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EBASCO

ARCS II PROGRAM

Remedial Planning Activities at Selected
Uncontrolled Hazardous Substance
Disposal Sites Within EPA Region II
(NY, NJ, PR, VI)

FINAL
SCREENING SITE INSPECTION (SSI)
CAPTAIN'S COVE CONDOMINIUM SITE
GLEN COVE, NASSAU COUNTY NEW YORK

SEPTEMBER 1995

VOLUME II OF V

EPA Contract 68-W8-0110

EBASCO

An ENSERCH® Engineering and Construction Company

EPA WORK ASSIGNMENT NO: 076-2JZZ
EPA CONTRACT NO: 68-W8-0110
EBASCO SERVICES INCORPORATED
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NOTICE

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REFERENCE NO. 18

102494

SEP 09 1994

Removal Site Evaluation for Captain's Cove Site, Glen Cove, Nassau County, New York**Nick Magriples, CHMM, On-Scene Coordinator
Technical Support Section****File****SITE I.D. No.: 22****REMOVAL ASSESSMENT RANKING: not eligible****I. INTRODUCTION**

On July 12, 1994, the Emergency and Remedial Response Division received a request from the New York State Department of Environmental Conservation to conduct a removal assessment at the Captain's Cove Site for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Removal Action consideration.

There has been a release of radiological isotopes to the environment at the Captain's Cove Site. Based on the gamma radiation survey results, the Agency for Toxic Substances and Disease Registry (ATSDR) has stated that no public health problem exists at the Captain's Cove Site since it is not inhabited and is reportedly only used by occasional trespassers. Therefore, a CERCLA Removal Action is not warranted under current land usage conditions.

II. SITE CONDITIONS AND BACKGROUND**A. Site Description****1. Physical location**

The Captain's Cove Site (Site) is located on Garvies Point Road, in Nassau County, New York (see Figure 1). The Site, estimated to be 20 acres in size, is bounded by Garvies Point Road to the north, Glen Cove Creek to the east and south, and a beach to the west. A parking area is available for the beach and a nearby club adjacent to the northwest corner of the Site. Marinas are present at the northeast border of the Site and across Glen Cove Creek within 150 feet. Glen Cove Creek flows into Hempstead Harbor within 100 feet of the southwest corner of the Site. Garvies Point Preserve is located approximately 75 feet from the Site's northern fence line, across Garvies Point Road. Commercial facilities make up the remainder of the properties along Garvies Point Road heading eastward. The nearest residences are within one-half mile of the Site. There is a wetland situated between a portion of the southeast edge of the Site and Glen Cove Creek.

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2. Site characteristics

The Site was reportedly used as a municipal landfill from at least 1962 till approximately the mid-1970s. Aerial photography during this period reportedly reveals that filling took place in a tidal embayment area in the eastern part of the Site, at the center of the Site immediately north of the tidal flat, and east of the beach at the western end of the Site.

Development of the Site for use as a residential area was reportedly noted in the photography during the period 1984-1989. The major features then, which are still visible today, include the sales office and driveway, surface water retention ponds, the bulkhead, and partially completed buildings at the eastern end of the Site.

It is alleged that residual areas containing naturally occurring radionuclides, such as thorium and uranium, were deposited at the Site from the 11 Tungsten facility in Glen Cove during the Site's operation as a landfill. Several radiological investigations conducted in 1989 and 1990 by Fred C. Hart Associates, Inc. identified and confirmed the presence of elevated levels of radiological contamination at the site.

3. Site assessment activities/observations

The following EPA personnel were directly involved in the Removal Assessment conducted for the Captain's Cove Site: Nick Magriples (908-906-6930) of the Technical Support Section (TSS).

On August 16, 1994, the OSC conducted a reconnaissance of the Site for the purpose of noting the present conditions. Heavy vegetation is the predominant feature throughout the Site. The large concrete structures representing the shells of the condominiums that were never completed are situated on the eastern end of the Site. The property, although fenced, has several points of access through holes in the fence and around the fence corner at the bulkhead in the southwest corner of the Site. One of these points is through an access gate near the northeast corner of the Site. This point represents "Area 1", as defined during the past radiological surveys.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

A preliminary radiological survey conducted at the Site in 1989 revealed that the ground surface had readings generally in the range of 3-15 uR/hr. The highest readings in two areas (Area 1 and 2) ranged from 25 uR/hr to 60 uR/hr. Readings from soil samples collected at 6-10 inches in depth at one location

indicated 125-140 uR/hr. The maximum gross alpha and beta readings at the Site were 580 (+/- 60) pCi/gm and 520 (+/- 60) pCi/gm, respectively. Thorium was noted at 250 (+/- 30) pCi/gm.

The Phase II radiological survey completed in June, 1990 included a large area gamma survey and test pits. Twenty-five of approximately 335 grid points exceeded the background levels plus two standard deviations. The maximum reading noted was 2,369 (+/- 34) cpm. Sixty-six soil samples collected from within the trenches revealed the presence of thorium (maximum reading 583 pCi/gm, with a general range up to 28.5 pCi/gm), radium-226 (maximum reading of 772 pCi/gm, with a general range up to 54.5 pCi/gm), and uranium (maximum reading of 662 pCi/gm, with a general range up to 57.1 pCi/gm).

The ATSDR health consultation conducted on September 6, 1994 expressed some concerns with the method in which the concentrations of radionuclides were determined and the validity of the isotopic analyses of the data. The consult, attached in Appendix A, provides a summary of these concerns.

The radioactive isotopes detected at the Site are CERCLA designated Hazardous Substances, as listed in 40 CFR §302.4, Appendix B. The above data is only a summary of the more pertinent analytical information. It is not meant to be inclusive of all of the analytes detected. The remainder of the analytical data is available in the site file.

The mechanism for past releases to the environment at the Site appears to have been the placement of radiological materials onto the ground. Currently, elevated levels of radioactive isotopes at several portions of the Site are sources of ongoing releases.

5. NPL status

The Captain's Cove Site is not a National Priorities List (NPL) site. A Preliminary Assessment (PA) and Site Investigation (SI) are expected to be initiated in the near future by the Pre-Remedial and Technical Support Section. A health consultation was completed by the Agency for Toxic Substances and Disease Registry (ATSDR) on September 6, 1994. Section III.A. discusses the findings of this consult.

B. Other Actions to Date

1. Previous actions

Other than those activities discussed earlier, there have been no previous Federal actions taken at the site.

2. Current actions

Currently, there are no Federal actions taking place at the site.

C. State and Local Authorities' Role

1. State and local actions to date

The responsible party, Village Green Realty, executed a consent order with the NYSDEC to conduct a Remedial Investigation at the site. In 1989, elevated levels of radioactive isotopes were discovered in the soil. Village Green declared bankruptcy during this period. After conducting a preliminary and Phase II radiological survey, their funding was withdrawn by the receivership.

2. Potential for continued State/local response

The NYSDEC is not anticipating conducting any further actions at the site in the near future.

III. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to the Public Health or Welfare

On September 6, 1994, ATSDR advised the OSC (see Appendix A) that the gamma radiation survey, although not of sufficient accuracy to determine long-term health effects, may be used to estimate if a public health threat exists. Since the site is not inhabited, and is reportedly only used by an occasional trespasser, the time spent on the site would not be of sufficient duration to result in a radiation exposure that would be considered hazardous. There is concern however, for worker health and safety during any future site work.

B. Threats to the Environment

Although the site does not appear to be a significant threat to the environment, at this time, insufficient information is available to determine the site's impact to the nearby creek and wetlands.

IV. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

This Section of the Removal Site Evaluation is not applicable since the site is not eligible for a CERCLA Removal Action.

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VII. CONCLUSIONS

There has been a release of radiological isotopes to the environment at the Captain's Cove Site. The Agency for Toxic Substances and Disease Registry (ATSDR) has stated that based on current land usage the Captain's Cove Site does not pose a health threat during incidental exposures, such as trespassing. Therefore, a CERCLA Removal Action is not warranted under current land usage conditions.

VII. RECOMMENDATIONS

It is recommended that a PA/SI be conducted in order to determine if a CERCLA response is warranted. Additional effort should be taken to ensure worker health and safety during these activities. ATSDR has recommended that a detailed radiological survey be performed at the Site.

Attachments

ID:

SEP 06 '94 14:02 No.002 P.06

**Health Consultation
Captain's Cove (204L)
Garvies Point
Glen Cove, New York**

**Federal Facilities Assessment Branch
Division of Health Assessment and Consultation
Agency for Toxic Substances and Disease Registry**

September 6, 1994

BACKGROUND AND STATEMENT OF ISSUES

The U.S. Environmental Protection Agency (EPA) requested that the Agency for Toxic Substances and Disease Registry (ATSDR) review radiological data for the Captain's Cove site in Glen Cove, NY. Preliminary investigations have suggested that ore containing thorium and uranium was processed at the LI Tungsten NPL site and this ore was placed in the landfill at Captain's Cove [1]. Initial radiological surveys suggest the levels of radiation are located in several large hot spots in the area. Currently, the area is fenced on three sides with a creek forming the fourth side. The fence is not intact, several areas of apparently elevated radiation readings have paths through them, and the area is vegetated. In discussions with EPA [2], the site is scheduled for a Preliminary Assessment and Site Inspection (PA/SI) in the future. The EPA is requested that ATSDR review the data and determine if a public health threat currently exists at the site.

DISCUSSION

For the analysis of soil samples, a grid system was developed to survey the site. Three areas of concern were identified: 1) an area on the northwest boundary; 2) an area on the east boundary and; 3) an area just south of Area 2 but not contiguous to the second area. Gamma radiation levels in Area 1 measured at the ground surface were about twice background, ranging from 20 to 28 microrentgens per hour ($\mu R/h$). In Areas 2 and 3, the gamma radiation was measured at 60 $\mu R/h$ and 30 $\mu R/h$, respectively. Subsurface measurements, taken 10 inches below the surface indicated elevated radiation readings as high as 140 $\mu R/h$ in Area 2. Based on these measurements, soil samples were collected for gross alpha, gross beta, and gamma spectroscopy. Table I shows results from the gamma radiation monitoring and the Phase I report.

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SEP 06 '94 14:03 No.002 P.07

Table 1. Radiological analysis results¹

Isotope	Background	Area 1	Area 2	Area 3
U-235	0.3	1.2	7.0	7.1
Th-234	2.8	19	250	100
Th-232	0.8	2.5	20	12
Ac-228	2.8	23	490	51
Tl-208	0.8	1.9	80	8.4
Gamma ²	10-12	20-25	60	30

Data from reference (3)

1. Isotope data are expressed in picocuries per gram of soil.
2. Gamma radiation levels are expressed in microrentgens per hour at the ground surface.

The isotope data presented in Table I were collected by analysing soil using a gamma spectroscopy system. It is unclear how the concentrations of radionuclides were determined. In the Phase II analysis, there is similar concern regarding the computer program used to analyse the spectrum: Was it adequately calibrated and was the correct computer program used? The data, however, do suggest that elevated levels of radionuclides are present. ATSDR did not receive appropriate quality control, quality assurance, field duplicates or other necessary data to adequately assess the accuracy of the data.

CONCLUSIONS

After reviewing the data, ATSDR has several concerns regarding the validity of the isotopic analysis of the data. The Phase II data do not show similar trends as the Phase I data. For example, in the Phase I data, the highest thorium reading was in Area 2 near the surface but in the Phase II data, the highest value was in Area 2, at a 4-foot depth, no other areas exceeded 28.5 picocuries per gram (pci/g). Also, natural uranium in Phase I was not determined; in Phase II, the highest levels natural uranium or its decay products were found in Area I (in excess of 650 pci/g); whereas, in other areas the natural levels of radiation did not exceed 60 pci/g.

The gamma radiation survey, although not of sufficient accuracy to determine long-term health effects, may be used to estimate if a public threat exists. Because the site is not inhabited and the site is only used by an occasional trespasser, the time crossing the site would be less than 5 minutes. This would result in an annual exposure of less than 1% of the annual

Good
P...Agree
with
conclusion
but faulty
analysis.

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170,000 millirem/yr

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14:04 No.002 P.08

NO

SSD m/yr - max for non nuclear
where

background exposure of 300 millirem [4]. This would not result in a radiation exposure that would be considered hazardous. There is concern, however, for worker health and safety during the proposed RA/SI as there is insufficient data to adequately assess their potential exposures.

Because the gamma spectroscopic data for the isotopic determinations are of poor quality, no conclusions can be made of these data. However, the gamma radiation survey results indicate that no public health problem exists to the casual trespasser in this area.

RECOMMENDATIONS

The recommendation is made to perform a detailed radiological survey of the Captain's Cove area. This survey should include detailed gamma radiation survey with the correct instrumentation such as a pressurised ionization chamber or some other type of direct ionization detector. Additional effort should be taken to ensure worker health and safety during any pre-remedial activities until the actual radiological or other chemical hazards are defined.

Paul A. Chapp, Ph.D.
Senior Health Physicist

REFERENCES

1. Radiological Survey Results, Garvies Point, Glen Cove, New York. Prepared by Fred C. Hart and Associates, Inc. November 27, 1994.
2. ATSDR Record of Activity dated September 1, 1994. Synopsis of telephone call between ATSDR and EPA Region II.
3. Radiological Survey Phase II Investigation, Garvies Point, Glen Cove, New York. Prepared by Fred C. Hart and Associates, Inc and the MDL Organization, Inc. June 5, 1990.
4. NCRP (1987). Exposure of the population in the United States and Canada from natural background radiation. National Council on Radiation Protection and Measurements Report 94. Bethesda, Md.

Acting Chief, FPAB, DEAC Date

Director, DHAC _____ Date _____

REFERENCE NO. 19

Ref. 19
10 of 48

02-9003-01-SI

REV. NO. 0

**FINAL DRAFT
SITE INSPECTION REPORT
LITUNGSTEN
GLEN COVE, NEW YORK
VOLUME 1 OF 5**

PREPARED UNDER

**TECHNICAL DIRECTIVE DOCUMENT NO. 02-9003-01
CONTRACT NO. 68-01-7346**

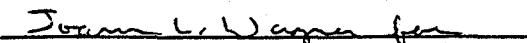
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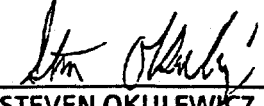
**ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY**

SEPTEMBER 28, 1990


**NUS CORPORATION
SUPERFUND DIVISION**

SUBMITTED BY:


**RICHARD FEINBERG
PROJECT MANAGER**


**STEVEN OKULEWICZ
SITE MANAGER**

REVIEWED/APPROVED BY:


**RONALD M. NAMAN
FACILITY OFFICE MANAGER**

102506

RF, 19
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SITE INSPECTION REPORT: LEVEL III

PART I: SITE INFORMATION

1. Site Name/Alias Li Tungsten/ LI Tungsten/ Wah Chang Smelting and Refining Company of
America Inc./Wah Chang Teledyne Inc./National Reconditioning Company
Street 63 Herb Hill Road
City Glen Cove State New York Zip 11542
2. County Nassau County Code 059 Cong. Dist. 3
3. EPA ID No. NYD986882660
4. Block No. 21A and 31G Lot Nos. 21-A-14, 15, 16-1, 16-2, 142, 431,
495, 544, 545; 31-G-311
5. Latitude 40° 51' 36" N Longitude 73° 38' 25" W
USGS Quad. Sea Cliff, New York
6. Owner Glen Cove Development Company Tel. No. Unavailable
Street 34 Market Street
City Baltimore State Maryland Zip 21202
7. Operator Li Tungsten Tel. No. (516) 676-1313
Street 63 Herb Hill Road
City Glen Cove State New York Zip 11542
8. Type of Ownership
☒ Private ☐ Federal ☐ State
☐ County ☐ Municipal ☐ Unknown ☐ Other NA
9. Owner/Operator Notification on File
☐ RCRA 3001 Date NA ☐ CERCLA 103c Date NA
☒ None ☐ Unknown
10. Permit Information
- | Permit | Permit No. | Date Issued | Expiration Date | Comments |
|-------------------------|----------------------------------|----------------|-----------------------|---|
| <u>SPDES</u> | <u>NYD008249</u> | <u>Unknown</u> | <u>1987</u> | <u>Cooling Water Discharge</u> |
| <u>Radiation Source</u> | <u>Material License 743-0464</u> | <u>3/19/64</u> | <u>Cancelled 1971</u> | <u>License to store, transport, and deliver radioactive compounds</u> |

Air Permit

Unknown

Unknown

Unknown

11. Site Status

☐ Active☒ Inactive☐ Unknown

12. Years of Operation 1941 to June 1985

13. Identify the types of waste sources (e.g., landfill, surface impoundment, piles, stained soil, above- or below-ground tanks or containers, land treatment, etc.) on site. Initiate as many waste unit numbers as needed to identify all waste sources on site.

(a) Waste Sources

Waste Unit No.	Waste Unit Type	Facility Name for Unit
1	Drums	55- and 30-Gallon Drums
2	Piles	Waste Piles /Mounds
3	Crates	Wooden Crates
4	Tanks	Tanks
5	Surface Impoundments	Mud Pond/Mud Holes/Oil Recovery Sumps
6	Landfill	Landfill
7	Stained Soil	Stained Soil
8	Buried Surface Impoundment	500,000-Gallon Fuel Oil Tank

(b) Other Areas of Concern

Identify any miscellaneous spills, dumping, etc. on site; describe the materials and identify their locations on site.

There are five other areas or items of concern at this site. First, there is a radiation hazard. The facility smelted monazite sand and tungsten ore (scheelite/wolframite), which contain naturally radioactive thorium-, uranium-, and radium-bearing compounds, to produce tungsten carbide powder and other tungsten-containing products. In addition, commercially prepared thorium oxide, thorium nitrate, and uranium (uranyl) acetate were used during ore processing. These radioactive compounds are present in the crates, piles, drums, and landfill areas on the site in various concentrations. A previous radiation survey of the facility conducted by Enviropact Services in 1988 determined gross alpha radiation of three samples of unknown media from various waste containers to range from 64 to 251 nanocuries per gram (nCi/g). Another survey, conducted by the NDL Organization in 1989 for the entire site, detected various levels of radiation, with the highest level detected at 1,000 picocuries per gram (pCi/g) in tungsten waste products. Background radiation levels in soil for New York State are 55 pCi/g for thorium and 180 pCi/g for uranium. Some of the large process solution vats and equipment in the facility are also radioactive. Soil by the fence along the southern boundary of Herb Hill Road is also radioactive, with levels of 160 microRoentgen per hour (uR/hr) to 300 uR/hr from material either on the other side of the fence or buried below the fence (Ref. Nos. 2, 3, 13, 29, 33, 37).

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The second area of concern is the Dice and East Buildings. Both buildings contain many crates and stacks of 55-gallon drums and wooden barrels of raw and reprocessed ore material. Rainwater has flooded both of these buildings to a depth of approximately 1 foot; this water may also contain dissolved heavy metals and be slightly radioactive from contact with the ore material (Ref. Nos. 4, 13, 31, 34, 35, 37, 49, 51, 52).

The third item of concern is asbestos. This material is found in siding shingles, roofing tiles, tank covers, and pipe wrapping. All of these items are in a state of decay and pieces of asbestos-containing materials have been found on the ground (Ref. Nos. 4, 13, 25, 26, 48, 52).

The fourth item of concern is the empty 55- and 30-gallon drums. Many of these drums are found scattered in disordered piles and stacks throughout the site; some of these drums, though empty, may be radioactive and create both a chemical and physical hazard on the site (Ref. No. 25).

The fifth and last area of concern is the Glen Cove Landfill, located on the south side of Garvies Point Road near the Li Tungsten facility. According to the City Historian for Glen Cove, this area (Section 21, Block 259, Lot 1) served as a municipal landfill and may have received waste ore and other waste materials from the Li Tungsten facility. Analyses of soil samples collected from this area by the Nassau County Department of Health revealed above background levels of radiation. The construction of a condominium project was halted due to the discovery of radiation and hazardous waste in the area. This area should be inspected and sampled for radioactive and other hazardous waste (Ref. Nos. 30, 36).

14. Information available from

Contact Amy Brochu Agency U.S. EPA Tel. No. (201) 906-6802

Preparer Steven Okulewicz Agency NUS Corp. Region 2 FIT Date Sept. 28, 1990

PART II: WASTE SOURCE INFORMATION

Drums

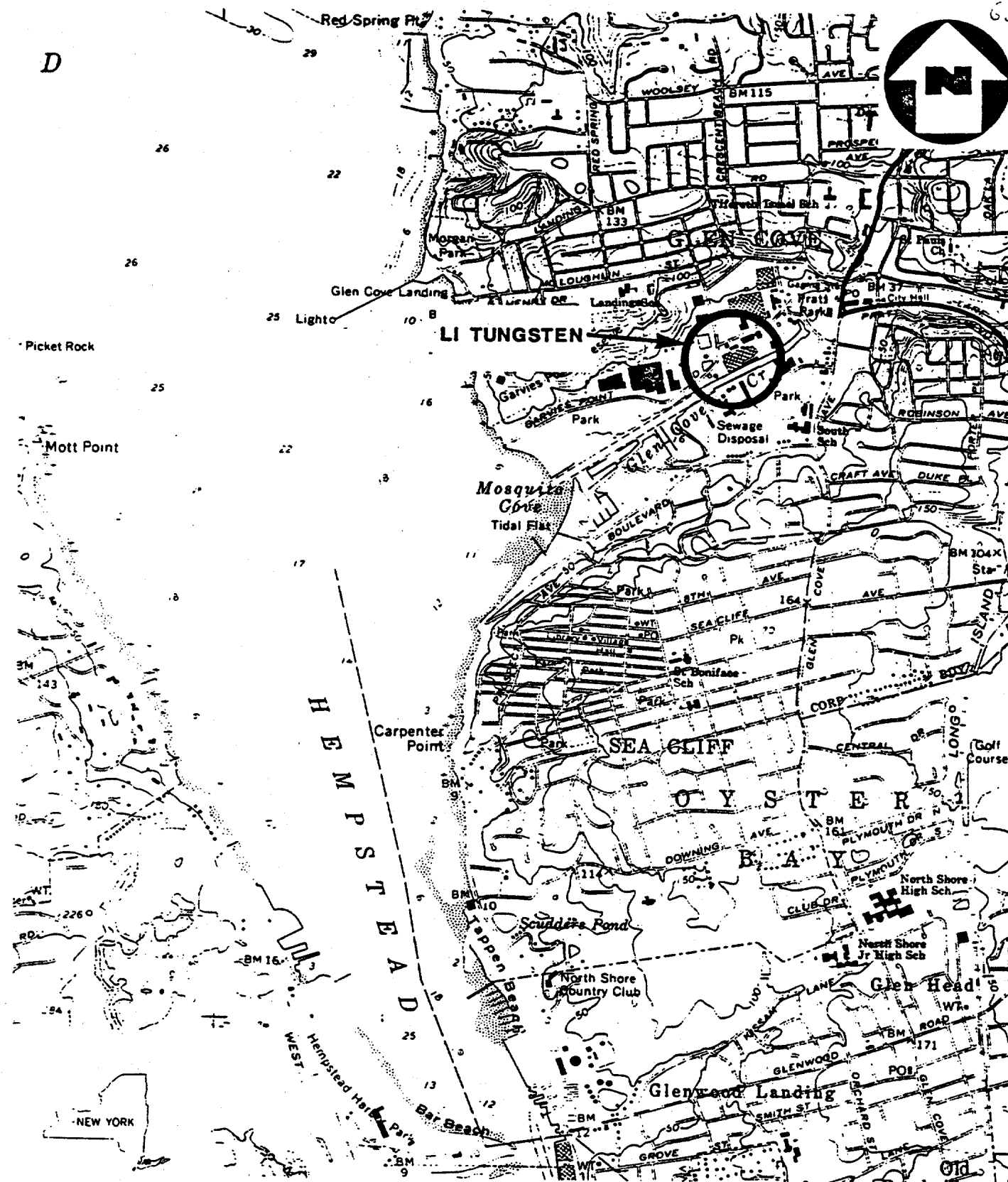
There are 3,850 55-gallon drums and 4,333 30-gallon drums on site that contain solid, sludge, and liquid materials; some drums contain raw and processed tungsten ores and residues. The total number of drums containing solid waste is 8,052; another 131 drums contain liquids. The total capacity of these drums is approximately 341,740 gallons. The majority of the drums on site are known to contain radioactive ores and residues including uranium, thorium, radium, organics such as carbon tetrachloride, perchloroethylene, and PCBs, and inorganic materials which include lead, tungsten, chromium, cadmium, arsenic, copper, nickel, zinc, barium, hydrochloric acid, hydrofluoric acid, nitric acid, and cyanide. The drums are scattered around the site and some are clustered in several buildings. Some are suspected to be buried within the landfill area, while others are stacked within or around the Dice Building, the Dickson Warehouse, the north and south sides of the Carbide Building, and at the southern corner of Herb Hill Road and Garvies Point Road. Some of these drums are overstacked, some have toppled, some are badly corroded, and some are leaking their contents upon the ground either within or around many of the buildings on site. The condition of the drums suspected to be buried within the landfill area is unknown (Ref. Nos. 2, 4, 22, 26, 49, 50, 52). Figures 1 and 2 provide a site location map and a site map, respectively. Figure 3 provides a monitoring well location map.

Waste Piles

There are nine waste piles located on the site. Seven black and grey waste piles are located around the natural pond in the landfill area between Herb Hill Road and The Place. One mound of waste is located behind and to the west of the Reduction Building and another waste pile is located north of the Dickson Warehouse. All of these piles are uncovered and there is no containment. The total volume of these piles is estimated to be greater than 325 yds³; the quantity of hazardous waste within these piles is unknown. The physical states of the waste within these piles are solids, powders, and sludges. The specific substances known to be present in these piles are the ores and residues of tungsten processing. These substances include lead, chromium, barium, copper, zinc, arsenic, cadmium, nickel, uranium, radium, thorium, and cyanide. All of the piles are known to contain radioactive compounds of uranium, thorium, and radium. The piles adjacent to the Dickson Warehouse and to the west of the Reduction Building have been roped off and marked with placards that indicate hazardous radiation; the seven other waste piles are unmarked and are not roped off (Ref. Nos. 2, 4, 22, 29, 37, 49, 52).

Crates

There are 719 wooden crates on site whose volume is estimated to be 705 cubic yards. These wooden crates are found in various areas of the site, but are located mainly within the Dickson Warehouse Building, on the north side of the Carbide Building, and within the Dice/ Warehouse Building. Some



(QUAD) SEA CLIFF, N.Y.

SITE LOCATION MAP

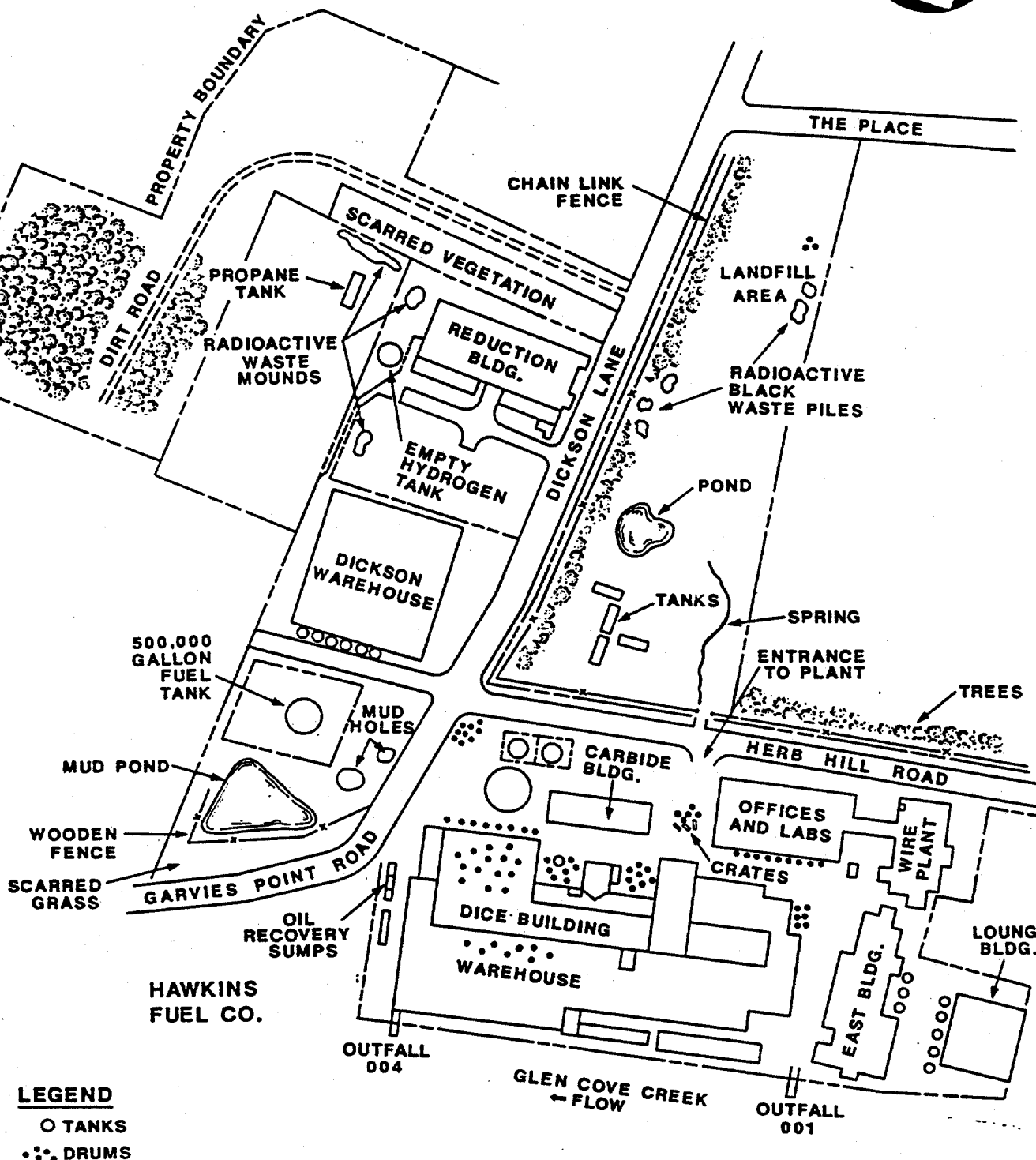
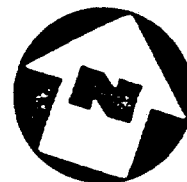
LI TUNGSTEN, GLEN COVE, N.Y.

SCALE: 1" = 2000'

FIGURE 1



102511



SITE MAP
LI TUNGSTEN, GLEN COVE, LONG ISLAND, N.Y.

NOT TO SCALE

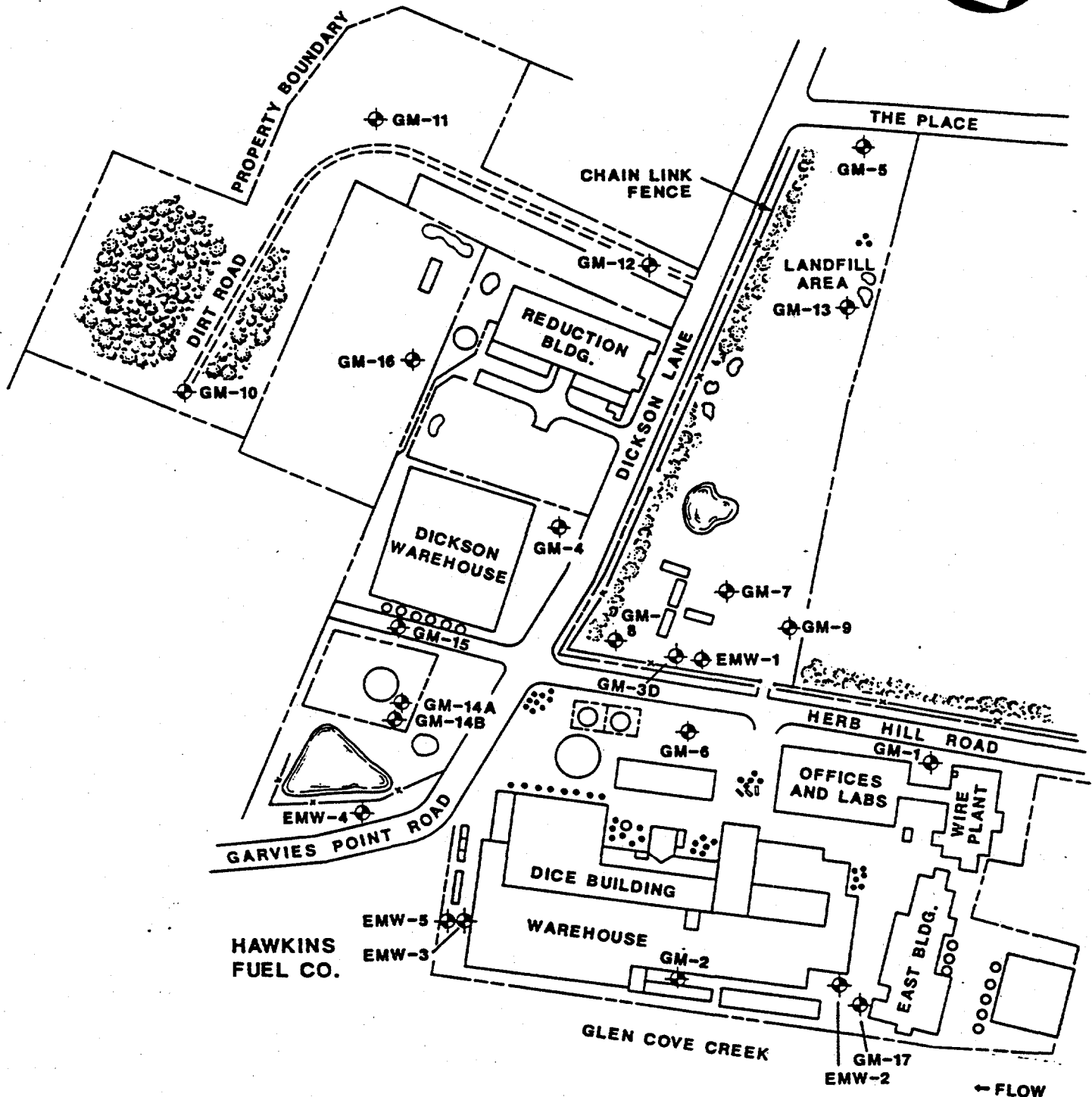
FIGURE 2



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LEGEND

- ◆ MONITORING WELL LOCATION
- ⋯ DRUMS
- TANKS
- HORIZONTAL TANKS



MONITORING WELL LOCATION MAP
LI TUNGSTEN, GLEN COVE, LONG ISLAND, N.Y.

NOT TO SCALE



FIGURE 3

102513

of these crates are located in open, uncovered areas outside of the buildings; these crates have been observed to be badly weathered or collapsed and spilling their contents upon the ground. Specific hazardous substances known to be present in these wooden crates are raw and processed tungsten ores that contain heavy metals including uranium, thorium, radium, lead, cadmium, chromium, copper, arsenic, zinc, nickel, and barium (Ref. Nos. 4, 13, 26, 37, 49, 52).

Tanks

There are 224 tanks made of wood, metal, or fiberglass on site. The majority of these tanks are located in the Dice Building, the Warehouse Building, the East Building, the Loung Building, to the west of the Dice Building, at the southern end of the landfill area, and to the northwest of the Carbide Building. A large aboveground 500,000-gallon fuel oil tank is located to the north of the Mud Pond. There are also two 275-gallon fuel oil tanks and one 200-gallon fuel oil tank present on site. The total capacities of 86 other tanks found to have contained liquids was estimated to be 518,131 gallons. The volume of liquids actually present in these tanks is unknown; the volume contained in 51 tanks from which samples were collected was estimated at 373,000 gallons. Two pressurized tanks also remain on site; one contains aqueous ammonia and the other contains propane gas. The volume of gas remaining in these tanks is unknown. The remaining 132 tanks either contain residual solids or are empty. The physical condition of some of these tanks is unknown. Many of the tanks are corroded or have collapsed linings. Fifty tanks have been inspected internally and externally for leaks or rupture. The contents of two tanks determined not to be secure have been sampled, drained, and drummed for disposal by Hart Environmental Consultants. None of these tanks are diked or have any secondary containment structures. The specific hazardous substances known to be present within these tanks include ammonium paratungstate (APT), ammonium hydroxide, spent hydrochloric acid, hydrochloric acid, aqueous ammonia, sodium hydroxide, tungsten acid, calcium chloride, cobalt chloride solution, sodium tungstate solution, and process solutions containing heavy metals that include arsenic, chromium, lead, thorium, tungsten, and radium. There are also approximately eight underground tanks at unspecified locations and of unknown integrity on site (Ref. Nos. 4, 13, 25, 26, 41, 49, 52).

Surface Impoundments

There are six surface impoundments on the site: two unlined settling ponds, referred to as the Mud Holes, a lined settling pond known as the Mud Pond, and three concrete oil recovery sumps. The former three impoundments are located immediately south and southeast of the 500,000-gallon fuel oil tank along Garvies Point Road. The exact volumes of the Mud Pond and Mud Holes are unknown; the quantity of waste in them is also unknown. The Mud Pond was lined with a plastic/rubber liner, but has been leaking into the groundwater and surface soil, causing scarred vegetation. A plume of waste/process water which contains heavy metals has been detected in the vicinity of the Mud Pond and the Mud Holes.

Ref. 19
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The three concrete oil recovery sumps are located west of the Dice/Warehouse Building and are connected via pipes to the Mud Pond/Mud Holes. None of these impoundments are covered. The total area of these impoundments is estimated to be 11,760 ft². The hazardous substances known to be present include sludges, fines, slurries, and liquids that contain lead, chromium, cadmium, arsenic, beryllium, antimony, cobalt, copper, manganese, nickel, zinc, sulfate compounds, chloride compounds, and PCBs (Ref. Nos. 4, 21, 22, 26, 46, 49, 50, 52).

Buried Surface Impoundment

A buried surface impoundment was located in the vicinity of and under the present location of the 500,000-gallon fuel oil tank on Garvies Point Road. The only documentation of this impoundment is in an aerial photograph of the site from 1950 (Ref. No. 46). This impoundment is suspected to have received waste/process waters from the Li Tungsten facility prior to the construction of the Mud Pond, Mud Holes, and fuel oil tank. The area of this impoundment, as measured from the aerial photograph, is approximately 5,100 ft². This impoundment is suspected to have contained contaminants similar to those presently found in the Mud Pond/ Mud Holes.

Landfill

The unlined landfill is located in an open, uncovered, partially wooded lot between the north side of Herb Hill Road and The Place. Most of the landfill is located to the northern end of the lot closest to The Place. The estimated volume of the landfill area is approximately 6,000 yds³. The actual quantity of hazardous waste within the landfill is unknown. The specific hazardous substances suspected to present in the landfill are the residues from the tungsten ore extraction process. Buried drums of unknown structural integrity were reported to be present in the area (Ref. Nos. 4, 36, 49).

Stained Soil

Stained soil is found along the perimeter of the Mud Pond/ Mud Holes and extends under and beyond the wooden fence to the edge of Garvies Point Road. Stained soil is also found around the nine radioactive waste piles. The quantity of hazardous substances present within the stained soil is unknown. The volume of material to be removed from the Mud Pond/ Mud Holes area is estimated to be greater than 5,000 yds³. The substances known to be present in the stained soil around the Mud Pond/Mud Holes include chloride compounds, sulfate compounds, No. 2 fuel oil, and heavy metals such as lead, chromium, cadmium, arsenic, and tungsten. The stained soil in the aforementioned area also has an organic odor.

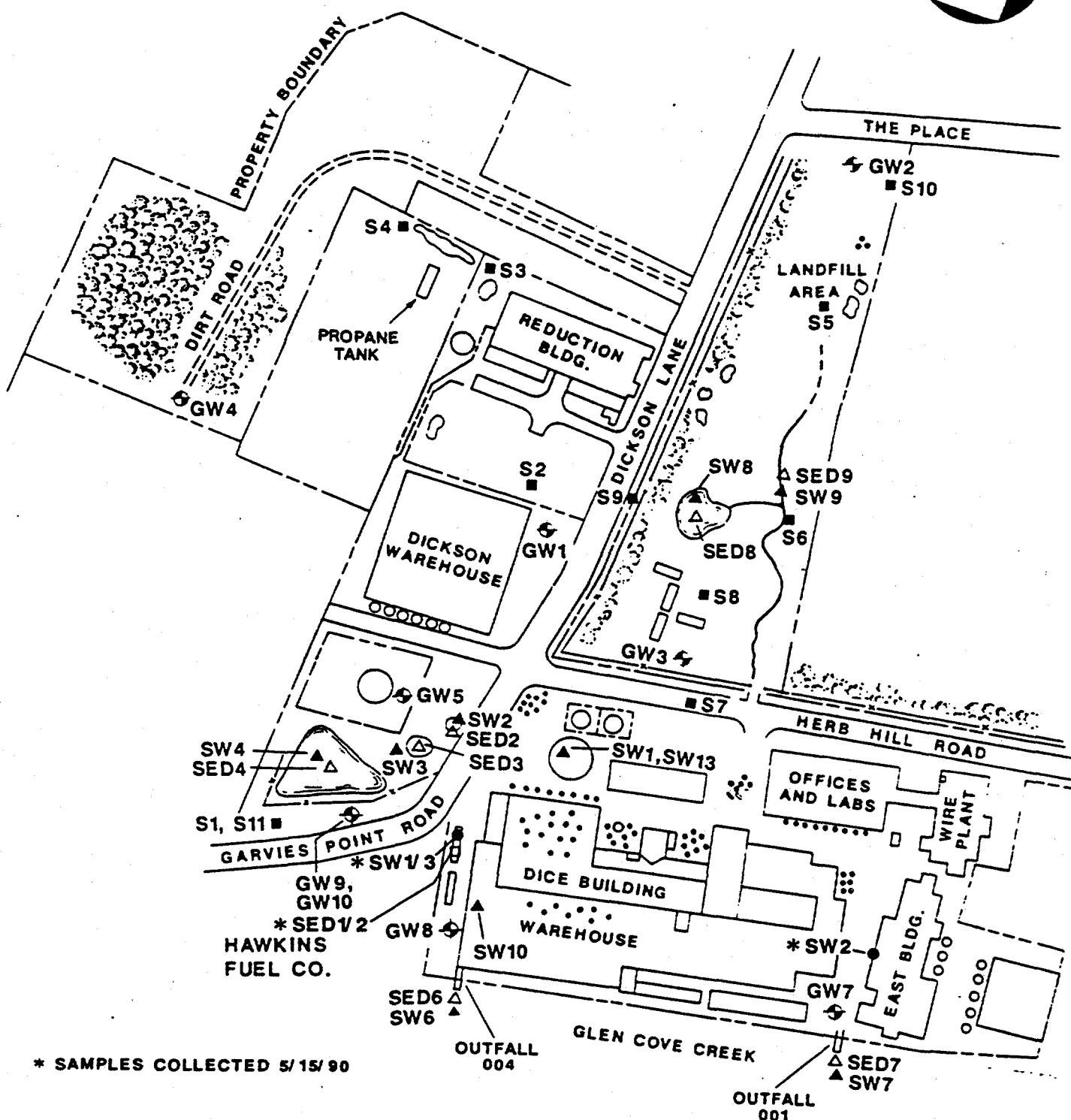
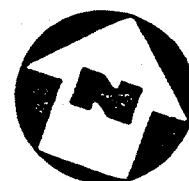
Ref. Nos. 2, 4, 5, 8, 21, 26, 30, 31, 32, 37, 40, 41, 42, 49, 50, 52

PART III: SITE INSPECTION SAMPLE RESULTS

NUS Corporation Region 2 FIT conducted a site inspection at the Li Tungsten facility on April 18-19, 1990 and on May 15, 1990, during which a total of 9 groundwater, 13 surface water, 9 sediment, and 11 soil samples were collected. These samples were collected to determine whether any CERCLA-eligible compounds are present in the groundwater, surface water, sediment, or soil that can be attributed to the waste units present on the site. All sample locations are shown on Figure 4 of this report. These samples were analyzed under the Contract Laboratory Program (CLP) for Target Compound List (TCL) organic and inorganic compounds, including cyanide. Refer to Table 1 in Part III of this report for a summary of the significant organic and inorganic compounds that were detected on the site. All CLP analytical data sheets are provided in Reference No. 50 of this report. Eleven surface water, 8 sediment, and 10 soil samples that had been collected by NUS Corporation Region 2 FIT in April and May 1990 were received by the National Enforcement Investigations Center (NEIC) on June 18, 1990. These samples were analyzed quantitatively for tungsten and qualitatively for copper, zinc, arsenic, molybdenum, antimony, lead, bismuth, thorium, and uranium, using inductively coupled plasma mass spectrometry (ICP/MS). Analysis for tungsten is not part of the routine analytical services performed under the CLP. Refer to Reference No. 31 for a summary of the NEIC analytical results.

LEGEND

- | | | |
|------------------------|---------------|------------------------|
| △ SEDIMENT SAMPLE | ■ SOIL SAMPLE | ● SURFACE WATER SAMPLE |
| ▲ SURFACE WATER SAMPLE | ⊙ DRUMS | □ SEDIMENT SAMPLE |
| ⚡ GROUNDWATER SAMPLE | ○ TANKS | |



SAMPLE LOCATION MAP

LI TUNGSTEN, GLEN COVE, LONG ISLAND, N.Y.

NOT TO SCALE

FIGURE 4

ENUS
CORPORATION

NAME: LI 100511
 : 0 01
 LING DATES: 04/18/90-04/19/90
 CASE NO.: 13706 LAB: COMPUCHEN

SUMMARY OF SITE INSPECTION ANALYTICAL DATA

TILES

Tile ID No.	NYJL-GW1	NYJL-GW4	NYJL-GW5	NYJL-GW7	NYJL-GW10 (UP)	NYJL-SW1	NYJL-SW2 (MS/MSD)	NYJL-SW3	NYJL-SW4	NYJL-SW6	NYJL-SW13 (DUP)	NYJL-SED2	NYJL-SED3	NYJL-SED4	NYJL-SED6
File Report No.	BEB18	BEB21	BEB22	BEB26	BEB27	BEB28	BEB29	BEB30	BEB31	BEB33	BEB40	BEB42	BEB43	BEB44	BEB46
is	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
s	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg
tion Factor	1	2.78	5	1	1	1	1	1	1	1	1	1	1	1	1
ent Moisture	--	--	--	--	--	--	--	--	--	--	--	24	45	40	40

romethane															
omethane															
l Chloride															
roethane															
/lene (chloride															
one			600												
on Disulfide															
Dichloroethene	J														
Dichloroethane	J														
s-1,2-Dichloroethene (total)		87							J						
roform															
Dichloroethane															
tanone			84												44 E
1-Trichloroethane		450													
on tetrachloride															
l Acetate															
odichloroethane															
Dichloropropane															
1,3-Dichloropropene															
hloroethene		93							J						J
monochloroethane															
2-Trichloroethane															
ene															
s-1,3-Dichloropropene															
loro															
hyl-2-Fenianone															
anone															
ichloroethene										14					
ne															
2-Tetrachloroethane															
obenzene															
benzene															
ne															
es (total)															

space - compound analyzed for but
 not detected
 compound found in lab blank as well as
 sample, indicates possible/probable
 blank contamination
 estimated value
 estimated value, compound present
 below (PQL) but above IDL
 analysis did not pass EPA QA/QC
 presumptive evidence of the presence
 of the material
 analysis not required

102518

Rev. No. 0
 13.5.14
 13.5.18

02-9003-01
 ING 04/1 1/19/9
 CASE NO.: 1599 LAB: CONPUCHEN

TAB F 1
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

FILE	NYJL-S1	NYJL-S2(MS/MSD)	NYJL-S3	NYJL-S4	NYJL-S5	NYJL-S11(DUP)	NYJL-RIN1	NYJL-RIN2	NYJL-RIN3	NYJL-RIN4	NYJL-TABK1
le ID No.	DEB50	DEB51	DEB52	DEB53	DEB58	DEB60	DEB61	DEB62	DEB63	DEB64	DEB69
ic Report No.	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER	WATER
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
ion Factor	1	1	1	1	1	1	1	1	1	1	1
nt Moisture	27	52	19	12	12	24

omethane
 methane
 Chloride
 oethane
 lene Chloride
 ne
 n Disulfide
 ichloroethene
 ichloroethane
 -1,2-Dichloroethene (total)
 oforn
 ichloroethane
 anone
 -Trichloroethane
 n Tetrachloride
 Acetate
 Dichloromethane
 ichloropropane
 ,3-Dichloropropene
 oroethene
 ochloromethane
 Trichloroethane
 e
 1,3-Dichloropropene
 orm
 yl-2-Pentanone
 none
 hloroethene
 e
 2-Tetrachloroethane
 benzene
 enzene
 e
 s (Total)

space compound analyzed for but
 not detected
 compound found in lab blank as well as
 sample, indicates possible/rotatable
 contamination
 limited value
 limited value, compound present
 above CRQL but above IDL
 analysis did not pass EPA QA/QC
 suggestive evidence of the presence
 of the material
 analysis not required
 on limits elevated if dilution

102519

02-9003-01-S1
 Rev. No. 0
 Def. 14
 14, f-48

SUMMARY OF SITE INSPECTION, 10/1/71 DATE
(cont'd)

[illegible]

102520

U-7503-01-21
Rev. No. 0

Pos, 161
15 of 418

LING DATE: 04/18/90-04/19/90
 CASE NO.: 13706 LAB: COMPUCHEN

TA__ 1
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

TILES	NYJL-RIN7	NYJL-RIN8	NYJL-TRK2
le ID No.	BEB67	BEB68	BEB70
lic Report No.			
iv	WATER	WATER	WATER
s	ug/L	ug/L	ug/L
tion factor	1	1	1
ent Moisture	--	--	--

romethane
 omethane
 l Chloride
 roethane
 ylene Chloride
 one
 on Disulfide
 Dichloroethene
 5-Chloroethane
 s-1,2-Dichloroethene (total)
 roform
 Dichloroethane
 lanone
 1-Trichloroethane
 on tetrachloride
 l Acetate
 dichloromethane
 dichloropropane
 1,3-Dichloropropene
 chloroethene
 methchloromethane
 1-Trichloroethane
 ne
 -1,3-Dichloropropene
 form
 hyl-2-Pentanone
 anone
 chloroethene
 ne
 .2-Tetrachloroethane
 obenzene
 benzene
 ne
 es (Total)

space - compound analyzed for but
 not detected
 compound found in lab blank as well as
 sample, indicates possible/probable
 blank contamination
 estimated value
 estimated value, compound present
 below (PQL but above IDL
 analysis did not pass EPA QA/QC
 presumptive evidence of the presence
 of the material
 analytical not required
 detection limits elevated if dilution

102521

16 of 43
 Ref. 19
 Rev. No. 0
 UC-2003-01-21

NAME: LA 100010
 : 0 01
 LING DATES: 04/18/90-04/19/90
 CASE NO.: 12906 LAB: COMPUCHEN

TAI 1
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

-VOLATILES															
le ID No.	NYJL-GW1	NYJL-GW4	NYJL-GW5	NYJL-GW9	NYJL-GW10(DUP)	NYJL-SW1	NYJL-SW2(HS/MSD)	NYJL-SW3	NYJL-SW4	NYJL-SW6	NYJL-SW10(DUP)	NYJL-SED2	NYJL-SED3	NYJL-SED4	NYJL-SED6
for Report No.	DEB18	DEB21	DEB22	DEB26	DEB27	DEB28	DEB29	DEB30	DEB31	DEB33	DEB40	DEB42	DEB43	DEB44	DEB46
in	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
s	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg
tion Factor/GPC (Cleanup (Y)	1	1		1	1	1	1	1	1	1	1	1	1	.99	1
ent Moisture	--	--	--	--	--	--	--	--	--	--	--	24	45	40	40
<hr/>															
ol			LAB DID	R	R										
2-Chloroethyl ether			NOT RUN	R	R										
loroethanol			ANALYSIS	R	R										
Dichlorobenzene			ON THIS	R	R										
Dichlorobenzene			SAMPLE	R	R										
l alcohol				R	R										
Dichlorobenzene				R	R										
Hydrohexol				R	R										
2-Chloroisopropyl ether				R	R										
Hydrophenol				R	R										
rosod-n-dicocylamine				R	R										
chloroethane				R	R										
benzene				R	R										
orone				R	R										
rophenol				R	R										
imethylphenol				R	R										
ic acid				R	R										
2-Chloroethoxymethane				R	R										
ichlorophenol				R	R										
Trichlorobenzene				R	R										
halene				R	R										
roaniline				R	R										
lorobutadiene				R	R										
ro-3-Methylphenol				R	R										
ylphenol				R	R										
lorocyclopentadiene				R	R										
Trichlorophenol				R	R										
Trichloroethanol				R	R										
ronaphthalene				R	R										
oniline				R	R										
ylphthalate				R	R										
hthylene				R	R										
nitrotoluene				R	R										
oniline				R	R										
hthene				R	R										
nitrophenol				R	R										
ophenol				R	R										
ofuran				R	R										
nitrotoluene				R	R										
lothalate				R	R										
rophenyl-phenyl ether				R	R										
ne				R	R										
oniline				R	R										
nitro-2-methylphenol				R	R										
osodichloramine				R	R										
rophenyl-phenyl ether				R	R										
lorobenzene				R	R										

102522

UC-9003-VI-31
 Rev. No. 0

Ref. 19
 17.445

CASE NO.: 13706 LAB: CONFUCHEM

(cont'd)

cent Moisture

NYJL-GW1	NYJL-GW4	NYJL-GW5	NYJL-GW6	NYJL-GW10(DUP)	NYJL-SW1	NYJL-SW2(MS/MSD)	NYJL-SW3	NYJL-SW4	NYJL-SW6	NYJL-SW13(DUP)	NYJL-SED2	NYJL-SED3	NYJL-SED4	NYJL-SED6
BEB18	BEB21	BEB22	BEB26	BEB27	BEB28	BEB29	BEB30	BEB31	BEB33	BEB40	BEB42	BEB43	BEB44	BEB46
WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg
1	1		1	1	1	1	1	1	1	1	1	1	39	1
--	--	--	--	--	--	--	--	--	--	--	24	45	40	40

Chemical Name	Concentration (ppm)	Dose (mg/kg bw/d)	Effect	LD ₅₀ (mg/kg bw/d)
tachlerophenol	R	R		J
naphthalene	R	R		J
anthracene	R	R		J
n-butylphthalate	R	R		J
anthracene	R	R		1600
phenanthrene	R	R		1200
ethylbenzylphthalate	R	R		J
1-Dichlorobenzidine	R	R		J
acetaldehyde	R	R		JN
styrene	R	R		JN
1,2-Ethylenebis(2-chloroethanol)	R	R		580
octylphthalate	R	R		J
polychlorinated biphenyls	R	R		JN
polychlorinated dibenzodioxins	R	R		JN
polychlorinated dibenzofurans	R	R		JN
pyrene	R	R		760
1,2,3-cdipyrone	R	R		J
anthracene	R	R		J
fluorene	R	R		J

or 1 and/or percent moisture >0%

102523

Rev. No. 0

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PLING DATE: 04/19/94
CASE NO.: 1390 LAB: COMPUHEM

MAR

SI

TABLE 1
INSI ION LYT DA
(cont'd)

11-VOLATILES

Sample ID No.

Offic Report No

Tri-

its

ution Factor/GPC Cleanup (Y)

cent Moisture

NYJL-S1	NYJL-S2(MS/MSD)	NYJL-S3	NYJL-S4	NYJL-S7	NYJL-S11(DUP)	NYJL-R1N1	NYJL-R1N2	NYJL-R1N3	NYJL-R1N4	NYJL-T86K1
BE850	BE851	BE852	BE853	BE858	BE860	BE861	BE862	BE863	BE864	BE869
SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER	WATER
ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
1	.99	1	1	1	1	1	1	1	1	N/A
27	52	18	12	12	24	--	--	--	--	N/A

anol

1,2-Dichloroethyl ether

Chlorophenol

1,2-Dichlorobenzene

1,3-Dichlorobenzene

1-Propanol

1,2-Dichlorobenzene

1-Ethylphenol

1,2-Dichloroisopropyl ether

1-Ethylphenol

1,2-Dichloro-4-n-dimethylamine

1,2-Dichloroethane

1,2-Dichlorobenzene

1,2-Dichlorobenzene

1,2-Dichlorobenzene

1,2-Dichlorobenzene

1,2-Dichlorobenzene

1,2-Dichloroethoxyethane

1,2-Dichlorophenol

1,2,4-Trichlorobenzene

1,2,4-Trichlorobenzene

1,2,4-Trichlorobenzene

1,2,4-Trichlorobenzene

1,2,4-Trichlorobenzene

1,2,4-Trichlorobenzene

1,2,4-Trichlorobenzene

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1,2,4-Trichlorobenzene

1,2,4-Trichlorobenzene

NR

NR

NR

NR

NR

NR

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NR

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NR

102524

Rev. No. 0

19.148

BDP: 02-9003-01
 ANALYSIS DATES: 04/10/90-04/11/90
 PA CASE NO.: 13709 LAB: COMPUCHEN

TABLE 1
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

EMI-VOLATILES	NYJL-S1	NYJL-S2(HS/MSD)	NYJL-S3	NYJL-S4	NYJL-S9	NYJL-S11(DUP)	NYJL-RIN1	NYJL-RIN2	NYJL-RIN3	NYJL-RIN4	NYJL-TBKI
Sample ID No.	BE850	BE851	BE852	BE853	BE858	BE860	BE861	BE862	BE863	BE864	BE869
Traffic Record No.	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER	WATER
Matrix	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	1	.99	1	1	1	1	1	1	1	1	N/A
Percent Moisture	27	52	18	13	12	24	--	--	--	--	N/A
2,4-dichlorophenol											NR
benanthrene					J	J					NR
anthracene					J						NR
1-n-butylphthalate		J	670								NR
fluoranthene	J				610	J					NR
pyrene					630	J					NR
ethylbenzylphthalate											NR
3,3'-Dichlorobenzidine											NR
benzo(a)anthracene					410	J					NR
crystalline					390	J					NR
1,2-Ethylhexylphthalate	J	J	J			J					NR
1-n-octylphthalate											NR
benzo(b)fluoranthene	JN	JN			980 EN	460 EN					NR
benzo(k)fluoranthene	JN	JN			980 EN	460 EN					NR
benzo(a)pyrene					440	J					NR
benzo(1,2,3-cd)pyrene					J	J					NR
benzo(a,h)anthracene					J						NR
benzo(g,h,i)perylene					380	J					NR

IES:
 sink space - compound analyzed for but
 not detected
 compound found in lab blank as well as
 sample, indicates possible/probable
 blank contamination
 estimated value
 estimated value, compound present
 below CROL but above IDL
 analysis did not pass EPA QA/QC
 Presumptive evidence of the presence
 of the material
 analysis not required
 action limits elevated if Dilution
 factor >1 and/or percent moisture >0%

102525

02-9003-01-S1
 Rev. No. 0
 20,448
 20,448

TABLE 1
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

EMI-VOLATILES	NYJL-GW2	NYJL-GW3	NYJL-GW7	NYJL-GW8	NYJL-SW7	NYJL-SW8	NYJL-SW9	NYJL-SW10	NYJL-SED7	NYJL-SED9	NYJL-SED9	NYJL-S5	NYJL-S6	NYJL-S7	NYJL-S8	NYJL-S10	NYJL-RIN5	NYJL-RIN6
Sample ID No.	BER19	BER20	BER24	BER25	BER34	BER35	BER36	BER37	BER47	BER48	BER49	BER54	BER55	BER56	BER57	BER59	BER65	BER66
Traffic Report No.	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER
Matrix	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
Units	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1
Dilution Factor/GPC Cleanup (Y)	--	--	--	--	--	--	--	--	56	46	82	18	23	13	18	35	--	--
Percent Moisture	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol		R				R	R		J									
1,2-Dichloroethylether																		
Chlorophenol		R				R	R											
1,3-Dichlorobenzene																		
1,4-Dichlorobenzene																		
Benzyl alcohol																		
1,2-Dichlorobenzene																		
Methylphenol		R				R	R											
1,2-Dichloroisobutylether																		
Methylphenol		R				R	R											
Nitroso-di-n-dipropylamine																		
1,4-Dichloroethane																		
Bromobenzene																		
Chlorophenol		R				R	R											
1,4-Dimethylphenol		R				R	R											
Benzoic acid		R				R	P	J	J									
1,2-Dichloroethoxymethane																		
1,4-Dichlorophenol		R				R	R											
2,4-Trichlorobenzene												J						
Phthalene														J				
Chloroaniline																		
1,4-Dichlorobutadiene																		
Chloro-3-Methylphenol		R			J	R	R											
1-Methylnaphthalene																		
1,4-Dichlorocyclopentadiene																		
1,6-Trichlorophenol		R				R	R											
1,5-Trichlorophenol		R				R	R											
1-Chloronaphthalene																		
Nitroaniline																		
1-Ethylphthalate																		
1-Naphthylene																		
1-Dinitrotoluene																		
Nitroaniline																		
Naphthene									J						J			
1-Dinitrophenol		R				R	R											
1-Trophenol		R				R	R											
1-Benzofuran									J						J			
1-Dinitrotoluene																		
1-Ethylphthalate																		
1-Chlorophenyl-phenyl ether									J						J			
1-Trophenol																		
1-Troaniline																		
1-Dinitro-2-methylphenol		R				R	P											
1-Troisodichenyamine																		
1-Tromophenyl-phenyl ether																		
1-Chlorobenzene																		

102526

02-9003-01-S1
 Rev. No. 0

210648
 RF.19

01: 0003-01
 ANALYSIS DATE: 04/18/90-04/19/90
 CASE NO.: 1206 LAB: COMPUCHEN

TABLE 1
 SUMMARY OF SOIL INSPECTION ANALYTICAL DATA
 (cont'd)

NYJL-GW2	NYJL-GW3	NYJL-GW7	NYJL-GW8	NYJL-SW7	NYJL-SW8	NYJL-SW9	NYJL-SW10	NYJL-SED7	NYJL-SED8	NYJL-SED9	NYJL-S5	NYJL-S6	NYJL-S7	NYJL-S8	NYJL-S10	NYJL-R1M5	NYJL-R1M6
BEB19	BEB20	BEB24	BEB25	BEB34	BEB35	BEB36	BEB37	BEB47	BEB48	BEB49	BEB54	BEB55	BEB56	BEB57	BEB59	BEB65	BEB66
WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER
ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1
Percent Moisture	--	--	--	--	--	--	--	56	46	83	18	23	13	18	35	--	--
<hr/>																	
2,4-dichlorophenol	R					R	R										
benanthrene								2700			J	J	290		J		
thracene								J					J				
n-butylphthalate								J							J		
fluoranthene								6800			J	J	990		J		
rene								3900			J	J	950		J		
1,2-bis(4-chlorophenyl)ethane								J					J		J		
1-methylanthracene								2400				J	560		J		
rysene								3000			J	J	540		J		
1,2-bis(4-ethylphenyl)ethane								7200			J	J	J	J	J		
n-octylphthalate								J									
1-methylfluoranthene								3600			JN	JN	930 EN		JN		
1-methylfluoranthene								2500			JN	JN	930 EN		JN		
1-methylpyrene								2500			J	J	420		J		
1,2,3-cdipyrone								J				J	J		J		
1,2,3,4-benz(a,h)anthracene								J				J	J		J		
1-methylanthracene								J				J	J		J		

ES:

ink space - compound analyzed for but not detected
 compound found in lab blank as well as sample, indicates possible/probable blank contamination
 estimated value
 estimated value, compound present below CRQL but above IDL
 analysis did not pass EPA QA/QC
 Presumptive evidence of the presence of the material
 - analysis not required
 detection limits elevated if Dilution factor >1 and/or percent moisture >0%

102527

Ref. 19
 22 of 48

02-9003-01-S1
 Rev. No. 0

TABLE 1
SUMMARY OF SITE INSPECTION ANALYTICAL DATA
(cont'd)

102528

02-9003-01-SI
Rev. No. 0

Ref. 19
23.1.18

PLING DATES: 04/18/90-04/19/90
CASE NO.: 13206 LAB: COMPUCHEN

PRIMARY SITE INSPECTION ANALYTICAL DATA
(cont'd)

1-VOLATILES

Sample ID No.	NYJL-RIN7	NYJL-RIN2	NYJL-TRBX2
Public Report No.	BE867	BE868	BE870
Matrix	WATER	WATER	WATER
Units	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (%)	1	1	N/A
Percent Moisture	--	--	N/A
1,2-dichlorobenzene			NR
1,2,4-trichlorobenzene			NR
1,3-dichlorobenzene			NR
1,4-dichlorobenzene			NR
1,2,3,4-tetrachlorobenzene			NR
1,2,4,5-tetrachlorobenzene			NR
1,2,3,5-tetrachlorobenzene			NR
1,2,3,6-tetrachlorobenzene			NR
1,2,4,6-tetrachlorobenzene			NR
1,3,5-trichlorobenzene			NR
1,2,4-trichlorobenzene			NR
1,3,4-trichlorobenzene			NR
1,2,5-trichlorobenzene			NR
1,2,6-trichlorobenzene			NR
1,3,6-trichlorobenzene			NR
1,4,5-trichlorobenzene			NR
1,4,6-trichlorobenzene			NR
1,5,6-trichlorobenzene			NR
1,2,3,4,5-pentachlorobenzene			NR
1,2,3,4,6-pentachlorobenzene			NR
1,2,3,5,6-pentachlorobenzene			NR
1,2,4,5,6-pentachlorobenzene			NR
1,3,4,5,6-pentachlorobenzene			NR
1,2,3,4,5,6-hexachlorobenzene			NR

S:
k space - compound analyzed for but not detected
compound found in lab blank as well as sample, indicates possible/probable blank contamination
estimated value
estimated value, compound present below CRQL but above IOL
analysis did not pass EPA QA/QC
Presumptive evidence of the presence of the material
analysis not required
Detection limits elevated if Dilution or % and/or percent moisture >0%

102529

Rev. No. 0

24.048

02-9003-01
 ING DATES: 04/18/70-04/19/90
 USE NO. 13706 LAB: COMPUCHEN

TABLE
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

ANALYTES	NYJL-GW1	NYJL-GW4	NYJL-GW5	NYJL-GW9	NYJL-GW10(DUP)	NYJL-SW1	NYJL-SW2(HS/MSD)	NYJL-SW3	NYJL-SW4	NYJL-SW6	NYJL-SW13(DUP)	NYJL-SED2	NYJL-SED3	NYJL-SED4	NYJL-SED6
Sample ID No.	BEB18	BEB21	BEB22	BEB26	BEB27	BEB28	BEB29	BEB30	BEB31	BEB33	BEB40	BEB42	BEB43	BEB44	BEB46
Sample Report No.	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Concentration Factor/GPC Cleanup (Y)	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg
Percent Moisture	1	1	1	1	1	1	1	1	1	1	1	24	45	40	40
BHC			R												R
PHC			R												R
BHC			R												R
BHC (Lindane)			R												R
Chlor			R												R
			R												R
Chlor peroxide			R												
Heptachlor			R												
in															
DE															
Heptachlor II															
DDT															
Heptachlor sulfate															
DDT															
Chlorobenzene															
Chlorobenzene															
ene															
r-1016															
r-1221															
r-1232															
r-1242															
r-1248								2.6				7600	50000	610	
r-1254								1.4				1600			
r-1260						2					2.2				

