	-	49	34-132	43
		Dieldrin	206	-	51	31-134	38
		Endrin	212	-	-	42-139	-
		4,4'-DDT	214	-	65	23-134	50
PBLK9101L350	Water	Heptachlor	-	-	22	-	20
PBLK9012L935	Soil	gamma-BHC	-	138	-	46-127	-
		4,4'-DDT	-	143	-	23-134	-
PBLK(1)9012L952	Water	gamma-BHC	55	-	58	56-123	15
		Heptachlor	-	-	50	-	20
		Aldrin	-	-	48	-	22
		Dieldrin	-	-	25	-	18
		Endrin	-	-	22	-	21
PBLK(2)9012L952	Water	gamma-BHC	-	138	-	46-127	-
		4,4'-DDT	-	143	-	23-134	-
SBLK9012L972	Soil	gamma-BHC	45	-	-	46-127	-
		4,4'-DDT	22	-	-	23-134	-

TABLE 10
QUALIFIED DATA DUE TO
OUTLYING BLANK SPIKE/BLANK SPIKE DUPLICATE ANALYSES
VACAIR ALLOYS
JANUARY 1991

BS/BSD Sample I.D.	*Associated Sample*	*Parameter*	*Compound*	*Qualified Sample Concentration*	*Units*
SBLK9101L350	BHRB-1	BNAs	Phenol	10UJ	µg/L
			2-Chlorophenol	10UJ	µg/L
			4-Chloro-3-methylphenol	10UJ	µg/L
			4-Nitrophenol	50UJ	µg/L
			Pentachlorophenol	50UJ	µg/L
			Fluorene	10UJ	µg/L
PBLK9101L350	BHRB-1	Pest/PCBs	Heptachlor	0.05UJ	µg/L
PBLK9101L288	BH-1	Pest/PCBs	gamma-BHC (Lindane)	4.6UJ	µg/kg
PBLK9101L288	6-1	Pest/PCBs	gamma-BHC (Lindane)	4.3UJ	µg/kg
PBLK9101L328	BH5B-1	Pest/PCBs	gamma-BHC (Lindane)	4.9UJ	µg/kg
			Heptachlor	4.9UJ	µg/kg
			Aldrin	4.9UJ	µg/kg
			Dieldrin	9.8UJ	µg/kg
			Endrin	9.8UJ	µg/kg
			4,4'-DDT	9.8UJ	µg/kg
PBLK9101L328	BH5B-2	Pest/PCBs	gamma-BHC (Lindane)	4.7UJ	µg/kg
			Heptachlor	4.7UJ	µg/kg
			Aldrin	4.7UJ	µg/kg
			Dieldrin	9.4UJ	µg/kg
			Endrin	9.4UJ	µg/kg
			4,4'-DDT	9.4UJ	µg/kg
PBLK9101L328	BH5B-3	Pest/PCBs	gamma-BHC (Lindane)	4.4UJ	µg/kg
			Heptachlor	4.4UJ	µg/kg
			Aldrin	4.4UJ	µg/kg
			Dieldrin	8.8UJ	µg/kg
			Endrin	8.8UJ	µg/kg
			4,4'-DDT	8.8UJ	µg/kg
PBLK9101L328	BH5A-3	Pest/PCBs	gamma-BHC (Lindane)	5.2UJ	µg/kg
			Heptachlor	5.2UJ	µg/kg
			Aldrin	5.2UJ	µg/kg
			Dieldrin	10UJ	µg/kg
			Endrin	10UJ	µg/kg
			4,4'-DDT	10UJ	µg/kg
PBLK(1)9101L952	WS-1	Pest/PCBs	gamma-BHC (Lindane)	0.05UJ	µg/L
			Heptachlor	0.05UJ	µg/L
			Aldrin	0.05UJ	µg/L
			Dieldrin	0.10UJ	µg/L
			Endrin	0.10UJ	µg/L

Notes:
(1) Data has been previously qualified due to outlying MS/MSD recoveries.
J Associated data is estimated due to a bias in results.
U Compound is non-detected at the Practical Quantitation Limit.

TABLE 11
QUALIFIED DATA DUE TO OUTLYING MS/MSD ANALYSES
VACAIR ALLOYS
JANUARY 1991

Sample I.D.	*Parameter*	*Compound*	*Qualified Sample Concentration*	*Units*
6-1	Pest/PCBs	gamma-BHC	Note(1)	-
		Heptachlor	4.3UJ	µg/kg
		4,4'-DDT	8.6UJ	µg/kg
BH5B-2	Pest/PCBs	gamma-BHC	Note(1)	-
		Heptachlor	Note(1)	-
		Aldrin	Note(1)	-
		Dieldrin	Note(1)	-
		Endrin	Note(1)	-
		4,4'-DDT	Note(1)	-
SS-4	Pest/PCBs	gamma-BHC	9.0UJ	µg/kg
		Heptachlor	9.0UJ	µg/kg
		Aldrin	9.0UJ	µg/kg
		Dieldrin	18.0UJ	µg/kg
		Endrin	18.0UJ	µg/kg
		4,4'-DDT	18.0UJ	µg/kg

Notes:
(1) Associated value has been previously qualified due to outlying BS/BSD recoveries. surrogate spike recoveries.
J Associated value is estimated due to outlying MD/MSD recoveries.
U The associated compound is non-detected at the PQL.

TABLE 12
FIELD DUPLICATE DATA SHOWING DISCREPANCIES
VACAIR ALLOYS
JANUARY 1991

Sample I.D.:	SS-2	SS-4	RPD	TP-2A	TP-2AA	RPD
Parameter	(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)	
VOCs						
1,1-Dichloroethane				830,000U	3300J	
1,1-Dichloroethene				830,000U	5400JB	*
1,2-Dichloroethene(total)				670,000J	400000	*
Vinyl chloride				170,000U	5000J	51
BNAs						
bis(2-Ethylhexyl)phthalate				3400J	4300J	
PESTICIDES/PCBs						
alpha-BHC	190	9U	*			
METALS						
Arsenic				4.4	6.3	36
Barium	90.6	61.4	38			
Cadmium				3.4	1.9	57
Chromium				568	287	66
Cobalt				146	94.5	43
Copper				338	84.1	120
Calcium	72800	17100	123	181	94	63
Lead	5.2	10.6	68			
Iron				26200	18000	37
Manganese	1890	441	124			
Mercury				0.32	0.18	56
Nickel				1760	805	74
Zinc				288	141	68

Notes:

J The associated value is estimated.

U The associated compound is non-detected at the practical quantitation limit (PQL).

* RPD cannot be calculated when one value is non-detected.

APPENDIX G2

ANALYTICAL DATA ASSESSMENT AND VALIDATION
GROUNDWATER, SURFACE WATER, DRINKING WATER
AND SEDIMENT SAMPLES
VACAIR ALLOYS, FREWSBURG, NEW YORK

MAY 1991

APPENDIX G2

ANALYTICAL DATA ASSESSMENT AND VALIDATION GROUNDWATER, SURFACE WATER, DRINKING WATER, AND SEDIMENT SAMPLES VACAIR ALLOYS, FREWSBURG, NEW YORK MAY 1991

The following details an assessment and validation of analytical results reported by Roy F. Weston, Inc. (Weston) for 31 sediment and water samples collected at the VacAir Alloys Site during April and May of 1991. Groundwater, surface water, drinking water, and sediment samples were collected from various locations within the perimeter of the plant site and submitted for one or more of the following parameters: Target Compound List (TCL) Volatile Organic Compounds (VOCs), TCL Base/Neutral Acid Extractables (BNAs), TCL Pesticides/PCBs, Total Petroleum Hydrocarbons (TPHs), Cyanide, and Target Analyte List (TAL) Metals. The samples submitted for analysis consisted of the following:

Matrix	*Investigative Samples*	*Field Duplicates*	*Rinsate Blanks*	*Trip Blanks*	*Total*
Sediment	6	1	1	-	8
Groundwater	6	1	1	2	10
Drinking Water	1	1	-	-	2
Surface Water	8	1	1	1	11
			Total		31

Two drinking water samples were collected from an off-site municipal well and were submitted to NYTEST Environmental Inc. for VOC and pesticide/PCB determinations. The analytical data assessment and validation for those samples is presented in Appendix G3.

Table 1 presents a summary of the analytical methods and parameters as well as a summary sample key.

Evaluation of the data was based on information derived from the finished data sheets, chain of custody forms, blank data, and recovery data for matrix and surrogate spikes. The assessment of analytical and in-house data included checks for: data consistency (by observing comparability of duplicate analyses); adherence to accuracy and precision criteria; transmittal errors; and anomalously high and low parameter values.

The QA/QC criteria by which these data have been assessed are outlined in the respective analytical methods and the and the documents entitled:

i) "Quality Assurance Project Plan (QAPP)
VacAir Alloys Corporation
Frewsburg, New York
November 1990"

ii) "Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses" (February 1, 1988)
Prepared by the USEPA Data Validation Work Group

iii) "Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses" (July 1, 1988)
Prepared by the USEPA Data Review Work Group

iv) "CLP Organics Data Review and Preliminary Review"
SOP HW-6, Revision No. 6 (March 1989)

Item i) will hereinafter be referred to as the "QAPP". Items ii) and iii) will hereinafter be referred to as the "Guidelines". Item iv) will hereinafter be referred to as the "USEPA Region II Guidelines". The data quality assessment and validation is presented in the subsections which follow:

1. SAMPLE HOLDING TIMES

Based on the criteria outlined in the relevant Methods and NYSDEC sample holding time protocols, the following sample holding time requirements have been established:

VOCs	7 days from VTSR[1] to analysis
BNAs/Pesticides/PCBs	5 days from VTSR to extraction 40 days from VTSR to analysis
Metals	6 months from collection to analysis
Mercury	26 days from VTSR to analysis
Cyanide	12 days from VTSR to analysis
Total Petroleum Hydrocarbons (TPHs)	26 days from VTSR to analysis

By comparing the sampling date and VTSR of all samples (from the notation appearing on the Chain of Custody documents) with the reported dates of

[1] VTSR - Validated Time of Sample Receipt.

analysis, it is noted that all samples submitted for VOC, cyanide, and total petroleum hydrocarbon determinations were analyzed prior to expiration of their requisite holding times.

However, thirty-three samples exceeded their established holding time criteria for their respective analyses as presented in Table 2 . In general, holding time exceedances tend to demonstrate a low bias in results due to potential loss of the analytes of concern. Therefore, those samples which exceeded their requisite holding times require the following qualification of data:

i) all positive results should be flagged as estimated (data qualifier J), indicating a low bias in sample results; and

ii) all practical quantitation limits for negative results should be flagged as estimated (data qualifier UJ), indicating a low bias in sample results.

Presented in Table 3 is qualification of the affected sample data.

It should be noted that in accordance with the QAPP, all samples were cooled to 4°C(±2°C) after sampling.

2. GC/MS TUNING AND MASS CALIBRATION

The analysis of VOCs and BNAs is based upon gas chromatographic/mass spectrometric (GC/MS) methods. To ensure that the data produced by the GC/MS instruments may be correctly interpreted, the tuning and performance criteria presented in the"Guidelines" have been assessed. These criteria have been established to ensure mass resolution, identification, and to some degree, sensitivity.

In general, a review of the GC/MS tuning and calibration data accompanying the Weston work orders indicated that all tuning and calibration criteria for bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP) were met for the analysis of VOCs and BNAs, respectively. In addition, comparison of the GC/MS tuning and mass calibration summary sheets (Form Vs) with each mass listing indicated that no transcription errors occurred. Therefore, the integrity of the GC/MS tuning and mass calibration data was not suspect.

3. GC/MS CALIBRATION (VOCs AND BNAs)

In order to ensure that satisfactory instrument performance has been established for the analyses of VOCs and BNAs, the laboratory generated calibration data have been assessed. Both initial and continuing calibration data were compared against the compliance requirements established by

Methods 89-1 and 89-2 NYSDEC September 1989 ASP and as presented in the "Guidelines". Based on the calibration data reported, the following observations were noted:

A. Initial Calibration

The following samples were analyzed for TCL VOCs at a low level:

SW-1	SW-2DL
Trip Blank	SED-2
SED-2DL	SED-3
SW-3	SW-4
SW-5	SW-5DL
SW-6	SW-6DL
SW-7	SW-7DL
SW-8	SED-5
SED-5DL	SW-9
SED-6	SED-7
SED-RB	SW-RB
SW-Trip Blank	

The following samples were analyzed for TCL VOCs at a medium level:

SED-1	SED-1DL
SED-4	SED-4DL
SED-6DL	

Based on recalculation of at least 20 percent of the initial calibration data, it is apparent that all Relative Response Factors (RRFs) and Relative Standard Deviations (RSDs) for all VOCs and BNAs were correctly determined. Upon review of the initial calibration data reported by Weston, it is noted that all criteria for Systems Performance Calibration Compounds (SPCCs) and Calibration Check Compounds (CCCs) were met for low and medium level VOC and BNA analyses.

In accordance with the "Guidelines", it is recommended that all VOC and BNA data be evaluated by this criteria. One TCL VOC, 2-butanone, showed an average RRF of less than the minimum acceptable limit of 0.050 for several initial calibrations. Qualification of the associated data is performed as follows:

i) positive results for that compound are qualified as estimated (data qualifier J); and

ii) negative results for that compound are qualified as unusable (data qualifier R)

In addition, one VOC (acetone) and the following BNAs demonstrated Relative Standard Deviations (RSDs) greater than the maximum acceptable limit of 35 percent for VOCs and BNAs.

- nitrobenzene
- benzoic acid
- di-n-octylphthalate
- 2-nitroanaline
- 3-nitroaniline
- 4-nitroaniline
- 4-Nitrophenol
- benzo(g,h,i)perylene
- hexachlorocyclopentadiene
- 2,4-dimethylphenol
- 4-nitrophenol
- bis(2-chloroisopropyl)ether
- benzyl alcohol
- 2,4-dinitrophenol
- 3,3'-dichlorobenzidine
- 4,6-dinitro-2-methylphenol
- bis(2-ethylhexyl)phthalate

In accordance with the USEPA Region II Guidelines, the following qualification of data is recommended:

i) if the relative standard deviation (RSD) for any given compound(s) is between 35-50 percent, qualify the associated positive results for those compound(s) as estimated (data qualifier J);

ii) if the RSD is between 50-90 percent for any given compound(s), qualify the associated positive and non detected results for those compound(s) as estimated (data qualifier J); and

iii) if the RSD for any given compound(s) is greater than 90 percent, qualify the associated positive results for those compound(s) as estimated (data qualifier J) and non-detected results as unusable (data qualifier R).

Qualification of the associated data is presented in Table 4.
All remaining VOCs and BNAs showed RRFs greater than 0.050 and RSDs less than 35 percent.

B. Continuing Calibration

As a check on the instrument's ability to generate reproducible calibration data, the percent difference (%D) of compound RRFs between the initial calibration and continuing calibration was assessed. In addition, the RRF of a 50 nanogram continuing calibration check standard (RRF50) was evaluated for all SPCCs, CCCs and remaining TCL compounds. Only compounds which yielded acceptable initial calibration data were evaluated by this criteria.

In accordance with the "Guidelines", it is recommended that all VOC and BNA data be evaluated by the RRF criteria. One TCL VOC, 2-butanone, showed an average RRF of less than the minimum acceptable limit of 0.050 for several continuing calibrations. However the associated 2-butanone data has been previously qualified due to outlying initial calibration criteria as mentioned in Section 3A of this memo.

All continuing calibration criteria for SPCCs and CCCs were met for VOC analyses. However, several BNA compounds demonstrated %Ds above the maximum control limit of 20 percent[1] for several continuing calibrations. Those compounds are listed below:

- nitrobenzene
- benzoic acid
- benzo(b)fluoranthene
- 2-nitroanaline
- 3-nitroaniline
- 4-nitroaniline
- 4-nitrophenol
- benzo(g,h,i)perylene
- hexachlorocyclopentadiene
- 2,4-dimethylphenol
- di-n-octylphthalate
- bis(2-chloroisopropyl)ether
- benzyl alcohol
- 2,4-dinitrophenol
- 3,3'-dichlorobenzidine
- 4,6-dinitro-2-methylphenol
- bis(2-ethylhexyl)phthalate
- butylbenzylphthalate

In accordance with the USEPA Region II Guidelines, the following qualification of data is recommended:

i) If the percent difference (%D) for any given compound(s) is between 20-50 percent, qualify the associated positive results for those compound(s) as estimated (data qualifier J);

ii) If the %D is between 50-90 percent for any given compound(s), qualify the associated positive and non detected results for those compound(s) as estimated (data qualifier J); and

iii) If the %D for any given compound(s) is greater than 90 percent, qualify the associated positive results for those compound(s) as estimated (data qualifier J) and non-detected results as unusable (data qualifier R).

Table 5 presents qualification of the affected sample data. All remaining VOCs and BNAs showed acceptable RRFs and %Ds within the control limits of 35 percent for VOCs and 20 percent for BNAs.

[1] Control limits established by NYSDEC September 1989 ASP.

4. INTERNAL STANDARDS PERFORMANCE

In order to ensure that GC/MS sensitivity and response are stable during each analytical sequence, the internal standards performance criteria established by Methods 89-1 and 89-2 NYSDEC September 1989 ASP, and as presented in the "Guidelines", have been evaluated for the analysis of VOCs and BNAs. The criteria by which the internal standards have been assessed are as follows:

i) internal standards area counts must not vary by more than a factor of two (-50% to +100%) from the associated calibration standard; and

ii) the retention time of the internal standard must not vary more than ±30 seconds from the associated calibration standard.

Upon review of the internal standard summary sheets (Form VIIIs), it was noted that seventeen investigative samples, three reanalyses, and four QC samples demonstrated internal standard areas outside the upper and lower limits established by the laboratory as shown in Table 6.

Qualification of the associated sample data is performed as follows: all results (positive or non-detected) for compounds quantitated using that internal standard are flagged as estimated (data qualifier J). Qualification of the associated sample data is presented in Table 7.

All remaining samples yielded internal standard area counts within the upper and lower limits. All retention times for internal standards did not vary more than ±30 seconds from the associated calibration standard. This indicated a satisfactory level of GC/MS sensitivity was achieved for these analyses.

5. PESTICIDES/PCBs - INSTRUMENT PERFORMANCE

Samples submitted for pesticide/PCB determinations were analyzed in accordance with Method 89-3 NYSDEC September 1989 ASP. This method involves solvent extraction of the matrix, analysis of the extract by a gas chromatograph/electron capture detector (GC/ECD) using a packed or wide bore capillary column (primary column analysis), and confirmation by a second packed or wide bore capillary column (secondary column analysis).

A. 4,4'-DDT Retention Time Check

In order to ensure that adequate separation of pesticides/PCBs is achieved, 4,4'-DDT must have a retention time on packed or wide bore capillary columns greater than or equal to 12 minutes. Based upon review of the standard chromatograms and the data reported on the

pesticide/PCB standard summaries (Form IXs), it was established that the retention time of 4,4'-DDT was greater than 12 minutes for all primary and secondary column analyses.

