



**UNDERGROUND STORAGE TANK  
CLOSURE AND SITE  
INVESTIGATION REPORT  
BUILDING 2700.4  
TMS NO. C-93-2613  
UST NO. 62  
NJDEP FACILITY UST NO. 081515  
SPILL CASE NO. 92-3-7-1047-43**

January 1995

**Work Order No.: 03886-088-001**

Prepared For:

**UNITED STATES ARMY  
Directorate of Public Works  
Building 167  
Fort Monmouth, New Jersey 07703**

Prepared by:

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## EXECUTIVE SUMMARY

Due to inventory discrepancies, fuel loss with no recorded usage, a discharge was reported to the NJDEP by the Fort Monmouth Directorate of Public Works (DPW) on 7 March 1992 (Case # 92-3-7-1047-43). Underground storage tank (UST) No. 62 was located adjacent to Building 2700.4 in the Charles Wood area of Fort Monmouth. Tank No. 62, was a single walled steel, 550-gallon capacity, diesel fuel tank.

On 3 June 1993, an UST Decommissioning/Closure Plan was submitted to the New Jersey Department of Environmental Protection and Energy (NJDEP) by the DPW. Closure Approval No. TMS C-93-2613 was issued with an effective date of 12 July 1993. The UST Closure Plan Approval application, UST Decommissioning/Closure Plan and Closure Approval are provided in Appendix A.

On 10 September 1993, one UST was closed at U.S. Army Fort Monmouth, in Fort Monmouth, New Jersey. All Service Environmental (ASE) began the tank closure on 8 September 1993. On 10 September 1993 ASE was replaced by Serv-Air, Inc. Serv-Air, Inc. completed the tank closure.

Soils surrounding the tank were visually inspected and screened with air monitoring instruments for evidence of contamination. The tank was inspected following removal for cracks, corrosion holes and puncture holes as indications of historical leakage from the tank. Several corrosion holes of approximately 1/16-inch diameter were noted. Following removal of the tank, approximately 35 tons of potentially contaminated soil was excavated and transported to the Charles Wood area hazardous waste accumulation site at Fort Monmouth, for storage prior to ultimate disposal at Soil Remediation of Philadelphia. No groundwater was encountered in the tank excavation.

On 10 September 1993, five post-excavation soil samples were collected and analyzed by U.S. Army Fort Monmouth Environmental Laboratory (FMEL) for total petroleum hydrocarbons (TPHC). In accordance with NJDEP requirements, samples which exhibited a concentration of TPHC exceeding 1,000 milligrams per kilogram (mg/kg) were analyzed for volatile organic compounds plus 15 tentatively identified compounds (VO+15). The results indicated a concentration of TPHC (7,520 mg/kg) which exceeded the NJDEP requirement of 1,000 mg/kg.

On 13 September 1993, Sample Site E was analyzed by 21st Century Environmental Laboratories, Inc. for VO+15 and base neutral compounds plus 15 tentatively identified compounds (BN+15). Analytical results were compared to NJDEP Impact to Ground Water (ITGW) and Residential Direct Contact (RDC) Soil Cleanup Criteria. The results were below both sets of criteria.



Based on the analytical testing results indicating that all potentially contaminated soils have been removed, no further action is recommended for soils.

On 19 July 1994, in accordance with N.J.A.C. 7:26E-1 et seq., one monitoring well was installed in the excavation. The well will be sampled in accordance with NJDEP requirements outlined in the Field Sampling Procedures Manual, dated May 1992. Groundwater samples will be analyzed for volatile organics with a library search, and base neutral compounds with library search. Results of the testing and recommendations for groundwater will be provided in an addendum to this report.

## **SECTION 1.0**

### **UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES**

#### **1.1 OVERVIEW**

On 10 September 1993, one UST identified as Tank No. 62, was closed by removal at Building 2700.4, at U.S. Army Fort Monmouth, New Jersey. UST No. 62 was a single wall steel, 550-gallon capacity, diesel fuel tank. The tank was located immediately adjacent to Building 2700.4. This report presents the results of the DPW's implementation of the UST Decommissioning/Closure Plan submitted to the NJDEP-DHWM on 3 June 1993 and approved 12 July 1993 (Closure approval No. C-93-2613).

All activities associated with the decommissioning of UST No. 62 complied with all applicable Federal, State and Local laws and ordinances in effect at the date of decommissioning. These laws included but were not limited to: N.J.A.C. 7:14B-1 et seq., N.J.A.C. 5:23-1 et seq., N.J.A.C. 7:26E-1 et seq. and Occupational Safety and Health Administration (OSHA) 29 CFR 1910.146 & 29 CFR 1910.120. All permits including but not limited to the NJDEP-approved Decommissioning/Closure Plan were posted onsite for inspection. The UST Closure was initiated by ASE. ASE was registered and certified by NJDEP, to perform UST closures at the time of the tank decommissioning. Prior to completion of the UST closure, ASE resigned from the project. Serv-Air, Inc., under the supervision of Mr. Charles Appleby, U.S. Army, Fort Monmouth, completed the UST closure. Mr. Appleby is certified by NJDEP to perform UST closures.

The NJDEP Closure Approval and correspondence with the NJDEP have been included in Appendix A. The UST Site Assessment Summary Form for UST No. 62 has been included in Appendix B. The UST Site Assessment Summary Form has been signed by Mr. James Ott, Acting Director of DPW, U.S. Army Fort Monmouth.

This UST Closure and Site Investigation Report was prepared by Roy F. Weston Inc. (WESTON®), to assist the United State Army Directorate of Public Works (DPW) in complying with the NJDEP Bureau of Underground Storage Tanks (NJDEP-BUST) regulations. The applicable NJDEP-BUST regulations at the date of closure were the "Technical Requirements for Site Remediation" (N.J.A.C. 7:26E-1 et seq. dated June 1993).

Section 1 of this UST Closure and Site Investigation Report provides a summary of the tank decommissioning activities. Section 2 of this report describes the site investigation activities. Conclusions and recommendations, including the results of the soil sampling investigation, are presented in the final section of this report.

## **1.2 SITE DESCRIPTION AND UST HISTORY**

Building 2700.4 is located in the Charles Wood area of U.S. Army, Fort Monmouth. A site location map is provided in Figure 1-1. The building is elevated above the area surrounding it with a concrete pad located approximately 40 feet to the southwest. Building 2700.4 is used as a research and development facility, also known as the Myer Center. UST No. 62 was located immediately adjacent to Building 2700.4. A site plan is provided in Figure 1-2.

Due to inventory discrepancies, fuel loss with no recorded usage, a discharge was reported to the NJDEP by the DPW on 7 March 1992 (Case # 92-3-7-1047-43). UST No. 62 was located adjacent to Building 2700.4 in the Charles Wood area of Fort Monmouth. Tank No. 62, was a single walled steel, 550-gallon capacity, diesel fuel tank.

On 3 June 1993, an UST Decommissioning/Closure Plan was submitted to the NJDEP by the DPW. Closure Approval No. TMS C-93-2613 was issued with an effective date of 12 July 1993. The UST Closure Plan Approval application, UST Decommissioning/Closure Plan and Closure Approval are provided in Appendix A.

On 10 September 1993, one UST was closed at U.S. Army Fort Monmouth, in Fort Monmouth, New Jersey. ASE began the tank closure on 8 September 1993. On 10 September 1993 ASE was replaced by Serv-Air, Inc. Serv-Air, Inc., under the supervision of Mr. Charles Appleby, U.S. Army, Fort Monmouth, performed the tank closure.

## **1.3 GEOLOGICAL/HYDROGEOLOGICAL SETTING**

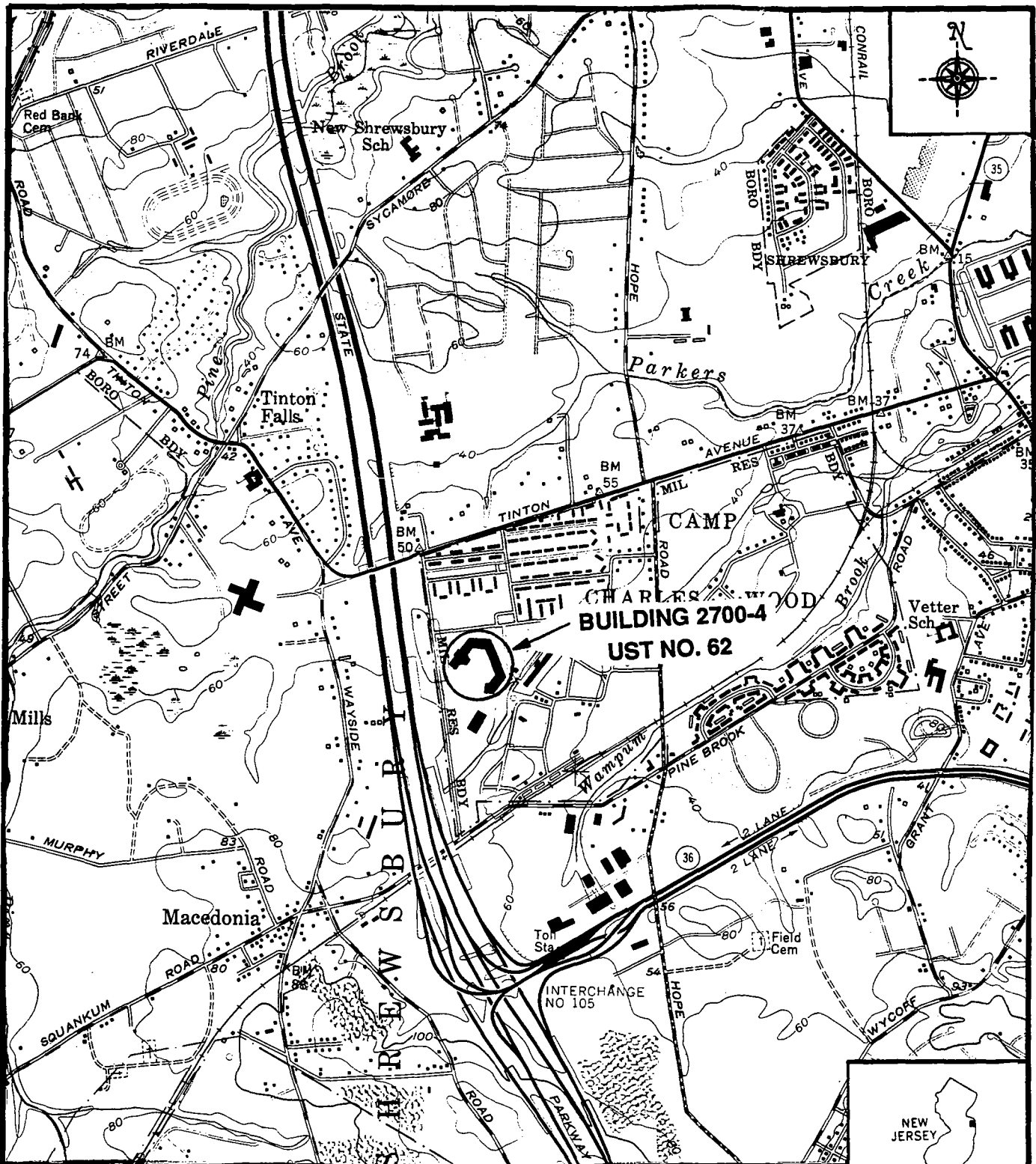
The following is a description of the geological/hydrogeological setting of the area surrounding Building 2700.4. Included is a description of the regional geology of the area surrounding Fort Monmouth as well as descriptions of the local geology and hydrogeology of the Charles Wood area.

### **1.3.1 Geological Setting**

#### **Regional Geology**

Monmouth County lies within the New Jersey Section of the Atlantic Coastal Plain physiographic province. The Main Post, Charles Wood, and the Evans areas are located in what may be referred to as the Outer Coastal Plain subprovince, or the Outer Lowlands.

In general, New Jersey, Coastal Plain formations consist of a seaward-dipping wedge of unconsolidated deposits of clay, silt, sand, and gravel. These formations typically strike northeast-southwest with a dip ranging from 10 to 60 feet per mile and were deposited on



REFERENCE: U.S.G.S. QUADRANGLE LONG BRANCH, NJ; PHOTOREVISED 1981  
 CONTOUR INTERVAL 20 FEET SCALE 1 INCH = 2000 FEET

UST LATITUDE: N 40 Deg. 17 Min. 45 Sec.  
 UST LONGITUDE: W 74 Deg. 6 Min. 45 Sec.

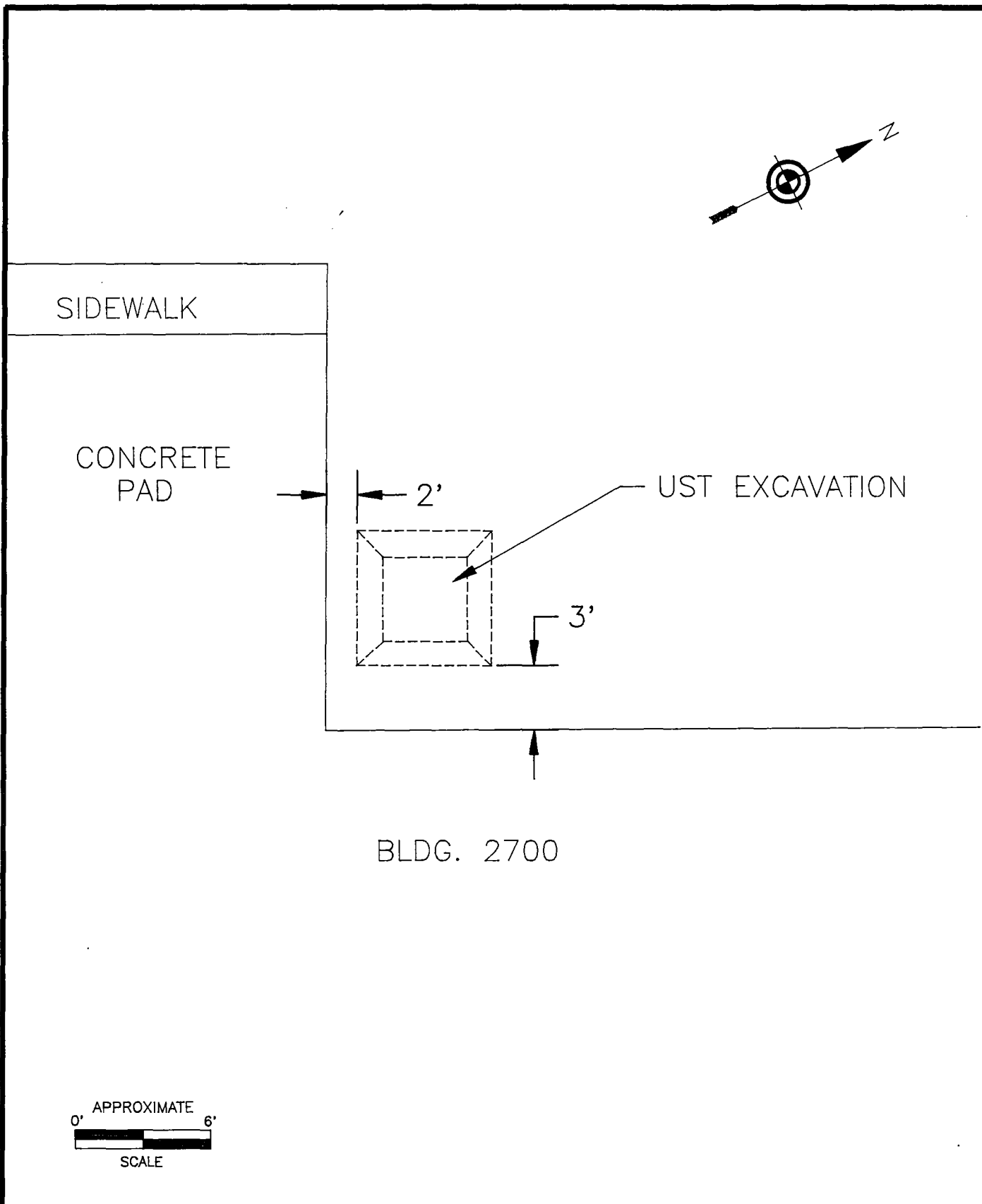
NEW JERSEY  
 QUADRANGLE LOCATION

**WESTON**  
 MANAGERS DESIGNERS/CONSULTANTS

**FIGURE 1-1**  
**FACILITY LOCATION MAP**  
**U.S. ARMY - DIRECTORATE OF PUBLIC WORKS**  
**FORT MONMOUTH, NEW JERSEY**

C08-ESPC.DRW





REVISION # 1 DATE: 7/25/94 PLOT NAME: DEH-2700.DWG DRAWN BY: B. MAC



PROJECT NAME:  
UNDERGROUND STORAGE TANK CLOSURE  
AND SITE INVESTIGATION REPORT  
BUILDING 2700-4 - TANK NO. 62  
FORT MONMOUTH, NEW JERSEY  
CLIENT NAME: U.S. ARMY - FORT MONMOUTH  
DIRECTORATE OF PUBLIC WORKS

SITE PLAN

DATE: 6/10/94

FIGURE #: 1-2

Precambrian and lower Paleozoic rocks (Zapeczka, 1989). These sediments, predominantly derived from deltaic, shallow marine, and continental shelf environments, date from Cretaceous through the Quaternary Periods. The mineralogy ranges from quartz to glauconite.

The formations record several major transgressive/regressive cycles and contain units which are generally thicker to the southeast and reflect a deeper water environment. Over 20 regional geologic units are present within the sediments of the Coastal Plain. Regressive, upward-coarsening deposits are usually aquifers (e.g., Englishtown and Kirkwood Formations, and the Cohansey Sand) while the transgressive deposits act as confining units (e.g., the Merchantville, Marshalltown, and Navesink Formations). The individual thicknesses for these units vary greatly (i.e., from several feet to several hundred feet). The Coastal Plain deposits thicken to the southeast from the Fall Line to greater than 6,500 feet in Cape May County (Brown and Zapeczka, 1990).

### Local Geology

Based on the regional geologic map (Jablonski, 1968), the Cretaceous age Red Bank and Tinton Sands outcrop at the Charles Wood area. The Red Bank sand conformably overlies the Navesink Formation and dips to the southeast at 35 feet per mile. The upper member (Shrewsbury) of the Red Bank sand is a yellowish-gray to reddish-brown clayey, medium-to-course-grained sand that contains abundant rock fragments, minor mica and glauconite (Jablonski). The lower member (Sandy Hook) is a dark grey to black, medium-to-fine grained sand with abundant clay, mica, and glauconite.

The Tinton sand conformably overlies the Red Bank Sand and ranges from a clayey, medium-to-very coarse grained feldspathic quartz and glauconite sand to a glauconitic coarse sand. The color varies from dark yellowish-orange or light brown to moderate brown and from light olive to grayish olive. Glauconite may constitute 60 to 80 percent of the sand fraction in the upper part of the unit (Minard, 1969). The upper part of the Tinton is often highly oxidized and iron-oxide encrusted (Minard).

Over the last 80 years, the natural topography of Fort Monmouth has been altered by excavation and filling activities by the military. Topographic elevations for the Charles Wood area range from five feet above mean sea level (MSL) to 31 feet above MSL.

### 1.3.2 Hydrogeological Setting

#### Hydrogeology

The water table aquifer at the Charles Wood area is identified as part of the "composite confining units", or minor aquifers. The minor aquifers include the Navesink formation, Red

Bank Sand, Tinton Sand, Hornerstown Sand, Vincentown Formation, Manasquan Formation, Shark River Formation, Piney Point Formation, and the basal clay of the Kirkwood Formation.

Based on records from wells drilled at the Charles Wood area, ground water is typically encountered at depths of two to nine feet below ground surface (BGS). According to Jablonski, wells drilled in the Red Bank and Tinton Sands may produce from 2 to 25 gallons per minute (gpm). Some well owners have reported acidic water that requires treatment to remove iron.

Shallow groundwater is locally influenced within the Charles Wood area by the following factors:

- tidal influence (based on proximity to the Atlantic Ocean, rivers and tributaries),
- topography,
- nature of the fill material within the Charles Wood area,
- presence of clay and silt lenses in the natural overburden deposits, and
- local groundwater recharge areas (i.e. stream, lakes).

Due to the fluvial nature of the overburden deposits (i.e. sand and clay lenses), shallow groundwater flow direction is best determined on a case-by-case basis. This is consistent with lithologies observed in borings installed within the Charles Wood area, which primarily consisted of fine-to-medium grained sands, with occasional lenses or laminations of silt and/or clay.

Based on information obtained from the Building 2567 monitoring wells, groundwater flows in a southeasterly direction. Building No. 2567 is located approximately 2,000 feet east of Building 2700.4. Building 2700.4 lies directly southeast of the former UST No. 62 location. On 19 July 1994, one well was installed to assess groundwater conditions. Groundwater sampling had not been performed at the time this report was completed. Monitor well permit, log and well records are provided in Appendix C.

Building 2700.4 is less than 1 mile north of Wampum Brook, the nearest water body. The Atlantic Ocean is located approximately 6 miles east of the site.

### **1.3.3 Offsite Groundwater Usage**

In compliance with the NJDEP regulations, WESTON conducted a well search to identify all irrigation, monitoring, domestic, industrial and public supply wells within one half mile of U.S. Army Fort Monmouth, Charles Wood area. The file search produced records for 68 wells. The well search summary table includes the following information on surrounding wells: well identification number; well owner; well address; total depth (feet BGS); casing length (feet); static water level elevation (feet BGS); use code; and NJDEP permit number. In addition, a summary table of all U.S. Army wells located at Fort Monmouth, which includes the following information: well number; NJDEP permit number; New Jersey State Plane Coordinates; casing

elevation; elevation of ground surface; and, well records for the nearest identified offsite well have been included, if available. This information is included in Appendix D.

A review of the well records indicated that the majority of the wells within the area of concern are used for irrigation purposes. A domestic well (Permit Number 29-19540), owned by Wolf Press/<sup>Redacted - Privacy Act</sup> is the closest to the site in the downgradient direction. The well is located at 1138 Pinebrook Road, approximately 2,700 feet southeast of the site. A production well, owned by U.S. Army Fort Monmouth is the closest well, located approximately 1,000 feet east of the site.

#### **1.4 HEALTH AND SAFETY**

Before, during, and after all activities, hazards at the work site which may have posed a threat to the health and safety of all personnel who were involved with, or were affected by, the decommissioning of the UST system were minimized. All areas which posed, or may have been suspected to pose a vapor hazard were monitored by a qualified individual utilizing approved equipment. The trained individual ascertained if the area was properly vented to render the area safe, as defined by OSHA.

#### **1.5 REMOVAL OF UNDERGROUND STORAGE TANK**

##### **1.5.1 General Procedures**

On 10 September 1993, UST No. 62 was closed by removal at Building 2700.4 in the Charles Wood area of Fort Monmouth. Tank closure activities were conducted as follows:

- All underground obstructions (utilities,... etc.) were marked out by the contractor performing the closure prior to excavation activities.
- Surface materials (i.e, asphalt, concrete, etc...) were excavated and staged separate from all soils. These materials were later recycled in accordance with all applicable laws and regulations.
- The tank atmosphere was inerted.
- Access ways on top of the tank were opened.
- Licensed tank closure contractor personnel entered the tank to visually inspect and manually clean the insides of the tank.
- All wastes (tank bottom sludge and tank rinsate) generated during cleaning were collected and disposed.

- Post closure soil samples were collected for laboratory analysis.
- The tank was removed from the excavation and staged on plastic sheeting.
- Approximately 35 tons of potentially contaminated soil was excavated during the tank closure, and transported to the Charles Wood area hazardous waste accumulation site for storage prior to ultimate disposal/reuse at Soil Remediation of Philadelphia.
- The excavation was backfilled with clean fill material to the original surface grade.
- A Sub-Surface Evaluator from the DPW was present during all closure activities.

### **1.5.2 Underground Storage Tank Excavation**

Soil was excavated to expose the UST and the associated piping. The piping was not removed/disturbed until all free product was drained into the UST. The UST was rendered vapor free by purging prior to any cutting or access. After removal of the associated piping, a manway from the UST was made to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal. All of the openings in the tank were plugged except for one hole (manway).

After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for cracks, corrosion or puncture holes. The presence or absence of holes was documented by the Sub-Surface Evaluator. Several corrosion holes of approximately 1/16-inch diameter were noted. A discharge was reported to the NJDEP by the DPW on 7 March 1992 (Case No. 92-3-7-1047-43). No groundwater was present in the tank excavation.

Soils surrounding the UST were screened visually and with a Photoionization Detector (PID) for evidence of contamination. Approximately 35 tons of potentially contaminated soil were removed from the area surrounding UST No. 62. The potentially contaminated soil was transported to the Charles Wood area hazardous waste accumulation site for storage prior to ultimate disposal/reuse at Soil Remediation of Philadelphia.

### **1.6 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL**

The tank was transported by Serv-Air, Inc. to Mazza and Sons, Inc., for recycling in compliance with all applicable regulations and laws. A copy of the weighmaster certificate is enclosed in Appendix E.



The contractor labelled the UST prior to transport with the following information:

- Site of origin,
- Contact person,
- NJDEP UST Facility ID number,
- Name of transporter/contact person, and
- Destination site/contact person.

### **1.7 MANAGEMENT OF EXCAVATED SOIL**

Approximately 35 tons of potentially contaminated soil were removed from the area surrounding UST No. 62 and placed on and covered with polyethylene sheets. Potentially contaminated soils were stockpiled separately from other excavated material. Potentially contaminated soils were transported to the Charles Wood area hazardous waste accumulation site for storage prior to ultimate disposal at Soil Remediation of Philadelphia. All soils free of evidence of contamination were backfilled into the excavation following removal of the UST.

## **SECTION 2.0**

### **SITE INVESTIGATION ACTIVITIES**

#### **2.1 OVERVIEW**

The Site Investigation was managed and carried out by U.S ARMY DPW personnel. All analyses were performed and reported by FMEL and 21st Century Environmental Laboratories, which are NJDEP-certified testing laboratories. All sampling was performed under the direct supervision of a NJDEP Certified Sub-Surface Evaluator according to the methods described in the NJDEP Field Sampling Procedures Manual (May 1992). Sampling frequency and parameters analyzed complied with the NJDEP-BUST document "Technical Requirements for Site Remediation" (June 1993) which was the applicable regulation at the date of closure. All records of the Site Investigation activities are maintained by Fort Monmouth DPW: Environmental Office.

The following Parties participated in Closure and Site Investigation activities:

- Closure Contractor #1: All Service Environmental, Inc.  
Contact Person: Mark Turoff  
Phone Number: (914) 365-0800  
NJDEP Company Certification No.: 3100194
- Closure Contractor #2: Serv-Air, Inc.  
HazMat Response Team  
Contact Person: Tom Berger  
Phone Number: (908) 532-6147
- Subsurface Evaluator: Charles Appleby  
Employer: U.S. Army, Fort Monmouth  
Phone Number: (908) 532-6224  
NJDEP Certification No.: 2056
- Analytical Laboratory: 21st Century Environmental Laboratory  
Contact Person: Richard W. Lynch  
Phone Number: (609) 467-9521  
NJDEP Laboratory Certification No.: 08031
- Analytical Laboratory: U.S. Army Fort Monmouth Environmental Testing Laboratory  
Contact Person: Brian McKee  
Phone Number: (609) 532-4359  
NJDEP Laboratory Certification No.: 13461

## **2.2 FIELD SCREENING/MONITORING**

All soils that were excavated as part of the removal of the UST were screened using a PID, for evidence of contamination. Soils were also inspected visually for evidence of contamination (staining, free product, etc.). Soils on the sidewalls and base of the excavation were screened with a PID by an individual under the direct supervision of the NJDEP Certified Sub-Surface Evaluator. Evidence of contamination was noted during excavation of soils surrounding the UST and soils were subsequently removed.

## **2.3 SOIL SAMPLING**

On 10 September 1993, following the removal of UST No. 62, five post-excavation samples were collected for analysis by FMEL for TPHC.

On 13 September 1993, one sample, Sample No. Site E, was collected for analysis by 21st Century Environmental Laboratory for VO+15 and BN+15. The sample, designated Site E, was analyzed because the TPHC result for the sample exceeded 1,000 mg/kg.

A summary of sampling activities including parameters analyzed is provided in Table 2-1. Figure 2-1 depicts the location of the post-excavation soil samples. The post-excavation soil samples were collected using decontaminated stainless steel scoops. Following soil sampling activities, the samples were chilled and delivered to the applicable testing laboratory.

The frequency of sampling and parameters analyzed were consistent with the applicable NJDEP regulations at the date of closure, which were the "Technical Requirements for Site Remediation" (N.J.A.C. 7:26E-1 et seq. dated June 1993).

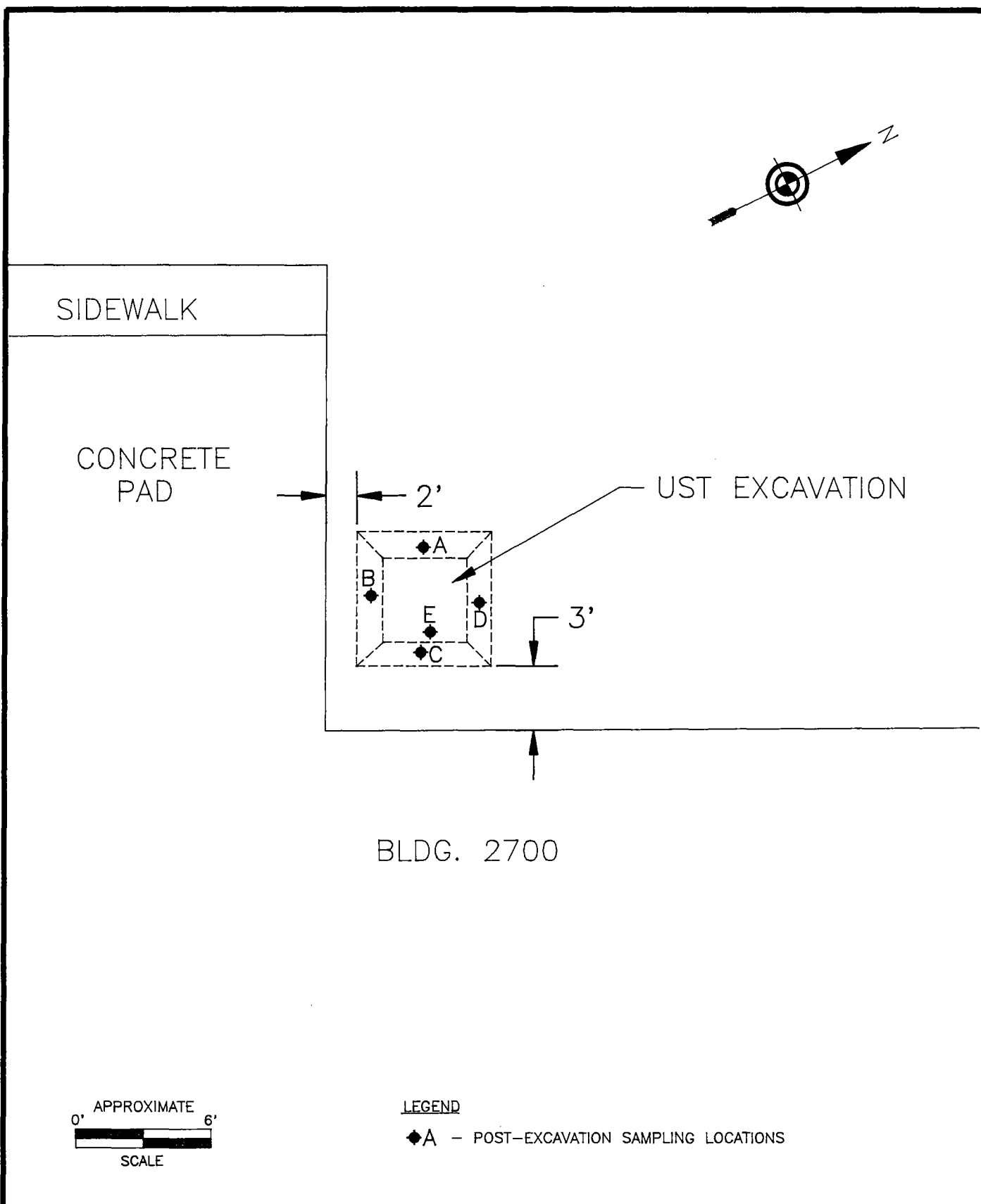


**TABLE 2-1**  
**SUMMARY OF POST-EXCAVATION SAMPLING**  
**UST NO. 62**  
**BUILDING NO. 2700.4**  
**FORT MONMOUTH, NEW JERSEY**

| Sample ID No.                | Date of Collection | Matrix | Sample Type     | Analytical Parameters | Sampling Method       |
|------------------------------|--------------------|--------|-----------------|-----------------------|-----------------------|
| Site A                       | 9/10/93            | Soil   | Post-Excavation | TPHC                  | Stainless Steel Scoop |
| Site B                       | 9/10/93            | Soil   | Post-Excavation | TPHC                  | Stainless Steel Scoop |
| Site C                       | 9/10/93            | Soil   | Post-Excavation | TPHC                  | Stainless Steel Scoop |
| Site D                       | 9/10/93            | Soil   | Post-Excavation | TPHC                  | Stainless Steel Scoop |
| Site E                       | 9/10/93            | Soil   | Post-Excavation | TPHC                  | Stainless Steel Scoop |
| Site F (Duplicate of site E) | 9/10/93            | Soil   | Post-Excavation | TPHC                  | Stainless Steel Scoop |
| Site E (Pit Bottom)          | 9/13/93            | Soil   | Post-Excavation | BN + 15, VO + 15      | Stainless Steel Scoop |

**Notes:**

- TPHC: - Total Petroleum Hydrocarbons
- BN+15 - Base Neutral Analysis plus 15 Tentatively Identified Compounds
- VO+15 - Volatile Organic Analysis plus 15 Tentatively Identified Compounds



REVISION # 1 DATE: 7/25/94 PLOT NAME: DEH-2700.DWG DRAWN BY: B. MAC



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UNDERGROUND STORAGE TANK CLOSURE  
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BUILDING 2700-4 - TANK NO. 62  
FORT MONMOUTH, NEW JERSEY  
CLIENT NAME: U.S. ARMY - FORT MONMOUTH  
DIRECTORATE OF PUBLIC WORKS

POST-EXCAVATION  
SAMPLING LOCATIONS

DATE: 6/10/94

FIGURE #: 2-1

## SECTION 3.0

### CONCLUSIONS AND RECOMMENDATIONS

#### 3.1 SOIL SAMPLING RESULTS

To evaluate soil conditions following removal of the UST and associated soils, the post-excavation sample results were compared to NJDEP ITGW and RDC Soil Cleanup Criteria (N.J.A.C. 7:26D and revisions dated 3 February 1994). Summaries of analytical results for soils are presented in Table No. 3-1.

A summary of the analytical methods used and quality assurance information is provided in Table 3-2. The analytical data package summary is provided in Appendix F. The full data package, including associated quality control and chromatograph data is on file at U.S. Army Fort Monmouth, DPW.

In accordance with NJDEP requirements, those samples which exhibited a concentration of TPHC exceeding 1,000 milligrams per kilogram (mg/kg) shall be analyzed for volatile organic compounds plus 15 tentatively identified compounds (VO+15). The results of the 10 September 1993 soil analysis indicated a concentration of TPHC (7,520 mg/kg) in the sample designated Site E, which exceeded the NJDEP requirement of 1,000 mg/kg.

On 13 September 1993, a sample was collected from the same location as Site E and analyzed for VO+15 and BN+15. The results of the 13 September 1993 soil analysis indicated non-detectable concentrations of contaminants or concentrations of contaminants below NJDEP ITGW and RDC Soil Cleanup Criteria.

#### 3.2 CONCLUSIONS AND RECOMMENDATIONS:

On 10 September 1993, DPW successfully closed UST No. 62 at Building 2700.4 in the Charles Wood area of U.S. Army Fort Monmouth.

Based on the analytical testing results indicating that all potentially contaminated soils have been removed, no further action is recommended for soils.

In accordance with N.J.A.C. 7:26E-1 et seq. a minimum of one monitoring well will be installed in the excavation. The well will be installed, developed and sampled in accordance with NJDEP requirements outlined in the Field Sampling Procedures Manual, May 1992. Groundwater samples will be analyzed for volatile organics with a library search, and base neutral extractable compounds with a library search.

Results of the testing and recommendations for groundwater will be provided in an addendum to this report.

TABLE 3-1

**SUMMARY OF ANALYTICAL RESULTS  
UST NO. 62  
BUILDING NO. 2700.4  
FORT MONMOUTH, NEW JERSEY**

| Sample ID No.                     | Site A  | Site B  | Site C  | Site D  | Site E  | Site F (Duplicate of Site E) | Site E (Pit Bottom) | NJDEP<br>Impact to<br>Groundwater<br>Soil Cleanup<br>Criteria | Residential<br>Direct<br>Contact<br>Soil<br>Cleanup<br>Criteria |
|-----------------------------------|---------|---------|---------|---------|---------|------------------------------|---------------------|---------------------------------------------------------------|-----------------------------------------------------------------|
| Lab ID No.                        | 1268.1  | 1268.2  | 1268.3  | 1268.4  | 1268.5  | 1268.6                       | A4024               |                                                               |                                                                 |
| Matrix                            | Soil    | Soil    | Soil    | Soil    | Soil    | Soil                         | Soil                |                                                               |                                                                 |
| Sample Type                       | PE      | PE      | PE      | PE      | PE      | PE                           | PE                  |                                                               |                                                                 |
| Date of Collection                | 9/10/93 | 9/10/93 | 9/10/93 | 9/10/93 | 9/10/93 | 9/10/93                      | 9/13/93             |                                                               |                                                                 |
| Analytical Parameters             | Units   |         |         |         |         |                              |                     |                                                               |                                                                 |
| TPHC                              | mg/kg   | ND      | 11.7    | ND      | 309     | 7,520                        | 7,440               | NR                                                            | NC                                                              |
| <b>Base Neutral Compounds</b>     |         |         |         |         |         |                              |                     |                                                               |                                                                 |
| Naphthalene                       | mg/kg   | NR      | NR      | NR      | NR      | NR                           | NR                  | 6.9 J                                                         | 100                                                             |
| 2-Methylnaphthalene               | mg/kg   | NR      | NR      | NR      | NR      | NR                           | NR                  | 43                                                            | NC                                                              |
| Dibenzofuran                      | mg/kg   | NR      | NR      | NR      | NR      | NR                           | NR                  | 2.1 J                                                         | NC                                                              |
| Fluorene                          | mg/kg   | NR      | NR      | NR      | NR      | NR                           | NR                  | 5.4 J                                                         | 100                                                             |
| Phenanthrene                      | mg/kg   | NR      | NR      | NR      | NR      | NR                           | NR                  | 11 J                                                          | NC                                                              |
| <b>Volatile Organic Compounds</b> |         |         |         |         |         |                              |                     |                                                               |                                                                 |
| Methylene Chloride                | mg/kg   | NR      | NR      | NR      | NR      | NR                           | NR                  | 0.93 B                                                        | 10                                                              |
| Xylenes (Total)                   | mg/kg   | NR      | NR      | NR      | NR      | NR                           | NR                  | 5.3                                                           | 10                                                              |
| Toluene                           | mg/kg   | NR      | NR      | NR      | NR      | NR                           | NR                  | 0.86                                                          | 500                                                             |
| Ethylbenzene                      | mg/kg   | NR      | NR      | NR      | NR      | NR                           | NR                  | 1.0                                                           | 100                                                             |

## Notes:

- TPHC: - Total Petroleum hydrocarbons.
- mg/kg: - Milligrams per Kilograms.
- PE: - Post Excavation.
- NC: - No cleanup criterion has been proposed for TPHC by NJDEP.
- J: - Indicates an estimated amount.
- NR: - Not requested.
- NC: - No subsurface cleanup criterion has been proposed for this analyte by NJDEP.
- B: - Indicates also present in blank.

**TABLE 3-2**  
**ANALYTICAL METHODS/QUALITY ASSURANCE SUMMARY TABLE**  
**UST NO. 62**  
**BUILDING NO. 2700.4**  
**FORT MONMOUTH, NEW JERSEY**

| Analytical Parameter | No. of Samples Collected | Matrix | Date Collected | Date Analysis Completed | Preservation Method | USEPA SW-846 Analytical Method |
|----------------------|--------------------------|--------|----------------|-------------------------|---------------------|--------------------------------|
| TPHC                 | 6                        | S      | 9/10/93        | 9/10/93                 | Cool to 4°C         | 418.1                          |
| BNA                  | 1                        | S      | 9/10/93        | 9/14/93                 | Cool to 4°C         | 8270                           |
| VOC                  | 1                        | S      | 9/10/93        | 9/14/93                 | Cool to 4°C         | USEPA-CLP-IFB                  |
| VOC                  | 1                        | S      | 9/13/93        | 9/14/93                 | Cool to 4°C         | USEPA-CLP-IFB                  |
| BNA                  | 1                        | S      | 9/13/93        | 9/14/93                 | Cool to 4°C         | 8270                           |

**Notes:**

TPHC - Total Petroleum Hydrocarbons.

C - Celsius.

BNA - Base Neutral Analysis.

VOC - Volatile Organic Compound Analysis.



## APPENDIX A

### NJDEP-BUST CLOSURE APPROVAL, CORRESPONDENCE WITH NJDEP

STATE OF NEW JERSEY  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WATER RESOURCES  
BUREAU OF UNDERGROUND STORAGE TANKS  
TANK MANAGEMENT SECTION

CN 029, 401 EAST STATE STREET  
TRENTON, N.J. 08625-0029

FOR STATE USE ONLY

UST # \_\_\_\_\_  
Date Rec'd \_\_\_\_\_  
CA # \_\_\_\_\_  
Staff \_\_\_\_\_

**UNDERGROUND STORAGE TANK CLOSURE PLAN**  
**APPROVAL APPLICATION**

*Under the provisions of the Underground Storage  
of Hazardous Substances Act  
in accordance with N.J.A.C. 7:14B-9 et seq.*

This application form shall be used by all applicants who plan to close Underground Storage Tank Systems pursuant to N.J.A.C. 7:14B-9 et seq.

**INSTRUCTIONS:**

- Before completing application form please refer to the attached Application Instruction Sheet.
- Please print legibly or type.
- Fill in all appropriate blanks. This application form requires that additional sheets be attached for some of the information requested. You may call the Bureau of Underground Storage Tanks/Tank Management Section (609/984-3156) for assistance.
- Return one original of this form (including all attachments required) and a copy of the complete Standard Reporting Form (SRF) to the address above. You must sign all forms as required and attach a check for the proper fee (see the fee schedule on Page 3). Make check payable to the Treasurer, State of New Jersey.
- If the subject facility is not registered the Closure Plan will not be approved.
- Please Note: Make sure that all required information on the Standard Reporting Form (SRF) is submitted. The SRF and this Closure Plan Application must be submitted together.

Date of Application 6/6/93

FACILITY REGISTRATION #

81515-62

**I. FACILITY NAME AND ADDRESS**

U.S. Army Fort Monmouth

DEH Bldg. 167

Fort Monmouth NJ 07703

Telephone No. (908) 532-1475

II. THIS CLOSURE PLAN IS FOR:

A. Substance stored in subject tank(s):

1. Petroleum Products

Indicate Type of Product diesel  
(Write out product name; e.g.)

- a. Gasoline, Jet Fuel, or Kerosene
- b. Heating Oil (#2, 4, 6), or Diesel
- c. Waste Oil (Please indicate total storage capacity of waste oil at the facility [including the tank(s) being closed]) 550 gals.

2. Hazardous Substances other than Petroleum Products (Describe)

Indicate Type of Product \_\_\_\_\_  
(Write out product name; add sheet if necessary.)

B. Type of Activity: (Circle one)

1. Abandonment of Tank(s)

Attach the closure plan for abandonment, as required by N.J.A.C. 7:14B-9.2(b) or 9.3(b), which must contain the following items:

- a. Implementation schedule (3 copies per N.J.A.C. 7:14B-9.2(a)3)
- b. Site assessment plan
- c. Tank decommissioning plan
- d. A site map
- e. Attach all justification for abandonment-in-place as required by N.J.A.C. 7:14-9.1(d). Attach the certification statement (on the back page) for abandonment-in-place, if applicable.

2. Removal of Tank(s)

Attach the closure plan for removal as required by N.J.A.C. 7:14B-9.2(b) or 9.3(b). The following items must be included:

- ☒ a. Implementation schedule (3 copies)
- ☒ b. Site assessment plan
- ☒ c. Tank decommissioning plan
- ☒ d. A site map

3. Temporary Closure

Indicate which situation applies and attach appropriate documentation.

- a. ☐ Temporary closure for 12 months or less is subject to requirements of N.J.A.C. 7:14B-9.1(a).
- b. ☐ Requesting an extension of temporary closure for more than 12 months per N.J.A.C. 7:14B-9.1(b) must perform site assessment and submit results.

4. Change in Service

Attach documentation that the tank system being changed from the storage of a regulated to a non-regulated substance has been emptied and cleaned and that a site assessment has been performed, as required by N.J.A.C. 7:14B-9.1(e).



III. FEE SCHEDULE

Check the activities below that apply, calculate the Total Fee and submit that amount with this application. Make checks payable to Treasurer, State of New Jersey. Public schools and religious and charitable institutions are exempt from the fees. The owner or operator shall submit a separate fee for each excavation where an activity occurs.

- A. Activities Which Require a Site Assessment 120.00 \$ 120.00
1. Removal or Abandonment without exemption to site assessment requirement
  2. Change in service from a regulated substance to a non-regulated substance
  3. Extension of period of Temporary Closure
- B. Activities Not Requiring a Site Assessment \_\_\_\_\_ \$ 80.00
1. Removal or abandonment with valid exemption
- C. Additional Activities
1. Change in service from one regulated substance to another regulated substance NO FEE

APPLICATION REVIEW FEE (activities in A, B, C) + \$ 50.00

**TOTAL FEE DUE** \$ 170.00

- IV. THE BUREAU OF UNDERGROUND STORAGE TANKS WILL REVIEW THE CLOSURE PLAN FOR COMPLETENESS AND APPROPRIATENESS AS SPECIFIED IN SUBCHAPTER 9 OF THE UST REGULATIONS. PLAN APPROVAL WILL INDICATE THAT THE OWNER OR OPERATOR MAY PROCEED WITH THE CLOSURE. FINAL APPROVAL OF THE CLOSURE IS NOT IMPLIED. ALL APPROPRIATE AND APPLICABLE PERMITS, LICENSES AND CERTIFICATES REQUIRED FOR ANY OF THE ABOVE ACTIVITIES FROM ANY LOCAL, STATE AND/OR FEDERAL AGENCIES MUST BE OBTAINED SEPARATELY FROM THIS APPLICATION.