Trace - compound analyzed for but not detected
 Compound found in lab blank as well as sample, indicates possible/probable
 blank contamination
 Estimated value
 Estimated value, compound present
 Above CRQL but above IDL
 Analysis did not pass EPA QA/QC
 Summative evidence of the presence of the material
 Analysis not required
 Concentration limits elevated if Dilution
 Factor and/or percent moisture > 0%

102530

Dec 14
 25 of 48

02-9003-01-SI
 Rev. No. 0

FILE NAME: LI TUNGS
 DR: 3-01
 SPLITTING DATES: 04/18/90-04/19/90
 CASE NO.: 13909 LAB: COMPUCHEN

TABLE 1
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

STICIDES	NYJL-S1	NYJL-S2(MS/MSD)	NYJL-S3	NYJL-S4	NYJL-S9	NYJL-S11(DUP)	NYJL-RIN1	NYJL-RIN2	NYJL-RIN3	NYJL-RIN4	NYJL-TABK1
Sample ID No.	BE850	BE851	BE852	BE853	BE858	BE860	BE861	BE862	BE863	BE864	BE869
Official Report No.	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	1	1	1	1	1	1	1	1	1	1	N/A
Percent Moisture	27	52	18	13	12	24	--	--	--	--	N/A
<hr/>											
alpha-BHC			R								NR
gamma-BHC			R								NR
delta-BHC			R								NR
alpha-BHC (Lindane)			R								NR
gamma-chlor			R								NR
gamma-lin			R								NR
gamma-chlor epoxide			R								NR
gamma-sulfan II			R								NR
gamma-lin											NR
gamma-DDE	34										NR
gamma-lin											NR
gamma-sulfan II											NR
gamma-DDD											NR
gamma-sulfan sulfate											NR
gamma-DDT	60					57					NR
gamma-hexachlor											NR
gamma-lin ketone											NR
gamma-Chlordane											NR
gamma-Chlordane											NR
gamma-phene											NR
gamma-lor-101a											NR
gamma-lor-1221											NR
gamma-lor-1232											NR
gamma-lor-1242											NR
gamma-lor-1248						4700					NR
gamma-lor-1254						2900					NR
gamma-lor-1260											NR

S:
 k space - compound analyzed for but
 not detected
 compound found in lab blank as well as
 sample, indicates possible/probable
 blank contamination
 estimated value
 estimated value, compound present
 below CPQL but above IDL
 analysis did not pass EPA QA/QC
 Presumptive evidence of the presence
 of the material
 analysis not required
 detection limits elevated if Dilution
 or 1 and/or percent moisture > 0%

102531

26.1-18
 26.1-19

Rev. No. 0

NAME: 11 THINGSTEN
 02-
 HG DATES: 04/18/90-04/19/90
 SE NO.: 13706 LAB: COMPUCHEN

TABLE 1
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

IDES	NYJL-GW2	NYJL-GW3	NYJL-GW7	NYJL-GW8	NYJL-SW7	NYJL-SW8	NYJL-SW9	NYJL-SW10	NYJL-SED7	NYJL-SED8	NYJL-SED9	NYJL-S5	NYJL-S6	NYJL-S7	NYJL-S8	NYJL-S10	NYJL-R1N5	NYJL-R1N6
ID No.	BEB19	BEB20	BEB24	BEB25	BEB34	BEB35	BEB36	BEB37	BEB47	BEB48	BEB49	BEB54	BEB55	BEB56	BEB57	BEB59	BEB65	BEB66
Report No.	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER
on Factor/GPC Cleanup (Y)	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
Moisture	--	--	--	--	--	--	--	--	56	46	83	18	23	13	18	35	--	--
BHC																		
HC																		
BHC																		
BHC (Lindane)																		
hlor																		
hlor epoxide											67 E							
lfan I																		
in										170								
4E																		
lfan II																		
4D						0.17			70	150								
lfan sulfate																		
4T													71					
chlor																		
ketone																		
hlorane																		
hlorane																		
ne																		
-1016																		
-1221																		
-1232																		
-1242																		
-1248																		
-1254												540						
-1260													640			690		

pace - compound analyzed for but
 detected
 pound found in lab blank as well as
 ple, indicates possible/probable
 nk contamination
 inated value
 inated value, compound present
 ow CROL but above 10L
 lysis did not pass EPA QA/QC
 sumptive evidence of the presence
 the material
 alysis not required
 on limits elevated if Dilution
 >1 and/or percent moisture >0%

102532

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02-9003-01-SI
 Rev. No. 0

ITE NAME: 11 TUN
 ID: 0003-01
 SAMPLING DATES: 04/18/90-04/19/90
 QA CASE NO.: 13906 LAB: COMPUCHEN

TABLE 1
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

ESTIGIDES	NYJL-RIN7	NYJL-RIN8	NYJL-TRBK2
Sample ID No.	DEB67	DEB68	DEB70
Traffic Report No.	WATER	WATER	WATER
Strips	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	1	1	N/A
Percent Moisture	--	--	N/A
Alpha-BHC			NR
Beta-BHC			NR
Gamma-BHC			NR
Gamma-BHC (Lindane)			NR
Plachlor			NR
Dieldrin			NR
Plachlor epoxide			NR
Dosulfan I			NR
Dieldrin			NR
4'-DDE			NR
Dieldrin			NR
Dosulfan II			NR
4'-DDE			NR
Dosulfan sulfate			NR
4'-DDT			NR
Thoxychlor			NR
Dieldrin ketone			NR
Alpha-Chlordane			NR
Gamma-Chlordane			NR
Xaphene			NR
Ochlor-1016			NR
Ochlor-1221			NR
Ochlor-1232			NR
Ochlor-1242			NR
Ochlor-1248			NR
Ochlor-1254			NR
Ochlor-1260			NR

TES:

- Blank space - compound analyzed for but not detected
 - Compound found in lab blank as well as sample, indicates possible/probable blank contamination
 - Estimated value
 - Estimated value, compound present below CROU but above IDL
 - Analysis did not pass EPA QA/QC
 - Presumptive evidence of the presence of the material
 - Analysis not required
- Detection limits elevated if Dilution factor 1 and/or percent moisture 0%

102533

28.148
 R5.19

NAME: ... UHGSL...
 02-9003-01
 ING DATES: 04/18/90-04/19/90
 ASE NO.: 13906
 AHE: ENSECO/RNAL

TABLE 1
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

ANICS e ID No. ic Report No. v	NYJL-GW1 MBCJ01 WATER ug/L	NYJL-GW4 MBCJ04 WATER ug/L	NYJL-GW5 MBCJ05 WATER ug/L	NYJL-GW9 MBCJ09 WATER ug/L	NYJL-GW10(DUP) MBCJ10 WATER ug/L	NYJL-SW1 MBCJ11 WATER ug/L	NYJL-SW2(HS/HSD) MBCJ12 WATER ug/L	NYJL-SW3 MBCJ13 WATER ug/L	NYJL-SW4 MBCJ14 WATER ug/L	NYJL-SW6 MBCJ16 WATER ug/L	NYJL-SW13(DUP) MBCJ23 WATER ug/L	NYJL-SED2 MBCJ25 SEDIMENT ng/kg	NYJL-SED3 MBCJ26 SEDIMENT ng/kg	NYJL-SED4 MBCJ27 SEDIMENT ng/kg	NYJL-SED6 MBCJ29 SEDIMENT ng/kg
num	32600	171000		122000	120000	J	409	931	204	J	J	2190	3560	12600	6000 E
ony	68.8		3390	184	212		73.1	212				3320 E	3290 E	245 E	
ic		J	R	2690	2800	J	50.2	145 E	15.2		J	1240	1770	228	20.1 E
a	525	707	J	J	J	J	J	J	J	J	J	333	387	131	J
lium	J	11.1		11.2	12.3									2.8	J
va												5.6	10.1	5.9	8.3 E
in	26100	28000	214000	541000	572000	6560	6670	40600	449000	71200	6930	2800	24000	149000	6640 E
ium	97.9	344	J	137	132		J	J				24.5	78.7	62	34.5 E
	128	221		353	358		61.2	475	85.8	J		18.1	60.8	1390	53.6 E
	171 E	276 E	J	231 E	212 E	J	103 E	640 E	48.2 E	J	26.4	171 E	454 E	994 E	281 E
	228000	257000	6390	370000	384000	174	2150	4530	547	871	141	46400	145000	20900	19200 E
	31.1	209	R	144 E	88.6 E	J	141	195	102 E	J	J	2950	5140	937	254 E
ium	17900	46300	J	179000	187000	J	J	J	15900	175000	J	J	J	24100	4240 E
ese	3990	7620	1730	35300	37300	J	108	535	138	173	J	221	260	1110	245 E
y	0.42	13	0.48	0.28	0.25		0.21	0.66				4.4 E	9 E	0.71 E	0.45 E
	135	213		339	336	J	50	140	J	J	J			271	82.3 E
ium	10100 E	14100 E	J	25400 E	25600 E	J	J	J	5920 E	47000 E	J	J	3430	3510	J
un									J			J	19 E		
	10600	9940	13100000	1390000	1460000	36100	14100	56300	21700	1360000	36700	103	136	32.2	33.8 E
un												R	R	R	5150 E
un	125	512		198	181									56.5 E	28.8 E
e	508 E	825 E	J	5940 E	6200 E	20.7 E	93.3 E	229 E	31.4 E	J	R	119 E	197 E	551 E	1720 E
		13.6													

space - compound analyzed for but
 t detected
 limited value
 limited value, compound present
 low CROl but above IDL
 alysis did not pass EPA QA/QC
 nalysis not required

102534

Ref. 19
 290448

02-9003-01-51
 Rev. No. 0

E MAIL: L. TUNG...
 #: 02-9003-01
 PLING DATES: 04/18/90-04/19/90
 CASE NO.: 13906
 NAME: ENSECO/RMAL

TABLE
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

ORGANICS	NYJL-S1	NYJL-S2(HS/MSD)	NYJL-S3	NYJL-S4	NYJL-S9	NYJL-S11(DUP)	NYJL-R1N1	NYJL-R1N2	NYJL-R1N3	NYJL-R1N4	NYJL-TBCK1
Site ID No.	MBCJ33	MBCJ34	MBCJ35	MBCJ36	MBCJ41	MBCJ43	MBCJ44	MBCJ45	MBCJ46	MBCJ47	N/A
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER	N/A
Units	ng/kg	ng/kg	ng/kg	ng/kg	ng/kg	ng/kg	ug/L	ug/L	ug/L	ug/L	ug/L
Acetone	6150	32300 E	330	519	4960	5550					NR
Benzene	250 E	272 E	796 E	180 E	296 E	189 E					NR
Chlorobenzene	309	2600 E	3370	3700	233	413					NR
Chloroform	J	492 E	J	J	177	J					NR
Diethyl ether	J	8.9 E			J						NR
Diethylamine	J	49 E	14.9	16	9.1	1.5					NR
Diethylamine	J	59200 E	J	J	2200	J					NR
Diethylamine	14.3	172 E		39.1	20.5	14					NR
Diethylamine	J	190 E	J	J	73.5	J					NR
Diethylamine	46.2 E	3000 E	2190 E	752 E	1150 E	46.5 E			J	J	NR
Diethylamine	28500	172000 E	327000	246000	60100	31600	J	J	J		NR
Diethylamine	179	16000 E	9090	1960	8660	188					NR
Diethylamine	J	2470 E	J	J	1540	J					NR
Diethylamine	87.3	25100 E	2260	5290	2120	85.4					NR
Diethylamine	0.54 E	13 E	0.68 E	0.6 E	1.4 E	0.37 E					NR
Diethylamine	J	53.9 E			165	J					NR
Diethylamine	J	J	J	J	J	J					NR
Diethylamine			2.5 E	3.4 E	10 E						NR
Diethylamine	4.8	65.5 E	156	84.3	55.5	5.5					NR
Diethylamine			8540			J					NR
Diethylamine	R	R	R	R	R	R					NR
Diethylamine	20.8 E	117 E	J	J	22.7 E	20.3 E					NR
Diethylamine	43.3 E	2980 E	1330 E	1240 E	559 E	39.7 E				J	NR
Diethylamine		1.5 E									NR

J:
 k space - compound analyzed for but not detected
 Estimated value
 Estimated value, compound present
 Below CRDL but above IDL
 Analysis did not pass EPA QA/QC
 Analysis not required

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 R2F.19

02-9003-01-S1
 Rev. No. 0

NAME: LI TUNGSTEN
 : 02-9003-01
 LING DATES: 04/18/90-04/19/90
 CASE NO.: 13906
 NAME: ENSECO/RNAL

TABLE 1
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

ANALYSIS	NYJL-GW2	NYJL-GW3	NYJL-GW7	NYJL-GW8	NYJL-SW7	NYJL-SW8	NYJL-SW9	NYJL-SW10	NYJL-SED7	NYJL-SED8	NYJL-SED9	NYJL-S5
Is ID No.	MBCJ02	MBCJ03	MBCJ07	MBCJ08	MBCJ17	MBCJ18	MBCJ19	MBCJ20	MBCJ30	MBCJ31	MBCJ32	MBCJ37
fic Report No.	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SOIL
is	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg
inum	152000	115000	3970	3910	J	581	338	J	9200 E	7570	5540 E	16300
ony	J		276	J		86.2		877			104 E	310 E
nic	J	J	81.7	31.8		43.8	17.2	J	17.1 E	45.9	193 E	437
in	963	834	J	J	J	J	J	J	J	146	1340 E	860
lilum	11	7.4							J	J	J	2
ium	53.6	14 E	29.1			7.5 E		15.2 E	R		J	16.5
ium	39900	88100	90600	130000	32400	52500	37790	37500	19900 E	J	13200 E	36800
ium	369	271	23.7	20.9				66.2	47.4 E	20.4	87.6 E	160
lt	115	109	703	55.9		3320	805	17500	30 E	92.1	7910 E	2270
ir	231 E	2080 E	391 E	60.8 E	J	167 E	55.9 E	1570	268 E	26.1 E	571 E	4180 E
	246000	231000	9450	34200	663	17300	24200	6580	21000 E	22800	239000 E	85900
	146	121	198	7.3		30.8	13.2 E	153	345 E	31.5 E	356 E	3390
esium	57200	42500	13000	19300	29000	14700	12700	18600 E	7990 E	1990	J	48300
inese	3900	8190	1480	829	93.5	2280	7200	29500	212 E	205	65100 E	18400
ry	0.25		0.87	0.29				0.84	0.53 E			1.7 E
l	243	225	525	50		1700	369	76200	48.3 E	44.4	3320 E	9130
esium	34100 E	11400 E	8720 E	9380 E	9290 E	8970 E	J	7630	J	J	J	J
ium			J									1.9 E
r			J					34.6	37.6 E		23.6 E	75.6
n	23300	45500	117000	35900	262000	67800	21300	464000	13500 E			4460
ium									R	R	R	R
ium	421	320	J	J		J			37.7 E	32.9 E	J	43.3 E
de	632 E	1820 E	3840 E	160 E	J	1530 E	81.4 E	P	390 E	96.9 E	622 E	1570 E
		11.4										

space - compound analyzed for but
 not detected
 estimated value
 estimated value, compound present
 below CRDL but above IDL
 analysis did not pass EPA QA/QC
 analysis not required

102536

02-9003-01-S1
 Rev. No. 0

105.14
 31.0448

NAME: LI TUNGSTEN

ID: 02-9003-01

SAMPLING DATES: 04/18/90-04/19/90

CASE NO.: 13906

NAME: EPSECO/RMAL

TABLE 1
SUMMARY OF SITE INSPECTION ANALYTICAL DATA
(cont'd)

ORGANICS	NYJL-S6	NYJL-S7	NYJL-S8	NYJL-S10	NYJL-R1M5	NYJL-R1M6	NYJL-R1M7	NYJL-R1M8	NYJL-TDRK2
File ID No.	MBCJ39	MBCJ39	MBCJ40	MBCJ42	MBCJ48	MBCJ49	MBCJ50	MBCJ51	N/A
File Report No.	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER	N/A
Unit	ng/kg	ng/kg	ng/kg	ng/kg	ug/L	ug/L	ug/L	ug/L	ug/L
benzene	2710	8750	9840	11200	J				NR
toluene	458 E	17.7							NR
ethylbenzene	452	44.1	33	10.5					NR
styrene	83.1	66.7	109	55.2					NR
phenol	J	J	J	J					NR
o-cresol	17.4	2	1.4	1.7				31.6	NR
m-cresol	4770	14700	J	4580					NR
p-cresol	13.3	19.3	24.2	23.6					NR
1,2-dichlorobenzene	J	21.4	J	16					NR
1,4-dichlorobenzene	1030 E	172 E	317 E	42.1 E	J		J		NR
1,3-dichlorobenzene	48700	14700	60200	17200	J	J	122	J	NR
1,1,2-trichloroethane	14200	324	58	240					NR
1,1,1-trichloroethane	J	8950	1230	2130					NR
1,2-dichloroethane	154	403	340	760					NR
1,1-dichloroethene	0.9 E	1.1 E		0.36 E					NR
vinyl chloride	J	29.5	9.8	25.4				J	NR
trans-1,2-dichloroethene	J	J	J	J					NR
cis-1,2-dichloroethene	13.6 E								NR
1,1,2,2-tetrachloroethane	125	2.6							NR
1,1,1,2-tetrachloroethane	J	J	J	J					NR
1,1,2,2-tetrachloroethane	39.5 E	32.4 E	39.2 E	50.4 E					NR
1,1,1,2,2-pentachloroethane	847 E	166 E	52.6 E	179 E	J	J	J	J	NR
1,1,1,2,2,2-hexachloroethane									NR

J:

J space - compound analyzed for but

not detected

J estimated value

J estimated value, compound present

J below CROD but above IDL

J analysis did not pass EPA QA/QC

J analysis not required

102537

U2-9003-01-51
Rev. No. 0

Ref. 14
32.148

E NAME: LI TUNGSI
 I: 1 -01
 PLING DATE: 5/15/90
 CASE NO.: 14115 LAB: NET MID-ATLANTIC

ABL
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

ATILES	NYJL-SW1	NYJL-SW2(HS/MSD)	NYJL-SW3(DUP)	NYJL-SED1(HS/MSD)	NYJL-SED2(DUP)	NYJL-RIN1	NYJL-RIN2	NYJL-RIN3	NYJL-RIN4	NYJL-TBLK1
Site ID No.	BDK63	BDK64	BDK65	BDK66	BDK67	BDK68	BDK69	BDK72	BDK73	BDP03
Site Report No.	WATER	WATER	WATER	SEDIMENT	SEDIMENT	WATER	WATER	WATER	WATER	WATER
Site	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
Location Factor	1	1	1	1	1	1	1	1	1	1
Percent Moisture	--	--	--	44	45	--	--	--	--	--
Propanethane										
Monomethane										
Chloride										
Proethane										
Ethylene Chloride										
Isobutene										
Carbon Disulfide										
Dichloroethene										
Dichloroethane										
trans-1,2-Dichloroethene (total)										
Proform										
Dichloroethane										
Alanone										
1,1-Trichloroethane										
Carbon Tetrachloride										
Acetate										
1,1-Dichloroethane										
Dichloropropane										
1,3-Dichloropropene										
Chloroethene										
Monochloromethane										
2-Trichloroethane										
Ethene										
trans-1,3-Dichloropropene										
Proform										
2-Methyl-2-Pentanone										
Hexanone										
1,2-Dichloroethene										
Ethene										
2,2-Tetrachloroethane										
Chlorobenzene										
Benzene										
Ethene										
Hydrocarbons (Total)										

S:
 Blank space - compound analyzed for but not detected
 Compound found in lab blank as well as sample, indicates possible/probable blank contamination
 Estimated value
 Estimated value, compound present
 Below CROL but above IDL
 Analysis did not pass EPA QA/QC
 Presumptive evidence of the presence of the material
 Analysis not required

102538

02-9003-01-SI
 Rev. No. 0

DeF. 19
 33.643

NAME: TUNGS
 ID: 000001
 DATING DATE: 5/15/90
 CASE NO.: 14115 LAB: NET MID-ATLANTIC

TAB E 1
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

1-VOLATILES	NYJL-SW1	NYJL-SW2(MS/MSD)	NYJL-SW3(DUP)	NYJL-SED1(MS/MSD)	NYJL-SED2(DUP)	NYJL-RIN1	NYJL-RIN2	NYJL-RIN3	NYJL-RIN4	NYJL-TBLK1
File ID No.	BDK63	BDK64	BDK65	BDK66	BDK67	BDK68	BDK69	BDK72	BDK73	BDP03
Offic Report No.	WATER	WATER	WATER	SEDIMENT	SEDIMENT	WATER	WATER	WATER	WATER	WATER
rix	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
ts	1	1	1	1	1	1	1	1	1	N/A
ation Factor/GPC Cleanup (Y)	--	--	--	44	45	--	--	--	--	N/A
ent Moisture	--	--	--	44	45	--	--	--	--	N/A
ol										NR
2-Chloroethylether										NR
lorophenol										NR
Dichlorobenzene										NR
Dichlorobenzene										NR
yl alcohol										NR
Dichlorobenzene										NR
Thylphenol										NR
2-Chloroisopropylether										NR
thylphenol										NR
troso-di-n-dipropylamine										NR
chloroethane										NR
obenzene										NR
borane										NR
trophenol										NR
Dimethylphenol										NR
oic acid										NR
2-Chloroethoxy)methane										NR
Dichlorophenol										NR
4-Trichlorobenzene										NR
thalene										NR
loroaniline										NR
chlorobutadiene										NR
loro-3-Methylphenol										NR
thylsaphthalene										NR
chlorocyclopentadiene										NR
5-Trichlorophenol										NR
5-Trichlorophenol										NR
loronaphthalene										NR
troaniline										NR
thylphthalate										NR
sphthylene										NR
Dinitrotoluene										NR
troaniline										NR
sphthene										NR
Dinitrophenol										NR
trophenol										NR
zofuran										NR
Dinitrotoluene										NR
hylphthalate										NR
lorophenyl-phenyl ether										NR
rene										NR
troaniline										NR
Dinitro-2-methylphenol										NR
troso-diphenylamine										NR
rophenyl-phenyl ether										NR
chlorobenzene										NR

102539

02-9003-01-S1
 Rev. No. 0

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 PCE.19

HA TUNGS
 1: 02-9003-01
 PLING DATE: 5/15/90
 CASE NO.: 14115 LAB: NET MID-ATLANTIC

TAB
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

1-VOLATILES	NYJL-SW1	NYJL-SW2(HS/MSD)	NYJL-SW3(DUP)	NYJL-SED1(HS/MSD)	NYJL-SED2(DUP)	NYJL-RIN1	NYJL-RIN2	NYJL-RIN3	NYJL-RIN4	NYJL-TBLK1
ole ID No.	BDK63	BDK64	BDK65	BDK66	BDK67	BDK68	BDK69	BDK72	BDK73	BDP03
ific Report No.	WATER	WATER	WATER	SEDIMENT	SEDIMENT	WATER	WATER	WATER	WATER	WATER
rix	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
ts	1	1	1	1	1	1	1	1	1	N/A
ation Factor/GPC Cleanup (Y)	--	--	--	44	45	--	--	--	--	N/A
cent Moisture	--	--	--	44	45	--	--	--	--	N/A
achloropheno										NR
anthrene										NR
racene										NR
1-butylphthalate					J					NR
ranthene										NR
ne										NR
lbenzylphthalate										NR
-Dichlorobenzidine										NR
of(a)anthracene										NR
/sene										NR
2-Ethylhexylphthalate				J	J					NR
1-octylphthalate										NR
of(b)fluoranthene										NR
of(k)fluoranthene										NR
of(a)pyrene										NR
not(1,2,3-cd)pyrene										NR
nz(a,h)anthracene										NR
of(g,h,i)perylene										NR

S:
 k space - compound analyzed for but
 not detected
 compound found in lab blank as well as
 sample, indicates possible/probable
 blank contamination
 estimated value
 estimated value, compound present
 below CRQL but above TDL
 analysis did not pass EPA QA/QC
 Presumptive evidence of the presence
 of the material
 analysis not required
 :tion limits elevated if Dilution
 or >1 and/or percent moisture >0%

102540

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Def. 14

02-9003-01-S1
 Rev. No. 0

NAME: TUNG
 ID: 02-9003-01
 PLING DATE: 5/15/90
 CASE NO.: 14115 LAB: NET MID-ATLANTIC

TABLE
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

LOCIDEC	NYJL-SW1	NYJL-SW2(HS/MSD)	NYJL-SW3(HS/MSD)	NYJL-SED1(HS/MSD)	NYJL-SED2(DUP)	NYJL-RIN1	NYJL-RIN2	NYJL-RIN3	NYJL-RIN4	NYJL-TBLK1
ole ID No.	BCK63	BCK64	BCK65	BCK66	BCK67	BCK68	BCK69	BCK72	BCK73	BCK73
ffic Report No.	WATER	WATER	WATER	SEDIMENT	SEDIMENT	WATER	WATER	WATER	WATER	WATER
ri	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
ts	1	1	1	1	1	1	1	1	1	N/A
ution Factor/SPE Cleanup (Y)	1	1	1	1	1	1	1	1	1	N/A
cent Moisture	--	--	--	44	45	--	--	--	--	N/A
ha-BHC										NR
a-BHC										NR
ta-BHC										NR
aa-BHC (lindane)										NR
achlor										NR
rin										NR
achlor epoxide										NR
sulfan I										NR
drin										NR
-DDC										NR
in										NR
sulfan II										NR
-DDD										NR
sulfan sulfate										NR
-DDT										NR
oxychlor										NR
in ketone										NR
a-Chlordane										NR
a-Chlordane										NR
phene										NR
lor-1016										NR
lor-1221										NR
lor-1232										NR
lor-1242										NR
lor-1248										NR
lor-1254										NR
lor-1266										NR

S:
 k space - compound analyzed for but
 not detected
 compound found in lab blank as well as
 sample, indicates possible/probable
 blank contamination
 estimated value
 estimated value, compound present
 below CRQL but above IDL
 analysis did not pass EPA QA/QC
 Presumptive evidence of the presence
 of the material
 analysis not required
 tion limits elevated if Dilution
 or 1 and/or percent moisture >0%

102541

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 Dec. 19

02-9003-01-S1
 Rev. No. 0

E MAIL: TUNGJEN
 I: 02-9003-01
 PLING DATE: 5/15/90
 CASE NO.: 14115
 NAME: BETZ

TABLE 1
 SUMMARY OF SITE INSPECTION ANALYTICAL DATA
 (cont'd)

ORGANICS	NYJL-SW1	NYJL-SW2(HS/MSD)	NYJL-SW3(DUP)	NYJL-SED1(HS/MSD)	NYJL-SED2(DUP)	NYJL-RIN1	NYJL-RIN2	NYJL-RIN3	NYJL-RIN4	NYJL-TOLX1
File ID No.	HBCP89	HBCP90	HBCP91	HBCP92	HBCP93	HBCP94	HBCP95	HBCP96	HBCJ65	N/A
Offic Report No.	WATER	WATER	WATER	SEDIMENT	SEDIMENT	WATER	WATER	WATER	WATER	N/A
rix	ug/L	ug/L	ug/L	mg/kg	mg/kg	ug/L	ug/L	ug/L	ug/L	ug/L
ts										
vinum	J	J	J	1350	610					NR
imony		J			R					NR
nic	J	11	J	72.1	37					NR
uo	J	J	J	J	J	J	J	J	J	NR
llium				J	J					NR
ium				2.7						NR
ium	90700	53100	94100	202000	308000					NR
nium				35.4 E	21.5 E					NR
lt	51	366	53	3970	1530					NR
er	25	504	25	610	293					NR
	J	1760	J	2780	1980	J	J			NR
	4.2 E	15.8 E	3.9 E	341	243					NR
esium	J	12500	J	J	J					NR
anese	J	1640	J	1090	491		J			NR
ury				0.23	0.21					NR
el	J	544	J	1110	450					NR
ssium	24900 E	22200 E	24700 E	J		J				NR
nium		J								NR
er				14.3	7.6					NR
uo	919000	53100	867000	7720 E	12600 E	J			J	NR
llium				R	R					NR
siun	J		J	112 E	57.2 E					NR
	30.7	265 E	35.8	782 E	303 E					NR
ide	J	11.7	11.4							NR

J: space - compound analyzed for but not detected
 Estimated value
 Estimated value, compound present
 Below CRDL but above IDL
 Analysis did not pass EPA QA/QC
 Analysis not required

102542

02-9003-01-S1
 Rev. No. 0
 37 of 48
 P25.19

The Upper Glacial Aquifer rests unconformably upon the Raritan Clay of Cretaceous Age. In the vicinity of the site, the Raritan Clay occurs at an approximate depth of 175 feet and has an average thickness of 50 feet. The Raritan Clay consists predominantly of light to dark grey, red, white, or yellow clay with variable amounts of silt and fine silty sand. Due to the heterogeneity of sediments within this clay, the permeability is variable; the average vertical permeability is 3.0×10^{-7} cm/sec. Some public supply wells and other private supply wells obtain water from the sandy horizons of the Raritan Clay.

Below the Raritan Clay lies the Lloyd Sand Aquifer of early Cretaceous Age. It can be found at a depth of approximately 225 feet below the surface in the vicinity of the site and is approximately 200 feet thick. The Lloyd Sand consists of discontinuous layers of silt, clay, sandy clay, sand, and gravel that exhibit variations in permeability. The average permeability is 1.7×10^{-2} cm/sec. Groundwater within this aquifer flows from north to south. The Lloyd Sand Aquifer serves six public water supply wells within a 3-mile radius of the Li Tungsten Site and has been designated as a sole source aquifer by the U. S. EPA.

Ref. Nos. 4 (Volume 1, part 4, pp. 14 to 17) 10, 12, 14, 24, 39

3. Is a designated sole source aquifer within 3 miles of the site?

A sole source aquifer has been designated within 3 miles of the site.

Ref. Nos. 10, 12, 24

4. What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?

Contaminants attributable to the facility were detected in samples GW-9 and GW-10, which were collected by NUS Corporation Region 2 FIT from monitoring well EMW-4, located south of the Mud Pond. The depth to the top of the screened interval in this well has been reported to be 8.6 feet below ground surface. The depth to groundwater below ground surface at the time of sampling was 5 feet. Therefore, the waste is considered to be in contact with the aquifer of concern.

Ref. Nos. 4, 13, 50

5. What is the permeability value of the least permeable continuous intervening stratum between the ground surface and the aquifer of concern?

The permeability value of the least permeable continuous intervening stratum between the ground surface and the Upper Glacial Aquifer is estimated to be greater than 10^{-3} cm/sec.

Ref. Nos. 12, 14

6. What is the net precipitation for the area?

The estimated net precipitation for this area, based upon the normal annual total precipitation minus the mean annual lake evaporation, is approximately 16 inches.

Ref. No. 14

Ref. 19
34.48

7. Identify uses of groundwater within 3 miles of the site (i.e., private drinking source, municipal source, commercial, industrial, irrigation, unusable).

Groundwater within 3 miles of the site is used for private drinking sources, public supply wells, and commercial, industrial, and irrigation applications. Many wells have been closed or have restricted use due to volatile organic chemical contamination from undetermined sources.

Ref. Nos. 9, 12, 15, 38, 39

8. What is the distance to and depth of the nearest well that is currently used for drinking or irrigation purposes?

The nearest well supplying potable water from the aquifer of concern is located 1.3 miles west of the Warehouse. This well (No. 901) is 68 feet deep and is screened within the Upper Glacial Aquifer. Refer to Table 2 for a list of wells within 3 miles of the site.

Ref. Nos. 6, 12, 39

9. Identify the population served by the aquifer of concern within a 3-mile radius of the site.

The population served by the aquifer of concern within a 3-mile radius of the site is approximately 18,000 or more.

Ref. Nos. 9, 12, 16

SURFACE WATER ROUTE

10. Describe the likelihood of a release of contaminant(s) to surface water as follows: observed, alleged, potential, or none. Identify the contaminant(s) detected or suspected, and provide a rationale for attributing the contaminants to the facility.

There is a potential for contaminants to be released to Glen Cove Creek via storm drains on Herb Hill Road and the storm drains on site. Runoff from the landfill and from the main part of the facility enters Glen Cove Creek via these routes. The leaking Mud Holes, Mud Pond, and aboveground 500,000-gallon oil tank are located across the street (Garvies Point Road) from Glen Cove Creek. Chemicals identified in surface soil and groundwater samples around these waste sources include arsenic, selenium, silver, barium, cobalt, chromium, copper, iron, manganese, nickel, strontium, vanadium, zinc, lead, antimony, thallium, aluminum, tungsten, cadmium, titanium, and molybdenum. The site is located on the 100/500-year floodplain; therefore, the potential also exists for surficial contaminants to be transported off site and into Glen Cove Creek via flooding. Surface water samples analyzed for tungsten by inductively coupled plasma mass spectrometry (ICP/MS) were found to contain tungsten, copper, zinc, arsenic, molybdenum, antimony, lead, bismuth, thorium, and uranium.

Ref. Nos. 1, 4 (Volume 1, part 1, pp. 1-14 to 1-15), 8, 21, 22, 27, 28, 31, 32, 37, 40, 43

11. Identify and locate the nearest downslope surface water. If possible, include a description of possible surface drainage patterns from the site.

The nearest downslope surface water is Glen Cove Creek, which generally flows southwest but is also affected by the tides. Glen Cove Creek is adjacent to the south property boundary; it then flows into Hempstead Harbor and Long Island Sound. Runoff from the site and from storm drains on Herb Hill Road can drain directly into Glen Cove Creek via several outfalls.

Ref. Nos. 6, 8, 27, 43, 44

Ref. 19
40 of 43

TABLE 2
WELLS WITHIN 3 MILES OF LI TUNGSTEN, GLEN COVE, NY

UN = Unused, P.S. = Public Supply, IND = Industrial, COM = Commercial, IRR = Irrigation, UNK = Unknown, AC = Air Conditioning

<u>Well No.</u>	<u>Use</u>	<u>Contaminated</u>
109	UN	
110	UN	
112	UN	
114	IRR	
115	UN	
116	UN	
117	UN	
119	P.S.	
120	UN	
121	UN	
121A	IRR	
660	IND	
661	UN	
801-818	UN	
834	UN	
835	P.S.	
842	UN	
901	P.S.	
902	P.S.	
903	P.S.	
904	UN	
905-909	P.S.	
1037	P.S.	
1149-1153	UN	
1171-1174	UN	
1327	P.S.	
1595	P.S.	
1651	P.S.	
1917	IND	
2027	UN	
2060	UN	
2087	IND/UN	
2316	IND	X
2616	IRR	
3310	IND	
3466	P.S.	X
3892	P.S.	X
4432	COM	
4440	DOM	
4462	UN	
4639	UNK	
5071	IRR	
5201	P.S.	
5250	UN	
5261	P.S.	X

20F.19
41.43

TABLE 2 (CONTINUED)

<u>Well No.</u>	<u>Use</u>	<u>Contaminated</u>
5450	IRR	
5762	P.S.	
5792	P.S.	
6289	UN	
6289	IRR	
6416	UN	
6444	IRR	
6549	IND	
6579	UNK	X
6587	UN	
6665	UN	
6668-70	UN	
6708	UN	
6806	IRR	
6881	UN	
6883	UN	
6973	UN	
7427	IND	X
7439	UNK	
7614	IND	
7664	IRR	X
7782	AC	
7834	IRR	
7857	P.S.	
8048	UNK	
8224	IND	
8259	UN	
8326	P.S.	X
8327	P.S.	X
8394	UNK	
8690	UNK	
8709	IND	
8716	UN	
8887	IND	X
8898	UN	
8937	COM	
9066	UN	
9100	UN	
9115	UN	
9117	UN	
9210	P.S.	
9211	P.S.	
9334	P.S.	

Ref. Nos. 10, 12, 39

12. What is the facility slope in percent? (Facility slope is measured from the highest point of deposited hazardous waste to the most downhill point of the waste area or to where contamination is detected.)

The facility slope, as measured from the northern boundary of the landfill to the southern boundary of the landfill, is 5 percent.

Ref. Nos. 4, 6, 13

13. What is the slope of the intervening terrain in percent? (Intervening terrain slope is measured from the most downhill point of the waste area to the probable point of entry to surface water.)

The slope of the intervening terrain, as measured from the southern boundary of the landfill to Glen Cove Creek, is less than 2 percent.

Ref. Nos. 6, 8, 13

14. What is the 1-year 24-hour rainfall?

The 1-year 24-hour rainfall for the area is approximately 3 inches.

Ref. No. 14

15. What is the distance to the nearest downslope surface water? Measure the distance along a course that runoff can be expected to follow.

Glen Cove Creek is adjacent to the southern property boundary. Previously permitted outfalls and on-site storm drains discharge through the bulkhead along the southern property boundary directly into Glen Cove Creek.

Ref. Nos. 8, 13, 27, 43, 44

16. Identify uses of surface waters within 3 miles downstream of the site (i.e., drinking, irrigation, recreation, commercial, industrial, not used).

Surface water uses within 3 miles downstream of the site include recreational and commercial.

Ref. Nos. 6, 20

17. Describe any wetlands, greater than 5 acres in area, within 2 miles downstream of the site. Include whether it is a freshwater or coastal wetland.

No wetlands greater than 5 acres in area have been identified within 2 miles downstream of the site.

Ref. Nos. 6, 20

18. Describe any critical habitats of federally listed endangered species within 2 miles of the site along the migration path.

No critical habitats of federally listed endangered species have been identified within 2 miles of the site. However, Hempstead Harbor is a waterfowl wintering area most noted for scaup, canvasback, and black ducks, and is a nursery/feeding habitat for striped bass, bluefish, Atlantic

Ref. 19
43.848

silverside, menhaden, winter flounder, and blackfish. Hempstead Harbor has been designated as a "significant coastal fish and wildlife habitat" by the NYS Department of State under Policy 7 of the Waterfront Revitalization and Coastal Resources Act of 1981.

Ref. Nos. 6, 7, 20, 23, 25

19. What is the distance to the nearest sensitive environment along or contiguous to the migration path (if any exist within 2 miles)?

No sensitive environments have been identified along Glen Cove Creek or Hempstead Harbor within 2 miles of the site.

Ref. Nos. 6, 7, 20, 23, 25

20. Identify the population served or acres of food crops irrigated by surface water intakes within 3 miles downstream of the site and the distance to the intake(s).

There are no crops irrigated by surface water intakes within 3 miles downstream of the site.

Ref. Nos. 6, 11

21. What is the state water quality classification of the water body of concern?

The state water quality classification for Hempstead Harbor north of Bar Beach is Class SA (suitable for shellfishing for market purposes and primary/secondary recreation). The state water quality classification for Glen Cove Creek is Class 1 (secondary contact recreation except for primary recreation and shellfishing).

Ref. No. 18

22. Describe any apparent biota contamination that is attributable to the site.

Biota contamination attributable to the site exists along the grassy areas around the Mud Pond, Mud Holes, and the nine waste piles. There was a notable lack of vegetation around these areas, and grass near the fence along Garvies Point Road was stained black.

Ref. Nos. 4, 5, 13

AIR ROUTE

23. Describe the likelihood of a release of contaminant(s) to the air as follows: observed, alleged, potential, none. Identify the contaminant(s) detected or suspected, and provide a rationale for attributing the contaminant(s) to the facility.

There is a potential for release of contaminants from the site into the air. Tank covers, siding shingles, roofing tiles, and pipe wrapping, all of which are known to contain asbestos, are in a state of decay. However, analyses of indoor and outdoor air samples previously collected from the site indicate the presence of little or no volatile organic chemicals and airborne metals; analyses also indicate little or no asbestos particulates. Larger pressurized tanks containing aqueous ammonia and propane, and open-air tanks containing hydrochloric acid and tungsten acid could potentially release their contents to the air.

Ref. Nos. 4 (Volume 1, part 1, pp.1-6; Volume 2, part 6), 13, 25, 26, 34, 35, 36, 41

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24. What is the population within a 4-mile radius of the site?

The population within a 4-mile radius of the site is approximately 67,900.

Ref. No. 17

FIRE AND EXPLOSION

25. Describe the potential for a fire or explosion to occur with respect to the hazardous substance(s) known or suspected to be present on site. Identify the hazardous substance(s) and the method of storage or containment associated with each.

There is a potential for fire or explosion to occur with respect to the hazardous substances known to be present on the site. An outdoor, partially filled and pressurized tank of propane gas and a pressurized tank of aqueous ammonia are present on site and represent a potential for an explosion or fire to occur. In a letter to the NYSDEC dated January 31, 1990, the mayor of the City of Glen Cove expressed his concern about the potential for a fire to occur at the site and for the safety of local fire fighters who would have to enter the site, if such an event were to occur.

Ref. Nos. 4 (Part 6), 13, 25, 26, 33, 41

26. What is the population within a 2-mile radius of the hazardous substance(s) at the facility?

The population within a 2-mile radius of the hazardous substances present on the site is approximately 35,400.

Ref. No. 17

DIRECT CONTACT/ON-SITE EXPOSURE

27. Describe the potential for direct contact with hazardous substance(s) stored in any of the waste units on site or deposited in on-site soils. Identify the hazardous substance(s) and the accessibility of the waste unit.

There is a potential for direct contact with the hazardous substances deposited in on-site soils, which include heavy metals, PCBs, and radioactive elements. Along Garvies Point Road, the Mud Pond has overflowed and stained the soil. The stained soil contains notable concentrations of arsenic, antimony, chromium, copper, lead, mercury, vanadium, and zinc.

Ref. Nos. 4, 5, 13, 21, 33, 36, 49, 50

28. How many residents live on a property whose boundaries encompass any part of an area contaminated by the site?

There are no residents who live on a property whose boundaries encompass any part of an area contaminated by the site.

Ref. Nos. 5, 13, 50

29. What is the population within a 1-mile radius of the site?

The population within a 1-mile radius of the site is approximately 9,900.

Ref. No. 17

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PART V: ACTUAL HAZARDOUS CONDITIONS

Waste processed ore containing heavy metals and radioactive isotopes of uranium, thorium, and radium occur in nine waste piles and within many drums and crates in many parts of the site. The drums and crates are badly weathered, corroded, and spilling their contents on the ground. Particulates from the waste piles can become airborne as they are not covered. The waste piles also contain radioactive slags mixed with the soil, and several separate piles containing large chunks of radioactive slag have been roped off and marked with radiation placards; however, radioactive slag is not considered a hazardous waste in New York State. The Li Tungsten Site has been designated as a Class 2 site (significant threat to public health or environment) on the NYSDEC registry because of the presence of other contaminants. The stained soil on the corner of Garvies Point Road contains notable concentrations of many heavy metals. Several 55-gallon drums containing elevated levels of radioactive waste process ore and soil that was excavated from behind the wooden fence at the corner of Garvies Point and Herb Hill Roads have been stored within the Dice Building until an approved disposal site for New York State has been established. Tank covers, pipe wrappings, wallboard, and shingles on site contain asbestos. These items are known to be in poor condition and have been found in broken pieces upon the ground. Although air testing previously conducted has not shown the presence of airborne asbestos particles, the potential exists for a release of particulates to the air. Also, many wooden, steel, or fiberglass tanks still contain process solutions containing heavy metals and concentrated or spent acids and bases. There are two pressurized tanks on site, one of which contains aqueous ammonia and the other propane gas. Although the site is patrolled by a one-man private security force, the site is very large and the fence surrounding the site has been broken many times; therefore, there is a potential for unauthorized entry to the site. The buildings on the site are in poor condition and local officials have expressed a concern for the safety of their firemen; they are especially concerned about the asbestos dusts and particulates that may be released if a fire should break out on the site. At least four different contaminant plumes have been identified as a result of several groundwater sampling events conducted on site.

No other actual hazardous conditions pertaining to human or environmental contamination have been documented. Specifically:

- Contamination has not been documented either in organisms in a food chain leading to humans or in organisms directly consumed by humans.
- There have been no documented observed incidents of direct physical contact with hazardous substances at the site involving a human being (not including occupational exposure) or a domestic animal.

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- There have been no documented incidents of damage to fauna (e.g., fish kill) that can be attributed to the hazardous materials at the facility.

Ref. Nos. 4, 13, 25, 26, 33, 36, 49, 52

Ref. 1
47.54

PART VI: SITE SUMMARY AND RECOMMENDATIONS

Li Tungsten is located in an industrial area on approximately 26 acres along the north bank of Glen Cove Creek in the City of Glen Cove, Nassau County, New York. From the 1940s to the early 1980s, tungsten ores imported from Mainland China and Canada were smelted at this facility for the making of tungsten carbide powder, tungsten wire, and welding rods. In 1985, the company filed for bankruptcy; the property is presently owned by the Glen Cove Development Company located in Baltimore, Maryland.

Although the site is presently inactive, most of the wastes generated by the facility remain on site. These wastes include 17,000 tons of solid residue/ore materials in piles, in a landfill, in wooden crates, and in 30- and 55-gallon drums. Some of the drums are overstacked and some have toppled and have broken open, spilling their contents upon the ground. One hundred and eight drums containing acids, waste oil, and organics have been overpacked and/or staged to a secure area on site. The remaining unsound drums are also recommended for overpacking to eliminate the potential for a release of their contents. Elsewhere on the site, there are approximately 373,000 gallons of various liquids stored in 224 aboveground tanks of unknown physical condition, some of which contain hazardous organic and inorganic liquids. The inorganic liquids include spent or unused hydrochloric acid and aqueous ammonia. Fifty tanks have been inspected for leaks and rupture. Two tanks were determined not to be secure and have been drained and their contents drummed for disposal. Small quantities of identifiable chemicals have been overpacked and secured, while small quantities of unidentified chemicals remain in some areas. Thirty-eight electrical transformers formerly located on site, three of which contained PCB-contaminated oil, have been drained, drummed, and disposed of at a licensed off-site facility. Removal activities have also begun with respect to some of the surficial containers (including pressurized cylinders).

A site investigation conducted by a consulting firm on behalf of the site owner was completed in May of 1988, during which samples were taken from 10 existing groundwater monitoring wells and 13 more monitoring wells were installed. Analyses of samples from these wells identified four underground plumes within the groundwater of the Upper Glacial Aquifer. One plume occurs at a depth of approximately 20 feet along the eastern boundary of the site and was found to contain several dry cleaning solvents related to tetrachloroethylene. The plume is believed to originate from a dry cleaning facility that formerly occupied the property adjacent to the site. Another plume was found along the western boundary of the site and was traced to an adjacent property formerly occupied by a petrochemical company. Both plumes are moving south towards Glen Cove Creek. Another plume of No. 2 fuel oil occurs in the vicinity of a leaking 500,000-gallon tank north of Garvies Point Road. The last plume is located around the Mud Pond/Mud Holes, which contain waste processing water and heavy metals. Chloride and sulfate compounds, and notable concentrations of

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PART VI: SITE SUMMARY AND RECOMMENDATIONS (CONT'D)

lead, cadmium, tungsten, chromium, arsenic, barium, and silver have been detected in groundwater samples collected from this area. The materials leaking from the fuel oil tank and the ponds have also scarred the vegetation and stained the soil in this area. Asbestos fibers from decaying tank covers and pipe wrapping materials are known to be present on the ground. Similarly, waste piles containing raw and processed tungsten ores are known to contain radioactive radium, uranium, and thorium compounds used in the ore refining process. The United States Environmental Protection Agency issued an Administrative Order on Consent to the Glen Cove Development Company on July 21, 1989, outlining initial actions to be taken at the site. The site is scheduled for a cleanup of hazardous wastes including, but not limited to, the removal of drums, the contents of the tanks, and the laboratory chemicals, but plans for cleanup of the groundwater and soil have not been finalized. Development as a residential area is planned for the site.

Analytical results from groundwater, surface water, soil, and sediment samples collected from this site by NUS Corporation Region 2 FIT in April and May of 1990 indicate a release of significant concentrations of contaminants associated with tungsten refining to the environment. Elevated concentrations of antimony, arsenic, barium, beryllium, copper, cobalt, chromium, lead, manganese, mercury, nickel, vanadium, cadmium, uranium, thorium, molybdenum, bismuth, zinc, and cyanide were detected in soil and/or groundwater samples. The uranium and thorium compounds are known to be radioactive. Analytical results from the surface water and sediment samples collected from on-site waste sources indicate the presence of notable concentrations of PCBs (Aroclor-1248 and Aroclor-1254) and elevated concentrations of metals. Two of the surface water samples collected from on-site waste sources contained cyanide. Surface water samples collected from Glen Cove Creek showed the presence of tetrachloroethene; sediment samples collected from the creek contain polycyclic aromatic hydrocarbons and elevated concentrations of several metals.

Based upon the high target population potentially affected by groundwater contamination and the potential for direct contact with some of the wastes on site, the Li Tungsten Site is recommended for a **LISTING SITE INSPECTION**. All of the radioactive waste piles should be roped off from unauthorized access and labelled with radiation placards until they can be contained/covered, removed from the site, and properly stored at a licensed facility. The propane and aqueous ammonia tanks and other large process tanks containing organic and inorganic liquids/residues should be emptied and disposed of properly. The remaining drums, barrels, and crates of tungsten ore/residues should be recycled or processed at another tungsten refining facility. The many empty 55- and 30-gallon drums on site should be crushed and properly disposed. Lastly, a cleanup plan for the contaminated groundwater, surface water, soil, and sediment should be formulated.

REFERENCE NO. 20

102554

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**MALCOLM
PIRNIE**

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ARCS II



Contract No. 68-W9-0051

**LI TUNGSTEN
GLEN COVE, NEW YORK**

Work Assignment No. 025-2L4L

**REMEDIAL INVESTIGATION/FEASIBILITY STUDY
WORK PLAN
PART I OF II**

**Remedial Planning Activities at Selected
Uncontrolled Hazardous Substance Disposal Sites
USEPA Region II (NY, NJ, PR, VI)**

**Malcolm Pirnie, Inc.
2 Corporate Park Drive
White Plains, New York 10602**

March 1993

Def. 20

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**WORK PLAN
REMEDIAL INVESTIGATION/FEASIBILITY STUDY**

PART I OF II

LI TUNGSTEN

GLEN COVE, NEW YORK

MARCH 1993

ARCS Contract No. 68-W9-0051

USEPA Work Assignment No. 025-2L4L

**MALCOLM PIRNIE, INC.
2 Corporate Park Drive
White Plains, New York 10602**

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ARCS II CONTRACT NO. 68-W9-0051

WORK ASSIGNMENT # 025-2L4L

SITE NAME: LI LUNGSTEN
RI/FS WORK PLAN
MARCH 1993

CONTRACTOR QA/QC SIGN-OFF

Malcolm Pirnie, Inc. has reviewed this draft document in accordance with the contractor's ARCS II QAPP and is submitting it to USEPA, Region II in compliance with the requirements under Work Assignment No. 025-2L4L and Contract No. 68-W9-0051.

This document has not been approved by USEPA Region II and is not intended for release to the public.


Dennis G. McGrath
SITE MANAGER

Date: 15 March 1993


S.K. Krishnaswami
ARCS II PMO PROGRAM MANAGER

Date: March 19, 1993

102557

LI TUNGSTEN RI/FS WORK PLAN

EXECUTIVE SUMMARY

SITE LOCATION AND BACKGROUND

The Li Tungsten site is located at 63 Herb Hill Road in the City of Glen Cove, Nassau County, Long Island, New York. This site has a complex history of name and ownership changes, and environmental site assessments, investigations and removal actions. Specific details are discussed in Section 2.0. From early 1940's until approximately 1985, tungsten ores or concentrates, imported primarily from mainland China, South America and Canada, were smelted at this facility for the production of tungsten carbide powder, tungsten wire, and welding rods (NUS, 1989; 1990). In 1985 the company filed for bankruptcy and the facility ceased operation.

Large quantities of the ore concentrates were left on site in various processed and unprocessed forms. The ore which is present in drums, wooden crates and piles both inside and outside the buildings, contains heavy metals and radioactive isotopes of uranium, thorium, and radium. Many of the drums and crates located outside are weathered and/or corroded to a point where the contents have spilled on the ground. In other areas, the drums have been over-stacked and have become very unstable as the drums deteriorated and corroded.

Numerous aboveground wooden, steel or fiberglass tanks were used during the various smelting processes, and to store reactants (e.g., hydrochloric acid, ammonia, hydrogen) and/or intermediate compounds (e.g., ammonium paratungstate or APT). Some of these tanks may still contain some hazardous and inorganic liquids. As the tungsten ore moved through its various processing stages, the radioactive isotopes became more concentrated in the residual waste or slag. There are indications that some of this slag was placed in waste piles at the ground surface and/or buried on site (NUS, 1989; 1990). Heavy metals which constitute impurities that were removed during the extraction process include: antimony, arsenic, barium, bismuth, copper, cobalt, chromium, lead, manganese, mercury, molybdenum, nickel, thorium, uranium, vanadium, and zinc.

Several of the buildings on site have deteriorated to a point where they represent a physical safety hazard. Portions of some walls and roofs have collapsed. In addition, friable and non-friable asbestos is present as pipe wrap, tank insulation, siding shingles, and roof tiles. Standing water in the West Dice Building has flooded and concealed a deep pit in the floor.

Previous Site Investigations

Various site investigation activities were conducted at the site between 1988 and 1990 by the Nassau County Department of Health (NCDOH), the New York State Department of Environmental Conservation (NYSDEC), the potentially responsible parties (PRPs), and the United States Environmental Protection Agency (USEPA). Results of these sampling activities have indicated the presence of heavy metals, fuel oil constituents, and volatile organics in the groundwater, surface water, sediments and soils.

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ES-1

Current Conditions

The Li Tungsten site ceased operations in June 1985 and has been inactive since. Site security (fencing and guard) was addressed as one of the interim remedial measures in the AOC. Although a one person security guard is maintained on a 24-hour basis, the site could be entered without the knowledge of the security force through breaks in the fence. During the site tour, observations were made that vandalism has occurred. Many of the salvageable fixtures (e.g., copper wiring and piping) have been removed and general debris (e.g., washing machines, mattresses) have been left behind.

OBJECTIVE OF THE RI/FS

This Remedial Investigation/Feasibility Study (RI/FS) is designed to collect sufficient data on the nature and extent of contamination to remediate the site. In achieving this objective, these data will be used to determine contamination sources, identify migration pathways, perform an assessment of human health and ecological risks, and support the selection of remedial alternatives to mitigate or reduce risks in accordance with the requirements of the National Contingency Plan (NCP) and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Re-authorization Act of 1986 (SARA).

The Health and Safety Plan (HASP), and Field Operations Plan (FOP), which includes the Quality Assurance Project Plan (QAPjP) and the Field Sampling Plan (FSP), will be prepared after the Work Plan has been approved by the USEPA.

INITIAL EVALUATION

The contamination at the Li Tungsten site exists in the groundwater, soil, surface water and sediments. The groundwater contains VOCs and inorganic compounds. The major VOCs contamination is present in two areas and may be related to two off-site sources. The inorganic contamination on-site is a result of the past facility operations and disposal practices. Drums, crates and piles of processed ore and slag will continue to act as contaminant source to the groundwater until they are removed. The disposal area in Parcel B, the two Mud Holes, the Mud Pond and the storm drains are also potential contaminant sources.

The surface water contamination consists mostly of inorganic compounds and relative low levels of VOCs. Continuing sources to surface water contamination consists of runoff from the residual ores, the disposal area in Parcel B, and the storm drains.

During site visits, several safety related observations were made. These observation related to obstructions and site conditions that would affect worker safety in the performance of RI field investigation tasks. To eliminate these safety hazards, we propose that additional interim remedial actions be implemented to address each of the safety hazards, before RI field investigation tasks are initiated.

ES-2

102559

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1.0 INTRODUCTION

1.1 Overview

The Li Tungsten Corporation (Li Tungsten) site is an inactive 26 acre site located at 63 Herb Hill Road, City of Glen Cove, Nassau County, New York (USEPA ID #NYD9868826-60). From early 1940's until approximately 1985, tungsten ores or concentrates, imported primarily from mainland China, South America and Canada, were smelted at this facility for the production of tungsten carbide powder, tungsten wire, and welding rods (NUS, 1989; 1990). In 1985 the company filed for bankruptcy and the facility ceased operation.

Large quantities of the ore concentrates were left on site in various processed and unprocessed forms. The ore which is present in drums, wooden crates and piles both inside and outside the buildings, contains heavy metals and radioactive isotopes of uranium, thorium, and radium. Many of the drums and crates located outside are weathered and corroded to a point where the contents have spilled on the ground. In other areas, the drums have been overstacked and have become very unstable as the drums deteriorated and corroded. Since many of the drums contain radioactive material, they represent both a potential health hazard as well as a physical safety hazard.

The amount of extractable tungsten in a specific ore is dependent on the ore characteristics and the mineral assemblages of the ore. While tungsten occurs in 29 known mineral species, numerous isomorphous substitutions are possible within the tungsten minerals. It was necessary during the smelting, therefore, to be able to vary the extraction process to separate the various accessory metals (or impurities) depending upon the specific type of ore or concentrate that was imported. The smelting was generally conducted in relatively small batches, to permit any individual or combination of extraction treatments. Typical treatments in the smelting included physical, chemical and mechanical processes including: sizing and crushing; gravity, magnetic and electrostatic separation; roasting; leaching; floatation; and fusion. An analytical laboratory was located on site to perform chemical analysis on the ore and pilot testing of the extraction treatments.

Numerous aboveground wooden, steel or fiberglass tanks were used to perform the extraction treatments and to store reactants (e.g., hydrochloric acid, ammonia, hydrogen)

and/or intermediate compounds (e.g., ammonium paratungstate or APT). Some of these tanks may still contain some hazardous and inorganic liquids. As the tungsten ore moved through its various processing stages, the radioactive isotopes became more concentrated in the residual waste or slag. There are indications that some of this slag was placed in waste piles at the ground surface and/or buried on site (NUS, 1989; 1990). Heavy metals which constitute impurities that were removed during the extraction process include: antimony, arsenic, barium, bismuth, copper, cobalt, chromium, lead, manganese, mercury, molybdenum, nickel, thorium, uranium, vanadium, and zinc.

Many of the buildings on site have deteriorated to a point where they are not considered safe to enter. Portions of some walls and roofs have collapsed. Friable and non-friable asbestos is present as pipe wrap, tank insulation, siding shingles, and roof tiles. Standing water in the West Dice Building has flooded a deep pit in the floor.

Various site investigation activities were conducted at the site between 1987 and 1990 by the Nassau County Department of Health (NCDOH), the New York State Department of Environmental Conservation (NYSDEC), the potentially responsible parties (PRPs), and the United States Environmental Protection Agency (USEPA). Results of these sampling activities have indicated the presence of heavy metals, fuel oil constituents, and volatile organics in the groundwater, surface water, sediments and soils.

This Remedial Investigation/Feasibility Study (RI/FS) is designed to collect sufficient data on the nature and extent of contamination to remediate the site. In achieving this objective, these data will be used to determine contamination sources, identify migration pathways, perform an assessment of human health and ecological risks, and support the selection of remedial alternatives to mitigate or reduce risks in accordance with the requirements of the National Contingency Plan (NCP) and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA).

1.2 Approach to Development of Work Plan

Malcolm Pirnie, Inc., (MPI) is submitting this Work Plan to the USEPA in response to Work Assignment #025-2L4L under the Alternative Remedial Contracting Strategy (ARCS)

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Contract No. 68-W9-0051. This Work Plan presents the proposed technical scope of work for the RI/FS and includes a schedule for the performance of the work.

This Work Plan has been prepared in accordance with current USEPA guidance. The following are several of the documents specifically applicable to preparation of an RI/FS that were considered in preparing this Work Plan:

- Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, OSWER Directive 9355.3-01. (USEPA, 1988a)
- Data Quality Objectives: Development Guidance for Uncontrolled Hazardous Waste Site Remedial Response Activities, OSWER Directive 9355.0-7B, (USEPA, 1987a).
- Interim Guidance of Superfund Selection of Remedy, OSWER Directive 9355.0-19, (USEPA, 1986a).
- Additional Interim Guidance for FY-87 Records of Decision, OSWER Directive 9355.0-21, (USEPA, 1987b).
- Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual Part A (USEPA, 1989a).
- Risk Assessment Guidance for Superfund, Volume II, Environment Evaluation Manual (USEPA, 1989b).
- Superfund Exposure Assessment Manual (USEPA, 1986b).
- Draft Generic Work Plan Guidance (USEPA, 1989c).
- CERCLA Compliance with Other Laws Manual, Interim Final. EPA/540-/G-89/006. Office of Emergency and Remedial Response, Washington, D.C. August 1988, 195 pp, (USEPA, 1988b).
- Guide for Conducting Treatability Studies Under CERCLA (Interim Final) EPA/540/2-89/058, December 1989, 138 pp, (USEPA, 1989d).

Preparation of this Work Plan was based upon a review and consideration of data, information, and discussions related to the following:

- Two site visits by MPI personnel on September 1, 1992 and February 3, 1993.

- USEPA comments on the Draft Work Plan, letter dated December 24, 1992 and subsequent discussions.
- Scoping meeting with the USEPA held on September 3, 1992.
- Li Tungsten Site Investigation Report. Prepared for Compton Reality Corporation, New York, NY by RTP Environmental Associates, Inc., Westbury, NY, May 1988, 2 volumes (RTP, 1988).
- Final Draft, Preliminary Assessment, Li Tungsten, Glen Cove, NY. Revision No. 1 dated October 18, 1989 with Appendices (NUS, 1989).
- Final Draft, Site Inspection Report, Li Tungsten, Glen Cove, NY. September 28, 1990 with Appendices (NUS, 1990).
- Interim Remedial Actions Report. Prepared for Glen Cove Development Company, April 4, 1990 (HART, 1990).
- Final Remedial Investigation Report, Mattiace Petrochemical Site, Operable Unit One, Glen Cove, NY. Volumes I and II (EBASCO, 1991).
- Topographic Map - Sea Cliff, NY Quadrangle, 1:24,000, Photorevised 1979 (USGS, 1979).

1.3 Scope of Work

The scope of work for this Work Plan was outlined in the Work Assignment Form and Statement of Work which was transmitted to MPI from the USEPA in a letter from the Contracting Officer (CO) dated August 26, 1992. The Statement of Work identified the following tasks:

- Review existing background documents provided by USEPA.
- Develop an RI/FS Work Plan that is comprehensive enough to support a Record of Decision (ROD) for the entire study area.
- Attend scoping meeting within 10 days after issuance of the work assignment.

1.4 Work Plan Content

This Work Plan is organized into nine sections of text including references and a glossary. A brief description of each section follows.

Section 1.0, INTRODUCTION, presents an overview of the environmental conditions at the site, the approach used in developing the Work Plan, the scope of work, and the organization and content of the Work Plan.

Section 2.0, SITE BACKGROUND AND SETTING, presents the background of the site including the location, history and current conditions.

Section 3.0, INITIAL EVALUATION, presents an initial evaluation of the existing data base. This section includes a description of the types of waste present, site hydrogeology, climate, population and environmental resources, migration and exposure pathways, a preliminary identification of applicable or relevant and appropriate requirements (ARARs), a preliminary assessment of public health and environmental impacts, a summary of additional data requirements, remedial action objectives, and recommendations for interim remedial actions to be completed before the RI is initiated.

Section 4.0, WORK PLAN RATIONALE, includes the Data Quality Objectives (DQOs) for RI sampling and analytical activities, and the approach for preparing the Work Plan, which illustrates how the activities will satisfy data needs.

Section 5.0, TASK PLANS FOR RI/FS, presents a proposed scope for each standard task of the RI/FS in accordance with the RI/FS guidance document (USEPA 1988a).

Section 6.0, PROJECT SCHEDULE, presents the anticipated schedule for the RI/FS tasks.

Section 7.0, PROJECT MANAGEMENT APPROACH, presents project management considerations that define relationships and responsibilities for selected task and project management teams.

Section 8.0, REFERENCES, provides a list of references used to develop material presented in this Work Plan.

Section 9.0, GLOSSARY OF ABBREVIATIONS, provides a glossary of abbreviations and acronyms used in this Work Plan.

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The Health and Safety Plan (HASP), and Field Operations Plan (FOP), which includes the Quality Assurance Project Plan (QAPjP) and the Field Sampling Plan (FSP), will be prepared after the Work Plan has been approved by the USEPA.