B. 4,4'-DDT/Endrin Degradation Check

In order to measure the amount of decomposition that 4,4'-DDT and endrin undergo when analyzed by the chromatographic system, the percent breakdown of these two compounds is evaluated and compared against the control limit (20 percent) established by the method. Upon review of the pesticide evaluation standard summaries (Form VIIIs), it is noted that the 4,4'-DDT and endrin degradation criteria were met for all primary and secondary column analyses.

C. DBC Retention Time Check

Based on the method protocols, the maximum allowable retention time shift for dibutylchlorendate (DBC) is not to exceed ±1.5 percent for wide-bore capillary columns and ±2.0 for packed columns. Upon review of the DBC retention times reported, it is noted that all investigative samples showed retention time shifts within the method control limits.

6. PESTICIDE/PCB ANALYSES - CALIBRATION GC/ECD

In order to ensure that satisfactory instrument performance was established and maintained during the analyses of pesticides/PCBs, the criteria outlined in Method 89-3 NYSDEC September 1989 ASP, and as presented in the "Guidelines" have been evaluated. These evaluations include assessing the analytical sequence performed, initial calibration data, and continuing calibration data.

A. Analytical Sequence

Upon review of the pesticide/PCB evaluation standard summaries (Form VIIIs), it is noted that the proper 72 hour sequence was adhered to in all cases for primary column analyses. In addition, the evaluation standard mixtures, individual standard mixtures, and multi-response pesticide/PCB standards were analyzed at the frequencies prescribed by the method.

In addition, it should be noted that Retention Time (RT) windows were established for all pesticides/PCBs and properly reported on each Form IX. Upon examination of the Form IXs, it was noted that several individual standard mixtures showed compounds outside the RT windows as shown in the following table :

Pesticide	*Column*	*Retention Time (RT) (minutes)*	*RT Window (minutes)*	*Date/Time of Analysis*	*Potentially Affected Samples*
Endosulfan II	SP2100	8.82	8.83-8.87	06/18/91 1008	SW-1, SW-2, SED-1, SED-2, SED-3
Endosulfan sulfate	SP2100	11.18	11.19-11.23	06/18/91 1213	SW-1, SW-2, SED-1, SED-2, SED-3
Endrin ketone	SP2100	14.25	14.27-14.31	06/18/91 1213	SW-1, SW-2, SED-1, SED-2, SED-3
Endosulfan I	SP2100	6.73	6.74-6.78	06/18/91 1246	SW-1, SW-2, SED-1, SED-2, SED-3
Endosulfan II	SP2100	8.82	8.83-8.87	06/18/91 1246	SW-1, SW-2, SED-1, SED-2, SED-3
Methoxychlor	SP2100	17.82	17.83-17.93	06/18/91 1246	SW-1, SW-2, SED-1, SED-2, SED-3
Endrin	2250/2401	22.44	22.48-22.52	06/14/91 1211	SW-1, SW-2, SED-1, SED-2, SED-3

Upon review of the sample chromatograms, it was apparent that all qualitative identifications (based on RT windows) were correctly performed, and qualification of data was not required on this basis.

B. Initial Calibration

Based on the recalculation of approximately 20 percent of the initial calibration data, it is apparent that all calibration factors (CFs) for aldrin, endrin, 4,4'-DDT, and DBC were correctly determined. However, several analytical batches showed RSDs above the maximum control limit of 10 percent for aldrin, endrin, DBC, and 4,4'-DDT as shown in the following table:

Analytical Batch	*Column*	*Instrument I.D.*	*Pesticide*	*RSD*
9105L456	SP2100	#14	Aldrin	16.6
			Endrin	12.8
			4,4'-DDT	26.6
9105L477	2250/2401	#13	Aldrin	12.4
			4,4'-DDT	10.3
	SP2100	#14	Aldrin	21.0
			Endrin	12.5
			4,4'-DDT	24.8
	SP2100	#04	Aldrin	14.6
			Endrin	10.8
			4,4'-DDT	20.3
			DBC	11.4
	SP2100	#10	DBC	11.4
9105L541	2250/2401	#03	Aldrin	20.8
			Endrin	23.5
			4,4'-DDT	24.6
			DBC	24.8
	SP2100	#04	Aldrin	12.8
			Endrin	16.8
	SP2100	#04	4,4'-DDT	10.8
			DBC	20.2

Qualification of the associated positive data is required, but all associated investigative samples showed non-detected results for aldrin, endrin, and 4,4'-DDT. Therefore, qualification of sample data was not required on this basis. In addition, DBC was used as a surrogate compound for these analyses, therefore qualification is not required for DBC data.

All remaining initial calibrations showed RSD values below ten percent.

C. Continuing Calibration

In order to measure the linearity of the calibration over a specific time period, the percent difference between the CFs for the individual standard mixtures analyzed at the beginning of each 72 hour sequence and the CFs of the individual standard mixtures analyzed intermittently throughout the 72 hour sequence was evaluated. Several compounds showed percent differences greater than the maximum limit of 15 percent for quantitation and 20 percent for confirmation.

Therefore, in accordance with the "Guidelines", all positive pesticide results for samples showing percent differences greater than the above-mentioned control limits should be qualified as estimated (data

qualifier J) due to outlying continuing calibration data. However, the samples associated with the outlying calibration data showed non-detected quantities of the compounds of interest. Therefore, qualification was not required on this basis.

7. SURROGATE SPIKE RECOVERIES

In accordance with Method 89-1, laboratory performance on individual samples is assessed on the basis of surrogate spike recoveries. Fortifying the sample with a known amount of the surrogate prior to sample preparation serves as an indicator of the efficiency of analyte extraction, dissolution, or other matrix modifying techniques. Based on the surrogate recoveries reported, the following observations were noted:

A. TCL VOCs

In accordance with Method 89-1, the surrogate compounds bromofluorobenzene, toluene-d_8, and 1,2-dichloroethane-d_4 were added to all samples submitted for TCL VOC determinations prior to analysis to monitor laboratory performance on an individual sample basis. Four samples submitted for TCL VOC determinations and two QC samples showed outlying surrogate recoveries as shown in the following table:

Sample I.D.	*Matrix*	*Surrogate Compound*	*%Recovery*	*Control Limits*
SED-1DL	Soil	toluene-d_8	41	81-117
		bromofluorobenzene	42	74-121
		1,2-dichloroethane-d_4	48	70-121
SED-2	Soil	toluene-d_8	128	81-117
SED-7	Soil	1,2-Dichloroethane-d_4	127	70-121

The samples were reanalyzed according to method protocols, and samples SED-2 and SED-7 showed recoveries within the control limits. The diluted sample, matrix spike sample, and matrix spike duplicate sample for SED-1 (SED-1DL, SED-1MS, and SED-1MSD) yielded outlying percent recoveries for toluene-d_8. However, as the associated sample yielded surrogate recoveries within the method control limits, qualification of sample SED-1 on the basis of outlying surrogate spike recoveries was not required.

One sample (SED-4) had the surrogates diluted out of solution due to high concentrations of the analytes of interest. Therefore, laboratory performance based on surrogate spike recoveries could not be assessed for this sample.

All remaining samples submitted for TCL VOC determinations yielded surrogate recoveries within the control limits, indicating acceptable laboratory performance for these analyses.

B. TCL BNAs

In accordance with Method 89-2, the following surrogate compounds were added to samples for the analyses of TCL BNAs prior to analysis to monitor laboratory performance on an individual sample basis: nitrobenzene-d_5, 2-fluorobiphenyl, p-terphenyl-d_{14}, phenol-d_5, 2-fluorophenol, and 2,4,6-tribromophenol. As stipulated by the Method, only one surrogate compound may show an outlying recovery in the base/neutral or acid fraction, and all surrogate compounds must show recoveries greater than 10 percent. Four investigative samples, two reanalyses, and two QC samples showed recoveries outside the method control limits as shown in the following table:

Sample I.D.	*Matrix*	*Surrogate Compound*	*%Recovery*	*Control Limits*
SW-1	Water	Nitrobenzene-d_5	4	35-114
		p-Terphenyl-d_{14}	19	33-141
SW-1RE	Water	Nitrobenzene-d_5	4	35-114
		p-Terphenyl-d_{14}	27	33-141
SW-2	Water	Nitrobenzene-d_5	5	35-114
SW-2RE	Water	Phenol-d_5	2	10-94
		2-Fluorophenol	0	21-100
		2,4,6-Tribromophenol	129	19-122
MW-2	Water	Nitrobenzene-d_5	0	35-114
MW-2MS	Water	Nitrobenzene-d_5	0	35-114
MW-2MSD	Water	Nitrobenzene-d_5	0	35-114
MW-6	Water	Phenol-d_5	3	10-94
		2-Fluorophenol	3	21-100
		2,4,6-Tribromophenol	0	19-122
MW-7	Water	Phenol-d_5	4	10-94
		2-Fluorophenol	4	21-100
		2,4,6-Tribromophenol	4	19-122

As MW-2MS and MW-2MSD yielded zero percent recoveries for nitrobenzene-d_5, the base/neutral fraction was not used for evaluation of sample accuracy and precision. Samples SW-1 and SW-2 were reanalyzed according to method protocols, but also yielded outlying surrogate recoveries. Samples MW-2, MW-6, and MW-7 were not reanalyzed. Qualification of the data that showed at least two outlying surrogates in a base/neutral or acid fraction with recoveries greater than 10 percent is as follows:

i) positive results for that fraction are flagged as estimated (J); and

ii) negative results for that fraction are flagged with the sample quantitation limit and classified as estimated (J).

Qualification of the data that showed any surrogate in a fraction having a recovery of less than 10 percent is as follows:

i) positive results for that fraction are flagged as estimated (J); and

ii) negative results for that fraction are flagged as unusable (R).

Qualification of the affected sample data is presented in Table 8. All remaining samples showed BNA surrogate recoveries within the method control limits.

C. PESTICIDES/PCBs

All samples submitted for PCB determinations were fortified with the surrogate compound di-n-butylchlorendate (DBC) prior to sample preparation. Upon review of the Form IIFs, it is noted that one sample (SW-7) showed a DBC recovery of 191 percent, greater than the control limits of 24-154 percent. However, this indicated a high bias in results, and the associated pesticide/PCB results showed non-detected quantities of same. Therefore, qualification of the associated data based on surrogate spike recoveries was not required.

All remaining investigative samples showed DBC surrogate recoveries within the method control limits.

8. LABORATORY BLANK ANALYSES

The purpose of assessing the results of laboratory blank analyses is to determine the existence and magnitude of sample contamination problems. Laboratory blanks were analyzed at a minimum frequency of one per 20 investigative samples and/or one per analytical batch. Based on the laboratory blank data reported, the following are noted:

A. TCL VOCs

According to the "Guidelines", any compound (other than the common laboratory contaminants methylene chloride, acetone, toluene and 2-butanone) detected in the sample which was also detected in any associated laboratory blank must be qualified when the sample concentration is less than five times the blank concentration. For the above-mentioned laboratory contaminants, the results are qualified when the sample concentration is less than ten times the

blank concentration. The laboratory blanks containing contamination are listed in the following table:

Analytical Batch	*Blank Lab I.D.*	*Parameter*	*Compound*	*Concentration*	*Matrix*
9105L456	VK077	VOCs	Methylene chloride	7 µg/L	Water
			Acetone	6J µg/L	Water
	VK078	VOCs	Methylene chloride	11 µg/L	Water
			Acetone	11 µg/L	Water
	VK079	VOCs	Methylene chloride	10 µg/L	Water
			Acetone	18 µg/L	Water
9105L477	VK080	VOCs	Methylene chloride	5 µg/L	Water
			Acetone	18 µg/L	Water
			Trichloroethene	1J µg/L	Water
	VX074	VOCs	Methylene chloride	2300 µg/kg(1)	Soil
			Acetone	3200 µg/kg(1)	Soil
	VX074	VOCs	Methylene chloride	8 µg/kg	Soil
			Acetone	10 µg/kg	Soil
9105L541	VX078	VOCs	Methylene chloride	11 µg/kg	Soil
			Acetone	14 µg/kg	Soil
	VX079	VOCs	Methylene chloride	7 µg/kg	Soil
	VX080	VOCs	Methylene chloride	1900 µg/kg(1)	Soil
			Acetone	2500 µg/kg(1)	Soil
	VK083	VOCs	Methylene chloride	8 µg/L	Water
			Acetone	20 µg/L	Water
	VK084	VOCs	Methylene chloride	9 µg/L	Water
			Acetone	8J µg/L	Water
	VK085	VOCs	Methylene chloride	6 µg/L	Water
			Acetone	19 µg/L	Water

Notes:
(1) Sample concentration was reported for a medium level analysis.
J Concentration is below the Practical Quantitation Limit and therefore estimated.

The associated samples, consisting of twenty-one investigative samples, one reanalysis, one trip blank, and three rinsate blanks showed positive concentrations of methylene chloride and/or acetone less than ten times the blank concentration; therefore these samples require qualification according to the "Guidelines". Qualification of sample data associated with laboratory blanks containing contamination is done by elevating the practical quantitation limits (PQLs) of the analytes of interest to the level found in the sample and reporting the sample results as non-detected (data qualifier U). In those cases where the sample concentration is less than the PQL, the sample concentration is adjusted to the PQL and reported as non-detected (data qualifier U). Presented in Table 9 is qualification of the affected sample data.

B. TCL BNAs

According to the "Guidelines", any compound (other than the common phthalate esters) detected in the sample which was also detected in any associated laboratory blank must be qualified when the sample concentration is less than five times the blank concentration. For common phthalate esters, the results are qualified when the sample concentration is less than ten times the blank concentration. The blanks containing contamination are listed below:

Analytical Batch	*Blank Lab I.D.*	*Parameter*	*Compound*	*Concentration*	*Matrix*
9105L477	LE0753	BNAs	Di-n-butylphthalate	1J µg/L	Water
9105L541	LE0610	BNAs	Benzoic acid	2J µg/L	Water
			4-Nitrophenol	2J µg/L	Water

J Concentration is below the Practical Quantitation Limit (PQL) and therefore estimated.

Two reanalyses, SW-1RE and SW-2RE required qualification due to laboratory blank contamination. Qualification of the data is described in Section 8A of this memo and is presented in Table 9.

C. PESTICIDES/PCBs

Upon review of the blank data reported by Weston, it was noted that all pesticide/PCB laboratory blanks showed non-detected quantities of pesticides/PCBs, indicating that contamination attributable to laboratory conditions was minimal during these analyses.

D. TAL Metals and Cyanide

Upon review of the initial calibration blanks, continuing calibration blanks, and preparation blanks, it is noted that metals or cyanide concentrations were not observed above the contract required detection limit (CRDL). However, the following metals were detected below the CRDL but above the Instrument Detection Limit (IDL) in several calibration blanks:

- aluminum
- antimony
- calcium
- iron
- manganese
- sodium
- zinc

The detections of calcium, iron, manganese, sodium and zinc are most likely representative of background conditions for the analyte-free water used for the analyses. However, qualification of samples

associated with laboratory blanks containing antimony and/or aluminum is necessary when the sample result is less than five times the blank result. Qualification of the affected data is presented in the table below:

Sample I.D.	*Blank*	*Analyte*	*Blank Conc.*	*Sample Conc.*	*Qualified Sample Conc.*	*Units*
MW-4	Preparation	Antimony	29.6B	31.0B	31.0U	µg/L
MW-6	Preparation	Antimony	29.6B	25.1B	25.1U	µg/L
SW-3	Calibration	Aluminum	199.8B	209	209U	µg/L
SW-4	Calibration	Aluminum	199.8B	297	297U	µg/L
SW-5	Calibration	Aluminum	199.8B	122B	122U	µg/L
SW-7	Preparation	Antimony	29.6B	37.7B	37.7U	µg/L
SW-9	Calibration	Aluminum	199.8B	528	528U	µg/L
SW-RB	Preparation	Antimony	29.6B	23.8B	23.8U	µg/L

B Associated metal was detected above the IDL but below the CRDL.
U Associated concentration is non-detected due to laboratory blank contamination.

The remaining laboratory blanks submitted for metals and cyanide determinations showed non-detected quantities of the same, indicating that contamination attributable to laboratory conditions was minimal during these analyses.

E. Total Petroleum Hydrocarbons (TPHs)

Upon review of the blank data reported, it is noted that two blanks yielded positive concentrations for total petroleum hydrocarbons as shown below:

Analytical Batch	*Blank Lab I.D.*	*Parameter*	*Compound*	*Concentration*	*Matrix*
9105L477	HC602	TPHs	Petroleum hydrocarbons	4.8 mg/kg	Soil
9105L541	HC609	TPHs	Petroleum hydrocarbons	3.6J mg/kg	Soil

J Concentration is below the Practical Quantitation Limit and therefore estimated.

Qualification of samples associated with the laboratory blank containing TPHs is necessary when the sample result is less than five times the blank result. However, the concentration of TPHs in the associated samples was greater than five times the blank concentration. Therefore, qualification of the associated data was not required.

The remaining laboratory blanks submitted for TPH determinations showed non-detected quantities of same, indicating that contamination attributable to laboratory conditions was minimal during these analyses.

9. BLANK SPIKE/BLANK SPIKE DUPLICATE (BS/BSD) ANALYSES

The recoveries of blank spike analyses are used to assess the analytical accuracy as achieved by the laboratory, while the Relative Percent Difference (RPD) between the BS and BSD indicates the analytical precision achieved for that sample. As blank spike analyses are independent of potential matrix effects, they give a true indication of the analytical accuracy achieved by the laboratory for the respective analyses performed. Blank spike analyses were performed for VOC, BNA, and pesticide/PCB determinations at a minimum frequency of one per 20 investigative samples.

Presented in Table 10 is a summary of BS/BSD analyses which demonstrated outlying percent recoveries and/or Relative Percent Differences (RPDs). In addition, the blank spike recoveries for gamma-BHC and aldrin from analytical batch 9105L541 could not be determined due to laboratory contamination. Failure to achieve acceptable spike recoveries and or RPD values in laboratory/reagent grade water indicates a fundamental problem with the analytical process as performed by the laboratory. It is therefore recommended that all investigative samples analyzed in conjunction with the BS/BSD sample showing outlying spike recoveries and or RPD values should be qualified as follows:

i) If the BS/BSD recoveries for any compound(s) are greater than the established control limits, and the associated sample results for the compound(s) are reported as non-detected (data qualifier U), qualification of data is not required.

ii) If the BS/BSD recoveries for any compound(s) are greater than the established control limits, and the associated sample results for those compound(s) are reported as positive, the associated sample results for those compounds are qualified as estimated (data qualifier J), indicating a potential high bias in results.

iii) If the BS/BSD recoveries for any compound(s) are less than the established control limits, all associated sample results (positive or non-detected) for those compounds are qualified as estimated (data qualifier J), indicating a potential low bias in results.

iv) If the RPD between the BS/BSD analyses for any compound is greater than the maximum acceptable control limit, all associated sample results for those compounds are qualified as estimated (data qualifier J), indicating a potential variability among the sample data.

Table 11 presents qualification of the affected sample data. All remaining BS/BSD analyses yielded spike recoveries and RPD values within the

established control limits, indicating that acceptable laboratory accuracy and precision were achieved among the respective analyses.

10. MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

The recoveries of MS/MSD analyses are used to assess the analytical recovery on an individual sample basis, while the RPD between the MS and MSD indicates the analytical precision achieved for that sample. MS/MSD analyses were performed at a minimum frequency of one per 20 investigative samples for VOC, BNA and pesticide/PCB determinations. Samples MW-2, SW-3, SED-1, SED-7, and DW-1 were analyzed as MS/MSD samples for this sampling event.

A. TCL VOCs

Among the MS/MSD data reported for VOCs, it was noted that all samples submitted for VOC determinations yielded percent recoveries and RPD values within the control limits, indicating that acceptable accuracy and precision were achieved for the respective analyses in the MS/MSD samples.

B. TCL BNAs

As MW-2MS and MW-2MSD yielded zero percent recoveries for the surrogate compound nitrobenzene-d_5, the base/neutral fraction results were not used for evaluation of sample accuracy and precision.

One MS/MSD sample (MW-2) yielded zero percent recovery of 4-nitrophenol as shown below:

Sample I.D.	*Parameter*	*Compound*	*MS % Recovery*	*MSD % Recovery*	*Control Limits*
MW-2	BNAs	4-Nitrophenol	0	0	10-80

This indicates a problem with the analysis of the abovementioned compounds in sample MW-2. Therefore, it is recommended that the non-detected results for these compounds be qualified as unusable (data qualifier R).

In addition to sample MW-2, four other samples showed outlying MS/MSD recoveries or RPD values as reported in Table 12. Qualification of the affected sample data was performed as follows:

i) If the MS/MSD recoveries for any compound(s) are greater than the established control limits, and the associated sample results for the compound(s) are reported as non-detected, qualification of data is not required.

ii) If the MS/MSD recoveries for any compound(s) are greater than the established control limits, and the associated sample results for those compound(s) are reported as positive, the associated sample results for those compounds are qualified as estimated (data qualifier J), indicating a potential high bias in results.

iii) If the MS/MSD recoveries for any compound(s) are less than the established control limits, all associated sample results (positive or non-detected) for those compounds are qualified as estimated (data qualifier J), indicating a potential low bias in results.

iv) If the RPD between the MS/MSD analyses for any compound is greater than the maximum acceptable control limit, all associated sample results for those compounds are qualified as estimated (data qualifier J), indicating a potential variability among the sample data.

Presented in Table 13 is qualification of the affected data. All remaining MS/MSD analyses yielded spike recoveries and RPD values within the established control limits, indicating that acceptable laboratory accuracy and precision were achieved among the respective analyses.

C. Pesticides/PCBs

One sample submitted for pesticide/PCB MS/MSD analysis showed outlying RPD values as shown in the following table:

Sample I.D.	*Matrix*	*Compound*	*RPD Value*	*Control Limit*
SED-7	Soil	Aldrin	53	43
		Dieldrin	50	38
		Endrin	51	45

Qualification of the affected sample data requires all associated sample results to be qualified as estimated (data qualifier J) due to a potential variability among the sample data as indicated by outlying RPD values. Presented in Table 13 is qualification of the affected sample data.

Due to matrix interference, the recoveries of heptachlor and 4,4'-DDT could not be determined for sample SED-7. Therefore, the analytical accuracy and precision could not be measured for these analyses.

All remaining MS/MSD samples showed recoveries and RPD values within the control limits.

11. INORGANICS CALIBRATION

Initial calibration of an instrument ensures that it is capable of producing satisfactory quantitative data at the beginning of a series of analyses. Continuing calibration of an instrument demonstrates that the initial calibration is still valid through the entire series of analyses, and ensures calibration accuracy during each analysis. The reported data was checked for calibration frequency, number and type of standards analyzed, and the use of initial and continuing calibration blanks.

For Inductively Coupled Plasma (ICP) analyses, a calibration blank and at least one standard must be run at each wavelength to establish the analytical curve. For Atomic Absorption (AA) and cyanide analyses, a calibration blank and a minimum of three standards must be used in establishing the analytical curve. The initial and continuing calibration verification control limits for inorganic analyses are as follows:

Analytical Method	*Inorganic Species*	*Low Limit*	*High Limit*
ICP/AA	Metals	90	110
Cold Vapor AA	Mercury	80	120
Semi-Automated Spectrophotometric	Cyanide	85	115

By comparing the calibration percent recoveries from Form II (Part I)-IN, it is noted that one initial calibration and six continuing calibrations yielded percent recoveries below the control limits of 80-120 percent as shown in the following table:

Analytical Batch	*Calibration*	*Analyte*	*%Recovery*	*Control Limits*
CLP456	Initial	Mercury	34.5	80-120
	Continuing	Mercury	34.3	80-120
	Continuing	Mercury	35.3	80-120
	Continuing	Mercury	33.6	80-120
	Continuing	Mercury	33.3	80-120
	Continuing	Mercury	34.3	80-120
	Continuing	Mercury	33.3	80-120

According to the "Guidelines", if the percent recovery is less than 65 percent, all positive results are qualified as unusable. However, all results associated with analytical batch CLP456 showed non-detected quantities of mercury.

Therefore qualification of the associated mercury data was not required on this basis.

All remaining initial and continuing calibration standards yielded values within the established control limits.

In accordance with the NYSDEC September 1989 ASP, all specified ICP analytes had at least one standard run at twice the CRDL or twice the IDL, whichever is greater, at the beginning and end of each sample analysis run with a minimum of twice per eight hour working shift. This was performed to verify the linearity near the CRDL for ICP analyses. In addition, to verify linearity near the CRDL for AA analyses, an AA standard was analyzed at the CRDL subsequent to initial verification.

12. INTERFERENCE CHECK SAMPLE - INORGANICS

To verify that proper interelement and background correction factors have been established by the laboratory, the laboratory must analyze an interference check sample prior to and after each analytical sequence. A review of the Form IV-INs revealed that interference check samples were analyzed at the prescribed frequency, and that the percent recovery values were within the established control limits of 80-120 percent.

13. LABORATORY CONTROL SAMPLE ANALYSES

The laboratory control sample serves as a monitor of the overall performance of all steps in the analysis, including the sample preparation. Laboratory control samples were analyzed for metals and cyanide parameters using the same sample preparation, analytical methods, and QA/QC procedures employed for the investigative samples. Upon recalculation of 20 percent of the laboratory control sample recoveries, it is apparent that all recoveries were correctly calculated and reported. Based on the inorganic data reported, all laboratory control samples yielded recoveries within the established control limits of 80-120 percent.

14. MATRIX SPIKE(MS) ANALYSES - INORGANICS

In order to evaluate the effects that the matrix may have on the digestion, measurement procedures, and accuracy of a particular analysis, samples are fortified with a known concentration of the analytes of concern and analyzed as matrix spike samples. Matrix spike analyses were performed for metals and cyanide determinations at a minimum frequency of one per 20 investigative samples. For those analytes which yielded MS recoveries

outside the established control limits of 75-125 percent[1] , the following qualification of data is recommended:

i) If matrix spike recoveries are less than 30 percent and the associated sample results are less than the detection limit, qualify the data for the affected sample as unusable (data qualifier R).

ii) If the matrix spike recovery falls within the range of 30-74 percent and the associated sample results are less than the detection limit, qualify the data for the affected sample as estimated (data qualifier J), indicating a low bias in results.

iii) If the matrix spike recovery is greater than 125 percent and the associated sample results are greater than the detection limit, qualify the associated the data for the affected sample as estimated (data qualifier J), indicating a high bias in results.

iv) If the matrix spike recovery is greater than 125 percent and the associated sample results are non-detected, no qualification of data is required.

Five samples yielded MS recoveries outside the established control limits. Qualification of the affected sample data is shown in the following:

Sample I.D.	*Analyte*	*% MS Recovery*	*Sample Results*	*Qualifier*
DW-1	Silver	71.2	4 U µg/L	J
MW-2	Selenium	72.0	1.0 U µg/L	J
	Silver	63.8	8.4 B µg/L	J
	Thallium	33.4	5.0 U µg/L	J
SED-7	Antimony	64.3	7.5 U µg/kg	J
	Arsenic	171	12.5 µg/kg	J
	Silver	71.8	1.6 U µg/kg	J
SW-1	Aluminum	133.9	1796 µg/L	J
	Arsenic	69.5	11.4 µg/L	J
	Lead	69.5	37.3 µg/L	J
	Thallium	23.0	5.0 U µg/L	R
SW-3	Silver	67.8	4.0 U µg/kg	J

Notes:

J Associated value is estimated due to outlying MS recoveries.
U Compound is non-detected at the Practical Quantitation Limit.
R Associated value is unusable due to low matrix spike recoveries.

The remaining sample submitted for inorganic MS analyses yielded spike recoveries within the established control limits.

[1] The control limits of 75-125 percent do not apply when the sample concentration exceeds the spike concentration by a factor of four or more.

15. DUPLICATE SAMPLE ANALYSES - INORGANICS

The method(s) precision (relative percent difference (RPD) of duplicate analyses) is determined from the analysis of duplicate samples. Duplicate samples were performed for metals and cyanide determinations at a minimum frequency of one per 20 investigative samples.

The duplicate analyses performed for cyanide yielded RPD values less than the maximum allowable limits of 20 percent for water and 35 percent for soil, indicating an acceptable level of precision was achieved for cyanide determinations. However, among the duplicate data reported for metals, the samples listed in the following table showed RPDs outside the established control limits:

Sample I.D.	*Parameter*	*Analyte*	*Concentration (mg/kg)*	*Duplicate Concentration (mg/kg)*	*CRDL (mg/kg)*	*RPD*
MW-1	Metals	Zinc	26.1	15.4B	20.0	51.6
SED-1	Metals	Mercury	1942U	2050	0.2	59.1
SW-1	Metals	Cadmium	3.1B	5.1	5.0	48.8
		Chromium	21.8	34.1	0.5	44.0
		Silver	13.0	8.6B	10.0	40.7
SW-3	Metals	Aluminum	209.2	321.5	200.0	42.3

B The associated value is below the CRDL, but above the IDL.
U The associated analyte is non-detected at the Practical Quantitation Limit (PQL).

The aforementioned results should be qualified as estimated (data qualifier J) due to a variability among the sample data.

All other investigative samples submitted for inorganic duplicate analyses yielded RPD values less than 20 percent for soil and 35 percent for water.

16. FIELD QA/QC

The field QA/QC for this sampling event consisted of four field duplicates, three rinsate blanks, and two trip blanks. All field QA/QC samples were collected at a minimum frequency of one per 20 investigative samples.

In order to asses the efficacy of sampling device cleansing protocols performed in the field, rinsate blanks were collected and submitted to the laboratory for analysis. The samples analyzed as rinsate blanks were Rinsate Blank, SED-RB, and SW-RB. The rinsate blanks yielded positive concentrations of several compounds as shown in the following:

Sample I.D.:	*Rinse Blank*	*SED-RB*	*SW-RB*
Units:	*(µg/L)*	*(µg/L)*	*(µg/L)*
Compound			
Chloroform		5	6
Trichloroethene		32	14
1,2-Dichloroethene(total)			1J
Toluene	1J		
Di-n-butyl phthalate			3J

J The associated value is below the PQL and therefore estimated.

Sample MW-2 was collected immediately after Rinse Blank. It showed a positive concentration of toluene (12J µg/L); however this is twelve times greater than the Rinse Blank concentration. Therefore, qualification of the toluene result due to inadequate sampling device cleansing protocols was not required. Samples were not collected after SED-RB and SW-RB, so the sampling device cleansing protocols could not be assessed for these two samples.

Four field duplicates were taken to assess the aggregate analytical and sampling protocol precision. The field duplicates consisted of the following:

Source	*Sample I.D.*	*Field Duplicate I.D.*
DW-1	DW-1	DW-2
MW-6	MW-6	MW-7
SED-2	SED-2	SED-3
SW-6	SW-6	SW-7

The field duplicates demonstrated several discrepancies as shown in Table 13. All field duplicate results listed in Table 13 should be qualified as estimated (data qualifier J) due to a variability among the sample data.

To evaluate the possibility of contamination arising from sample transport, the environment, or shipping, two trip banks were submitted to the laboratory for TCL VOC analysis. The trip blanks yielded positive concentrations of methylene chloride and acetone. However, the concentrations of methylene chloride and acetone have been previously qualified as non-detected due to laboratory blank contamination as per Section 8 of this memo. The trip blank yielded non-detected quantities of all remaining TCL VOCs. Therefore, contamination attributable to sample transport, the environment and/or shipping was considered an insignificant factor for this sample.

18. CONCLUSION

Based on the assessment detailed in the foregoing, the data produced by Weston is acceptable for use with the specific qualifications noted herein.

TABLE 1
SUMMARY OF SAMPLE COLLECTION AND ANALYTICAL PROGRAM
VACAIR ALLOYS
MAY 1991

Matrix	*Analytical Parameters*	*Methodology (1)*	*Associated Samples*
Sediment	TCL VOCs	89-1	SED-1, SED-2
	TCL BNAs	89-2	SED-3, SED-4
	Pesticides/PCBs	89-3	SED-5, SED-6
	TAL Metals	200 Series CLP-M	SED-7, SED-RB
	Cyanide	335.2 CLP-M	
	TPHs	418.1	
Surface Water	TCL VOCs	89-1	SW-1, SW-2
	TCL BNAs	89-2	SW-3, SW-4
	Pesticides/PCBs	89-3	SW-5, SW-6
	TAL Metals	200 Series CLP-M	SW-7, SW-8
	Cyanide	335.2 CLP-M	SW-9, SW-RB
	TPHs	418.1	
Surface Water	TCL VOCs	89-1	SW-Trip Blank
Groundwater	TCL VOCs	89-1	MW-1, MW-2
	TCL BNAs	89-2	MW-3, MW-4
	Pesticides/PCBs	89-3	MW-5, MW-6
	TAL Metals	200 Series CLP-M	MW-7
	Cyanide	335.2 CLP-M	Rinsate Blank 1
	TPHs	418.1	
Groundwater	TCL VOCs	89-1	Trip Blank 1
			Trip Blank 2
Drinking Water	TCL VOCs	89-1	DW-1, DW-2
	TCL BNAs	89-2	
	Pesticides/PCBs	89-3	
	TAL Metals	200 Series CLP-M	
	TPHs	418.1	
	Cyanide	335.2 CLP-M	

Note:
(1) All methods referenced from NYSDEC September 1989 Analytical Services Protocols (ASP).

TABLE 2
SAMPLES WHICH EXCEEDED HOLDING TIME CRITERIA
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Prescribed Holding Time(1) (days) Extraction/Analysis(2)*	*Actual Holding Time (days) Extraction/Analysis*
DW-1	Mercury	-/26	-/29
DW-1MS	Mercury	-/26	-/29
	BNAs	5/40	6/-
DW-1MSD	Mercury	-/26	-/29
DW-2	Mercury	-/26	-/29
MW-1	Mercury	-/26	-/29
MW-2	Mercury	-/26	-/29
MW-2MS	Mercury	-/26	-/29
MW-2MSD	Mercury	-/26	-/29
MW-3	Mercury	-/26	-/29
MW-4	Mercury	-/26	-/29
MW-5	Mercury	-/26	-/29
MW-6	Mercury	-/26	-/29
MW-7	Mercury	-/26	-/29
Rinsate Blank	Mercury	-/26	-/29
SED-1	Mercury	-/26	-/36
SED-1MS	Mercury	-/26	-/36
SED-2	Mercury	-/26	-/36
	Pest/PCBs	5/40	-/41
SED-3	Mercury	-/26	-/36
	Pest/PCBs	5/40	-/41
SED-4	Mercury	-/26	-/40
SED-5	Mercury	-/26	-/40
SED-7	Mercury	-/26	-/40
SED-7MS	Mercury	-/26	-/40
SED-7MSD	Mercury	-/26	-/40
SW-1	Mercury	-/26	-/29
	Pest/PCBs	5/40	-/42
SW-1RE	BNAs	5/40	9/48
	Pest/PCBs	5/40	-/46
SW-2	Mercury	-/26	-/29
	Pest/PCBs	5/40	-/46
SW-2RE	BNAs	5/40	9/48

Notes:
(1) All holding times measured from VTSR.
(2) Prescribed holding times from VTSR to analysis and VTSR to extraction.
MS Associated sample is a matrix spike sample.
MSD Associated sample is a matrix spike duplicate sample
RE Associated sample is a reextraction.

TABLE 3
QUALIFIED DATA DUE TO HOLDING TIME EXCEEDANCES
VACAIR ALLOYS
MAY 1991

Sample I.D.:	*SW-1RE*	*SW-2RE*
Units:	*(µg/L)*	*(µg/L)*
BNAs		
Phenol	10UJ	10UJ
bis(2-Chloroethyl)ether	10UJ	10UJ
2-Chlorophenol	10UJ	10UJ
1,3-Dichlorobenzene	10UJ	10UJ
1,4-Dichlorobenzene	10UJ	10UJ
Benzyl alcohol	10UJ	10UJ
1,2-Dichlorobenzene	10UJ	10UJ
2-Methylphenol	10UJ	10UJ
bis(2-Chloroisopropyl)ether	10UJ	10UJ
4-Methylphenol	2J	10UJ
N-nitroso-di-n-propylamine	10UJ	10UJ
Hexachloroethane	10UJ	10UJ
Nitrobenzene	10UJ	10UJ
Isophorone	10UJ	10UJ
2-Nitrophenol	10UJ	10UJ
2,4-Dimethylphenol	10UJ	10UJ
Benzoic acid	50UJ	50UJ
bis(2-Chlorethoxy)methane	10UJ	10UJ
2,4-Dichlorophenol	10UJ	10UJ
1,2,4-Trichlorobenzene	10UJ	10UJ
Naphthalene	10UJ	10UJ
4-Chloroaniline	10UJ	10UJ
Hexachlorobutadiene	10UJ	10UJ
4-Chloro-3-methylphenol	2J	10UJ
2-Methylnaphthalene	10UJ	10UJ
Hexachlorocyclopentadiene	10UJ	10UJ
2,4,6-Trichlorophenol	10UJ	10UJ
2,4,5-Trichlorophenol	50UJ	50UJ
2-Chloronaphthalene	10UJ	10UJ
2-Nitroaniline	50UJ	50UJ
Dimethylphthalate	10UJ	10UJ
Acenaphthylene	10UJ	10UJ
2,6-Dinitrotoluene	10UJ	10UJ
3-Nitroaniline	50UJ	50UJ
Acenaphthene	10UJ	10UJ
2,4-Dinitrophenol	50UJ	50UJ
4-Nitrophenol	50UJ	50UJ
Dibenzofuran	10UJ	10UJ
2,4-Dinitrotoluene	10UJ	10UJ
Diethylphthalate	10UJ	10UJ
4-Chlorophenyl-phenylether	10UJ	10UJ
Fluorene	10UJ	10UJ