**THE SITE ASSESSMENT SAMPLING AND ANALYTICAL REQUIREMENTS WILL BE SENT WITH THE APPROVAL TO PROCEED.**

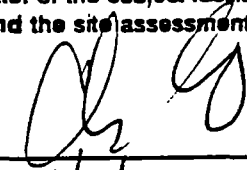
**NOTE:** Notice of Approval to Proceed or Disapproval will be mailed to the facility address unless some other address is specified here.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SIGNATURE OF CONTACT PERSON

This application form must be signed by a contact person of the owner or operator of the subject facility. The contact person should have overall knowledge of tank decommissioning procedures and the site assessment requirements applicable to the tank closure which is the subject of this application.

NAME (Print or Type) CHARLES M. APPLEBY

SIGNATURE 

TITLE ENVIRONMENTAL PROTECTION SPEC.

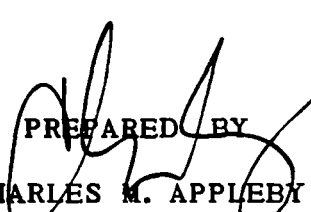
DATE 6/6/93

**US ARMY  
FORT MONMOUTH NJ**

**DIRECTORATE OF  
ENGINEERING AND HOUSING  
ENVIRONMENTAL OFFICE**

**UNDERGROUND STORAGE TANK  
CLOSURE PLAN**

**BUILDING 2700  
SUBSTATION #4**

  
PREPARED BY

**CHARLES M. APPLEBY  
ENVIRONMENTAL PROTECTION SPECIALIST  
NJDEPE UST SUBSURFACE CERTIFICATION # 002056**

**JUNE 6, 1993**

U.S. Army  
DEH Bldg. 167  
SELFME-EH  
Fort Monmouth, NJ 07703

Date: 3, JUNE 1993  
Building #: 2700 sub.4  
NJDEPE UST Reg. #:0081515- 62  
NJDEPE CASE # 92-3-7-1047

## **UNDERGROUND STORAGE TANK (UST) DECOMMISSIONING / CLOSURE PLAN**

### **A. General Requirements:**

All activities associated with the decommissioning of any underground storage tank (UST) shall comply with all applicable Federal, State and Local laws and ordinances. These laws include but are not limited to: NJAC 7:14B et seq., 5:23 et seq. and OSHA 1910.146, 1910.120. All permits including but not limited to this document, the NJDEP Closure Plan Approval Package, etc..., shall be posted on site for inspection. The Contractor conducting the decommissioning activities shall be registered and certified by the NJDEP for performing said activities.

### **B. Safety and Health:**

Before, during, and after all activities, the work site shall be made free of all hazards which may pose a threat to the health and safety of all personnel who are involved with, or are affected by, the decommissioning of the UST. All areas which pose, or may be suspected of posing, a vapor hazard shall be monitored by a qualified individual utilizing approved equipment. This individual will ascertain if the area is properly vented to render the area safe, as defined by OSHA. THIS SITE IS AN NJDEPE REPORTED SPILL SITE AND ALL OSHA REQUIREMENTS WILL BE FOLLOWED. THIS INCLUDES A SITE SPECIFIC HEALTH AND SAFETY PLAN. ALL WORKERS WILL HAVE A MINIMUM OF 40 HOURS H&S TRAINING.

### **C. UST Excavation:**

1. All underground obstructions (utilities,... etc.) shall be marked out by the contractor performing the excavation.
2. All activities shall be carried out with the greatest regard to safety and health and the safeguarding of the environment.
3. All excavated soils will be evaluated as to the possibility of contamination. Soils suspected to be contaminated with product shall be staged on poly-sheeting separate from soils not suspected to be contaminated (see section E Excavated Soils management).
4. Surface materials (ie. asphalt, concrete, etc...) shall be excavated and staged separate from all soils.

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DEH Bldg. 167  
SELFME-EH  
Fort Monmouth, NJ 07703

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NJDEPE CASE # 92-3-7-1047

5. Soil will be excavated to expose the UST and associated piping. The piping shall not be removed/disturbed until all free product is drained into the UST. The UST will be rendered vapor free by purging or addition of dry ice prior to any cutting or access. After the removal of the associated piping, a manway will be made in the UST to allow for the proper cleaning of the UST. The UST will be completely emptied of all liquids prior to removal of the UST from the ground. All of the openings in the tank will be plugged except for one vent hole.

6. After the UST is removed from the ground, it will be staged on poly-sheeting and examined for corrosion holes. The presence or absence of corrosion holes will be documented by the Sub-Surface Evaluator. If corrosion holes are observed, or if upon inspection of the excavation site evidence of a discharge to the environment exists, the NJDEPE hotline shall be notified at (609)292-7172.

7. In the event of a discharge to the environment, additional soils will be excavated as needed. Site assessment activities under the direct supervision of the Sub-Surface Evaluator will determine to what extent the contractor will excavate.

8. After completion of the Site Assessment activities, the excavation will be backfilled to grade with noncontaminated soils from the site and additional certified clean fill provided by the contractor.

**D. UST Transport / Disposal:**

1. The tank will be transported and disposed / recycled in compliance with all applicable regulations and laws.

2. The contractor shall label the tank with the following information:

- a. site of origin
- b. generator / contact person
- c. NJDEPE UST ID number
- d. product previously stored
- e. name of transporter / contract person
- f. destination site / contact person
- g. other information as required

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NJDEPE CASE # 92-3-7-1047

3. The contractor shall provide Fort Monmouth with sufficient documentation certifying that transport / disposal (recycling) of the tank was completed according to all applicable Federal and State regulations.

**E. Excavated Soils Management:**

1. All excavated soils suspected to be contaminated will be transported, by the contractor, to a designated staging area within Fort Monmouth. The designated area will contain the soils and direct all stormwater runoff away from any contact with the soil.

2. All soils stored in the designated staging areas will be maintained in piles no larger than 100 cubic yards each. Each pile will be lined and covered with poly-sheeting and weighted to ensure proper containment.

3. Each soil pile will be sampled and analyzed for waste classification as outlined in the NJDEPE document titled "Management of Excavated Soils" dated August 17, 1990.

4. All soils categorized as Hazardous waste or nonhazardous waste will be managed as such, in accordance with N.J.A.C. 7:26-1 et seq..

5. All soils that contain levels of contaminants below the Category 3 soil limits will be used in accordance with Federal and State requirements.

**F. Changes / Authorizations:**

All deviations in activities related to the closure of a UST as outlined in this document shall require prior authorization from the NJDEPE-DWR-BUST.

U.S. Army  
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SELFME-EH  
Fort Monmouth, NJ 07703

Date: 3, JUNE 1993  
Building #: 2700 sub.4  
NJDEPE UST Reg. #:0081515- 62  
NJDEPE CASE # 92-3-7-1047

## **UNDERGROUND STORAGE TANK (UST) SITE ASSESSMENT PLAN**

### **General:**

This site specific assessment plan will be managed and carried out by U.S. Army DEH and Serv-Air Inc. personnel. All analyses will be performed and reported by NJDEPE certified testing laboratories. All monitoring wells will be installed by NJDEPE licensed well drillers. All sampling will be performed under the direct supervision of a NJDEPE Certified Sub-Surface Evaluator and according to the methods described in the 1992 NJDEP Field Sampling Procedures Manual. All records of the Site Assessment will be maintained by DEH and submitted to the NJDEPE-DWR-Bust in accordance with NJAC 7:14B-9.2 and 9.3.

### **PHASE I UST DECOMMISSIONING**

#### **A. Initial Soil Excavation:**

1. Soil will be excavated from the UST site and screened utilizing a Photo Ionization Detector (PID) and/or a Flame Ionization Detector (FID).
2. All soils suspected to be contaminated will be treated in accordance with the UST Decommissioning Plan.

#### **B. Continued Excavation:**

1. Excavation of suspect contaminated soil will continue until one of the following situations is encountered:
  - a. groundwater
  - b. excavated soils no longer exhibit characteristics of contamination determined in the field as determined by the Sub-Surface Evaluator
  - c. excavation equipment can no longer remove soils due to the depth of the excavation or other restrictive cause.

U.S. Army  
DEH Bldg. 167  
SELF-M-EH  
Fort Monmouth, NJ 07703

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NJDEPE CASE # 92-3-7-1047

**PHASE II  
Site Survey**

**A. Vapor Screening:**

1. An individual under the direct supervision of a NJDEPE Sub-Surface Evaluator and trained in the operation of a FID and/or PID shall evaluate the sides and pit bottom of the excavation.
2. All observed instrument readings will be documented and included in the Site Assessment Survey report. This documentation will include all factory and daily calibrations of the instrument.

**PHASE III  
Site Sampling**

**A. Soil samples will be collected from the UST excavation and analyzed according to the following schedule:**

| PRODUCT           | SIZE (gal.) | # TPHC SAMPLES | VOA +15<br>(if TPHC >10000) |
|-------------------|-------------|----------------|-----------------------------|
| HEATING OIL       | 550         | 6              | 6                           |
| FIELD BLANKS      |             | 1              | 1                           |
| DUPLICATE SAMPLES |             | 1              | 1                           |
| TOTAL # SAMPLES   |             | 8              | 8                           |

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B. Soil samples will be collected from the Pipe excavation at the same time as UST pit sampling and analyzed according to the following schedule:

| PRODUCT           | LENGTH OF PIPING | # TPHC SAMPLES | VOA +15<br>(if TPHC >10000) |
|-------------------|------------------|----------------|-----------------------------|
| HEATING OIL       | 20 FEET          | 2              | 2                           |
| FIELD BLANKS      |                  | 0              | 0                           |
| DUPLICATE SAMPLES |                  | 0              | 0                           |
| TOTAL # SAMPLES   |                  | 2              | 2                           |

C. All TPHC samples will be taken in the native soil below the bedding material. The sample locations should be along the mid-lines of the tank outline except for at least two of the samples which should be taken within one foot of each of the two highest field survey readings. All of the soil samples should be discrete samples taken within a 6" vertical interval. All samples will be collected by utilizing laboratory decontaminated stainless steel trowels dedicated to each sample location. All VOA+15 samples will be taken within 24 hours of UST excavation at a depth of 0-6" with the use of a laboratory decontaminated stainless steel core sampler. Each VOA+15 sample will be screened with an FID and/or PID and recorded immediately after collection.

D. The excavations of USTs containing #2 Fuel Oil will remain open until laboratory results determine all TPHC samples are less than 1000 ppm. If levels greater than 1000 ppm are reported, further excavation and resampling may be requested by the Sub-Surface Evaluator for those contaminated areas. If further excavation is not possible, additional VOA+15 analyses on 25% of the TPHC samples with the highest results will be performed and the excavation will be filled to grade with certified clean fill. In the case of USTs containing gasoline, all samples will be sampled for TPHC and VOA+15. If TPHC results are greater than 100 ppm additional excavation and subsequent sampling may be requested by the Sub-Surface Evaluator.



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**PHASE IV  
Groundwater Monitoring**

A. Monitoring wells will be installed within the UST field at all UST locations where the tanks(s) being closed stored gasoline, kerosene, jet fuel and/or site specific factors indicate a know or potential impact of soil contamination exists.

B. Groundwater monitoring wells will be installed by a New Jersey licensed Well Driller in accordance with N.J.S.A 58:4A-4.1 et seq.. The well driller will obtain all required permits prior to well installation.

C. All monitoring wells will be sampled as described in the NJDEP Field Sampling Procedures Manual, 1992.

D. All monitoring wells will be analyzed in accordance with the following table:

| PRODUCT           | NUMBER OF<br>MONITORING<br>WELLS REQUIRED | EPA METHOD<br>624<br>(A) | EPA METHOD<br>625<br>(B) |
|-------------------|-------------------------------------------|--------------------------|--------------------------|
| HEATING OIL       | 1                                         | 1                        | 1                        |
| FIELD BLANKS      |                                           | 1                        | 1                        |
| DUPLICATE SAMPLES |                                           | 1                        | 1                        |
| TOTAL # SAMPLES   |                                           | 3                        | 3                        |

Note (A): Sample must be analyzed by EPA Method 624 + 15 (GC/MS plus identification of non-targeted compounds) modified to include calibration for xylene, methyl tertiary butyl ether (MTBE), tertiary butyl alcohol (TBA) and LEAD.

Note (B): Sample must be analyzed by EPA method 624 + 15 (GC/MS plus identification of non-targeted compounds) modified to include calibration for xylene; and EPA Method 625 + 15 (base/neutral extractable, extractable organics).

C. All monitoring well sampling will be conducted according to methods described in the NJDEP Field Sampling Procedure Manual 1992.

D. All laboratory analyses will be performed by NJDEP certified Laboratories using approved methods and follow all Quality Control/Assurance procedures as described for each method.

## PROPOSED SITE PLAN

BLDG 2700

 UST  
511515
Concrete  
PADGRASS  
COVER

N

1" = 1'

NOTE: Indicate scale and compass direction.

## REMARKS

UST NOT IN USE -

Loss of Product Inventory Resulted in  
an investigation - determine discharge (confirmed)

- CASE # 92-3-7-1047-43

- Planned Removal Fall 1992

- Alternate Fuel Source (Aboveground) installed

3/5/92 by Serv-Air Inc.

## TANK LOCATION

BLDG# 2700

EG-SUB 4

TANK # 51515 - 62

TANK SIZE 55 gal. Steel

TANK CONTENTS #2 Diesel  
Age 1952

UST-013  
9/90

STATE OF NEW JERSEY  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WATER RESOURCES  
BUREAU OF UNDERGROUND STORAGE TANKS  
TANK MANAGEMENT SECTION

CN 029, 401 EAST STATE STREET  
TRENTON, N.J. 08625-0029

FOR STATE USE ONLY

UST # \_\_\_\_\_  
Date Rec'd \_\_\_\_\_  
CA # \_\_\_\_\_  
Staff \_\_\_\_\_

**UNDERGROUND STORAGE TANK CLOSURE PLAN**  
**APPROVAL APPLICATION**

*Under the provisions of the Underground Storage  
of Hazardous Substances Act  
in accordance with N.J.A.C. 7:14B-9 et seq.*

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- If the subject facility is not registered the Closure Plan will not be approved.
- Please Note: Make sure that all required information on the Standard Reporting Form (SRF) is submitted. The SRF and this Closure Plan Application must be submitted together.

Date of Application

6/6/93

FACILITY REGISTRATION #

81515-62

**I. FACILITY NAME AND ADDRESS**

U.S. Army Fort Monmouth

DEH Bldg. 167

Fort Monmouth NJ 07703

Telephone No. (908) 532-1475

II. THIS CLOSURE PLAN IS FOR:

A. Substance stored in subject tank(s):

1. Petroleum Products

Indicate Type of Product diesel  
(Write out product name; e.g.)

- a. Gasoline, Jet Fuel, or Kerosene
- b. Heating Oil (#2, 4, 6), or Diesel
- c. Waste Oil (Please indicate total storage capacity of waste oil at the facility [including the tank(s) being closed]) 550 gals.

2. Hazardous Substances other than Petroleum Products (Describe)

Indicate Type of Product \_\_\_\_\_  
(Write out product name; add sheet if necessary.)

B. Type of Activity: (Circle one)

1. Abandonment of Tank(s)

Attach the closure plan for abandonment, as required by N.J.A.C. 7:14B-9.2(b) or 9.3(b), which must contain the following items:

- a. Implementation schedule (3 copies per N.J.A.C. 7:14B-9.2(a)3)
- b. Site assessment plan
- c. Tank decommissioning plan
- d. A site map
- e. Attach all justification for abandonment-in-place as required by N.J.A.C. 7:14-9.1(d). Attach the certification statement (on the back page) for abandonment-in-place, if applicable.

2. Removal of Tank(s)

Attach the closure plan for removal as required by N.J.A.C. 7:14B-9.2(b) or 9.3(b). The following items must be included:

- ✓ a. Implementation schedule (3 copies)
- ✓ b. Site assessment plan
- ✓ c. Tank decommissioning plan
- ✓ d. A site map

3. Temporary Closure

Indicate which situation applies and attach appropriate documentation.

- a.      Temporary closure for 12 months or less is subject to requirements of N.J.A.C. 7:14B-9.1(a).
- b.      Requesting an extension of temporary closure for more than 12 months per N.J.A.C. 7:14B-9.1(b) must perform site assessment and submit results.

4. Change in Service

Attach documentation that the tank system being changed from the storage of a regulated to a non-regulated substance has been emptied and cleaned and that a site assessment has been performed, as required by N.J.A.C. 7:14B-9.1(e).

### III. FEE SCHEDULE

Check the activities below that apply, calculate the Total Fee and submit that amount with this application. Make checks payable to Treasurer, State of New Jersey. Public schools and religious and charitable institutions are exempt from the fees. The owner or operator shall submit a separate fee for each excavation where an activity occurs.

- |                                                                                  |                   |           |
|----------------------------------------------------------------------------------|-------------------|-----------|
| A. <u>Activities Which Require a Site Assessment</u>                             | <u>120.00</u>     | \$ 120.00 |
| 1. Removal or Abandonment without exemption to site assessment requirement       |                   |           |
| 2. Change in service from a regulated substance to a non-regulated substance     |                   |           |
| 3. Extension of period of Temporary Closure                                      |                   |           |
| B. <u>Activities Not Requiring a Site Assessment</u>                             | <u>          </u> | \$ 80.00  |
| 1. Removal or abandonment with valid exemption                                   |                   |           |
| C. <u>Additional Activities</u>                                                  |                   |           |
| 1. Change in service from one regulated substance to another regulated substance |                   | NO FEE    |

APPLICATION REVIEW FEE (activities in A, B, C) + \$ 50.00

**TOTAL FEE DUE** \$ 170.00

IV. THE BUREAU OF UNDERGROUND STORAGE TANKS WILL REVIEW THE CLOSURE PLAN FOR COMPLETENESS AND APPROPRIATENESS AS SPECIFIED IN SUBCHAPTER 9 OF THE UST REGULATIONS. PLAN APPROVAL WILL INDICATE THAT THE OWNER OR OPERATOR MAY PROCEED WITH THE CLOSURE. FINAL APPROVAL OF THE CLOSURE IS NOT IMPLIED. ALL APPROPRIATE AND APPLICABLE PERMITS, LICENSES AND CERTIFICATES REQUIRED FOR ANY OF THE ABOVE ACTIVITIES FROM ANY LOCAL, STATE AND/OR FEDERAL AGENCIES MUST BE OBTAINED SEPARATELY FROM THIS APPLICATION.

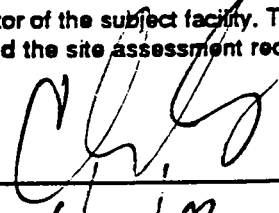
THE SITE ASSESSMENT SAMPLING AND ANALYTICAL REQUIREMENTS WILL BE SENT WITH THE APPROVAL TO PROCEED.

**NOTE:** Notice of Approval to Proceed or Disapproval will be mailed to the facility address unless some other address is specified here.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### SIGNATURE OF CONTACT PERSON

This application form must be signed by a contact person of the owner or operator of the subject facility. The contact person should have overall knowledge of tank decommissioning procedures and the site assessment requirements applicable to the tank closure which is the subject of this application.

NAME (Print or Type) CHARLES M. APPLEBY SIGNATURE   
TITLE ENVIRONMENTAL PROTECTION SPEC. DATE 6/6/93

U.S. Army  
DEH Bldg. 167  
SELFM-EH  
Fort Monmouth, NJ 07703

Date: 3, JUNE 1993  
Building #: 2700 sub.4  
NJDEPE UST Reg. #:0081515- 62  
NJDEPE CASE # 92-3-7-1047

**UNDERGROUND STORAGE TANK  
REMOVAL / ABANDONMENT  
IMPLEMENTATION SCHEDULE**

Facility Name: U.S. Army, Fort Monmouth  
Facility Location: BLDG. 2700, SUB 4  
Fort Monmouth, Monmouth County NJ 07703

Owners Mailing Address: DEH Bldg. #167  
Fort Monmouth, NJ 07703

Owners Name: U.S. Army

Contact Person: Charles Appleby  
Phone Number: (908) 532-6224

UST Registration Number: 0081515

| TANK ID<br>NUMBERS | PRODUCT<br>STORED<br>(OIL, GAS) | TANK CAPACITY<br>(GALLONS) | SITE<br>ASSESSMENT<br>REQUIRED | MONITORING<br>WELL<br>REQUIRED |
|--------------------|---------------------------------|----------------------------|--------------------------------|--------------------------------|
| 62                 | .. #2 H-OIL ..                  | 550                        | .. YES                         | .. NONE                        |

**SCHEDULE**

| ACTIVITY               | START DATE | COMPLETION |
|------------------------|------------|------------|
| Removal.....           | 7/20/93    | 7/20/93    |
| Site                   |            |            |
| Assessment.....        | 7/20/93    |            |
| Monitoring Well        |            |            |
| Installation.....      | 8/20/93    |            |
| Site Assessment        |            |            |
| Analytical Results.... | 9/20/93    |            |
| Monitoring Well        |            |            |
| Analytical Results.... | 9/20/93    |            |
| UST Site Assessment    |            |            |
| Summary.....           | 10/20/93   |            |

U.S. ARMY, Fort Monmouth  
Directorate of Engineering and Housing  
Fort Monmouth, New Jersey 07703

June 10, 1993

New Jersey Department of  
Environmental Protection and Energy  
DIVISION OF WATER RESOURCES  
BUREAU OF UNDERGROUND STORAGE TANKS  
TANK MANAGEMENT SECTION  
CN 029  
401 EAST STATE STREET  
Trenton, NJ 08625 - 0029  
ATTN: Monmouth County UST Closure Specialist

Dear Sir:

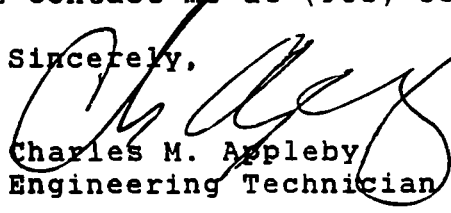
Enclosed please find UST Closure Plan Approval Applications  
for the following Fort Monmouth Areas:

|                                          |             |
|------------------------------------------|-------------|
| Charles Wood - 0081515                   |             |
| UST #'s: 24, 41 and 62                   |             |
| Closure Activity Fees 3 @ \$170.00.....  | \$ 510.00   |
| Charles Wood - 0081515                   |             |
| UST Emergency closure of UST#: 34        |             |
| Closure Activity Fees 1 @ \$170.00.....  | \$ 170.00   |
| Main Post West - 0081533                 |             |
| UST #'s: 3, 4, 5, 6, 7 and 8             |             |
| Closure Activity Fees 6 @ \$170.00 ..... | \$ 1,020.00 |
| <hr/>                                    |             |
| Total:                                   | \$ 1,700.00 |

To identify any specific UST location, correlate the corresponding building number located in the Closure Plan with the building number on the detailed area map which was issued with the initial UST Registrations. Due to the complexity of our facility's registrations, we have developed and are currently using this system for locating and managing our USTs.

With regard to the Emergency Closure of UST# 0081515-34, I contacted your department and I was informed to proceed but that all activities must be followed IAW applicable guidelines. The money for that removal activity is inclosed with the completed Site Assessment Summary Report. If the information provided in this enclosure is inadequate or you require further information with regard to any UST activities please contact me at (908) 532-6224.

Sincerely,

  
Charles M. Appleby  
Engineering Technician

# UNDERGROUND STORAGE TANK SYSTEM CLOSURE APPROVAL

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL  
PROTECTION AND ENERGY

DIVISION OF RESPONSIBLE PARTY SITE REMEDIATION  
BUREAU OF UNDERGROUND STORAGE TANKS  
CN-029, TRENTON, NJ 08625-0029

TMS #

C-93-2613

UST #

0081515

US Army Fort Monmouth

DEH Bldg 205

Ft. Monmouth, NJ 2700.4

Monmouth

THE ABOVE LISTED FACILITY IS HEREBY GRANTED APPROVAL TO PERFORM  
THE FOLLOWING ACTIVITY IN ACCORDANCE WITH N.J.A.C. 7:14B-1 et seq.:

Removal of: one 550 gallon #2 diesel UST(s) and appurtenant piping.

SITE ASSESSMENT: Soil samples will be taken every five (5) feet along the center line of each tank and one (1) soil sample for every 15 feet along all associated piping. Two (2) additional samples will be taken from around the tank and biased to the areas of highest field screened readings. Samples will be analyzed for TPHC. If sample results are greater than 1,000ppm than samples will be analyzed for VO+10.

ON-SITE MANAGER:

C. Appleby

TELEPHONE:

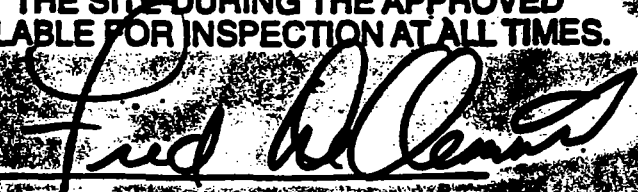
908-532-1475

OWNER:

TELEPHONE:

EFFECTIVE DATE: JUL 12 1993

THIS FORM MUST BE DISPLAYED AT THE SITE DURING THE APPROVED  
ACTIVITY AND MUST BE MADE AVAILABLE FOR INSPECTION AT ALL TIMES.

  
KEVIN F. KRATINA, BUREAU CHIEF  
BUREAU OF UNDERGROUND STORAGE TANKS





State of New Jersey  
Department of Environmental Protection and Energy  
Division of Responsible Party Site Remediation

CN 029  
Trenton, NJ 08625-0029  
Tel. # 609-984-3156  
Fax. # 609-292-5604

Scott A. Weiner  
Commissioner

Karl J. De  
Di.

JUL 29 1993

Dear Applicant:

The Department of Environmental Protection (the Department) received an "Underground Storage Tank Closure Plan Approval Application" for your facility. This application detailed the procedures to be implemented as required by the Underground Storage Tank Systems Technical Requirements and Procedures at N.J.A.C. 7:14B-1 et seq. Based upon our review of the information submitted, a Closure Approval is hereby granted.

A Standard Reporting Form (SRF) must be submitted to the Department within seven (7) days of removal or abandonment of the tank(s). The date of removal or abandonment must be included with the SRF. The SRF will be used to delist the tank(s) from the Bureau of Underground Storage Tanks (BUST) registration files. A copy of the SRF is attached.

Within ninety (90) days of completion of the tank(s) closure, a Site Assessment Summary pursuant to N.J.A.C. 7:14B-9.5 must be submitted to BUST (copy attached). If contamination is discovered during closure, you are required to initiate corrective action as per N.J.A.C. 7:14B-8 and outlined in the Department's Scope of Work document. All discharges must be reported to the Spill Hotline at (609) 292-7172.

Once you have obtained a Closure Approval, a demolition permit issued pursuant to N.J.A.C. 5:23 et seq. and authorized by the Department of Community Affairs (DCA), Construction Code Element must be procured from your local construction code official. For further information in obtaining a demolition permit, please contact the local construction code official directly, or DCA's Code Assistance Unit at (609) 530-8793.

If you require further information or assistance, please contact the Tank Management Section of BUST at (609) 984-3156.

Attachments: Closure Approval  
SRF  
SAS

New Jersey is an Equal Opportunity Employer  
Recycled Paper





State of New Jersey  
Department of Environmental Protection and Energy  
Division of Responsible Party Site Remediation  
CN 028  
Trenton, NJ 08625-0029

ATTN: UST Program  
(609) 984-3156

For State Use Only

Date Rec'd \_\_\_\_\_  
Auth. \_\_\_\_\_  
Routing \_\_\_\_\_  
UST NO. \_\_\_\_\_

STANDARD REPORTING FORM  
for reporting activities at an UST facility:

- |                                                                      |                                                   |
|----------------------------------------------------------------------|---------------------------------------------------|
| <input type="checkbox"/> General Facility Information Changes        | <input type="checkbox"/> Sale or Transfer         |
| <input checked="" type="checkbox"/> Closure (Abandonment or Removal) | <input type="checkbox"/> Substantial Modification |
| <input type="checkbox"/> Temporary Closure                           | <input type="checkbox"/> Financial Responsibility |
| <input type="checkbox"/> Change in Service                           | <input type="checkbox"/> Address Change Only      |

Check ONLY One Type of Activity - Complete Form For That Activity

(More than one tank can be listed per activity)

\*\*\* NOTE \*\*\* ALL NEW tank installations at existing registered facilities must submit a Registration Questionnaire for the new tanks.

Answer questions 1 through 5 and others as applicable.

1. Company name and address (as it appears on registration questionnaire):  
U.S. ARMY Fort Monmouth  
DEH Bldg 167  
Fort Monmouth NJ 07703  
ATTN: Charles Appikby
2. Facility name and location (if different from above):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Contact person for this activity:  
Charles Appikby  
Telephone Number: (908) 532-6224
4. The identification number of the affected tank as it appears in Question Number 12 on the Registration Questionnaire:  
Bldg 2700.4  
62
5. Registration Number (if known):  
UST- 0081515
6. For GENERAL FACILITY INFORMATION changes (address, telephone, contact person, etc. - supply NEW information only):
  - a. Facility name: \_\_\_\_\_
  - b. Facility location: \_\_\_\_\_
  - c. Owner's mailing address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
NJ \_\_\_\_\_
  - d. Block: \_\_\_\_\_ Lot: \_\_\_\_\_
  - e. Contact person (facility operator): \_\_\_\_\_
  - f. Contact telephone number: (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_
  - g. Other (Specify): \_\_\_\_\_

(OVER)

7. For CLOSURE (abandonment or removal – check all that apply):

- a. ☐ Abandonment

Attach the necessary implementation schedule (3 copies) and all documentation needed for abandonment per N.J.A.C. 7:14B-9.1 (d).

- b. ☐ Removal

Attach the necessary implementation schedule (3 copies).

8. For CHANGES IN HAZARDOUS SUBSTANCES STORED (check all that apply):

- a. ☐ Temporary Closure (12 month maximum time – see N.J.A.C. 7:14B-9.1(b)). Remove all hazardous substances; leave tank in place.

- b. ☐ Change in service from a regulated substance to a non-regulated substance. Tank must be cleaned and site assessment performed per N.J.A.C. 7:14B-9.1(e).

- c. ☐ Changes in service from one regulated hazardous substance to another regulated hazardous substance.

|                |           |           |
|----------------|-----------|-----------|
| Tank No. _____ | Old _____ | New _____ |
| Tank No. _____ | Old _____ | New _____ |
| Tank No. _____ | Old _____ | New _____ |

(Attach additional sheets if more space is needed)

9. For TRANSFER OF OWNERSHIP:

- a. New Owner (operator) \_\_\_\_\_

- b. New Facility Name \_\_\_\_\_

NJ \_\_\_\_\_

County \_\_\_\_\_

- c. Closing Attorney \_\_\_\_\_ Tele: (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

10. For SUBSTANTIAL MODIFICATIONS (to include any retrofitted activity – e.g. the addition of spill/overfill protection, monitoring systems, cathodic protection, etc.):

- a. Type of Modification \_\_\_\_\_

- b. \* NOTE \* Substantial modifications require a permit under N.J.A.C. 7:14B-10.

11. For changes in FINANCIAL RESPONSIBILITY to (check appropriate changes and attach copies of new information):

- a. Policy Type: ☐

- d. Company/Carrier: ☐

- b. Policy Number: ☐

- e. Expiration Date: ☐

- c. Other: ☐

(Specify)

NOTE: ALL appropriate and applicable permits, licenses and certificates required by the above activity(ies) from any local, state and/or federal agencies must be obtained separately from this notification.

**CERTIFICATION**

\*\*\*This registration form shall be signed by the highest ranking individual at the facility with overall responsibility for that facility (N.J.A.C. 7:14B-2.3 (a) 1).\*\*\*

"I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information, including fines and/or imprisonment."

Signature: \_\_\_\_\_

Name (print or type): \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_



## APPENDIX B

### NJDEP UST SITE ASSESSMENT SUMMARY FORM

STATE OF NEW JERSEY  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WATER RESOURCES  
BUREAU OF UNDERGROUND STORAGE TANKS  
TANK MANAGEMENT SECTION

CN 029, 401 EAST STATE STREET  
TRENTON, N.J. 08625-0029

|            |       |
|------------|-------|
| UST #      | _____ |
| Date Rec'd | _____ |
| TMS #      | _____ |
| Sheet      | _____ |

**UNDERGROUND STORAGE TANK  
SITE ASSESSMENT SUMMARY**

*Under the provisions of the Underground Storage  
of Hazardous Substances Act  
in accordance with N.J.A.C. 7:14B*

This Summary form shall be used by all owners and operators of Underground Storage Tank Systems (USTS) who have either reported a release and are subject to the site assessment requirements of N.J.A.C. 7:14B-8.2 or who have closed USTS pursuant to N.J.A.C. 7:14B-9.1 et seq. and are subject to the site assessment requirements of N.J.A.C. 7:14B-9.2 and 9.3.

**INSTRUCTIONS:**

- Please print legibly or type.
- Fill in all applicable blanks. This form will require various attachments in order to complete the Summary. The technical guidance document, Interim Closure Requirements for UST's, explains the regulatory (and technical) requirements for closure and the Scope of Work, Investigation and Corrective Action Requirements for Discharges from Underground Storage Tanks and Piping Systems explains the regulatory (and technical) requirements for corrective action.
- Return one original of the form and all required attachments to the above address.
- Attach a scaled site diagram of the subject facility which shows the information specified in Item IV B of this form.
- Explain any "No" or "N/A" response on a separate sheet.

Date of Submission March 14, 1995

081515

**FACILITY REGISTRATION #**

**I. FACILITY NAME AND ADDRESS**

U.S. Army Fort Monmouth  
Directorate of Public Works, Building 167  
Fort Monmouth, NJ 07703      County Monmouth  
Telephone No. (908) 532-1475

**OWNER'S NAME AND ADDRESS, if different from above**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Telephone No. \_\_\_\_\_

## II. DISCHARGE REPORTING REQUIREMENTS

- A. Was contamination found? ☒ Yes ☐ No If Yes, Case No. 92-3-7-1047  
(Note: All discharges must be reported to the Environmental Action Hotline (609) 292-7172)
- B. The substance(s) discharged was(were) #2 Fuel Oil
- C. Have any vapor hazards been mitigated? ☒ Yes ☐ No ☐ N/A

## III. DECOMMISSIONING OF TANK SYSTEMS

Closure Approval No. C-93-2613

The site assessment requirements associated with tank decommissioning are explained in the Technical Guidance Document, Interim Closure Requirements for USTs, Section V. A-D. Attach complete documentation of the methods used and the results obtained for each of the steps of tank decommissioning used. Please include a site map which shows the locations of all samples and borings, the location of all tanks and piping runs at the facility at the beginning of the tank closure operation and annotated to differentiate the status of all tanks and piping (e.g., removed, abandoned, temporarily closed, etc.). The same site map can be used to document other parts of the site assessment requirements, if it is properly and legibly annotated.

## IV. SITE ASSESSMENT REQUIREMENTS

## A. Excavated Soil

Any evidence of contamination in excavated soil will require that the soil be classified as either Hazardous Waste or Non-Hazardous Waste. Please include all required documentation of compliance with the requirements for handling contaminated excavated soil (if any was present) as explained in the technical guidance documents for closure and corrective action. Describe amount of soil removed, its classification, and disposal location.

## B. Scaled Site Diagrams

1. Scaled site diagrams must be attached which include the following information:

- North arrow and scale
- The locations of the ground water monitoring wells
- Location and depth of each soil sample and boring
- All major surface and sub-surface structures and utilities
- Approximate property boundaries
- All existing or closed underground storage tank systems, including appurtenant piping
- A cross-sectional view indicating depth of tank, stratigraphy and location of water table
- Locations of surface water bodies

## C. Soil samples and borings (check appropriate answer)

- Were soil samples taken from the excavation as prescribed? ☒ Yes ☐ No ☐ N/A
- Were soil borings taken at the tank system closure site as prescribed? ☐ Yes ☒ No ☐ N/A
- Attach the analytical results in tabular form and include the following information about each sample:
  - Customer sample number (keyed to the site map)
  - The depth of the soil sample
  - Soil boring logs
  - Method detection limit of the method used
  - QA/QC Information as required

## D. Ground Water Monitoring

1. Number of ground water monitoring wells installed 0
2. Attach the analytical results of the ground water samples in tabular form. Include the following information for each sample from each well:
  - a. Site diagram number for each well installed
  - b. Depth of ground water surface
  - c. Depth of screened interval
  - d. Method detection limit of the method used
  - e. Well logs
  - f. Well permit numbers
  - g. QA/QC Information as required

## V. SOIL CONTAMINATION

- A. Was soil contamination found? ☒ Yes ☐ No  
 If "Yes", please answer Question B-E  
 If "No", please answer Question B

## B. The highest soil contamination still remaining in the ground has been determined to be:

1. 7,160 ppb total BTEX, 160,700 ppb total non-targeted VOC
2. 68,400 ppb total B/N, 2,581,000 ppb total non-targeted B/N
3. 7,520 ppm TPHC
4. \_\_\_\_\_ ppb \_\_\_\_\_ (for non-petroleum substance)

## C. Remediation of free product contaminated soils

1. All free product contaminated soil on the property boundaries and above the water table are believed to have been removed from the subsurface ☒ Yes ☐ No
2. Free product contaminated soils are suspected to exist below the water table ☐ Yes ☒ No
3. Free product contaminated soils are suspected to exist off the property boundaries. ☐ Yes ☒ No

D. Was the vertical and horizontal extent of contamination determined? ☐ Yes ☒ No ☐ N/A

E. Does soil contamination intersect ground water? ☐ Yes ☒ No ☐ N/A

## VI. GROUND WATER CONTAMINATION

- A. Was ground water contamination found? ☐ Yes ☒ No  
 If "Yes", please answer Questions B-G.  
 If "No", please answer only Question B.

## B. The highest ground water contamination at any 1 sampling location and at any 1 sampling event to date has been determined to be:

1. N/A ppb total BTEX, N/A ppb total non-targeted VOC
2. N/A ppb total B/N, N/A ppb total non-targeted B/N
3. N/A ppb total MTBE, N/A ppb total TBA
4. N/A ppb \_\_\_\_\_ N/A (for non-petroleum substance)
5. greatest thickness of separate phase product found N/A
6. separate phase product has been delineated ☐ Yes ☐ No ☒ N/A

## C. Result(s) of well search

1. A well search (including a review of manual well records) indicates that private, municipal or commercial wells do exist within the distances specified in the Scope of Work. ☐ Yes ☐ No ☒ N/A
2. The number of these wells identified is \_\_\_\_\_

D. Proximity of wells and contaminant plume

1. The shallowest depth of any well noted in the well search which may be in the horizontal or vertical potential path(s) of the contaminant plume(s) is \_\_\_\_\_ feet below grade (consideration has been given for the effects of pumping, subsurface structures, etc. on the direction(s) of contaminant migration). This well is \_\_\_\_\_ feet from the source and its screening begins at a depth of \_\_\_\_\_ feet.
2. The shallowest depth to the top of the well screen for any well in the potential path of the plume(s) (as described in D1 above) is \_\_\_\_\_ feet below grade. This well is located \_\_\_\_\_ feet from the source.
3. The closest horizontal distance of a private, commercial or municipal well in the potential path of the plume (as determined in D1) is \_\_\_\_\_ feet from the source. This well is \_\_\_\_\_ feet deep and screening begins at a depth of \_\_\_\_\_ feet.

E. A plan for separate phase product recovery has been included. ☐ Yes ☐ No ☐ N/A

F. A ground water contour map has been submitted which includes the ground water elevations for each well.  
☐ Yes ☐ No ☐ N/A

G. Delineation of contamination

1. The ground water contaminants have been delineated to MCLs or lower values at the property boundaries. ☐ Yes ☐ No
2. The plume is suspected to continue off the property at concentrations greater than MCLs.  
☐ Yes ☐ No
3. Off property access (circle one): ☐ is being sought ☐ has been approved ☐ has been denied

VII. SITE ASSESSMENT CERTIFICATION [preparer of site assessment plan - N.J.A.C. 7:14B-8.3(b) & 9.5(a)3]

The person signing this certification as the "Qualified Ground Water Consultant" (as defined in N.J.A.C. 7:14B-1.6) responsible for the design and implementation of the site assessment plan as specified in N.J.A.C. 7:14B-8.3(a) & 9.2(b)2, must supply the name of the certifying organization and certification number.

*"I certify under penalty of law that the information provided in this document is true, accurate, and complete and was obtained by procedures in compliance with N.J.A.C. 7:14B-8 and 9. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."*

NAME (Print or Type) Charles Appleby

SIGNATURE 

COMPANY NAME U.S. Army Fort MOnmouth  
(Preparer of Site Assessment Plan)

DATE 12-21-94

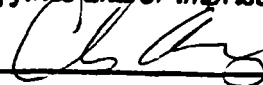
CERTIFYING ORGANIZATION NJDEPE

CERTIFICATION NUMBER 2056



VIII. **TANK DECOMMISSIONING CERTIFICATION** (person performing tank decommissioning portion of closure plan - N.J.A.C. 7:14B-9.5(a)4)

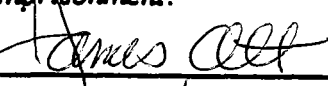
*"I certify under penalty of law that tank decommissioning activities were performed in compliance with N.J.A.C. 7:14B-9.2(b)3. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."*

NAME (Print or Type) Charles Appleby SIGNATURE   
 COMPANY NAME U.S. Army Fort Monmouth DATE 12-21-94  
 (Performer of Tank Decommissioning)

IX. **CERTIFICATIONS BY THE RESPONSIBLE PARTY(IES) OF THE FACILITY**

A. The following certification shall be signed by the highest ranking individual with overall responsibility for that facility [N.J.A.C. 7:14B-2.3(c)1].

*"I certify under penalty of law that the information provided in this document is true, accurate, and complete. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."*

NAME (Print or Type) James Ott SIGNATURE   
 COMPANY NAME U.S. Army Fort Monmouth DATE 3/25/95

B. The following certification shall be signed as follows (according to the requirements of N.J.A.C. 7:14B-2.3(C)2):

1. For a corporation, by a principal executive officer of at least the level of vice president.
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal or other public agency by either the principal executive officer or ranking elected official.
4. In cases where the highest ranking corporate partnership, governmental officer or official at the facility as required in A above is the same person as the official required to certify in B, only the certification in A need to be made. In all other cases, the certifications of A and B shall be made.

*"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."*

NAME (Print or Type) \_\_\_\_\_ SIGNATURE \_\_\_\_\_  
 COMPANY NAME \_\_\_\_\_ DATE \_\_\_\_\_



## ATTACHMENT I

### NO/NA RESPONSE EXPLANATION

| <u>SAS QUESTION #</u> | <u>RESPONSE</u> | <u>EXPLANATION</u>                                                                                                                          |
|-----------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| IV.C.2                | No              | No soil borings were collected at the tank system closure site. A minimum of one monitoring well will be installed in the excavation.       |
| V.C.2,3               | No              | Since all free products has been removed, it is not suspected to exist below the water table or off the property boundary.                  |
| V.D                   | No              | Same as above.                                                                                                                              |
| V.E                   | No              | Same as above.                                                                                                                              |
| VI.A                  | No              | The required groundwater monitoring well has not been installed at the site. Groundwater samples will be collected after well installation. |



## **APPENDIX C**

### **MONITOR WELL INFORMATION**

DWR-133M (7/92) SERIAL # 37093

STATE OF NEW JERSEY  
DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY  
TRENTON, NJ

Mail to

Water Allocation  
CN 029  
Trenton, N.J. 08625

## MONITORING WELL PERMIT

Permit No. 293096

VALID ONLY AFTER APPROVAL BY THE D.E.P.E.

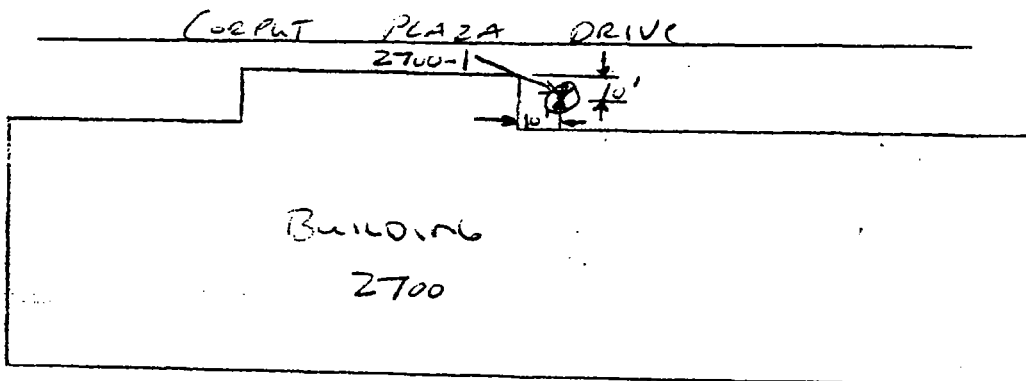
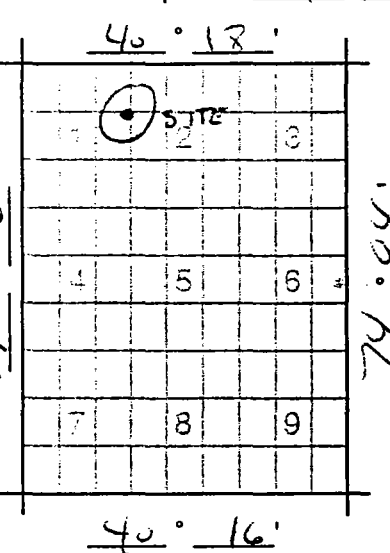
COORD #: 2913816

Owner US ARMY Fort MonmouthDriller TREE ORGANIZATION, LTDAddress Fort Monmouth, NJ 07703Address 1510 RT 130 SName of Facility GREEN SITE (CHAPMAN HILL)Diameter of Well(s) 4 InchesProposed Depth of Well(s) 15 FeetAddress Building 2700# of Wells Applied for (max. 10) 1Will pumping equipment be installed? YES ☐ NO ☒Address Fort Monmouth, NJ 07703Type of Well (see reverse) Hand-dugIf Yes, give pump capacity  GPM

## LOCATION OF WELL(S)

| Lot # | Block # | Municipality  | County   |
|-------|---------|---------------|----------|
|       |         | Fort Monmouth | Monmouth |

Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.

State Atlas Map No. 29

FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED:

- ☐ Spill Fund Case  
☐ ECRA Case  
☐ CERCLA (Superfund) Site  
☐ RCRA Site  
☒ Underground Storage Tank  
☐ NJPDES Municipal Discharge Permit  
☐ NJPDES Industrial Discharge Permit  
☐ Water and Hazardous Waste Enforcement Case  
☐ Water Supply Aquifer Test Observation Well  
☐ Other (explain)

Case I.D. Number

92-3-7-104743

This Space for Approval Stamp

WELL PERMIT APPROVED  
Dept. of Environmental Protection  
Water Resources/Water Allocation

APR 5 1994

FOR  
D.E.P.E.  
USE

- ☐ Issuance of this permit is subject to the conditions attached. (see next page)  
☐ For monitoring purposes only  
☐ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.