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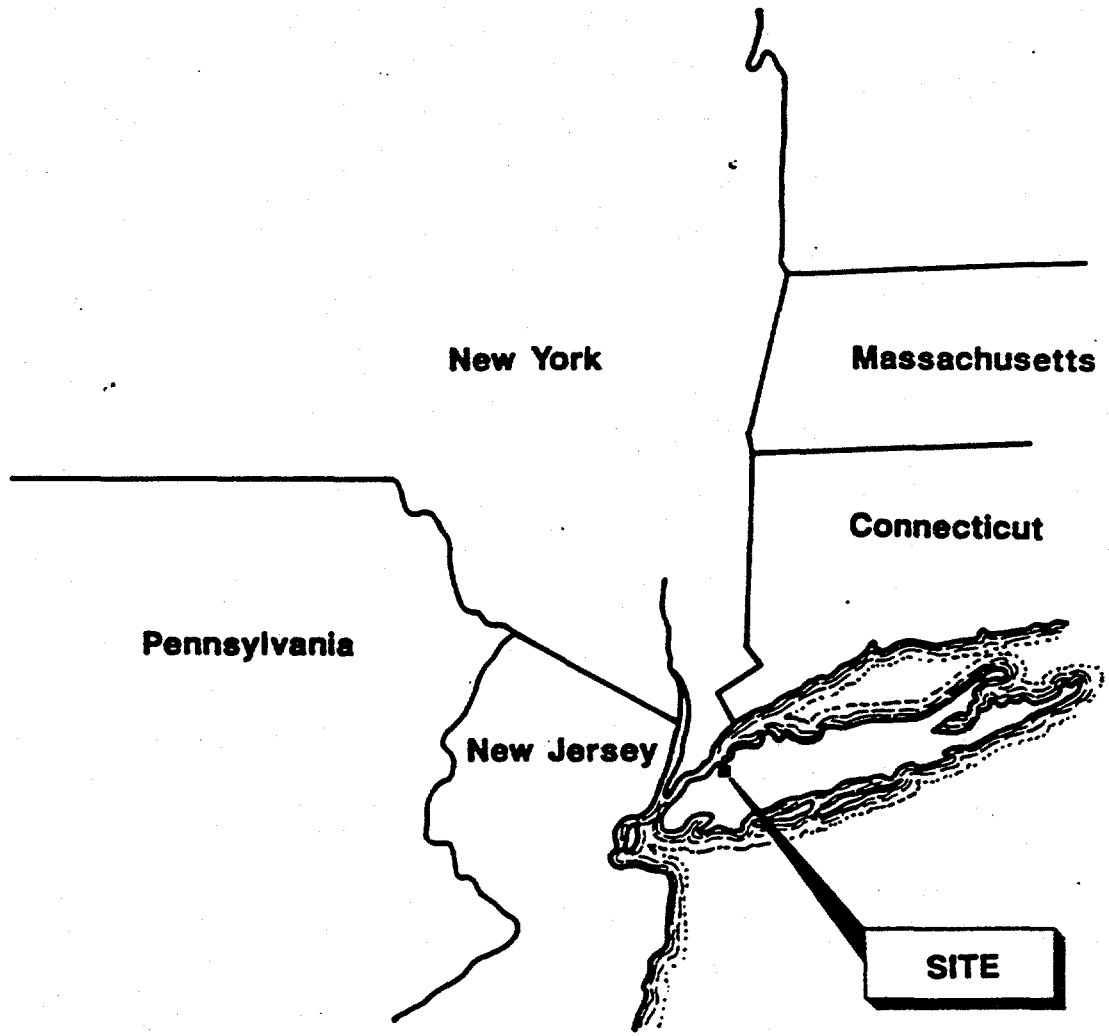
2.0 SITE BACKGROUND AND SETTING

2.1 Site Location

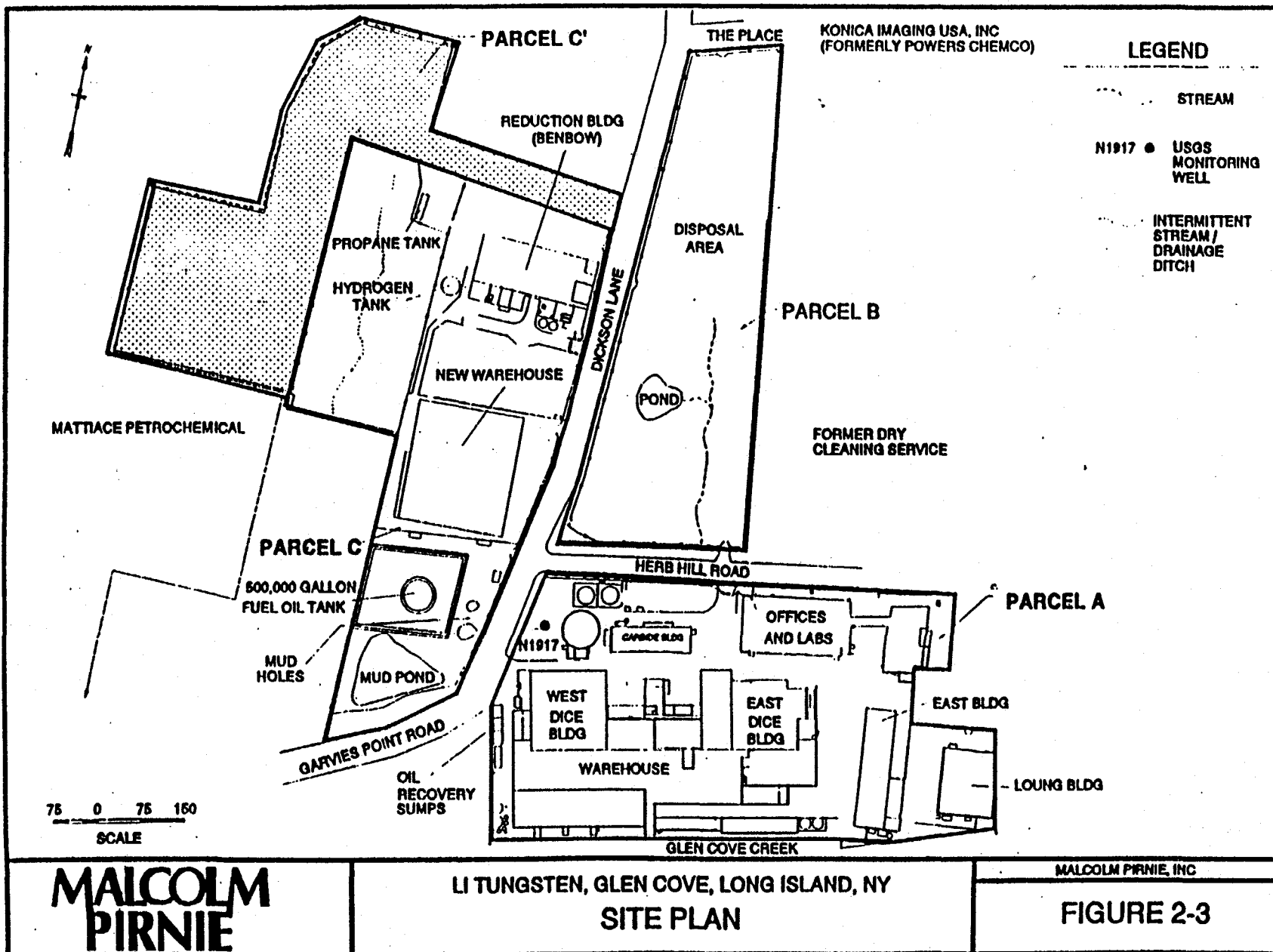
The Li Tungsten site is located at 63 Herb Hill Road in the City of Glen Cove, Nassau County, Long Island, New York. A regional map and a site location map are provided in Figures 2-1 and 2-2, respectively. The geographic coordinates of the site are latitude 40°51'36" North and longitude 73°38'25" West. Also located on Figure 2-2 is the adjacent Mattiace Petrochemical site which is on the National Priorities List (NPL) and was the subject of a recently completed RI/FS directed by the USEPA (EBASCO, 1991).

The site is approximately 26 acres and consists of four (4) separate parcels designated A, B, C and C'. For the purpose of this Work Plan and subject to the findings of the field investigation, the study area is defined as the entire 26 acres. The location of Parcels A, B, C and C' and the significant site features on each parcel are shown on the site plan in Figure 2-3.

Parcel A is approximately seven acres and served as the main operations center when the site was active. It contains the majority of buildings, structures (e.g., tanks, two surface impoundments) and drums/crates of tungsten ore. It is bounded by Herb Hill Road on the north, Garvies Point Road on the west, an adjoining property on the east, and Glen Cove Creek on the south. Parcel B is the smallest of the three parcels, approximately six acres, and is located due north of Parcel A. Parcel B is bounded by Herb Hill Road on the south, Dickson Lane on the west, The Place on the north, and an adjoining property on the east. The area south of the pond on Parcel B was used primarily as a parking lot when the plant was active, however, disposal activities also are believed to have taken place north of the pond (RTP, 1988). The disposal area north of the pond on Parcel B has been referred to in previous reports (HART, 1990; NUS, 1989, 1990, 1991) as a "landfill". Observations made during the second site visit confirmed that disposal activities have taken place in that portion of Parcel B, but insufficient information is available to confirm that actual landfilling operations took place. Further references to this area in the Work Plan text and on figures, therefore, will refer to it as a disposal area. Parcel C is the largest of the three parcels, approximately 14 acres, however, not all of this parcel was part of the Li Tungsten property during active site operations. The Glen Cove Development Corporation (GCDC) acquired



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approximately four acres of undeveloped property, designated Parcel C', sometime after 1984. Parcel C contains several buildings, a 500,000 gallon aboveground fuel oil storage tank, and three surface impoundments (e.g., Mud Pond and two Mud Holes) used to dispose of process waste water.

2.2 Site History

This site has a complex history of name and ownership changes, and environmental site assessments, investigations and removal actions. Specific details are discussed in the paragraphs below. The chronological history of site ownership, operations, and preliminary investigations/interim remedial actions is summarized in Table 2-1.

Early in the 1940's the National Reconditioning Company was formed by Kuo Ching (K.C.) Li. The company was operated and managed by the Wah Chang Trading Corporation of New York. In addition to being the chairman and chief engineer of Wah Chang Trading Corporation, K. C. Li was also a distinguished mining engineer, discoverer of tungsten in China, and was responsible for first importing tungsten into the United States. The purpose of the company was to build a facility in Glen Cove, NY, to concentrate tungsten ores.

The facility became operational in 1942. Operation consisted of processing raw ore and scrap tungsten concentrates to produce ammonium paratungstate (APT) and subsequently formulating APT to metal tungsten powder and tungsten carbide powder. Other specialty products that were produced included: tungsten carbide powder for plasma spraying; tungsten titanium carbide powder; tantalum carbide powder; tungsten spray powder; crystalline tungsten powder; and molybdenum spray powder.

Based on available information, a variety of extraction processes (or treatments) were used to separate the various accessory metals (or impurities) from the tungsten depending upon the specific type of ore or concentrate that was imported. The smelting was generally conducted in relatively small batches, to permit any individual or combination of extraction treatments. Typical treatments in the smelting process included physical, chemical and mechanical processes such as: sizing and crushing; gravity, magnetic and electrostatic

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TABLE 2-1
CHRONOLOGY OF EVENTS AND SITE INVESTIGATIONS
Li Tungsten Site
Glen Cove, New York

<u>DATE</u>	<u>EVENT</u>
1940	National Reconditioning Corporation was formed by K. C. Li with the express purpose of building the Glen Cove facility.
1942	Facility becomes operational. Operation consisted of processing raw ore and scrap tungsten concentrates to produce ammonium paratungstate (APT) and subsequently formulating APT to metal tungsten powder and tungsten carbide powder. Other specialty products including tungsten carbide powder plus cobalt and other material for plasma spraying; tungsten titanium carbide powder; tantalum carbide powder; tungsten spray powder; crystalline tungsten powder; and molybdenum spray powder were also produced.
1948	National Reconditioning Corporation changes its name to Wah Chang Smelting and Refining Corporation (WCSRC).
1948 - 1964	Site operated by WCSRC.
1964	WCSRC leases equipment/property to the Wah Chang Corporation (WCC) which continued to operate the facility.
April 1967 - 1972	Teledyne acquired the stock of WCC and the two companies merged. Operations at the site continued by Teledyne-Wah Chang Corporation.
1972	WCSRC formed a wholly owned subsidiary (Li Tungsten Corporation) which operated the facility until filing for bankruptcy in 1985.
1984	Property acquired by the Glen Cove Development Company (GCDC). GCDC is a general partnership duly organized and existing under the laws of the State of New York and is owned by the Old Court Holdings Company and the Old Court Joint Ventures, Inc., both of which, in turn, are wholly-owned subsidiaries of Old Court Savings and Loan, Inc. (in Receivership) located in Maryland

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TABLE 2-1 (continued)
CHRONOLOGY OF EVENTS AND SITE INVESTIGATIONS
Li Tungsten Site
Glen Cove, New York

<u>DATE</u>	<u>EVENT</u>
1984	GCDC continues to lease the site to Li Tungsten Corporation. Market for tungsten in decline.
June 1985	Li Tungsten Corporation files for bankruptcy. Manufacturing operations at the facility cease.
May 1988	RTP Environmental Associates, Inc., (Westbury, NY) completes Site Investigation Report for Campon Reality Corporation (RTP, 1988). Site investigation undertaken to evaluate environmental conditions prior to residential development. Geraghty and Miller was subcontracted to perform the hydrogeology investigation.
March 29, 1989	New York State Department of Environmental Conservation (NYSDEC) performs site inspection.
April 14-16, 1989	USEPA assumes lead enforcement role on response actions at the site. USEPA FIT2 contractor (NUS) initiates Preliminary Assessment.
July 21, 1989	Administrative Order On Consent (AOC) issued by USEPA to Glen Cove Development Corporation which specified nine (9) interim remedial actions.
September 18, 1989	USEPA FIT2 contractor (NUS) issues Preliminary Assessment Report (NUS, 1989).
April 4, 1990	Interim remedial actions completed and final report submitted (HART, 1990).
September 28, 1990	USEPA FIT2 contractor (NUS) issues Site Inspection Report (NUS, 1990).
July 1991	Li Tungsten site proposed for inclusion on the National Priorities List (NPL).
February 12, 1992	Special Notice letters were sent by USEPA to five PRPs (Teledyne, Inc.; Li Tungsten Inc.; the Glen Cove Development Corporation; Wah Chang Smelting and Refining Corporation; and Mr. John Li (son

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TABLE 2-1 (continued)
CHRONOLOGY OF EVENTS AND SITE INVESTIGATIONS
Li Tungsten Site
Glen Cove, New York

DATE

EVENT

August 26, 1992

of Mr. K. C. Li). These letters solicited the involvement of the PRPs in the investigation of the site.

Malcolm Pirnie receives work assignment to prepare RI/FS Work Plan.

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separation; roasting; leaching; floatation; and fusion. A generalized flow sheet of the treatment processes is shown in Figure 2-4.

Numerous aboveground wooden, steel or fiberglass tanks were used in performing some of these treatments and to store reactants (e.g., hydrochloric acid, ammonia, hydrogen) and/or intermediate compounds (e.g., APT). Many of these tanks still contain some hazardous and inorganic liquids. As the tungsten ore moved through its various processing stages, the naturally occurring radioactive isotopes of thorium, uranium, and radium became more concentrated in the residual waste or slag. There are indications that some of this slag was placed in waste piles at the ground surface and buried on site (NUS, 1989; 1990). Accessory metals which constitute the impurities that were removed during the extraction process include: antimony, arsenic, barium, bismuth, copper, cobalt, chromium, lead, manganese, mercury, molybdenum, nickel, thorium, uranium, vanadium, and zinc.

In 1948 the National Reconditioning Company changed its name to Wah Chang Smelting and Refining Corporation (WCSRC). WCSRC continued to operate the site until 1964 when they leased the equipment and property to Wah Chang Corporation (WCC). In 1966 Teledyne acquired the stock of WCC and the two companies merged. Operations at the site continued by Teledyne-Wah Chang Corporation.

In 1972 WCSRC, which had been leasing the equipment and property to Teledyne-Wah Chang Corporation, formed a wholly owned subsidiary (Li Tungsten Corporation) which continued to operate the facility. In 1984 the property was acquired by GCDC. GCDC is a general partnership duly organized and existing under the laws of the State of New York and is owned by the Old Court Holdings Company and the Old Court Joint Ventures, Inc., both of which, in turn, are wholly-owned subsidiaries of Old Court Savings and Loan, Inc., (in Receivership) located in Maryland. GCDC continued to lease the site to Li Tungsten Corporation until 1985 when Li Tungsten Corporation ceased operations at the site and filed for bankruptcy.

There is very little specific documented knowledge on waste volumes that were generated or waste disposal practices. Drummed waste is also reported to have been buried on-site in a portion of Parcel B (NUS, 1989, 1990). Liquid wastes are believed to have been disposed of through numerous subsurface drainage pipes that have been noted in the

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bulkhead and empty directly in Glen Cove Creek. State Pollution Discharge Elimination System (SPDES) permits allowed for up to as many as 250,000 gallons per day of discharge to Glen Cove Creek. Mud Pond and the two Mud Holes were also reportedly used to dispose of liquid wastes.

On April 14, 1989 the USEPA received a request from the NYSDEC to use its Superfund authority to respond to threats posed by hazardous materials at the site. USEPA's preliminary assessment and site inspection of site conditions (NUS, 1989; 1990), revealed a large quantity of slag which was emitting low-level beta-gamma radiation. In addition, large quantities of laboratory reagents, various hazardous materials in drums and tanks, asbestos, transformers, and cylinders containing compressed liquids and gases were found in several buildings. Air monitoring showed no dangerous levels of organic compounds either on-site or off-site. As a result of the conditions identified at the site, the USEPA issued an Administrative Order on Consent (AOC) to GCDC to stabilize all potential threats to the public and the environment.

Fred C. Hart Associates, Inc., (HART) was hired by GCDC to coordinate the nine (9) interim remedial actions identified in the AOC (HART, 1990). Additional removal/remedial actions were also undertaken by GCDC. A list of the interim remedial actions and the additional actions completed at the site is summarized in Table 2-2.

The Hazard Ranking Score (HRS) for the Li Tungsten site was 50.00 which is above the 28.5 threshold value for inclusion on the NPL (NUS, 1991). In July 1991 the Li Tungsten site was proposed for inclusion on the NPL and in October 1992, the site was placed on the NPL.

2.3 Current Conditions

The Li Tungsten site ceased operations in June 1985 and has been inactive since. Site security (fencing and guard) was addressed as one of the interim remedial measures in the AOC. Although a security guard is present on-site 24 hours a day, the site could be entered without knowledge of the security guard through breaks in the fence. During the site visits, observations were made that trespassing has occurred. Many of the salvageable fixtures

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TABLE 2-2
SUMMARY OF INTERIM REMEDIAL ACTIONS AND
ADDITIONAL REMOVAL ACTIONS
Li Tungsten Site
Glen Cove, New York

AOC Specified Tasks

The AOC contained a schedule for completion of the nine tasks listed below. There is insufficient information available to determine exactly when these activities were completed, but generally they occurred between the date the AOC was signed on July 21, 1989 and the date the Remedial Action Report was issued on April 4, 1990.

Site Security

- Repairs were made to all existing fences and gates. New fence was installed in two areas. All gates were made functional and fitted with locks.

Radioactive Materials

- Twelve (12) drums (or 113 cubic feet) of equipment, thorium metal and other materials (HART, 1990, p.13), plus a small furnace were removed by NDL on December 11, 1989.
- Twenty (20) yards of radioactive process ore slag was relocated to a secure area within the Dice building (HART, 1990, p.13).

Laboratory Chemicals

- Fifty-two (52) 55-gallon and 80-gallon overpacks and twenty (20) 5-gallon pails of labeled laboratory chemicals were prepared for shipment to Cycle Chem.
- Eight (8) 55-gallon drums of unknown liquid laboratory chemicals were placed in the staging area.
- One (1) 55-gallon drum of unknown solid laboratory chemicals were placed in the staging area.

Drummed Chemicals

- The liquids from approximately 150 - 200 unknown drums were bulked for removal and disposal (HART, 1990, p24).

Tank Characterization

- A total of 223 tanks were identified on the three site parcels [A - 197 tanks (112 empty); B - 6 tanks (all empty); and C - 20 tanks(14 empty)] (HART, 1990, p. 35).
- Disposal of tanks was not specified as part of IRA (HART, 1990, p.24).

TABLE 2-2 (continued)
SUMMARY OF INTERIM REMEDIAL ACTIONS AND
ADDITIONAL REMOVAL ACTIONS

Li Tungsten Site
Glen Cove, New York

Asbestos Sampling

- Five (5) high volume air samples were collected (Carbide Building; West Dice Building; Loung Building; Dickson Warehouse; and Benbow Building) and analyzed by transmission electron microscopy (TEM) with no indication of airborne asbestos (HART, 1990, p. 57).
- Fifty-one bulk samples were collected from Parcels A and C and analyzed by polarized light microscopy (PLM). Slightly more than half of the samples (53%) reflected the presence of asbestos containing materials (ACM). Results are presented in Plate 2 (HART, 1990).

Creek Sediments

- Five (5) sediment samples were collected from Glen Cove Creek and two (2) sediment samples and two (2) sediment core samples were collected from Hempstead Harbor. No enhanced levels of radionuclides were detected in the creek or the harbor.

Transformer Characterization

- Thirty eight (38) samples were collected from transformers or other electrical equipment. Eleven (11) samples collected reflected concentrations of PCBs greater than 50 ppm; three (3) units reflected concentrations greater than 500 ppm.
- Although not specified in the AOC, transformer oils were drained from all units; some were disposed of as PCB oils, others as non-PCB oils. The carcasses of three (3) transformers were also disposed of as PCB solids (HART, 1990, p.68).

Mercury Spill Cleanup

- An area inside the Benbow Building (Parcel C) was identified as having mercury on the floor. A commercially available mercury absorbing salt was used to absorb the mercury. Portions of the subfloor conduit which contained mercury could not be cleaned up because heavy equipment that was present made the area inaccessible. The room was boarded up and labelled to indicate the presence of residual mercury.

Additional Tasks Not Specified in AOC

The additional tasks listed below were completed by GCDC and with the concurrence of USEPA either prior to issuance of the AOC or concurrent with the AOC specified tasks listed above. A separate order was issued in April 1989 for the removal of the anhydrous ammonia. In general, these tasks were completed between June 1989 and April 1990.

TABLE 2-2 (continued)
SUMMARY OF INTERIM REMEDIAL ACTIONS AND
ADDITIONAL REMOVAL ACTIONS
Li Tungsten Site
Glen Cove, New York

Pressurized Cylinders

- Twenty-six (26) cylinders were identified for removal. Twenty-four (24) of these cylinders were clearly marked with the name of the owner/distributor. The owners/distributors were contacted and the cylinders were removed.
- Two (2) cylinders remain at the site - their contents are unknown. They were scheduled for sampling and analysis in April 1990. The results of this sampling is not known.

Additional Laboratory Overpacks

- Due to the number of chemicals (over 2500 individual containers; 500 with labels) found in the laboratories, offices, storage spaces in Parcel A, strict adherence to the limitation of the interim remedial action (200 laboratory chemicals) would have left a large quantity of chemicals on-site. Additional chemicals were removed, however, some may still remain

Radioactive Slag Relocation

- Three (3) dump truck loads (approximately 20 cubic yards) of radioactive slag were moved from Parcel A (near the fence at Herb Hill Road and Garvies Point Road) to inside the West Dice Building. The slag was placed on pallets, covered with plastic, and labeled with signs indicating a radioactive hazard.

Anhydrous Ammonia Removal

- One (1) tank of anhydrous ammonia on Parcel A was emptied pursuant to a separate order issued in April 1989. The anhydrous ammonia was removed and returned to its distributor (HART, 1990, p. 69).

Methyl Ethyl Ketone Peroxide (MEKP) Removal

- One (1) pint of MEKP was removed from the refrigerator in the main office building (dark room) for disposal (HART, 1990, p. 70).

Air Sampling

- Inorganic Acid Gases - fluoride was found in excess of one field blank and was thought to be due to hydrofluoric acid found in several drums.
- Volatile Organic Compounds - not detected in significant quantities.
- Inorganics - all samples were significantly below ACGIH published Threshold Limit Values (TLVs). No difference was found between air samples collected inside the buildings and those collected outside.

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(e.g., copper wiring and piping) have been removed and general debris (e.g., washing machines, mattresses) have been left behind.

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to contain elevated radionuclide concentrations.

3.1.7 Characteristics of Chemical Contamination

Characteristics of chemical contamination on the site stem from activities associated with the production of tungsten carbide powder, tungsten wire and welding rods. To produce these products, monazite sand and tungsten ore or concentrates were smelted between the 1942 and 1985. The treatment processes used to extract tungsten metal from these materials generated a residual slag (waste ore) which tended to concentrate radioactive isotopes of uranium, thorium and radium, and other heavy metal impurities. The slag, as well as some processed and unprocessed, ore was stored on-site in wooden crates, piles, and drums. Much of this material still remains on the site and some of it is believed to have been disposed of on site (Parcels B and C).

Potential contaminants on the site include commercially prepared strong acids, strong bases, organic solvents, aqueous ammonia, mercury and cyanide which were used in the treatment processes. The acids were used for leaching of impurities out of the tungsten where mechanical separation was not effective. An on-site laboratory also existed where the tungsten product was analyzed for impurities and either sent for reprocessing or identified as a finished product. The majority of chemicals used in the laboratory were removed as part of the interim remedial actions (HART, 1990). Other organics used on the site included PCBs in transformers, and fuel oil which was stored in several tanks, including one 500,000 gallon aboveground storage tank.

Asbestos containing materials (ACM) has been found on-site in siding shingles, roof tiles, tank covers and pipe insulation. ACM has also been found on the ground at the site.

3.1.8 Sources and Distribution of Contamination

As described earlier, several investigations have been completed at the site (RTP, 1988; G&M, 1988; NDL, 1989; HART, 1990; NUS, 1989; 1990). The results of these investigations were used to prepare the following sections which summarize the current understanding of environmental conditions at the site.

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The primary sources of contamination on the site include processed and partially processed tungsten ore present in drums, wooden crates, and piles located both inside and outside the buildings. Removal of these source materials is proposed in this Work Plan as an interim remedial action prior to initiating the RI field investigation. Other potential sources include; Mud Pond and two Mud Holes which were used for disposal of wastewater; the disposal area located on Parcel B; unconfirmed disposal areas on Parcel C that is devoid of vegetation; underground storage tanks (whose locations and contents are unknown), and a 500,000 gallon aboveground fuel oil tank.

Secondary sources of contamination include the on-site soil; off-site groundwater from the Mattiace property, the former Powers-Chemco property and/or a former dry cleaner; and the storm and process drains on-site and off-site. Removal of asbestos is also proposed in this Work Plan as an interim remedial action prior to initiating RI field investigation (See Section 3.7).

Chemical contamination is distributed throughout the groundwater, surface water, soils and sediments at the site. Volatile organic compounds in the groundwater may originate from off-site sources, including a former dry cleaning establishment to the east of Parcel B and the Mattiace site (NUS, 1990). No on-site source of organic contaminants has been identified. The predominant contamination attributable to on-site sources is inorganic metals. Inorganic metals are found at the majority of the groundwater sampling locations. Inorganic metals have been identified in the on-site surface water and sediment contamination, including Mud Pond, the Mud Holes, the pond and associated drainage stream on Parcel B, the standing water in the building, and open tanks.

3.1.8.1 Chemical Characteristics of Soil

This section presents a summary of the chemical characterizations of the soils based on existing data (NUS, 1990). Soil samples were collected at a total of 10 locations (S-1 through S-10) as shown on Figure 3-1. The samples were analyzed for volatile and semi-volatile organic compounds, pesticides/PCBs, and inorganic compounds (metals and non-metals).

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TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

TAT-02-F-05380

MEMORANDUM

To: Charles Fitzsimmons, OSC
Response and Prevention Branch, U.S. EPA

From: Jou Hwang, Ph.D, TAT
Laura Amend, PM, QQJIA

Subject: Li Tungsten, TDD# 028906142394
Ammonia Paratungstate (APT) Process Overview

Date: 7-18-89

On July 11, 1989, I was on site performing PRP oversight activities and site reconnaissance. Drawings of proposed process flow diagram prepared by Wah Change Trading Co. for Zigong facilities in the People's Republic of China were found. It is my belief that the proposed process was based on the past experience and the design of Li Tungsten. By evaluating these process flow diagrams and available literatures, we may be able to predict what hazardous materials were in existence and what analytical parameters may be required. The hazardous materials originated from raw materials, by-products, additives, or processing waste. Some drawings are still on-site. There were also three volumes (out of five volumes) of the aforementioned proposal still left on site in one office. Eighteen drawings, except all DWG PFD-700 series, are attached for your record. They were labeled as:

1. DWG PFD-100 Concentrate Preparation (3)
2. DWG PFD-101 Concentrate Digestion (3)
3. DWG PFD-200 Si, Fe, P, As Removal (3)
4. DWG PFD-300 Mo Removal (3)
5. DWG PFD-400 Solvent Extraction (1)
6. DWG PFD-500 APT Crystallization and Drying (1)
7. DWG PFD-501 Ammonia System (1)
8. DWG PFD-600 Sodium Sulfate Recovery (1)
9. DWG PFD-700 Fine & Medium Tungsten Carbide Powder
10. DWG PFD-701 Coarse Tungsten Powder
11. DWG PFD-702 Washed Crystalline Tungsten Powder
Tungsten Spray Powder
12. DWG PFD-703 Tungsten For Wire & Rod

Roy F. Weston, Inc.

SPILL PREVENTION & EMERGENCY RESPONSE DIVISION

In Association with ICF Technology, Inc., C.C. Johnson & Malhotra, P.C., Resource Applications, Inc.,
Geo/Resource Consultants, Inc., and Environmental Toxicology International, Inc.

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13. DWG PFD-704 WC:TIC = 50:50
14. DWG PFD-705 WC:TIC = 70:30
15. DWG PFD-706 Triple Carbide Process
16. DWG PFD-707 Tungsten Alloy Spray Powder
17. DWG PFD-800 Scrap Powder Reclaim (1)
18. DWG PFD-801 Fusion Process For Scrap Reclaim (1)
19. DWG PFD-802 Zinc Process Scrap WC Reclaim (1)

The known operation at Li Tungsten site involved the processing of ore and scrap tungsten concentrates to ammonia paratungstate (APT) and subsequently to tungsten powder or tungsten carbide. Other specialty products such as cobalt-added tungsten carbide for plasma spraying, tungsten titanium carbide powder, tantalum carbide powder, tungsten spray powder, crystalline tungsten powder, and molybdenum spray powder also are manufactured at Li Tungsten. However, at the Li Tungsten facility, the exact past process and business are not known. Thorium ore process might once have been performed on site. Fuel was also once stored on the premises. The following processes summary is only a brief overview of the APT/tungsten manufacture process from ore.

Wolframite and scheelite are the only primary raw materials suitable for the manufacture of tungsten. Wolframite composed of the tungstates of iron and maganese. Scheelite is mostly calcium tungstate. Impurities commonly present are arsenic and tin, to a less extent also molybdenum, titanium and copper. APT, tungsten carbide, and other specity products were produced in the Li Tungsten facilty. The process may be classified into four stages:

I. Preparation of Tungstic Oxide

Wolframite is usually decomposed by an alkali, which takes the tungsten into solution and leaves the main impurities in an insoluble form. Ore is usually ground by ball-milling, though disc-crushers are sometimes used for scheelite. After the ore is prepared, the first stage in the manufacture of metallic tungsten is the separation of the tungstic oxide from the other materials in the ore by precipatation. The product obtained by the precipitation of a tungstate with a mineral acid is usually hydrated and subsequently calcined below a red heat to obtain its anhydrate. The methods used in extracting the oxide from the ore may be broadly divided according to whether the ore used is scheelite or wolframite.

One of the processes, in which the ore is fused with sodium carbonate and sodium tungstate extracted from the melt with water, is frequently used for low grade ores and tungsten-containing residues. The process may be modified by adding sodium chloride to the fusion mixture, and by using a sufficiently high temperature to keep the mass completely fluid.

Tungstic acid may also be extracted from wolframite by treatment with strong caustic soda or potash solution. This method is largely used in the manufacture of tungsten filaments for electric

lamps. The reaction is conveniently carried out in steel tanks about 6 feet in diameter and 7 feet deep, fitted with stirrers, and arranged so that they can be directly heated by a gas or coal fire. Lime is added to ensure that impurities, such as silica and tin, are precipitated as insoluble double compounds. The potassium tungstate solution is diluted and filtered, and tungstic acid precipitated in the usual way. After dissolving in ammonia and reprecipitating in order to remove any silic acid, the product may contain 98-99 percent tungstic oxide.

Wolframite may also be decomposed with sodium sulfate, sodium bisulfate, a mixture of sodium sulfate and powdered coke, or acids. Sodium tungstate obtained from these processes is usually first purified by precipitation as calcium tungstate. The tungstate solution is then agitated in an open steel tank, and excess of calcium chloride solution is run in. The white precipitate is thoroughly washed by repeated decantation with water.

Scheelite is always first treated with mineral acid. The calcium tungstate goes into solution and is immediately followed by the precipitation of almost insoluble tungstic acid and the formation of the corresponding calcium salt of the mineral acid. Hydrochloric acid is the most convenient mineral acid to use because of the high solubility of its calcium salt. Rubber-lined steel or earthenware tanks are usually used. Oxidizing agents, such as nitric acid or manganese dioxide, are added to convert any oxidizable material to its highest possible state of oxidation, thus ensuring that all of the tungsten extracted is converted to tungstic oxide. The major impurities in the sludge are undecomposed ore, silica, and silicates, cassiterite, iron, and calcium.

Separation of tungsten as chloride or electrolytic separation of sodium tungstate were also suggested in literatures. However, they are usually not economical.

II. Purification of Tungstic Oxide

The crude tungstic acid or sodium tungstate obtained by any of the aforementioned methods may contain considerable amounts of impurities. The nature of these depends upon the raw material and the process used, but decomposed ore, cassiterite, iron, manganese, calcium, titanium, molybdenum, alumina, and silica are the most usual. The most convenient method of purification is crystallization of the tungstates of ammonia and the alkalis. Precipitated tungstic acid dissolves readily in ammonia, provided it has not been dehydrated by drying at too high a temperature. Solutions of tungstic acid in ammonia are unstable, and on standing, crystals of hydrated ammonium paratungstate separate out. If the salt is allowed to crystallize from the solution at room temperature, fine white needles of hydrated APT are formed. APT is then converted by prolonged boiling with water into transparent plates; which may also be prepared by direct crystallization from the boiling solution. After allowing the residue to settle, the

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solution is siphoned through a cloth filter into an evaporator, where the free ammonia is eliminated by boiling and may be recovered. The formed crystals of APT are washed several times with distilled water. The mother liquor remaining after removal of the crystals may be highly colored, due to the presence in the original raw material of trace elements, such as iron, molybdenum, vanadium, titanium, and rare earths. The liquor may also contain organic matter derived from the rubber-lined vessels. Impurities known to be objectionable in the final product may conveniently be removed from the APT solution before crystallization. Phosphorus and arsenic are removed by the addition of a slightly excess amount of magnesium chloride for their conversion to the insoluble magnesium ammonium compounds, which are subsequently separated by filtration. The heavy metals may be removed in a similar manner with ammonium sulfide. Fractional separation may also be used as an alternative for the removal of molybdenum.

Crystals of APT are practically insoluble in water, and cannot, therefore, be further purified by recrystallization. They may, however, be decomposed by treatment with acid, dissolved in a caustic soda or potash solution, decomposed by heat, or reduced to metallic tungsten by hydrogen in obtaining pure tungstic oxide.

III. Reduction Of Tungstic Oxide (Preparation Of Tungsten Metal Powder)

The high melting-point of tungsten precludes its manufacture in a cast state industrially. Cast tungsten is also very brittle and difficult to work mechanically. For these reasons, the metal is obtained from the oxide in the form of a heavy powder, more or less sintered into friable masses according to the condition of reduction. Reduction of the oxide by hydrogen or by carbon are generally used for obtaining metallic tungsten. Tungsten powder is then used for two distinct purposes:

- (1). the manufacture of tungsten sheet, wire, hard carbides, heavy alloy etc.; and
- (2). for alloying with other metals. A temperature of at least 700 C is necessary at which complete reduction is practicable.

Gas-fired reduction furnace or electric reduction furnaces may be used. Tungsten powder may also be made by reducing the oxide with carbon when high purity and fine particle size are not essential. It is cheaper than hydrogen reduction. Tungsten powder produced by reduction with carbon is always contaminated with a certain amount of carbide and other impurities. The reduction is carried out on a large scale in graphite or fire-clay crucibles.

Tungsten Carbide (WC) is prepared by heating a finely powdered mixture of tungsten powder or tungsten oxide and carbon to a temperature above 1400 C in a non-oxidizing atmosphere. The metal powder is usually ball-milled for about 24 hours with the

theoretical amount of very pure amorphous carbon. And the mixture is briquetted and fixed at about 1550 C for two hours. The resulting carbide is crushed by ball-milling by using hard metal balls and stainless steel mills to prevent contamination with iron.

Specity products is usually manufactured by mixing tungsten carbide with various metals, such as titanium, tantalum, cobalt, or nickel powders, for specific purposes. Having decided on the composition, the charge is roughly mixed and introduced into a stainless steel mill by either dry milling or wet milling. Wet milling usually uses distilled water or an inert organic liquid as a medium. After obtaining a comparatively dry powder, it is fed through a low temperature furnace to remove the final traces of liquid and to anneal cobalt grains which assists pressing. In pressing process, a binder (such as paraffin wax, camphor, or methylene glycol) is added as a solution in a suitable solvent. The treated powder is then pressed in collapsible steel dies. The shaped pieces are packed in carbon graphite boats and heated in hydrogen. This sintering operation concludes the actual manufacture of the hard specity products.

IV. Manufacture Of Ductile Tungsten

Tungsten powder for the production of ductile metal to be worked to rod, wire, sheet, etc., must be of high purity and be closely controlled in its properties. These properties vary with the purpose for which the metal is required. The process usually consists of mixing, pressing, pre-sintering, sintering, swagging, wire drawing, wire cleaning, and wire testing or similar procedures for rods and sheets. Powders are mixed mechanically in a ball-mill or by tumbling in a slowly-revolving eccentrically mounted drum of copper or stainless steel. To avoid oxidation due to the heat developed, a stream of nitrogen is introduced into the mill. Then, the first step in the manufacture of rod, wire, or sheet is to press the powder into briquettes of rectangular section in steel die under hydraulic or pneumatic pressure. Chrome-nickel, tungsten or manganese steel dies are used. After taking the die apart, the bar is carefully transferred to a flat plate of tungsten or molybdenum, on which it is supported in the furnace. The strength of the pressed bar may be greatly increased by heating in hydrogen. In this state the metal is too fragile to be worked and it is first subjected to a further heat treatment, known as "sintering". In this process, the bar is mounted between water-cooled contacts in an atmosphere of dry hydrogen and sufficient current passed through it to raise it nearly to the melting-point. Mercury is sometimes used to make the seal between cast iron base and the ball-jar. The health hazards from the use of mercury in the sintering process was investigated in 1945 by L. Lewis (J. Amer. Med. Assoc. 1945, 129, No. 2, page 123). The sintered bar is strong, but very brittle, and cannot be deformed appreciably at room temperature without fracture. A sintered ingot must be swagged while hot, after the unsintered ends, which are unworkable, have been removed. The bars are heated to about 1500 C in electric furnaces, in an atmosphere of hydrogen, rapidly withdrawn in a pair of tongs, and fed slowly

Ref. 1
006

between the rotating hammers of the machine. Then the further reduction of the wire is effected by drawing it through dies. If the surface of the rod has been cleaned after swagging, it must be coated with graphite before drawing. Drawn tungsten wire appears black owing to the thin, but very adherent, layer of graphite on the surface. In addition to the graphite there is also present a certain amount of oxides of tungsten mixed with finely divided metal abraded from the wire during drawing. Since graphite is insoluble in practically all liquids, chemical cleaning processes depend on dissolving the tungsten oxides and wiping away the now loosely adherent graphite. Wires are usually cleaned by immersing in a boiling solution of sodium or potassium hydroxide. After leaving the caustic bath, the wire passes through a series of pads made of waste tungsten wire, which are washed continuously by jets of water to carry away the material removed from the surface. The foreign matter on the surface of wires greater than 1 mm in diameter may be removed by passing the wire through a bath of fused sodium nitrite.

Sheet tungsten is made by rolling either hammered or swagged rods. When the sheet has been reduced to a thickness of about 1 mm, it is then cleaned in a fused mixture of sodium nitrite and hydroxide. "Cold" rolling is continued at 200 - 300 C down to a thickness of about 0.2 mm, after which heating is no longer necessary.

Based on the review of the process, metals, ammonia, mineral acids, oxidizing agents, caustics, and silica are the major hazardous materials (wastes) involved in the manufacture of APT/tungsten. Organic solvents, lubricating oils, and pesticides may also have limited use in maintenance or pest control. Calcium, magnesium, iron, molybdenum, titanium, the alkali metals, and silicon are most frequently found in quantities up to about 0.05 percent as the impurities of APT. Thorium, aluminium, and boron are also found as impurities. Chemical analyses were performed in Li Tungsten's laboratory to control the quality of products. Numerous chemicals may also be found which were used for analytical purposes.

REFERENCE NO. 22

102589

STATE OF NEW YORK
RADIOACTIVE MATERIALS LICENSE

Page 1 of 2 Pages

Ref. 22

Pursuant to the Labor Law and Industrial Code Rule No. 38, and in reliance on statements and representations heretofore made by the licensee designated below, a license is hereby issued authorizing such licensee to transfer, receive, possess and use the radioactive material(s) designated below; and to use such radioactive materials for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations, and orders now or hereafter in effect of all appropriate regulatory agencies and to any conditions specified below.

Licensee 1. Name Wah Chang Smelting and Refining Company of America, Inc. 2. Address 63 Herb Hill Road Glen Cove, New York		3. License number <div style="text-align: center;">743-0464</div> <hr/> 4. Expiration date <div style="text-align: center;">Valid until terminated</div> <hr/> 5. Reference number <div style="text-align: center;">1</div>
6. Radioactive materials (element and mass number) 1. Thorium 2. Thorium	7. Chemical and/or physical form 1. Thorium oxide 2. Thorium nitrate	8. Maximum quantity licensee may possess at any one time 1. 2300 pounds 2. 750 pounds <div style="text-align: right;"> Total thorium not to exceed 45.4 curies <i>.15 Ci (sum in calculation)</i> <div style="text-align: right;">AW</div> </div>

CONDITIONS

9. Authorized use. (Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.)
 1. As insulator in vacuum furnace.
 2. Production of thoriated tungsten powder as step in manufacturing of welding rods.
10. The licensee shall conduct operations involving the use of sources of radiation in compliance with the requirements of New York State Industrial Code Rule No. 38, "Radiation Protection".
11. Any disposal of radioactive waste by the licensee by burial, through the sanitary sewer, or by other release to the environment shall be in accordance with the provisions of Part 16, New York State Sanitary Code Records of all such disposal shall be maintained by the licensee. Monitoring procedures shall be instituted where necessary to demonstrate that concentrations and quantities of radioactive material so disposed of do not exceed permissible levels.
2. The agreement material described in Items 6, 7 and 8 above:
 - A. Shall be used only by or under the supervision of either A. Morra or A. Bathie
 - B. Shall not be used in or on human beings, in products intended for uncontrolled distribution to the general public, nor in field applications where radioactivity is released.

FOR THE NEW YORK STATE DEPARTMENT OF LABOR

Date _____

by _____

102590

STATE OF NEW YORK
RADIOACTIVE MATERIALS LICENSE

Page 2 of 2 Pages
Ref. 22

License Number 743-0464

Reference Number: 1

- C. Shall be possessed and used by the licensee in accordance with statements, representations and procedures contained in his application dated February 26, 1964, and in related documents as follows:
1. Letter to the United States Atomic Energy Commission dated February 20, 1961, signed by Allen Lau.
 2. So much of Part 40, Title 10, Code of Federal Regulations as is applicable to operations of the licensee and not in conflict with Code Rule 33 or the other conditions of this license.

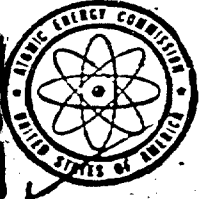
102591

Date March 19, 1964

FOR THE NEW YORK STATE DEPARTMENT OF LABOR
by Allen Lau

REFERENCE NO. 23

102592



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

Ref. 23
1 of 2

IN REPLY REFER TO

10-943
AL:PG3

Wah Chang Smelting & Refining Company of
America, Inc.,
Woolworth Building
New York 7, New York

Attention: Mr. Allen Lau, Ass't Treasurer

SOURCE MATERIAL LICENSE

License No. D-607

Dated: DEC 6 1957

Gentlemen:

Pursuant to the Atomic Energy Act of 1954 and Section 40.21 of the Code of Federal Regulations, Title 10 - Atomic Energy, Chapter 1, Part 40 - Control of Source Material, you are hereby licensed to receive possession of and title to sixteen hundred (1600) pounds of uranium and thorium compounds during the term of this license, for use as an analytical reagent and in the manufacture of thoriated tungsten wire and columbite metal at your plant locations at Glen Cove, New York and Albany, Oregon.

You are further licensed to transfer and deliver possession of and title to refined source material to any person licensed by the Atomic Energy Commission, within the limits of his license.

As a condition of this license, you are required to maintain records of your inventories, receipts and transfers of refined source material.

This license is subject to all the provisions of the Atomic Energy Act of 1954, now or hereafter in effect, and to all valid rules and regulations of the U. S. Atomic Energy Commission, including 10 CFR 20, "Standards For Protection Against Radiation."

Neither this license nor any right under this license shall be assigned or otherwise transferred in violation of the provisions of the Atomic Energy Act of 1954.

This license shall expire December 1, 1958.

CC: Document room
Formal file
Suppl. file
State Health Dep.
Inspection

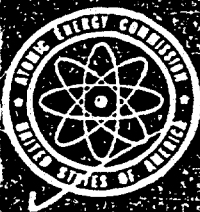
FOR THE ATOMIC ENERGY COMMISSION

Chief, Materials Section
Licensing Branch
Division of Civilian Application

Enclosure
10 CFR 20

102593

Ref. 23
20A



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

IN REPLY REFER TO:
40-943
CAL:PCS

Wah Chang Smelting & Refining Company of
America, Inc.,
Woolworth Building
New York 7, New York
Attention: Mr. Allen Lau, Asst. Treasurer

SOURCE MATERIAL LICENSE
License No. S-607
Dated: DEC 8 1957

Gentlemen:

Pursuant to the Atomic Energy Act of 1954 and Section 40.21 of the Code of Federal Regulations, Title 10 - Atomic Energy, Chapter I, Part 40 - Control of Source Material, you are hereby licensed to receive possession of and title to sixteen hundred (1600) pounds of uranium and thorium compounds during the term of this license, for use as an analytical reagent and in the manufacture of thoriated tungsten wire and columbite metal at your plant locations at Glen Cove, New York and Albany, Oregon.

You are further licensed to transfer and deliver possession of and title to refined source material to any person licensed by the Atomic Energy Commission, within the limits of his license.

As a condition of this license, you are required to maintain records of your inventories, receipts and transfers of refined source material.

This license is subject to all the provisions of the Atomic Energy Act of 1954 now or hereafter in effect and to all valid rules and regulations of the U. S. Atomic Energy Commission, including 10 CFR 20, "Standards For Protection Against Radiation."

Neither this license nor any right under this license shall be assigned or otherwise transferred in violation of the provisions of the Atomic Energy Act of 1954.

This license shall expire December 1, 1961.

- CC: Document Room
Formal File
Supply File
State Health Dept.
Investigation

FOR THE ATOMIC ENERGY COMMISSION

Chief, Licensing Section
Director of General Application

Enclosure
10 CFR 40

REFERENCE NO. 24

102595

TABLE 1
SAMPLE DESCRIPTIONS
CAPTAIN'S COVE CONDOMINIUM SITE

Sample ID	Depth	Description
MATRIX: SOIL		
CC-SS01-01	0-6"	Grab sample from under some type of cylindrical metal container (1' diameter/3' long). Fine silt mixed with rusted pieces of metal and melted glass
CC-SS02-01	0-6"	Grab sample in an area devoid of vegetation. Light brown, fine sand and silt.
CC-SS03-01	0-6"	Grab sample in the area of purple ink-stained soils. Silty, fine to medium grained sand, stained purple in areas.
CC-SS04-01	0-6"	Grab sample in the area of drum fragments. Fine sand and silt with some pieces of rusted metal.
CC-SS05-01	0-6"	Grab sample from under a pile of aerosol cans, paint and paint thinner cans (rusted and broken open). Fine sand and silt
CC-SS06-01	0-6"	Grab sample of the soil near the rusted 5 gallon containers. Brown silt and medium grained sand, stained black in areas.
CC-SS07-01	0-6"	Grab sample taken from under drum fragments. Fine sand and silt.
CC-SS08-01	0-6"	Grab sample from unvegetated soil pile on the northwestern portion of the site. Poorly sorted fine to coarse grained sand with rounded cobbles.
CC-SS09-01	0-6"	Grab sample from under empty drums standing upright in the central portion of the site. Brown silty fine sand.
CC-SS10-01	0-6"	Duplicate of CC-SS09-01
CC-SS11-01	0-6"	Grab sample obtained north of the site in the Garvies Point Nature Preserve. Black loamy soil.
CC-SS11-02	0-6"	Grab sample obtained north of the site in the Garvies Point Nature Preserve. Black loamy soil with organic material.
CC-SS11-03	4'	Background taken at a depth of 4' in Garvies Point Nature Preserve. Orange and black sandy loam with little organic matter.

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Ref. 24
20F278

TABLE 1
(Continued)
SAMPLE DESCRIPTIONS
CAPTAIN'S COVE CONDOMINIUM SITE

Sample ID	Depth	Description
MATRIX: SOIL		RADIOACTIVE AREAS
CC-SS12-01	4-5'	Hand augered grab sample in the former trench #6 location. Fine to medium grained brown sand with some small rounded cobbles. Counts per minute (CPM) = 2,500
CC-SS13-01	5.5'	hand augered grab sample in the former trench #8 location. Black granular material intermixed with brown clay. CPM = 14,000
CC-SS14-01	1-2'	Surface soil sample in the eastern area "hot spot" near trench #14 and #15 location. Black silty soil with clay and small pieces of black and sometimes rust colored slag. CPM = 4,000
CC-SS15-01	1-2'	Duplicate of CC-SS14-01.

Ref. 6, pp. 1 through 52 of 52

TABLE 1
SAMPLE DESCRIPTIONS
CAPTAIN'S COVE CONDOMINIUM SITE

Sample ID	Depth	Description
MATRIX: SEDIMENT		
CC-SD01-01	0-6"	Sediment sample approximately 0.25 miles upstream of the PPE. Sample taken 150' upstream of the dam, and the tidal influence, on Glen Cove Creek. Brown silty sediment with some organic matter.
CC-SD02-01	0-6"	Sediment sample adjacent to the site and in a wetland area of Glen Cove Creek. Black silty sediment mixed with organic matter.
CC-SD03-01	0-6"	Sediment sample adjacent to the site and in a wetland area of Glen Cove Creek. Black silty sediment mixed with organic matter.
MATRIX: GROUNDWATER		
CC-GW01-01	N/A	Groundwater sample from monitoring well CDM-4, located downgradient of the site. Black turbid groundwater, temperature = 57.6° F, pH = 6.02, conductivity = 165 uv/cm.
CC-GW02-01	N/A	Groundwater sample from monitoring well CDM-3, located upgradient of the site. Slightly turbid groundwater, temperature = 55° F, pH = 6.56, conductivity = 743 uv/cm.
CC-GW03-01	N/A	Groundwater sample from monitoring well CDM-2, located upgradient of the site. Very turbid medium brown groundwater, temperature = 62.6° F, pH = 6.60, conductivity = 169.5 uv/cm.
CC-GW04-01	N/A	Duplicate of CC-GW03-01.

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401278

TABLE 1
(Continued)
SAMPLE DESCRIPTIONS
CAPTAIN'S COVE CONDOMINIUM SITE

Sample ID	Depth	Description
MATRIX: QA/QC		
CC-FB01-01	N/A	Blank sample to assess the potential for cross contamination during the use of decontaminated soil sampling equipment.
CC-FB02-01	N/A	Blank sample to assess the potential for cross contamination during the use of decontaminated aqueous sampling equipment.
CC-FB03-01	N/A	Blank sample to assess the quality of the deionized water used for decontamination.
CC-TB01-01	N/A	Trip blank to assess the potential for cross contamination of volatiles from the ambient air through sample containers to the samples.
CC-SS01-01 MS/MSD	N/A	Matrix spike/matrix spike duplicate for the soil matrix.
CC-GW-02-01 MS/MSD	N/A	Matrix spike/matrix spike duplicate for the aqueous matrix.

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Ref. 24
50f278

TABLE 2
SAMPLE DESCRIPTIONS
LI TUNGSTEN SITE

Sample ID	Depth	Description
MATRIX: SOIL		
LT-SS01-01	0-6"	Grab sample from the northwest corner of Parcel A, near boxes of ore/slag-type material. Dark brown, very fine sandy soil.
LT-SS02-01	0-6"	Grab soil sample near black piles in the central portion of Parcel B where previous landfilling operations are alleged. Very dark brown to reddish fine sandy soil with silt and chunks of slag.
LT-SS03-01	0-6"	Grab soil sample from a landfilled area on the northwest corner of Parcel C. Very fine silty, sandy clay.
LT-SS04-01	0-6"	Grab soil sample near the slag pile located on the northern corner of Parcel C. Very fine silty, sandy clay.
LT-SS05-01	0-6"	Grab sample of ore-like material spilled on the south side of Dickson Warehouse on Parcel C.
LT-SS05-01D	0-6"	Duplicate of LT-SS05-01
MATRIX: QA/QC		
LT-FB-01	N/A	Field blank to assess the potential for cross contamination during the use of decontaminated soil sampling equipment.
LT-SS01 MS/MSD	N/A	Matrix spike/matrix spike duplicate for the soil matrix.

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TABLE 2
SUMMARY OF ORGANIC ANALYSIS OF SURFACE SOIL SAMPLES
(ALL RESULTS IN UG/KG)

CONTAMINANT	CRQL	CC-SS11-01 (Background)	CC-SS01-01	CC-SS02-01	CC-SS03-01	CC-SS04-01	CC-SS05-01	CC-SS06-01	CC-SS09-01	CC-SS10-01
4-Methyl-2-Pentanone	10	16 U	13 U	12 U	12 U	11 U	28	11 U	12 U	12 U
Trichloroethane	10	16 U	13 U	12 U	12 U	11 U	12 U	230	12 U	12 U
Xylenes	10	16 U	13 U	12 U	12 U	11 U	58	11 U	12 U	12 U
Phenol	330	540 U	140 J	380 U	4000 U	380 U	640	380 U	72	390 U
2-Methyl Naphthalene	330	540 U	420 U	380 U	4000 U	380 U	1800	380 U	52	390 U
Acenaphthylene	330	540 U	480	73	4000 U	380 U	3900 U	74	64	390 U
Fluorene	330	540 U	50	380 U	4000 U	380 U	540	380 U	98	390 U
Phenanthrene	330	98	500	210	650	180	1400	380 U	1400	220
Anthracene	330	540 U	140	74	4000 U	74	1500	78	230	98
Fluoranthene	330	170	1900	500	1300	370	480	92	1300	420
Pyrene	330	180	1700	460	1100	420	1200	190	1600	440
Benzo(b) Fluoranthene	330	91	2400	330	570	310 J	3900 U	160	930	380
Benzo(k) Fluoranthene	330	110	1400	290	460	180 J	3900 U	140	680	370
Benzo(a) Pyrene	330	81	1000	290	4000 U	190 J	3900 U	130	640	260 J
Benzo(g,h,i) Perylene	330	540 U	350	120	4000 U	380 U	3900 U	380 U	160	77
Chrysene	330	100	1800	380	650	280	3900 U	110	920	160
Benzo(a) Anthracene	330	67	750	300	430	230	580	84	660	260

The shaded sample results qualified as an area of observed contamination

102601

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6 of 278

TABLE 3
SUMMARY OF PESTICIDE/PCB ANALYSIS OF SURFACE SOIL SAMPLES
(ALL RESULTS IN UG/KG)

CONTAMINANT	CRQL	CC-SS11-01 (Background)	CC-SS01-01	CC-SS02-01	CC-SS03-01	CC-SS04-01	CC-SS07-01	CC-SS10-01
Endrin Keytone	3.3	6.5 NJ	22	3.8 UJ	4.0 UJ	2.6 N	5.1	3.9 U
alpha-Chlordane	1.7	2.8 UJ	2.2 UJ	4.3	33 J	21	30	13
Endosulfan-Sulfate	3.3	5.4 UJ	4.2 NJ	3.8 UJ	8.7	3.8 UJ	3.8 U	3.9 U
Aroclor-1248	3.3	54 UJ	42 UJ	38 UJ	140	240	74	75
Aroclor-1254	3.3	54 UJ	42 UJ	38 UJ	240	280	280	160

The shaded sample results qualified as an area of observed contamination

102602

Ref. 24
766278

TABLE 4
SUMMARY OF INORGANIC ANALYSIS OF SURFACE SOIL SAMPLES
(ALL RESULTS IN MG/KG)

CONTAMINANT	CRDL	CC-SS11-01 (Background)	CC-SS01-02	CC-SS02-01	CC-SS03-01	CC-SS04-01	CC-SS06-01	CC-SS10-01	CC-SS14-01
Antimony	12	18.8 UJ	19.6	1,630	10.2 U	9.6 U	9.6 U	10 U	14.8
Arsenic	2	27.1	23.2	239	9.3	8.7	5.3	5.9	55
Barium	40	41.3	434	254	164	253	61.7	83.5	3950
Cadmium	1	1.7	3.4	8.3	2.9	3.8	0.89 U	2.0	7.4
Copper	5	68.6	727	368	214	291	81.9	151	415
Iron	20	15,300	73,100	46,200	21,400	28,200	36,400	13,700	45,800
Lead	0.6	336	1,240	1,010	302	388	174	144	669
Magnesium	1,000	694	1,000	912	6,740	1,930	2,330	11,400	1,680
Mercury	0.1	0.84	0.19	2.7	0.28	0.20	0.16	0.18	0.76
Silver	2	1.5 U	4.2	13	6.4	21.3	1.4	6.3	22.4
Zinc	3.43	56.2	1,220	446	675	612	1,380	259	349

The shaded sample results qualified as an area of observed contamination

102603

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TABLE 5
SUMMARY OF INORGANICS IN SUBSURFACE SOIL SAMPLES AT CAPTAIN'S COVE

CONTAMINANT	CRDL	CC-SS11-03 (BACKGROUND)	CC-SS12-01	CC-CC13-01
Antimony	12	9.5 U	9.4 U	994
Arsenic	2	1.9	4.3	782
Barium	40	22.5	34.6	430
Cobalt	10	6.2	6.1	83.6
Copper	10	9.9	35.4	1,980
Iron	20	13,400	8,700	47,900
Lead	0.6	2.0	40.8	5,690
Magnesium	1,000	496	921	1,800
Manganese	3	105	167	7,400
Silver	2	0.75 U	1.6	195
Zinc	4	15.8	54.9	2,530

The shaded sample results qualified as an area of observed contamination

102604

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Ref. 24
10 of 273

TABLE 6: INORGANICS IN UNFILTERED GROUNDWATER SAMPLES
(All results in ug/l)

INORGANIC	CC-GW02-01 (Upgradient)	CC-GW03-01 (Upgradient)	CC-GW01-01 (Downgradient)
Arsenic	3.1 J	2.3 J	30.4 J
Antimony	42.2 U	42.2 U	46.9
Barium	134	234	730
Lead	23.4	85.2	500
Zinc	286	206	1,280 J

TABLE 7: INORGANICS IN FILTERED GROUNDWATER SAMPLES
(All results in ug/l)

INORGANIC	CC-GW02-01F (Upgradient)	CC-GW03-01F (Upgradient)	CC-GW01-01F (Downgradient)
Arsenic	1.1	0.84 U	3.4
Antimony	42.2 U	42.2 U	52.9 J
Barium	79.4	34.3	386

TABLE 8: OBSERVED RELEASE TO SURFACE WATER

CONTAMINANT	CC-SD01-01 (Upstream)	CC-SD02-01 (Downstream)	CC-SD03-01 (Downstream)
Silver	1.1 U mg/kg	16.4 mg/kg	9.9 mg/kg

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ATTACHMENT 1
SOP NO. HW-6

Page 1 of 11

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. NA SDG No. NA LABORATORY IEA-NJ SITE Captain's Cove

DATA ASSESSMENT:

The current Functional Guidelines for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's
Signature: _____

Date: 5 / 17 / 1995

Verified By: _____

Date: / / 199

Ref. 24
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DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

A) Method blank contamination

BNA: Di-n-butyl phthalate: CC-S511-01 CC-S504-01
CC-S502-01 CC-S506-01
CC-S501-01 CC-S507-01
CC-S503-01 CC-S508-01
CC-S501-01 CC-S509-01
CC-S502-01 CC-S510-01

Bis(2-ethylhexyl) phthalate: CC-GW01-01 CC-GW03-01
CC-GW02-01 CC-GW04-01

(Cont'd on page 3)

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

VOA: Methylene chloride: CC-GW02-01
CC-GW03-01
CC-GW04-01

Benzene: CC-GW03-01
CC-GW04-01

(Cont'd on page 4)

C) Trip blank contamination

VOA: Methylene chloride could have been flagged "U" in CC-GW02-01, CC-GW03-01 and CC-GW04-01 due to trip blank contamination, but it was already qualified for field blank contamination

DATA ASSESSMENT

2. BLANK CONTAMINATION:

A) Method Blank Contamination:

BNA (Cont'd):

The following TICs (retention time in parentheses) in the samples listed were rejected (flagged "R") due to method blank contamination:

TIC (11.86): CC-GW01-01 CC-GW03-01 CC-GW04-01

TIC (6.28): CC-GW01-01 CC-GW03-01 CC-GW04-01

TIC (6.87): CC-GW01-01 CC-GW02-01 CC-GW04-01

TIC (8.16): CC-GW04-01

TIC (11.95): CC-GW04-01

TIC (5.49): CC-SD01-01	CC-SS06-01
CC-SD02-01	CC-SS07-01
CC-SD03-01	CC-SS08-01
CC-SS01-01	CC-SS09-01
CC-SS02-01	CC-SS10-01
CC-SS04-01	CC-SS11-01

TIC (7.53): CC-SD01-01	CC-SS04-01
CC-SD02-01	CC-SS06-01
CC-SD03-01	CC-SS07-01
CC-SS01-01	CC-SS08-01
CC-SS02-01	CC-SS10-01

TIC (7.26): CC-SD02-01	CC-SD03-01
CC-SS06-01	CC-SS10-01

A TIC (5.49) could have been rejected in CC-SS04-01RE, but this sample result was not used.

Di-n-butylphthalate could have been flagged "U" in CC-SS04-01RE, but this sample result was not used.

DATA ASSESSMENT

2. BLANK CONTAMINATION:

B) Field Blank Contamination:

BNA:

Bis (2-ethylhexyl)phthalate: CC-5502-01

The following TICs (retention time in parentheses) in the samples listed were rejected (flagged) due to field blank contamination:

TIC (12.65): CC-GW01-01 CC-GW02-01

TIC (15.15): CC-GW04-01

TIC (15.89): CC-GW04-01 CC-GW03-01

C) Trip Blank Contamination:

(see page 2.)

D) General Laboratory Contaminants:

VOA: All unknown siloxanes were rejected (flagged "R") in the following samples library searches due to these compounds being column bleed:

CC-FB03-01

Trip Blank (4/19/95)

DATA ASSESSMENT

5. CALIBRATION:

A) PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J"; and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the samples shown were qualified for %RSD and %D:

- The following analytes in the samples listed were estimated (flagged "J") due to having a %RSD > 30 on the initial calibration:

VOA: Chloroethane: CC-GW01-01 CC-GW02-01 CC-GW03-01 CC-GW04-01 CC-FB02-01 CC-FB03-01
Trip Blank (4/18/95) Trip Blank (4/19/95)

Acetone: CC-GW01-01 CC-GW02-01 CC-GW03-01 CC-GW04-01 CC-FB02-01 CC-FB03-01
Trip Blank (4/18/95) Trip Blank (4/19/95)

- Acetone and chloroethane could have been estimated (flagged "J") in samples CC-GW03-01 DL and CC-GW04-01 DL due to having a %RSD > 30 on the initial calibration, but these sample results were not used.

DATA ASSESSMENT

5. CALIBRATION:

The following analytes in the samples shown were qualified for %RSD and %D:

1. (Cont'd):

BNA: 4,6-Dinitro-2-methylphenol: CC-SD01-01 CC-SS05-01 CC-SS07-01 CC-SS10-01

Di-n-octyl phthalate: CC-SD01-01 CC-SS05-01 CC-SS07-01 CC-SS10-01

- 4,6-Dinitro-2-methylphenol and Di-n-octyl phthalate could have been estimated (flagged "J") in sample CC-SS04-01RE due to having a %RSD > 30 on the initial calibration, but this sample result was not used.
- 4,6-Dinitro-2-methylphenol and Di-n-octyl phthalate could have been estimated (flagged "J") in samples CC-SD02-01 and CC-SD03-01 due to having a %RSD > 30 on the initial calibration, but these analytes were already estimated in these samples due to having a % moisture > 50.

2. The following analytes in the samples listed were estimated (flagged "J") due to having a %D > 25 on the continuing calibration:

VOA: Acetone: CC-SS06-01 CC-SS08-01

2-Butanone: CC-SS06-01 CC-SS08-01

4-Methyl-2-pentanone: CC-SS08-01

2-Hexanone: CC-SS08-01

1,1,2,2-Tetrachloroethane: CC-SS08-01

- 4-methyl-2-pentanone, 2-Hexanone and 1,1,2,2-Tetrachloroethane could have been estimated (flagged "J") due to having a %D > 25 on the continuing calibration in the following samples, but they were already qualified "J" due to having a low internal standard and samples CC-SS03-01RE and CC-SS07-01 were not used:

CC-SS03-01RE CC-SS06-01 CC-SS07-01

- Acetone and 2-Butanone could have been estimated (flagged "J") in samples CC-SS03-01RE and CC-SS07-01 due to having a %D > 25 on the continuing calibration, but these sample results were not used.

- Acetone could have been estimated (flagged "J") in the following samples due to having a %D > 25 on the continuing calibration, but it was already qualified "J" in these samples due to having a %RSD > 30 on the initial calibration: CC-FB02-01 CC-FB03-01 Trip Blank (4/18/95)

DATA ASSESSMENT

5. CALIBRATION:

The following analytes in the samples shown were qualified for %RSD and %D:

2. (Cont'd):

BNA: Hexachlorobutadiene: CC-FB02-01 CC-FB03-01 CC-SS11-01

2,4-Dinitrophenol: CC-FB02-01 CC-FB03-01 CC-SS11-01

Hexachlorocyclopentadiene: CC-SS11-01

4-chlorophenyl-phenyl ether: CC-SS11-01

Fluoranthene: CC-SS11-01

3,3'-Dichlorobenzidine: CC-SS11-01

Hexachloroethane: CC-SS01-01 CC-SS02-01 CC-SS03-01 CC-SS04-01 CC-SS06-01
CC-SS08-01 CC-SS09-01

4-Chloroaniline: CC-SS01-01 CC-SS02-01 CC-SS03-01 CC-SS04-01 CC-SS06-01
CC-SS08-01 CC-SS09-01

3-Nitroaniline: CC-SS01-01 CC-SS02-01 CC-SS03-01 CC-SS04-01 CC-SS06-01
CC-SS08-01 CC-SS09-01

4-Nitroaniline: CC-SS01-01 CC-SS02-01 CC-SS03-01 CC-SS04-01 CC-SS06-01
CC-SS08-01 CC-SS09-01

Pentachlorophenol: CC-SS01-01 CC-SS02-01 CC-SS03-01 CC-SS04-01 CC-SS06-01
CC-SS08-01 CC-SS09-01

Carbazole: CC-SS01-01 CC-SS02-01 CC-SS03-01 CC-SS04-01 CC-SS06-01
CC-SS08-01 CC-SS09-01

Di-n-octylphthalate: CC-SS01-01 CC-SS02-01 CC-SS03-01 CC-SS06-01 CC-SS08-01 CC-SS09-01

• Di-n-octylphthalate could have been estimated (flagged "J") in sample CC-SS04-01 due to having a %D > 25 on the continuing calibration, but it was already estimated in this sample due to having a low internal standard area.

• 4,6-Dinitro-2-methylphenol and Di-n-octylphthalate could have been estimated (flagged "J") due to having a %D > 25 on the continuing calibration in the following samples, but they were already estimated due to having a %RSD > 30 on the initial calibration and sample CC-SS04-01 RE was not used:

CC-SD01-01 CC-SS05-01 CC-SS10-01

CC-SD02-01 CC-SS04-01 RE

CC-SD03-01 CC-SS07-01

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DATA ASSESSMENT

6. SURROGATES/ SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/ SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/ SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/ SMC recovery:

VOA: SMC Toluene-d8 was above criteria limits in sample CC-SS11-01, but no action was warranted since no positive detections occurred in this sample and this sample result was not used.

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DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run.

The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ± 30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated "J", and all non-detects as "UJ" only if IS area is < 50%. Non-detects are qualified as "R" if there is a severe loss of sensitivity (< 25% of associated IS area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance:

VOA: 1. All analytes quantitated with internal standard 1,4-Difluorobenzene were estimated (flagged "J") in sample CC-5505-01 due to this internal standard's area count being < 50%.

2. All analytes quantitated with internal standard Chlorobenzene-d5 were estimated (flagged "J") in the following samples due to this internal standard's area count being < 50%:

CC-5501-01RE CC-5503-01 CC-5504-01 CC-5505-01 CC-5506-01
CC-5507-01RE CC-5511-01RE

• All analytes quantitated with internal standard Chlorobenzene-d5 were estimated (flagged "J") initially in samples CC-5503-01RE, CC-5504-01RE, CC-5506-01RE and CC-5507-01 due to this internal standard area count being < 50%; however, these sample results were not used.

• All three internal standards areas were < 50% in sample CC-5511-01, but this sample result was not used. All analytes would have been "J" except for those quantitated with Chlorobenzene-d5 which would have been rejected (flagged "R").

BNA: 1. All analytes quantitated with internal standard Perylene-d12 were estimated (flagged "J") in sample CC-5504-01 due to this internal standard's area count being < 50%.

• All analytes quantitated with internal standard Perylene-d12 could have been estimated (flagged "J") in

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

Anthracene in sample cc-5505-01 was found to be a false negative. The Form I was corrected accordingly by the reviewer.