TABLE 3
QUALIFIED DATA DUE TO HOLDING TIME EXCEEDANCES
VACAIR ALLOYS
MAY 1991

Sample I.D.:	*SW-1RE*	*SW-2RE*
Units:	*(µg/L)*	*(µg/L)*
BNAs		
4-Nitroaniline	50UJ	50UJ
4,6-Dinitro-2-methylphenol	50UJ	50UJ
N-nitrosodiphenylamine	10UJ	10UJ
4-Bromophenyl-phenylether	10UJ	10UJ
Hexachlorobenzene	10UJ	10UJ
Pentachlorophenol	50UJ	50UJ
Phenanthrene	10UJ	10UJ
Anthracene	10UJ	10UJ
Di-n-butyl phthalate	2JB	3J
Fluoranthene	10UJ	10UJ
Pyrene	10UJ	10UJ
Butyl benzylphthalate	10UJ	10UJ
3,3'-Dichlorobenzidine	20UJ	20UJ
Benzo(a)anthracene	10UJ	10UJ
Chrysene	10UJ	10UJ
bis(2-Ethylhexyl)phthalate	3J	2J
Di-n-octyl phthalate	10UJ	10UJ
Benzo(b)fluoranthene	10UJ	10UJ
Benzo(k)fluoranthene	10UJ	10UJ
Benzo(a)pyrene	10UJ	10UJ
Indeno(1,2,3-cd)pyrene	10UJ	10UJ
Dibenz(a,h)anthracene	10UJ	10UJ
Benzo(g,h,i)perylene	10UJ	10UJ

Sample I.D.:	*SW-1*	*SW-1RE*	*SW-2*
Units:	*(µg/L)*	*(µg/L)*	*(µg/L)*
Pesticides/PCBs			
alpha-BHC	1.00UJ	0.25UJ	0.05UJ
beta-BHC	1.00UJ	0.25UJ	0.05UJ
delta-BHC	1.00UJ	0.25UJ	0.05UJ
gamma-BHC (Lindane)	1.00UJ	0.25UJ	0.05UJ
Heptachlor	1.00UJ	0.25UJ	0.05UJ
Aldrin	1.00UJ	0.25UJ	0.05UJ
Heptachlor epoxide	1.00UJ	0.25UJ	0.05UJ
Endosulfan I	1.00UJ	0.25UJ	0.05UJ
Dieldrin	2.00UJ	0.50UJ	0.10UJ
4,4'-DDE	2.00UJ	0.50UJ	0.10UJ
Endrin	2.00UJ	0.50UJ	0.10UJ
Endosulfan II	2.00UJ	0.50UJ	0.10UJ
4,4'-DDT	2.00UJ	0.50UJ	0.10UJ
Methoxychlor	10.00UJ	2.50UJ	0.50UJ
Endrin ketone	2.00UJ	0.50UJ	0.10UJ

TABLE 3
QUALIFIED DATA DUE TO HOLDING TIME EXCEEDANCES
VACAIR ALLOYS
MAY 1991

Sample I.D.:	*SW-1*	*SW-1RE*	*SW-2*
Units:	*(µg/L)*	*(µg/L)*	*(µg/L)*
Pesticides/PCBs			
alpha-Chlordane	10.00UJ	2.50UJ	0.50UJ
gamma-Chlordane	10.00UJ	2.50UJ	0.50UJ
Toxaphene	20.00UJ	5.00UJ	1.00UJ
Arochlor-1016	10.00UJ	2.50UJ	0.50UJ
Arochlor -1221	10.00UJ	2.50UJ	0.50UJ
Arochlor-1232	10.00UJ	2.50UJ	0.50UJ
Arochlor-1242	10.00UJ	2.50UJ	0.50UJ
Arochlor-1248	10.00UJ	2.50UJ	0.50UJ
Arochlor-1254	20.00UJ	5.00UJ	1.00UJ
Arochlor-1260	20.00UJ	5.00UJ	1.00UJ

Sample I.D.:	*SED-2*	*SED-3*
Units:	*(µg/kg)*	*(µg/kg)*
Pesticides/PCBs		
alpha-BHC	25.0UJ	23.0UJ
beta-BHC	25.0UJ	23.0UJ
delta-BHC	25.0UJ	23.0UJ
gamma-BHC (Lindane)	25.0UJ	23.0UJ
Heptachlor	25.0UJ	23.0UJ
Aldrin	25.0UJ	23.0UJ
Heptachlor epoxide	25.0UJ	23.0UJ
Endosulfan I	25.0UJ	23.0UJ
Dieldrin	50.0UJ	45.0UJ
4,4'-DDE	50.0UJ	45.0UJ
Endrin	50.0UJ	45.0UJ
Endosulfan II	50.0UJ	45.0UJ
4,4'-DDT	50.0UJ	45.0UJ
Methoxychlor	250.0UJ	230.0UJ
Endrin ketone	50.0UJ	45.0UJ
alpha-Chlordane	250.0UJ	230.0UJ
gamma-Chlordane	250.0UJ	230.0UJ
Toxaphene	500.0UJ	450.0UJ
Arochlor-1016	250.0UJ	230.0UJ
Arochlor -1221	250.0UJ	230.0UJ
Arochlor-1232	250.0UJ	230.0UJ
Arochlor-1242	250.0UJ	230.0UJ
Arochlor-1248	250.0UJ	230.0UJ
Arochlor-1254	500.0UJ	450.0UJ
Arochlor-1260	160.0J	86.0J

TABLE 3
QUALIFIED DATA DUE TO HOLDING TIME EXCEEDANCES
VACAIR ALLOYS
MAY 1991

Sample I.D.:	*DW-1*	*DW-2*	*MW-1*	*MW-2*
Units:	*(µg/L)*	*(µg/L)*	*(µg/L)*	*(µg/L)*
Mercury	.200UJ	.200UJ	.200UJ	.200UJ
Sample I.D.:	*MW-3*	*MW-4*	*MW-5*	*MW-6*
Units:	*(µg/L)*	*(µg/L)*	*(µg/L)*	*(µg/L)*
Mercury	.200UJ	.200UJ	.200UJ	.200UJ
Sample I.D.:	*MW-7*	*Rinse Blank*	*SED-1*	*SED-2*
Units:	*(µg/L)*	*(µg/L)*	*(µg/kg)*	*(µg/kg)*
Mercury	.200UJ	.200UJ	Note(1)	.439J
Sample I.D.:	*SED-3*	*SED-4*	*SED-5*	*SED-7*
Units:	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*
Mercury	0.431J	1.84J	.658UJ	.227UJ
Sample I.D.:	*SW-1*	*SW-2*		
Units:	*(µg/L)*	*(µg/L)*		
Mercury	.490J	.200UJ		

Notes:
(1) associated value has been previously qualified due to holding time exceedances.
B Compound was detected in associated laboratory blank.
J Associated value is estimated due to holding time exceedances.
NA Sample was not analyzed for the associated compound.
RE Sample was reanalyzed.
U Compound was non-detected at the Practical Quantitation Limit (PQL).

TABLE 4
QUALIFIED SAMPLE DATA DUE TO OUTLYING INITIAL CALIBRATION DATA
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Analysis Date*	*Calibration Date*	*Instrument I.D.*	*Parameter*	*Compound*	*RSD*	*RRF*	*Concentration*	*Units*	*Qualifier*
MW-1	05/07/91	05/07/91	HP-MSD K	VOCs	2-Butanone	-	0.046	10U	µg/L	R
MW-2	05/08/91	05/07/91	HP-MSD K	VOCs	2-Butanone	-	0.046	100U	µg/L	R
MW-2DL	05/08/91	05/07/91	HP-MSD K	VOCs	2-Butanone	-	0.046	NA	-	-
MW-3	05/08/91	05/07/91	HP-MSD K	VOCs	2-Butanone	-	0.046	2000U	µg/L	R
MW-4	05/07/91	05/07/91	HP-MSD K	VOCs	2-Butanone	-	0.046	10U	µg/L	R
MW-6	05/07/91	05/07/91	HP-MSD K	VOCs	2-Butanone	-	0.046	10U	µg/L	R
MW-7	05/07/91	05/07/91	HP-MSD K	VOCs	2-Butanone	-	0.046	10U	µg/L	R
Rinse Blank	05/07/91	05/07/91	HP-MSD K	VOCs	2-Butanone	-	0.046	10U	µg/L	R
Trip Blank	05/08/91	05/07/91	HP-MSD K	VOCs	2-Butanone	-	0.046	10U	µg/L	R
SED-1(1)	05/09/91	05/08/91	HP-MSD X	VOCs	Acetone	36.6	-	6000B	µg/kg	J
SED-1DL(1)	05/09/91	05/08/91	HP-MSD X	VOCs	Acetone	36.6	-	NA	-	-
SED-1	06/08/91	06/08/91	5100L	BNAs	Butylbenzylphthalate	35.7	-	3500U	µg/kg	J
SED-3	06/09/91	06/08/91	5100L	BNAs	Butylbenzylphthalate	35.7	-	5200U	µg/kg	J
MW-1	06/07/91	06/06/91	5100SP	BNAs	4-Nitroanailine	41.1	-	50U	µg/L	J
MW-6	06/07/91	06/06/91	5100SP	BNAs	4-Nitroanailine	41.1	-	50U	µg/L	J
MW-7	06/07/91	06/06/91	5100SP	BNAs	4-Nitroanailine	41.1	-	50U	µg/L	J
SW-1RE	06/20/91	6/19,20/91	5100L	BNAs	3,3'-Dichlorobenzidine	42.4	-	20U	µg/L	Note(2)
SW-2RE	06/20/91	6/19,20/91	5100L	BNAs	3,3'-Dichlorobenzidine	42.4	-	20U	µg/L	Note(2)

Notes:

(1) Sample was analyzed at a medium level.
(2) Associated value has been previously qualified as estimated (data qualifier J) due to holding time exceedances.
B Compound was detected in associated laboratory blank.
DL Associated sample was analyzed at a dilution.
J Associated value is estimated due to outlying initial calibration data.
NA Not analyzed.
R Associated value is unusable due to low RRF value.
RE Associated sample was a reanalysis.
U Compound was non-detected at the Practical Quantitation Limit (PQL) stated in parenthesis.

TABLE 5
QUALIFIED SAMPLE DATA DUE TO OUTLYING CONTINUING CALIBRATION DATA
VACAIR ALLOYS
MAY 1991

Sample I.D.	Analysis Date	Initial Calibration Date	Continuing Calibration Date/Time	Instrument I.D.	Parameter	Compound	RSD	RRF	Sample Conc.	Units	Qualifier
MW-3	05/08/91	05/07/91	05/08/91 1000	HP-MSD K	VOCs	2-Butanone	-	0.044	2000U	µg/L	Note(1)
						4-Nitroaniline	41.1	-	50U	µg/L	Note(1)
MW-4DL	05/09/91	05/07/91	05/09/91 1104	HP-MSD K	VOCs	2-Butanone	-	0.045	NA	-	-
MW-5	05/09/91	05/07/91	05/09/91 1104	HP-MSD K	VOCs	2-Butanone	-	0.045	10U	µg/L	R
						bis(2-Ethylhexyl)phthalate	29.7	-	630J	µg/L	Note(2)
SED-4	05/15/91	05/08/91	05/15/91 1435	HP-MSD X	VOCs	2-Butanone	-	0.039	4700U	µg/kg	R
	06/10/91	06/08/91	06/10/91 1430	5100L	BNAs	Benzoic acid	42.3	-	650J	µg/kg	Note(2)
						Di-n-octylphthalate	21.7	-	270J	µg/kg	Note(2)
						3,3'-Dichlorobenzidine	38.7	-	NA	-	-
SED-4DL	05/15/91	05/08/91	05/15/91 1435	HP-MSD X	VOCs	2-Butanone	-	0.039	NA	-	-
	06/11/91	06/08/91	06/10/91 1430	5100L	BNAs	bis(2-Ethylhexyl)phthalate	27.4	-	34000	µg/kg	J
SED-5	06/10/91	06/08/91	06/10/91 1430	5100L	BNAs	Benzoic acid	42.3	-	3000J	µg/kg	Note(2)
SED-5DL	05/15/91	05/08/91	05/15/91 1435	HP-MSD X	VOCs	2-Butanone	-	0.039	NA	-	-
SED-6DL	05/15/91	05/08/91	05/15/91 1435	HP-MSD X	VOCs	2-Butanone	-	0.039	NA	-	-
SED-RB	05/14/91	05/07/91	05/14/91 1017	HP-MSD K	VOCs	2-Butanone	-	0.043	10U	µg/L	R
SW-1	05/09/91	05/07/91	05/09/91 1104	HP-MSD K	VOCs	2-Butanone	-	0.045	10000U	µg/L	R
SW-2	05/09/91	05/07/91	05/09/91 1104	HP-MSD K	VOCs	2-Butanone	-	0.045	10U	µg/L	R
	06/10/91	06/08/91	06/10/91 1311	5100SP	BNAs	Benzoic acid	29.7	-	4J	µg/L	Note(2)
SW-2DL	05/09/91	05/07/91	05/09/91 1104	HP-MSD K	VOCs	2-Butanone	-	0.045	NA	-	-
	05/10/91	05/07/91	05/10/91 1348	HP-MSD K	VOCs	2-Butanone	-	0.049	NA	-	-
SW-3	05/13/91	05/07/91	05/13/91 1315	HP-MSD K	VOCs	Acetone	52.7	-	13B	µg/L	J
	06/12/91	06/11/91	06/12/91 1101	5100L	BNAs	Benzyl alcohol	50.6	-	10U	µg/L	J
						3,3'-Dichlorobenzidine	51.8	-	20U	µg/L	J
SW-4	05/14/91	05/07/91	05/14/91 1017	HP-MSD K	VOCs	2-Butanone	-	0.043	10U	µg/L	R
	06/12/91	06/11/91	06/12/91 1101	5100L	BNAs	Benzyl alcohol	50.6	-	10U	µg/L	J
						3,3'-Dichlorobenzidine	51.8	-	20U	µg/L	J
SW-4RE	06/12/91	06/11/91	06/12/91 1101	5100L	BNAs	Benzyl alcohol	50.6	-	10U	µg/L	J
						3,3'-Dichlorobenzidine	51.8	-	20U	µg/L	J
SW-5	05/14/91	05/07/91	05/14/91 1017	HP-MSD K	VOCs	2-Butanone	-	0.043	10U	µg/L	R
	06/12/91	06/11/91	06/12/91 1101	5100L	BNAs	Benzyl alcohol	50.6	-	10U	µg/L	J
						3,3'-Dichlorobenzidine	51.8	-	20U	µg/L	J
SW-5DL	05/14/91	05/07/91	05/14/91 1017	HP-MSD K	VOCs	2-Butanone	-	0.043	NA	-	-
SW-6	05/14/91	05/07/91	05/14/91 1017	HP-MSD K	VOCs	2-Butanone	-	0.043	10U	µg/L	R

TABLE 5
QUALIFIED SAMPLE DATA DUE TO OUTLYING CONTINUING CALIBRATION DATA
VACAIR ALLOYS
MAY 1991

Sample I.D.	Analysis Date	Initial Calibration Date	Continuing Calibration Date/Time	Instrument I.D.	Parameter	Compound	RSD	RRF	Sample Conc.	Units	Qualifier
SW-6	06/12/91	06/11/91	06/12/91 1101	5100L	BNAs	Benzyl alcohol	50.6	-	10U	µg/L	J
						3,3'-Dichlorobenzidine	51.8	-	20U	µg/L	J
SW-6DL	05/15/91	05/07/91	05/15/91 1012	HP-MSD K	VOCs	2-Butanone	-	0.049	NA	-	-
	06/12/91	06/11/91	06/12/91 1101	5100L	BNAs	Benzyl alcohol	50.6	-	10U	µg/L	J
						3,3'-Dichlorobenzidine	51.8	-	20U	µg/L	J
SW-7	05/14/91	05/07/91	05/14/91 1017	HP-MSD K	VOCs	2-Butanone	-	0.043	10U	µg/L	R
	06/12/91	06/11/91	06/12/91 1101	5100L	BNAs	Benzyl alcohol	50.6	-	10U	µg/L	J
						3,3'-Dichlorobenzidine	51.8	-	20U	µg/L	J
SW-7DL	05/15/91	05/07/91	05/15/91 1012	HP-MSD K	VOCs	2-Butanone	-	0.049	NA	-	-
	06/12/91	06/11/91	06/12/91 1101	5100L	BNAs	Benzyl alcohol	50.6	-	10U	µg/L	J
						3,3'-Dichlorobenzidine	51.8	-	20U	µg/L	J
SW-8	05/14/91	05/07/91	05/14/91 1017	HP-MSD K	VOCs	2-Butanone	-	0.043	10U	µg/L	R
	06/12/91	06/11/91	06/12/91 1101	5100L	BNAs	Benzyl alcohol	50.6	-	10U	µg/L	J
						3,3'-Dichlorobenzidine	51.8	-	20U	µg/L	J
SW-8RE	06/12/91	06/11/91	06/12/91 1101	5100L	BNAs	Benzyl alcohol	50.6	-	10U	µg/L	J
						3,3'-Dichlorobenzidine	51.8	-	20U	µg/L	J
SW-9	05/14/91	05/07/91	05/14/91 1017	HP-MSD K	VOCs	2-Butanone	-	0.043	10U	µg/L	R
SW-RB	05/14/91	05/07/91	05/14/91 1017	HP-MSD K	VOCs	2-Butanone	-	0.043	10U	µg/L	R
SW-Trip Blank	05/14/91	05/07/91	05/14/91 1017	HP-MSD K	VOCs	2-Butanone	-	0.043	10U	µg/L	R

Notes:

(1)	Associated value has been previously qualified as estimated (data qualifier J) due to outlying initial calibration data.
(2)	Associated value is below the PQL, and has been previously qualified by the laboratory as estimated (data qualifier J).
B	Compound was detected in associated laboratory blank.
DL	Associated sample was analyzed at a dilution.
J	Associated value is estimated due to outlying continuing calibration data.
NA	Not analyzed.
R	Associated value is unusable due to low RRF value.
RE	Associated sample was a reanalysis
U	Compound was non-detected at the Practical Quantitation Limit (PQL).