SEE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date MARCH 28, 1994Signature of Driller [Signature]License # 1421Signature of Owner [Signature]

SELF-M-PW-EV

Health Dept. — Yellow

Owner — Blue

Driller — White

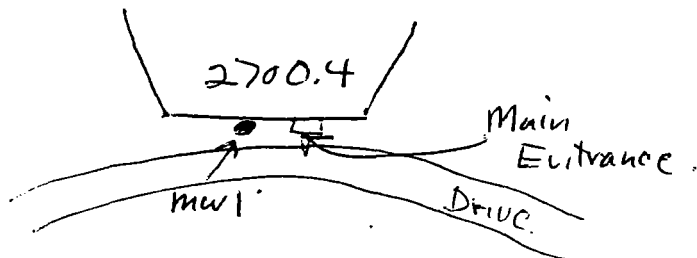
COPIES:

Water Allocation — White and Pink

## FIELD LOG OF BORING

SHEET 1 OF 2

## LOCATION OF BORING:

Fort Monmouth, Building #2700.4  
mw1PROJECT: US Army  
Fort Monmouth.

BORING NO:

TOTAL DEPTH:

JOB NO: SELF-M-PW-EV

LOGGED BY: V Swanson

PROJ. MGR.: JC

EDITED BY:

DRILLING CONTRACTOR: Tyree

DRILL RIG TYPE: Mobil B80

DRILLERS NAME: Mike Beck

SAMPLING METHODS: Split Spoon

HAMMER WT.: 140 lb

DROP: 30"

STARTED, TIME: 0600

DATE: 7/19/94

COMPLETED, TIME: 1130

DATE: 7/19/94

BORING DEPTH (ft): 20'

CASING DEPTH (ft): 8'

WATER DEPTH (ft): 17'

TIME: 1130

DATE: 7/19/94

BACKFILLED, TIME: 1130 DATE: 7/19/94 BY: Tyree

SURFACE ELEV:

DATUM:

CONDITIONS:

| SAMPLE DEPTH | SAMPLER TYPE | BLOWS / 6 IN. | INCHES DRIVEN | INCHES RECOVERED | SAMPLE CONDITION | DRILLING RATE (min./ft.) | PID READING (ppm) | ODOR (Y/N?) | GRAPHIC WELL CONST. | DEPTH IN FEET | GRAPHIC LOG |
|--------------|--------------|---------------|---------------|------------------|------------------|--------------------------|-------------------|-------------|---------------------|---------------|-------------|
| 0-2          | SS           | 5             | 6             | 24               |                  |                          | 1                 | N           |                     | 1             |             |
|              |              | 10            | 6             |                  |                  |                          |                   |             |                     |               |             |
|              |              | 12            | 6             |                  |                  |                          |                   |             |                     |               |             |
|              |              | 17            | 6             |                  |                  |                          |                   |             |                     |               |             |
| 2-4          | SS           | 17            | 6             | 18               |                  |                          | 0                 | N           |                     | 2             |             |
|              |              | 9             | 6             |                  |                  |                          |                   |             |                     |               |             |
|              |              | 10            | 6             |                  |                  |                          |                   |             |                     | 3             |             |
|              |              | 9             | 6             |                  |                  |                          |                   |             |                     |               |             |
| 4-6          | SS           | 8             | 6             | 16               |                  |                          | 0                 | N           |                     | 4             |             |
|              |              | 7             | 6             |                  |                  |                          |                   |             |                     |               |             |
|              |              | 6             | 6             |                  |                  |                          |                   |             |                     | 5             |             |
|              |              | 7             | 6             |                  |                  |                          |                   |             |                     |               |             |
| 6-8          |              | 7             | 6             | 16               |                  |                          | 0                 | N           |                     | 6             |             |
|              |              | 7             | 6             |                  |                  |                          |                   |             |                     |               |             |
|              |              | 7             | 6             |                  |                  |                          |                   |             |                     | 7             |             |
|              |              | 10            | 6             |                  |                  |                          | 0                 | N           |                     | 8             |             |
| 8-10         |              | 6             | 6             | 24               |                  |                          |                   |             |                     |               |             |
|              |              | 6             | 6             |                  |                  |                          |                   |             |                     | 9             |             |
|              |              | 10            | 6             |                  |                  |                          |                   |             |                     |               |             |
|              |              | 13            | 6             |                  |                  |                          |                   |             |                     | 10            |             |

SAND, fine, green-brown  
trace till

SAME

SAME

SM

10' RED BROWN SAND  
to 11'

## FIELD LOG OF BORING (CONTINUED) 2700-4

SHEET 2 OF 2

| DEPTH | TYPE | BLOWS | DRIVEN | REC'D | COND. | D. RATE | PID | ODOR | GR. WELL | DEPTH | GRAPHIC LOG | PROJECT: | NO: | BORING NO: |
|-------|------|-------|--------|-------|-------|---------|-----|------|----------|-------|-------------|----------|-----|------------|
| 10-12 | SS   | 7     | 6      | 24    |       |         | 0   | N    |          | 11    |             |          |     |            |
|       |      | 10    | 6      |       |       |         |     |      |          | 12    |             |          |     |            |
|       |      | 17    | 6      |       |       |         |     |      |          | 13    |             |          |     |            |
|       |      | 11    | 6      |       |       |         |     |      |          | 14    |             |          |     |            |
| 12-14 |      |       |        |       |       |         | 0   | N    |          | 15    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 16    |             |          |     |            |
| 14-16 |      |       |        |       |       |         | 0   | N    |          | 17    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 18    |             |          |     |            |
| 16-18 |      |       |        |       |       |         | 0   | N    |          | 19    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 20    |             |          |     |            |
| 18-20 |      |       |        |       |       |         | 0   | N    |          | 21    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 22    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 23    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 24    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 25    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 26    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 27    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 28    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 29    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 30    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 31    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 32    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 33    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 34    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 35    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 36    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 37    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 38    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 39    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 40    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 41    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 42    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 43    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 44    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 45    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 46    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 47    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 48    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 49    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 50    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 51    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 52    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 53    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 54    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 55    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 56    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 57    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 58    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 59    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 60    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 61    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 62    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 63    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 64    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 65    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 66    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 67    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 68    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 69    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 70    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 71    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 72    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 73    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 74    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 75    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 76    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 77    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 78    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 79    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 80    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 81    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 82    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 83    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 84    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 85    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 86    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 87    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 88    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 89    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 90    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 91    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 92    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 93    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 94    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 95    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 96    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 97    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 98    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 99    |             |          |     |            |
|       |      |       |        |       |       |         |     |      |          | 100   |             |          |     |            |

## MONITORING WELL RECORD

Well Permit No. 29 - 32069  
Atlas Sheet Coordinates 29 : 13 : 818OWNER IDENTIFICATION - Owner U S ARMY FORT MONMOUTHAddress \_\_\_\_\_  
City FORT MONMOUTH State NJ Zip Code \_\_\_\_\_WELL LOCATION - If not the same as owner please give address. Owner's Well No. PL-4 2700.4 MW-1  
County MONMOUTH Municipality OCEANPORT BORO Lot No. N/A Block No. N/A  
Address \_\_\_\_\_TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 7/19/94  
Regulatory Program Requiring Well UST Case I.D. # 92-3-7-1247-43

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) \_\_\_\_\_ Tele. # \_\_\_\_\_

## WELL CONSTRUCTION

Total depth drilled 20 ft.Well finished to 20 ft.

Borehole diameter:

Top 8 in.Bottom 8 in.Well was finished: ☐ above grade  
☒ flush mountedIf finished above grade, casing  
height (stick up) above land  
surface \_\_\_\_\_ ft.

Was steel protective casing installed?

☐ Yes ☒ NoStatic water level after drilling 15 ft.Water level was measured using TAPEWell was developed for 1 hours at 10 gpmMethod of development PUMPWas permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity \_\_\_\_\_ gpm

Pump type: \_\_\_\_\_

Drilling Method AugerDrilling Fluid \_\_\_\_\_ Type of Rig B-80Name of Driller Michael E BeckHealth and Safety Plan submitted? ☒ Yes ☐ NoLevel of Protection used on site (circle one) (None) D C B AN.J. License No. 1421

Name of Drilling Company \_\_\_\_\_

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Michael E BeckDate 7-20-94

COPIES: White &amp; Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

|                                         | Depth to<br>Top (ft.)<br>[From land surface] | Depth to<br>Bottom (ft.) | Diameter<br>(inches) | Type and Material |
|-----------------------------------------|----------------------------------------------|--------------------------|----------------------|-------------------|
| Inner Casing                            | 6"                                           | 10'                      | 14"                  | PVC               |
| Outer Casing<br>(Not Protective Casing) |                                              |                          |                      |                   |
| Screen<br>(Note slot size)              | 10'                                          | 20'                      | 4"                   | 205/6T PVC        |
| Tail Piece                              |                                              |                          |                      |                   |
| Gravel Pack                             | 8'                                           | 20'                      |                      | #2                |
| Annular Seal/Grout                      | 6"                                           | 8'                       |                      | Concrete Portland |
| Method of Grouting                      | Tremie                                       |                          |                      |                   |

## GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

5-6" Top Soil  
6" - 16' Yellow med to coarse  
sand - clay  
16' - 20' Lite brown base  
sand

THIS FORM MUST BE COMPLETED BY THE PERMITTEE, AND/OR SURVEYOR

**MONITORING WELL CERTIFICATION-FORM B-LOCATION CERTIFICATION**

Name of Permittee: U.S. ARMY  
Name of Facility: FORT MONMOUTH  
Location: MONMOUTH COUNTY, NJ  
NJPDOS Number:

**LAND SURVEYOR'S CERTIFICATION**

Well Permit Number:

This number must be permanently affixed to the well casing.

Longitude (to nearest second):

West 74° 05' 19.93"

Latitude (to nearest second):

North 40° 17' 46.88"

Elevation of Top of Inner Casing (cap off),  
(one-hundredth of a foot):

69.93

Elevation of ground level (1/100th ft.)

70.31

Source of elevation datum (benchmark, nail, etc.) and year. (If an alternate datum has been approved by the Department, identify here, assume datum of 100', and give approximated actual elevation.)

Source: CW-205

☒ 1927 ☐ 1983

Elev.: 55.13

Owners Well Number (As shown on application or plans):

BLOG 2700.4 MW-1

Elevations are to be determined by double run, three wire leveling methods using balanced sights, commencing from a well marked and described point. This beginning point shall either be derived from Federal or State benchmarks if not more than 1000 feet from the site or from an alternate datum approved by the Department. Tolerances should meet third order standards, which are 0.05 ft x (mile)<sup>1/2</sup>. For sections less than 0.1 mile, let miles = 0.1.

**AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Wayne W. BURGITT  
PROFESSIONAL LAND SURVEYOR'S SIGNATURE

WAYNE W BURGITT  
PROFESSIONAL LAND SURVEYOR'S NAME  
(Please print or type)

SEAL

31654  
PROFESSIONAL LAND SURVEYOR'S LICENSE #





## APPENDIX D

### WELL SEARCH INFORMATION

**SECTION 2.0**

**CHARLES WOOD AREA - WELL SEARCH**

**WELL SEARCH SUMMARY TABLE  
CHARLES WOOD AREA  
U.S. ARMY FORT MONMOUTH**

| WELL ID NO | WELL OWNER                        | WELL ADDRESS                                | TOTAL DEPTH (FEET BGS) | CASING LENGTH (FEET) | STATIC WATER ELEV. (FEET BGS) | USE CODE | NJDEPE PERMIT NO. |
|------------|-----------------------------------|---------------------------------------------|------------------------|----------------------|-------------------------------|----------|-------------------|
| 1          | Wolf Press/Redacted - Privacy Act | 1138 Pinebrook Rd, Tinton Falls             | 215                    | 200                  | 33                            | D        | 29-19540          |
| 2          | M&M Fair                          | 7 Violate Court, Eatontown                  | 40                     | 30                   | 8                             | G        | 29-28128          |
| 3          | Redacted - Privacy Act            | 30 Victor Avenue, Eatontown                 | 51                     | 41                   | 5                             | D        | 29-13163          |
| 4          | Redacted - Privacy Act            | 144 Grant Avenue, Eatontown                 | 117                    | 111                  | 12                            | D        | 29-16207          |
| 6          | The Ranney School                 | 235 Hope Rd, Tinton Falls                   | 14                     | 4                    | 8                             | M        | 29-27751          |
| 7          | The Ranney School                 | 235 Hope Rd, Tinton Falls                   | 14                     | 4                    | 6                             | M        | 29-27752          |
| 8          | The Ranney School                 | 235 Hope Rd, Tinton Falls                   | 12                     | 2                    | 3.67                          | M        | 29-27800          |
| 9          | The Ranney School                 | 235 Hope Rd, Tinton Falls                   | 25                     | 5                    | 5                             | G        | 29-14431          |
| 10         | Redacted - Privacy Act            | 27 Devon Court, Tinton Falls                | 46                     | 32                   | 6                             | G        | 29-11142          |
| 13         | Redacted - Privacy Act            | 463 Tinton Avenue, Tinton Falls             | 186                    | 171                  | 32                            | D        | 29-21698          |
| 18         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 15                     | 4                    | 6.4                           | M        | 29-25316          |
| 19         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 15                     | 5                    | 6.7                           | M        | 29-25317          |
| 20         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 15                     | 5                    | 7                             | M        | 29-25318          |
| 21         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 15                     | 5                    | 7                             | M        | 29-25319          |
| 22         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 15                     | 5                    | 7                             | M        | 29-25320          |
| 23         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 15                     | 5                    | *                             | M        | 29-26053          |
| 24         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 15                     | 5                    | *                             | M        | 29-26054          |
| 25         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 15                     | 5                    | *                             | M        | 29-26055          |
| 26         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 15                     | 5                    | 7                             | M        | 29-26056          |
| 27         | Eatontown Bd of Education         | 250 Pinebrook Rd, Eatontown                 | 12                     | 2                    | 10                            | M        | 29-26865          |
| 28         | Eatontown Bd of Education         | 250 Pinebrook Rd, Eatontown                 | 12                     | 2                    | 10                            | M        | 29-26866          |
| 29         | Eatontown Bd of Education         | 250 Pinebrook Rd, Eatontown                 | 12                     | 2                    | 10                            | M        | 29-26867          |
| 30         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 23                     | 3                    | 8                             | E        | 29-27770          |
| 31         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 18                     | 5                    | 8                             | E        | 29-27771          |
| 32         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 18                     | 5                    | 8                             | E        | 29-27772          |
| 33         | Mobil Oil Corporation             | Block 8 Lot 5, Eatontown                    | 18                     | 5                    | 8                             | E        | 29-27773          |
| 45         | Redacted - Privacy Act            | 539 Tinton Avenue, Tinton Falls             | 261                    | 241                  | 21                            | D        | 29-28140          |
| 46         | County of Monmouth                | Hwy District 316 (B97;L21.01), Tinton Falls | 17                     | 7                    | 11.08                         | M        | 29-28781          |
| 47         | County of Monmouth                | Hwy District 316 (B97;L21.01), Tinton Falls | 17                     | 7                    | 7.17                          | M        | 29-28782          |
| 48         | County of Monmouth                | Hwy District 316 (B97;L21.01), Tinton Falls | 17.5                   | 7.5                  | 8.33                          | M        | 29-29607          |
| 49         | County of Monmouth                | Hwy District 316 (B97;L21.01), Tinton Falls | 14                     | 4                    | 6.58                          | M        | 29-29623          |
| 50         | NJDOT                             | Block 113, Lot 8A,9A, Tinton Falls          | 63                     | 58                   | *                             | M        | 29-16775          |
| 51         | NJDOT                             | Block 113, Lot 8A,9A, Tinton Falls          | 76.5                   | 71.5                 | *                             | M        | 29-16776          |

ID - Identification  
BGS - Below Ground Surface  
G - Irrigation Well  
D - Domestic Well  
P - Inactive Production Well

M - Monitoring Well  
E - Recovery Well  
S - Sealed Well  
\* - This information was not available during the well search

**WELL SEARCH SUMMARY TABLE  
CHARLES WOOD AREA  
U.S. ARMY FORT MONMOUTH**

| WELL ID NO | WELL OWNER                    | WELL ADDRESS                            | TOTAL DEPTH (FEET BGS) | CASING LENGTH (FEET) | STATIC WATER ELEV. (FEET BGS) | USE CODE | NJDEPE PERMIT NO. |
|------------|-------------------------------|-----------------------------------------|------------------------|----------------------|-------------------------------|----------|-------------------|
| 52         | County of Monmouth            | 143A Wayside Road, Tinton Falls         | 17                     | 7                    | 11.33                         | M        | 29-27443          |
| 53         | County of Monmouth            | 143A Wayside Road, Tinton Falls         | 17                     | 7                    | 11.5                          | M        | 29-27444          |
| 54         | County of Monmouth            | 143A Wayside Road, Tinton Falls         | 17.5                   | 7.5                  | 11.75                         | M        | 29-27453          |
| 55         | Redacted - Privacy /Aris Corp | Block 114.01, Lot 21.02, Tinton Falls   | 12                     | 2                    | 4                             | M        | 29-23921          |
| 56         | Redacted - Privacy            | Block 114.01, Lot 21.02, Tinton Falls   | 12                     | 2                    | 4                             | M        | 29-25775          |
| 57         | Redacted - Privacy Act        | Block 114.01, Lot 21.02, Tinton Falls   | 8                      | 0                    | 4                             | M        | 29-26312          |
| 58         | Redacted - Privacy            | 46 Park Road, Tinton Falls              | 13                     | 3                    | 3.5                           | M        | 29-29421          |
| 59         | Redacted - Privacy /Aris Corp | Block 114.01, Lot 21.02, Tinton Falls   | 12                     | 2                    | 3                             | M        | 29-23919          |
| 60         | Redacted - Privacy /Aris Corp | Block 114.01, Lot 21.02, Tinton Falls   | 12                     | 2                    | 3                             | M        | 29-23290          |
| 61         | Redacted - Privacy /Aris Corp | Block 114.01, Lot 21.02, Tinton Falls   | 9                      | 2                    | 3                             | M        | 29-23916          |
| 62         | Redacted - Privacy /Aris Corp | Block 114.01, Lot 21.02, Tinton Falls   | 13                     | 2                    | 3                             | M        | 29-23917          |
| 63         | Redacted - Privacy /Aris Corp | Block 114.01, Lot 21.02, Tinton Falls   | 12                     | 2                    | 3                             | M        | 29-23918          |
| 102        | Exxon Corporation             | Block 2; Lot 7.01.8 Eatontown           | 15                     | 3                    | 5                             | M        | 29-26806          |
| 103        | Exxon Corporation             | Block 2; Lot 7.01.8 Eatontown           | 16                     | 3                    | 5                             | M        | 29-26807          |
| 104        | Exxon Corporation             | Block 2; Lot 7.01.8 Eatontown           | 17                     | 3                    | 6                             | M        | 29-26808          |
| 105        | Exxon Corporation             | Block 2; Lot 7.01.8 Eatontown           | 17                     | 3                    | 5                             | M        | 29-26809          |
| 107        | Amoco Oil Company             | Route 35 South, Eatontown               | 16.5                   | 1.5                  | 12                            | M        | 29-14593          |
| 108        | Amoco Oil Company             | Route 35 South, Eatontown               | 16.5                   | 1.5                  | 12                            | M        | 29-14594          |
| 109        | Amoco Oil Company             | Route 35 South, Eatontown               | 16.5                   | 1.5                  | 12                            | M        | 29-14595          |
| 110        | Amoco Oil Company             | Route 35 South, Eatontown               | 16.5                   | 1.5                  | 12                            | M        | 29-14596          |
| 111        | Redacted - Privacy Act        | 11 West Street, Eatontown               | 150                    | 150                  | 7                             | D        | 29-2952           |
| 126        | Tinton Woods                  | 301 Tinton Avenue., Eatontown           | 80                     | 41                   | 15                            | G        | 29-13187          |
| 2567/1     | U.S. Army, Fort Monmouth      | Charles Wood Bldg 2567, Ft Monmouth *** | 13                     | 3                    | 4                             | M        | 29-26925          |
| 2567/2     | U.S. Army, Fort Monmouth      | Charles Wood Bldg 2567, Ft Monmouth *** | 13                     | 3                    | 5.5                           | M        | 29-26926          |
| 2567/3     | U.S. Army, Fort Monmouth      | Charles Wood Bldg 2567, Ft Monmouth *** | 13                     | 3                    | 4                             | M        | 29-26927          |
| 2567/4     | U.S. Army, Fort Monmouth      | Charles Wood Bldg 2567, Ft Monmouth *** | 12                     | 2                    | 3                             | M        | 29-26928          |
| 3021/1     | U.S. Army, Fort Monmouth      | Charles Wood Bldg 3021, Ft Monmouth     | 12                     | 2                    | 3.5                           | M        | 29-26930          |
| 3021/2     | U.S. Army, Fort Monmouth      | Charles Wood Bldg 3021, Ft Monmouth     | 11                     | 1                    | 3                             | M        | 29-26931          |
| 3021/3     | U.S. Army, Fort Monmouth      | Charles Wood Bldg 3021, Ft Monmouth     | 12                     | 2                    | 2.5                           | M        | 29-26932          |
| 2500/1     | U.S. Army, Fort Monmouth      | Charles Wood Bldg 2500, Ft Monmouth     | 25                     | 5                    | 7                             | M        | 29-29742          |
| 2500/2     | U.S. Army, Fort Monmouth      | Charles Wood Bldg 2500, Ft Monmouth     | 25                     | 5                    | 7                             | M        | 29-29743          |
| 2500/3     | U.S. Army, Fort Monmouth      | Charles Wood Bldg 2500, Ft Monmouth     | 25                     | 5                    | 7                             | M        | 29-29744          |
| 2500/4     | U.S. Army, Fort Monmouth      | Charles Wood Bldg 2500, Ft Monmouth     | 25                     | 5                    | 7                             | M        | 29-29745          |
| P1         | U.S. Army, Fort Monmouth      | Charles Wood, Ft Monmouth               | *                      | *                    | *                             | P        | *                 |
| P2         | U.S. Army, Fort Monmouth      | Charles Wood, Ft Monmouth               | *                      | *                    | *                             | P        | *                 |

ID - Identification  
BGS - Below Ground Surface  
G - Irrigation Well  
D - Domestic Well  
P - Inactive Production Well

M - Monitoring Well  
E - Recovery Well  
S - Sealed Well  
\* - This information was not available during the well search  
\*\*\* - Form B has been completed for this well.

| Well No. | Permit No. | NJ Planar Coord**** |         | Elevation-TOC | Elevation-GRD |
|----------|------------|---------------------|---------|---------------|---------------|
|          |            | Northing            | Easting |               |               |
| 1        | 29-19540   | 530800              | 2163200 | 41.5          | 40            |
| 2        | 29-28128   | 537125              | 2167270 | ***           | ***           |
| 3        | 29-13163   | 532540              | 2169300 | ***           | ***           |
| 4        | 29-16207   | 530600              | 2167380 | ***           | 52            |
| 6        | 29-27751   | 538100              | 2163440 | ***           | ***           |
| 7        | 29-27752   | 538080              | 2163710 | ***           | ***           |
| 8        | 29-27800   | 537930              | 2163550 | ***           | ***           |
| 9        | 29-14431   | 537935              | 2163820 | ***           | ***           |
| 10       | 29-11142   | 537200              | 2163140 | ***           | 90            |
| 13       | 29-21698   | 536750              | 2161900 | 56.5          | 55            |
| 18       | 29-25316   | 537000              | 2168170 | ***           | ***           |
| 19       | 29-25317   | 537000              | 2168170 | ***           | ***           |
| 20       | 29-25318   | 537000              | 2168170 | ***           | ***           |
| 21       | 29-25319   | 537000              | 2168170 | ***           | ***           |
| 22       | 29-25320   | 537000              | 2168170 | ***           | ***           |
| 23       | 29-26053   | 537000              | 2168170 | ***           | ***           |
| 24       | 29-26054   | 537000              | 2168170 | ***           | ***           |
| 25       | 29-26055   | 537000              | 2168170 | ***           | ***           |
| 26       | 29-26056   | 537000              | 2168170 | ***           | ***           |
| 27       | 29-26865   | 533000              | 2168320 | ***           | ***           |
| 28       | 29-26866   | 533000              | 2168320 | ***           | ***           |
| 29       | 29-26867   | 533000              | 2168320 | ***           | ***           |
| 30       | 29-27770   | 537220              | 2168150 | ***           | ***           |
| 31       | 29-27771   | 537220              | 2168150 | ***           | ***           |
| 32       | 29-27772   | 537220              | 2168150 | ***           | ***           |
| 33       | 29-27773   | 537220              | 2168150 | ***           | ***           |
| 45       | 29-28140   | 536165              | 2159995 | ***           | ***           |
| 46       | 29-28781   | 530650              | 2158720 | ***           | ***           |
| 47       | 29-28782   | 530650              | 2158720 | ***           | ***           |
| 48       | 29-29607   | 530650              | 2158720 | ***           | ***           |
| 49       | 29-29623   | 530650              | 2158720 | ***           | ***           |
| 50       | 29-16775   | 528720              | 2160450 | ***           | ***           |
| 51       | 29-16776   | 528720              | 2160450 | ***           | ***           |
| 52       | 29-27443   | 530480              | 2158725 | ***           | ***           |
| 53       | 29-27444   | 530480              | 2158725 | ***           | ***           |
| 54       | 29-27453   | 530480              | 2158725 | ***           | ***           |
| 55       | 29-23921   | 529100              | 2162200 | ***           | ***           |
| 56       | 29-25775   | 529100              | 2162200 | ***           | ***           |

| Well No. | Permit No. | NJ Planar Coord***** |         | Elevation-TOC | Elevation-GRD |
|----------|------------|----------------------|---------|---------------|---------------|
|          |            | Northing             | Easting |               |               |
| 57       | 29-26312   | 529100               | 2162200 | ***           | ***           |
| 58       | 29-29421   | 529100               | 2162200 | ***           | ***           |
| 59       | 29-23919   | 529100               | 2162200 | ***           | ***           |
| 60       | 29-23290   | 529100               | 2162200 | ***           | ***           |
| 61       | 29-23916   | 529100               | 2162200 | ***           | ***           |
| 62       | 29-23917   | 529100               | 2162200 | ***           | ***           |
| 63       | 29-23918   | 529100               | 2162200 | ***           | ***           |
| 102      | 29-26806   | 537380               | 2168125 | ***           | ***           |
| 103      | 29-26807   | 537380               | 2168125 | ***           | ***           |
| 104      | 29-26808   | 537380               | 2168125 | ***           | ***           |
| 105      | 29-26809   | 537380               | 2168125 | ***           | ***           |
| 106      | 29-22900   | 496050               | 2166050 | ***           | ***           |
| 107      | 29-14593   | 538700               | 2168050 | ***           | ***           |
| 108      | 29-14594   | 538700               | 2168050 | ***           | ***           |
| 109      | 29-14595   | 538700               | 2168050 | ***           | ***           |
| 110      | 29-14596   | 538700               | 2168050 | ***           | ***           |
| 111      | 29-2952    | 536625               | 2168160 | ***           | ***           |
| 126      | 29-13187   | 535985               | 2163975 | ***           | 50            |
| 2500/1   | 29-29742   | 531340               | 2161910 | ***           | ***           |
| 2500/2   | 29-29743   | 531340               | 2161910 | ***           | ***           |
| 2500/3   | 29-29744   | 531340               | 2161910 | ***           | ***           |
| 2500/4   | 29-29745   | 531340               | 2161910 | ***           | ***           |
| 2567/1   | 29-26925   | 533250               | 2163740 | 33.93         | 33.72         |
| 2567/2   | 29-26926   | 533250               | 2163740 | 35.26         | 35.24         |
| 2567/3   | 29-26927   | 533250               | 2163740 | 33.88         | 33.82         |
| 2567/4   | 29-26928   | 533250               | 2163740 | 33.51         | 33.38         |
| 3021/1   | 29-26930   | 533265               | 2165780 | ***           | ***           |
| 3021/2   | 29-26931   | 533265               | 2165780 | ***           | ***           |
| 3021/3   | 29-26932   | 533265               | 2165780 | ***           | ***           |

Notes: \* - This information was not available during the well search

\*\*- This well was not issued a permit by NJDEPE

\*\*\* - No elevation data was found for this well location.

\*\*\*\* - Except for wells 699/1-14, all coordinates shown are approximate.

The information given does not represent surveyed coordinates.

TOC - Top of Casing

GRD - Ground Surface

## WELL RECORD

Well Permit No. 29 19540  
Atlas Sheet Coordinates 29 13 829OWNER IDENTIFICATION - Owner WOLF PRESS, Redacted - Privacy Act  
Address 1138 PINEBROOK ROAD  
City TINTON FALLS (WR-4D) State NJ Zip Code \_\_\_\_\_WELL LOCATION - If not the same owner please give address. Owner's Well No. \_\_\_\_\_  
Address Property: 1138 Pinebrook Road, Tinton Falls, NJ  
County City: Monmouth Municipality TINTON FALLS BO Lot No. 8 Block No. 114WELL USE WITHDRAWAL Status IN USEWATER USE DOMESTIC Average 1,000 gals. daily Maximum 2,000 gals. dailyWELL CONSTRUCTION Date well completed COMPLETED: 87/11/25  
BOREHOLE DIMENSIONS Depths: Total ID: 215 ft. Finished \_\_\_\_\_ ft.  
Diameter: Top 8.5 in. Bottom \_\_\_\_\_ in.  
Land Surface Elevation at well E: 40 ft. Elevation was determined using Topographic map  
Casing Height (stick-up) above land surface 1.5 ft.

|                 | DEPTH TO TOP<br>(FT.)            | LENGTH<br>(FT.) | DIAMETER<br>(IN.) | TYPE AND MATERIAL<br>Screens: Note Slot Size(s) |
|-----------------|----------------------------------|-----------------|-------------------|-------------------------------------------------|
| Casing 1        |                                  | <u>L: 200</u>   | <u>4.0"</u>       | <u>Sched 40 PVC</u>                             |
| Casing 2        |                                  |                 |                   |                                                 |
| Casing 3        |                                  |                 |                   |                                                 |
| Screen 1        | <u>Top: 200</u>                  | <u>10</u>       | <u>4.0"</u>       | <u>Sched 40 PVC .025</u>                        |
| Screen 2        |                                  |                 |                   |                                                 |
| Tail Piece      |                                  | <u>5</u>        | <u>4.0"</u>       | <u>Sched 40 PVC</u>                             |
| Gravel Pack     | <u>Top: 190</u>                  | <u>25</u>       | <u>8.5"</u>       | <u>.025 Blended</u>                             |
| Grout           | <u>Surface</u>                   | <u>215</u>      |                   | <u>2" test bedrock</u>                          |
| Grouting Method | <u>Pressure thru tremie pipe</u> |                 |                   |                                                 |

WELL FLOWS NATURALLY \_\_\_\_\_ gals. per min. at \_\_\_\_\_ ft. above the land surface.  
Water rises to \_\_\_\_\_ ft. above the land surface.Test Date: 87/11.25RECORD OF TEST Test Date \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Level: 154  
Static water-level before pumping: 32 ft. below land surface. Water level \_\_\_\_\_ ft. below land surface after 1 hrs. of pumping.  
Water level was measured using estimated Drawdown DD: 181 ft.  
Discharge rate measured using measured container Discharge Rate Q: 40 gals. per min.  
Well was pumped using Hand lift Specific Capacity Q/S: 0.5 gals. per min. per ft. of drawdown  
Observed effects on nearby wells \_\_\_\_\_  
Water Quality (taste, odor, color, etc.) goodPERMANENT PUMPING EQUIPMENT Installed by PICKWICK WELL DRILL Pump Type Submersible  
Mfr. Name Gould/Rod Jacket Model Model: 10EJ07422  
CAPACITY: Pump delivers 12 gpm GPM at 40 PSI pressure.  
POWER: 3/4 HP HP at 3450 RPM Power Source Electric  
DEPTHS: Pump Set 130 ft. Footpiece \_\_\_\_\_ ft. Airline \_\_\_\_\_ ft.  
FLOW METER: Model \_\_\_\_\_ installed on \_\_\_\_\_ in. diameter pipe.

PICKWICK WELL DRILLING

CONTRACTOR - Name of Drilling Contractor P.O. Box 2, Farmingdale, NJ 07727 (201) 938-5300  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_  
Name of Driller David Primost M 1041 License No. \_\_\_\_\_  
Norman Primost J 1040  
Allen Primost J 1407Signature of Contractor [Signature] Date 88/02/07

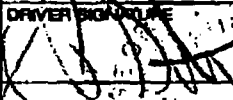
COPIES: White - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.



## APPENDIX E

### WASTE DISPOSAL CERTIFICATES



|                                                 |  |                                                                                                                           |                                      |
|-------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>CERTIFIED WEIGHTMASTER<br/>WEIGHT TICKET</b> |  | 3 Army Garrison Fort Monmouth<br>Directorate for Installation Logistics, Sup Svcs Div.<br>Fort Monmouth, New Jersey 07703 |                                      |
| <b>WEIGHT</b>                                   |  |                                                                                                                           |                                      |
|                                                 |  | 13040                                                                                                                     | Lbs. GROSS                           |
|                                                 |  | 12840                                                                                                                     | Lbs. TARE                            |
|                                                 |  | 250                                                                                                                       | Lbs. NET                             |
| <b>VEHICLE IDENTIFICATION</b><br>HMC 259        |  | <b>B/L NUMBER</b>                                                                                                         | <b>COMMODITY</b><br>2'100 area metal |
| <b>NAME OF SHIPPER</b><br>Ft. Monmouth          |  | <b>NAME OF CARRIER</b><br>Army-Air - Butter-                                                                              |                                      |
| <b>REMARKS</b><br># UST 81515-62                |  | <b>DRIVER SIGNATURE</b><br>            |                                      |
|                                                 |  | <input type="checkbox"/> DRIVER ON <input type="checkbox"/> DRIVER OFF                                                    |                                      |
| <b>DATE</b><br>30 Mar 94                        |  | <b>WEIGHTMASTER</b><br>              |                                      |

DDJH Form 1971 - August 1988

USAGPM 2716-08



## **APPENDIX F**

### **ANALYTICAL DATA PACKAGE**

Report of Analysis  
U.S. Army, Fort Monmouth Environmental Laboratory  
NJDEPE Certification # 13461

Client: U.S. Army  
DEH, SELFM-EH-EV  
Bldg. 167  
Ft. Monmouth, NJ 07703

Lab. ID #: 1268.1-.6  
Sample Rec'd: 09/10/93  
Analysis Start: 09/10/93  
Analysis Comp: 09/10/93

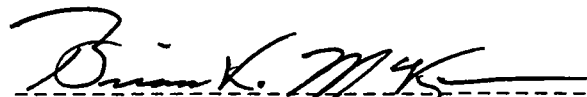
Analysis: 418.1 (TPH)  
Matrix: Soil  
Analyst: S. Hubbard  
Extract: SONC.

|                          |
|--------------------------|
| NJDEPE UST Reg. #:       |
| TMS #:                   |
| NJDEPE Case #: XXXX      |
| Location #: Bldg. # 2700 |

| Lab ID. | Description                        | %Solid | Result<br>(mg/Kg) | MDL |
|---------|------------------------------------|--------|-------------------|-----|
| 1268.1  | Site A, West Side Wall             | 87     | ND                | 3.3 |
| 1268.2  | Site B, South Side Wall            | 86     | 11.7              | 3.3 |
| 1268.3  | Site C, East Side Wall             | 88     | ND                | 3.3 |
| 1268.4  | Site D, North Side Wall            | 88     | 309.              | 100 |
| 1268.5  | Site E, Pit Bottom (highest Conc.) | 84     | 7520. *           | 100 |
| 1268.6  | Site F, Duplicate of E             | 83     | 7440. *           | 100 |
|         |                                    |        |                   |     |
|         |                                    |        |                   |     |
|         |                                    |        |                   |     |
|         |                                    |        |                   |     |
| M. BL.  | Method Blank                       | 100    | ND                | 3.3 |
|         |                                    |        |                   |     |

Notes: ND = Not Detected, MDL = Method Detection Limit  
\* = Silica Gel Added

1268.5 Dup = 99%; 1268.6 Spike = 119%; 1268.6 Spike Dup. = 84%



Brian K. McKee  
Laboratory Director

No   Yes

- ☒ ☐

☒

- 

- \_\_\_\_\_

- 

- ✓

Comments: \_\_\_\_\_

I certify under penalty of law, where applicable, that this laboratory meets the Laboratory Performance Standards and Quality Control requirements specified in N.J.A.C. 7:18 and 40 CFR Part 136 for Water and Wastewater Analyses and SW 846 for Solid Waste Analysis. I have personally examined the information contained in this report, and to the best of my knowledge, I believe that the submitted information is true, accurate, complete, and meets the above referenced standards where applicable. I am aware that there are significant penalties for purposefully submitting falsified information, including the possibility of a fine and imprisonment.

  
Brian K. McKee  
Laboratory Manager



P.O. #:

| <b>Project #:</b>                  | <b>Sampler:</b>        | <b>Date / Time</b>                      | <b>Analysis Parameters</b> |              |      |                    |     |                     | <b>Start:</b>                                                |  |
|------------------------------------|------------------------|-----------------------------------------|----------------------------|--------------|------|--------------------|-----|---------------------|--------------------------------------------------------------|--|
| <b>Customer:</b>                   | <i>Charles Appleby</i> | <i>9/10/93</i>                          |                            |              |      |                    |     |                     | <b>Finish:</b>                                               |  |
| <i>Tow-Air Inc.</i>                | <b>Site Name:</b>      |                                         |                            |              |      |                    |     |                     |                                                              |  |
| <b>Phone:</b>                      | <i>532-6224</i>        |                                         |                            |              |      |                    |     |                     |                                                              |  |
| Lab Sample ID Number               | Date/Time              | Customer Sample Location/ID Number      | Sample Matrix              | # of Bottles | TPHC | Von +15            | HNU | PRESERVATION METHOD | Remarks                                                      |  |
| <i>1268 . 1</i>                    | <i>9/10/93 9:35</i>    | <i>Site A West Side wall</i>            |                            | <i>2</i>     | X    | ND                 |     |                     |                                                              |  |
| <i>. 2</i>                         | <i>9/10/93 9:38</i>    | <i>Site B South Side Wall</i>           |                            | <i>2</i>     | x    | ND                 |     |                     |                                                              |  |
| <i>. 3</i>                         | <i>9/10/93 9:40</i>    | <i>Site C East Side Wall</i>            |                            | <i>2</i>     | x    | ND                 |     |                     |                                                              |  |
| <i>. 4</i>                         | <i>9/10/93 9:30</i>    | <i>Sites D North Side Wn</i>            |                            | <i>2</i>     | x    | NP                 |     |                     |                                                              |  |
| <i>. 5</i>                         | <i>9/10/93 9:25</i>    | <i>Site E Pit Bottom Highest Cont</i>   |                            | <i>2</i>     | x    | 100                |     |                     |                                                              |  |
| <i>. 6</i>                         | <i>9/10/93 9:27</i>    | <i>Site F Duplicate of E</i>            |                            | <i>2</i>     | x    | 100                |     |                     |                                                              |  |
|                                    |                        |                                         |                            |              |      |                    |     |                     | <i>Von+15 to<br/>be done if TPHC<br/>&gt; 1000 ppm only.</i> |  |
|                                    |                        |                                         |                            |              |      |                    |     |                     | <i>Hnu - Su - 270136</i>                                     |  |
|                                    |                        |                                         |                            |              |      |                    |     |                     | <i>Spew @ 5.5 ppm = 5.2</i>                                  |  |
| <b>Relinquished By (signature)</b> | <b>Date / Time</b>     | <b>Received By (signature)</b>          | <b>Shipped By:</b>         |              |      |                    |     |                     |                                                              |  |
| <i>[Signature]</i>                 | <i>9/10/93 11:15</i>   | <i>B. MK</i>                            | <i>FOL</i>                 |              |      |                    |     |                     |                                                              |  |
| <b>Relinquished By (signature)</b> | <b>Date / Time</b>     | <b>Received for Lab by (signature):</b> |                            |              |      | <b>Date / Time</b> |     |                     |                                                              |  |
|                                    |                        |                                         |                            |              |      |                    |     |                     |                                                              |  |

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.

# **UST ANALYSIS RESULT CHECKLIST**

(one form for each site report)

Building No. 2700 Laboratory(SAI/Cont.) ID#s 1268.5

IJO No. 93-0116 Date Sampled: 9-13-93

Date Analysis Submitted: \_\_\_\_\_ Date Reviewed: 5-12-94

| ITEM | ITEM OF WORK                                           | ITEM COMPLETE (YES/NO) | COMMENTS        |
|------|--------------------------------------------------------|------------------------|-----------------|
| A    | Labor and Equip. Supplied                              | <u>N</u>               |                 |
| B    | Work done by Cert. Lab                                 | <u>Y</u>               |                 |
| C    | Trip and Field Blanks, ect. Supplied by Contractor     | <u>N</u>               |                 |
| D    | Contractor picked up samples at Bldg. 490              | <u>Y</u>               | <u>Positive</u> |
| G    | Aqueous samples analyzed for Xylene, MTBE-TBA          | <u>Y</u>               |                 |
| H    | Chain of Custody correct (Hnu, Site Names, SAI #'s)    | <u>N</u>               | <u>No HNU</u>   |
| H    | MW sampling field data (DTW, Hnu/OVA, ect...)          | <u>NA</u>              |                 |
| H    | Laboratory Decon. Narrative                            | <u>NA</u>              |                 |
| J    | Samples were not distributed to another Laboratory     | <u>Y</u>               |                 |
| K    | Appropriate NJDEPE checklists are completed            | <u>Y</u>               |                 |
| J    | Result headers are correct                             | <u>Y</u>               |                 |
| J    | QA/QC data                                             | <u>Y</u>               |                 |
| J    | Non-TIC results reported within 48 hrs.                | <u>-</u>               |                 |
| J    | Final Report complete within 3-Weeks (3 copies)        | <u>-</u>               |                 |
| J    | Final Report complete within 4- weeks (3 copies) PP-40 | <u>-</u>               |                 |
| J    | List Approved Contract Deviations                      | <u>NA</u>              |                 |

| ANALYSIS / SERVICE                    | COST     | QUANTITY | SUB-TOTAL     |
|---------------------------------------|----------|----------|---------------|
| SOIL- B/N+15                          | \$190.00 | <u>1</u> |               |
| SOIL- VOA+15                          | 140.00   | <u>1</u> |               |
| SOIL- VOA+15, XYLENE,Pb               | 150.00   |          |               |
| SOIL- B/N+15, VOA+15, XYLENE, Pb      | 340.00   |          |               |
| SOIL- PP-40                           | 825.00   |          |               |
| AQUEOUS- 824(XYLENE,TBA,MTBE) 825, Pb | 340.00   |          |               |
| MONITORING WELL SAMPLING              | 65.00    |          |               |
| TOTAL                                 |          |          | <u>\$ 330</u> |

REVIEWERS NAME B. M. K.



618 HERON DRIVE P.O. BOX 489 • BRIDGEPORT, NJ 08014-0489 • 609-467-9521

E-SYSTEMS, INC

PROJECT: U.S. ARMY-FORT MONMOUTH, NJ BLDG 2700

ANALYSIS NO:

A 4024

CLIENT ID:

SITE E PIT BOTTOM

DATE RECEIVED: SEPTEMBER 13, 1993

TWENTY FIRST CENTURY  
ENVIRONMENTAL, INC.

*Richard W Lynch*  
RICHARD W. LYNCH  
LABORATORY MANAGER

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

|                                                                                                                                                                                                                         | <u>No</u>                                      | <u>Yes</u>     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------|
| 1. Chromatograms Labeled/Compounds Identified<br>(Field Samples and Method Blanks)                                                                                                                                      | ___                                            | ___✓           |
| 2. GC/MS Tune Specifications                                                                                                                                                                                            |                                                |                |
| a. BFB Meet Criteria                                                                                                                                                                                                    | ___                                            | ___✓           |
| b. DFTPP Meet Criteria                                                                                                                                                                                                  | ___                                            | ___✓           |
| 3. GC/MS Tuning Frequency - Performed every 24 hours for<br>600 series and 12 hours for 8000 series.                                                                                                                    | ___                                            | ___✓           |
| 4. GC/MS Calibration - Initial Calibration performed within<br>30 days before sample analysis and continuing calibration<br>performed within 24 hours of sample analysis for 600 series<br>and 12 hours for 8000 series | ___                                            | ___✓           |
| 5. GC/MS Calibration Requirements                                                                                                                                                                                       |                                                |                |
| a. Calibration Check Compounds                                                                                                                                                                                          | ___                                            | ___✓           |
| b. System Performance Check Compounds                                                                                                                                                                                   | ___                                            | ___✓           |
| 6. Blank Contamination - If yes, list compounds and concentrations<br>in each blank:                                                                                                                                    |                                                |                |
| a. VOA Fraction                                                                                                                                                                                                         | <u>Acetone + Methylene Chloride: Below MDL</u> |                |
| b. B/N Fraction                                                                                                                                                                                                         | <u>Bis (2-EN) Phthalate: Below MDL</u>         |                |
| c. Acid Fraction                                                                                                                                                                                                        | _____                                          |                |
| 7. Surrogate Recoveries Meet Criteria                                                                                                                                                                                   | ___                                            | ___✓           |
| If not met, list those compounds and their recoveries<br>which fall outside the acceptable range:                                                                                                                       |                                                |                |
| a. VOA Fraction                                                                                                                                                                                                         | <u>None</u>                                    |                |
| b. B/N Fraction                                                                                                                                                                                                         | <u>TBP + NBZ 0.5T</u>                          |                |
| c. Acid Fraction                                                                                                                                                                                                        | _____                                          |                |
| If not met, were the calculations checked and the results<br>qualified as "estimated"?                                                                                                                                  |                                                |                |
|                                                                                                                                                                                                                         | ___                                            | ___ <u>N/A</u> |
| 8. Matrix Spike/ Matrix Spike Duplicate Recoveries Meet Criteria<br>(If not met, list those compounds and their recoveries<br>which fall outside the acceptable range)                                                  | ___                                            | ___✓           |
| a. VOA Fraction                                                                                                                                                                                                         | _____                                          |                |
| b. B/N Fraction                                                                                                                                                                                                         | _____                                          |                |
| c. Acid Fraction                                                                                                                                                                                                        | _____                                          |                |
| 9. Internal Standard Area/Retention Time Shift Meet Criteria                                                                                                                                                            | ___                                            | ___✓           |



GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT (CONTINUED)

No Yes

10. Extraction Holding Time Met.

✓

If not met, list number of days exceeded for each sample: \_\_\_\_\_

11. Analysis Holding Time Met

✓

If not met, list number of days exceeded for each sample: \_\_\_\_\_

Additional Comments: This form Completed By Prime Contractor

Laboratory Manager:

B. MK

Date:

5-12-94

## TABLE OF CONTENTS

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NARRATIVE

There were no problems encountered during the analysis of this sample (A4024). All extractions and analysis were completed within proper hold times. Field blanks and trip blanks were not provided.