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be $\leq 25\%$. The following analytes in the samples shown were qualified because of compound identification:

Not applicable

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DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

1. All volatile and BNA results for samples CC-SD02-01 and CC-SD03-01 were estimated due to these samples being analyzed as soils and having >50% water.
2. Several minor transcription errors were corrected by the reviewer.
3. The N qualifier was added to all TLCs by the reviewer.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued on next page if necessary):

Acceptable

12. CONTRACTUAL NON-COMPLIANCE (Continued on next page if needed):

The package contained several minor transcription errors. These were corrected by the reviewer.

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used:

<u>USE</u>	
<u>VOA:</u> CC-SD01-01RE	CC-SS04-01
CC-GW03-01	CC-SS06-01
CC-GW04-01	CC-SS07-01RE
CC-SS03-01	CC-SS11-01RE

<u>DO NOT USE</u>	
<u>VOA:</u> CC-SD01-01	CC-SS04-01RE
CC-GW03-01DL	CC-SS06-01RE
CC-GW04-01DL	CC-SS07-01
CC-SS03-01RE	CC-SS11-01

BNA:

BNA:

102616

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YES NO N/A

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: Not Applicable LAB: IEA-NJ
SITE: Captain's Cove

1.0 Data Completeness and Deliverables

- 1.1 Have any missing deliverables been received and added to the data package? ☐ ☒ ☐

ACTION: Call lab for explanation/resubmittal of any missing deliverables. If lab cannot provide them, note the effect on review of the package under the "Contract Problems/Non-Compliance" section of the data assessment and the Organic Regional Data Assessment summary.

* None missing
SG
5/16/95

- 1.2 Was SMO CCS checklist included with package? ☐ ☐ ☒
- 1.3 Are there any discrepancies between the Chain of Custody Record, Traffic Report/SAS Packing list, Trip Report and Sample Tags? ☐ ☒ ☐

If yes, contract the laboratory for an explanation or resubmittals.

2.0 Cover Letter SDG Narrative

- 2.1 Is the Narrative or Cover Letter Present? ☒ ☐ ☐
- 2.2 Are Case Number and/or SAS number contained in the Narrative or Cover letter? ☐ ☐ ☒
- 2.3 Does the Case Narrative contain the "verbatim" statement as required in Section B of the SOW. If "No", then contact the laboratory for a resubmittal.

yes

SG
5/16/95

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YES NO N/A

3.0 Data Validation Checklist

The following checklist is divided into three parts. Part A is filled out if the data package contains any VOA analyses, Part B for any BNA analyses and Part C for Pesticide/PCBs.

Does this package contain:

VOA Data?

☒ ☐

BNA Data?

☒ ☐

Pesticide/PCB data?

☐ ☒

Action: Complete corresponding parts of checklist.

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YES NO N/A

PART A: VOA ANALYSES

1.0 Traffic Reports and Laboratory Narrative

1.1 Are the Traffic Report Forms present for all samples? ✓

ACTION: If no, contact lab for replacement of missing or illegible copies.

1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data? ✓ 11

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be flagged as estimated (J). If a soil sample other than TCLP contains more than 90% water, all data should be qualified as unusable (R).

*
cc-5002-01
cc-5003-01
both contain > 50%
water
B
5/16/95

ACTION: If samples were not iced or of the ice was melted upon arrival at the laboratory and the temperature of the cooler was elevated (>10° C), then flag all positive results with a "J" and all non-detects "UJ".

ACTION: If both VOA vials for a sample have air bubbles or the VOA vial analyzed had air bubbles, flag all positive results "J" and all non-detects "R".

2.0 Holding Times

2.1 Have any VOA technical holding times, determined from date of collection to date of analysis, been exceeded? ✓

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YES NO N/A

If unpreserved, aqueous samples maintained at 4°C which are to be analyzed for aromatic hydrocarbons must be analyzed within 7 days of collection. If preserved with HCl (pH<2) and stored at 4°C, then aqueous samples must be analyzed within 14 days of collection. If uncertain about preservation, contact sampler to determine whether or not samples were preserved.

The holding time for soils is 10 days.

Table of Holding Time Violations

Sample ID	Sample Matrix	Preserved?	(See Traffic Report)		
			Date Sampled	Date Lab Received	Date Analyzed
_____	_____	_____	_____	_____	_____
_____	_____	None	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

ACTION: If technical holding times are exceeded, flag all positive results as estimated "J" and sample quantitation limits as estimated "UJ", and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results must be qualified "J", but the reviewer may determine that non-detect data are unusable "R". If holding times are exceeded by more than 28 days, all non detect data are unusable "R".

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YES NO N/A

3.0 System Monitoring Compound (SMC) Recovery (Form II)

3.1 Are the VOA SMC Recovery Summaries (Form II) present for each of the following matrices:

a. Low Water	<input checked="" type="checkbox"/>	___	___
b. Low Soil	<input checked="" type="checkbox"/>	___	___
c. Med Soil	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>

3.2 Are all the VOA samples listed on the appropriate System Monitoring Compound Recovery Summary for each of the following matrices:

a. Low Water	<input checked="" type="checkbox"/>	___	___
b. Low Soil	<input checked="" type="checkbox"/>	___	___
c. Med Soil	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>

ACTION: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect in data assessments.

3.3 Were outliers marked correctly with an asterisk?

<input checked="" type="checkbox"/>	___	___
-------------------------------------	-----	-----

ACTION: Circle all outliers in red.

3.4 Was one or more VOA system monitoring compound recovery outside of contract specifications for any sample or method blank?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	___
-------------------------------------	--------------------------	-----

If yes, were samples re-analyzed?

<input checked="" type="checkbox"/>	___	___
-------------------------------------	-----	-----

Were method blanks re-analyzed?

<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
--------------------------	-----	-------------------------------------

ACTION: If recoveries are >10% but 1 or more compounds fail to meet SOW specifications:

1. All positive results are qualified as estimated "J".

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YES NO N/A

2. Flag all non-detects as estimated detection limits "UJ" where recovery is less than the lower acceptance limit.

3. If SMC recoveries are above allowable levels, do not qualify non-detects.

If any system monitoring compound recovery is <10%:

1. Flag all positive results as estimated "J".

2. Flag all non-detects as unusable "R".

Professional judgement should be used to qualify data that only have method blank SMC recoveries out of specification in both original and re-analyses. Check the internal standard areas.

3.5 Are there any transcription/calculation errors between raw data and Form II?

ACTION: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors in the data assessment.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

a. Low Water

b. Low Soil

c. Med Soil

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

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YES NO N/A

4.3 How many VOA spike recoveries are outside QC limits?

Water

Soils

0 out of 10

0 out of 10

4.4 How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water

Soils

0 out of 5

0 out of 5

ACTION: No action is taken based upon MS/MSD data alone. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data.

ACTION: Circle all outliers in red.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present?

✓ — —

5.2 Frequency of Analysis: for the analysis of VOA TCL compounds, has a reagent/method blank been analyzed for each SDG or every 20 samples of similar matrix (low water, low soil, medium soil), whichever is more frequent?

✓ — —

5.3 Has a VOA method/instrument blank been analyzed at least once every twelve hours for each concentration level and GC/MS system used?

✓ — —

ACTION: If any method blank data are missing, call lab for explanation/resubmittal. If method blank data are not available, reject "R"

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YES NO N/A

all associated positive data. However, using professional judgement, the data reviewer may substitute field blank or trip blank data for missing method blank data.

- 5.4 Chromatography: review the blank raw data-chromatograms (RICs), quant reports or data system printouts and spectra.

Is the chromatographic performance (baseline stability) for each instrument acceptable for VOAs?

☒

ACTION: Use professional judgement to determine the effect on the data.

6.0 Contamination

NOTE: "Water blanks", "drill blanks", and distilled water blanks" are validated like any other sample, and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

- 6.1 Do any method/instrument/reagent blanks have positive results (TCL and/or TIC) for VOAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for % moisture when necessary.

☒

- 6.2 Do any field/trip/rinse blanks have positive VOA results (TCL and/or TIC)?

☒

☐

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)

NOTE: All field blank results associated to a particular group of samples (may exceed one per case) must be used to qualify data. Trip blanks are used to qualify only those samples with which they were shipped and are not required for non-aqueous matrices. Blanks may not be qualified because of

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YES NO N/A

contamination in another blank. Field Blanks & Trip Blanks must be qualified for system monitoring compound, instrument performance criteria, spectral or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If any blanks are grossly contaminated, all associated data should be qualified as unusable (R).

Sample conc. >CRQL but <10x blank value.	Sample conc. <CRQL & <10x blank value.	Sample conc. >CRQL & >10x blank value.
--	--	--

Methylene Chloride Acetone Toluene 2-Butanone	Flag sample result with a "U".	Report CRQL & qualify "U".	No qualification is needed.
--	--------------------------------	----------------------------	-----------------------------

Sample conc. >CRQL but <5x blank.	Sample conc. <CRQL & is <5x blank value.	Sample conc. >CRQL value & >5x blank value.
-----------------------------------	--	---

Other Contaminants	Flag sample result with a "U".	Report CRQL & qualify "U".	No qualification is needed.
--------------------	--------------------------------	----------------------------	-----------------------------

NOTE: Analytes qualified "U" for blank contamination are still considered as "hits" when qualifying for calibration criteria.

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).

6.3 Are there field/rinse/equipment blanks associated with every sample?

☒ ☐ ☐

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YES NO N/A

ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. For analytes with high concentration, use professional judgement on qualification of these values and make a note in the data assessment. Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 GC/MS Instrument Performance Check (Form V)

7.1 Are the GC/MS Instrument Performance Check Forms (Form V) present for Bromofluorobenzene (BFB)?

☒

7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the BFB provided for each twelve hour shift?

☒

7.3 Has an instrument performance compound been analyzed for every twelve hours of sample analysis per instrument?

☒

ACTION: List date, time, instrument ID, and sample analysis for which no associated GC/MS tuning data are available.

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS
------	------	------------	----------------

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

ACTION: If lab cannot provide missing data, reject "R" all data generated outside an acceptable twelve hour calibration interval.

7.4 Have the ion abundances been normalized to m/z 95?

☒

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YES NO N/A

8.2 Are the VOA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?

- | | | | | |
|----|---|-------------------------------------|-----|-----|
| a. | Samples and/or fractions as appropriate | <input checked="" type="checkbox"/> | ___ | ___ |
| b. | Matrix spikes and matrix spike duplicates (Mass spectra not required) | <input checked="" type="checkbox"/> | ___ | ___ |
| c. | Blanks | <input checked="" type="checkbox"/> | ___ | ___ |

ACTION: If any data are missing, take action specified in 3.2 above.

8.3 Are the response factors shown in the Quant Report?

☒ ___ ___

8.4 Is chromatographic performance acceptable with respect to:

- | | | | |
|---------------------------------|-------------------------------------|-----|-------------------------------------|
| Baseline stability? | <input checked="" type="checkbox"/> | ___ | ___ |
| Resolution? | <input checked="" type="checkbox"/> | ___ | ___ |
| Peak shape? | <input checked="" type="checkbox"/> | ___ | ___ |
| Full-scale graph (attenuation)? | <input checked="" type="checkbox"/> | ___ | ___ |
| Other: _____ | <input type="checkbox"/> | ___ | <input checked="" type="checkbox"/> |

ACTION: Use professional judgement to determine the acceptability of the data.

8.5 Are the lab-generated standard mass spectra of the identified VOA compounds present for each sample?

☒ ___ ___

ACTION: If any mass spectra are missing, take action specified in 3.2 above. If lab does not generate their own standard spectra, make a note in "Contract Problems/Non-compliance" section of the data assessment and the Organic Regional Data Assessment Summary.

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YES NO N/A

8.6 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?

☒ ☐ ☐

8.7 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?

☒ ☐ ☐

8.8 Do sample and standard relative ion intensities agree within 20%?

☒ ☐ ☐

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected "R", flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected "U" at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.6, 8.7, and 8.8.

ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.

9.0 Tentatively Identified Compounds (TIC)

9.1 Are all Tentatively Identified Compound Forms (Form I Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?

☒ ☐ ☐

9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:

a. Samples and/or fractions as appropriate

☒ ☐ ☐

b. Blanks

☒ ☐ ☐

*N added to all TICs
JG
5/16/95

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YES NO N/A

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "N" qualifier to all chemically named TIC's, if missing.

9.3 Are any TCL compounds (from any fraction) listed as TIC compounds (example: 1,2-dimethylbenzene is xylene, a VOA TCL analyte, and should not be reported as a TIC)? ✓ 1 1

ACTION: Flag with "R" any TCL compound listed as a TIC.

9.4 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum? ✓ 1 1

9.5 Do TIC and "best match" standard relative ion intensities agree within 20%? ✓ 1 1

ACTION: Use professional judgement to determine acceptability of TIC identifications. If it is determined that an incorrect identification was made, change identification to "unknown" or to some less specific identification (example: "C3 substituted benzene") as appropriate. Also, when a compound is not found in any blank, but is detected in a sample and is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable "R". (i.e. Common Lab Contaminants: CO₂ (M/E 44), Siloxanes (M/E 73) Hexane, Aldol Condensation Products, Solvent Preservatives, and related by products - see Functional Guidelines for more guidance).

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Date: December 1994
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YES NO N/A

10.0 Compound Quantitation and Reported Detection Limits

10.1 Are there any transcription/calculation errors in Form I results? Check at least two positive values. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result. Were any errors found? IV

10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture? IV

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Contract Problems/Non-compliance" section of the data assessment and the Organic Regional Data Assessment Summary.

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" and its associated value on the original Form I and substituting the data from the analysis of the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.

11.0 Standards Data (GC/MS)

11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant. Reports) present for initial and continuing calibration? IV

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

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YES NO N/A

12.0 GC/MS Initial Calibration (Form VI)

- 12.1 Are the Initial Calibration Forms (Form VI) present and complete for the volatile fraction at concentrations of 10, 20, 50, 100, 200 ug/l? Are there separate calibrations for low water/med soils and low soil samples? ☒ ☐ ☐

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

- 12.2 Were all low level soil standards, blanks and samples analyzed by heated purge? ☒ ☐ ☐

ACTION: If low level soil samples were not heated during purge, qualify positive hits "J" and non-detects "R".

- 12.3 Are response factors stable for VOA's over the concentration range of the calibration (%Relative Standard Deviation (%RSD) <30.0%)? ☐ ☒ ☐

ACTION: Circle all outliers in red.

NOTE: Although 11 VOA compounds have a minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.

ACTION: If %RSD >30.0%, qualify associated positive results for that analyte "J" and non-detects using professional judgement. When RSD >90%, flag all non-detects for that analyte "R" (unusable).

NOTE: Analytes previously qualified "U" for blank contamination are still considered as "hits" when qualifying for initial calibration criteria.

- 12.4 Is the average RRF above 0.05? ☒ ☐ ☐

Action: Circle all outliers in red.

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YES NO N/A

Action: If the average RRF is <0.05 , then qualify associated non-detects with an "R" and flag associated positive data as estimated "J".

12.5 Are there any transcription/calculation errors in the reporting of average relative response factors (RRF) or %RSD? (Check at least 2 values, but if errors are found, check more.)

☒ ☐ ☐

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the volatile fraction?

☒ ☐ ☐

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument?

☒ ☐ ☐

ACTION: List below all sample analyses that were not within twelve hours of the previous continuing calibration analysis.

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation or resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable "R".

13.3 Do any volatile compounds have a % Difference (%D) between the initial and continuing RRF which exceeds the $\pm 25\%$ criteria?

☒ ☐ ☐

ACTION: Circle all outliers in red.

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YES NO N/A

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated. When %D is >90%, reject all non-detects for that analyte (R) unusable.

13.4 Do any volatile compounds have a RRF <0.05? 11 ✓

ACTION: Circle all outliers in red.

ACTION: If the RRF <0.05, qualify the associated non-detects as unusable "R" and the associated positive values "J".

13.5 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or %difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more.) ✓

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Contract Problems/Non-compliance" section of the data assessment and the Organic Regional Data Assessment Summary.

14.0 Internal Standard (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to + 100%) for each continuing calibration? 11 ✓

ACTION: Circle all outliers in red.

ACTION: List all the outliers below.

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				YES	NO	N/A
Sample #	Internal Std	Area	Lower Limit/Upper Limit			
CC-5505-01	1,4-Difluorobenzene	see data package	All Below lower limit			
CC-SD01-01RE	Chlorobenzene-d5		<div>↓</div>			
CC-5503-01	"					
CC-5503-01RE	"					
CC-5504-01	"					
CC-5504-01RE	"					
CC-5505-01	"					
CC-5506-01	"					
CC-5507-01	"					
CC-5507-01RE	"					
CC-5511-01RE	"					
CC-55-01	(Attach additional sheets if necessary.)					
	All 3					

- ACTION:
1. If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results quantitated with this internal standard.
 2. Non-detects associated with IS area counts >100% should not be qualified.
 3. If the IS area is below the lower limit (<50%), qualify all associated non-detects "J". If extremely low area counts are reported, (<25%) or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable "R".

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard?

☒ — —

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

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Date: December 1994
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YES NO N/A

15.0 Field Duplicates

15.1 Were any field duplicates submitted for
VOA analysis?

11 ✓

ACTION: Compare the reported results for field
duplicates and calculate the relative
percent difference.

ACTION: Any gross variation between duplicate
results must be addressed in the reviewer
narrative. However, if large differences
exist, identification of field duplicates
should be confirmed by contacting the
sampler.

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US EPA Region II
Method: CLP/SOW OLMO 1.9

Date: December 1994
Revision: 9

YES NO N/A

PART B: BNA ANALYSES

1.0 Traffic Reports and Laboratory Narrative

- 1.1 Are the Traffic Report Forms present for all samples? IV

ACTION: If no, contact lab for replacement of missing or illegible copies.

- 1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data? ✓

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be flagged as estimated "J". If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable "R".

cc-5902-01
cc-5903-01
had 7% water > 50%
JG
5/16/95

ACTION: If samples were not iced or if the ice was melted upon arrival at the laboratory and the temperature of the collar was elevated (>10°C), flag all positive results "J" and all non-detects "UJ".

2.0 Holding Times

- 2.1 Have any BNA technical holding times, determined from date of collection to date of extraction, been exceeded? IV

Continuous extraction of water samples for BNA analysis must be started within seven days of the date of collection. Soil/sediment samples must be extracted within 7 days of collection. Extracts must be analyzed within 40 days of the date of extraction.

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YES NO N/A

Table of Holding Time Violations

Sample Analyzed	Sample Matrix	(See Traffic Report)		Lab Date Received	Date Extracted
		Date Sampled	Date		
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

ACTION: If technical holding times are exceeded, flag all positive results as estimated "J" and sample quantitation limits as estimated "UJ", and document in the narrative that holding times were exceeded.
If analyses were done more than 14 days beyond holding time, either on the first analysis or upon reanalysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results should be qualified "J", but the reviewer may determine that non-detect data are unusable "R". If holding times are exceeded by more than 28 days, all non detect data are unusable "R".

3.0 Surrogate Recovery (Form II)

3.1 Are the BNA Surrogate Recovery Summaries (Form II) present for each of the following matrices:

a. Low Water	<input checked="" type="checkbox"/>	—	—
b. Low Soil	<input checked="" type="checkbox"/>	—	—
c. Med Soil	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>

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YES NO N/A

3.2 Are all the BNA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

a. Low Water	<input checked="" type="checkbox"/>	—	—
b. Low Soil	<input checked="" type="checkbox"/>	—	—
c. ^{MED} Low Soil	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>

ACTION: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect in data assessments.

3.3 Were outliers marked correctly with an asterisk?

<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
--------------------------	---	-------------------------------------

ACTION: Circle all outliers in red.

* No outliers
SG 5/16/95

3.4 Were two or more base-neutral OR acid surrogate recoveries out of specification for any sample or method blank?

—	<input checked="" type="checkbox"/>	—
---	-------------------------------------	---

If yes, were samples reanalyzed?

<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
--------------------------	---	-------------------------------------

Were method blanks reanalyzed?

<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
--------------------------	---	-------------------------------------

ACTION: If all BNA surrogate recoveries are >10% but two within the base-neutral or acid fraction do not meet SOW specifications, for the affected fraction only (i.e. base-neutral or acid compounds):

1. Flag all positive results as estimated ("J").
2. Flag all non-detects as estimated detection limits ("UJ") when recoveries are less than the lower acceptance limit.
3. If recoveries are greater than the upper acceptance limit, do not qualify non-detects.

If any base-neutral or acid surrogate has a recovery of <10%:

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YES NO N/A

1. Positive results for the fraction with <10% surrogate recovery are qualified with "J".
2. Non-detects for that fraction should be qualified as unusable "R".

Professional judgement should be used to qualify data that have method blank surrogate recoveries out of specification in both original and reanalyses. Check the internal standard areas.

- 3.5 Are there any transcription/calculation errors between raw data and Form II?

ACTION: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.

4.0 Matrix Spikes (Form III)

- 4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?

- 4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

a. Low Water

b. Low Soil

c. Med Soil

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

- 4.3 How many BNA spike recoveries are outside QC limits?

Water

Soils

 4 out of 22

 1 out of 22

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YES NO N/A

- 4.4 How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water

0 out of 11

Soils

1 out of 11

ACTION: No action is taken based upon MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

ACTION: Circle all outliers in red.

5.0 Blanks (Form IV)

- 5.1 Is the Method Blank Summary (Form IV) present? ☒ 1 1
- 5.2 Frequency of Analysis: Has a reagent/method blank analysis been reported per 20 samples of similar matrix, or concentration level, and for each extraction batch? ☒ 1 1
- 5.3 Has a BNA method blank been analyzed for each GC/MS system used? ☒ 1 1
(See SOW pg. D-59/SV, Section 8.7)

ACTION: If any method blank data are missing, call lab for explanation/resubmittal. If not available, use professional judgement to determine if the associated sample data should be qualified.

- 5.4 Chromatography: review the blank raw data - chromatograms (RICs), quant reports or data system printouts and spectra.

Is the chromatographic performance (baseline stability) for each instrument acceptable for BNAs? ☒ 1 1

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YES NO N/A

ACTION: Use professional judgement to determine the effect on the data.

6.0 Contamination

Note: "Water blanks", "drill blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify the data. Do not confuse them with the other QC blanks discussed below.

6.1 Do any method/instrument/reagent blanks have positive results (TCL and/or TIC) for BNAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for % moisture where necessary.

✓ 11 —

6.2 Do any field/rinse/blanks have positive BNA results (TCL and/or TIC)?

✓ 11 —

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)

Note: All field blank results associated to a particular group of samples (may exceed one per case) must be used to qualify data. Blanks may not be qualified because of contamination in another blank. Field Blanks must be qualified for surrogate, spectral, instrument performance or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If gross contamination exists, all data in the associated samples should be qualified as unusable "R".

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	YES	NO	N/A
Sample conc. >CRQL but <10x blank.			
Sample conc. <CRQL & is <10x blank value.			
Sample conc. >CRQL value & >10x blank.			
Common Phthalate Esters			
Flag sample result with a "U".	Report CRQL & qualify "U".	No qualification is needed.	
Sample conc. >CRQL but <5x blank.	Sample conc. <CRQL & is <5x blank value.	Sample conc. >CRQL value & >5x blank value	
Other Contaminants			
Flag sample result with a "U".	Report CRQL & qualify "U".	No qualification is needed.	

NOTE: Analytes qualified "U" for blank contamination are still considered as "hits" when qualifying for calibration criteria.

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).

6.3 Are there field/rinse/equipment blanks associated with every sample?

☒

ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. For analytes with high concentration, use professional judgement on qualification of these values and make a note in the data assessment. Exception: samples taken from a drinking water tap do not have associated field blanks.

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YES NO N/A

7.0 GC/MS Instrument Performance Check

7.1 Are the GC/MS Instrument Performance Check Forms (Form V) present for Decafluorotriphenylphosphine (DFTPP)? ☒ ☐ ☐

7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the DFTPP provided for each twelve hour shift? ☒ ☐ ☐

7.3 Has an instrument performance check solution been analyzed for every twelve hours of sample analysis per instrument? ☒ ☐ ☐

ACTION: List date, time, instrument ID, and sample number for which no associated GC/MS tuning data are available.

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

ACTION: If lab cannot provide missing data, reject "R" all data generated outside an acceptable twelve hour calibration interval.

ACTION: If mass assignment is in error, flag all associated sample data as unusable "R".

7.4 Have the ion abundances been normalized to m/z 198? ☒ ☐ ☐

7.5 Have the ion abundance criteria been met for each instrument used? ☒ ☐ ☐

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

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US EPA Region II
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Date: December 1994
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YES NO N/A

ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.

7.6 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more.) ☒ ☐ ☐

7.7 Have the appropriate number of significant figures (two) been reported? ☒ ☐ ☐

ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and document effect in data assessments.

7.8 Are the spectra of the mass calibration compound acceptable? ☒ ☐ ☐

ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.

8.0 Target Compound List (TCL) Analytes

8.1 Are the Organic Analysis Data Sheets (Form I BNA) present with required header information on each page, for each of the following:

- a. Samples and/or fractions as appropriate ☒ ☐ ☐
- b. Matrix spikes and matrix spike duplicates ☒ ☐ ☐
- c. Blanks ☒ ☐ ☐

8.2 Has GPC cleanup been performed on all soil/sediment sample extracts? ☒ ☐ ☐

ACTION: If data suggests that GPC was not performed, use professional judgement. Make note in "Contract Problems/ Non-compliance" section of the data assessment and the Organic Regional Data Assessment Summary.

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YES NO N/A

8.3 Are the BNA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?

- | | | | | |
|----|---|-------------------------------------|-----|-----|
| a. | Samples and/or fractions as appropriate | <input checked="" type="checkbox"/> | ___ | ___ |
| b. | Matrix spikes and matrix spike duplicates (Mass spectra not required) | <input checked="" type="checkbox"/> | ___ | ___ |
| c. | Blanks | <input checked="" type="checkbox"/> | ___ | ___ |

ACTION: If any data are missing, take action specified in 3.2 above.

8.4 Are the response factors shown in the Quant Report?

☒ ___ ___

8.5 Is chromatographic performance acceptable with respect to:

- | | | | |
|---------------------------------|-------------------------------------|-----|-------------------------------------|
| Baseline stability? | <input checked="" type="checkbox"/> | ___ | ___ |
| Resolution? | <input checked="" type="checkbox"/> | ___ | ___ |
| Peak shape? | <input checked="" type="checkbox"/> | ___ | ___ |
| Full-scale graph (attenuation)? | <input checked="" type="checkbox"/> | ___ | ___ |
| Other: _____ | <input type="checkbox"/> | ___ | <input checked="" type="checkbox"/> |

ACTION: Use professional judgement to determine the acceptability of the data.

8.6 Are the lab-generated standard mass spectra of identified BNA compounds present for each sample?

☒ ___ ___

ACTION: If any mass spectra are missing, take action specified in 3.2 above. If lab does not generate their own standard spectra, make note in "Contract Problems/Non-compliance". If spectra are missing, reject all positive data.

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YES NO N/A

8.7 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration? ☒ ☐ ☐

8.8 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum? ☐ ☒ ☐

8.9 Do sample and standard relative ion intensities agree within 20%? ☐ ☒ ☐

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected (R), flagged "N" (Presumptive evidence of the presence of the compound) or changed to not detected "U" at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.7, 8.8, and 8.9.

* False negative for anthracene in CC-5505-01. This was corrected by reviewer
JG 5/16/95

ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.

9.0 Tentatively Identified Compounds (TIC)

9.1 Are all Tentatively Identified Compound Forms (Form I, Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier? ☒ ☐ ☐

* N qualifier add to all TICs
JG 5/16/95

9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:

a. Samples and/or fractions as appropriate ☒ ☐ ☐

b. Blanks ☒ ☐ ☐

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YES NO N/A

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "N" qualifier to all chemically named TIC's, if missing.

9.3 Are any TCL compounds (from any fraction) listed as TIC compounds (example: 1,2-dimethylbenzene is xylene a VOA TCL - and should not be reported as a TIC)? ✓

ACTION: Flag with "R" any TCL compound listed as a TIC.

9.4 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum? ✓

9.5 Do TIC and "best match" standard relative ion intensities agree within 20%? ✓

ACTION: Use professional judgement to determine acceptability of TIC identifications. If it is determined that an incorrect identification was made, change identification to "unknown" or to some less specific identification (example: "C3 substituted benzene") as appropriate. Also, when a compound is not found in any blank, but is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable "R".

10.0 Compound Quantitation and Reported Detection Limits

10.1 Are there any transcription/calculation errors in Form I results? Check at least two positive values. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result. Were any errors found? ✓

10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture? ✓

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YES NO N/A

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" and it's associated value on the original Form I and substituting the data from the analysis of the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.

11.0 Standards Data (GC/MS)

11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant. Reports) present for initial and continuing calibration? ☒ ☐ ☐

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

12.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete for the BNA fraction? ☒ ☐ ☐

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Are response factors stable for BNAs over the concentration range of the calibration, % Relative Standard Deviation (%RSD) <30.0%? ☐ ☒ ☐

ACTION: Circle all outliers in red.

25.24
54 of 278

STANDARD OPERATING PROCEDURE

US EPA Region II
Method: CLP/SOW OLMO 1.9

Date: December 1994
Revision: 9

YES NO N/A

NOTE: Although 20 BNA compounds have a minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.

NOTE: Eight semivolatile compounds do not require a 20ng standard. Check the SOW for a list of these compounds.

ACTION: If the %RSD is >30.0%, qualify positive results for that analyte "J" and non-detects using professional judgement. When %RSD is >90%, flag all non-detect results for that analyte "R" (unusable).

NOTE: Analytes previously qualified "U" due to blank contamination are still considered as "hits" when qualifying for calibration criteria.

12.3 Are all BNA compound average RRFs >0.05? ☒ ☐ ☐

ACTION: Circle all outliers in red.

ACTION: If the average RRF is <0.05 then:

1. "R" all non-detects.
2. "J" all positive results.

12.4 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or %RSD? (Check at least two values but if errors are found, check more.) ☐ ☒ ☐

ACTION: Circle Errors in red.

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors in data assessments.

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction? ☒ ☐ ☐

Ref. 24
55.6772

STANDARD OPERATING PROCEDURE

US EPA Region II
Method: CLP/SOW OLMO 1.9

Date: December 1994
Revision: 9

YES NO N/A

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument?

☒

ACTION: List below all sample analyses that were not within twelve hours of a continuing calibration analysis for each instrument used.

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation/resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable "R".

13.3 Do any semivolatile compounds have a % Difference (%D) between the initial and continuing RRF which exceeds the +25.0% criteria?

☒

11

ACTION: Circle all outliers in red.

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated (J). When %D is >90%, reject all non-detects for that analyte "R".

13.4 Do any semivolatile compounds have a RRF <0.05?

☒

ACTION: Circle all outliers in red.

ACTION: If the RRF is <0.05, qualify as unusable "R" associated non-detects and "J" associated positive values.

Ref. 24
56. f278

STANDARD OPERATING PROCEDURE

US EPA Region II
Method: CLP/SOW OLMO 1.9

Date: December 1994
Revision: 9

YES NO N/A

- 13.5 Are there any transcription/calculation errors in the reporting of Average Relative Response factors (RRF) or % Difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more). IV

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.

14.0 Internal Standards (Form VIII)

- 14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to +100%) for each continuing calibration? II ✓

ACTION: Circle all outliers in red.

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
CC-5504-01	Peptase-d12	See data package	All low	
CC-5504-01 RE	Peptase-d12		" "	

(Attach additional sheets if necessary.)

ACTION: 1. If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results and non-detects quantitated with this internal standard.

2. Non-detects associated with IS area >100% should not be qualified.

Ref. 24
57 of 278

STANDARD OPERATING PROCEDURE

US EPA Region II
Method: CLP/SOW OLMO 1.9

Date: December 1994
Revision: 9

YES NO N/A

3. If the IS area is below the lower limit(<50%), qualify all associated non-detects "J". If extremely low area counts are reported (<25%) or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable "R".

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard? IV — —

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

15.0 Field Duplicates

15.1 Were any field duplicates submitted for BNA analysis? II ✓ —

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

ORGANICS:

TABLE OF HOLDING TIMES AND EXCEEDANCES

SITE: Captain's CoveCASE: NALAB: IEANS

	SAMPLE	MATRIX	FRACTION	DATE SAMPLED	DATE LAB RECEIVED	DATE EXTRACTED	DATE ANALYZED	HOLDING TIME	CRITERIA	CCC?	MB?
1	CC-FB-02-DI	AQ	VOA	4/19/95	4/20/95	NA	4/27/95	8	OK		
2	CC-FB-03-DI	AQ	VOA	4/19/95	4/20/95	NA	4/27/95	8	OK		
3	Trip Blank	AQ	VOA	4/19/95	4/20/95	NA	4/27/95	8	OK		
4 X	CC-SS11-01	SO	VOA	4/19/95	4/20/95	NA	4/27/95	8	OK		
5	CC-SS11-01RE	SO	VOA	4/19/95	4/20/95	NA	4/27/95	8	OK		
6	CC-FB-02-01	AQ	BNA	4/19/95	4/20/95	4/24/95	4/27/95	5 3	OK		
7	CC-FB-03-01	AQ	BNA	4/19/95	4/20/95	4/24/95	4/27/95	5 3	OK		
8	CC-SS11-01	SO	BNA	4/19/95	4/20/95	4/25/95	4/28/95	6 3	OK		
9	CC-GW01-01	AQ	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
10	CC-GW02-01	AQ	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
11	CC-GW03-01	AQ	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
12 X	CC-GW03-01DL	AQ	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
13	CC-GW04-01	AQ	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
14 X	CC-GW04-01DL	AQ	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
15	Trip Blank 4/18/95	AQ	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
16 X	CC-SD01-01	SO	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
17	CC-SD01-01RE	SO	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
18	CC-SD02-01	SO	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
19	CC-SS01-01	SO	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
20	CC-SS02-01	SO	VOA	4/18/95	4/19/95	NA	4/24/95	6	OK		
21	CC-SS03-01	SO	VOA	4/18/95	4/19/95	NA	4/24/95	6	OK		
22 X	CC-SS03-01RE	SO	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
23	CC-SS04-01	SO	VOA	4/18/95	4/19/95	NA	4/24/95	6	OK		
24 X	CC-SS04-01RE	SO	VOA	4/18/95	4/19/95	NA	4/24/95	6	OK		
25	CC-SS05-01	SO	VOA	4/18/95	4/19/95	NA	4/24/95	6	OK		
26	CC-SS06-01	SO	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
27 X	CC-SS06-01RE	SO	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
28 X	CC-SS07-01	SO	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
29	CC-SS07-01RE	SO	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
30	CC-SS08-01	SO	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
31	CC-SS09-01	SO	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		
32	CC-SS10-01	SO	VOA	4/18/95	4/19/95	NA	4/27/95	9	OK		

5806278

ORGANICS:

TABLE OF HOLDING TIMES AND EXCEEDANCES

SITE: Captain's Cove

CASE: NA

LAB: IEANS

	SAMPLE	MATRIX	FRACTION	DATE SAMPLED	DATE LAB RECEIVED	DATE EXTRACTED	DATE ANALYZED	HOLDING TIME	CRITERIA	CCC?	MB?
1	CC-GW01-01	AQ	BNA	4/18/95	4/19/95	4/24/95	4/26/95	6 2	OK		
2	CC-GW02-01	AQ	BNA	4/18/95	4/19/95	4/24/95	4/26/95	6 2	OK		
3	CC-GW03-01	AQ	BNA	4/18/95	4/19/95	4/24/95	4/26/95	6 2	OK		
4	CC-GW04-01	AQ	BNA	4/18/95	4/19/95	4/24/95	4/26/95	6 2	OK		
5	CC-SD01-01	SO	BNA	4/18/95	4/19/95	4/24/95	4/26/95	6 2	OK		
6	CC-SD02-01	SO	BNA	4/18/95	4/19/95	4/25/95	5/01/95	7 6	OK		
7	CC-SD03-01	SO	BNA	4/18/95	4/19/95	4/25/95	5/01/95	7 6	OK		
8	CC-SS01-01	SO	BNA	4/18/95	4/19/95	4/25/95	4/29/95	7 4	OK		
9	CC-SS02-01	SO	BNA	4/18/95	4/19/95	4/25/95	4/29/95	7 4	OK		
10	CC-SS03-01	SO	BNA	4/18/95	4/19/95	4/25/95	4/29/95	7 4	OK		
11	CC-SS04-01	SO	BNA	4/18/95	4/19/95	4/25/95	4/29/95	7 4	OK		
12 X	CC-SS04-01RE	SO	BNA	4/18/95	4/19/95	4/25/95	4/29/95	7 4	OK		
13	CC-SS05-01	SO	BNA	4/18/95	4/19/95	4/25/95	5/01/95	7 6	OK		
14	CC-SS06-01	SO	BNA	4/18/95	4/19/95	4/25/95	5/01/95	7 6	OK		
15	CC-SS07-01	SO	BNA	4/18/95	4/19/95	4/25/95	4/29/95	7 4	OK		
16	CC-SS08-01	SO	BNA	4/18/95	4/19/95	4/25/95	5/01/95	7 6	OK		
17	CC-SS09-01	SO	BNA	4/18/95	4/19/95	4/25/95	4/29/95	7 4	OK		
18	CC-SS10-01	SO	BNA	4/18/95	4/19/95	4/25/95	4/29/95	7 4	OK		
19											
20											
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29											
30											
31											

AS. 24 59.6.273

1A
VOLATILE ORGANICS ANALYSIS DATA

EPA SAMPLE NO.

CC-GW01-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water) Water

Lab Sample ID: 51686014

Sample wt/vol: 5 (g/mL) ml

Lab File ID: >E2482

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. _____

Date Analyzed: 04/27/95

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

56
5/17/95

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-88-3	Toluene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	3	J
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	10	U

000033 ^{Ref 24}EPA SAMPLE NO. ⁶¹⁰⁵²1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CC-GW01-01

Lab Name: IEA-NJContract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water) WaterLab Sample ID: 51686014Sample wt/vol: 5 (g/mL) mlLab File ID: >E2482Level: (low/med) LOWDate Received: 04/19/95

% Moisture: not dec. _____

Date Analyzed: 04/27/95GC Column: DB-624 ID: 0.53 (mm)Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 0CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
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000037

1A
VOLATILE ORGANICS ANALYSIS DATA

EPA SAMPLE NO. 62627

CC-GW02-01

Lab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: SAS No.: SDG No.: Matrix: (soil/water) WaterLab Sample ID: 51686015Sample wt/vol: 5 (g/mL) mlLab File ID: >E2476Level: (low/med) LOWDate Received: 04/19/95% Moisture: not dec. Date Analyzed: 04/27/95GC Column: DB-624 ID: 0.53 (mm)Dilution Factor: 1.0Soil Extract Volume: (uL)Soil Aliquot Volume: (uL)56
5/12/95

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	10 8	8 U
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-88-3	Toluene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	10	U

000038

EPA SAMPLE NO. 630 F27

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CC-GW02-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Water

Lab Sample ID: 51686015

Sample wt/vol: 5 (g/mL) ml

Lab File ID: >E2476

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec.

Date Analyzed: 04/27/95

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
05.				
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1A
VOLATILE ORGANICS ANALYSIS DATA

000042
EPA SAMPLE NO. 64,6278

CC-GW03-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Water

Lab Sample ID: 51686016

Sample wt/vol: 5 (g/mL) ml

Lab File ID: E2477

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec.

Date Analyzed: 04/27/95

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

56
5/12/95

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	190	
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	22	U
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	9	J
540-59-0	1,2-Dichloroethene (total)	440590	ED
67-66-3	Chloroform	10001100	ED
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	J
75-27-4	Bromodichloromethane	7	J
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	140	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	16	U
10061-02-6	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	160220	ED
108-88-3	Toluene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	590560	ED
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	5	J

000043

2524

EPA SAMPLE NO.

6506278

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CC-GW03-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Water

Lab Sample ID: 51686016

Sample wt/vol: 5 (g/mL) ml

Lab File ID: >E2477

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec.

Date Analyzed: 04/27/95

C Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

3/10/95

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.106467	1,4-Dichlorobenzene	25.02	91	JN
02.	chloromethyl benzene isomer	23.37	39	JN
03.541731	1,3-Dichlorobenzene	24.85	29	JN
04.				
05.				
06.				
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30.				

000063

1A
VOLATILE ORGANICS ANALYSIS DATAEPA SAMPLE NO. *DF 24*
66. f273

CC-GW03-01DL

Lab Name: IEA-NJContract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water) WaterLab Sample ID: 51686016DLSample wt/vol: 5 (g/mL) mlLab File ID: >E2483Level: (low/med) LOWDate Received: 04/19/95

% Moisture: not dec. _____

Date Analyzed: 04/27/95GC Column: DB-624 ID: 0.53 (mm)Dilution Factor: 10.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Do Not Use
*16/12/95**SG 5/12/95*

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

74-87-3	Chloromethane	100	U
74-83-9	Bromomethane	100	U
75-01-4	Vinyl Chloride	110	D
75-00-3	Chloroethane	100	UJ
75-09-2	Methylene Chloride	100	U
67-64-1	Acetone	100	UJ
75-15-0	Carbon Disulfide	100	U
75-35-4	1,1-Dichloroethene	100	U
75-34-3	1,1-Dichloroethane	100	U
540-59-0	1,2-Dichloroethene (total)	440	D
67-66-3	Chloroform	1000	D
107-06-2	1,2-Dichloroethane	100	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
75-27-4	Bromodichloromethane	100	U
78-87-5	1,2-Dichloropropane	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
79-01-6	Trichloroethene	120	D
124-48-1	Dibromochloromethane	100	U
79-00-5	1,1,2-Trichloroethane	100	U
71-43-2	Benzene	100	U
10061-02-6	Trans-1,3-Dichloropropene	100	U
75-25-2	Bromoform	100	U
108-10-1	4-Methyl-2-Pentanone	100	U
591-78-6	2-Hexanone	100	U
127-18-4	Tetrachloroethene	160	D
108-88-3	Toluene	100	U
79-34-5	1,1,2,2-Tetrachloroethane	100	U
108-90-7	Chlorobenzene	590	D
100-41-4	Ethylbenzene	100	U
100-42-5	Styrene	100	U
1330-20-7	Total Xylenes	100	U

000064

Rel. 24

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. 670f2

CC-GW03-01DL

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water) WaterLab Sample ID: 51686016 DLSample wt/vol: 5 (g/mL) mlLab File ID: >E2483Level: (low/med) LOWDate Received: 04/19/95

% Moisture: not dec. _____

Date Analyzed: 04/27/95GC Column: DB-624 ID: 0.53 (mm)Dilution Factor: 10.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 0CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
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000073

1A
VOLATILE ORGANICS ANALYSIS DATAEPA SAMPLE NO. 63.62

CC-GW04-01

Lab Name: IEA-NJContract: 68D20022Lab Code: IEANJ Case No.: SAS No.: SDG No.: Matrix: (soil/water) WaterLab Sample ID: 51686017Sample wt/vol: 5 (g/mL) mlLab File ID: >E2484Level: (low/med) LOWDate Received: 04/19/95% Moisture: not dec. Date Analyzed: 04/27/95GC Column: DB-624 ID: 0.53 (mm)Dilution Factor: 1.0Soil Extract Volume: (uL)Soil Aliquot Volume: (uL)56
5/12/95

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	130	
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	15	U
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	6	J
540-59-0	1,2-Dichloroethene (total)	440490	ED
67-66-3	Chloroform	920900	ED
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	6	J
75-27-4	Bromodichloromethane	5	J
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	120	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	15	U
10061-02-6	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	160	
108-88-3	Toluene	1	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	560530	ED
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	5	J

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID 25.24
690 f278

CC-GW04-01

Lab Name: IEA-NJ

Job No. : 51686XX

Matrix: (soil/water) Water

Lab Sample ID: 51686017

Sample wt/vol: 5 (g/mL) ml

Lab File ID: >E2484

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. _____

Date Analyzed: 04/27/95

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.106467	Benzene, 1,4-dichloro-	25.13	96	JN
02.541731	1,3-Dichlorobenzene	24.93	31	JN
03.95501	Benzene, 1,2-dichloro-	25.73	5	JN
04.				
05.				
06.				
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

900106
EPA SAMPLE NO.

TRIPBLANK

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Water

Lab Sample ID: 51686018

Sample wt/vol: 5 (g/mL) ml

Lab File ID: >E2471

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec.

Date Analyzed: 04/27/95

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
05.				
06.				
07.				
08.				
09.				
10.				
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1A
VOLATILE ORGANICS ANALYSIS DATA

EPA SAMPLE NO.

000115 7/0/27

CC-SD01-01RE

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686011RE

Sample wt/vol: 5 (g/mL) g

Lab File ID: A0060

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 42

Date Analyzed: 04/27/95

GC Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

5/11/95

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg

Q

74-87-3	Chloromethane	17	U
74-83-9	Bromomethane	17	U
75-01-4	Vinyl Chloride	17	U
75-00-3	Chloroethane	17	U
75-09-2	Methylene Chloride	.7	J
67-64-1	Acetone	24	
75-15-0	Carbon Disulfide	17	U
75-35-4	1,1-Dichloroethene	17	U
75-34-3	1,1-Dichloroethane	17	U
540-59-0	1,2-Dichloroethene (total)	17	U
67-66-3	Chloroform	17	U
107-06-2	1,2-Dichloroethane	17	U
78-93-3	2-Butanone	17	U
71-55-6	1,1,1-Trichloroethane	17	U
56-23-5	Carbon Tetrachloride	17	U
75-27-4	Bromodichloromethane	17	U
78-87-5	1,2-Dichloropropane	17	U
10061-01-5	cis-1,3-Dichloropropene	17	U
79-01-6	Trichloroethene	17	U
124-48-1	Dibromochloromethane	17	U
79-00-5	1,1,2-Trichloroethane	17	U
71-43-2	Benzene	17	U
10061-02-6	Trans-1,3-Dichloropropene	17	U
75-25-2	Bromoform	17	U
108-10-1	4-Methyl-2-Pentanone	17	U J
591-78-6	2-Hexanone	17	U
127-18-4	Tetrachloroethene	17	U
108-88-3	Toluene	17	U
79-34-5	1,1,2,2-Tetrachloroethane	17	U
108-90-7	Chlorobenzene	17	U
100-41-4	Ethylbenzene	17	U
100-42-5	Styrene	17	U V
1330-20-7	Total Xylenes	17	U J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. Ref. 24
72/27

CC-SD01-01RE

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil

Lab Sample ID: 51686011RE

Sample wt/vol: 5 (g/mL) g _____

Lab File ID: A0060

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 42

Date Analyzed: 04/27/95

GC Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
05.				
06.				
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1A
VOLATILE ORGANICS ANALYSIS DATA

EPA SAMPLE NO.

00120

23.F.278

CC-SD02-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686012

Sample wt/vol: 5 (g/mL) g

Lab File ID: A0057

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 64

Date Analyzed: 04/27/95

GC Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

56/11/7

CAS NO. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

74-87-3	Chloromethane	28	U J
74-83-9	Bromomethane	28	U
75-01-4	Vinyl Chloride	28	U
75-00-3	Chloroethane	28	U
75-09-2	Methylene Chloride	28	U
67-64-1	Acetone	28	U
75-15-0	Carbon Disulfide	28	U
75-35-4	1,1-Dichloroethene	28	U
75-34-3	1,1-Dichloroethane	28	U
540-59-0	1,2-Dichloroethene (total)	28	U
67-66-3	Chloroform	28	U
107-06-2	1,2-Dichloroethane	28	U
78-93-3	2-Butanone	28	U
71-55-6	1,1,1-Trichloroethane	28	U
56-23-5	Carbon Tetrachloride	28	U
75-27-4	Bromodichloromethane	28	U
78-87-5	1,2-Dichloropropane	28	U
10061-01-5	cis-1,3-Dichloropropene	28	U
79-01-6	Trichloroethene	28	U
124-48-1	Dibromochloromethane	28	U
79-00-5	1,1,2-Trichloroethane	28	U
71-43-2	Benzene	28	U
10061-02-6	Trans-1,3-Dichloropropene	28	U
75-25-2	Bromoform	28	U
108-10-1	4-Methyl-2-Pentanone	28	U
591-78-6	2-Hexanone	28	U
127-18-4	Tetrachloroethene	28	U
108-88-3	Toluene	28	U
79-34-5	1,1,2,2-Tetrachloroethane	28	U
108-90-7	Chlorobenzene	28	U
100-41-4	Ethylbenzene	28	U
100-42-5	Styrene	28	U V
1330-20-7	Total Xylenes	28	U, F

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

000121
EPA SAMPLE NO. 25.24
74.6278

CC-SD02-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 51686012

Sample wt/vol: 5 (g/mL) g Lab File ID: A0057

Level: (low/med) LOW Date Received: 04/19/95

% Moisture: not dec. 64 Date Analyzed: 04/27/95

GC Column: RTX-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
05.				
06.				
07.				
08.				
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1A
VOLATILE ORGANICS ANALYSIS DATA

EPA SAMPLE NO. **000124** *Ref. 24*
75.6278

CC-SD03-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686013

Sample wt/vol: 5 (g/mL) g

Lab File ID: A0058

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 51

Date Analyzed: 04/27/95

Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

JG
5/11/95

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

74-87-3	Chloromethane	20	UJ
74-83-9	Bromomethane	20	U
75-01-4	Vinyl Chloride	20	U
75-00-3	Chloroethane	20	U
75-09-2	Methylene Chloride	20	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	20	U
75-35-4	1,1-Dichloroethene	20	U
75-34-3	1,1-Dichloroethane	20	U
540-59-0	1,2-Dichloroethene (total)	20	U
67-66-3	Chloroform	20	U
107-06-2	1,2-Dichloroethane	20	U
78-93-3	2-Butanone	20	U
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon Tetrachloride	20	U
75-27-4	Bromodichloromethane	20	U
78-87-5	1,2-Dichloropropane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
79-01-6	Trichloroethene	20	U
124-48-1	Dibromochloromethane	20	U
79-00-5	1,1,2-Trichloroethane	20	U
71-43-2	Benzene	20	U
10061-02-6	Trans-1,3-Dichloropropene	20	U
75-25-2	Bromoform	20	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	20	U
108-88-3	Toluene	20	U
79-34-5	1,1,2,2-Tetrachloroethane	20	U
108-90-7	Chlorobenzene	20	U
100-41-4	Ethylbenzene	20	U
100-42-5	Styrene	20	U
1330-20-7	Total Xylenes	20	UJ

000125

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CC-SD03-01

Lab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: SAS No.: SDG No.: Matrix: (soil/water) SoilLab Sample ID: 51686013Sample wt/vol: 5 (g/mL) gLab File ID: A0058Level: (low/med) LOWDate Received: 04/19/95% Moisture: not dec. 51Date Analyzed: 04/27/95GC Column: RTX-624 ID: 0.53 (mm)Dilution Factor: 1.0Soil Extract Volume: (uL)Soil Aliquot Volume: (uL)Number TICs Found: 0CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
05.				
06.				
07.				
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1A
VOLATILE ORGANICS ANALYSIS DATA

EPA SAMPLE NO. Ref. 24
77c-278

CC-SS01-01

Lab Name: IEA-NJ Contract: 68D20022
Lab Code: IEANJ Case No.: SAS No.: SDG No.:
Matrix: (soil/water) Soil Lab Sample ID: 51686001
Sample wt/vol: 5 (g/mL) g Lab File ID: A0051
Level: (low/med) LOW Date Received: 04/19/95
% Moisture: not dec. 22 Date Analyzed: 04/27/95
GC Column: RTX-624 ID: 0.53 (mm) Dilution Factor: 1.0
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	13	U
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	Trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
108-88-3	Toluene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Total Xylenes	13	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

000129/205 2-
78 of 278
EPA SAMPLE NO.

CC-SS01-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686001

Sample wt/vol: 5 (g/mL) g

Lab File ID: A0051

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 22

Date Analyzed: 04/27/95

GC Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
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1A
VOLATILE ORGANICS ANALYSIS DATA

EPA SAMPLE NO. 74-01-24

T

CC-SS02-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil

Lab Sample ID: 51686002

Sample wt/vol: 5 (g/mL) g

Lab File ID: A9948

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 14

Date Analyzed: 04/24/95

C Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	Trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
108-88-3	Toluene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Total Xylenes	12	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. 22F.24
80 of 178

CC-SS02-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686002

Sample wt/vol: 5 (g/mL) g

Lab File ID: A9948

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 14

Date Analyzed: 04/24/95

Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
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000136

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VOLATILE ORGANICS ANALYSIS DATEPA SAMPLE NO. Met. 24
810F-278

CC-SS03-01

Lab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water) SoilLab Sample ID: 51686003Sample wt/vol: 5 (g/mL) gLab File ID: A9949Level: (low/med) LOWDate Received: 04/19/95% Moisture: not dec. 17Date Analyzed: 04/24/95GC Column: RTX-624 ID: 0.53 (mm)Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

5-
4/11/95

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	Trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	UJ
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
108-88-3	Toluene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Total Xylenes	12	UJ

000137

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDSEPA SAMPLE NO. 12.24
82.6275

CC-SS03-01

Lab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water) SoilLab Sample ID: 51686003Sample wt/vol: 5 (g/mL) gLab File ID: A9949Level: (low/med) LOWDate Received: 04/19/95% Moisture: not dec. 17Date Analyzed: 04/24/95GC Column: RTX-624 ID: 0.53 (mm)Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 0CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
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VOLATILE ORGANICS ANALYSIS DI

000144 *Ac. 24*
EPA SAMPLE NO. *83.6.278*

ET

CC-SS04-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686004

Sample wt/vol: 5 (g/mL) g

Lab File ID: A9950

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 12

Date Analyzed: 04/24/95

GC Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

5th 5/11/95

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	.4	J
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	Trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	UJ
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
108-88-3	Toluene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Total Xylenes	11	UJ

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

000145 20.24
EPA SAMPLE NO. 84.128
CC-SS04-01

Lab Name: IEA-NJ Contract: 68D20022
Lab Code: IEANJ Case No.: SAS No.: SDG No.:
Matrix: (soil/water) Soil Lab Sample ID: 51686004
Sample wt/vol: 5 (g/mL) g Lab File ID: A9950
Level: (low/med) LOW Date Received: 04/19/95
% Moisture: not dec. 12 Date Analyzed: 04/24/95
%C Column: RTX-624 ID: 0.53 (mm) Dilution Factor: 1.0
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
05.				
06.				
07.				
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10.				
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VOLATILE ORGANICS ANALYSIS DATAEPA SAMPLE NO. *Ref. 24*
85.6.178

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CC-SS05-01

Lab Name: IEA-NJContract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water) SoilLab Sample ID: 51686005Sample wt/vol: 5 (g/mL) gLab File ID: A9951Level: (low/med) LOWDate Received: 04/19/95% Moisture: not dec. 15Date Analyzed: 04/24/95GC Column: RTX-624 ID: 0.53 (mm)Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

56 5/17/95

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	26	
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	Trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	28	
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
108-88-3	Toluene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Total Xylenes	58	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. 86.24
86.278

CC-SS05-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686005

Sample wt/vol: 5 (g/mL) g

Lab File ID: A9951

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 15

Date Analyzed: 04/24/95

Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Tetramethyl Benzene Isomer	22.55	530	JN
02.	Ethylmethyl Benzene Isomer	20.90	200	JN
03.	Trimethyl Benzene Isomer	22.08	200	JN
04.	Methyl Propyl Benzene Isomer	22.43	190	JN
05.	Trimethyl Benzene Isomer	20.51	160	JN
06.	Unknown Alkane	21.56	140	JN
07.	Unknown Alkane	19.52	140	JN
08.	Methyl Methylethyl Benzene I	21.67	130	JN
09.	Unknown Alkane	20.30	130	JN
10.	Unknown Alkane	21.90	82	JN
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EPA SAMPLE NO.
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000170

87 of 287

CC-SS06-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Lab Sample ID: 51686006

Sample wt/vol: 5 (g/mL) g Lab File ID: A0033

Level: (low/med) LOW Date Received: 04/19/95

% Moisture: not dec. 13 Date Analyzed: 04/27/95

Column: RTX-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

5/12/95

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NO. COMPOUND Q

74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	11	UJ
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	UJ
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	230	
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	Trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	UJ
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
108-88-3	Toluene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Total Xylenes	11	UJ

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

000171
EPA SAMPLE NO. 8806278

CC-SS06-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686006

Sample wt/vol: 5 (g/mL) g

Lab File ID: A0033

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 13

Date Analyzed: 04/27/95

GC Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown Alkene	20.73	14	JN
02.	Unknown Alkane	21.86	10	JN
03.	Unknown Alkane	21.39	9	JN
04.	Unknown Alkane	19.60	9	JN
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. **00019**
2905278

CC-SS07-01RE

Lab Name: IEA-NJ Contract: 68D20022
Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water) Soil Lab Sample ID: 51686007RE
Sample wt/vol: 5 (g/mL) g Lab File ID: A0053
Level: (low/med) LOW Date Received: 04/19/95
% Moisture: not dec. 14 Date Analyzed: 04/27/95
GC Column: RTX-624 ID: 0.53 (mm) Dilution Factor: 1.0
Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

56
4/27/95

CAS NO. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	Trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
108-88-3	Toluene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Total Xylenes	12	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

000194 *Ref. 24*
EPA SAMPLE NO. *no of 278*

CC-SS07-01RE

Lab Name: IEA-NJ Contract: 68D20022
Lab Code: IEANJ Case No.: SAS No.: SDG No.:
Matrix: (soil/water) Soil Lab Sample ID: 51686007RE
Sample wt/vol: 5 (g/mL) g Lab File ID: A0053
Level: (low/med) LOW Date Received: 04/19/95
% Moisture: not dec. 14 Date Analyzed: 04/27/95
GC Column: RTX-624 ID: 0.53 (mm) Dilution Factor: 1.0
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs Found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
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06.				
07.				
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09.				
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VOLATILE ORGANICS ANALYSIS DAT

EPA SAMPLE NO. ²⁵²⁴ 600197
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CC-SS08-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil

Lab Sample ID: 51686008

Sample wt/vol: 5 (g/mL) g

Lab File ID: A0035

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 17

Date Analyzed: 04/27/95

GC Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

⁵⁶
5/12/95

CAS NO. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	12	UJ
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	UJ
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	Trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	UJ
591-78-6	2-Hexanone	12	UJ
127-18-4	Tetrachloroethene	12	U
108-88-3	Toluene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	UJ
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Total Xylenes	12	U

000198

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CC-SS08-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water) Soil

Lab Sample ID: 51686008

Sample wt/vol:

5

(g/mL) g

Lab File ID: A0035

Level:

(low/med)

LOW

Date Received: 04/19/95

% Moisture: not dec. 17

Date Analyzed: 04/27/95

GC Column: RTX-624

ID: 0.53

(mm)

Dilution Factor: 1.0

Soil Extract Volume:

(uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
05.				
06.				
07.				
08.				
09.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS D7

EPA SAMPLE NO. 73. f278

CC-SS09-01

Lab Name: IEA-NJ Contract: 68D20022
 Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) Soil Lab Sample ID: 51686009
 Sample wt/vol: 5 (g/mL) g Lab File ID: A0054
 Level: (low/med) LOW Date Received: 04/19/95
 % Moisture: not dec. 15 Date Analyzed: 04/27/95
 GC Column: RTX-624 ID: 0.53 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	Trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
108-88-3	Toluene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Total Xylenes	12	U

1E

EPA SAMPLE NO. Ret. 24
94.f278

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CC-SS09-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686009

Sample wt/vol: 5 (g/mL) g

Lab File ID: A0054

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 15

Date Analyzed: 04/27/95

GC Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
05.				
06.				
07.				
08.				
09.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
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27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS D.

EPA SAMPLE NO.
ET

CC-SS10-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686010

Sample wt/vol: 5 (g/mL) g

Lab File ID: A0055

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: not dec. 16

Date Analyzed: 04/27/95

GC Column: RTX-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	Trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
108-88-3	Toluene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Total Xylenes	12	U

000206/45

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

7/10/95
CC-SS10-01Lab Name: IEA-NJContract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water) SoilLab Sample ID: 51686010Sample wt/vol: 5 (g/mL) gLab File ID: A0055Level: (low/med) LOWDate Received: 04/19/95% Moisture: not dec. 16Date Analyzed: 04/27/95GC Column: RTX-624 ID: 0.53 (mm)Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 0

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.				
02.				
03.				
04.				
05.				
06.				
07.				
08.				
09.				
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30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

000027
A SAMPLE NO. 97062

CC-FB-02-1

Lab Name: IEA-NJ Contract: 68D20022
Lab Code: IEANJ Case No.: SAS No.: SDG No.:
Matrix: (soil/water) Water Lab Sample ID: 51704001
Sample wt/vol: 5 (g/mL) ml Lab File ID: >E2472
Level: (low/med) LOW Date Received: 04/20/95
% Moisture: not dec. Date Analyzed: 04/27/95
GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U J
75-09-2	Methylene Chloride	4	J
67-64-1	Acetone	10	U J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	6	J
10061-02-6	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-88-3	Toluene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. 060028

CC-FB-02-1

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Water

Lab Sample ID: 51704001

Sample wt/vol: 5 (g/mL) ml

Lab File ID: >E2472

Level: (low/med) LOW

Date Received: 04/20/95

% Moisture: not dec.

Date Analyzed: 04/27/95

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Dimethyl Naphthalene Isomer	25.83	13	JN
02.	Naphthalene, tetrahydro dimet	25.51	7	JN
03.				
04.				
05.				
06.				
07.				
08.				
09.				
10.				
11.				
12.				
13.				
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27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA

EPA SAMPLE NO. *10524*

CC-FB03-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.: *946278*

Matrix: (soil/water) Water

Lab Sample ID: 51704002

Sample wt/vol: 5 (g/mL) ml

Lab File ID: >E2473

Level: (low/med) LOW

Date Received: 04/20/95

% Moisture: not dec.

Date Analyzed: 04/27/95

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-88-3	Toluene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. RS24

CC-FB03-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Water

Lab Sample ID: 51704002

Sample wt/vol: 5 (g/mL) ml

Lab File ID: >E2473

Level: (low/med) LOW

Date Received: 04/20/95

% Moisture: not dec. _____

Date Analyzed: 04/27/95

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

SG
5/9/95

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown Siloxane	23.33	8	8 R
02.				
03.				
04.				
05.				
06.				
07.				
08.				
09.				
10.				
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29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS I

CG0040
EPA SAMPLE NO. *Ref 24*
SET

TRIPBLANK

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.: *101.F278*

Matrix: (soil/water) Water

Lab Sample ID: 51704004

Sample wt/vol: 5 (g/mL) ml

Lab File ID: >E2474

Level: (low/med) LOW

Date Received: 04/20/95

% Moisture: not dec.