TABLE 6
SAMPLES DEMONSTRATING OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Area*	*Upper Limit*	*Lower Limit*
MW-2	BNAs	Perylene-d12	73816	17430	69720
SED-1	BNAs	Phenanthrene-d10	113684	26203	104810
	BNAs	Chrysene-d12	100906	21064	84254
	BNAs	Perylene-d12	108533	15991	63962
SED-1MS	BNAs	Chrysene-d12	103506	21064	84254
	BNAs	Perylene-d12	118454	15991	63962
SED-1MSD	BNAs	1,4-Dichlorobenzene-d4	42686	8691	34762
	BNAs	Naphthalane-d8	144919	32010	128038
	BNAs	Acenaphthene-d10	87689	18844	75376
	BNAs	Chrysene-d12	116049	21064	84254
	BNAs	Perylene-d12	128336	15991	63962
SED-2	VOCs	Chlorobenzene-d5	49553	55101	220404
SED-3	BNAs	Phenanthrene-d10	107558	26203	104810
	BNAs	Perylene-d12	66016	15991	63962
SED-3RE	BNAs	Perylene-d12	157060	35328	141312
SED-4	BNAs	Perylene-d12	166076	35328	141312
SED-5	VOCs	Bromochloromethane	11875	12960	51838
	VOCs	1,4-Difluorobenzene	54697	55356	221424
	VOCs	Chlorobenzene-d5	37268	55101	220404
SED-6	VOCs	Bromochloromethane	12509	12960	51838
	VOCs	1,4-Difluorobenzene	52120	55356	221424
	VOCs	Chlorobenzene-d5	36440	55101	220404
SED-7	VOCs	Chlorobenzene-d5	36812	55101	220404
SW-1	BNAs	Phenanthrene-d10	132745	27036	108142
	BNAs	Chrysene-d12	121927	19883	79532
	BNAs	Perylene-d12	124990	27036	64618
SW-2	BNAs	1,4-Dichlorobenzene-d4	43846	10811	43242
	BNAs	Naphthalene-d8	159930	39779	159116
	BNAs	Acenaphthene-d10	93639	20569	82276
	BNAs	Phenanthrene-d10	137542	27036	108142
	BNAs	Chrysene-d12	107316	19883	79532
	BNAs	Perylene-d12	105512	16155	64618
SW-3	BNAs	Perylene-d12	33197	36342	145368
SW-3MS	BNAs	Naphthalene-d8	52825	69947	279786
	BNAs	Acenaphthene-d10	34684	43488	173952
	BNAs	Phenanthrene-d10	55541	64753	259010
	BNAs	Chrysene-d12	35902	50311	201242
	BNAs	Acenaphthene-d10	23584	36342	145368
SW-4	BNAs	Chrysene-d12	45692	50311	201242
	BNAs	Perylene-d12	24365	36342	145368
SW-6	BNAs	Chrysene-d12	45816	50311	201242
	BNAs	Perylene-d12	27952	36342	145368

TABLE 6
SAMPLES DEMONSTRATING OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Area*	*Upper Limit*	*Lower Limit*
SW-7	BNAs	Acenaphthene-d10	40586	43488	173952
	BNAs	Chrysene-d12	34590	50311	201242
	BNAs	Perylene-d12	19942	36342	145368
SW-7RE	BNAs	Perylene-d12	22850	24945	99778
SW-8	BNAs	Naphthalene-d8	67028	69947	179786
	BNAs	Acenaphthene-d10	35724	43488	173952
	BNAs	Phenanthrene-d10	55715	64753	259010
	BNAs	Chrysene-d12	27995	50311	201242
	BNAs	Perylene-d12	15582	36342	145368
SW-8RE	BNAs	Perylene-d12	22109	24945	99778

Notes:
MS Associated sample is a matrix spike sample.
MSD Associated sample is a matrix spike duplicate sample.
RE Associated sample is a reanalysis.

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	***Qualified Sample Concentration***	*Units*
MW-2	BNAs	Perylene-d12	Di-n-octyl phthalate	10UJ	µg/L
			Benzo(b)fluoranthene	10UJ	µg/L
			Benzo(k)fluoranthene	10UJ	µg/L
			Benzo(a)pyrene	10UJ	µg/L
			Indeno(1,2,3-cd)pyrene	10UJ	µg/L
			Dibenzo(a,h)anthracene	10UJ	µg/L
			Benzo(g,h,i)perylene	10UJ	µg/L
SED-1	BNAs	Phenanthrene-d10	4,6-Dinitro-2-methylphenol	18000UJ	µg/kg
		Chrysene-d12	N-nitrosodiphenylamine	3500UJ	µg/kg
		Perylene-d12	4-Bromophenyl-phenylether	3500UJ	µg/kg
			Hexachlorobenzene	3500UJ	µg/kg
			Pentachlorophenol	18000UJ	µg/kg
			Phenanthrene	3500UJ	µg/kg
			Anthracene	3500UJ	µg/kg
			Di-n-butylphthalate	3500UJ	µg/kg
			Fluoranthene	3500UJ	µg/kg
			Pyrene	3500UJ	µg/kg
			Butylbenzylphthalate	Note(1)	
			3,3'-Dichlorobenzidine	7100UJ	µg/kg
			Benzo(a)anthracene	3500UJ	µg/kg
			Chrysene	3500UJ	µg/kg
			bis(2-Ethylhexyl)phthalate	Note(2)	
			Di-n-octylphthalate	3500UJ	µg/kg
			Benzo(b)fluoranthene	3500UJ	µg/kg
			Benzo(k)fluoranthene	3500UJ	µg/kg
			Benzo(a)pyrene	3500UJ	µg/kg
			Indeno(1,2,3-cd)pyrene	3500UJ	µg/kg
			Dibenzo(a,h)anthracene	3500UJ	µg/kg

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	*Qualified Sample Concentration*	*Units*
			Benzo(g,h,i)perylene	3500UJ	µg/kg
SED-2	VOCs	Chlorobenzene-d5	2-Hexanone	29UJ	µg/kg
			4-Methyl-2-pentanone	29UJ	µg/kg
			Tetrachloroethene	14UJ	µg/kg
			1,1,2,2-Tetrachloroethane	14UJ	µg/kg
			Toluene	18J	µg/kg
			Chlorobenzene	14UJ	µg/kg
			Ethyl benzene	14UJ	µg/kg
			Styrene	14UJ	µg/kg
			Total Xylenes	Note(2)	
SED-3	BNAs	Phenanthrene-d10	4,6-Dinitro-2-methylphenol	26000UJ	µg/kg
		Perylene-d12	N-nitrosodiphenylamine	5200UJ	µg/kg
			4-Bromophenyl-phenylether	5200UJ	µg/kg
			Hexachlorobenzene	5200UJ	µg/kg
			Pentachlorophenol	26000UJ	µg/kg
			Phenanthrene	5200UJ	µg/kg
			Anthracene	5200UJ	µg/kg
			Di-n-butylphthalate	5200UJ	µg/kg
			Fluoranthene	5200UJ	µg/kg
			Di-n-octylphthalate	5200UJ	µg/kg
			Benzo(b)fluoranthene	5200UJ	µg/kg
			Benzo(k)fluoranthene	5200UJ	µg/kg
			Benzo(a)pyrene	5200UJ	µg/kg
			Indeno(1,2,3-cd)pyrene	5200UJ	µg/kg
			Benzo(g,h,i)perylene	5200UJ	µg/kg

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	*Qualified Sample Concentration*	*Units*
SED-3RE	BNAs	Perylene-d12	Di-n-octylphthalate	5200UJ	µg/kg
			Benzo(b)fluoranthene	5200UJ	µg/kg
			Benzo(k)fluoranthene	5200UJ	µg/kg
			Benzo(a)pyrene	5200UJ	µg/kg
			Indeno(1,2,3-cd)pyrene	5200UJ	µg/kg
			Benzo(g,h,i)perylene	5200UJ	µg/kg
SED-4	BNAs	Perylene-d12	Di-n-octylphthalate	Note(2)	
			Benzo(b)fluoranthene	Note(2)	
			Benzo(k)fluoranthene	Note(2)	
			Benzo(a)pyrene	Note(2)	
			Indeno(1,2,3-cd)pyrene	800UJ	µg/kg
			Dibenzo(a,h)anthracene	800UJ	µg/kg
			Benzo(g,h,i)perylene	800UJ	µg/kg
SED-5	VOCs	Bromochloromethane	Chloromethane	64UJ	µg/kg
		1,4-Difluorobenzene	Bromomethane	64UJ	µg/kg
		Chlorobenzene-d5	Vinyl Chloride	64UJ	µg/kg
			Chloroethane	64UJ	µg/kg
			Methylene chloride	120BJ	µg/kg
			Acetone	E	
			Carbon disulfide	32UJ	µg/kg
			1,1-Dichloroethene	32UJ	µg/kg
			1,1-Dichloroethane	32UJ	µg/kg
			1,2-Dichloroethene(total)	330J	µg/kg
			Chloroform	32UJ	µg/kg
			1,2-Dichloroethane	32UJ	µg/kg
			2-Butanone	200J	µg/kg
			1,1,1-Trichloroethane	32UJ	µg/kg
			Carbon tetrachloride	32UJ	µg/kg

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	*Qualified Sample Concentration*	*Units*
SED-5	VOCs	Bromochloromethane	Vinyl acetate	64UJ	µg/kg
		1,4-Difluorobenzene	Bromodichloromethane	32UJ	µg/kg
		Chlorobenzene-d5	1,2-Dichloropropane	32UJ	µg/kg
			cis-1,3-Dichloropropene	Note(3)	
			Trichloroethene	32UJ	µg/kg
			Dibromochloromethane	32UJ	µg/kg
			1,2,2-Trichloroethane	32UJ	µg/kg
			Benzene	32UJ	µg/kg
			trans-1,3-Dichloropropene	32UJ	µg/kg
			Bromoform	64UJ	µg/kg
			4-Methyl-2-pentanone	64UJ	µg/kg
			2-Hexanone	32UJ	µg/kg
			Tetrachloroethene	32UJ	µg/kg
			1,1,2,2-Tetrachloroethane	32UJ	µg/kg
			Toluene	32UJ	µg/kg
			Chlorobenzene	32UJ	µg/kg
			Ethyl benzene	32UJ	µg/kg
			Styrene	32UJ	µg/kg
			Total Xylenes	32UJ	µg/kg
SED-6	VOCs	Bromochloromethane	Chloromethane	19UJ	µg/kg
		1,4-Difluorobenzene	Bromomethane	19UJ	µg/kg
		Chlorobenzene-d5	Vinyl Chloride	E	
			Chloroethane	19UJ	µg/kg
			Methylene chloride	39BJ	µg/kg
			Acetone	380J	µg/kg
			Carbon disulfide	10UJ	µg/kg
			1,1-Dichloroethene	10UJ	µg/kg
			1,1-Dichloroethane	10UJ	µg/kg

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	***Qualified Sample Concentration***	*Units*
SED-6	VOCs	Bromochloromethane	1,2-Dichloroethene(total)	E	
		1,4-Difluorobenzene	Chloroform	10UJ	µg/kg
		Chlorobenzene-d5	1,2-Dichloroethane	10UJ	µg/kg
			2-Butanone	19UJ	µg/kg
			1,1,1-Trichloroethane	10UJ	µg/kg
			Carbon tetrachloride	10UJ	µg/kg
			Vinyl acetate	19UJ	µg/kg
			Bromodichloromethane	10UJ	µg/kg
			1,2-Dichloropropane	10UJ	µg/kg
			cis-1,3-Dichloropropene	10UJ	µg/kg
			Trichloroethene	10UJ	µg/kg
			Dibromochloromethane	10UJ	µg/kg
			1,2,2-Trichloroethane	10UJ	µg/kg
			Benzene	10UJ	µg/kg
			trans-1,3-Dichloropropene	10UJ	µg/kg
			Bromoform	19UJ	µg/kg
			4-Methyl-2-pentanone	19UJ	µg/kg
			2-Hexanone	10UJ	µg/kg
			Tetrachloroethene	10UJ	µg/kg
			1,1,2,2-Tetrachloroethane	10UJ	µg/kg
			Toluene	Note(2)	
			Chlorobenzene	10UJ	µg/kg
			Ethyl benzene	10UJ	µg/kg
			Styrene	10UJ	µg/kg
			Total Xylenes	10UJ	µg/kg

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	*Qualified Sample Concentration*	*Units*
SED-7	VOCs	Chlorobenzene-d5	4-Methyl-2-pentanone	94UJ	µg/kg
			2-Hexanone	94UJ	µg/kg
			Tetrachloroethene	47UJ	µg/kg
			1,1,2,2-Tetrachloroethane	47UJ	µg/kg
			Toluene	47UJ	µg/kg
			Chlorobenzene	47UJ	µg/kg
			Ethyl benzene	47UJ	µg/kg
			Styrene	47UJ	µg/kg
			Total Xylenes	Note(2)	
SW-1	BNAs	Phenanthrene-d10	4,6-Dinitro-2-methylphenol	50UJ	µg/L
		Chrysene-d12	N-nitrosodiphenylamine	10UJ	µg/L
		Perylene-d12	4-Bromophenyl-phenylether	10UJ	µg/L
			Hexachlorobenzene	10UJ	µg/L
			Pentachlorophenol	50UJ	µg/L
			Phenanthrene	10UJ	µg/L
			Anthracene	10UJ	µg/L
			Di-n-butylphthalate	Note(2)	
			Fluoranthene	10UJ	µg/L
			Pyrene	10UJ	µg/L
			Butylbenzylphthalate	10UJ	µg/L
			3,3'-Dichlorobenzidine	20UJ	µg/L
			Benzo(a)anthracene	10UJ	µg/L
			Chrysene	10UJ	µg/L
			bis(2-Ethylhexyl)phthalate	Note(2)	µg/L
			Di-n-octylphthalate	10UJ	µg/L
			Benzo(b)fluoranthene	10UJ	µg/L
			Benzo(k)fluoranthene	10UJ	µg/L
			Benzo(a)pyrene	10UJ	µg/L

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	*Qualified Sample Concentration*	*Units*
SW-2	BNAs	1,4-Dichlorobenzene-d4	Indeno(1,2,3-cd)pyrene	10UJ	µg/L
		Naphthalene-d8	Dibenzo(a,h)anthracene	10UJ	µg/L
		Acenaphthene-d10	Benzo(g,h,i)perylene	10UJ	µg/L
		Phenanthrene-d10	Phenol	10UJ	µg/L
		Chrysene-d12	bis(2-Chlorethyl)ether	10UJ	µg/L
		Perylene-d12	2-Chlorophenol	10UJ	µg/L
			1,3-Dichlorobenzene	10UJ	µg/L
			1,4-Dichlorobenzene	10UJ	µg/L
			Benzyl alcohol	10UJ	µg/L
			1,2-Dichlorobenzene	10UJ	µg/L
			2-Methylphenol	10UJ	µg/L
			N-nitroso-di-n-propylamine	10UJ	µg/L
			Hexachloroethane	10UJ	µg/L
			Nitrobenzene	10UJ	µg/L
			Isophorone	10UJ	µg/L
			2-Nitrophenol	10UJ	µg/L
			2,4-Dimethylphenol	10UJ	µg/L
			Benzoic acid	Note(2)	
			bis(2-Chlorethoxymethane)	10UJ	µg/L
			2,4-Dichlorophenol	10UJ	µg/L
			1,2,4-Trichlorophenol	10UJ	µg/L
			1,2,4-Trichlorobenzene	10UJ	µg/L
			Naphthalene	10UJ	µg/L
			4-Chloroaniline	10UJ	µg/L
			Hexachlorobutadiene	10UJ	µg/L
			4-Chloro-3-methylphenol	10UJ	µg/L
			2-Methylnaphthalene	10UJ	µg/L
			Hexachlorocyclopentadiene	10UJ	µg/L

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	*Qualified Sample Concentration*	*Units*
SW-2	BNAs	1,4-Dichlorobenzene-d4	2,4,6-Trichlorophenol	10UJ	µg/L
		Naphthalene-d8	2,4,5-Trichlorophenol	50UJ	µg/L
		Acenaphthene-d10	2-Chloronaphthalene	10UJ	µg/L
		Phenanthrene-d10	2-Nitroaniline	50UJ	µg/L
		Chrysene-d12	Dimethylphthalate	10UJ	µg/L
		Perylene-d12	Acenaphthylene	10UJ	µg/L
			2,6-Dinitrotoluene	10UJ	µg/L
			3-Nitroanaline	50UJ	µg/L
			Acenaphthene	10UJ	µg/L
			2,4-Dinitrophenol	50UJ	µg/L
			4-Nitrophenol	50UJ	µg/L
			Dibenzofuran	10UJ	µg/L
			2,4-Dinitrotoluene	10UJ	µg/L
			Diethylphthalate	10UJ	µg/L
			4-Chlorophenyl-phenylether	10UJ	µg/L
			Fluorene	10UJ	µg/L
			4-Nitroanailine	50UJ	µg/L
			4,6-Dinitro-2-methylphenol	50UJ	µg/L
			N-nitrosodiphenylamine	10UJ	µg/L
			4-Bromophenyl-phenylether	10UJ	µg/L
			Hexachlorobenzene	10UJ	µg/L
			Pentachlorophenol	50UJ	µg/L
			Phenanthrene	10UJ	µg/L
			Anthracene	10UJ	µg/L
			Di-n-butylphthalate	Note(2)	
			Fluoranthene	10UJ	µg/L
			Pyrene	10UJ	µg/L
			Butylbenzylphthalate	10UJ	µg/L

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	***Qualified Sample Concentration***	*Units*
SW-2	BNAs	1,4-Dichlorobenzene-d4	3,3'-Dichlorobenzidine	20UJ	µg/L
		Naphthalene-d8	Benzo(a)anthracene	10UJ	µg/L
		Acenaphthene-d10	Chrysene	10UJ	µg/L
		Phenanthrene-d10	bis(2-Ethylhexyl)phthalate	Note(2)	µg/L
		Chrysene-d12	Di-n-octylphthalate	10UJ	µg/L
		Perylene-d12	Benzo(b)fluoranthene	10UJ	µg/L
			Benzo(k)fluoranthene	10UJ	µg/L
			Benzo(a)pyrene	10UJ	µg/L
			Indeno(1,2,3-cd)pyrene	10UJ	µg/L
			Dibenzo(a,h)anthracene	10UJ	µg/L
			Benzo(g,h,i)perylene	10UJ	µg/L
SW-3	BNAs	Perylene-d12	Di-n-octylphthalate	10UJ	µg/L
			Benzo(b)fluoranthene	10UJ	µg/L
			Benzo(k)fluoranthene	10UJ	µg/L
			Benzo(a)pyrene	10UJ	µg/L
			Indeno(1,2,3-cd)pyrene	10UJ	µg/L
			Dibenzo(a,h)anthracene	10UJ	µg/L
			Benzo(g,h,i)perylene	10UJ	µg/L
SW-4	BNAs	Chrysene-d12	Pyrene	10UJ	µg/L
		Perylene-d12	Butylbenzylphthalate	10UJ	µg/L
			3,3'-Dichlorobenzidine	20UJ	µg/L
			Benzo(a)anthracene	10UJ	µg/L
			bis(2-Ethylhexyl)phthalate	10UJ	µg/L
			Chrysene	10UJ	µg/L
			bis(2-Ethylhexyl)phthalate	Note(2)	
			Di-n-octylphthalate	10UJ	µg/L
			Benzo(b)fluoranthene	10UJ	µg/L
			Benzo(k)fluoranthene	10UJ	µg/L

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	***Qualified Sample Concentration***	*Units*
SW-6	BNAs	Chrysene-d12	Benzo(a)pyrene	10UJ	µg/L
		Perylene-d12	Indeno(1,2,3-cd)pyrene	10UJ	µg/L
			Dibenzo(a,h)anthracene	10UJ	µg/L
			Benzo(g,h,i)perylene	10UJ	µg/L
			Pyrene	10UJ	µg/L
			Butylbenzylphthalate	10UJ	µg/L
			3,3'-Dichlorobenzidine	20UJ	µg/L
			Benzo(a)anthracene	10UJ	µg/L
			bis(2-Ethylhexyl)phthalate	10UJ	µg/L
			Chrysene	10UJ	µg/L
			bis(2-Ethylhexyl)phthalate	10UJ	µg/L
			Di-n-octylphthalate	10UJ	µg/L
			Benzo(b)fluoranthene	10UJ	µg/L
			Benzo(k)fluoranthene	10UJ	µg/L
			Benzo(a)pyrene	10UJ	µg/L
			Indeno(1,2,3-cd)pyrene	10UJ	µg/L
			Dibenzo(a,h)anthracene	10UJ	µg/L
			Benzo(g,h,i)perylene	10UJ	µg/L
SW-7	BNAs	Acenaphthene-d10	Hexachlorocyclopentadiene	10UJ	µg/L
		Chrysene-d12	2,4,6-Trichlorophenol	10UJ	µg/L
		Perylene-d12	2,4,5-Trichlorophenol	50UJ	µg/L
			2-Chloronaphthalene	10UJ	µg/L
			2-Nitroaniline	50UJ	µg/L
			Dimethylphthalate	10UJ	µg/L
			Acenaphthylene	10UJ	µg/L
			2,6-Dinitrotoluene	10UJ	µg/L
			3-Nitroanaline	50UJ	µg/L
			Acenaphthene	10UJ	µg/L