174024

F.O. #: R3-0151

## Chain of Custody

|                   |                 |                |                     |              |
|-------------------|-----------------|----------------|---------------------|--------------|
| Project #:        | Sampler:        | Date / Time    | Analysis Parameters | Start:       |
| Customer:         | Charles Appleby | 9/10/93 / 0925 |                     |              |
| Service-Air, Inc. | Site Name:      |                |                     | Finish:      |
| Phone:            | B. 2700         |                |                     | Preservation |

Preservation  
Method

| Lab Sample<br>ID Number | Date/Time    | Customer Sample<br>Location/ID Number | Sample<br>Matrix | # of<br>Bottles | YOA | BN | Remarks                                                                                                        | Method |
|-------------------------|--------------|---------------------------------------|------------------|-----------------|-----|----|----------------------------------------------------------------------------------------------------------------|--------|
| 268.5                   | 9/10/93 0925 | Site E, Pit Bottom                    | Soil             | 2               |     |    | 9/13/93<br>Spoke to Glenn<br>on 9/13/93 at 11:15<br>to arrange pick-up?<br>Mark F. may<br>pick-up 9/13/93 P.M. |        |

|                                                      |                             |                                                          |                             |
|------------------------------------------------------|-----------------------------|----------------------------------------------------------|-----------------------------|
| Linquished By (signature)<br><i>Sarah J. Hubbard</i> | Date / Time<br>9/13/93 1350 | Received By (signature)<br><i>Mark J. Penter</i>         | Shipped By:                 |
| Linquished By (signature)<br><i>Mark J. Penter</i>   | Date / Time<br>9/14/93 1615 | Received for Lab by (signature):<br><i>Sandra Carlin</i> | Date / Time<br>9/13/93 1615 |

ite: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.

Purgeables

U.S.E.P.A. Method 624 - This is a purge and trap Gas Chromatograph/Mass Spectrometer (GC/MS) method applicable to the determination of the compounds listed in the U.S.E.P.A. Manual entitled "Test Procedures for the Analysis of Organic Pollutants".

An HP5996 GC/MS was used with a capillary column.

Method detection limits are as stated.

Soil samples are prepared for analysis as prescribed in Method 8240/8260 from SW-846.

Acid Extractables  
Base Neutrals

U.S.E.P.A. Method 625 - This method covers the determination of a number of organic compounds that are partitioned in an organic solvent and amenable to gas chromatography/mass spectrometer (GC/MS) method applicable to the determination of the compounds listed in the U.S.E.P.A. manual entitled "Test Procedures for the Analysis of Organic Pollutants".

A HP5970 was used with a DB-5 FSCC.

Method detection limits are as stated.

Soil samples were prepared for analysis as prescribed in Method and analyzed as prescribed in Method 8270 from SW-846.

LABORATORY CHRONICLE

RECEIPT/REFRIGERATION

9/13/93

ORGANICS  
EXTRACTION

1. Acids NA
2. Base/Neutrals 9/14/93
3. Pesticides/PCB's/Herbicides NA
4. Petroleum Hydrocarbons/Oil & Grease NA

ANALYSIS

1. Volatiles 9/14/93
2. Acids NA
3. Base/Neutrals 9/14/93
4. Pesticides/PCB's/Herbicides NA
5. Petroleum Hydrocarbons/Oil & Grease NA
6. Total Organic Carbon NA

Section Supervisor  
Review & Approval

*Jeffery H. Martin*

INORGANICS

1. Metals NA
2. Cyanides NA
3. Phenols NA

OTHER ANALYTES

Section Supervisor  
Review & Approval

NA

Quality Control Supervisor  
Review & Approval

*Alan Gier*

Laboratory Director  
Review & Approval

*Richard W. Pym*

If fractions are re-extracted and re-analyzed because initial endeavors did not meet quality control acceptance criteria, include dates for both.

05004

RESULT SUMMARY

21st Century Environmental Inc.  
VOLATILE ORGANIC ANALYSIS DATA

|               |                             |                 |          |
|---------------|-----------------------------|-----------------|----------|
| JOB NUMBER    | US ARMY FT. MONMOUTH NJ     | MATRIX          | Soil     |
| SAMPLE NUMBER | A4024                       | DILUTION FACTOR | 125.00   |
| CLIENT ID     | BLDG 2700 SITE E PIT BOTTOM | COMMENTS        | HNU NA   |
| DATA FILE     | >B1630                      | DATE ANALYZED   | 09/14/93 |

| COMPOUND                  | UG/KG | MDL  | COMPOUND                  | UG/KG | MDL  |
|---------------------------|-------|------|---------------------------|-------|------|
| Chloromethane             | ND    | 1500 | 2-Chloroethylvinylether   | ND    | 1500 |
| Bromomethane              | ND    | 1500 | 2-Hexanone                | ND    | 1500 |
| Vinyl Chloride            | ND    | 1500 | trans-1,3-Dichloropropene | ND    | 760  |
| Chloroethane              | ND    | 1500 | Toluene                   | 860   | 760  |
| Acrolein                  | ND    | 7600 | cis-1,3-Dichloropropene   | ND    | 760  |
| Acetone                   | ND B  | 1500 | 1,1,2,2-Tetrachloroethane | ND    | 760  |
| 1,1-Dichloroethene        | ND    | 760  | 1,1,2-Trichloroethane     | ND    | 760  |
| Carbon Disulfide          | ND    | 1500 | 4-Methyl-2-pentanone      | ND    | 1500 |
| Acrylonitrile             | ND    | 7600 | Tetrachloroethene         | ND    | 760  |
| Methylene Chloride        | 930 B | 760  | Dibromochloromethane      | ND    | 760  |
| 1,2-Dichloroethene(trans) | ND    | 760  | Chlorobenzene             | ND    | 760  |
| 1,1-Dichloroethane        | ND    | 760  | Ethylbenzene              | 1000  | 760  |
| Vinyl Acetate             | ND    | 760  | m,p-Xylenes               | 3100  | 760  |
| 2-Butanone                | ND    | 1500 | o-Xylene                  | 2200  | 760  |
| Chloroform                | ND    | 760  | Styrene                   | ND    | 760  |
| 1,1,1-Trichloroethane     | ND    | 760  | Bromoform                 | ND    | 760  |
| Carbon Tetrachloride      | ND    | 760  | m-Dichlorobenzene         | ND    | 760  |
| 1,2-Dichloroethane        | ND    | 760  | p-Dichlorobenzene         | ND    | 760  |
| Benzene                   | ND    | 760  | o-Dichlorobenzene         | ND    | 760  |
| Trichloroethene           | ND    | 760  | Bromodichloromethane      | ND    | 760  |
| 1,2 Dichloropropane       | ND    | 760  |                           |       |      |

| SURROGATE COMPOUNDS   | % RECOVERY | LIMITS   | STATUS |
|-----------------------|------------|----------|--------|
| 1,2-Dichloroethane-d4 | 106        | 70 - 121 | OK     |
| Toluene-d8            | 98.3       | 81 - 117 | OK     |
| Bromofluorobenzene    | 102        | 74 - 121 | OK     |

Percent Solid of 82.0 is used for all Target Compounds.

(J) Indicates detected below MDL  
(B) Indicates also present in blank  
(ND) Indicates compound not detected  
(D) Indicates calculated from dilution



VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

SITE E  
PIT BOTTOM

Client Name: 21st Century Environmental Contract: N/A

Client Name: US Army Ft. Monmouth, NJ

Client ID: BLDG 2700

Matrix: (soil/water) SOIL

Lab Sample ID: A4024

Sample wt/vol: 0.04 (g/mL) g

Lab File ID: >B1630

Level: (low/med) LOW

Date Received: 09/13/93

Moisture: 18

Date Analyzed: 09/14/93

Column: DB-624

Dilution Factor: 125

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

Number TICs Found 20

| CAS NUMBER  | COMPOUND NAME                                      | RT    | TEST CONC |
|-------------|----------------------------------------------------|-------|-----------|
| 1 1678928   | Cyclohexane, propyl- (8CI9CI)                      | 14.01 | 5500      |
| 2 611143    | Benzene, 1-ethyl-2-methyl- (9CI)                   | 15.14 | 12000     |
| 3 124185    | Decane (8CI9CI)                                    | 15.30 | 11000     |
| 4 622968    | Benzene, 1-ethyl-4-methyl- (9CI)                   | 15.65 | 5200      |
| 5 620144    | Benzene, 1-ethyl-3-methyl- (9CI)                   | 15.96 | 11000     |
| 6 1074437   | Benzene, 1-methyl-3-propyl- (9CI)                  | 17.13 | 11000     |
| 7 105055    | Benzene, 1,4-diethyl- (9CI)                        | 17.24 | 15000     |
| 8 1120214   | Undecane (8CI9CI)                                  | 17.47 | 5000      |
| 9 135988    | Benzene, (1-methylpropyl)- (9CI)                   | 17.58 | 4900      |
| 10 535773   | Benzene, 1-methyl-3-(1-methylethyl)- (9CI)         | 17.80 | 8000      |
| 11 934805   | Benzene, 4-ethyl-1,2-dimethyl- (9CI)               | 17.94 | 4300      |
| 12 1196583  | Benzene, (1-ethylpropyl)- (8CI9CI)                 | 18.19 | 12000     |
| 13 619556   | Benzamide, 4-methyl- (9CI)                         | 18.38 | 4500      |
| 14 95932    | Benzene, 1,2,4,5-tetramethyl- (8CI9CI)             | 18.77 | 6600      |
| 15 2049958  | Benzene, (1,1-dimethylpropyl)- (9CI)               | 18.91 | 4600      |
| 16 767588   | 1H-Indene, 2,3-dihydro-1-methyl- (9CI)             | 19.24 | 6500      |
| 17 824226   | 1H-Indene, 2,3-dihydro-4-methyl- (9CI)             | 19.54 | 13000     |
| 18 119642   | Naphthalene, 1,2,3,4-tetrahydro- (8CI9CI)          | 19.85 | 11000     |
| 19 17057828 | 1H-Indene, 2,3-dihydro-1,2-dimethyl- (9CI)         | 20.42 | 4400      |
| 20 3877198  | Naphthalene, 1,2,3,4-tetrahydro-2-methyl- (8CI9CI) | 20.87 | 5200      |

00008

21st Century Environmental Inc.  
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER US ARMY FT. MONMOUTH, NJ  
SAMPLE NUMBER A4024  
CLIENT ID BLDG 2700, SITE E, PIT BOTTOM  
DATA FILE >C2236

MATRIX Soil  
DILUTION FACTOR 50.00  
QA BATCH \_\_\_\_\_  
DATE ANALYZED 09/14/93

| COMPOUND                    | UG/KG  | MDL    | COMPOUND                   | UG/KG   | MDL    |
|-----------------------------|--------|--------|----------------------------|---------|--------|
| N-Nitrosodimethylamine      | ND     | 20000  | 2,6-Dinitrotoluene         | ND      | 20000  |
| bis(-2-Chloroethyl)Ether    | ND     | 20000  | Diethylphthalate           | ND      | 20000  |
| 1,3-Dichlorobenzene         | ND     | 20000  | 4-Chlorophenyl-phenylether | ND      | 20000  |
| 1,4-Dichlorobenzene         | ND     | 20000  | Fluorene                   | 5400 J  | 20000  |
| Benzyl Alcohol              | ND     | 20000  | 4-Nitroaniline             | ND      | 100000 |
| 1,2-Dichlorobenzene         | ND     | 20000  | N-Nitrosodiphenylamine     | ND      | 20000  |
| bis(2-chloroisopropyl)Ether | ND     | 20000  | 4-Bromophenyl-phenylether  | ND      | 20000  |
| N-Nitroso-Di-n-Propylamine  | ND     | 20000  | Hexachlorobenzene          | ND      | 20000  |
| Hexachloroethane            | ND     | 20000  | Phenanthrene               | 11000 J | 20000  |
| Nitrobenzene                | ND     | 20000  | Anthracene                 | ND      | 20000  |
| Isophorone                  | ND     | 20000  | Di-n-Butylphthalate        | ND      | 20000  |
| Benzoic Acid                | ND     | 100000 | Fluoranthene               | ND      | 20000  |
| bis(-2-Chloroethoxy)Methane | ND     | 20000  | Pyrene                     | ND      | 20000  |
| 1,2,4-Trichlorobenzene      | ND     | 20000  | Butylbenzylphthalate       | ND      | 20000  |
| Naphthalene                 | 6900 J | 20000  | 3,3'-Dichlorobenzidine     | ND      | 40000  |
| 4-Chloroaniline             | ND     | 20000  | Benzo(a)Anthracene         | ND      | 20000  |
| Hexachlorobutadiene         | ND     | 20000  | Bis(2-Ethylhexyl)Phthalate | ND      | 20000  |
| 2-Methylnaphthalene         | 43000  | 20000  | Chrysene                   | ND      | 20000  |
| Hexachlorocyclopentadiene   | ND     | 20000  | Di-n-Octyl Phthalate       | ND      | 20000  |
| 2-Chloronaphthalene         | ND     | 20000  | Benzo(b)Fluoranthene       | ND      | 20000  |
| 2-Nitroaniline              | ND     | 100000 | Benzo(k)Fluoranthene       | ND      | 20000  |
| Dimethyl Phthalate          | ND     | 20000  | Benzo(a)Pyrene             | ND      | 20000  |
| Acenaphthylene              | ND     | 20000  | Indeno(1,2,3-cd)Pyrene     | ND      | 20000  |
| 3-Nitroaniline              | ND     | 100000 | Dibenzo(a,h)Anthracene     | ND      | 20000  |
| Acenaphthene                | ND     | 20000  | Benzo(g,h,i)Perylene       | ND      | 20000  |
| Dibenzofuran                | 2100 J | 20000  | Benzidine                  | ND      | 40000  |
| 2,4-Dinitrotoluene          | ND     | 20000  |                            |         |        |

Percent Solid of 82.0 is used for all Target compounds.

(J) Indicates detected below MDL

(B) Indicates also present in blank

(ND) Indicates compound not detected

E1  
semi-VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NUMBER

BLDG 2700  
SITE E  
PIT BOTTOM

Client: US Army, Ft. Monmouth, NJ

Comments: None

Matrix: (soil/water) SOIL

Lab Sample ID: A4024

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C2236

Level: LOW

Date Received: NA

% Moisture: 18

Date Analyzed 09/14/93

Extraction: (Sepf/Cont/Sonc) SONC

Date Extracted 09/14/93

GPC ( Y or N ): N

Column: DB-5

Dilution Factor: 50

Number TICs Found 20

CONCENTRATION UNITS  
(ug/L or ug/Kg) UG/KG

| CAS NUMBER | COMPOUND NAME                | RT    | EST CONC |
|------------|------------------------------|-------|----------|
| 1          | UNKNOWN                      | 10.66 | 75000    |
| 2          | UNKNOWN                      | 12.35 | 139000   |
| 3          | UNKNOWN                      | 14.10 | 38000    |
| 4          | UNKNOWN                      | 14.98 | 83000    |
| 5          | UNKNOWN                      | 15.32 | 250000   |
| 6          | Dimethyl Naphthalene Isomer  | 15.43 | 72000    |
| 7          | Dimethyl Naphthalene Isomer  | 15.65 | 62000    |
| 8          | Dimethyl Naphthalene Isomer  | 15.70 | 47000    |
| 9          | UNKNOWN                      | 15.97 | 48000    |
| 10         | UNKNOWN                      | 16.15 | 102000   |
| 11         | UNKNOWN                      | 16.65 | 250000   |
| 12         | Trimethyl Naphthalene Isomer | 17.13 | 40000    |
| 13         | UNKNOWN                      | 17.33 | 67000    |
| 14         | UNKNOWN                      | 17.91 | 250000   |
| 15         | UNKNOWN                      | 19.09 | 350000   |
| 16         | UNKNOWN                      | 19.17 | 266000   |
| 17         | UNKNOWN                      | 20.23 | 92000    |
| 18         | UNKNOWN                      | 20.32 | 100000   |
| 19         | UNKNOWN                      | 21.29 | 157000   |
| 20         | UNKNOWN                      | 22.32 | 93000    |

DATA PACKAGE

00010

21st Century Environmental Inc.  
VOLATILE ORGANIC ANALYSIS DATA

|               |                             |                 |          |
|---------------|-----------------------------|-----------------|----------|
| JOB NUMBER    | US ARMY FT. MONMOUTH NJ     | MATRIX          | Soil     |
| SAMPLE NUMBER | A4024                       | DILUTION FACTOR | 125.00   |
| CLIENT ID     | BLDG 2200 SITE E PIT BOTTOM | COMMENTS        | HNU NA   |
| DATA FILE     | >81630                      | DATE ANALYZED   | 09/14/93 |

| COMPOUND                  | UG/KG | MDL  | COMPOUND                  | UG/KG | MDL  |
|---------------------------|-------|------|---------------------------|-------|------|
| Chloromethane             | ND    | 1500 | 2-Chloroethylvinylether   | ND    | 1500 |
| Bromomethane              | ND    | 1500 | 2-Hexanone                | ND    | 1500 |
| Vinyl Chloride            | ND    | 1500 | trans-1,3-Dichloropropene | ND    | 760  |
| Chloroethane              | ND    | 1500 | Toluene                   | 860   | 760  |
| Acrolein                  | ND    | 7600 | cis-1,3-Dichloropropene   | ND    | 760  |
| Acetone                   | ND B  | 1500 | 1,1,2,2-Tetrachloroethane | ND    | 760  |
| 1,1-Dichloroethene        | ND    | 760  | 1,1,2-Trichloroethane     | ND    | 760  |
| Carbon Disulfide          | ND    | 1500 | 4-Methyl-2-pentanone      | ND    | 1500 |
| Acrylonitrile             | ND    | 7600 | Tetrachloroethene         | ND    | 760  |
| Methylene Chloride        | 930 B | 760  | Dibromochloromethane      | ND    | 760  |
| 1,2-Dichloroethene(trans) | ND    | 760  | Chlorobenzene             | ND    | 760  |
| 1,1-Dichloroethane        | ND    | 760  | Ethylbenzene              | 1000  | 760  |
| Vinyl Acetate             | ND    | 760  | m,p-Xylenes               | 3100  | 760  |
| 2-Butanone                | ND    | 1500 | o-Xylene                  | 2200  | 760  |
| Chloroform                | ND    | 760  | Styrene                   | ND    | 760  |
| 1,1,1-Trichloroethane     | ND    | 760  | Bromoform                 | ND    | 760  |
| Carbon Tetrachloride      | ND    | 760  | m-Dichlorobenzene         | ND    | 760  |
| 1,2-Dichloroethane        | ND    | 760  | p-Dichlorobenzene         | ND    | 760  |
| Benzene                   | ND    | 760  | o-Dichlorobenzene         | ND    | 760  |
| Trichloroethene           | ND    | 760  | Bromodichloromethane      | ND    | 760  |
| 1,2 Dichloropropane       | ND    | 760  |                           |       |      |

| SURROGATE COMPOUNDS   | % RECOVERY | LIMITS   | STATUS |
|-----------------------|------------|----------|--------|
| 1,2-Dichloroethane-d4 | 106        | 70 - 121 | OK     |
| Toluene-d8            | 98.3       | 81 - 117 | OK     |
| Bromofluorobenzene    | 102        | 74 - 121 | OK     |

Percent Solid of 82.0 is used for all Target Compounds.

- (J) Indicates detected below MDL
- (B) Indicates also present in blank
- (ND) Indicates compound not detected
- (D) Indicates calculated from dilution

21st Century Environmental Inc.  
VOLATILE ORGANIC ANALYSIS DATA

|               |                                |                 |                 |
|---------------|--------------------------------|-----------------|-----------------|
| JOB NUMBER    | <u>US ARMY FT. MONMOUTH NJ</u> | MATRIX          | <u>Soil</u>     |
| SAMPLE NUMBER | <u>A4024</u>                   | DILUTION FACTOR | <u>125.00</u>   |
| CLIENT ID     | <u>BLDG 2700 SITE E 1268.5</u> | COMMENTS        |                 |
| DATA FILE     | <u>&gt;81630</u>               | DATE ANALYZED   | <u>09/14/93</u> |

| COMPOUND                  | UG/KG | MDL  | COMPOUND                  | UG/KG | MDL  |
|---------------------------|-------|------|---------------------------|-------|------|
| Acrolein                  | ND    | 7600 | Bromodichloromethane      | ND    | 760  |
| Acrylonitrile             | ND    | 7600 | 2-Chloroethylvinylether   | ND    | 1500 |
| Chloromethane             | ND    | 1500 | 2-Hexanone                | ND    | 1500 |
| Bromomethane              | ND    | 1500 | trans-1,3-Dichloropropene | ND    | 760  |
| Vinyl Chloride            | ND    | 1500 | Toluene                   | 860   | 760  |
| Chloroethane              | ND    | 1500 | cis-1,3-Dichloropropene   | ND    | 760  |
| Acetone                   | ND B  | 1500 | 1,1,2,2-Tetrachloroethane | ND    | 760  |
| 1,1-Dichloroethene        | ND    | 760  | 1,1,2-Trichloroethane     | ND    | 760  |
| Carbon Disulfide          | ND    | 1500 | 4-Methyl-2-pentanone      | ND    | 1500 |
| Methylene Chloride        | 930 B | 760  | Tetrachloroethene         | ND    | 760  |
| 1,2-Dichloroethene(trans) | ND    | 760  | Dibromochloromethane      | ND    | 760  |
| 1,1-Dichloroethane        | ND    | 760  | Chlorobenzene             | ND    | 760  |
| Vinyl Acetate             | ND    | 760  | Ethylbenzene              | 1000  | 760  |
| 2-Butanone                | ND    | 1500 | m,p-Xylenes               | 3100  | 760  |
| Chloroform                | ND    | 760  | o-Xylene                  | 2200  | 760  |
| 1,1,1-Trichloroethane     | ND    | 760  | Styrene                   | ND    | 760  |
| Carbon Tetrachloride      | ND    | 760  | Bromoform                 | ND    | 760  |
| 1,2-Dichloroethane        | ND    | 760  | m-Dichlorobenzene         | ND    | 760  |
| Benzene                   | ND    | 760  | p-Dichlorobenzene         | ND    | 760  |
| Trichloroethene           | ND    | 760  | o-Dichlorobenzene         | ND    | 760  |
| 1,2-Dichloropropane       | ND    | 760  |                           |       |      |

| <u>SURROGATE COMPOUNDS</u> | <u>% RECOVERY</u> | <u>LIMITS</u> | <u>STATUS</u> |
|----------------------------|-------------------|---------------|---------------|
| 1,2-Dichloroethane-d4      | 106               | 70 - 121      | OK            |
| Toluene-d8                 | 98.3              | 81 - 117      | OK            |
| Bromofluorobenzene         | 102               | 74 - 121      | OK            |

Percent Solid of 82.0 is used for all Target compounds.

(J) Indicates detected below MDL

(B) Indicates also present in blank

(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

SITE E  
PIT BOTTOM

Client Name: 21st Century Environmental Contract: N/A

Client Name: US Army Ft. Monmouth, NJ

Client ID: BLDG 2700

Matrix: (soil/water) SOIL

Lab Sample ID: A4024

Sample wt/Vol: 0.04 (g/mL) g

Lab File ID: >B1630

Level: (low/med) LOW

Date Received: 09/13/93

Moisture: 18

Date Analyzed: 09/14/93

Column: DB-624

Dilution Factor: 125

Number TICs Found 20

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

| CAS NUMBER  | COMPOUND NAME                                | RT    | EST CONC |
|-------------|----------------------------------------------|-------|----------|
| 1 1678928   | Cyclohexane, propyl- (8CI9CI)                | 14.01 | 5500     |
| 2 611143    | Benzene, 1-ethyl-2-methyl- (9CI)             | 15.14 | 12000    |
| 3 124185    | Decane (8CI9CI)                              | 15.30 | 11000    |
| 4 622968    | Benzene, 1-ethyl-4-methyl- (9CI)             | 15.65 | 5200     |
| 5 620144    | Benzene, 1-ethyl-3-methyl- (9CI)             | 15.96 | 11000    |
| 6 1074437   | Benzene, 1-methyl-3-propyl- (9CI)            | 17.13 | 11000    |
| 7 105055    | Benzene, 1,4-diethyl- (9CI)                  | 17.24 | 15000    |
| 8 1120214   | Undecane (8CI9CI)                            | 17.47 | 5000     |
| 9 135988    | Benzene, (1-methylpropyl)- (9CI)             | 17.58 | 4900     |
| 10 535773   | Benzene, 1-methyl-3-(1-methylethyl)- (9CI)   | 17.80 | 8000     |
| 11 934805   | Benzene, 4-ethyl-1,2-dimethyl- (9CI)         | 17.94 | 4300     |
| 12 1196583  | Benzene, (1-ethylpropyl)- (8CI9CI)           | 18.19 | 12000    |
| 13 619556   | Benzamide, 4-methyl- (9CI)                   | 18.38 | 4500     |
| 14 95932    | Benzene, 1,2,4,5-tetramethyl- (8CI9CI)       | 18.77 | 6600     |
| 15 2049958  | Benzene, (1,1-dimethylpropyl)- (9CI)         | 18.91 | 4600     |
| 16 767588   | 1H-Indene, 2,3-dihydro-1-methyl- (9CI)       | 19.24 | 6500     |
| 17 824226   | 1H-Indene, 2,3-dihydro-4-methyl- (9CI)       | 19.54 | 13000    |
| 18 119642   | Naphthalene, 1,2,3,4-tetrahydro- (8CI9CI)    | 19.85 | 11000    |
| 19 17057828 | 1H-Indene, 2,3-dihydro-1,2-dimethyl- (9CI)   | 20.42 | 4400     |
| 20 3877198  | Naphthalene, 1,2,3,4-tetrahydro-2-methyl- (8 | 20.87 | 5200     |

E1  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NUMBER

SITE E

Client Name: US ARMT FT. MONMOUTH, NJ

Client Name: BLDG 2700

Matrix: (soil/water) SOIL

Lab Sample ID: A4024

Sample wt/vol: .04 (g/mL) g

Lab File ID: >B1630

Level: MED

Date Received: 09/13/93

% Moisture: 18

Date Analyzed: 09/14/93

Column: CAP

Dilution Factor: 125

Number TICs Found 20

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

| CAS NUMBER | COMPOUND NAME                                                | RT    | EST CONC |
|------------|--------------------------------------------------------------|-------|----------|
| 1          | 1678928   Cyclohexane, propyl- (8CI9CI)                      | 14.01 | 5500     |
| 2          | 611143   Benzene, 1-ethyl-2-methyl- (9CI)                    | 15.14 | 12000    |
| 3          | 124185   Decane (8CI9CI)                                     | 15.30 | 11000    |
| 4          | 622968   Benzene, 1-ethyl-4-methyl- (9CI)                    | 15.65 | 5200     |
| 5          | 620144   Benzene, 1-ethyl-3-methyl- (9CI)                    | 15.96 | 11000    |
| 6          | 1074437   Benzene, 1-methyl-3-propyl- (9CI)                  | 17.13 | 11000    |
| 7          | 105055   Benzene, 1,4-diethyl- (9CI)                         | 17.24 | 15000    |
| 8          | 1120214   Undecane (8CI9CI)                                  | 17.47 | 5000     |
| 9          | 135988   Benzene, (1-methylpropyl)- (9CI)                    | 17.58 | 4900     |
| 10         | 535773   Benzene, 1-methyl-3-(1-methylethyl)- (9CI)          | 17.80 | 8000     |
| 11         | 934805   Benzene, 4-ethyl-1,2-dimethyl- (9CI)                | 17.94 | 4300     |
| 12         | 1196583   Benzene, (1-ethylpropyl)- (8CI9CI)                 | 18.19 | 12000    |
| 13         | 619556   Benzamide, 4-methyl- (9CI)                          | 18.38 | 4500     |
| 14         | 95932   Benzene, 1,2,4,5-tetramethyl- (8CI9CI)               | 18.77 | 6600     |
| 15         | 2049958   Benzene, (1,1-dimethylpropyl)- (9CI)               | 18.91 | 4600     |
| 16         | 767588   1H-Indene, 2,3-dihydro-1-methyl- (9CI)              | 19.24 | 6500     |
| 17         | 824226   1H-Indene, 2,3-dihydro-4-methyl- (9CI)              | 19.54 | 13000    |
| 18         | 119642   Naphthalene, 1,2,3,4-tetrahydro- (8CI9CI)           | 19.85 | 11000    |
| 19         | 17057828   1H-Indene, 2,3-dihydro-1,2-dimethyl- (9CI)        | 20.42 | 4400     |
| 20         | 3877198   Naphthalene, 1,2,3,4-tetrahydro-2-methyl- (8CI9CI) | 20.87 | 5200     |

00012



# QUANT REPORT

Operator ID: MANAGER  
 Output File: ^B1630::D4  
 Data File: >B1630::D6  
 Name: A4024

Quant Rev: 6      Quant Time: 930914 04:48  
 Injected at: 930914 04:02  
 Dilution Factor: 1.00000

Sc: BLDG 2700 SITE E 1268.5

.04g

ID File: ID0401::SC  
 Title: USEPA 624 VOLATILES  
 Last Calibration: 930914 02:58

|     | Compound              | R.T.  | Scan# | Area   | Conc  | Units | q   |
|-----|-----------------------|-------|-------|--------|-------|-------|-----|
| 1)  | *Bromochloromethane   | 6.71  | 463   | 50195M | 50.00 | UG/L  | 100 |
| 15) | Methylene Chloride    | 4.80  | 271   | 7655   | 6.12  | UG/L  | 74  |
| 33) | 1,2-Dichloroethane-d4 | 7.47  | 540   | 124864 | 53.02 | UG/L  | 100 |
| 24) | *1,4-Difluorobenzene  | 8.04  | 597   | 272799 | 50.00 | UG/L  | 100 |
| 33) | Toluene-d8            | 10.18 | 813   | 274840 | 49.13 | UG/L  | 100 |
| 34) | Toluene               | 10.28 | 823   | 33907  | 5.62  | UG/L  | 98  |
| 33) | *Chlorobenzene-d5     | 12.52 | 1048  | 231166 | 50.00 | UG/L  | 100 |
| 43) | Ethylbenzene          | 12.74 | 1070  | 50816  | 6.82  | UG/L  | 80  |
| 44) | m&p-Xylenes           | 12.94 | 1090  | 111858 | 20.66 | UG/L  | 90  |
| 44) | o-Xylene              | 13.62 | 1158  | 79044  | 14.33 | UG/L  | 87  |
| 48) | Bromofluorobenzene    | 14.53 | 1250  | 140522 | 51.18 | UG/L  | 100 |

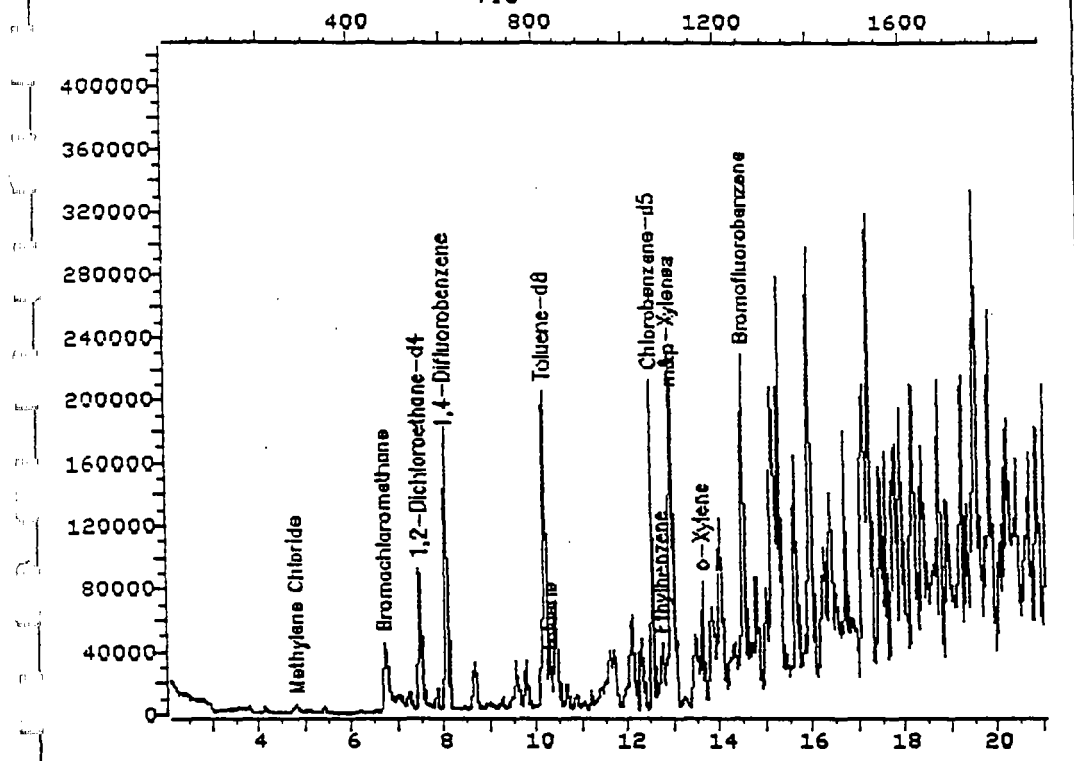
Compound is ISTD

00013

## TOTAL ION CHROMATOGRAM

File >B1630 35.0-260.0 amu. A4024  
TIC

BLDG 2700 SITE E 126



Data File: &gt;B1630::D6

Quant Output File: ^B1630::D4

Name: A4024

Misc: BLDG 2700 SITE E 1268.5

.04g

Id File: ID0401::SC

Title: USEPA 624 VOLATILES

Last Calibration: 930914 02:58

Operator ID: MANAGER

Quant Time: 930914 04:48

Injected at: 930914 04:02

930914

21st Century Environmental Inc.  
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER US ARMY FT. MONMOUTH, NJ  
SAMPLE NUMBER A4024  
CLIENT ID BLDG 2700, SITE E, PIT BOTTOM  
DATA FILE >C2236

MATRIX Soil  
DILUTION FACTOR 50.00  
QA BATCH  
DATE ANALYZED 09/14/93

| COMPOUND                    | UG/KG  | MDL    | COMPOUND                   | UG/KG   | MDL    |
|-----------------------------|--------|--------|----------------------------|---------|--------|
| N-Nitrosodimethylamine      | ND     | 20000  | 2,6-Dinitrotoluene         | ND      | 20000  |
| bis(-2-Chloroethyl)Ether    | ND     | 20000  | Diethylphthalate           | ND      | 20000  |
| 1,3-Dichlorobenzene         | ND     | 20000  | 4-Chlorophenyl-phenylether | ND      | 20000  |
| 1,4-Dichlorobenzene         | ND     | 20000  | Fluorene                   | 5400 J  | 20000  |
| Benzyl Alcohol              | ND     | 20000  | 4-Nitroaniline             | ND      | 100000 |
| 1,2-Dichlorobenzene         | ND     | 20000  | N-Nitrosodiphenylamine     | ND      | 20000  |
| bis(2-chloroisopropyl)Ether | ND     | 20000  | 4-Bromophenyl-phenylether  | ND      | 20000  |
| N-Nitroso-Di-n-Propylamine  | ND     | 20000  | Hexachlorobenzene          | ND      | 20000  |
| Hexachloroethane            | ND     | 20000  | Phenanthrene               | 11000 J | 20000  |
| Nitrobenzene                | ND     | 20000  | Anthracene                 | ND      | 20000  |
| Isophorone                  | ND     | 20000  | Di-n-Butylphthalate        | ND      | 20000  |
| Benzoic Acid                | ND     | 100000 | Fluoranthene               | ND      | 20000  |
| bis(-2-Chloroethoxy)Methane | ND     | 20000  | Pyrene                     | ND      | 20000  |
| 1,2,4-Trichlorobenzene      | ND     | 20000  | Butylbenzylphthalate       | ND      | 20000  |
| Naphthalene                 | 6900 J | 20000  | 3,3'-Dichlorobenzidine     | ND      | 40000  |
| 4-Chloroaniline             | ND     | 20000  | Benzo(a)Anthracene         | ND      | 20000  |
| Hexachlorobutadiene         | ND     | 20000  | Bis(2-Ethylhexyl)Phthalate | ND      | 20000  |
| 2-Methylnaphthalene         | 43000  | 20000  | Chrysene                   | ND      | 20000  |
| Hexachlorocyclopentadiene   | ND     | 20000  | Di-n-Octyl Phthalate       | ND      | 20000  |
| 2-Chloronaphthalene         | ND     | 20000  | Benzo(b)Fluoranthene       | ND      | 20000  |
| 2-Nitroaniline              | ND     | 100000 | Benzo(k)Fluoranthene       | ND      | 20000  |
| Dimethyl Phthalate          | ND     | 20000  | Benzo(a)Pyrene             | ND      | 20000  |
| Acenaphthylene              | ND     | 20000  | Indeno(1,2,3-cd)Pyrene     | ND      | 20000  |
| 3-Nitroaniline              | ND     | 100000 | Dibenzo(a,h)Anthracene     | ND      | 20000  |
| Acenaphthene                | ND     | 20000  | Benzo(g,h,i)Perylene       | ND      | 20000  |
| Dibenzofuran                | 2100 J | 20000  | Benzidine                  | ND      | 40000  |
| 2,4-Dinitrotoluene          | ND     | 20000  |                            |         |        |

Percent Solid of 82.0 is used for all Target compounds.

(J) Indicates detected below MDL

(B) Indicates also present in blank

(ND) Indicates compound not detected

# QUANT REPORT

Operator ID: JEFF  
 Output File: ^C2236::DA  
 Data File: >C2236::D2  
 Name: A4024 E-SYSTEM  
 Time: 1:50D

Quant Rev: 6      Quant Time: 930914 17:23  
 Injected at: 930914 16:46  
 Dilution Factor: 1.00000

BTL# 5

D File: ID914C::SC  
 Title: hSL BNA STD  
 Date: Calibration: 930914 12:00

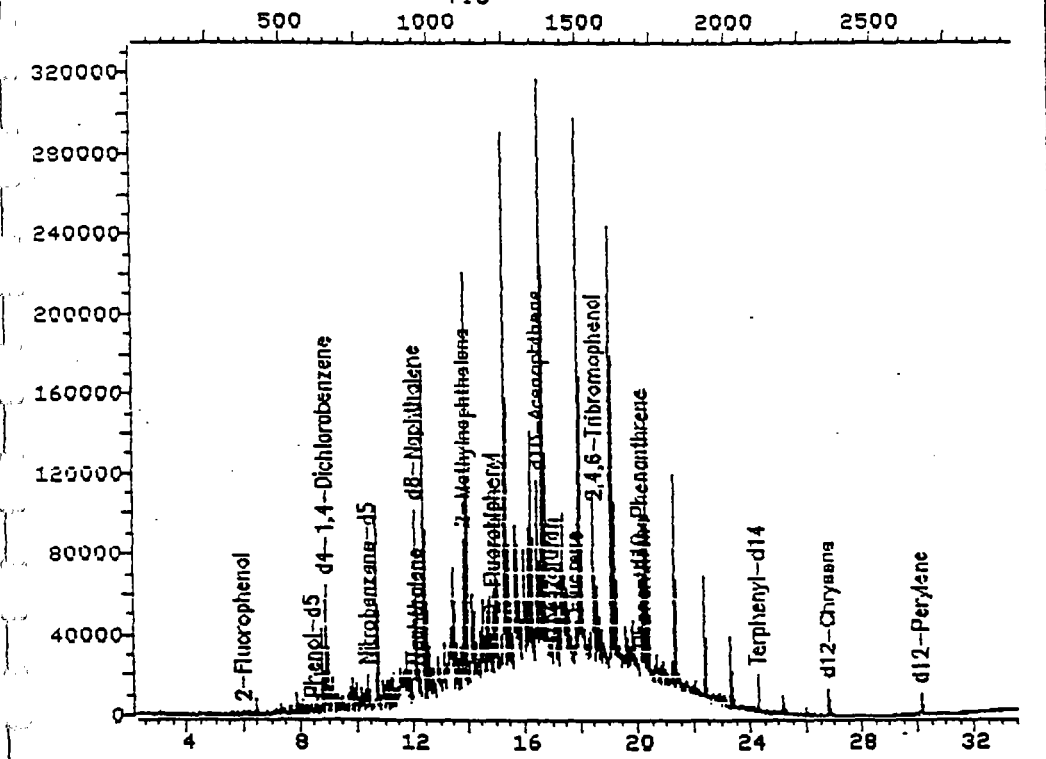
|     | Compound                | R.T.  | Scan# | Area  | Conc  | Units | q  |
|-----|-------------------------|-------|-------|-------|-------|-------|----|
| 1   | *d4-1,4-Dichlorobenzene | 8.87  | 632   | 30451 | 40.00 | UG/L  | 98 |
| 4)  | 2-Fluorophenol          | 5.97  | 354   | 633   | 1.23  | UG/L  | 78 |
| 5)  | Phenol-d5               | 8.43  | 590   | 1008  | 1.53  | UG/L  | 98 |
| 8)  | *d8-Naphthalene         | 12.03 | 934   | 73914 | 40.00 | UG/L  | 94 |
| 9)  | Nitrobenzene-d5         | 10.38 | 776   | 1075  | 1.32  | UG/L  | 61 |
| 8A) | Naphthalene             | 12.09 | 939   | 6917  | 3.41  | UG/L  | 90 |
| 2)  | 2-Methylnaphthalene     | 13.84 | 1106  | 29555 | 21.07 | UG/L  | 99 |
| 3)  | *d10-Acenaphthene       | 16.46 | 1354  | 37285 | 40.00 | UG/L  | 93 |
| 8)  | 2-Fluorobiphenyl        | 14.89 | 1205  | 1334  | .98   | UG/L  | 90 |
| 46) | Dibenzofuran            | 16.95 | 1400  | 1595  | 1.01  | UG/L  | 96 |
| 51) | Fluorene                | 17.79 | 1480  | 3035  | 2.64  | UG/L  | 86 |
| 3)  | *d10-Phenanthrene       | 20.10 | 1698  | 33701 | 40.00 | UG/L  | 97 |
| 66) | 2,4,6-Tribromophenol    | 18.48 | 1545  | 30M   | .28   | UG/L  |    |
| 0)  | Phenanthrene            | 20.15 | 1703  | 5468  | 5.63  | UG/L  | 96 |
| 4)  | *d12-Chrysene           | 26.74 | 2330  | 10807 | 40.00 | UG/L  | 96 |
| 7)  | Terphenyl-d14           | 24.24 | 2091  | 288M  | .88   | UG/L  |    |
| 3)  | *d12-Perylene           | 30.07 | 2649  | 9518  | 40.00 | UG/L  | 95 |

\* Compound is ISTD

00017

TOTAL ION CHROMATOGRAM

File >C2236 35.0-500.0 amu. A4024 E-SYSTEM 1:50D  
TIC



Data File: >C2236

Quant Output File: ^C2236::DA

Name: A4024 E-SYSTEM

Misc: 1:50D

BTL# 5

Id File: ID914C::SC

Title: hSL BNA STD

Last Calibration: 930914 12:00

Operator ID: JEFF

Quant Time: 930914 17:23

Injected at: 930914 16:46

Q C RESULTS

03013

21st Century Environmental Inc  
SOIL VOLATILE SURROGATE RECOVERY

| SAMPLE<br>NO. | S1<br>(DCE)# | S2<br>(TOL)# | S3<br>(BFB)# | TOT<br>OUT |
|---------------|--------------|--------------|--------------|------------|
| BLANK         | 102          | 95           | 99           | 0          |
| A4024         | 106          | 98           | 102          | 0          |
| A3875MS       | 97           | 97           | 99           | 0          |
| A3875MSD      | 98           | 100          | 98           | 0          |

QC LIMITS

S1 (DCE) = 1,2-Dichloroethane-d4  
S2 (TOL) = Toluene-d8  
S3 (BFB) = Bromofluorobenzene

70-121  
81-117  
74-121

# Column used to flag surrogate recovery values

00020

21st Century Environmental Inc.  
SOIL semi-VOLATILE SURROGATE RECOVERY

| SAMPLE NO. | S1 (NBZ)# | S2 (FBP)# | S3 (TPH)# | S4 (PHL)# | S5 (FPH)# | S6 (TBP)# | TOT OUT |
|------------|-----------|-----------|-----------|-----------|-----------|-----------|---------|
| NA BLNK    | 92        | 90        | 129       | 93        | 89        | 59        | 0       |
| A4024 1:50 | 132*      | 98        | 88        | 76        | 62        | 14*       | .2      |
| A3589MS    | 86        | 97        | 87        | 101       | 88        | 78        | 0       |
| A3589MSD   | 87        | 97        | 87        | 102       | 84        | 78        | 0       |

S1 (NBZ) = Nitrobenzene-d5  
S2 (FBP) = 2-Fluorobiphenyl  
S3 (TPH) = Terphenyl-d14  
S4 (PHL) = Phenol-d5  
S5 (FPH) = 2-Fluorophenol  
S6 (TBP) = 2,4,6-Tribromophenol

QC LIMITS

-----  
(23-120)  
(30-115)  
(18-137)  
(24-113)  
(25-121)  
(19-122)

# Column used to flag surrogate recovery values

00021



## SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name:

Contract:N/A

Lab Code:

Case No.: N/A

SAS No.: N/A

SDG No.: N/A

Matrix Spike - EPA Sample No.: A3875

Level:(low/med) LOW

| COMPOUND           | SPIKE<br>ADDED<br>(ug/Kg) | SAMPLE<br>CONCENTRATION<br>(ug/Kg) | MS<br>CONCENTRATION<br>(ug/Kg) | MS<br>%<br>REC # | QC<br>LIMITS<br>REC. |
|--------------------|---------------------------|------------------------------------|--------------------------------|------------------|----------------------|
| 1,1-Dichloroethene | 50.0                      | ND                                 | 53.2                           | 106              | 59-172               |
| Trichloroethene    | 50.0                      | ND                                 | 40.7                           | 81               | 62-137               |
| Benzene            | 50.0                      | ND                                 | 49.0                           | 98               | 66-142               |
| Toluene            | 50.0                      | ND                                 | 44.5                           | 89               | 59-139               |
| Chlorobenzene      | 50.0                      | ND                                 | 51.9                           | 104              | 60-133               |

| COMPOUND           | SPIKE<br>ADDED<br>(ug/Kg) | MSD<br>CONCENTRATION<br>(ug/Kg) | MSD<br>%<br>REC # | %<br>RPD # | QC LIMITS<br>RPD REC. |
|--------------------|---------------------------|---------------------------------|-------------------|------------|-----------------------|
| 1,1-Dichloroethene | 50.00                     | 50.3                            | 101               | 5          | 22 59-172             |
| Trichloroethene    | 50.00                     | 40.6                            | 81                | <1         | 24 62-137             |
| Benzene            | 50.00                     | 48.7                            | 97                | 1          | 21 66-142             |
| Toluene            | 50.00                     | 44.8                            | 90                | 1          | 21 59-139             |
| Chlorobenzene      | 50.00                     | 50.4                            | 101               | 3          | 21 60-133             |

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of qc limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS:

# QUANT REPORT

Operator ID: MANAGER  
 Output File: ^81587::QT  
 Data File: ^81587::02  
 Name: A3875MS  
 110c: P-2