Date Analyzed: 04/27/95

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

*36
5/9/95*

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-88-3	Toluene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA

PA SAMPLE NO. **000105** *RF.24*

TRIPBLANK

Lab Name: IEA-NJ Contract: 68D20uzz
 Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) Water Lab Sample ID: 51686018
 Sample wt/vol: 5 (g/mL) ml Lab File ID: >E2471
 Level: (low/med) LOW Date Received: 04/19/95
 % Moisture: not dec. _____ Date Analyzed: 04/27/95
 GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

56
5/12/95

CAS NO. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	4	J
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-88-3	Toluene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	10	U

000369

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. *Ref. 24*

CC-GW04-01

Lab Name: IEA-NJContract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water) WaterLab Sample ID: 51686017Sample wt/vol: 1000 (g/mL) mlLab File ID: D2898Level: (low/med) LOWDate Received: 04/19/95

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 04/24/95Concentrated Extract Volume: 1000 (uL)Date Analyzed: 04/26/95Injection Volume: 2 (uL)Dilution Factor: 1.0SPC Cleanup: (Y/N) N pH: _____

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-Methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl-Phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-N-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo (A) Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis (2-Ethylhexyl) Phthalate	10	U
117-84-0	Di-N-Octylphthalate	10	U
205-99-2	Benzo (B) Fluoranthene	10	U
207-08-9	Benzo (K) Fluoranthene	10	U
50-32-8	Benzo (A) Pyrene	10	U
193-39-5	Indeno (1,2,3-Cd) Pyrene	10	U
53-70-3	Dibenz (A,H) Anthracene	10	U
191-24-2	Benzo (G,H,I) Perylene	10	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. Ref. 24

CC-GW04-01

Lab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

1170F278

Matrix: (soil/water) WaterLab Sample ID: 51686017Sample wt/vol: 1000 (g/mL) mlLab File ID: D2898Level: (low/med) LOWDate Received: 04/19/95

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 04/24/95Concentrated Extract Volume: 1000 (uL)Date Analyzed: 04/26/95Injection Volume: 2 (uL)Dilution Factor: 1.0PC Cleanup: (Y/N) N pH: _____

16/1/95

Number TICs Found: 20CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown Alkene	11.86	21	JB R
02.	Unknown Aromatic	6.63	24	JN
03.	trichloro Benzene isomer	13.10	17.	J
04.	Unknown	5.19	10	J
05.	Unknown	17.06	9	J
06.	Unknown	13.03	7	JN
07.	Unknown	6.27	8	JB R
08.	Unknown Aromatic	17.47	5	JN
09.	tetrachloro Benzene isomer	15.68	5	J
10.	chloro-methyl Benzene isomer	8.27	4	J
11.	Unknown Acid	22.42	4	J
12.	Unknown Alcohol	16.92	3	J
13.	Unknown	19.32	3	JN
14.	Unknown Halogenated Hydrocar	8.16	2	JB R
15.	Unknown	11.95	2	JB R
16.	Unknown	11.33	3	JN
17.	Unknown	15.89	2	JB R
18.	bis(1,1-dimethylethyl) Pheno	17.27	3	JN
19.	Unknown	15.15	2	JB R
20.	Unknown Alcohol	6.94	2	JB R
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. Ref 24

CC-SD01-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Lab Sample ID: 51686011

Sample wt/vol: 30 (g/mL) g Lab File ID: D2961

Level: (low/med) LOW Date Received: 04/19/95

% Moisture: 42 decanted: (Y/N) N Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/01/95

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.23

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

108-95-2	Phenol	570	U
111-44-4	Bis(2-Chloroethyl) Ether	570	U
95-57-8	2-Chlorophenol	570	U
541-73-1	1,3-Dichlorobenzene	570	U
106-46-7	1,4-Dichlorobenzene	570	U
95-50-1	1,2-Dichlorobenzene	570	U
95-48-7	2-Methylphenol	570	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	570	U
106-44-5	4-Methylphenol	570	U
621-64-7	N-Nitrosodi-N-Propylamine	570	U
67-72-1	Hexachloroethane	570	U
98-95-3	Nitrobenzene	570	U
78-59-1	Isophorone	570	U
88-75-5	2-Nitrophenol	570	U
105-67-9	2,4-Dimethylphenol	570	U
111-91-1	Bis(2-Chloroethoxy) Methane	570	U
120-83-2	2,4-Dichlorophenol	570	U
120-82-1	1,2,4-Trichlorobenzene	570	U
91-20-3	Naphthalene	75	J
106-47-8	4-Chloroaniline	570	U
87-68-3	Hexachlorobutadiene	570	U
59-50-7	4-Chloro-3-Methylphenol	570	U
91-57-6	2-Methylnaphthalene	570	U
77-47-4	Hexachlorocyclopentadiene	570	U
88-06-2	2,4,6-Trichlorophenol	570	U
95-95-4	2,4,5-Trichlorophenol	1400	U
91-58-7	2-Chloronaphthalene	570	U
88-74-4	2-Nitroaniline	1400	U
131-11-3	Dimethylphthalate	570	U
208-96-8	Acenaphthylene	230	J
606-20-2	2,6-Dinitrotoluene	570	U
99-09-2	3-Nitroaniline	1400	U
83-32-9	Acenaphthene	130	J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000397
EPA SAMPLE NO. Ref. 24

CC-SD01-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil

Lab Sample ID: 51686011

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2961

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 42 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 05/01/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.23

56,15/95

CAS NO. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

51-28-5	2,4-Dinitrophenol	1400	U
100-02-7	4-Nitrophenol	1400	U
132-64-9	Dibenzofuran	83	J
121-14-2	2,4-Dinitrotoluene	570	U
84-66-2	Diethylphthalate	570	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	570	U
86-73-7	Fluorene	200	J
100-01-6	4-Nitroaniline	1400	U
534-52-1	4,6-Dinitro-2-Methylphenol	1400	UJ
86-30-6	N-Nitrosodiphenylamine	570	U
101-55-3	4-Bromophenyl-Phenylether	570	U
118-74-1	Hexachlorobenzene	570	U
87-86-5	Pentachlorophenol	1400	U
85-01-8	Phenanthrene	2000	
120-12-7	Anthracene	550	J
86-74-8	Carbazole	300	J
84-74-2	Di-N-Butylphthalate	570	JBU
206-44-0	Fluoranthene	3500	
129-00-0	Pyrene	3700	
85-68-7	Butylbenzylphthalate	380	J
91-94-1	3,3'-Dichlorobenzidine	570	U
56-55-3	Benzo (A) Anthracene	2000	
218-01-9	Chrysene	2000	
117-81-7	Bis(2-Ethylhexyl) Phthalate	1100	
117-84-0	Di-N-Octylphthalate	570	UJ
205-99-2	Benzo (B) Fluoranthene	1900	
207-08-9	Benzo (K) Fluoranthene	1500	
50-32-8	Benzo (A) Pyrene	1600	
193-39-5	Indeno (1,2,3-Cd) Pyrene	720	
53-70-3	Dibenz (A,H) Anthracene	120	J
191-24-2	Benzo (G,H,I) Perylene	730	

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 10524

CC-SD01-01

Lab Name: IEA-NJ Contract: 68D20022
 Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) Soil Lab Sample ID: 51686011
 Sample wt/vol: 30 (g/mL) g Lab File ID: D2961
 Level: (low/med) LOW Date Received: 04/19/95
 % Moisture: 42 decanted: (Y/N) N Date Extracted: 04/25/95
 Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/01/95
 Injection Volume: 2 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) Y pH: 7.23

Number TICs Found: 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	5.49	3000	JR R
02.	Unknown	7.53	980	JR R
03.	Unknown Aromatic	22.56	640	J N
04.	Unknown Acid	22.43	500	J
05.	Unknown Acid	21.10	480	J
06.	Unknown PAH	22.26	410	J
07.	Unknown Aromatic	23.13	250	J V
08.	Unknown PAH	22.34	190	J N
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1B
SEMIVOLATILE ORGANICS ANALYSIS

EPA SAMPLE NO
SHEET

000422

CC-SD02-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Ref. 24
10 of 278

Matrix: (soil/water) Soil

Lab Sample ID: 51686012

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2959

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 64 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 05/01/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.68

56/15/95

CAS NO. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

108-95-2	Phenol	920	U J
111-44-4	Bis(2-Chloroethyl) Ether	920	U
95-57-8	2-Chlorophenol	920	U
541-73-1	1,3-Dichlorobenzene	920	U
106-46-7	1,4-Dichlorobenzene	920	U
95-50-1	1,2-Dichlorobenzene	920	U
95-48-7	2-Methylphenol	920	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	920	U
106-44-5	4-Methylphenol	920	U
621-64-7	N-Nitrosodi-N-Propylamine	920	U
67-72-1	Hexachloroethane	920	U
98-95-3	Nitrobenzene	920	U
78-59-1	Isophorone	920	U
88-75-5	2-Nitrophenol	920	U
105-67-9	2,4-Dimethylphenol	920	U
111-91-1	Bis(2-Chloroethoxy) Methane	920	U
120-83-2	2,4-Dichlorophenol	920	U
120-82-1	1,2,4-Trichlorobenzene	920	U
91-20-3	Naphthalene	920	U
106-47-8	4-Chloroaniline	920	U
87-68-3	Hexachlorobutadiene	920	U
59-50-7	4-Chloro-3-Methylphenol	920	U
91-57-6	2-Methylnaphthalene	920	U
77-47-4	Hexachlorocyclopentadiene	920	U
88-06-2	2,4,6-Trichlorophenol	920	U
95-95-4	2,4,5-Trichlorophenol	2200	U
91-58-7	2-Chloronaphthalene	920	U
88-74-4	2-Nitroaniline	2200	U
131-11-3	Dimethylphthalate	920	U
208-96-8	Acenaphthylene	920	U
606-20-2	2,6-Dinitrotoluene	920	U
99-09-2	3-Nitroaniline	2200	U V
83-32-9	Acenaphthene	920	U J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000423
EPA SAMPLE NO. 2WF.24

CC-SD02-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

122.6278

Matrix: (soil/water) Soil

Lab Sample ID: 51686012

Sample wt/vol: 30 (g/mL)g

Lab File ID: D2959

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 64 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 05/01/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.68

As of 4/19/95

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND		
51-28-5	2,4-Dinitrophenol	2200	UJ
100-02-7	4-Nitrophenol	2200	U
132-64-9	Dibenzofuran	920	U
121-14-2	2,4-Dinitrotoluene	920	U
84-66-2	Diethylphthalate	920	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	920	U
86-73-7	Fluorene	920	U
100-01-6	4-Nitroaniline	2200	U
534-52-1	4,6-Dinitro-2-Methylphenol	2200	U
86-30-6	N-Nitrosodiphenylamine	920	U
101-55-3	4-Bromophenyl-Phenylether	920	U
118-74-1	Hexachlorobenzene	920	Uv
87-86-5	Pentachlorophenol	2200	UJ
85-01-8	Phenanthrene	690	J
120-12-7	Anthracene	150	J
86-74-8	Carbazole	120	J
84-74-2	Di-N-Butylphthalate	920 180	JB UJ
206-44-0	Fluoranthene	1100	J
129-00-0	Pyrene	930	J
85-68-7	Butylbenzylphthalate	220	J
91-94-1	3,3'-Dichlorobenzidine	920	UJ
56-55-3	Benzo (A) Anthracene	470	J
218-01-9	Chrysene	500	J
117-81-7	Bis (2-Ethylhexyl) Phthalate	620	J
117-84-0	Di-N-Octylphthalate	920	UJ
205-99-2	Benzo (B) Fluoranthene	390	J
207-08-9	Benzo (K) Fluoranthene	290	J
50-32-8	Benzo (A) Pyrene	340	J
193-39-5	Indeno (1,2,3-Cd) Pyrene	180	J
53-70-3	Dibenz (A,H) Anthracene	920	UJ
191-24-2	Benzo (G,H,I) Perylene	180	J

000424

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEETEPA SAMPLE NO. Ref. 24

CC-SD02-01

Lab Name: IEA-NJContract: 68D20022Lab Code: IEANJ Case No.: SAS No.: SDG No.:

123.f278

Matrix: (soil/water) SoilLab Sample ID: 51686012Sample wt/vol: 30 (g/mL) gLab File ID: D2959Level: (low/med) LOWDate Received: 04/19/95% Moisture: 64 decanted: (Y/N) NDate Extracted: 04/25/95Concentrated Extract Volume: 500 (uL)Date Analyzed: 05/01/95Injection Volume: 2 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 7.68JL
3/14/95Number TICs Found: 14CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	5.49	4100	JB R
02.	Unknown	7.55	1300	JB R
03.	Unknown Alkane	30.47	700	J N
04.	Unknown	4.77	600	J
05.	Unknown Acid	22.43	570	J
06.	Unknown Hydrocarbon	19.43	480	J
07.	Unknown Aromatic	27.37	410	J V
08.	Unknown PAH	20.99	370	J N
09.	bis(1,1-dimethylethyl) Pheno	17.26	300	JB R
10.	Unknown	22.26	300	J N
11.	Unknown	27.60	240	J
12.	Unknown Acid	20.21	210	J
13.	Unknown Alkane	28.93	200	J V
14.	Unknown	24.44	190	J N
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1B
SEMIVOLATILE ORGANICS ANALYSIS I

EPA SAMPLE NO. Ref 24
EET
CC-SD03-01

Lab Name: IEA-NJ Contract: 68D20022
Lab Code: IEANJ Case No.: SAS No.: SDG No.: 44, F178
Matrix: (soil/water) Soil Lab Sample ID: 51686013
Sample wt/vol: 30 (g/mL) g Lab File ID: D2960
Level: (low/med) LOW Date Received: 04/19/95
% Moisture: 51 decanted: (Y/N) N Date Extracted: 04/25/95
Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/01/95
Injection Volume: 2 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) Y pH: 7.98 50/100

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

108-95-2	Phenol	670	UJ
111-44-4	Bis(2-Chloroethyl) Ether	670	U
95-57-8	2-Chlorophenol	670	U
541-73-1	1,3-Dichlorobenzene	670	U
106-46-7	1,4-Dichlorobenzene	670	U
95-50-1	1,2-Dichlorobenzene	670	U
95-48-7	2-Methylphenol	670	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	670	U
106-44-5	4-Methylphenol	670	U
621-64-7	N-Nitrosodi-N-Propylamine	670	U
67-72-1	Hexachloroethane	670	U
98-95-3	Nitrobenzene	670	U
78-59-1	Isophorone	670	U
88-75-5	2-Nitrophenol	670	U
105-67-9	2,4-Dimethylphenol	670	U
111-91-1	Bis(2-Chloroethoxy) Methane	670	U
120-83-2	2,4-Dichlorophenol	670	U
120-82-1	1,2,4-Trichlorobenzene	670	U
91-20-3	Naphthalene	670	U
106-47-8	4-Chloroaniline	670	U
87-68-3	Hexachlorobutadiene	670	U
59-50-7	4-Chloro-3-Methylphenol	670	U
91-57-6	2-Methylnaphthalene	670	U
77-47-4	Hexachlorocyclopentadiene	670	U
88-06-2	2,4,6-Trichlorophenol	670	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	670	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylphthalate	670	U
208-96-8	Acenaphthylene	670	U
606-20-2	2,6-Dinitrotoluene	670	U
99-09-2	3-Nitroaniline	1600	UV
83-32-9	Acenaphthene	670	UJ

000453

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEETEPA SAMPLE NO. RD 24

CC-SD03-01

Lab Name: IEA-NJContract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____ 1250A278Matrix: (soil/water) SoilLab Sample ID: 51686013Sample wt/vol: 30 (g/mL) gLab File ID: D2960Level: (low/med) LOWDate Received: 04/19/95% Moisture: 51 decanted: (Y/N) NDate Extracted: 04/25/95Concentrated Extract Volume: 500 (uL)Date Analyzed: 05/01/95Injection Volume: 2 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 7.98

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

51-28-5	2,4-Dinitrophenol	1600	UJ
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	670	U
121-14-2	2,4-Dinitrotoluene	670	U
84-66-2	Diethylphthalate	670	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	670	U
86-73-7	Fluorene	670	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine	670	U
101-55-3	4-Bromophenyl-Phenylether	670	U
118-74-1	Hexachlorobenzene	670	U
87-86-5	Pentachlorophenol	1600	UJ
85-01-8	Phenanthrene	110	J
120-12-7	Anthracene	670	UJ
86-74-8	Carbazole	670	UJ
84-74-2	Di-N-Butylphthalate	670 180	JB UJ
206-44-0	Fluoranthene	310	J
129-00-0	Pyrene	330	J
85-68-7	Butylbenzylphthalate	670	UJ
91-94-1	3,3'-Dichlorobenzidine	670	UJ
56-55-3	Benzo (A) Anthracene	150	J
218-01-9	Chrysene	180	J
117-81-7	Bis(2-Ethylhexyl) Phthalate	1600	J
117-84-0	Di-N-Octylphthalate	670	UJ
205-99-2	Benzo (B) Fluoranthene	170	J
207-08-9	Benzo (K) Fluoranthene	130	J
50-32-8	Benzo (A) Pyrene	140	J
193-39-5	Indeno (1,2,3-Cd) Pyrene	78	J
53-70-3	Dibenz (A,H) Anthracene	670	UJ
191-24-2	Benzo (G,H,I) Perylene	82	J

000454

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEETEPA SAMPLE NO. 126.278

CC-SD03-01

Lab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water) SoilLab Sample ID: 51686013Sample wt/vol: 30 (g/mL) gLab File ID: D2960Level: (low/med) LOWDate Received: 04/19/95% Moisture: 51 decanted: (Y/N) NDate Extracted: 04/25/95Concentrated Extract Volume: 500 (uL)Date Analyzed: 05/01/95Injection Volume: 2 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 7.98Number TICs Found: 5CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	5.49	2700	JB R
02.	Unknown	7.54	910	JB R
03.	Unknown	4.77	480	J N
04.	Unknown	19.44	410	J N
05.	Bis(1,1-dimethylethyl) Pheno	17.26	290	JB R
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1B
SEMIVOLATILE ORGANICS ANALYSIS D

EPA SAMPLE NO. 45.14

CC-SS01-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water) Soil

Lab Sample ID: 51686001

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2939

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 22 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/29/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.14

SC 4/15/95

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

108-95-2	Phenol	140	J
111-44-4	Bis(2-Chloroethyl) Ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitrosodi-N-Propylamine	420	U
67-72-1	Hexachloroethane	420	UJ
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	Bis(2-Chloroethoxy) Methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	UJ
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-Methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	480	
606-20-2	2,6-Dinitrotoluene	420	U
99-09-2	3-Nitroaniline	1000	UJ
83-32-9	Acenaphthene	420	U

000471

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEETEPA SAMPLE NO. 15.24

CC-SS01-01

Lab Name: IEA-NJContract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____128.0F278Matrix: (soil/water) SoilLab Sample ID: 51686001Sample wt/vol: 30 (g/mL) gLab File ID: D2939Level: (low/med) LOWDate Received: 04/19/95% Moisture: 22 decanted: (Y/N) NDate Extracted: 04/25/95Concentrated Extract Volume: 500 (uL)Date Analyzed: 04/29/95Injection Volume: 2 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 8.1416
5/15/95

CAS NO. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	420	U
86-73-7	Fluorene	50	J
100-01-6	4-Nitroaniline	1000	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine	420	U
101-55-3	4-Bromophenyl-Phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1000	UJ
85-01-8	Phenanthrene	500	
120-12-7	Anthracene	840	
86-74-8	Carbazole	1100	J
84-74-2	Di-N-Butylphthalate	420 240	JB U
206-44-0	Fluoranthene	1900	
129-00-0	Pyrene	1700	
85-68-7	Butylbenzylphthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	420	U
56-55-3	Benzo (A) Anthracene	750	
218-01-9	Chrysene	1800	
117-81-7	Bis (2-Ethylhexyl) Phthalate	420	U
117-84-0	Di-N-Octylphthalate	420	UJ
205-99-2	Benzo (B) Fluoranthene	2400	
207-08-9	Benzo (K) Fluoranthene	1400	
50-32-8	Benzo (A) Pyrene	1000	
193-39-5	Indeno (1,2,3-Cd) Pyrene	420	U
53-70-3	Dibenz (A,H) Anthracene	420	U
191-24-2	Benzo (G,H,I) Perylene	350	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000483
EPA SAMPLE NO. 12-14

CC-SS01-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686001

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2939

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 22 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/29/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

SPC Cleanup: (Y/N) Y pH: 8.14

56
5/15/95

Number TICs Found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	5.50	2400	JBR
02.	Unknown PAH	32.42	1500	JN
03.	Unknown PAH	31.33	1400	JN
04.	Unknown Alkane	30.51	1100	JN
05.	Unknown	7.56	850	JBR
06.	Unknown Aromatic	27.35	650	JN
07.	Unknown Acid	22.44	640	J
08.	Unknown Aromatic	23.13	610	J
09.	Unknown	30.08	590	J
10.	Unknown	31.91	570	J
11.	Unknown PAH	25.59	540	J
12.	Unknown PAH	28.15	390	J
13.	Unknown PAH	27.20	360	J
14.	Unknown Aromatic	26.94	350	J
15.	Unknown Aromatic	27.48	350	J
16.	Unknown PAH	30.83	310	J
17.	Unknown Alkane	28.95	300	J
18.	Unknown Aromatic	23.96	300	J
19.	Unknown Aromatic	20.21	300	J
20.	Unknown Aromatic	29.69	290	JN
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1B
SEMIVOLATILE ORGANICS ANALYSIS SHEET

000504
EPA SAMPLE NO. *Ref 14*

CC-SS02-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water) Soil

Lab Sample ID: 51686002

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2940

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 14 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/29/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.66

SG 5/15/95

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

108-95-2	Phenol	380	U
111-44-4	Bis(2-Chloroethyl) Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitrosodi-N-Propylamine	380	U
67-72-1	Hexachloroethane	380	UJ
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	Bis(2-Chloroethoxy) Methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	UJ
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-Methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	73	J
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	930	UJ
83-32-9	Acenaphthene	380	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 15.24

CC-SS02-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 51686002

Sample wt/vol: 30 (g/mL) g Lab File ID: D2940

Level: (low/med) LOW Date Received: 04/19/95

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/29/95

Injection Volume: 2 (uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) Y pH: 5.66

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NO. COMPOUND

Q

51-28-5	2,4-Dinitrophenol	930	U
100-02-7	4-Nitrophenol	930	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	930	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	930	U
86-30-6	N-Nitrosodiphenylamine	380	U
101-55-3	4-Bromophenyl-Phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	930	UJ
85-01-8	Phenanthrene	210	J
120-12-7	Anthracene	74	J
86-74-8	Carbazole	58	J
84-74-2	Di-N-Butylphthalate	380 380	JBU
206-44-0	Fluoranthene	500	
129-00-0	Pyrene	460	
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo (A) Anthracene	300	J
218-01-9	Chrysene	380	J
117-81-7	Bis(2-Ethylhexyl) Phthalate	380 42	JU
117-84-0	Di-N-Octylphthalate	380	UJ
205-99-2	Benzo (B) Fluoranthene	330	J
207-08-9	Benzo (K) Fluoranthene	290	J
50-32-8	Benzo (A) Pyrene	290	J
193-39-5	Indeno (1,2,3-Cd) Pyrene	380	U
53-70-3	Dibenz (A,H) Anthracene	48	J
191-24-2	Benzo (G,H,I) Perylene	120	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. REF. 24

CC-SS02-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

132 of 278

Matrix: (soil/water) Soil

Lab Sample ID: 51686002

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2940

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 14 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/29/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 5.66

5/12/95

Number TICs Found: 5

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	5.50	1800	JE R
02.	Unknown	7.56	500	JE R
03.	Unknown Acid	22.41	240	J N
04.	Unknown PAH	31.27	220	J N
05.	Unknown Alkane	27.35	81	J N
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1B
SEMIVOLATILE ORGANICS ANALYSIS

UUUS44
EPA SAMPLE NO. 15.24
SHEET

CC-SS03-01

Lab Name: IEA-NJ Contract: 00040042
Lab Code: IEANJ Case No.: SAS No.: SDG No.: 1330f278
Matrix: (soil/water) Soil Lab Sample ID: 51686003
Sample wt/vol: 30 (g/mL) g Lab File ID: D2941
Level: (low/med) LOW Date Received: 04/19/95
% Moisture: 17 decanted: (Y/N) N Date Extracted: 04/25/95
Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/29/95
Injection Volume: 2 (uL) Dilution Factor: 10.0
PC Cleanup: (Y/N) Y pH: 8.33

56
5/15/95

CAS NO. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

108-95-2	Phenol	4000	U
111-44-4	Bis(2-Chloroethyl) Ether	4000	U
95-57-8	2-Chlorophenol	4000	U
541-73-1	1,3-Dichlorobenzene	4000	U
106-46-7	1,4-Dichlorobenzene	4000	U
95-50-1	1,2-Dichlorobenzene	4000	U
95-48-7	2-Methylphenol	4000	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	4000	U
106-44-5	4-Methylphenol	4000	U
621-64-7	N-Nitrosodi-N-Propylamine	4000	U
67-72-1	Hexachloroethane	4000	UJ
98-95-3	Nitrobenzene	4000	U
78-59-1	Isophorone	4000	U
88-75-5	2-Nitrophenol	4000	U
105-67-9	2,4-Dimethylphenol	4000	U
111-91-1	Bis(2-Chloroethoxy) Methane	4000	U
120-83-2	2,4-Dichlorophenol	4000	U
120-82-1	1,2,4-Trichlorobenzene	4000	U
91-20-3	Naphthalene	4000	U
106-47-8	4-Chloroaniline	4000	UJ
87-68-3	Hexachlorobutadiene	4000	U
59-50-7	4-Chloro-3-Methylphenol	4000	U
91-57-6	2-Methylnaphthalene	4000	U
77-47-4	Hexachlorocyclopentadiene	4000	U
88-06-2	2,4,6-Trichlorophenol	4000	U
95-95-4	2,4,5-Trichlorophenol	9600	U
91-58-7	2-Chloronaphthalene	4000	U
88-74-4	2-Nitroaniline	9600	U
131-11-3	Dimethylphthalate	4000	U
208-96-8	Acenaphthylene	4000	U
606-20-2	2,6-Dinitrotoluene	4000	U
99-09-2	3-Nitroaniline	9600	UJ
83-32-9	Acenaphthene	4000	U

000525

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEETEPA SAMPLE NO. 25.4

CC-SS03-01

Lab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

134 of 278

Matrix: (soil/water) SoilLab Sample ID: 51686003Sample wt/vol: 30 (g/mL) gLab File ID: D2941Level: (low/med) LOWDate Received: 04/19/95% Moisture: 17 decanted: (Y/N) NDate Extracted: 04/25/95Concentrated Extract Volume: 500 (uL)Date Analyzed: 04/29/95Injection Volume: 2 (uL)Dilution Factor: 10.0PC Cleanup: (Y/N) Y pH: 8.33Se
C/SCAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

51-28-5	2,4-Dinitrophenol	9600	U
100-02-7	4-Nitrophenol	9600	U
132-64-9	Dibenzofuran	4000	U
121-14-2	2,4-Dinitrotoluene	4000	U
84-66-2	Diethylphthalate	4000.	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	4000	U
86-73-7	Fluorene	4000	U
100-01-6	4-Nitroaniline	9600	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	9600	U
86-30-6	N-Nitrosodiphenylamine	4000	U
101-55-3	4-Bromophenyl-Phenylether	4000	U
118-74-1	Hexachlorobenzene	4000	U
87-86-5	Pentachlorophenol	9600	UJ
85-01-8	Phenanthrene	650	J
120-12-7	Anthracene	4000	U
86-74-8	Carbazole	4000	UJ
84-74-2	Di-N-Butylphthalate	4000	U
206-44-0	Fluoranthene	1300	J
129-00-0	Pyrene	1100	J
85-68-7	Butylbenzylphthalate	4000	U
91-94-1	3,3'-Dichlorobenzidine	4000	U
56-55-3	Benzo (A) Anthracene	430	J
218-01-9	Chrysene	650	J
117-81-7	Bis (2-Ethylhexyl) Phthalate	4000	U
117-84-0	Di-N-Octylphthalate	4000	UJ
205-99-2	Benzo (B) Fluoranthene	570	J
207-08-9	Benzo (K) Fluoranthene	460	J
50-32-8	Benzo (A) Pyrene	4000	U
193-39-5	Indeno (1,2,3-Cd) Pyrene	4000	U
53-70-3	Dibenz (A,H) Anthracene	4000	U
191-24-2	Benzo (G,H,I) Perylene	4000	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. RF 24

CC-SS03-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

135. f 278

Matrix: (soil/water) Soil

Lab Sample ID: 51686003

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2941

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 17 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/29/95

Injection Volume: 2 (uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 8.33

32
1/1/95

Number TICs Found: 11

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	34.25	26000	JN
02.	Unknown Aromatic	26.54	14000	J
03.	Unknown Aromatic	10.95	12000	J
04.	Unknown Aromatic	30.95	8000	J
05.	Unknown	32.81	4000	JN
06.100527	Benzaldehyde	10.49	2600	JN
07.	Unknown Aromatic	26.37	2400	JN
08.	Unknown	8.82	1800	J
09.	Unknown Aromatic	29.55	1800	J
10.	Unknown Aromatic	21.49	1800	J
11.	Unknown Aromatic	15.20	1000	JN
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1B
 SEMIVOLATILE ORGANICS ANALYSIS

 EPA SAMPLE NO. 12514
 EET

CC-SS04-01

 Lab Name: IEA-NJ Contract: 68D20022

 Lab Code: IEANJ Case No.: SAS No.: SDG No.:

 Matrix: (soil/water) Soil

 Lab Sample ID: 51686004

 Sample wt/vol: 30 (g/mL) g

 Lab File ID: D2942

 Level: (low/med) LOW

 Date Received: 04/19/95

 % Moisture: 12 decanted: (Y/N) N

 Date Extracted: 04/25/95

 Concentrated Extract Volume: 500 (uL)

 Date Analyzed: 04/29/95

 Injection Volume: 2 (uL)

 Dilution Factor: 1.0

 GPC Cleanup: (Y/N) Y pH: 8.34

3-4/15/95

CAS NO. COMPOUND

 CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/kg

Q

108-95-2	Phenol	380	U
111-44-4	Bis(2-Chloroethyl) Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	67	J
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitrosodi-N-Propylamine	380	U
67-72-1	Hexachloroethane	380	UJ
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	Bis(2-Chloroethoxy) Methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	UJ
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-Methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	910	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	910	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	910	UJ
83-32-9	Acenaphthene	380	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. Re 24

CC-SS04-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

1370F278

Matrix: (soil/water) Soil

Lab Sample ID: 51686004

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2942

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 12 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/29/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 8.34

5/15/95

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg

Q

CAS NO.	COMPOUND		
51-28-5	2,4-Dinitrophenol	910	U
100-02-7	4-Nitrophenol	910	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	910	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	910	U
86-30-6	N-Nitrosodiphenylamine	43	J
101-55-3	4-Bromophenyl-Phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	910	UJ
85-01-8	Phenanthrene	180	J
120-12-7	Anthracene	74	J
86-74-8	Carbazole	51	J
84-74-2	Di-N-Butylphthalate	380 100	JB U
206-44-0	Fluoranthene	370	J
129-00-0	Pyrene	420	
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo (A) Anthracene	230	J
218-01-9	Chrysene	280	J
117-81-7	Bis(2-Ethylhexyl) Phthalate	170	J
117-84-0	Di-N-Octylphthalate	380	UJ
205-99-2	Benzo (B) Fluoranthene	310	J
207-08-9	Benzo (K) Fluoranthene	380	J
50-32-8	Benzo (A) Pyrene	190	J
193-39-5	Indeno (1,2,3-Cd) Pyrene	56	J
53-70-3	Dibenz (A,H) Anthracene	380	UJ
191-24-2	Benzo (G,H,I) Perylene	380	UJ

000548

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 105-14

CC-SS04-01

Lab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water) SoilLab Sample ID: 51686004Sample wt/vol: 30 (g/mL) gLab File ID: D2942Level: (low/med) LOWDate Received: 04/19/95% Moisture: 12 decanted: (Y/N) NDate Extracted: 04/25/95Concentrated Extract Volume: 500 (uL)Date Analyzed: 04/29/95Injection Volume: 2 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 8.34*50% water*Number TICs Found: 20

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	31.05	2900	JN
02.	Unknown Aromatic	26.55	1800	JN
03.	Unknown	32.90	1600	JN
04.	Unknown	5.50	1600	JB R
05.	Unknown Aromatic	11.21	1000	JN
06.	Unknown Aromatic	10.94	950	J
07.	Unknown Aromatic	27.51	850	J
08.	Unknown Aromatic	31.52	760	J
09.	Unknown Alkane	30.53	710	J
10.	Unknown	21.28	630	J
11.	Unknown Aromatic	26.81	620	J
12.	Unknown Alkane	28.96	580	JN
13.	Unknown	7.56	540	JB R
14.	Unknown Alkane	29.73	500	JN
15.	Unknown Alkane	31.40	490	J
16.	Unknown Alkane	32.43	480	J
17.	Unknown Alkane	28.18	470	J
18.	Unknown Aromatic	19.51	450	J
19.	Unknown PAH	24.77	450	J
20.	Unknown	32.64	450	JN
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1B
SEMIVOLATILE ORGANICS ANALYSIS

EPA SAMPLE NO. 12524
IEET

CC-SS05-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686005

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2962

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 15 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 05/01/95

Injection Volume: 2 (uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 6.87

CAS NO. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

108-95-2	Phenol	640	J
111-44-4	Bis(2-Chloroethyl) Ether	3900	U
95-57-8	2-Chlorophenol	3900	U
541-73-1	1,3-Dichlorobenzene	3900	U
106-46-7	1,4-Dichlorobenzene	3900	U
95-50-1	1,2-Dichlorobenzene	3900	U
95-48-7	2-Methylphenol	3900	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	3900	U
106-44-5	4-Methylphenol	3900	U
621-64-7	N-Nitrosodi-N-Propylamine	3900	U
67-72-1	Hexachloroethane	3900	U
98-95-3	Nitrobenzene	3900	U
78-59-1	Isophorone	3900	U
88-75-5	2-Nitrophenol	3900	U
105-67-9	2,4-Dimethylphenol	3900	U
111-91-1	Bis(2-Chloroethoxy) Methane	3900	U
120-83-2	2,4-Dichlorophenol	3900	U
120-82-1	1,2,4-Trichlorobenzene	3900	U
91-20-3	Naphthalene	3900	U
106-47-8	4-Chloroaniline	3900	U
87-68-3	Hexachlorobutadiene	3900	U
59-50-7	4-Chloro-3-Methylphenol	3900	U
91-57-6	2-Methylnaphthalene	1800	J
77-47-4	Hexachlorocyclopentadiene	3900	U
88-06-2	2,4,6-Trichlorophenol	3900	U
95-95-4	2,4,5-Trichlorophenol	9400	U
91-58-7	2-Chloronaphthalene	3900	U
88-74-4	2-Nitroaniline	9400	U
131-11-3	Dimethylphthalate	3900	U
208-96-8	Acenaphthylene	3900	U
606-20-2	2,6-Dinitrotoluene	3900	U
99-09-2	3-Nitroaniline	9400	U
83-32-9	Acenaphthene	3900	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 105-24

CC-SS05-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

14/cf270

Matrix: (soil/water) Soil

Lab Sample ID: 51686005

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2962

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 15 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 05/01/95

Injection Volume: 2 (uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 6.87

4/19/95

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

51-28-5	2,4-Dinitrophenol	9400	U
100-02-7	4-Nitrophenol	9400	U
132-64-9	Dibenzofuran	3900	U
121-14-2	2,4-Dinitrotoluene	3900	U
84-66-2	Diethylphthalate	3900	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	3900	U
86-73-7	Fluorene	540	J
100-01-6	4-Nitroaniline	9400	U
534-52-1	4,6-Dinitro-2-Methylphenol	9400	U J
86-30-6	N-Nitrosodiphenylamine	3900	U
101-55-3	4-Bromophenyl-Phenylether	3900	U
118-74-1	Hexachlorobenzene	3900	U
87-86-5	Pentachlorophenol	9400	U
85-01-8	Phenanthrene	1400	J
120-12-7	Anthracene	1500 3900	U J
86-74-8	Carbazole	3900	U
84-74-2	Di-N-Butylphthalate	3900	U
206-44-0	Fluoranthene	480	J
129-00-0	Pyrene	1200	J
85-68-7	Butylbenzylphthalate	3900	U
91-94-1	3,3'-Dichlorobenzidine	3900	U
56-55-3	Benzo (A) Anthracene	580	J
218-01-9	Chrysene	3900	U
117-81-7	Bis (2-Ethylhexyl) Phthalate	1700	J
117-84-0	Di-N-Octylphthalate	3900	U J
205-99-2	Benzo (B) Fluoranthene	3900	U
207-08-9	Benzo (K) Fluoranthene	3900	U
50-32-8	Benzo (A) Pyrene	3900	U
193-39-5	Indeno (1,2,3-Cd) Pyrene	3900	U
53-70-3	Dibenz (A,H) Anthracene	3900	U
191-24-2	Benzo (G,H,I) Perylene	3900	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. Ref 24

CC-SS05-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686005

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2962

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 15 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 05/01/95

Injection Volume: 2 (uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 6.87

J6/10/95

Number TICs Found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown Alcohol	4.16	11000	JN
02.	Unknown Alkane	20.71	7800	J
03.	Unknown Alkane	19.55	6700	J
04.	Ethyl Dimethyl Benzene Isome	10.82	5400	J
05.	Unknown Aromatic	12.04	3600	J
06.	Unknown Alkane	18.29	3300	J
07.	Ethyl Dimethyl Benzene Isome	10.32	3200	J
08.	Unknown Alkane	14.20	3000	J
09.	Dimethyl Naphthalene Isomer	16.28	3000	J
10.	Methyl Propyl Benzene Isomer	10.19	2800	J
11.	Methyl Methylethyl Benzene I	10.69	2600	J
12.	Unknown PAH	14.71	2600	J
13.	Unknown Aromatic	11.83	2600	J
14.	Unknown Aromatic	13.40	2300	J
15.	Unknown Alkane	10.95	2100	J
16.	Trimethyl Benzene Isomer	8.60	2000	J
17.	Trimethyl Benzene Isomer	9.67	1900	J
18.	Dimethyl Naphthalene Isomer	16.06	1700	J
19.	Methyl Methylethyl Benzene I	11.39	1600	J ✓
20.	Unknown Alkane	15.65	1600	JN
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000645

1B
SEMIVOLATILE ORGANICS ANALYSISEPA SAMPLE NO. 143 of 278
SHEET

CC-SS06-01

Lab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: SAS No.: SDG No.: Matrix: (soil/water) SoilLab Sample ID: 51686006Sample wt/vol: 30 (g/mL) gLab File ID: D2946Level: (low/med) LOWDate Received: 04/19/95% Moisture: 13 decanted: (Y/N) NDate Extracted: 04/25/95Concentrated Extract Volume: 500 (uL)Date Analyzed: 04/29/95Injection Volume: 2 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 7.48

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/kg</u>	Q
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108-95-2	Phenol	380	U
111-44-4	Bis(2-Chloroethyl) Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitrosodi-N-Propylamine	380	U
67-72-1	Hexachloroethane	380	U J
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	Bis(2-Chloroethoxy) Methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U J
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-Methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	920	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	920	U
131-11-3	Dimethylphthalate	42	J
208-96-8	Acenaphthylene	74	J
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	920	U J
83-32-9	Acenaphthene	380	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 145-24

CC-SS06-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water) Soil

Lab Sample ID: 51686006

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2946

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 13 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/29/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.48

Handwritten initials and date: 4/29/95

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg

Q

51-28-5	2,4-Dinitrophenol	920	U
100-02-7	4-Nitrophenol	920	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	920	U J
534-52-1	4,6-Dinitro-2-Methylphenol	920	U
86-30-6	N-Nitrosodiphenylamine	380	U
101-55-3	4-Bromophenyl-Phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	920	U J
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	78	J
86-74-8	Carbazole	380	U J
84-74-2	Di-N-Butylphthalate	380 130	U J U
206-44-0	Fluoranthene	92	J
129-00-0	Pyrene	190	J
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo (A) Anthracene	84	J
218-01-9	Chrysene	110	J
117-81-7	Bis (2-Ethylhexyl) Phthalate	170	J
117-84-0	Di-N-Octylphthalate	380	U J
205-99-2	Benzo (B) Fluoranthene	160	J
207-08-9	Benzo (K) Fluoranthene	130	J
50-32-8	Benzo (A) Pyrene	130	J
193-39-5	Indeno (1,2,3-Cd) Pyrene	53	J
53-70-3	Dibenz (A,H) Anthracene	380	U
191-24-2	Benzo (G,H,I) Perylene	380	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CC0647
EPA SAMPLE NO. 145.628

CC-SS06-01

Lab Name: IEA-NJ Contract: 68D20022
Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water) Soil Lab Sample ID: 51686006
Sample wt/vol: 30 (g/mL) g Lab File ID: D2946
Level: (low/med) LOW Date Received: 04/19/95
% Moisture: 13 decanted: (Y/N) N Date Extracted: 04/25/95
Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/29/95
Injection Volume: 2 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) Y pH: 7.48

Number TICs Found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	5.48	2100	JB R
02.	Unknown	7.54	620	JB R
03.	Unknown Alkane	10.15	430	J N
04.	Unknown Alkane	9.80	380	J
05.	Unknown Acid	22.41	360	J
06.	Unknown Alkane	18.24	320	J
07.	Unknown	29.69	320	J
08.	Unknown	16.95	310	J
09.	Unknown Alkane	15.59	310	J
10.	Unknown Alkane	14.16	290	J
11.	Unknown Alkane	13.73	270	J
12.	Unknown Alkane	16.46	250	J
13.	Unknown	14.76	250	J
14.	Unknown Alkane	19.46	240	J
15.	Unknown	16.25	220	J
16.	Unknown	13.24	210	J V
17.	Unknown Alkane	19.53	200	J N
18.	bis(1,1-dimethylethyl) Pheno	17.27	190	JB R
19.	Unknown	14.69	190	J N
20.	Unknown Alkane	12.83	190	J N
21.				
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000679
EPA SAMPLE NO. *1460f278*

CC-SS07-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Lab Sample ID: 51686007

Sample wt/vol: 30 (g/mL) g Lab File ID: D2966

Level: (low/med) LOW Date Received: 04/19/95

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/01/95

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.05

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND		
108-95-2	Phenol	380	U
111-44-4	Bis(2-Chloroethyl) Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitrosodi-N-Propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	Bis(2-Chloroethoxy) Methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	39	J
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-Methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	930	U
83-32-9	Acenaphthene	380	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CC0680
EPA SAMPLE NO. 125, 24

CC-SS07-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____ 147 of 278

Matrix: (soil/water) Soil Lab Sample ID: 51686007

Sample wt/vol: 30 (g/mL) g Lab File ID: D2966

Level: (low/med) LOW Date Received: 04/19/95

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/01/95

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.05

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND		
51-28-5	2,4-Dinitrophenol	930	U
100-02-7	4-Nitrophenol	930	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	930	U
534-52-1	4,6-Dinitro-2-Methylphenol	930	UJ
86-30-6	N-Nitrosodiphenylamine	220	J
101-55-3	4-Bromophenyl-Phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	930	U
85-01-8	Phenanthrene	76	J
120-12-7	Anthracene	46	J
86-74-8	Carbazole	380	U
84-74-2	Di-N-Butylphthalate	380	U
206-44-0	Fluoranthene	140	J
129-00-0	Pyrene	130	J
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo (A) Anthracene	84	J
218-01-9	Chrysene	110	J
117-81-7	Bis (2-Ethylhexyl) Phthalate	260	J
117-84-0	Di-N-Octylphthalate	380	UJ
205-99-2	Benzo (B) Fluoranthene	120	J
207-08-9	Benzo (K) Fluoranthene	110	J
50-32-8	Benzo (A) Pyrene	87	J
193-39-5	Indeno (1,2,3-Cd) Pyrene	380	U
53-70-3	Dibenz (A,H) Anthracene	380	U
191-24-2	Benzo (G,H,I) Perylene	380	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

CC-SS07-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

1490f278

Matrix: (soil/water) Soil

Lab Sample ID: 51686007

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2966

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 14 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 05/01/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 8.05

3/10/95

Number TICs Found: 16

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	5.51	1600	JS R
02.	Unknown	26.09	1000	J N
03.	Unknown Alkene	24.24	920	J
04.	Unknown Aromatic	24.16	830	J ↓
05.	Unknown Alkane	27.36	520	J N
06.	Unknown	7.57	500	JS R
07.	Unknown Acid	22.44	440	J N
08.	Unknown Alkane	28.96	350	J
09.	Unknown Acid	24.46	250	J
10.	Unknown Aromatic	10.98	230	J
11.	Unknown	21.09	220	J
12.	Unknown	5.01	190	J
13.	Unknown	18.87	160	J
14.	bis(1,1-dimethylethyl) Pheno	17.26	140	J
15.	Unknown	24.63	140	J ↓
16.	Unknown	21.57	110	J N
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000709
EPA SAMPLE NO. Ref. 24

CC-SS08-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686008

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2948

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 17 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/29/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.13

56
5/5/95

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

108-95-2	Phenol	400	U
111-44-4	Bis(2-Chloroethyl) Ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitrosodi-N-Propylamine	400	U
67-72-1	Hexachloroethane	400	UJ
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	Bis(2-Chloroethoxy) Methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	UJ
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-Methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	960	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	960	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	960	UJ
83-32-9	Acenaphthene	400	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. **000510**

CC-SS08-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil

Lab Sample ID: 51686008

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2948

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 17 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/29/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.13

1506FJ71
5/4/95

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

51-28-5	2,4-Dinitrophenol	960	U
100-02-7	4-Nitrophenol	960	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	960	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	960	U
86-30-6	N-Nitrosodiphenylamine	400	U
101-55-3	4-Bromophenyl-Phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	960	UJ
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	UJ
84-74-2	Di-N-Butylphthalate	400 75	U
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo (A) Anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	Bis (2-Ethylhexyl) Phthalate	400	U
117-84-0	Di-N-Octylphthalate	400	UJ
205-99-2	Benzo (B) Fluoranthene	400	U
207-08-9	Benzo (K) Fluoranthene	400	U
50-32-8	Benzo (A) Pyrene	400	U
193-39-5	Indeno (1,2,3-Cd) Pyrene	400	U
53-70-3	Dibenz (A,H) Anthracene	400	U
191-24-2	Benzo (G,H,I) Perylene	400	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. **000711**

CC-SS08-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51686008

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2948

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 17 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/29/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.13

Number TICs Found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	5.48	2000	JB R
02.	Unknown	7.54	710	JB R
03.	bis(1,1-dimethylethyl) Pheno	17.26	170	J N
04.	Unknown Acid	22.40	130	J N
05.	Unknown Alkane	30.46	110	J N
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1B
SEMIVOLATILE ORGANICS ANALYSIS

EPA SAMPLE NO. 15.24
SHEET

CC-SS09-01

Lab Name: IEA-NJ Contract: 68D20022
Lab Code: IEANJ Case No.: SAS No.: SDG No.: 15206278
Matrix: (soil/water) Soil Lab Sample ID: 51686009
Sample wt/vol: 30 (g/mL) g Lab File ID: D2949
Level: (low/med) LOW Date Received: 04/19/95
% Moisture: 15 decanted: (Y/N) N Date Extracted: 04/25/95
Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/29/95
Injection Volume: 2 (uL) Dilution Factor: 1.0
GC Cleanup: (Y/N) Y pH: 7.87

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NO.	COMPOUND	Q
108-95-2	Phenol	72 J
111-44-4	Bis(2-Chloroethyl) Ether	390 U
95-57-8	2-Chlorophenol	390 U
541-73-1	1,3-Dichlorobenzene	390 U
106-46-7	1,4-Dichlorobenzene	390 U
95-50-1	1,2-Dichlorobenzene	390 U
95-48-7	2-Methylphenol	390 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	390 U
106-44-5	4-Methylphenol	390 U
621-64-7	N-Nitrosodi-N-Propylamine	390 U
67-72-1	Hexachloroethane	390 UJ
98-95-3	Nitrobenzene	390 U
78-59-1	Isophorone	390 U
88-75-5	2-Nitrophenol	390 U
105-67-9	2,4-Dimethylphenol	390 U
111-91-1	Bis(2-Chloroethoxy) Methane	390 U
120-83-2	2,4-Dichlorophenol	390 U
120-82-1	1,2,4-Trichlorobenzene	390 U
91-20-3	Naphthalene	40 J
106-47-8	4-Chloroaniline	390 UJ
87-68-3	Hexachlorobutadiene	390 U
59-50-7	4-Chloro-3-Methylphenol	390 U
91-57-6	2-Methylnaphthalene	52 J
77-47-4	Hexachlorocyclopentadiene	390 U
88-06-2	2,4,6-Trichlorophenol	390 U
95-95-4	2,4,5-Trichlorophenol	940 U
91-58-7	2-Chloronaphthalene	390 U
88-74-4	2-Nitroaniline	940 U
131-11-3	Dimethylphthalate	390 U
208-96-8	Acenaphthylene	64 J
606-20-2	2,6-Dinitrotoluene	390 U
99-09-2	3-Nitroaniline	940 UJ
83-32-9	Acenaphthene	100 J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000721
EPA SAMPLE NO. 125.24

CC-SS09-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

1530F278

Matrix: (soil/water) Soil

Lab Sample ID: 51686009

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2949

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 15 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/29/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

SPC Cleanup: (Y/N) Y pH: 7.87

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

51-28-5	2,4-Dinitrophenol	940	U
100-02-7	4-Nitrophenol	940	U
132-64-9	Dibenzofuran	43	J
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	390	U
86-73-7	Fluorene	98	J
100-01-6	4-Nitroaniline	940	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	940	U
86-30-6	N-Nitrosodiphenylamine	390	U
101-55-3	4-Bromophenyl-Phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	940	UJ
85-01-8	Phenanthrene	1400	
120-12-7	Anthracene	230	J
86-74-8	Carbazole	200	J
84-74-2	Di-N-Butylphthalate	390 260	JB U
206-44-0	Fluoranthene	1300	
129-00-0	Pyrene	1600	
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo (A) Anthracene	660	
218-01-9	Chrysene	920	
117-81-7	Bis (2-Ethylhexyl) Phthalate	220	J
117-84-0	Di-N-Octylphthalate	390	UJ
205-99-2	Benzo (B) Fluoranthene	930	
207-08-9	Benzo (K) Fluoranthene	680	
50-32-8	Benzo (A) Pyrene	640	
193-39-5	Indeno (1,2,3-Cd) Pyrene	390	U
53-70-3	Dibenz (A, H) Anthracene	71	J
191-24-2	Benzo (G, H, I) Perylene	160	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000722
EPA SAMPLE NO. Ref. 24

CC-SS09-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

1540F278

Matrix: (soil/water) Soil

Lab Sample ID: 51686009

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2949

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 15 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/29/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.87

Handwritten initials

Number TICs Found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	5.46	1400	JB R
02.	Unknown	6.42	610	J N
03.	Unknown PAH	31.26	590	J
04.	Unknown Acid	22.42	480	J
05.	Unknown Alkane	27.34	480	J
06.	Unknown PAH	25.58	390	J
07.	Unknown PAH	22.33	380	J
08.	Unknown Aromatic	23.12	360	J
09.	Unknown PAH	22.25	350	J
10.	Unknown Acid	26.43	260	J
11.	Unknown Aromatic	30.93	230	J
12.	Unknown	30.05	220	J
13.	Unknown Alkane	28.94	220	J
14.	benzo [b] naphthothiophene iso	27.17	210	J
15.	Unknown PAH	25.84	190	J
16.	Unknown Aromatic	26.91	190	J
17.	Unknown PAH	28.84	190	J
18.	Unknown PAH	28.14	190	J
19.	Unknown Acid	24.62	180	J V
20.	Unknown	27.27	180	J N
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000757

1B
SEMIVOLATILE ORGANICS ANALYSISEPA SAMPLE NO. 155 of 2
SHEET

CC-SS10-01

Lab Name: IEA-NJ Contract: 60D20042Lab Code: IEANJ Case No.: SAS No.: SDG No.: Matrix: (soil/water) SoilLab Sample ID: 51686010Sample wt/vol: 30 (g/mL) gLab File ID: D2967Level: (low/med) LOWDate Received: 04/19/95% Moisture: 16 decanted: (Y/N) NDate Extracted: 04/25/95Concentrated Extract Volume: 500 (uL)Date Analyzed: 05/01/95Injection Volume: 2 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 8.11CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

108-95-2	Phenol	390	U
111-44-4	Bis(2-Chloroethyl) Ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitrosodi-N-Propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	Bis(2-Chloroethoxy) Methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-Methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	950	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	950	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	42	J
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	950	U
83-32-9	Acenaphthene	390	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. PC-24

CC-SS10-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

1565278

Matrix: (soil/water) Soil

Lab Sample ID: 51686010

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2967

Level: (low/med) LOW

Date Received: 04/19/95

% Moisture: 16 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 05/01/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

PC Cleanup: (Y/N) Y

pH: 8.11

36
5/5/95

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	950	U
534-52-1	4,6-Dinitro-2-Methylphenol	950	U J
86-30-6	N-Nitrosodiphenylamine	390	U
101-55-3	4-Bromophenyl-Phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	950	U
85-01-8	Phenanthrene	220	J
120-12-7	Anthracene	98	J
86-74-8	Carbazole	42	J
84-74-2	Di-N-Butylphthalate	390 170	U J U
206-44-0	Fluoranthene	420	
129-00-0	Pyrene	440	
85-68-7	Butylbenzylphthalate	56	J
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo (A) Anthracene	260	J
218-01-9	Chrysene	300	J
117-81-7	Bis (2-Ethylhexyl) Phthalate	160	J
117-84-0	Di-N-Octylphthalate	390	U J
205-99-2	Benzo (B) Fluoranthene	300	J
207-08-9	Benzo (K) Fluoranthene	370	J
50-32-8	Benzo (A) Pyrene	260	J
193-39-5	Indeno (1,2,3-Cd) Pyrene	91	J
53-70-3	Dibenz (A,H) Anthracene	390	U
191-24-2	Benzo (G,H,I) Perylene	77	J

000759

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEETEPA SAMPLE NO. Ref. 14

CC-SS10-01

Lab Name: IEA-NJContract: 68D20022Lab Code: IEANJ Case No.: SAS No.: SDG No.: Matrix: (soil/water) SoilLab Sample ID: 51686010Sample wt/vol: 30 (g/mL) gLab File ID: D2967Level: (low/med) LOWDate Received: 04/19/95% Moisture: 16 decanted: (Y/N) NDate Extracted: 04/25/95Concentrated Extract Volume: 500 (uL)Date Analyzed: 05/01/95Injection Volume: 2 (uL)Dilution Factor: 1.0SPC Cleanup: (Y/N) Y pH: 8.11

S/S

Number TICs Found: 14CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	5.49	1800	JB R
02.	Unknown Alkane	30.50	1000	J N
03.	Unknown	7.55	520	JB R
04.	Unknown Acid	6.38	440	J N
05.	Unknown Acid	22.44	300	J
06.	Unknown Aromatic	26.53	240	J
07.	Unknown Alkane	27.35	210	J
08.	Unknown	24.62	180	J N
09.	bis(1,1-dimethylethyl) pheno	17.26	140	JB R
10.	Unknown Alkane	28.95	130	J N
11.	Unknown Alkane	29.70	120	J
12.	Unknown Alkane	28.15	110	J
13.	Unknown Aromatic	22.82	100	J
14.	Unknown Aromatic	24.96	85	J N
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1B
SEMIVOLATILE ORGANICS ANALYSIS DAEPA SAMPLE NO. Ref 24
ET

CC-FB-02-1

Lab Name: IEA-NJ Contract: 68D20CLab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

158.f278

Matrix: (soil/water) WaterLab Sample ID: 51704001Sample wt/vol: 860 (g/mL) mlLab File ID: D2902Level: (low/med) LOWDate Received: 04/20/95

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 04/24/95Concentrated Extract Volume: 1000 (uL)Date Analyzed: 04/27/95Injection Volume: 2 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) N pH: _____

CAS NO. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

108-95-2	Phenol	12	U
111-44-4	Bis(2-Chloroethyl) Ether	12	U
95-57-8	2-Chlorophenol	12	U
541-73-1	1,3-Dichlorobenzene	12	U
106-46-7	1,4-Dichlorobenzene	12	U
95-50-1	1,2-Dichlorobenzene	12	U
95-48-7	2-Methylphenol	12	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	12	U
106-44-5	4-Methylphenol	12	U
621-64-7	N-Nitrosodi-N-Propylamine	12	U
67-72-1	Hexachloroethane	12	U
98-95-3	Nitrobenzene	12	U
78-59-1	Isophorone	12	U
88-75-5	2-Nitrophenol	12	U
105-67-9	2,4-Dimethylphenol	12	U
111-91-1	Bis(2-Chloroethoxy) Methane	12	U
120-83-2	2,4-Dichlorophenol	12	U
120-82-1	1,2,4-Trichlorobenzene	12	U
91-20-3	Naphthalene	12	U
106-47-8	4-Chloroaniline	12	U
87-68-3	Hexachlorobutadiene	12	U
59-50-7	4-Chloro-3-Methylphenol	12	U
91-57-6	2-Methylnaphthalene	12	U
77-47-4	Hexachlorocyclopentadiene	12	U
88-06-2	2,4,6-Trichlorophenol	12	U
95-95-4	2,4,5-Trichlorophenol	29	U
91-58-7	2-Chloronaphthalene	12	U
88-74-4	2-Nitroaniline	29	U
131-11-3	Dimethylphthalate	12	U
208-96-8	Acenaphthylene	12	U
606-20-2	2,6-Dinitrotoluene	12	U
99-09-2	3-Nitroaniline	29	U
83-32-9	Acenaphthene	12	U

0135 REF. 24

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CC-FB-02-1

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

154.6278

Matrix: (soil/water) Water

Lab Sample ID: 51704001

Sample wt/vol: 860 (g/mL) ml

Lab File ID: D2902

Level: (low/med) LOW

Date Received: 04/20/95

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 04/24/95

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 04/27/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: _____

36/10/95

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

51-28-5	2,4-Dinitrophenol	29	UJ
100-02-7	4-Nitrophenol	29	U
132-64-9	Dibenzofuran	12	U
121-14-2	2,4-Dinitrotoluene	12	U
84-66-2	Diethylphthalate	12	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	12	U
86-73-7	Fluorene	12	U
100-01-6	4-Nitroaniline	29	U
534-52-1	4,6-Dinitro-2-Methylphenol	29	U
86-30-6	N-Nitrosodiphenylamine	12	U
101-55-3	4-Bromophenyl-Phenylether	12	U
118-74-1	Hexachlorobenzene	12	U
87-86-5	Pentachlorophenol	29	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	12	U
86-74-8	Carbazole	12	U
84-74-2	Di-N-Butylphthalate	12	U
206-44-0	Fluoranthene	12	U
129-00-0	Pyrene	12	U
85-68-7	Butylbenzylphthalate	12	U
91-94-1	3,3'-Dichlorobenzidine	12	U
56-55-3	Benzo (A) Anthracene	12	U
218-01-9	Chrysene	12	U
117-81-7	Bis (2-Ethylhexyl) Phthalate	9	JB
117-84-0	Di-N-Octylphthalate	12	U
205-99-2	Benzo (B) Fluoranthene	12	U
207-08-9	Benzo (K) Fluoranthene	12	U
50-32-8	Benzo (A) Pyrene	12	U
193-39-5	Indeno (1,2,3-Cd) Pyrene	12	U
53-70-3	Dibenz (A,H) Anthracene	12	U
191-24-2	Benzo (G,H,I) Perylene	12	U

000136

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEETEPA SAMPLE NO. Re 24

CC-FB-02-1

Lab Name: IEA-NJContract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water) WaterLab Sample ID: 51704001Sample wt/vol: 860 (g/mL) mlLab File ID: D2902Level: (low/med) LOWDate Received: 04/20/95

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 04/24/95Concentrated Extract Volume: 1000 (uL)Date Analyzed: 04/27/95Injection Volume: 2 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) N pH: _____

3/10/95

Number TICs Found: 4CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown Acid	15.14	6	JN
02.	Unknown Alcohol	6.86	5	JBN
03.	Unknown Ketone	15.98	.4	JN
04.	Unknown	12.65	3	JN
05.				
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000144

1B
SEMIVOLATILE ORGANICS ANALYSIS IEPA SAMPLE NO.
1610f273

CC-FB03-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water) Water

Lab Sample ID: 51704002

Sample wt/vol: 870 (g/mL) ml

Lab File ID: D2903

Level: (low/med) LOW

Date Received: 04/20/95

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 04/24/95

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 04/27/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: _____

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Q

108-95-2	Phenol	11	U
111-44-4	Bis(2-Chloroethyl) Ether	11	U
95-57-8	2-Chlorophenol	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
95-50-1	1,2-Dichlorobenzene	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	11	U
106-44-5	4-Methylphenol	11	U
621-64-7	N-Nitrosodi-N-Propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	11	U
88-75-5	2-Nitrophenol	11	U
105-67-9	2,4-Dimethylphenol	11	U
111-91-1	Bis(2-Chloroethoxy) Methane	11	U
120-83-2	2,4-Dichlorophenol	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	11	U
87-68-3	Hexachlorobutadiene	11	U J
59-50-7	4-Chloro-3-Methylphenol	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
88-06-2	2,4,6-Trichlorophenol	11	U
95-95-4	2,4,5-Trichlorophenol	29	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	29	U
131-11-3	Dimethylphthalate	11	U
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U
99-09-2	3-Nitroaniline	29	U
83-32-9	Acenaphthene	11	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

103145
EPA SAMPLE NO. *Ref. 24*

CC-FB03-01

Name: IEA-NJ

Contract: 68D20022

b Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Water

Lab Sample ID: 51704002

Sample wt/vol: 870 (g/mL) ml

Lab File ID: D2903

Level: (low/med) LOW

Date Received: 04/20/95

Moisture: decanted: (Y/N)

Date Extracted: 04/24/95

Entrusted Extract Volume: 1000 (uL)

Date Analyzed: 04/27/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NO.

COMPOUND

Q

100-28-5	2,4-Dinitrophenol	29	UJ
100-02-7	4-Nitrophenol	29	U
132-64-9	Dibenzofuran	11	U
11-14-2	2,4-Dinitrotoluene	11	U
1-66-2	Diethylphthalate	11	U
1005-72-3	4-Chlorophenyl-Phenyl Ether	11	U
83-73-7	Fluorene	11	U
100-01-6	4-Nitroaniline	29	U
534-52-1	4,6-Dinitro-2-Methylphenol	29	U
86-30-6	N-Nitrosodiphenylamine	11	U
101-55-3	4-Bromophenyl-Phenylether	11	U
118-74-1	Hexachlorobenzene	11	U
87-86-5	Pentachlorophenol	29	U
85-01-8	Phenanthrene	11	U
120-12-7	Anthracene	11	U
15-74-8	Carbazole	11	U
84-74-2	Di-N-Butylphthalate	11	U
206-44-0	Fluoranthene	11	U
29-00-0	Pyrene	11	U
105-68-7	Butylbenzylphthalate	11	U
91-94-1	3,3'-Dichlorobenzidine	11	U
13-55-3	Benzo (A) Anthracene	11	U
18-01-9	Chrysene	11	U
117-81-7	Bis (2-Ethylhexyl) Phthalate	8	JB
117-84-0	Di-N-Octylphthalate	11	U
105-99-2	Benzo (B) Fluoranthene	11	U
107-08-9	Benzo (K) Fluoranthene	11	U
50-32-8	Benzo (A) Pyrene	11	U
193-39-5	Indeno (1,2,3-Cd) Pyrene	11	U
13-70-3	Dibenz (A,H) Anthracene	11	U
191-24-2	Benzo (G,H,I) Perylene	11	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. Ref. 14

CC-FB03-01

Lab Name: IEA-NJ Contract: 68D20022
 Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____ 163.0 f278
 Matrix: (soil/water) Water Lab Sample ID: 51704002
 Sample wt/vol: 870 (g/mL) ml Lab File ID: D2903
 Level: (low/med) LOW Date Received: 04/20/95
 % Moisture: _____ decanted: (Y/N) _____ Date Extracted: 04/24/95
 Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/27/95
 Injection Volume: 2 (uL) Dilution Factor: 1.0
 GC Cleanup: (Y/N) N pH: _____

Number TICs Found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown Acid	15.14	4	JN
02.	Unknown Alcohol	6.86	3	JBN
03.	Unknown	9.70	2	JN
04.				
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1B
SEMIVOLATILE ORGANICS ANALYSIS D.

000153
EPA SAMPLE NO.
JET

CC-SS11-01

Lab Name: IEA-NJ Contract: 68D20044

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil

Lab Sample ID: 51704003

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2928

Level: (low/med) LOW

Date Received: 04/20/95

% Moisture: 39 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/28/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.24

56
5/10/95

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

108-95-2	Phenol	540	U
111-44-4	Bis(2-Chloroethyl) Ether	540	U
95-57-8	2-Chlorophenol	540	U
541-73-1	1,3-Dichlorobenzene	540	U
106-46-7	1,4-Dichlorobenzene	540	U
95-50-1	1,2-Dichlorobenzene	540	U
95-48-7	2-Methylphenol	540	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	540	U
106-44-5	4-Methylphenol	540	U
621-64-7	N-Nitrosodi-N-Propylamine	540	U
67-72-1	Hexachloroethane	540	U
98-95-3	Nitrobenzene	540	U
78-59-1	Isophorone	540	U
88-75-5	2-Nitrophenol	540	U
105-67-9	2,4-Dimethylphenol	540	U
111-91-1	Bis(2-Chloroethoxy) Methane	540	U
120-83-2	2,4-Dichlorophenol	540	U
120-82-1	1,2,4-Trichlorobenzene	540	U
91-20-3	Naphthalene	540	U
106-47-8	4-Chloroaniline	540	U
87-68-3	Hexachlorobutadiene	540	UJ
59-50-7	4-Chloro-3-Methylphenol	540	U
91-57-6	2-Methylnaphthalene	540	U
77-47-4	Hexachlorocyclopentadiene	540	UJ
88-06-2	2,4,6-Trichlorophenol	540	U
95-95-4	2,4,5-Trichlorophenol	1300	U
91-58-7	2-Chloronaphthalene	540	U
88-74-4	2-Nitroaniline	1300	U
131-11-3	Dimethylphthalate	540	U
208-96-8	Acenaphthylene	540	U
606-20-2	2,6-Dinitrotoluene	540	U
99-09-2	3-Nitroaniline	1300	U
83-32-9	Acenaphthene	540	U

000154

Ref. 24

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CC-SS11-01

Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

165-0578

Matrix: (soil/water) Soil

Lab Sample ID: 51704003

Sample wt/vol: 30 (g/mL) g

Lab File ID: D2928

Level: (low/med) LOW

Date Received: 04/20/95

% Moisture: 39 decanted: (Y/N) N

Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/28/95

Injection Volume: 2 (uL)

Dilution Factor: 1.0

GC Cleanup: (Y/N) Y pH: 5.24

CAS NO. COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

Q

51-28-5	2,4-Dinitrophenol	1300	UJ
100-02-7	4-Nitrophenol	1300	U
132-64-9	Dibenzofuran	540	U
121-14-2	2,4-Dinitrotoluene	540	U
84-66-2	Diethylphthalate	540	U
7005-72-3	4-Chlorophenyl-Phenyl Ether	540	UJ
86-73-7	Fluorene	540	U
100-01-6	4-Nitroaniline	1300	U
534-52-1	4,6-Dinitro-2-Methylphenol	1300	U
86-30-6	N-Nitrosodiphenylamine	540	U
101-55-3	4-Bromophenyl-Phenylether	540	U
118-74-1	Hexachlorobenzene	540	U
87-86-5	Pentachlorophenol	1300	U
85-01-8	Phenanthrene	98	J
120-12-7	Anthracene	540	U
86-74-8	Carbazole	540	U
84-74-2	Di-N-Butylphthalate	540	U
206-44-0	Fluoranthene	170	J
129-00-0	Pyrene	180	J
85-68-7	Butylbenzylphthalate	80	J
91-94-1	3,3'-Dichlorobenzidine	540	UJ
56-55-3	Benzo (A) Anthracene	67	J
218-01-9	Chrysene	100	J
117-81-7	Bis (2-Ethylhexyl) Phthalate	500	J
117-84-0	Di-N-Octylphthalate	540	U
205-99-2	Benzo (B) Fluoranthene	91	J
207-08-9	Benzo (K) Fluoranthene	110	J
50-32-8	Benzo (A) Pyrene	81	J
193-39-5	Indeno (1,2,3-Cd) Pyrene	540	U
53-70-3	Dibenz (A,H) Anthracene	540	U
191-24-2	Benzo (G,H,I) Perylene	540	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000155
EPA SAMPLE NO. Ref. 24

CC-SS11-01

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____ 166 of 278

Matrix: (soil/water) Soil Lab Sample ID: 51704003

Sample wt/vol: 30 (g/mL) g Lab File ID: D2928

Level: (low/med) LOW Date Received: 04/20/95

% Moisture: 39 decanted: (Y/N) N Date Extracted: 04/25/95

Concentrated Extract Volume: 500 (uL) Date Analyzed: 04/28/95

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.24

Number TICs Found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01.	Unknown	35.04	4700	JN
02.	Unknown Alkane	30.58	4400	JN
03.	Unknown Hydrocarbon	25.80	4300	JN
04.	Unknown Alkane	32.50	2700	JN
05.	Unknown Alkane	27.50	2100	JN
06.	Unknown Acid	31.21	1800	JN
07.	Unknown	29.08	1800	JN
08.	Unknown	30.14	1300	JN
09.	Unknown Alkene	27.43	1300	JN
10.	Unknown	5.48	1200	JB R
11.	Unknown Alkane	29.02	1100	JN
12.	Unknown	33.35	1000	JN
13.	unknown Aldehyde	31.98	1000	JN
14.	Unknown Ketone	32.85	850	JN
15.	Unknown Ketone	35.60	770	JN
16.	Unknown Acid	20.32	690	JN
17.	Unknown Alkane	31.46	660	JN
18.	Unknown	36.25	660	JN
19.	Unknown Alkane	28.93	590	JN
20.	unknown Aldehyde	34.43	380	JN
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Ref. 14
10405278

CAPTAIN'S COVE
DATA VALIDATION REPORT
SDGs 51686B, 51704B, 51723A

Prepared by:

Cecelia N. Minch
Cecelia N. Minch

Date:

6/10/95

102748

Def. 24
170 of 278

BRIDGEPORT RENTAL AND OIL SERVICES
DATA VALIDATION REPORT

SUMMARY:

This case consisted of 8 aqueous and 26 soil samples collected between April 18 and April 20, 1995 and designated for pesticide/PCB, total metals and cyanide analyses. Five of the aqueous samples were also filtered in the field and designated for dissolved metals. One field duplicate pair was collected analyzed with satisfactory results. Four field blanks were also among the samples collected. All soil results were reported on a dry weight basis. Samples CC-SS11-02, SD02 and SD03 contained more than 50% moisture. Consequently, the metals and CN results were qualified as estimated (J/UJ) in all 3 samples. The pesticide analyses of SD02 and SD03 were previously qualified for other criteria.

All data were evaluated for Level IV DQO, employing USEPA Region II validation criteria. The specifics for each parameter and associated QC are detailed below.

The sample identification of the field blank collected on 4/20/95 was changed to CC-FB-01-01 by the sampler after the data was generated by the lab. All forms have been corrected by the reviewer.

The sample identifications used in this report have been truncated for expediency. Unless otherwise indicated, all sample IDs are prefixed with CC- and suffixed with -01.

PRESERVATION:

The chains of custody indicated that all aqueous samples for metals and CN were preserved. The lab performed a check of the pH upon receipt, but did not provide documentation of the actual pH for the metals samples. Contact with the lab confirmed that all pH values were <2. No action was taken.

HOLDING TIMES:

Pesticides:

All samples failed the technical holding times specified for extractions and were subsequently qualified as estimated (J/UJ). All of the aqueous samples also exceeded the contractual holding times.

Metals:

All samples were prepped and analyzed within specified holding times.