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	***Qualified Sample Concentration***	*Units*
SW-7	BNAs	Acenaphthene-d10	2,4-Dinitrophenol	50UJ	µg/L
		Chrysene-d12	4-Nitrophenol	50UJ	µg/L
		Perylene-d12	Dibenzofuran	10UJ	µg/L
			2,4-Dinitrotoluene	10UJ	µg/L
			Diethylphthalate	10UJ	µg/L
			4-Chlorophenyl-phenylether	10UJ	µg/L
			Fluorene	10UJ	µg/L
			4-Nitroanailine	50UJ	µg/L
			4,6-Dinitro-2-methylphenol	50UJ	µg/L
			N-nitrosodiphenylamine	10UJ	µg/L
			4-Bromophenyl-phenylether	10UJ	µg/L
			Hexachlorobenzene	10UJ	µg/L
			Pentachlorophenol	50UJ	µg/L
			Phenanthrene	10UJ	µg/L
			Anthracene	10UJ	µg/L
			Di-n-butylphthalate	10UJ	µg/L
			Fluoranthene	10UJ	µg/L
			Pyrene	10UJ	µg/L
			Butylbenzylphthalate	10UJ	µg/L
			3,3'-Dichlorobenzidine	20UJ	µg/L
			Benzo(a)anthracene	10UJ	µg/L
			Chrysene	10UJ	µg/L
			bis(2-Ethylhexyl)phthalate	10UJ	µg/L
			Di-n-octylphthalate	10UJ	µg/L
			Benzo(b)fluoranthene	10UJ	µg/L
			Benzo(k)fluoranthene	10UJ	µg/L
			Benzo(a)pyrene	10UJ	µg/L
			Dibenzo(a,h)anthracene	10UJ	µg/L

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	*Qualified Sample Concentration*	*Units*
SW-7RE	BNAs	Perylene-d12	Indeno(1,2,3-cd)pyrene	10UJ	µg/L
			Benzo(g,h,i)perylene	10UJ	µg/L
			Di-n-octylphthalate	10UJ	µg/L
			Benzo(b)fluoranthene	10UJ	µg/L
			Benzo(k)fluoranthene	10UJ	µg/L
			Benzo(a)pyrene	10UJ	µg/L
			Indeno(1,2,3-cd)pyrene	10UJ	µg/L
			Dibenzo(a,h)anthracene	10UJ	µg/L
			Benzo(g,h,i)perylene	10UJ	µg/L
SW-8	BNAs	Naphthalene-d8	Nitrobenzene	10UJ	µg/L
		Acenaphthene-d10	Isophorone	10UJ	µg/L
		Phenanthrene-d10	2-Nitrophenol	10UJ	µg/L
		Chrysene-d12	2,4-Dimethylphenol	10UJ	µg/L
		Perylene-d12	Benzoic acid	50UJ	µg/L
			bis(2-Chlorethoxymethane)	10UJ	µg/L
			2,4-Dichlorophenol	10UJ	µg/L
			1,2,4-Trichlorophenol	10UJ	µg/L
			1,2,4-Trichlorobenzene	10UJ	µg/L
			Naphthalene	10UJ	µg/L
			4-Chloroaniline	10UJ	µg/L
			Hexachlorobutadiene	10UJ	µg/L
			4-Chloro-3-methylphenol	10UJ	µg/L
			2-Methylnaphthalene	10UJ	µg/L
			Hexachlorocyclopentadiene	10UJ	µg/L
			2,4,6-Trichlorophenol	10UJ	µg/L
			2,4,5-Trichlorophenol	50UJ	µg/L
			2-Chloronaphthalene	10UJ	µg/L
			2-Nitroaniline	50UJ	µg/L

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	*Qualified Sample Concentration*	*Units*
SW-8	BNAs	Naphthalene-d8	Dimethylphthalate	10UJ	µg/L
		Acenaphthene-d10	Acenaphthylene	10UJ	µg/L
		Phenanthrene-d10	2,6-Dinitrotoluene	10UJ	µg/L
		Chrysene-d12	3-Nitroanaline	50UJ	µg/L
		Perylene-d12	Acenaphthene	10UJ	µg/L
			2,4-Dinitrophenol	50UJ	µg/L
			4-Nitrophenol	50UJ	µg/L
			Dibenzofuran	10UJ	µg/L
			2,4-Dinitrotoluene	10UJ	µg/L
			Diethylphthalate	10UJ	µg/L
			4-Chlorophenyl-phenylether	10UJ	µg/L
			Fluorene	10UJ	µg/L
			4-Nitroanailine	50UJ	µg/L
			4,6-Dinitro-2-methylphenol	50UJ	µg/L
			N-nitrosodiphenylamine	10UJ	µg/L
			4-Bromophenyl-phenylether	10UJ	µg/L
			Hexachlorobenzene	10UJ	µg/L
			Pentachlorophenol	50UJ	µg/L
			Phenanthrene	10UJ	µg/L
			Anthracene	10UJ	µg/L
			Di-n-butylphthalate	10UJ	µg/L
			Fluoranthene	10UJ	µg/L
			Pyrene	10UJ	µg/L
			Butylbenzylphthalate	10UJ	µg/L
			3,3'-Dichlorobenzidine	20UJ	µg/L
			Benzo(a)anthracene	10UJ	µg/L
			Chrysene	10UJ	µg/L
			bis(2-Ethylhexyl)phthalate	10UJ	µg/L

TABLE 7
QUALIFIED DATA DUE TO OUTLYING INTERNAL STANDARD AREAS
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Internal Standard*	*Compound*	*Qualified Sample Concentration*	*Units*
SW-8	BNAs	Naphthalene-d8	Di-n-octylphthalate	10UJ	µg/L
		Acenaphthene-d10	Benzo(b)fluoranthene	10UJ	µg/L
		Phenanthrene-d10	Benzo(k)fluoranthene	10UJ	µg/L
		Chrysene-d12	Benzo(a)pyrene	10UJ	µg/L
		Perylene-d12	Indeno(1,2,3-cd)pyrene	10UJ	µg/L
			Dibenzo(a,h)anthracene	10UJ	µg/L
			Benzo(g,h,i)perylene	10UJ	µg/L
SW-8RE	BNAs	Perylene-d12	Di-n-octylphthalate	10UJ	µg/L
			Benzo(b)fluoranthene	10UJ	µg/L
			Benzo(k)fluoranthene	10UJ	µg/L
			Benzo(a)pyrene	10UJ	µg/L
			Dibenzo(a,h)anthracene	10UJ	µg/L
			Indeno(1,2,3-cd)pyrene	10UJ	µg/L
			Benzo(g,h,i)perylene	10UJ	µg/L

Notes:

(1) Assocaited value has been previously qualified as estimated (data qualifier J) due to outlying initial calibration data.

(2) Associated value has been reviously qualified as estimated, as concentration is below the Practical Quantitation Limit (PQL).

(3) Associated value has been previously qualified as estimated (data qualifier J) due to outlying continuing calibration data.

E Concentration of associated compound exceeded the instrument's linear calibration range, and subsequently analyzed at a dilution

J Associated concentration is estimated due to outlying internal standard areas.

RE Associated sample is a reanalysis.

U Associated compound is non-detected at the Pactical Quantitation Limit (PQL).

TABLE 8
QUALIFIED BNA DATA DUE TO OUTLYING
SURROGATE SPIKE RECOVERIES
VACAIR ALLOYS
MAY 1991

Sample I.D.:	*MW-6*	*MW-7*	*SW-2RE*
Units:	*(µg/L)*	*(µg/L)*	*(µg/L)*
Compound			
Phenol	10UR	10UR	10UR
2-Chlorophenol	10UR	10UR	10UR
Benzyl alcohol	10UR	10UR	10UR
2-Methylphenol	10UR	10UR	10UR
4-Methylphenol	10UR	10UR	10UR
2-Nitrophenol	10UR	10UR	10UR
2,4-Dimethylphenol	10UR	10UR	10UR
Benzoic acid	10UR	10UR	10UR
2,4-Dichlorophenol	10UR	10UR	10UR
4-Chloro-3-methylphenol	10UR	10UR	10UR
2,4,6-Trichlorophenol	10UR	10UR	10UR
2,4,5-Trichlorophenol	50UR	50UR	50UR
2,4-Dinitrophenol	50UR	50UR	50UR
4-Nitrophenol	50UR	50UR	50UR
4,6-Dinitro-2-methylphenol	50UR	50UR	50UR
Pentachlorophenol	50UR	50UR	50UR

Sample I.D.:	*MW-2*	*SW-1*	*SW-1RE*	*SW-2*
Units:	*(µg/L)*	*(µg/L)*	*(µg/L)*	*(µg/L)*
Compound				
bis(2-Chlorethyl)ether	10UR	10UR	10UR	10UR(1)
1,3-Dichlorobenzene	10UR	10UR	10UR	10UR(1)
1,4-Dichlorobenzene	10UR	10UR	10UR	10UR(1)
1,2-Dichlorobenzene	10UR	10UR	10UR	10UR(1)
bis(2-chloroisopropyl)ether	10UR	10UR	10UR	10UR(1)
N-nitroso-di-n-propylamine	10UR	10UR(1)	10UR	10UR(1)
Hexachloroethane	10UR	10UR(1)	10UR	10UR(1)
Nitrobenzene	10UR	10UR(1)	10UR	10UR(1)
Isophorone	10UR	10UR(1)	10UR	10UR(1)
bis(2-chloroethoxy)methane	10UR	10UR(1)	10UR	10UR(1)
1,2,4-Trichlorobenzene	10UR	10UR(1)	10UR	10UR(1)
Naphthalene	Note(2)	10UR(1)	10UR	10UR(1)
4-Chloroaniline	10UR	10UR(1)	10UR	10UR(1)
Hexachlorobutadiene	10UR	10UR(1)	10UR	10UR(1)
2-Methylnaphthelene	Note(2)	10UR(1)	10UR	10UR(1)
Hexachlorocyclopentadiene	10UR	10UR(1)	10UR	10UR(1)
2-Chloronaphthalene	10UR	10UR(1)	10UR	10UR(1)
2-Nitroaniline	50UR	50UR(1)	50UR	50UR(1)
Dimethylphthalate	10UR	10UR(1)	10UR	10UR(1)
Acenaphthylene	10UR	10UR(1)	10UR	10UR(1)

TABLE 8
QUALIFIED BNA DATA DUE TO OUTLYING
SURROGATE SPIKE RECOVERIES
VACAIR ALLOYS
MAY 1991

Sample I.D.:	*MW-2*	*SW-1*	*SW-1RE*	*SW-2*
Units:	*(µg/L)*	*(µg/L)*	*(µg/L)*	*(µg/L)*
Compound				
2,6-Dinitrotoluene	10UR	10UR(1)	10UR	10UR(1)
3-Nitroaniline	50UR	50UR(1)	50UR	50UR(1)
Acenaphthene	10UR	10UR(1)	10UR	10UR(1)
2,4-Dinitrotoluene	10UR	10UR(1)	10UR	10UR(1)
Dibenzofuran	10UR	10UR(1)	10UR	10UR(1)
Diethylphthalate	10UR	10UR(1)	10UR	10UR(1)
4-Chlorophenyl-phenyl ether	10UR	10UR(1)	10UR	10UR(1)
Fluorene	10UR	10UR(1)	10UR	10UR(1)
4-Nitroaniline	50UR	50UR(1)	50UR	50UR(1)
N-nitrosdiphenylamine	10UR	10UR(1)	10UR	10UR(1)
4-Bromophenyl-phenylether	10UR	10UR(1)	10UR	10UR(1)
Hexachlorobenxene	10UR	10UR(1)	10UR	10UR(1)
Phenanthrene	10UR	10UR(1)	10UR	10UR(1)
Anthracene	10UR	10UR(1)	10UR	10UR(1)
Di-n-butylphthalate	10UR	Note(2)	Note(2)	Note(2)
Fluoranthene	10UR	10UR(1)	10UR	10UR(1)
Pyrene	10UR	10UR(1)	10UR	10UR(1)
Butylbenzylphthalate	10UR	10UR(1)	10UR	10UR(1)
3,3'-Dichlorobenzidine	20UR	10UR(1)	10UR	10UR(1)
Benzo(a)anthracene	10UR	10UR(1)	10UR	10UR(1)
Chrysene	10UR	10UR(1)	10UR	10UR(1)
bis(2-Ethylhexyl)phthalate	10UR	Note(2)	Note(2)	Note(2)
Di-n-octylphthalate	10UR(1)	10UR(1)	10UR	10UR(1)
Benzo(b)fluoranthene	10UR(1)	10UR(1)	10UR	10UR(1)
Benzo(k)fluoranthene	10UR(1)	10UR(1)	10UR	10UR(1)
Benzo(a)pyrene	10UR(1)	10UR(1)	10UR	10UR(1)
Indeno(1,2,3-cd)pyrene	10UR(1)	10UR(1)	10UR	10UR(1)
Dibenzo(a,h)anthracene	10UR(1)	10UR(1)	10UR	10UR(1)
Benzo(g,h,i)perylene	10UR(1)	10UR(1)	10UR	10UR(1)

Notes:

(1) The associated data has been previously qualified as estimated, however this qualification takes precedence over the previous qualification.

(2) The associated value is below the PQL, and has been previously qualified by qualified by the laboratory as estimated (data qualifier J). Additional qualification is not necessary.

R Associated value is qualified as unusable due to low surrogate spike recoveries.

U Associated compound is non-detected at the Practical Quantitation Limit (PQL).

TABLE 9
QUALIFIED DATA DUE TO LABORATORY BLANK CONTAMINATION
VACAIR ALLOYS
MAY 1991

Sample ID	Parameter	Compound	Associated Blank Concentration	Sample Dilution	Sample Concentration	Units	Qualified Sample Results	Units
MW-1	VOCs	Methylene Chloride	7	1.00	17B	µg/L	17U	µg/L
		Acetone	6J	1.00	12B	µg/L	12U	µg/L
MW-2	VOCs	Methylene Chloride	11	10.00	140B	µg/L	140U	µg/L
		Acetone	11	10.00	320B	µg/L	320U	µg/L
MW-3	VOCs	Methylene Chloride	11	200.00	3100B	µg/L	3100U	µg/L
		Acetone	11	200.00	5100B	µg/L	5100U	µg/L
MW-4	VOCs	Methylene Chloride	7	1.00	5B	µg/L	5U	µg/L
		Acetone	6J	1.00	25B	µg/L	25U	µg/L
MW-5	VOCs	Methylene Chloride	10	1.00	7B	µg/L	7U	µg/L
		Acetone	18	1.00	7JB	µg/L	10U	µg/L
MW-6	VOCs	Methylene Chloride	7	1.00	4JB	µg/L	5U	µg/L
		Acetone	6J	1.00	9JB	µg/L	10U	µg/L
MW-7	VOCs	Methylene Chloride	7	1.00	8JB	µg/L	10U	µg/L
		Acetone	6J	1.00	5B	µg/L	5U	µg/L
Rinse Blank	VOCs	Methylene Chloride	7	1.00	9B	µg/L	9U	µg/L
		Acetone	6J	1.00	4JB	µg/L	10U	µg/L
SED-1	VOCs	Methylene Chloride	2300	1.22	3300B	µg/kg	3300U	µg/kg
		Acetone	3200	1.22	6000B	µg/kg	6000U	µg/kg
SED-2	VOCs	Methylene Chloride	8	1.00	110B	µg/kg	110*	µg/kg
SED-2DL	VOCs	Acetone	10	5.00	850B	µg/kg	850*	µg/kg
SED-3	VOCs	Methylene Chloride	8	2.50	170B	µg/kg	170U	µg/kg
		Acetone	10	2.50	750B	µg/kg	750*	µg/kg
SED-4	VOCs	Methylene Chloride	1900	2.50	9800B	µg/kg	9800U	µg/kg
		Acetone	2500	2.50	10000B	µg/kg	10000U	µg/kg
SED-5	VOCs	Methylene Chloride	11	0.98	120B	µg/kg	120*	µg/kg
SED-6	VOCs	Methylene Chloride	11	1.00	39B	µg/kg	39U	µg/kg
SED-7	VOCs	Methylene Chloride	11	4.17	88B	µg/kg	88U	µg/kg
		Acetone	14	4.17	1700B	µg/kg	1700*	µg/kg
SED-RB	VOCs	Methylene Chloride	9	1.00	11B	µg/L	11U	µg/L
		Acetone	8J	1.00	18B	µg/L	18U	µg/L

TABLE 9
QUALIFIED DATA DUE TO LABORATORY BLANK CONTAMINATION
VACAIR ALLOYS
MAY 1991

Sample ID	Parameter	Compound	Associated Blank Concentration	Sample Dilution	Sample Concentration	Units	Qualified Sample Results	Units
SW-1	VOCs	Methylene Chloride	10	1000	11000B	µg/L	11000U	µg/L
		Acetone	18	1000	14000B	µg/L	14000U	µg/L
		Methylene Chloride	10	1.00	7B	µg/L	7U	µg/L
		Acetone	18	1.00	23B	µg/L	23U	µg/L
SW-1RE	BNAs	Di-n-butylphthalate	1J	1.00	2JB	µg/L	10U	µg/L
SW-2RE	BNAs	Di-n-butylphthalate	1J	1.00	1JB	µg/L	10U	µg/L
SW-3	VOCs	Methylene Chloride	8	1.00	2JB	µg/L	5U	µg/L
		Acetone	20	1.00	13B	µg/L	13U	µg/L
SW-4	VOCs	Methylene Chloride	9	1.00	5B	µg/L	5U	µg/L
		Acetone	8J	1.00	18B	µg/L	18U	µg/L
SW-5	VOCs	Methylene Chloride	9	1.00	4JB	µg/L	5U	µg/L
		Acetone	8J	1.00	15B	µg/L	15U	µg/L
SW-6	VOCs	Methylene Chloride	9	1.00	9B	µg/L	9U	µg/L
		Acetone	8J	1.00	4JB	µg/L	10U	µg/L
SW-7	VOCs	Methylene Chloride	9	1.00	5B	µg/L	5U	µg/L
		Acetone	8J	1.00	4JB	µg/L	10U	µg/L
SW-8	VOCs	Methylene Chloride	9	1.00	7B	µg/L	7U	µg/L
		Acetone	8J	1.00	8JB	µg/L	10U	µg/L
SW-9	VOCs	Methylene Chloride	9	1.00	6B	µg/L	6U	µg/L
		Acetone	8J	1.00	10B	µg/L	10U	µg/L
SW-RB	VOCs	Methylene Chloride	9	1.00	7B	µg/L	7U	µg/L
		Acetone	8J	1.00	12B	µg/L	12U	µg/L
Trip Blank	VOCs	Methylene Chloride	7	1.00	5B	µg/L	5U	µg/L

Notes:

B Compound was detected in the associated laboratory blank.
DL Associated sample was analyzed at a dilution.
J Associated value is below the PQL, and therefore estimated.
RE Associated value is a reanalysis.
U Associated compound is non-detected due to laboratory blank contamination.
* The associated value is greater than ten times the blank concentration, and cannot be qualified as non-detected due to laboratory blank contamination.