Quant Rev: 6 Quant Time: 930910 01:50  
 Injected at: 930910 01:23  
 Dilution Factor: 1.00000

5g

ID File: ID0401::SC  
 Title: USEPA 624 VOLATILES  
 Last Calibration: 930910 01:11

|     | Compound              | R.T.  | Scan# | Area   | Conc  | Units | q   |
|-----|-----------------------|-------|-------|--------|-------|-------|-----|
| 1   | *Bromochloromethane   | 6.82  | 475   | 38937M | 50.00 | UG/L  | 100 |
| 10) | 1,1-Dichloroethane    | 4.29  | 220   | 59937  | 53.17 | UG/L  | 100 |
| 15) | Methylene Chloride    | 4.91  | 293   | 1126   | 1.30  | UG/L  | 69  |
| 23  | 1,2-Dichloroethane-d4 | 7.58  | 552   | 93506  | 48.64 | UG/L  | 100 |
| 24) | *1,4-Difluorobenzene  | 8.16  | 610   | 203744 | 50.00 | UG/L  | 100 |
| 26) | Benzene               | 7.64  | 558   | 180085 | 49.04 | UG/L  | 100 |
| 27  | Trichloroethene       | 8.53  | 647   | 65731  | 40.72 | UG/L  | 85  |
| 33) | Toluene-d8            | 10.30 | 826   | 198449 | 48.42 | UG/L  | 100 |
| 34) | Toluene               | 10.41 | 837   | 189370 | 44.47 | UG/L  | 95  |
| 35) | *Chlorobenzene-d5     | 12.63 | 1061  | 159364 | 50.00 | UG/L  | 100 |
| 42) | Chlorobenzene         | 12.68 | 1066  | 147849 | 51.88 | UG/L  | 95  |
| 48) | Bromofluorobenzene    | 14.64 | 1263  | 94922  | 49.34 | UG/L  | 100 |

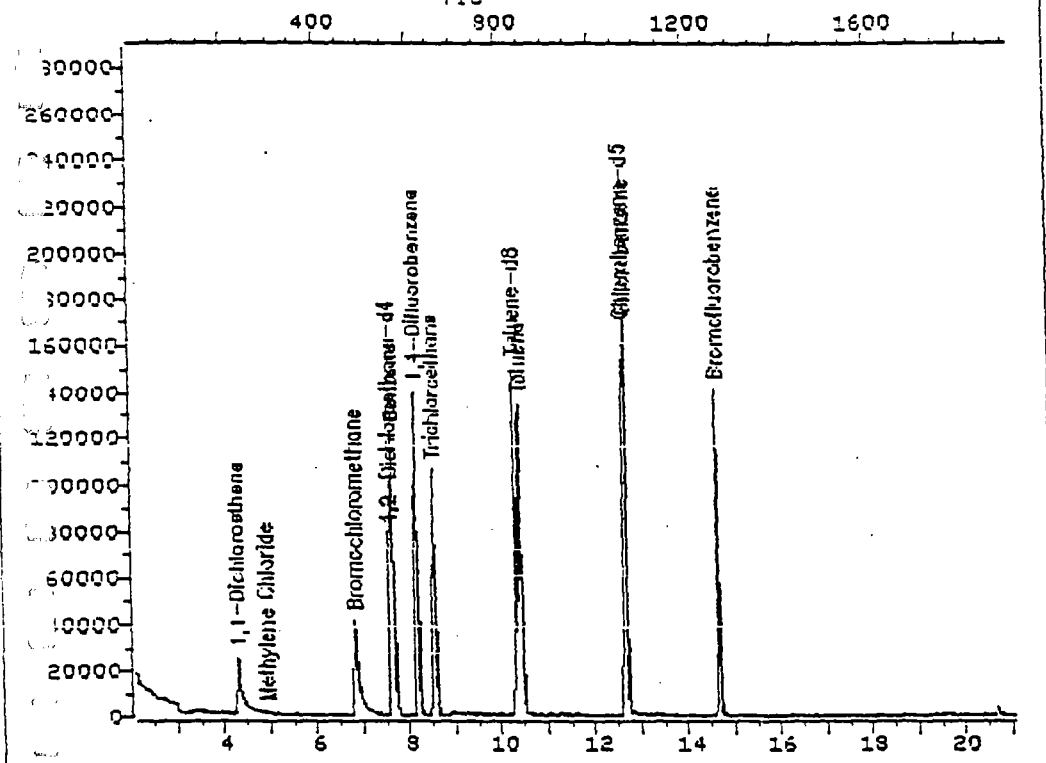
\* Compound is ISTD

00027

TOTAL ION CHROMATOGRAM

File >81587 35.0-250.0 amu. 83875MS  
TIC

P-2



Data File: >81587::D2

Quant Output File: ^81587::QT

Name: A3875MS

Misc: P-2

5g

Id File: ID0401::SC

Title: USEPA 624 VOLATILES

Last Calibration: 930910 01:11

Operator ID: MANAGER

Quant Time: 930910 01:50

Injected at: 930910 01:23

00024

# QUANT REPORT

Operator ID: MANAGER  
 Output File: ^B1588::QT  
 Data File: >B1588::D2  
 Name: A3875MSD  
 Misc: P-2

Quant Rev: 6      Quant Time: 930910 02:20  
 Injected at: 930910 01:53  
 Dilution Factor: 1.00000

5g

ID File: ID0401::SC  
 Title: USEPA 624 VOLATILES  
 Last Calibration: 930910 01:11

|     | Compound              | R.T.  | Scan# | Area   | Conc  | Units | q   |
|-----|-----------------------|-------|-------|--------|-------|-------|-----|
| 10) | *Bromochloromethane   | 6.83  | 469   | 35875M | 50.00 | UG/L  | 100 |
| 10) | 1,1-Dichloroethene    | 4.29  | 213   | 52224  | 50.28 | UG/L  | 100 |
| 15) | Methylene Chloride    | 4.90  | 275   | 1313   | 1.65  | UG/L  | 80  |
| 2)  | 1,2-Dichloroethane-d4 | 7.58  | 545   | 87174  | 49.22 | UG/L  | 100 |
| 24) | *1,4-Difluorobenzene  | 8.17  | 604   | 183341 | 50.00 | UG/L  | 100 |
| 26) | Benzene               | 7.64  | 551   | 160962 | 48.71 | UG/L  | 100 |
| 27) | Trichloroethene       | 8.54  | 641   | 59032  | 40.64 | UG/L  | 90  |
| 30) | Toluene-d8            | 10.31 | 820   | 183532 | 49.76 | UG/L  | 100 |
| 34) | Toluene               | 10.42 | 831   | 171632 | 44.79 | UG/L  | 97  |
| 35) | *Chlorobenzene-d5     | 12.63 | 1054  | 144294 | 50.00 | UG/L  | 100 |
| 41) | Chlorobenzene         | 12.68 | 1059  | 129942 | 50.36 | UG/L  | 95  |
| 48) | Bromofluorobenzene    | 14.64 | 1256  | 85061  | 48.83 | UG/L  | 100 |

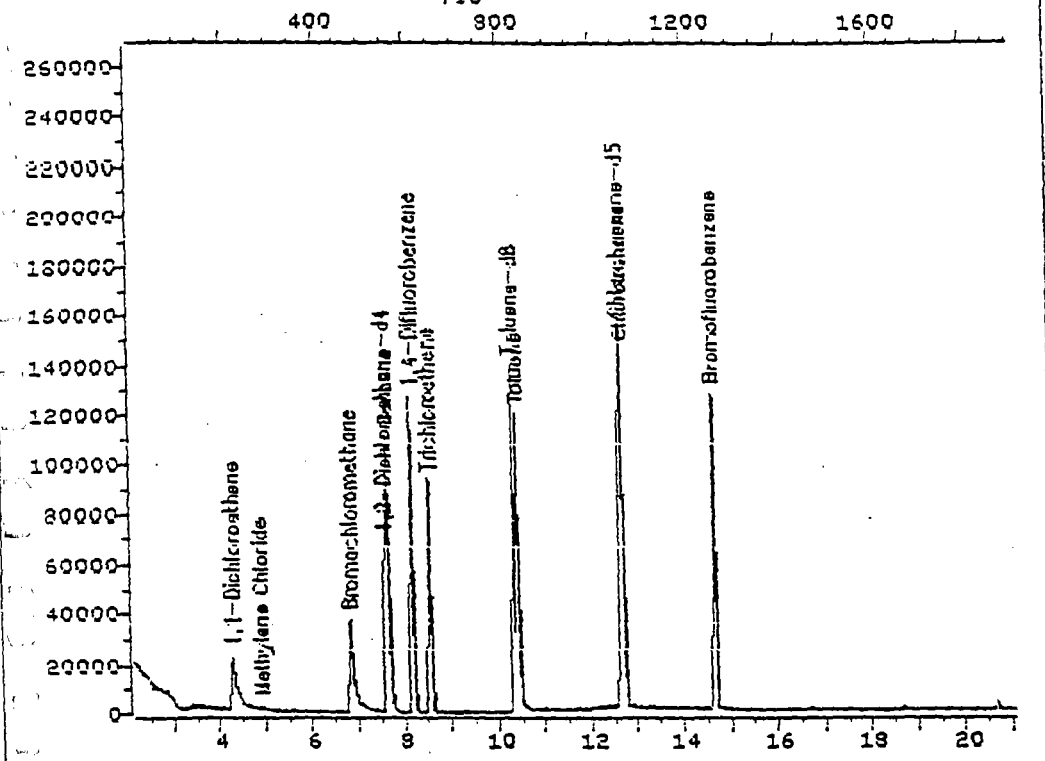
Compound is ISTD

00025

TOTAL ION CHROMATOGRAM

File >81588 35.0-250.0 amu. A3875MSD  
TIC

P-2



Data File: >81588::D2

Quant Output File: ^81588::QT.

Name: A3875MSD

Misc: P-2

5g

Id File: ID0401::SC

Title: USEPA 624 VOLATILES

Last Calibration: 930910 01:11

Operator ID: MANAGER

Quant Time: 930910 02:20

Injected at: 930910 01:53

00026

3D

## SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: 21st Century Environmental

Contract No.:

Lab Code: Case No:

SAS No.:

SDG No.:

MATRIX SPIKE- EPA SAMPLE NO.: A3589

| COMPOUND NAME            | SPIKE | MS    | SAMP  | MS   | QC LIMITS |  |
|--------------------------|-------|-------|-------|------|-----------|--|
|                          | ADDED | CONC  | CONC  | %    | RECOVERY  |  |
|                          | UG/KG | UG/KG | UG/KG | REC# |           |  |
| Phenol                   | 100   | 73.8  | ND    | 74   | 26-90     |  |
| 2-Chlorophenol           | 100   | 72.5  | ND    | 73   | 25-102    |  |
| 1,4-Dichlorobenzene      | 50    | 33.0  | ND    | 66   | 28-104    |  |
| N-Nitroso-di-n-prop. (1) | 50    | 36.2  | ND    | 72   | 41-126    |  |
| 1,2,4-Trichlorobenzene   | 50    | 33.6  | ND    | 67   | 38-107    |  |
| 4-Chloro-3-methylphenol  | 100   | 70.5  | ND    | 70   | 26-103    |  |
| Acenaphthene             | 50    | 36.4  | ND    | 73   | 31-137    |  |
| 4-Nitrophenol            | 100   | 49.6  | ND    | 99   | 11-114    |  |
| 2,4-Dinitrotoluene       | 50    | 27.9  | ND    | 56   | 28-89     |  |
| Pentachlorophenol        | 100   | 73.1  | ND    | 73   | 17-109    |  |
| Pyrene                   | 50    | 38.6  | ND    | 77   | 35-142    |  |

| COMPOUND NAME           | SPIKE | MSD   | MSD  | QC LIMITS |     |        |  |
|-------------------------|-------|-------|------|-----------|-----|--------|--|
|                         | ADDED | CONC  | %    | %         |     |        |  |
|                         | UG/KG | UG/KG | REC. | RPD       | RPD | RECOV  |  |
| Phenol                  | 100   | 71.2  | 71   | 4         | 35  | 26-90  |  |
| 2-Chlorophenol          | 100   | 70.7  | 71   | 3         | 50  | 25-102 |  |
| 1,4-Dichlorobenzene     | 50    | 33.2  | 66   | <1        | 27  | 28-104 |  |
| N-Nitroso-di-n-prop.    | 50    | 36.2  | 72   | 0         | 38  | 41-126 |  |
| 1,2,4-Trichlorobenzene  | 50    | 33.1  | 66   | 1         | 23  | 38-107 |  |
| 4-Chloro-3-Methylphenol | 100   | 67.0  | 67   | 5         | 33  | 26-103 |  |
| Acenaphthene            | 50    | 35.5  | 71   | 3         | 19  | 31-137 |  |
| 4-Nitrophenol           | 100   | 53.5  | 54   | 8         | 50  | 11-114 |  |
| 2,4-Dinitrotoluene      | 50    | 30.6  | 71   | 9         | 47  | 28-89  |  |
| Pentachlorophenol       | 100   | 75.8  | 76   | 4         | 47  | 17-109 |  |
| Pyrene                  | 50    | 35.5  | 71   | 8         | 36  | 32-142 |  |

1 N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values

Values outside of qc limits

RPD: 0 out of outside limits

pike Recovery: 0 out of outside limits

COMMENTS:

FORM III SU-2

1/87 REV

00027

# QUANT REPORT

Operator ID: JEFF  
 Output File: ^C2237::D5  
 Data File: >C2237::D2  
 Sample: A3589MS  
 Date:

Quant Rev: 6      Quant Time: 930914 18:09  
 Injected at: 930914 17:33  
 Dilution Factor: 1.00000

BTL# 6

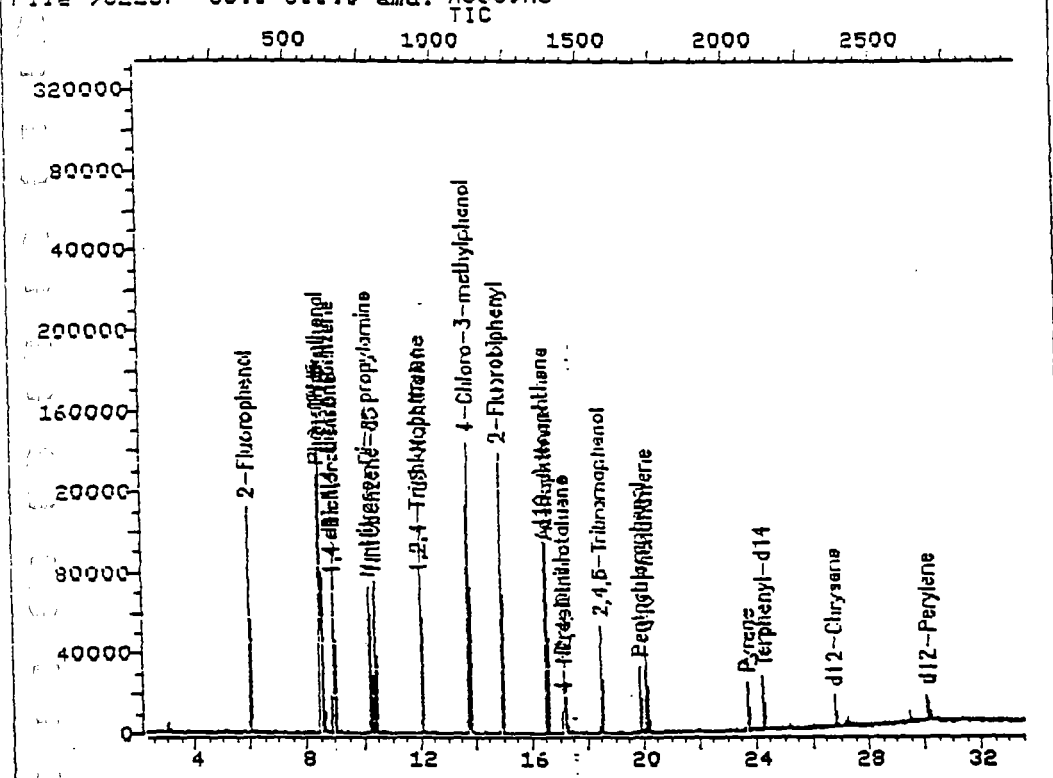
File: ID914C::SC  
 Name: HSL BNA STD  
 Last Calibration: 930914 12:00

| Compound                      | R.T.  | Scan# | Area  | Conc   | Units | q  |
|-------------------------------|-------|-------|-------|--------|-------|----|
| 1) *d4-1,4-Dichlorobenzene    | 8.88  | 632   | 42248 | 40.00  | UG/L  | 97 |
| 4) 2-Fluorophenol             | 5.90  | 347   | 63332 | 88.36  | UG/L  | 89 |
| 5) Phenol-d5                  | 8.42  | 588   | 92907 | 101.45 | UG/L  | 92 |
| 6) Phenol                     | 8.45  | 591   | 75280 | 73.84  | UG/L  | 79 |
| 8) 2-Chlorophenol             | 8.47  | 593   | 59172 | 72.49  | UG/L  | 97 |
| 10) 1,4-Dichlorobenzene       | 8.92  | 636   | 30983 | 32.99  | UG/L  | 96 |
| 6) N-Nitroso-Di-n-propylamine | 10.17 | 756   | 27289 | 36.19  | UG/L  | 89 |
| 8) *d8-Naphthalene            | 12.04 | 935   | 92206 | 40.00  | UG/L  | 93 |
| 9) Nitrobenzene-d5            | 10.36 | 774   | 43673 | 43.04  | UG/L  | 85 |
| 7) 1,2,4-Trichlorobenzene     | 11.97 | 929   | 25713 | 33.59  | UG/L  | 97 |
| 1) 4-Chloro-3-methylphenol    | 13.76 | 1100  | 58143 | 70.53  | UG/L  | 92 |
| 3) *d10-Acenaphthene          | 16.45 | 1358  | 42571 | 40.00  | UG/L  | 95 |
| 3) 2-Fluorobiphenyl           | 14.89 | 1208  | 75400 | 48.70  | UG/L  | 96 |
| 3) Acenaphthene               | 16.52 | 1365  | 49650 | 36.43  | UG/L  | 97 |
| 5) 4-Nitrophenol              | 17.13 | 1423  | 8133  | 49.59  | UG/L  | 59 |
| 7) 2,4-Dinitrotoluene         | 17.16 | 1426  | 10131 | 27.88  | UG/L  | 60 |
| 3) *d10-Phenanthrene          | 20.09 | 1707  | 33395 | 40.00  | UG/L  | 98 |
| 6) 2,4,6-Tribromophenol       | 18.45 | 1550  | 8371  | 78.06  | UG/L  | 92 |
| 7) Pentachlorophenol          | 19.86 | 1685  | 6703  | 73.11  | UG/L  | 93 |
| 4) *d12-Chrysene              | 26.74 | 2342  | 12572 | 40.00  | UG/L  | 96 |
| 5) Pyrene                     | 23.66 | 2048  | 21800 | 38.59  | UG/L  | 99 |
| 7) Terphenyl-d14              | 24.24 | 2104  | 16540 | 43.57  | UG/L  | 91 |
| 5) *d12-Perylene              | 30.07 | 2660  | 11320 | 40.00  | UG/L  | 95 |

\* Compound is ISTD

TOTAL ION CHROMATOGRAM

File >C2237 35.0-500.0 amu. A3589MS



Data File: >C2237::D2

Quant Output File: ^C2237::D5

Name: A3589MS

Misc:

BTL# 6

Id File: ID914C::SC

Title: hSL BNA STD

Last Calibration: 930914 12:00

Operator ID: JEFF

Quant Time: 930914 18:09

Injected at: 930914 17:33

00029



# QUANT REPORT

Operator ID: JEFF  
 Output File: ^C2238::D5  
 Data File: ^C2238::D2  
 Sample: A3589MSD  
 Job:

Quant Rev: 6      Quant Time: 930914 18:56  
 Injected at: 930914 18:19  
 Dilution Factor: 1.00000

BTL# 7

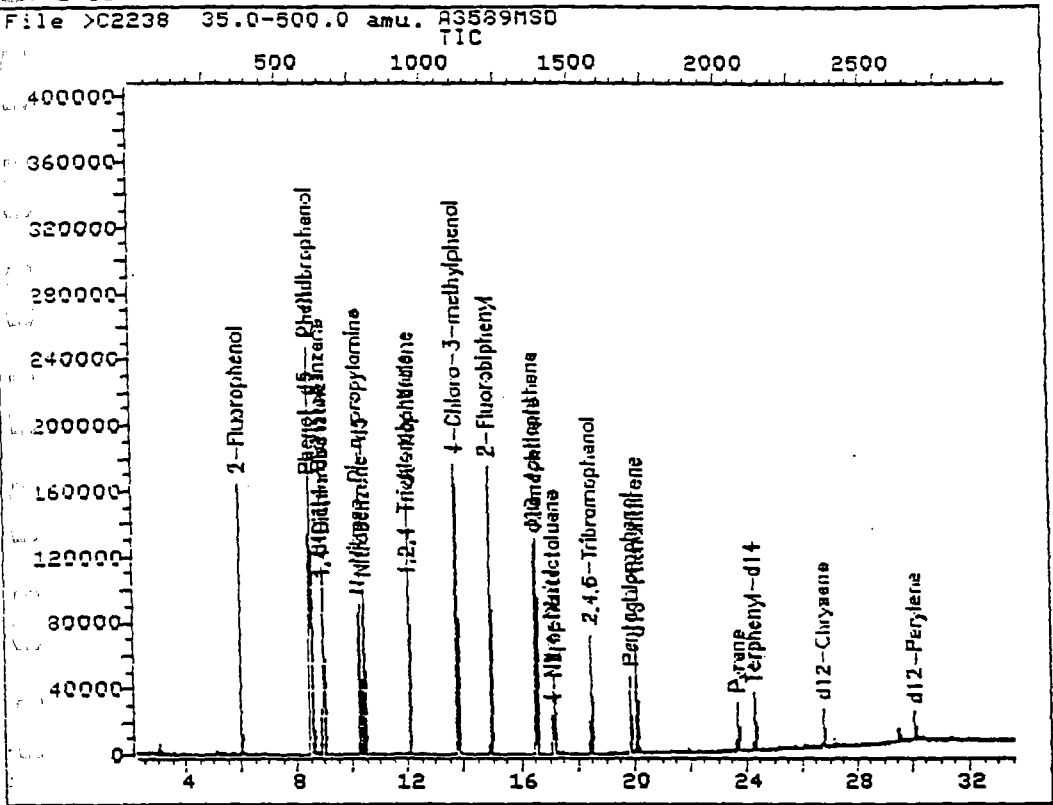
Data File: ID914C::SC  
 Sample: hSL BNA STD  
 Last Calibration: 930914 12:00

| Compound                      | R.T.  | Scan# | Area   | Conc   | Units | q  |
|-------------------------------|-------|-------|--------|--------|-------|----|
| 1) *d4-1,4-Dichlorobenzene    | 8.89  | 632   | 57244  | 40.00  | UG/L  | 98 |
| 4) 2-Fluorophenol             | 5.92  | 348   | 81771  | 84.20  | UG/L  | 92 |
| 5) Phenol-d5                  | 8.44  | 589   | 126732 | 102.14 | UG/L  | 93 |
| 6) Phenol                     | 8.47  | 592   | 98287  | 71.15  | UG/L  | 79 |
| 8) 2-Chlorophenol             | 8.48  | 593   | 78239  | 70.74  | UG/L  | 98 |
| 0) 1,4-Dichlorobenzene        | 8.93  | 636   | 42307  | 33.25  | UG/L  | 97 |
| 6) N-Nitroso-Di-n-propylamine | 10.19 | 757   | 36939  | 36.16  | UG/L  | 93 |
| 8) *d8-Naphthalene            | 12.05 | 935   | 126182 | 40.00  | UG/L  | 93 |
| 9) Nitrobenzene-d5            | 10.37 | 774   | 60447  | 43.53  | UG/L  | 85 |
| 7) 1,2,4-Trichlorobenzene     | 11.99 | 929   | 34651  | 33.07  | UG/L  | 93 |
| 1) 4-Chloro-3-methylphenol    | 13.76 | 1099  | 75625  | 67.04  | UG/L  | 96 |
| 3) *d10-Acenaphthene          | 16.47 | 1358  | 56407  | 40.00  | UG/L  | 96 |
| 8) 2-Fluorobiphenyl           | 14.89 | 1207  | 99789  | 48.65  | UG/L  | 96 |
| 3) Acenaphthene               | 16.54 | 1365  | 64184  | 35.54  | UG/L  | 96 |
| 5) 4-Nitrophenol              | 17.14 | 1422  | 11635  | 53.54  | UG/L  | 50 |
| 7) 2,4-Dinitrotoluene         | 17.17 | 1425  | 14742  | 30.62  | UG/L  | 70 |
| 3) *d10-Phenanthrene          | 20.10 | 1706  | 46683  | 40.00  | UG/L  | 97 |
| 6) 2,4,6-Tribromophenol       | 18.46 | 1549  | 11717  | 78.16  | UG/L  | 95 |
| 9) Pentachlorophenol          | 19.87 | 1684  | 9720   | 75.84  | UG/L  | 99 |
| 4) *d12-Chrysene              | 26.75 | 2341  | 17189  | 40.00  | UG/L  | 97 |
| 5) Pyrene                     | 23.67 | 2047  | 27389  | 35.46  | UG/L  | 97 |
| 7) Terphenyl-d14              | 24.26 | 2103  | 22503  | 43.36  | UG/L  | 90 |
| 3) *d12-Perylene              | 30.08 | 2657  | 15143  | 40.00  | UG/L  | 95 |

\* Compound is ISTD

00000

TOTAL ION CHROMATOGRAM



Data File: >C2238::D2

Quant Output File: ^C2238::D5

Name: A3589MSD

Misc:

BTL# 7

Id File: ID914C::SC

Title: hSL BNA STD

Last Calibration: 930914 12:00

Operator ID: JEFF

Quant Time: 930914 18:56

Injected at: 930914 18:19

21st Century Environmental Inc.

GC/MS STANDARD p-BROMOFLUOROBENZENE (BFB) TUNE  
CRITERIA FOR VOLATILES 50ng

DATE AND TIME OF INJECTION: 9/13/93 23:04  
INSTRUMENT ID: 5995

DATA RELEASE AUTHORIZED BY

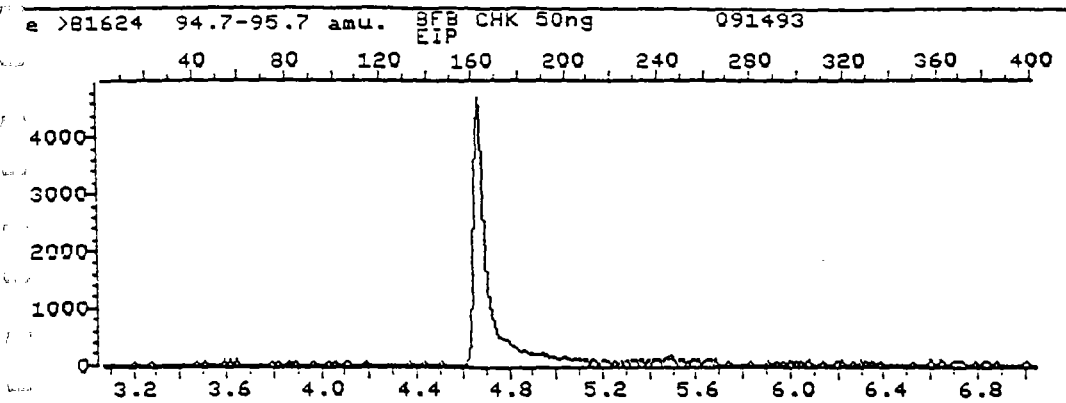
*Richard W. Lynch*

| m/z | Ion Abundance<br>Criteria          | % Relative Abundance |                     | Status |
|-----|------------------------------------|----------------------|---------------------|--------|
|     |                                    | Base<br>Peak         | Appropriate<br>Peak |        |
| 50  | 15-40% of mass 95                  | 24.12                | 24.12               | Ok     |
| 75  | 30-60% of mass 95                  | 55.44                | 55.44               | Ok     |
| 95  | Base peak, 100% relative abundance | 100.00               | 100.00              | Ok     |
| 96  | 5-9% of mass 95                    | 7.27                 | 7.27                | Ok     |
| 173 | Less than 2% of mass 174           | 0.00                 | 0.00                | Ok     |
| 174 | Greater than 50% of mass 95        | 82.14                | 82.14               | Ok     |
| 175 | 5-9% of mass 174                   | 6.52                 | 7.94                | Ok     |
| 176 | 95-101% of mass 174                | 80.82                | 98.39               | Ok     |
| 177 | 5-9% of mass 176                   | 6.31                 | 7.80                | Ok     |

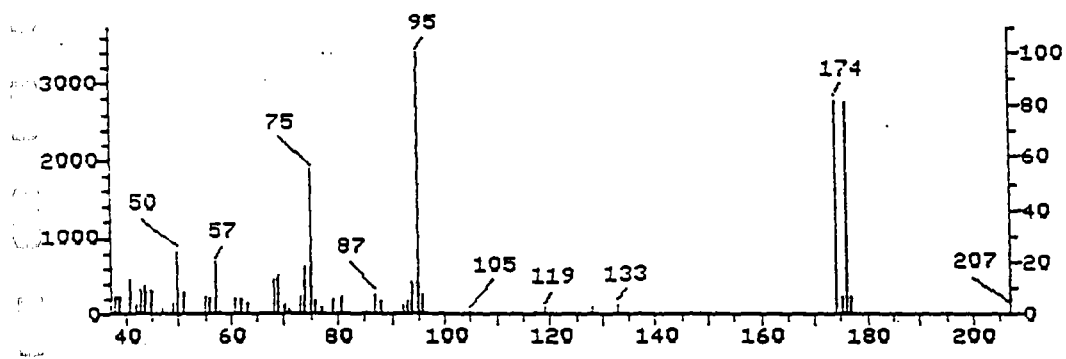
THIS PERFORMANCE AFFECTS ALL SAMPLES  
STANDARDS AND BLANKS LISTED BELOW

| SAMPLE ID   | LAB ID            | DATE    | TIME  |
|-------------|-------------------|---------|-------|
| I>B1624::06 | BFB CHK 50ng      | 9/13/93 | 23:04 |
| I>B1625::06 | HSL CAL CHK 50ppb | 9/14/93 | 0:36  |
| I>B1626::06 | BLANK             | 9/14/93 | 1:58  |
| I>B1627::06 | MeOH BLK          | 9/14/93 | 2:33  |
| I>B1628::06 | A3936             | 9/14/93 | 3:02  |
| I>B1629::06 | A3847             | 9/14/93 | 3:32  |
| I>B1630::06 | A4024             | 9/14/93 | 4:02  |
| I>B1631::06 | A3309             | 9/14/93 | 4:32  |
| I>B1632::06 | A3313             | 9/14/93 | 5:02  |
| I>B1633::06 | A2990             | 9/14/93 | 5:32  |
| I>B1634::06 | A2997             | 9/14/93 | 6:03  |
| I>B1635::06 | A3000             | 9/14/93 | 6:33  |
| I>B1636::06 | A3922             | 9/14/93 | 9:51  |
| I>B1637::06 | A3922MS           | 9/14/93 | 10:19 |
| I>B1638::06 | A3922MSD          | 9/14/93 | 10:50 |

00032



File >B1624 BFB CHK 50ng 091493 Scan 162  
Ab 3399 ENH 4.67 min.



P1624 BFB CHK 50ng 091493  
162 NRM ENH

File: >B1624 Scan #: 162 Retn. time: 4.67

| m/z   | Int.   | m/z   | Int.   | m/z   | Int.   | m/z    | Int.    | m/z    | Int.   |
|-------|--------|-------|--------|-------|--------|--------|---------|--------|--------|
| 7.05  | 7.301  | 50.05 | 24.116 | 69.00 | 15.203 | 85.10  | .682    | 117.10 | .918   |
| 38.05 | 6.525  | 51.05 | 8.148  | 70.10 | 3.024  | 87.00  | 7.631   | 119.00 | 2.536  |
| 38.95 | 6.436  | 55.05 | 6.872  | 71.10 | 2.071  | 88.00  | 4.942   | 128.00 | 2.189  |
| 41.05 | 12.979 | 56.10 | 5.801  | 73.10 | 6.942  | 92.10  | 3.436   | 133.00 | 3.471  |
| 42.05 | 3.124  | 57.10 | 19.603 | 74.00 | 18.592 | 93.10  | 5.189   | 173.95 | 82.144 |
| 42.95 | 9.260  | 58.10 | .724   | 75.10 | 55.439 | 94.00  | 12.567  | 175.05 | 6.525  |
| 43.95 | 10.584 | 61.00 | 6.019  | 76.00 | 5.019  | 95.00  | 100.000 | 175.95 | 80.820 |
| 44.95 | 9.472  | 62.10 | 5.854  | 77.10 | 2.406  | 96.00  | 7.272   | 176.95 | 6.307  |
| 47.05 | 1.524  | 63.10 | 4.171  | 79.00 | 5.683  | 98.10  | .318    | 207.05 | 1.806  |
| 49.05 | 4.195  | 68.00 | 13.238 | 81.00 | 6.348  | 105.00 | .788    |        |        |

00033

21st Century Environmental Inc.

GC/MS STANDARD DECAFLUOROTRIPHENYLPHOSPHINE(DFTPP) TUNE  
CRITERIA FOR SEMI-VOLATILES 50ng

DATE AND TIME OF INJECTION: 9/14/93 9:11

INSTRUMENT ID: 5970

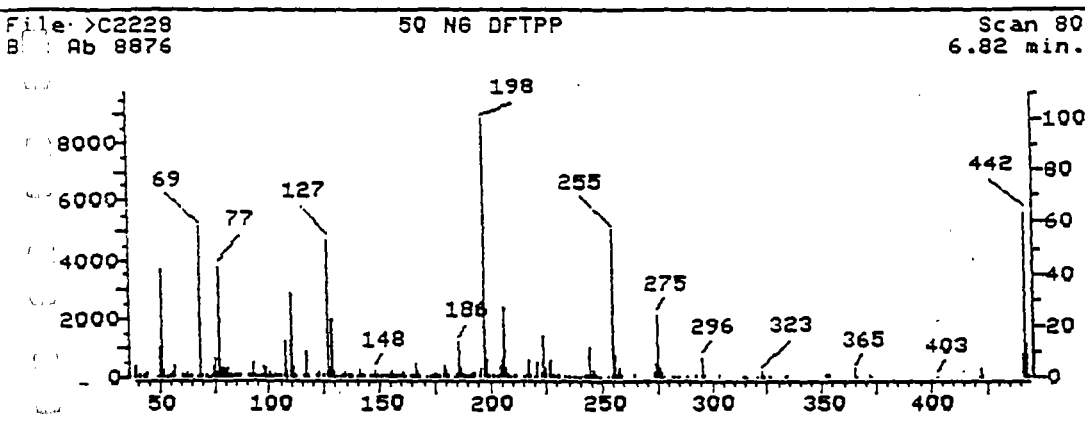
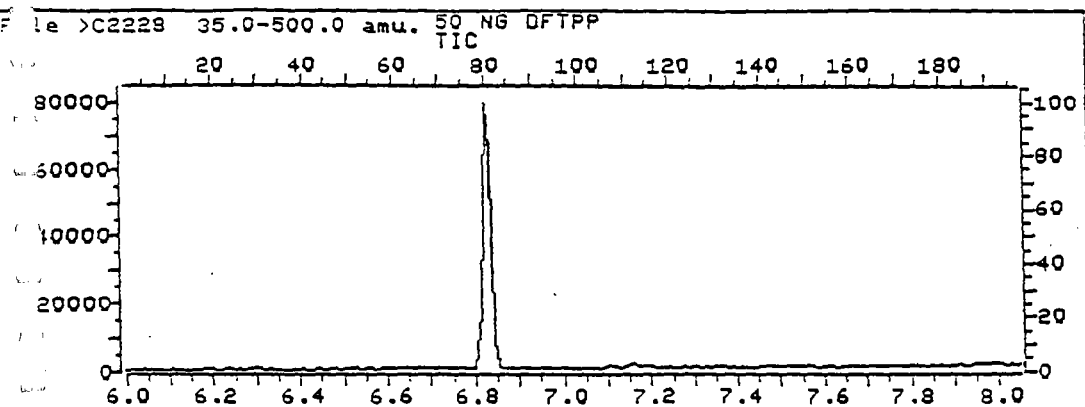
DATA RELEASE AUTHORIZED BY

*Richard W. Szymanski*

| m/z | Ion Abundance<br>Criteria          | % Relative Abundance |                     | Status |
|-----|------------------------------------|----------------------|---------------------|--------|
|     |                                    | Base<br>Peak         | Appropriate<br>Peak |        |
| 51  | 30-60% of mass 198                 | 41.32                | 41.32               | Ok     |
| 68  | Less than 2% of mass 69            | 0.00                 | 0.00                | Ok     |
| 69  | (reference only)                   | 57.74                | 57.74               | Ok     |
| 70  | Less than 2% of mass 69            | .54                  | .94                 | Ok     |
| 127 | 40-60% of mass 198                 | 53.19                | 53.19               | Ok     |
| 197 | Less than 1% of mass 198           | 0.00                 | 0.00                | Ok     |
| 198 | Base peak, 100% relative abundance | 100.00               | 100.00              | Ok     |
| 199 | 5-9% of mass 198                   | 6.76                 | 6.76                | Ok     |
| 275 | 10-30% of mass 198                 | 24.18                | 24.18               | Ok     |
| 365 | Greater than 1% of mass 198        | 3.00                 | 3.00                | Ok     |
| 441 | 0-100% of mass 443                 | 8.77                 | 66.90               | Ok     |
| 442 | Greater than 40% of mass 198       | 63.87                | 63.87               | Ok     |
| 443 | 17-23% of mass 442                 | 13.10                | 20.52               | Ok     |

THIS PERFORMANCE AFFECTS ALL SAMPLES  
STANDARDS AND BLANKS LISTED BELOW

| SAMPLE ID   | LAB ID             | DATE    | TIME  |
|-------------|--------------------|---------|-------|
| I>C2228::05 | 150 NG DFTPP       | 9/14/93 | 9:11  |
| I>C2229::03 | 150 PPM BNA STD    | 9/14/93 | 9:36  |
| I>C2230::03 | IA3308 CYCLE       | 9/14/93 | 11:08 |
| I>C2231::05 | INA BLANK 9/13     | 9/14/93 | 11:59 |
| I>C2232::04 | IA3282MS           | 9/14/93 | 12:44 |
| I>C2233::04 | IA3282MSD          | 9/14/93 | 13:30 |
| I>C2234::04 | IA3669 BRINKERHOFF | 9/14/93 | 14:15 |
| I>C2235::04 | IA3670 BRINKERHOFF | 9/14/93 | 15:01 |
| I>C2236::02 | IA4024 E-SYSTEM    | 9/14/93 | 16:46 |
| I>C2237::02 | IA3589MS           | 9/14/93 | 17:33 |
| I>C2238::02 | IA3589MSD          | 9/14/93 | 18:19 |
| I>C2239::02 | IA3649 ACCUQUAL    | 9/14/93 | 19:05 |
| I>C2240::02 | INA BLK 8/25       | 9/14/93 | 19:51 |
| I>C2241::02 | IA3410 8/25        | 9/14/93 | 20:36 |



>C2228 50 NG DFTPP  
80 NRM

File: >C2228 Scan #: 80 Retn. time: 6.82

| m/z   | Int.   | m/z    | Int.   | m/z    | Int.  | m/z    | Int.   | m/z    | Int.   |
|-------|--------|--------|--------|--------|-------|--------|--------|--------|--------|
| 7.00  | 4.157  | 92.90  | 6.129  | 146.90 | 1.262 | 198.90 | 6.760  | 258.80 | .608   |
| 7.90  | 1.374  | 93.90  | .552   | 147.80 | 2.704 | 199.90 | .699   | 264.75 | 1.115  |
| 41.10 | 1.059  | 94.40  | .225   | 148.90 | .541  | 201.40 | .665   | 272.95 | 1.915  |
| 2.90  | .879   | 94.70  | .372   | 149.80 | .237  | 203.00 | .518   | 273.95 | 4.743  |
| 3.90  | 1.735  | 94.90  | .428   | 150.90 | .620  | 203.90 | 4.000  | 274.95 | 24.178 |
| 49.05 | .259   | 96.00  | .361   | 152.80 | .777  | 204.90 | 6.433  | 275.80 | 3.571  |
| 49.95 | 11.830 | 97.00  | .552   | 153.90 | .642  | 205.90 | 26.577 | 276.90 | 2.028  |
| 1.95  | 41.325 | 98.00  | 3.954  | 154.90 | 1.420 | 206.90 | 3.481  | 277.80 | .304   |
| 52.05 | 2.411  | 98.90  | 3.155  | 155.95 | 2.186 | 207.90 | .958   | 281.80 | .190   |
| 52.95 | .180   | 99.90  | .315   | 156.85 | .699  | 208.75 | .383   | 282.90 | .248   |
| 4.05  | .270   | 101.00 | 2.062  | 157.95 | .744  | 210.75 | 1.228  | 284.90 | .451   |
| 1.25  | .259   | 101.65 | .169   | 158.85 | .473  | 214.75 | .304   | 288.70 | .124   |
| 54.95 | 1.037  | 102.95 | .563   | 159.85 | .789  | 215.95 | .653   | 292.85 | .507   |
| 55.95 | 1.577  | 103.95 | 1.273  | 160.95 | 1.667 | 216.85 | 6.861  | 295.95 | 7.875  |
| 1.95  | 3.932  | 104.95 | 1.296  | 161.85 | .327  | 217.85 | 1.070  | 296.85 | 1.070  |
| 60.55 | .180   | 105.85 | .394   | 164.95 | .901  | 219.95 | .248   | 302.90 | .699   |
| 61.00 | .834   | 106.95 | 14.365 | 165.95 | .924  | 220.95 | 5.577  | 314.30 | .169   |
| 6.90  | .439   | 107.95 | 2.298  | 166.95 | 5.340 | 222.90 | 1.453  | 314.90 | .642   |
| 6.00  | 1.859  | 109.95 | 31.929 | 167.95 | 2.287 | 223.90 | 16.167 | 316.00 | .451   |

0035

|       |        |        |        |        |         |        |        |        |        |      |
|-------|--------|--------|--------|--------|---------|--------|--------|--------|--------|------|
| 67.10 | .462   | 115.80 | .890   | 173.00 | .631    | 227.90 | .980   | 323.95 | 2.177  | .586 |
| 7.30  | .394   | 116.90 | 10.038 | 173.90 | 1.172   | 228.90 | 1.003  | 326.85 |        | .372 |
| 8.90  | 57.740 | 117.90 | .834   | 175.00 | 2.129   | 231.00 | .507   | 332.90 |        | .192 |
| 70.00 | .541   | 121.90 | 1.037  | 175.90 | .755    | 233.80 | .451   | 333.20 |        | .248 |
| 71.00 | .597   | 122.90 | 1.712  | 176.90 | .868    | 235.00 | .406   | 333.90 | 1.037  |      |
| 2.90  | .338   | 124.90 | .766   | 177.50 | .259    | 236.85 | .372   | 351.95 |        | .721 |
| 73.10 | .338   | 125.10 | .766   | 178.90 | 4.169   | 238.65 | .225   | 352.95 |        | .518 |
| 74.00 | 4.045  | 127.00 | 53.188 | 179.90 | 2.445   | 238.85 | .225   | 354.05 |        | .642 |
| 4.95  | 7.391  | 128.00 | 3.695  | 180.90 | .924    | 239.75 | .214   | 364.90 | 2.997  |      |
| 76.05 | 2.005  | 128.85 | 22.048 | 183.85 | .338    | 241.75 | .631   | 365.90 |        | .372 |
| 76.95 | 42.564 | 129.85 | 2.524  | 184.15 | .259    | 243.05 | 1.048  | 371.85 |        | .946 |
| 7.95  | 3.188  | 130.95 | .394   | 184.95 | 1.949   | 243.95 | 11.469 | 372.95 |        | .237 |
| 8.95  | 3.222  | 132.15 | .338   | 185.85 | 14.139  | 244.85 | 1.160  | 401.95 |        | .304 |
| 79.95 | 2.873  | 133.85 | .800   | 186.95 | 3.797   | 245.95 | 2.174  | 402.95 |        | .439 |
| 80.95 | 3.549  | 134.95 | 1.836  | 187.95 | .541    | 246.85 | .653   | 421.10 |        | .394 |
| 2.05  | .913   | 136.05 | .552   | 188.85 | .732    | 248.85 | .473   | 422.00 |        | .462 |
| 82.95 | 1.262  | 137.05 | 1.059  | 190.15 | .180    | 252.70 | .270   | 423.00 | 3.560  |      |
| 84.05 | .203   | 137.75 | .169   | 190.85 | .653    | 252.90 | .293   | 423.95 |        | .541 |
| 4.95  | .946   | 139.95 | .349   | 191.95 | 1.374   | 254.90 | 56.861 | 441.00 | 8.765  |      |
| 85.85 | .879   | 140.95 | 2.557  | 192.95 | 1.701   | 255.90 | 7.977  | 442.00 | 63.869 |      |
| 86.95 | .766   | 141.90 | 1.059  | 195.90 | 3.121   | 256.70 | .935   | 442.90 | 13.103 |      |
| 80.90 | .913   | 142.80 | .969   | 197.80 | 100.000 | 257.90 | 3.436  | 444.00 | 1.093  |      |
| 2.00  | .822   | 145.80 | .687   |        |         |        |        |        |        |      |

21st Century Environmental Inc.