SURROGATES:

Pesticides:

Several samples and both prep blanks exhibited 1 surrogate recovery out of specified limits on 1 or both columns, but no action was required. Both field blanks failed recovery criteria of 3 surrogates and would have been qualified as estimated (J/UJ), but were previously qualified for other criteria.

Ref 24
17/06/278

MATRIX SPIKES:

The chains of custody for this sampling event designated specific samples to be used for spikes. The laboratory complied with the requests and such analyses met the CLP frequency requirements. Because of the order in which the laboratory assembled the data packages, however, SDG 51704B did not contain a soil spike analysis that was performed on a sample included in the SDG. Aqueous spikes were not required to be performed in SDGs 51704B or 51723A since the only aqueous samples were field blanks. Therefore, for the metals fraction only, the soil spike reported in SDG 51686B was associated with the soil sample in SDG 51704B, and the aqueous spikes associated to all aqueous samples in the entire case.

Pesticides:

The soil spike and spike duplicate failed recovery criteria for gamma-BHC, dieldrin and DDT. The high recoveries may be attributed to matrix interferences. All aqueous spike criteria were acceptable.

Metals:

The data were qualified as follows due to spike recoveries out of specified limits:

Qualified as estimated (J/UJ):

As: GW01, GW02, GW03, GW04, FB02, FB03, CC-FB01, LT-FB01

CN: GW01, GW02, GW03, GW04, SD01, SS01, SS02, SS03, SS04, SS05, SS06, SS07, SS08, SS09, SS10, SS11-01, FB02, FB03, CC-FB01, LT-FB01

Se: SS11-03, SS12, SS13, SS14, SS15, LT-SS01, LT-SS02, LT-SS03, LT-SS04, LT-SS05, LT-SS05-01D

Cd: SS13, SS14, SS15, LT-SS01, LT-SS02, LT-SS03, LT-SS04, LT-SS05, LT-SS05-01D

Hg: SS13, SS14, SS15, LT-SS02, LT-SS03, LT-SS04

The following data would have been qualified as estimated (J/UJ), but were previously for other criteria:

CN: SD02, SD03

Pb: SS11-01, all soils SDG 51686

Zn: SS11-01, all soils SDG 51686

Hg: SS11-02

ANALYTICAL SPIKES:

Metals:

The following were qualified as estimated (J/UJ) for failing recovery criteria:

As: GW03-01F

Se: GW01, GW03, GW04, GW01-01F

Tl: GW01, GW02, GW03, GW04, GW01-01F, GW02-01F, GW03-01F, GW04-01F, LT-SS01, LT-SS02

The following would have been qualified "J/UJ", but were previously qualified:

As: LT-SS01

24,24
172.4273

LAB DUPLICATES:

The lab performed duplicates on the samples specified in the chains of custody, which meets the CLP guidance for frequency of analysis. Although the QC results may not be in the same SDG with like samples, all data were associated with the appropriate duplicate for qualification purposes.

Metals:

Lead was qualified as estimated (J/UJ) in SS05 and SS08 for exceeding duplicate criteria. Sample SD03 was previously qualified for other criteria.

LAB CONTROL SAMPLE (LCS):

Metals:

All LCS analyses were within specified limits.

SERIAL DILUTION:

The following soil data were qualified for failing serial dilution criteria.

Rejected:

Cr: SS01, SS02, SS03, SS04, SS05, SS06, SS07, SS08, SS09, SS10, SD01, SD02, SD03, SS11-01

Mn: SS01, SS02, SS03, SS04, SS05, SS06, SS07, SS08, SS09, SS10, SD01, SD02, SD03, SS11-01

Qualified as estimated (J):

Al: SS01, SS02, SS03, SS04, SS05, SS06, SS07, SS08, SS09, SS10, SD01, SS11-01

Ca: SS01, SS02, SS03, SS04, SS05, SS06, SS07, SS09, SS10, SD01

Cu: SS01, SS02, SS03, SS04, SS05, SS06, SS07, SS08, SS09, SS10, SD01, SS11-01

FE: SS01, SS02, SS03, SS04, SS05, SS06, SS07, SS08, SS09, SS10, SD01, SS11-01

Pb: SS01, SS02, SS03, SS04, SS05, SS06, SS07, SS09, SS10, SD01, SS11-01

Mg: SS03, SS04, SS05, SS06, SS07, SS09, SS10, SD01

V: SS01, SS02, SS03, SS04, SS05, SS06, SS07, SS09, SS10, SD01, SS11-01

Zn: SS01, SS02, SS03, SS04, SS05, SS06, SS07, SS08, SS09, SS10, SD01, SS11-01

Samples SD02 and SD03 would also have been flagged "J" for exceeding criteria in the above elements, but were previously qualified for other criteria.

The aqueous serial dilution associated with the total metals (non-filtered) exceeded criteria for Cu, K, V and Zn. The sample data were qualified "J" as follows:

Cu: GW01, GW02, GW03, GW04

K: GW01, GW02, GW03, GW04

V: GW01, GW03, GW04

Zn: GW01, GW02, GW03, GW04

The aqueous serial dilution for dissolved metals (filtered) failed for Zn. Sample GW02-01F would have been qualified "J", but was previously qualified for other criteria.

12F.24
173.0f.278

BLANK CONTAMINATION:

Pesticides:

No contamination was reported.

Metals:

No qualifications were required.

INSTRUMENT CALIBRATION:

Pesticides:

Alpha-BHC exceeded criteria in the initial calibration and would have been qualified as estimated (J/UJ) in all samples, but they were previously qualified for other criteria.

Metals:

Two CN CCVs exceeded criteria in the 4/28 sequence. Since all associated samples were non-detects, no action was required.

The following data were qualified due to CRI/CRA recoveries out of specified limits.

Qualified as rejected:

Zn: GW01-01F, GW02-01F, GW03-01F, GW04-01F, FB03, LT-FB01

Qualified as estimated (J/UJ):

Sb: GW01-01F, FB02, FB03-01F

Cr: GW01-01F, GW02-01F, GW03-01F, GW04-01F, FB02, FB03, FB03-01F, CC-FB01, LT-FB01, LT-SS03

Co: GW01-01F, GW02-01F, GW03-01F, GW04-01F, FB02, FB03, FB03-01F, CC-FB01, LT-FB01

Mn: FB02, FB03, FB03-01F, CC-FB01, LT-FB01

Ni: GW01-01F, GW02-01F, GW03-01F, GW04-01F, FB02, FB03, FB03-01F, CC-FB01, LT-FB01, SS11-03, LT-SS03

V: GW01-01F, GW02-01F, GW03-01F, GW04-01F, FB02, FB03, FB03-01F, CC-FB01, LT-FB01

Cd: SD01, SS07, SS01

Nickel would have been qualified "J" in SS11-02, but was previously qualified.

INTERFERENCE CHECK SAMPLE (ICS):

Metals:

All ICS analyses met specified criteria.

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174. f278

SAMPLE IDENTIFICATION/QUANTITATION:

Pesticides:

Due to coeluting interferences, the %D between the results obtained on the 2 dissimilar analytical columns for the single component constituents exceeded 25%. In some instances, the %D was acceptable, but a coeluting aroclor made it impossible to confirm the presence or absence of the pesticide compounds. All results were previously qualified "J" for other criteria. The following data have been further qualified "N".

Qualified "N" (%D > 25):

beta-BHC: CC-SS03-01, SS03DL, SD02, SD03

aldrin: CC-SS03-01, SS04, SD03

endrin: CC-SS02-01, SS03, SS04, SS06, SS07DL, SS09

dieldrin: CC-SS02-01, SS03, SS03DL, SS04, SS06, SS07, SS07DL, SS09, SS10, SD01, SD01DL, SD02, SD03

DDE: CC-SS03-01DL, SS09, SS10, SD01, SD01DL, SD02, SD03

DDD: CC-SS01-01, SS02, SS03, SS03DL, SS04, SS06, SS07, SS07DL, SS09, SS10, SD01, SD01DL, SD02, SD03

endosulfan sulfate: CC-SS01-01.

DDT: CC-SS06-01, SS07, SS07DL, SS09, SS10

endrin ketone: CC-SS04-01, SS11-01

alpha-chlordane: CC-SS01-01, SD02, SD03

gamma-chlordane: CC-SS03-01, SS03DL, SS04, SS06, SS07, SS07DL, SS09, SS10

Arl254: SD01DL

The second column value for several aroclors was adjusted by the reviewer because the lab used a peak influenced by an unknown interference. None of the Form I results of the samples involved were affected.

DILUTIONS/REANALYSES:

This package contains dilutions, reanalyses or re-extractions. Upon review of the QA results, the following Form Is are identified to be used:

	<u>USE</u>	<u>DO NOT USE</u>
<u>PEST</u>	SS07	SS07DL
	SS03	SS03DL
	SD01 :	SD01DL

GENERAL COMMENTS:

The lab did not address the missed holding times or surrogate recovery problems encountered during pesticide analysis in the case narrative.

A separate Form I was not generated for the pesticide instrument blanks for each column.

The lab did not resume analysis of the pesticide sequence with a PEM standard after a break in data acquisition of more than 12 hours.

Ref. 24
175 of 275

All CN results were manually adjusted by the reviewer to be consistent with the reporting requirements of Region II. The laboratory established an IDL using the method intended only for ICP and AA analytes.

Manual corrections were made to the IDLs of the elements determined by furnace when more than 1 instrument was used. According to OLMO3.0, the highest IDL is used for all results.

The CRDL for Pb determined by ICP was corrected on Form 10.

The IDL for Pb determined by ICP exceeded the CRDL. All Pb sample results obtained by ICP exceeded 5 times the IDL, so no action was required.

The Pb CRI standard was not at the proper concentration.

The As CRA standard was analyzed at the end of the sequence run on 5/2/95. No action was taken.

Form 14 for CN analysis did not include time of analysis.

TELEPHONE RECORD LOG

Ref. 24
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Date of Call: 6/5/95
Laboratory Name: IEA
Lab Contact: Leanne
Client: Foster Wheeler
Client Contact: C. Minch

Call Initiated By: Laboratory x Client

In reference to data for the following sample number(s):

Captain's Cove #20950 -51686B, -61704B, 51723A

Summary of Questions/Issues Discussed:

1. Please submit pH documentation for all aqueous metals.
2. Please submit raw data for all % solids determinations.
3. Please note in subsection 10 on page E-25 of ILMO3.0 that the highest IDL is used when multiple instruments are used. This pertains to the IDLs reported for furnace elements.
4. Please note that the CRI for ICP Pb should have been at 2xIDL, therefore, the correct concentration should have been 70 ug/l.
5. Were all CN ICVs distilled?
6. What was the concentration of the CN spike mix?
7. The IDLs reported for CN on all forms are not consistent with the method or raw data. The method specifies a 10ug/l limit for aqueous samples. In both matrices, a minimum value of 5 may be used in the calculation where the instrument reading is inserted. The correct sample values were on analysis log, but not transferred to the Form 1s.

Cecilia A. Minch
Signature

6/5/95
Date

TELEPHONE RECORD LOG

Ref. 24
17705278

SDG 51686B

8. Please submit missing Form 9 for CC-SS05-01.
9. Please provide missing raw data for Pb sequences analyzed on 5/13 and 5/15.
10. The control limit is incorrect on the Form 6 for both aqueous samples. Please resubmit.
11. Resubmit Form 7 with corrected value for aqueous Pb result. It is presently reported at 2x that of raw data.
12. Please recheck results reported for the soil spike and lab duplicate for Pb. There are manual corrections to the raw data, but the changes are not reflected in the forms. The sample result was manually corrected for interference.
12. Please regenerate all Forms associated with the aqueous samples. They are off by a factor of 2.
13. Resubmit the raw data for the final CN CCB analyzed on 4/28. It did not copy.
14. The reported value for the CN LCSW from 4/28 is incorrect on Form 7. Resubmit. What is the true value of LCS?
15. Resubmit the Forms 2 and 3 for CN sequence 4/28. The ICV at 15:16:30 and the ICB at 15:17:00 were not reported.
16. Resolve discrepancy involving -015MS. Two spikes were run. The raw data indicates that the one reported should not be used. Was the second MS redistilled? The spike added reported on Form 5 is not consistent with that indicated on the CN analysis log.
17. What are the sample volumes for the CN ICV and ICB analyzed in the 5/2/95 sequence?
18. Recheck Form 5 against CN raw data for SS05. It is not consistent with the reanalysis. The first spike was crossed out.
19. Please resubmit onscale chromatograms for the following pesticide samples:
 - CC-SS01-01 - endosulfan sulfate RTX-1701
 - CC-SS04-01 - aroclor RTX-608
 - CC-SS02-01 - Arl260 both columns.

SDG 51704B

20. The CCB analyzed at 21:42 in the As sequence on 5/1 does not show a duplicate injection. The Forms indicate the run was used, but the value does not agree. Resubmit appropriate corrections.

SDG 51723A

21. Resubmit Form 7 with the correct ICP Pb result (page 61 vs. page 198).
22. I cannot reproduce the reported Tl result for LT-SS05-01 obtained by MSA. Please recheck.
23. What was the volume of the CN ICV and ICB run on 5/2?
24. The reported value of the CN CCVs are not consistent with the volume documented. Please resolve.
25. The prep blank analyzed in the CN sequence from 5/4 is identified as PBW, but lists 5.0 g distilled. No other soil blanks run. Please confirm.
26. The value of the ICV analyzed on 5/4 is not consistent with the volume documented. Please resolve.
27. Please confirm the %solids for 51723011. CN raw data documents 86.3, but Form 1 says 74.4. Resubmit all necessary data.

102756



IEA
An Aquarion Company

628 Route 10
Whippany, New Jersey 07981

Phone 201-428-8181
Fax 201-428-5222

Ref. 24

178-f-278

June 8, 1995

Ms. Cecelia N. Minch
Foster Wheeler Environmental Corporation
873 Chivas Drive
Toms River, NJ 08753

Dear Ms. Minch:

The following is our response to your facsimile in regard to the CCP Project:

- 1) A preservative check was performed upon receipt of the samples - any deviations are noted on the chain of custody as well as the sample control chronicle. Refer to pages 51686-P000009, 51704-P000009, and 51723-P000010.
- 2) Enclosed.
- 3) Noted.
- 4) Noted.
- 5) Yes, all cyanide ICV's were distilled.
- 6) Daily CN concentration = 5 mg/L.
LCSW and MS spike (10 mL of daily to 500 mL) = 0.100 mg/L.
CCV spike (15 mL of daily to 250 mL) = 0.300 mg/L.
- 7) The method specifies a CRDL of 10 ug/L. This is reflected on the raw data sheets. The IDL is an instrument detection limit which is calculated based on a sample which is spiked at 2-5 times the previous IDL, and read seven times on each of three non consecutive days. The standard deviations for each day are then added together to produce the new IDL. The CN values which are reported are shown as either under the IDL (u), between the IDL and the CRDL (b), or above the CRDL.
- 8) Enclosed.
- 9) Enclosed.
- 10) Enclosed.
- 11) Enclosed.

Monroe,
Connecticut
203-261-4458

Sunrise,
Florida
305-846-1730

Schaumburg,
Illinois
708-705-0740

N. Billerica,
Massachusetts
617-272-5212

Research Triangle Park,
North Carolina
919-677-0090

102757



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Ref. 24
1790 f278

- 12) No iron on lead corrections were used. Samples were not error corrected like the others, but they were not used. Refer to the case narrative.
- 13) Enclosed.
- 14) True value for LCSW is 100 ug/L.
- 15) Enclosed (CCV, CCB added).
- 16) The second MS was not redistilled. It was post-spiked at 2X MDL as in CLP. This is demonstrated on form 5B post digestion spike.
- 17) For the 5-2-95 CN run; the ICV volume is 500 ml, the ICB volume is 250 ml.
- 18) Form 5 was reported in ug/L while the raw data is in mg/kg. The percentages remain the same.
- 19) Enclosed.
- ✓ 20) CCB not used. CCB deleted from form. Resubmitted.
- ✓ 21) NA *very close - (20/4/95)*
- ✓ 22) Enclosed. *did not correct form*
- ✓ 23) For the CN run on 5/2, the ICV was 500 ml and the ICB was 250 ml.
- ✓ 24) CN CCV's have a volume of 250 ml. This is reflected both in the spike amount found and the true value.
- ✓ 25) The prep blank for the CN run on 5/4 was incorrectly identified as a PBW. Instead, it is a prep blank spike distilled specifically for the soil run.
- ✓ 26) The ICV was improperly assigned a volume of 250 ml. The correct volume is 500 ml. This is the volume which is reflected in the report.
- ✓ 27) Resubmitted.

If you have any further questions, or require additional information, please do not hesitate to call.

Sincerely,

Leanne Schlobach
Project Manager

c: Edgar Aguado (FWEC)

102758



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FIELD DUPLICATE WORKSHEET

CASE: 51723

ORIGINAL SAMPLE NO.: LT-SS05-01

SITE: CARTAINS COVE

DUPLICATE SAMPLE NO.: LT-SS05-01D

REVIEWER: C MINCH

MATRIX: Soil

Analyte	CRDL	Control Limit ¹	Sample(s) Units:	Duplicate(D) Units:	RPD ² ✓
			µg/L	µg/L	
Aluminum (Al)	200		73821	105390	35
Antimony (Sb)	60		351.2	331.5	6
Arsenic (As)	10		138	144	4
Barium (Ba)	200		46588	65936	34
Beryllium (Be)	5		16.5	23.0	33
Cadmium (Cd)	5		13.9	15.5	11
Calcium (Ca)	5000		49942	69862	33
Chromium (Cr)	10		143.8	196.7	31
Cobalt (Co)	50		5106	7330	36
Copper (Cu)	25		11543	16661	36
Iron (Fe)	100		160670	218840	31
Lead (Pb)	53		2967	4224	35
Magnesium (Mg)	5000		33111	47249	35
Manganese (Mn)	15		32136	49220	42
Mercury (Hg)	0.2		-	-	
Nickel (Ni)	40		2029	3005	39
Potassium (K)	5000		7006	9820	33
Selenium (Se)	5		-	-	
Silver (Ag)	10		258.5	369.8	35
Sodium (Na)	5000		114565	168105	38
Thallium (Tl)	10		70.1	48.0	37
Vanadium (V)	50		89.9	114.3	24
Zinc (Zn)	20		1212	1709	34
Cyanide (CN)	10		-	-	

¹ Aqueous: RPD > 50% or < 1*CRDL
Solid: RPD > 100% or > 2*CRDL

² $RPD = \frac{Is - Dl}{(S+D)/2} \times 100$

NC - RPD not calculable due to value(s) less than IDL.

1416K

102759

Ref. 24
1805F
278

TOTAL/DISSOLVED WORKSHEET

ASE: 51704

SAMPLE NO. C-FB03-01

Ref. 24
18706
278

SITE: Captains Cove

UNITS: ug/l

<u>anlyte</u>	<u>CRDL</u>	<u>Total (T)</u>	<u>Dissolved(D)</u>	<u>%D</u> ¹
Aluminum (Al)	200			
Antimony (Sb)	60		42.4	
Arsenic (As)	10			
Barium (Ba)	200			
Beryllium (Be)	5			
Cadmium (Cd)	5			
Calcium (Ca)	5000	75.3		
Chromium (Cr)	10			
Cobalt (Co)	50			
Copper (Cu)	25			
Iron (Fe)	100			
Lead (Pb)	3			
Magnesium (Mg)	5000			
Manganese (Mn)	15			
Mercury (Hg)	0.2			
Nickel (Ni)	40			
Potassium (K)	5000			
Selenium (Se)	5			
Silver (Ag)	10			
Sodium (Na)	5000	146		
Thallium (Tl)	10			
Vanadium (V)	50			
Zinc (Zn)	20	9.6	16.8	
Cyanide (CN)	10	4.0	NA	

Calculated when dissolved concentration > CRDL and > total.

$$\%D = \frac{D - T}{T} \times 100$$

TOTAL/DISSOLVED WORKSHEET

ASE: 51686

SAMPLE NO. Gw01 ✓

Ref. 24
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278

SITE: Captains Cove

UNITS: ug/l

<u>anlyte</u>	<u>CRDL</u>	<u>Total (T)</u>	<u>Dissolved(D)</u>	<u>%D</u> ¹
Aluminum (Al)	200	19600	44.6	
Antimony (Sb)	60	46.9	52.9	
Arsenic (As)	10	30.4	3.4	
Barium (Ba)	200	730	386	
Beryllium (Be)	5	1.4	-	
Cadmium (Cd)	5	-	-	
Calcium (Ca)	5000	174000	149000	
Chromium (Cr)	10	59.2	-	
Cobalt (Co)	50	17.8	-	
Copper (Cu)	25	169	-	
Iron (Fe)	100	108000	32400	
Lead (Pb)	3	500	-	
Magnesium (Mg)	5000	43300	36900	
Manganese (Mn)	15	1790	920	
Mercury (Hg)	0.2	1.3	-	
Nickel (Ni)	40	47.7	-	
Potassium (K)	5000	25700	23500	
Selenium (Se)	5	-	-	
Silver (Ag)	10	-	-	
Sodium (Na)	5000	66900	61700	
Thallium (Tl)	10	-	-	
Vanadium (V)	50	93.2	7.9	
Zinc (Zn)	20	1280	4.2	
Cyanide (CN)	10			

Calculated when dissolved concentration > CRDL and > total.

$$\%D = \frac{D - T}{T} \times 100$$

102761

TOTAL/DISSOLVED WORKSHEET

ASE: 51686

SAMPLE NO. GW02

Ref. 24
183cf
278

SITE: Captains Cove

UNITS: ug/l

<u>analyte</u>	<u>CRDL</u>	<u>Total (T)</u>	<u>Dissolved(D)</u>	<u>%D</u> ¹
Aluminum (Al)	200	10100	58	
Antimony (Sb)	60	-	-	
Arsenic (As)	10	3.1	1.1	
Barium (Ba)	200	134	79.4	
Beryllium (Be)	5	0.60	0.093	
Cadmium (Cd)	5	-	-	
Calcium (Ca)	5000	95100	94400	
Chromium (Cr)	10	23.9	-	
Cobalt (Co)	50	-	-	
Copper (Cu)	25	77.0	-	
Iron (Fe)	100	43000	25100	
Lead (Pb)	3	23.4	-	
Magnesium (Mg)	5000	22400	22100	
Manganese (Mn)	15	1440	1380	
Mercury (Hg)	0.2	-	-	
Nickel (Ni)	40	-	-	
Potassium (K)	5000	5960	5770	
Selenium (Se)	5	-	-	
Silver (Ag)	10	-	3.4	
Sodium (Na)	5000	25000	26800	7.2
Thallium (Tl)	10	-	-	
Vanadium (V)	50	34.6	5.7	
Zinc (Zn)	20	286	63.0	
Cyanide (CN)	10	1.4	N/A	

Calculated when dissolved concentration > CRDL and > total.

$$\%D = \frac{D - T}{T} \times 100$$

102762

TOTAL/DISSOLVED WORKSHEET

CASE: 51686

SAMPLE NO. GW03

RF.24
1840f
273

SITE: Captains Cove

UNITS: ug/l

Analyte	CRDL	Total (T)	Dissolved(D)	%D ¹
Aluminum (Al)	200	55800		
Antimony (Sb)	60	-		
Arsenic (As)	10	2.3		
Barium (Ba)	200	234	34.3	
Beryllium (Be)	5	4.6		
Cadmium (Cd)	5	-		
Calcium (Ca)	5000	31000	25400	
Chromium (Cr)	10	84.8		
Cobalt (Co)	50	69.8	4.3	
Copper (Cu)	25	102		
Iron (Fe)	100	84100		
Lead (Pb)	3	85.2		
Magnesium (Mg)	5000	7170	2320	
Manganese (Mn)	15	2880	140	
Mercury (Hg)	0.2	40.1		
Nickel (Ni)	40	77.4		
Potassium (K)	5000	8580	4150	
Selenium (Se)	5	-		
Silver (Ag)	10	-		
Sodium (Na)	5000	308000	310000	0.6
Thallium (Tl)	10	-		
Vanadium (V)	50	143	-	
Zinc (Zn)	20	206	6.3	
Cyanide (CN)	10	-		

Calculated when dissolved concentration > CRDL and > total.

$$\%D = \frac{D - T}{T} \times 100$$

102763

TOTAL/DISSOLVED WORKSHEET

CASE: 51686

SAMPLE NO. GW04

Ref. 24
185 of
278

SITE: Captains Cove

UNITS: ug/l

Analyte	CRDL	Total (T)	Dissolved(D)	%D ¹
Aluminum (Al)	200	82100		
Antimony (Sb)	60	-		
Arsenic (As)	10	1.8		
Barium (Ba)	200	280	34.9	
Beryllium (Be)	5	5.8		
Cadmium (Cd)	5	-		
Calcium (Ca)	5000	36300	25100	
Chromium (Cr)	10	110		
Cobalt (Co)	50	91.0		
Copper (Cu)	25	130		
Iron (Fe)	100	112000		
Lead (Pb)	3	95.2		
Magnesium (Mg)	5000	13900	2300	
Manganese (Mn)	15	3650	143	
Mercury (Hg)	0.2	39.6		
Nickel (Ni)	40	94.1		
Potassium (K)	5000	10300	4060	
Selenium (Se)	5	-		
Silver (Ag)	10	-		
Sodium (Na)	5000	329000	315000	
Thallium (Tl)	10	-		
Vanadium (V)	50	190		
Zinc (Zn)	20	272	15.9	
Cyanide (CN)	10	-		

Calculated when dissolved concentration > CRDL and > total.

$$\%D = \frac{D - T}{T} \times 100$$

102764



IEA
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628 Route 10
Whippany, New Jersey 07981

Phone 201-428-8181
Fax 201-428-5222

18666

278

CLP DATA PACKAGE
SAMPLING DATE APRIL 20, 1995
IEA JOB NO: 20950-51723A
VOLUME I OF II

PREPARED BY:
INDUSTRIAL ENVIRONMENTAL ANALYSTS (IEA)
(CERTIFICATION NUMBER 14530)

FOR
FOSTER WHEELER ENVIRONMENTAL CORPORATION

PROJECT: CCP

Monroe,
Connecticut
203-261-4458

Sunrise,
Florida
305-846-1730

Schaumburg,
Illinois
708-705-0740

N. Billerica,
Massachusetts
617-272-5212

Research Triangle Park,
North Carolina
919-677-0090



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102765

000002
278
187.6
278

Client: FOSTER WHEELER ENVIRONMENTAL CORPORATION

Job No: 20950-51723

CASE NARRATIVE

General

The results for the Tungsten analysis will be reported under separate cover.

Metals

The soil matrix spike for Total Cyanide was spiked at a level of 10 mg/kg, not 25 mg/kg as specified in ILM03.0.

Sample 51723006 (CC-SS11-03) was rerun on May 15, 1995 because of a poor Relative Standard Deviation (RSD) for Nickel. The May 15, 1995 run was reported.

Exposures one and two were used for Cadmium on sample 51723013 (LT-SS05-01) due to poor RSDs on three exposures.

Samples 51723009 (LT-SS01-01), 51723013 (LT-SS05-01) and 51723014 (LT-SS0501D) were diluted five-fold for Sodium due to concentrations in the initial run exceeding the calibration limits. The diluted results are reported.

Samples 51723014 (LT-SS0501D), 71723003 (CC-SS14-01) and 51723004 (CC-SS15-01) were diluted ten-fold for Manganese due to concentrations exceeding the initial calibration limits.

Exposures two and three were used for Antimony on sample 51723012DUP (LT-SS04-01DUP) due to poor RSDs on three exposures.

A CCV for Sodium on May 8, 1995 was outside of control limits. Samples 51723007 (CC-FB02-01) and 51723008 (LT-FB01-01) are associated with this CCV.

According to ILM03.0 the Initial Calibration Verification has to be at a different concentration than any point on the initial calibration. The CCVs cannot be at the same concentrations as the Initial Calibration Verifications. For some Arsenic, Selenium, Thallium and Mercury runs, this procedure was not followed.



IEA

An Aquarion Company

Ref. 24
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278

000003

**METALS ANALYSIS
DATA QUALIFIERS**

C indicates concentration qualifier column

- U - Result is below the instrument detection limit (IDL).
- B - Result is between the EQL (Estimated Quantitation Limit) and the IDL (Instrument Detection Limit). (Note that this flag does not have the same meaning as in Organics analysis).

Q indicates QC qualifier column

- E - Serial dilution is not within control limits.
- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.
- S - The reported value was determined by the Method of Standard Additions (MSA).
- + - Correlation coefficient for the MSA is less than 0.995.
- W - Analytical spike for furnace AA analysis recovers at greater than 40% (but not within 85% - 115%) and the sample concentration is less than half the spike value.

M indicates method qualifier column

- P - Inductively Coupled Argon Plasma.
- F - Graphite Furnace Atomic Absorption.
- CV - Cold Vapor Atomic Absorption.
- NR - Not Requested.

000004

Ref. 24

18956

278

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signatures."

Brian W. Wood

Brian Wood, Organic Laboratory Manager

5/19/95

Date

102768

51723

Ref. 22
1968-278

125.24
140.278

51723

EBASCO SERVICES INCORPORATED CHAIN OF CUSTODY RECORD

PROJECT CC					NO. CONTAINERS	<div style="display: flex; justify-content: space-around;"> <div>TCL VOA</div> <div>TCL BNA</div> <div>TCL PEST/PCB</div> <div>TAL METALS</div> <div>CYANIDE</div> </div>										PRESERVATION					
SAMPLERS: (Signature) <i>[Signature]</i> Patten																ICED	SPECIFY CHEMICALS ADDED AND FINAL pH IF KNOWN				
SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	REMARKS OR SAMPLE LOCATION																
009 LT-SS01-01	4/2/95	8:15		✓													5.93 mAl/hr.	✓			
010 LT-SS02-01	4/2/95	8:35		✓													7.41 mAl/hr.	✓			
011 LT-SS03-01	4/2/95	9:37		✓													5.93 mAl/hr.	✓			
012 LT-SS04-01	4/2/95	9:54*		✓													5.19 mAl/hr.	✓			
013 LT-SS05-01	4/2/95	9:07		✓													5.93 mAl/hr.	✓			
014 LT-SS05-01D	4/2/95	9:07		✓													5.56 mAl/hr.	✓			
<p>* Per Mike Heffron's request on 4/27/95, Lab to designate this sample for MAL/MSD / acc 4/27/95</p>																					
Relinquished by: (Signature) <i>[Signature]</i> ①					Date / Time	Received by: (Signature) <i>Red Rx</i>					Relinquished by: (Signature) ④					Date / Time	Shipped via:				
Relinquished by: (Signature) ②					Date / Time	Received by: (Signature)					Received for Laboratory by: (Signature) <i>[Signature]</i>					Date / Time	Shipped Ticket No.				
Relinquished by: (Signature) ③					Date / Time	Received by: (Signature)					Remarks: <i>Shipped via Fed Ex</i>					<i>4/21/95 1930</i> <i>Pubil/48505313302</i>					

102770

000000

R.F. 24



IEA NEW JERSEY
628 Route 16 Whippany, N.J. 07981
(201) 428-8181

CHAIN OF CUSTODY

FIELD BOOK: _____

Pg _____ of _____

Client: KAINT
Project Name/no.: 20550 51723
Client Contact: L. Schmitt
A Contact: _____
T: 1wk, 2wk, 3wk, *, OTHER 5/2/95
Type: NJPDES, NPDES, ISRA, CLP, CERCLA, RCRA
UST, ACO, MOA, OTHER
Protocol: CLP, SW846, EPA 600
DW, OTHER
Reporting Type: NJ Regulatory Format, NJ Reduced
Format, CLP, Level II, Level I (Data
Summaries), Other

OF CONTAINERS

(14) Bill To
PO#

(15) ANALYSIS REQUIRED

(13)

Ident ID (10 CHAR)	(10) Date	(11) Time	(12) Mtx
SS12-01	5/1/95	12:55	50
SS13-01		13:30	
SS14-01		13:40	
SS15-01		12:00	
SS11-02		15:30	
SS11-03		15:30	
FB02-01		11:20	AQ
FB01-01		15:00	AQ
SS01-01		8:15	50
SS02-01		8:35	
SS03-01		9:37	
SS04-01		9:51	
SS05-01		9:07	
SS06-01		9:07	

REMARKS: (Please include hazards on site.)

RUN BY
ICP/MS

CLP
PROTOCOL ILM3.0

Print Name and Company	Signature	Custody Seal # (s)	Date/Time
Prepared By: _____			/
Received By: _____			/
Quarantined By: <u>John P. Hoff</u>	<u>[Signature]</u>		5/1/95 / 13:00
Received By: _____			/
Quarantined By: _____			/
Received By: _____			/

= Matrix of Sample. (AI=Air, AQ=Aqueous, LE=Leachate, ML=Misc Liquid, MS=Misc Solids, O=)

nt, SL=Sludge, SO=Soil)

* Standard TAT.

(Copies: White and yellow copies should accompany samples to IEA. The pink co

the client.) See reverse for directions.

For Lab Use Only

Job No. _____
Quote No. _____
of Coolers: _____
Cooler Temp. (s) _____
Custody Seal # (s) _____
Date Due: _____
PM NON-CONFORMANCE
Preserved: _____ Temp: _____
Container: _____ Volume: _____
Broken: _____ Initials: _____
Holding Time: _____
Other: _____

Logged By: _____

DESCRIPTION

51723 001
002
003
004
005
006
007
008
009
010
011
012
013
014

102771

25.24
14.25
27.8

IEA OF NEW JERSEY
SAMPLE CONTROL CHRONICLE

Sampling Date: 4/28/55 Job #: 51723
 Receipt Date: 4/21/55 Signature: [Signature]
 Custody Seal: Present/Absent Cooler Temp: 4
 Intact/Not Intact
 Chain of Custody: Present/Absent
 Sample Tags: Present/Absent Preservative Ck: 21
 Shipping Bill: Present/Absent Airbill #: _____
 Comments: _____

Subcontracting

Parameter	Sample ID	Parameter	Sample ID
<u>MBAS</u>	_____	<u>TKN</u>	_____
<u>AMMONIA</u>	_____	<u>O-PHOSPHATE</u>	_____
<u>COD</u>	_____	<u>SULFIDE</u>	_____
<u>SULFATE</u>	_____	<u>COLIFORM</u>	_____
<u>NITRATE</u>	_____	<u>ALKALINITY</u>	_____
<u>BOD</u>	_____	<u>TURBIDITY</u>	_____
<u>NITRATE</u>	_____	<u>COLOR</u>	_____
<u>NITRITE</u>	_____	<u>TOC</u>	_____
<u>RADIUM</u>	_____	<u>TOX</u>	_____
<u>THORIUM</u>	_____	<u>OTHER</u> <u>W</u>	<u>1-14</u>
<u>URANIUM</u>	_____	<u>OTHER</u>	_____

Subcontract Lab: 11411V Date: _____
 Signature: [Signature]

Sample Prep

Sample #

Compositing: _____
 Percent Solids: 1-5, 1-14
 pH Performed: _____
 Signature: [Signature] Date: 4-27-55

Form# SMF00601.NJ

Page _____ OF 98
 IEA Logbook# SM6



IEA
An Aquarion Company

205.24
000011
144 of 278

IEA, INC. - NEW JERSEY
INTERNAL CHAIN OF CUSTODY CHRONICLE
METALS

JOB/CASE NUMBER: 51723

MATRIX: WATER SOIL TCLP/EP OTHER: _____

I confirm that I have performed the analysis below following SOP guidelines:

Analysis: ICP

	Analyst Signature	Date
<u>007,008</u>	<u>KJF</u>	<u>5-8-95</u>
_____	_____	_____
_____	_____	_____

Preparation: ICP

			Consumed
<u>007,008</u>	<u>JN</u>	<u>J. Noe</u>	<u>5-1-95</u>
_____	_____	_____	_____
_____	_____	_____	_____

Preparation/Analysis: Cyanide

<u>007,008</u>	<u>EMP</u>	<u>Elise M. Ferguson</u>	<u>5-2-95</u>
_____	_____	_____	_____
_____	_____	_____	_____

Preparation/Analysis: Hexavalent Chromium

Analysis: Furnace

<u>007,008</u>	<u>MC</u>	<u>For M. Cantone</u>	<u>5-1-95</u>
<u>007,008</u>	<u>MC</u>	<u>For M. Cantone</u>	<u>5-1-95</u>
<u>007,008</u>	<u>MC</u>	<u>For M. Cantone</u>	<u>5-4-95</u>
<u>007,008</u>	<u>MC</u>	<u>For M. Cantone</u>	<u>5-8-95</u>
_____	_____	_____	_____
_____	_____	_____	_____

Preparation: Furnace

<u>007,008</u>	<u>JN</u>	<u>J. Noe</u>	<u>5-1-95</u>
_____	_____	_____	_____
_____	_____	_____	_____

Preparation/Analysis: Mercury

<u>007,008</u>	<u>JB</u>	<u>J. Noe</u>	<u>5-2-95</u>
_____	_____	_____	_____
_____	_____	_____	_____

I confirm that I have reviewed all associated data and authorize the release of this job:

AUTHORIZATION:

[Signature]
Group Leader/Lab Director

5/19/95
Date

102773

IEA, INC. - NEW JERSEY
INTERNAL CHAIN OF CUSTODY CHRONICLE
METALS

JOB/CASE NUMBER: 51723

MATRIX: WATER SOIL TCLP/EP OTHER: _____

I confirm that I have performed the analysis below following S guidelines:

Analysis: ICP

	Analyst Signature	Date
<u>001-006, 009-014</u>	<u>MVA</u>	<u>5-15-95</u>
<u>004</u>	<u>JB</u>	<u>5-16-95</u>

Preparation: ICP

Consumed

<u>001-006, 009-014</u>	<u>JN</u>	<u>5-2-95</u>
-------------------------	-----------	---------------

Preparation/Analysis: Cyanide

<u>001-006, 009-014</u>	<u>EMC</u>	<u>5-3-95</u>
<u>001-006, 009-014</u>	<u>EMF</u>	<u>5-4-95</u>

Preparation/Analysis: Hexavalent Chromium

Analysis: Furnace

<u>001-006, 009-014</u>	<u>MC</u>	<u>5-6-95</u>
<u>001-006, 009-012, 014</u>	<u>MC</u>	<u>5-10-95</u>
<u>002, 004, 009, 013, 014</u>	<u>MC</u>	<u>5-11-95</u>
<u>013</u>	<u>JB</u>	<u>5-11-95</u>
<u>006</u>	<u>MC</u>	<u>5-15-95</u>

Preparation: Furnace

<u>001-006, 009-014</u>	<u>JN</u>	<u>5-2-95</u>
-------------------------	-----------	---------------

Preparation/Analysis: Mercury

<u>001-006, 009-014</u>	<u>JB</u>	<u>5-2-95</u>
<u>001, 014</u>	<u>JB</u>	<u>5-5-95</u>

I confirm that I have reviewed all associated data and authorize the release of this job:

AUTHORIZATION:

[Signature]
Group Leader/Lab Director

5/19/95
Date

Ref. 14
196 of 278
000014

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: IEA NJ

Contract: _____

Lab Code: IEANJ Case No.: 51723

SAS No.: _____ SDG No.: CC-SS1

SOW No.: _____

EPA Sample No.

Lab Sample ID.

CC-FB02-01
CC-SS11-02
CC-SS11-03
CC-SS12-01
CC-SS13-01
CC-SS14-01
CC-SS15-01
LT-FB01-01
LT-SS01-01
LT-SS02-01
LT-SS03-01
LT-SS04-01
LT-SS04-01D
LT-SS04-01S
LT-SS05-01
LT-SS0501D
Q
Q D
Q S

51723007
51723005
51723006
51723001
51723002
51723003
51723004
51723008
51723009
51723010
51723011
51723012
51723012DU
51723012MS
51723013
51723014
51748001
51748001DU
51748001MS

Were ICP interelement corrections applied?

Yes/No YES

Were ICP background corrections applied?
If yes-were raw data generated before
application of background corrections?

Yes/No YES

Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Brian V. Wood

Name: BRIAN WOOD

Date: 5/19/95

Title: LAB MANAGER

Ref. 24
14708478
000528

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: IEA NJ

Contract: _____

Lab Code: IEANJ Case No.: 51686

SAS No.: _____ SDG No.: CC-SS0

SOW No.: _____

EPA Sample No.

Lab Sample ID.

CC-GW01-01
CC-GW02-01
CC-GW02-01D
CC-GW02-01S
CC-GW03-01
CC-GW04-01
CC-SD01-01
CC-SD02-01
CC-SD03-01
CC-SS01-01
CC-SS02-01
CC-SS03-01
CC-SS04-01
CC-SS05-01
CC-SS05-01D
CC-SS05-01S
CC-SS06-01
CC-SS07-01
CC-SS08-01
CC-SS09-01

51686014
51686015
51686015DU
51686015MS
51686016
51686017
51686011
51686012
51686013
51686001
51686002
51686003
51686004
51686005
51686005DU
51686005MS
51686006
51686007
51686008
51686009

Were ICP interelement corrections applied?

Yes/No Y

Were ICP background corrections applied?

Yes/No Y

If yes-were raw data generated before
application of background corrections?

Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Brian W. Wood

Name: BRIAN WOOD

Date: 5/19/95

Title: LABS MANAGER

Ref. 24
000529
1990F278

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: IEA NJ

Contract: _____

Lab Code: IEANJ Case No.: 51686

SAS No.: _____ SDG No.: CC-SS0

SOW No.: _____

EPA Sample No.

Lab Sample ID.

CC-SS10-01
CCGW01-01F
CCGW02-01F
CCGW02-01FD
CCGW02-01FS
CCGW03-01F
CCGW04-01F

51686010
51686019
51686020
51686020DU
51686020MS
51686021
51686022

Were ICP interelement corrections applied?

Yes/No Y

Were ICP background corrections applied?
If yes-were raw data generated before
application of background corrections?

Yes/No Y

Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Brian W. Wood

Name: Brian Wood

Date: 5/19/95

Title: LMS MANAGER

COVER PAGE - IN

ILM03.0

102777

1
INORGANIC ANALYSES DATA SHEET

CC-GW01-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): WATERLab Sample ID: 51686014Level (low/med): LOWDate Received: 04/19/95% Solids: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19600			P
7440-36-0	Antimony	46.9	B	*	P
7440-38-2	Arsenic	30.4		NJ	F
7440-39-3	Barium	730			P
7440-41-7	Beryllium	1.4	B		P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	174000			P
7440-47-3	Chromium	59.2			P
7440-48-4	Cobalt	17.8	B		P
7440-50-8	Copper	169		J	P
7439-89-6	Iron	108000			P
7439-92-1	Lead	500		S	F
7439-95-4	Magnesium	43300			P
7439-96-5	Manganese	1790			P
7439-97-6	Mercury	1.3			CV
7440-02-0	Nickel	47.7			P
7440-09-7	Potassium	25700		J	P
7782-49-2	Selenium	1.2	U	WJ	F
7440-22-4	Silver	3.3	U		P
7440-23-5	Sodium	66900			P
7440-28-0	Thallium	1.4	U	WJ	F
7440-62-2	Vanadium	93.2		J	P
7440-66-6	Zinc	1280		EJ	P
57-12-5	Cyanide	10.0 1.3	U	NJ	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

1
INORGANIC ANALYSES DATA SHEET

CC-GW02-01

Lab Name: IEA_NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0 ^{201 of 278}Matrix (soil/water): WATERLab Sample ID: 51686015Level (low/med): LOWDate Received: 04/19/95% Solids: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10100			P
7440-36-0	Antimony	42.2	U	*	P
7440-38-2	Arsenic	3.1	B	N J	F
7440-39-3	Barium	134	B		P
7440-41-7	Beryllium	0.60	B		P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	95100			P
7440-47-3	Chromium	23.9			P
7440-48-4	Cobalt	3.6	U		P
7440-50-8	Copper	77.0		J	P
7439-89-6	Iron	43000			P
7439-92-1	Lead	23.4			F
7439-95-4	Magnesium	22400			P
7439-96-5	Manganese	1440			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	17.1	U		P
7440-09-7	Potassium	5960		J	P
7782-49-2	Selenium	1.2	U		F
7440-22-4	Silver	3.3	U		P
7440-23-5	Sodium	25000			P
7440-28-0	Thallium	1.4	U	W J	F
7440-62-2	Vanadium	34.6	B		P
7440-66-6	Zinc	286		E J	P
57-12-5	Cyanide	1.4	B	N J	C

Color Before: COLORLESSClarity Before: CLEAR

Texture: _____

Color After: COLORLESSClarity After: CLEAR

Artifacts: _____

Comments:

1
 INORGANIC ANALYSES DATA SHEET

CC-GW03-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): WATERLab Sample ID: 51686016Level (low/med): LOWDate Received: 04/19/95% Solids: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	55800			P
7440-36-0	Antimony	42.2	U	*	P
7440-38-2	Arsenic	2.3	B	N J	F
7440-39-3	Barium	234			P
7440-41-7	Beryllium	4.6	B		P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	31000			P
7440-47-3	Chromium	84.8			P
7440-48-4	Cobalt	69.8			P
7440-50-8	Copper	102		J	P
7439-89-6	Iron	84100			P
7439-92-1	Lead	85.2			F
7439-95-4	Magnesium	7170			P
7439-96-5	Manganese	2880			P
7439-97-6	Mercury	40.1			CV
7440-02-0	Nickel	77.4			P
7440-09-7	Potassium	8580		J	P
7782-49-2	Selenium	1.2	U	W J	F
7440-22-4	Silver	3.3	U		P
7440-23-5	Sodium	308000			P
7440-28-0	Thallium	1.4	U	W J	F
7440-62-2	Vanadium	149		J	P
7440-66-6	Zinc	206		E J	P
57-12-5	Cyanide	10.0 1.3	U	N J	C

Color Before: COLORLESSClarity Before: CLEAR

Texture: _____

Color After: COLORLESSClarity After: CLEAR

Artifacts: _____

Comments:

100549 Ref. 24

U.S. EPA - CLP

000547 Ref. 24

SAMPLE NO.

1

2030 F 278
EPA SAMPLE NO.

INORGANIC ANALYSES DATA SHEET

2-01F

CC-GW04-01

NJ Contract:

CC-SS0

NJ Case No.: 51686

SAS No.: SDG No.: CC-SS0

1686020

/water): WATER

Lab Sample ID: 51686017

04/19/95

ed): LOW

Date Received: 04/19/95

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	82100			P
7440-36-0	Antimony	42.2	U	*	P
7440-38-2	Arsenic	1.8	B	NJ	F
7440-39-3	Barium	280			P
7440-41-7	Beryllium	5.8			P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	36300			P
7440-47-3	Chromium	110			P
7440-48-4	Cobalt	91.0			P
7440-50-8	Copper	130		J	P
7439-89-6	Iron	112000			P
7439-92-1	Lead	95.2			F
7439-95-4	Magnesium	13900			P
7439-96-5	Manganese	3650			P
7439-97-6	Mercury	39.6			CV
7440-02-0	Nickel	96.1			P
7440-09-7	Potassium	10300		J	P
7782-49-2	Selenium	1.2	U	WJ	F
7440-22-4	Silver	3.3	U		P
7440-23-5	Sodium	329000			P
7440-28-0	Thallium	1.4	U	WJ	F
7440-62-2	Vanadium	190		J	P
7440-66-6	Zinc	272		EJ	P
57-12-5	Cyanide	10.0 1.3	U	NJ	C

: COLORLESS Clarity Before: CLEAR Texture:

COLORLESS Clarity After: CLEAR Artifacts:

ILM03.0

FORM I - IN

ILM03.0

102782

U.S. EPA - CLP

060548 AS.2Y

J040527
EPA SAMPLE NO.1
INORGANIC ANALYSES DATA SHEET

CCGW01-01F

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): WATERLab Sample ID: 51686019Level (low/med): LOWDate Received: 04/19/95% Solids: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	44.6	B		P
7440-36-0	Antimony	52.9	B	*J	P
7440-38-2	Arsenic	3.4	B	N	F
7440-39-3	Barium	386			P
7440-41-7	Beryllium	0.093	U		P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	149000			P
7440-47-3	Chromium	2.4	U	J	P
7440-48-4	Cobalt	3.6	U	J	P
7440-50-8	Copper	3.1	U		P
7439-89-6	Iron	32400			P
7439-92-1	Lead	0.59 0.46	U		F
7439-95-4	Magnesium	36900			P
7439-96-5	Manganese	920			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	17.1	U		P
7440-09-7	Potassium	23500			P
7782-49-2	Selenium	1.2	U	WJ	F
7440-22-4	Silver	3.3	U		P
7440-23-5	Sodium	61700			P
7440-28-0	Thallium	1.4	U	WJ	F
7440-62-2	Vanadium	7.9	B	J	P
7440-66-6	Zinc	4.2	B	E	P
57-12-5	Cyanide				NR

Color Before: COLORLESSClarity Before: CLEAR

Texture: _____

Color After: COLORLESSClarity After: CLEAR

Artifacts: _____

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2030 F278

CCGW02-01F

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): WATERLab Sample ID: 51686020Level (low/med): LOWDate Received: 04/19/95% Solids: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	58.0	B		P
7440-36-0	Antimony	42.2	U	*	P
7440-38-2	Arsenic	1.1	B	N	F
7440-39-3	Barium	79.4	B		P
7440-41-7	Beryllium	0.093	U		P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	94400			P
7440-47-3	Chromium	2.4	U	J	P
7440-48-4	Cobalt	3.6	U	J	P
7440-50-8	Copper	3.1	U		P
7439-89-6	Iron	25100			P
7439-92-1	Lead	0.59 0.46	U		F
7439-95-4	Magnesium	22100			P
7439-96-5	Manganese	1380			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	17.1	U	J	P
7440-09-7	Potassium	5770			P
7782-49-2	Selenium	1.2	U		F
7440-22-4	Silver	3.4	B		P
7440-23-5	Sodium	26800			P
7440-28-0	Thallium	1.4	U	WJ	F
7440-62-2	Vanadium	5.7	B	J	P
7440-66-6	Zinc	63.0		E	P
57-12-5	Cyanide				NR

Color Before: COLORLESSClarity Before: CLEAR

Texture: _____

Color After: COLORLESSClarity After: CLEAR

Artifacts: _____

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
2060F278

CCGW03-01F

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): WATERLab Sample ID: 51686021Level (low/med): LOWDate Received: 04/19/95% Solids: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16.7	U		P
7440-36-0	Antimony	42.2	U	*	P
7440-38-2	Arsenic	0.84	U	WN J	F
7440-39-3	Barium	34.3	B		P
7440-41-7	Beryllium	0.093	U		P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	25400			P
7440-47-3	Chromium	2.4	U	4/1	P
7440-48-4	Cobalt	4.3	B		P
7440-50-8	Copper	3.1	U		P
7439-89-6	Iron	11.2	U		P
7439-92-1	Lead	0.59 0.46	U		F
7439-95-4	Magnesium	2320	B		P
7439-96-5	Manganese	140			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	17.1	U	J	P
7440-09-7	Potassium	4150	B		P
7782-49-2	Selenium	1.2	U		F
7440-22-4	Silver	3.3	U		P
7440-23-5	Sodium	310000			P
7440-28-0	Thallium	1.4	U	W J	F
7440-62-2	Vanadium	2.2	U	J	P
7440-66-6	Zinc	6.3	B	E	P
57-12-5	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
2070F278

CCGW04-01F

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): WATERLab Sample ID: 51686022Level (low/med): LOWDate Received: 04/19/95% Solids: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16.7	U		P
7440-36-0	Antimony	42.2	U	*	P
7440-38-2	Arsenic	0.84	U	N	F
7440-39-3	Barium	34.9	B		P
7440-41-7	Beryllium	0.093	U		P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	25100			P
7440-47-3	Chromium	2.4	U	J	P
7440-48-4	Cobalt	3.6	U	J	P
7440-50-8	Copper	3.1	U		P
7439-89-6	Iron	11.2	U		P
7439-92-1	Lead	0.59 0.46	U		F
7439-95-4	Magnesium	2300	B		P
7439-96-5	Manganese	143			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	17.1	U	J	P
7440-09-7	Potassium	4060	B		P
7782-49-2	Selenium	1.2	U		F
7440-22-4	Silver	3.3	U		P
7440-23-5	Sodium	315000			P
7440-28-0	Thallium	1.4	U	WJ	F
7440-62-2	Vanadium	2.2	U	J	P
7440-66-6	Zinc	15.9	B	E	P
57-12-5	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-SS01-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686001Level (low/med): LOWDate Received: 04/19/95% Solids: 78.5Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14700		EJ	P
7440-36-0	Antimony	19.6			P
7440-38-2	Arsenic	23.2			F
7440-39-3	Barium	434		E	P
7440-41-7	Beryllium	0.16	B		P
7440-43-9	Cadmium	3.4		J	P
7440-70-2	Calcium	19600		EJ	P
7440-47-3	Chromium	42.1			P
7440-48-4	Cobalt	7.4	B		P
7440-50-8	Copper	727		EJ	P
7439-89-6	Iron	73100		EJ	P
7439-92-1	Lead	1240		*NJ	P
7439-95-4	Magnesium	1000	B	E	P
7439-96-5	Manganese	4460		E	P
7439-97-6	Mercury	0.19		*	CV
7440-02-0	Nickel	52.1			P
7440-09-7	Potassium	1250	B		P
7782-49-2	Selenium	0.32	U		F
7440-22-4	Silver	4.2			P
7440-23-5	Sodium	1980			P
7440-28-0	Thallium	0.35 0.22	U		F
7440-62-2	Vanadium	23.0		J	P
7440-66-6	Zinc	1220		*NEJ	P
57-12-5	Cyanide	1.3 1.2	UB	NJ	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

20901278

CC-SS02-01

Lab Name: IEA_NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686002Level (low/med): LOWDate Received: 04/19/95% Solids: 85.9Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4270		E J	P
7440-36-0	Antimony	1630			P
7440-38-2	Arsenic	239			F
7440-39-3	Barium	254		E	P
7440-41-7	Beryllium	0.53	B		P
7440-43-9	Cadmium	8.3			P
7440-70-2	Calcium	5510		E J	P
7440-47-3	Chromium	16.3			P
7440-48-4	Cobalt	32.9			P
7440-50-8	Copper	368		E J	P
7439-89-6	Iron	46200		E J	P
7439-92-1	Lead	1010		*N J	P
7439-95-4	Magnesium	912	B	E	P
7439-96-5	Manganese	688		E	P
7439-97-6	Mercury	2.7		*	CV
7440-02-0	Nickel	10.6			P
7440-09-7	Potassium	800	B		P
7782-49-2	Selenium	1.4			F
7440-22-4	Silver	13.0			P
7440-23-5	Sodium	2960			P
7440-28-0	Thallium	0.56	B		F
7440-62-2	Vanadium	20.0		J	P
7440-66-6	Zinc	446		*NEJ	P
57-12-5	Cyanide	1.2 0.35	UB	N J	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

CC-SS03-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686003Level (low/med): LOWDate Received: 04/19/95% Solids: 82.8Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4990		EJ	P
7440-36-0	Antimony	10.2	U		P
7440-38-2	Arsenic	9.3			F
7440-39-3	Barium	164		E	P
7440-41-7	Beryllium	0.30	B		P
7440-43-9	Cadmium	2.9			P
7440-70-2	Calcium	13200		EJ	P
7440-47-3	Chromium	22.6			P
7440-48-4	Cobalt	5.0	B		P
7440-50-8	Copper	214		EJ	P
7439-89-6	Iron	21400		EJ	P
7439-92-1	Lead	302		*NJ	P
7439-95-4	Magnesium	6740		EJ	P
7439-96-5	Manganese	247		E	P
7439-97-6	Mercury	0.28		*	CV
7440-02-0	Nickel	32.8			P
7440-09-7	Potassium	495	B		P
7782-49-2	Selenium	0.30	U		F
7440-22-4	Silver	6.4			P
7440-23-5	Sodium	165	B		P
7440-28-0	Thallium	0.40	B		F
7440-62-2	Vanadium	29.9		J	P
7440-66-6	Zinc	675		*NEJ	P
57-12-5	Cyanide	3.6		NJ	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 211.1278

CC-SS04-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686004Level (low/med): LOWDate Received: 04/19/95% Solids: 88.0Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3780		E J	P
7440-36-0	Antimony	9.6	U		P
7440-38-2	Arsenic	8.7			F
7440-39-3	Barium	253		E	P
7440-41-7	Beryllium	0.25	B		P
7440-43-9	Cadmium	3.8			P
7440-70-2	Calcium	5010		E J	P
7440-47-3	Chromium	29.8			P
7440-48-4	Cobalt	4.2	B		P
7440-50-8	Copper	291		E J	P
7439-89-6	Iron	28200		E J	P
7439-92-1	Lead	388		*N J	P
7439-95-4	Magnesium	1930		E J	P
7439-96-5	Manganese	238		E	P
7439-97-6	Mercury	0.20		*	CV
7440-02-0	Nickel	39.2			P
7440-09-7	Potassium	409	B		P
7782-49-2	Selenium	0.28	U		F
7440-22-4	Silver	21.3			P
7440-23-5	Sodium	146	B		P
7440-28-0	Thallium	0.36	B		F
7440-62-2	Vanadium	32.6		J	P
7440-66-6	Zinc	612		*NE J	P
57-12-5	Cyanide	1.9		N J	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 2125278

CC-SS05-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686005Level (low/med): LOWDate Received: 04/19/95% Solids: 85.1Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3510		E J	P
7440-36-0	Antimony	9.9	U		P
7440-38-2	Arsenic	4.8			F
7440-39-3	Barium	56.8		E	P
7440-41-7	Beryllium	0.22	B		P
7440-43-9	Cadmium	0.91	U		P
7440-70-2	Calcium	2760		E J	P
7440-47-3	Chromium	10.8			P
7440-48-4	Cobalt	2.6	B		P
7440-50-8	Copper	64.8		E J	P
7439-89-6	Iron	10200		E J	P
7439-92-1	Lead	107		*NJ	P
7439-95-4	Magnesium	1370		E J	P
7439-96-5	Manganese	146		E	P
7439-97-6	Mercury	0.12	U	*	CV
7440-02-0	Nickel	10.3			P
7440-09-7	Potassium	486	B		P
7782-49-2	Selenium	0.29	U		F
7440-22-4	Silver	1.7	B		P
7440-23-5	Sodium	72.9	B		P
7440-28-0	Thallium	0.32 0.31	B		F
7440-62-2	Vanadium	12.2		J	P
7440-66-6	Zinc	262		*NE J	P
57-12-5	Cyanide	1.2 0.80	VB	NJ	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2130F278

CC-SS05-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686005Level (low/med): LOWDate Received: 04/19/95% Solids: 85.1Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	122		* J	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
57-12-5	Cyanide				NR

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

CC-SS06-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686006Level (low/med): LOWDate Received: 04/19/95% Solids: 87.4Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5350		E J	P
7440-36-0	Antimony	9.6	U		P
7440-38-2	Arsenic	5.3			F
7440-39-3	Barium	61.7		E	P
7440-41-7	Beryllium	0.32	B		P
7440-43-9	Cadmium	0.89	U		P
7440-70-2	Calcium	3160		E J	P
7440-47-3	Chromium	20.2			P
7440-48-4	Cobalt	8.2	B		P
7440-50-8	Copper	81.9		E J	P
7439-89-6	Iron	36400		E J	P
7439-92-1	Lead	174		*N J	P
7439-95-4	Magnesium	2530		E J	P
7439-96-5	Manganese	414		E	P
7439-97-6	Mercury	0.16		*	CV
7440-02-0	Nickel	21.3			P
7440-09-7	Potassium	638	B		P
7782-49-2	Selenium	0.29	U		F
7440-22-4	Silver	1.4	B		P
7440-23-5	Sodium	99.5	B		P
7440-28-0	Thallium	0.31 0.25	UB		F
7440-62-2	Vanadium	20.2		J	P
7440-66-6	Zinc	1380		*NEJ	P
57-12-5	Cyanide	1.1 0.38	UB	N J	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

CC-SS07-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686007Level (low/med): LOWDate Received: 04/19/95% Solids: 85.5Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4960		E J	P
7440-36-0	Antimony	9.9	U		P
7440-38-2	Arsenic	6.8			F
7440-39-3	Barium	136		E	P
7440-41-7	Beryllium	0.29	B		P
7440-43-9	Cadmium	1.6		J	P
7440-70-2	Calcium	5670		E J	P
7440-47-3	Chromium	23.5			P
7440-48-4	Cobalt	5.5	B		P
7440-50-8	Copper	157		E J	P
7439-89-6	Iron	32500		E J	P
7439-92-1	Lead	306		*N J	P
7439-95-4	Magnesium	1480		E J	P
7439-96-5	Manganese	277		E	P
7439-97-6	Mercury	0.22		*	CV
7440-02-0	Nickel	27.5			P
7440-09-7	Potassium	597	B		P
7782-49-2	Selenium	0.29	U		F
7440-22-4	Silver	2.4			P
7440-23-5	Sodium	241	B		P
7440-28-0	Thallium	0.32	U		F
7440-62-2	Vanadium	19.2		J	P
7440-66-6	Zinc	368		*NE J	P
57-12-5	Cyanide	1.1 0.46	VB	NT	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
316.1278

CC-SS08-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686008Level (low/med): LOWDate Received: 04/19/95% Solids: 83.4Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3950		E J	P
7440-36-0	Antimony	10.1	U		P
7440-38-2	Arsenic	2.8			F
7440-39-3	Barium	17.4	B	E	P
7440-41-7	Beryllium	0.31	B		P
7440-43-9	Cadmium	0.93	U		P
7440-70-2	Calcium	665	B	E	P
7440-47-3	Chromium	8.5			P
7440-48-4	Cobalt	4.0	B		P
7440-50-8	Copper	7.1		E J	P
7439-89-6	Iron	8210		E J	P
7439-92-1	Lead	19.8		* J	F
7439-95-4	Magnesium	1030	B	E	P
7439-96-5	Manganese	200		E	P
7439-97-6	Mercury	0.12	U	*	CV
7440-02-0	Nickel	10.9			P
7440-09-7	Potassium	324	B		P
7782-49-2	Selenium	0.30	U		F
7440-22-4	Silver	0.80	U		P
7440-23-5	Sodium	75.1	B		P
7440-28-0	Thallium	0.33	U	W	F
7440-62-2	Vanadium	10.1	B		P
7440-66-6	Zinc	24.6		*NE J	P
57-12-5	Cyanide	1.2 0.36	U	N J	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
21708478

CC-SS09-01

Lab Name: IEA_NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686009Level (low/med): LOWDate Received: 04/19/95% Solids: 85.1Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5640		E J	P
7440-36-0	Antimony	9.9	U		P
7440-38-2	Arsenic	5.9			F
7440-39-3	Barium	77.4		E	P
7440-41-7	Beryllium	0.28	B		P
7440-43-9	Cadmium	0.94	B		P
7440-70-2	Calcium	3220		E J	P
7440-47-3	Chromium	15.9			P
7440-48-4	Cobalt	3.6	B		P
7440-50-8	Copper	140		E J	P
7439-89-6	Iron	16400		E J	P
7439-92-1	Lead	190		*N J	P
7439-95-4	Magnesium	1830		E J	P
7439-96-5	Manganese	180		E	P
7439-97-6	Mercury	0.22		*	CV
7440-02-0	Nickel	18.1			P
7440-09-7	Potassium	452	B		P
7782-49-2	Selenium	0.29	U		F
7440-22-4	Silver	3.7			P
7440-23-5	Sodium	208	B		P
7440-28-0	Thallium	0.32	U		F
7440-62-2	Vanadium	20.7		J	P
7440-66-6	Zinc	351		*NE J	P
57-12-5	Cyanide	1.4		N J	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

21805278

CC-SS10-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686010Level (low/med): LOWDate Received: 04/19/95% Solids: 84.6Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3920		E J	P
7440-36-0	Antimony	10	U		P
7440-38-2	Arsenic	5.9			F
7440-39-3	Barium	83.5		E	P
7440-41-7	Beryllium	0.28	B		P
7440-43-9	Cadmium	2.0			P
7440-70-2	Calcium	19200		E J	P
7440-47-3	Chromium	17.6			P
7440-48-4	Cobalt	3.4	B		P
7440-50-8	Copper	151		E J	P
7439-89-6	Iron	13700		E J	P
7439-92-1	Lead	144		*N J	P
7439-95-4	Magnesium	11400		E J	P
7439-96-5	Manganese	214		E	P
7439-97-6	Mercury	0.18		*	CV
7440-02-0	Nickel	28.1			P
7440-09-7	Potassium	431	B		P
7782-49-2	Selenium	0.30	U		F
7440-22-4	Silver	6.3			P
7440-23-5	Sodium	132	B		P
7440-28-0	Thallium	0.32	U	W	F
7440-62-2	Vanadium	15.5		J	P
7440-66-6	Zinc	259		*NE J	P
57-12-5	Cyanide	1.2 0.51	UB	N J	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2140F278

CC-SS11-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51704SAS No.: _____ SDG No.: CC-FB-Matrix (soil/water): SOILLab Sample ID: 51704003Level (low/med): LOWDate Received: 04/20/95% Solids: 61.2Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6070		E J	P
7440-36-0	Antimony	13.8	U		P
7440-38-2	Arsenic	16.4			F
7440-39-3	Barium	40.7	B	E	P
7440-41-7	Beryllium	0.54	B		P
7440-43-9	Cadmium	1.3	U		P
7440-70-2	Calcium	827	B	E	P
7440-47-3	Chromium	26.5			P
7440-48-4	Cobalt	5.2	B		P
7440-50-8	Copper	51.4		E J	P
7439-89-6	Iron	10200		E J	P
7439-92-1	Lead	217		*N J	P
7439-95-4	Magnesium	662	B	E	P
7439-96-5	Manganese	267	B	E	P
7439-97-6	Mercury	0.61		*	CV
7440-02-0	Nickel	16.3			P
7440-09-7	Potassium	462	B		P
7782-49-2	Selenium	0.82	B		F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	50.8	B		P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	60.4		J	P
7440-66-6	Zinc	46.0		*NE J	P
57-12-5	Cyanide	1.6 0.74	UB	N J	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. *2200f278*

CC-SS11-02

Name: IEA NJ Contract: _____Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): SOILLab Sample ID: 51723005pH (low/med): LOWDate Received: 04/21/95Solids: 44.8Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8080		J	P
7440-36-0	Antimony	18.8	U		P
7440-38-2	Arsenic	27.1		S	F
7440-39-3	Barium	41.3	B		P
7440-41-7	Beryllium	0.76	B		P
7440-43-9	Cadmium	1.7	U	N	P
7440-70-2	Calcium	940	B		P
7440-47-3	Chromium	41.0			P
7440-48-4	Cobalt	7.7	B		P
7440-50-8	Copper	68.6			P
7439-89-6	Iron	15300		*	P
7439-92-1	Lead	336			P
7439-95-4	Magnesium	694	B		P
7439-96-5	Manganese	199		*	P
7439-97-6	Mercury	0.84		N	CV
7440-02-0	Nickel	26.4			P
7440-09-7	Potassium	773	B		P
7782-49-2	Selenium	1.5	B	N	F
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	89.6	B		P
7440-28-0	Thallium	0.61	U		F
7440-62-2	Vanadium	86.0			P
7440-66-6	Zinc	56.2			P
57-12-5	Cyanide	2.2 0.28	U	✓	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