TABLE 10
OUTLYING BLANK SPIKE/BLANK SPIKE DUPLICATE DATA
VACAIR ALLOYS
MAY 1991

BS/BSD Sample I.D.	*Compound*	*BS % Recovery*	*BSD % Recovery*	*RPD*	*Control Limits*	*RPD Control Limit*
	BNAs					
9105L456	1,4-Dichlorobenzene	-	-	36	-	28
	1,2,4-Trichlorobenzene	-	-	31	-	28
9105L457	1,4-Dichlorobenzene	-	-	36	-	28
	1,2,4-Trichlorobenzene	-	-	31	-	28
9105L477	1,4-Dichlorobenzene	-	-	36	-	28
	1,2,4-Trichlorobenzene	-	-	31	-	28
	Phenol	91	-	-	26-90	-
9105L541	1,4-Dichlorobenzene	27	-	-	36-97	-
	1,2,4-Trichlorobenzene	33	-	-	39-98	-
	Phenol	92	-	-	26-90	-
	2,4-Dinitrotoluene	97	-	-	28-89	-
	PESTICIDES/PCBs					
9105L541	gamma-BHC	180	135	28	56-123	15
	Endrin	134	124	-	56-121	-
	4,4'-DDT	154	138	-	38-127	31

TABLE 11

QUALIFIED DATA DUE TO OUTLYING BLANK SPIKE/BLANK SPIKE DUPLICATE DATA

VACAIR ALLOYS

MAY 1991

Sample I.D.	*Parameter*	*Compound*	*Qualified Sample Concentration*
DW-1	BNAs	1,2,4-Trichlorobenzene	10UJ µg/L
		1,4-Dichlorobenzene	10UJ µg/L
DW-2	BNAs	1,2,4-Trichlorobenzene	10UJ µg/L
		1,4-Dichlorobenzene	10UJ µg/L
MW-1	BNAs	1,2,4-Trichlorobenzene	10UJ µg/L
		1,4-Dichlorobenzene	10UJ µg/L
MW-2	BNAs	1,2,4-Trichlorobenzene	10UJ µg/L
		1,4-Dichlorobenzene	10UJ µg/L
MW-3	BNAs	1,2,4-Trichlorobenzene	10UJ µg/L
		1,4-Dichlorobenzene	10UJ µg/L
MW-4	BNAs	1,2,4-Trichlorobenzene	10UJ µg/L
		1,4-Dichlorobenzene	10UJ µg/L
MW-5	BNAs	1,2,4-Trichlorobenzene	10UJ µg/L
		1,4-Dichlorobenzene	10UJ µg/L
MW-6	BNAs	1,2,4-Trichlorobenzene	10UJ µg/L
		1,4-Dichlorobenzene	10UJ µg/L
MW-7	BNAs	1,2,4-Trichlorobenzene	10UJ µg/L
		1,4-Dichlorobenzene	10UJ µg/L
SED-4	BNAs	1,2,4-Trichlorobenzene	800UJ µg/kg
		1,4-Dichlorobenzene	800UJ µg/kg
SED-5	BNAs	1,2,4-Trichlorobenzene	2300UJ µg/kg
		1,4-Dichlorobenzene	2300UJ µg/kg
SED-7	BNAs	1,2,4-Trichlorobenzene	860UJ µg/kg
		1,4-Dichlorobenzene	860UJ µg/kg
SW-1	BNAs	1,2,4-Trichlorobenzene	Note(1)
		1,4-Dichlorobenzene	Note(1)
	Pesticides/PCBs	gamma-BHC	Note(2)
SW-1RE	Pesticides/PCBs	gamma-BHC	Note(2)
SW-2	BNAs	1,2,4-Trichlorobenzene	Note(1)
		1,4-Dichlorobenzene	Note(1)
	Pesticides/PCBs	gamma-BHC	Note(2)
SW-2RE	BNAs	1,2,4-Trichlorobenzene	Note(1)
		1,4-Dichlorobenzene	Note(1)
Rinse Blank	BNAs	1,2,4-Trichlorobenzene	10UJ µg/L
		1,4-Dichlorobenzene	10UJ µg/L

Notes:

(1) The associated value has been previously qualified as unusable (data qualifier R) due to outlying surrogate spike recoveries

(2) Associated value has been previously qualified as estimated due to holding time exceedances.

J Associated value is estimated due to outlying BS/BSD recoveries

U Compound is non-detected at the PQL stated in parenthesis.

TABLE 12
OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE DATA
VACAIR ALLOYS
MAY 1991

MS/MSD Sample I.D.	*Matrix*	*Compound*	*MS % Recovery*	*MSD % Recovery*	*RPD*	*Control Limits*	*RPD Control Limit*
		BNAs					
MW-2	Water	Pentachlorophenol	-	104	-	9-103	-
DW-1	Water	2,4-Dinitrotoluene	99	-	-	24-96	-
		4-Nitrophenol	-	112	-	10-80	-
		Pentachlorophenol	-	138	-	9-103	-
SED-1	Soil	2,4-Dinitrotoluene	100	98	-	28-89	-
		Pentachlorophenol	126	141	-	17-109	-
SED-7	Soil	Phenol	114	-	73	26-90	35
		2-Chlorophenol	-	-	76	-	50
		1,4-Dichlorobenzene	-	-	72	-	27
		N-nitroso-di-n-propylamine	-	39	85	41-126	38
		1,2,4-Trichlorobenzene	115	-	82	38-107	23
		4-Chloro-3-methylphenol	129	-	82	26-103	33
		Acenaphthene	-	-	57	-	19
		4-Nitrophenol	128	-	136	11-114	50
		2,4-Dinitrotoluene	103	-	92	28-89	47
		Pentachlorophenol	194	-	78	17-109	47
		Pyrene	-	-	75	-	36

TABLE 13
QUALIFIED DATA DUE TO OUTLYING MS/MSD ANALYSES
VACAIR ALLOYS
MAY 1991

Sample I.D.	*Parameter*	*Compound*	*Qualified Sample Concentration*	*Units*
MW-2	BNAs	4-Nitrophenol	50UJ	µg/L
		Pentachlorophenol	50UJ	µg/L
SED-7	BNAs	Phenol	860UJ	µg/kg
		2-Chlorophenol	860UJ	µg/kg
		1,4-Dichlorobenzene	860UJ	µg/kg
		N-nitroso-di-n-propylamine	860UJ	µg/kg
		1,2,4-Trichlorobenzene	860UJ	µg/kg
		4-Chloro-3-methylphenol	860UJ	µg/kg
		Acenaphthene	860UJ	µg/kg
		4-Nitrophenol	4300UJ	µg/kg
		2,4-Dinitrotoluene	860UJ	µg/kg
		Pentachlorophenol	4300UJ	µg/kg
		Pyrene	Note(1)	-
	Pest/PCBs	Aldrin	190UJ	µg/kg
		Dieldrin	370UJ	µg/kg
		Endrin	370UJ	µg/kg
SW-3	BNAs	4-Chloro-3-methylphenol	10UJ	µg/L

Notes:
(1) Associated value is below the PQL and has been previously qualified by the laboratory as estimated.
J Associated value is estimated due to outlying MD/MSD recoveries.
U The associated compound is non-detected at the PQL.

TABLE 14
FIELD DUPLICATE DATA SHOWING DISCREPANCIES
VACAIR ALLOYS
MAY 1991

Sample I.D.:	SED-2 (µg/kg)	SED-3 (µg/kg)	RPD	SW-6 (µg/L)	SW-7 (µg/L)	RPD
Parameter						
VOCs						
1,2-Dichloroethene(total)	45	150	108			
2-Butanone	320	110	98			
Vinyl chloride				14	10	33
Pesticides/PCBs						
Arochlor-1260	160J	86J	60			
Metals						
Manganese	3440	1800	63			

Notes:

J The associated value is below the PQL, and therefore estimated.

APPENDIX G3

ANALYTICAL DATA ASSESSMENT AND VALIDATION

DRINKING WATER SAMPLES

METHOD 524.2 AND METHOD 508

VACAIR ALLOYS, FREWSBURG, NEW YORK

MAY 1991

APPENDIX G3

ANALYTICAL DATA ASSESSMENT AND VALIDATION
MUNICIPAL DRINKING WATER SAMPLES
METHODS 524.2 AND 508
VACAIR ALLOYS - FREWSBURG, NEW YORK
MAY 1991

The following details the analytical data assessment and validation for results obtained by NYTEST Environmental Inc. (NYTEST) on drinking water samples collected from an off-site municipal well located adjacent to the VacAir Alloys Site. The samples collected consisted of the following:

Source	*Matrix*	*Investigative Samples*	*Field Duplicate*	*MS/MSD(1) Samples*	*Trip Blank*	*Total*
Municipal Well #1	Drinking Water	1	1	1/1	1	5

(1) - Matrix spike/matrix spike samples

Drinking water samples were analyzed for volatile organic compounds (VOCs) by Method 524.2 and pesticides/PCBs by Method 508. These methods are referenced from the USEPA document entitled "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-89/039. Analytical deliverables for these methods were in accordance with the NYSDEC September 1989 ASP-Category B. The drinking water samples were also analyzed for the Target Compound List base neutral/acid extractables compounds, the Target Analyte List, and total petroleum hydrocarbons. A summary of the data assessment and validation for these results is presented in the document entitled "Analytical Data Assessment and Validation, Groundwater, Surface Water, Drinking Water, and Sediment, VacAir Alloys, Frewsburg, New York, May 1991".

Evaluation of the VOC and pesticide/PCB data obtained for the drinking water samples was based on information derived from the finished data sheets, chain of custody forms, blank data, duplicate data, and recovery data for matrix and surrogate spikes. The assessment of analytical and in-house data included checks for: data consistency (by observing comparability of duplicate analyses); adherence to accuracy and precision criteria; transmittal errors; and anomalously high and low parameter values.

The QA/QC criteria by which these data have been assessed are outlined in Methods 524.2, 508, and the documents entitled:

i) "Site Investigation Work Plan, Volume II, Quality Assurance Project Plan (QAPP), VacAir Alloys Corporation, Frewsburg, New York"

ii) "Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses" (February 1, 1988)
Prepared by the USEPA Data Validation Work Group

Item i) will hereinafter be referred to as the "QAPP". Item ii) will hereinafter be referred to as the "Guidelines". The data quality assessment and validation is presented in the subsections which follow.

1. SAMPLE HOLDING TIMES

Based on the criteria outlined in the relevant methods and NYSDEC sample holding time protocols, the following sample holding time requirements have been established for drinking water matrices:

VOCs	7 days from VTSR[1] to analysis
Pesticides/PCBs	5 days from VTSR to extraction 14 days from collection to analysis[2]

By comparing the VTSR of all samples (from the notation appearing on the Chain of Custody documents) with the reported dates of analyses, it was noted that all samples submitted for VOC analyses were analyzed within five days of VTSR, thereby fulfilling the holding time requirements for VOCs.

However, both samples submitted for pesticide/PCB determinations exceeded their established holding time criteria as follows:

Sample ID	*Parameter*	*Prescribed(1) Holding Time*	*Actual(1) Holding Time*
DW-1	Pesticides/PCBs	5 days	6 days
DW-1 MS/MSD	Pesticides/PCBs	5 days	6 days
DW-2	Pesticides/PCBs	5 days	6 days

(1) - Holding time from VTSR to extraction.

In general, holding time exceedances tend to demonstrate a low bias in results due to potential loss of the analytes of concern. Therefore, those samples which exceed their requisite holding times require the following qualification of data:

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[1]VTSR-Validated time of sample receipt.

[2]Maximum extract storage time as recommended by Method 508. This is more stringent than the NYSDEC extract storage time of 40 days from VTSR to analysis.

i) all positive results should be flagged as estimated (data qualifier J) indicating a low bias in sample results; and

ii) all practical quantitation limits for negative results should be flagged as estimated (data qualifier J) indicating a low bias in samples results.

Presented in Table 1 is qualification of the affected sample data.

The portions of samples DW-1 and DW-2 submitted for pesticides/PCBs were not preserved with the bactericide mercuric chloride as recommended by Method 508.

It should be noted that in accordance with the QAPP, all samples were cooled to 4°C (±2C°) after sampling and received by the laboratory within 48 hours of collection.

2. GC/MS TUNING AND MASS CALIBRATION

The analysis of VOCs in drinking water is based upon gas chromatographic/mass spectrometric (GC/MS) methods. To ensure that the data produced by the GC/MS instruments may be correctly interpreted, the tuning and performance criteria presented in the "Guidelines" have been assessed. These criteria have been established to ensure mass resolution, identification, and to some degree, sensitivity.

In general, a review of the GC/MS tuning and calibration data accompanying the NYTEST work orders indicated that all tuning and calibration criteria for bromofluorobenzene (BFB) were met for the analysis of VOCs in drinking water. In addition, comparison of the GC/MS tuning and mass calibration summary sheets (Form Vs) with each mass listing indicated that no transcription errors occurred. Recalculation of at least two of the GC/MS tuning and mass calibration values reported for each mass listing indicated that these values were correctly determined. Therefore, the integrity of the GC/MS tuning and mass calibration data was not suspect.

3. GC/MS CALIBRATION

In order to ensure that satisfactory instrument performance had been established for the analysis of VOCs, the laboratory generated calibration data have been assessed. Both initial and continuing calibration data were compared against the compliance requirements established by Method 524.2. based on the calibration data reported, the following observations were noted:

A. Initial Calibration - To assess the validity of the initial calibrations, the average response factors (RFs) and relative standard deviations (RSDs) of the compounds of interest have been evaluated.

The RF measures the instrument response to specific compounds. RF values falling below the minimum value required by the method indicates a detection problem due to poor sensitivity. The RSDs are calculated from the initial calibration and are used to indicate the linearity and stability of specific compound RFs over increasing concentrations. Outlying RSD values indicate potential detection and quantitation errors.

In accordance with Method 524.2 and the "Guidelines", it is recommended that all VOC initial calibration data be evaluated by the following criteria:

VOC Initial Calibration Criteria

i) all VOCs must demonstrate average RFs greater than 0.050; and

ii) all VOCs must demonstrate RSDs less than 20 percent.

Three VOCs yielded average RFs less than 0.050 during the initial calibrations as shown below:

Initial Calibration Data	*Parameter*	*Compound*	*Average RF*
4/30/91	VOCs	dichlorodifluoromethane	0.038
		bromoform	0.045
		1,2 dibromo-3-chloropropene	0.009

Low RF values (less than 0.050) indicate a problem with GC/MS sensitivity for these compounds. Therefore, in accordance with the "Guidelines" compounds showing low RF values require qualification of the affected sample data as follows:

i) all positive results should be flagged as estimated (data qualifier J); and

ii) all practical quantitation limits for negative should be flagged as unusable (data qualifier R).

Qualification of the affected sample data is presented as follows:

Sample ID	*Matrix*	*Parameter*	*Compounds*	*Concentration (µg/L)*	*Qualifier*
DW-1	Drinking Water	VOCs	dichlorodifluoromethane	1.0 U	R
			bromoform	1.0 U	R
			1,2 dibromo-3-chloropropene	1.0 U	R
DW-2	Drinking Water	VOCs	dichlorodifluoromethane	1.0 U	R
			bromoform	1.0 U	R
			1,2 dibromo-3-chloropropene	1.0 U	R

U - Non-detected at the associated practical quantitation limit
R - The associated value is unusable due to low RF values which indicate poor instrument response.

All remaining compounds demonstrated average RFs greater than the minimum allowable limit of 0.050 during initial calibrations.

Eleven VOCs demonstrated RSDs greater than the method control limit of 20 percent as shown below:

Initial Calibration Date	*Parameter*	*Compound*	*RSD*
4/30/91	VOCs	methylene chloride	37.9
		trans-1,2-dichloroethene	20.7
		benzene	22.9
		m & p-xylene	21.3
		isopropylbenzene	22.5
		n-propylbenzene	27.1
		1,3,5 trimethylbenzene	21.8
		p-isopropyltoluene	21.6
		sec-butylbenzene	25.4
		n-butylbenzene	26.7
		napthalene	20.4

As these outlying RSD values would have minimal effect on the laboratory's ability to detect the above-mentioned VOCs, only qualification of the associated positive data was required. However, as none of the affected samples yielded positive concentrations of these VOCs, qualification of sample data was not required on this basis.

Recalculation of at least 10 percent of the VOC initial calibration data indicated that all RF and RSD values were correctly determined.

B. Continuing Calibration - To ensure that initial calibrations remained valid during sample analysis, the percent difference (%D) of compound

RFs between the initial calibration and continuing calibration was assessed. In addition, the RF of a 10 nanogram continuing calibration check standard (RF 10) was evaluated for all VOCs. Only VOCs which yielded acceptable initial calibration data were evaluated.

The RF 10 demonstrates that instrument response was sufficiently maintained for specific compounds throughout sample analysis. Percent differences compare response factors of continuing calibration checks to mean response factors of the initial calibrations, and demonstrate that satisfactory linearity was maintained during sample analyses.

In accordance with Method 524.2 and the "Guidelines", it is recommended that all VOC continuing calibration data be evaluated by the following criteria:

VOCs Continuing Calibration Criteria

i) all VOCs must demonstrate RF10s greater than 0.050; and

ii) all VOCs must demonstrate percent differences less than 30 percent.

Two VOCs yielded low RF10s during the continuing calibration shown as follows:

Continuing Calibration Date	*Parameter*	*Compounds*	*RF10*
5/8/91	VOCs	bromochloromethane	0.038
		trans-1,3-dichloropropene	0.035

This indicates a problem with GC/MS sensitivity for these compounds. Therefore, in accordance with the "Guidelines", the above-mentioned compounds require qualification of the affected sample data as follows:

i) all positive results should be flagged as estimated (data qualifier J); and

ii) all practical quantitation limits for negative results should be flagged as unusable (data qualifier R).

Qualification of the affected sample data is presented as follows:

Sample ID	*Matrix*	*Parameter*	*Compounds*	*Concentration (µg/L)*	*Qualifier*
DW-1	Drinking Water	VOCs	bromochloromethane	1.0 U	R
			trans-1,3-dichloropropene	1.0 U	R
DW-2	Drinking Water	VOCs	bromochloromethane	1.0 U	R
			trans-1,3-dichloropropene	1.0 U	R

U - Non-detected at the associated practical quantitation limit.
R - The associated value is unusable due to low RF10 values which indicate poor instrument response.

All remaining VOCs yielded RF10 values greater than the minimum allowable value of 0.050 during the continuing calibration.

Sixteen VOCs demonstrated percent differences greater than the method control limits of 30 percent throughout the continuing calibrations. As these outlying percent differences would have minimal effect on the laboratory's ability to detect these VOCs, only qualification of the associated positive data was required. However, as none of the affected samples yielded positive concentrations of these VOCs, qualification of the sample data was not required on this basis.

Recalculation of at least 10 percent of the VOC continuing calibration data indicated that all RF10s and percent differences were corrected determined.

4. INTERNAL STANDARD PERFORMANCE

In order to ensure that GC/MS sensitivity and response are stable during each analytical sequence, the internal standard performance criteria established in Method 524.2 have been evaluated for the analysis of VOCs in drinking water. In accordance with Method 524.2, all samples analyzed for VOCs were fortified with the internal standard fluorobenzene. Upon review of the internal standard data reported by NYTEST, the following were noted:

i) the absolute areas of the quantitation ion (m/e 96) of fluorobenzene did not decrease by more than 30 percent from the area measured in the most recent continuing calibration standard, or by more than 50 percent from the areas measured during initial calibration; and

ii) the retention time of the internal standard did not vary more than ±30 seconds from the most recent continuing calibration standard.

Therefore, qualification of the sample data was not required on this basis.

5. PESTICIDE/PCB ANALYSES - COLUMN PERFORMANCE

Samples were submitted for pesticide/PCB determinations in accordance with Method 508, from the document entitled "Methods for the Determination of Organic Compounds in Drinking Water", USPEA 600/4-88/039, December 1988. This method involves solvent extraction of the matrix, analysis of the extract by a gas chromatograph/electron capture detector (GC/ECD) using a fused silica capillary column (primary column analysis), and confirmation by a GC/ECD using a second fused silica capillary column (confirmatory or secondary column analysis). Based on the criteria outlined in the method, the following are noted:

A. 4,4'-DDT Retention Time Check - In order to ensure that adequate separation between individual pesticides/PCB components is achieved, 4,4'-DDT must have a retention time on capillary columns greater than or equal to 12 minutes. Based upon review of the standard chromatograms, it was established that the retention time for 4,4'-DDT was greater than 12 minutes for all primary and secondary column analyses.

B. 4,4'-DDT/Endrin Degradation Check - In order to measure the amount of decomposition that 4,4'-DDT and endrin undergo when analyzed by the chromatographic system, the percent breakdown of these two compounds is evaluated and compared against the control limit (20 percent) established by the method. Upon review of the standard chromatograms, it was noted that all primary and secondary column analyses yielded 4,4'-DDT and endrin breakdown data within the method controls control limits.

It should be noted that the matrix spike duplicate portion of sample DW-1 demonstrated degradation of the spiking concentration of endrin. This degradation problem was not present in the matrix spike portion of DW-1 or the blank spike. DW-1 and DW-2 showed non-detected concentrations of endrin and its related breakdown products endrin aldehyde and endrin ketone. Therefore, the degradation of endrin in DW-1MSD was considered an isolated occurrence having negligible effect upon the sample data.

C. DBC Retention Time Check - Based on the method protocols, the maximum allowable retention time shift for dibutylchlorendate (DBC) is not to exceed ±0.3 percent for capillary columns. Upon review of the DBC retention time shifts reported, it is noted that in all cases the maximum allowable retention time shift was not exceeded.

6. PESTICIDE/PCB ANALYSES - INSTRUMENT PERFORMANCE

Instrument performance for Method 508 is monitored by the analysis of the laboratory performance check (LPC) sample. The LPC sample contains compounds designed to indicate appropriate instrument sensitivity, column performance (primary column analyses) and chromatographic performance. The LPC sample was analyzed at the method established frequency of once per day.

The method requirements are as follows:

Test	*Analyte*	*Conc. µg/L*	*Requirements*
Sensitivity	Chloropyrifos	0.0020	Detection of analyte; S/N > 3[a]
Chromatographic Performance	DCPA	0.0500	PGF between 0.80 and 1.15[b]
Column	Chlorothalonil delta-HCH	0.0500 0.0400	Resolution > 0.50[c]

a - Signal to noise ratio.

b - PGF - peak Gaussian factor. Calculated using the equation:

$$PGF = \frac{1.83 \times W(1/2)}{W(1/10)}$$

where W(1/2) is the peak width at half height and W(1/10) is the peak width at tenth height.

c - Resolution between the two peaks as defined by the equation:

$$R = \frac{t}{w}$$

where t is the difference in elution times between the two peaks and W is the average peak width of the two peaks at the baseline.

A review of NYTEST's performance check standard indicates that the LPC sample was analyzed at the proper frequency, and met the above-mentioned requirements. In addition, recalculation of the S/N ratio for DCPA, PGF for DCPA, and resolution value for chlorothanol and delta-HCH indicated that the values were correctly determined.

7. PESTICIDE/PCB ANALYSES - CALIBRATION GC/ECD

In order to ensure that satisfactory instrument performance was established and maintained during the analysis of pesticides/PCBs, the initial calibration data and continuing calibration data have been assessed.

A. Initial Calibration - Based on the recalculation of approximately 20 percent of the initial calibration data, it is apparent that all calibration factors (CFs) and RSDs between CFs for aldrin, endrin,

4,4'-DDT and DBC were correctly determined. In addition, all RSD values for aldrin, endrin, 4,4'-DDT and DBC were less than the method control limits of 10 percent indicating that satisfactory linearity for these analyses was initially established for primary column analyses.

All secondary column analyses showed RSDs above the maximum control limit of 10 percent for the following pesticides: aldrin, endrin, 4,4'-DDT and/or DBC. It should be noted that the 10 percent RSD linearity check is required only for primary column analyses. Confirmatory column analyses are used only to provide qualitative identification and are not required to meet these criteria.

B. Continuing Calibration - In order to measure the linearity of the calibration over a specific time period, the percent difference between the CFs for the individual standard mixtures analyzed at the beginning of each analytical sequence and the CFs of the individual standard mixtures analyzed intermittently throughout the analytical sequence was evaluated. Inspection of the continuing calibration data indicated that all percent differences were correctly calculated. All percent differences for aldrin, endrin, 4,4'-DDT and DBC were greater than the established control limits (15 percent for primary column analyses and 20 percent for confirmatory analyses). Therefore, in accordance with the "Guidelines", all positive pesticide results for samples showing percent differences greater than the control limits should be qualified as estimated (data qualifier J) due to outlying continuing calibration data. However, all pesticide/PCB compounds showing percent differences between CFs showed non-detected quantities in the associated samples. Therefore, qualification was not required on this basis.

8. SURROGATE SPIKE RECOVERIES

Laboratory performance on individual samples is assessed on the basis of surrogate spike recoveries. When properly employed in conjunction with sample preparation, surrogates can be used to determine the effectiveness of sample cleanup or matrix modifying techniques. In addition, fortifying the sample with a known amount of the surrogate compound prior to sample preparation serves as an indicator of the efficiency of analyte extraction, dissolution, or other analyte-matrix separation techniques. Based on the surrogate spike recoveries reported, the following observations were noted:

A. Volatile Organic Compounds (VOCs) - In accordance with Method 524.2, all samples submitted for VOC determinations were spiked with the surrogate compounds 4-bromofluorobenzene and

1,2-dichlorobenzene-d_4 prior to sample analysis. One investigative sample and one laboratory blank showed surrogate spike recoveries outside the method control limits, but within the laboratory control limits as shown below:

Sample ID	Parameter	Outlying Surrogate	Percent Recovery	Percent Laboratory Control Limits	Percent Method Control Limits
DW-1	VOCs	4-Bromofluorobenzene	79	70-130	80-120
VBLK608	VOCs	1,2-Dichlorobenzene-d_4	77	55-135	80-120

Both DW-1 and VBLK608 yielded surrogate recoveries within the laboratory control limits. Therefore, qualification of the VOC data was not required on this basis.

B. Pesticides/PCBs - In accordance with Method 508, drinking water samples submitted for pesticide/PCB determinations were fortified with the surrogate compound 4,4'-dichlorobiphenyl prior to sample extraction. In addition, NYTEST also spiked the drinking water samples with the surrogate compounds dibutylchlorendate (DBC) and tetrachlorometaxylene (TCMX). The following drinking water samples showed one or more outlying surrogate recoveries:

Sample ID	Percent DBC Parameter	Percent[1] DBC Control Limits	Percent 4,4'-Dichlorobiphenyl Recovery	Percent 4,4'-Dichlorobiphenyl Control Limits[2]
PBLK1	190	24-154	-	70-130
DW-1	180	24-154	-	70-130
DW-2	179	24-154	-	70-130
DW-1MS	186	24-154	-	70-130
DW-1MSD	165	24-154	63	70-130
DW-1MSB	155	24-154	53	70-130

(1) - Control limits established by USEPA

(2) - Control limits established by Method 508.

All investigative samples, blank spike and matrix spike samples showed high DBC recoveries indicating a high bias in sample results. However, all investigative samples showed non-detected quantities of the compounds of interest, and all blank and matrix spike samples yielded recoveries within the established control limits. Therefore, qualification of sample data was not required on this basis.

The low 4,4'-dichlorobiphenyl recoveries for DW-1MSB (a blank spike) and DW-1MSD (a matrix spike duplicate) are most likely isolated occurrences as the corresponding blank (PBLK1) and matrix pike (DW-1MS) yielded acceptable surrogate spike recoveries.

All samples yielded TCMX recoveries within the USEPA advisory limits of 24-154 percent.

9. LABORATORY BLANK ANALYSES

The purpose of assessing the results of laboratory blank analysis is to determine the existence and magnitude of sample contamination problems. All laboratory blanks were prepared from deionized water. Laboratory blanks were analyzed at the frequency of one per 20 investigative samples and/or one per analytical sequence. Based on the laboratory blank data reported, the following are noted:

A. VOCs - Both laboratory blanks yielded positive concentrations of methylene chloride as shown below:

Blank ID	*Parameter*	*Compound*	*Concentration µg/L*
VBLK607	VOCs	Methylene Chloride	1.9
VBLK608	VOCs	Methylene Chloride	1.6

As both the drinking water samples DW-1 and DW-2 yielded similar concentrations of methylene chloride, qualification of the methylene chloride sample data was required in accordance with the "Guidelines".

Qualification of sample data associated with laboratory blanks containing contamination is performed by elevating the practical quantitation limits (PQLs) of the analytes of interest at the level found in the sample and reporting the sample results as non-detected (data qualifier U). In those cases where the sample concentration is less than the PQL, the sample concentration is adjusted to the PQL and reported as non-detected (data qualifier U). Qualification of the affected sample data is presented as follows:

Sample ID	Parameter	Compound	Associated Blank Concentration µg/L	Sample Concentration µg/L	Qualified Sample Concentration µg/L
DW-1	VOCs	Methylene Chloride	1.9	0.9 J	1.0 U
DW-2	VOCs	Methylene Chloride	1.9	2.3	2.3 U
Trip Blank	VOCs	Methylene Chloride	1.9	3.2	3.2 U

J - The associated value is below the practical quantitation limit (PQL) and therefore estimated.
U - The associated value is the PQL and has been adjusted to reflect potential laboratory contamination.

B. Pesticides/PCBs - All laboratory blanks submitted for pesticides/PCB analyses yielded non-detected concentrations of the analytes of interest. This indicated that the potential for contamination due to laboratory conditions and/or procedures was minimal during these analyses.

10. BLANK SPIKE ANALYSES (LABORATORY FORTIFIED BLANK)

The recoveries of blank spike analyses are used to assess the analytical accuracy achieved by the laboratory. As the blank spike analyses are independent of potential matrix effects, they give a true indication of the analytical accuracy achieved by the laboratory for the respective analyses preformed. One blank spike analysis for VOCs and pesticides/PCBs was analyzed in conjunction with the sample DW-1 and DW-2.

A. VOCs - In accordance with Method 524.2, the blank spike sample was fortified with all VOCs of interest. However, only the recoveries for benzene, chlorobenzene, 1,1-dichloroethene, trichloroethene, and toluene were reported on the Form IIIs. Benzene and 1,1-dichloroethene showed outlying spike recoveries as shown below:

Sample ID	VOCs	Percent Recovery	Control (1) Limits
MSB (8168004)	Benzene	160	75-125
	1,1-Dichloroethene	48	75-125

(1) - Control limits established by NYSDEC September 1989 ASP.

The benzene recovery in the blank spike indicated a high bias in results and the associated samples (DW-1 and DW-2) yielded non-detected quantities of benzene. Therefore, qualification of data was not required on this basis.

The 1,1-dichloroethene recovery in the blank spike indicated a low bias in results and the associated samples (DW-1 and DW-2) yielded non-detected quantities of 1,1-dichloroethene. Therefore, the following qualification of sample data was required:

Sample ID	*Parameter*	*Compound*	*Concentration µg/L*	*Qualifier*
DW-1	VOCs	1,1-Dichloroethene	1.0 U	J
DW-2	VOCs	1,1-Dichloroethene	1.0 U	J

J - The associated value is estimated due to low blank spike recoveries, and may indicate a low bias in results
U - Non-detected at the stated PQL.

The remaining reported blank spike recoveries were within the method control limits.

B. Pesticides/PCBs - The blank spike sample performed in conjunction with pesticide/PCB analyses was spiked with the pesticides aldrin, dieldrin, endrin, heptachlor, and lindane (gamma-BHC). All blank spike recoveries were within the established control limits of 75-125 indicating acceptable analytical accuracy was achieved by the laboratory.

11. MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

The recoveries of MS/MSD analyses are used to assess the analytical accuracy on an individual sample basis, while the relative percent difference (RPD) between the MS and MSD indicates the analytical precision achieved for that sample. MS/MSD analyses were performed for VOC and pesticide/PCB determinations on sample DW-1.

A. VOCs - In accordance with Method 524.2, the blank spike sample was fortified with VOCs of interest. However, only the recoveries for benzene, chlorobenzene, 1,1-dichloroethene, trichloroethene, and toluene were reported on the Form IIIs.

All reported MS/MSD recoveries were within the laboratory control limits, indicating acceptable accuracy was achieved in sample DW 1 for VOC analyses. However, one RPD value (1,1-dichloroethene - 44.4 percent) was greater than the laboratory control limit (16 percent). However, as the 1,1-dichloroethene data for DW-1 has been previously qualified as estimated due to low blank spike recoveries, further qualification was not necessary. All remaining reported RPD values were within the laboratory control limits.

B. Pesticides/PCBs - DW-1 was spiked with the pesticides aldrin, dieldrin, endrin, heptachlor, and lindane (gamma-BHC). All MS/MSD recoveries were within the laboratory control limits indicating acceptable accuracy was achieved in DW-1 for pesticide/PCB analyses. However, two RPD values were outside the established control limits as shown below:

MS/MSD Sample	*Parameter*	*Compound*	*RPD*	*RPD (1) Control Limits*
DW-1	Pesticides/PCBs	Dieldrin	15.13	14
		Endrin	164.1	16

(1) - Control limits established by NYTEST.

The extremely high RPD value for endrin was the result of endrin degradation. Endrin degraded to endrin ketone in DW-1MSD. However, this degradation was not present in the investigative samples, DW-1MS, or the blank spike. Therefore, the effect of the endrin degradation upon the sample data was negligible.

As all pesticide/PCB results have been qualified as estimated due to holding time exceedances, further qualification due to outlying RPD values was not required.

12. FIELD QA/QC

The field QA/QC associated with the collection of drinking water samples consisted of a field duplicate and a trip blank.

In order to assess the aggregate analytical and sampling protocol precision, a field duplicate of municipal well #1 was collected and submitted "blind" to the laboratory. The sample and field duplicate were labelled DW-1 and DW-2, respectively.

Both DW-1 and DW-2 yielded comparable concentrations of methylene chloride which required qualification due to potential laboratory contamination. DW-1 and DW-2 yielded non-detected quantities of the remaining VOCs of interest and all pesticides/PCBs of interest. This indicated adequate laboratory and sampling protocol precision was achieved for this sampling event.

To evaluate the possibility of contamination arising from sample transport, the environment, and/or shipping, a trip blank was submitted to the laboratory for VOC analysis. The trip blank yielded a positive concentration of methylene chloride (3.2 µg/L). However, this concentration was qualified

as non-detected due to the potential laboratory contamination. The trip blank showed non-detected concentrations of the remaining VOCs of interest. This indicates that the potential for contamination emanating from the aforementioned was minimal for this sampling event.

13. CONCLUSION

Based on the assessment detailed in the foregoing, the data produced by NYTEST is acceptable for use with the specific qualifications noted herein.

TABLE 1
QUALIFIED PESTICIDE/PCB DATA DUE TO HOLDING TIME EXCEEDANCES
VAC AIR ALLOYS
SITE INVESTIGATION
FREWSBURG, NEW YORK
MAY 1991

Pesticides and PCBs	*DW-1 (µg/L)*	*DW-2 (µg/L)*
Alpha-BHC	ND (0.05) J	ND (0.05) J
Beta-BHC	ND (0.05) J	ND (0.05) J
Delta-BHC	ND (0.05) J	ND (0.05) J
Gamma-BHC (Lindane)	ND (0.05) J	ND (0.05) J
Heptachlor	ND (0.05) J	ND (0.05) J
Aldrin	ND (0.05) J	ND (0.05) J
Heptachlor epoxide	ND (0.05) J	ND (0.05) J
Endosulfan I	ND (0.05) J	ND (0.05) J
Dieldrin	ND (0.1) J	ND (0.1) J
4,4'-DDE	ND (0.1) J	ND (0.1) J
Endrin	ND (0.1) J	ND (0.1) J
Endosulfan II	ND (0.1) J	ND (0.1) J
4,4'-DDD	ND (0.1) J	ND (0.1) J
Endosulfan sulfate	ND (0.1) J	ND (0.1) J
4,4'-DDT	ND (0.1) J	ND (0.1) J
Endrin ketone	ND (0.1) J	ND (0.1) J
Methoxychlor	ND (0.5) J	ND (0.5) J
Chlordane	ND (0.5) J	ND (0.5) J
Toxaphene	ND (1) J	ND (1) J
Aroclor-1016	ND (0.5) J	ND (0.5) J
Aroclor-1221	ND (0.5) J	ND (0.5) J
Aroclor-1232	ND (0.5) J	ND (0.5) J
Aroclor-1242	ND (0.5) J	ND (0.5) J
Aroclor-1248	ND (0.5) J	ND (0.5) J
Aroclor-1254	ND (1) J	ND (1) J
Aroclor-1260	ND (1) J	ND (1) J
Chlorneb	ND (0.5) J	ND (0.5) J
Chlorobenzilate	ND (5) J	ND (5) J
Chlorothionil	ND (O.O25) J	ND (O.O25) J
DCPA	ND (O.O25) J	ND (O.O25) J
Etridiazole	ND (O.O25) J	ND (O.O25) J
Hexachlorobenzene	ND (0.0077) J	ND (0.0077) J
cis-Permethrin	ND (0.5) J	ND (0.5) J
tans-Permethrin	ND (0.5) J	ND (0.5) J
Propachlor	ND (0.5) J	ND (0.5) J
Trifluralin	ND (0.025) J	ND (0.025) J

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