GC/MS STANDARD DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP) TUNE  
CRITERIA FOR SEMI-VOLATILES 50ng

DATE AND TIME OF INJECTION: 9/16/93 8:41

INSTRUMENT ID: 5970

DATA RELEASE AUTHORIZED BY

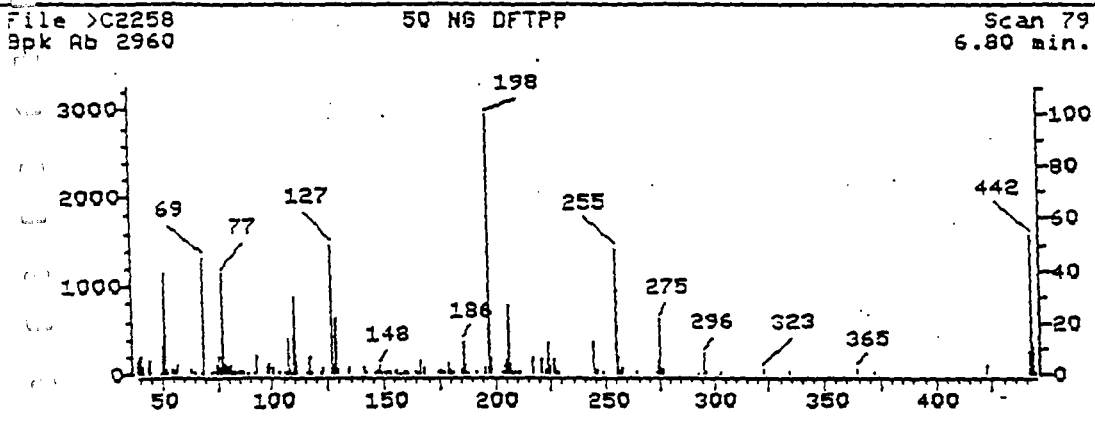
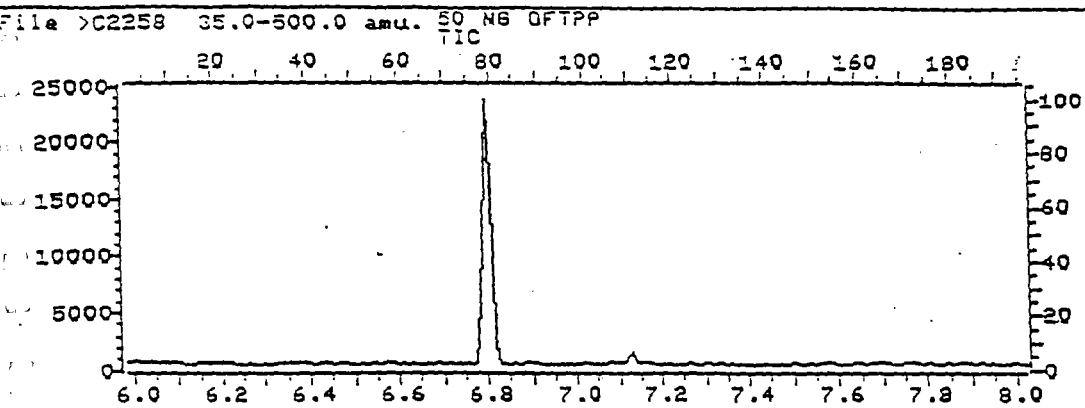
*Richard W. Byrd*

| m/z | Ion Abundance<br>Criteria          | % Relative Abundance |                     | Status |
|-----|------------------------------------|----------------------|---------------------|--------|
|     |                                    | Base<br>Peak         | Appropriate<br>Peak |        |
| 51  | 30-60% of mass 198                 | 39.22                | 39.22               | Ok     |
| 68  | Less than 2% of mass 69            | .37                  | .83                 | Ok     |
| 69  | (reference only)                   | 44.83                | 44.83               | Ok     |
| 70  | Less than 2% of mass 69            | 0.00                 | 0.00                | Ok     |
| 127 | 40-60% of mass 198                 | 49.97                | 49.97               | Ok     |
| 197 | Less than 1% of mass 198           | 0.00                 | 0.00                | Ok     |
| 198 | Base peak, 100% relative abundance | 100.00               | 100.00              | Ok     |
| 199 | 5-9% of mass 198                   | 5.64                 | 5.64                | Ok     |
| 275 | 10-30% of mass 198                 | 21.52                | 21.52               | Ok     |
| 365 | Greater than 1% of mass 198        | 2.03                 | 2.03                | Ok     |
| 441 | 0-100% of mass 443                 | 8.95                 | 81.29               | Ok     |
| 442 | Greater than 40% of mass 198       | 53.68                | 53.68               | Ok     |
| 443 | 17-23% of mass 442                 | 11.01                | 20.52               | Ok     |

THIS PERFORMANCE AFFECTS ALL SAMPLES  
STANDARDS AND BLANKS LISTED BELOW

| SAMPLE ID   | LAB ID             | DATE    | TIME  |
|-------------|--------------------|---------|-------|
| I>C2258::E3 | 150 NG DFTPP       | 9/16/93 | 8:41  |
| I>C2260::05 | 150 PPM BNA STD    | 9/16/93 | 9:57  |
| I>C2261::05 | ITCLP BLANK 9/14   | 9/16/93 | 11:17 |
| I>C2263::05 | IA3159 CWM         | 9/16/93 | 12:51 |
| I>C2264::05 | IA3165 CWM         | 9/16/93 | 13:35 |
| I>C2265::05 | INA BLNK 9/14      | 9/16/93 | 14:20 |
| I>C2266::05 | IA3157 CWM         | 9/16/93 | 15:05 |
| I>C2267::05 | IA3165 CWM         | 9/16/93 | 15:50 |
| I>C2268::05 | ITCLP BLNK 9/16    | 9/16/93 | 16:36 |
| I>C2269::05 | IA4065 CWM FB047   | 9/16/93 | 17:54 |
| I>C2270::05 | IA4071 CWM 052COMP | 9/16/93 | 18:39 |
| I>C2271::05 | IA4078 CWM 053COMP | 9/16/93 | 19:24 |
| I>C2272::05 | IA4084 CWM 054COMP | 9/16/93 | 20:09 |





>C2258 50 NG DFTPP  
79 NRM

File: >C2258 Scan #: 79 Retn. time: 6.80

| m/z   | Int.   | m/z    | Int.   | m/z    | Int.  | m/z    | Int.    | m/z    | Int.   |
|-------|--------|--------|--------|--------|-------|--------|---------|--------|--------|
| 39.00 | 4.696  | 86.00  | 1.250  | 145.90 | .980  | 186.95 | 3.446   | 248.80 | .608   |
| 41.00 | 6.655  | 86.90  | .845   | 147.00 | 1.622 | 188.05 | .405    | 254.90 | 48.041 |
| 43.00 | 2.466  | 89.00  | .338   | 147.90 | 3.108 | 191.90 | 1.149   | 256.00 | 6.959  |
| 44.10 | 4.899  | 91.90  | .439   | 148.90 | 1.115 | 195.90 | 2.331   | 257.00 | .878   |
| 45.85 | .405   | 93.00  | 7.500  | 151.00 | .507  | 197.90 | 100.000 | 257.85 | 2.736  |
| 47.95 | 10.608 | 98.00  | 3.615  | 152.95 | 1.284 | 198.90 | 5.642   | 264.95 | 1.115  |
| 51.05 | 39.223 | 99.00  | 3.851  | 155.95 | 1.520 | 203.10 | .642    | 272.80 | 1.149  |
| 53.05 | 1.588  | 100.95 | 2.297  | 157.75 | .473  | 204.00 | 3.649   | 273.80 | 4.696  |
| 55.05 | 1.655  | 103.85 | 1.014  | 159.45 | .372  | 204.95 | 5.980   | 274.90 | 21.520 |
| 55.85 | .709   | 106.15 | .507   | 160.05 | 1.047 | 205.95 | 26.250  | 275.90 | 2.973  |
| 57.05 | 3.277  | 106.95 | 14.054 | 160.95 | 1.047 | 206.95 | 4.358   | 276.90 | 1.689  |
| 61.00 | 1.892  | 107.95 | 1.791  | 164.85 | 1.047 | 207.95 | .743    | 292.85 | .405   |
| 63.10 | .811   | 108.85 | .473   | 165.70 | .372  | 208.95 | .574    | 295.85 | 8.041  |
| 67.70 | .372   | 109.95 | 29.561 | 166.20 | .878  | 210.85 | .946    | 296.80 | 1.047  |
| 69.00 | 44.831 | 110.95 | 4.831  | 166.90 | 5.338 | 216.95 | 6.791   | 302.10 | .372   |
| 71.85 | .946   | 116.10 | 1.014  | 168.00 | 2.500 | 220.80 | 5.608   | 303.00 | .912   |
| 73.95 | 3.074  | 117.00 | 6.858  | 173.90 | .878  | 222.30 | .608    | 323.00 | 2.095  |
| 75.05 | 6.453  | 117.70 | .912   | 175.00 | 1.926 | 222.90 | 1.453   | 334.00 | 1.115  |
| 77.15 | 2.230  | 121.80 | .845   | 176.40 | .574  | 223.80 | 1.005   | 344.00 | .115   |

00038



Continuing Calibration Check  
HSL Compounds

Case No: \_\_\_\_\_ Calibration Date: 09/14/93  
Contractor: 21ST Century Env \_\_\_\_\_ Time: 00:36  
Contract No: \_\_\_\_\_ Laboratory ID: >B1625  
Instrument ID: Volatile Inst 8 \_\_\_\_\_ Initial Calibration Date: 08/23/93

Minimum RF for SPCC is .300 Maximum % Diff for CCC is 25%

| Compound                      | RF      | RF      | %Diff | CCC SPCC     |
|-------------------------------|---------|---------|-------|--------------|
| Chloromethane                 | .52159  | .57780  | 10.78 | **           |
| Bromomethane                  | .57263  | .54908  | 4.11  |              |
| Vinyl Chloride                | .84800  | .88350  | 4.19  | *            |
| Chloroethane                  | .40088  | .35570  | 11.27 |              |
| Acrolein                      | .01462  | .01567  | 7.16  | (Conc=80.00) |
| 1, 2-Trichlorotrifluoroethane | 2.13787 | 2.47154 | 15.61 |              |
| Trichlorofluoromethane        | 3.12501 | 3.38525 | 8.33  |              |
| Acetone                       | .73842  | .74600  | 1.03  |              |
| 1, Dichloroethene             | 1.66856 | 1.47681 | 11.49 | *            |
| Carbon Disulfide              | 2.61211 | 1.42179 | 45.57 |              |
| Methyl Tertiary Butyl Ether   | 3.48114 | 3.01821 | 13.30 |              |
| Tertiary Butyl Alcohol        | .93521  | 1.86138 | 99.03 |              |
| Acetonitrile                  | .50368  | .39879  | 20.82 |              |
| Methylene Chloride            | 1.34147 | 1.24583 | 7.13  |              |
| 1,2-Dichloroethene(trans)     | 1.64254 | 1.60271 | 2.43  |              |
| 1, Dichloroethane             | 2.51826 | 1.60370 | 36.32 | **           |
| Vinyl Acetate                 | .07659  | .09801  | 27.96 |              |
| 2-Butanone                    | 1.62448 | 1.29377 | 20.36 |              |
| Chloroform                    | 3.13117 | 3.31454 | 5.86  | *            |
| 1, 1-Trichloroethane          | 2.78385 | 2.95690 | 6.22  |              |
| Carbon Tetrachloride          | 2.33658 | 2.39287 | 2.37  |              |
| 1,2 Dichloroethane-d4         | 2.29334 | 2.34585 | 2.29  | (Conc=50.00) |
| 1, Dichloroethane             | .41285  | .48926  | 18.51 |              |
| Benzene                       | .85561  | .93952  | 9.81  |              |
| Trichloroethene               | .37847  | .42613  | 12.59 |              |
| 1, Dichloropropane            | .28633  | .33161  | 15.81 | *            |
| Bromodichloromethane          | .49613  | .55493  | 11.85 |              |
| 2-Chloroethylvinylether       | .25258  | .26908  | 6.53  |              |
| 2-Butanone                    | .36752  | .41952  | 14.15 |              |
| trans-1,3-Dichloropropene     | .47521  | .53642  | 12.88 |              |
| Toluene-d8                    | .97960  | 1.02533 | 4.67  |              |
| Toluene                       | .97784  | 1.10483 | 12.99 | *            |

RF - Response Factor from daily standard file at 50.00 UG/L

RF - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

Continuing Calibration Check  
HSL Compounds

Case No: \_\_\_\_\_ Calibration Date: 09/14/93  
Contractor: 21ST Century Env \_\_\_\_\_ Time: 00:36  
Contract No: \_\_\_\_\_ Laboratory ID: >81625  
Instrument ID: Volatile Inst B \_\_\_\_\_ Initial Calibration Date: 08/23/93

Minimum RF for SPCC is .300 Maximum % Diff for CCC is 25%

| Compound                | $\overline{RF}$ | RF      | %Diff | CCC | SPCC |
|-------------------------|-----------------|---------|-------|-----|------|
| cis-1,3-Dichloropropene | .48595          | .51233  | 5.43  |     |      |
| 1,2,2-Tetrachloroethane | .45583          | .46845  | 2.77  | **  |      |
| 1,2-Trichloroethane     | .37039          | .39213  | 5.87  |     |      |
| 4-Methyl-2-pentanone    | .45792          | .48823  | 6.62  |     |      |
| Trichloroethene         | .39197          | .44681  | 13.99 |     |      |
| Dibromochloromethane    | .54690          | .59308  | 8.44  |     |      |
| Chlorobenzene           | .89006          | .90675  | 1.88  | **  |      |
| Ethylbenzene            | 1.50672         | 1.61199 | 6.99  | *   |      |
| m-Xylenes               | 1.12152         | 1.17112 | 4.42  |     |      |
| o-Xylene                | 1.08518         | 1.19333 | 9.97  |     |      |
| Styrene                 | .87140          | .85845  | 1.49  |     |      |
| Bromoform               | .42174          | .49129  | 16.49 | **  |      |
| Bromofluorobenzene      | .56278          | .59390  | 5.53  |     |      |
| m-Dichlorobenzene       | .70130          | .87595  | 24.90 |     |      |
| p-Dichlorobenzene       | .72664          | .90062  | 23.94 |     |      |
| o-Dichlorobenzene       | .67713          | .83808  | 23.77 |     |      |

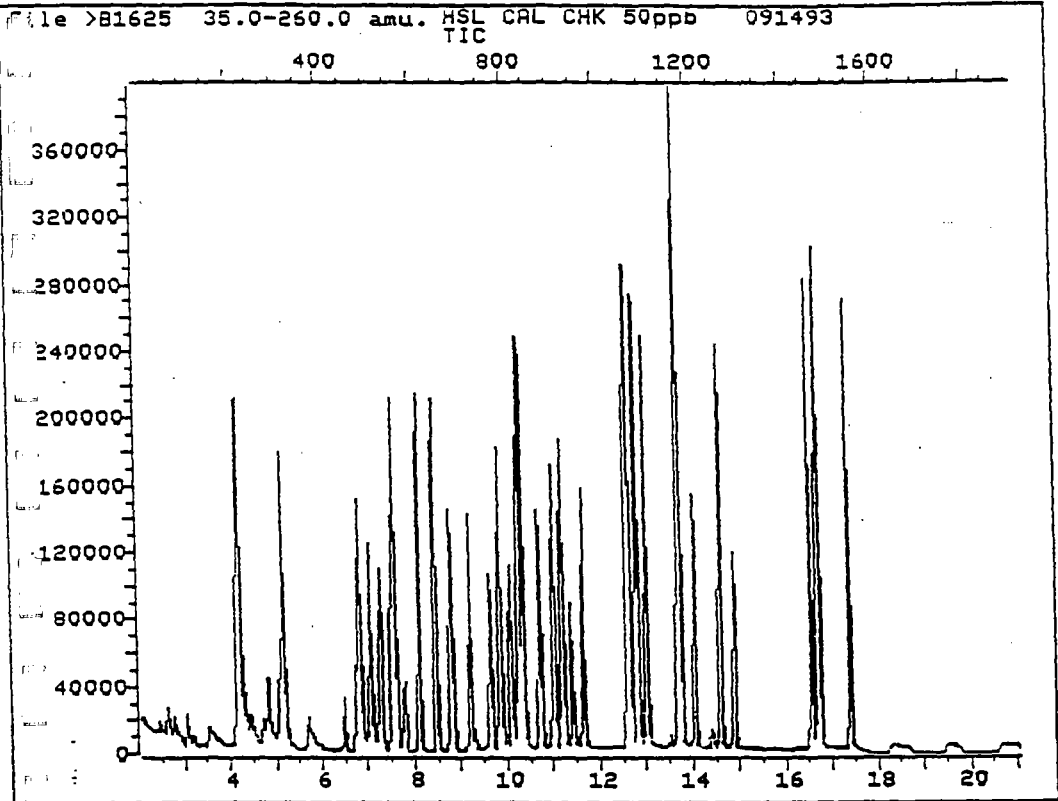
RF - Response Factor from daily standard file at 50.00  $\mu$ g/L

$\overline{RF}$  - Average Response Factor from Initial Calibration Form VI

% Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

TOTAL ION CHROMATOGRAM



Data File: >B1625::D6  
Name: HSL CAL CHK 50ppb  
Misc: 091493

Quant Output File: ^B1625::QT

Id File: ID0401::SC  
Title: USEPA 624 VOLATILES  
Last Calibration: 930913 05:50

Operator ID: MANAGER  
Quant Time: 930914 01:06  
Injected at: 930914 00:36

Continuing Calibration Check  
HSL Compounds

Case No: \_\_\_\_\_ Calibration Date: 09/14/93  
Contractor: 21st Century Envir \_\_\_\_\_ Time: 09:36  
Contract No: \_\_\_\_\_ Laboratory ID: >C2229  
Instrument ID: 5970C \_\_\_\_\_ Initial Calibration Date: 09/08/93

Minimum RF for SPCC is 0.050

Maximum % Diff for CCC is 25%

| Compound                   | RF      | RF      | %Diff | CCC | SPCC          |
|----------------------------|---------|---------|-------|-----|---------------|
| Pyridine                   | .69881  | .56248  | 19.51 |     |               |
| Nitrosodimethylamine       | .56412  | .41438  | 26.54 |     |               |
| Fluorophenol               | .76502  | .67859  | 11.30 |     | (Conc=100.00) |
| Phenol-d5                  | .98708  | .96702  | 12.16 |     | (Conc=100.00) |
| Phenol                     | 1.08913 | .96532  | 11.37 | *   |               |
| s(-2-Chloroethyl)Ether     | .94879  | .81145  | 14.48 |     |               |
| 2-Chlorophenol             | .84101  | .77287  | 8.10  |     |               |
| 1,3-Dichlorobenzene        | .89851  | .86616  | 3.60  |     |               |
| 4-Dichlorobenzene          | .91567  | .88914  | 2.90  | *   |               |
| Benzyl Alcohol             | .51984  | .43194  | 16.91 |     |               |
| 1,2-Dichlorobenzene        | .88521  | .84517  | 4.52  |     |               |
| 4-Methylphenol             | .76895  | .65693  | 14.57 |     |               |
| s(2-Chloroisopropyl)ether  | .86122  | .73229  | 14.97 |     |               |
| 4-Methylphenol             | .78643  | .71866  | 8.62  |     | (Conc=100.00) |
| N-Nitroso-Di-n-propylamine | .79029  | .71385  | 9.67  | **  |               |
| Hexachloroethane           | .45480  | .40785  | 10.32 |     |               |
| Nitrobenzene-d5            | .52545  | .44016  | 16.23 |     | (Conc=50.00)  |
| Nitrobenzene               | .50278  | .42503  | 15.46 |     |               |
| Phosphorane                | 1.00266 | .83155  | 17.07 |     |               |
| Nitrophenol                | .23796  | .22860  | 3.94  | *   |               |
| 2,4-Dimethylphenol         | .32962  | .30743  | 6.73  |     |               |
| Benzoic Acid               | .18039  | .14413  | 20.10 |     |               |
| s(-2-Chloroethoxy)Methane  | .49221  | .42368  | 13.92 |     |               |
| 2,4-Dichlorophenol         | .29425  | .29309  | .39   | *   |               |
| 1,2,4-Trichlorobenzene     | .32052  | .33212  | 3.62  |     |               |
| Phthalene                  | 1.12751 | 1.09867 | 2.56  |     |               |
| Chloroaniline              | .42195  | .43490  | 3.07  |     |               |
| Hexachlorobutadiene        | .17924  | .19591  | 9.30  | *   |               |
| Chloro-3-methylphenol      | .37500  | .35761  | 4.64  | *   |               |
| Methylnaphthalene          | .71471  | .75921  | 6.23  |     |               |
| Hexachlorocyclopentadiene  | .29071  | .20556  | 29.29 | **  |               |
| 2,4,6-Trichlorophenol      | .39942  | .39764  | .45   | *   |               |

RF - Response Factor from daily standard file at 50.00 ug/l

RF - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

Continuing Calibration Check  
HSL Compounds

Core No: \_\_\_\_\_ Calibration Date: 09/14/93  
Contractor: 21st Century Envir \_\_\_\_\_ Time: 09:36  
Contract No: \_\_\_\_\_ Laboratory ID: >C2229  
Instrument ID: 5970C \_\_\_\_\_ Initial Calibration Date: 09/08/93

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 25%

| Compound                   | RF      | RF      | %Diff | CCC | SPCC          |
|----------------------------|---------|---------|-------|-----|---------------|
| 2,4,5-Trichlorophenol      | .40862  | .39165  | 4.15  |     |               |
| 2-chloronaphthalene        | 1.32190 | 1.31396 | .60   |     |               |
| 2-fluorobiphenyl           | 1.48464 | 1.45464 | 2.02  |     | (Conc=50.00)  |
| 2-Nitroaniline             | .42046  | .44670  | 6.24  |     |               |
| Diethyl Phthalate          | 1.47621 | 1.68084 | 13.86 |     |               |
| 1-naphthylene              | 1.91606 | 1.87066 | 2.37  |     |               |
| 3-Nitroaniline             | .22138  | .26725  | 20.72 |     |               |
| Acenaphthene               | 1.33563 | 1.28063 | 4.12  | *   |               |
| 2,4-Dinitrophenol          | .09355  | .10167  | 8.68  | **  |               |
| 4-nitrophenol              | .15308  | .15409  | .66   | **  |               |
| Dibenzofuran               | 1.83366 | 1.68629 | 8.04  |     |               |
| 2,4-Dinitrotoluene         | .31730  | .34137  | 7.59  |     |               |
| 2,6-Dinitrotoluene         | .29443  | .33338  | 13.23 |     |               |
| Diethylphthalate           | 1.51900 | 1.59033 | 4.70  |     |               |
| 4-chlorophenyl-phenylether | .59972  | .59506  | .78   |     |               |
| Fluorene                   | 1.30652 | 1.23108 | 5.77  |     |               |
| 4-Nitroaniline             | .16322  | .18329  | 12.30 |     |               |
| 4,6-Dinitro-2-methylphenol | .11359  | .11542  | 1.61  |     |               |
| Nitrosodiphenylamine       | .75711  | .74713  | 1.32  | *   |               |
| 2,4,6-Tribromophenol       | .11174  | .12845  | 14.95 |     | (Conc=100.00) |
| 4-Bromophenyl-phenylether  | .27913  | .29750  | 6.58  |     |               |
| Hexachlorobenzene          | .26569  | .28148  | 5.95  | *   |               |
| Polychlorophenol           | .11202  | .10982  | 1.97  | **  |               |
| Phenanthrene               | 1.19658 | 1.15278 | 3.66  |     |               |
| Anthracene                 | 1.12489 | 1.09232 | 2.90  |     |               |
| Di-n-Butylphthalate        | 1.44951 | 1.47720 | 1.91  |     |               |
| Fluoranthene               | .70654  | .70251  | .57   | *   |               |
| Pyrene                     | 2.12313 | 1.79741 | 15.34 |     |               |
| Benzidine                  | .03649  | .02681  | 26.54 |     |               |
| Toluene-d14                | 1.28204 | 1.20774 | 5.80  |     | (Conc=50.00)  |
| Butylbenzylphthalate       | 1.07351 | .96950  | 9.69  |     |               |
| 3,3'-Dichlorobenzidine     | .26406  | .31744  | 20.22 |     |               |

RF - Response Factor from daily standard file at 50.00 ug/l

RF - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

Continuing Calibration Check  
HSL Compounds

Use No: \_\_\_\_\_ Calibration Date: 09/14/93  
Contractor: 21st Century Envir \_\_\_\_\_ Time: 09:36  
Contract No: \_\_\_\_\_ Laboratory ID: >C2229  
Instrument ID: 5970C \_\_\_\_\_ Initial Calibration Date: 09/08/93

Minimum RF for SPCC is 0.050

Maximum % Diff for CCC is 25%

| Compound                 | RF      | RF      | %Diff | CCC | SPCC |
|--------------------------|---------|---------|-------|-----|------|
| Benzo(a)Anthracene       | 1.19240 | 1.18333 | .76   |     |      |
| s(2-Ethylhexyl)Phthalate | 1.32621 | 1.28479 | 3.12  |     |      |
| Pyrene                   | 1.11734 | 1.07609 | 3.69  |     |      |
| Di-n-octyl phthalate     | 2.44477 | 2.18802 | 10.50 | *   |      |
| Benzo(b)fluoranthene     | 1.26008 | 1.13842 | 9.65  |     |      |
| Benzo(k)Fluoranthene     | 1.32074 | 1.17670 | 10.91 |     |      |
| Benzo(a)Pyrene           | 1.15901 | 1.06819 | 7.84  | *   |      |
| Indeno(1,2,3-cd)Pyrene   | 1.16808 | 1.13321 | 2.99  |     |      |
| Benzo(a,h)Anthracene     | .92520  | .91829  | .75   |     |      |
| Benzo(g,h,i)Perylene     | 1.02656 | 1.01676 | .95   |     |      |

RF - Response Factor from daily standard file at 50.00 ug/l

RF - Average Response Factor from Initial Calibration Form VI

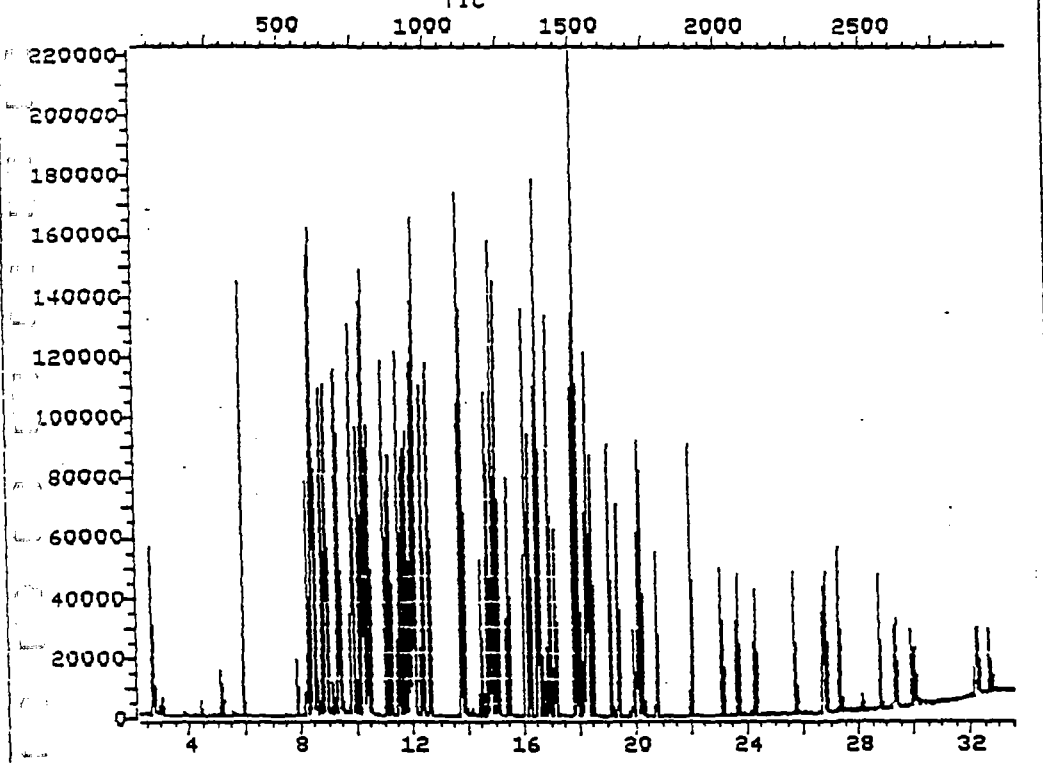
% Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)



# TAL ION CHROMATOGRAM

File >C2229 35.0-500.0 amu. 50 PPM BNA STD  
TIC



Data File: >C2229::D3

Quant Output File: ^C2229::DA

Name: 50 PPM BNA STD

Misc:

BTL# 2

Id File: ID908C::D3

Title: hSL BNA STD

Last Calibration: 930908 14:10

Operator ID: JEFF

Quant Time: 930914 10:12

Injected at: 930914 09:36

00046

Continuing Calibration Check  
HSL Compounds

Contract No: Calibration Date: 09/16/93  
Contractor: 21st Century Envir Time: 09:57  
Contract No: Laboratory ID: >C2260  
Instrument ID: 5970C Initial Calibration Date: 09/08/93

Minimum RF for SPC is 0.050 Maximum % Diff for CCC is 25%

| Compound                    | RF      | RF      | %Diff | CCC | SPC           |
|-----------------------------|---------|---------|-------|-----|---------------|
| Pyridine                    | .69881  | .49891  | 28.61 |     |               |
| n-trosodimethylamine        | .56412  | .35620  | 36.86 |     |               |
| 2-Fluorophenol              | .76502  | .64116  | 16.19 |     | (Conc=100.00) |
| Phenol-d5                   | .98708  | .86444  | 12.42 |     | (Conc=100.00) |
| Phenol                      | 1.08913 | .82451  | 24.30 | *   |               |
| bis(2-Chloroethyl)Ether     | .94879  | .75011  | 20.94 |     |               |
| 2-Chlorophenol              | .84101  | .70735  | 15.89 |     |               |
| 1,2-Dichlorobenzene         | .89851  | .84154  | 6.34  |     |               |
| 1,3-Dichlorobenzene         | .91567  | .86607  | 5.42  | *   |               |
| Benzyl Alcohol              | .51984  | .47329  | 8.95  |     |               |
| 1,4-Dichlorobenzene         | .88521  | .82159  | 7.19  |     |               |
| 2-Methylphenol              | .76895  | .65420  | 14.92 |     |               |
| bis(2-Chloroisopropyl)ether | .86122  | .73737  | 14.38 |     |               |
| 4-Methylphenol              | .78643  | .69606  | 11.49 |     | (Conc=100.00) |
| N-troso-Di-n-propylamine    | .79029  | .69033  | 12.65 | **  |               |
| Hexachloroethane            | .45480  | .37479  | 17.59 |     |               |
| Nitrobenzene-d5             | .52545  | .41976  | 20.12 |     | (Conc=50.00)  |
| Nitrobenzene                | .50278  | .40689  | 19.07 |     |               |
| Isobutylene                 | 1.00266 | .82749  | 17.47 |     |               |
| 2-Nitrophenol               | .23796  | .26558  | 11.61 | *   |               |
| 2,4-Dimethylphenol          | .32962  | .32027  | 2.84  |     |               |
| Benzoic Acid                | .18039  | .14115  | 21.75 |     |               |
| bis(2-Chloroethoxy)Methane  | .49221  | .42939  | 12.76 |     |               |
| 2,4-Dichlorophenol          | .29425  | .32454  | 10.30 | *   |               |
| 1,4-Trichlorobenzene        | .32052  | .37115  | 15.79 |     |               |
| Naphthalene                 | 1.12751 | 1.10037 | 2.41  |     |               |
| 4-Chloroaniline             | .42195  | .43946  | 4.15  |     |               |
| Hexachlorobutadiene         | .17924  | .21359  | 19.17 | *   |               |
| 4-Chloro-3-methylphenol     | .37500  | .34954  | 6.79  | *   |               |
| 2-Methylnaphthalene         | .71471  | .77316  | 8.18  |     |               |
| Hexachlorocyclopentadiene   | .29071  | .24275  | 16.50 | **  |               |
| 2,6-Trichlorophenol         | .39942  | .42748  | 7.02  | *   |               |

RF - Response Factor from daily standard file at 50.00 ug/l

RF - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (\*) SPC - System Performance Check Compounds (\*\*)

Continuing Calibration Check  
HSL Compounds

Case No: \_\_\_\_\_ Calibration Date: 09/16/93  
Contractor: 21st Century Envir \_\_\_\_\_ Time: 09:57  
Contract No: \_\_\_\_\_ Laboratory ID: >C2260  
Instrument ID: 5970C \_\_\_\_\_ Initial Calibration Date: 09/08/93

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 25%

| Compound                   | RF      | RF      | %Diff | CCC | SPCC          |
|----------------------------|---------|---------|-------|-----|---------------|
| 2,4,5-Trichlorophenol      | .40862  | .43302  | 5.97  |     |               |
| 1-Chloronaphthalene        | 1.32190 | 1.31934 | .19   |     |               |
| 2-Fluorobiphenyl           | 1.48464 | 1.47787 | .46   |     | (Conc=50.00)  |
| 2-Nitroaniline             | .42046  | .44793  | 6.53  |     |               |
| 1-Methyl Phthalate         | 1.47621 | 1.53576 | 4.03  |     |               |
| 1-Naphthylene              | 1.91606 | 1.81816 | 5.11  |     |               |
| 3-Nitroaniline             | .22138  | .23906  | 7.98  |     |               |
| 1-Naphthene                | 1.33563 | 1.24102 | 7.08  | *   |               |
| 1,4-Dinitrophenol          | .09355  | .11898  | 27.19 | **  |               |
| 4-Nitrophenol              | .15308  | .10801  | 29.44 | **  |               |
| Dibenzofuran               | 1.83366 | 1.68974 | 7.85  |     |               |
| 1,4-Dinitrotoluene         | .31730  | .31041  | 2.17  |     |               |
| 2,6-Dinitrotoluene         | .29443  | .32006  | 8.71  |     |               |
| Diethylphthalate           | 1.51900 | 1.31154 | 13.66 |     |               |
| 1-Chlorophenyl-phenylether | .59972  | .58920  | 1.75  |     |               |
| Fluorene                   | 1.30652 | 1.17859 | 9.79  |     |               |
| 4-Nitroaniline             | .16322  | .15353  | 5.94  |     |               |
| 1,4-Dinitro-2-methylphenol | .11359  | .15306  | 34.75 |     |               |
| 1-Nitrosodiphenylamine     | .75711  | .77328  | 2.14  | *   |               |
| 2,4,6-Tribromophenol       | .11174  | .13198  | 18.11 |     | (Conc=100.00) |
| 4-Bromophenyl-phenylether  | .27913  | .30935  | 10.82 |     |               |
| 1-Trichlorobenzene         | .26569  | .28951  | 8.97  | *   |               |
| Pentachlorophenol          | .11202  | .10905  | 2.66  | **  |               |
| Phenanthrene               | 1.19658 | 1.12150 | 6.27  |     |               |
| 1-Chracene                 | 1.12489 | 1.06853 | 5.01  |     |               |
| 1-n-Butylphthalate         | 1.44951 | 1.33637 | 7.81  |     |               |
| Fluoranthene               | .70654  | .71774  | 1.59  | *   |               |
| 1-Pyrene                   | 2.12313 | 1.70323 | 19.78 |     |               |
| 1-Benzidine                | .03649  | .01604  | 56.05 |     |               |
| 1-Terphenyl-d14            | 1.28204 | 1.15497 | 9.91  |     | (Conc=50.00)  |
| 1-Butylbenzylphthalate     | 1.07351 | .93653  | 12.76 |     |               |
| 1,1'-Dichlorobenzidine     | .26406  | .25319  | 4.12  |     |               |

RF - Response Factor from daily standard file at 50.00 ug/l

RF - Average Response Factor from Initial Calibration Form VI

% Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

Continuing Calibration Check  
HSL Compounds

Case No: \_\_\_\_\_ Calibration Date: 09/16/93  
Contractor: 21st Century Envir \_\_\_\_\_ Time: 09:57  
Contract No: \_\_\_\_\_ Laboratory ID: >C2260  
Instrument ID: 5970C \_\_\_\_\_ Initial Calibration Date: 09/08/93

Minimum RF for SPCC is 0.050

Maximum % Diff for CCC is 25%

| Compound                   | RF      | RF      | %Diff | CCC | SPCC |
|----------------------------|---------|---------|-------|-----|------|
| Benzo(a)Anthracene         | 1.19240 | 1.13832 | 4.54  |     |      |
| Bis(2-Ethylhexyl)Phthalate | 1.32621 | 1.31437 | .89   |     |      |
| Chrysene                   | 1.11734 | 1.05914 | 5.21  |     |      |
| Di-n-octyl phthalate       | 2.44477 | 2.52908 | 3.45  | *   |      |
| Benzo(b)fluoranthene       | 1.26008 | 1.20294 | 4.53  |     |      |
| Benzo(k)Fluoranthene       | 1.32074 | 1.20459 | 8.79  |     |      |
| Benzo(a)Pyrene             | 1.15901 | 1.04243 | 10.06 | *   |      |
| Indeno(1,2,3-cd)Pyrene     | 1.16808 | 1.08744 | 6.90  |     |      |
| Dibenz(a,h)Anthracene      | .92520  | .89148  | 3.65  |     |      |
| Benzo(g,h,i)Perylene       | 1.02656 | .95241  | 7.22  |     |      |

RF - Response Factor from daily standard file at 50.00 ug/l

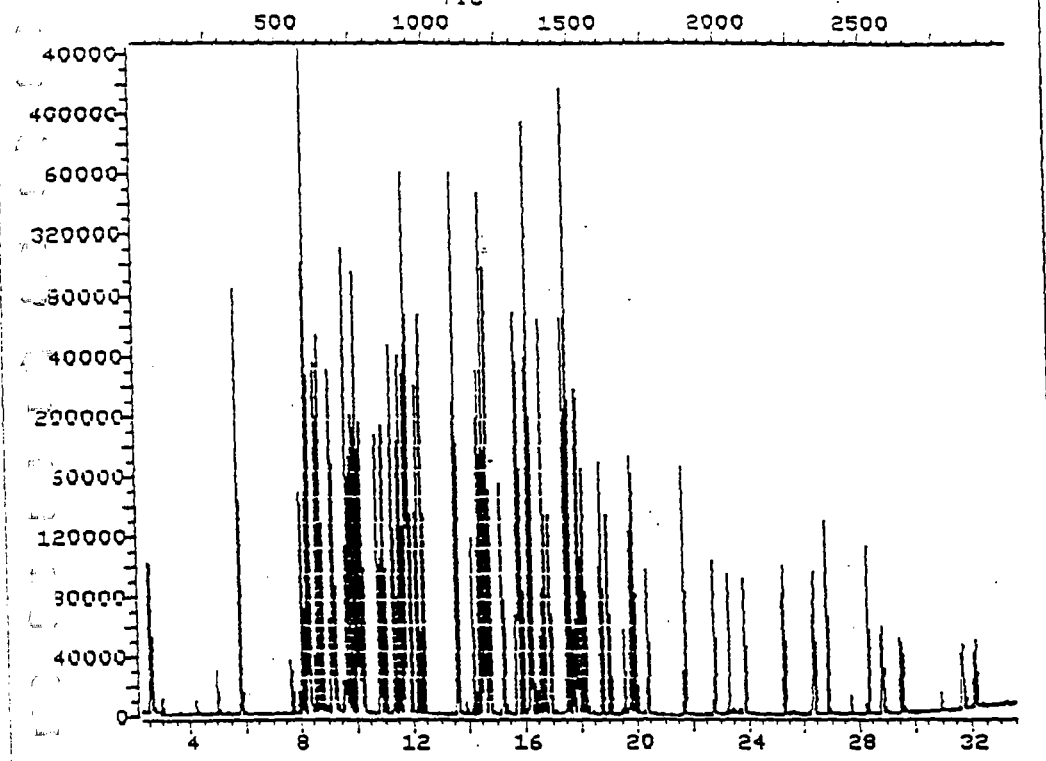
RF - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

# AL ION CHROMATOGRAM

File >C2260 35.0-500.0 amu. 50 PPM BNA STD  
TIC



Data File: >C2260::05

Quant Output File: ^C2260::E3

Name: 50 PPM BNA STD

Misc:

BTL# 2

Id File: ID916C::05

Title: hSL BNA STD

Last Calibration: 930916 11:28

Operator ID: JEFF

Quant Time: 930916 11:30

Injected at: 930916 09:57

0050

21st Century Environmental Inc.

GC/MS STANDARD p-BROMOFLUOROBENZENE (BFB) TUNE  
CRITERIA FOR VOLATILES 50ng

DATE AND TIME OF INJECTION: 8/23/93 10:21

INSTRUMENT ID: 5995

DATA RELEASE AUTHORIZED BY

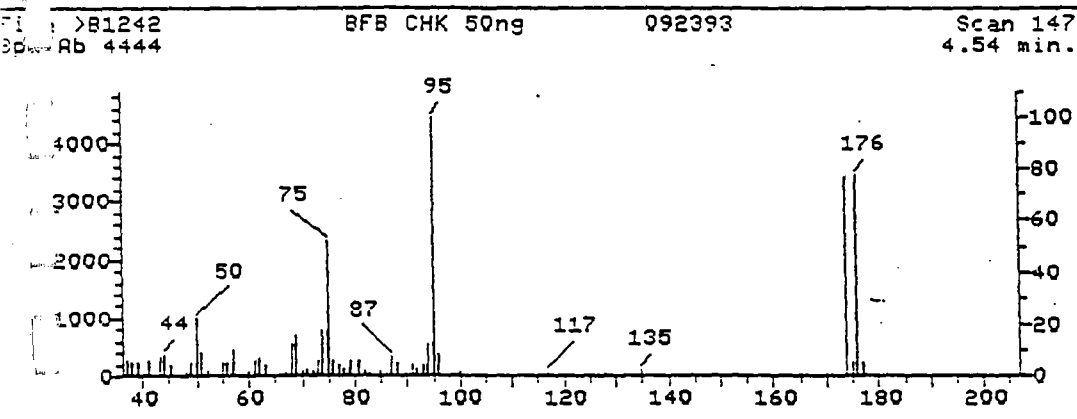
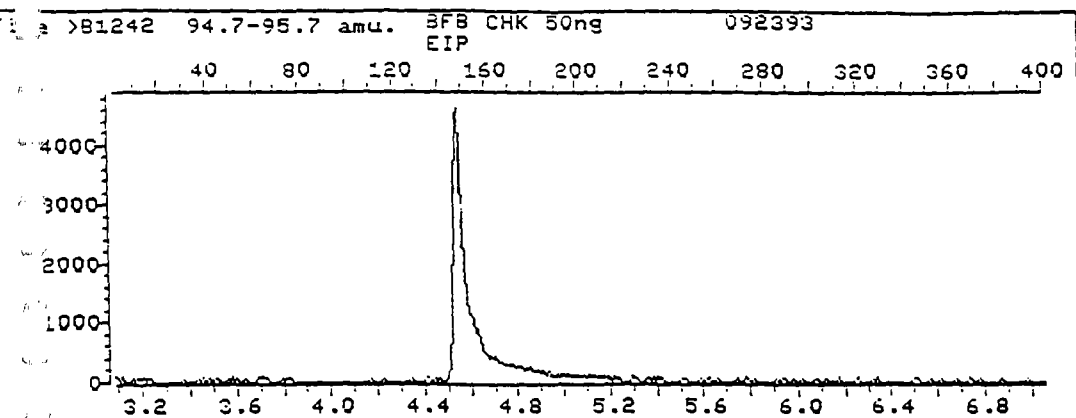
*Robert W. Lynn*

| m/z | Ion Abundance<br>Criteria          | % Relative Abundance |                     | Status |
|-----|------------------------------------|----------------------|---------------------|--------|
|     |                                    | Base<br>Peak         | Appropriate<br>Peak |        |
| 50  | 15-40% of mass 95                  | 22.07                | 22.07               | Ok     |
| 75  | 30-60% of mass 95                  | 51.73                | 51.73               | Ok     |
| 95  | Base peak, 100% relative abundance | 100.00               | 100.00              | Ok     |
| 96  | 5-9% of mass 95                    | 8.06                 | 8.06                | Ok     |
| 173 | Less than 2% of mass 174           | 0.00                 | 0.00                | Ok     |
| 174 | Greater than 50% of mass 95        | 77.05                | 77.05               | Ok     |
| 175 | 5-9% of mass 174                   | 4.84                 | 6.28                | Ok     |
| 176 | 95-101% of mass 174                | 77.43                | 100.50              | Ok     |
| 177 | 5-9% of mass 176                   | 5.04                 | 6.51                | Ok     |

THIS PERFORMANCE AFFECTS ALL SAMPLES  
STANDARDS AND BLANKS LISTED BELOW

| SAMPLE ID   | LAB ID             | DATE    | TIME  |
|-------------|--------------------|---------|-------|
| I>81242::06 | BFB CHK 50ng       | 8/23/93 | 10:21 |
| I>81243::06 | HSL CAL STD 50ppb  | 8/23/93 | 11:00 |
| I>81244::06 | HSL CAL STD 20ppb  | 8/23/93 | 11:30 |
| I>81245::06 | HSL CAL CHK 100ppb | 8/23/93 | 12:01 |
| I>81246::06 | HSL CAL CHK 150ppb | 8/23/93 | 12:34 |
| I>81247::06 | HSL CAL CHK 200ppb | 8/23/93 | 13:39 |
| I>81248::06 | BLANK              | 8/23/93 | 15:14 |
| I>81250::06 | A3641              | 8/23/93 | 16:43 |
| I>81251::06 | A3642              | 8/23/93 | 17:13 |
| I>81252::06 | A3643              | 8/23/93 | 17:42 |
| I>81253::06 | A3644              | 8/23/93 | 18:11 |
| I>81254::06 | A3645              | 8/23/93 | 18:41 |
| I>81255::06 | A3646              | 8/23/93 | 19:11 |
| I>81256::06 | A3647              | 8/23/93 | 19:41 |
| I>81257::06 | A3521              | 8/23/93 | 20:11 |
| I>81258::06 | A3640              | 8/23/93 | 20:41 |
| I>81259::06 | A3674              | 8/23/93 | 21:11 |
| I>81260::06 | A3675              | 8/23/93 | 21:41 |
| I>81261::06 | A3676              | 8/23/93 | 22:12 |

00051



>B1242 BFB CHK 50ng 092393  
147 NRM

File: >B1242 Scan #: 147 Retn. time: 4.54

| m/z   | Int.   | m/z   | Int.   | m/z   | Int.   | m/z   | Int.    | m/z    | Int.   |
|-------|--------|-------|--------|-------|--------|-------|---------|--------|--------|
| 36.05 | 3.038  | 51.05 | 8.776  | 69.05 | 15.842 | 81.00 | 5.873   | 96.00  | 8.056  |
| 37.05 | 5.851  | 52.05 | 1.485  | 70.05 | 1.868  | 81.90 | 2.115   | 100.00 | 1.845  |
| 38.05 | 5.401  | 55.15 | 4.860  | 71.05 | 2.543  | 83.00 | 1.170   | 116.90 | 1.193  |
| 39.05 | 5.423  | 56.05 | 5.153  | 72.05 | 1.688  | 85.00 | 1.575   | 127.90 | 1.013  |
| 41.15 | 6.143  | 57.05 | 10.374 | 73.05 | 5.806  | 87.00 | 7.336   | 134.90 | 2.228  |
| 42.05 | 7.223  | 60.05 | 1.935  | 74.05 | 17.777 | 88.00 | 4.725   | 173.90 | 77.048 |
| 44.05 | 7.988  | 61.05 | 5.828  | 75.05 | 51.733 | 91.00 | 3.870   | 175.00 | 4.838  |
| 45.05 | 4.365  | 62.05 | 6.391  | 76.00 | 6.053  | 92.00 | 2.768   | 175.90 | 77.430 |
| 46.95 | 1.373  | 63.15 | 4.230  | 77.00 | 4.163  | 93.00 | 4.140   | 176.90 | 5.041  |
| 47.05 | 5.153  | 66.95 | 1.485  | 78.00 | 2.160  | 94.00 | 12.534  | 206.90 | 3.510  |
| 50.05 | 22.075 | 68.05 | 12.219 | 79.00 | 5.513  | 95.00 | 100.000 |        |        |

Initial Calibration Data  
HSL Compounds

File No: \_\_\_\_\_ Instrument ID: Volatile Inst B  
Contractor: 21ST Century Env Calibration Date: 08/23/93  
Contract No: \_\_\_\_\_

Minimum RF for SPCC is .300 Maximum % RSD for CCC is 30%

| Compound                     | Laboratory ID: >81244 >81243 >81245 >81246 >81247 |         |         |         |         | RRT   | RF      | % RSD  | CCC | SPCC                      |
|------------------------------|---------------------------------------------------|---------|---------|---------|---------|-------|---------|--------|-----|---------------------------|
|                              | RF                                                | RF      | RF      | RF      | RF      |       |         |        |     |                           |
| Chloromethane                | .48208                                            | .54838  | .48535  | .54463  | .54751  | .366  | .52159  | 6.638  |     | **                        |
| Bromomethane                 | .59343                                            | .57826  | .52482  | .58455  | .58210  | .454  | .57263  | 4.768  |     |                           |
| Vinyl Chloride               | .79552                                            | .88669  | .76965  | .89349  | .89466  | .390  | .84800  | 7.133  | *   |                           |
| Chloroethane                 | .41727                                            | .40960  | .38578  | .40838  | .38337  | .473  | .40088  | 3.815  |     |                           |
| Acetone                      | .01211                                            | .01503  | .01256  | .01644  | .01697  | .608  | .01462  | 15.118 |     | (Conc=32.0,80.0,160.0,240 |
| 1,2-Trichlorotrifluoroethane | 1.93850                                           | 2.33178 | 1.84998 | 2.26329 | 2.30579 | .624  | 2.13787 | 10.567 |     |                           |
| Trichlorofluoromethane       | 2.98643                                           | 3.38895 | 2.74106 | 3.25994 | 3.24866 | .625  | 3.12501 | 8.310  |     |                           |
| Acetone                      | .71175                                            | .72246  | .67275  | .75809  | .82707  | .640  | .73842  | 7.874  |     |                           |
| 1,1-Dichloroethene           | 1.65461                                           | 1.81609 | 1.55371 | 1.71269 | 1.60570 | .623  | 1.66856 | 6.071  | *   |                           |
| Carbon Disulfide             | 1.90386                                           | 2.03123 | 2.74257 | 3.03669 | 3.34611 | .664  | 2.61211 | 24.022 |     |                           |
| Methyl Tertiary Butyl Ether  | -                                                 | 2.76540 | 3.56742 | 4.11060 | -       | .770  | 3.48114 | 19.440 |     |                           |
| Tertiary Butyl Alcohol       | -                                                 | .71453  | .97942  | 1.11168 | -       | .751  | .93521  | 21.624 |     | (Conc=40.0,100.0,200.0,30 |
| Acrylonitrile                | .45208                                            | .48449  | .47728  | .54325  | .56128  | .761  | .50368  | 9.212  |     |                           |
| Methylene Chloride           | 1.28176                                           | 1.25183 | 1.28436 | 1.44028 | 1.44913 | .715  | 1.34147 | 7.093  |     |                           |
| 1,1-Dichloroethene(trans)    | 1.57367                                           | 1.71611 | 1.49937 | 1.70233 | 1.72124 | .764  | 1.64254 | 6.120  |     |                           |
| 1,1-Dichloroethane           | 2.26832                                           | 2.73405 | 2.29680 | 2.71460 | 2.57754 | .842  | 2.51826 | 8.883  |     | **                        |
| Vinyl Acetate                | .08620                                            | .09168  | .06681  | .07816  | .06011  | .854  | .07659  | 17.145 |     |                           |
| 2-Pentanone                  | 1.97393                                           | 1.74326 | 1.34433 | 1.52005 | 1.54085 | .959  | 1.62448 | 14.844 |     |                           |
| Chloroform                   | 2.89732                                           | 3.19572 | 2.86376 | 3.35992 | 3.33911 | 1.015 | 3.13117 | 7.590  | *   |                           |
| 1,1,1-Trichloroethane        | 2.55563                                           | 2.89720 | 2.50350 | 2.95902 | 3.00392 | 1.052 | 2.78385 | 8.475  |     |                           |
| Carbon Tetrachloride         | 2.07078                                           | 2.47113 | 2.09184 | 2.49326 | 2.55589 | 1.085 | 2.33658 | 10.066 |     |                           |
| 1,1-Dichloroethane-d4        | 2.19121                                           | 2.23328 | 2.37515 | 2.35806 | 2.30899 | 1.113 | 2.29334 | 3.459  |     | (Conc=50.0,50.0,50.0,50.0 |
| 1,2-Dichloroethane           | .41469                                            | .44809  | .37121  | .42175  | .40851  | .939  | .41285  | 6.718  |     |                           |
| Benzene                      | .85490                                            | .92783  | .76381  | .87426  | .85722  | .937  | .85561  | 6.913  |     |                           |
| 1,1-Dichloroethene           | .38571                                            | .40539  | .33543  | .38680  | .37903  | 1.046 | .37847  | 6.863  |     |                           |
| 1,1-Dichloropropane          | .28955                                            | .31073  | .25817  | .28902  | .28420  | 1.085 | .28633  | 6.559  | *   |                           |
| Bromodichloromethane         | .48544                                            | .52935  | .44160  | .51485  | .50940  | 1.133 | .49613  | 6.923  |     |                           |
| 1,1-Dichloroethylvinylether  | .22843                                            | .24745  | .23394  | .27620  | .27689  | 1.187 | .25258  | 9.084  |     |                           |
| 2-Pentanone                  | .41097                                            | .33887  | .33119  | .37149  | .38506  | 1.405 | .36752  | 8.975  |     |                           |
| trans-1,3-Dichloropropene    | .45852                                            | .51172  | .42888  | .49366  | .48327  | 1.215 | .47521  | 6.789  |     |                           |

RF - Response Factor (Subscript is amount in µg/L)

RRT - Average Relative Retention Time (RT Std/RT Istd)

RF - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)



Initial Calibration Data  
HSL Compounds

Cat No: Instrument ID: Volatile Inst B

Contractor: 21ST Century Env Calibration Date: 08/23/93

Contract No:

Minimum RF for SPCC is .300 Maximum % RSD for CCC is 30%

| Compound                | Laboratory ID: >81244 >81243 >81245 >81246 >81247 |         |         |         |         | RRT   | RF      | % RSD  | CCC | SPCC                      |
|-------------------------|---------------------------------------------------|---------|---------|---------|---------|-------|---------|--------|-----|---------------------------|
|                         | RF                                                | RF      | RF      | RF      | RF      |       |         |        |     |                           |
|                         | 20.00                                             | 50.00   | 100.00  | 150.00  | 200.00  |       |         |        |     |                           |
| Toluene-d8              | .97388                                            | .99022  | .97640  | .97622  | .98131  | 1.267 | .97960  | .666   |     | (Conc=50.0,50.0,50.0,50.0 |
| Toluene                 | .97214                                            | 1.05217 | .87019  | 1.00823 | .98648  | 1.280 | .97784  | 6.887  | *   |                           |
| cis-1,3-Dichloropropene | .47568                                            | .51485  | .43148  | .51030  | .49743  | .850  | .48595  | 7.003  |     |                           |
| 1,2,2-Tetrachloroethane | .44739                                            | .48762  | .39982  | .47197  | .47233  | 1.180 | .45583  | 7.561  | **  |                           |
| 1,2-Trichloroethane     | .36458                                            | .39136  | .32556  | .38592  | .38451  | .873  | .37039  | 7.299  |     |                           |
| 4-Methyl-2-pentanone    | .51873                                            | .41352  | .40524  | .46756  | .48455  | .906  | .45792  | 10.499 |     |                           |
| Tetrachloroethene       | .38111                                            | .41310  | .33375  | .41013  | .42175  | .893  | .39197  | 9.173  |     |                           |
| Dichloromethane         | .52801                                            | .57307  | .48329  | .57612  | .57400  | .923  | .54690  | 7.470  |     |                           |
| Chlorobenzene           | .88328                                            | .93517  | .77509  | .93191  | .92485  | 1.004 | .89006  | 7.591  | **  |                           |
| Ethylbenzene            | 1.51388                                           | 1.60863 | 1.32259 | 1.57014 | 1.51837 | 1.019 | 1.50672 | 7.308  | *   |                           |
| m-Xylenes               | 1.05143                                           | 1.10999 | 1.00195 | 1.20696 | 1.23728 | 1.035 | 1.12152 | 8.921  |     |                           |
| o-Xylene                | 1.11042                                           | 1.15701 | .94920  | 1.12835 | 1.08092 | 1.089 | 1.08518 | 7.453  |     |                           |
| Styrene                 | .80227                                            | .83858  | .80388  | .95869  | .95359  | 1.091 | .87140  | 9.034  |     |                           |
| Bromoform               | .39837                                            | .43247  | .37186  | .44502  | .46096  | 1.114 | .42174  | 8.573  | **  |                           |
| Bromofluorobenzene      | .57356                                            | .55727  | .55390  | .56587  | .56331  | 1.160 | .56278  | 1.363  |     | (Conc=50.0,50.0,50.0,50.0 |
| m-Dichlorobenzene       | .71854                                            | .74817  | .57613  | .72050  | .74313  | 1.316 | .70130  | 10.153 |     |                           |
| p-Dichlorobenzene       | .73911                                            | .76741  | .60340  | .75539  | .76789  | 1.329 | .72664  | 9.617  |     |                           |
| o-chlorobenzene         | .69758                                            | .72495  | .55651  | .69638  | .71026  | 1.382 | .67713  | 10.103 |     |                           |

RF - Response Factor (Subscript is amount in UG/L)

R - Average Relative Retention Time (RT Std/RT Istd)

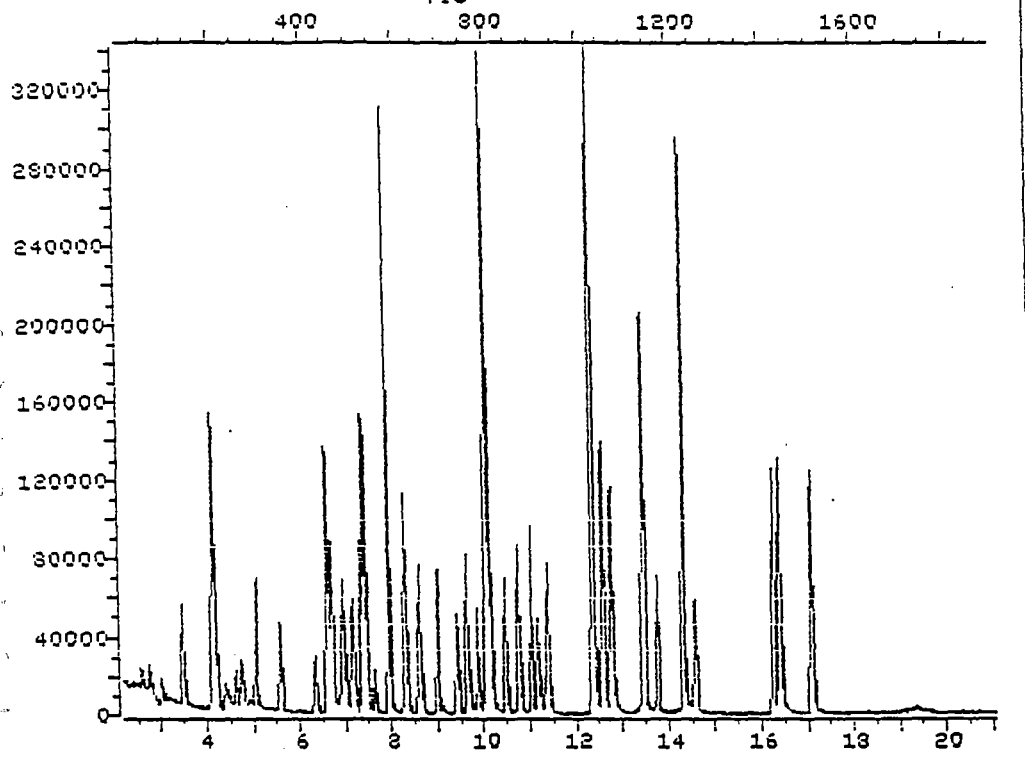
RF - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

TOTAL ION CHROMATOGRAM

File >B1244 35.0-260.0 amu. HSL CAL STD 20ppb  
TIC



Data File: >B1244::D6  
Name: HSL CAL STD 20ppb  
Misc:

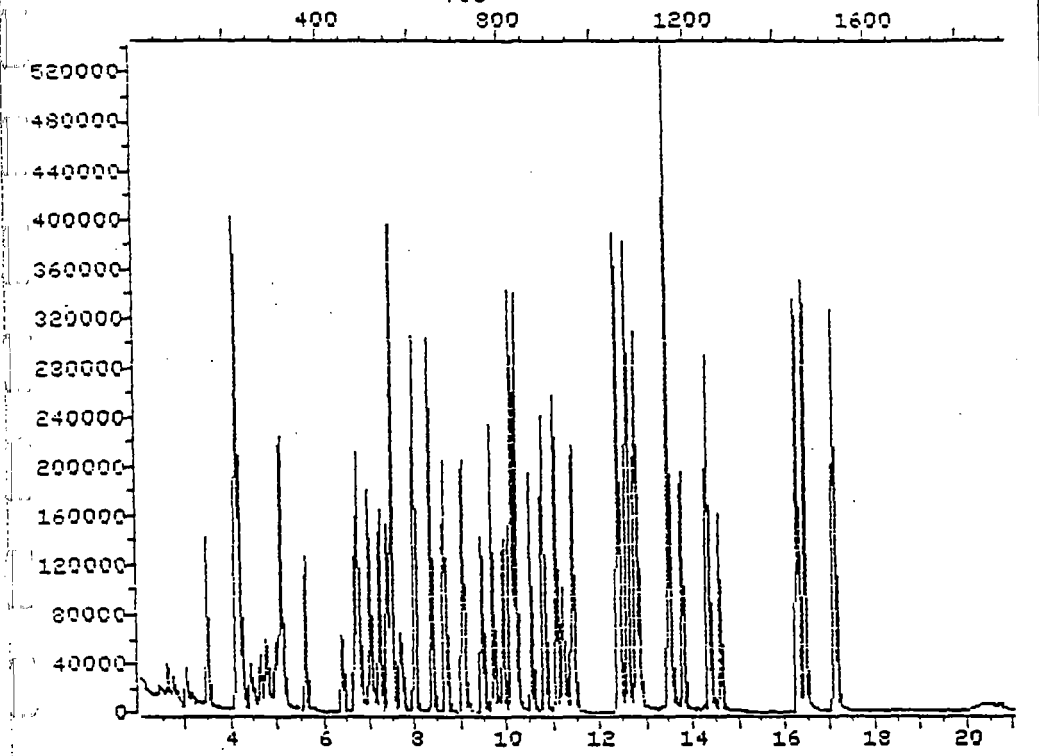
Quant Output File: ^B1244::D4

Id File: ID0401::SC  
Title: USEPA 624 VOLATILES  
Last Calibration: 930823 12:02

Operator ID: MANAGER  
Quant Time: 930823 12:03  
Injected at: 930823 11:30

TOTAL ION CHROMATOGRAM

File >B1243 35.0-250.0 amu. HSL CAL STD 50ppb 092393 5 POINT CALI  
TIC



Data File: >B1243::D6

Quant Output File: ^B1243::D4

Name: HSL CAL STD 50ppb

Misc: 092393 5 POINT CALIBRATION CURVE

Id File: ID0401::SC

Title: USEPA 624 VOLATILES

Last Calibration: 930821 13:24

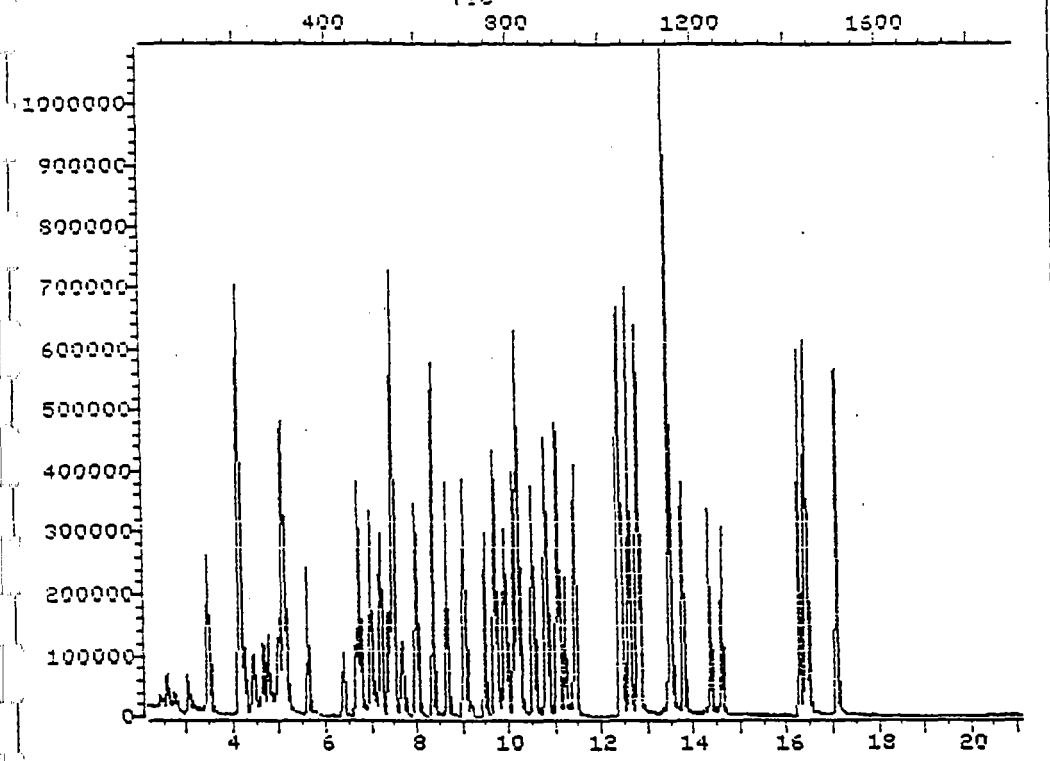
Operator ID: MANAGER

Quant Time: 930823 11:34

Injected at: 930823 11:00

TOTAL ION CHROMATOGRAM

File >B1245 35.0-250.0 amu. HSL CAL CHK 100ppb  
TIC



Data File: >B1245::D6  
Name: HSL CAL CHK 100ppb  
Misc:

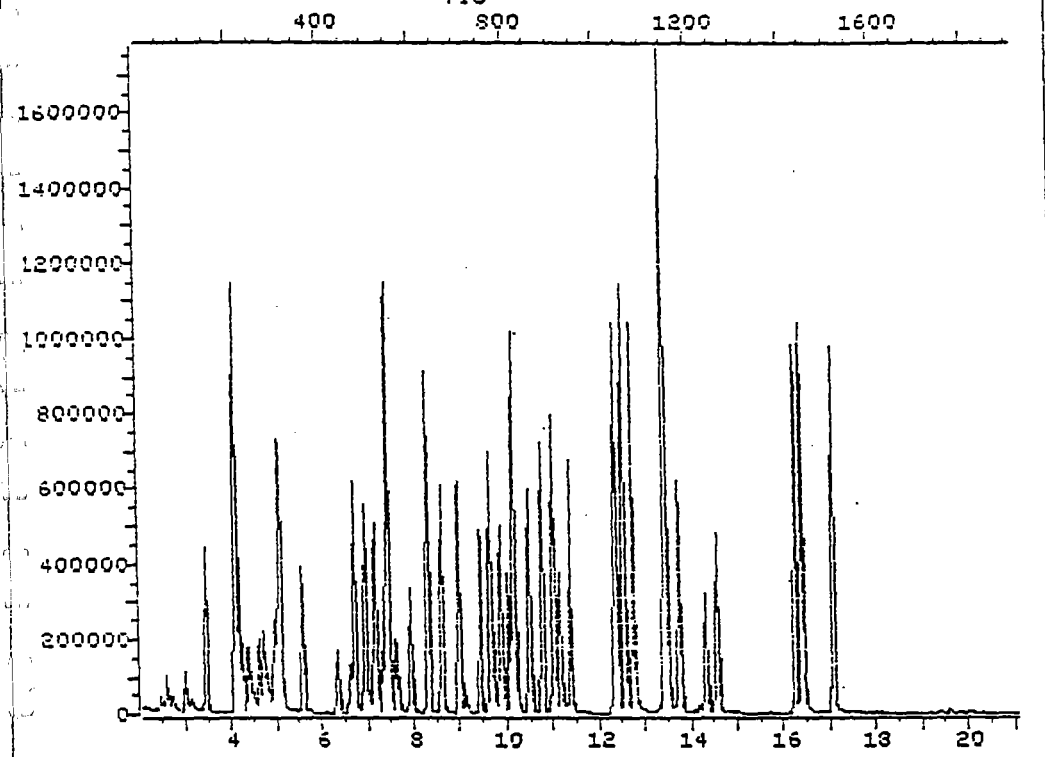
Quant Output File: ^B1245::D4

Id File: ID0401::SC  
Title: USEPA 624 VOLATILES  
Last Calibration: 930823 12:02

Operator ID: MANAGER  
Quant Time: 930823 12:28  
Injected at: 930823 12:01

TOTAL ION CHROMATOGRAM

File >B1246 35.0-250.0 amu. HSL CAL CHK 150ppb  
TIC



Data File: >B1246::D6  
Name: HSL CAL CHK 150ppb  
Misc:

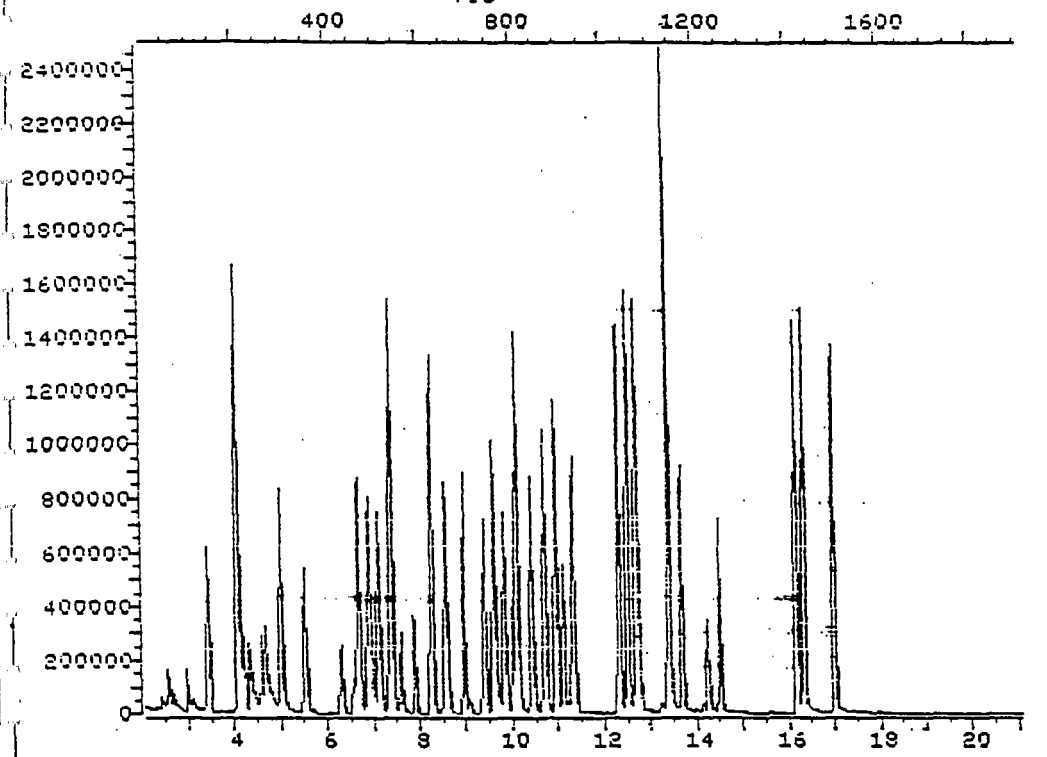
Quant Output File: ^B1246::D4

Id File: ID0401::SC  
Title: USEPA 624 VOLATILES  
Last Calibration: 930823 12:02

Operator ID: MANAGER  
Quant Time: 930823 13:00  
Injected at: 930823 12:34

TOTAL ION CHROMATOGRAM

File: >B1247 35.0-250.0 amu. HSL CAL CHK 200ppb  
TIC



Data File: >B1247::D6  
Name: HSL CAL CHK 200ppb  
Misc:

Quant Output File: ^B1247::D1

Id File: ID0401::SC  
Title: USEPA 624 VOLATILES  
Last Calibration: 930823 12:02

Operator ID: JEFF  
Quant Time: 930823 14:05  
Injected at: 930823 13:39

21st Century Environmental Inc.

GC/MS STANDARD DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP) TUNE  
CRITERIA FOR SEMIVOLATILES 50ng

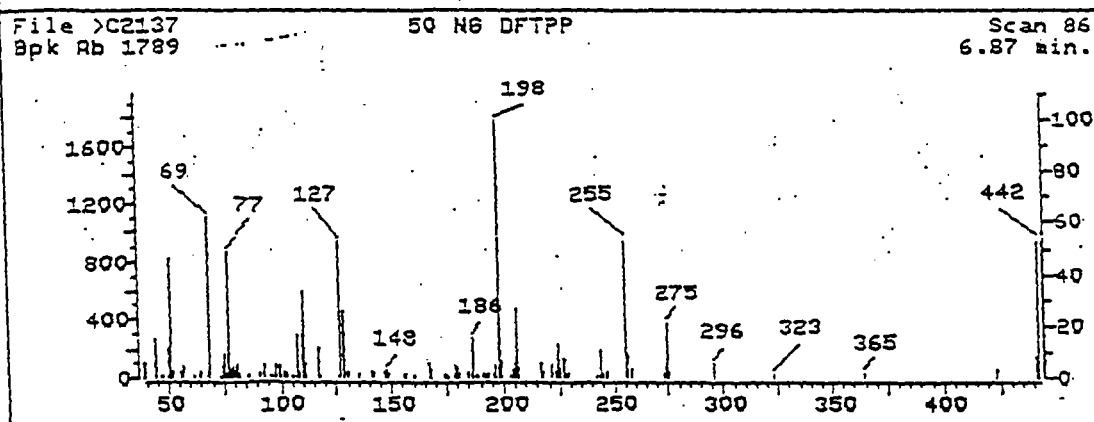
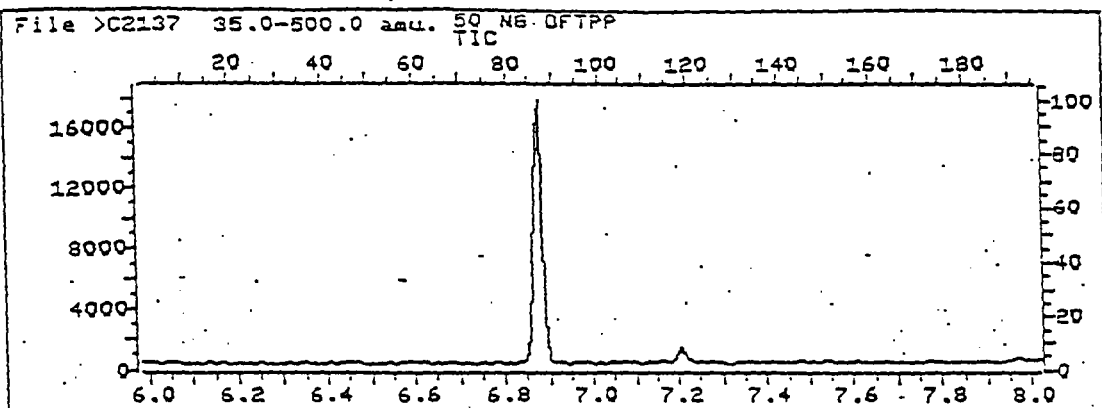
DATE AND TIME OF INJECTION: 9/08/93 8:40  
INSTRUMENT ID: 5970

DATA RELEASE AUTHORIZED BY Richard A. Lenz

| m/z | Ion Abundance<br>Criteria          | % Relative Abundance |                     | Status |
|-----|------------------------------------|----------------------|---------------------|--------|
|     |                                    | Base<br>Peak         | Appropriate<br>Peak |        |
| 51  | 30-60% of mass 198                 | 46.17                | 46.17               | Ok     |
| 68  | Less than 2% of mass 69            | 0.00                 | 0.00                | Ok     |
| 69  | (reference only)                   | 61.93                | 61.93               | Ok     |
| 70  | Less than 2% of mass 69            | 0.00                 | 0.00                | Ok     |
| 127 | 40-60% of mass 198                 | 52.66                | 52.66               | Ok     |
| 197 | Less than 1% of mass 198           | 0.00                 | 0.00                | Ok     |
| 198 | Base peak, 100% relative abundance | 100.00               | 100.00              | Ok     |
| 199 | 5-9% of mass 198                   | 7.10                 | 7.10                | Ok     |
| 275 | 10-30% of mass 198                 | 21.13                | 21.13               | Ok     |
| 365 | Greater than 1% of mass 198        | 2.01                 | 2.01                | Ok     |
| 441 | 0-100% of mass 443                 | 8.33                 | 79.26               | Ok     |
| 442 | Greater than 40% of mass 198       | 53.16                | 53.16               | Ok     |
| 443 | 17-23% of mass 442                 | 10.51                | 19.77               | Ok     |

THIS PERFORMANCE AFFECTS ALL SAMPLES  
STANDARDS AND BLANKS LISTED BELOW

| SAMPLE ID    | LAB ID          | DATE    | TIME   |
|--------------|-----------------|---------|--------|
| 10C2137::041 | 150 NG DFTPP    | 9/08/93 | 8:401  |
| 10C2138::041 | 150 PPM BNA STD | 9/08/93 | 8:581  |
| 10C2140::E41 | 180 PPM BNA STD | 9/08/93 | 10:351 |
| 10C2141::031 | 120 PPM BNA STD | 9/08/93 | 11:201 |
| 10C2142::051 | 160 PPM BNA STD | 9/08/93 | 12:041 |
| 10C2143::051 | 20 PPM BNA STD  | 9/08/93 | 12:491 |
| 10C2144::051 | A3879 CUM 9/8   | 9/08/93 | 13:351 |
| 10C2145::051 | A3885 CUM 9/8   | 9/08/93 | 14:201 |
| 10C2146::051 | A3891 CUM 9/8   | 9/08/93 | 15:051 |
| 10C2147::051 | A3897 CUM 9/8   | 9/08/93 | 15:511 |
| 10C2148::051 | A3903 CUM 9/8   | 9/08/93 | 16:361 |
| 10C2149::051 | TCLP BLANK 9/8  | 9/08/93 | 17:211 |



>C2137 50 NG DFTPP  
86 NRM

File: >C2137 Scan #: 86 Retn. time: 6.87

| m/z   | Int.   | m/z    | Int.   | m/z    | Int.   | m/z    | Int.    | m/z    | Int.   |
|-------|--------|--------|--------|--------|--------|--------|---------|--------|--------|
| 38.35 | 1.397  | 80.00  | 2.683  | 128.95 | 25.489 | 186.05 | 15.484  | 227.00 | 7.211  |
| 39.05 | 4.248  | 80.90  | 5.087  | 130.05 | 2.795  | 186.75 | 3.130   | 228.00 | .894   |
| 39.95 | 5.702  | 82.10  | 1.453  | 135.00 | 1.845  | 188.90 | 1.062   | 228.90 | 1.621  |
| 44.05 | 14.925 | 85.90  | .950   | 141.00 | 2.739  | 191.80 | 1.342   | 241.85 | .671   |
| 46.85 | .838   | 90.95  | -1.956 | 141.90 | 1.901  | 192.10 | 1.230   | 243.90 | 11.124 |
| 50.00 | 11.962 | 92.95  | 5.087  | 146.95 | 2.571  | 192.90 | 1.901   | 244.90 | 1.789  |
| 51.10 | 46.171 | 96.05  | 1.174  | 147.95 | 3.186  | 196.00 | 5.254   | 246.00 | 2.515  |
| 52.00 | 2.795  | 97.95  | 5.087  | 148.85 | 1.397  | 197.90 | 100.000 | 254.90 | 52.990 |
| 56.00 | 2.739  | 99.05  | 4.975  | 155.15 | 2.068  | 198.90 | 7.099   | 255.90 | 9.111  |
| 57.00 | 4.528  | 100.95 | 2.348  | 156.05 | 2.012  | 202.95 | .727    | 257.75 | 3.689  |
| 61.90 | .559   | 102.85 | 1.621  | 159.95 | 1.118  | 203.95 | 3.577   | 272.80 | 1.342  |
| 64.95 | 2.348  | 104.90 | 1.230  | 167.00 | 5.981  | 204.95 | 3.869   | 273.90 | 4.304  |
| 68.95 | 61.934 | 106.90 | 16.546 | 168.00 | 3.298  | 205.95 | 26.160  | 275.00 | 21.129 |
| 73.15 | .727   | 107.90 | 2.683  | 173.90 | 1.342  | 206.95 | 4.025   | 275.90 | 2.683  |
| 73.45 | .559   | 109.90 | 33.203 | 174.95 | 1.789  | 216.10 | .894    | 295.85 | 5.590  |
| 74.15 | 4.919  | 110.90 | 5.702  | 176.05 | .615   | 216.90 | 5.590   | 323.05 | 1.340  |
| 75.05 | 8.944  | 117.00 | 12.018 | 176.35 | .671   | 217.70 | 2.236   | 364.90 | 2.012  |
| 75.75 | 1.062  | 117.90 | 1.006  | 178.95 | 4.639  | 220.90 | 4.639   | 423.00 | 3.130  |
| 76.05 | 1.565  | 125.15 | .671   | 179.95 | 3.857  | 223.00 | 2.427   | 441.00 | 0.300  |





Initial Calibration Data  
HSL Compounds

Case No: \_\_\_\_\_ Instrument ID: 5770C  
Contractor: 21st Century Envir Calibration Date: 09/08/95  
Contract No: \_\_\_\_\_

Minimum RF for SPC is 0.050 Maximum % RSD for CCC is 30%

| Compound                    | Laboratory ID: >C2143 >C2138 >C2140 >C2141 >C2142 |         |         |         |         | RRT   | RF      | % RSD  | CCC | SPCC                   |
|-----------------------------|---------------------------------------------------|---------|---------|---------|---------|-------|---------|--------|-----|------------------------|
|                             | RF                                                | RF      | RF      | RF      | RF      |       |         |        |     |                        |
|                             | 20.00                                             | 50.00   | 80.00   | 120.00  | 160.00  |       |         |        |     |                        |
| Pyridine                    | .73090                                            | .61832  | .67563  | .74505  | .72615  | .298  | .69881  | 7.419  |     |                        |
| n-Nitrosodimethylamine      | .59126                                            | .50711  | .60253  | .57684  | .54288  | .302  | .56412  | 6.909  |     |                        |
| 2-Fluorophenol              | .89953                                            | .71842  | .85435  | .84707  | .50574  | .667  | .76502  | 20.894 |     | (Conc=100.0,100.0,100  |
| Phenol-d5                   | 1.09442                                           | .86758  | 1.14627 | 1.13775 | .68938  | .947  | .98708  | 20.418 |     | (Conc=100.0,100.0,100  |
| Phenol                      | 1.15048                                           | .93627  | 1.21702 | 1.11321 | 1.02866 | .951  | 1.08913 | 10.029 | *   |                        |
| bis(-2-Chloroethyl)Ether    | 1.02575                                           | .83614  | 1.00430 | .96090  | .91689  | .956  | .94879  | 7.967  |     |                        |
| 2-Chlorophenol              | .91937                                            | .75659  | .90919  | .83613  | .78378  | .954  | .84101  | 8.659  |     |                        |
| 1,3-Dichlorobenzene         | .98595                                            | .84855  | .95680  | .88839  | .81290  | .988  | .89851  | 8.059  |     |                        |
| 1,4-Dichlorobenzene         | .98867                                            | .88037  | .96055  | .90139  | .84741  | 1.004 | .91567  | 6.333  | *   |                        |
| Benzyl Alcohol              | .46277                                            | .43269  | .56863  | .58421  | .55091  | 1.063 | .51984  | 13.026 |     |                        |
| 1,2-Dichlorobenzene         | .96341                                            | .83448  | .92622  | .87369  | .82825  | 1.054 | .88521  | 6.623  |     |                        |
| 2-Methylphenol              | .81996                                            | .65640  | .82243  | .80529  | .74070  | 1.108 | .76895  | 9.252  |     |                        |
| bis(2-Chloroisopropyl)ether | .94536                                            | .69695  | .88974  | .88789  | .88614  | 1.106 | .86122  | 11.048 |     |                        |
| 4-Methylphenol              | .81438                                            | .66761  | .84813  | .82130  | .78071  | 1.155 | .78643  | 8.981  |     | (Conc=40.0,100.0,160.  |
| N-Nitroso-Di-n-propylamine  | .86981                                            | .72131  | .90383  | .81499  | .64150  | 1.148 | .79029  | 13.676 | **  |                        |
| Hexachloroethane            | .49494                                            | .41576  | .47572  | .45405  | .43350  | 1.136 | .45480  | 6.977  |     |                        |
| Nitrobenzene-d5             | .52978                                            | .48808  | .53039  | .53654  | .54248  | .861  | .52545  | 4.096  |     | (Conc=50.0,50.0,50.0,5 |
| Nitrobenzene                | .52788                                            | .47165  | .50786  | .50408  | .50243  | .865  | .50278  | 4.011  |     |                        |
| Isophorone                  | 1.03348                                           | .90369  | 1.03410 | 1.02721 | 1.01479 | .917  | 1.00266 | 5.572  |     |                        |
| 2-Nitrophenol               | .21782                                            | .21890  | .24588  | .24691  | .26028  | .931  | .23796  | 7.890  | *   |                        |
| 2,4-Dimethylphenol          | .33353                                            | .31521  | .33909  | .33146  | .32881  | .957  | .32962  | 2.700  |     |                        |
| Benzoic Acid                | .11266                                            | .13719  | .20153  | .22535  | .22520  | 1.002 | .18039  | 28.977 |     |                        |
| bis(-2-Chloroethoxy)Methane | .50997                                            | .44881  | .49885  | .50041  | .50298  | .974  | .49221  | 5.004  |     |                        |
| 2,4-Dichlorophenol          | .29261                                            | .28026  | .30679  | .29764  | .29393  | .983  | .29425  | 3.256  | *   |                        |
| 1,2,4-Trichlorobenzene      | .33747                                            | .31932  | .31830  | .31477  | .31275  | .995  | .32052  | 3.070  |     |                        |
| Naphthalene                 | 1.19791                                           | 1.09759 | 1.11929 | 1.10871 | 1.11407 | 1.004 | 1.12751 | 3.562  |     |                        |
| 4-Chloroaniline             | .39340                                            | .38601  | .44659  | .45253  | .43122  | 1.029 | .42195  | 7.242  |     |                        |
| Hexachlorobutadiene         | .19319                                            | .18146  | .17994  | .17253  | .16906  | 1.049 | .17924  | 5.211  | *   |                        |
| 4-Chloro-3-methylphenol     | .38222                                            | .35100  | .39815  | .38249  | .36114  | 1.140 | .37500  | 5.011  | *   |                        |
| 2-Methylnaphthalene         | .72866                                            | .70523  | .73047  | .72256  | .68664  | 1.149 | .71471  | 2.601  |     |                        |

RF - Response Factor (Subscript is amount in ug/l)

RRT - Average Relative Retention Time (RT Std/RT lstd)

RF - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

Initial Calibration Data  
HSL Compounds

Case No: \_\_\_\_\_ Instrument ID: 5970C  
Contractor: 21st Century Envir Calibration Date: 09/08/93  
Contract No: \_\_\_\_\_

Minimum RF for SPC is 0.050 Maximum % RSD for CCC is 30%

| Compound                   | Laboratory ID: >C2143 >C2138 >C2140 >C2141 >C2142 |         |         |         |         | RRT   | RF      | % RSD  | CCC | SPCC                   |
|----------------------------|---------------------------------------------------|---------|---------|---------|---------|-------|---------|--------|-----|------------------------|
|                            | RF                                                | RF      | RF      | RF      | RF      |       |         |        |     |                        |
|                            | 20.00                                             | 50.00   | 80.00   | 120.00  | 160.00  |       |         |        |     |                        |
| Hexachlorocyclopentadiene  | .23258                                            | .26104  | .29812  | .31555  | .34627  | .878  | .29071  | 15.399 |     | **                     |
| 2,4,6-Trichlorophenol      | .37817                                            | .37956  | .40566  | .40706  | .42667  | .893  | .39942  | 5.140  | *   |                        |
| 2,4,5-Trichlorophenol      | .36947                                            | .40303  | .42669  | .42275  | .42115  | .898  | .40862  | 5.801  |     |                        |
| 2-Chloronaphthalene        | 1.32638                                           | 1.26636 | 1.28819 | 1.35724 | 1.37132 | .914  | 1.32190 | 3.369  |     |                        |
| 2-Fluorobiphenyl           | 1.38171                                           | 1.36840 | 1.45571 | 1.56603 | 1.65138 | .905  | 1.48464 | 8.206  |     | (Conc=50.0,50.0,50.0,5 |
| 2-Nitroaniline             | .41189                                            | .42302  | .41915  | .41868  | .42956  | .940  | .42046  | 1.540  |     |                        |
| Dimethyl Phthalate         | 1.76551                                           | 1.58545 | 1.47183 | 1.29145 | 1.26680 | .979  | 1.47621 | 14.114 |     |                        |
| Acenaphthylene             | 2.00989                                           | 1.88610 | 1.92268 | 1.98486 | 1.87675 | .976  | 1.91606 | 2.890  |     |                        |
| 3-Nitroaniline             | .24134                                            | .23925  | .22123  | .20616  | .19894  | 1.004 | .22138  | 8.609  |     |                        |
| Acenaphthene               | 1.42137                                           | 1.32752 | 1.32576 | 1.31198 | 1.29154 | 1.005 | 1.35563 | 3.747  | *   |                        |
| 2,4-Dinitrophenol          | .04928                                            | .09673  | .10999  | .10397  | .10776  | 1.020 | .09355  | 26.994 |     | **                     |
| 4-Nitrophenol              | .09231                                            | .15914  | .17669  | .17172  | .16555  | 1.039 | .15308  | 22.607 |     | **                     |
| Dibenzofuran               | 1.86741                                           | 1.78719 | 1.88602 | 1.81959 | 1.80811 | 1.030 | 1.83366 | 2.264  |     |                        |
| 2,4-Dinitrotoluene         | .34861                                            | .36904  | .31497  | .28296  | .27090  | 1.043 | .31730  | 13.179 |     |                        |
| 2,6-Dinitrotoluene         | .31983                                            | .31714  | .29549  | .27325  | .26642  | .986  | .29443  | 8.311  |     |                        |
| Diethylphthalate           | 1.99654                                           | 1.70410 | 1.48077 | 1.24204 | 1.17156 | 1.087 | 1.51900 | 22.354 |     |                        |
| 4-Chlorophenyl-phenylether | .64907                                            | .61093  | .60562  | .57825  | .55474  | 1.088 | .59972  | 5.942  |     |                        |
| Fluorene                   | 1.42489                                           | 1.35768 | 1.32771 | 1.22993 | 1.19241 | 1.082 | 1.30652 | 7.258  |     |                        |
| 4-Nitroaniline             | .14904                                            | .16863  | .17266  | .16510  | .16066  | 1.098 | .16322  | 5.562  |     |                        |
| 4,6-Dinitro-2-methylphenol | .07290                                            | .10179  | .13049  | .12838  | .13438  | .905  | .11359  | 23.004 |     |                        |
| N-Nitrosodiphenylamine     | .69176                                            | .68056  | .82423  | .80121  | .78780  | .908  | .75711  | 8.742  | *   |                        |
| 2,4,6-Tribromophenol       | .09546                                            | .09811  | .12245  | .12009  | .12261  | .919  | .11174  | 12.282 |     | (Conc=100.0,100.0,100. |
| 4-Bromophenyl-phenylether  | .24601                                            | .25380  | .30083  | .30039  | .29464  | .950  | .27913  | 9.649  |     |                        |
| Hexachlorobenzene          | .25987                                            | .26015  | .27454  | .27090  | .26298  | .964  | .26569  | 2.507  | *   |                        |
| Pentachlorophenol          | .08494                                            | .10209  | .12524  | .12462  | .12323  | .989  | .11202  | 16.036 |     | **                     |
| Phenanthrene               | 1.24579                                           | 1.14324 | 1.23222 | 1.18391 | 1.17774 | 1.003 | 1.19658 | 3.509  |     |                        |
| Anthracene                 | 1.16330                                           | 1.07606 | 1.14034 | 1.12244 | 1.12233 | 1.009 | 1.12489 | 2.850  |     |                        |
| Di-n-Butylphthalate        | 1.77284                                           | 1.58853 | 1.40946 | 1.34995 | 1.32676 | 1.094 | 1.44951 | 12.667 |     |                        |
| Fluoranthene               | .73291                                            | .63983  | .72605  | .72484  | .70906  | 1.151 | .70654  | 5.421  | *   |                        |
| Pyrene                     | 2.41255                                           | 2.35755 | 2.00247 | 1.87197 | 1.99112 | .885  | 2.12313 | 11.166 |     |                        |

RF - Response Factor (Subscript is amount in ug/l)

RRT - Average Relative Retention Time (RT Std/RT Istd)

RF - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

Initial Calibration Data  
HSL Compounds

Case No: \_\_\_\_\_ Instrument ID: 5970C  
Contractor: 21st Century Envir Calibration Date: 09/08/93  
Contract No: \_\_\_\_\_

Minimum RF for SPC is 0.050 Maximum % RSD for CCC is 30%

| Compound                   | Laboratory ID: >C2143 >C2138 >C2140 >C2141 >C2142 |         |         |         |         | RRT   | RF      | % RSD  | CCC | SPCC                  |
|----------------------------|---------------------------------------------------|---------|---------|---------|---------|-------|---------|--------|-----|-----------------------|
|                            | RF                                                | RF      | RF      | RF      | RF      |       |         |        |     |                       |
|                            | 20.00                                             | 50.00   | 80.00   | 120.00  | 160.00  |       |         |        |     |                       |
| Benzidine                  | .01749                                            | .02490  | .03552  | .05130  | .05526  | .883  | .03649  | 43.261 |     |                       |
| Terphenyl-d14              | 1.40587                                           | 1.39008 | 1.19225 | 1.19027 | 1.23176 | .907  | 1.28204 | 8.366  |     | (Conc=50.0,50.0,50.0) |
| Butylbenzylphthalate       | 1.10913                                           | 1.00798 | 1.09099 | 1.06541 | 1.09403 | .960  | 1.07351 | 3.713  |     |                       |
| 3,3'-Dichlorobenzidine     | .21334                                            | .20850  | .28284  | .30354  | .31209  | 1.002 | .26406  | 18.820 |     |                       |
| Benzo(a)Anthracene         | 1.19227                                           | 1.13411 | 1.20893 | 1.20612 | 1.22056 | .999  | 1.19240 | 2.860  |     |                       |
| Bis(2-Ethylhexyl)Phthalate | 1.36825                                           | 1.17601 | 1.35096 | 1.36008 | 1.37577 | 1.020 | 1.32621 | 6.370  |     |                       |
| Chrysene                   | 1.19307                                           | 1.10298 | 1.08645 | 1.07298 | 1.13124 | 1.002 | 1.11734 | 4.259  |     |                       |
| Di-n-octyl phthalate       | 2.19785                                           | 2.16480 | 2.59768 | 2.62085 | 2.64266 | .956  | 2.44677 | 9.870  | *   |                       |
| Benzo(b)fluoranthene       | 1.25430                                           | 1.21059 | 1.27995 | 1.26976 | 1.28578 | .975  | 1.26008 | 2.391  |     |                       |
| Benzo(k)Fluoranthene       | 1.37252                                           | 1.23395 | 1.35210 | 1.33962 | 1.30550 | .975  | 1.32074 | 4.110  |     |                       |
| Benzo(a)Pyrene             | 1.15005                                           | 1.09835 | 1.22132 | 1.14982 | 1.17552 | .996  | 1.15901 | 3.859  | *   |                       |
| Indeno(1,2,3-cd)Pyrene     | 1.10436                                           | 1.07357 | 1.22071 | 1.22752 | 1.21425 | 1.070 | 1.16808 | 6.266  |     |                       |
| Dibenzo(a,h)Anthracene     | .85705                                            | .81177  | .97729  | .99961  | .98030  | 1.072 | .92520  | 9.171  |     |                       |
| Benzo(g,h,i)Perylene       | .94266                                            | .98440  | 1.07025 | 1.07743 | 1.05804 | 1.086 | 1.02656 | 5.825  |     |                       |

RF - Response Factor (Subscript is amount in ug/l)

RRT - Average Relative Retention Time (RT Std/RT Istd)

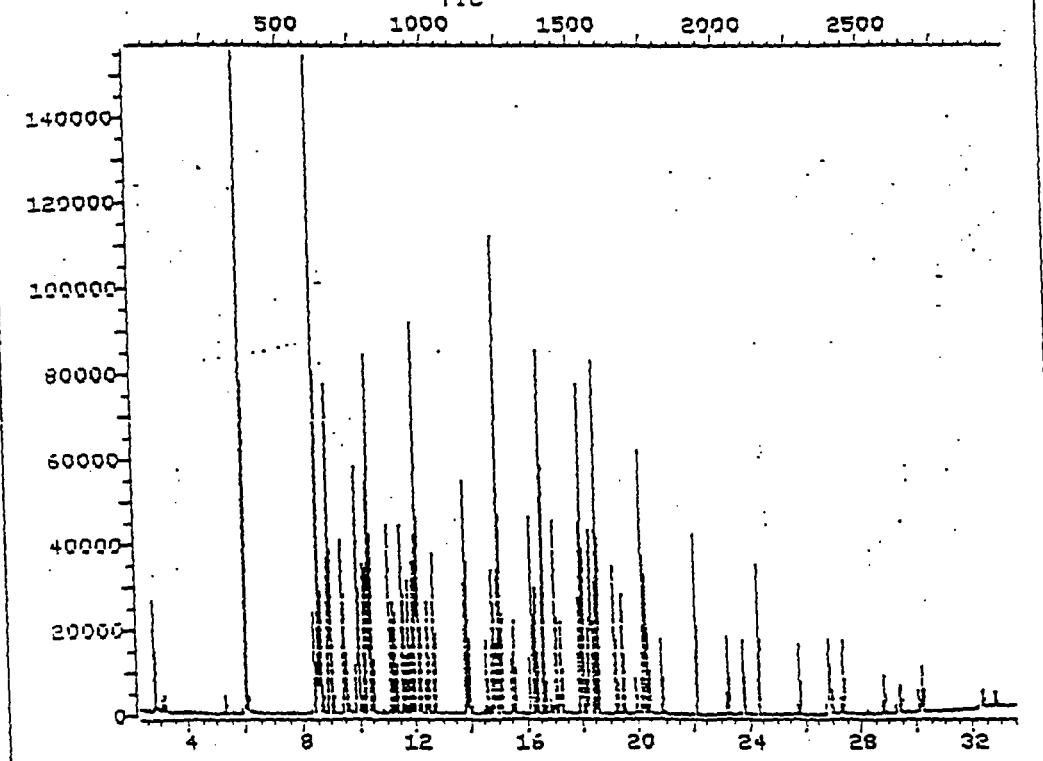
RF - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

TOTAL ION CHROMATOGRAM

File >C2143 35.0-500.0 amu. 20 PPM BNA STD  
TIC



Data File: >C2143::D5  
Name: 20 PPM BNA STD  
Misc:

Quant Output File: ^C2143::QT

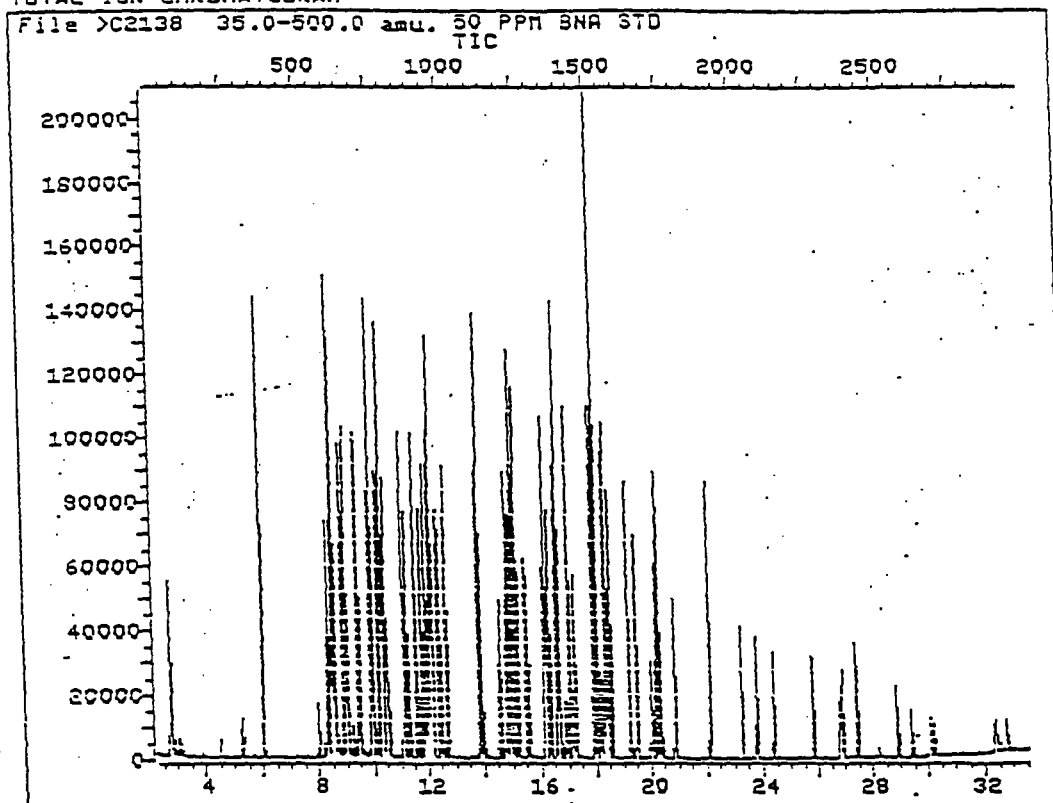
BTLE 5

Id File: ID831C::D3  
Title: hSL BNA STD  
Last Calibration: 930830 11:19

Operator ID: JEFF  
Quant Time: 930908 13:25  
Injected at: 930908 12:49

00066

TOTAL ION CHROMATOGRAM



Data File: >C2138::D4

Quant Output File: ^C2138::QT

Name: 50 PPM BNA STD

Misc:

BTL# 2

Id File: ID831C::03

Title: hSL BNA STD

Last Calibration: 930830 11:19

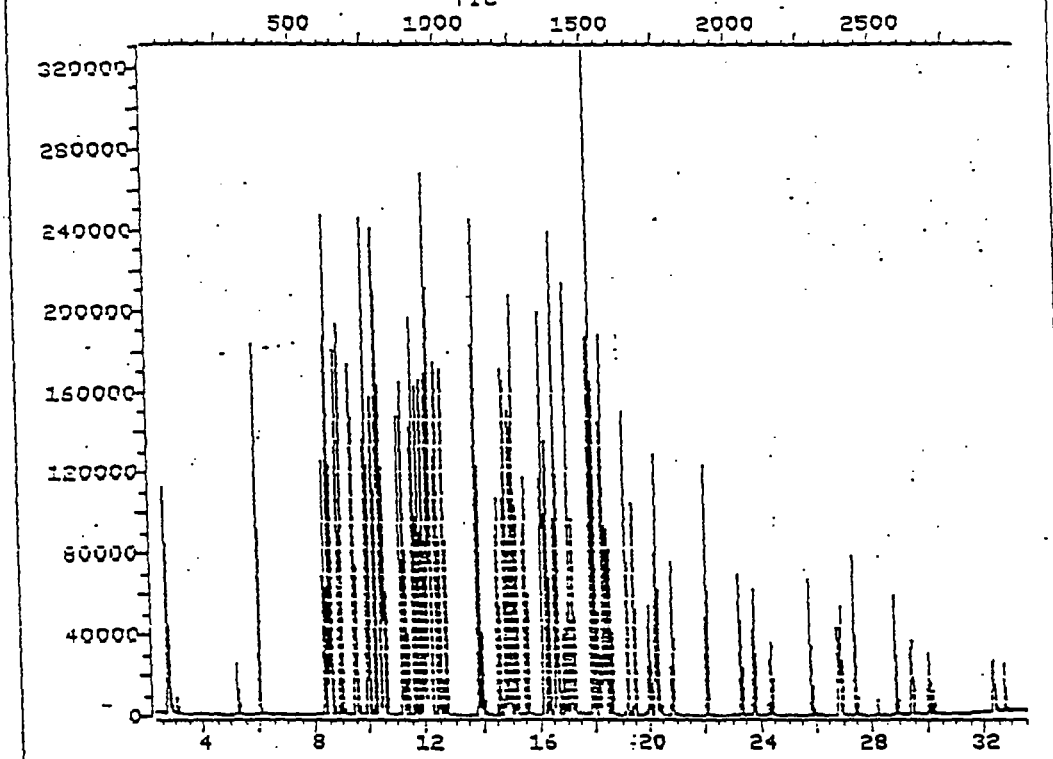
Operator ID: JEFF

Quant Time: 930908 09:35

Injected at: 930908 08:58

TOTAL ION CHROMATOGRAM

File >C2140 35.0-500.0 amu. 80 PPM BNA STD  
TIC



Data File: >C2140::E4  
Name: 80 PPM BNA STD  
Misc:

Quant Output File: ^C2140::QT

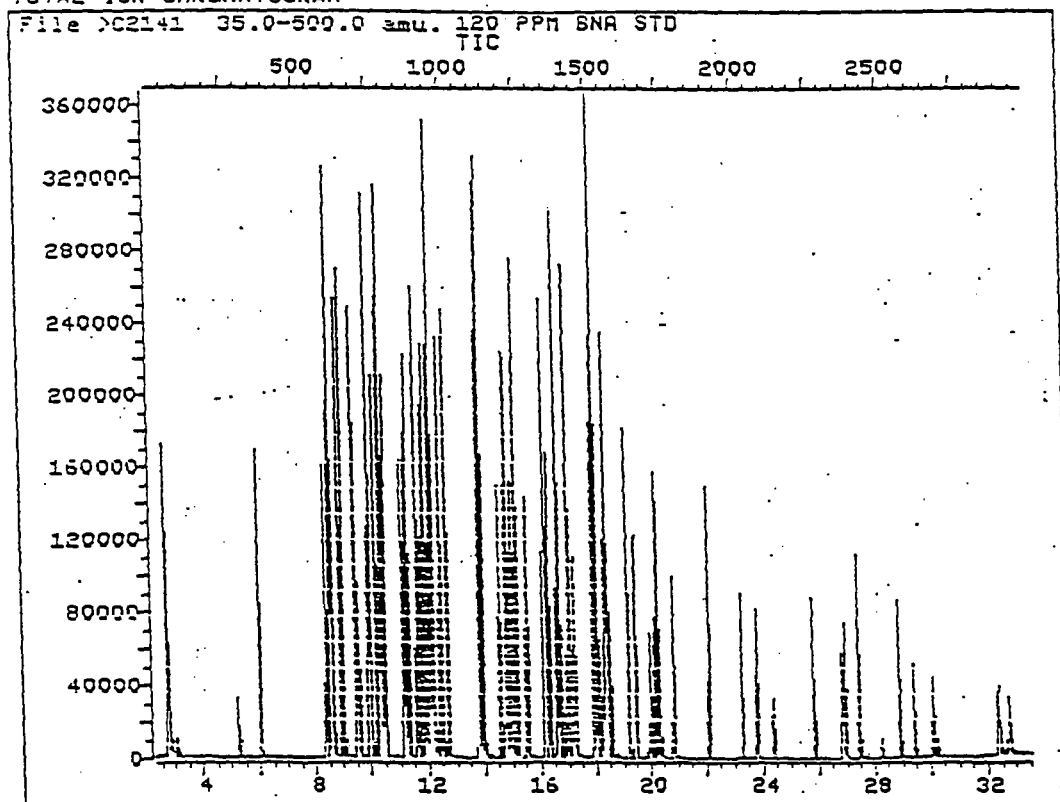
BTL# 2

Id File: ID831C::D3  
Title: hSL BNA STD  
Last Calibration: 930830 11:19

Operator ID: JEFF  
Quant Time: 930908 11:11  
Injected at: 930908 10:35

000066

TOTAL ION CHROMATOGRAM



Data File: >C2141::D3  
Name: 120 PPM BNA STD  
Misc:

Quant Output File: ^C2141::QT

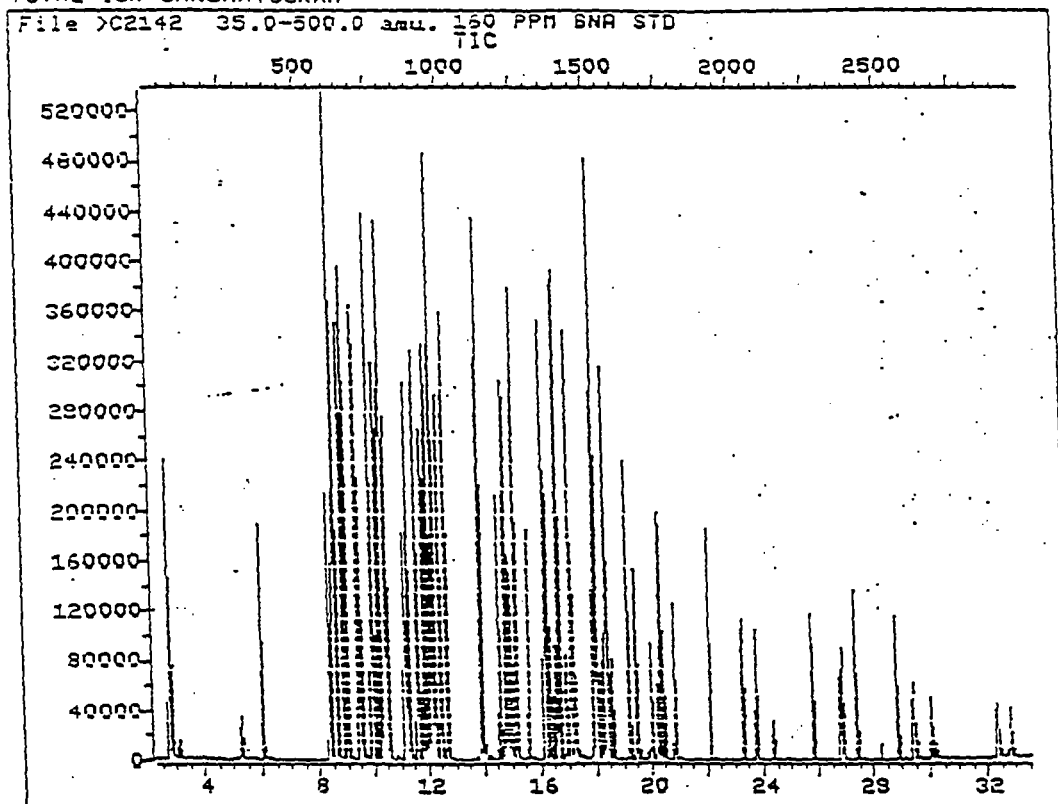
BTLE 3

Id File: ID831C::D3  
Title: hSL BNA STD  
Last Calibration: 930830 11:19

Operator ID: JEFF  
Quant Time: 930908 12:02  
Injected at: 930908 11:20



TOTAL ION CHROMATOGRAM



Data File: >C2142::D5  
Name: 160 PPM BNA STD  
Misc:

Quant Output File: ^C2142::QT

BTL# 4

Id File: IDS31C::D3  
Title: hSL BNA STD  
Last Calibration: 930830 11:19

Operator ID: JEFF  
Quant Time: 930908 12:41  
Injected at: 930908 12:04

00070

4A  
VOLATILE METHOD BLANK SUMMARY

Lab Name: BRIDGEPORT ENVIRONMENTAL Inc.

Contract No.:

Lab Code:

Case No:

SAS No.:

SDG No.:

LAB ID FILE (BLANK): >B1626

DATE ANALYZED: 09/14/93

INSTRUMENT ID: 8

TIME ANALYZED: 01:58

Matrix: SOIL

Level:(low/med) LOW

Column:(pack/cap)

Sample ID: BLANK

THIS BLANK APPLIES TO THE FOLLOWING SAMPLES,MS AND MSD

|    | LAB<br>SAMPLE ID | LAB<br>FILE ID | DATE<br>ANALYZED | TIME<br>ANALYZED |
|----|------------------|----------------|------------------|------------------|
| 1  | MeOH BLK         | >B1627         | 09/14/93         | 02:33            |
| 2  | A4024            | >B1630         | 09/14/93         | 04:02            |
| 3  | A2990            | >B1633         | 09/14/93         | 05:32            |
| 4  | A2997            | >B1634         | 09/14/93         | 06:03            |
| 5  | A3000            | >B1635         | 09/14/93         | 06:33            |
| 6  |                  |                |                  |                  |
| 7  |                  |                |                  |                  |
| 8  |                  |                |                  |                  |
| 9  |                  |                |                  |                  |
| 10 |                  |                |                  |                  |
| 11 |                  |                |                  |                  |
| 12 |                  |                |                  |                  |
| 13 |                  |                |                  |                  |
| 14 |                  |                |                  |                  |
| 15 |                  |                |                  |                  |
| 16 |                  |                |                  |                  |
| 17 |                  |                |                  |                  |
| 18 |                  |                |                  |                  |
| 19 |                  |                |                  |                  |
| 20 |                  |                |                  |                  |
| 21 |                  |                |                  |                  |
| 22 |                  |                |                  |                  |
| 23 |                  |                |                  |                  |
| 24 |                  |                |                  |                  |
| 25 |                  |                |                  |                  |

COMMENTS:

21st Century Environmental Inc.  
VOLATILE ORGANIC ANALYSIS DATA

|               |                     |                 |          |
|---------------|---------------------|-----------------|----------|
| JOB NUMBER    |                     | MATRIX          | Soil     |
| SAMPLE NUMBER | BLANK               | DILUTION FACTOR | 1.00     |
| CLIENT ID     | 091493 METHOD BLANK | QA BATCH        |          |
| DATA FILE     | >81626              | DATE ANALYZED   | 09/14/93 |

| COMPOUND                  | UG/KG | MDL | COMPOUND                    | UG/KG | MDL |
|---------------------------|-------|-----|-----------------------------|-------|-----|
| Acrolein                  | ND    | 50  | 2-Chloroethylvinylether     | ND    | 10  |
| Acrylonitrile             | ND    | 50  | 2-Hexanone                  | ND    | 10  |
| Chloromethane             | ND    | 10  | trans-1,3-Dichloropropene   | ND    | 5   |
| Bromomethane              | ND    | 10  | Toluene                     | ND    | 5   |
| Vinyl Chloride            | ND    | 10  | cis-1,3-Dichloropropene     | ND    | 5   |
| Chloroethane              | ND    | 10  | 1,1,2,2-Tetrachloroethane   | ND    | 5   |
| Acetone                   | 5.1 J | 10  | 1,1,2-Trichloroethane       | ND    | 5   |
| 1,1-Dichloroethene        | ND    | 5   | 4-Methyl-2-pentanone        | ND    | 10  |
| Carbon Disulfide          | ND    | 10  | Tetrachloroethene           | ND    | 5   |
| Methylene Chloride        | 2.4 J | 5   | Dibromochloromethane        | ND    | 5   |
| 1,2-Dichloroethene(trans) | ND    | 5   | Chlorobenzene               | ND    | 5   |
| 1,1-Dichloroethane        | ND    | 5   | Ethylbenzene                | ND    | 5   |
| Vinyl Acetate             | ND    | 5   | m,p-Xylenes                 | ND    | 5   |
| 2-Butanone                | ND    | 10  | o-Xylene                    | ND    | 5   |
| Chloroform                | ND    | 5   | Styrene                     | ND    | 5   |
| 1,1,1-Trichloroethane     | ND    | 5   | Bromoform                   | ND    | 5   |
| Carbon Tetrachloride      | ND    | 5   | m-Dichlorobenzene           | ND    | 5   |
| 1,2-Dichloroethane        | ND    | 5   | p-Dichlorobenzene           | ND    | 5   |
| Benzene                   | ND    | 5   | o-Dichlorobenzene           | ND    | 5   |
| Trichloroethene           | ND    | 5   | Methyl Tertiary Butyl Ether | ND    | 10  |
| 1,2-Dichloropropane       | ND    | 5   | Tertiary Butyl Alcohol      | ND    | 50  |
| Bromodichloromethane      | ND    | 5   |                             |       |     |

| SURROGATE COMPOUNDS   | % RECOVERY | LIMITS   | STATUS |
|-----------------------|------------|----------|--------|
| 1,2-Dichloroethane-d4 | 102        | 70 - 121 | OK     |
| Toluene-d8            | 94.6       | 81 - 117 | OK     |
| Bromofluorobenzene    | 99.5       | 74 - 121 | OK     |

Percent Solid of 100. is used for all Target compounds.

(J) Indicates detected below MDL  
(B) Indicates also present in blank  
(ND) Indicates compound not detected

00072

BLANK

Dilution Factor: 1

Number TICs found: 0

70673

# QUANT REPORT

Operator ID: MANAGER  
 Output File: ^B1626::D4  
 Data File: >B1626::D6  
 Name: BLANK  
 Misc: 091493 METHOD BLANK

Quant Rev: 6      Quant Time: 930914 04:26  
 Injected at: 930914 01:58  
 Dilution Factor: 1.00000

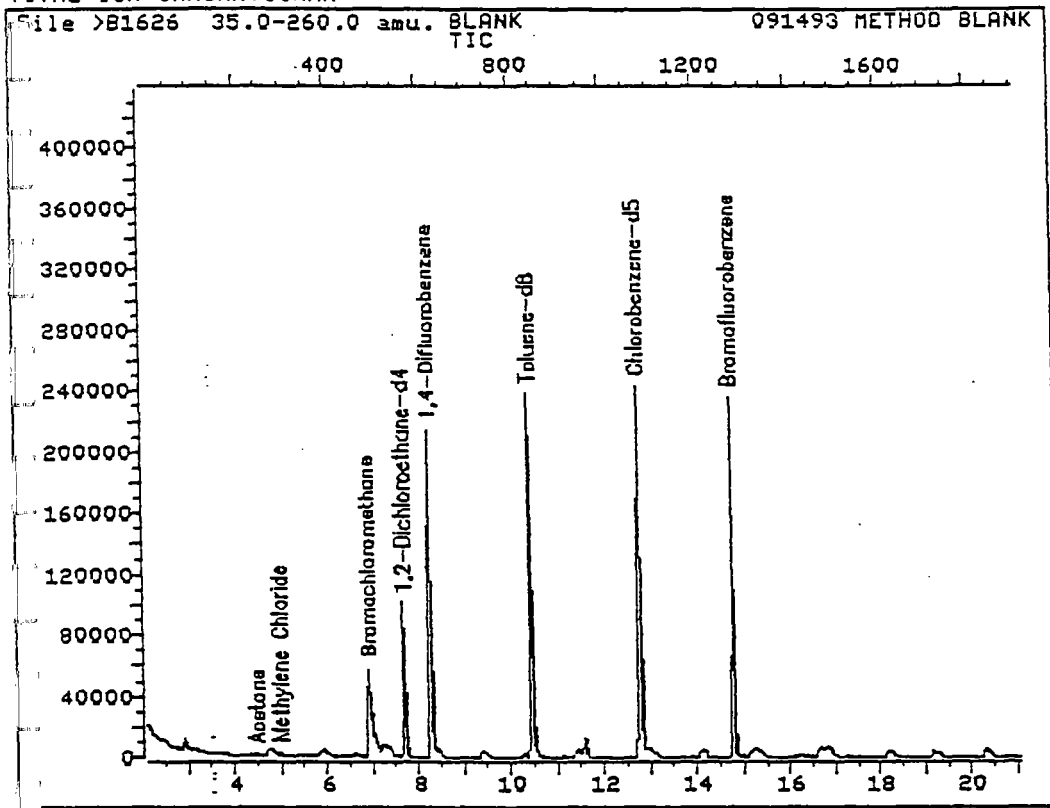
5ml

ID File: ID0401::SC  
 Title: USEPA 624 VOLATILES  
 Last Calibration: 930914 02:58

|    | Compound              | R.T.  | Scan# | Area   | Conc  | Units | q   |
|----|-----------------------|-------|-------|--------|-------|-------|-----|
| 1  | *Bromochloromethane   | 6.92  | 482   | 56726M | 50.00 | UG/L  | 100 |
| 9  | Acetone               | 4.49  | 237   | 4292   | 5.07  | UG/L  | 88  |
| 15 | Methylene Chloride    | 4.98  | 287   | 3378   | 2.39  | UG/L  | 72  |
| 23 | 1,2-Dichloroethane-d4 | 7.68  | 559   | 135293 | 50.83 | UG/L  | 100 |
| 24 | *1,4-Difluorobenzene  | 8.27  | 618   | 317354 | 50.00 | UG/L  | 100 |
| 33 | Toluene-d8            | 10.43 | 836   | 307831 | 47.30 | UG/L  | 100 |
| 35 | *Chlorobenzene-d5     | 12.75 | 1070  | 265147 | 50.00 | UG/L  | 100 |
| 48 | Bromofluorobenzene    | 14.76 | 1272  | 156670 | 49.75 | UG/L  | 100 |

\* Compound is ISTD

TOTAL ION CHROMATOGRAM



Data File: >B1626::D6

Quant Output File: ^B1626::D4

Name: BLANK

Misc: 091493 METHOD BLANK

5ml

Id File: ID0401::SC

Title: USEPA 624 VOLATILES

Last Calibration: 930914 02:58

Operator ID: MANAGER

Quant Time: 930914 04:26

Injected at: 930914 01:58

00075

21st Century Environmental Inc.  
VOLATILE ORGANIC ANALYSIS DATA

|               |                  |                 |          |
|---------------|------------------|-----------------|----------|
| JOB NUMBER    |                  | MATRIX          | Soil     |
| SAMPLE NUMBER | MeOH BLK         | DILUTION FACTOR | 50.00    |
| CLIENT ID     | EXTRACTION BLANK | QA BATCH        |          |
| DATA FILE     | >B1627           | DATE ANALYZED   | 09/14/93 |

| COMPOUND                  | UG/KG | MDL  | COMPOUND                  | UG/KG | MDL |
|---------------------------|-------|------|---------------------------|-------|-----|
| Acrolein                  | ND    | 2500 | Bromodichloromethane      | ND    | 250 |
| Acrylonitrile             | ND    | 2500 | 2-Chloroethylvinylether   | ND    | 500 |
| Chloromethane             | ND    | 500  | 2-Hexanone                | ND    | 500 |
| Bromomethane              | ND    | 500  | trans-1,3-Dichloropropene | ND    | 250 |
| Vinyl Chloride            | ND    | 500  | Toluene                   | ND    | 250 |
| Chloroethane              | ND    | 500  | cis-1,3-Dichloropropene   | ND    | 250 |
| Acetone                   | 240 J | 500  | 1,1,2,2-Tetrachloroethane | ND    | 250 |
| 1,1-Dichloroethene        | ND    | 250  | 1,1,2-Trichloroethane     | ND    | 250 |
| Carbon Disulfide          | ND    | 500  | 4-Methyl-2-pentanone      | ND    | 500 |
| Methylene Chloride        | 87 J  | 250  | Tetrachloroethene         | ND    | 250 |
| 1,2-Dichloroethene(trans) | ND    | 250  | Dibromochloromethane      | ND    | 250 |
| 1,1-Dichloroethane        | ND    | 250  | Chlorobenzene             | ND    | 250 |
| Vinyl Acetate             | ND    | 250  | Ethylbenzene              | ND    | 250 |
| 2-Butanone                | ND    | 500  | m&p-Xylenes               | ND    | 250 |
| Chloroform                | ND    | 250  | o-Xylene                  | ND    | 250 |
| 1,1,1-Trichloroethane     | ND    | 250  | Styrene                   | ND    | 250 |
| Carbon Tetrachloride      | ND    | 250  | Bromoform                 | ND    | 250 |
| 1,2-Dichloroethane        | ND    | 250  | m-Dichlorobenzene         | ND    | 250 |
| Benzene                   | ND    | 250  | p-Dichlorobenzene         | ND    | 250 |
| Trichloroethene           | ND    | 250  | o-Dichlorobenzene         | ND    | 250 |
| 1,2-Dichloropropane       | ND    | 250  |                           |       |     |

| SURROGATE COMPOUNDS   | % RECOVERY | LIMITS   | STATUS |
|-----------------------|------------|----------|--------|
| 1,2-Dichloroethane-d4 | 103        | 70 - 121 | OK     |
| Toluene-d8            | 96.5       | 81 - 117 | OK     |
| Bromofluorobenzene    | 99.5       | 74 - 121 | OK     |

Percent Solid of 100. is used for all Target compounds.

- (J) Indicates detected below MDL  
(B) Indicates also present in blank  
(ND) Indicates compound not detected

00076

BLANK

Lab Code: Case No.: N/A SAS No.: N/A SDG No.: N/A

Lab Sample ID: BLANK

Lab File ID: >B1627

Date Received: NA

Date Analyzed: 09/14/93

Dilution Factor: 50

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

00077



# QUANT REPORT

Operator ID: MANAGER  
 Output File: ^B1627::D4  
 at File: >B1627::D6  
 and: MeOH BLK  
 disc: EXTRACTION BLANK

Quant Rev: 6      Quant Time: 930914 04:31  
 Injected at: 930914 02:33  
 Dilution Factor: 1.00000

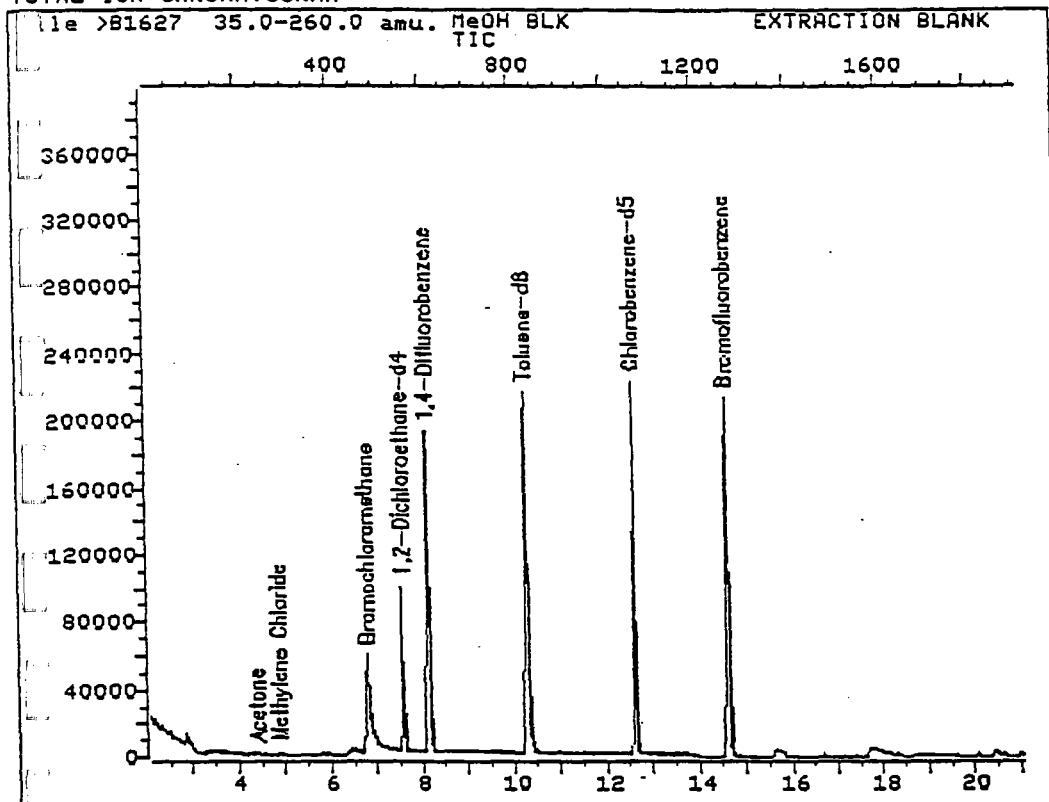
100ul/5ml

File: ID0401::SC  
 Title: USEPA 624 VOLATILES  
 Last Calibration: 930914 02:58

|    | Compound              | R.T.  | Scan# | Area   | Conc  | Units | q   |
|----|-----------------------|-------|-------|--------|-------|-------|-----|
| 1  | *Bromochloromethane   | 6.78  | 473   | 52284M | 50.00 | UG/L  | 100 |
| 9  | Acetone               | 4.38  | 231   | 3800   | 4.87  | UG/L  | 81  |
| 50 | Methylene Chloride    | 4.86  | 280   | 2276   | 1.75  | UG/L  | 78  |
| 30 | 1,2-Dichloroethane-d4 | 7.54  | 550   | 125935 | 51.34 | UG/L  | 100 |
| 4  | *1,4-Difluorobenzene  | 8.12  | 608   | 288217 | 50.00 | UG/L  | 100 |
| 30 | Toluene-d8            | 10.27 | 825   | 285050 | 48.23 | UG/L  | 100 |
| 50 | *Chlorobenzene-d5     | 12.59 | 1059  | 247617 | 50.00 | UG/L  | 100 |
| 8  | Bromofluorobenzene    | 14.60 | 1261  | 146295 | 49.74 | UG/L  | 100 |

\* Compound is ISTD

## TOTAL ION CHROMATOGRAM



Data File: >B1627::D6  
Name: MeOH BLK  
Misc: EXTRACTION BLANK

Quant Output File: ^B1627::D4  
100ul/5ml

Id File: ID0401::SC  
Title: USEPA 624 VOLATILES  
Last Calibration: 930914 02:58

Operator ID: MANAGER  
Quant Time: 930914 04:31  
Injected at: 930914 02:33

## 4B

Contract No.:

SDG No. :

DATE ANALYZED: 09/16/93

TIME ANALYZED: 14:20

Column: (pack/cap)

Extraction: (Sepf/Cont/Sonc) SONC

THIS BLANK APPLIES TO THE FOLLOWING SAMPLES,MS AND MSD

|   |               |              |             |           |
|---|---------------|--------------|-------------|-----------|
| 1 | __A4024 1:50_ | ___>C2236___ | __09/14/93_ | __16:46__ |
| 2 | _____         | _____        | _____       | _____     |
| 3 | _____         | _____        | _____       | _____     |
| 4 | _____         | _____        | _____       | _____     |
| 5 | _____         | _____        | _____       | _____     |
| 6 | _____         | _____        | _____       | _____     |
| 7 | _____         | _____        | _____       | _____     |
| 8 | _____         | _____        | _____       | _____     |

\_\_\_\_\_

\_\_\_\_\_

21st Century Environmental Inc.  
SEMIVOLATILE ANALYSIS DATA

|               |                           |                 |          |
|---------------|---------------------------|-----------------|----------|
| JOB NUMBER    | US ARMY, FT. MONMOUTH, NJ | MATRIX          | Soil     |
| SAMPLE NUMBER | NA BLANK                  | DILUTION FACTOR | 1.00     |
| CLIENT ID     | BLDG 2700                 | COMMENTS        | NONE     |
| DATA FILE     | >C2265                    | DATE ANALYZED   | 09/16/93 |

| COMPOUND                    | UG/KG | MDL  | COMPOUND                   | UG/KG | MDL  |
|-----------------------------|-------|------|----------------------------|-------|------|
| N-Nitrosodimethylamine      | ND    | 330  | 2,6-Dinitrotoluene         | ND    | 330  |
| bis(-2-Chloroethyl)Ether    | ND    | 330  | Diethylphthalate           | ND    | 330  |
| 1,3-Dichlorobenzene         | ND    | 330  | 4-Chlorophenyl-phenylether | ND    | 330  |
| 1,4-Dichlorobenzene         | ND    | 330  | Fluorene                   | ND    | 330  |
| Benzyl Alcohol              | ND    | 330  | 4-Nitroaniline             | ND    | 1600 |
| 1,2-Dichlorobenzene         | ND    | 330  | N-Nitrosodiphenylamine     | ND    | 330  |
| bis(2-chloroisopropyl)Ether | ND    | 330  | 4-Bromophenyl-phenylether  | ND    | 330  |
| N-Nitroso-Di-n-Propylamine  | ND    | 330  | Hexachlorobenzene          | ND    | 330  |
| Hexachloroethane            | ND    | 330  | Phenanthrene               | ND    | 330  |
| Nitrobenzene                | ND    | 330  | Anthracene                 | ND    | 330  |
| Isophorone                  | ND    | 330  | Di-n-Butylphthalate        | ND    | 330  |
| Benzoic Acid                | ND    | 1600 | Fluoranthene               | ND    | 330  |
| bis(-2-Chloroethoxy)Methane | ND    | 330  | Pyrene                     | ND    | 330  |
| 1,2,4-Trichlorobenzene      | ND    | 330  | Butylbenzylphthalate       | ND    | 330  |
| Naphthalene                 | ND    | 330  | 3,3'-Dichlorobenzidine     | ND    | 660  |
| 4-Chloroaniline             | ND    | 330  | Benzo(a)Anthracene         | ND    | 330  |
| Hexachlorobutadiene         | ND    | 330  | Bis(2-Ethylhexyl)Phthalate | 42 J  | 330  |
| 2-Methylnaphthalene         | ND    | 330  | Chrysene                   | ND    | 330  |
| Hexachlorocyclopentadiene   | ND    | 330  | Di-n-Octyl Phthalate       | ND    | 330  |
| 2-Chloronaphthalene         | ND    | 330  | Benzo(b)Fluoranthene       | ND    | 330  |
| 2-Nitroaniline              | ND    | 1600 | Benzo(k)Fluoranthene       | ND    | 330  |
| Dimethyl Phthalate          | ND    | 330  | Benzo(a)Pyrene             | ND    | 330  |
| Acenaphthylene              | ND    | 330  | Indeno(1,2,3-cd)Pyrene     | ND    | 330  |
| 3-Nitroaniline              | ND    | 1600 | Dibenzo(a,h)Anthracene     | ND    | 330  |
| Acenaphthene                | ND    | 330  | Benzo(g,h,i)Perylene       | ND    | 330  |
| Dibenzofuran                | ND    | 330  | Benzidine                  | ND    | 660  |
| 2,4-Dinitrotoluene          | ND    | 330  |                            |       |      |

Percent Solid of 100. is used for all Target compounds.

- (J) Indicates detected below MDL  
(B) Indicates also present in blank  
(ND) Indicates compound not detected

1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BLDG 2700

Lab Name: 21ST CENTURY ENVIRONMENTAL

B

Client: US ARMY FT. MONMOUTH, NJ

Matrix: (soil/water) SOIL

Lab Sample ID: NA BLANK

Sample wt/vol: 30 (g/mL) G

Lab File ID: >C2265

Level: (low/med) LOW

Date Received: NA

Moisture: NA

Date Extracted: 09/16/93

Extraction: (Sepf/Cont/Sonc) SONC

Date Analyzed: 09/14/93

Cleanup: (Y/N) N

Dilution Factor: 1

Number TICs found: 1

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/KG

| CAS NUMBER | COMPOUND NAME | RT    | EST. CONC. | Q |
|------------|---------------|-------|------------|---|
| 1.         | UNKNOWN       | 28.99 | 170        |   |
| 2.         |               |       |            |   |
| 3.         |               |       |            |   |
| 4.         |               |       |            |   |
| 5.         |               |       |            |   |
| 6.         |               |       |            |   |
| 7.         |               |       |            |   |
| 8.         |               |       |            |   |
| 9.         |               |       |            |   |
| 10.        |               |       |            |   |
| 11.        |               |       |            |   |
| 12.        |               |       |            |   |
| 13.        |               |       |            |   |
| 14.        |               |       |            |   |
| 15.        |               |       |            |   |
| 16.        |               |       |            |   |
| 17.        |               |       |            |   |
| 18.        |               |       |            |   |
| 19.        |               |       |            |   |
| 20.        |               |       |            |   |
| 21.        |               |       |            |   |
| 22.        |               |       |            |   |
| 23.        |               |       |            |   |
| 24.        |               |       |            |   |
| 25.        |               |       |            |   |
| 26.        |               |       |            |   |
| 27.        |               |       |            |   |
| 28.        |               |       |            |   |
| 29.        |               |       |            |   |
| 30.        |               |       |            |   |

# QUANT REPORT

Operator ID: JEFF  
 ut ut File: ^C2265::DA  
 ata File: >C2265::D5  
 ame: NA BLNK 9/14  
 is:

Quant Rev: 6 Quant Time: 930916 14:57  
 Injected at: 930916 14:20  
 Dilution Factor: 1.00000

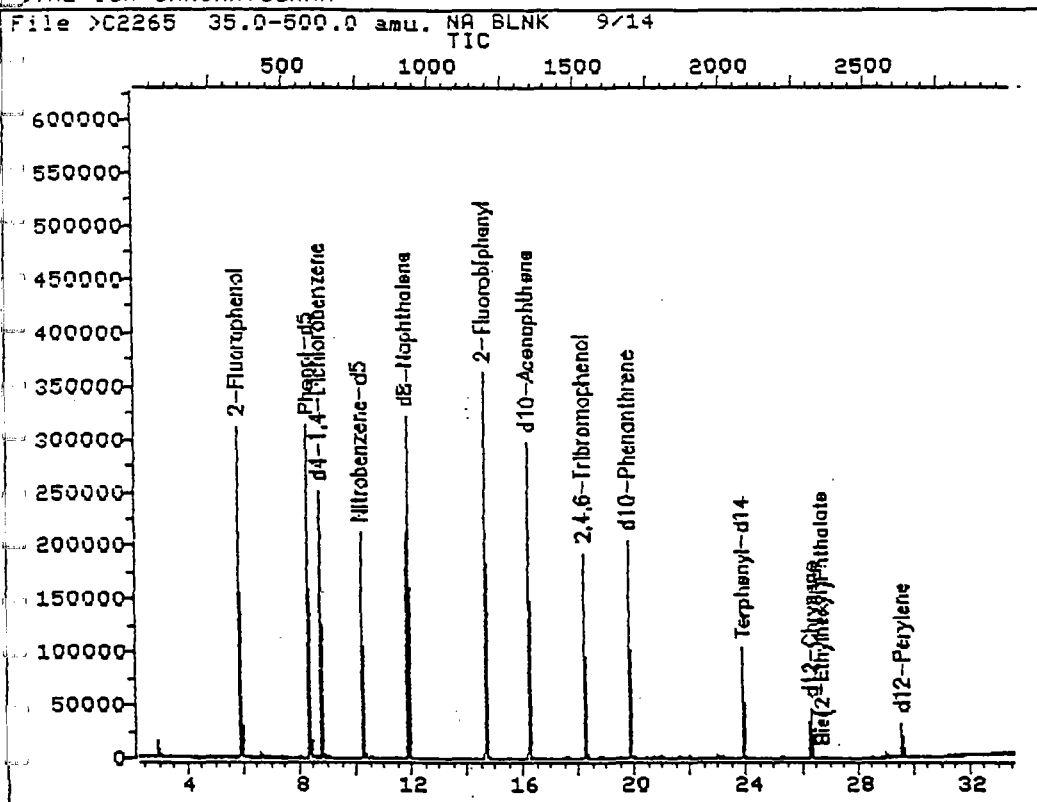
BTL# 4

D File: ID916C::D5  
 ite: hSL BNA STD  
 as Calibration: 930916 11:28

|   | Compound                   | R.T.  | Scan# | Area   | Conc  | Units | q  |
|---|----------------------------|-------|-------|--------|-------|-------|----|
| 1 | *d4-1,4-Dichlorobenzene    | 8.72  | 613   | 117128 | 40.00 | UG/L  | 98 |
| 4 | 2-Fluorophenol             | 5.80  | 334   | 166404 | 88.63 | UG/L  | 88 |
| 5 | Phenol-d5                  | 8.29  | 572   | 234537 | 92.66 | UG/L  | 89 |
| 8 | *d8-Naphthalene            | 11.83 | 911   | 261532 | 40.00 | UG/L  | 90 |
| 9 | Nitrobenzene-d5            | 10.18 | 753   | 126783 | 46.20 | UG/L  | 83 |
| 3 | *d10-Acenaphthene          | 16.18 | 1328  | 127250 | 40.00 | UG/L  | 96 |
| 8 | 2-Fluorobiphenyl           | 14.64 | 1180  | 212335 | 45.16 | UG/L  | 92 |
| 3 | *d10-Phenanthrene          | 19.76 | 1671  | 158385 | 40.00 | UG/L  | 99 |
| 6 | 2,4,6-Tribromophenol       | 18.16 | 1517  | 30965  | 59.25 | UG/L  | 88 |
| 4 | *d12-Chrysene              | 26.30 | 2297  | 32648  | 40.00 | UG/L  | 92 |
| 7 | Terphenyl-d14              | 23.86 | 2063  | 62515  | 64.57 | UG/L  | 89 |
| 1 | Bis(2-Ethylhexyl)Phthalate | 26.71 | 2336  | 1398   | 1.27  | UG/L  | 93 |
| 3 | *d12-Perylene              | 29.57 | 2610  | 27046  | 40.00 | UG/L  | 96 |

\* Compound is ISTD

TOTAL ION CHROMATOGRAM



Data File: >C2265

Quant Output File: ^C2265::DA

Name: NA BLNK 9/14

Misc:

BTL# 4

Id File: ID916C::D5

Title: hSL BNA STD

Last Calibration: 930916 11:28

Operator ID: JEFF

Quant Time: 930916 14:57

Injected at: 930916 14:20

00084