Ref. 24
000017

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

22/06/98
CC-SS11-03Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): SOILLab Sample ID: 51723006Level (low/med): LOWDate Received: 04/21/95% Solids: 88.5Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7530			P
7440-36-0	Antimony	9.5	U		P
7440-38-2	Arsenic	1.9	B		F
7440-39-3	Barium	22.5	B		P
7440-41-7	Beryllium	0.56	B		P
7440-43-9	Cadmium	0.88	U	N	P
7440-70-2	Calcium	43.7	B		P
7440-47-3	Chromium	13.9			P
7440-48-4	Cobalt	6.2	B		P
7440-50-8	Copper	9.9			P
7439-89-6	Iron	13400		*	P
7439-92-1	Lead	2.0		*	F
7439-95-4	Magnesium	496	B		P
7439-96-5	Manganese	105		*	P
7439-97-6	Mercury	0.11	U	N	CV
7440-02-0	Nickel	10.8		J	P
7440-09-7	Potassium	563	B		P
7782-49-2	Selenium	0.28	U	N J	F
7440-22-4	Silver	0.75	U		P
7440-23-5	Sodium	31.1	B		P
7440-28-0	Thallium	0.31	U		F
7440-62-2	Vanadium	18.7			P
7440-66-6	Zinc	15.8			P
57-12-5	Cyanide	1.1 0.15	B U		C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NOComments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
2226278

CC-SD01-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686011Level (low/med): LOWDate Received: 04/19/95% Solids: 58.2Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12600		EJ	P
7440-36-0	Antimony	14.5	U		P
7440-38-2	Arsenic	14.9			F
7440-39-3	Barium	114		E	P
7440-41-7	Beryllium	0.91	B		P
7440-43-9	Cadmium	1.4	B	J	P
7440-70-2	Calcium	4200		EJ	P
7440-47-3	Chromium	40.2			P
7440-48-4	Cobalt	10	B		P
7440-50-8	Copper	186		EJ	P
7439-89-6	Iron	21600		EJ	P
7439-92-1	Lead	659		*NJ	P
7439-95-4	Magnesium	4180		EJ	P
7439-96-5	Manganese	464		E	P
7439-97-6	Mercury	0.66		*	CV
7440-02-0	Nickel	36.2			P
7440-09-7	Potassium	939	B		P
7782-49-2	Selenium	0.47	B		F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	192	B		P
7440-28-0	Thallium	0.47	U		F
7440-62-2	Vanadium	63.2		J	P
7440-66-6	Zinc	302		*NEJ	P
57-12-5	Cyanide	1.7 0.84	B	NJ	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 2236278

CC-SD02-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51686SAS No.: _____ SDG No.: CC-SS0Matrix (soil/water): SOILLab Sample ID: 51686012Level (low/med): LOWDate Received: 04/19/95% Solids: 36.4Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4170		E J	P
7440-36-0	Antimony	23.2	U		P
7440-38-2	Arsenic	15.6			F
7440-39-3	Barium	32.6	B	E	P
7440-41-7	Beryllium	0.30	B		P
7440-43-9	Cadmium	2.1	U		P
7440-70-2	Calcium	6400		E ✓	P
7440-47-3	Chromium	51.6			P
7440-48-4	Cobalt	5.6	B	J	P
7440-50-8	Copper	244		E	P
7439-89-6	Iron	29600		E	P
7439-92-1	Lead	168		*N	P
7439-95-4	Magnesium	3310		E ✓	P
7439-96-5	Manganese	183		E	P
7439-97-6	Mercury	0.28		* J	CV
7440-02-0	Nickel	27.9			P
7440-09-7	Potassium	594	B		P
7782-49-2	Selenium	0.69	U		F
7440-22-4	Silver	16.4			P
7440-23-5	Sodium	6120			P
7440-28-0	Thallium	0.75	U	W	F
7440-62-2	Vanadium	18.9	B		P
7440-66-6	Zinc	244		*NE	P
57-12-5	Cyanide	2.7 -0.82	B	N ✓	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 224.0f278

CC-SD03-01

Lab Name: IEA NJ Contract: _____
 Lab Code: IEANJ Case No.: 51686 SAS No.: _____ SDG No.: CC-SS0
 Matrix (soil/water): SOIL Lab Sample ID: 51686013
 Level (low/med): LOW Date Received: 04/19/95
 Solids: 49.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1950		E J	P
7440-36-0	Antimony	17.1	U		P
7440-38-2	Arsenic	8.8			F
7440-39-3	Barium	21.8	B	E	P
7440-41-7	Beryllium	0.21	B		P
7440-43-9	Cadmium	2.2			P
7440-70-2	Calcium	7510		E ✓	P
7440-47-3	Chromium	17.7			P
7440-48-4	Cobalt	1.9	B	J	P
7440-50-8	Copper	101		E	P
7439-89-6	Iron	13000		E	P
7439-92-1	Lead	62.8		*	F
7439-95-4	Magnesium	2880		E ✓	P
7439-96-5	Manganese	95.5		E	P
7439-97-6	Mercury	0.20	U	* J	CV
7440-02-0	Nickel	6.9	U		P
7440-09-7	Potassium	458	B		P
7782-49-2	Selenium	0.51	U		F
7440-22-4	Silver	9.9			P
7440-23-5	Sodium	5280			P
7440-28-0	Thallium	0.55	U		F
7440-62-2	Vanadium	15.9	B		P
7440-66-6	Zinc	106		*NE	P
57-12-5	Cyanide	2.0 0.61	✓	N ✓	C

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM
 Color After: YELLOW Clarity After: CLEAR Artifacts: NO
 Comments: _____

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-FB02-01

DI BLANK

Lab Name: IEA_NJ Contract: _____Lab Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): WATERLab Sample ID: 51723007Level (low/med): LOWDate Received: 04/21/95% Solids: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16.7	U		P
7440-36-0	Antimony	42.2	U		P
7440-38-2	Arsenic	0.84	U		F
7440-39-3	Barium	1.3	U		P
7440-41-7	Beryllium	0.093	U		P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	14.2	U		P
7440-47-3	Chromium	2.4	U	J	P
7440-48-4	Cobalt	3.6	U		P
7440-50-8	Copper	3.1	U		P
7439-89-6	Iron	11.2	U		P
7439-92-1	Lead	20.8	U		F
7439-95-4	Magnesium	38.5	U		P
7439-96-5	Manganese	1.2	U	J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	17.1	U	J	P
7440-09-7	Potassium	464	U		P
7782-49-2	Selenium	1.2	U		F
7440-22-4	Silver	3.3	U		P
7440-23-5	Sodium	37.3	U		P
7440-28-0	Thallium	1.4	U		F
7440-62-2	Vanadium	2.2	U	J	P
7440-66-6	Zinc	3.7	U		P
57-12-5	Cyanide	10.0	B	U J	C

Color Before: COLORLESSClarity Before: CLEAR

Texture: _____

Color After: COLORLESSClarity After: CLEAR

Artifacts: _____

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

276. P 278

CC-FB-02-1

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51704SAS No.: _____ SDG No.: CC-FB-Matrix (soil/water): WATERLab Sample ID: 51704001Level (low/med): LOWDate Received: 04/20/95% Solids: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16.7	U		P
7440-36-0	Antimony	54.4	B	J	P
7440-38-2	Arsenic	0.84	U	J	F
7440-39-3	Barium	1.3	U		P
7440-41-7	Beryllium	0.093	U		P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	14.2	U		P
7440-47-3	Chromium	2.4	U		P
7440-48-4	Cobalt	3.6	U	J	P
7440-50-8	Copper	3.1	U		P
7439-89-6	Iron	11.2	U		P
7439-92-1	Lead	0.46	U		F
7439-95-4	Magnesium	38.5	U		P
7439-96-5	Manganese	1.2	U	J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	17.1	U		P
7440-09-7	Potassium	464	U		P
7782-49-2	Selenium	1.2	U		F
7440-22-4	Silver	3.3	U		P
7440-23-5	Sodium	40.4	B		P
7440-28-0	Thallium	1.4	U		F
7440-62-2	Vanadium	2.2	U	J	P
7440-66-6	Zinc	3.7	U		P
57-12-5	Cyanide	10.2	BU	J	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEETEPA SAMPLE NO. 22705278

CC-FB03-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51704SAS No.: _____ SDG No.: CC-FB-Matrix (soil/water): WATERLab Sample ID: 51704002Level (low/med): LOWDate Received: 04/20/95% Solids: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16.7	U		P
7440-36-0	Antimony	42.2	U		P
7440-38-2	Arsenic	0.7334	U	WJ	F
7440-39-3	Barium	1.3	U		P
7440-41-7	Beryllium	0.093	U		P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	75.3	B		P
7440-47-3	Chromium	2.4	U		P
7440-48-4	Cobalt	3.6	U		P
7440-50-8	Copper	3.1	U		P
7439-89-6	Iron	11.2	U		P
7439-92-1	Lead	0.59	U		F
7439-95-4	Magnesium	38.5	U		P
7439-96-5	Manganese	1.2	U	J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	17.1	U	J	P
7440-09-7	Potassium	464	U		P
7782-49-2	Selenium	1.2	U		F
7440-22-4	Silver	3.3	U		P
7440-23-5	Sodium	146	B		P
7440-28-0	Thallium	1.4	U		F
7440-62-2	Vanadium	2.2	U	J	P
7440-66-6	Zinc	9.6	B		P
57-12-5	Cyanide	10.0 4.0	UB	J	C

Color Before: COLORLESSClarity Before: CLEAR

Texture: _____

Color After: COLORLESSClarity After: CLEAR

Artifacts: _____

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-FB0301F

Name: IEA NJ Contract: _____Code: IEANJ Case No.: 51704SAS No.: _____ SDG No.: CC-FB-Media: (soil/water): WATERLab Sample ID: 51704005Level (low/med): LOWDate Received: 04/20/95Concentration: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16.7	U		P
7440-36-0	Antimony	42.4	B	J	P
7440-38-2	Arsenic	0.23	U		F
7440-39-3	Barium	1.3	U		P
7440-41-7	Beryllium	0.093	U		P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	14.2	U		P
7440-47-3	Chromium	2.4	U	J	P
7440-48-4	Cobalt	3.6	U	J	P
7440-50-8	Copper	3.1	U		P
7439-89-6	Iron	11.2	U		P
7439-92-1	Lead	0.59	U		F
7439-95-4	Magnesium	38.5	U		P
7439-96-5	Manganese	1.2	U	J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	17.1	U	J	P
7440-09-7	Potassium	464	U		P
7782-49-2	Selenium	1.2	U		F
7440-22-4	Silver	3.3	U		P
7440-23-5	Sodium	37.3	U		P
7440-28-0	Thallium	1.4	U		F
7440-62-2	Vanadium	2.2	U	J	P
7440-66-6	Zinc	16.8	B		P
57-12-5	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:



IEA

An Aquarion Company

628 Route 10
Whippany, New Jersey 07981

Phone 201-428-8181
Fax 201-428-5222 *Ref. 2*

224-f-178

CLP DATA PACKAGE
SAMPLING DATE APRIL 18, 1995
IEA JOB NO: 20950-51686B
VOLUME I OF III

PREPARED BY:
INDUSTRIAL ENVIRONMENTAL ANALYSTS (IEA)
(CERTIFICATION NUMBER 14530)

FOR
FOSTER WHEELER ENVIRONMENTAL CORPORATION

PROJECT: CCP

Monroe,
Connecticut
203-261-4458

Sunrise,
Florida
305-846-1730

Schaumburg,
Illinois
708-705-0740

N. Billerica,
Massachusetts
617-272-5212

Research Triangle Park,
North Carolina
919-677-0090

102808

**IEA**

An Aquarion Company

MAY 18, 1995

Ref. 24
0256f278

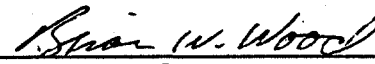
20950-51686B
FOSTER WHEELER ENVIRONMENTAL CORPORATION
1290 WALL STREET WEST
P.O. BOX 661
LYNDHURST NJ 07071

ATTENTION: MR. EDGAR AGUADO

Nine (9) water samples, including two (2) matrix spikes, two (2) matrix spike duplicates and one (1) trip blank, and thirteen (13) soil samples, including one (1) matrix spike and one (1) matrix spike duplicate, were received on April 19, 1995 for analysis by IEA (NJ Certification #14530). These samples were labelled as follows:

<u>LAB ID</u>	<u>CLIENT ID</u>	<u>DATE AND TIME COLLECTED</u>
51686001	CC-SS01-01	4/18/95 1205
51686002	CC-SS02-01	4/18/95 1145
51686003	CC-SS03-01	4/18/95 1115
51686004	CC-SS04-01	4/18/95 1120
51686005	CC-SS05-01	4/18/95 1055
51686006	CC-SS06-01	4/18/95 1045
51686007	CC-SS07-01	4/18/95 1130
51686008	CC-SS08-01	4/18/95 1135
51686009	CC-SS09-01	4/18/95 1155
51686010	CC-SS10-01	4/18/95 1155
51686011	CC-SD01-01	4/18/95 1030
51686012	CC-SD02-01	4/18/95 0810
51686013	CC-SD03-01	4/18/95 0830
51686014	CC-GW01-01	4/18/95 1545
51686015	CC-GW02-01	4/18/95 1430
51686016	CC-GW03-01	4/18/95 1630
51686017	CC-GW04-01	4/18/95 1630
51686018	TRIPBLANK	4/18/95 0800
51686019	CCGW01-01F	-- --
51686020	CCGW02-01F	-- --
51686021	CCGW03-01F	-- --
51686022	CCGW04-01F	-- --

DATA RELEASE AUTHORIZED BY:


Brian Wood
Laboratory Manager

102809



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CASE NARRATIVE

102810

Client: FOSTER WHEELER ENVIRONMENTAL CORPORATION

Job No: 20950-51686

Ref. 24
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CASE NARRATIVE

Pesticides/PCBs

Spike recoveries for compounds g-BHC, Dieldrin and 4,4'-DDT in the matrix spike and matrix spike duplicate of sample 51686005 (CC-SS05-01) exceeded QC limits due to matrix interference.

Metals

The soil matrix spike for Total Cyanide was spiked at a level of 10 mg/kg, not 25 mg/kg as specified in ILM03.0.

The spike recovery for Total Cyanide soil matrix spike was not within the specified parameters, and the original sample was used as a post-distillation spike. This sample was spiked at a level three times higher than that of the Contract Required Detection Limit (CRDL) rather than twice the level as required by ILM03.0.

The Continuing Calibration Verification (CCV) for the Total Cyanide run of April 28, 1995 was outside of the recovery limits (116.8%). Cyanide was not detected in any of the samples run under this CCV; therefore, no further action was taken.

Samples 51686001 (CC-SS01-01), 51686007 (CC-SS07-01) and 51686011 (CC-SD01-01) were rerun on May 16, 1995 because of a poor Relative Standard Deviation (RSD) for Cadmium. The May 16, 1995 run was reported. Exposures one and two were used for Antimony on May 12, 1995 due to poor RSDs. Arsenic run on the Furnace AA required a four-fold dilution due to concentrations exceeding the calibration limits.

Exposures two and three were used for Cadmium on sample 51686010 (CC-SS10-01) due to poor RSDs on three exposures.

Exposures one and two were used for Cadmium on sample 51686013 (CC-SD03-01) due to poor RSDs on three exposures.

Antimony was rerun on May 12, 1995 for samples 51686014 (CC-GW01-01) and 51686020 (CCGW02-01F) due to poor RSDs on the initial run. The results of the May 12, 1995 run are reported.

Chromium and Antimony were rerun on May 12, 1995 for sample 51686015 (CC-GW02-01) due to poor RSDs on the initial run.

Samples 51686016 (CC-GW03-01) and 51686017 (CC-GW04-01) were diluted five-fold for Sodium due to concentrations in the initial run exceeding the calibration limits. The diluted results are reported.

Samples 51686016 (CC-GW03-01) and 51686017 (CC-GW04-01) were diluted ten-fold for Mercury due to concentrations exceeding the initial calibration limits.

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Feb 24

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All Iron on Lead Interelement Corrections (IEC) are incorrect on all ICP raw data. None of the corrections have been applied. All of the IECs have been error corrected.

A CCV for Sodium and Magnesium on May 8, 1995 was outside of control limits. No samples reported are associated with this CCV; therefore, no further action was taken.

According to ILM03.0 the Initial Calibration Verification has to be at a different concentration than any point on the initial calibration. The CCVs cannot be at the same concentrations as the Initial Calibration Verifications. For Arsenic, Selenium and Mercury this procedure was not followed.

**ORGANICS ANALYSIS
DATA AND SAMPLE QUALIFIERS****DATA QUALIFIERS:**

- U -** Indicates that the compound was analyzed for but not detected.
- J -** This qualifier indicates an estimated concentration. This qualifier is used (1) when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the CRQL or PQL but greater than zero, and (3) when the retention time data indicate the presence of a compound that meets the Pesticide/Aroclor identification criteria, and the result is less than the CRQL or PQL but greater than zero.
- B -** This qualifier is used when the analyte is found in a method blank as well as the sample. It indicates possible sample contamination and warns the user to use caution when applying the results of this analyte.
- E -** Exceeds calibration range.
- A -** Indicates that a tentatively identified compound is a suspected Aldol-condensation product.
- N -** Indicates presumptive evidence of a compound. This qualifier is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all tentatively identified compound results. For generic classification of a tentatively identified compound, such as chlorinated hydrocarbon, the N code is not used.
- D -** This qualifier identifies all compounds identified in an analysis at a secondary dilution factor.
- P -** Indicates that the quantitative results from the two GC columns differed by more than 25 percent.

SAMPLE QUALIFIERS:

- DL -** Indicates that the analysis was performed at a secondary dilution.
- RE -** Rerun - Indicates that the analysis is a reinjection or a reextraction and reanalysis, usually due to a failed QC element in the initial analysis.



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An Aquarion Company

Ref. 24
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METALS ANALYSIS DATA QUALIFIERS

C indicates concentration qualifier column

- U -** Result is below the instrument detection limit (IDL).
- B -** Result is between the EQL (Estimated Quantitation Limit) and the IDL (Instrument Detection Limit). (Note that this flag does not have the same meaning as in Organics analysis).

Q indicates QC qualifier column

- E -** Serial dilution is not within control limits.
- N -** Spiked sample recovery not within control limits.
- * -** Duplicate analysis not within control limits.
- S -** The reported value was determined by the Method of Standard Additions (MSA).
- + -** Correlation coefficient for the MSA is less than 0.995.
- W -** Analytical spike for furnace AA analysis recovers at greater than 40% (but not within 85% - 115%) and the sample concentration is less than half the spike value.

M indicates method qualifier column

- P -** Inductively Coupled Argon Plasma.
- F -** Graphite Furnace Atomic Absorption.
- CV -** Cold Vapor Atomic Absorption.
- NR -** Not Requested.

ref. 24
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000004A

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signatures."

Brian W. Wood
Brian Wood, Laboratory Manager

5/17/95
Date

METHODOLOGY SUMMARY

PESTICIDES/PCB - WATER

EPA CLP SOW OLM03 is used for the extraction and analysis of Pesticides and PCBs. A measured volume of sample is extracted three times with methylene chloride. The Methylene chloride extract is filtered through sodium sulfate, exchanged to hexane, filtered through a florisil column and concentrated. The extract is analyzed by gas chromatography and the compounds are measured using an electron capture detector. The holding time for extraction is five (5) days from validated time of sample receipt. The holding time for analysis is thirty-five (35) days from date of extraction.

PESTICIDES/PCB - SOIL

EPA CLP SOW OLM03 is used for the extraction and analysis of Pesticides and PCBs. A 30 gram sample aliquot is sonicated three times with a 1:1 mixture of acetone and methylene chloride. The extract is filtered through sodium sulfate, concentrated and cleaned-up by gel permeation column chromatography. The extracts are then filtered through a florisil column and concentrated. The extract is then analyzed by gas chromatography and the compounds are measured using an electron capture detector. The holding time for extraction is ten (10) days from validated time of sample receipt. The holding time for analysis is thirty-five (35) days from date of extraction.

METALS

Metals analysis is based on USEPA CLP ILM03.0. Arsenic, selenium, thallium and lead maybe analyzed by furnace AA with Zeeman background correction. Mercury is analyzed by cold vapor technique. All other metals are analyzed by Inductively Coupled Argon Plasma emission spectroscopy (if the ICP61E Trace is used, Arsenic, Selenium, Thallium and Lead can be analyzed by ICP). Samples for ICP analysis are digested with hydrochloric and nitric acids. Samples for furnace analysis are digested with nitric acid. Samples for mercury analysis are digested with potassium permanganate and nitric acid. The holding time for mercury is twenty-six (26) days from collection. The holding time for all other metals is six (6) months.

CYANIDE

Cyanide analysis is based on USEPA CLP ILM03.0. The cyanide as hydrocyanic acid (HCN) is released from cyanide complexes by means of a reflux-distillation operation and absorbed in a scrubber containing sodium hydroxide solution. The cyanide in the absorbing solution is then determined spectrophotometrically. The holding is twelve (12) days from date of collection.

Ref. 24
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CHAIN OF CUSTODY DOCUMENTATION

**EBASCO SERVICES INCORPORATED
CHAIN OF CUSTODY RECORD**

51686

PROJECT CC P					NO. CONTAINERS	<div style="display: flex; justify-content: space-around;"> <div>TCL VOA</div> <div>TCL BVA</div> <div>TCL PEST/PCB</div> <div>TAL METALS</div> <div>CYANIDE</div> </div>										PRESERVATION		
SAMPLERS: (Signature) <i>[Signature]</i>																ICED	SPECIFY CHEMICALS ADDED AND FINAL pH IF KNOWN	
SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	REMARKS OR SAMPLE LOCATION													
1 CC-SS01-01	4/18/95	12:05		X		X	X	X	X	X							radiometry $< 1,000$ counts per minute (background)	N/A
2 CC-SS02-01	4/18/95	11:45		X		X	X	X	X	X								
3 CC-SS03-01	4/18/95	11:15		X		X	X	X	X	X								
4 CC-SS04-01	4/18/95	11:20		X		X	X	X	X	X								
5 CC-SS05-01	4/18/95	10:55		X		X	X	X	X	X							MS/MSD	
6 CC-SS06-01	4/18/95	10:45		X		X	X	X	X	X								
7 CC-SS07-01	4/18/95	11:30		X		X	X	X	X	X								
8 CC-SS08-01	4/18/95	11:35		X		X	X	X	X	X								
9 CC-SS09-01	4/18/95	11:55		X		X	X	X	X	X								
0 CC-SS10-01	4/18/95	11:55		X		X	X	X	X	X								
1 CC-SD01-01	4/18/95	10:30		X		X	X	X	X	X								
2 CC-SD02-01	4/18/95	8:10		X		X	X	X	X	X								
3 CC-SD03-01	4/18/95	8:30		X		X	X	X	X	X								

Relinquished by: (Signature) <i>[Signature]</i>	①	Date / Time 4/18/95	Received by: (Signature) Fed Ex.	Relinquished by: (Signature)	④	Date / Time	Shipped via:
Relinquished by: (Signature)	②	Date / Time	Received by: (Signature)	Received for Laboratory by: (Signature) <i>[Signature]</i>		Date / Time 4/19/95 7:00	Shipped Ticket No.
Relinquished by: (Signature)	③	Date / Time	Received by: (Signature)	Remarks: Shipped via Fed Ex Airbill # 4090410251			

CC000702/2
23-66229

102818

51486

03303-0-24

102819

23706278
000003

IEA OF NEW JERSEY
SAMPLE CONTROL CHRONICLE

Sampling Date: 4/18/95 Job #: 51686
Receipt Date: 4/19/95 Signature: [Signature]
Custody Seal: Present/Absent Cooler Temp: 7
Intact/Not Intact
Chain of Custody: Present/Absent
Sample Tags: Present/Absent Preservative Ck: on
Shipping Bill: Present/Absent Airbill #: 4090410251
Comments: _____

Subcontracting

Parameter	Sample ID	Parameter	Sample ID
<u>MBAS</u>	_____	<u>TKN</u>	_____
<u>AMMONIA</u>	_____	<u>O-PHOSPHATE</u>	_____
<u>COD</u>	_____	<u>SULFIDE</u>	_____
<u>SULFATE</u>	_____	<u>COLIFORM</u>	_____
<u>NITRATE</u>	_____	<u>ALKALINITY</u>	_____
<u>BOD</u>	_____	<u>TURBIDITY</u>	_____
<u>NITRATE</u>	_____	<u>COLOR</u>	_____
<u>NITRITE</u>	_____	<u>TOC</u>	_____
<u>RADIUM</u>	_____	<u>TOX</u>	_____
<u>THORIUM</u>	_____	<u>OTHER</u>	_____
<u>URANIUM</u>	_____	<u>OTHER</u>	_____

Subcontract Lab: _____ Date: _____

Signature: _____

Sample Prep

Sample #

Compositing: _____

Percent Solids: 1-13

pH Performed: 1-13

Signature: [Signature]

Date: 4/19/95

Form# SMF00601.NJ

Page _____ OF 98
IEA Logbook# SM6

102820

Apr. 24
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IEA
An Aquarion Company

IEA, INC. - NEW JERSEY
INTERNAL CHAIN OF CUSTODY CHRONICLE
GC

JOB/CASE NUMBER: 51686

MATRIX: WATER SOIL TCLP/EP OTHER: _____

I confirm that I have performed the analysis below following SOP guidelines:

Analysis: Pest/PCB (Circle which apply)

Analyst Signature

Date

014-017

Forkey

05/05/95
J. Gos for key

Preparation: Pest/PCB (Circle which apply).

Consumed

014-017

Adamak

4/28/95

4/28/95

Analysis: Herbicides

Preparation: Herbicides

Analysis: Other

Preparation: Other

I confirm that I have reviewed all associated data and authorize the release of this job:

AUTHORIZATION:

B. Wood
Group Leader/Lab Manager

5/18/95
Date

45,24
000011
234 of 278



IEA
An Aquarion Company

IEA, INC. - NEW JERSEY
INTERNAL CHAIN OF CUSTODY CHRONICLE
GC

JOB/CASE NUMBER: 51686

MATRIX: WATER

SOIL

TCLP/EP

OTHER: _____

I confirm that I have performed the analysis below following SOP guidelines:

Analysis: Pest/PCB (Circle which apply)

Analyst Signature

Date

001-013

Z. G. Kelly

05/05/95

Z. G. Kelly

Preparation: Pest/PCB (Circle which apply)

Consumed

001-013

K. Adamak

4/28/95

0204/28/95

Analysis: Herbicides

Preparation: Herbicides

Analysis: Other

Preparation: Other

I confirm that I have reviewed all associated data and authorize the release of this job:

AUTHORIZATION:

[Signature]
Group Leader/Lab Manager

5/15/95
Date

102822



IEA
An Aquarion Company

Ref. 24
24.6.275
000013

IEA, INC. - NEW JERSEY
INTERNAL CHAIN OF CUSTODY CHRONICLE
METALS

JOB/CASE NUMBER: 51686

MATRIX: WATER SOIL TCLP/EP OTHER: _____

I confirm that I have performed the analysis below following SOP guidelines:

Analysis: ICP

	Analyst Signature	Date
<u>001-013</u>	TP <u>[Signature]</u>	<u>5/12/95</u>
<u>001, 007, 011</u>	TT <u>[Signature]</u>	<u>5/16/95</u>

Preparation: ICP

Consumed

<u>001-013</u>	JB <u>[Signature]</u>	<u>5/11/95</u>	_____
----------------	-----------------------	----------------	-------

Preparation/Analysis: Cyanide

<u>001-013</u>	EF <u>[Signature]</u>	<u>5/11/95</u>	_____
----------------	-----------------------	----------------	-------

Preparation/Analysis: Hexavalent Chromium

Analysis: Furnace

<u>001-013</u>	MC <u>[Signature]</u> for M. Centore	<u>5/11/95</u>	_____
<u>001-006</u>	MC <u>[Signature]</u> for M. Centore	<u>5/12/95</u>	_____
<u>007-013</u>	MC <u>[Signature]</u> for M. Centore	<u>5/16/95</u>	_____
<u>011-013</u>	MC <u>[Signature]</u> for M. Centore	<u>5/18/95</u>	_____
<u>005-013</u>	MC <u>[Signature]</u> for M. Centore	<u>5/13/95</u>	_____
<u>008, 005</u>	MC <u>[Signature]</u> for M. Centore	<u>5/15/95</u>	_____

Preparation: Furnace

<u>001-013</u>	JB <u>[Signature]</u>	<u>5/11/95</u>	_____
----------------	-----------------------	----------------	-------

Preparation/Analysis: Mercury

<u>001-013</u>	JB <u>[Signature]</u>	<u>5/12/95</u>	_____
----------------	-----------------------	----------------	-------

I confirm that I have reviewed all associated data and authorize the release of this job:

AUTHORIZATION: _____
METALS Group Leader/Lab Director

5-18-95
Date

WET Chem [Signature]

5-18-95
DATE

102823

Ref. 24
240.F278
000012



IEA, INC. - NEW JERSEY
INTERNAL CHAIN OF CUSTODY CHRONICLE
METALS

JOB/CASE NUMBER: 51704

MATRIX: (WATER) SOIL TCLP/EP OTHER: _____

I confirm that I have performed the analysis below following S guidelines:

Analysis: ICP

	Analyst Signature	Date
<u>001, 002, 005</u>	<u>KTF [Signature] K. Furey</u>	<u>5-8-95</u>
<u>005</u>	<u>MVA [Signature]</u>	<u>5-12-95</u>

Preparation: ICP

Consumed

<u>001, 002, 005</u>	<u>JN [Signature] J. Noe</u>	<u>5-1-95</u>	_____
----------------------	------------------------------	---------------	-------

Preparation/Analysis: Cyanide

<u>001, 002</u>	<u>EMP [Signature] M. Ferguson</u>	<u>5-2-95</u>	_____
-----------------	------------------------------------	---------------	-------

Preparation/Analysis: Hexavalent Chromium

Analysis: Furnace

<u>001</u>	<u>mc [Signature] for Mcentre</u>	<u>5-1-95</u>	_____
<u>001</u>	<u>mc [Signature] for Mcentre</u>	<u>5-4-95</u>	_____
<u>001</u>	<u>mc [Signature] for Mcentre</u>	<u>5-8-95</u>	_____
<u>002, 005</u>	<u>JN [Signature] J. Noe</u>	<u>5-16-95</u>	_____

Preparation: Furnace

<u>001, 002, 005</u>	<u>JN [Signature] J. Noe</u>	<u>5-1-95</u>	_____
----------------------	------------------------------	---------------	-------

Preparation/Analysis: Mercury

<u>001, 002, 005</u>	<u>JB [Signature]</u>	<u>5-2-95</u>	_____
----------------------	-----------------------	---------------	-------

I confirm that I have reviewed all associated data and authorize release of this job:

AUTHORIZATION: _____
Group Leader/Lab Director

5-18-95
Date

Ref. 24
2430F278
000011



IEA
An Aquarion Company

IEA, INC. - NEW JERSEY
INTERNAL CHAIN OF CUSTODY CHRONICLE
GC

JOB/CASE NUMBER: 51704

MATRIX: WATER SOIL TCLP/EP OTHER: _____

I confirm that I have performed the analysis below following SOP guidelines:

Analysis: Pest/PCB (Circle which apply)

	Analyst Signature	Date
<u>003</u>	<u>Tschuy</u>	<u>25/05/95</u>
_____	_____	_____
_____	_____	_____

	Preparation: <u>Pest/PCB</u> (Circle which apply)	Consumed
<u>003</u>	<u>Adamak</u>	<u>4/28/95</u>
_____	_____	_____
_____	_____	<u>4/28/95</u>

Analysis: Herbicides

_____	_____	_____
_____	_____	_____
_____	_____	_____

Preparation: Herbicides

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Analysis: Other

_____	_____	_____
_____	_____	_____

Preparation: Other

_____	_____	_____	_____
_____	_____	_____	_____

I confirm that I have reviewed all associated data and authorize the release of this job:

AUTHORIZATION: <u>[Signature]</u>	<u>5/15/95</u>
Group Leader/Lab Manager	Date

Ref. 24
000010
244 of 278



IEA
An Aquarion Company

IEA, INC. - NEW JERSEY
INTERNAL CHAIN OF CUSTODY CHRONICLE
GC

JOB/CASE NUMBER: 51704

MATRIX: WATER SOIL TCLP/EP OTHER: _____

I confirm that I have performed the analysis below following SOP guidelines:

Analysis: Pest/PCB (Circle which apply)

Analyst Signature

Date

001,002

Truhay

05/05/95

LC 05/05/95

Preparation: Pest/PCB (Circle which apply)

Consumed

001,002

Adamak

4/28/95

4/28/95

Analysis: Herbicides

Preparation: Herbicides

Analysis: Other

Preparation: Other

I confirm that I have reviewed all associated data and authorize the release of this job:

AUTHORIZATION:

18/0000
Group Leader/Lab Manager

5/18/95
Date

102826

Ref. 24
24505278

000009

IEA OF NEW JERSEY
SAMPLE CONTROL CHRONICLE

Sampling Date: 4/19/95 Job #: 51704
Receipt Date: 4/20/95 Signature: [Signature]
Custody Seal: Present/Absent Cooler Temp: 4
Intact/Not Intact
Chain of Custody: Present/Absent
Sample Tags: Present/Absent Preservative Ck: OK
Shipping Bill: Present/Absent Airbill #: _____
Comments: _____

Subcontracting

Parameter	Sample ID	Parameter	Sample ID
<u>MBAS</u>	_____	<u>TKN</u>	_____
<u>AMMONIA</u>	_____	<u>O-PHOSPHATE</u>	_____
<u>COD</u>	_____	<u>SULFIDE</u>	_____
<u>SULFATE</u>	_____	<u>COLIFORM</u>	_____
<u>NITRATE</u>	_____	<u>ALKALINITY</u>	_____
<u>BOD</u>	_____	<u>TURBIDITY</u>	_____
<u>NITRATE</u>	_____	<u>COLOR</u>	_____
<u>NITRITE</u>	_____	<u>TOC</u>	_____
<u>RADIUM</u>	_____	<u>TOX</u>	_____
<u>THORIUM</u>	_____		_____
<u>URANIUM</u>	_____		_____

Subcontract Lab: _____ Date: _____

Sample Prep
Sample #

Compositing: _____
Percent Solids: 003
pH Performed: 603
Signature: [Signature]

Date: 4/20/95

Form# SMF00601.NJ

Page _____ OF 98
IEA Logbook# SM6

51704

102828

000000 Def. 24



IEA
An Aquarion Company

IEA, INC. - NEW JERSEY
INTERNAL CHAIN OF CUSTODY CHRONICLE
METALS

Ref. 24
2470f278
000013

JOB/CASE NUMBER: 51704

MATRIX: WATER (SOIL) TCLP/EP OTHER: _____

I confirm that I have performed the analysis below following SOP guidelines:

Analysis: ICP

	Analyst Signature	Date
<u>003</u>	<u>MVA [Signature]</u>	<u>5-12-95</u>
_____	_____	_____
_____	_____	_____

Preparation: ICP

			Consumed
<u>003</u>	<u>JB [Signature]</u>	<u>5-1-95</u>	_____
_____	_____	_____	_____

Preparation/Analysis: Cyanide

<u>003</u>	<u>EMF [Signature]</u>	<u>5-2-95</u>	_____
_____	_____	_____	_____

Preparation/Analysis: Hexavalent Chromium

Analysis: Furnace

<u>003</u>	<u>MC [Signature] for M. Centore</u>	<u>5-1-95</u>	_____
<u>003</u>	<u>MC [Signature] for M. Centore</u>	<u>5-8-95</u>	_____
_____	_____	_____	_____
_____	_____	_____	_____

Preparation: Furnace

<u>003</u>	<u>JB [Signature]</u>	<u>5-1-95</u>	_____
_____	_____	_____	_____

Preparation/Analysis: Mercury

<u>003</u>	<u>JB [Signature]</u>	<u>5-2-95</u>	_____
_____	_____	_____	_____

I confirm that I have reviewed all associated data and authorize the release of this job:

AUTHORIZATION: _____
Group Leader/Lab Director

5-19-95
Date

102829

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

000021
Re 24
EPA SAMPLE NO.
CC-GW01-01
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Lab Name: IEA-NJ Contract: 68D20022
Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water): WATER Lab Sample ID: 51686014
Sample wt/vol: 1000 (g/ml) ml Lab File ID: D4BCLP075P_030
Moisture: _____ decanted: _____ Date Received: 04/19/95
Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 04/28/95
Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/05/95
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: _____ Sulfur Cleanup: Y

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/L

319-84-6	alpha-BHC	0.05	U J
319-85-7	Beta-BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Endrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
7421-93-4	Endrin Aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U ✓

000028

EPA SAMPLE NO.

CC-GW02-01

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEETLab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water): WATERLab Sample ID: 51686015Sample wt/vol: 1000 (g/ml) mlLab File ID: D4BCLP075P_031

Moisture: _____ decanted: _____

Date Received: 04/19/95Extraction: (SepF/Cont/Sonc) SEPFDate Extracted: 04/28/95Concentrated Extract Volume: 10000 (uL)Date Analyzed: 05/05/95Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) N pH: _____Sulfur Cleanup: Y

CAS NO. COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/L

319-84-6	alpha-BHC	0.05	U	J
319-85-7	Beta-BHC	0.05	U	
319-86-8	delta-BHC	0.05	U	
58-89-9	gamma-BHC (Lindane)	0.05	U	
76-44-8	Heptachlor	0.05	U	
309-00-2	Aldrin	0.05	U	
1024-57-3	Heptachlor Epoxide	0.05	U	
959-98-8	Endosulfan I	0.05	U	
60-57-1	Dieldrin	0.10	U	
72-55-9	4,4'-DDE	0.10	U	
72-20-8	Endrin	0.10	U	
33213-65-9	Endosulfan II	0.10	U	
72-54-8	4,4'-DDD	0.10	U	
1031-07-8	Endosulfan Sulfate	0.10	U	
50-29-3	4,4'-DDT	0.10	U	
72-43-5	Methoxychlor	0.50	U	
53494-70-5	Endrin Ketone	0.10	U	
7421-93-4	Endrin Aldehyde	0.10	U	
5103-71-9	alpha-Chlordane	0.05	U	
5103-74-2	gamma-Chlordane	0.05	U	
8001-35-2	Toxaphene	5.0	U	
12674-11-2	Aroclor-1016	1.0	U	
11104-28-2	Aroclor-1221	2.0	U	
11141-16-5	Aroclor-1232	1.0	U	
53469-21-9	Aroclor-1242	1.0	U	
12672-29-6	Aroclor-1248	1.0	U	
11097-69-1	Aroclor-1254	1.0	U	
11096-82-5	Aroclor-1260	1.0	U	✓

FORM 1 PEST

3/90

102831

000034

Ref. 24

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CC-GW03-01

2500f278

Lab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water): WATERLab Sample ID: 51686016Sample wt/vol: 1000 (g/ml) mlLab File ID: D4BCLP075P_034

Moisture: _____ decanted: _____

Date Received: 04/19/95Extraction: (SepF/Cont/Sonc) SEPFDate Extracted: 04/28/95Concentrated Extract Volume: 10000 (uL)Date Analyzed: 05/05/95Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) N pH: _____Sulfur Cleanup: Y

CAS NO.

COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/L

319-84-6	alpha-BHC	0.05	U J
319-85-7	Beta-BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
7421-93-4	Endrin Aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U ✓

FORM 1 PEST

3/90

102832

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

RF.24
000041
EPA SAMPLE NO.
CC-GW04-01

Lab Name: IEA-NJ Contract: 68D20022 257 of 278

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water): WATER Lab Sample ID: 51686017

Sample wt/vol: 1000 (g/ml) ml Lab File ID: D4BCLP075P_035

Moisture: _____ decanted: _____ Date Received: 04/19/95

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 04/28/95

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/05/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Sulfur Cleanup: Y

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/L

319-84-6	alpha-BHC	0.05	U	J
319-85-7	Beta-BHC	0.05	U	
319-86-8	delta-BHC	0.05	U	
58-89-9	gamma-BHC (Lindane)	0.05	U	
76-44-8	Heptachlor	0.05	U	
309-00-2	Aldrin	0.05	U	
1024-57-3	Heptachlor Epoxide	0.05	U	
959-98-8	Endosulfan I	0.05	U	
60-57-1	Dieldrin	0.10	U	
72-55-9	4,4'-DDE	0.10	U	
72-20-8	Endrin	0.10	U	
33213-65-9	Endosulfan II	0.10	U	
72-54-8	4,4'-DDD	0.10	U	
1031-07-8	Endosulfan Sulfate	0.10	U	
50-29-3	4,4'-DDT	0.10	U	
72-43-5	Methoxychlor	0.50	U	
53494-70-5	Endrin Ketone	0.10	U	
7421-93-4	Endrin Aldehyde	0.10	U	
5103-71-9	alpha-Chlordane	0.05	U	
5103-74-2	gamma-Chlordane	0.05	U	
8001-35-2	Toxaphene	5.0	U	
12674-11-2	Aroclor-1016	1.0	U	
11104-28-2	Aroclor-1221	2.0	U	
11141-16-5	Aroclor-1232	1.0	U	
53469-21-9	Aroclor-1242	1.0	U	
12672-29-6	Aroclor-1248	1.0	U	
11097-69-1	Aroclor-1254	1.0	U	
11096-82-5	Aroclor-1260	1.0	U	✓

FORM 1 PEST

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102833

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

000048
Ref. 24
EPA SAMPLE NO.
CC-SD01-01

Lab Name: IEA-NJ Contract: 68D20022 25209278
Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water): SOIL Lab Sample ID: 51686011
Sample wt/vol: 30 (g/ml) g USE Lab File ID: D4BCLP0750_050
Moisture: 42 decanted: N Date Received: 04/19/95
Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 04/28/95
Concentrated Extract Volume: 5000 (uL) Date Analyzed: 05/10/95
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) Y pH: 7.2 Sulfur Cleanup: Y

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	2.9	U	J
319-85-7	Beta-BHC	2.9	U	
319-86-8	delta-BHC	2.9	U	
58-89-9	gamma-BHC (Lindane)	2.9	U	
76-44-8	Heptachlor	2.9	U	
309-00-2	Aldrin	2.9	U	
1024-57-3	Heptachlor Epoxide	10	P	
959-98-8	Endosulfan I	2.9	U	
60-57-1	Dieldrin	16	P	N
72-55-9	4,4'-DDE	51	P	N
72-20-8	Endrin	5.7	U	
33213-65-9	Endosulfan II	5.7	U	
72-54-8	4,4'-DDD	99 * 120	EP	N
1031-07-8	Endosulfan Sulfate	36		
50-29-3	4,4'-DDT	130 * 170	B	
72-43-5	Methoxychlor	34	P	
53494-70-5	Endrin Ketone	5.7	U	
7421-93-4	Endrin Aldehyde	5.7	U	
5103-71-9	alpha-Chlordane	53 * 49	EP	
5103-74-2	gamma-Chlordane	49 * 53	B	
8001-35-2	Toxaphene	290	U	
12674-11-2	Aroclor-1016	57	U	
11104-28-2	Aroclor-1221	120	U	
11141-16-5	Aroclor-1232	57	U	
53469-21-9	Aroclor-1242	57	U	
12672-29-6	Aroclor-1248	57	U	
11097-69-1	Aroclor-1254	160	P	
11096-82-5	Aroclor-1260	57	U	✓

* FROM DILUTION

FORM 1 PEST

3/90

102834

000067

Ref. 24

EPA SAMPLE NO.

CC-SD02-01

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEETLab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water): SOIL Lab Sample ID: 51686012Sample wt/vol: 30 (g/ml) g Lab File ID: D4BCLP0750_039Moisture: 64 decanted: N Date Received: 04/19/95Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 04/28/95Concentrated Extract Volume: 5000 (uL) Date Analyzed: 05/09/95Injection Volume: 1.0 (uL) Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: YCAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	4.7	U	J
319-85-7	Beta-BHC	4.0	JP	N
319-86-8	delta-BHC	4.7	U	
58-89-9	gamma-BHC (Lindane)	4.7	U	
76-44-8	Heptachlor	4.7	U	
309-00-2	Aldrin	4.7	U	
1024-57-3	Heptachlor Epoxide	4.7	U	
959-98-8	Endosulfan I	4.7	U	
60-57-1	Dieldrin	10	P	N
72-55-9	4,4'-DDE	11	P	N
72-20-8	Endrin	9.2	U	
33213-65-9	Endosulfan II	9.2	U	
72-54-8	4,4'-DDD	14	P	N
1031-07-8	Endosulfan Sulfate	9.2	U	
50-29-3	4,4'-DDT	9.2	U	
72-43-5	Methoxychlor	47	U	
53494-70-5	Endrin Ketone	9.2	U	
7421-93-4	Endrin Aldehyde	9.2	U	
5103-71-9	alpha-Chlordane	12		N
5103-74-2	gamma-Chlordane	4.7	U	
8001-35-2	Toxaphene	470	U	
12674-11-2	Aroclor-1016	92	U	
11104-28-2	Aroclor-1221	190	U	
11141-16-5	Aroclor-1232	92	U	
53469-21-9	Aroclor-1242	92	U	
12672-29-6	Aroclor-1248	150		
11097-69-1	Aroclor-1254	300		
11096-82-5	Aroclor-1260	92	U	✓

FORM 1 PEST

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102835

000076

Ref. 24
EPA SAMPLE NO.

CC-SD03-01

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEETLab Name: IEA-NJ Contract: 68D20022

2540f278

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water): SOILLab Sample ID: 51686013Sample wt/vol: 30 (g/ml) gLab File ID: D4BCLP0750_040Moisture: 51 decanted: NDate Received: 04/19/95Extraction: (SepF/Cont/Sonc) SONCDate Extracted: 04/28/95Concentrated Extract Volume: 5000 (uL)Date Analyzed: 05/09/95Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 8Sulfur Cleanup: Y

CAS NO.

COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	3.5	U	J
319-85-7	Beta-BHC	2.1	PPN	
319-86-8	delta-BHC	3.5	U	
58-89-9	gamma-BHC (Lindane)	3.5	U	
76-44-8	Heptachlor	3.5	U	
309-00-2	Aldrin	1.9	PPN	
1024-57-3	Heptachlor Epoxide	3.5	U	
959-98-8	Endosulfan I	3.5	U	
60-57-1	Dieldrin	3.8	PPN	
72-55-9	4,4'-DDE	15		
72-20-8	Endrin	6.7	U	
33213-65-9	Endosulfan II	6.7	U	
72-54-8	4,4'-DDD	6.7	PPN	
1031-07-8	Endosulfan Sulfate	6.7	U	
50-29-3	4,4'-DDT	6.7	U	
72-43-5	Methoxychlor	35	U	
53494-70-5	Endrin Ketone	6.7	U	
7421-93-4	Endrin Aldehyde	6.7	U	
5103-71-9	alpha-Chlordane	9.4		N
5103-74-2	gamma-Chlordane	3.5	U	
8001-35-2	Toxaphene	350	U	
12674-11-2	Aroclor-1016	67	U	
11104-28-2	Aroclor-1221	140	U	
11141-16-5	Aroclor-1232	67	U	
53469-21-9	Aroclor-1242	67	U	
12672-29-6	Aroclor-1248	140	P	
11097-69-1	Aroclor-1254	170		
11096-82-5	Aroclor-1260	67	U	✓

FORM 1 PEST

3/90

102836

000085

Ref. 24
EPA SAMPLE NO.

CC-SS01-01

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: IEA-NJ Contract: 68D20022 255 of 270

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water): SOIL Lab Sample ID: 51686001

Sample wt/vol: 30 (g/ml) g Lab File ID: D4BCLP0750_051

Moisture: 22 decanted: N Date Received: 04/19/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 04/28/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 05/10/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.1 Sulfur Cleanup: Y

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	2.2	U	J
319-85-7	Beta-BHC	2.2	U	
319-86-8	delta-BHC	2.2	U	
58-89-9	gamma-BHC (Lindane)	2.2	U	
76-44-8	Heptachlor	2.2	U	
309-00-2	Aldrin	2.2	U	
1024-57-3	Heptachlor Epoxide	2.2	U	
959-98-8	Endosulfan I	2.2	U	
60-57-1	Dieldrin	4.2	U	
72-55-9	4,4'-DDE	4.2	U	
72-20-8	Endrin	4.2	U	
33213-65-9	Endosulfan II	4.2	U	
72-54-8	4,4'-DDD	5.6	P	N
1031-07-8	Endosulfan Sulfate	4.2	P	N
50-29-3	4,4'-DDT	4.2	U	
72-43-5	Methoxychlor	22	U	
53494-70-5	Endrin Ketone	22		
7421-93-4	Endrin Aldehyde	4.2	U	
5103-71-9	alpha-Chlordane	1.1	JP	N
5103-74-2	gamma-Chlordane	2.2	U	
8001-35-2	Toxaphene	220	U	
12674-11-2	Aroclor-1016	42	U	
11104-28-2	Aroclor-1221	86	U	
11141-16-5	Aroclor-1232	42	U	
53469-21-9	Aroclor-1242	42	U	
12672-29-6	Aroclor-1248	42	U	
11097-69-1	Aroclor-1254	42	U	
11096-82-5	Aroclor-1260	42	U	

FORM 1 PEST

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102837

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Ref. 24
EPA SAMPLE NO.

CC-SS02-01

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Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water): SOIL Lab Sample ID: 51686002

Sample wt/vol: 30 (g/ml) g Lab File ID: D4BCLP0750_052

Moisture: 14 decanted: N Date Received: 04/19/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 04/28/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 05/10/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.7 Sulfur Cleanup: Y

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	2.0	U	J
319-85-7	Beta-BHC	2.0	U	
319-86-8	delta-BHC	2.0	U	
58-89-9	gamma-BHC (Lindane)	2.0	U	
76-44-8	Heptachlor	2.0	U	
309-00-2	Aldrin	2.0	U	
1024-57-3	Heptachlor Epoxide	2.0	U	
959-98-8	Endosulfan I	2.0	U	
60-57-1	Dieldrin	7.5		N
72-55-9	4,4'-DDE	3.8	U	
72-20-8	Endrin	9.6	P	N
33213-65-9	Endosulfan II	3.8	U	
72-54-8	4,4'-DDD	2.4	JP	N
1031-07-8	Endosulfan Sulfate	3.8	U	
50-29-3	4,4'-DDT	3.8	U	
72-43-5	Methoxychlor	20	U	
53494-70-5	Endrin Ketone	3.8	U	
7421-93-4	Endrin Aldehyde	3.8	U	
5103-71-9	alpha-Chlordane	4.3		
5103-74-2	gamma-Chlordane	2.0	U	
8001-35-2	Toxaphene	200	U	
12674-11-2	Aroclor-1016	38	U	
11104-28-2	Aroclor-1221	78	U	
11141-16-5	Aroclor-1232	38	U	
53469-21-9	Aroclor-1242	38	U	
12672-29-6	Aroclor-1248	38	U	
11097-69-1	Aroclor-1254	38	U	
11096-82-5	Aroclor-1260	580		✓

C-12/1/95

FORM 1 PEST

3/90

102838

000103

EPA SAMPLE NO. *Ref. 24*

CC-SS03-01

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEETLab Name: IEA-NJContract: 68D20022Lab Code: IEANJ

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water): SOILLab Sample ID: 51686003Sample wt/vol: 30 (g/ml) gLab File ID: D4BCLP0750_053Moisture: 17 decanted: NDate Received: 04/19/95Extraction: (SepF/Cont/Sonc) SONCDate Extracted: 04/28/95Concentrated Extract Volume: 5000 (uL)Date Analyzed: 05/10/95Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 8.3Sulfur Cleanup: Y

CAS NO.

COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	2.0	U	J
319-85-7	Beta-BHC	38 44	EP	N
319-86-8	delta-BHC	2.0	U	
58-89-9	gamma-BHC (Lindane)	2.0	U	
76-44-8	Heptachlor	2.0	U	
309-00-2	Aldrin	2.4	P	N
1024-57-3	Heptachlor Epoxide	2.0	U	
959-98-8	Endosulfan I	2.0	U	
60-57-1	Dieldrin	21	P	N
72-55-9	4,4'-DDE	42		
72-20-8	Endrin	19		N
33213-65-9	Endosulfan II	4.0	U	
72-54-8	4,4'-DDD	22	P	N
1031-07-8	Endosulfan Sulfate	8.7		
50-29-3	4,4'-DDT	4.0	U	
72-43-5	Methoxychlor	20	U	
53494-70-5	Endrin Ketone	4.0	U	
7421-93-4	Endrin Aldehyde	4.0	U	
5103-71-9	alpha-Chlordane	30 36	EP	
5103-74-2	gamma-Chlordane	32	P	N
8001-35-2	Toxaphene	200	U	
12674-11-2	Aroclor-1016	40	U	
11104-28-2	Aroclor-1221	80	U	
11141-16-5	Aroclor-1232	40	U	
53469-21-9	Aroclor-1242	40	U	
12672-29-6	Aroclor-1248	140	P	
11097-69-1	Aroclor-1254	240		
11096-82-5	Aroclor-1260	40	U	✓

* FROM DILUTION

FORM 1 PEST

3/90

102839

000121

Ref. 24
EPA SAMPLE NO.

CC-SS04-01

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: IEA-NJ Contract: 68D20022 258.6278

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water): SOIL Lab Sample ID: 51686004

Sample wt/vol: 30 (g/ml) g Lab File ID: D4BCLP0750_054

Moisture: 12 decanted: N Date Received: 04/19/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 04/28/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 05/10/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3 Sulfur Cleanup: Y

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	1.9	U	J
319-85-7	Beta-BHC	1.9	U	
319-86-8	delta-BHC	1.9	U	
58-89-9	gamma-BHC (Lindane)	1.9	U	
76-44-8	Heptachlor	1.9	U	
309-00-2	Aldrin	1.2	AP	N
1024-57-3	Heptachlor Epoxide	1.9	U	
959-98-8	Endosulfan I	1.9	U	
60-57-1	Dieldrin	8.2	P	N
72-55-9	4,4'-DDE	3.8	U	
72-20-8	Endrin	17	P	N
33213-65-9	Endosulfan II	3.8	U	
72-54-8	4,4'-DDD	55		N
1031-07-8	Endosulfan Sulfate	3.8	U	
50-29-3	4,4'-DDT	3.8	U	
72-43-5	Methoxychlor	19	U	
53494-70-5	Endrin Ketone	2.6	AP	N
7421-93-4	Endrin Aldehyde	3.8	U	
5103-71-9	alpha-Chlordane	21		
5103-74-2	gamma-Chlordane	15	P	N
8001-35-2	Toxaphene	190	U	
12674-11-2	Aroclor-1016	38	U	
11104-28-2	Aroclor-1221	76	U	
11141-16-5	Aroclor-1232	38	U	
53469-21-9	Aroclor-1242	38	U	
12672-29-6	Aroclor-1248	240		
11097-69-1	Aroclor-1254	280		
11096-82-5	Aroclor-1260	38	U	✓

FORM 1 PEST

3/90

102840

000131

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CC-SS05-01

Lab Name: IEA-NJ Contract: 68D20022

259 of 278

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water): SOILLab Sample ID: 51686005Sample wt/vol: 30 (g/ml) gLab File ID: D4BCLP0750_055Moisture: 15 decanted: NDate Received: 04/19/95Extraction: (SepF/Cont/Sonc) SONCDate Extracted: 04/28/95Concentrated Extract Volume: 5000 (uL)Date Analyzed: 05/10/95Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 6.9Sulfur Cleanup: Y

CAS NO.

COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	2.0	U	J
319-85-7	Beta-BHC	2.0	U	
319-86-8	delta-BHC	2.0	U	
58-89-9	gamma-BHC (Lindane)	2.0	U	
76-44-8	Heptachlor	2.0	U	
309-00-2	Aldrin	2.0	U	
1024-57-3	Heptachlor Epoxide	2.0	U	
959-98-8	Endosulfan I	2.0	U	
60-57-1	Dieldrin	3.9	U	
72-55-9	4,4'-DDE	3.9	U	
72-20-8	Endrin	17	P	
33213-65-9	Endosulfan II	3.9	U	
72-54-8	4,4'-DDD	22	P	
1031-07-8	Endosulfan Sulfate	3.9	U	
50-29-3	4,4'-DDT	3.9	U	
72-43-5	Methoxychlor	20	U	
53494-70-5	Endrin Ketone	3.9	U	
7421-93-4	Endrin Aldehyde	3.9	U	
5103-71-9	alpha-Chlordane	2.0	U	
5103-74-2	gamma-Chlordane	2.0	U	
8001-35-2	Toxaphene	200	U	
12674-11-2	Aroclor-1016	39	U	
11104-28-2	Aroclor-1221	79	U	
11141-16-5	Aroclor-1232	39	U	
53469-21-9	Aroclor-1242	39	U	
12672-29-6	Aroclor-1248	39	U	
11097-69-1	Aroclor-1254	39	U	
11096-82-5	Aroclor-1260	39	U	✓

FORM 1 PEST

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

000144
EPA SAMPLE NO.

CC-SS06-01

Lab Name: IEA-NJ Contract: 68D20022 200 of 278

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water): SOIL Lab Sample ID: 51686006

Sample wt/vol: 30 (g/ml) g Lab File ID: D4BCLP0750_058

Moisture: 13 decanted: N Date Received: 04/19/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 04/28/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 05/10/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: Y

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	2.0	U	J
319-85-7	Beta-BHC	5.2		
319-86-8	delta-BHC	2.0	U	
58-89-9	gamma-BHC (Lindane)	2.0	U	
76-44-8	Heptachlor	2.0	U	
309-00-2	Aldrin	2.0	U	
1024-57-3	Heptachlor Epoxide	2.0	U	
959-98-8	Endosulfan I	2.0	U	
60-57-1	Dieldrin	2.9	SP	N
72-55-9	4,4'-DDE	4.6	P	
72-20-8	Endrin	7.9		N
33213-65-9	Endosulfan II	3.8	U	
72-54-8	4,4'-DDD	9.0	P	N
1031-07-8	Endosulfan Sulfate	3.8	U	
50-29-3	4,4'-DDT	6.8	P	N
72-43-5	Methoxychlor	20	U	
53494-70-5	Endrin Ketone	3.8	U	
7421-93-4	Endrin Aldehyde	3.8	U	
5103-71-9	alpha-Chlordane	10	P	
5103-74-2	gamma-Chlordane	6.8	P	N
8001-35-2	Toxaphene	200	U	
12674-11-2	Aroclor-1016	38	U	
11104-28-2	Aroclor-1221	77	U	
11141-16-5	Aroclor-1232	38	U	
53469-21-9	Aroclor-1242	38	U	
12672-29-6	Aroclor-1248	38	U	
11097-69-1	Aroclor-1254	66	P	
11096-82-5	Aroclor-1260	38	U	V

FORM 1 PEST

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CC-SS07-01

Lab Name: IEA-NJ Contract: 68D20022Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____Matrix: (soil/water): SOILLab Sample ID: 51686007Sample wt/vol: 30 (g/ml) gLab File ID: D4BCLP0750_043Moisture: 14 decanted: NDate Received: 04/19/95Extraction: (SepF/Cont/Sonc) SONCDate Extracted: 04/28/95Concentrated Extract Volume: 5000 (uL)Date Analyzed: 05/09/95Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 8Sulfur Cleanup: Y

CAS NO.

COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	2.0	U	J
319-85-7	Beta-BHC	2.0	U	
319-86-8	delta-BHC	2.0	U	
58-89-9	gamma-BHC (Lindane)	2.0	U	
76-44-8	Heptachlor	2.0	U	
309-00-2	Aldrin	2.0	U	
1024-57-3	Heptachlor Epoxide	2.0	U	
959-98-8	Endosulfan I	2.0	U	
60-57-1	Dieldrin	11	P	N
72-55-9	4,4'-DDE	18	P	
72-20-8	Endrin	32 * 3.8	U	N
33213-65-9	Endosulfan II	3.8	U	
72-54-8	4,4'-DDD	100 *	XP	N
1031-07-8	Endosulfan Sulfate	3.8	U	
50-29-3	4,4'-DDT	20	P	N
72-43-5	Methoxychlor	20	U	
53494-70-5	Endrin Ketone	5.1	P	
7421-93-4	Endrin Aldehyde	3.8	U	
5103-71-9	alpha-Chlordane	30	P	
5103-74-2	gamma-Chlordane	25	P	N
8001-35-2	Toxaphene	200	U	
12674-11-2	Aroclor-1016	38	U	
11104-28-2	Aroclor-1221	78	U	
11141-16-5	Aroclor-1232	38	U	
53469-21-9	Aroclor-1242	38	U	
12672-29-6	Aroclor-1248	74		
11097-69-1	Aroclor-1254	280		
11096-82-5	Aroclor-1260	38	U	v

FORM 1 PEST

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Ref. 24

EPA SAMPLE NO.

CC-SS08-01

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: IEA-NJ Contract: 68D20022 262 of 278

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water): SOIL Lab Sample ID: 51686008

Sample wt/vol: 30 (g/ml) g Lab File ID: D4BCLP0750_044

Moisture: 17 decanted: N Date Received: 04/19/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 04/28/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 05/09/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Sulfur Cleanup: Y

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	2.0	U J
319-85-7	Beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor Epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.0	U
72-55-9	4,4'-DDE	4.0	U
72-20-8	Endrin	4.0	U
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	4.0	U
1031-07-8	Endosulfan Sulfate	4.0	U
50-29-3	4,4'-DDT	4.0	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin Ketone	4.0	U
7421-93-4	Endrin Aldehyde	4.0	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U ✓

FORM 1 PEST

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Ref. 24

EPA SAMPLE NO.

CC-SS09-01

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: IEA-NJ Contract: 68D20022 263 of 278

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water): SOIL Lab Sample ID: 51686009

Sample wt/vol: 30 (g/ml) g Lab File ID: D4BCLP0750 037

Moisture: 15 decanted: N Date Received: 04/19/95

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 04/28/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 05/09/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9 Sulfur Cleanup: Y

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	2.0	U	J
319-85-7	Beta-BHC	2.0	U	
319-86-8	delta-BHC	2.0	U	
58-89-9	gamma-BHC (Lindane)	2.0	U	
76-44-8	Heptachlor	2.0	U	
309-00-2	Aldrin	2.0	U	
1024-57-3	Heptachlor Epoxide	2.0	U	
959-98-8	Endosulfan I	2.0	U	
60-57-1	Dieldrin	3.0	JP	N
72-55-9	4,4'-DDE	2.1	JP	N
72-20-8	Endrin	9.1		N
33213-65-9	Endosulfan II	3.9	U	
72-54-8	4,4'-DDD	6.5	P	N
1031-07-8	Endosulfan Sulfate	3.9	U	
50-29-3	4,4'-DDT	7.9	P	N
72-43-5	Methoxychlor	20	U	
53494-70-5	Endrin Ketone	3.9	U	
7421-93-4	Endrin Aldehyde	3.9	U	
5103-71-9	alpha-Chlordane	8.4	P	
5103-74-2	gamma-Chlordane	6.2	P	N
8001-35-2	Toxaphene	200	U	
12674-11-2	Aroclor-1016	39	U	
11104-28-2	Aroclor-1221	79	U	
11141-16-5	Aroclor-1232	39	U	
53469-21-9	Aroclor-1242	39	U	
12672-29-6	Aroclor-1248	31	JP	
11097-69-1	Aroclor-1254	82	P	
11096-82-5	Aroclor-1260	39	U	✓

FORM 1 PEST

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

Rel 2y
EPA SAMPLE NO.

CC-SS10-01

Lab Name: IEA-NJ Contract: 68D20022 264 of 278
 Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water): SOIL Lab Sample ID: 51686010
 Sample wt/vol: 30 (g/ml) g Lab File ID: D4BCLP0750 038
 Moisture: 16 decanted: N Date Received: 04/19/95
 Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 04/28/95
 Concentrated Extract Volume: 5000 (uL) Date Analyzed: 05/09/95
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) Y pH: 8.1 Sulfur Cleanup: Y

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	2.0	U	J
319-85-7	Beta-BHC	2.0	U	
319-86-8	delta-BHC	2.0	U	
58-89-9	gamma-BHC (Lindane)	2.0	U	
76-44-8	Heptachlor	2.0	U	
309-00-2	Aldrin	2.0	U	
1024-57-3	Heptachlor Epoxide	2.0	U	
959-98-8	Endosulfan I	2.0	U	
60-57-1	Dieldrin	5.6	P	N
72-55-9	4,4'-DDE	4.2	P	N
72-20-8	Endrin	3.9	U	
33213-65-9	Endosulfan II	3.9	U	
72-54-8	4,4'-DDD	9.7	P	N
1031-07-8	Endosulfan Sulfate	3.9	U	
50-29-3	4,4'-DDT	6.8	P	N
72-43-5	Methoxychlor	20	U	
53494-70-5	Endrin Ketone	3.9	U	
7421-93-4	Endrin Aldehyde	3.9	U	
5103-71-9	alpha-Chlordane	13	P	
5103-74-2	gamma-Chlordane	9.5	P	N
8001-35-2	Toxaphene	200	U	
12674-11-2	Aroclor-1016	39	U	
11104-28-2	Aroclor-1221	80	U	
11141-16-5	Aroclor-1232	39	U	
53469-21-9	Aroclor-1242	39	U	
12672-29-6	Aroclor-1248	75	P	
11097-69-1	Aroclor-1254	160		
11096-82-5	Aroclor-1260	39	U	✓

FORM 1 PEST

3/90

102846

000029

Ref. 24

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CC-SS11-01

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Lab Name: IEA-NJ

Contract: 68D20022

Lab Code: IEANJ Case No.: SAS No.: SDG No.:

Matrix: (soil/water): SOIL

Lab Sample ID: 51704003

Sample wt/vol: 30 (g/ml) g

Lab File ID: D4BCLP0750_042

Moisture: 39 decanted: N

Date Received: 04/20/95

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 04/28/95

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 05/09/95

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.2

Sulfur Cleanup: Y

CAS NO.

COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC	2.8	U	J
319-85-7	Beta-BHC	2.8	U	
319-86-8	delta-BHC	2.8	U	
58-89-9	gamma-BHC (Lindane)	2.8	U	
76-44-8	Heptachlor	2.8	U	
309-00-2	Aldrin	2.8	U	
1024-57-3	Heptachlor Epoxide	3.4		
959-98-8	Endosulfan I	2.8	U	
60-57-1	Dieldrin	13		
72-55-9	4,4'-DDE	23	P	
72-20-8	Endrin	5.4	U	
33213-65-9	Endosulfan II	5.4	U	
72-54-8	4,4'-DDD	5.4	U	
1031-07-8	Endosulfan Sulfate	5.4	U	
50-29-3	4,4'-DDT	78	P	
72-43-5	Methoxychlor	28	U	
53494-70-5	Endrin Ketone	6.5	P	N
421-93-4	Endrin Aldehyde	5.4	U	
103-71-9	alpha-Chlordane	2.8	U	
5103-74-2	gamma-Chlordane	2.8	U	
8001-35-2	Toxaphene	280	U	
2674-11-2	Aroclor-1016	54	U	
1104-28-2	Aroclor-1221	110	U	
11141-16-5	Aroclor-1232	54	U	
53469-21-9	Aroclor-1242	54	U	
2672-29-6	Aroclor-1248	54	U	
1097-69-1	Aroclor-1254	54	U	
11096-82-5	Aroclor-1260	330		✓

FORM 1 PEST

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CC-FB-02-1

Lab Name: IEA-NJ Contract: 68D20022

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water): WATER

Lab Sample ID: 51704001

Sample wt/vol: 930 (g/ml) ml

Lab File ID: D4BCLP075P 036

Moisture: _____ decanted: _____

Date Received: 04/20/95

Extraction: (SepF/Cont/Sonc) SEPF

Date Extracted: 04/28/95

Concentrated Extract Volume: 10000 (uL)

Date Analyzed: 05/05/95

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Sulfur Cleanup: Y

CAS NO. COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/L

319-84-6	alpha-BHC	0.05	U -
319-85-7	Beta-BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan Sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.54	U
53494-70-5	Endrin Ketone	0.11	U
7421-93-4	Endrin Aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.4	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.2	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U ✓

FORM 1 PEST

3/90

102848

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

Ref. 24
000024
EPA SAMPLE N
CC-FB03-01

Lab Name: IEA-NJ Contract: 68D20022 267 of 278

Lab Code: IEANJ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water): WATER Lab Sample ID: 51704002

Sample wt/vol: 970 (g/ml) ml Lab File ID: D4BCLP075P_037

Moisture: _____ decanted: _____ Date Received: 04/20/95

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 04/28/95

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/05/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Sulfur Cleanup: Y

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/L

319-84-6	alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.52	U
53494-70-5	Endrin Ketone	0.10	U
7421-93-4	Endrin Aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.2	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.1	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

FORM 1 PEST

3/90

102849

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

000023
EPA SAMPLE NO. 2630728
LT-SS01-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): SOILLab Sample ID: 51723009Level (low/med): LOWDate Received: 04/21/95% Solids: 69.9Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	44500			P
7440-36-0	Antimony	12.1	U		P
7440-38-2	Arsenic	269	B		F
7440-39-3	Barium	636			P
7440-41-7	Beryllium	3.7			P
7440-43-9	Cadmium	15.5		NJ	P
7440-70-2	Calcium	5410			P
7440-47-3	Chromium	199			P
7440-48-4	Cobalt	10200			P
7440-50-8	Copper	12500			P
7439-89-6	Iron	122000		*	P
7439-92-1	Lead	382			P
7439-95-4	Magnesium	3000			P
7439-96-5	Manganese	8290		*	P
7439-97-6	Mercury	0.14	U	N	CV
7440-02-0	Nickel	4740			P
7440-09-7	Potassium	2060			P
7782-49-2	Selenium	0.42	B	WNJ	F
7440-22-4	Silver	494			P
7440-23-5	Sodium	68500			P
7440-28-0	Thallium	0.39	U	WJ	F
7440-62-2	Vanadium	120			P
7440-66-6	Zinc	1610			P
57-12-5	Cyanide	1.4 2.6	B U		C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. *Ref. 24**270 of 278*

LT-SS02-01

Name: IEA NJ Contract: _____Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): SOILLab Sample ID: 51723010Level (low/med): LOWDate Received: 04/21/95Solids: 79.6Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15500			P
7440-36-0	Antimony	10.6	U		P
7440-38-2	Arsenic	160	B	S	F
7440-39-3	Barium	600			P
7440-41-7	Beryllium	8.6			P
7440-43-9	Cadmium	16.0		NJ	P
7440-70-2	Calcium	20600			P
7440-47-3	Chromium	261			P
7440-48-4	Cobalt	6830			P
7440-50-8	Copper	13700			P
7439-89-6	Iron	18500		*	P
7439-92-1	Lead	2420			P
7439-95-4	Magnesium	101000			P
7439-96-5	Manganese	1950		*	P
7439-97-6	Mercury	1.1		NJ	CV
7440-02-0	Nickel	5550			P
7440-09-7	Potassium	525	B		P
7782-49-2	Selenium	0.31	U	NJ	F
7440-22-4	Silver	112			P
7440-23-5	Sodium	12200			P
7440-28-0	Thallium	0.34	U	WJ	F
7440-62-2	Vanadium	17.9			P
7440-66-6	Zinc	9210			P
57-12-5	Cyanide	1.2 0.20	B U		C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

LT-SS03-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): SOILLab Sample ID: 51723011Level (low/med): LOWDate Received: 04/21/95Solids: 86.3Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	507			P
7440-36-0	Antimony	176			P
7440-38-2	Arsenic	2030			F
7440-39-3	Barium	76.8			P
7440-41-7	Beryllium	0.14	B		P
7440-43-9	Cadmium	11.0		N J	P
7440-70-2	Calcium	118	B		P
7440-47-3	Chromium	6.1		J	P
7440-48-4	Cobalt	3.9	B		P
7440-50-8	Copper	565			P
7439-89-6	Iron	113000		*	P
7439-92-1	Lead	2220			P
7439-95-4	Magnesium	387	B		P
7439-96-5	Manganese	753		*	P
7439-97-6	Mercury	0.13		N J	CV
7440-02-0	Nickel	5.3	B	J	P
7440-09-7	Potassium	1520			P
7782-49-2	Selenium	3.2		SN J	F
7440-22-4	Silver	39.2			P
7440-23-5	Sodium	1300			P
7440-28-0	Thallium	0.32	U		F
7440-62-2	Vanadium	35.5			P
7440-66-6	Zinc	562			P
57-12-5	Cyanide	1.2 -0.19	Bu		C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

000028

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2736 F278

LT-SS05-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): SOILLab Sample ID: 51723013Level (low/med): LOWDate Received: 04/21/95Solids: 67.7Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	21800			P
7440-36-0	Antimony	104			P
7440-38-2	Arsenic	40.8			F
7440-39-3	Barium	13800			P
7440-41-7	Beryllium	4.9			P
7440-43-9	Cadmium	4.6		NJ	P
7440-70-2	Calcium	14800			P
7440-47-3	Chromium	42.5			P
7440-48-4	Cobalt	1510			P
7440-50-8	Copper	3410			P
7439-89-6	Iron	47500		*	P
7439-92-1	Lead	877			P
7439-95-4	Magnesium	9780			P
7439-96-5	Manganese	9490		*	P
7439-97-6	Mercury	0.15	U	N	CV
7440-02-0	Nickel	599			P
7440-09-7	Potassium	2070			P
7782-49-2	Selenium	0.37	U	NJ	F
7440-22-4	Silver	76.4			P
7440-23-5	Sodium	33800			P
7440-28-0	Thallium	20.7		S	F
7440-62-2	Vanadium	26.6			P
7440-66-6	Zinc	358			P
57-12-5	Cyanide	1.5 0.37	B	U	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

000026

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. *Ref. 24*
322 of 278

LT-SS04-01

Lab Name: IEA NJ Contract: _____Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): SOILLab Sample ID: 51723012Level (low/med): LOWDate Received: 04/21/95Solids: 74.4Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	497			P
7440-36-0	Antimony	53.2			P
7440-38-2	Arsenic	2180			F
7440-39-3	Barium	29.0	B		P
7440-41-7	Beryllium	0.12	B		P
7440-43-9	Cadmium	17.0		NJ	P
7440-70-2	Calcium	960	B		P
7440-47-3	Chromium	6.3			P
7440-48-4	Cobalt	4.4	B		P
7440-50-8	Copper	328			P
7439-89-6	Iron	131000		*	P
7439-92-1	Lead	2760			P
7439-95-4	Magnesium	355	B		P
7439-96-5	Manganese	918		*	P
7439-97-6	Mercury	1.7		NJ	CV
7440-02-0	Nickel	4.6	U		P
7440-09-7	Potassium	602	B		P
7782-49-2	Selenium	3.4		NJ	F
7440-22-4	Silver	43.8			P
7440-23-5	Sodium	757	B		P
7440-28-0	Thallium	0.37	U		F
7440-62-2	Vanadium	29.8			P
7440-66-6	Zinc	720			P
57-12-5	Cyanide	1.3 -0.21	B U		C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

000029

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. *Ref. 24*
2740278

LT-SS0501D

Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): SOILLab Sample ID: 51723014Level (low/med): LOWDate Received: 04/21/95Solids: 61.6Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34200			P
7440-36-0	Antimony	108			P
7440-38-2	Arsenic	46.8	B	S	F
7440-39-3	Barium	21400			P
7440-41-7	Beryllium	7.5			P
7440-43-9	Cadmium	5.0		NJ	P
7440-70-2	Calcium	22700			P
7440-47-3	Chromium	63.8			P
7440-48-4	Cobalt	2380			P
7440-50-8	Copper	5410			P
7439-89-6	Iron	71000		*	P
7439-92-1	Lead	1370			P
7439-95-4	Magnesium	15300			P
7439-96-5	Manganese	16000		*	P
7439-97-6	Mercury	0.16	U	N	CV
7440-02-0	Nickel	976			P
7440-09-7	Potassium	3190			P
7782-49-2	Selenium	0.40	U	NJ	F
7440-22-4	Silver	120			P
7440-23-5	Sodium	54600			P
7440-28-0	Thallium	15.6			F
7440-62-2	Vanadium	37.1			P
7440-66-6	Zinc	555			P
57-12-5	Cyanide	1.6 0.31	B U		C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET000022
EPA SAMPLE NO. *Ref. 2*
25 of 223

LT-FB01-01

Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): WATERLab Sample ID: 51723008Level (low/med): LOWDate Received: 04/21/95Solids: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16.7	U		P
7440-36-0	Antimony	42.2	U		P
7440-38-2	Arsenic	0.84	U	J	F
7440-39-3	Barium	1.3	U		P
7440-41-7	Beryllium	0.093	U		P
7440-43-9	Cadmium	3.9	U		P
7440-70-2	Calcium	14.2	U		P
7440-47-3	Chromium	2.4	U	J	P
7440-48-4	Cobalt	3.6	U	J	P
7440-50-8	Copper	3.1	U		P
7439-89-6	Iron	11.2	U		P
7439-92-1	Lead	0.84	B		F
7439-95-4	Magnesium	38.5	U		P
7439-96-5	Manganese	1.2	U	J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	17.1	U	J	P
7440-09-7	Potassium	464	U		P
7782-49-2	Selenium	1.2	U		F
7440-22-4	Silver	3.3	U		P
7440-23-5	Sodium	38.0	B		P
7440-28-0	Thallium	1.4	U		F
7440-62-2	Vanadium	2.2	U	J	P
7440-66-6	Zinc	3.8	B		P
57-12-5	Cyanide	10.0	3.4 B	U J	C

Color Before: COLORLESSClarity Before: CLEAR

Texture: _____

Color After: COLORLESSClarity After: CLEAR

Artifacts: _____

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-SS12-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): SOILLab Sample ID: 51723001Level (low/med): LOWDate Received: 04/21/95% Solids: 89.7Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4380			P
7440-36-0	Antimony	9.4	U		P
7440-38-2	Arsenic	4.3			F
7440-39-3	Barium	34.6	B		P
7440-41-7	Beryllium	0.31	B		P
7440-43-9	Cadmium	0.86	U	N	P
7440-70-2	Calcium	1370			P
7440-47-3	Chromium	13.1			P
7440-48-4	Cobalt	6.1	B		P
7440-50-8	Copper	35.4			P
7439-89-6	Iron	8700		*	P
7439-92-1	Lead	40.8			P
7439-95-4	Magnesium	921	B		P
7439-96-5	Manganese	167		*	P
7439-97-6	Mercury	0.11	U	N	CV
7440-02-0	Nickel	11.3			P
7440-09-7	Potassium	500	B		P
7782-49-2	Selenium	0.28	U	N	F
7440-22-4	Silver	1.6	B		P
7440-23-5	Sodium	59.8	B		P
7440-28-0	Thallium	0.30	U		F
7440-62-2	Vanadium	14.6			P
7440-66-6	Zinc	54.9			P
57-12-5	Cyanide	0.14	U		C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

000019 Ref. 24

EPA SAMPLE NO. 2780f

CC-SS13-01 228

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): SOILLab Sample ID: 51723002Level (low/med): LOWDate Received: 04/21/95% Solids: 79.1Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6240			P
7440-36-0	Antimony	994			P
7440-38-2	Arsenic	782			F
7440-39-3	Barium	430			P
7440-41-7	Beryllium	1.9			P
7440-43-9	Cadmium	43.7		NJ	P
7440-70-2	Calcium	34300			P
7440-47-3	Chromium	20.3			P
7440-48-4	Cobalt	83.6			P
7440-50-8	Copper	1980			P
7439-89-6	Iron	47900		*	P
7439-92-1	Lead	5690			P
7439-95-4	Magnesium	1800			P
7439-96-5	Manganese	7400		*	P
7439-97-6	Mercury	1.3		NJ	CV
7440-02-0	Nickel	36.8			P
7440-09-7	Potassium	853	B		P
7782-49-2	Selenium	4.1		SNJ	F
7440-22-4	Silver	195			P
7440-23-5	Sodium	2560			P
7440-28-0	Thallium	0.35	U		F
7440-62-2	Vanadium	28.0			P
7440-66-6	Zinc	2530			P
57-12-5	Cyanide	0.28	Bu		C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

1
INORGANIC ANALYSES DATA SHEETEPA SAMPLE NO. Ref. 24
377.627

CC-SS14-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): SOILLab Sample ID: 51723003Level (low/med): LOWDate Received: 04/21/95Solids: 80.2Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11900			P
7440-36-0	Antimony	14.8	B		P
7440-38-2	Arsenic	55.0			F
7440-39-3	Barium	3950			P
7440-41-7	Beryllium	2.0			P
7440-43-9	Cadmium	7.4		N	P
7440-70-2	Calcium	76900			P
7440-47-3	Chromium	105			P
7440-48-4	Cobalt	214			P
7440-50-8	Copper	415			P
7439-89-6	Iron	45800		*	P
7439-92-1	Lead	669			P
7439-95-4	Magnesium	1680			P
7439-96-5	Manganese	45000		*	P
7439-97-6	Mercury	0.76		N	CV
7440-02-0	Nickel	69.9			P
7440-09-7	Potassium	2200			P
7782-49-2	Selenium	1.0	B	N	F
7440-22-4	Silver	22.4			P
7440-23-5	Sodium	2460			P
7440-28-0	Thallium	0.34	U		F
7440-62-2	Vanadium	29.9			P
7440-66-6	Zinc	349			P
57-12-5	Cyanide	1.2 0.15	U		C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NOComments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-SS15-01

Lab Name: IEA NJ Contract: _____Lab Code: IEANJ Case No.: 51723SAS No.: _____ SDG No.: CC-SS1Matrix (soil/water): SOILLab Sample ID: 51723004Level (low/med): LOWDate Received: 04/21/95Solids: 80.6Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10600			P
7440-36-0	Antimony	28.5			P
7440-38-2	Arsenic	245	B		F
7440-39-3	Barium	4380			P
7440-41-7	Beryllium	2.0			P
7440-43-9	Cadmium	7.6		N	P
7440-70-2	Calcium	58400			P
7440-47-3	Chromium	109			P
7440-48-4	Cobalt	212			P
7440-50-8	Copper	396			P
7439-89-6	Iron	45000		*	P
7439-92-1	Lead	765			P
7439-95-4	Magnesium	1540			P
7439-96-5	Manganese	56000		*	P
7439-97-6	Mercury	0.63		N	CV
7440-02-0	Nickel	62.8			P
7440-09-7	Potassium	1780			P
7782-49-2	Selenium	3.6		SN	F
7440-22-4	Silver	21.2			P
7440-23-5	Sodium	2400			P
7440-28-0	Thallium	0.34	U		F
7440-62-2	Vanadium	28.1			P
7440-66-6	Zinc	338			P
57-12-5	Cyanide	0.35	B	U	C

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUMColor After: YELLOWClarity After: CLEARArtifacts: NO

Comments:

REFERENCE NO. 25

102861

RF25
10F64

**CAPTAIN'S COVE SITE
RADIOLOGICAL RESULTS
(All results in PCI/g)**

102862

Radioisotope and Decay Series	Background (l)	CC-SS12-01	CC-SS13-01	CC-SS14-01	LT-SS01-01	LT-SS02-01	LT-SS03-01	LT-SS04-01	LT-SS05-01
Uranium Decay Series									
U-238	0.952	0.711	0.345	18.6	52.2	26.2	124	0.962	165
U-234	0.973	0.711	1.11	23.9	46.3	10.7	128	1.76	135
Th-230	1.05	0.613	0.630	45.2	11.1	20.0	138	0.925	944
ACTINUM DECAY SERIES									
U-235	0.055	0.0345	0.0247	1.07	2.11	0.947	0.718	0.524	1.31
Th-227	0.088	0.0347	1.43	4.82	5.19	0.197	0.484	0.104	21.8
THORIUM DECAY SERIES									
Th-232	0.745	0.893	0.0792	20.0	10.1	17.3	121	0.583	24.8
Th-228	0.552	0.678	0.0564	19.4	4.49	12.7	112	0.666	34.3

Notes:

1. Numerical values provided are two standard deviations above the mean site specific background concentration for each radioisotope.
2. Shading indicates the sample concentration equals or exceeds a value 2 standard deviations above the mean site specific background concentration for that radioisotope.

Ref. 25
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	X_1	X_2	\bar{X}
Radioisotope	SS11-02	SS11-03	Mean Concentration
U-234	.748	.505	.627
U-235	.0418	.0275	.0347
U-238	.713	.454	.584
Th-227	.107	-.0305	-.038
Th-228	.381	.471	.426
Th-230	.770	.467	.619
Th-232	.536	.445	.491
Th-234	.812	.533	.673
Ra-226	2.49	1.17	1.83
Pb-214	.695	.389	.547
Bi-214	.599	.354	.477
Ra-228	.929	.545	.737
Pb-212	.898	.506	.702
Bi-212	.539	.326	.433
Tl-208	.287	.154	.2205

Notes:

1) Sample Mean = $\bar{X} = \frac{X_1 + X_2 + \dots + X_n}{n}$

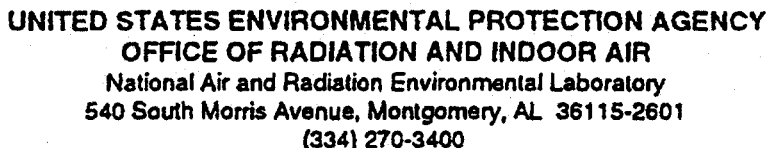
where X_1, X_2, \dots, X_n are sample results and n is the number of sample results.

Radioisotope	$\sum (X_i - \bar{X})^2$	$S = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n-1}}$	$\bar{X} \pm 2(S)$
U-234	.015+.015=.03	.173	.973
U-235	.000050+.0.000052 =.0.00010184	.010092	.055
U-238	.017+.017=.034	.184	.952
Th-227	.005+.007=	.11	.088
Th-228	.002+.002	.063	.552
Th-230	.023+.023	.214	1.05
Th-232	.002+.002	.063	.745
Th-234	.019+.019	.195	1.063
Ra-226	.436+.436	.934	3.70
Pb-214	.022+.022	.21	.967
Bi-214	.015+.015	.173	.823
Ra-228	.037+.037	.272	1.28
Pb-212	.038+.038	.276	1.29
Bi-212	.011+.011	.148	.729
Tl-208	.004+.004	.09	.40

X_1 = sample results

\bar{X} = mean sample concentration

n = number of samples



August 4, 1995

MEMORANDUM

**SUBJECT: Radiochemical Results for
Captain's Cove Samples**

FROM: John Griggs, Chief *John Griggs*
Monitoring and Analytical Services Branch

Vicki Lloyd, Director
NAREL Technical Support Center (TSC) *J Scott [Signature]*

TO: Catherine Moyik, Site Assessment Manager
Superfund, Region 2

Attached are data packages for gross alpha and beta, gamma and isotopic uranium and thorium analyses of water and soil samples collected at the Captain's Cove Condominium Site located in Glen Cove, Nassau County, New York. The samples constitute NAREL batch numbers 95-00015 and 95-00016.

Although no analytical problems were encountered in analyzing NAREL Sample T34C 95.03174, we are reanalyzing the sample because of possible inconsistencies between the measured activities of radionuclides which are normally in equilibrium. The results of the reanalysis will be reported as soon as they are available.

Radiochemical analyses usually require the subtraction of an instrument background measurement from a gross sample measurement. Both values are positive, but when the sample activity is low, random variations in the two measurements can cause the gross value to be less than the background, resulting in a measured activity less than zero. Although negative activities have no physical significance, they do have statistical significance, as for example in the evaluation of trends or the comparison of two groups of samples.

For all analyses except gamma spectroscopy, it is the policy of NAREL to report results as generated, whether positive, negative, or zero, together with the 2-sigma measurement uncertainty and a sample-specific estimate of the minimum detectable concentration (MDC). The activity, uncertainty, and MDC are given in the same units. The activity and 2-sigma uncertainty for a radionuclide measured by gamma spectroscopy are

Ret. 25
50/67

reported only if the nuclide is detected; so, the results of gamma analyses are never zero or negative. Nuclides that are not detected do not appear in the report, with the exception of Ba-140, Cs-137, I-131, K-40, Ra-226, and Ra-228. If one of these six nuclides is undetected, NAREL reports it as "Not Detected," or "ND," and provides a sample-specific estimate of the MDC.

Specific information concerning all aspects of the radiological analysis of the samples is contained in the batch case narratives of the data packages. If you have any questions concerning the analytical results, the analytical process, or the reporting format, contact Dr. John Griggs at (334) 270-3450. If you have any project-specific questions or questions concerning data application, contact Vicki Lloyd at (334) 270-3467.

Attachments

cc: Paul Giardina, Region 2, w/o attachments
Edgar Aguado, Ebasco, w/attachments
Mary Clark, (6601J), w/o attachments
Sam T. Windham

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CAPTAIN'S COVE
RADIOCHEMICAL
DATA VALIDATION REPORT
NAREL BATCH # 95-00016

Prepared by:

Cecelia N. Minch
Cecelia N. Minch

Date:

8/11/95

102866

Ref. 25
7.064

**CAPTAINS COVE
DATA VALIDATION REPORT
NAREL Batch # 95-00016**

SUMMARY:

This case consisted of 2 aqueous field blanks collected on April 20, 1995 and designated for the analysis of uranium and thorium by alpha spectrometry.

The laboratory documented in the narrative that the corrections applied to Th-228 in this batch may be too large, but only by a small amount. Since the activities reported for all of the associated soil samples were considerably larger, no negative impact on the data should be expected.

All data were evaluated for Level D DQO, employing USEPA Region II inorganic data validation criteria to the extent possible. The specifics for each parameter and associated QC are detailed below. All data are considered acceptable and valid.

HOLDING TIMES:

A holding time of 180 days has been applied to the samples. Both samples were analyzed within this holding time.

TRACERS:

All tracer recoveries were within limits.

MATRIX SPIKES:

Although not usually required on a field blank, the laboratory analyzed a MS/MSD. All criteria were met.

REPLICATES:

Two replicate pairs were analyzed and evaluated for reproducibility. Data are not qualified as estimated (J) unless the RPD exceeds 25% and the results reported for both analyses are greater than the MDC. No action was required.

BLANK CONTAMINATION:

No qualifications were required.

INSTRUMENT CALIBRATION:

An efficiency check standard was analyzed on each detector approximately every 7 days, the results of which were plotted on a control chart. The values obtained were evaluated for compliance with the ± 2 standard deviation limits defined on the charts. Sample analyses bracketed by acceptable standards are deemed acceptable. Both samples were analyzed between compliant standards.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

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CASE NARRATIVE

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove

NAREL Batch #: 95-00016

I. RECEIPT

A. Sample Information

<u>NAREL Sample ID</u>	<u>Client Sample ID</u>	<u>Sample Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Date Analyzed</u>
T34C 95.03180	CC-FB02-01	Water	04/20/95	04/21/95	06/26/95
T34C 95.03181	LT-FB01-01	Water	04/20/95	04/21/95	06/28/95

B. Documentation
Exceptions:

No exceptions were encountered.

II. ANALYSIS

A. Holding Times:

All holding times were met.

B. Preparation
Exceptions:

No exceptions were encountered.

C. Analytical
Exceptions:

When the measured activity of a uranium isotope is zero, NAREL's alpha analysis software does not compute the counting error. In these cases, the activity and counting error are reported as 0 ± 0 .

The result from the efficiency check for detector AS10 on 6/26/95 was lost, and the check was not repeated. No samples in this batch were analyzed on AS10. Detector AS28 is not currently in operation.

The comments "too hot" and "too high" on the raw data sheets for samples 95.3181M and 95.3181S appear because the total alpha activity exceeded NAREL's usual screening limit for alpha spectrometry. These comments do not indicate analytical problems.

Ref. 25
90F64

III. QUALITY CONTROL

- A. Reagent Blank: All associated reagent blanks met NAREL QC criteria.
- B. Tracer Yields: All samples met NAREL QC limits.
- C. Matrix Spike: All spike recoveries were within NAREL QC limits.
- D. Replicate Results: All replicate analyses met NAREL QC criteria.

IV. I certify that this data package complies with the terms and conditions of the Quality Assurance Project Plan, both technically and for completeness, other than the exceptions detailed above. Release of the data contained in this package has been authorized by the Chief of the Monitoring and Analytical Services Branch and the NAREL Quality Assurance Coordinator, or their designees, as verified by the following signatures.

James B. Moore 8/4/95
James B. Moore Date
Quality Assurance Coordinator

John Griggs 8/4/95
John Griggs, Ph.D. Date
Chief, Monitoring
and Analytical Services Branch

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: Reagent Blank
NAREL Sample #: RBLK 95.03182 NAREL Batch #: 95-00016
Date Collected: 05/03/95 Matrix: Water
Date Received: 05/03/95 Wet weight: N/A
Date Analyzed: 06/28/95 Dry weight: N/A
Analyst: AS Ash weight: N/A
Method: EERF-00.07 Vol/Wt Prepared: N/A
Detector ID: AS03 Activity units: pCi/Samp

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	4.53E-03	\pm 8.11E-03	1.88E-02
U-235	0.00E+00	\pm 0.00E+00	1.62E-02
U-238	1.94E-03	\pm 7.30E-03	1.99E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

Ref. 25
110664

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: CC-FB02-01
NAREL Sample #: T34C 95.03180 NAREL Batch #: 95-00016
Date Collected: 04/20/95 Matrix: Water
Date Received: 04/21/95 Wet weight: N/A
Date Analyzed: 06/26/95 Dry weight: N/A
Analyst: AS Ash weight: N/A
Method: EERF-00.07 Vol/Wt Prepared: 0.1000 L
Detector ID: AS26 Activity units: pCi/L

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	1.47E-01	\pm 1.33E-01	2.24E-01
U-235	7.72E-03	\pm 5.00E-02	1.75E-01
U-238	6.95E-02	\pm 9.46E-02	1.94E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: CC-FB02-01
NAREL Sample #: T34C 95.03180X NAREL Batch #: 95-00016
Date Collected: 04/20/95 Matrix: Water
Date Received: 04/21/95 Wet weight: N/A
Date Analyzed: 06/28/95 Dry weight: N/A
Analyst: AS Ash weight: N/A
Method: EERF-00.07 Vol/Wt Prepared: 0.1000 L
Detector ID: AS01 Activity units: pCi/L

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	2.52E-01	\pm 1.68E-01	2.35E-01
U-235	5.35E-02	\pm 8.06E-02	1.73E-01
U-238	8.40E-02	\pm 9.14E-02	1.48E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

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136Y

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: LT-FB01-01
NAREL Sample #: T34C 95.03181 NAREL Batch #: 95-00016
Date Collected: 04/20/95 Matrix: Water
Date Received: 04/21/95 Wet weight: N/A
Date Analyzed: 06/28/95 Dry weight: N/A
Analyst: AS Ash weight: N/A
Method: EERF-00.07 Vol/Wt Prepared: 0.1000 L
Detector ID: AS02 Activity units: pCi/L

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	1.85E-01	\pm 1.45E-01	2.30E-01
U-235	5.70E-02	\pm 7.39E-02	1.38E-01
U-238	7.12E-02	\pm 1.10E-01	2.40E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

Ref. 25
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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: LT-FB01-01
 NAREL Sample #: T34C 95.03181M NAREL Batch #: 95-00016
 Date Collected: 04/20/95 Matrix: Water
 Date Received: 04/21/95 Wet weight: N/A
 Date Analyzed: 06/27/95 Dry weight: N/A
 Analyst: AS Ash weight: N/A
 Method: EERF-00.07 Vol/Wt Prepared: 0.1000 L
 Detector ID: AS23 Activity units: pCi/L

Analytical Results

Nuclide	Activity	2σ Uncertainty	MDC
U-234	8.72E+01	± 6.94E+00	1.87E-01
U-235	4.24E+00	± 6.31E-01	1.38E-01
U-238	8.83E+01	± 7.03E+00	1.77E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>LT-FB01-01</u>
NAREL Sample #:	<u>T34C 95.03181S</u>	NAREL Batch #:	<u>95-00016</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Water</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>N/A</u>
Date Analyzed:	<u>06/27/95</u>	Dry weight:	<u>N/A</u>
Analyst:	<u>AS</u>	Ash weight:	<u>N/A</u>
Method:	<u>EERF-00.07</u>	Vol/Wt Prepared:	<u>0.1000 L</u>
Detector ID:	<u>AS24</u>	Activity units:	<u>pCi/L</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	8.97E+01	$\pm 7.07E+00$	1.37E-01
U-235	3.68E+00	$\pm 5.72E-01$	6.96E-02
U-238	9.26E+01	$\pm 7.30E+00$	6.96E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: LT-FB01-01
NAREL Sample #: T34C 95.03181X NAREL Batch #: 95-00016
Date Collected: 04/20/95 Matrix: Water
Date Received: 04/21/95 Wet weight: N/A
Date Analyzed: 06/28/95 Dry weight: N/A
Analyst: AS Ash weight: N/A
Method: EERF-00.07 Vol/Wt Prepared: 0.1000 L
Detector ID: AS04 Activity units: pCi/L

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	1.95E-01	\pm 1.47E-01	2.04E-01
U-235	-1.63E-02	\pm 2.26E-02	1.84E-01
U-238	7.33E-02	\pm 1.00E-01	2.04E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

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CASE NARRATIVE

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove

NAREL Batch #: 95-00016

I. RECEIPT

A. Sample Information

<u>NAREL Sample ID</u>	<u>Client Sample ID</u>	<u>Sample Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Date Analyzed</u>
T34C 95.03180	CC-FB02-01	Water	04/20/95	04/21/95	06/27/95
T34C 95.03181	LT-FB01-01	Water	04/20/95	04/21/95	06/28/95

B. Documentation
Exceptions:

No exceptions were encountered.

II. ANALYSIS

A. Holding Times:

All holding times were met.

B. Preparation
Exceptions:

No exceptions were encountered.

C. Analytical
Exceptions:

In the analysis of samples for uranium, U-232 is used as a tracer to determine the chemical recovery. Since Th-228 is produced from the decay of U-232, the amount of Th-228 present when the tracer is prepared and the amount produced by ingrowth from U-232 between tracer preparation and sample analysis are subtracted from the measured Th-228 activity in each sample. Since all the Th-228 results in NAREL Batch 95-00016 are negative, we believe the Th-228 corrections were too large, although by only a small amount. The size of the Th-228 correction for samples in this batch was approximately 0.042 pCi per sample. For each sample in the batch, this total activity can be converted to a sample concentration by dividing it by the amount of sample analyzed.

Detector AS28 is not currently in operation.

00102877

III. QUALITY CONTROL

- A. Reagent Blank: All associated reagent blanks met NAREL QC criteria.
- B. Tracer Yields: All samples met NAREL QC limits.
- C. Matrix Spike: All spike recoveries were within NAREL QC limits.
- D. Replicate Results: All replicate analyses met NAREL QC criteria.

IV. I certify that this data package complies with the terms and conditions of the Quality Assurance Project Plan, both technically and for completeness, other than the exceptions detailed above. Release of the data contained in this package has been authorized by the Chief of the Monitoring and Analytical Services Branch and the NAREL Quality Assurance Coordinator, or their designees, as verified by the following signatures.

James B. Moore
James B. Moore
Quality Assurance Coordinator

8/4/95
Date

John Griggs
John Griggs, Ph.D.
Chief, Monitoring
and Analytical Services Branch

8/4/95
Date

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

Ref. 25
190F64

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: CC-FB02-01
NAREL Sample #: T34C 95.03180 NAREL Batch #: 95-00016
Date Collected: 04/20/95 Matrix: Water
Date Received: 04/21/95 Wet weight: N/A
Date Analyzed: 06/27/95 Dry weight: N/A
Analyst: AS Ash weight: N/A
Method: EERF-00.07 Vol/Wt Prepared: 0.1000 L
Detector ID: AS22 Activity units: pCi/L

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	-4.18E-02	\pm 1.08E-01	3.50E-01
Th-228	-2.52E-01	\pm 2.64E-01	5.50E-01
Th-230	1.16E-01	\pm 1.05E-01	1.32E-01
Th-232	1.30E-02	\pm 6.06E-02	1.43E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

Ref. 25
200664

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: CC-FB02-01
NAREL Sample #: T34C 95.03180X NAREL Batch #: 95-00016
Date Collected: 04/20/95 Matrix: Water
Date Received: 04/21/95 Wet weight: N/A
Date Analyzed: 06/28/95 Dry weight: N/A
Analyst: AS Ash weight: N/A
Method: EERF-00.07 Vol/Wt Prepared: 0.1000 L
Detector ID: AS17 Activity units: pCi/L

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	1.25E-01	\pm 2.50E-01	4.66E-01
Th-228	-1.25E-01	\pm 2.89E-01	5.69E-01
Th-230	2.05E-01	\pm 1.44E-01	1.57E-01
Th-232	2.12E-02	\pm 1.07E-01	2.25E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

Ref. 25
210664

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>LT-FB01-01</u>
NAREL Sample #:	<u>T34C 95.03181</u>	NAREL Batch #:	<u>95-00016</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Water</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>N/A</u>
Date Analyzed:	<u>06/28/95</u>	Dry weight:	<u>N/A</u>
Analyst:	<u>AS</u>	Ash weight:	<u>N/A</u>
Method:	<u>EERF-00.07</u>	Vol/Wt Prepared:	<u>0.1000 L</u>
Detector ID:	<u>AS18</u>	Activity units:	<u>pCi/L</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	1.27E-02	\pm 1.52E-01	3.55E-01
Th-228	-8.51E-02	\pm 2.54E-01	4.89E-01
Th-230	1.34E-01	\pm 9.94E-02	9.06E-02
Th-232	6.98E-02	\pm 6.98E-02	5.23E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

Ref. 25
220f64

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: LT-FB01-01
NAREL Sample #: T34C 95.03181M NAREL Batch #: 95-00016
Date Collected: 04/20/95 Matrix: Water
Date Received: 04/21/95 Wet weight: N/A
Date Analyzed: 06/27/95 Dry weight: N/A
Analyst: AS Ash weight: N/A
Method: EERF-00.07 Vol/Wt Prepared: 0.1000 L
Detector ID: AS25 Activity units: pCi/L

M
Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	1.65E-01	\pm 2.30E-01	3.75E-01
Th-228	-1.23E-03	\pm 3.47E-01	6.49E-01
Th-230	6.25E+01	\pm 2.79E+00	1.75E-01
Th-232	7.30E-01	\pm 3.03E-01	2.89E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

Def. 25
23 of 64

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: LT-FB01-01
 NAREL Sample #: T34C 95.03181S NAREL Batch #: 95-00016
 Date Collected: 04/20/95 Matrix: Water
 Date Received: 04/21/95 Wet weight: N/A
 Date Analyzed: 06/27/95 Dry weight: N/A
 Analyst: AS Ash weight: N/A
 Method: EERF-00.07 Vol/Wt Prepared: 0.1000 L
 Detector ID: AS26 Activity units: pCi/L

MSD

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	7.00E-02	\pm 2.62E-01	5.40E-01
Th-228	-1.19E-01	\pm 2.77E-01	5.63E-01
Th-230	6.13E+01	\pm 2.72E+00	1.94E-01
Th-232	2.46E-02	\pm 7.52E-02	1.67E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

#F.25
240-264

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: <u>Captain's Cove</u>	Client Sample ID: <u>LT-FB01-01</u>
NAREL Sample #: <u>T34C 95.03181X</u>	NAREL Batch #: <u>95-00016</u>
Date Collected: <u>04/20/95</u>	Matrix: <u>Water</u>
Date Received: <u>04/21/95</u>	Wet weight: <u>N/A</u>
Date Analyzed: <u>06/28/95</u>	Dry weight: <u>N/A</u>
Analyst: <u>AS</u>	Ash weight: <u>N/A</u>
Method: <u>EERF-00.07</u>	Vol/Wt Prepared: <u>0.1000 L</u>
Detector ID: <u>AS20</u>	Activity units: <u>pCi/L</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	-8.44E-02	$\pm 1.54E-01$	4.47E-01
Th-228	-3.73E-01	$\pm 2.52E-01$	5.57E-01
Th-230	1.53E-01	$\pm 1.17E-01$	1.30E-01
Th-232	5.73E-02	$\pm 7.95E-02$	1.30E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03182
Replicate 1	T34C 95.03180X
Replicate 2	T34C 95.03181X
Matrix Spike	T34C 95.03181M
Matrix Spike Duplicate	T34C 95.03181S

Comments:

Ref. 25
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CAPTAIN'S COVE
RADIOCHEMICAL
DATA VALIDATION REPORT
NAREL BATCH # 95-00015

Prepared by:

Cecelia N. Minch
Cecelia N. Minch

Date:

8/11/95

102885

Ref. 25
26.F64

**CAPTAINS COVE
DATA VALIDATION REPORT
NAREL Batch # 95-00015**

SUMMARY:

This case consisted of 12 soil samples collected on April 20, 1995 and designated for the analysis of uranium and thorium by alpha spectrometry. One field duplicate pair (LTSS05-01/05D) was collected and analyzed with satisfactory results.

The laboratory documented in the narrative that problems were encountered with the uranium analyses of samples LT-SS03-01, LT-SS04-01 and the replicate of LT-SS04-01. Matrix interferences may be responsible since reanalyses produced similar results. The data user should also be aware that the laboratory thought it prudent to reanalyze sample CC-SS13-01 due to possible inconsistencies (see letter of August 4, 1995), the results of which will follow at a later date.

All data were evaluated for Level D DQO, employing USEPA Region II inorganic data validation criteria to the extent possible. The specifics for each parameter and associated QC are detailed below. The sample identifications used in this report have been truncated for expediency. Unless otherwise indicated, all sample IDs are suffixed with -01.

All data are considered acceptable and valid with the following qualifications.

HOLDING TIMES:

A holding time of 180 days has been applied to the samples. All samples were analyzed within this holding time.

TRACERS:

The following samples exhibited low tracer recovery (<80%). As a result, all reported values for the associated isotopes may be biased low and, therefore, were qualified as estimated (J).

Uranium: SS03, SS04

thorium: SS05, SS05D, SS13, SS14, SS15

The replicate of SS04 also experienced low recovery, but no action was necessary.

MATRIX SPIKES:

The soil matrix spike duplicate exceeded recovery criteria and the RPD for U-235. Consequently, U-235 sample results greater than the MDC may be biased high and were qualified as estimated (J) as follows:

Qualified "J":

SS05, SS05D, SS12, SS14, SS11-02, SS11-03

Samples SS01, SS03 and SS04 would also have been qualified "J" for U-235, but were previously qualified for other criteria.

The recovery of Th-230 was acceptable.

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REPLICATES:

Two replicate pairs were analyzed and evaluated for reproducibility. The data were qualified as estimated (J) only when the RPD exceeded 50% and the results reported for both analyses were greater than the MDC. The direction of bias in this instance is unknown.

Qualified "J":

Th-228: SS01, SS02, SS03, SS04, SS11-02, SS11-03

Th-232: SS01, SS02, SS03, SS04, SS11-02, SS11-03

Both sets of replicate data were acceptable for uranium.

FIELD DUPLICATE:

The results of the field duplicate were acceptable.

BLANK CONTAMINATION:

No qualifications were required.

INSTRUMENT CALIBRATION:

An efficiency check standard was analyzed on each detector approximately every 7 days, the results of which were plotted on a control chart. The values obtained were evaluated for compliance with the ± 2 standard deviation limits defined on the charts. Sample analyses bracketed by acceptable standards are deemed acceptable. However, the standards which followed 2 samples were not within the established limits. In both cases, any sample values greater than the MDC were qualified as estimated (J) and may be biased low.

The following data were qualified "J":

SS01: U-234, U-235, U238

SS12: Th-228, Th-230, Th-232

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

Ref. 25
28064

CASE NARRATIVE

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove

NAREL Batch #: 95-00015

I. RECEIPT

A. Sample Information

<u>NAREL Sample ID</u>	<u>Client Sample ID</u>	<u>Sample Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Date Analyzed</u>
T34C 95.03167	LT-SS01-01	Soil	04/20/95	04/21/95	07/07/95
T34C 95.03168	LT-SS02-01	Soil	04/20/95	04/21/95	06/28/95
T34C 95.03169	LT-SS03-01	Soil	04/20/95	04/21/95	06/26/95
T34C 95.03170	LT-SS04-01	Soil	04/20/95	04/21/95	06/26/95
T34C 95.03171	LT-SS05-01	Soil	04/20/95	04/21/95	06/28/95
T34C 95.03172	LT-SS05-01D	Soil	04/20/95	04/21/95	06/28/95
T34C 95.03173	CC-SS12-01	Soil	04/20/95	04/21/95	07/07/95
T34C 95.03174	CC-SS13-01	Soil	04/20/95	04/21/95	06/28/95
T34C 95.03175	CC-SS14-01	Soil	04/20/95	04/21/95	06/28/95
T34C 95.03176	CC-SS15-01	Soil	04/20/95	04/21/95	06/28/95
T34C 95.03177	CC-SS11-02	Soil	04/20/95	04/21/95	06/26/95
T34C 95.03178	CC-SS11-03	Soil	04/20/95	04/21/95	06/26/95

B. Documentation
Exceptions:

No exceptions were encountered.

II. ANALYSIS

A. Holding Times:

All holding times were met.

B. Preparation
Exceptions:

No exceptions were encountered.

C. Analytical
Exceptions:

NAREL samples T34C 95.3169, T34C 95.3170 and T34C 95.3170X formed a purple precipitate during the coprecipitation step of the uranium procedure. This step normally results in an essentially "massless" sample being deposited onto a planchet. Because of the presence of the precipitates in these samples, the alpha spectra contain smeared peaks which were rejected by NAREL counting room data reviewers. The samples were reanalyzed and

similar results were obtained. We believe these samples contain interferences which cause the formation of a problematic amount of precipitate during the coprecipitation step. The results of the original analyses are contained in this report. We recommend that the results be used only as a qualitative means of indicating the presence of these radionuclides and not as a quantitative measure of their concentration and that the results of the replicate analysis of sample T34C 95.3170 not be used in the evaluation of the quality control samples.

The uranium analyses on NAREL samples T34C 95.03167 and T34C 95.03173 gave measured yields greater than 104%. These two samples were recounted and the results from the recounts are provided in this package.

The result from the efficiency check for detector AS10 on 6/26/95 was lost, and the check was not repeated. No samples in this batch were analyzed on AS10.

Detector AS28 is not currently in operation.

III. QUALITY CONTROL

- A. Reagent Blank: All associated reagent blanks met NAREL QC criteria.
- B. Tracer Yields: All samples met NAREL QC limits.
- C. Matrix Spike: All spike recoveries were within NAREL QC limits.
- D. Replicate Results: All replicate analyses met NAREL QC criteria. Although the results of the replicate analysis of sample T34C 95.3170 are provided in this report, we recommend that the results of the replicate analysis of this sample not be used in the evaluation of the quality control samples. The analytical problems associated with this sample are described in the Analytical Exceptions section of the case narrative.

IV. I certify that this data package complies with the terms and conditions of the Quality Assurance Project Plan, both technically and for completeness, other than the exceptions detailed above. Release of the data contained in this package has been authorized by the Chief of the Monitoring and Analytical Services Branch and the NAREL Quality Assurance Coordinator, or their designees, as verified by the following signatures.

James B. Moore 8/4/95
James B. Moore Date
Quality Assurance Coordinator

John Griggs 8/4/95
John Griggs, Ph.D. Date
Chief, Monitoring
and Analytical Services Branch

Ref. 25
310F64

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>Reagent Blank</u>
NAREL Sample #:	<u>RBLK 95.03179</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>05/03/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>05/03/95</u>	Wet weight:	<u>N/A</u>
Date Analyzed:	<u>06/26/95</u>	Dry weight:	<u>N/A</u>
Analyst:	<u>AS</u>	Ash weight:	<u>N/A</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>N/A</u>
Detector ID:	<u>AS25</u>	Activity units:	<u>pCi/Samp</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234 +	<u>4.27E-02</u>	\pm 2.47E-02	3.12E-02
U-235	1.02E-03	\pm 6.62E-03	2.30E-02
U-238	3.45E-02	\pm 2.62E-02	4.46E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: <u>Captain's Cove</u>	Client Sample ID: <u>LT-SS01-01</u>
NAREL Sample #: <u>T34C 95.03167</u>	NAREL Batch #: <u>95-00015</u>
Date Collected: <u>04/20/95</u>	Matrix: <u>Soil</u>
Date Received: <u>04/21/95</u>	Wet weight: <u>530.0 g</u>
Date Analyzed: <u>07/07/95</u>	Dry weight: <u>402.6 g</u>
Analyst: <u>AS</u>	Ash weight: <u>358.3 g</u>
Method: <u>EERF-00.06</u>	Vol/Wt Prepared: <u>0.0051 gash</u>
Detector ID: <u>AS17</u>	Activity units: <u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	4.63E+01 J	\pm 8.72E+00	3.19E+00
U-235	2.11E+00	\pm 1.70E+00	1.35E+00
U-238	5.22E+01 ↓	\pm 9.34E+00	3.41E+00

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

Ref 25
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URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: LT-SS02-01
NAREL Sample #: T34C 95.03168 NAREL Batch #: 95-00015
Date Collected: 04/20/95 Matrix: Soil
Date Received: 04/21/95 Wet weight: 539.5 g
Date Analyzed: 06/28/95 Dry weight: 467.3 g
Analyst: AS Ash weight: 421.5 g
Method: EERF-00.06 Vol/Wt Prepared: 0.0050 gash
Detector ID: AS12 Activity units: pCi/gdry

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	1.07E+01	\pm 4.94E+00	5.75E+00
U-235	9.47E-01	\pm 1.32E+00	1.82E+00
U-238	2.62E+01	\pm 7.44E+00	4.87E+00

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>LT-SS03-01</u>
NAREL Sample #:	<u>T34C 95.03169</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>932.5 g</u>
Date Analyzed:	<u>06/26/95</u>	Dry weight:	<u>768.1 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>703.6 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.2541 gash</u>
Detector ID:	<u>AS07</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2σ Uncertainty	MDC
U-234	3.28E+00 J	± 4.85E-01	8.25E-02
U-235	7.19E-01	± 1.89E-01	7.07E-02
U-238	3.24E+00 ✓	± 4.83E-01	8.25E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: <u>Captain's Cove</u>	Client Sample ID: <u>LT-SS04-01</u>	
NAREL Sample #: <u>T34C 95.03170</u>	NAREL Batch #: <u>95-00015</u>	
Date Collected: <u>04/20/95</u>	Matrix: <u>Soil</u>	
Date Received: <u>04/21/95</u>	Wet weight: <u>586.9 g</u>	
Date Analyzed: <u>06/26/95</u>	Dry weight: <u>459.2 g</u>	
Analyst: <u>AS</u>	Ash weight: <u>416.9 g</u>	
Method: <u>EERF-00.06</u>	Vol/Wt Prepared: <u>0.2536 gash</u>	
Detector ID: <u>AS09</u>	Activity units: <u>pCi/gdry</u>	

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	1.76E+00 J	\pm 3.89E-01	1.34E-01
U-235	5.24E-01	\pm 1.91E-01	1.03E-01
U-238	9.62E-01 ↓	\pm 2.70E-01	1.21E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: LT-SS04-01
 NAREL Sample #: T34C 95.03170X NAREL Batch #: 95-00015
 Date Collected: 04/20/95 Matrix: Soil
 Date Received: 04/21/95 Wet weight: 586.9 g
 Date Analyzed: 06/26/95 Dry weight: 459.2 g
 Analyst: AS Ash weight: 416.9 g
 Method: EERF-00.06 Vol/Wt Prepared: 0.2507 gash
 Detector ID: AS11 Activity units: pCi/gdry

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	1.79E+00	\pm 4.01E-01	1.51E-01
U-235	6.44E-01	\pm 2.17E-01	1.07E-01
U-238	9.90E-01	\pm 2.79E-01	1.25E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

QC ARE NOT REQUIRED

Ref. 25
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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>LT-SS05-01</u>
NAREL Sample #:	<u>T34C 95.03171</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>406.8 g</u>
Date Analyzed:	<u>06/28/95</u>	Dry weight:	<u>293.6 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>242.5 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.0050 gash</u>
Detector ID:	<u>AS21</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	1.55E+02	$\pm 1.78E+01$	2.97E+00
U-235	5.31E+00 J	$\pm 2.59E+00$	2.30E+00
U-238	1.65E+02	$\pm 1.86E+01$	3.30E+00

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

FIELD DUPLICATIONS

3-234
2-235
2-238

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>LT-SS05-01D</u>
NAREL Sample #:	<u>T34C 95.03172</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>408.3 g</u>
Date Analyzed:	<u>06/28/95</u>	Dry weight:	<u>294.6 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>242.2 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.0051 gash</u>
Detector ID:	<u>AS22</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	1.48E+02	$\pm 1.78E+01$	2.70E+00
U-235	5.82E+00 J	$\pm 2.72E+00$	1.24E+00
U-238	1.54E+02	$\pm 1.83E+01$	2.70E+00

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: <u>Captain's Cove</u>	Client Sample ID: <u>CC-SS12-01</u>
NAREL Sample #: <u>T34C 95.03173</u>	NAREL Batch #: <u>95-00015</u>
Date Collected: <u>04/20/95</u>	Matrix: <u>Soil</u>
Date Received: <u>04/21/95</u>	Wet weight: <u>444.6 g</u>
Date Analyzed: <u>07/07/95</u>	Dry weight: <u>402.2 g</u>
Analyst: <u>AS</u>	Ash weight: <u>386.9 g</u>
Method: <u>EERF-00.06</u>	Vol/Wt Prepared: <u>0.2517 gash</u>
Detector ID: <u>AS18</u>	Activity units: <u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2σ Uncertainty	MDC
U-234	7.77E-01	± 1.55E-01	4.45E-02
U-235	3.45E-02 J	± 3.03E-02	2.66E-02
U-238	7.11E-01	± 1.47E-01	2.66E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

AF.25
40 of 64

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>CC SS12-01</u>
NAREL Sample #:	<u>T34C 95.03173M</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>444.6 g</u>
Date Analyzed:	<u>06/26/95</u>	Dry weight:	<u>402.2 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>386.9 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.2502 gash</u>
Detector ID:	<u>AS17</u>	Activity units:	<u>pCi/gdry</u>

MS
Analytical Results

Nuclide	Activity	2σ Uncertainty	MDC
U-234	4.14E+00	± 4.72E-01	6.37E-02
U-235	2.23E-01	± 8.55E-02	7.37E-02
U-238	3.98E+00	± 4.59E-01	7.79E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

AF.25
410F6Y

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: CC-SS12-01
NAREL Sample #: T34C 95.03173S NAREL Batch #: 95-00015
Date Collected: 04/20/95 Matrix: Soil
Date Received: 04/21/95 Wet weight: 444.6 g
Date Analyzed: 06/26/95 Dry weight: 402.2 g
Analyst: AS Ash weight: 386.9 g
Method: EERF-00.06 Vol/Wt Prepared: 0.2517 gash
Detector ID: AS18 Activity units: pCi/gdry

MSV

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	4.23E+00	\pm 4.44E-01	4.19E-02
U-235	2.86E-01	\pm 8.70E-02	2.50E-02
U-238	4.00E+00	\pm 4.27E-01	4.19E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

Ref. 25
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URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>CC-SS13-01</u>
NAREL Sample #:	<u>T34C 95.03174</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>490.8 g</u>
Date Analyzed:	<u>06/28/95</u>	Dry weight:	<u>418.0 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>398.8 g</u>
Method:	<u>HERF-00.06</u>	Vol/Wt Prepared:	<u>0.0252 gash</u>
Detector ID:	<u>AS23</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	1.11E+00	\pm 6.15E-01	7.58E-01
U-235 <	2.47E-02	\pm 1.60E-01	5.58E-01
U-238	3.45E-01	\pm 3.70E-01	6.72E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

Ref. 25
43064

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>CC-SS14-01</u>
NAREL Sample #:	<u>T34C 95.03175</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>453.4 g</u>
Date Analyzed:	<u>06/28/95</u>	Dry weight:	<u>366.5 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>351.1 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.0126 gash</u>
Detector ID:	<u>AS24</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	2.39E+01	\pm 3.91E+00	1.01E+00
U-235	1.07E+00 J	\pm 7.43E-01	5.13E-01
U-238	1.86E+01	\pm 3.37E+00	5.13E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

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URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: CC-SS15-01
NAREL Sample #: T34C 95.03176 NAREL Batch #: 95-00015
Date Collected: 04/20/95 Matrix: Soil
Date Received: 04/21/95 Wet weight: 459.7 g
Date Analyzed: 06/28/95 Dry weight: 376.3 g
Analyst: AS Ash weight: 359.0 g
Method: EERF-00.06 Vol/Wt Prepared: 0.0126 gash
Detector ID: AS25 Activity units: pCi/gdry

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	2.08E+01	\pm 4.64E+00	1.83E+00
U-235	5.10E-01	\pm 7.71E-01	1.65E+00
U-238	1.84E+01	\pm 4.46E+00	3.27E+00

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: <u>Captain's Cove</u>	Client Sample ID: <u>CC-SS11-02</u>
NAREL Sample #: <u>T34C 95.03177</u>	NAREL Batch #: <u>95-00015</u>
Date Collected: <u>04/20/95</u>	Matrix: <u>Soil</u>
Date Received: <u>04/21/95</u>	Wet weight: <u>272.9 g</u>
Date Analyzed: <u>06/26/95</u>	Dry weight: <u>186.2 g</u>
Analyst: <u>AS</u>	Ash weight: <u>131.4 g</u>
Method: <u>EERF-00.06</u>	Vol/Wt Prepared: <u>0.2533 gash</u>
Detector ID: <u>AS19</u>	Activity units: <u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	8.47E-01	$\pm 1.55E-01$	5.28E-02
U-235	3.88E-02 J	$\pm 3.06E-02$	3.76E-02
U-238	9.53E-01	$\pm 1.66E-01$	5.28E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>CC-SS11-02</u>
NAREL Sample #:	<u>T34C 95.03177X</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>272.9 g</u>
Date Analyzed:	<u>06/26/95</u>	Dry weight:	<u>186.2 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>131.4 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.2517 gash</u>
Detector ID:	<u>AS20</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	7.48E-01	$\pm 1.47E-01$	5.24E-02
U-235	4.18E-02	$\pm 3.30E-02$	4.04E-02
U-238	7.13E-01	$\pm 1.44E-01$	4.72E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

Q.C. BLK NOT QUANTIFIED

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

URANIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>CC-SS11-03</u>
NAREL Sample #:	<u>T34C 95.03178</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>361.6 g</u>
Date Analyzed:	<u>06/26/95</u>	Dry weight:	<u>318.4 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>303.1 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.2526 gash</u>
Detector ID:	<u>AS24</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
U-234	5.05E-01	$\pm 1.22\text{E-}01$	5.19E-02
U-235	2.75E-02 <i>J</i>	$\pm 2.70\text{E-}02$	2.65E-02
U-238	4.54E-01	$\pm 1.14\text{E-}01$	2.65E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

CASE NARRATIVE

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove

NAREL Batch #: 95-00015

I. RECEIPT

A. Sample Information

<u>NAREL Sample ID</u>	<u>Client Sample ID</u>	<u>Sample Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Date Analyzed</u>
T34C 95.03167	LT-SS01-01	Soil	04/20/95	04/21/95	06/29/95
T34C 95.03168	LT-SS02-01	Soil	04/20/95	04/21/95	06/29/95
T34C 95.03169	LT-SS03-01	Soil	04/20/95	04/21/95	06/27/95
T34C 95.03170	LT-SS04-01	Soil	04/20/95	04/21/95	06/27/95
T34C 95.03171	LT-SS05-01	Soil	04/20/95	04/21/95	06/27/95
T34C 95.03172	LT-SS05-01D	Soil	04/20/95	04/21/95	06/27/95
T34C 95.03173	CC-SS12-01	Soil	04/20/95	04/21/95	06/27/95
T34C 95.03174	CC-SS13-01	Soil	04/20/95	04/21/95	06/27/95
T34C 95.03175	CC-SS14-01	Soil	04/20/95	04/21/95	06/28/95
T34C 95.03176	CC-SS15-01	Soil	04/20/95	04/21/95	06/28/95
T34C 95.03177	CC-SS11-02	Soil	04/20/95	04/21/95	06/27/95
T34C 95.03178	CC-SS11-03	Soil	04/20/95	04/21/95	06/27/95

B. Documentation

Exceptions:

No exceptions were encountered.

II. ANALYSIS

A. Holding Times:

All holding times were met.

B. Preparation

Exceptions:

No exceptions were encountered.

C. Analytical

Exceptions:

The results from the efficiency check for detector AS10 on 6/26/95 was lost, and the check was not repeated. No samples in this batch were analyzed on detector AS10.

Detector AS28 is not currently in operation.

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490P64

THORIUM
NAREL Batch # 95-00015
PAGE 2

III. QUALITY CONTROL

- A. Reagent Blank: All associated reagent blanks met NAREL QC criteria.
- B. Tracer Yields: All samples met NAREL QC limits.
- C. Matrix Spike: All spike recoveries were within NAREL QC limits.
- D. Replicate Results: The results of the replicate analysis on NAREL sample 95.03177 did not meet NAREL's acceptance criteria.

IV. I certify that this data package complies with the terms and conditions of the Quality Assurance Project Plan, both technically and for completeness, other than the exceptions detailed above. Release of the data contained in this package has been authorized by the Chief of the Monitoring and Analytical Services Branch and the NAREL Quality Assurance Coordinator, or their designees, as verified by the following signatures.

James B. Moore 8/4/95
James B. Moore Date
Quality Assurance Coordinator

John Griggs 8/4/95
John Griggs, Ph.D. Date
Chief, Monitoring
and Analytical Services Branch

RF25
50664

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>Reagent Blank</u>
NAREL Sample #:	<u>RBLK 95.03179</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>05/03/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>05/03/95</u>	Wet weight:	<u>N/A</u>
Date Analyzed:	<u>06/27/95</u>	Dry weight:	<u>N/A</u>
Analyst:	<u>AS</u>	Ash weight:	<u>N/A</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>N/A</u>
Detector ID:	<u>AS21</u>	Activity units:	<u>pCi/Samp</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227 <	6.47E-03	\pm 1.92E-02	3.85E-02
Th-228 <	-2.22E-02	\pm 2.55E-02	5.22E-02
Th-230 ~	1.02E-02	\pm 9.81E-03	1.33E-02
Th-232 <	5.39E-03	\pm 8.56E-03	1.50E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

102910

Ref. 25
5/09/64

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>LT-SS01-01</u>
NAREL Sample #:	<u>T34C 95.03167</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>530.0 g</u>
Date Analyzed:	<u>06/29/95</u>	Dry weight:	<u>402.6 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>358.3 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.0051 gash</u>
Detector ID:	<u>AS29</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	5.19E+00	\pm 3.87E+00	4.42E+00
Th-228	4.49E+00 J	\pm 5.24E+00	8.62E+00
Th-230	1.11E+01	\pm 3.70E+00	1.57E+00
Th-232	1.01E+01 J	\pm 3.55E+00	1.85E+00

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

25-25
520P64

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>LT-SS02-01</u>
NAREL Sample #:	<u>T34C 95.03168</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>539.5 g</u>
Date Analyzed:	<u>06/29/95</u>	Dry weight:	<u>467.3 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>421.5 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.0050 gash</u>
Detector ID:	<u>AS30</u>	Activity units:	<u>pCi/gdrv</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	-1.97E-01	\pm 2.79E+00	6.52E+00
Th-228	1.27E+01 J	\pm 6.27E+00	8.94E+00
Th-230	2.00E+01	\pm 4.96E+00	1.84E+00
Th-232	1.77E+01 J	\pm 4.65E+00	1.57E+00

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

25.25
53.664

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>LT-SS03-01</u>
NAREL Sample #:	<u>T34C 95.03169</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>932.5 g</u>
Date Analyzed:	<u>06/27/95</u>	Dry weight:	<u>768.1 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>703.6 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.2541 gash</u>
Detector ID:	<u>AS06</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	4.84E-01	\pm 1.83E-01	1.21E-01
Th-228	3.12E+00 J	\pm 3.32E-01	1.98E-01
Th-230	5.38E+00	\pm 4.19E-01	9.69E-02
Th-232	3.21E+00 J	\pm 3.28E-01	1.56E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>LT-SS04-01</u>
NAREL Sample #:	<u>T34C 95.03170</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>586.9 g</u>
Date Analyzed:	<u>06/27/95</u>	Dry weight:	<u>459.2 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>416.9 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.2536 gash</u>
Detector ID:	<u>AS07</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2σ Uncertainty	MDC
Th-227	1.04E-01	± 1.09E-01	1.66E-01
Th-228	6.66E-01 J	± 1.84E-01	2.06E-01
Th-230	9.25E-01	± 1.74E-01	4.90E-02
Th-232	5.83E-01 J	± 1.38E-01	4.17E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

: : :

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55 of 64

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>LT-SS04-01</u>
NAREL Sample #:	<u>T34C 95.03170X</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>586.9 g</u>
Date Analyzed:	<u>06/27/95</u>	Dry weight:	<u>459.2 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>416.9 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.2507 gash</u>
Detector ID:	<u>AS09</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	1.71E-01	\pm 1.25E-01	1.25E-01
Th-228	7.18E-01	\pm 2.08E-01	2.32E-01
Th-230	1.22E+00	\pm 2.18E-01	6.48E-02
Th-232	5.71E-01	\pm 1.50E-01	6.48E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments: QC ARE NOT QUALIFIED

Ref-25
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Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>LT-SS05-01</u>
NAREL Sample #:	<u>T34C 95.03171</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>406.8 g</u>
Date Analyzed:	<u>06/27/95</u>	Dry weight:	<u>293.6 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>242.5 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.0050 gash</u>
Detector ID:	<u>AS27</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2σ Uncertainty	MDC
Th-227	2.18E+01 J	± 9.46E+00	8.83E+00
Th-228	3.45E+01	± 9.08E+00	9.59E+00
Th-230	3.44E+02	± 2.47E+01	2.45E+00
Th-232	2.48E+01 ↓	± 6.49E+00	3.54E+00

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: LT-SS05-01D
 NAREL Sample #: T34C 95.03172 NAREL Batch #: 95-00015
 Date Collected: 04/20/95 Matrix: Soil
 Date Received: 04/21/95 Wet weight: 408.3 g
 Date Analyzed: 06/27/95 Dry weight: 294.6 g
 Analyst: AS Ash weight: 242.2 g
 Method: EERF-00.06 Vol/Wt Prepared: 0.0051 gash
 Detector ID: AS29 Activity units: pCi/gdry

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	2.75E+01 J	\pm 1.15E+01	8.22E+00
Th-228	3.34E+01	\pm 1.00E+01	1.05E+01
Th-230	3.03E+02	\pm 2.60E+01	2.70E+00
Th-232	2.51E+01 ✓	\pm 7.32E+00	3.17E+00

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

Ref. 25
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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>CC-SS12-01</u>
NAREL Sample #:	<u>T34C 95.03173</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>444.6 g</u>
Date Analyzed:	<u>06/27/95</u>	Dry weight:	<u>402.2 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>386.9 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.2517 gash</u>
Detector ID:	<u>AS11</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	3.47E-02	\pm 1.03E-01	2.06E-01
Th-228	6.78E-01 J	\pm 2.02E-01	2.27E-01
Th-230	6.13E-01 J	\pm 1.56E-01	7.11E-02
Th-232	8.93E-01 J	\pm 1.88E-01	7.11E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: <u>Captain's Cove</u>	Client Sample ID: <u>CC-SS13-01</u>
NAREL Sample #: <u>T34C 95.03174</u>	NAREL Batch #: <u>95-00015</u>
Date Collected: <u>04/20/95</u>	Matrix: <u>Soil</u>
Date Received: <u>04/21/95</u>	Wet weight: <u>490.8 g</u>
Date Analyzed: <u>06/27/95</u>	Dry weight: <u>418.0 g</u>
Analyst: <u>AS</u>	Ash weight: <u>398.8 g</u>
Method: <u>EERF-00.06</u>	Vol/Wt Prepared: <u>0.0252 gash</u>
Detector ID: <u>AS30</u>	Activity units: <u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	1.43E+00 J	\pm 1.71E+00	2.76E+00
Th-228	5.64E-02	\pm 1.33E+00	2.53E+00
Th-230	6.30E-01	\pm 5.90E-01	7.21E-01
Th-232	7.92E-02 ✓	\pm 2.49E-01	6.14E-01

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>CC-SS14-01</u>
NAREL Sample #:	<u>T34C 95.03175</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>453.4 g</u>
Date Analyzed:	<u>06/28/95</u>	Dry weight:	<u>366.5 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>351.1 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.0126 gash</u>
Detector ID:	<u>AS06</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2σ Uncertainty	MDC
Th-227	4.87E+00 J	± 3.90E+00	4.69E+00
Th-228	1.94E+01	± 5.66E+00	5.91E+00
Th-230	4.52E+01	± 7.47E+00	3.68E+00
Th-232	2.00E+01 ↓	± 5.71E+00	5.90E+00

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments:

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name: Captain's Cove Client Sample ID: CC-SS11-02
 NAREL Sample #: T34C 95.03177X NAREL Batch #: 95-00015
 Date Collected: 04/20/95 Matrix: Soil
 Date Received: 04/21/95 Wet weight: 272.9 g
 Date Analyzed: 06/27/95 Dry weight: 186.2 g
 Analyst: AS Ash weight: 131.4 g
 Method: EERF-00.06 Vol/Wt Prepared: 0.2517 g/ash
 Detector ID: AS19 Activity units: pCi/gdry

Analytical Results

Nuclide	Activity	2 σ Uncertainty	MDC
Th-227	1.07E-01	\pm 9.24E-02	1.28E-01
Th-228	3.81E-01	\pm 1.30E-01	1.60E-01
Th-230	7.70E-01	\pm 1.40E-01	4.57E-02
Th-232	5.36E-01	\pm 1.17E-01	4.57E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments: QC All OK

Ref. 25
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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY**

THORIUM RADIOCHEMICAL ANALYTICAL RESULTS

Project Name:	<u>Captain's Cove</u>	Client Sample ID:	<u>CC-SS11-03</u>
NAREL Sample #:	<u>T34C 95.03178</u>	NAREL Batch #:	<u>95-00015</u>
Date Collected:	<u>04/20/95</u>	Matrix:	<u>Soil</u>
Date Received:	<u>04/21/95</u>	Wet weight:	<u>361.6 g</u>
Date Analyzed:	<u>06/27/95</u>	Dry weight:	<u>318.4 g</u>
Analyst:	<u>AS</u>	Ash weight:	<u>303.1 g</u>
Method:	<u>EERF-00.06</u>	Vol/Wt Prepared:	<u>0.2526 gash</u>
Detector ID:	<u>AS20</u>	Activity units:	<u>pCi/gdry</u>

Analytical Results

Nuclide	Activity	2σ Uncertainty	MDC
Th-227	-3.05E-02	± 5.57E-02	1.62E-01
Th-228	4.71E-01 J	± 1.62E-01	2.08E-01
Th-230	4.67E-01	± 1.16E-01	4.81E-02
Th-232	4.45E-01 J	± 1.14E-01	4.81E-02

QA/QC Reference Samples

QC Sample	NAREL Sample Number
Reagent Blank	RBLK 95.03179
Replicate 1	T34C 95.03170X
Replicate 2	T34C 95.03177X
Matrix Spike	T34C 95.03173M
Matrix Spike Duplicate	T34C 95.03173S

Comments: