FINAL
VOLUME II OF II

APPENDICES B and C

REMEDIAL INVESTIGATION REPORT

STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

Prepared for

US Army Corps of Engineers
Omaha District

U. S. Department of the Army
Corps of Engineers, Omaha District
Omaha, Nebraska

June 1993

U. S. Army
Aviation and Troop Command

Woodward-Clyde

Woodward-Clyde Consultants
201 Willowbrook Boulevard
Wayne, New Jersey 07470

WCC Project No. 89C114NN

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LIST OF ACRONYMS AND ABBREVIATIONS

ADC	Average Daily Concentrations
AHERA	Asbestos Hazard Emergency Response Act
ATCOM	U.S. Army Aviation and Troop Command
BN	base neutral
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CDAP	Chemical Data Acquisition Plan
CDEP	Connecticut Department of Environmental Protection
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CPDWC	Connecticut Public Drinking Water Code
CQAR	Chemical Quality Assurant Report
CRP	Community Relations Plan
CWTP	chemical waste treatment plant
DQCR	daily quality control reports
DQO	data quality objectives
EPA	U.S. Environmental Protection Agency
FSP	Field Sampling Plan
HTW	Hazardous and Toxic Waste
LOEL	Lowest Observed Effect Level
MCL	Maximum Contaminant Level
MDL	method detection level
nd	not detected
NPDES	National Pollution Discharge Elimination System
OATP	Oil Abatement Treatment Plant
PAH	polycyclic aromatic hydrocarbon
PAS	Preliminary Assessment Screening
PCB	polychlorinated biphenyl
PDWS	Federal Primary Drinking Water Standards
ppb	parts per billion
ppm	parts per million

QCSR	Quality Control Summary Report
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RTB	ratio to background
SAEP	Stratford Army Engine Plant
SAP	Sampling and Analysis Plan
SDWA	Safe Drinking Water Act
SOP	Standard Operating Procedures
SSHP	Site Safety and Health Plan
SVO	semivolatile organic compound
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristics Leachate Procedure
TIC	tentatively identified compound
TL	Textron Lycoming Gas Turbine Division
TOC	total organic carbon
TPH	total petroleum hydrocarbons
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of the Army
USGS	United States Geological Survey
VO	volatile organic compounds
WCC	Woodward-Clyde Consultants

APPENDIX B
Quality Control Summary Report

QUALITY CONTROL

SUMMARY REPORT

REMEDIAL INVESTIGATION

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STRATFORD, CONNECTICUT

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QUALITY CONTROL SUMMARY REPORT

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LIST OF ACRONYMS AND ABBREVIATIONS

ATCOM	U.S. Army Aviation and Troop Command
bgs	below ground surface
CDAP	Chemical Data Acquisition Plan
COC	Chain-of-Custody
CQAR	Chemical Quality Assurance Report
DQO	Data Quality Objectives
ECD	East Coast Drilling and Boring, Inc.
EPA	U.S. Environmental Protection Agency
FSP	Field Sampling Plan
MRD-L	Missouri River Division Laboratory (USACE)
msl	mean sea level
nd	not detected
NEI	Nytest Environmental, Inc.
OD	outside diameter
PAS	Preliminary Assessment Screening
PCB	Polychlorinated biphenyl
ppb	Parts per billion
ppm	parts per million
PVC	Polyvinylchloride
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
SAEP	Stratford Army Engine Plant
SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedure
SSHP	Site Safety and Health Plan

SVO	Semivolatile organic compounds
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compound
TL	Textron Lycoming Gas Turbine Division
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of the Army
VO	Volatile organic compounds
WCC	Woodward-Clyde Consultants

1.0
INTRODUCTION

1.1 PROJECT SCOPE

The Stratford Army Engine Plant (SAEP) is a government-owned, contractor-operated facility located in Stratford, Connecticut. The U.S. Department of the Army (USDA) owns the land, the buildings, and some of the production equipment at SAEP. The U.S. Army Aviation Troop Command (ATCOM, formerly AVSCOM) has responsibility for the jurisdiction, control, and accountability of SAEP. Textron Lycoming, an operating division of Textron Corporation, operates SAEP under a facilities contract with ATCOM. The Textron Lycoming Gas Turbine Division (TL) manufactures and tests turbine engines at SAEP, primarily for the Department of the Army. TL also produces turbine engines for the U.S. Navy, for foreign military sale, and for commercial use.

The USDA is currently considering the lease or sale of government-owned property at SAEP. U.S. Army Regulation 200-1 Environmental Protection and Enhancement (AR 200-1) requires a Preliminary Assessment Screening (PAS) be completed for any real property for which a transaction is being proposed. In March, 1991 the U.S. Army Corps of Engineers Omaha District (USACE), on behalf of ATCOM, contracted Woodward-Clyde Consultants (WCC) to complete a PAS for SAEP. Based on the results of the PAS, dated December 1991, a Remedial Investigation (RI) was recommended to be conducted as described in Chapter 9 of AR 200-1.

ATCOM requested that USACE prepare a Work Plan for conducting a Remedial Investigation (RI) for SAEP. The USACE contracted the preparation of this plan to WCC under Indefinite Delivery Contract No. DACW45-90-D-0008. The Remedial Investigation Work Plan (Work Plan), dated January 1992, was approved and Notice to Proceed was granted by USACE on April 15, 1992. WCC performed the field activities phase of the RI from May through November 1992.

Following the completion of field activities and data review and validation, three reports

are prepared. These reports present a summary and review of the activities conducted, evaluate the field and chemical data collected, and interpret the investigation results. This Quality Control Summary Report (QCSR) is the first of these reports. The purpose of the QCSR is presented in Section 1.2. Comments were issued by USACE on the QCSR dated February 1993. These comments have been addressed in this June 1993 QCSR. A summary of these comments is presented in Appendix C. The complete laboratory chemical data was presented in the Analytical Data Report and submitted to USACE on February 10, 1993. The Remedial Investigation Report integrates, interprets, and assesses all of the investigation activities and data.

1.2 REPORT PURPOSE

The primary purpose of the Quality Control Summary Report, (QCSR) is to present project activities (focusing on sample collection), summarize the Daily Quality Control Reports (DQCR), and review quality control practices used during the RI. This QCSR presents sample collection procedures, deviations from the Work Plan, in particular the Chemical Data Acquisition Plan (CDAP), and reviews the quality and usability of data collected during the field investigation.

Various quality assurance/quality control (QA/QC) procedures were implemented, as identified in the CDAP, to assess the usability of the data. These procedures include the documentation of field and laboratory practices, and the analysis of QA and QC samples.

The documentation of activities conducted provides a historical record of the field investigation and provides a mechanism for recording data and tracking samples from collection through data reporting.

The QC samples collected and analyzed included field duplicates, rinsates, matrix spike/matrix spike duplicate (MS/MSD) and trip blank samples. Analyses were performed by WCC's subcontract laboratories: Nytest Environmental, Inc. (NEI), for chemical analysis, and Omega Environmental Services, Inc., (Omega) for asbestos analysis. Woodward-Clyde Consultants Geotesting Services, Inc. (WCCGS) was used for geotechnical testing. The QC sample results were used to assess the accuracy and

precision of the data reported by NEI.

Split samples and trip blank samples were collected and sent to USACE Missouri River Division Laboratory (MRD-L). Results from the analysis of these samples are presented in the Chemical Quality Assurance Report (CQAR) prepared by USACE. The CQAR was received by WCC on May 21, 1993 and is presented as Appendix C of the RI Report. The CQAR discusses several disagreements determined by the USACE between the data reported for split samples analyzed by MRD-L and NEI. None of these discrepancies appear to affect the overall quality of the data assessed and interpreted in the RI Report.

2.1 BACKGROUND

2.1.1 Facility Description

The SAEP facility is located in Stratford, Connecticut, on the Stratford Point peninsula in the southeast corner of Fairfield County. The facility property lies on the borders of the Bridgeport and Milford United States Geological Survey (USGS) Quadrangles (Figure 2-1). Latitudinal and longitudinal coordinates of SAEP are approximately 41°10' North and 73°07' West. The property consists of approximately 126 acres including an estimated 49 acres of riparian rights along the Housatonic River. The location of SAEP is shown on Figure 2-1.

Additional background information and description of the facility and its history are provided in the Work Plan and briefly discussed in Section 1.2 of the RI Report.

2.1.2 Preliminary Assessment Screening

A Preliminary Assessment Screening (PAS) was conducted by WCC in 1991 (WCC, December 1991) to determine the potential for, or existence of, environmental contamination and the need for additional investigations. The PAS included a review of SAEP records, interviews with SAEP personnel, visual reconnaissance of the facility and surrounding area, and collection of information from other sources.

The PAS investigation identified eight areas of potential environmental concern at SAEP. These eight areas are presented on Figure 2-2 with facility buildings. A conceptual model was developed for each of the eight areas based on information available at that time. These models were developed to identify the types of information which will be needed for conducting a baseline risk assessment.

Based on these models, it was determined that additional data was needed to determine if complete exposure pathways for site-specific contaminants exist. As a recommendation of the PAS, additional sampling was needed for the eight areas of potential environmental concern.

In July 1991, the USACE issued a Scope of Work for Work Plan for Remedial Investigation. WCC prepared a Remedial Investigation (RI) Work Plan, dated January 31, 1992, based on the Scope of Work issued by the USACE in July 1991.

2.2 REMEDIAL INVESTIGATION SUMMARY

2.2.1 Work Plan

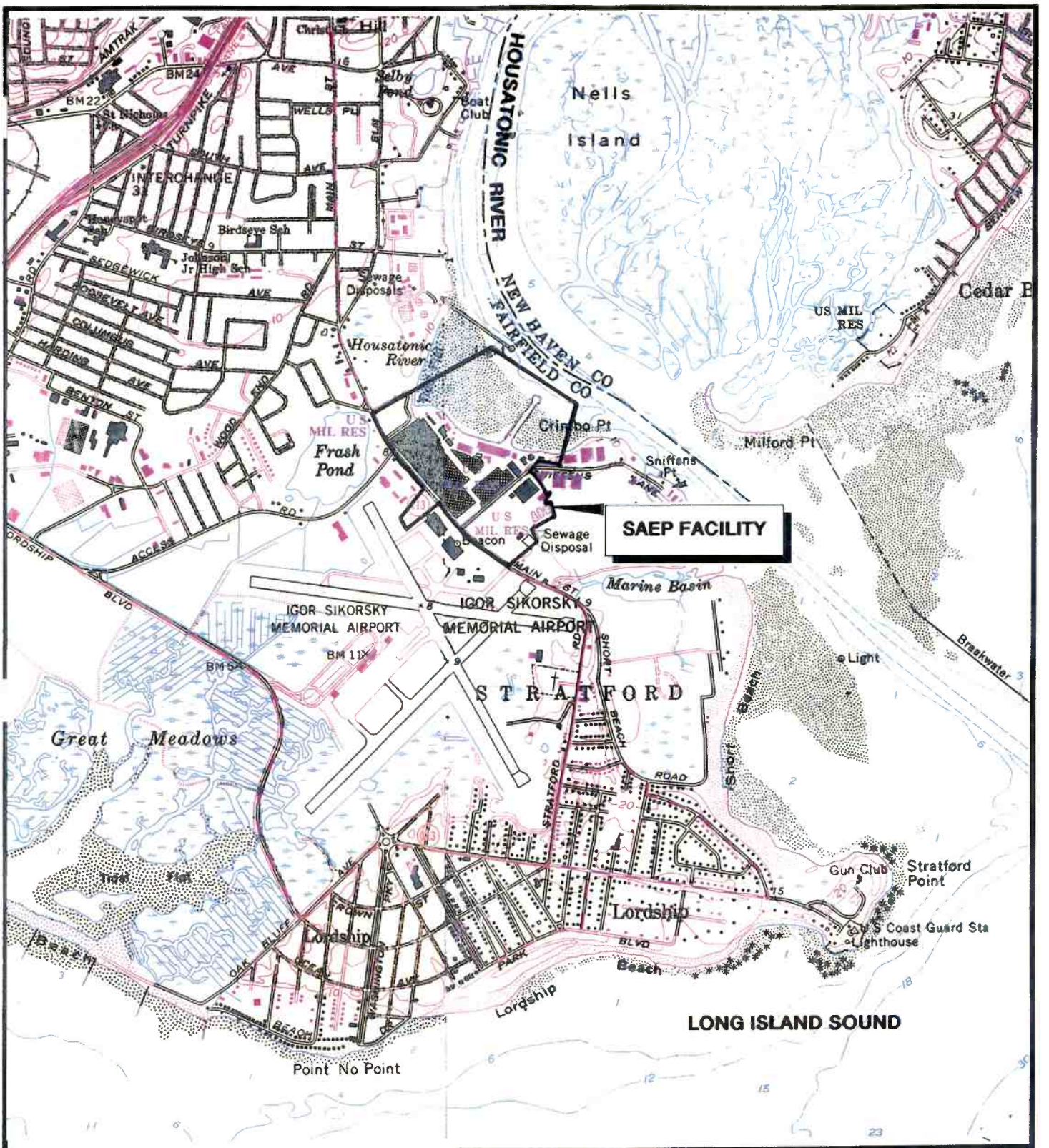
The Work Plan presented the objectives, procedures, techniques, and schedule for the generation of environmental data during the RI. Associated Work Plan documents are: the Field Sampling Plan (FSP); Chemical Data Acquisition Plan (CDAP); and the Site Safety and Health Plan (SSHP). A Community Relations Plan (CRP) was also developed in conjunction with the Work Plan.

2.2.2 Scope of Investigation

The primary objective of this phase of the remedial investigation was to evaluate the presence or absence of contamination at the SAEP facility and to recommend further action regarding the disposition of the eight areas of concern. Evaluation of the extent of contamination was not included in the scope of this investigation phase.

The overall approach of the investigation activities was to sample areas which, on the basis of available information, had or potentially had contaminant releases, or which were locations for disposal activities. The eight areas of environmental concern identified in the PAS were addressed during the RI.

The sampling program was designed to include the following environmental media of concern:



MAP SOURCE:
FROM BRIDGEPORT & MILFORD, CT. USGS QUADRANGLE MAP, 1970 & 1960, PHOTOREVISED 1984.

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WOODWARD – CLYDE CONSULTANTS
ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

FACILITY LOCATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

DR. BY: BAS	DATE: JANUARY 1993	PROJ. NO:	FIGURE NO.:
CK'D BY: MEJ	DATE: JANUARY 1993	89C114NN	2-1

- surface and subsurface soils at the facility;
- groundwater beneath the facility; and
- sediment and surface water located in the intertidal flats of the Housatonic River and connected waterways adjacent to SAEP.

The program to sample these media involved the following activities:

- drilling borings to collect subsurface soil samples;
- installing monitoring wells and piezometers to sample groundwater;
- collecting surface soil samples; and
- coring sediments and collecting surface water samples in the intertidal flats and drainage ditch areas.

The samples collected would be analyzed in order to determine the presence and type of contamination in the various media.

The following proposed activities were designed to collect data for a hydrogeologic study:

- installation of stilling wells at two intertidal locations;
- aquifer testing of selected monitoring wells and piezometers;
- geotechnical testing of soil samples from the screened intervals of selected monitoring wells and piezometers for evaluation of soil permeability; and
- groundwater level monitoring to evaluate tidal variations in aquifer zones.

The rationale for proposed sample collection locations, number of samples, and analytical parameters were presented in detail in the Work Plan. A summary of these programs is presented in Table 2-1 and sample collection locations are presented on Figure 2-3.

The lagoon area on the south side of SAEP was not included "LW" monitoring well series) in this investigation except for chemical analysis of groundwater from selected existing lagoon wells. In addition, all existing wells were used to collect groundwater level measurements and other data related to the study of tidal influences at the facility.

The data generated during this investigation is evaluated and compared with data from the earlier studies at SAEP including the PAS. This is presented and discussed the Remedial Investigation Report.

TABLE 2-1

SUMMARY OF SAMPLING AND ANALYTICAL PROGRAMS FOR THE EIGHT AREAS OF POTENTIAL ENVIRONMENTAL CONCERN[1]

Area	Sample Media	Chemical Analyses[2]	TOTAL NUMBER OF SAMPLES[3]	
			Proposed	Collected
1 - Intertidal Flats	Sediment	VO, SVO, Metals, CN, PCB	22	22
	Surface Water	VO, SVO, Metals, CN, PCB	11	11
2 - Causeway	Soil	Asbestos	10	10
3 - Hydraulic Fill	Soil	VO, SVO, Metals, PCB[4]	30	32
	Groundwater	VO, SVO, Metals, PCB	22	22
	Sediment	VO, SVO, Metals	1	0
4 - Plating and Manufacturing	Soil	VO, SVO, Metals, CN	6	6
	Groundwater	VO, SVO, Metals, CN	10	8
5 - Building 2	Soil	VO, SVO, Metals	4	4
	Groundwater	VO, SVO, Metals	6	8
6 - Research and Development	Groundwater	VO, SVO, Metals	2	2
7 - Testing	Soil	VO, SVO, Metals	4	4
	Groundwater	VO, SVO, Metals	6	6
8 - Drainage Ditch	Sediment	VO, SVO, Metals, CN, PCB	4	4
	Surface Water	VO, SVO, Metals, CN, PCB	2	2
		TOTALS Soil	54	56
		Groundwater	46	46
		Sediment	27	26
		Surface water	13	13

NOTES:

(1) The eight areas are described in the Work Plan and shown on Figure 2-2.

(2) SVO = Semivolatile organic compounds
VO = Volatile organic compounds
PCB = Polychlorinated biphenyls
CN = Cyanide

(3) Totals do not include QA/QC samples. Total groundwater samples represent two rounds of sample collection.

(4) Not all soil samples were analyzed for PCB

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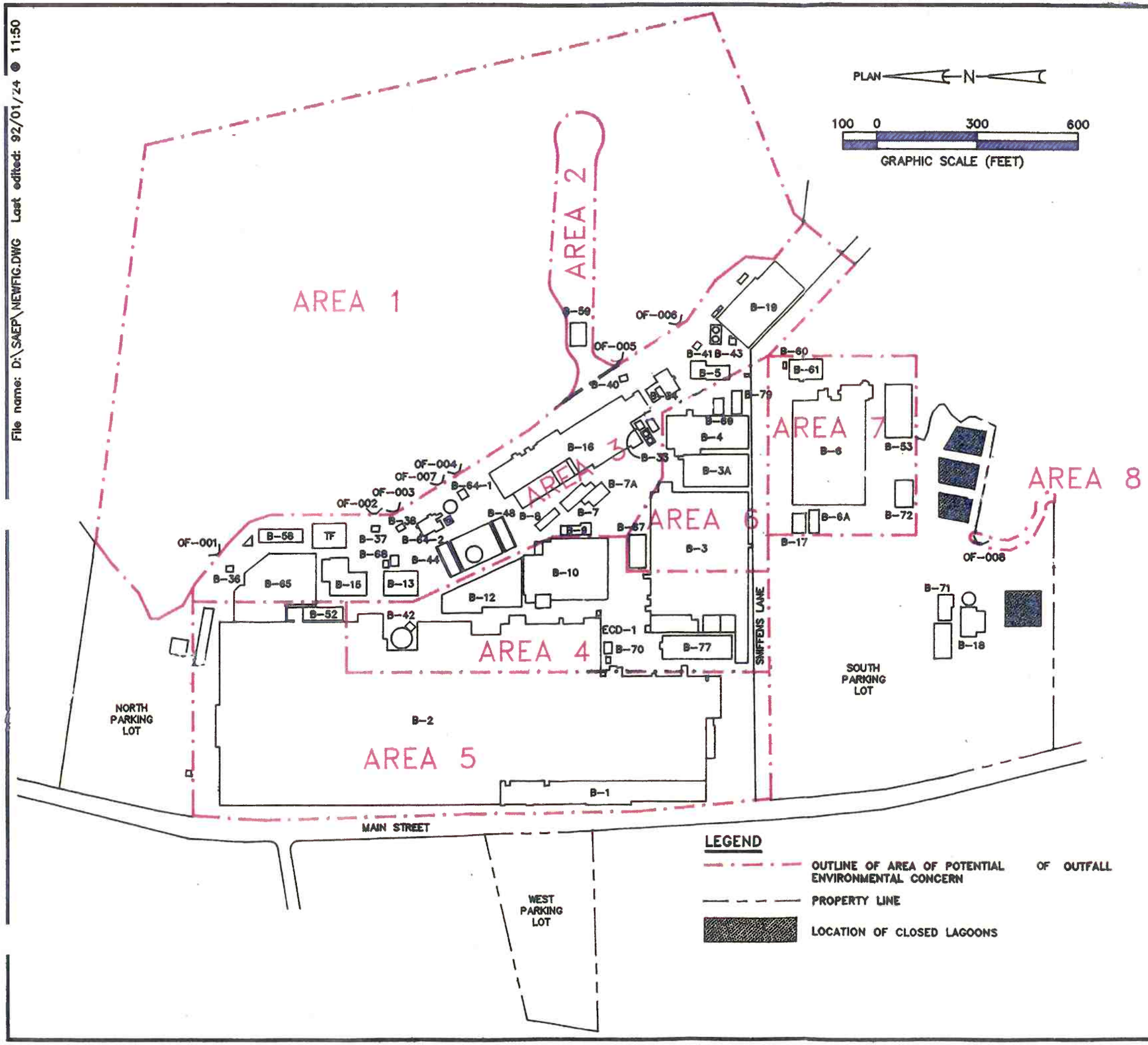


BUILDING NUMBER	BUILDING NAME
B-1	MAIN ADMINISTRATIVE & GOVERNMENT OFFICES
B-2	MANUFACTURING OPERATIONS
B-3	RESEARCH & DEVELOPMENT ENGINEERING
B-3A	ENGINEERING LABORATORIES
B-4	STORES AND AGT-1500 REPAIR
B-5	FUEL SYSTEM TEST
B-6	ENGINE ENVIRONMENTAL & COMPONENT TEST
B-6A	ENGINE MECHANICAL COMPONENT TEST
B-7	ENGINE FUEL SYSTEM TEST
B-7A	ENGINE FUEL SYSTEM TEST
B-8	VOLATILE STORAGE
B-9	AUTOMOTIVE MAINTENANCE
B-10	RECUPERATOR MANUFACTURE
B-12	MAINTENANCE DEPARTMENT
B-13	SCRAP & MATERIAL RECLAMATION
B-15	LUBRICATION STORAGE & FIRE HOUSE
B-16	PRODUCTION & DEVELOPMENTAL TEST CELLS
B-17	ENGINEERING TEST FACILITY
B-18	CHEMICAL WASTE TREATMENT PLANT (CWTP)
B-19	COMPONENT TEST FACILITY
B-33	COOLING TOWER PUMP STATION
B-34	FUEL PUMPING STATION
B-36	STORM DRAIN PUMPING STATION (OF-001)
B-37	STORM DRAIN PUMPING STATION (OF-002)
B-38	STORM DRAIN PUMPING STATION (OF-003)
B-40	STORM DRAIN PUMPING STATION (OF-004)
B-41	STORM DRAIN PUMPING STATION (OF-005)
B-42	SPRINKLER BOOST PUMP STATION (400K GAL.)
B-43	FUEL PUMPING STATION
B-44	STORES & CARPENTER SHOP
B-48	ENGINE CONTAINER REBUILD
B-52	STORES & ADJUNCT TO B-2
B-53	SURPLUS EQUIPMENT STORAGE
B-58	QUALITY & TESTING FACILITY
B-59	ENGINEERING STORAGE
B-60	HI-PRESSURE NATURAL GAS PUMPING STATION
B-61	REFRIGERATION PLANT
B-63	CWTP PUMPING STATION
B-64-1	OIL ABATEMENT PLANT PUMP HOUSE
B-64-2	OIL ABATEMENT TREATMENT PLANT (OATP)
B-65	STORAGE FACILITY
B-67	GENERAL STORES
B-68	EMERGENCY GENERATOR
B-69	USACE RESIDENT ENGINEER
B-70	CYANIDE DESTRUCTION FACILITY (CDF)
B-71	CWTP SOLIDS HANDLING
B-72	FUEL PUMPING STATION
B-77	OFFICE
B-79	SSE BUILDING

LEGEND

- OUTLINE OF AREA OF POTENTIAL ENVIRONMENTAL CONCERN
- OF OUTFALL
- PROPERTY LINE
- LOCATION OF CLOSED LAGOONS

WOODWARD-CLYDE CONSULTANTS
ENGINEERS, GEOLOGISTS, AND ENVIRONMENTAL SCIENTISTS

FACILITY BUILDINGS AND AREAS OF POTENTIAL ENVIRONMENTAL CONCERN
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

DRN BY MG/EAS	DATE 1/15/93	PROJECT NO.	FIG. NO.
CHK'D BY MEC	DATE 1/15/93	89C114NN	2-2

3.0
FIELD ACTIVITIES

The activities and tasks which comprised the field effort of this investigation are summarized below. Details were presented and discussed in the Work Plan.

These activities are not discussed on an area by area basis except for those activities which were area-specific. Most of the discussion presents the activities chronologically while maintaining a logical view of the investigation as presented in the Work Plan.

Several tasks of the field activities were conducted concurrently, especially the soil borings and monitoring well and piezometer installation. The schedule of the field activities conducted for this investigation is shown on Figure 3-1.

A Pre-Investigation Conference was held at the SAEP facility on April 29, 1992 and attended by 18 personnel representing ATCOM, U.S. Army Material Command (AMC), USACE, TL, East Coast Drilling and Boring, Inc. (ECD) and WCC. The logistics and day-to-day functions planned for the investigation activities were discussed at the conference. Primary emphasis was placed on coordination between TL and WCC.

After the conference, TL, ECD, and WCC personnel conducted a reconnaissance of the facility to determine if locations proposed for sample collection were accessible. A total of 14 locations (borings, monitoring wells, and piezometers), as proposed in the Work Plan, were changed for various reasons. A summary of these changes is presented on Table 3-1.

In addition to those changes, six locations were moved during field activities. These are presented on Table 3-2.

The primary objective of the field activities was the collection of samples from various media. The procedural requirements, protocols, and techniques used in performing

these field activities were developed as Standard Operating Procedures (SOPs). The SOPs used during the investigation were presented in the CDAP. These SOPs were:

SOP Number	Title
SOP No. 1	Soil Sampling
SOP No. 2	Monitoring Well Installation
SOP No. 3	Groundwater Sampling
SOP No. 4	Slug Testing
SOP No. 5	Single Well Pumping Tests
SOP No. 6	Sample Identification, Handling, and Documentation
SOP No. 7	Decontamination
SOP No. 8	Boring Abandonment
SOP No. 9	Water Level Measurement
SOP No. 10	Surface Water Sampling
SOP No. 11	Sediment Sampling
SOP No. 12	Physical Property Testing

Many discussions of activities in this QCSR are referenced to these SOPs by their number as shown above.

The Project Manager, Marion E. Craig, was responsible for the completion of all field activities. The Project Manager assigned and monitored all technical aspects of the field activities. The project QA/QC officer, Michael J. Carnese, had overall responsibility to monitor that the QA/QC program presented in the Work Plan was implemented and that the work and activities were completed/accomplished in accordance with this program.

The duties of the QA/QC Coordinator and Site Safety and Health Officer (SSHO) were combined with those of the Field Manager (FM), Marc E. Jacobson. All field activities were coordinated and supervised by the FM.

TABLE 3-1

BORING, MONITORING WELL, AND PIEZOMETER LOCATION CHANGES TO WORK PLAN FIGURE A-1, SAMPLING LOCATION PLAN (dated 1/21/92)

Location	Change Description	Rationale
BR-5	Moved 30 feet south to northeast corner of B-15	Underground utilities; area remediated during B-65 construction
BR-6	Moved 20 feet southwest to south side of B-58	Easier access due to perimeter fence
BR-7	Moved 20 feet east adjacent to west side of B-58	Moved out of area remediated during B-65 construction
BR-8	Moved 60 feet east to inside of fenced storage area	(Same as BR-7)
WC-3S	Moved 100 feet southeast to asphalt area east of B-3	Moved out of concrete surface area and for easier access
WC-4S and PZ-4D	Moved 50 feet northwest to asphalt area closer to B-64-1	Moved out of concrete surface area and active driveway
WC-6S	Moved 50 feet north to north side of B-58	Easier access due to perimeter fence
WC-7S and PZ-7D	Moved 40 feet southwest to edge of fenced storage area	Moved to area within perimeter fence
WC-8S and PZ-8D	Moved 60 feet north to north side of B-8	Moved out of active driveway
PZ-16D	Moved 50 feet east to west side of B-15	Moved out of active doorway
PZ-17D	Moved 120 feet southeast to inside of perimeter fence	Moved to area within perimeter fence

Notes: Distances are approximate.
New locations were presented on revised Figure A-1, dated 5/19/92 and transmitted to USACE (J. Barrett) on May 19, 1992.
Location changes were discussed and agreed upon between USACE (J. Barrett, T. Zink), TLS (D. Babcock), and WCC (M. Craig, M. Dombrowski, M. Jacobson) during SAEP facility visit on April 29, 1992.

TABLE 3-2

BORING, MONITORING WELL, AND PIEZOMETER LOCATION CHANGES MADE DURING FIELD ACTIVITIES

Location	Change Description	Rationale	Date Approved
BR-8	Moved 80 feet northwest to west side of B-36	Health and safety concerns with magnesium thorium storage area; and adjacent area remediated during B-65 construction	06-03-92
WC-7S and PZ-7D	Moved 180 feet northwest to north side of B-65 and adjacent to storage shed and fence	Health and safety concerns with magnesium thorium storage area and accessibility	06-03-92
WC-1S and PZ-1D	Move 40 feet southwest closer to B-19	Proposed locations as shown on Figure A-1 were on dike area; Drilling on dike was not proposed in Work Plan; Limited access on side of B-19	06-10-92
WC-12S	Moved 60 feet southeast to west side of B-12	Drilling at original location encountered unknown subsurface concrete structure	06-25-92

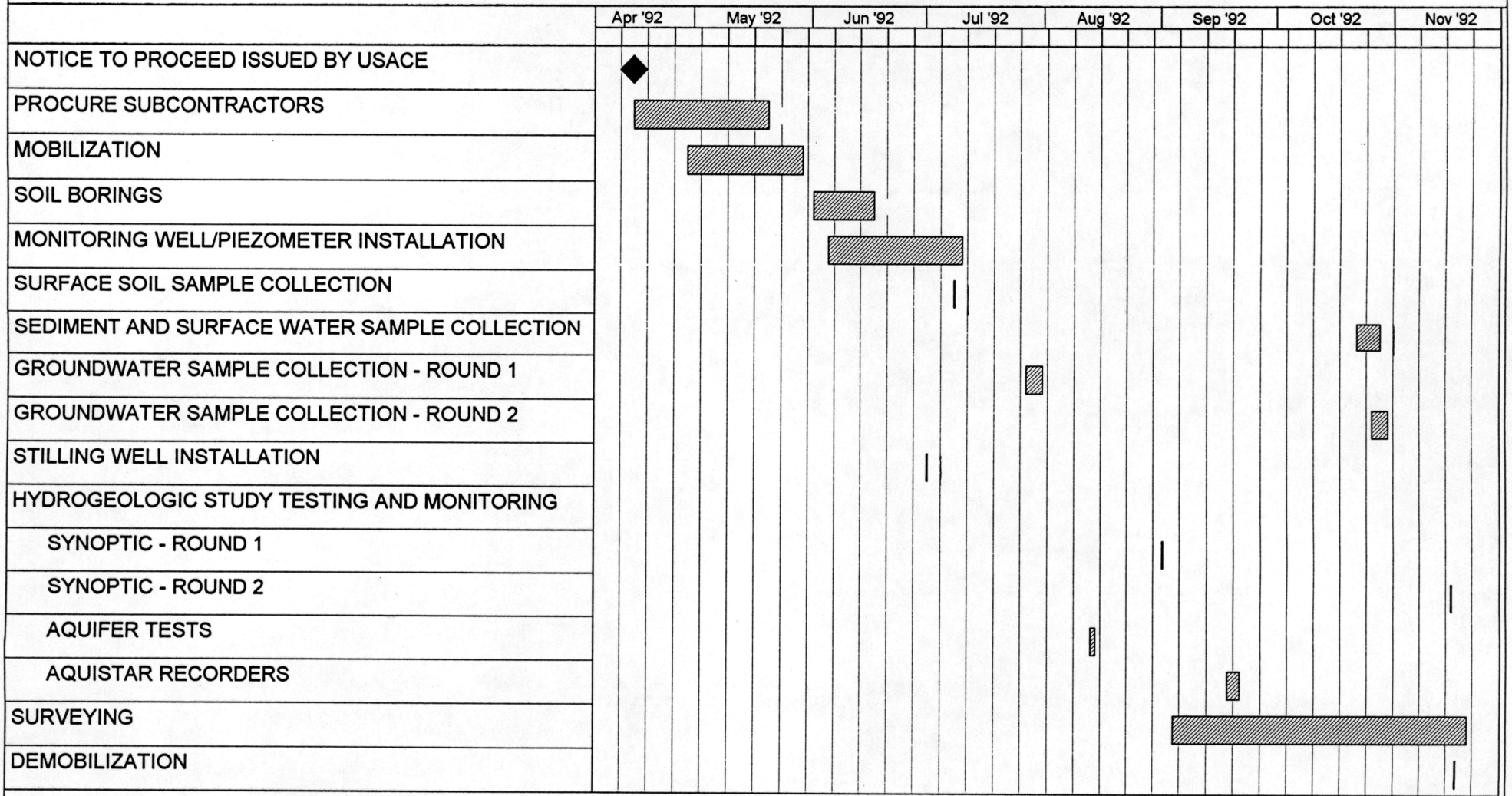
Notes: All location distances are approximate.

Location changes were discussed and agreed upon between USACE (P. Brockman) and WCC (M. Craig, M. Jacobson) during field activities.

WC-12S change approved by USACE (J. Barrett) on 06-26-92.

Changes are in addition to those presented on Table 3-1.

FIELD INVESTIGATION ACTIVITIES SCHEDULE



QUALITY CONTROL SUMMARY REPORT
REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT

Activity Duration ▨ Milestone ◆

FIGURE 3-1

A geologist supervised the drilling operations, logged the borings, monitoring wells and piezometers, and collected geotechnical samples.

Most of the samples submitted for chemical analysis were collected by the FM in association with other project staff. The FM maintained overall responsibility for the collection of all samples and measurement data.

Three laboratories were subcontracted for chemical and physical property testing of all samples. All analytical samples were shipped to Nytest Environmental Inc. (NEI) in Port Washington, New York. Soil samples for asbestos analysis were shipped to Omega Environmental Services, Inc. (Omega) in Hackensack, New Jersey.

Geotechnical samples were shipped to Woodward-Clyde Consultants Geotesting Services, Inc. (WCGS) in Clifton, New Jersey.

3.1 SOIL BORINGS

3.1.1 Locations

A total of 10 soil borings were drilled as proposed in the Work Plan. Boring BR-8 was relocated, with USACE approval, approximately 50 feet west of the proposed location due to health and safety considerations in the magnesium thorium storage area.

3.1.2 Drilling Techniques

All borings (except for resampling at location BR-1, discussed at the end of Section 3.1.3) were drilled by East Coast Drilling and Boring, Inc. (ECD) of Wallingford, Connecticut with a truck-mounted (CME-75) auger rig. Boring BR-6 was drilled using a tripod mounted motorized pulley and hammer due to access constraints of the location. The procedures presented in SOP No. 2 were used in drilling.

3.1.3 Soil Sample Collection

Information on boring soil sample collection is summarized on Table 3-3. Soil samples were collected with a 2-inch outside diameter (OD) stainless-steel split spoon. All samples were screened during collection using a Photovac Microtip organic vapor photoionizing detector. A summary of the subsurface soil samples collected from the borings is presented in Table 3-4.

All sampling equipment was decontaminated between sample locations. Decontamination procedures and techniques used were in accordance with SOP No. 7. Disposable aluminum baking pans were used to homogenize the soil prior to transferring into the sample containers (except for volatile organic compounds (VO) samples). Soil for VO analysis was transferred directly from the split spoon into the sample container with the remainder of the soil used for other analyses.

At boring BR-10 low recovery occurred in the split spoon for depth 3 to 5 ft. Soil was collected from the 5 to 7 ft depth for semivolatile organic compounds (SVO) and metals analyses. The sample from 3 to 5 ft depth was submitted for VO analysis only.

Similarly, VO samples were collected at different depths than SVO and metals samples due to low recovery in split spoons for boring BR-2.

The two soil samples collected from boring BR-1 on June 17, 1992 were not analyzed for PCBs by the laboratory as requested. These two samples were re-collected on November 11, 1992 at a location within 1 foot of the original boring. These samples were collected using the same techniques by Connecticut Test Borings, Inc. in Seymour, Connecticut and the FM.

3.2 MONITORING WELL AND PIEZOMETER INSTALLATION

A total of 15 monitoring wells and 10 piezometers were installed. The activities associated with the installations are presented in the following sections.

TABLE 3-3

BORING SAMPLE COLLECTION SUMMARY

Location	Date Drilled	Number of Chemical Samples Collected	Boring Depth (feet bgs)	Elevation (feet msl)
BR-1	06-17-92	2	6.5	7.56
BR-1*	11-11-92	2	4.5	-
BR-2	06-03-92	3	7	7.80
BR-3	06-03-92	2	7	7.43
BR-4	06-03-92	2	7	6.75
BR-5	06-02-92	2	6.5	6.00
BR-6	06-05-92	2	6	6.76
BR-7	06-02-92	2	6.5	7.81
BR-8	06-09-92	2	6.5	6.77
BR-9	06-10-92	2	6	7.18
BR-10	06-04-92	3	6	7.13

Notes: bgs = Below Ground Surface
msl = Mean Sea Level

*BR-1: Soil samples were re-collected for PCB analysis due to laboratory error.

SUBSURFACE SOIL SAMPLE COLLECTION SUMMARY

Location	Depth Interval (ft-bgs)	Field Screening (ppm)	SAMPLE COLLECTION					
			Date	Time	Chemical		Geotechnical	
					ID Number	Analysis	ID Number	Analysis
BORINGS								
BR-1	0.5-2.5	0.0	06-17-92	1305	BR-1-0.5-2.5	VO, SVO, M, PCB		
	2.5-4.5	0.0	06-17-92	1310	BR-1-2.5-4.5	VO, SVO, M, PCB		
	4.5-6.5	0.0	06-17-92	1315				
BR-2	1.0-3.0	0.0	06-03-92	1605	BR-2-1-3	VO, SVO, M		
	3.0-5.0	0.0	06-03-92	1610	BR-2-3-5	VO		
	5.0-7.0	5.0	06-03-92	1615	BR-2-5-7	VO		
	3.0-7.0	-	06-03-92	1615	BR-2-3-7	SVO, M		
BR-3	1.0-3.0	0.0	06-03-92	1425	BR-3-1-3	VO, SVO, M		
	3.0-5.0	87	06-03-92	1430	BR-3-3-5	VO, SVO, M		
	5.0-7.0	0.0	06-03-92	1435				
BR-4	1.0-3.0	0.0	06-03-92	1250	BR-4-1-3	VO,SVO, M		
	3.0-5.0	93	06-03-92	1300	BR-4-3-5	VO, SVO, M		
	5.0-7.0	84	06-03-92	1305				
BR-5	0.5-2.5	18	06-02-92	1620	BR-5-0.5-2.5	VO, SVO, M		
	2.5-4.5	18	06-02-92	1640	BR-5-2.5-4.5	VO, SVO, M		
	4.5-6.5	24	06-02-92	1650				
BR-6	0.0-2.0	0.0	06-05-92	1340	BR-6-0-2	VO, SVO, M		

TABLE 3- (Continued)
SUBSURFACE SOIL SAMPLE COLLECTION SUMMARY

Location	Depth Interval (ft-bgs)	Field Screening (ppm)	SAMPLE COLLECTION					
			Date	Time	Chemical		Geotechnical	
					ID Number	Analysis	ID Number	Analysis
BR-6	2.0-4.0	0.0	06-05-92	1345	BR-6-2-4	VO, SVO, M		
	4.0-6.0	0.0	06-05-92	1350				
BR-7	0.5-2.5	0.0	06-02-92	1350				
	2.5-4.5	0.0	06-02-92	1400	BR-7-2.5-4.5	VO, SVO, M		
	4.5-6.5	37	06-02-92	1415	BR-7-4.5-6.5	VO, SVO, M		
BR-8	0.5-2.5	0.0	06-09-92	1445	BR-8-0.5-2.5	VO, SVO, M		
	2.5-4.5	0.0	06-09-92	1455	BR-8-2.5-4.5	VO, SVO, M		
	4.5-6.5	0.0	06-09-92	1500				
BR-9	1.0-3.0	0.6	06-10-92	0905	BR-9-1-3	VO, SVO, M		
	4.0-6.0	103	06-10-92	0915	BR-9-4-6	VO, SVO, M		
BR-10	1.0-3.0	0.0	06-04-92	1610	BR-10-1-3	VO, SVO, M		
	3.0-5.0	0.0	06-04-92	1615	BR-10-3-5	VO		
	5.0-7.0	0.0	06-04-92	1620	BR-10-5-7	SVO,M		
MONITORING WELLS								
WC-1S	05-2.5	19	06-11-92	0950	WC-1S-0.5-2.5	VO, SVO, M, PCB		
	2.5-4.5	0.0	06-11-92	0955	WC-1S-2.5-4.5	VO, SVO, M, PCB		
	4.5-6.5	1.0	06-11-92	1010				
	9.0-11.0	0.3	06-11-92	1030			SS-4	S,H

TABLE 3-(ntinued)
SUBSURFACE SOIL SAMPLE COLLECTION SUMMARY

Location	Depth Interval (ft-bgs)	Field Screening (ppm)	SAMPLE COLLECTION					
			Date	Time	Chemical		Geotechnical	
					ID Number	Analysis	ID Number	Analysis
WC-2D	0.5-2.5	0.0	06-23-92	1545	WC-2D-0.5-2.5	VO, SVO, M, PCB		
	2.5-4.5	0.0	06-23-92	1550	WC-2D-2.5-4.5	VO, SVO, M, PCB		
	4.5-6.5	185-2147	06-23-92	1555	WC-2D-4.5-6.5	VO		
	15.0-17.0	NM	06-24-92	1000			SS-4	NA
	20.0-22.0	0.3	06-24-92	1010			SS-5	NA
	25.0-27.0	0.1	06-24-92	1020			SS-6	NA
	30.0-32.0	NM	06-24-92	1030			SS-7	NA
	35.0-37.0	0.0	06-24-92	1040			SS-8	NA
WC-3S	0.5-2.5	0.0	06-09-92	1105	WC-3S-0.5-2.5	VO, SVO, M, PCB		
	2.5-4.5	0.0	06-09-92	1110	WC-3S-2.5-4.5	VO, SVO, M, PCB		
	4.5-6.5	119	06-09-92	1120				
	9.0-11.0	2.1	06-09-92	1135				
WC-4S	0.5-2.5	0.0	06-10-92	1355	WC-4S-0.5-2.5	VO, SVO, M, PCB		
	2.5-4.5	0.0	06-10-92	1410	WC-4S-2.5-4.5	VO, SVO, M, PCB		
	4.5-6.5	0.0	06-10-92					
	10.0-12.0	0.0	06-10-92				SS-4	S, H
WC-5S	0.8-2.8	39	06-12-92	1305	WC-5S-0.8-2.8	VO, SVO, M, PCB		
	2.8-4.8	57.6	06-12-92	1310	WC-5S-2.8-4.8	VO, SVO, M, PCB		

TABLE 3- ntinued)
SUBSURFACE SOIL SAMPLE COLLECTION SUMMARY

Location	Depth Interval (ft-bgs)	Field Screening (ppm)	SAMPLE COLLECTION					
			Date	Time	Chemical		Geotechnical	
					ID Number	Analysis	ID Number	Analysis
WC-5S	4.8-6.8	163	06-12-952	1320				
	10.8-12.8	6.7	06-12-92	1335			SS-4	S,H
WC-6S	0.5-2.5	0.0	06-08-92	1355	WC-6S-0.5-2.5	VO, SVO, M, PCB		
	2.5-4.5	0.0	06-08-92	1405	WC-6S-2.5-4.5	VO, SVO, M, PCB		
	4.5-6.5	144	06-08-92	1410				
	9.0-11.0	23	06-08-92	1430			SS-4	NA
WC-7S	0.5-2.5	0.0	06-08-92	0935	WC-7S-0.5-2.5	VO, SVO, M, PCB		
	2.5-4.5	0.0	06-08-92	0940	WC-7S-2.5-4.5	VO, SVO, M, PCB		
	4.5-6.5	0.0	06-08-92	0950				
	10.0-12.0	0.0	06-08-92	1010				
WC-8S	0.5-2.5	19	06-18-92	0925	WC-8S-0.5-2.5	VO, SVO, M		
	2.5-4.5	17	06-18-92	0930	WC-8S-2.5-4.5	V0, SVO, M		
	4.5-6.5	0.0	06-18-92	0940				
	10.0-12.0	0.0	06-18-92	0955			SS-4	S,H
WC-9S	0.0-2.0	0.0	06-15-92	0935	WC-9S-0-2	VO, SVO, M		
	2.0-4.0	0.0	06-15-92	0940	WC-9S-2-4	VO, SVO, M		
	4.0-6.0	0.0	06-15-92	1000				
	9.0-11.0	0.0	06-15-92	1115			SS-4	S, H

TABLE 3- ntinued)
SUBSURFACE SOIL SAMPLE COLLECTION SUMMARY

Location	Depth Interval (ft-bgs)	Field Screening (ppm)	SAMPLE COLLECTION					
			Date	Time	Chemical		Geotechnical	
					ID Number	Analysis	ID Number	Analysis
WC-10S	0.5-2.5	0.0	06-22-92	0905	WC-10S-0.5-2.5	VO, SVO, M, CN		
	2.5-4.5	0.0	06-22-92	0910	WC-10S-2.5-4.5	VO, SVO, M, CN		
	4.5-6.5	0.0	06-22-92	0915				
	10.0-12.0	0.5	06-22-92	0935				
WC-11S	0.5-2.5	0.0	06-16-92	0955	WC-11S-0.5-2.5	VO, SVO, M		
	2.5-4.5	0.0	06-16-92	1005	WC-11S-2.5-4.5	VO, SVO, M		
	4.5-6.5	0.0	06-16-92	1010				
	9.0-11.0	0.0	06-16-92	1050			SS-4	S, H
WC-12S	0.5-2.5	0.0	06-26-92	0955	WC-12S-0.5-2.5	VO, SVO, M, CN		
	2.5-4.5	0.0	06-26-92	1000	WC-12S-2.5-4.5	VO, SVO, M, CN		
	4.5-6.5	0.0	06-26-92	1005				
	10.0-12.0	0.0	06-26-92	1020			SS-4	NA
WC-13S	0.5-2.5	0.0	06-23-92	0950				
	2.5-4.5	0.0	06-23-92	0955				
	10.0-12.0	0.0	06-23-92	1005				
WC-14S	5.0-7.0	0.0	06-17-92	1040			SS-1	NA
	10.0-12.0	0.0	06-17-92	1050			SS-2	NA
WC-15S	5.0-7.0	0.0	06-17-92	1420			SS-1	NA

TABLE 3- (Continued)
SUBSURFACE SOIL SAMPLE COLLECTION SUMMARY

Location	Depth Interval (ft-bgs)	Field Screening (ppm)	SAMPLE COLLECTION					
			Date	Time	Chemical		Geotechnical	
					ID Number	Analysis	ID Number	Analysis
WC-15S	10.0-12.0	0.0	06-17-92	1430			SS-2	NA
PIEZOMETERS								
PZ-1D	14.0-16.0	0.0	06-11-92	1335			SS-1	NA
	19.0-21.0	0.0	06-11-92	1350			SS-2	NA
	24.0-26.0	1.5	06-11-92	1405			SS-3	NA
	29.0-31.0	1.6	06-11-92	1415			SS-4	S, H
PZ-4D	15.0-17.0	0.0	06-19-92	0945			SS-1	NA
	20.0-22.0	1.0	06-19-92	1000			SS-2	NA
	25.0-27.0	3.0	06-19-92	1010			SS-3	NA
	30.0-32.0	0.0	06-19-92	1020			SS-4	S, H
	35.0-37.0	0.0	06-19-92	1040			SS-5	NA
	40.0-42.0	0.0	06-19-92	1115			SS-6	NA
PZ-5D	10.0-12.0	6	06-25-92	0955			SS-1	NA
	15.0-17.0	0.0	06-25-92	1010			SS-2	NA
	20.0-22.0	0.0	06-25-92	1020			SS-3	NA
	25.0-27.0	0.0	06-25-92	1030			SS-4	NA
	30.0-32.0	0.0	06-25-92	1040			SS-5	S, H
	35.0-37.0	0.0	06-25-92	1050			SS-6	NA

TABLE 3- ntinued)
SUBSURFACE SOIL SAMPLE COLLECTION SUMMARY

Location	Depth Interval (ft-bgs)	Field Screening (ppm)	SAMPLE COLLECTION					
			Date	Time	Chemical		Geotechnical	
					ID Number	Analysis	ID Number	Analysis
PZ-5D	40.0-42.0	0.0	06-25-92	1105			SS-7	NA
	45.0-47.0	0.0	06-25-92	1150			SS-8	NA
PZ-7D	0.5-2.5	0.0	06-05-92	0905				
	2.5-4.5	0.0	06-05-92	0910				
	4.5-6.5	0.0	06-05-92	0915				
	10.0-12.0	0.0	06-05-92	0925			SS-4	NA
	15.0-17.0	0.0	06-05-92	0935			SS-5	NA
	20.0-22.0	0.0	06-05-92	0940			SS-6	NA
	25.0-27.0	0.0	06-05-92	0950			SS-7	S, H
	30.0-32.0	0.0	06-05-92	0955			SS-8	NA
PZ-8D	15.0-17.0	0.0	06-18-92	1305				
	20.0-22.0	0.0	06-18-92	1320				
	25.0-26.5	0.0	06-18-92	1345			SS-3	NA
	30.0-31.0	0.0	06-18-92	1400			SS-4	S, H
PZ-9D	15.0-17.0	0.0	06-15-92	1340			SS-1	NA
	20.0-22.0	0.0	06-15-92	1350			SS-2	NA
	25.0-27.0	0.0	06-15-92	1400			SS-3	S, H
	30.0-32.0	0.0	06-15-92	1415			SS-4	NA

TABLE 3- ntinued)
SUBSURFACE SOIL SAMPLE COLLECTION SUMMARY

Location	Depth Interval (ft-bgs)	Field Screening (ppm)	SAMPLE COLLECTION					
			Date	Time	Chemical		Geotechnical	
					ID Number	Analysis	ID Number	Analysis
PZ-9D	35.0-37.0	0.0	06-15-92	1440			SS-5	NA
PZ-11D	15.0-17.0	0.0	06-16-92	1330				
	20.0-22.0	0.0	06-16-92	1340				
	25.0-27.0	0.0	06-16-92	1350			SS-3	NA
	30.0-32.0	0.0	06-16-92	1405			SS-4	S, H
	35.0-37.0	0.0	06-16-92	1430				
PZ-13D	15.0-17.0	0.0	06-23-92	1100			SS-1	NA
	20.0-21.5	0.0	06-23-92	1110			SS-2	NA
	25.0-27.0	0.0	06-23-92	1120			SS-3	S, H
	30.0-31.5	0.0	06-23-92	1140			SS-4	NA
PZ-16D	0.5-2.5	0.0	06-04-92	1000				
	2.5-4.5	0.0	06-04-92	1005				
	4.5-6.5	0.0	06-04-92	1010				
	9.0-11.0	0.0	06-04-92	1035				
	14.0-16.0	0.0	06-04-92	1045				
	19.0-21.0	0.0	06-04-92	1055				
	24.0-26.0	0.0	06-04-92	1115			SS-7	S, H
	29.0-31.0	0.0	06-04-92	1130			SS-8	NA

TABLE 3- ntinued)
SUBSURFACE SOIL SAMPLE COLLECTION SUMMARY

Location	Depth Interval (ft-bgs)	Field Screening (ppm)	SAMPLE COLLECTION					
			Date	Time	Chemical		Geotechnical	
					ID Number	Analysis	ID Number	Analysis
PZ-17D	1.0-3.0	0.1	06-22-92	1410			SS-1	NA
	3.0-5.0	0.2	06-22-92	1415			SS-2	NA
	10.0-12.0	0.3	06-22-92	1420			SS-3	NA
	15.0-17.0	0.0	06-22-92	1425			SS-4	NA
	20.0-22.0	0.0	06-22-92	1430			SS-5	NA
	25.0-27.0	0.0	06-22-92	1440			SS-6	NA
	30.0-32.0	0.0	06-22-92	1450			SS-7	S, H
	35.0-37.0	0.0	06-22-92	1500			SS-8	NA
	40.0-42.0	0.0	06-22-92	1510			SS-9	NA

Notes:
NA = Not analyzed
NM = Not measured
bgs = Below ground surface
S = Sieve
H = Hydrometer
VO = Volatile organic compounds
SVO = Semivolatile organic compounds
M = Metals
PCB = Polychlorinated biphenyls
CN = Cyanide

Field Screening with Photovac Microtip; values shown are readings above background in parts per million (ppm).
If entry is blank, sample was not collected.

3.2.1 Locations

The locations for monitoring wells and piezometers were agreed upon between USACE, TL, and WCC during a facility reconnaissance on April 29, 1992. During field activities three monitoring well (WC-1S, WC-7S, and WC-12S) and two piezometer (PZ-1D and PZ-7D) locations were changed due to additional constraints as described on Table 3-2. These adjusted locations are shown on Figure 2-3.

3.2.2 Drilling Techniques

The same drilling techniques used for borings were also used during well and piezometer installation. Procedures presented in SOP No. 2 were used. Information concerning well and piezometer installation is summarized on Table 3-5.

A 10-1/4 inch ID working casing was set in the shallow water table during the installation of PZ-1D, WC-2D, PZ-5D, and PZ-8D, before advancing the 6 inch ID augers to continue drilling to depth. This prevented the augers from carrying potentially contaminated soil from the unsaturated zone into the water table and screened interval of the deep wells. The larger augers were advanced to either a 5 or 10 ft depth, depending on the water table elevation at each location and were removed upon completion of well installation.

The drilling rig was steam cleaned between monitoring well and piezometer locations if gross contamination was visible, or if the next location to be drilled was in a different area of concern. The drilling rig was not steam cleaned when consecutive drilling occurred at a paired monitoring well and piezometer location. The stainless steel split spoons and other sample collection equipment, including augers, and tools were decontaminated between each sample location.

3.2.3 Soil Sample Collection

Samples of the subsurface soil were collected at various depths for the monitoring wells and piezometers. These samples were submitted either for chemical analysis or

geotechnical testing. A summary of subsurface soil samples collected is presented on Table 3-4.

3.2.3.1 Chemical

The soil samples for chemical analysis were collected in the same manner as those for borings. Chemical samples were collected only from selected monitoring wells as proposed in the Work Plan.

An additional sample for VO analysis was collected from WC-2D at 4.5 to 6.5 ft depth due to the high (185-2147 ppm) field screening results with the Microtip.

Sample WC-11S-2.5-4.5 was inadvertently collected using a standard split spoon (obtained from drillers) and not a stainless steel split spoon. All standard split spoons were steam cleaned between locations.

3.2.3.2 Geotechnical

Soil obtained from split spoon sampling was also used to collect geotechnical samples from selected depths. These geotechnical samples were collected from locations and depths specified in the Work Plan or based on the discretion of the geologist. A total of 64 geotechnical samples were collected. The Work Plan proposed testing 17 of these samples representing the soil from the screened interval of seven monitoring wells and ten piezometers. Standard split spoons were used to collect soil from depths below the water table.

3.2.4 Construction Techniques

The techniques and procedures presented in SOP No. 2 were used for the installation and construction of the monitoring wells and piezometers. Modifications or clarification of specifications were agreed upon between the geologist and the USACE field representative (P. Brockman). Details were presented and summarized in graphic

TABLE 3-5

MONITORING WELL AND PIEZOMETER INSTALLATION AND SOIL SAMPLE COLLECTION SUMMARY

Location	Date Installed	Number of Samples Collected		Total Depth Drilled (feet bgs)	Screened Interval (feet bgs)	Elevation (feet msl)		Date Developed	
		Chemical	Geotechnical			Well Frame	TOC	Surge	Purge
WC-1S	06-11-92	2	1	14	4-14	7.96	7.33	06-23-92	06-30-92
PZ-1D	06-11-92	0	4	34	24-34	7.98	7.25	06-23-92	06-30-92
WC-2D	06-23-92 and 06-24-92	3	5	37	24.5-34.5	6.99	6.13	07-08-92	07-08-92
WC-3S	06-09-92	2	0	13	3-13	6.39	5.78	07-08-92	07-08-92
WC-4S	06-10-92	2	1	13	3-13	5.92	5.02	06-24-92	06-30-92
PZ-4D	06-19-92	0	6	42	29-39	6.04	5.16	06-25-92	06-30-92
WC-5S	06-12-92	2	1	13	3-13	6.24	5.56	07-09-92	07-09-92
PZ-5D	06-25-92	0	8	47	33-43	6.05	5.20	07-09-92	07-09-92
WC-6S	06-08-92	2	1	13	3-13	7.53	6.73	07-07-92	07-07-92
WC-7S	06-08-92	2	1	13	3-13	7.33	6.58	06-29-92	06-29-92*
PZ-7D	06-05-92	0	0	32	22-32	7.34	6.56	06-29-92	06-30-92
WC-8S	06-18-92	2	1	13	3-13	7.52	6.89	06-25-92	07-01-92
PZ-8D	06-18-92	0	2	34	23.5-33.5	7.49	6.79	06-25-92	07-01-92
WC-9S	06-15-92	3	1	14	4-14	8.59	8.09	07-02-92	07-02-92
PZ-9D	06-15-92	0	5	37	24-34	8.73	7.68	07-02-92	07-02,06-92
WC-10S	06-22-92	2	0	13	3-13	7.46	6.85	07-01-92	07-02-92
WC-11S	06-16-92	2	1	14	4-14	7.83	7.14	07-06-92	07-06-92
PZ-11D	06-16-92	0	2	37	24-34	7.80	7.02	07-02-92	07-06-92

TABLE 3-5 (continued)

MONITORING WELL AND PIEZOMETER INSTALLATION AND SOIL SAMPLE COLLECTION SUMMARY

Location	Date Installed	Number of Samples Collected		Total Depth Drilled (feet bgs)	Screened Interval (feet bgs)	Elevation (feet msl)		Date Developed	
		Chemical	Geotechnical			Well Frame	TOC	Surge	Purge
WC-12S	06-26-92	2	1	13	3-13	8.35	7.70	07-01-92	07-02-92
WC-13S	06-23-92	0	0	13	3-13	7.46	6.66	06-30-92	07-01-92
PZ-13D	06-23-92	0	4	35	21.5-31.5	7.48	6.85	06-30-92	07-01-92
WC-14S	06-17-92	0	2	13	3-13	7.75	7.10	07-06-92	07-06-92
WC-15S	06-17-92	0	2	13	3-13	7.72	7.01	07-07-92	07-07-92
PZ-16D	06-04-92	0	2	31	21-31	7.31	6.59	07-01-92	07-02-92
PZ-17D	06-22-92	0	9	42	29-39	6.42	5.71	06-26-92	07-01-92
Total	17 days	24	60	--	--	--	--	--	--

NOTES: bgs = Below ground surface
msl = Mean sea level
TOC = Top of casing (PVC)
well frame = metal road box protecting well casing.
All locations are flushmount construction and 2-inch diameter, schedule 40 PVC.
Bottom of screened interval is total depth of well or piezometer.
All samples collected for chemical analysis were sent to the laboratory. (see Table 3-2)
Seventeen of the geotechnical samples were sent to the laboratory for testing (see Table 5-9).
*WC-7S was pumped on 8 different days due to low recovery rate and volume.

format on Construction Diagrams prepared by the geologist. Well depths and screened intervals are presented on Table 3-5.

3.2.5 Development

All of the new monitoring wells and piezometers were developed in accordance with SOP No. 2. The groundwater in the casings was surged for two hours using a surge block. Subsequently, at least five casing volumes of groundwater was purged from each well using a centrifugal pump. Development data and information were recorded in field log books. The surge and purge dates are presented on Table 3-5.

Due to slow recharge, PZ-9D was pumped on two days. WC-7S also recharged slowly and was hand pumped on eight different days.

3.3 GROUNDWATER SAMPLE COLLECTION

Two rounds of groundwater samples were collected from the 15 new wells (WC-series), the four existing wells surrounding B-34 (MW-1 through MW-4), the existing lagoon wells LW-7 and LW-10, and the existing well ECD-4. The two sample collection rounds were scheduled 3 months apart; Round 1 from July 27 through 31, 1992, and Round 2 from October 26 through 30, 1992. A summary of all samples collected during each round is presented in Table 3-6.

Two modifications of sample locations proposed in the Work Plan were made to both rounds. Existing well ECD-1 was not sampled because TL was unable to locate the well. Piezometer PZ-9D was added to the groundwater sample collection program with approval by USACE (J. Barrett) on July 24, 1992. This location was added due to concern with an unanticipated odor and a possible product layer detected during well development.

The procedures used to purge the monitoring wells and collect groundwater samples were presented in SOP No. 3. A few modifications to these procedures were made during each round as described below.

Existing well ECD-4 is constructed of thick-walled 2 inch OD PVC riser. Due to the unexpected smaller inner diameter, a standard size stainless steel bailer would not fit in the well. Therefore, during Round 1, ECD-4 was sampled by placing a new length of polyethylene hose and foot valve (similar to that used for purging) into the well and slowly hand surging to draw groundwater for sample collection. During Round 2, a shorter, smaller diameter stainless steel bailer was used to collect the groundwater sample.

New monitoring well WC-7S was purged during each round by hand bailing. This was done because only a small volume of water (less than 4 gallons) could be evacuated from the well before it went dry. This well was allowed to recharge for at least three hours prior to sampling. The remaining wells were sampled immediately after purging or within one hour due to extremely fast recharge rates.

Extra volume of groundwater for dissolved metals samples was placed in clean glass containers for storage until the sample was filtered. During Round 1 most of the samples were filtered during or immediately after sampling. Samples were filtered using a hand operated vacuum pump and Nalgene® disposable, sterilized filter kits with 0.45 micron filters. In order to increase efficiency during Round 2, these samples were not filtered until a number of samples were collected and the field team returned to the office trailer where the filtering was performed. These samples were filtered using the same type of filter kits and an electric vacuum pump.

Two duplicate samples, two sets of MS/MSD samples, and two split samples for MRD-L were collected during each round. Two field blanks were also collected for each round, and a trip blank accompanied each shipment of volatile samples which were packed in one cooler. A trip blank was not included with the three Round 2 groundwater samples (WC-10S, WC-12S, and WC-13S) which were shipped on October 27, 1992.

Temperature, pH, conductivity and salinity were measured in a separate glass container immediately after filling all of the sample containers.

TABLE 3-6
GROUNDWATER SAMPLE COLLECTION SUMMARY

	Date and Time Collected					
Location	**Round 1 (July 1992)**		**Round 2 (Oct. 1992)**		**Requested Analyses**	**QA/QC Samples**
WC-1S	07-28-92	1410	10-28-92	1500	VO, SVO, Metals, PCB	MRD (R2)
WC-2D	07-31-92	1415	10-30-92	1450	VO, SVO, Metals, PCB	FD (R2)
WC-3S	07-29-92	1545	10-30-92	1130	VO, SVO, Metals, PCB	MRD (R1)
WC-4S	07-29-92	1005	10-29-92	1500	VO, SVO, Metals, PCB	MS/MSD (R2)
WC-5S	07-31-92	0830	10-29-92	1400	VO, SVO, Metals, PCB	MS/MSD (R1) FD (R1)
WC-6S	07-30-92	1905	10-29-92	1530	VO, SVO, Metals, PCB	
WC-7S	07-29-92	1640	10-30-92	1315	VO, SVO, Metals, PCB	
WC-8S	07-29-92	1425	10-28-92	1130	VO, SVO, Metals, CN	MRD(R1) FD(R2)
WC-9S	07-27-92	1540	10-29-92	0930	VO, SVO, Metals	
PZ-9D	07-30-92	1040	10-29-92	1052	VO, SVO, Metals	
WC-10S	09-29-92	0855	10-26-92	1422	VO, SVO, Metals, CN	
WC-11S	07-27-92	1505	10-29-92	1030	VO, SVO, Metals	
WC-12S	07-28-92	1650	10-26-92	1510	VO, SVO, Metals, CN	FD (R1)
WC-13S	07-28-92	1535	10-26-92	1625	VO, SVO, Metals	
WC-14S	07-27-92	1740	10-27-92	1540	VO, SVO, Metals	
WC-15S	07-28-92	0900	10-27-92	1325	VO, SVO, Metals	
MW-1	07-30-92	0915	10-30-92	1035	VO, SVO, Metals, PCB	MS/MSD (R2)
MW-2	07-30-92	1800	10-30-92	1530	VO, SVO, Metals, PCB	
MW-3	07-31-92	1520	10-30-92	1415	VO, SVO, Metals, PCB	
MW-4	07-31-92	0935	10-30-92	0900	VO, SVO, Metals, PCB	
LW-7	07-28-92	1030	10-27-92	1445	VO, SVO, Metals	MS/MSD (R1)
LW-10S	07-28-92	1855	10-27-92	1400	VO, SVO, Metals	
ECD-4	07-30-92	1205	10-28-92	1400	VO, SVO, Metals, CN	MRD (R2)

TABLE 3-6 (continued)

GROUNDWATER SAMPLE COLLECTION SUMMARY

	Date and Time Collected			
Location	**Round 1 (July 1992)**	**Round 2 (Oct. 1992)**	**Requested Analyses**	**QA/QC Samples**
FB072892	07-28-92 1810		VO, SVO, Metals, CN	Field Blank
FB073092	07-30-92 1620		VO, SVO, Metals, PCB	Field Blank
FB102992		10-29-92 1240	VO, SVO, Metals, PCB	Field Blank
FB103092		10-30-92 1300	VO, SVO, Metals, PCB	Field Blank
TB072892	07-28-92		VO	Trip Blank
TB072992	07-29-92		VO	Trip Blank
TB073092	07-30-92		VO	Trip Blank
TB073192	07-31-92		VO	Trip Blank
TB073192B	07-31-92		VO	Trip Blank
TB102892		10-28-92	VO	Trip Blank
TB102992		10-29-92	VO	Trip Blank
TB103092		10-30-92	VO	Trip Blank

Notes:
- WC = Monitoring Well (Woodward-Clyde)
- PZ = Piezometer
- MW = Existing Monitoring Well
- LW = Existing Monitoring Well in Former Lagoon Area
- ECD = Existing Monitoring Well (East Coast Drilling)
- (R1) = Round 1
- (R2) = Round 2

Quality Assurance/Quality Control (QA/QC) Samples:
- FD = Field Duplicate
- MRD = Missouri River Division Split
- MS/MSD = Matrix Spike/Matrix Spike Duplicate
- FB = Field Blank
- TB = Trip Blank

Requested Analyses:
- VO = Volatile organic compounds
- SVO = Semivolatile compounds
- Metals = Total and dissolved fractions
- PCB = Polychorinated biphenyls
- CN = Cyanide

For the sample parameters which required preservation, the laboratory added preservative to the sample containers before delivery, except for volatile organics. The field team added hydrochloric acid to each 40 ml glass vial just prior to filling them with sample water for volatile organics analysis.

During Round 1, MRD-L notified WCC that the split samples collected on July 29, 1992 and sent to MRD-L, were not properly preserved for metals analysis ($HN0_3$ added to lower pH to below 2). MRD-L was concerned that the metals samples sent to NEI for analysis were also not properly preserved. In a letter sent to WCC (M. Jacobson) on August 5, 1992, NEI confirmed that the pH of the metals samples were checked upon receipt at the laboratory. Additional $HN0_3$ was added as necessary to further preserve the samples to pH below 2. The pH of the metals and cyanide samples were checked in the field and adjusted as required for correct preservation during Round 2. In addition, NEI also checked the pH of all samples from Round 2 upon receipt and adjusted accordingly.

3.4 SURFACE SOIL SAMPLE COLLECTION

Ten surface soil samples (SF-1 through SF-10) were collected from the causeway (Area 1) on July 8, 1992. The samples were collected at a depth of 0 to 6 inches from areas which were not covered with debris or dense vegetation. A summary of information related to surface soil sample collection is presented in Table 3-7.

A visual reconnaissance, including sample location selection, of the entire causeway was performed prior to sample collection by an Asbestos Hazard Emergency Response Act (AHERA) trained professional and the Field Manager. All samples were collected in accordance with the Work Plan except with regard to the sample containers. The soil samples were placed in 1 quart clear plastic resealable bags and not in glass containers. Each sample was double-bagged for shipment to the laboratory, Omega, for asbestos analysis. A duplicate sample was collected at location SF-10.

3.5 SEDIMENT AND SURFACE WATER SAMPLE COLLECTION

Sediment and surface water samples were proposed to be collected at eleven locations in the intertidal flats (Area 1) and two locations in the drainage ditch (Area 8).

The Work Plan proposed that these samples be collected during a rainstorm event or as soon as possible after a storm event. Weather conditions during September and October were not favorable due to the lack of a rainstorm event occurring on a weekday. The Project Managers from WCC and USACE agreed that the samples should be collected by the end of October.

Samples were collected on October 22, 23, 27, and 28, 1992. The four-day duration of this activity was due to the tide requirements for sample collection logistics (i.e., low tide in order to access sediments at outfall locations). A summary of the samples collected for this activity is presented in Table 3-8. The sample collection techniques were presented in SOP Nos. 10 and 11.

3.5.1 Intertidal Flats (Area 1)

All of the sediment and surface water samples located in the intertidal flats were collected on October 23, 1992.

A 19-foot long, flat-bottomed boat was used to access these locations. Location LT2 was moved westward approximately 200 feet in order to intercept a small shallow channel in the sediment which is formed by the continual flow of Outfall 007.

Location IBG was in an upgradient area between the facility intertidal area and the public boat launch approximately 2,000 feet to the north. This was also on the upstream side of the long rock jetty extending from the west bank of the Housatonic River.

Surface water samples were collected using the container immersion technique. Sediment samples were collected using a 22-inch, 4-inch diameter hand corer. A hard plastic liner was inserted into the cover to permit extrusion of the sediment into stainless

TABLE 3-7

SURFACE SOIL SAMPLE COLLECTION SUMMARY

Sample ID Number	Time Collected	General Description of Sample Area (Ground Surface; Vegetation)
SF-1	1047	level; thick low vegetation
SF-2	1042	level with concrete debris piles; grassy and thick vegetation
SF-3	1035	uneven with large asphalt and concrete debris piles; variable and thin with a few trees
SF-4	1030	uneven with asphalt and concrete debris; sparse vegetation
SF-5	1008	uneven with concrete debris; sparse vegetation with phragmites
SF-6	1000	uneven with debris piles; variable vegetation
SF-7	0955	level; sparse, very low vegetation
SF-8	0950	uneven with asphalt debris in area; thick, low vegetation
SF-9	0945	level; thick, low vegetation
SF-10	0940	level; thick, low vegetation
SF-DUP	0940	(duplicate sample of SF-10)

Notes: All samples collected on July 8, 1992 from 0-6 inch interval below surface grade.
All samples analyzed for Bulk Asbestos by Polarized Light Microscopy, Method: EPA 600/MA-82-020, by Omega Laboratory.

All samples: Typically a sandy soil with some silt. All gravel-sized or larger rocks and all organic material removed from sample before transfer to sample container.

TABLE 3-8

SEDIMENT AND SURFACE WATER SAMPLE COLLECTION SUMMARY

Location	Sample I.D. Number	Matrix	Date Sample Collected	Time Sample Collected	QA/QC Samples
Outfall Stations					
Outfall 001	01-SW	SW	10-22-92	1155	
	01-0-12	SD	10-28-92	0930	
	01-12-24	SD	10-28-92	0935	
Outfall 002	02-SW	SW	10-22-92	1229	
	02-0-12	SD	10-28-92	0735	
	02-12-12	SD	10-28-92	0740	
Outfall 003	03-SW	SW	10-22-92	1235	
	03-0-12	SD	10-28-92	0810	
	03-12-24	SD	10-28-92	0815	
Outfall 004	03-SW	SW	10-22-92	1345	
	04-0-12	SD	10-28-92	0855	
	04-12-24	SD	10-28-92	0900	
Outfall 005	05-SW	SW	10-22-92	1245	
	05-0-12	SD	10-27-92	0830	
	05-12-24	SD	10-27-92	0835	
Outfall 006	06-SW	SW	10-22-92	1300	MS/MSD
	06-0-12	SD	10-27-92	0815	
	06-12-24	SD	10-27-92	0820	
Outfall 007	07-SW	SW	10-22-92	1330	MRD
	07-0-12	SD	10-28-92	0840	MRD
	07-12-24	SD	10-28-92	0845	
Outfall 008	08-SW	SW	10-22-92	1510	
	08-0-12	SD	10-27-92	0950	
	08-12-24	SD	10-27-92	0955	FD(DUP-SD)
Upgradient/ Background	08-BG-SW	SW	10-22-92	1515	
	08-BG-0-12	SD	10-27-92	0930	
	08-BG-12-24	SD	10-27-92	0935	
Field Blank	FB102892	--	10-28-92	1005	FB
Trip Blank	TB102292	--	10-22-92	--	FB
Trip Blank	TB102792	--	10-27-92	--	TB
Trip Blank	TB102892	--	10-28-92	--	TB

TABLE 3-8 (continued)

SEDIMENT AND SURFACE WATER SAMPLE COLLECTION SUMMARY

Location	Sample I.D. Number	Matrix	Date Sample Collected	Time Sample Collected	QA/QC Samples
Intertidal Stations Low Tide 1	LT1-SW LT1-0-12 LT1-12-24	SW SD SD	10-23-92 10-23-92 10-23-92	0910 0930 0940	
Low Tide 2	LT2-SW LT2-0-12 LT2-12-24	SW SD SD	10-23-92 10-23-92 10-23-92	1040 1050 1100	FD(DUP-SW)
Low Tide 3	LT3-SW LT3-0-12 LT3-12-24	SW SD SD	10-23-92 10-23-92 10-23-92	1135 1140 1150	
Upgradient/ Background	IBG-SW IBG-0-12 IBG-12-24	SW SD SD	10-23-92 10-23-92 10-23-92	1230 1240 1245	
Field Blank	FB102392	--	10-23-92	1545	FB
Trip Blank	TB102392	--	10-23-92	--	FB

TOTALS Matrix	Total Samples	Collection 10-22-92	Dates 10-23-92	10-27-92	10-28-92
SW	13	9	4	0	0
SD	16	0	8	8	10
QA/QC Samples	11	3	3	2	3

Notes:
- SW = Surface Water
- SD = Sediment
- BG = Background
- LT = Low Tide
- IBG = Intertidal Background

Quality Assurance/Quality Control (QA/QC) Samples:
- FD = Field Duplicate
- MRD = Missouri River Division Split
- MS/MSD = Matrix Spike/Matrix Spike Duplicate
- FB = Field Blank
- TB = Trip Blank

All samples were analyzed for volatile and semivolatile organic compounds, metals, PCB, and cyanide.
Trip Blanks were analyzed for volatile organic compounds only.
Sample depth intervals (inches below ground surface) are indicated by numbers after location abbreviation in Sample ID.

steel bowls for sample collection. The corer and bowls were washed in the river water and rinsed with DI water between sample locations. The liners were used only once.

3.5.2 Outfalls

All of the surface water samples from the eight outfalls and the one background location (Area 8) were collected on October 22, 1992. These samples were collected by sample container immersion. The corresponding sediment samples were collected on October 27 and 28, 1992 using a shovel and laboratory-decontaminated stainless steel spoons to dig into the sediment to a depth of 2 feet.

3.5.3 Dry Well (Building 19)

The dry well located in the north end of Building 19 was scheduled to be sampled on October 26, 1992. The dry well exists as a 2 foot diameter steel cover in a concrete floor area. Upon removal of the steel cover, the surface level of the material in the dry well was measured at 2.3 feet below the floor grade. The material in the dry well was determined to be either concrete or cement covered by a thin layer of dust and debris.

Discussions with personnel in the building indicated that the dry well had been filled in with the cement when the building was enlarged in 1988.

A sample was not collected from the dry well. No alternate locations for sample collection were identified in the Work Plan or appeared to be acceptable during a brief area reconnaissance.

3.6 STILLING WELL INSTALLATION

The Work Plan proposed the installation of two stilling wells for the monitoring of surface water levels and tidal variations in comparison to groundwater levels at SAEP.

The stilling wells (STW-1 and STW-2) were installed on July 1, 1992. Both locations as proposed in the Work Plan were moved in adjustment to field conditions.

The stilling wells consist of 2-inch outer diameter PVC well screen sections with 0.010 inch slot (No. 10). The outside of each well was calibrated to the 0.5-inch interval over the entire length, with the zero mark at the bottom.

STW-1 was installed on the southeast tip of the Causeway (Area 2) on the corner of an existing concrete platform. This platform is used by TL for wind and noise monitoring equipment and is situated partially inside the intertidal zone of the Housatonic River. Using this platform would permit installation of STW-1 in the intertidal area and avoid installation within navigable waters, which would be illegal. The 9-foot length of PVC was attached to an existing corner fence post of the platform and anchored into the sediment and rocks. The installation was performed during low tide. The base is usually exposed (approximately 1.5 feet above water level) during low tide periods. A small metal pipe was partially exposed above the water at low tide approximately 17 feet from the same corner of the platform and the stilling well. The elevation of this pipe was surveyed so that it could be used for low tide measurements.

STW-2 was installed in the Drainage Ditch (Area 8) on the south side of the facility. The 5 foot length of PVC was attached to the side of a stormwater drain pipe cover. Both stilling wells were installed so that they could be seen at a short distance and a surface water reading obtained from the rule marks on them. Readings were obtained from the wells during the Synoptic Groundwater Level Measurements (Section 3.7.1). The elevation and location of each well and the metal pipe near STW-1 were surveyed.

3.7 HYDROGEOLOGIC STUDY

The hydrogeologic study consisted of four types of activities. These activities are discussed in the following sections.

3.7.1 Synoptic Groundwater Level Measurements

Two rounds of groundwater level monitoring were proposed in the Work Plan. Each round was to include measurements of water level, salinity and conductivity during a sequential high and low tide cycle. All existing and new monitoring wells and

piezometers (a total of 52 locations) and the two stilling wells were included in this activity. Six of the existing wells (LW-5D, LW-5DI, LW-9I, LW-9D, LW-10I, and LW-10D) were not identified in the Work Plan but were encountered during the first round of data measurement on September 1, 1992. These wells were added to the synoptic program.

Each set of measurements during a tide were collected over a two to three-hour period. Groundwater levels were measured using an electronic water level indicator. Salinity and conductivity were measured by lowering a probe into the well and recording the instrument reading (SCT meter). All equipment which came in contact with groundwater was sprayed with distilled water or distilled water and non-phosphate detergent mix and wiped with a paper towel between each location.

The first round of data measurements (Round 1 Synoptic) occurred on September 1, 1992. The low tide was at 1001 and the high tide at 1539. Measurements during low tide started at 1026 and were completed at 1310. Due to problems encountered with opening well caps or locating older wells, measurements were not obtained at 10 locations (WC-1S, PZ-1D, WC-4S, PZ-4D, WC-8S, PZ-8D, PZ-13D, PZ-16D, MW-1, and LW-8). In addition, instrument failure prevented measurement of salinity and conductivity at nine locations (WC-14S, WC-15S, LW-4, LW-6, LW-7, LW-10S, LW-10I, LW-10D, and LW-12). All locations were measured between 1545 and 1815 during the high tide.

The second round of synoptic data measurements (Round 2 Synoptic) occurred on November 16, 1992 with low tide at 1022 and high tide at 1554. In order to obtain more data for the hydrogeological study, two additional rounds of groundwater level measurements were obtained during Round 2. These additional measurements were performed at the low and high tide peaks. Proposed data was collected from all locations during the Round 2 Synoptic, including the additional two sets of water levels.

3.7.2 Long Term Groundwater Level Monitoring

The Work Plan proposed the monitoring of groundwater levels in six new wells and piezometers for a 24-hour period in order to evaluate tidal influences.

WCC installed battery-operated automatic water level data recorders (Aquistar) into monitoring wells WC-1S, WC-5S, WC-13S, and piezometers PZ-1D, PZ-5D, PZ-13D, and PZ-17D on September 18, 1992. The locations were selected after reviewing the data collected during the first round of synoptic groundwater level measurements obtained on September 1, 1992. The synoptic data indicated a strong tidal influence on groundwater in several of these locations. A summary of information related to this long term monitoring is presented in Table 3-9.

The groundwater levels, transducer cable length, and time were recorded as each instrument was installed. The instruments were removed three days later on September 21, 1992. The data stored during the measuring period was downloaded in WCC's Wayne, NJ office onto computer diskette.

3.7.3 Aquifer Permeability Testing

For determining aquifer permeability, the Work Plan proposed either slug testing and/or single-well pumping tests be performed in 14 monitoring wells or piezometers.

In order to minimize the amount of water requiring storage in drums and subsequent disposal, the pumping tests were proposed to be performed in conjunction with development of the wells.

On June 25, 1992, a pumping test was attempted on WC-1S. During the test, however, the inspector noted that the groundwater level in the well was rising during pumping instead of dropping. The test was stopped. It was determined that this rising level could be a result of the well not being developed, the influence of a rising tide, or a combination of these factors.

TABLE 3-9

LONG TERM GROUNDWATER LEVEL MONITORING

LOCATION	DATE AND TIME RECORDER INSTALLED		DATE AND TIME RECORDER REMOVED		DURATION OF MONITORING	
Monitoring Well						
WC-1S	09-18-92	1107	09-21-92	1625	77 hrs.	18 min.
WC-5S	09-18-92	1028	09-21-92	1645	78 hrs.	17 min.
WC-13S	09-18-92	1047	09-21-92	1636	77 hrs.	11 min.
Piezometer						
PZ-1D	09-18-92	1106	09-21-92	1624	77 hrs.	18 min.
PZ-5D	09-18-92	1025	09-21-92	1644	78 hrs.	19 min.
PZ-13D	09-18-92	1048	09-21-92	1635	77 hrs.	47 min.
PZ-17D	09-18-92	0955	09-21-92	1656	79 hrs.	01 min.

Notes: hrs. = Hours
min. = Minutes
Automatic water level recorders (Aquistar) were used to collect data.

Subsequently, slug tests (rising and falling head) were planned instead of the pumping tests. On August 13 and 14, 1992, the slug tests were performed on 6 new monitoring wells and 10 piezometers in accordance with procedures presented in SOP No. 4. The aquifer test information is presented on Table 3-10.

The data was also downloaded and evaluated in accordance with SOP No. 4. Of the 26 tests performed, 19 were classified as valid and used to produce graphic test plots and analysis. These were for three monitoring wells and nine piezometers for a total of 12 locations. This represented an 80% completeness of the tests in comparison to the 14 proposed locations in the Work Plan. The locations appear to be representative of the facility due to their encompassing locations.

3.7.4 Geotechnical Testing

Soil samples were collected from selected monitoring well and piezometer borings and submitted for geotechnical testing. The testing of the samples was performed by Woodward-Clyde Consultants Geotesting Services, Inc. (WCCGS) in Clifton, New Jersey in December 1992. These samples were identified on Table 3-4. Porosities of the soils were determined using sieve analysis and hydrometer (Atterberg Limits) tests.

The data reported for the seven monitoring well and ten piezometer samples tested are presented on Table 5-5. The locations chosen provide a representative selection of various soil conditions at the facility based on soil descriptions determined by the inspecting geologist during drilling activities. The soil samples were selected from the depth corresponding to the screened interval of each well or piezometer. The inspecting geologist collected the soil from split-spoon samples and transferred it into standard geotechnical sample containers (8 oz. clear glass). The sample containers were labelled with the project name and number, boring location number, depth interval and date collected.

3.8 SURVEY

A licensed, Connecticut-registered, professional surveyor, O'Brien Associates, Inc. of Middletown, CT was subcontracted to survey the location and elevation of all sample collection locations and perform a property boundary survey.

The locations (borings, monitoring wells, piezometers, surface soil, and stilling wells) were vertically and horizontally surveyed to the nearest 0.1 ft. and 1.0 ft., respectively. Top of well casings were measured to the nearest 0.01 foot. Sediment and surface water sample locations were surveyed horizontally. All locations and elevations were plotted on an existing site plan to a scale of 1 inch represents 100 ft.

Boundaries of the facility property including the Riparian Rights on the Housatonic River, and any easements on or through the facility were also located and surveyed on a plat map.

3.9 SAMPLE IDENTIFICATION AND HANDLING PROCEDURES

The procedures for sample handling, including identification and labeling, chain-of-custody protocol, and packaging and shipping were presented in Section 5.0 and SOP No. 6 of the CDAP. Minor modifications to these procedures were made during field activities and are discussed below. There was no indication that these modifications had an impact on the security or integrity of the samples or on the validity of the data associated with the samples.

The identification of the samples was modified by the laboratory (NEI) upon receipt to facilitate the identification of samples in the laboratory computer database system. Samples with greater than 8 digits, primarily the subsurface soil samples, were shortened as they appear in the data reports. In addition, NEI assigned another unique number to each sample corresponding to the log-in of the samples and used this laboratory number to track the sample during analysis and reporting.

TABLE 3-10

AQUIFER TESTING SUMMARY
RISING AND FALLING HEAD TESTS

Location	Type of Test	Date of Test	Time of Test	Valid Data*
WC-1S	RH	08-14-92	0929	
WC-4S	RH	08-13-92	1550	X
WC-5S	RH	08-14-92	1100	X
WC-8S	FH	08-14-92	0935	X
WC-9S	RH	08-13-92	0925	
WC-11S	RH	08-13-92	1133	
PZ-1D	RH	08-13-92	1351	X
PZ-1D	RH	08-14-92	0945	X
PZ-4D	FH	08-13-92	1557	X
PZ-4D	RH	08-13-92	1607	X
PZ-5D	FH	08-13-92	1105	X
PZ-5D	RH	08-14-92	1115	X
PZ-7D	FH	08-13-92	1220	
PZ-7D	RH	08-13-92	1236	X
PZ-8D	FH	08-13-92	1357	X
PZ-8D	RH	08-13-92	1407	X
PZ-9D	FH	08-13-92	0930	X
PZ-9D	RH	08-13-92	0950	X
PZ-11D	FH	08-13-92	1140	X
PZ-11D	RH	08-13-92	1155	X
PZ-13D	FH	08-13-92	1421	
PZ-13D	RH	08-13-92	1431	
PZ-16D	FH	08-13-92	1320	
PZ-16D	RH	08-13-92	1330	X
PZ-17D	FH	08-13-92	0825	X
PZ-17D	RH	08-13-92	0837	X

NOTES: *Blank indicates invalid test data results due to rapid water level responses for which data could not be accurately quantified in terms of hydraulic conductivity of the aquifer. Data from tests at these locations not used for graphic plots and analysis.

PZ = Piezometer
WC = Monitoring Well
FH = Falling Head
RH = Rising Head

The format for identification of field blank and trip blank samples was not presented in SOP No. 6. A standard format was developed and used for these samples. Field blank and trip blank samples were identified using either "FB" or "TB", as appropriate, followed by the 6-digit date in month-day-year format. For example, FB062392 identifies field blank collected on June 23, 1992. Duplicate samples were identified by using the 3 letter abbreviation "DUP" in conjunction with other codes or numbers which did not correspond to any field sample location numbers. The identity of the field sample and the associated duplicate sample was blind to the laboratory. Duplicate samples are discussed in Section 5.2.10.

Field samples which were assigned to be used as matrix spike and matrix spike duplicate (MS/MSD) by the laboratory were chosen by samplers and identified on the labels and chain-of-custody form by using the identical corresponding field sample number followed by the abbreviation "MS" or "MSD".

Sample identification information listed in SOP No. 6 was recorded on the sample labels except the sample matrix, which was listed only on the chain-of-custody.

The majority of field samples submitted to NEI for analysis were picked up at SAEP either by laboratory personnel or a local commercial ground transportation courier service. Soil samples collected on June 5 and 12, 1992 were shipped to NEI via Federal Express on each day. All split samples collected for MRD-L analyses were also shipped via Federal Express.

The number, volume and type of sample containers used for sample collection were modified from those presented in the CDAP. All sample containers were supplied by NEI, except those for asbestos analysis which were supplied by WCC. The different containers used, as shown on Table 3-11, did not adversely affect sample analysis.

Sample containers were not placed inside recloseable clear plastic bags for all media. Most of the soil and sediment samples were placed in these bags. The water samples, however, were not due to the size of some sample containers (1/2 gallon). Most 40 ml vial sample containers for volatile organic analysis were wrapped in aluminum foil and

then sealed in plastic bags. Glass containers for water samples were wrapped in plastic packaging material prior to shipment.

All samples, except surface soil samples submitted for asbestos analysis, were packed with ice (either chemical reusable ice packs or ice cubes sealed in plastic bags) inside coolers. A summary of preservation methods used is presented on Table 3-11.

3.10 DECONTAMINATION AND CLEANING PROCEDURES

In order to prevent cross-contamination of samples from sample collection equipment and tools, decontamination and cleaning procedures were used during field activities. The methodologies presented in SOP No. 7 were used during field activities for decontamination with some modifications as described below.

All stainless steel bailers used for groundwater sample collection were decontaminated by an independent laboratory, Lisano Laboratory in West Paterson, NJ, prior to each round. The polyethylene cord used to lower the bailer into the well was disposed of after completion of sample collection at each well.

All polyethylene hose used during well and piezometer development and during both rounds of groundwater sample collection was wiped with deionized water and paper towels as it was lowered into the casing. The hose was cut into pieces and disposed of after purging each well.

The slugs and data logger probes used during aquifer testing were cleaned between locations with a non-phosphate detergent wash and deionized water rinse.

The Aquistar probes and connector cord were also washed with a non-phosphate detergent and rinsed with deionized water prior to placement inside each well. Stainless steel spoons used for sample collection of soil and sediment were either decontaminated by Lisano or in the field using procedures in SOP No. 7.

TABLE 3-11

SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES FOR CHEMICAL ANALYSES

Parameter	Matrix	SW846 Method	Number, Volume, and Type of Containers per Sample	Preservation	MAXIMUM HOLDING TIME	
					Extraction	Analysis
Volatile Organics	GW, SW	8240	(2)-40 ml amber glass vials with Teflon-lined septa	4°C and 4 drops HCl to pH <2	--	14 days
	D	8240	(2)-40 ml amber glass vials with Teflon-lined septa	4°C	--	14 days
	S	8240	(1)-4 oz wide-mouth glass bottle with Teflon-lined lid	4°C	--	14 days
Semivolatile Organics	GW, SW	3510, 8270	(1)-1/2 gallon amber glass bottle with Teflon-lined lid	4°C	7 days	40 days
PCBs	GW, SW	3510, 3520, 8080	(1)-1/2 gallon amber glass bottle with Teflon-lined lid	4°C	7 days	40 days
Metals[1]	GW, SW	6010 (7060, 7421, 7470, 7740)[2]	(1)-1 quart plastic[4]	HNO_3 to ph <2	--	6 months[3]
Cyanide	GW, SW	9010, 9012	(1)-1 pint plastic[4]	4°C and NaOh to pH >12	--	14 days
Semivolatile Organics	S, D	3540, 8270,	S(1)-250 ml amber glass bottle	4°C	14 days	40 days
PCBs	S, D	3550, 8080	with Teflont-lined lid (1 bottle for all analyses)	4°C	14 days	40 days
Metals	S, D	1311[5], 6010 (7060, 7421, 7471, 7740)[2]	D-(1)-1 quart amber glass bottle with Teflon-lined lid (1 bottle for all analyses)	4°C	7 days (TCLP)[5]	6 months[3]
Cyanide	S, D	9010, 9012		4°C	--	6 months
Asbestos	S	EPA-600/M4-82-020	(1)-1gallon resealable plastic bag	(none)	(none)	

TABLE 3-11, Continued

SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES FOR CHEMICAL ANALYSES

NOTES:
[1] Metals include aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc.
[2] 7060 (arsenic), 7421 (lead), 7470, 7471 (mercury), 7740 (selenium).
[3] Holding time for mercury (Hg) is 28 days.
[4] Plastic indicates high density polyethylene. One bottle each for groundwater total and dissolved metals.
[5] TCLP Method 1311 is for extraction soil samples RCRA metals analysis only.

GW	=	groundwater	ml	=	milliliters
SW	=	surface water	L	=	liters
S	=	soil	°C	=	degrees Celsius
D	=	sediment	oz.	=	ounce

Extraction holding times are elapsed days from date of sample collection ot date of extraction.
Analysis holding times are elapsed days from date of extraction to date of analysis.

Water level indicator probes and connector cables which came in contact with groundwater were simultaneously rinsed with deionized water and wiped with paper towels as the instrument was removed from the casing. Non-phosphate detergent wash was also performed after using the equipment in wells suspected to have a product layer or which left a heavy residue on the equipment (especially WC-2D, WC-3S, WC-4S, WC-5S, WC-9S, MW-2, MW-3, and ECD-4).

During intertidal sediment sample collection, the hand corer had hard plastic liners inserted for each location. These liners were discarded between sampling locations. Stainless steel bowls were rinsed and wiped with paper towel at each location before moving the boat to the next location. Aluminum foil was used to line the bowls during sample homogenization. This was also done during outfall sediment sample collection. The aluminum foil was discarded between sampling locations.

The drilling rig and associated equipment such as augers, was steam cleaned between locations except when consecutive drilling occurred at a paired location (monitoring well and piezometer). In these instances, only the augers and tools which would come in contact with the soil or groundwater were steam cleaned and not the rig. All PVC well materials were prepackaged and then steam cleaned prior to use.

Field blank samples were collected as a check of the effectiveness of decontamination procedures. A summary of the field blank samples collected during field investigation activities is presented in Table 3-12. The procedures for collecting field blank samples involved rinsing the decontaminated sample collection apparatus (ie, stainless steel split spoons, bailers) with laboratory-supplied, analyte-free, deionized water and collecting the rinse water directly into appropriate sample containers. The same parameters that were analyzed in the field sample collected with the apparatus were analyzed in the corresponding field blank.

Potable water, supplied by TL to the trailer area, was used for decontamination with the steam cleaner and also in the drill rig for use during well installation. In order to determine the presence of possible contaminants in this water, two samples were collected on June 19, 1992.

Water sample Source 1 was collected directly from a garden hose attached to the supply pipe. The second water sample, Source 2, was collected from the hose connected to the water tank on the drill rig. Both samples were submitted for analysis of TCL volatile and semivolatile organic compounds.

A pad was constructed for the collection of wash water produced during decontamination activities of the drill rig and equipment. The pad was constructed of multiple layers of thick, plastic and a fibrous non-woven polyester geotextile supported on the sides by hay bales. The wastewater from decontamination was pumped from the decontamination pad into storage drums.

3.11 FIELD INSTRUMENT CALIBRATION

During field activities, the calibration and general maintenance of field instruments was the responsibility of the Field Manager. Various field team members performed instrument calibration and calibration forms were used to record this information.

The procedures for calibration were specified in manufacturer's manuals and a summary table was presented in the CDAP. A Microtip (Photovac) was used as the primary instrument for organic vapor screening during all drilling. An HNu PI-101 was used as a backup instrument.

The Field Manager, as Site Safety and Health Officer, ensured that field equipment was available for monitoring the conditions of the various tasks and field activities. Completed calibration forms are stored in the project file.

The Microtip was used during drilling for monitoring both the ambient air for health an safety considerations, and the soil samples for screening and selecting sample intervals for chemical analysis. The Microtip was used for screening samples in conjunction with visual identification. The Microtip was also used to monitor groundwater which was purged during the development of monitoring wells and piezometers.

TABLE 3-12

SUMMARY OF FIELD BLANK SAMPLES

Associated Matrix	Field Blank Number	Time Collected	Corresponding Field Sample	Requested Analyses
Soil	FB060492	1525	BR-10-3-5	VO, SVO, Metals, PCB, CN*
	FB062392	1530	WC-2D-2.5-4.5	VO, SVO, Metals PCB, CN*
	FB061892	0900	WC-8S-0.5-2.5	VO, SVO, Metals
Groundwater				
Round 1	FB072892	1810	LW-10S	VO, SVO, Metals, CN*
	FB073092	1620	MW-2	VO, SVO, Metals, PCB
Round 2	FB102992	1240	WC-6S	VO, SVO, Metals, PCB
	FB103092	1300	MW-3	VO, SVO, Metals, PCB
Sediment	FB102392	1545	Intertidal Stations	VO, SVO, Metals, PCB, CN
	FB102892	1005	Outfall Stations	VO, SVO, Metals, PCB, CN

Note: Dates of collection are 6-digit number after 'FB' designation in month-day-year format.
Soil refers to subsurface soil.
VO = Volatile organic compounds
SVO = Semivolatile organic compounds
PCB = Polychlorinated biphenyls
CN = Cyanide

No Field Blanks were collected for surface water due to sample collection technique of bottle immersion.

*Due to limited number of QC samples proposed for the sampling program, these Field Blank samples, were analyzed for cyanide even though cyanide analysis was not required for the corresponding field samples.

An HNu was used during other activities, primarily Round 1 groundwater sample collection, for health and safety monitoring.

3.12 FIELD DOCUMENTATION

Documentation of observations and data acquired in the field provides information on the collection of samples and data, and also provides a permanent record of field activities. Various formats were used to record this information during field activities. These are discussed below.

3.12.1 Log Books

Permanently bound field log books were used to record most information. Log book entries were made using black or blue permanent ink.

The FM maintained a log book during all field activities. The WCC geologist supervising the drilling also kept a log book. Other field personnel recorded entries only when their activities or data were not being recorded in one of these log books or on data sheets.

Data collected during the synoptic groundwater level measurement rounds were recorded directly onto field data forms.

3.12.2 Boring Logs

Boring log forms (HTW Drilling Logs) were supplied by USACE. The HTW Drilling Logs were completed by the WCC geologist during boring advancement. These boring logs are in the Project File.

3.12.3 Monitoring Well and Piezometer Construction Forms

A form providing information related to the construction of each of the monitoring wells or piezometers was completed by the WCC geologist. These forms are in the Project File.

3.12.4 Sample Collection Field Sheets

As a WCC internal summary of data and information related to the collection of each sample, a member of the field team completed a field sheet for each sample location. These field sheets either combined information which was recorded in various log books and/or forms such as the boring log and chain-of-custody, or were the primary documentation for data recording. Data and information concerning soil, sediment and surface water samples were recorded on Sample Collection Field Sheets. Groundwater sample collection data, including purge information, was recorded on Groundwater Sample Collection Logs and not in log books. The Sample Collection Field Sheets and Groundwater Sample Collection Logs are in the Project File.

3.12.5 Chain-of-Custody Forms

All samples shipped to a laboratory were recorded on a Chain-of-Custody (COC) form. All COC forms were checked by the FM for accuracy and a copy was retained by WCC. These COC forms accompanied the samples during shipment. Copies of completed COC forms are included in sample data reports.

3.12.6 Daily Quality Control Reports

Daily Quality Control Reports are discussed in Section 4.0 of this QCSR.

3.13 WASTE HANDLING AND DISPOSAL

Residual soil removed from borings during drilling, and all groundwater purged from monitoring wells and piezometers were containerized and stored in 55-gallon steel

drums. All of the drums were permanently labelled with an identification number. The FM maintained a log listing the contents of each drum.

Contaminated personal protective supplies such as Tyvek, boot covers and gloves and other contaminated waste material, such as paper towels and plastic sheeting were also placed into storage drums.

Drums were stored within a locked, fenced area in the south parking lot of the facility.

In order to characterize the drummed soils, samples were collected from selected drums on September 21, 1992. These five composite samples, representing the five areas of concern in which drilling occurred, were sent to Ortek Environmental Laboratory (Ortek) in Green Bay, Wisconsin for analysis. The samples were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) volatile and semivolatile organic compounds, TCLP metals, pH, reactivity and ignitability. The data from chemical analysis of individual samples and the results of the characterization analysis were used to determine applicable waste disposal options. The Environmental Department of TL selected waste disposal facilities and WCC coordinated activities related to waste disposal.

The drummed water was removed on January 12, 1993 by Clean Harbors, Inc. of Bristol, CT. The drummed solid material (soil, asphalt, PPE) was removed from SAEP on February 15, 1993 by Chemical Waste Management, Inc. of Model City, NY.

4.0
SUMMARY OF DAILY QUALITY CONTROL REPORTS

During the field investigation Daily Quality Control Reports (DQCRs) were completed by the FM. This section provides a brief summary of the information presented in the DQCRs. A total of 52 reports were written for the field activities which occurred on various days between May 28, 1992 and November 17, 1992. The schedule of field activities performed during the investigation was presented on Figure 3-1.

A DQCR was not prepared for most work performed by surveyor and waste disposal subcontractors. Surveying began on September 4, 1992 and field activities related to it occurred on various days until completion in late November 1992. Waste drum pick up and disposal occurred in January and February 1993.

4.1 REPORT FORMAT

The reports were standardized by using a consistent format. The following headings were used as the format for the 2-page report:

- Project Name
- Project Number
- Report Number
- Date
- Work Performed/Activities Conducted
- Equipment Used on Site
- Quality Control Activities
- Safety and Health Levels and Activities
- Problems Encountered/Corrective Action Taken
- Special Notes
- Activities Scheduled for the Next Working Day

A list of personnel conducting field activities was maintained on a Daily Sign-in and Sign-out Log. Each log was attached to the DQCR and originals of both forms are stored in the Project File. Copies of the DQCRs are presented in Appendix A. Copies of the Daily Sign-in and Sign-out Log are not included with the DQCRs in Appendix A.

4.2 ACTIVITIES PERFORMED

Descriptions and specific information related to the field activities performed during the investigation are discussed in Section 3.0 of this QCSR. These activities include the following:

- drilling and collections of subsurface soil samples during boring advancement
- installation, construction, and development of groundwater monitoring wells and piezometers
- groundwater, surface soil, sediment, and surface water sample collection
- hydrogeological study measurements and testing
- surveying of sample locations
- decontamination of equipment and supplies
- waste handling and disposal

4.2.1 Subcontractors

Various field activities were performed by and/or in conjunction with subcontracted service companies.

The mobile trailer field office rental and set-up was subcontracted to ACORN Space Leasing of Bristol, CT. The installation of the perimeter security fence surrounding the field trailer and decontamination area was subcontracted to ABC Fence Co., Inc. of Bridgeport, CT. The fence installation and trailer set-up was conducted on May 12, 1992 during mobilization activities.

Drilling and associated activities such as split spoon sampling, monitoring well piezometer installation, and some decontamination were performed by East Coast Drilling and Boring, Inc. (ECD) of Wallingford, CT. Collection of two additional samples at location BR-1 on November 11, 1992 were subcontracted to Connecticut Test Borings, Inc. (CTB) of Seymour, CT.

O'Brien Associates, Inc. of Middletown, CT was subcontracted to conduct the survey of locations and the property boundary. Most of the survey activities were performed independent of WCC activities.

Drums of solid material and water generated during field activities were temporarily stored at the location where they were used. Industrial Restoration Co., Inc. (IRC) of Stratford, CT was subcontracted to move these drums, using a forklift, to the secured storage area in the south parking lot of SAEP.

4.2.2 Equipment Used

Each drilling company provided a truck mounted drilling rig (CME-75 for ECD; CME-45B for CTB), a professional driller, a driller's helper, and equipment for the subsurface soil sample collection. Well construction and installation equipment and supplies were also provided by ECD. Stainless steel split spoons were provided by WCC.

A 19-foot long boat was used to access the Intertidal Flats and Housatonic River for sediment and surface water collection.

Additional equipment used during field activities included the following:

- various support vehicles (trucks and vans)
- high-pressure steam cleaner;
- generator;
- jack-hammer;
- concrete corer; and
- centrifugal pumps.

4.3 QUALITY CONTROL ACTIVITIES

Field activities which were related to quality control included the calibration and maintenance of field equipment used in sample collection and the collection of QC samples (duplicate, split (MRD-L), MS/MSD, field, and trip blank samples).

Problems encountered which affected quality control are discussed in Section 4.5.

4.4 SITE SAFETY AND HEALTH ACTIVITIES

All of the field activities were conducted in Level D or modified Level D (latex surgical gloves and steel-toed and steel shank work boots) personal protective equipment. Monitoring air quality in work zones for organic vapors and radiological concerns also occurred during various field activities.

The SSHP was reviewed in July 1992 to assess the site conditions and hazards encountered during various completed field activities and to determine if modifications could be made to health and safety procedures and requirements during subsequent field activities. An addendum to the SSHP (Addendum No. 01) was approved by WCC on July 24, 1992 to modify some health and safety requirements and to include groundwater and waste drum sample collection and aquifer testing activities.

4.5 PROBLEMS ENCOUNTERED AND CORRECTIVE ACTION

Various problems were encountered during field activities. Each problem was assessed and corrective action taken as appropriate. Problems and actions presented in the DQCRs include:

1) DQCR Number 5; June 3, 1992 - Problem: Locations BR-8, WC-7S, and PZ-7D were in the magnesium thorium storage area where the radiation action level set in the SSHP was exceeded.

Action: Locations were moved to other areas with USACE approval.

2) DQCR Number 10; June 10, 1992 - Problem: Split sample BR-8-0.5-2.5 was rejected by MRD-L due to incorrect temperature of sample upon arrival.

Action: Another split sample, BR-1-0.5-2.5, was collected on June 17, 1992 as a replacement sample.

3) DQCR Number 14; June 16, 1992 - Problem: Soil sample WC-115-2.5-4.5 was collected with a regular split spoon and not a stainless steel split spoon.

Action: Problem was noted in field log book.

4) DQCR Number 18; June 22, 1992 - Problem: Subsurface structure is encountered while drilling WC-12S.

Action: Location for well is moved with USACE approval.

5) DQCR Number 19; June 23, 1992 - Problem: During installation of PZ-13D some bentonite chips and PVC pieces fall into casing.

Action: Problem noted in log book and discussed with Project Manager.

6) DQCR Number 23; June 29, 1992 - Problem: Groundwater recharge in monitoring well WC-7S is slow and cannot be purged with centrifugal pump.

Action: Groundwater is purged on eight different days by hand surging with the discharge hose.

7) DQCR Number 26; July 2, 1992 - Problem: Groundwater in PZ-9D had an odor and slight sheen during development, but was not proposed to be sampled.

Action: Groundwater samples were collected for chemical analysis from PZ-9D during both rounds. Verbal agreement was received from USACE (J. Barrett) on July 24, 1992.

8) DQCR Number 35; July 30, 1992 - Problem: MRD-L notifies WCC that split groundwater metal samples WC-3S and WC-8S were improperly preserved (pH was not below 2).

Action: WCC checks and adjusts pH for subsequent groundwater samples. NEI is notified of problem and verifies pH adjustments.

9) DQCR Number 35; July 30, 1992 - Problem: Existing well ECD-1 was not located by TCS.

Action: ECD-1 was not sampled.

10) DQCR Number 35; July 30, 1992 - Problem: During Round 1 groundwater sample collection, the standard stainless steel bailer would not fit into the existing well ECD-4 due to thick-walled PVC construction.

Action: The groundwater sample for ECD-4 was collected from polyethylene hose (same type as purge hose). A smaller bailer was used to collect the sample during Round 2.

11) DQCR Number 39; September 1, 1992 - Problem: An additional 6 existing wells (LW-5D, LW-5DI, LW-9I, LW-9D, LW-10I, and LW-10D) not identified in the Work Plan were located during field activities.

Action: These wells were added only to the synoptic groundwater level measurement rounds.

12) DQCR Number 45; October 26, 1992 - Problem: The dry well to be sampled in B-19 was sealed with concrete.

Action: A sample was not collected at this location and an alternate location was not available.

13) DQCR Number 46; October 27, 1992 - Problem: A trip blank was not sent with groundwater samples shipped October 27, 1992.

Action: Problem was noted and data validator made aware of it.

5.0
ANALYTICAL DATA PRESENTATION

This section presents the analytical data obtained from samples collected during RI field activities and submitted to subcontracted laboratories. The data included is chemical (from NEI and Omega) and geotechnical (from WCCGS). The methods used for analysis of the samples submitted are presented in Section 5.1. The chemical data is discussed in Section 5.2 with quality control review and data validation results presented. Asbestos data is discussed at the end of Section 5.2, and Section 5.3 briefly discusses the geotechnical data.

The data discussed in this section is presented in summary format on Tables B-1 through B-19 located in Appendix B. The complete laboratory reports of this data were presented in the Analytical Data Report submitted as a separate document to USACE on February 10, 1993. Various quality assurance and quality control samples collected during field activities are summarized on Table 5-1 and data reported from analysis of these samples is presented in the sections below.

The quantity and type of QA/QC samples collected were not identical to those proposed in the CDAP. In a telephone conversation on March 31, 1992 the USACE (S. George) and WCC (M. Jacobson) agreed to the following changes in the frequency of QA/QC sample collection.

Field Blanks:	5% of field samples or 1 in 20 samples collected for each media.
Trip Blanks:	1 per day per cooler containing water samples (groundwater and surface water) for volatile organic analysis. None for soil or sediment samples.

5.1 ANALYTICAL METHODS

Methods for the analysis of samples collected during the investigation were presented in the CDAP. A summary of the analytical methods used for chemical analysis is presented on Table 5-2.

Based on the chemical data collection program presented in the Work Plan, samples were analyzed by NEI for one or more of the following parameters: Target Compound List (TCL) volatile organic compounds (VO), TCL semivolatile organic compounds (SVO), which include base neutral and acid extractable compounds (BNA), Target Analyte List (TAL) total and/or dissolved metals, 8 RCRA metals, polychlorinated biphenyls (PCB), and cyanide. Methods used for analyses are referenced in USEPA SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, September 1986.

Surface soil samples collected from the Causeway were analyzed by Omega for bulk asbestos by Polarized Light Microscopy (PLM) with dispersion staining, Method EPA-600/M4-82-020.

Geotechnical analysis of selected subsurface soil samples was performed by WCCGS using ASTM Number D422-63, Standard Method for Particle Size Analysis of Soils.

The subcontract laboratory for chemical analyses, NEI, presented a clarification of SVO methodologies in a letter sent to WCC (M. Craig) on June 10, 1992. NEI considered Method 3550 the preferred method instead of Method 3540 for soil extraction technique as presented in the CDAP. Method 3540 was removed from the list of methods indicated on Table 5-2.

The most significant change in scope of the Work Plan involved the analytical methods for metals analysis of soil samples. Originally, the Work Plan proposed extraction of soil samples using the Toxicity Characteristic Leaching Procedure (TCLP) and subsequent analysis of the leachate for metals using the appropriate SW-846 methods for water samples. This protocol was based on Connecticut requirements.

TABLE 5-1
SUMMARY OF
FIELD QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

SAMPLES			ANALYTICAL PARAMETERS				
Type	Matrix	Total Number	VO	SVO	Metals	CN	PCB
FD	Soil	3	3	3	3	0	2
	Groundwater	4	4	4	4	2	2
	Surface Water	1	1	1	1	1	1
	Sediment	1	1	1	1	1	1
MRD	Soil	3	3	3	3	0	1
	Groundwater	4	4	4	4	2	2
	Surface Water	1	1	1	1	1	1
	Sediment	1	1	1	1	1	1
MS/MSD	Soil*	2	2	2	2	0	1
	Groundwater	4	4	4	4	1	3
	Surface Water	1	1	1	1	1	1
	Sediment	1	1	1	1	1	1
FB	Soil	3	3	3	3	1	2
	Groundwater	4	4	4	4	1	3
	Surface Water	0	0	0	0	0	0
	Sediment	2	2	2	2	2	2
TB	Soil	0	0	NA	NA	NA	NA
	Groundwater	9	9	NA	NA	NA	NA
	Surface Water	2	2	NA	NA	NA	NA
	Sediment	2	2	NA	NA	NA	NA

NOTES:

VO = Volatile organic compounds
SVO = Semivolatile organic compounds
CN = Cyanide
PCB = Polychlorinated biphenyls
FD = Field Duplicate
MRD = Missouri River Division QA Split
MS/MSD = Matrix Spike/Matrix Spike Duplicate
FB = Field Blank
TB = Trip Blank
NA = Not Applicable

Soil refers to subsurface soil samples.
An additional Field Duplicate was collected for surface soil, asbestos analysis and is not listed on table.
Groundwater includes two rounds of sample collection.
MRD soil sample collected on 06-09-92 was rejected by MRD due to incorrect shipping temperature and is not included on table.
For MRD samples, trip blanks accompanied each shipment on 07-29-92, and 10-28-92, (groundwater), and 10-22-92 (surface water), but are not included on table.
*Soil Sample WC-2D-0.5-2.5 was assigned as MS/MSD but not used due to laboratory clerical error.

TABLE 5-2

ANALYTICAL METHODS USED FOR CHEMICAL ANALYSES

Parameter	Technique[1]	Extraction and Analysis Methods[2]	
		Water	Soil/Sediment
Volatile Organics	GC/MS	8240	8240
Semivolatile Organics	GC/MS	3510/8270	3550/8270
PCBs	GC	3510/8080	3550/8080
Metals[3]	ICP	6010	3050/6010
Arsenic	GFAA	7060	3050/7060
Lead	GFAA	3020/7421	3050/7421
Mercury	CV	7470	7470
Selenium	GFAA	7740	3050/7740
TCLP[4]	Leaching Extraction	NA	1311
Asbestos	PLM	NA	EPA-600/M4-82-020
Cyanide	Digestion	9010, 9012	9010, 9012

NOTES:

[1] GC = Gas chromatography; GC/MS = gas chromatography; mass spectrometry; ICP = inductively coupled plasma; GFAA = graphite furnace atomic absorption; CV = cold vapor; PLM = Polarized Light Microscopy

[2] Methods are from the Third Edition, USEPA SW-846; Asbestos, Interim Method for the Determination of Asbestos in Bulk Insulation Samples, December 1982

[3] Includes the following Target Analyte List (TAL) metals: aluminum, antimony, barium, beryllium, cadmium, calcium, chromium, copper, iron, magnesium, manganese, nickel, potassium, silver, sodium, thallium, vanadium, and zinc

[4] TCLP = Toxicity Characteristic Leaching Procedure, for extraction of RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver) in soil samples only.

NA = Not Applicable

On June 4, 1992, the USACE (S. George) requested a change in this protocol. The revised protocol involved two different analyses of the soil samples. The samples would be analyzed for total metals from the Target Analyte List (TAL). In addition, the samples would be extracted using TCLP and the leachate analyzed for RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver).

A letter confirming this change was sent from WCC to USACE on June 5, 1992. The laboratory, NEI, was notified to revise the requested analysis on those samples which had been collected on June 1-4, 1992.

The metals analyses requested on soil sample chain-of-custody forms were revised to correspond with this protocol.

5.2 CHEMICAL DATA QUALITY CONTROL REVIEW AND VALIDATION

The data review process was implemented to assess the quality of chemical data obtained from the field sample collection program with respect to the quality assurance objectives established for the project and presented in the Work Plan.

Analytical laboratory results were reviewed following the procedures described below and using the quality control (QC) data requested by WCC for USEPA Analytical Methods SW-846 analyses. The following QC elements were reviewed and checked in the laboratory analytical data packages:

- completeness of the data package
- compliance with required holding times
- presence or absence of analytes in method blanks, field blanks, and trip blanks
- quantitation limits
- results of spiked laboratory control samples
- recoveries of surrogate spikes in samples
- results of matrix spike/matrix spike duplicate samples
- field duplicate samples

The data quality review was performed in accordance with a Data Quality Review Checklist developed by WCC. This checklist is based, where applicable, on the guidelines provided in the USEPA Functional Guidelines For The Evaluation Of Inorganic Analyses (July 1988) and USEPA CLP National Functional Guidelines for Organic Data Review (June 1991 Draft). Where necessary, professional judgment was used in determining the need for data qualification.

5.2.1 Completeness of Data Package

Analytical data report packages were reviewed to make certain that they contained the data necessary to complete the data review. This included checking the data package for the results of each analyte requested on the chain-of-custody (COC) forms for each field sample submitted in the analytical batch, along with QC documentation.

Five soil samples were not analyzed by NEI for all requested analyses. These non-conformances are discussed below.

Soil samples BR-1-0.5-2.5 and BR-1-2.5-4.5, collected on June 17, 1992, were not analyzed for PCBs as requested on the COC. The data validator notified the Project Manager on August 28, 1992 of this problem. The samples could not be reanalyzed because they were beyond the holding time limits for PCB analysis. The two soil samples were re-collected on November 11, 1992 and submitted for PCB analysis.

Two soil samples and a duplicate soil sample (WC-2D-0.5-2.5, WC-2D-2.5-4.5, and DUP-3) collected on June 23, 1992, were not extracted using TCLP and analyzed for the 8 RCRA metals as requested on the COC. The initial data validation report issued on September 3, 1992 did not identify this laboratory error. A subsequent review of this data package in December 1992 revealed this non-conformance and the Project Manager was notified on December 29, 1992. The samples had already passed holding time limits and collection of replacement samples was considered unfeasible due to the status of the project. This nonconformance is not considered to be severe because the TAL metals were analyzed for these samples.

The QC review also determined that NEI shortened some of the field sample numbers to 8 digits or characters to accommodate identification of the samples in the laboratory computer database. This does not adversely impact the data because the laboratory also identifies each sample and reports the associated data using a unique 7-digit laboratory number assigned to each sample upon receipt.

Soil sample WC-2D-4.5-6.5 was incorrectly identified on the COC form and reported by the laboratory as WC-3D-4.5-6.5. The data validation confirmed the correct number with the FM during review of the data package.

5.2.2 Holding Times

Sample holding times were calculated from the date of sampling (as determined from the COC forms) to the date of sample analysis or to the date of sample extraction, and from the date of sample extraction to the date of sample analysis. Holding times were compared to the criteria specified in the CDAP and as presented in Table 3-11. If sample analysis was performed outside of the required holding times, all results for that sample were qualified as estimated ("J") or rejected ("R"), depending on the severity of the holding time exceedance in accordance with the USEPA Functional Guidelines.

Most of the samples (19 of the 21 discussed in this section) which exceeded holding times were re-extracted samples or diluted samples which are identified with a "RE" or "DL" suffix. The necessity to analyze re-extracted or diluted samples can only be determined after sample results and associated laboratory QC information are evaluated. Therefore, many re-analyzed samples are analyzed outside of required holding times.

Two soil samples (WC-5S-0.8-2.8 and WC-5S-2.8-4.8) for VO analyses were qualified as estimated (J) since holding times were exceeded by one day.

Round 1 groundwater sample LW-10 was collected on July 28, 1992 but was not shipped until July 30, 1992. This delay in shipping did not result in the laboratory exceeding holding times for initial analysis and extraction.

For Round 1 groundwater samples, SVO results for the two re-extracted samples LW-10RE and WC-8SRE were qualified as estimated (J) since sample extraction holding times were exceeded by 10 days and 9 days, respectively. In addition, for sample WC-6S the positive VO results were qualified as estimated since the holding times were exceeded by 6 days.

Sample holding time exceedances for Round 2 groundwater samples occurred for five VO analyses and eight SVO analyses.

The Round 2 groundwater samples for VO analyses which exceeded holding time included WC-2D DL and WC-3S RE; holding times were exceeded by 6 days and 3 days, respectively. In addition, samples WC-12S DL, WC-13S DL, and WC-15S DL each exceeded holding time by one day for VO analysis. All results were qualified as estimated (J). The eight Round 2 groundwater samples which exceeded holding time for SVO analyses were LW-10S RE, ECD-4 RE, DUP-GW2 RE, WC-1S RE, PZ-9D RE, WC-2D RE, WC-6S RE and WC-7S RE. The data was not used for six of these samples because of poor surrogate recoveries. Samples ECD-4 RE and WC-2D RE exceeded holding time for extraction by 7 days and 18 days, respectively. The data for both of these samples were qualified as estimated (J).

For sediment samples, two VO analyses and one SVO analysis exceeded holding times. Sediment samples 08-BG-12-24 RE and DUP-SD RE each exceeded VO analysis holding time by one day; data for these samples were qualified as estimated (J). Sample 06-0-12 RE was extracted 27 days outside the required holding time for SVO analysis. Non-detected data for this sample were qualified as unusable (R), and detected SVO data were qualified as estimated (J).

5.2.3 Method Blank Samples

VO compounds methylene chloride and 2-propanone were detected in several method blank samples. All associated methylene chloride and 2-propanone sample results less than ten times the method blank concentration (assuming dilution factors) were qualified as non-detected (data qualifier U) at the reporting limit. If the sample result was less

than ten times the method blank concentration and was above the reporting limit, the result was qualified as non-detected (U) at the level found in the sample.

SVO compounds bis(2-ethylhexyl)phthalate, butylbenzylphthalate, and di-n-butylphthalate as well as several tentatively identified compounds (TICs) were detected in SVO method blank samples. Qualification of associated phthalate sample data was performed as described in the previous paragraph. Qualification of the sample TIC data as non-detected (U) was performed if the associated sample TIC result was less than five times the method blank TIC result.

No qualification of total and dissolved TAL metals, PCB, or cyanide data was required based on method blank contamination. Qualification of the VO and SVO data on the basis of method blank contamination were presented in the WCC Data Quality Review Checklists and the data summary tables which are in the Project File.

5.2.4 Quantitation Limits

The quantitation limits were reviewed and compared to the practical quantitation limit (PQL) for each compound. Accounting for dilution factors due to elevated concentrations of TCL compounds or TAL analytes, and percent moisture, quantitation limits reported were those required by the analytical methodology.

5.2.5 Surrogate Spike Recoveries

Individual sample performance for organics analyses are monitored by surrogate spike recoveries. NEI established surrogate spike recovery limits for VO analysis in accordance with SW-846 procedures. The established limits were outside SW-846 limits in some cases. However, if sample surrogate recoveries were outside the established limits, they were also outside the SW-846 limits as well. These samples were re-analyzed and/or qualified in accordance with validation procedures. Limits for SVO and PCB analysis surrogates are those presented in SW-846. The recovery limits used for evaluating the data are:

Surrogate Compound	Limits for % Recovery	
	Water	Soil
Volatile Organic Analysis:		
1,2,-Dichloroethane-d4	76-114	70-121
Toluene-d8	88-110	84-138
BFB (4-Bromofluorobenzene)	86-115	59-113
Semivolatile Organic Analysis:		
Nitrobenzene-d5	34-114	23-120
2-Fluorobiphenyl	43-116	30-115
Terphenyl-d14	33-141	18-137
2-Fluorophenol	21-110	25-121
Phenol-d5	10-110	24-113
2,4,6,-Tribromophenol	10-123	19-122
Polychlorinated biphenyl Analysis:		
dibutylchlorendate	24-154	20-150

Five soil samples for VO analyses were qualified due to surrogate recovery problems.

All volatile organic surrogate recoveries for sample WC-5S-2.8-4.8 were not within QC control limits. Since the reported recoveries were less than 10%, the detected values are considered estimated values; the non-detected values were qualified as unusable (R).

One volatile surrogate recovery for samples BR-3-3-5 and BR-4-3-5 did not meet QC control limits. These samples were re-injected (BR-3-3-5DL and BR-4-3-5RE), reporting

the same surrogate recovery problem. Since a matrix effect is evident, all reported results for the following samples are considered estimated values (BR-3-3-5, BR-4-3-5, BR-3-3-5DL and BR-4-3-5RE).

The surrogate analysis for sample WC10S-2.5-4.5 reported an unacceptable percent recovery (%R). This sample was re-analyzed and the recovery was again unacceptable. This sample was experiencing a matrix effect; therefore, the reported results for both samples (WC10S-2.5-4.5 and WC10S-2.5-4.5RE) were qualified as estimated (J).

The base neutral results for sample DUP2 were qualified as unusable (R).

Three base-neutral surrogates reported for sample DUP2 were not within QC control limits. This sample was re-analyzed (DUP2RE) with no surrogate problems noted. The data validation, therefore, was conducted on the re-analysis (DUP2RE) resulting in no qualifications noted.

Two base neutral surrogate recoveries were not within the designated QC recovery range for sample BR-7-2.5-4.5. The sample was re-analyzed at a dilution (BR-7-2.5-4.5DL), reporting similar results. Since a matrix effect was demonstrated, the reported base neutral results for both samples (BR-7-2.5-4.5 and BR-7-2.5-4.5DL) were qualified as estimated (J).

The PCB results for samples WC-7S-0.5-2.5, WC-7S-2.5-4.5, WC-6S-0.5-2.5 and WC-6S-2.5-4.5 were qualified as estimated (J) because the incorrect surrogate compound decachlorobiphenyl was used by the laboratory for the PCB analysis (with recovery limits set at 60-150%). Dibutylchlorendate is the designated surrogate for Method 8080 (SW-846).

For Round 1 groundwater samples, the VO results were qualified as estimated (J) for sample WC-5SMSD because one surrogate recovery was not within the designated QC limits, and the matrix spike duplicate was not re-analyzed. Acid reaction surrogate recovery problems occurred in seven Round 1 groundwater samples. The acid extractable results for five samples (WC-11S, WC-14S, WC-15S, MW-2DL, MW-3DL)

were qualified as estimated (J) because acid surrogate recoveries were outside designated limits, and the laboratory failed to re-analyze the samples.

The acid-extractable surrogate recoveries for Round 1 groundwater samples LW-10 and WC-8S were diluted out in the initial analysis. These samples were re-extracted (LW-10RE, WC-8SRE) and the acid-extractable surrogate recoveries were within the established QC limit. The reported initial acid extractable results (LW-10, WC-8S) are rejected due to surrogate recovery problems. Therefore, the results of the re-extracted sample are used for reporting purposes.

The SVO results for Round 1 groundwater sample MW-3 were qualified as estimated (J) due to poor surrogate recovery; one was not re-analyzed.

For the Round 2 groundwater samples, one VO analysis had an outlying surrogate spike recovery. Sample WC-3S had a bromofluorobenzene recovery below the control limits. The sample was re-analyzed yielding an acceptable bromofluorobenzene recovery, but outside of holding times. The VOC results reported for sample WC-3SRE were qualified as estimated (J).

Acid fraction surrogate spike recoveries below ten percent occurred for the following Round 2 groundwater samples: LW-10S, ECD-4, DUP-GW2, WC-1S, WC-14S, PZ-9D, WC-6S, WC-2D and WC-7S. These samples were all re-extracted and re-analyzed (except WC-14S) and only samples ECD-4 RE and WC-2D RE showed acceptable surrogate spike recoveries. All re-extractions occurred outside holding times. Since the re-analyzed samples (except ECD-4 RE and WC-2D RE) also showed surrogate spike recoveries below ten percent, data from the original analyses were used. For samples ECD-4 and WC-2D, the reanalyzed results are considered to be the original analysis.

The non-detected acid fraction results are considered unusable (R) for Round 2 groundwater samples LW-10S, DUP-GW2, WC-1S, WC-14S, PZ-9D, WC-6S and WC-7S, and the detected results are considered estimated (J) for these samples.

The PCB surrogate compound dibutylchlorendate (DBC) was above control limits for sample FB102992 and was zero percent for Round 2 groundwater sample MW-4. No action was required for sample FB102992; however, the non-detected PCB results for sample MW-4 required rejection (R).

DBC was above control limits for the sediment samples 08-BG-12-24, 04-0-12, and 04-12-24. Qualification was not required since the DBC recovery was above control limits (which indicated a high bias) and the sample results were non-detected.

All surrogate spike recoveries were acceptable for the sediment samples.

5.2.6 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries (Organics)

The recoveries of MS/MSD analyses are used to assess the analytical accuracy on an individual sample basis, while the relative percent difference (RPD) between the MS and MSD indicates the analytical precision achieved for that sample.

For the soil matrices, sample BR-10-1-3 was analyzed as the MS/MSD sample. For Round 1 groundwater, samples LW-7 and WC-5S were analyzed as MS/MSD samples. Round 2 groundwater samples MW-1 and WC-4S were analyzed as MS/MSD samples for organics. Although some MS/MSD recoveries and RPD values were outside control limits, no data qualification was necessary for any soil or Round 1 and Round 2 groundwater samples because MS/MSD recoveries alone are not sufficient to justify qualification of data, unless recoveries of the MS and MSD are below 10%.

Sediment samples LT-1-12-24 and DUP-SD were analyzed as MS/MSD samples. MS and MSD recoveries were below control limits for n-nitroso-di-n-propylamine, pyrene, and 1,2,4-trichlorobenzene in sample LT1-12-24. Qualification of these results as estimated (J) was required. Sample DUP-SD had MS/MSD recoveries below ten percent for pentachlorophenol, and this datum was qualified as unusable (R).

RPD values between the MS and MSD were outside control limits for Aroclor 1260 in surface water sample 06-SW and sediment sample DUP-SD. The Aroclor 1260 results for these two samples were qualified as estimated (J).

5.2.7 Matrix Spike/Laboratory Duplicate Samples (Inorganics)

Matrix spike (MS) recoveries are used to assess analytical accuracy, and laboratory duplicate analyses indicate analytical precision.

The soil sample BR-10-1-3 was analyzed as a MS/laboratory duplicate sample. The following soil sample results were qualified as estimated (J) due to outlying MS recoveries.

BR-10-1-3	silver, cobalt, chromium
BR-10-3-6	silver, chromium
FB060492	silver

A matrix spike soil sample for cyanide analysis was not submitted or analyzed.

Groundwater samples WC-10S (cyanide only), WC-12S (total metals), WC-13S (dissolved metals), WC-5S (total and dissolved metals, cyanide), MW-1 (total and dissolved metals, cyanide), and surface water sample 06-SW (total metals, cyanide) were analyzed as MS/laboratory duplicate samples.

The following Round 1 groundwater sample results were qualified as estimated (J) due to outlying MS recoveries:

ECD-4	total arsenic, total mercury, dissolved silver
PZ-9D	total arsenic, total chromium, total mercury, dissolved silver
MW-1	total arsenic, total mercury, dissolved silver

MW-2	total arsenic, total mercury, dissolved silver
MW-5S	total arsenic, total mercury, dissolved silver
MW-6S	total arsenic, total mercury, dissolved silver
FB073092	total arsenic, total mercury, dissolved silver

The following Round 1 groundwater sample results were qualified as rejected (R):

ECD-4	total chromium, total copper, total zinc, total manganese, total lead
PZ-9D	total zinc, total manganese
MW-1	total chromium, total copper, total zinc, total manganese, total lead
MW-2	total chromium, total copper, total zinc, total manganese, total lead
MC-5S	total chromium, total copper, total zinc, total manganese, total lead
MC-6S	total chromium, total copper, total zinc, total manganese, total lead
FB073092	total chromium, total zinc

The following sample results were qualified as estimated (J) due to outlying MS recoveries or outlying RPD values between laboratory duplicate results:

Groundwater Round 2

WC-12S	total arsenic, total cadmium, total silver, total thallium
WC-13S	dissolved lead, dissolved silver, dissolved thallium, dissolved nickel, dissolved vanadium

MW-1	total aluminum, total cadmium, total lead, total selenium, total thallium

Surface Water

06-SW	total silver, total arsenic, total lead

In addition, the non-detected sample results for selenium and thallium in surface water sample 06-SW were rejected (R) due to zero percent MS recoveries.

The MS recoveries for sediment samples LT1-12-24 and DUP-SD were acceptable.

5.2.8 Trip Blank Samples

Trip blank samples were sent in each cooler containing analytical samples for volatile organic analysis for groundwater or surface water matrices only. Trip blank samples are used to assess VO sample cross-contamination. Four trip blank samples for the Round 1 groundwater samples and four trip blank samples for Round 2 groundwater were analyzed for VOs. The detected trip blank contaminants (methylene chloride and 2-propanone) were qualified as non-detected due to laboratory blank contamination. No qualification of field sample data was required due to trip blank contamination in either round. A trip blank was not included with the three groundwater samples collected on October 26, 1992 and shipped on October 27, 1992. This does not require qualification of these three samples.

Three trip blanks for surface water samples were analyzed for VOs. The only detected trip blank contaminants (methylene chloride and 2-propanone) were qualified as non-detected due to laboratory blank contamination. No qualification of field sample data was required due to trip blank contamination.

5.2.9 Field Blank Samples

Field blank samples were collected and analyzed to assess contamination attributable to sample collection equipment. These samples were summarized in Table 3-12.

Three field blanks were associated with the soil samples. Since the field blank sample FB062392 contained methylene chloride, the methylene chloride results for the associated samples WC-2D-0.5-2.5, DUP-3 and WC-2D-2.5-4.5 were qualified as estimated (J).

Two field blanks were associated with the Round 1 groundwater samples and two field blank samples were associated with sediment sample collection. Since detected analytes were qualified as non-detected in the field blanks, no qualification of associated Round 1 groundwater or sediment samples was required.

The two groundwater field blank samples from Round 2 showed detections of TAL metals. Associated sample results less than five times the field blank concentration required qualification as estimated (J) and are presented below:

total cadmium	WC-4S, WC-6S
total chromium	WC-2D, MW-1, DUP-GW2B
dissolved potassium	WC-3S

5.2.10 Field Duplicate Samples

Field duplicate sample analyses measure the aggregate sampling protocol and analytical precision. A summary of field duplicate samples collected is presented in Table 5-3. For soil matrices, field duplicates of samples BR-9-1-3, WC-1S-0.5-2.5 and WC-2D-0.5-2.5 were submitted for analysis. For groundwater samples, field duplicates of samples WC-12S and WC-5S from Round 1 and samples WC-8S and WC-2D from Round 2 were

submitted for analysis. For soil and groundwater matrices, no qualification of sample data was required due to field duplicate data discrepancies.

Field duplicates of surface water sample LT2-SW and sediment sample 08-12-24 were submitted for analysis. N-nitroso-diphenylamine, antimony, copper, and nickel results for sample 08-12-24 and its field duplicate (DUP-SD) were qualified as estimated (J) due to field duplicate data discrepancies.

A field duplicate soil sample was not collected for cyanide analysis.

5.2.11 Split Samples

Split samples were collected and shipped to USACE MRD-L for chemical analysis. A summary of these samples is presented in Table 5-4.

The split samples were collected at the same frequency as field duplicate samples, and in the same manner. Extra sample volume was collected from a sample location using the identical procedures as field sample collection. The samples for MRD-L were labelled with the same sample number as the corresponding field samples and were shipped via Federal Express for overnight delivery to the MRD-L laboratory. Data from analysis of these split samples was received by WCC on May 21, 1993 and is included in the CQAR (Appendix C of the RI Report).

Split soil sample BR-8-0.5-2.5, collected on June 9, 1992, was rejected on June 10, 1992 by MRD-L due to incorrect temperature of the sample upon receipt at the laboratory. A replacement sample was collected at BR-1-0.5-2.5 on June 17, 1992. Additional problems with split soil, sediment, or surface water samples were not identified by MRD-L.

The problem with preservation of Round 1 groundwater samples for metals analyses was discussed in Section 3.3.

TABLE 5-3

DUPLICATE SAMPLES COLLECTED FOR CHEMICAL ANALYSIS

Matrix	Duplicate Sample ID Number	Corresponding Field Sample I.D. Number	Date Collected
Soil (subsurface)	DUP1	BR-9-1-3	06-10-92
	DUP2	WC-1S-0.5-2.5	06-11-92
	DUP3	WC-2D-0.5-2.5	06-23-92
Surface Soil	SF-DUP	SF-10	07-8-92
Groundwater Round 1	WC-DUP1	WC-12S	07-29-92
	MW-DUP	WC-5S	07-31-92
Round 2	DUP-GW2A	WC-8S	10-28-92
	DUP-GW2B	WC-2D	10-30-92
Sediment	DUP-SD	08-12-24	10-27-92
Surfacewater	DUP-SW	LT2-SW	10-23-92

TABLE 5-4

SPLIT SAMPLES COLLECTED FOR CHEMICAL ANALYSIS BY USACE MRD LABORATORY

Matrix	Sample ID Number	Date Collected	Analyses Requested
Soil (subsurface)	BR-8-0.5-2.5*	06-9-92	VO, SVO, Metals
	BR-1-0.5-2.5	06-17-92	VO, SVO, Metals
	WC-8S-2.5-4.5	06-18-92	VO, SVO, Metals
	WC-2D-2.5-4.5	06-23-92	VO, SVO, Metals, PCB
Groundwater Round 1	WC-3S	07-29-92	VO, SVO, Metals PCB
	WC-8S	07-29-92	VO, SVO, Metals, CN
	TB072992	07-29-92	VO (Trip Blank)
Groundwater Round 2	ECD-4	10-28-92	VO, SVO, Metals, CN
	WC-1S	10-28-92	VO, SVO, Metals, PCB
	TB102892	10-28-92	VO (Trip Blank)
Surface water	07-SW	10-22-92	VO, SVO, Metals, PCB, CN
	TB102292	10-22-92	VO (Trip Blank)
Sediment	07-0-12	10-28-92	VO, SVO, Metals, PCB, CN

Notes: *Sample BR-8-0.5-2.5 was rejected by MRD due to incorrect temperature of sample upon receipt. Sample BR-1-0.5-2.5 was collected as replacement sample.

VO	=	Volatile organic compounds
SVO	=	Semivolatile organic compounds
Metals	=	Soil: also includes TCLP Extraction Groundwater: total and dissolved fractions
CN	=	Cyanide
PCB	=	Polychlorinated biphenyls

5.2.12 Tentatively Identified Compounds

Tentatively identified compounds (TICs) are organic compounds which were tentatively identified on the basis of a computerized library search of mass spectra. These compounds failed to meet the identification criteria for the target compounds associated with the gas chromatographic/mass spectrometric (GS/MS) methods. At best, these data can only be used on a qualitative basis. TICs, generated during the broad spectrum volatile and semivolatile analyses, and where they are not suspected as laboratory or sampling-related contamination, generally fall into typical compound classes. An example relative to the investigation is saturated hydrocarbons, which, as a class, would be indicative of fuel-related contamination. Data validation of TICs was limited to review of method blank results and associated samples. All results less than five times the method blank concentration were qualified as non-detected and were not listed in data summary tables.

Although TICs were generated for VO and SVO analyses and are not discussed in the analytical results sections, they will be evaluated in the Remedial Investigation Report as to their significance in data interpretation and in making decisions related to contamination assessment.

5.2.13 Asbestos Data

Eleven surface soil samples (ten field samples and one duplicate) were collected on July 8, 1992 and sent to Omega for asbestos analysis. The laboratory data report was issued on August 4, 1992 and reviewed by WCC for completeness. All samples were reported as none detected (ND) for percent Asbestos Fiber Content. The correct analytical method was used for analysis and the data report was considered accurate and conforming to the CDAP QA/QC standards. Additional data validation or quality control review was not considered to be necessary for these samples.

5.3 GEOTECHNICAL DATA REVIEW

The 17 subsurface soil samples selected for geotechnical testing were submitted to WCCGS on December 14, 1992. The sieve and hydrometer tests were conducted from December 16 through 20, 1992 and the data report was issued on December 29, 1992. The data report package was reviewed for completeness. All samples were tested as requested and the data package included original laboratory logs and computer-generated plots. The laboratory reviewed the data after testing and again when it was plotted for calculating final results. The data report is considered to be complete and individual test results acceptable for use in data interpretation.

5.4 DATA PRESENTATION

Tables B-1 through B-19 in Appendix B list summaries of detected compounds, tentatively identified compounds (TICs) and detected analytes for chemical data. Qualified data are included in these tables along with the corresponding qualifiers as discussed in Section 5.2. As these tables are data summaries, only detected compounds and analytes or those qualified in data review and validation are presented. Detection limits associated with the data are presented on the laboratory data summary pages and in the raw data for each data package. These complete laboratory data packages, including the data summary pages, are in the Analytical Data Report which was submitted as a separate document to USACE on February 10, 1993. Data qualification is discussed in the Data Validation Summary Memoranda and the WCC Data Quality Review Checklists which are in the Project File.

TABLE 5-5

GEOTECHNICAL DATA SUMMARY

Boring No.	Sample No.	Depth (ft bgs)	USCS Symbol	Percent of Sample Passing the No. 200 Sieve	Percent of Sample Smaller than 2 UM (microns)
MONITORING WELLS					
WC-1S	SS-4	9-11	SP-SM	5.2	1
WC-4S	SS-4	10-12	SP-SM	10.1	1
WC-5S	SS-4	10.8-12.8	SP-SO	8.0	1
WC-7S	SS-4	10-12	ML	58.8	6
WC-8S	SS-3	10-12	SP-SM	7.7	1
WC-9S	SS-4	9-11	SW-SM	7.2	1
WC-11S	SS-4	9-11	GP-GM	6.1	1
PIEZOMETERS					
PZ-1D	SS-4	29-31	SM	38.3	2
PZ-4D	SS-4	30-32	ML	60.3	4
PZ-5D	SS-5	30-32	OL	78.7	17
PZ-7D	SS-7	25-27	SP-SM	6.6	1
PZ-8D	SS-4	30-31	SW-SM	8.0	1
PZ-9D	SS-3	25-27	ML	83.1	2
PZ-11D	SS-4	30-32	SM	48.1	2
PZ-13D	SS-3	25-27	SW-SM	10.7	1
PZ-16D	SS-7	24-26	SP	20.7	1
PZ-17D	SS-7	30-32	ML	72.7	3

Notes: All samples were collected from screened internal using a split-spoon sampler.

bgs = Below ground surface
USCS = Unified Soil Classification System

Group Symbol	Typical Names and Descriptions
GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
GM	Silty gravels, gravel-sand-silt mixtures
SW	Well graded sands, gravelly sands, little or no fines
SP	Poorly graded sands, gravelly sands, little or no fines
SM	Silty sands, sand-silt mixtures
SO	Sands with organic silts
ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
OL	Organic silts and organic silty clays of low plasticity

6.0
AUDITS

Several audits were performed during the investigation. The primary objective of audits was to ensure that the quality assurance program developed in the Work Plan was implemented according to the specified procedures. Performance and system audits were conducted.

6.1 PERFORMANCE AUDITS

Internal performance audits consisted of field blank and duplicate samples which were collected and analyzed throughout the duration of the field activities. Analytical results are used to assess data from environmental samples for accuracy and precision.

External performance audit check samples were provided by USACE to the subcontract analytical laboratory, NEI. This occurred during the validation and certification process of the laboratory prior to commencement of field activities. In addition, split samples were collected and submitted to USACE MRD-L for analysis.

6.2 SYSTEM AUDITS

Two field system audits were performed by the QA/QC officer during field activities. The first audit was conducted on June 4, 1992 and six nonconformances were identified. None of these nonconformances were deemed critical to the activities at the time and work was not interrupted. The nonconformances were corrected either immediately upon notification or at the earliest possible time.

A second field system audit was conducted on June 24, 1992 by the QA/QC officer. Five additional nonconformances were identified during the audit of which four were primarily safety and health related issues.

The Audit Finding Reports were presented to the Project Manager for review. None of the nonconformances were considered to be critical deficiencies which could jeopardize the quality of data collected.

An office system audit will be scheduled during the preparation of the RI Report. This audit will review the project file and verify that the data collected is presented, reviewed, and stored in the Project File in accordance with the CDAP.

All audit records are retained in the Project File.

7.0
LESSONS LEARNED

During field activities such as those performed in this investigation, various problems or situations may arise which require corrective action, change in scope of work, modification of procedures, or clarification of requirements. These situations and their resolutions can produce a better understanding of the efforts required to complete the investigation and associated activities. Lessons learned from a critique of this understanding can be applied in future work. Improved procedures used in subsequent activities may yield data of higher quality.

Several of the lessons learned during the investigation at SAEP are presented below.

1) The schedule of field activities was designed to provide flexibility in choosing sample collection locations and concurrent work activities. With this schedule, delays, and problems which were encountered had minor impact on the overall project progress.

2) The use of a local laboratory and its own courier service made the packaging and delivery of samples easier than samples shipped via a commercial carrier.

3) Checking and adjusting the pH of groundwater samples in the field to maintain preservation requirements was particularly important when dealing with brackish waters.

4) The on-site USACE representative for overseeing and inspecting drilling activities streamlined the decision-making process involved with scope of work modifications or clarifications. Expediting these decisions helped in maintaining the schedule of activities.

5) Coordinating and maintaining interaction (including weekly status meetings) between the TL personnel and the WCC Field Manager was imperative in

order to achieve completion of activities due to the nature of work at an active facility.

8.0
SUMMARY AND CONCLUSIONS

The objective of the QCSR is to assess field and analytical data quality in relation to project objectives.

Comparison of the project data quality objectives and goals outlined in the CDAP with the goals for accuracy, precision, completeness, comparability, and representativeness have been addressed and are discussed below.

Accuracy, as demonstrated by analyses of matrix spike/matrix spike duplicate and laboratory control samples and surrogate recoveries, was acceptable. Acid extractable compounds for two Round 1 groundwater samples and six Round 2 groundwater samples were rejected due to unacceptable surrogate spike recoveries. Several inorganic analytes for an additional six Round 1 groundwater samples were rejected due to poor recoveries. It appears that laboratory accuracy for Round 1 groundwater samples was lower than all other types of samples. The rejected sample data could place some constraints on assessing Round 1 groundwater data. Data from Round 2 groundwater samples will be used in conjunction with Round 1 data to assess compound and analyte contamination.

Precision goals were met, as demonstrated by laboratory control sample and field duplicate analyses results. A total of nine duplicate samples were analyzed. The data from the duplicate samples and corresponding field samples are compared to determine precision. Data from at least seven of the compared samples appear to produce an acceptable level of precision.

The completeness for this project was determined to be well above the 80% level typically achieved by the USEPA. The only significant problem with field data completeness appears to be the Synoptic Round 1 measurements. Several locations were not able to be measured. Otherwise, the set of field data is complete in comparison to the data proposed in the Work Plan.

Three soil samples were not analyzed for RCRA metals (with TCLP extraction) as requested. These three samples were collected from one location and appear to not have a significant impact on assessing contaminants in that area of concern because data from other locations in the area are complete.

Comparability and representativeness were addressed by adherence to strict QA/QC procedures and to sampling and reporting procedures outlined in the SOPs. Where modifications to the SOPs have been made, the sample collection and analysis methods have remained fundamentally similar so that the comparability of the data has not been compromised. Results of the project audits indicated that project personnel have followed the QA/QC and sampling and reporting procedures.

Overall QA/QC results suggest that field and laboratory procedures have been followed and that the data reported in this QCSR are valid and useable, as qualified, in meeting project objectives.

Deviations or modifications to the Work Plan occurred and some analytical data are qualified. Data are considered acceptable to quantitatively assess analyte concentrations and determine the presence of and the types and levels of contamination at SAEP.

9.0
REFERENCES

U.S. Department of the Army, Corps of Engineers (USACE), October 1, 1990, Engineering and Design - Chemical Data Quality Management for Hazardous Waste Remedial Activities, ER 1110-1-263.

U.S. Department of the Army, Corps of Engineers, February 1992, Scope of Work for Remedial Investigation at Stratford Army Engine Plant.

Woodward-Clyde Consultants (WCC), December 1991, Preliminary Assessment Screening, Stratford Army Engine Plant, prepared for USACE.

Woodward-Clyde Consultants, January 1992, Remedial Investigation Work Plan, Stratford Army Engine Plant, prepared for USACE.

Letter from M. Craig, WCC, to J. Barrett, USACE, Re: Metals Analysis of Soil Samples, June 5, 1992.

Letter from M. Craig and M. Jacobson, WCC, to J. Barrett, USACE, Re: Submittal of Laboratory for Evaluation and Validation, February 4, 1992.

Letter from R. Gigante, NEI, to M. Craig, WCC, Re: Clarification of Soil Extraction Methodologies, June 10, 1992.

Letter from K. Vasilik, NEI, to M. Jacobson, WCC, Re: Preservation of Groundwater Metals Samples, August 5, 1992.

HOUSATONIC RIVER

CONNECTICUT COORD SYSTEM

APPROXIMATELY 800 FT TO ACTUAL LOCATION

IBG

INTERTIDAL FLATS

LT-1

LT-2

LT-3

STW-1

SF-1 SF-2 SF-3 SF-4 SF-5 SF-6 SF-7 SF-8 SF-9 SF-10

OF-001 OF-002 OF-003 OF-004 OF-005 OF-006 OF-007

WC-1S WC-2D WC-3S WC-4S WC-5S WC-6S WC-7S WC-8S WC-9S WC-10S WC-11S WC-12S WC-13S WC-14S WC-15S

PZ-1D PZ-4D PZ-5D PZ-7D PZ-8D PZ-9D PZ-11D PZ-13D PZ-16D PZ-17D

MW-1 MW-2 MW-3 MW-4

BR-1 BR-2 BR-3 BR-4 BR-5 BR-6 BR-7 BR-8 BR-9 BR-10

ECD-4

LW-1SI LW-1S LW-1D LW-2 LW-3SI LW-3S LW-4 LW-5SI LW-5S LW-5DI LW-5D LW-6 LW-7 LW-8 LW-9S LW-9I LW-9D LW-10S LW-10D LW-10I LW-11 LW-12 LW-13

008-BG STW-2

B-1 B-2 B-3 B-3A B-4 B-5 B-6 B-6A B-7 B-7A B-9 B-10 B-12 B-13 B-15 B-16 B-17 B-18 B-19 B-36 B-37 B-38 B-40 B-41 B-43 B-44 B-45 B-52 B-53 B-58 B-59 B-61 B-63 B-64-1 B-64-2 B-65 B-67 B-68 B-69 B-70 B-71 B-72 B-77 B-79

TANK FARM

BURIED

DRAINAGE DITCH

SNIFFENS LANE

SOUTH PARKING LOT

MAIN STREET

LEGEND

- MONITORING WELL LOCATION
- PIEZOMETER LOCATION
- BORING LOCATION
- STILLING WELL LOCATION
- SEDIMENT AND SURFACE WATER SAMPLING LOCATION
- SURFACE SOIL SAMPLING LOCATION

0 100 200 FT

GRAPHIC SCALE

SAMPLE COLLECTION LOCATIONS – REMEDIAL INVESTIGATION
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

WOODWARD-CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
WAYNE, NEW JERSEY

DR.BY	MG	SCALE	AS SHOWN	PROJ.	93C114NN
CK'D.BY	MEC	DATE	MAR 3 1993	FIG.NO.	2-3

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QCSR
APPENDIX A
Daily Quality Control Reports (DCQR)

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 1
Date: 5/28/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Marc Jacobsen, Mary Dombrowski (CWC) setup field office trailer and support services.

Mobilization (Task 1)

SPECIFIC:

Setup office trailer, unloaded supplies, walked facility to check on locations and access for drill rig.

Personnel: Marc Jacobsen, Mary Dombrowski (CWC)

EQUIPMENT USED ON SITE:

Cargo Van

QUALITY CONTROL ACTIVITIES: (none)

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 2
Date: 5/29/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
(not applicable)

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
Notified by Pete Bonitatebus that Dennis Babcock was in an accident and will not be able to help us. He is locating a replacement.

SPECIAL NOTES:
Locations not cleared for Monday's scheduled drilling

ACTIVITIES SCHEDULED FOR 6/1/92 **:**
Health and Safety meetings and Site orientation meeting with Drilling Subcontractor - East Coast Drilling & Boring, Inc. (ECD)

Prepared by: Marc E. Jacobsen
Name: Marc E. Jacobsen
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 3
Date: 6/1/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Mobilization, drilling subcontractor arrival and setup.

SPECIFIC: Steam cleaned drill rig and equipment.
Drillers unloaded supplies and setup clean area.
Walked all locations for drilling. and marked them
Health and Safety Briefing

Meeting with TLS attended by ECD and UCC personnel — Facility Orientation, Safety Dept.

Personnel: Marc Jacobson (UCC) James Cutler (ECD)
Mary Dombrowski (UCC) Pat Scott (ECD)
~~Personnel (see attached list)~~ Leo Valiquette (ECD)

EQUIPMENT USED ON SITE:

Drill Rig CME-75
2 Pickup trucks
Passenger van
Steam Cleaner

QUALITY CONTROL ACTIVITIES:

Calibration of equipment
Check over bottles and sampling equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 3
Date: 6/1/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

(not applicable)

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

TLS has not cleared more than 2 days of locations.

Locations BR-8, WC-75 and PZ-70 were moved (with USACE approval, Penny Brockman) because of health and safety concerns in magnesium storage area.

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 6/2/92 **:**

Begin drilling of borings.

Prepared by: Marc Jacobson
Name: Marc E. Jacobson
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 4
Date: 6/2/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Began drilling borings and collection of soil samples (Task 2)

SPECIFIC: Completed BR-7 and BR-5
Collected soil samples: BR-7 - 2.5 - 4.5
BR-7 - 4.5 - 6.5
BR-5 - 0.5 - 2.5
BR-5 - 2.5 - 4.5

Cleared several locations with TLS
PZ-7D, MC-7S, BR-8
BR-1, BR-5, BR-4, BR-3, BR-2

Personnel: (see attachment)

EQUIPMENT USED ON SITE:
Drill Rig CME-75
2 Pickup trucks
Passenger van
Steam Cleaner

QUALITY CONTROL ACTIVITIES:
Calibration of equipment
Used on-site: Microtip, CGI, Minram, Radiation Meter

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 4
Date: 6/2/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D with dark blue tyvek coveralls, neoprene boots, neoprene gloves.

Conducted Health and Safety Briefing
Air Monitoring: Microtip, OVI, Miniram, Radiation Meter.

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

Dark blue tyvek causes personnel to heat up faster. This may become a problem if weather gets warmer.

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 6/3/92 **:**

Continue with borings

Prepared by: Marc E Jackson
Name: Marc E Jackson
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 5
Date: 6/3/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continued with Soil borings (Task 2)

SPECIFIC: Completed BR-3, BR-2, BR-4

Soil Samples Collected:

BR-2-1-3
BR-2-3-5
BR-2-5-7
BR-2-3-7
BR-3-1-3
BR-3-3-5
BR-4-1-3
BR-4-3-5

Personnel: (See attachment)

EQUIPMENT USED ON SITE:

Drill Rig CME-75
Pickup Truck
Passenger Van
Steam cleaner.

QUALITY CONTROL ACTIVITIES:

Calibrated Equipment

QA/QC Audit by Mike Cornese conducted.

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 5
Date: 6/3/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Level D with light blue tyvek coveralls, neoprene boots, neoprene gloves
Air Monitoring: Microtip, OVA, Miniram Radiation Meter

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

SPECIAL NOTES:
Marian Craig and Mike Gernese of WCC performed an on-site inspection and audit of work activities

ACTIVITIES SCHEDULED FOR 6/4/92 **:**
Complete PZ-16D
Complete 1 Boring

Prepared by: Marc Jacobsen
Name: Marc E. Jacobsen
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 6
Date: 6/4/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continued with soil borings (Task 2)

SPECIFIC: Completed BR-10, VZ-16D

Soil Samples Collected: BR-10-1-3
BR-10-3-5
BR-10-3-6
Water Sample Collected: FB060492
Geotechnical soil samples.
Concrete cored at BR-10

Personnel - (see attachment)

EQUIPMENT USED ON SITE:

Drill Rig CME-75 Concrete corer.
Pickup Truck
Passenger Van
Steam Cleaner

QUALITY CONTROL ACTIVITIES:

Calibrated Equipment
Collected Field Blank Sample FB060492

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 6
Date: 6/4/92
Page 2 of 2

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Level D with dark blue Tyvek coveralls neoprene boots, neoprene gloves.

Air Monitoring: Miniram, Minirae, OVA Radiation Meter.

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
I am spending much of my time with TLS personnel trying to get locations cleared.

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 6/5/92 **:**
Complete PZ-7D, WC-7S, BR-6

Prepared by: Marc E. Jacobson
Name: Marc E. Jacobson
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 7
Date: 6/5/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continued borings (Task 2) and well and piezometer installation (Task 5)

SPECIFIC: Completed PZ-7D (30' deep)
BR-6 (Tripod)

Cored concrete at BR-8, BR-9

Soil Samples collected: BR-6-0-2
BR-6-2-4

Geotechnical sampler at PZ-7D

Status update meeting held with TLS (see attached sign-in sheet)

Personnel: (see attachment)

EQUIPMENT USED ON SITE:

Drill Rig (ME-75	Tripod
Pickup Truck	Jackhammer
Passenger Van	Corer
Steam Cleaner	

QUALITY CONTROL ACTIVITIES:

Calibrated Equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 7
Date: 6/5/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Level D with dark-colored blue Tyvek coveralls, neoprene boots and neoprene or nitrile gloves

Air monitoring: Miniram, Microtip, CGI, Radiation meter

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
The weather deteriorated during the morning until rain and strong winds forced work to stop in the late afternoon.

SPECIAL NOTES:
The expected running sands in PZ-7D were not encountered.

ACTIVITIES SCHEDULED FOR 6/8/92 **:**
Complete BR-8, BR-9 and 1 well (WC-6S or 7S)

Prepared by: Mark Jacobsen
Name: Mark E. Jacobsen
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 8
Date: 6/8/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continued with well installation (task 5)

SPECIFIC: Completed: MC-65, MC-75

Soil Samples Collected: MC-65-0.5-2.5
MC-65-2.5-4.5
MC-75-0.5-2.5
MC-75-2.5-4.5

Personnel: (see attachment)

EQUIPMENT USED ON SITE:

Drill Rig (ME-75
Pickup Truck
Passenger Van
Steam Cleaner

QUALITY CONTROL ACTIVITIES: Calibrated Equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 8
Date: 6/9/92
Page 2 of 2

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Level D with light blue tyvek coveralls
neoprene boots, neoprene gloves
Air Monitoring: Miniatip, OVA, Radiation Meter

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
Occasional rain caused some delays
in work activities

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 6/9/92 :
Continue with borings & wells

Prepared by: Marc E. Jacobson
Name: Marc E. Jacobson
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 9
Date: 6/9/92
Page 1 of 2

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continued with borings (Task 2) and well and piezometer installation (Task 5)

SPECIFIC: Completed BR-8, WL-35

Soil Samples collected: BR-8-0.5-2.5
BR-8-2.5-4.5
WL-35-0.5-2.5
WL-35-2.5-4.5

Personnel: (see attachment)

EQUIPMENT USED ON SITE:

Drill Rig CME-75
Pickup Truck
Passenger Van
Steam Cleaner

QUALITY CONTROL ACTIVITIES:

Calibrated Equipment

Collected Duplicate Sample for USACE MRD
BR-8-0.5-2.5

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 9
Date: 6/9/92
Page 2 of 2

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D with light blue Tyvek coveralls, neoprene boots and neoprene gloves.

Air Monitoring: Microtip, OVA, Radiation Meter, Personal Air Sampling pumps

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 6/10/92 **:**

Complete BR-9 monitoring well

Prepared by:

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 10
Date: 6/10/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continued with borings (Task 2) and well and piezometer installation (Task 5)

SPECIFIC: Completed BR-9, WC-45

Soil Samples Collected: BR-9-1-3
BR-9-4-6
WC-45-0.5-2.5
WC-45-2.5-4.5

Personnel: (see attachment)

EQUIPMENT USED ON SITE:

Drill Rig CME-75
Pickup Truck
Passenger Van
Steam Cleaner

QUALITY CONTROL ACTIVITIES:

Calibrated Equipment

Collected Duplicate Sample (DUP1) at BR-9-1-3

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 10
Date: 6/10/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D with light-blue tyvek coveralls. neoprene boots, neoprene gloves

Air Monitoring: MicroTip, OVI, Radiation Meter (Noise monitor) Personal air sampling pumps

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

TLS still has not cleared all locations. This allows us with few options in choosing our drilling schedule.

MRD called Marion Craig — Split sample collected yesterday - BR-8-0.5-2.5, was rejected — sample was too warm - not enough ice in cooler to preserve it.
Plan on collecting replacement soil sample (boring).

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 6/11/92 :

Complete PZ-10 and MW-15

Prepared by: [signature]
Name: Marc E. Jacobson
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 11
Date: 6/11/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continued with well and piezometer installation (Task 5)

SPECIFIC: Completed PZ-1D and WC-15
Soil Collected Samples: WC-15-0.5-2.5
WC-15-2.5-4.5
Geotechnical sampler

Personnel: (See attachment)

EQUIPMENT USED ON SITE:
Drill Rig - CME-75
Pickup Truck
Passenger Van
Steam Cleaner

QUALITY CONTROL ACTIVITIES:
Calibrated equipment
Duplicate sample collected (DUP2) at WC-15-0.5-2.5

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 11
Date: 6/11/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D with light blue tyvek coveralls, neoprene boots, neoprene gloves.

Air Monitoring: Microtip CGI, Radiation Meter
Noise Monitoring personal air monitoring pumps

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

Delay in setting up rig due to conflict by TLS' work at same location.

Hydropunch in use at BR-1. Penny suggests not using it due to fill material. We will attempt alternate method using PVC screen in augers to collect water sample.

SPECIAL NOTES:

MRD sample from 6-9-92 was received at 14°C. Will collect sample for MRD at BR-1.

ACTIVITIES SCHEDULED FOR 6/12/92 :

Complete ~~GW-4~~ and BR-1
PZ-40

Prepared by: Marc E Jacobsen
Name: Marc E Jacobsen
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 12
Date: 6/12/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue with well and piezometer installation (Task 5)

SPECIFIC: Completed MC-55
Cored concrete MC-55
Samples collected:

Status update meeting with TLS (see attached memo)

Road boxes and protective casing & seals set on: PZ-1D, MC-15,

Walk PZ-9D/MC-95 and PZ-11D & MC-15, locations with Driller and Penny Brackman.

Personnel: (see attachment)

EQUIPMENT USED ON SITE:

Drill Rig CME-75
Pickup Truck
Passenger Van
Steam Cleaner
Concrete Corer
Jack hammer.

QUALITY CONTROL ACTIVITIES:

Calibrated equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 12
Date: 6/12/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Level D with light blue tyvek coveralls, neoprene boots, neoprene gloves

Air Monitoring: Microtip, OVA, Radiation Meter personal air sampling pumps.

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
Long delay due to conflict with our drilling location and TLS contractor's work.

Security issue with holding sample shipments resolved in a separate meeting between Alan Moody, Bob Cervone (TLS) Brian Wilby (TLS) and myself

SPECIAL NOTES:
The delay was extended because there were few locations to move to which were cleared by TLS.

ACTIVITIES SCHEDULED FOR 6/15/92 **:**
Install PZ-9D and MW-9S
Complete BR-1

Prepared by: Marc E Jacobson
Name: Marc E Jacobson
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 12
Date: 6/12/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue with well and piezometer installation (Task 5)

SPECIFIC: Completed WC-55
Cored concrete WC-55
Samples collected:

Samples
WC-55-0.8-2.8
WC-55-2.8-4.8

Status update meeting with TLS (see attached memo)

Road boxes and protective casing & seals set on: PZ-1D, WC-15,

Walk PZ-9D/WC-9S and PZ-11D & WC-11S locations with Driller and Penny Brackman.

Personnel: (see attachment)

EQUIPMENT USED ON SITE:

Drill Rig CME-75
Pickup Truck
Passenger Van
Steam Cleaner
Concrete Corer
Jack hammer.

QUALITY CONTROL ACTIVITIES:

Calibrated equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 12
Date: 6/12/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Level D with light blue tyvek coveralls, neoprene boots, neoprene glover

Air Monitoring: Microtip, OVI, Radiation Meter personal air sampling pumps.

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
Long delay due to conflict with our drilling location and TLS contractor's work.

Security issue with holding sample shipments resolved in a separate meeting between Alan Moody, Bob Cervone (TLS) Brian Gilboy (TLS) and myself

SPECIAL NOTES:
The delay was extended because there were few locations to move to which were cleared by TLS.

ACTIVITIES SCHEDULED FOR 6/15/92 **:**
Install PZ-9D and MW-9S
Complete BR-1

Prepared by: Marc E Jacobsen
Name: Marc E Jacobsen
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 13

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6/15/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue with well and piezometer installation. (Task 5)

SPECIFIC: Completed WC-9S > wells set
Completed PZ-9D

Samples collected: WC-9S-2-4
WC-9S-4-6

PERSONNEL: see attachment

EQUIPMENT USED ON SITE:
Drill Rig CME-75
Support vehicles
Steam Cleaner

QUALITY CONTROL ACTIVITIES:
Calibrated Equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 13

Date: 6/15/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D- modified - no tyvek

Air monitoring: Microtip, CGI,
(air sample pumps not used)

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

Delay at WC-9S; 3rd spoon hit insulation material or possible sewer line
Crew had to wait 1 hour for TLS to clear location to continue.
No sewer located on existing plant drawings.
Strange odor while drilling at location - could be sewer line nearby.
Drillers delay - grout dried in hose. (1.25 hours)

SPECIAL NOTES:

WC-9S & PZ-9D located on grass area along Main Street. May require landscaping if TLS sees necessary.

ACTIVITIES SCHEDULED FOR 6/16/92 **:**

WC-11S & PZ-11D
sample and install wells.

Prepared by: Marc E Jacobson

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 14

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6/16/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue with well and piezometer installation. (Task 5)

SPECIFIC: Completed WC-11S and PZ-11D

Samples collected: WC-11S-0.5-2.5
WC-11S-2.5-4.5

Geotechnical samples for PZ-11D

PERSONNEL: (See attachment)

EQUIPMENT USED ON SITE:

CME-75 Drill rig
Support vehicles
Steam cleaner
Jack Hammer

QUALITY CONTROL ACTIVITIES:

Calibrated equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 14

Date: 6/16/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D (no tyvek)

Monitoring equipment: Microtip, CGI.

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

Delay at WC-115 due to TLS checking on possible electrical utility in area that rig may have hit with augers ~2-3' depth.

Note: Soil for sample WC-115-2-5-4.5 was collected using the driller's split-spoon and not stainless steel one. Notation made by geologist in log book

SPECIAL NOTES:

WC-115/PZ-11D located on asphalt parking area near Visitors Entrance on Main Street.

ACTIVITIES SCHEDULED FOR 6/17/92 **:**

WC-145 WC-155
BR-1

Prepared by: Mark E. Jacobson

Name: Mark E. Jacobson

Title: Field Manager.

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 15

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6/17/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue with well and piezometer installation (Task 5) BR-1P.

SPECIFIC: Installed MW-14S, MW-15S

Sampled BR-1

Samples collected: BR-1-0.5-2.5
BR-1-2.5-4.5

Roadboxes set at MW-14S & PZ-9D

PERSONNEL: (See attachment)

EQUIPMENT USED ON SITE:

Drill Rig CME-75 — Concrete corer
Support vehicles — jack hammer.

QUALITY CONTROL ACTIVITIES:

Calibrated equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 15

Date: 6/17/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D - modified

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

- none -

SPECIAL NOTES:

Sample of groundwater at BR-1 not taken as planned because of lack of contamination evidence (staining, organic vapors)

ACTIVITIES SCHEDULED FOR 6/18/92:

WC-85 & PZ-8D

Prepared by: Marc E. Jacobsen

Name: Marc E. Jacobsen

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 16

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6/18/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue with monitoring well and piezometer installation (Task 5)

SPECIFIC: Installed WC-8S and PZ-8D

Samples collected: WC-8S-0.5-2.5
WC-8S-2.5-4.5

Geotechnical samples at PZ-8D(2) and WC-8S (1)

Roadbox set at WC-15S

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

Drilling Rig CME-75
Support vehicles
Steam cleaner

QUALITY CONTROL ACTIVITIES:

Calibrated equipment.
Collected field blank sample - FB061892
Collected split sample for MRD - WC-8S-2.5-4.5

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 16

Date: 6/18/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

· Level D

Air Monitoring: Microtip, CGI

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

While setting well casing at PZ-8D, sands heaved up inside augers. Casing was hammered back down to 33.5'. This procedure avoided washing sands out of hole and onto ground. Piezometer completed without additional problems.

Difficulty encountered in trying to move waste drums to storage area.

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 6-19-92 :

Install PZ-4D

Prepared by: Mark E. Jacobson

Name: Mark E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 17

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6/19/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue with monitoring well and piezometer installation (Task 5)

SPECIFIC: Install PZ-4D

Only geotechnical samples collected

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

Drilling Rig CME-75
Support Vehicles
Steam cleaner

QUALITY CONTROL ACTIVITIES:

Calibrated equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 17

Date: 6/19/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D

Air monitoring with Microtip & CGI.

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

-none-

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 6/22/92:

WC-105 and WC-125

Prepared by: Mavi E. Jacobson

Name: Mavi E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 18

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6/22/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue with monitoring well and piezometer installation (Task 5)

SPECIFIC: Install WC-105 and PZ-17D

Collect samples: WC-105-0.5-2.5
WC-105-2.5-4.5

Geotechnical samples at PZ-17D (9)

Complete roadboxes at WC-85, PZ-8D and PZ-4D

PERSONNEL: (See attachment)

EQUIPMENT USED ON SITE:

Drilling rig CME-75 — Jackhammer.
Support vehicles — Steam cleaner

QUALITY CONTROL ACTIVITIES:

Calibrated equipment.

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 18

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6/22/92
Page 2 of 2

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D

Monitoring equipment: Microtip
CGI

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

We attempted to sample soil and install well at WC-125. At approximately 4' depth, hit obstruction, even when moved drilling rig to 2 other locations within 3 feet of original location, abandoned location and discussed problem and options with Project Manager. Approval will be requested from USACE for new location (possibly to west side of B-12, less than 100 feet from original location by B-2)

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 6/23/92 :

WC-135, PZ-130 and WC-20 (start)
Possibly WC-125 if new location approved
Also will start on well development

Prepared by: Marc E. Jacobson

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 19

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6/23/92

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue with monitoring well and piezometer installation (Task 5)
Start development of wells.

SPECIFIC: Install WC-13S, PZ-13D
Start WC-2D

Samples collected: WC-2D-0.5-2.5
WC-2D-2.5-4.5
WC-2D-4.5-6.5
Geotechnical samples at PZ-13D
Set roadboxes at WC-10S and PZ-17D.

Surveyed WC-1S and PZ-1D
Concrete at
Cored PZ-5D location for drilling

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

Drilling rig CME-75
support vehicles
tripod and surge block
jackhammer
corer
steam cleaner

QUALITY CONTROL ACTIVITIES:

Calibrated equipment.
Collected Field Blank sample: FB062392
Collected Duplicate sample (DUP3) at WC-2D-0.5-2.5.
Collected split sample for NRD at WC-2D-2.5-4.5

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 19

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6/23/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D

Monitoring equipment: MicroTip
CGI

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

Drillers had some problems completing PZ-13D; Bridge in bentonite chips, had to pull augers out quickly which resulted in some bentonite and PVC fragments falling into casing. This will effect well depth measurements and groundwater sample collection, if performed. Mary discussed this with NEC.

High volatile vapor readings at WC-2D, 4.5-6.5 depth; an additional soil sample collected at this depth.

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 6/24/92 **:**

Continue well development
Complete WC-2D

Prepared by: Marc Jacobson

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 20

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6/24/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue monitoring well and piezometer installation and well development

SPECIFIC: Complete WC-2D

Collected samples: - geotechnical only at WC-2D

Surged WC-4S

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

Drilling Rig CME-75 Steam cleaner
Support Vehicles
Tripod and surge block

QUALITY CONTROL ACTIVITIES:

Calibrated equipment.
QA/QC audit by M. Carnese performed.

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 20

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6/24/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D

Monitoring with Microtip and CGI was performed only when rain showers were not steady.

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

Heavy rain showers slowed drilling and stopped well development, primarily due to health and safety concerns.

SPECIAL NOTES:

Drillers attempted to pump water out of excavation at proposed WC-125 location. Appears to be a former concrete vault or footings which we had attempted to drill through.

ACTIVITIES SCHEDULED FOR 6/25/92:

PZ-5D, continue development
Possibly start pump tests.

Prepared by: Mark E. Traaben

Name: Mark E. Traaben

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 21

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6/25/92

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Completed piezometer installation.
Continued with well development

SPECIFIC: Installed PZ-5D
Collected geotechnical samples at PZ-5D
Surged PZ-4D, WC-8S, PZ-8D
Attempted pump test at WC-1S

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:
Drilling Rig CME-75 Steam cleaner
Support vehicles
Tripod and surge block.

QUALITY CONTROL ACTIVITIES:
Calibrated equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 21
Date: 6/25/92
Page 2 of 2

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D

Monitoring equipment, Microtip, HNu and CGI.

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

- none -

SPECIAL NOTES:

Marian expects USACE approval from J. Barrett tomorrow on location of WC-12S.

ACTIVITIES SCHEDULED FOR 6/26/92:

Will drill and install WC-12S if approval received from USACE
Continue well development

Prepared by: [signature]
Name: Marc E. Jacobson
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 22
Date: 6-26-92
Page 1 of 2

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue with monitoring well and piezometer installation and development. Task 5.

SPECIFIC: Completed WC-12S
Surged PZ-17D.
Collected samples WC-12S-0.5-2.5 and WC-12S-2.5-4.5.
Set road boxes at WC-2D, WC-13S, PZ-13D, WC-12S, and WC-10S

Complete decon of rig and equipment before OTAG left site.

Removed pump stuck in PZ-1D.
Removed Aquastar from WC-4S.

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:
CME-75
Support Pickup
Passenger Van
Steam Cleaner
Jack Hammer
Tripod and Generator

QUALITY CONTROL ACTIVITIES: Calibrated Equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 22

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6-26-92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D, Light blue Tyvek Coveralls, work boots, surgical gloves.
Air Monitoring - HNu, Rad meter.

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

None encountered.

SPECIAL NOTES:

Textron has cleared our use of an outside forklift contractor. We will locate such a person on 6-29-92

ACTIVITIES SCHEDULED FOR 6-29-92:

Continue surging.
Start pumping surged wells.

[signature] Field Manager

Prepared by: [signature]

Name: M. DOMBROWSKI

Title: ACTING FIELD MANAGER

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 23

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6-29-92

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue with well and piezometer development. Task 5

SPECIFIC: Surged WC-7S, PZ-7D.
Began pumping WC-7S.
Set roadbox at PZ-5D
Took inventory of drums, Closed & tightened drum lids, prepared drum labels so that forklift contractor can move drums tomorrow.

PERSONNEL:

EQUIPMENT USED ON SITE:
Tripod and generator
Support pickup
passenger Van
Centrifugal pump and hose.

QUALITY CONTROL ACTIVITIES: Calibrated pH, Spec Cond meters.

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 23

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 6-29-92
Page 2 of 2

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D Work boots
surgical gloves

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

WC-7S recovered poorly — was pumped during low tide. Will try pumping today during high tide.

SPECIAL NOTES:

Artie DeVellis hired to move drums with forklift starting tomorrow. Terms: will invoice WCC. / @ $35/man, 2-man crew & 50 day expenses.

ACTIVITIES SCHEDULED FOR :

Continue purging and pumping.
Drums to be moved

Prepared by: Mary Dombrowski

Name: Mary Dombrowski

Title: Acting Field Mgr

Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 24
Date: 6-30-92
Page 1 of 2

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue well and piezometer development.
TASK 5
Cost drums moved.

SPECIFIC: Surged WC-13S, PZ-13D

Developed WC-7S PZ-7D
WC-1S PZ-1D
WC-4S PZ-4D

Thirty three drums of soil, decon water, and PPE moved to drum storage area.

EQUIPMENT USED ON SITE:

Tripod & generator Forklift & pallets
Support Pickup (two)
Chevenger van
Centrifugal pump and hose

QUALITY CONTROL ACTIVITIES:

Calibrated pH, Specific Cond meters

DAILY QUALITY CONTROL REPORT

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

REPORT NUMBER: 24
Date: 6-30-92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Level D   Work boots
Surgical gloves

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

WC-7S was pumped during high tide and still recovered poorly. It will be hand pumped periodically tomorrow to continue development process.

SPECIAL NOTES:

Jacobson & Gautreau on-site at about 4:00 - 5:00 PM. Are reviewing logistics for stilling well installation tomorrow.

ACTIVITIES SCHEDULED FOR 7-1-92

Continue surging and pumping
Install stilling wells.
Final 3 drums to be moved to storage area.

[signature]
Field Manager

Prepared by: M Dombrowski
Name: M. DOMBROWSKI
Title: Acting Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 25

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/1/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue well development

Install stilling wells.

SPECIFIC: Surged WC-10S, WC-12S and PZ-16D.

Purged WC-8S, PZ-8D, WC-13S, PZ-13D, and PZ-17D

Installed STW-1 and STW-2

PERSONNEL: (See attachment)

EQUIPMENT USED ON SITE:

Tripod and surge block
Steam cleaner
Support vehicles

QUALITY CONTROL ACTIVITIES:

Calibrated equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 25

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/1/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

-None-

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 7/2/92 **:**

Continue with well development

Prepared by: Marc E. Jacobson

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 26

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/2/92

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue well development

SPECIFIC: Surged WC-9S and PZ-9D, ~~WC-11S~~ PZ-11D
Purged PZ-16D, WC-12S, WC-9S, and PZ-9D

Also hand purged WC-7S

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

Tripod and surge block
Steam cleaner
Support vehicles

QUALITY CONTROL ACTIVITIES:

Calibrated equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 26

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/2/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

PZ-9D does not recharge quickly - and will require additional purging on 7/6/92.
A strange odor was noted during pumping — sewer/solvent.
A slight sheen (clear) or product layer appears on top of water in bucket while purging.
Discussed with Marion — this is an upgradient location and TLS may be concerned.

SPECIAL NOTES:
PZ-9D, strange odor noted during purging — smelled like sewage or solvent.

ACTIVITIES SCHEDULED FOR 7/6/92 **:**
Continue well development

Prepared by: Marc E. Jacobson

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 27

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/6/92

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue well development

SPECIFIC: Surged WC-11S and WC-14S.
Purged PZ-9D, WC-11S, PZ-11D and WC-14S.
Hand purged WC-7S

PERSONNEL: (See attachment)

EQUIPMENT USED ON SITE:
Tripod and surge block
Steam cleaner
support vehicles

QUALITY CONTROL ACTIVITIES:
Calibrated equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 27

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/6/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
-None-

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 7/7/92 **:**
Continue well development

Prepared by: [signature]

Name: Marc E. Jacobsen

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 28

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/7/92

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue well development

SPECIFIC: Surged WC-6S and WC-15S

Purged WC-6S, WC-14S

Hand purged WC-7S

Placed wood markers at surface soil locations on Causeway.

PERSONNEL: (See attachment)

EQUIPMENT USED ON SITE:

Tripod and surge block
Steam cleaner
Support vehicles

QUALITY CONTROL ACTIVITIES:

Calibrated equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 28

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/7/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

-None-

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 7/8/92 **:**

Continue well development
Collect surface soil samples on Causeway

Prepared by: Mark E. Jacobson

Name: Mark E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 29

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/8/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Continue well development.

Sample surface soil on causeway

SPECIFIC: Surged WC-2D, WC-3S

Purged WC-2D, WC-3S

Hand purged WC-7S

Collected soil samples: SF-1 through SF-10

Check condition of existing wells:
MW-1, MW-2, MW-3, MW-4, LW-7, LW-10

PERSONNEL: (See attachment)

EQUIPMENT USED ON SITE:

Tripod and surge block
Steam cleaner
Support vehicles

QUALITY CONTROL ACTIVITIES:

Calibrated equipment
Collected duplicate sample SF-DUP at location SF-10

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 29

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/8/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
Could not locate MW-4 - TLS is searching for location.

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 7/9/92 :
Continue well development

Prepared by: Marc E. Jacobson

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 30

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/9/92

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Completed well development

Demobilized development equipment and all associated drilling supplies.

SPECIFIC:

Surged WC-5S, PZ-5D

Purged WC-5S, PZ-5D

Hand purged WC-7S

Cleaned out decon pad and broke it down for storage and disposal

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

Tripod and Surge block
Steam cleaner
support vehicles

QUALITY CONTROL ACTIVITIES:

Calibrated equipment

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 30

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/9/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
None -

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 7/10/92 **:**
Final Demobilization of Drilling phase.
Completion of initial field activities.

Prepared by: Marc Jacobsen
Name: Marc Jacobsen
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 31

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/10/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Demobilization of Drilling activities phase.

SPECIFIC: Measured water levels in all of the new wells and piezometers, except WC-45, PZ-40. Cleaned well boxes and set security seal tags on caps.

Cleaned up trailer area

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

Support vehicles only

QUALITY CONTROL ACTIVITIES:

None

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 31

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/10/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

— NA —

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

— none —

SPECIAL NOTES:

Scrap debris is covering WC-4S and PZ-4D. TLS notified that this will need to be moved in order to access locations.

ACTIVITIES SCHEDULED FOR _____:

Next activity is groundwater sample collection, tentatively scheduled for end of July 1992.

Prepared by: Marc E. Jacobson

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 32

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/27/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Groundwater Sample Collection

SPECIFIC: Mobilized and setup for collecting groundwater samples

Purged and sampled: WC-95
WC-115
WC-145

PERSONNEL: (See attachment)

EQUIPMENT USED ON SITE:

Centrifugal pump
support vehicles

QUALITY CONTROL ACTIVITIES:

Calibrated equipment / pH meter
SC Tmeter

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 32

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/27/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

Monitor organic vapors with HNu

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

-None-

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 7/28/92 **:**

Purge and sample wells

Prepared by: Mark E Jackson

Name: Mark E. Jackson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 33

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/28/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Groundwater Sample Collection

SPECIFIC: Purged and sampled: WC-15S
LW-7
WC-15
WC-12S
WC-13S
LW-10

PERSONNEL: (see attachment

EQUIPMENT USED ON SITE:

centrifugal pump
Van, pickup truck

QUALITY CONTROL ACTIVITIES:

Calibrated equipment (pH meter, SCT meter)
Collected MS/MSD sample at LW-7.
Collected field blank sample - FB072892.
Collected duplicate sample WC-DUP1 at

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 33

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/28/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

Monitored organic vapors with HNu

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

- none -

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 7/29/92 **:**

Purge and sample wells.

Prepared by: Mare E Jacobsen

Name: Mare E. Jacobsen

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 34

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/29/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Groundwater Sample Collection

SPECIFIC: Purged and sampled: WC-10S
WC-3S
WC-4S
WC-7S
WC-8S

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:
centrifugal pump
van, pickup truck

QUALITY CONTROL ACTIVITIES:
Calibrated pH and SCT meters
Collected split samples for MRD at WC-3S and WC-8S.

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 34

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/29/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

Monitored organic vapors with HNu

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

— none —

SPECIAL NOTES:

Purged WC-7S by hand bailing due to slow recharge rate of groundwater

ACTIVITIES SCHEDULED FOR 7/30/92 **:**

Continue groundwater sample collection.

Prepared by: Marc Jacobsen

Name: Marc E. Jacobsen

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 35

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/30/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Groundwater Sample Collection

SPECIFIC: Purged and sampled: ECO-4
MW-1
MW-2
~~MW-4~~ WC-65
PZ-9D

PERSONNEL: (See Attachment)

EQUIPMENT USED ON SITE:

centrifugal pump
van, pickup truck

QUALITY CONTROL ACTIVITIES:

Calibrated pH and SCT meter

Collected field blank sample FB073092

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 35

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/30/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

Monitored air with HNu

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

TLS still did not locate ECD-1. Marian said that J. Barrett approved PZ-9D sampling last Friday, we sampled it today.

MRD told Marian that metals samples for split (WC-35 & 85 from yesterday) were not preserved (L2pH). They adjusted them - won't reject them, but we need to adjust pH in field on all samples. (all MET to discuss and verify that they check pH of samples upon arrival as required.

SPECIAL NOTES:

ECD-4 is not locked and does not have a PVC cover. Standard bailer did not fit inside well casing due to thick-walled PVC casing. We sampled from clean poly hose by hand surging.

ACTIVITIES SCHEDULED FOR 7/31/92 **:**

Complete groundwater sample collection

Prepared by: Mark Jackson

Name: Mark E. Jackson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 36

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/31/92

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Groundwater Sample Collection

SPECIFIC: Purged and sampled: MW-4
MW-3
WC-2D
WC-55

Remobilized groundwater collection

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

centrifugal pump
van, pickup truck

QUALITY CONTROL ACTIVITIES:

Calibrated pH and SCT meters.
Collected MS/MSD sample at WC-55.
Collected ~~field blank~~ dupliate sample MW-DUP at WC-55

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 36

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 7/31/92
Page 2 of 2

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

Monitored air with HNu

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

None -

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR _____ :

Aquifer slug tests are scheduled for August 1992.

Prepared by: Mark E. Jacobsen

Name: Mark E. Jacobsen

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 37

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 8/13/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Conduct slug tests

SPECIFIC: Slug tests performed at locations:

UC-4S
UC-9S
UC-11S
PZ-1D
PZ-4D
PZ-5D
PZ-7D
PZ-8D
PZ-9D
PZ-11D
PZ-13D
PZ-16D
PZ-17D

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

Van
Data loggers & recorders
Slugs.

QUALITY CONTROL ACTIVITIES:

-none-

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 37

Date: 8/13/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

(none)

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 8/14/92 **:**

Complete slug tests

Prepared by: Mark Jacobsen

Name: Mark Jacobsen

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 38

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 8/14/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Conduct slug tests for hydrogeologic study

SPECIFIC: Slug tests performed at:
WC-1S
WC-5S
WC-8S
PZ-1D
PZ-5D

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

van
data loggers & recorders
slugs

QUALITY CONTROL ACTIVITIES:

none-

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 38

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 8/14/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

(none)

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR _____:

Next activity scheduled is Synoptic measurements in late August and possibly Long-Term Monitoring

Prepared by: Marc E Jacobson

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 39

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 9/1/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Synoptic Groundwater Level Measurements

SPECIFIC: Collected data (ground water levels, salinity and conductivity) at all new & existing wells & piezometers – except:

low Tide only: WC-15, PZ-1D, WC-4S, WC-8S, MW-1, PZ-4D, PZ-8D, PZ-13D, PZ-16D, LW-8 (could not open well caps or road box covers)

Instrument (SCT meter) failure; no data collected (low tide only)
WC-14S, WC-15S, LW-4, LW-6, LW-7, LW-10S, LW-10T, LW-10D, LW-12)

PERSONNEL: (see attachments)

EQUIPMENT USED ON SITE:

support vehicle - van

QUALITY CONTROL ACTIVITIES:

calibrated SCT meters

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 89

Date: 9/1/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

6 additional existing wells were located - not on Work Plan Figure.

LW-5D LW-10I
LW-5DI LW-10D

LW-9I These were added
LW-9D to synoptic data.

(See page 1 also)

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR ______ **:**

Prepared by: [signature]

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 40

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 9/18/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Long-Term Groundwater level Monitoring

SPECIFIC: Aquistars installed in:
WC-15
WC-55
WC-135

PZ-1D
PZ-5D
PZ-13D
PZ-17D

PERSONNEL: (see attachments)

EQUIPMENT USED ON SITE:

Support vehicle - van

QUALITY CONTROL ACTIVITIES:

- none -

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 40

Date: 9/18/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

-NA-

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

-none-

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 9/21/92 **:**

Removal of Agristars and
Sampling waste drums

Prepared by: Mark E. Jacobson

Name: Mark E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 41

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 9/21/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Remove Aquistars
Sample waste drums - soil

SPECIFIC: Collected soil samples from storage drums.

S-AREA 6
S-AREA 7
S-AREA 3
S-AREA 4
S-AREA 5

Samples shipped to Ortek for analysis

Removed Aquistars from wells & piezometers (7 locations)

PERSONNEL: (See attachment)

EQUIPMENT USED ON SITE:

NA

QUALITY CONTROL ACTIVITIES:

- none -

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 41

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 9/21/92
Page 2 of 2

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

-none-

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR ———:

To be scheduled:
Groundwater Round 2
Sediment and Surface water sampling

Prepared by: Marc E. Jacobson

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 42

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/5/92

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Survey

SPECIFIC: Surveyed elevations of wells and piezometers – to top of PVC casing at lip of cap.

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

NA

QUALITY CONTROL ACTIVITIES:

NA

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 42

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/5/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Monitored air near well head while surveying

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

— none —

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR ——— :

Prepared by: Mark E. Jacobsen

Name: Mark E. Jacobsen

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 43

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/22/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Sample surface water at outfalls.

SPECIFIC: Collected samples: 01-SW
02-SW
03-SW
04-SW
05-SW
06-SW
07-SW
08-SW
08-BG-SW (Background)
Bottle immersion technique used for sample collection

PERSONNEL: (See attachment)

EQUIPMENT USED ON SITE:

Van - support vehicle

QUALITY CONTROL ACTIVITIES:

Collected MRD split sample at 07-SW

Collected MS/MSD sample at 06-SW for NET.

Calibrated instruments.

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 43

Date: 10/22/92

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

No air monitoring

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

(none)

SPECIAL NOTES:

We were not able to collect any sediment samples today; will try tomorrow.

ACTIVITIES SCHEDULED FOR 10/23/92 :

Collect sediment and surface water samples from Housatonic River and tidal area

Prepared by: Marc Jacobson

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 44

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/23/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Collected sediment and surface water samples from Intertidal Area.

SPECIFIC: Collected samples: LT1-SW, LT3-SW, LT2-SW, JB6-SW (surface water)

LT1-0-12, LT1-12-24, LT3-0-12, LT3-12-24, LT2-0-12, LT2-12-24, JB6-0-12, JB6-12-24 (sediment)

Collection Techniques:
Bottle immersion for surface water.
Corer for sediment

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:
19 ft long boat + van
sediment corer
van

QUALITY CONTROL ACTIVITIES:
Calibrated instruments
Collected Field Blank FB102392 (used corer as equipment rinse along with spoons and bowls)
Collected Duplicate sample DUP-SW at LT2-SW

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 44

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/23/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified level D.
(Poly coat Tyvek used while on boat)

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

(none)

SPECIAL NOTES:

Surveyors also on-site. Met them on causeway and helped in surveying breakwall and iron pipe location

ACTIVITIES SCHEDULED FOR 10/26/92 **:**

Ground water Sample collection
Possibly collect sediment from outfall - tide dependent

Prepared by: Marc E. Jacobson

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 45

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/26/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Groundwater Sample Collection

SPECIFIC: Samples collected: WC-105
WC-125
WC-135

Set up for groundwater sample collection and outfall sediment sample collection

PERSONNEL: (See attachment

EQUIPMENT USED ON SITE:

Centrifugal pump
van, pickup truck

QUALITY CONTROL ACTIVITIES:

Calibrated instruments - pH & SCT meters

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 45

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/26/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

Attempted to collect sediment sample from dry well in B-19.
Dry well located - steel cover removed but the well appears to be sealed with concrete. at ~2 feet below floor.
Personnel in building said it was sealed when B-19 constructed (~1988).

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR 10/27/92 **:**

Continue groundwater sample collection

Prepared by: Mark Jacobson

Name: Mark Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 46

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/27/92

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Groundwater and Outfall Sediment Sample Collection

SPECIFIC: Samples Collected:
- Groundwater: WC-14S, WC-15S, LW-7, LW-10
- Sediment: 06-0-12, 06-12-24, 08-0-12, 08-12-24, 05-0-12, 05-12-24, 08-BG-0-12, 08BG-12-24

PERSONNEL: (See attachment)

EQUIPMENT USED ON SITE:

centrifugal pump
Van, pickup truck

QUALITY CONTROL ACTIVITIES:

Calibrated instruments - pH & SCT meters
Collected sediment duplicate sample DUP-SD at 08-12-24

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 46

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/27/92
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PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
Note: Samples collected yesterday 10/26/92 were shipped (picked up by MET) today.
Inadvertely, a trip blank was not enclosed with shipment (noted after samples were picked up)

SPECIAL NOTES:
Health & Safety – walking down the sloped dike to collect sediment samples is difficult due to slippery rocks and mud/sediment.

ACTIVITIES SCHEDULED FOR 10/28/92 :
Groundwater and sediment sample collection

Prepared by: Marc E. Jacobsen

Name: Marc E. Jacobsen

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 47

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/28/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Groundwater and Sediment Sample Collection

SPECIFIC: Samples Collected: WC-1S, WC-8S, ECD-4 / Groundwater

01-0-12, 01-12-24
03-0-12, 03-12-24
07-0-12, 07-12-24
02-0-12, 02-12-24
04-0-12, 04-12-24
/ Sediment

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

centrifugal pump
van, pickup truck

QUALITY CONTROL ACTIVITIES:

Calibrated instruments - pH & SCT meters
Collected Field Blank sample FB102892 (sediment)
Collected split samples for NJRD at 07-0-12, ECD-4, and WC-1S
Collected duplicate GW sample DUP-GW2A at WC-8S

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 47
Date: 10/28/92
Page 2 of 2

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

(none)

SPECIAL NOTES:

Strong petroleum odor noticed at outfalls 02 & 03 — ~~[illegible]~~ sediment appeared very black and some 'oil' sheen seen on it.

ACTIVITIES SCHEDULED FOR 10/29/92:

Groundwater Sample Collection

Prepared by: [signature]
Name: Marc E Jacobson
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 48

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/29/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Groundwater Sample Collection

SPECIFIC: Samples collected: MW-9S
MW-11S
PZ-9D
MW-4S
MW-5S
MW-6S

PERSONNEL: (See attachment)

EQUIPMENT USED ON SITE:

Centrifugal pump
Van, pickup truck

QUALITY CONTROL ACTIVITIES:

Calibrated instruments - pH & SCT meters
Collected Field Blank sample FB102992
Collected MS/MSD Sample at MW-4S.

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 48

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/29/92
Page 2 of 2

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
(none)

SPECIAL NOTES:
WC-6S - recharges slowly - (8% salinity)
WC-4S - difficult to filter - (oily scum?)

ACTIVITIES SCHEDULED FOR 10/30/92 **:**
Complete Groundwater Sample Collection

Prepared by: Mark Jacobson
Name: Marc E. Jacobson
Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 49

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/30/92

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Completed Groundwater Sample Collection

SPECIFIC: Samples collected: MW-1
MW-2
MW-3
MW-4
WC-2D
WC-35
WC-75

Demobilized groundwater sample collection equipment

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

Centrifugal pump
van / pickup truck

QUALITY CONTROL ACTIVITIES:

Collected Field Blank sample FB103092.
Collected MS/MSD sample at MW-1.
Collected duplicate sample at WC-2D

Calibrated instruments - pH & SET meter

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 49

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/30/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
(none)

SPECIAL NOTES:
UK-95 - high salinity 18‰!

ACTIVITIES SCHEDULED FOR _____:
Last activity pending is Synoptic Round 2. - mid November?

Prepared by: Mark E. Jacobsen

Name: Mark E. Jacobsen

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 50

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 11/11/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Collected replacement soil samples at BR-1 due to laboratory (NET) error - did not analyze PCBs.

SPECIFIC: Samples collected: BR-1-0.5-2.5
BR-1-2.5-4.5

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:
Drilling Rig CME-75 + Split spoon
van

QUALITY CONTROL ACTIVITIES:
(none)

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 50

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 11/11/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Modified level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
(none)

SPECIAL NOTES:
I discuss logistics of final demobilization with TLS. Tentatively planned for 11/17/92.

ACTIVITIES SCHEDULED FOR 11/16/92 :
Synoptic Round 2

Prepared by: Marc Jacobsen

Name: Marc E. Jacobsen

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 51

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 10/16/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Synoptic Groundwater Level Measurements Round 2

SPECIFIC: Collected data at all new and existing wells and piezometers.
- groundwater levels
- Salinity
- Conductivity.

4 Rounds – Low Tide – GW levels only
– all measurements
High Tide – GW levels only
– all measurements

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

Van & pickup truck

QUALITY CONTROL ACTIVITIES:

Calibrated instruments - SCT meters.

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 51

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 11/16/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:
Modified Level D

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:
(none)

SPECIAL NOTES:
We were able to collect 2 rounds of GW levels - each within 30-40 minutes, required 6 personnel.

ACTIVITIES SCHEDULED FOR 11/17/92 **:**
Final Demobilization

Prepared by: Marc E. Jacobson

Name: Marc E. Jacobson

Title: Field Manager

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 52

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 11/17/92
Page 1 of 2

PROJECT NUMBER: 89C114NN

WORK PERFORMED / ACTIVITIES CONDUCTED:

GENERAL: Final Demobilization

SPECIFIC: Unpack Trailers - clean out.

ACORN picks up trailers
TLS - utilities disconnected
sewer
water
electric
telephone
Security fence removed
Meeting with TLS.
Artie - mover final drums and
decon pad to storage area

PERSONNEL: (see attachment)

EQUIPMENT USED ON SITE:

Van

QUALITY CONTROL ACTIVITIES:

— none —

DAILY QUALITY CONTROL REPORT

REPORT NUMBER: 52

PROJECT NAME: Remedial Investigation
Stratford Army Engine Plant
Stratford, Connecticut

Date: 11/17/92

PROJECT NUMBER: 89C114NN

SAFETY AND HEALTH LEVELS AND ACTIVITIES:

— none —

PROBLEMS ENCOUNTERED / CORRECTIVE ACTION TAKEN:

— none —

SPECIAL NOTES:

ACTIVITIES SCHEDULED FOR _____:

Last Field Activity!

Prepared by: Marc E Jacobson

Name: Marc E. Jacobson

Title: Field Manager

QCSR
APPENDIX B
Data Summary Tables

APPENDIX B
DATA SUMMARY TABLES

APPENDIX B (continued)
DATA SUMMARY TABLES

TABLE B - 1

SUMMARY OF DETECTED COMPOUNDS
SOURCE WATER SAMPLES

Sample I.D.	Source 1	Source 2
Collection Date	6-19-92	6-19-92
VOLATILE ORGANICS (ug/l)		
methylene chloride		3 J
chloroform	68	78
bromodichloromethane	12	8
toluene		1 J
BASE NEUTRALS (ug/l)		
di-n-butylphthalate	19 U	32 U
bis(2-ethylhexyl)phthalate	10 U	11 U
VOC TICs (ug/l)		
unknown	44 J	10 J
BNA TICs (ug/l)		
unknown aromatic	14 J	
unknown alkane		4 J
unknown		7 J

Notes:

J - Associated value is estimated.

U - Compound is considered non-detected due to blank contamination.

TICs - Tenatively Identified Compounds

BNA - Base/Neutral Acid extractable compounds

VOC - Volatile Organic Compounds

TABLE B - 2

SUMMARY OF DETECTED COMPOUNDS
BORING SOILS FIELD BLANK SAMPLE

QC Sample I.D. Date Collected	FB060492 6-4-92
VOLATILE ORGANICS (ug/l)	
methylene chloride	
2-propanone	7 J
BASE/NEUTRALS (ug/l)	
bis(2-ethylhexyl)phthalate	10 U
BNA TICs (ug/l)	
unknown	42 J
unknown phenol	37 J
Total Unknown BNA TICs (ug/l)	79 J
TAL METALS, Total (ug/l)	
chromium	U
cobalt	U
silver	UJ

Notes:
VOC - Volatile Organic Compound
BNA - Base/Neutral Acid extractable compound
TAL - Target Analyte List
NA - Not analyzed.
J - Associated value is estimated.
U - Compound is non-detected due to blank contamination.
A - Aldol Condensation Product

TABLE B - 3

SUMMARY OF DETECTED COMPOUNDS
MONITORING WELL SOILS FIELD BLANK SAMPLES

QC Sample I.D. Date Collected	FB061892 6-18-92	FB062392 6-23-92
VOLATILE ORGANICS (ug/l)		
methylene chloride	3 J	3 J
2-propanone	7 J	
VOC TICs (ug/l)		
unknown	47 JB	
Total VOC TICs (ug/l)	47 JB	
BASE/NEUTRALS (ug/l)		
diethylphthalate	1 J	
di-n-octylphthalate	1 J	
bis(2-ethylhexyl)phthalate	10 U	10 U
BNA TICs (ug/l)		
unknown	5 J	47 JB
Total BNA TICs (ug/l)	5 J	47 JB

Notes:
VOC - Volatile Organic Compound
BNA - Base/Neutral Acid extractable compound
TAL - Target Analyte List
NA - Not analyzed.
J - Associated value is estimated.
U - Compound is non-detected due to blank contamination.

TABLE B -4

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER ROUND 1 FIELD AND TRIP BLANKS

QC Sample I.D. Date Collected	TB072892 7-28-92	FB072892 7-29-92	TB072992 7-29-92	TB073092 7-30-92	FB073092 7-30-92	TB073192 7-31-92	TB073192B 7-31-92
VOLATILE ORGANICS (ug/l)							
methylene chloride	7	6 U	9 U	5 U	21 U	5 U	5 U
2-propanone	12 U	25 U		10 U	12 U		10 U
VOC TICs (ug/l)							
unknown				50 J		45 J	6 J
unknown aromatic							62 J
Total VOC TICs (ug/l)				50 J		45 J	68 J
BASE/NEUTRALS (ug/l)	NA		NA	NA		NA	NA
bis(2-ethylhexyl)phthalate					1 J		
BNA TICs (ug/l)							
unknown		18 J			52 J		
Total BNA TICs (ug/l)		18 J			52 J		
TAL METALS, TOTAL (mg/l)	NA		NA	NA		NA	NA
arsenic					UJ		
chromium					R		
copper					U		
iron		0.051					
lead					U		
manganese					U		
mercury					UJ		
zinc					R		
TAL METALS, DISSOLVED (mg/l)	NA		NA	NA		NA	NA
potassium		0.95					
silver					UJ		
sodium		0.355					

Notes:

VOC - Volatile Organic Compound

BNA - Base/Neutral Acid extractable compound

TAL - Target Analyte List

TIC - Tenatively Identified Compound

NA - Not analyzed.

B - Compound detected in associated laboratory blank sample.

J - Associated value is estimated.

U - Compound is non-detected due to blank contamination.

R - Compund qualified as rejected

TABLE B - 5

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER ROUND 2 FIELD AND TRIP BLANK SAMPLES

QC Sample I.D. Date Collected	TB102892 10-28-92	FB102992 10-29-92	TB102992 10-29-92	FB103092 10-30-92	TB103092 10-30-92
VOLATILE ORGANICS (ug/l)					
methylene chloride	5 U	13 U	13 U	5 U	8 U
2-propanone			12 U	3 J	
BASE/NEUTRALS (ug/l)	NA		NA		NA
bis(2-ethylhexyl)phthalate				1 J	
TAL METALS, TOTAL (mg/l)	NA		NA		NA
cadmium		0.008			
chromium				0.005	
iron					
sodium		0.321		2.16	
TAL METALS, DISSOLVED (mg/l)	NA		NA		NA
potassium				0.900	
sodium		2.65		2.79	

Notes:

VOC - Volatile Organic Compound
BNA - Base/Neutral Acid extractable compound
TAL - Target Analyte List
NA - Not analyzed.
J - Associated value is estimated.
U - Compound is non-detected due to blank contamination.

TABLE B - 6

SUMMARY OF DETECTED COMPOUNDS
SURFACE WATER
FIELD AND TRIP BLANK SAMPLES

QC Sample I.D. Date Collected	TB102292 10-22-92	FB102392 10-23-92	TB102392 10-23-92
VOLATILE ORGANICS (ug/l)			
methylene chloride	5 U	5 U	5 U
2-propanone	14 U	10 U	10 U
BASE/NEUTRALS (ug/l)	NA		NA
bis(2-ethylhexyl)phthalate		10 U	
benzoic acid		1 J	
TAL METALS, TOTAL (mg/l)	NA		NA
cobalt		0.007	
potassium		2.22	
sodium		1.31	
vanadium		0.005	

Notes:
VOC - Volatile Organic Compound
BNA - Base/Neutral Acid extractable compound
TAL - Target Analyte List
NA - Not analyzed.
J - Associated value is estimated.
U - Compound is non-detected due to blank contamination.

TABLE B - 7

SUMMARY OF DETECTED COMPOUNDS
SEDIMENT FIELD AND TRIP BLANK SAMPLES

QC Sample I.D. Date Collected	TB102792 10-27-92	TB102892 10-28-92	FB1028092 10-28-92
VOLATILE ORGANICS (ug/l)			
methylene chloride	4 J	1 J	7
BASE/NEUTRALS (ug/l)	NA	NA	
bis(2-ethylhexyl)phthalate			1 J
BNA TICs (ug/l)	NA	NA	
unknown			2 J
unknown acid			5 J
unknown alkane			10 J
Total BNA TICs (ug/l)			17 J
TAL METALS, TOTAL (mg/l)	NA	NA	
iron			0.039
sodium			2.37
zinc			0.017

Notes:
BNA - Base/Neutral Acid extractable compound
TAL - Target Analyte List
TIC - Tenatively Identified Compound
NA - Not analyzed.
J - Associated value is estimated.

TABLE B - 8

SUMMARY OF DETECTED COMPOUNDS
BORING SOIL SAMPLES

Sample ID Date Collected	BR-1-0.5-2.5 06-17-92	BR-1-2.5-4.5 06-17-92	BR-2-1-3 06-03-92	BR-2-1-3 DL	BR-2-3-5 06-03-92	BR-2-5-7 06-03-92	BR-2-3-7 06-03-92	BR-3-1-3 06-03-92	BR-3-3-5 06-03-92	BR-3-3-5 DL	BR-4-1-3 06-03-92	BR-4-3-5 06-03-92	BR-4-3-5 DL	BR-5-0.5-2.5 06-02-92
VOLATILE ORGANICS (ug/kg)			NA	NA			NA							
methylene chloride	10	3 J				6 U		5 U	7 U	27 U	6 U	19 J	570 J	5 U
2-propanone														1500 J
1,2-dichloroethene (total)					8 J			6		37 J				15
trichloroethene					12 J	4 J		94	270	1100	4 J	6 J		5
chloroethane											8 J			
toluene											3 J		110 J	
tetrachloroethene	5 U	6 U			3 J	2 J		6	15	41				
2-butanone														
1,1,1- trichloroethane								32	21	52	110	15 J		4 J
1,1 - dichloroethane								12	8	25	180			8
ethylbenzene									15	44				
xylene (total)									240	700		810	1300 J	
chlorobenzene									48		5 J	31		
1,1,2 -trichloroethane								7	10	37				
BASE NEUTRAL (ug/kg)					NA	NA								
dimethylphthalate														
2,4-dinitrotoluene									3 J					
1,2-dichlorobenzene														
n-nitrosodiphenylamine														
2-methylnaphthalene			94 J	88 J			16 J	23 J	910		44 J	1000		42 J
dibenzofuran			820 J	790 J			42 J	46 J	6 J		17 J			17 J
di-n-butylphthalate								61 J	52 J		43 J	87 J		16 J
butylbenzylphthalate														
bis(2-ethylhexyl)phthalate	350 U	380 U					1400 U	1400 U	730 U		750 U	940 U		700 U
1,3-dichlorobenzene														
nitrobenzene														
di-n-octyl phthalate												13 J		
diethylphthalate		27 J							12 J					14 J
BASE NEUTRAL / PAHs (ug/kg)					NA	NA								
naphthalene			100 J	100 J			38 J	29 J	800		25 J	250 J		28 J
acenaphthylene			43 J	34 J				84 J	9 J		59 J			
acenaphthene			1700	1800 J			160 J	100 J			17 J	260 J		12 J
fluorene			2100	2200 J			120 J	140 J	10 J		76 J	310 J		12 J
phenanthrene			7900	13000			1100 J	1000 J	43 J		470 J	420 J		130 J
anthracene			4100	4900			260 J	300 J			66 J			12 J
fluoranthene	6 J	12 J	10000	18000			1900	1800	78 J		530 J	140 J		120 J
pyrene	7 J	12 J	12000	17000			1300 J	1500	95 J		470 J	110 J		77 J
benzo (a) anthracene			7600	8300			610 J	680 J			140 J			
chrysene			10000	11000			960 J	1000 J			260 J			
benzo (b) fluoranthene			5100	5200			450 J	480 J	31 J		97 J			32 J
benzo (k) fluoranthene			5400	5500			460 J	570 J	27 J		76 J			21 J
benzo (a) pyrene			7200	7100			500 J	620 J	34 J		99 J			26 J
indeno (1,2,3-cd) pyrene			4800	4700			310 J	400 J						
dibenz (a,h) anthracene			1200 J	1200 J										
benzo (g,h,i) perylene			4000	3900			290 J	350 J						
ACID COMPOUNDS (ug/kg)					NA	NA								

TABLE B - 8

SUMMARY OF DETECTED COMPOUNDS
BORING SOIL SAMPLES

Sample ID Date Collected	BR-1-0.5-2.5 06-17-92	BR-1-2.5-4.5 06-17-92	BR-2-1-3 06-03-92	BR-2-1-3 DL	BR-2-3-5 06-03-92	BR-2-5-7 06-03-92	BR-2-3-7 06-03-92	BR-3-1-3 06-03-92	BR-3-3-5 06-03-92	BR-3-3-5 DL	BR-4-1-3 06-03-92	BR-4-3-5 06-03-92	BR-4-3-5 DL	BR-5-0.5-2.5 06-02-92
phenol														
2-chlorophenol														
benzoic acid	7 J													
2,4-dimethylphenol														
4-methylphenol											19 J			
PCBs (ug/kg)					NA	NA	NA	NA	NA		NA	NA		NA
Aroclor-1248														
Aroclor-1260														
TAL METALS (mg/kg)					NA	NA							NA	
aluminum	7140	8670	8250				9140	5850	5060		5580	3330		12400
antimony			11				11		16 6		69			11 4
arsenic	2	2 4	4 6				5 9	3 4	4 2		22 9			5 6
barium	18 3	24 7	69 6				109	26	521		108	15		46 3
beryllium														
cadmium			7 2				2 2		6 3		21 8			
calcium	642	567	5400				7520	2120	16500		13800	1860		1780
chromium	10 4	9 8	51 7				156	51	124		1080	117		33 1
cobalt	5 4	5 3	7 9				8 9	5	7 4		20 7			13
copper	6 3	8	54 6				25 4	22 4	16 6		386	9 4		18 5
iron	9760	9940	14400				15400	10700	22100		133000	7330		21300
lead	16	19 8	108				54 5	42	19700		110	13 2		15 3
magnesium	1920	1870	3260				3530	2390	2790		2680	1790		7780
manganese	152	123	526				273	191	216		1930	110		349
mercury														
nickel	11 9	6 8	21 4				32 3	12 2	13 8		118	8 8		32
potassium	674	606	1090				1170	879	940		424	734		2950
silver														
sodium	160	99	275				201	134	156		273	246		136
vanadium	13 4	13 2	27 8				24 1	14 5	11 6		111	10 8		37 3
zinc	31 5	39 3	328				267	238	19100		240	17 4		57 1
RCRA METALS (mg/l)					NA	NA								
lead			0 53						30 25					

TABLE B - 8

SUMMARY OF DETECTED COMPOUNDS
BORING SOIL SAMPLES

Sample ID Date Collected	BR-5-0.5-2.5 DL	BR-5-2.5-4 5 06-02-92	BR-6-0-2 06-05-92	BR-6-2-4 06-05-92	BR-7-2.5-4.5 06-02-92	BR-7-4.5-6.5 06-02-92	BR-8-0.5-2.5 06-09-92	BR-8-2.5-4.5 06-09-92	BR-9-1-3 06-09-92	BR-9-1-3 DUP 06-09-92	BR-9-4-6 06-09-92	BR-10-1-3 06-04-92	BR-10-3-5 06-04-92	BR-10-3-6 06-04-92
VOLATILE ORGANICS (ug/kg)														NA
methylene chloride	27 U	14		4 J	5 U	31 U	8 U	7 U	6 U	8 U	66 U	4 J	3 J	
2-propanone	2300 J													
1,2-dichloroethene (total)	16 J	8										4 J		
trichloroethene		8					5 J	24				39	2 J	
chloroethane														
toluene							2 J	2 J						
tetrachloroethene														
2-butanone														
1,1,1- trichloroethane														
1,1 - dichloroethane	9 J													
ethylbenzene														
xylene (total)											72			
chlorobenzene														
1,1 2 -trichloroethane														
BASE NEUTRAL (ug/kg)	NA										NA		NA	
dimethylphthalate														
2,4-dinitrotoluene														
1,2-dichlorobenzene														
n-nitrosodiphenylamine					39 J	1300								
2-methylnaphthalene		37 J			160 J		150 J	120 J						
dibenzofuran							48 J	42 J						
di-n-butylphthalate		59 J		24 J		87 J	2400	2000	1200	1100		20 J		
butylbenzylphthalate														
bis(2-ethylhexyl)phthalate		840 U	1500 U	3700 U	1400 U	2700 U	740 U	740 U	680 U	350 U		1500		350 U
1,3-dichlorobenzene														
nitrobenzene														
di-n-octyl phthalate		19 J			17 J	17 J						31 J		
diethylphthalate					21 J									
BASE NEUTRAL / PAHs (ug/kg)	NA										NA		NA	
naphthalene		45 J			42 J		62 J	58 J				20 J		
acenaphthylene					35 J				25 J					
acenaphthene		83 J												
fluorene		71 J			28 J				50 J	22 J				
phenanthrene		560 J	11 J	82 J	190 J		330 J	370 J	150 J	80 J		120 J		
anthracene		90 J		24 J	38 J			60 J	31 J			34 J		
fluoranthene		480 J	14 J	160 J	300 J	220 J	380 J	440 J	260 J	250 J		290 J		89 J
pyrene		450 J	8 J	180 J	300 J	300 J	300 J	310 J	240 J	210 J		290 J		72 J
benzo (a) anthracene		240 J				95 J	120 J	120 J	84 J	70 J		96 J		
chrysene		370 J					240 J	200 J	120 J	100 J		180 J		37 J
benzo (b) fluoranthene		190 J		68 J	82 J			110 J	92 J	70 J		140 J		
benzo (k) fluoranthene		160 J		27 J	64 J			95 J	73 J	66 J		62 J		
benzo (a) pyrene		170 J		92 J	93 J		110 J	110 J	74 J	61 J		97 J		
indeno (1,2,3-cd) pyrene		160 J												
dibenz (a,h) anthracene														
benzo (g,h,i) perylene		160 J												
ACID COMPOUNDS (ug/kg)	NA										NA		NA	

TABLE B - 8

SUMMARY OF DETECTED COMPOUNDS
BORING SOIL SAMPLES

Sample ID Date Collected	BR-5-0.5-2.5 DL	BR-5-2.5-4.5 06-02-92	BR-6-0-2 06-05-92	BR-6-2-4 06-05-92	BR-7-2.5-4.5 06-02-92	BR-7-4.5-6.5 06-02-92	BR-8-0.5-2.5 06-09-92	BR-8-2.5-4.5 06-09-92	BR-9-1-3 06-09-92	BR-9-1-3 DUP 06-09-92	BR-9-4-6 06-09-92	BR-10-1-3 06-04-92	BR-10-3-5 06-04-92	BR-10-3-6 06-04-92
phenol														
2-chlorophenol														
benzoic acid		86 J												
2,4-dimethylphenol														
4-methylphenol		57 J												
PCBs (ug/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	
Aroclor-1248														
Aroclor-1260														
TAL METALS (mg/kg)	NA										NA		NA	
aluminum		5430	10300	11200	8730	7720	7120	8860	17400	8520		7090		3180
antimony				10 5	11 9			10 8	11 4					
arsenic		3 4	4 4	5 7	6 6	5 3	5 6	3 6	3 1			3		1 12
barium		25 5	43 3	94 6	41 6	47 2	46 7	38 7	69 5	1610		28 3		13 2
beryllium									1 9					
cadmium														
calcium		2160	4110	2640	5000	2260	4720	2750	7050	2580		2770		2830
chromium		31 6	22 3	53 4	25 5	21 4	49 8	89 9	60 4	17 5		34 4 J		33 3 J
cobalt		5 9	9 7	12 2	11	8 7	13 8	17 8	25	8 2		10 J		U
copper		14 9	14 6	37 3	23 7	23	55 3	49 7	23 1	8 2		12 5		16
iron		9500	15500	19400	16060	12300	19400	17000	28700	14400		12050		8180
lead		26 4	23 2	41 7	23 6	39 3	22 7	37 5	47 2	17 9		31		13 3
magnesium		2730	4940	4870	4800	3990	3740	4880	8430	4130		3480		1120
manganese		190	258	392	277	205	283	341	518	250		320		385
mercury					0 11			0 14				0 12		
nickel		21 3	21 9	30 9	25 6	20	34	28 1	33	15 5		18 6		
potassium		1120	2260	807	1920	1640	3740	1980	4960	2390		1950		1290
silver												UJ		UJ
sodium		105	83 7	296	117	106	87 7	185	386	171		460		191
vanadium		24 5	28 8	51 6	30 1	26 7	24 1	33 4	50 2	24 3		20 1		
zinc		37 1	41 7	119	57 6	43 5	41 3	50 3	108	49 9		53 8		52 3
RCRA METALS (mg/l)											NA		NA	
lead														

Notes:

J - Associated value is estimated
DL - Sample analyzed at a dilution
NA - Not analyzed
B - Compound detected in associated laboratory blank
U - Non-detected due to blank contamination
TAL - Target Analyte List
RCRA - extracted via TCLP leaching procedure

TABLE B - 9
SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
BORING SOIL SAMPLES

Sample ID / Date Collected	BR-1-0.5-2.5 06-17-92	BR-1-2.5-4 5 06-17-92	BR-2-1-3 06-03-92	BR-2-1-3 DL NA	BR-2-3-5 06-03-92	BR-2-5-7 06-03-92	BR-2-3-7 06-03-92	BR-3-1-3 06-03-92	BR-3-3-5 06-03-92	BR-3-3-5 DL	BR-4-1-3 06-03-92	BR-4-3-5 06-03-92	BR-4-3-5 DL	BR-5-0.5-2.5 06-02-92	BR-5-0.5-2.5 DL
VOC TICs (ug/kg)			NA	NA			NA								
unknown					384 J	641 J			980 J	2960 J		8200 J	28600 J		187 J
unknown hydrocarbon									780 J			9340 J	28300 J		
unknown alkane						140 J			2260 J		16 J				
unknown cycloalkane						515 J			6020 J	2040 J		7400 J	6500 J		
cyclohexane isomer								35 J			10 J				
unknown freon								9 J							
freon 113													5800 J		
unknown aromatic										270 J		1100 J			
unknown cyclic												1300 J			
octahydropentalene isomer													18900 J		
C10H16 aromatic isomer															
unknown alkene															187 J
Total VOC TICs (ug/kg)					384 J	1296 J		44 J	10040 J	5270 J	26 J	27340 J	88100 J		NA
BNA TICs (ug/kg)					NA	NA									
unknown	529 J	596 J	8960 J	13190 J			760 J	840 J	13790 J		810 J	14250 J		480 J	
unknown aromatic								300 J	8500 J			38810 J			
unknown alkane												980 J		320 J	
unknown hydrocarbon		430 J					1100 J		4400 J					230 J	
unknown acid												970 J			
unknown C11H12			1710 J	1990 J			350 J								
unknown PAH									1400 J						
unknown cycloalkane															
unknown cyclohexane isomer									1400 J						
ethyl dimethylbenzene isomer															
ethyl methylbenzene isomer									5400 J						
substituted benzene									1000 J						
unknown C12H24									1900 J						
unknown cyclic															
C12H12 aromatic hydrocarbon														12000 JA	
unknown aldol	2800 JAB	3200 JAB													
substituted naphthalene															
dimethyl naphthalene isomer											160 J				
dimethyl phenanthrene isomer				760 J											
C13H14 aromatic hydrocarbon								330 J							
C15H12 aromatic hydrocarbon			880 J	2630 J			890 J	830 J			330 J				
C17H12 aromatic hydrocarbon			7500 J	11330 J											
C16H12 aromatic hydrocarbon			590 J	2800 J											
C15H10 aromatic hydrocarbon			1100 J												
C16H10S aromatic hydrocarbon			410 J												
C20H12 aromatic hydrocarbon			2200 J	12710 J											
C17H14 aromatic hydrocarbon				960 J											
C18H12 aromatic hydrocarbon				1300 J											
C19H14 aromatic hydrocarbon				1760 J											
C11H10 aromatic hydrocarbon															
C16H14 aromatic hydrocarbon															
Total BNA TICs (ug/kg)	3329 J	4226 J	23350 J	49430 J			3100 J	2300 J	37790 J		1300 J			13030 J	

TABLE B - 9
SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
BORING SOIL SAMPLES

Sample ID	BR-5-2 5-4 5	BR-6-0-2	BR-6-2-4	BR-7-2 5-4.5	BR-7-4.5-6.5	BR-8-0.5-2.5	BR-8-2.5-4 5	BR-9-1-3	BR-9-1-3 DUP	BR-9-4-6	BR-10-1-3	BR-10-3-5	BR-10-3-6
Date Collected	06-02-92	06-05-92	06-05-92	06-02-92	06-02-92	06-09-92	06-09-92	06-09-92	06-09-92	06-09-92	06-04-92	06-04-92	06-04-92
VOC TICs (ug/kg)													NA
unknown	11 J		18 J		893 J	15 J	44 J	5 J		256 J			
unknown hydrocarbon	75 J				73 J					43 J			
unknown alkane										195 J			
unknown cycloalkane										86 J			
cyclohexane isomer										190 J			
unknown freon					30 J						12 J		
freon 113													
unknown aromatic													
unknown cyclic					196 J								
octahydropentalene isomer													
C10H16 aromatic isomer													
unknown alkene										81 J			
Total VOC TICs (ug/kg)	86 J		18 J		1192 J	18 J	44 J	5 J		851 J	12 J		
BNA TICs (ug/kg)										NA		NA	
unknown	8870 J		7900 JA	31370 J	5680 J	3010 JB	3200 JB	1103 J	278 J		2339 J		9270 J
unknown aromatic											120 J		90 J
unknown alkane	7640 J			7110 J	33880 J	1180 JB	180 J	5710 J	2190 J		270 J		992 J
unknown hydrocarbon	1420 J												
unknown acid											420 J		93 J
unknown C11H12													
unknown PAH													
unknown cycloalkane	420 J			1110 J	2600 J								
unknown cyclohexane isomer													
ethyl dimethylbenzene isomer													
ethyl methylbenzene isomer													
substituted benzene													
unknown C12H24													
unknown cyclic													
C12H12 aromatic hydrocarbon				440 J									
unknown aldol	9600 JA		7900 JA	62000 JA	1700 JA								
substituted naphthalene						160 J							
dimethyl naphthalene isomer						260 J	200 J						
dimethyl phenanthrene isomer													
C13H14 aromatic hydrocarbon				450 J									
C15H12 aromatic hydrocarbon				290 J		200 J							
C17H12 aromatic hydrocarbon													
C16H12 aromatic hydrocarbon													
C15H10 aromatic hydrocarbon													
C16H10S aromatic hydrocarbon													
C20H12 aromatic hydrocarbon													
C17H14 aromatic hydrocarbon													
C18H12 aromatic hydrocarbon													
C19H14 aromatic hydrocarbon													
C11H10 aromatic hydrocarbon													
C16H14 aromatic hydrocarbon						320 J	200 J						
Total BNA TICs (ug/kg)	27950 J		15800 J	102770 J	43860 J	5130 J	3780 J	6813 J	2468 J		3149 J		10445 J

Notes
A - Aldol condensation product
B - TIC detected in associated laboratory blank
J - Associated value is estimated
NA - Not Analyzed
BNA - Base/Neutral Acid extractable compound
TIC - Tenatively Identified Compound
VOC - Volatile Organic Compound

TABLE B - 10

SUMMARY OF DETECTED COMPOUNDS
MONITORING WELL SOIL SAMPLES

Sample ID / Compound / Date Collected	WC-1S 0 5-2 5 06-11-92	WC-1S 0 5-2 5 DUP 06-11-92	WC-1S 2.5-4 5 06-11-92	WC-2D 0 5 2 5 06-23-92	WC-2D 0 5-2 5 DUP 06-23-92	WC-2D 2 5-4 5 06-23-92	WC-2D 4 5-6 5 06-23-92	WC-3S 0 5-2 5 06-09-92	WC-3S 2 4-4.5 06-09-92	WC-4S-0.5-2 5 06-10-92	WC-4S-2.5-4.5 06-10-92	WC-5S-0 8-2 8 06-12-92	WC-5S 2 8-4 8 06-12-92	WC-6S-0 5-2.5 06-08-92	WC-6S-2.5-4 5 06-08-92	WC-7S-0.5-2 5 06-08-92
VOLATILE ORGANICS (ug/kg)																
methylene chloride	3 J	6	4 J	14 J	16 J	21 J	3600 U	5 U	5 U	2 J	2 J	1300	6600	4 J	3 J	4 J
2-propanone				14			1400 U					1300 J				
1,2-dichloroethene (total)												300 J				
trichloroethene				1 J	2 J	3 J			12		2 J	430 J				
toluene	2 J	2 J				1 J			1 J			280 J				
tetrachloroethene	8	4 J							3 J							
1,1,1 - trichloroethane	5	4 J	1 J						1 J							
2-butanone				1 J			790 J									
4-methyl-2-pentanone						3 J										
BASE NEUTRAL (ug/kg)							NA									
1,3-dichlorobenzene																
1,4-dichlorobenzene																
1,2-dichlorobenzene													990 J			
n-nitroso-di-n-propylamine																
hexachloroethane																
nitrobenzene																
isophorone																
bis(2-chloroethoxy)methane																
1,2,4-trichlorobenzene																
hexachlorobutadiene																
2-methylnaphthalene						5300				12 J		140 J	3800 J			
2-chloronaphthalene																
2-nitroaniline																
dimethyl phthalate																
dibenzofuran				15 J	18 J	630 J							520 J			
2,4-dinitrotoluene																
2,6-dinitrotoluene																
diethylphthalate		14 J														
4-chlorophenyp-phenylether																
4-nitroaniline																
n-nitrosodiphenylamine						260 J										
4-bromophenyl-phenylether																
hexachlorobenzene																
di-n-butylphthalate	1400		1700		75 J	120 J		370 J	1100 J	200 J		1100 J	1000 J	2000	2300	2500
butyl benzyl phthalate	68 J		340 J						510 J			150 J			59 J	
3,3-dichlorobenzidine																
bis(2-ethylhexyl)phthalate	720 U	720 U	730 U	1500 U	1500 U	1400 U		1400 U	2000	700 U	370 U	2600 U	2200 U	1000	2100 U	410 U
di-n-octyl phthalate		720 U														

TABLE B - 10

SUMMARY OF DETECTED COMPOUNDS
MONITORING WELL SOIL SAMPLES

Sample ID / Compound / Date Collected	WC-1S 0 5-2 5 06-11-92	WC-1S 0 5-2 5 DUP 06-11-92	WC-1S 2 5-4 5 06-11-92	WC-2D 0 5-2 5 06-23-92	WC-2D 0 5-2.5 DUP 06-23-92	WC-2D 2 5-4 5 06-23-92	WC-2D 4 5-6 5 06-23-92	WC-3S 0 5-2 5 06-09-92	WC-3S 2 4-4 5 06-09 92	WC-4S-0 5-2 5 06-10-92	WC-4S-2 5-4 5 06-10-92	WC-5S-0 8 2 8 06-12-92	WC-5S-2 8-4 8 06-12-92	WC-6S-0 5-2 5 06-08-92	WC-6S-2 5-4 5 06-08-92	WC-7S-0 5-2 5 06-08-92
BASE NEUTRAL/PAH (ug/kg)							NA									
naphthalene					23 J	1200 J							3800			
acenaphthylene																
acenaphthene						570 J				17 J			770 J			
fluorene						360 J				16 J		190 J	820 J			
phenanthrene	86 J		54 J	270 J	210 J	2000		330 J	190 J	170 J	17 J	690 J	2000			54 J
anthracene				23 J	26 J	200 J		44 J	21 J	29 J		100 J	120 J			
fluoranthene	120 J	29 J	49 J	400 J	350 J	1400		1000 J	610 J	340 J	48 J	270 J	240 J		47 J	99 J
pyrene	75 J	22 J	42 J	340 J	320 J	1000 J		590 J	390 J	240 J	36 J	180 J	170 J		56 J	68 J
benzo (a) anthracene				160 J	180 J	400 J		80 J	65 J	120 J		340 J	180 J			45 J
chrysene	51 J	38 J		200 J	240 J	480 J		490 J	330 J	180 J	33 J	560 J	400 J			60 J
benzo (b) fluoranthene				100 J	150 J	220 J		290 J	210 J	90 J		300 J	140 J			
benzo (k) fluoranthene				100 J	120 J	230 J		160 J	87 J	110 J		290 J	150 J			
benzo (a) pyrene					130 J	210 J				100 J		270 J				
indeno (1,2,3-cd) pyrene																
dibenz (a,h) anthracene																
benzo (g,h,i) perylene																
ACID (ug/kg)							NA									
phenol																
2-methylphenol																
4-methylphenol																
2-nitrophenol																
2,4-dimethylphenol																
2-chlorophenol																
benzoic acid																
2,4-dichlorophenol																
4-chloro-3-methylphenol																
2,4,6-trichlorophenol																
2 4,5-trichlorophenol																
4,6-dinitro-2-methylphenol																
PCB (ug/kg)							NA								700	
Aroclor-1248															440	510
Aroclor-1260				240	240											
TAL METALS (mg/kg)							NA									
aluminum	11300	7250	6870	6210	1206	3569		10600	12300	8940	8380	7130	5230	12100 0	16600	11400
antimony	24 8							18 1	15 2	12 7	12 3	17 3	7 7	19 3	22 3	13 3
arsenic				4 5	4 5	2 4		4 5	3 5	2 6	2 9		2 7	5 7	6 3	4 4
barium	41 3	21 5	21 5	36 5	39 0	22 9		21 5	33 5	183 3	51 8	145	35 7	53 7	154	53 4
cadmium										1 3	1 6					

TABLE B - 10

SUMMARY OF DETECTED COMPOUNDS
MONITORING WELL SOIL SAMPLES

Sample ID / Compound / Date Collected	WC-1S 0 5-2 5 06-11-92	WC-1S 0 5-2 5 DUP 06-11-92	WC-1S 2 5-4 5 06 11-92	WC-2D 0 5-2 5 06-23-92	WC-2D 0 5-2 5 DUP 06-23-92	WC-2D 2 5-4 5 06-23-92	WC-2D 4 5-6 5 06-23-92	WC-3S 0 5-2 5 06-09-92	WC-3S 2 4-4 5 06-09-92	WC-4S-0 5-2 5 06-10-92	WC-4S-2 5-4 5 06-10-92	WC-5S 0 8-2 8 06-12-92	WC-5S-2 8-4 8 06-12-92	WC-6S-0 5-2 5 06-08-92	WC-6S-2.5-4 5 06 08-92	WC-7S-0 5-2 5 06-08-92
calcium	1290	729	957 0	1793 0	1781 0	1289 0		7720 0	3830 0	1740 0	1990	4890	1280	2210	4620	1730
chromium	19 9	13 2	29 8	68 0	72 0	30 0		146 0	92 3	66 9	96 5	165	93 7	30 4	57 5	29 7
cobalt	10 1	5 7	6 7	8 3	8 8	4 0		15 0	15 2	10 0	10 3	10 2	7 3	14 5	19 4	11 1
copper	15 3	10 7	72 7	102 0	109 0	40 0		29 9	35 2	20 6	31 7	74 7	38 6	15 8	42 4	13 2
iron	17300	11800	15400 0	13330 0	13904 0	7562 0		25200 0	26400 0	16000 0	16000	13600	10600	19000	28200	16800
lead	24	16	41 0		28 4	10 0		29 2	30 8	31 0	40 2	47 2	30 6	6 1	51 6	12 7
magnesium	4040	2570	2570 0	2810 0	3113 0	1682 0		6280 0	7180 0	4270 0	3560	2900	2040	7210	8550	6180
manganese	381	214	270 0	226 0	253 0	238 0		543 0	589 0	326 0	326	769	179	325	388	319
mercury	2 9	1 5	1 7	0 52	0 060	0 12		0 11			0 19					
nickel	14 7	10 2	8 1	32 1	39 4	91 0		44 2	43 8	17 8	21	25	17 8	31 4	38 9	22 3
potassium	1590	1030	918 0	1381 0	1206 0	874 0		881 0	1500 0	2180 0	1880	1510	1240	3610	2970	3340
sodium	188	121	129 0	81 0	67 0	53 0		221 0	435 0	114 0	160	190	163	90	496	173
vanadium	28 3	19 3	21 1	20 2	18 6	11 4		44 8	48 2	26 3	30 8	30 2	22 6	36 1	66 6	31 5
zinc	46 3	32 6	53 3	202 0	194 0	49 0		252 0	73 2	91 0	84 5	121	106	50 7	161	57 9
RCRA METALS (mg/l)							NA									
lead																

TABLE B - 10

SUMMARY OF DETECTED COMPOUNDS
MONITORING WELL SOIL SAMPLES

Sample ID / Compound / Date Collected	WC-7S-2.5-4 5 06-08-92	WC-8S 0 5-2 5 06-18-92	WC-8S 0 5-2 5 DL	WC-8S 2 5-4 5 06-18-92	WC-8S 2 5-4 5 DL	WC-9S 2-4 06-15-92	WC-9S 4-6 06-15-92	WC-10S 0 5-2 5 06-22-92	WC-10S 0 5-2 5 Re	WC-10S 2 5-4 5 06-22-92	WC-10S 2 5-4 5 DL	WC-11S 0 5-2 5 06-16-92	WC-11S 2 5-4 5 06-16-92	WC-12S 0.5-2 5 06-26-92	WC-12S 2 5-4 5 06-26-92
VOLATILE ORGANICS (ug/kg)			NA						NA		NA				
methylene chloride	3 J	9		11	27 J	6 U	6 U	3 J		8		6 U	6 U		
2-propanone		56		320	890	8 J	9 J	17							
1,2-dichloroethene (total)		1 J													
trichloroethene								6							
toluene												2 J			
tetrachloroethene		6 U				6 U	6 U	6 U				6 U	6 U		
1,1,1 - trichloroethane															
2-butanone				11 J											
4-methyl-2-pentanone															
BASE NEUTRAL (ug/kg)					NA										
1 3-dichlorobenzene						550 J									
1,4-dichlorobenzene						540 J									
1,2-dichlorobenzene						560 J									
n-nitroso-di-n-propylamine						560 J									
hexachloroethane						530 J									
nitrobenzene						600 J									
isophorone						670 J									
bis(2-chloroethoxy)methane						560 J									
1 2,4-trichlorobenzene						680 J									
hexachlorobutadiene						670 J									
2-methylnaphthalene		2 J				860 J		330 J	270 J			440 J			
2-chloronaphthalene						710 J									
2-nitroaniline						650 J									
dimethyl phthalate						840 J									
dibenzofuran						790 J		16 J	22 J			36 J			
2,4-dinitrotoluene						660 J									
2 6-dinitrotoluene						660 J									
diethylphthalate		95 J				840 J		19 J	14 J						
4-chlorophenyp-phenylether						830 J									
4-nitroaniline						470 J									
n-nitrosodiphenylamine						250 J									
4-bromophenyl-phenylether						820 J									
hexachlorobenzene						770 J									
di-n-butylphthalate	2800	130 J	64 J	56 J		810 J		120 J	120 J	330 J	1300 J				
butyl benzyl phthalate		260 J				650 J				120000	170000				
3,3-dichlorobenzidine						180 J									
bis(2-ethylhexyl)phthalate	750 U	6200	1500 U	400 U		2800	11000	1700 U	1800 U	12000 U	20000 U	1500 U	1500 U	360 U	350 U
di-n-octyl phthalate		16 J		8 J		450 J		380 J	460 J	1300 J					

TABLE B - 10

SUMMARY OF DETECTED COMPOUNDS
MONITORING WELL SOIL SAMPLES

Sample ID / Compound / Date Collected	WC-7S-2 5-4 5 06-08-92	WC-8S 0 5-2 5 06-18-92	WC-8S 0 5-2 5 DL	WC-8S 2 5-4 5 06-18-92	WC-8S 2 5-4 5 DL	WC-9S 2-4 06-15-92	WC-9S 4-6 06-15-92	WC-10S 0 5-2 5 06-22-92	WC-10S 0 5-2.5 Re	WC-10S 2 5-4 5 06-22-92	WC-10S 2 5-4 5 DL	WC-11S 0 5-2 5 06-16-92	WC-11S 2 5-4 5 06-16-92	WC-12S 0 5-2 5 06-26-92	WC-12S 2 5-4 5 06-26-92
BASE NEUTRAL/PAH (ug/kg)					NA										
naphthalene						640 J		230 J	230 J			230 J			
acenaphthylene						770 J		100 J	100 J						
acenaphthene						810 J						78 J			
fluorene						780 J		52 J	49 J		550 J	44 J			
phenanthrene	130 J	27 J	22 J	17 J				110 J	110 J			680 J	120 J	68 J	
anthracene						850 J		70 J	62 J			93 J	33 J	16 J	
fluoranthene	220 J	59 J	56 J	44 J		1400		94 J	71 J			1200 J	900 J	170 J	
pyrene	120 J	53 J	40 J	24 J		900 J		190 J	130 J	500 J	1200 J	1400 J	1100 J	140 J	
benzo (a) anthracene	86 J			30 J		880 J	210 J					920 J	760 J	82 J	
chrysene	99 J	41 J		28 J			310 J	400 J	410 J			1400 J	990 J	97 J	
benzo (b) fluoranthene		16 J				660 J		280 J	270 J			940 J	970 J	42 J	
benzo (k) fluoranthene		21 J				560 J			240 J			900 J	780 J	44 J	
benzo (a) pyrene						620 J		350 J	160 J			1000 J	1000 J	55 J	
indeno (1,2,3-cd) pyrene						570 J			170 J			760 J	890 J		
dibenz (a,h) anthracene						500 J									
benzo (g,h,i) perylene						580 J						740 J	910 J		
ACID (ug/kg)					NA										
phenol						530 J									
2-methylphenol						510 J									
4-methylphenol						570 J									
2-nitrophenol						550 J									
2,4-dimethylphenol						460 J									
2-chlorophenol						540 J									
benzoic acid		13 J				290 J		67 J							
2,4-dichlorophenol						550 J									
4-chloro-3-methylphenol						540 J									
2,4,6-trichlorophenol						530 J									
2,4 5-trichlorophenol						560 J									
4,6-dinitro-2-methylphenol						250 J									
PCB (ug/kg)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aroclor-1248															
Aroclor-1260															
TAL METALS (mg/kg)			NA		NA						NA				
aluminum	11600	9260		11900		9730	8880	19412		6034		8853	5044	8400	5715
antimony				11 6			9 8	30		14 4				9 6	9 7
arsenic	3 7	3 4		4 2		6 5	4 3	12				8 2		2 8	1 3
barium	40	33 2		47 1		30 9	27	1891		36		56 9	14 3	29	14 8
cadmium		883		1110				92 4							

TABLE B - 10

SUMMARY OF DETECTED COMPOUNDS
MONITORING WELL SOIL SAMPLES

Sample ID / Compound / Date Collected	WC-7S-2 5-4 5 06-08 92	WC-8S 0 5-2 5 06-18-92	WC-8S 0 5-2 5 DL	WC-8S 2 5-4 5 06-18-92	WC-8S 2 5-4 5 DL	WC-9S 2-4 06-15-92	WC-9S 4-6 06-15-92	WC-10S 0 5-2.5 06-22-92	WC-10S 0 5-2 5 Re	WC-10S 2 5-4 5 06-22-92	WC-10S 2 5-4 5 DL	WC-11S 0 5-2.5 06-16-92	WC-11S 2 5-4 5 06-16-92	WC-12S 0.5-2 5 06-26-92	WC-12S 2 5-4.5 06-26-92
calcium	2260					1080	1720	13179		1120		3280	549	2473	866
chromium	24 1	11		11		18	17 7	142		21 2		31 4	7 8	10 9	10 6
cobalt	8 2	5 1		5 4		7 1	7 4	13				9		5 7	3 8
copper	11 9	9 6		8 5		13 5	14 5	3691		39 2		48	30 8	11	
iron	17200	11300		12500		12400	11800	39000		9480		16200	9450	12670	11320
lead	17 1	29 6		50		56 2	37 5	1681		20		36 4	24 6	9 3	9 1
magnesium	4360	2070		2070		2670	2950	3956		2153		3220	1380	2519	1535
manganese	397	178		229		255	228	508		238		150	111	200	180
mercury		0 12		0 31				0 62							
nickel	11 9	10 1		8 9		12 7	16 3	73		10		21 7	8 5	9 4	6 3
potassium	1100	464		494		839	865	835		587		2800	2790	513	275
sodium	76	189		104		80 7	97	213		95 4		82 8		265	81
vanadium	25 5	14 3		17 4		23 5	22 8	27 8		14		28 4	12 9	26	17
zinc	52 6	47 7		48 8		60 8	46 5	1428		94		175	130	31	14
RCRA METALS (mg/l)											NA				
lead								1 6							

Notes

DL - Sample analyzed at a dilution
NA - Not analyzed
J - Associated value is estimated
B - Compound detected in associated laboratory blank
U - Non-detected due to blank contamination
Re - Re-analyzed sample
TAL - Target Analyte List
DUP - Duplicate Sample of associated sample number shown
RCRA - extracted via TCLP leaching procedure
PCB - polychlorinated biphenyls

TABLE B - 11

SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
MONITORING WELL SOIL SAMPLES

Sample ID / Compound / te Collected	WC-1S 0 5-2 5 06-11-92	WC-1S 0 5 2 5 DUP 06-11-92	WC-1S 2 5-4 5 06-11-92	WC-2D 0 5-2 5 06-23 92	WC-2D 0 5-2 5 DUP 06-23-92	WC-2D 2 5-4 5 06-23-92	WC-2D 4 5-6 5 06-23-92	WC-3S 0 5-2 5 06-09-92	WC-3S 2 4-4 5 06-09-92	WC-4S-0 5-2 5 06-10-92	WC-4S-2 5-4 5 06-10-92	WC-5S-0 8-2 8 06-12-92	WC-5S-2 8-4 8 06-12-92	WC-6S-0 5-2 5 06-08-92	WC-6S-2 5-4 5 06-08-92	WC-7S-0 5-2 5 06-08-92
VOC TICs (ug/kg)																
unknown		31 J	34 J	69 J	27 J	56 J			24 J		10 J	28000 J	68700 J	89 J		
unknown aromatic													9000 J			
unknown cyclic				10 J		8 J						2100 J	9500 J			
unknown hydrocarbon																
C9H16 cycloalkane					27 J											
C9H18 cycloalkane				110 J		23 J										
unknown C6H12				29 J												
unknown C9H18				37 J												
unknown hydrocarbon					41 J											
unknown ketone					23 J											
Total VOC TICs (ug/kg)		31 J	34 J	255 J	118 J	87 J			24 J		10 J	30100 J	87200 J	89 J		
BNA TICs (ug/kg)							NA									
unknowns	390 J	670 J	1260 J	1810 J	2560 J	41630 J		14400 J	9100 J	1570 J	1763 J	24500 J	7500 J	477 J	8150 J	529 J
unknown aromatic													2400 J			240 J
unknown alkanes	9090 J	11160 J	3520 J			41200 J		2770 J				26900 J	39440 J	410 J		343 J
unknown hydrocarbon											150 J			140 J		
unknown acid												5200 J	2500 J			
unknown cycloalkane													3600 J			
unknown cyclohexane isomer																
unknown C11H20					310 J											
C17H12 aromatic hydrocarbon										260 J						
C12H4C16 hexachloro-1,1-biphenyl											388 J					
C15H12 aromatic hydrocarbon																
C20H12 aromatic hydrocarbon																
C10H18 aromatic hydrocarbon																
unknown aromatic hydrocarbon																
C18H18 aromatic hydrocarbon																
C10H14 aromatic hydrocarbon						9700 J										
C11H10 aromatic hydrocarbon						5800 J										
unknown alkene												1600 J				
cyclohexane isomer						12300 J										
trimethylnaphthalene isomer						2700 J										
ethyl dimethyl benzene isomer												1600 J	6300 J			
ethyl methyl benzene isomer													3500 J			
dimethyl naphthalene isomer						4400 J						1200 J				
carbazole																
Total BNA TICs	9480	11830	4780	1810	2870	117730		17170	9100	1830	2301	61000 J	65240 J	1027 J	8150 J	1112 J

TABLE B - 11

SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
MONITORING WELL SOIL SAMPLES

Sample ID / Compound / te Collected	WC-7S-2 5-4 5	WC-8S 0 5-2 5	WC-8S 0 5-2 5 DL	WC-8S 2 5-4 5	WC-8S 2 5-4 5 DL	WC-9S 2-4	WC-9S 4-6	WC-10S 0 5-2 5	WC-10S 0 5-2 5 Re	WC-10S 2 5-4 5	WC-10S 2 5-4 5 DL	WC-11S 0 5-2 5	WC-11S 2 5-4 5	WC-12S 0 5-2 5	WC-12S 2 5-4 5
	06-08-92	06-18-92		06-18-92		06-15-92	06-15-92	06-22-92		06-22-92		06-16-92	06-16-92	06-26-92	06-26-92
VOC TICs (ug/kg)									NA						
unknown		7 J											15 J		
unknown aromatic															
unknown cyclic															
unknown hydrocarbon															
C9H16 cycloalkane															
C9H18 cycloalkane															
unknown C6H12															
unknown C9H18															
unknown hydrocarbon															
unknown ketone															
Total VOC TICs (ug/kg)		7 J													
BNA TICs (ug/kg)					NA										
unknowns	370 J	1561 J	1460 J	2062 J		490 J	7900 J	2300 J	1700 J	16100 J	295000 J	1110 J	1460 J	3030 J	5731 J
unknown aromatic															
unknown alkanes		590 J		1402 J						258400 J	2370000 J	1980 J		84 J	
unknown hydrocarbon	160 J	150 J													
unknown acid		320 J	350 J	220 J											
unknown cycloalkane										22600 J	149000 J				
unknown cyclohexane isomer															
unknown C11H20															
C17H12 aromatic hydrocarbon												1230 J	1060 J		
C12H4C16 hexachloro-1,1-biphenyl															
C15H12 aromatic hydrocarbon												1210 J			
C20H12 aromatic hydrocarbon						240 J						2600 J	2230 J		
C10H18 aromatic hydrocarbon										42000 J					
unknown aromatic hydrocarbon										28000 J					
C18H18 aromatic hydrocarbon				230 J											
C10H14 aromatic hydrocarbon															
C11H10 aromatic hydrocarbon															
unknown alkene															
cyclohexane isomer															
trimethylnaphthalene isomer															
ethyl dimethyl benzene isomer															
ethyl methyl benzene isomer															
dimethyl naphthalene isomer															
carbazole						460 J									
Total BNA TICs	530 JB			3914		1190	7900	2300 J	1700	367100	2814000	8130	4750	3114	5731

Notes

A - Aldol condensation product
B - TIC detected in associated laboratory blank
J - Associated value is estimated
BNA - Base/Neutral Acid extractable compound
TIC - Tenatively Identified Compound
VOC - Volatile Organic Compound

TABLE B - 12

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER SAMPLES - ROUND 1

Sample ID / Compound / Date Collected	WC-1S 07-29-92	WC-1S DL	WC-2D 07-31-92	WC-2D DL	WC-3S 07-29-92	WC-4S 07-29-92	WC-4S DL	WC-5S 07-31-92	WC-5S DL	WC-5S DUP 07-31-92	WC-6S 07-30-92	WC-7S 07-29-92
VOLATILE ORGANICS (ug/l)												
vinyl chloride			590	530		240	240			23		
chloroethane	4 J				190	770	780	2000	6100		550 J	
methylene chloride	5 U	49	7	72 U	6 U	5 U	51 U	12 U	6800		125 U	5 U
2-propanone		50 U	10 U	130	10 U	10 U	50 U	10 U	5000 U	42 U		10 U
1,1-dichloroethene	14	13 J	16			10	9 J				280 J	
1,1-dichloroethane	120	140	74	66	17	39	42	31		18	8900 J	
1,2-dichloroethene (total)	5	4 J	470	1400	17	120	120	15		8		
chloroform			7		32							
1,2-dichloroethane												
2-butanone				86 J								
1,1,1 - trichloroethane	250	290			15	8					1400 J	
bromodichloromethane					2 J							
1,2-dichloropropane												
trichloroethene	16	20	44	45 J	15	9	9 J			1 J		
1,1,2-trichloroethane												
benzene			3 J			2 J		26		5		
4-methyl-2-pentanone												
tetrachloroethene	14	15 J	7		3 J	1 J						
1,1,2,2-tetrachloroethene												
toluene								5			16 J	
chlorobenzene					1 J			4 J				
ethylbenzene								230 J		32		
total xylene						3 J		260 J				
BASE NEUTRAL (ug/l)		NA		NA			NA		NA			
n-nitrosodiphenylamine								3 J				
1,4-dichlorobenzene								29				
1,2-dichlorobenzene												
di-n-octyl phthalate								10				
2-methylnaphthalene								1 J				
diethylphthalate			2 J									
dimethylphthalate								2 J				
dibenzofuran			1 J			1 J						
di-n-butylphthalate					3 JB	10 U						10 U
butylbenzylphthalate												
bis(2-ethylhexyl)phthalate					10 U	10 U		10 U				10 U
1,3-dichlorobenzene												
nitrobenzene												

TABLE B - 12

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER SAMPLES - ROUND 1

Sample ID / Compound / Date Collected	WC-1S 07-29-92	WC-1S DL	WC-2D 07-31-92	WC-2D DL	WC-3S 07-29-92	WC-4S 07-29-92	WC-4S DL	WC-5S 07-31-92	WC-5S DL	WC-5S DUP 07-31-92	WC-6S 07-30-92	WC-7S 07-29-92
BASE NEUTRAL/PAH (ug/l)		NA		NA			NA		NA			
naphthalene								60				
acenaphthylene												
acenaphthene			1 J			5 J		5 J			1 J	
fluorene						2 J		3 J				
phenanthrene								1 J				
anthracene												
fluoranthene												
pyrene												
benzo (a) anthracene												
chrysene												
benzo (b) fluoranthene												
benzo (k) fluoranthene												
benzo (a) pyrene												
indeno (1,2,3-cd) pyrene												
dibenz (a,h) anthracene												
benzo (g,h,i) perylene												
ACID COMPOUNDS (ug/l)		NA		NA			NA		NA			
phenol												
2,4-dimethylphenol								14				
4-chloro-3-methylphenol								6 J				
benzoic acid												
PCBs (ug/l)		NA		NA			NA		NA			
Aroclor-1260						2						
TAL METALS, TOTAL (mg/l)		NA		NA			NA		NA			
aluminum	12 6				111	26		79 6			51 2	26 6
antimony					0 179			0 117				0 067
arsenic			0 016		0 027	0 022		0 042 J			0 027 J	
barium			0 118		0 719	0 208		0 953		1 20	0 467	0 321
beryllium												
cadmium					0 054	0 013						
calcium	31 4		23 3		164	70		107		97 5	98 7	176
chromium	0 023		0 034		1 12	0 333		0 686 R		0 018	0 105 R	0 116
cobalt					0 136			0 094				
copper	0 079		0 042		1 23	0 468		1 26 R		0 038	0 187 R	0 31
iron	24 8		21		147	58 8		172		19 2	72 3	48 3
lead	0 029		0 018		1 31	0 074		0 3 R			0 202 R	0 005
magnesium	7 44		42 1		87 5	69 6		31 6		68 2	31 7	513
manganese	1 23		2 59		21 1	1 54		3 74 R		4 58	3 48 R	3 79
mercury					0 0008	0 0007		0 0006 J			0 00033 J	0 0003
nickel					0 327	0 064		0 192			0 095	
potassium	9 41		28 5		19 4	32 6		22 0		33 5	17	150

TABLE B - 12

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER SAMPLES - ROUND 1

Compound \ Sample ID / Date Collected	WC-1S 07-29-92	WC-1S DL	WC-2D 07-31-92	WC-2D DL	WC-3S 07-29-92	WC-4S 07-29-92	WC-4S DL	WC-5S 07-31-92	WC-5S DL	WC-5S DUP 07-31-92	WC-6S 07-30-92	WC-7S 07-29-92
sodium	26 6		488		237	439		58 4		640	155	3800
vanadium			0 051		0 967	0 074		0 224				0 062
zinc	0 118		0 08		3 62	0 534		1 26 R		0 042	0 095 R	0 225
TAL METALS, DISSOLVED (mg/l)		NA		NA			NA		NA			
aluminum												0 25
antimony										0 05		0 084
arsenic												
barium								0 329		0 663	0 232	
calcium	30		22 2		94	70 3		101		99 4	106	183
chromium												
iron	1 85		0 221			0 559		19 5		3 42	12 7	0 06
magnesium	5 43		40 3		87 5	69 6		9 58		77 9	23 9	513
manganese			2 25		0 192	0 834		2 29		2 73	3 03	3 42
potassium	10 1		28 1		11 1	29 1		12		37 4	16 2	151
silver								UJ			UJ	
sodium	31 4		582		264	415		62 4		724	186	2060
zinc												
CYANIDE (mg/l)	NA	NA		NA	NA	NA	NA		NA			NA

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SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER SAMPLES - ROUND 1

Sample ID / Compound / Date Collected	WC-8S 07-29-92	WC-8S DL	WC-9S 07-28-92	PZ-9D 07-30-92	PZ-9D DL	WC-10S 07-28-92	WC-11S 07-28-92	WC-12S 07-29-92	WC-12S DL	WC-12S DUP 07-29-92	WC-12S DUP DL	WC-13S 07-29-92
VOLATILE ORGANICS (ug/l)												
vinyl chloride	43	32 J				2 J						17
chloroethane	490	390						18	15 J	16	18 J	
methylene chloride	5 U	120 U	6 U	5 U	6200 U	5 U	7 U	5 U	18 J	5 U	20 J	5 U
2-propanone	10 U	100 U			2500 U				50 U			
1,1-dichloroethene	22	20 J	3 J	77	740 J	2 J		130	110	140	110	1 J
1,1-dichloroethane	480	2000		30		1 J		43	37	43	36	
1,2-dichloroethene (total)	39	29 J	1 J	710	29000	13		14	13 J	15	13	110
chloroform						1 J		22	20 J	23	20	
1,2-dichloroethane	3 J			2 J								
2-butanone												
1,1,1 - trichloroethane	8		2 J					340	300	340	300	7
bromodichloromethane								6	4 J	6	4 J	
1,2-dichloropropane												
trichloroethene	15	12 J	3 J	870	31000	36		35	30	35	29	81
1,1,2-trichloroethane				4 J								
benzene	2 J											
4-methyl-2-pentanone												
tetrachloroethene	2 J			5				1 J		1 J		76
1,1,2,2-tetrachloroethene									12 J			
toluene												
chlorobenzene												
ethylbenzene												
total xylene												
BASE NEUTRAL (ug/l)		NA			NA				NA		NA	
n-nitrosodiphenylamine												
1,4-dichlorobenzene												
1,2-dichlorobenzene												
di-n-octyl phthalate												
2-methylnaphthalene												
diethylphthalate												
dimethylphthalate												
dibenzofuran												
di-n-butylphthalate	1 J					10 U						
butylbenzylphthalate												
bis(2-ethylhexyl)phthalate						10 U		10 U				
1,3-dichlorobenzene												
nitrobenzene												

TABLE B - 12

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER SAMPLES - ROUND 1

Sample ID / Compound / Date Collected	WC-8S 07-29-92	WC-8S DL	WC-9S 07-28-92	PZ-9D 07-30-92	PZ-9D DL	WC-10S 07-28-92	WC-11S 07-28-92	WC-12S 07-29-92	WC-12S DL	WC-12S DUP 07-29-92	WC-12S DUP DL	WC-13S 07-29-92
BASE NEUTRAL/PAH (ug/l)		NA			NA				NA		NA	
naphthalene												
acenaphthylene												
acenaphthene												
fluorene												
phenanthrene												
anthracene												
fluoranthene												
pyrene												
benzo (a) anthracene												
chrysene												
benzo (b) fluoranthene												
benzo (k) fluoranthene												
benzo (a) pyrene												
indeno (1,2,3-cd) pyrene												
dibenz (a,h) anthracene												
benzo (g,h,i) perylene												
ACID COMPOUNDS (ug/l)		NA			NA				NA		NA	
phenol												
2,4-dimethylphenol												
4-chloro-3-methylphenol												
benzoic acid												
PCBs (ug/l)		NA			NA				NA		NA	
Aroclor-1260												
TAL METALS, TOTAL (mg/l)		NA			NA				NA		NA	
aluminum	25 3		7 06	2 48		7 39	36 7	13 2		13 3		0 910
antimony	0 069											
arsenic	0 027			UJ			0 027					
barium							0 282					
beryllium												
cadmium												
calcium	48 9		33 8	39 8		43 7	45 2	21 2		20 0		9 60
chromium	0 038		0 016	UJ		0 115	0 042	0 749		0 757		
cobalt							0 059					
copper	0 059			U		0 058	0 197	0 117		0 112		
iron	84		8 92	4 24		11 2	59 9	30 7		32 9		1 33
lead	0 031		0 009	U		0 048	0 074	0 036		0 038		
magnesium	17 5		6 33	70 9		12 2	14 3	7 13		7 62		2 28
manganese	4 53		0 402	1 58 R		0 598	3 3	1 89		2 05		0 376
mercury				0 0003 J								
nickel							0 044					
potassium	12 6		6 27	20 2		7 83	9 5	7 16		6 83		3 00

TABLE B - 12

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER SAMPLES - ROUND 1

Compound / Sample ID / Date Collected	WC-8S 07-29-92	WC-8S DL	WC-9S 07-28-92	PZ-9D 07-30-92	PZ-9D DL	WC-10S 07-28-92	WC-11S 07-28-92	WC-12S 07-29-92	WC-12S DL	WC-12S DUP 07-29-92	WC-12S DUP DL	WC-13S 07-29-92
sodium	38 9		18 2	710		21 2	27 2	15 8		15 3		49 2
vanadium	0 066						0 096	0 146		0 148		
zinc	0 09		0 024	R		0 077	0 198	0 050		0 052		
TAL METALS, DISSOLVED (mg/l)		NA			NA				NA		NA	
aluminum												
antimony												
arsenic												
barium				0 118								
calcium	51 1		34 6	39 3		50	48 8	20 9		20 6		11 3
chromium								0 507		0 506		
iron	30 5							0 164		0 169		
magnesium	17 5		5 33	70 9		12 2	7 36	4 23		4 14		2 38
manganese	4 3			1 66		0 291	0 087	0 075		0 073		0 218
potassium	13 6		7 88	21 8		8 61	7 96	6 37		6 22		3 92
silver				UJ								
sodium	41 8		24 8	834		23 6	28 9	18 2		17 8		44 2
zinc							0 029					
CYANIDE (mg/l)		NA			NA			0 46		0 34		NA

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SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER SAMPLES - ROUND 1

Sample ID / Compound / Date Collected	WC-14S 07-28-92	WC-15S 07-28-92	WC-15S DL	LW-7 07-28-92	LW-10 07-28-92	MW-1 07-30-92	MW-2 07-30-92	MW-2 DL	MW-3 07-31-92	MW-3 DL	MW-4 07-31-92	ECD-4 07-30-92
VOLATILE ORGANICS (ug/l)								NA		NA		
vinyl chloride	12	120	180								22	
chloroethane	8 J	140	200									5 U
methylene chloride	7 U	7 U	22 J	7	5 U	8 U						
2-propanone				10 U	10 U		24 U		38 U		72	
1,1-dichloroethene	11		99						3 J			23
1,1-dichloroethane	100	280	880	3 J	2 J	6					17	18
1,2-dichloroethene (total)	1 J	210	260			25			2 J		8	7
chloroform												2 J
1,2-dichloroethane		3 J							4 J			
2-butanone												
1,1,1 - trichloroethane	2 J	58	73			11						170
bromodichloromethane												
1,2-dichloropropane				5								
trichloroethene	22	160	180			91						53
1,1,2-trichloroethane												
benzene							120		100		4 J	
4-methyl-2-pentanone												
tetrachloroethene		100	120			67						5
1,1,2,2-tetrachloroethene									5			
toluene		2 J							1 J			
chlorobenzene												
ethylbenzene									10		29	
total xylene									1 J			
BASE NEUTRAL (ug/l)												
n-nitrosodiphenylamine												
1,4-dichlorobenzene												
1,2-dichlorobenzene												
di-n-octyl phthalate												
2-methylnaphthalene		1 J					1 J	9 J	79 J	100		
diethylphthalate		1 J					1 J		2 J	6 J		
dimethylphthalate										22 J		
dibenzofuran							6 J	6 J	7 J	8 J		
di-n-butylphthalate					1 J							
butylbenzylphthalate												
bis(2-ethylhexyl)phthalate	1 J	6 J			16 U				11 J	12 J		10 U
1,3-dichlorobenzene												
nitrobenzene												

TABLE B - 12

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER SAMPLES - ROUND 1

Sample ID / Compound / Date Collected	WC-14S 07-28-92	WC-15S 07-28-92	WC-15S DL	LW-7 07-28-92	LW-10 07-28-92	MW-1 07-30-92	MW-2 07-30-92	MW-2 DL	MW-3 07-31-92	MW-3 DL	MW-4 07-31-92	ECD-4 07-30-92
BASE NEUTRAL/PAH (ug/l)			NA									
naphthalene		7 J							23 J	26 J		
acenaphthylene												
acenaphthene							16	17 J	8 J	7 J		
fluorene							6 J	6 J	5 J	5 J		
phenanthrene							1 J	1 J	5 J	5 J		
anthracene									1 J	1 J		
fluoranthene							1 J					
pyrene										2 J		
benzo (a) anthracene												
chrysene												
benzo (b) fluoranthene												
benzo (k) fluoranthene												
benzo (a) pyrene												
indeno (1,2,3-cd) pyrene												
dibenz (a,h) anthracene												
benzo (g,h,i) perylene												
ACID COMPOUNDS (ug/l)			NA									
phenol							10	12 J				
2,4-dimethylphenol					1 J							
4-chloro-3-methylphenol												
benzoic acid					1 J							
PCBs (ug/l)			NA									
Aroclor-1260												
TAL METALS, TOTAL (mg/l)			NA									
aluminum	17 2	23 5		0 756	26 4	10 7	8 79				3 04	139
antimony					0 05							0 22
arsenic	0 015	0 019			0 57	UJ	0 014 J		0 048			UJ
barium					0 224				0 889		1 39	0 891
beryllium												
cadmium												
calcium	30 9	19 2		42 3	120	18 4	46 0		114		98 6	35 8
chromium	0 031	0 05			0 78	0 029 R	0 11 R		0 187		0 029	5 36 R
cobalt												0 176
copper	0 094	0 094			0 103	0 03 R	0 227 R		0 194		0 045	0 375 R
iron	27 4	39 5		2 26	105	19 2	43 1		48 3		27 4	307
lead	0 018	27 6		0 007	0 075	0 018 R	0 042 R		0 029		0 019	0 171 R
magnesium	11 9	11 8		8 67	44 1	9 07	32 8		30 3		73 6	43 3
manganese	1 28	1 42		1 00	2 64	3 18 R	4 14 R		1 89		5 47	19 8 R
mercury					0 0002	UJ	0 00033 J		0 0004		0 0002	0 0003 J
nickel					0 048							0 224
potassium	11 1	11 6		9 34	33	5 88	23 4		42 2		34 8	81 2

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SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER SAMPLES - ROUND 1

Sample ID / Compound / Date Collected	WC-14S 07-28-92	WC-15S 07-28-92	WC-15S DL	LW-7 07-28-92	LW-10 07-28-92	MW-1 07-30-92	MW-2 07-30-92	MW-2 DL	MW-3 07-31-92	MW-3 DL	MW-4 07-31-92	ECD-4 07-30-92
sodium	61 6	107		74 4	320	53,1	174		151		685	144
vanadium	0 062	0 108			0 064							0 385
zinc	0 054	0 097		0 021	0 257	0 034 R	0 14 R		0 138		0 061	0 502 R
TAL METALS, DISSOLVED (mg/l)			NA					NA		NA		
aluminum	0 313	0 328										
antimony												0 06
arsenic							0 019		0 016			
barium									0 759		0 65	
calcium	35 0	21 7		53 0	118	17 7	44 9		130		101	17 8
chromium												5 08
iron	0 284	0 765		0 070			21 7		12 9		3 28	0 20
magnesium	10 7	4 28		11 0	44 1	8 16	29 8		33 2		78 4	6 18
manganese	0 672	0 962		0 636	2 43		2 30		1 12		2 79	0 298
potassium	11 5	8 14		11 9	33 4	7 04	25		45 4		37 2	72 4
silver						UJ	UJ					UJ
sodium	76 0	126		101	363	79 9	212		177		716	171
zinc												
CYANIDE (mg/l)			NA		NA			NA		NA		0 81

Notes:
DL - Analyzed at a dilution
NA - Not analyzed
J - Associated value is estimated
B - Compound detected in associated laboratory blank.
U - Non-detected due to blank contamination.
R - Compound Qualified as rejected
TAL - Target Analyte List
PCB - Polychlorinated biphenyls

TABLE B - 13

SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
GROUNDWATER SAMPLES - ROUND 1

Sample ID / Compound / Date Collected	WC-1S 07-29-92	WC-1S DL	WC-2D 07-31-92	WC-2D DL	WC-3S 07-29-92	WC-4S 07-29-92	WC-4S DL	WC-5S 07-31-92	WC-5S DL	WC-5S DUP 07-31-92	WC-6S 07-30-92
VOC TICs (ug/l)											
freon 12	81 J	85 J									2500 J
freon 113						7 J					
dimethyl cyclopentane isomer										9 J	
C8H14 aromatic hydrocarbon								33 J			
C9H10 aromatic hydrocarbon								21 J		75 J	
C9H12 aromatic hydrocarbon								14 J			
C10H14 aromatic hydrocarbon											
hexene isomer			29 J		34 J	43 J		24 J		234 J	
unknown						46 J				93 J	
unknown alkane								251 J			
unknown aromatic											
unknown C7H14								12 J		363 J	
unknown cyclic										248 J	
unknown cycloalkane						41 J					
unknown hydrocarbon								142 J			
unknown freon											
Total VOC TICs (ug/l)	81 J	85 J	29 J		34 J	137 J		497 J		1022 J	2500 J
BNA TICs (ug/l)		NA		NA			NA		NA		
unknown	8 J		209 J		200 J	158 J		55 J		118 JB	39 J
unknown aromatic								24 J		4 J	
unknown alkane	11 J		46 J		9 J	218 J				5 J	36 J
C8H10 aromatic hydrocarbon								14 J			
C9H12 aromatic hydrocarbon								314 J			3 J
C10H14 aromatic hydrocarbon								68 J		3 J	29 J
C11H14 aromatic hydrocarbon										10 J	
C11H16 aromatic hydrocarbon										7 J	
C12H16 aromatic hydrocarbon										3 J	
C12H22 aromatic hydrocarbon											
C11H10 aromatic hydrocarbon								6 J			
unknown C7H5NS											
unknown C9H18			3 J								
unknown C10H18											
unknown C13H18											
unknown C9H10O2								5 J			
unknown hydrocarbon											
unknown acid											
unknown cycloalkane											
unknown cyclohexane isomer											
ethyl dimethyl benzene isomer											
ethyl methyl benzene isomer											
decahydronaphthalene isomer											
dimethyl naphthalene isomer											
Total BNA TICs (ug/l)	19 J		258 J		209 J	376 J		486 J		150 J	107 J

TABLE B - 13

SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
GROUNDWATER SAMPLES - ROUND 1

Sample ID / Compound / Date Collected	WC-7S 07-29-92	WC-8S 07-29-92	WC-8S RE	WC-8S DL	WC-9S 07-28-92	PZ-9D 07-30-92	PZ-9D DL	WC-10S 07-28-92	WC-11S 07-28-92	WC-12S 07-29-92
VOC TICs (ug/l)			(NA)							
freon 12										
freon 113										
dimethyl cyclopentane isomer										
C8H14 aromatic hydrocarbon										
C9H10 aromatic hydrocarbon										
C9H12 aromatic hydrocarbon										
C10H14 aromatic hydrocarbon										
hexene isomer										
unknown	44 J	48 J			5 J	46 J		61 J		
unknown alkane										
unknown aromatic										
unknown C7H14		6 J								
unknown cyclic										
unknown cycloalkane										
unknown hydrocarbon		10 J								
unknown freon										
Total VOC TICs (ug/l)	44 J	64 J			5 J	46 J		61 J		
BNA TICs (ug/l)				NA			NA			
unknown	83 J	164 J	85 J		43 J	138 J		192 J	48 J	108 J
unknown aromatic						28 J				
unknown alkane	15 J	68 J			29 J			58 J		25 J
C8H10 aromatic hydrocarbon										
C9H12 aromatic hydrocarbon										
C10H14 aromatic hydrocarbon										
C11H14 aromatic hydrocarbon										
C11H16 aromatic hydrocarbon										
C12H16 aromatic hydrocarbon										
C12H22 aromatic hydrocarbon										
C11H10 aromatic hydrocarbon										
unknown C7H5NS										
unknown C9H18										
unknown C10H18										
unknown C13H18										
unknown C9H10O2										
unknown hydrocarbon										
unknown acid										
unknown cycloalkane										
unknown cyclohexane isomer										
ethyl dimethyl benzene isomer										
ethyl methyl benzene isomer										
decahydronaphthalene isomer										
dimethyl naphthalene isomer										
Total BNA TICs (ug/l)	98 J	232 J	85 J		72 J	166 J		250 J	48 J	133 J

TABLE B - 13

SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
GROUNDWATER SAMPLES - ROUND 1

Sample ID / Compound / Date Collected	WC-12S DL	WC-12S DUP 07-29-92	WC-12S DUP DL	WC-13S 07-29-92	WC-14S 07-28-92	WC-15S 07-28-92	WC-15S DL	LW-7 07-28-92	LW-10 07-28-92	LW-10 RE
VOC TICs (ug/l)										
freon 12										
freon 113										
dimethyl cyclopentane isomer										
C8H14 aromatic hydrocarbon										
C9H10 aromatic hydrocarbon										
C9H12 aromatic hydrocarbon										
C10H14 aromatic hydrocarbon										
hexene isomer										
unknown					160 J	790 J	940 J	31 J	60 J	
unknown alkane								30 J		
unknown aromatic										
unknown C7H14										
unknown cyclic										
unknown cycloalkane										
unknown hydrocarbon										
unknown freon						2300 J	2100 J			
Total VOC TICs (ug/l)					160 J	3090 J	3040 J	61 J	60 J	
BNA TICs (ug/l)	NA		NA				NA			
unknown				47 J	19 J	56 J		111 J	116 J	17 J
unknown aromatic						19 J				
unknown alkane				9 J		20 J		124 J	671 J	
C8H10 aromatic hydrocarbon										
C9H12 aromatic hydrocarbon										
C10H14 aromatic hydrocarbon										
C11H14 aromatic hydrocarbon										
C11H16 aromatic hydrocarbon										
C12H16 aromatic hydrocarbon										
C12H22 aromatic hydrocarbon										
C11H10 aromatic hydrocarbon										3 J
unknown C7H5NS										
unknown C9H18										
unknown C10H18										
unknown C13H18										
unknown C9H10O2										
unknown hydrocarbon										
unknown acid										
unknown cycloalkane										
unknown cyclohexane isomer										
ethyl dimethyl benzene isomer										
ethyl methyl benzene isomer										
decahydronaphthalene isomer										
dimethyl naphthalene isomer										
Total BNA TICs (ug/l)				56 J	19 J	95 J		235 J	787 J	20 J

TABLE B - 13

SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
GROUNDWATER SAMPLES - ROUND 1

Sample ID / Compound / Date Collected	MW-1 07-30-92	MW-2 07-30-92	MW-2 DL	MW-3 07-31-92	MW-3 DL	MW-4 07-31-92	ECD-4 07-30-92
VOC TICs (ug/l)			NA		NA		
freon 12						17 J	
freon 113	380 J						
dimethyl cyclopentane isomer							
C8H14 aromatic hydrocarbon							
C9H10 aromatic hydrocarbon							
C9H12 aromatic hydrocarbon		10 J		61 J		73 J	
C10H14 aromatic hydrocarbon						18 J	
hexene isomer						94 J	
unknown	15 J	151 J		291 J			67 J
unknown alkane		60 J		45 J		150 J	
unknown aromatic		12 J		69 J			
unknown C7H14							
unknown cyclic		75 J		273 J		300 J	
unknown cycloalkane		210 J		105 J		559 J	
unknown hydrocarbon						18 J	
unknown freon							
Total VOC TICs (ug/l)	395 J	518 J		844 J		1229 J	67 J
BNA TICs (ug/l)							
unknown	34 J	47 J	20 J	65 J	273 J	120 J	11 J
unknown aromatic	11 J						3 J
unknown alkane	3 J	169 J	206 J	103 J	310 J		
C8H10 aromatic hydrocarbon							
C9H12 aromatic hydrocarbon				17 J	103 J		
C10H14 aromatic hydrocarbon				45 J	190 J		
C11H14 aromatic hydrocarbon			11 J			15 J	
C11H16 aromatic hydrocarbon						7 J	
C12H16 aromatic hydrocarbon							
C12H22 aromatic hydrocarbon		6 J					
C11H10 aromatic hydrocarbon		12 J		8 J	100 J		
unknown C7H5NS							
unknown C9H18							
unknown C10H18					48 J		
unknown C13H18		13 J					
unknown C9H10O2					89 J		
unknown hydrocarbon							
unknown acid							
unknown cycloalkane		55 J		6 J	205 J		
unknown cyclohexane isomer			24 J				
ethyl dimethyl benzene isomer							
ethyl methyl benzene isomer							
decahydronaphthalene isomer		9 J	8 J		216 J		
dimethyl naphthalene isomer							
Total BNA TICs (ug/l)	48 J	311 J	269 J	244 J	1534 J	142 J	14 J

Notes
B - TIC detected in associated laboratory blank
J - Associated value is estimated
NA - Not Analyzed
BNA - Base/Neutral Acid extractable compound
TIC - Tenatively Identified Compound
VOC - Volatile Organic Compound

TABLE B - 14

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER ROUND 2 SAMPLES

Sample I.D. / Collection Date	WC-1S 10-28-92	WC-2D 10-30-92	WC-2D DL	WC-2D DUP 10-30-92	WC-2D DUP DL	WC-3S 10-30-92	WC-3S Re	ECD-4 10-28-92	WC-4S 10-29-92	WC-5S 10-29-92	WC-5S DL	WC-6S 10-29-92
VOLATILE ORGANICS (ug/l)												
vinyl chloride		460	300 J	480	390				15			4 J
chloroethane		8 J		7 J		75 J	73 J		4 J	9800	8000	210
methylene chloride	3 J	5 U		5 U	53 U	10 U	10 J	4 J		76 J	500 U	
2-propanone		5 J		4 J			9 J					
carbon disulfide		1 J							2 J			
1,1-dichloroethene	1 J	20		20				12	14			40
1,1-dichloroethane	15	97	70 J	100	90	10 J	10 J	19	30	51 J		920
1,2-dichloroethene (total)	3 J	760	1600 J	780	1700	6 J	6 J	4 J	25			4 J
chloroform		2 J		1 J		25 J	26 J					
1,2-dichloroethane		2 J		2 J								
1,1,1-trichloroethane	12							83	4 J			61
bromodichloromethane						1 J	1 J					
1,2-dichloropropane												
trichloroethene	9	24		25	20 J	3 J	2 J	19	4 J			
benzene		3 J		4 J					1 J	30 J		
tetrachloroethene	7	9		10				2 J				
toluene		1 J		1 J								
chlorobenzene												2 J
ethylbenzene										110	64 J	
xylenes (total)									1 J	200		
BASE NEUTRALS (ug/l)			NA		NA		NA				NA	
2-methylnaphthalene										6 J		
dibenzofuran		8 J		3 J						3 J		
diethylphthalate												
di-n-butylphthalate	10 U					1 J				1 J		1 J
butylbenzylphthalate												
bis(2-ethylhexyl)phthalate	1 J	4 J		1 J		2 J			10 U	10 U		10 U
1,2-dichlorobenzene										26		
1,4-dichlorobenzene										2 J		
BASE NEUTRAL/PAHS (ug/l)			NA		NA		NA				NA	
naphthalene										54		
acenaphthylene												
acenaphthene		6 J		4 J					3 J	6 J		
fluorene		1 J		1 J					1 J	3 J		
phenanthrene		2 J								2 J		
anthracene		1 J										
fluoranthene		1 J										
pyrene												
ACID COMPOUNDS (ug/l)			NA		NA		NA					
4-methylphenol												
benzoic acid												
4-nitrophenol												

TABLE B - 14

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER ROUND 2 SAMPLES

Sample I.D.	WC-1S	WC-2D	WC-2D DL	WC-2D DUP	WC-2D DUP DL	WC-3S	WC-3S Re	ECD-4	WC-4S	WC-5S	WC-5S DL	WC-6S
Collection Date	10-28-92	10-30-92		10-30-92		10-30-92		10-28-92	10-29-92	10-29-92		10-29-92
PCBs (ug/l)			NA		NA		NA	NA				
TAL METALS, TOTAL (mg/l)			NA		NA		NA				NA	
aluminum	17 0	3 93		4 99		1 94		39 5	5 78	8 72		4 34
antimony								0 072	0 040			0 085
arsenic	0 016	0 011		0 013				0 014	0 014	0 019		0 007
barium	0 066	0 043		0 048		0 024		0 342	0 152	0 600		0 536
beryllium	0 001							0 003				
cadmium						0 004			0 006 J			0 010 J
calcium	22 1	16 1		17 9		23 0		25 1	81 5	106		210
chromium	0 042	0 014 J		0 018 J		0 035		4 24	0 064	0 078		
cobalt	0 031			0 006				0 065		0 009		0 007
copper	0 098	0 016		0 016		0 027		0 104	0 086	0 122		0 020
iron	55 5	7 27		9 42		4 97		63 9	20 7	55 4		26 6
lead	0 035	0 006		0 008		0 026		0 062	0 033	0 054		
magnesium	8 40	33 1		35 7		6 40		14 4	94 9	13 9		287
manganese	1 53	2 52		2 64		1 11		8 42	1 04	2 22		4 46
mercury	0 0003							0 0006	0 0002	0 0004		
nickel	0 027							0 064		0 036		0 021
potassium	8 62	24 8		26 0		2 70		33 8	38 7	20 1		82 0
selenium												0 005
silver												
sodium	24 8	458				30 4		77 0	802	60 1		2590
thallium												
vanadium	0 038	0 020		0 026		0 030		0 074	0 014	0 035		0 012
zinc	0 110	0 038		0 047		0 074		0 242	0 127	0 213		0 415
TAL METALS, DISSOLVED (mg/l)			NA		NA		NA				NA	
aluminum										0 229		
antimony				0 058								0 059
arsenic									0 007	0 008		
barium	0 013	0 022		0 018				0 051	0 130	0 519		0 655
beryllium												
cadmium						0 004						0 006 J
calcium	21 7	17 8		17 4		23 6		25 0	89 0	119		248
chromium								3 85				
cobalt	0 009							0 006				0 015
copper												
iron	3 00	0 557		0 567				0 086	9 29	35 900		22 4
lead												
magnesium	5 65	35 1		34 4		6 13		5 99	102	12 2		317
manganese	1 20	2 79		2 75		0 014		0 249	1 01	2 28		5 08
mercury												
nickel												
potassium	7 50	26 6		27 6		3 44 J		31 8	40 4	20 3		92 1

TABLE B - 14

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER ROUND 2 SAMPLES

Sample I.D.	WC-1S	WC-2D	WC-2D DL	WC-2D DUP	WC-2D DUP DL	WC-3S	WC-3S Re	ECD-4	WC-4S	WC-5S	WC-5S DL	WC-6S
Collection Date	10-28-92	10-30-92		10-30-92		10-30-92		10-28-92	10-29-92	10-29-92		10-29-92
selenium									0 005			
silver									0 004			
sodium	28 9	499		490		34 4		84 6	838	65 3		2370
thallium												
vanadium				0 008		0 009				0 005		
zinc									0 008	0 014		0 389
CYANIDE (mg/l)	NA	NA	NA	NA	NA	NA	NA	0 36	NA	NA	NA	

TABLE B - 14

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER ROUND 2 SAMPLES

Sample I.D. / Collection Date	WC-6S DL	WC-7S 10-30-92	LW-7 10-27-92	WC-8S 10-28-92	WC-8S DL	WC-8S DUP 10-28-92	WC-8S DUP DL	WC-9S 10-29-92	PZ-9D 10-29-92	WC-10S 10-26-92	LW-10S 10-27-92	WC-11S 10-29-92
VOLATILE ORGANICS (ug/l)												
vinyl chloride				11		10	6 J					
chloroethane	180 J			1500	500	1500	1300					
methylene chloride	100 U	5 U	5 U	7 U	61	6 U	98		61		6 U	2 J
2-propanone		10										
carbon disulfide				2 J		1 J						
1,1-dichloroethene				24		23				9		
1,1-dichloroethane	1900			1100	490	1200	1600					
1,2-dichloroethene (total)				11		11			1300	6		
chloroform										3 J		
1,2-dichloroethane												
1,1,1-trichloroethane	39 J			9		10						
bromodichloromethane												
1,2-dichloropropane			2 J									
trichloroethene				13		13			1600	24		
benzene				1 J		2 J						
tetrachloroethene						2 J						
toluene						1 J						
chlorobenzene												
ethylbenzene												
xylenes (total)												
BASE NEUTRALS (ug/l)	NA				NA		NA					
2-methylnaphthalene												
dibenzofuran												
diethylphthalate												
di-n-butylphthalate			10 U	10 U		10 U				1 J		
butylbenzylphthalate												
bis(2-ethylhexyl)phthalate		2 J	1 J	1 J				10 U				
1,2-dichlorobenzene												
1,4-dichlorobenzene												
BASE NEUTRAL/PAHS (ug/l)	NA				NA		NA					
naphthalene											3 J	
acenaphthylene												
acenaphthene												
fluorene												
phenanthrene												
anthracene												
fluoranthene												
pyrene												
ACID COMPOUNDS (ug/l)							NA					
4-methylphenol												
benzoic acid												
4-nitrophenol												

TABLE B - 14

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER ROUND 2 SAMPLES

Sample I.D. / Collection Date	WC-6S DL	WC-7S 10-30-92	LW-7 10-27-92	WC-8S 10-28-92	WC-8S DL	WC-8S DUP 10-28-92	WC-8S DUP DL	WC-9S 10-29-92	PZ-9D 10-29-92	WC-10S 10-26-92	LW-10S 10-27-92	WC-11S 10-29-92
PCBs (ug/l)			NA	NA	NA	NA	NA	NA	NA		NA	NA
TAL METALS, TOTAL (mg/l)	NA				NA		NA					
aluminum		17 0	0 386	10 8		12 6		20 4	1 30	8 22	17 4	30 6
antimony		0 132				0 047						
arsenic				0 035		0 036		0 00"		0 005	0 026	0 013
barium		0 320		0 063		0 074		0 088	0 116	0 115	0 160	0 155
beryllium		0 002		0 001		0 001		0 002		0 001	0 001	0 003
cadmium		0 005										
calcium		191 0	19 6	36 5		38 1		32 6	37 4	46 8	93 6	59 5
chromium		0 072	0 009	0 014		0 023		0 028	0 008	0 154	0 039	0 037
cobalt		0 015		0 024		0 025		0 024		0 008	0 018	0 047
copper		0 330	0 005	0 028		0 033		0 035		0 06	0 060	0 191
iron		24 9	1 37	68 0		73 0		26 2	2 15	12 8	49 0	48 5
lead		0 047	0 022	0 023		0 020		0 034		0 059	0 039	0 068
magnesium		565	3 34	11 9		12 9		9 15	61 0	11 5	32 6	14 7
manganese		2 08	0 586	3 95		4 14		1 330	1 64	0 727	2 52	2 50
mercury		0 001		0 0006		0 0006					0 0008	
nickel				0 028							0 039	
potassium		167	5 390	11 1		11 9		10 4	18 6	7 70	26 8	9 73
selenium												
silver												
sodium		5830	29 9	39 2		41 2		13 "	1000	21 7	264	17 9
thallium												
vanadium		0 055		0 028		0 033		0 045		0 016	0 037	0 074
zinc		0 214	0 044	0 054		0 131		0 076	0 035	0 102	0 111	0 190
TAL METALS, DISSOLVED (mg/l)	NA				NA		NA					
aluminum										0 057		
antimony		0 092										
arsenic				0 015		0 015					0 006	
barium		0 309		0 032		0 029		0 018	0 129	0 047	0 082	0 044
beryllium												
cadmium												
calcium		219 0	22 5	39 8		39 6		35 6	42 8	54 4	102	69 8
chromium				0 005		0 005						
cobalt				0 016		0 018						
copper										0 006		
iron		0 108		45 3		45 3					2 17	
lead												
magnesium		603	3 81	10 7		10 6		4 63	70 4	11 8	31 2	9 00
manganese		2 13	0 366	4 23		4 21		0 019	1 87	0 164	2 21	0 014
mercury												0 0002
nickel												0 019
potassium		189	6 690	12 1		11 9			21 2	8 10	28 1	7 87

TABLE B - 14

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER ROUND 2 SAMPLES

Sample I.D Collection Date	WC-6S DL	WC-7S 10-30-92	LW-7 10-27-92	WC-8S 10-28-92	WC-8S DL	WC-8S DUP 10-28-92	WC-8S DUP DL	WC-9S 10-29-92	PZ-9D 10-29-92	WC-10S 10-26-92	LW-10S 10-27-92	WC-11S 10-29-92
selenium												
silver												
sodium			35 3	44 9		44 3		16 0	1110	24 5	290	21 9
thallium		5050										
vanadium		0 011										
zinc		0 013	0 032	0 010		0 007		0 007	0 010	0 010		0 022
CYANIDE (mg/l)	NA	NA	NA					NA	NA			NA

TABLE B - 14

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER ROUND 2 SAMPLES

Sample I.D.	WC-12S	WC-12S DL	WC-13S	WC-13S DL	WC-14S	WC-15S	WC-15S DL	MW-1	MW-2	MW-3	MW-4
Collection Date	10-26-92		10-26-92		10-27-92	10-27-92		10-30-92	10-30-92	10-30-92	10-30-92
VOLATILE ORGANICS (ug/l)											
vinyl chloride			18	12 J	1 J	190	150 J				10
chloroethane	3 J					120	100 J		7 J	18	
methylene chloride		29 J	5 U	16 J	5 U	5 U	14 J	100 U	5 U	5 U	20 U
2 propanone										17	130
carbon disulfide											
1,1-dichloroethene	1100	990 J	5		2 J	38	26 J				
1,1-dichloroethane	61	48 J	3 J		27	640	650 J		10		12
1,2-dichloroethene (total)	73	47 J	240	170 J		230	220 J		2 J	1 J	4 J
chloroform	8										
1,2-dichloroethane											
1,1,1-trichloroethane	1500	2000 J	8	4 J	19	74	51 J				
bromodichloromethane											
1,2-dichloropropane											
trichloroethene	140	110 J	230	180 J	4 J	69	52 J	120			
benzene									86	88	
tetrachloroethene	2 J		210	160 J		34	26 J	79			
toluene						3 J					2 J
chlorobenzene											
ethylbenzene										4 J	10
xylenes (total)											
BASE NEUTRALS (ug/l)		NA		NA							
2-methylnaphthalene									1 J	18	
dibenzofuran									6 J	2 J	
diethylphthalate					1 J				1 J	4 J	
di-n-butylphthalate	1 J				10 U						
butylbenzylphthalate											
bis(2-ethylhexyl)phthalate								2 J	4 J	2 J	1 J
1,2-dichlorobenzene											
1,4-dichlorobenzene											
BASE NEUTRAL/PAHS (ug/l)		NA		NA			NA				
naphthalene						1 J				4 J	
acenaphthylene											
acenaphthene									17	4 J	
fluorene									8 J	2 J	
phenanthrene									3 J	2 J	
anthracene									1 J		
fluoranthene									1 J		
pyrene									1 J		
ACID COMPOUNDS (ug/l)		NA		NA							
4-methylphenol											
benzoic acid											
4-nitrophenol											

TABLE B - 14

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER ROUND 2 SAMPLES

Sample I.D.	WC-12S	WC-12S DL	WC-13S	WC-13S DL	WC-14S	WC-15S	WC-15S DL	MW-1	MW-2	MW-3	MW-4
Collection Date	10-26-92		10-26-92		10-27-92	10-27-92		10-30-92	10-30-92	10-30-92	10-30-92
PCBs (ug/l)					NA	NA	NA				
TAL METALS, TOTAL (mg/l)		NA		NA							
aluminum	6 78		1 1		23 2	20 6		7 65 J	20 5	9 41	1 75
antimony									0 042		
arsenic	0 005 J				0 013	0 016			0 028	0 042	
barium	0 069		0 037		0 089	0 105		0 070	0 122	1 29	0 581
beryllium	0 001				0 002	0 002			0 001		
cadmium								0 007 J			
calcium	29 8		17 9		21 9	24 3		17 1	44 6	72 5	58 8
chromium	1 3				0 047	0 042		0 022 J	0 243	0 373	0 023
cobalt	0 016				0 029	0 021		0 010	0 035	0 013	
copper	0 069		0 005		0 107	0 066		0 024	0 569	0 392	0 043
iron	17 0		1 71		38 7	35 2		14 0	68 3	50 8	11 4
lead	0 026		0 014		0 038	0 028		0 015 J	0 076	0 049	0 012
magnesium	7 51		4 5		13 2	13 0		9 02	34 8	25 3	22 0
manganese	1 220		0 786		1 38	1 35		2 01	6 89	2 48	3 13
mercury									0 0007		
nickel					0 024	0 039		0 019	0 035		
potassium	9 13		4 8		11 4	12 0		6 39	25 0	23 8	15 7
selenium											
silver											
sodium	24 8		88		59 5	153		68 7	197	140	195
thallium											
vanadium	0 079				0 072	0 070		0 023	0 071	0 033	0 012
zinc	0 053		0 021		0 087	0 095		0 037	0 357	0 262	0 066
TAL METALS, DISSOLVED (mg/l)		NA		NA			NA				
aluminum					0 314	0 160					
antimony											
arsenic					0 024				0 020	0 022	
barium	0 028		0 029			0 028		0 016	0 011	1 10	0 328
beryllium											
cadmium								0 003			
calcium	18 1		34 1		23 8	24 4		18 6	46 0	75 0	61 2
chromium			1 33		0 010	0 007		0 011			
cobalt											
copper			0 004		0 028						
iron			0 223		0 290	1 00			19 2	12 1	0 184
lead						0 004					
magnesium	4 48		6 62		8 89	6 78		8 59	29 5	23 2	23 8
manganese	0 683		0 013		0 485	1 11			2 32	0 628	1 57
mercury											
nickel			0 033 J								
potassium	4 91		9 38		10 8	10 7		6 79	24 6	24 7	17 6

TABLE B - 14

SUMMARY OF DETECTED COMPOUNDS
GROUNDWATER ROUND 2 SAMPLES

Sample I.D.	WC-12S	WC-12S DL	WC-13S	WC-13S DL	WC-14S	WC-15S	WC-15S DL	MW-1	MW-2	MW-3	MW-4
Collection Date	10-26-92		10-26-92		10-27-92	10-27-92		10-30-92	10-30-92	10-30-92	10-30-92
selenium			0 005								
silver											
sodium	90 3		28 3		76 6	18 2		83 5	228	164	219
thallium											
vanadium			0 023 J		0 013	0 012					
zinc	0 011										
CYANIDE (mg/l)	0 49	NA	NA	NA	NA	NA		NA	NA	NA	NA

Notes

TAL - Target Analyte List
DL - Sample analyzed at a dilution
NA - Not analyzed
J - Associated value is estimated
U - Non-detected due to blank contamination
Re - Reanalyzed sample

TABLE B - 15

SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
GROUNDWATER SAMPLES ROUND 2

Sample I.D	WC-1S	WC-2D	WC-2D DL	WC-2D DUP	WC-2D DUP DL	WC-3S	WC-3S Re	ECD-4	WC-4S	WC-5S	WC-5S DL	WC-6S
Collection Date	10-28-92	10-30-92		10-30-92		10-30-92		10-28-92	10-29-92	10-29-92		10-29-92
VOC TICs (ug/l)												
1,2-dichloro-1,1,2-trifluoroethane	24 J											
1,1,2-trichloro-1,1,2-trifluoroethane	13 J			18 J								
unknown										150 J		421 J
unknown acid												
unknown alkane												
unknown alkene												
unknown aromatic					66 J							
unknown cycloalkane												
unknown freon												31 J
unknown hydrocarbon												
unknown C6H12												
chlorinated alkane												
chlorinated hydrocarbon												
cyclopentane isomer												
substituted benzene												
C10H14 aromatic hydrocarbon												
C11H14 aromatic hydrocarbon												
Total VOC TICs (ug/l)	37 J			18 J	66 J					150 J		452 J
BNA TICs (ug/l)			NA		NA		NA				NA	
decahydro-2-methylnaphthalene												
benzo(b)thiophene		13 J		14 J								
unknown	19 J	40 J		86 J		4 J		2 J	21 J	95 J		83 J
unknown acid	75 U	164 J		2 J				20 U				
unknown alkane		80 J		30 J								
unknown alkene		10 J										
unknown aromatic				2 J								
unknown cyclic												
unknown hydrocarbon												
unknown C9H8S				2 J								
decahydronaphthalene isomer												
dimethylnaphthalene isomer												
cyclohexane isomer												
ethylmethylbenzene isomer												
substituted benzene				9 J						46 J		
substituted naphthalene												
C9H12 aromatic hydrocarbon										135 J		
C10H12 aromatic hydrocarbon												
C10H14 aromatic hydrocarbon										19 J		
C11H14 aromatic hydrocarbon												
C13H14 aromatic hydrocarbon										6 J		
Total BNA TICs (ug/l)	19 J	307 J		145 J		4 J		2 J	21 J	301 J		83 J

TABLE B - 15

SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
GROUNDWATER SAMPLES ROUND 2

Sample I.D	WC-6S DL	WC-7S	LW-7	WC-8S	WC-8S DL	WC-8S DUP	WC-8S DUP DL	WC-9S	PZ-9D	WC-10S	LW-10S
Collection Date		10-30-92	10-27-92	10-28-92		10-28-92		10-29-92	10-29-92	10-26-92	10-27-92
VOC TICs (ug/l)											
1,2-dichloro-1,1,2-trifluoroethane				16 J		15 J					
1,1,2-trichloro-1,1 2-trifluoroethane											
unknown	270 J		14 J	7 J		7 J					
unknown acid											
unknown alkane			7 J								
unknown alkene											
unknown aromatic											
unknown cycloalkane											
unknown freon											
unknown hydrocarbon											
unknown C6H12											
chlorinated alkane						16 J					
chlorinated hydrocarbon				16 J							
cyclopentane isomer											
substituted benzene											
C10H14 aromatic hydrocarbon											
C11H14 aromatic hydrocarbon											
Total VOC TICs (ug/l)	270 J		21 J	39 J		38 J					
BNA TICs (ug/l)	NA				NA		NA				
decahydro-2-methylnaphthalene											
benzo(b)thiophene											
unknown		49 J	40 J	8 J		38 J		4 J	23 J	4 J	74 J
unknown acid		4 J	3J/30 U	26 U		60 U				200 U	3J/31 U
unknown alkane											
unknown alkene											
unknown aromatic											
unknown cyclic											
unknown hydrocarbon											
unknown C9H8S											
decahydronaphthalene isomer											
dimethylnaphthalene isomer											
cyclohexane isomer											
ethylmethylbenzene isomer											
substituted benzene						4 J					
substituted naphthalene											
C9H12 aromatic hydrocarbon											
C10H12 aromatic hydrocarbon											
C10H14 aromatic hydrocarbon											
C11H14 aromatic hydrocarbon											
C13H14 aromatic hydrocarbon											
Total BNA TICs (ug/l)		53 J	43 J	8 J		42 J		4 J	23 J	4 J	77 J

TABLE B - 15

SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
GROUNDWATER SAMPLES ROUND 2

Sample I.D.	WC-11S	WC-12S	WC-12S DL	WC-13S	WC-13S DL	WC-14S	WC-15S	WC-15S DL	MW-1	MW-2	MW-3	MW-4
Collection Date	10-29-92	10-26-92		10-26-92		10-27-92	10-27-92		10-30-92	10-30-92	10-30-92	10-30-92
VOC TICs (ug/l)												
1,2-dichloro-1,1,2-trifluoroethane						25 J	610 J	350 J				
1,1,2-trichloro-1,1 2-trifluoroethane						38 J	1200 J	230 J				
unknown									180 J	7 J	31 J	
unknown acid										37 J		225 J
unknown alkane												
unknown alkene										9 J	70 J	
unknown aromatic										60 J	250 J	100 J
unknown cycloalkane												
unknown freon										57 J	40 J	134 J
unknown hydrocarbon											140 J	
unknown C6H12												
chlorinated alkane												
chlorinated hydrocarbon												20 J
cyclopentane isomer											58 J	24 J
substituted benzene									86 J			
C10H14 aromatic hydrocarbon									67 J	7 J		
C11H14 aromatic hydrocarbon												
Total VOC TICs (ug/l)						63 J	1810 J	580 J	333 J	177 J	589 J	503 J
BNA TICs (ug/l)			NA		NA			NA				
decahydro-2-methylnaphthalene										14 J		4 J
benzo(b)thiophene												
unknown		5 J		4 J		3 J	3 J		8 J	183 J	217 J	51 J
unknown acid		370 U		27 U		34 J	17 J					3 J
unknown alkane										689 J	74 J	4 J
unknown alkene												
unknown aromatic												6 J
unknown cyclic										16 J		
unknown hydrocarbon						2 J				110 J		
unknown C9H8S												
decahydronaphthalene isomer											14 J	
dimethylnaphthalene isomer											32 J	
cyclohexane isomer										63 J		
ethylmethylbenzene isomer												
substituted benzene												
substituted naphthalene												
C9H12 aromatic hydrocarbon											14 J	
C10H12 aromatic hydrocarbon											89 J	
C10H14 aromatic hydrocarbon											14 J	
C11H14 aromatic hydrocarbon												
C13H14 aromatic hydrocarbon												
Total BNA TICs (ug/l)		5 J		4 J		39 J	20 J		8 J	1061 J	454 J	68 J

Notes

BNA - Base/Neutral Acid extractable compound
DL - Sample analyzed at a dilution
J - Associated value is estimated
NA - Not Analyzed
Re - Reanalyzed sample
TIC - Tenatively Identified Compound
U - Non-detected due to blank contamination
VOC - Volatile Organic Compound

TABLE B - 16

SUMMARY OF DETECTED COMPOUNDS
SURFACE WATER SAMPLES

Sample I.D. / Collection Date	01-SW 10-22-92	02-SW 10-22-92	03-SW 10-22-92	04-SW 10-22-92	05-SW 10-22-92	06-SW 10-22-92	07-SW 10-22-92	08-SW 10-22-92	08-SW DL 10-22-92	08-BG-SW 10-22-92	LT1-SW 10-23-92	LT2-SW 10-23-92	LT2-SW DUP 10-23-92	LT3-SW 10-23-92	IBG-SW 10-23-92
VOLATILE ORGANICS (ug/l)										8 J					
vinyl chloride															
methylene chloride	5 U	5 U	8 U	5 U	5 U	5 U	5 U	5 U	32 U	5 U	5 U	5 U	5 U	5 U	5 U
2-propanone	10 U	10 U	13 U	16 U	14 U	14 U	59 U	360	580	100	10 U	11 U	11 U	10 U	10 U
carbon disulfide			1 J									2 J			
1,1-dichloroethene				5			3 J								
1,1-dichloroethane				4 J			13			5					
1,2-dichloroethene (total)		2 J	10	6		12	48			8		1 J			
chloroform							15	11	5 J	2 J					
1,1,1-trichloroethane							15	13		2 J					
bromodichloromethane							5	2 J							
trichloroethene				2 J			8	4 J		2 J					
benzene										1 J					
tetrachloroethene										5					
toluene											1 J				
xylenes (total)											2 J				
BASE NEUTRALS (ug/l)									NA						
2-methylnaphthalene							1 J								
di-n-butylphthalate	12 U	10 U	10 U	12 U	10 U	10 U	10 U	70 U		74 U					
butylbenzylphthalate		10 U		10 U				10 U		10 U					
bis(2-ethylhexyl)phthalate		12 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U
BASE NEUTRAL/PAHs (ug/l)									NA						
naphthalene							1 J				1 J				
fluorene							1 J								
phenanthrene							1 J								
ACID COMPOUNDS (ug/l)									NA						
4-methylphenol							1 J								
benzoic acid							1 J								
4-nitrophenol								2 J							

TABLE B - 16

SUMMARY OF DETECTED COMPOUNDS
SURFACE WATER SAMPLES

Sample I.D.	01-SW	02-SW	03-SW	04-SW	05-SW	06-SW	07-SW	08-SW	08-SW DL	08-BG-SW	LT1-SW	LT2-SW	LT2-SW DUP	LT3-SW	IBG-SW
Collection Date	10-22-92	10-22-92	10-22-92	10-22-92	10-22-92	10-22-92	10-22-92	10-22-92	10-22-92	10-22-92	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92
PCBs (ug/l)									NA						
TAL METALS - TOTAL (mg/l)									NA		NA				
aluminum	0 293	4 750	7 700	0 120	0 654	0 331	1 280	0 077		0 086	0 243	0 179	0 182	0 096	0 154
antimony	0 055	0 071	0 065	0 068	0 062	0 089				0 044	0 077	0 107	0 117	0 102	0 122
arsenic												0 006		0 008	
barium	0 020	0 035	0 046	0 032	0 023	0 020	0 016			0 067	0 012		0 013		
beryllium															
cadmium	0 003										0 004				
calcium	178	182	192	218	236	208	21 0	14 1		149	129	208	234	273	253
chromium		0 062	0 110		0 015	0 006					0 007	0 008			
cobalt			0 006												
copper	0 013	0 144	0 214		0 018	0 011	0 006	0 026		0 014	0 015	0 012	0 006	0 006	0 007
iron	0 501	8 910	15 0	0 364	1 500	1 420	0 443	0 045		12 6	0 241	0 187	0 131	0 133	0 279
lead			0 020	0 052								0 020			
magnesium	569	604	658	759	843	704	7 0			410	381	675	774	915	840
manganese	0 049	0 328	0 456	0 155	0 406	0 417	0 050			1 120	0 035	0 025	0 020	0 018	0 035
mercury	0 0003	0 0006	0 0006	0 0002	0 0003	0 0002		0 0002		0 0002					
nickel												0 034	0 027		
potassium	183	188	202	226	251	220	3 610	4 070		130	122	214	245	292	267
selenium															
silver															
sodium	4740	4990	5370	6200	6880	5800	81 3	181		3450					
thallium															
vanadium	0 008	0 023	0 037		0 012	0 007					0 011 J	0 014 J	0 010 J	0 012 J	0 016 J
zinc	0 015	0 154	0 230	0 016	0 011	0 011	0 294			0 021		0 008	0 012		
CYANIDE (mg/l)							0 01		NA						

Notes

DL - Sample analyzed at a dilution
NA - Not analyzed
J - Associated value is estimated
U - Non-detected due to blank contamination
PCB - Polychlorinated biphenyls
TAL - Target Analyte List

TABLE B - 17

SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
SURFACE WATER SAMPLES

Sample I.D.	01-SW	02-SW	03-SW	04-SW	05-SW	06-SW	07-SW	08-SW
Collection Date	10-22-92	10-22-92	10-22-92	10-22-92	10-22-92	10-22-92	10-22-92	10-22-92
VOC TICs (ug/l)								
unknown								
Total VOC TICs (ug/l)								
BNA TICs (ug/l)								
unknown	3 J	4 J	19 J	8 J		8 J	98 J	12 J
unknown acid		3 J						2 J
unknown alcohol							38 J	
unknown alkane							75 J	
unknown phthalate								4 J
C11H10 aromatic hydrocarbon							3 J	
Total BNA TICs (ug/l)	3 J	7 J	19 J	8 J		8 J	214 J	18 J

Sample I.D.	08-SW DL	08-BG-SW	LT1-SW	LT2-SW	LT2-SW DUP	LT3-SW	IBG-SW
Collection Date	10-22-92	10-22-92	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92
VOC TICs (ug/l)							
unknown				19 J			
Total VOC TICs (ug/l)				19 J			
BNA TICs (ug/l)	NA						
unknown		68 J				2 J	2 J
unknown acid		3 J					
unknown alcohol		3 J					
unknown alkane							
unknown phthalate							
C11H10 aromatic hydrocarbon							
Total BNA TICs (ug/l)		74 J				2 J	2 J

Notes: DL - Sample analyzed at a dilution.
DUP - Duplicate sample of associated number shown
J - Associated value is estimated.
BNA - Base/Neutral Acid extractable compound
TIC - Tenatively Identified Compound
VOC - Volatile Organic Compound
NA - Not Analyzed.

TABLE B - 18

SUMMARY OF DETECTED COMPOUNDS
SEDIMENT SAMPLES

Sample ID	LT1-0-12	LT1-12-24	LT2-0-12	LT2-12-24	LT3-0-12	LT3-12-24	IBG-0-12	IBG-12-24	01-0-12	01-12-24	02-0-12	02-12-24	03-0-12
Date Collected	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92	10-28-92	10-28-92	10-28-92	10-28-92	10-28-92
VOLATILE ORGANICS (ug/kg)													
methylene chloride	25 U	44 U	32 U	35 U	32 U	27 U	36 U	28 U	57	14 U	120	36	57
2-propanone													
toluene											59	15	
chlorobenzene												12	
ethylbenzene											170	89	
xylene (total)											380	190	
BASE NEUTRALS (ug/kg)													
n-nitroso-di-n-propylamine													
1,2,4-trichlorobenzene													
2-methylnaphthalene			11 J							20 J		250 J	
2-chloronaphthalene										24 J			
dibenzofuran					35 J					36 J		52 J	12 J
2,4-dinitrotoluene													
diethylphthalate										55 J			
n-nitrosodiphenylamine	110 J		170 J		61 J				63 J	300 J			
di-n-butylphthalate	5500	5700	2600	3600	1200	1700	1200	870 J	2300 U	1100 U	2100 J	4000 J	3400 J
butylbenzylphthalate	700 J	92 J				560 J			370		620 J	450 J	
bis(2-ethylhexyl)phthalate	1100 U	1100 U	1400 J	1100 U	1000 U	900 U	1100 U	900 U	620	630	5600 J	3600 J	620 J
di-n-octylphthalate	27 J												
BASE NEUTRALS/PAHs (ug/kg)													
naphthalene											160 J	190 J	
acenaphthylene			14 J		17 J					160 J			62 J
acenaphthene	15 J		26 J		98 J					78 J	140 J	110 J	37 J
fluorene					82 J					120 J	130 J	160 J	45 J
phenanthrene	460 J	36 J	260 J		840 J				230 J	1200	620 J	870 J	410 J
anthracene	95 J		99 J		240 J				62 J	280 J	140 J	160 J	89 J
fluoranthene	1000 J	81 J	720 J		1300				620 J	2000	700 J	1400	930 J
pyrene	980 J	110 J	640 J		980 J	34 J			740 J	2400	330 J		1000 J
benzo (a) anthracene	450 J	69 J	250 J		630 J				200 J	1200	300 J	710 J	360 J
chrysene	540 J	76 J	360 J		750 J				370 J	1900	600 J	1200	580 J
benzo (b) fluoranthene	170 J		150 J		300 J					980 J	310 J	730 J	280 J
benzo (k) fluoranthene	180 J		130 J		260 J					470 J	280 J	460 J	240 J
benzo (a) pyrene	200 J		140 J		320 J				170 J	730 J	220 J	520 J	300 J
indeno (1,2,3-cd) pyrene					220 J					420 J	150 J		150 J
dibenz (a,h) anthracene													
benzo (g,h,i) perylene	110 J				210 J					360 J	140 J		120 J

TABLE B - 18

SUMMARY OF DETECTED COMPOUNDS
SEDIMENT SAMPLES

Sample ID	LT1-0-12	LT1-12-24	LT2-0-12	LT2-12-24	LT3-0-12	LT3-12-24	IBG-0-12	IBG-12-24	01-0-12	01-12-24	02-0-12	02-12-24	03-0-12
Date Collected	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92	10-28-92	10-28-92	10-28-92	10-28-92	10-28-92
ACID COMPOUNDS (ug/kg)													
benzoic acid										29 J			
4-methylphenol			26 1										
PCBs (ug/kg)													
Aroclor-1248	640		5600							1300	70000	65000	4500
Aroclor-1254													
Aroclor-1260													
TAL METALS (mg/kg)													
aluminum	14000	14800	9720	14700	9970	8850	11000	8530	18600	9600	11100	8200	9530
antimony	17 1	16 0	26 4	15 0	15 8	12 9	15 1		28 5	14 6			
arsenic	7 07	4 54	5 35	4 68	4 44	2 66	3 41	2 64	7 30	6 40	4 90	6 80	6 20
barium	52 5	33 8	40 6	32 3	30 2	17 6	25 1	19 0	68 8	77 2	209	59	69 7
beryllium	0 850	0 450	0 400			0 360	0 400	0 360	1 20		4 70		
cadmium			1 20							2 60	3 40	7 60	3 00
calcium	3010	4220	3200	4740	2920	2640	2910	2590	3570	4000	17500	1930	7200
chromium	286	81 5	185	24 5	288	16 0	20 3	14 4	308	267	537	408	391
cobalt	13 2	14 2	19 9	12 9	11 7	8 30	13 5	10 0	15 0	9 70	55 9	28 2	19 4
copper	610	246	289	10 2	310	5 30	12 4	3 2	587	539	431	181	266
iron	25400	26100	19000	24000	18100	15800	20000	14800	32500	18300	32000	20400	26100
lead	89 6	17 4	32 6	5 6	26 6	3 72	5 41	3 3	173	52	155	76 6	97 4
magnesium	7530	8800	6200	8620	5780	5240	6810	5150	10100	5000	8010	5250	8300
manganese	323	312	249	303	239	182	242	181	497	257	993	269	697
mercury	0 612	0 268	0 282		0 347				0 870	0 440	1 40	0 410	0 570
nickel	53 9	28 3	118	29 8	55 5	21 5	21 6	13 1	117	31 4	789	118	301
potassium	3430	3780	2880	3260	2740	2170	2840	2170	5100	1740	2250	1750	1890
silver	26 8		3 50						23 0	12 9	9 30		5 00
sodium	11800	10200	6440	6460	4750	3920	4830	2750	17400	5150	7870	4320	7390
vanadium	43 9	38 4	73 9	34 1	29 1	21 8	26 5	18 4	59 5	84 7	781	71 6	122
zinc	405	174	200	65 1	205	47 5	62 4	48 3	453	306	525	278	332
CYANIDE (mg/kg)													

TABLE B - 18

SUMMARY OF DETECTED COMPOUNDS
SEDIMENT SAMPLES

Sample ID	03-12-24	04-0-12	04-12-24	05-0-12	05-12-24	06-0-12	06-12-24	07-0-12	07-12-24	08-0-12	08-12-24	08-12-24 DUP	08-BG-0-12	08-BG-12-24
Date Collected	10-28-92	10-28-92	10-28-92	10-27-92	10-27-92	10-27-92	10-27-92	10-28-92	10-28-92	10-27-92	10-27-92	10-27-92	10-27-92	10-27-92
VOLATILE ORGANICS (ug/kg)														
methylene chloride	16 U	17 U	16 U		11 U	8 U	8 U	8 U	23		8 U	10 U	8 U	6 U
2-propanone														
toluene														
chlorobenzene														
ethylbenzene														
xylene (total)														
BASE NEUTRALS (ug/kg)														
n-nitroso-di-n-propylamine											1100 T		180 J	
1,2,4-trichlorobenzene								21 J						
2-methylnaphthalene	7 J					190 J				210 J				
2-chloronaphthalene														
dibenzofuran	9 J				21 J	830 J		4 J			66 J		39 J	59 J
2,4-dinitrotoluene													260 J	
diethylphthalate								6 J						
n-nitrosodiphenylamine										1300	1100	490 J	390 J	580 J
di-n-butylphthalate	760 J			4400	2000		2800	400 U					1100 U	840 U
butylbenzylphthalate								400 U				860 U	1100 U	
bis(2-ethylhexyl)phthalate	370 J	600 U	800 U	220	370	2000 U	73	110	600 U	1600	420	860 U	670	900
di-n-octylphthalate					14 J	32 J				28 J				41 J
BASE NEUTRALS/PAHs (ug/kg)														
naphthalene						700 J						48 J		
acenaphthylene					20 J	200 J		17 J			160 J	180 J	120 J	82 J
acenaphthene	12 J			16 J	34 J	1500 J		9 J			230 J	170 J	380 J	550 J
fluorene						1700 J						170 J	100 J	
phenanthrene			27 J	120 J	160 J	11000 T	24 J	65 J		3100	500 J	980	350 J	190 J
anthracene	340 J		15 J	31 J	57 J	3200 J	7 J	18 J		520 J	280 J	250 J	120 J	130 J
fluoranthene	530	24 J	110 J	220 J	420 J	13000 T	70 J	110 J	12 J	1000 J	990 J	900	2300 J	1700
pyrene	620	33 J	160 J	120 J	300 J	11000 J	65 J	130 J	11 J	690 J	700 T	720 J	1700	1200
benzo (a) anthracene	200 J		36 J	91 J	140 J	5600 J	45 J			440 J	410 J	440 J	430 J	460 J
chrysene	360 J		65 J	120 J	170 J	6300 J	47 J			700 J	710 J	700 J	600 J	600 J
benzo (b) fluoranthene	120 J			94 J	83 J	2500 J	26 J	34 J		300 J	340 J	370 J	260 J	260 J
benzo (k) fluoranthene	110 J			54 J	62 J	2700 J	18 J	28 J		330 J	260 J	220 J	200 J	220 J
benzo (a) pyrene	110 J				82 J	3200 T	15 J	31 J		300 J	310 J	320 J	240 J	270 J
indeno (1,2,3-cd) pyrene						1900 J						200 J	150 J	170 J
dibenz (a,h) anthracene						540 J								
benzo (g,h,i) perylene						1700 J						200 J	100 J	130 J

TABLE B - 18

SUMMARY OF DETECTED COMPOUNDS
SEDIMENT SAMPLES

Sample ID	03-12-24	04-0-12	04-12-24	05-0-12	05-12-24	06-0-12	06-12-24	07-0-12	07-12-24	08-0-12	08-12-24	08-12-24 DUP	08-BG-0-12	08-BG-12-24
Date Collected	10-28-92	10-28-92	10-28-92	10-27-92	10-27-92	10-27-92	10-27-92	10-28-92	10-28-92	10-27-92	10-27-92	10-27-92	10-27-92	10-27-92
ACID COMPOUNDS (ug/kg)														
benzoic acid		20 J						42 J	65 J					
4-methylphenol														
PCBs (ug/kg)														
Aroclor-1248								290						
Aroclor-1254										1100				
Aroclor-1260											1400	660 J		
TAL METALS (mg/kg)														
aluminum	5800	5850	15100	4950	11500	5130	5440	4990	8490	8730	8950	8280	7800	9750
antimony					28 5		12 0		15 1	69 7	26 5 J		33 2	15 9
arsenic	0 005	3 70	5 40	2 20	4 90	3 60	2 60	4 50	6 30	6 10	8 60	8 50	35 3	7 20
barium	21 9	32 7	42 2	14 5	64 8	39 9	18 2	42 4	42 7	74 1	56 3	45 4	40 7	43 5
beryllium														
cadmium										27 4	5 00	2 50	1 60	
calcium	1080	1520	3480	1360	9800	1420	783	860	1650	19300	5490	3200	1580	1310
chromium	97 2	57 7	75 5	79 5	455	169	43 1	121	26 1	4300	1580	888	2550	588
cobalt	6 30	5 70	9 50	6 80	21 4	7 10	5 70	6 50	7 70	13 7	9 60	8 80	11 6	11 1
copper	54	66 2	271	74 8	272	121	58 5	64 6	16 8	1070	404 J	192 J	573	99 9
iron	13600	13500	26600	12000	31300	12400	12200	13700	20600	19100	17200	14400	18500	18300
lead	14 8	13 0	42 7	33 2	66 2	56 2	10 2	12 7	6 01	189	81 7	86 2	113	64 9
magnesium	3530	3700	8720	3600	7120	3120	2510	2200	4690	19200	4650	3380	4220	5520
manganese	156	320	366	139	1200	142	130	102	294	772	403	340	231	213
mercury			0 310	0 310	0 400	0 630	0 160	0 180		0 400	0 28			0 170
nickel	12 2	26 2	28 4	58 0	249	68 3	9 2	38 8	12 2	217	191 J	73 9	183	76 2
potassium	1370	1320	3700	1140	3150	886	1010	912	1840	1300	1190	1020	1150	1970
silver										8 20		1 70		
sodium	2130	4360	10100	4340	4260	4120	2330	1550	2680	2840	984	746	1110	971
vanadium	19 9	17 5	37 3	21 2	40 8	19 5	17 1	19 3	21 3	34 6	28 2	20 8	21 2	28 5
zinc	106	75 1	229	116	155	129	60 8	125	62 6	338	235	148	162	93 8
CYANIDE (mg/kg)			0 31	0 54						4 6		0 38		0 27

Notes
DUP - Duplicate sample of associated sample number shown
NA - Not analyzed
J - Associated value is estimated
U - Non-detected due to blank contamination
TAL - Target Analyte List
PCB - Polychlorinated biphenyls

TABLE B - 19

SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
SEDIMENT SAMPLES

Sample ID	LT1-0-12	LT1-12-24	LT2-0-12	LT2-12-24	LT3-0-12	LT3-12-24	IBG-0-12	IBG-12-24	01-0-12	01-12-24	02-0-12	02-12-24	03-0-12	03-12-24
Date Collected	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92	10-23-92	10-28-92	10-28-92	10-28-92	10-28-92	10-28-92	10-28-92
VOC TICs (ug/kg)														
unknown				11 J			520 J				1700 J	510 J	74 J	29 J
unknown alkane											530 J			
unknown alkene												130 J		22 J
unknown cycloalkane														
unknown cyclic											1000 J			
unknown freon														
unknown hydrocarbon											2050 J	850 J	173 J	
unknown ketone													98 J	
unknown C7H12											350 J			
aromatic hydrocarbon												90 J		
cyclohexane isomer											300 J			
trimethylpentene isomer											370 J			
C10H20 aromatic												49 J		
Total VOC TICs (ug/kg)				11 J			520 J				6300 J	1629 J	345 J	51 J
BNA TICs (ug/kg)														
decahydro-2-methylnaphthalene													290 J	
unknown	5810 J	2050 J	6780 J	2540 J	850 J	2620 J	770 J	1020 J	4160 J	5600 J	10100 J	9700 J	4890 J	565 J
unknown cycloalkane														
unknown cyclic			1070 J											
unknown acid									57640 J	2200 J				
unknown alkane			1150 J	280 J			1650 J				104000 J	31000 J	440 J	
unknown alkene														
unknown aromatic												1700 J		
unknown hydrocarbon			310 J											
decahydro-methyl-naphthalene isomer													420 J	
dichloronaphthalene isomer										820 J			520 J	313 J
substituted benzene												1800 J		
trichloronaphthalene isomer			2650 J							380 J		3760 J	440 J	190 J
tetrachloronaphthalene isomer			1310 J											1590 J
C10H14 aromatic hydrocarbon											5200 J			
C14H14 aromatic hydrocarbon														
C15H10 aromatic hydrocarbon														
C15H12 aromatic hydrocarbon														
C16H12 aromatic hydrocarbon														
C16H14 aromatic hydrocarbon														
C17H12 aromatic hydrocarbon														
C20H10 aromatic hydrocarbon					540 J									
C20H12 aromatic hydrocarbon														
Total BNA TICs (ug/kg)	5810 J	2050 J	13270 J	2820 J	1390 J	2620 J	2420 J	1020 J	61800 J	9000 J	119300 J	47960 J	7000 J	2658 J

TABLE B - 19

SUMMARY OF TENATIVELY IDENTIFIED COMPOUNDS (TICs)
SEDIMENT SAMPLES

Sample ID	04-0-12	04-12-24	05-0-12	05-12-24	06-0-12	06-12-24	07-0-12	07-12-24	08-0-12	08-12-24	08-12-24 DUP	08-BG-0-12	08-BG-12-24
Date Collected	10-28-92	10-28-92	10-27-92	10-27-92	10-27-92	10-27-92	10-28-92	10-28-92	10-27-92	10-27-92	10-27-92	10-27-92	10-27-92
VOC TICs (ug/kg)													
unknown						75 J			421 J	334 J	45 T	164 J	48 T
unknown alkane				15 J		77 T			52 J				
unknown alkene									550 J				
unknown cycloalkane				11 J					619 J				
unknown cyclic													
unknown freon							9 J						
unknown hydrocarbon													
unknown ketone													
unknown C7H12													
aromatic hydrocarbon													
cyclohexane isomer													
trimethylpentene isomer													
C10H20 aromatic													
Total VOC TICs (ug/kg)				26 T		152 J	9 T		1642 J	334 J	45 T	164 J	48 J
BNA TICs (ug/kg)													
decahydro-2-methylnaphthalene													
unknown	10790 J	40340 T	1930 T	3990 J	2200 J	625 T	1970 J	4230 J	19000 J	20840 J	5120 J	43060 J	15780 J
unknown cycloalkane									21900 J	2100 J	1470 J	580 J	5560 J
unknown cyclic													
unknown acid	25910 J	410 J	640 T	360 T			23280 J	15740 J					18000 J
unknown alkane				100 J					31000 J	9160 J	8010 J	740 J	1100 J
unknown alkene											1940 T	1690 J	1200 T
unknown aromatic				160 J	4810 J								1550 J
unknown hydrocarbon													
decahydro-methyl-naphthalene isomer													
dichloronaphthalene isomer													
substituted benzene													
trichloronaphthalene isomer													
tetrachloronaphthalene isomer													
C10H14 aromatic hydrocarbon													940 J
C14H14 aromatic hydrocarbon					3500 J								
C15H10 aromatic hydrocarbon					3560 J								
C15H12 aromatic hydrocarbon					1200 J								
C16H12 aromatic hydrocarbon					520 J								
C16H14 aromatic hydrocarbon					2900 J								
C17H12 aromatic hydrocarbon													
C20H10 aromatic hydrocarbon					3300 J								
C20H12 aromatic hydrocarbon													
Total BNA TICs (ug/kg)	36700 J	40750 J	2570 J	4610 J	21990 J	625 J	25250 J	19970 J	71900 J	32100 J	16540 J	46070 J	44130 J

Notes

DUP - Duplicate sample of associated sample number shown
J - Associated value is estimated
NA - Not Analyzed
BNA - Base/Neutral Acid extractable compound
TIC - Tenatively Identified Compound
VOC - Volatile Organic Compound

QCSR
APPENDIX C
Summary of Comments on Quality Control Summary Report (February 1993)

APPENDIX C
SUMMARY OF COMMENTS ON
QUALITY CONTROL SUMMARY REPORT (February 1993)

Location of Text in February 1993 Report	Comment Description Summary	Action
General	Include USACE-MRD Laboratory QA/QC Report (CQAR) in the RI Report	CQAR is presented as Appendix C in the RI Report.
Table 2-1	Volatile Organic (VO) analyses is written twice for Area 1 sediment samples.	VO is correctly placed with Area 1 surface water samples.
Table 3-12	Provide an explanation for why field blank samples, but not corresponding field samples, were analyzed for cyanide.	Note on Table 3-12 is revised to clarify explanation.
Section 5.2.2 Page 45	Include how long the holding time was exceeded in the text and provide explanation for why so many samples missed holding times.	Section 5.2.2 is revised to include holding times for each sample discussed.
Section 5.2.5 Page 47	Include acceptable surrogate recovery limits used to evaluate the data. State whether the sample was reanalyzed and the results of the reanalysis.	Section 5.2.5 is revised to provide limits and explanation of reanalysis.
Section 5.2.6 Page 48	State why it was not necessary to qualify the data which had some MS/MSD recoveries and RPD values outside acceptable limits.	Explanation added to Section 5.2.6.

Note: All comments were issued by S. George, USACE.

APPENDIX C
Chemical Quality Assurance Report

DEPARTMENT OF THE ARMY
MISSOURI RIVER DIVISION, CORPS OF ENGINEERS
P O BOX 103, DOWNTOWN STATION
OMAHA, NEBRASKA 68101-0103

REPLY TO
ATTENTION OF

CEMRD-ED-L (200)

11 May 93

MEMORANDUM FOR Commander, US Army Engineer District, Omaha,
ATTN: CEMRO-ED-EA (John Barrett)

SUBJECT: Stratford Army Engine Plant - Stratford, CT, Chemical Quality Assurance Report

1. This is in response to the request from the Omaha District for quality assurance testing.

2. Enclosed is a copy of the Chemical Quality Assurance Report, SAB.

3. The Contractor for this project was Woodward-Clyde Consultants of Wayne, NJ. The laboratory was Nytest Environmental of Port Washington, NY.

4. The Contractor's data met the HTW reporting requirements except as noted. Refer to the attached report for the quality assurance review.

5. Data discrepancies were noted for five water and three soil samples.

6. The Quality Assurance raw data report was sent under separate cover on or about 11 May 93.

7. If there are any questions or comments, please call Laura Percifield, (402) 444-4304.

FOR THE COMMANDER:

Douglas B. Taggart

Encl
CQA Report

DOUGLAS B. TAGGART
Director, MRD Laboratory

MRD Lab Project No. 1341

DEPARTMENT OF THE ARMY
MISSOURI RIVER DIVISION, CORPS OF ENGINEERS
DIVISION LABORATORY
OMAHA, NEBRASKA 68102

12 MAY 1993

Subject: Chemical Quality Assurance Report

Project: Stratford Army Engine Plant - Stratford, CT
Intended Use: IRP-Army RI/FS
Source of Material:

Submitted by: John Barrett, CEMRO-ED-EA
Date Sampled: 09 Jun - 28 Oct 92 , **Date Received:** 11 Jun - 29 Oct 92
Method of Test or Specification: See attached Tables 001-012.

References: Omaha District Request No. ENE 2574 dated 23 Nov 92

-- REMARKS --

1. CONTRACTOR DATA EVALUATION: Woodward-Clyde Consultants was the Contractor for this project. Woodward-Clyde subcontracted Nytest Environmental Laboratories for the analytical data. The laboratory performed the analysis using EPA methods. Proper quality control procedures were followed and documented except as noted below. The data for all parameters met the USACE reporting requirements as specified in ER 1110-1-263 (dated 1 Oct 90).

   Nytest provided chemical analytical results for:
   - Volatile organic compounds (VOA) by EPA method 8240.
   - Base/neutral/acid extractable organics (BNA) by EPA method 8270.
   - PCBs by EPA method 8080.
   - Metals by EPA SW-846 methods.
   - Cyanide by EPA method 9010.

   Some confusion was noted in the case narratives for the individual data packages where several references were made to the 600 series methods that conflicted with other parts of the data package.

   a. ACCURACY: Laboratory Quality Assurance was assessed by examining the batches that corresponded to the samples that were sent to MRD laboratory. Factors indicating the accuracy of the project data include:

LP 5/12/93
Percifield/glm/444-4304

1) Reported surrogate spike recoveries for: (One Nytest Login #14534 did not include laboratory QA.)
   a) VOA were all within acceptable limits, 79 out of 79. However, the lab used the CLP acceptance limits instead of the SW-846 acceptance limits. The CLP limits are wider than the SW-846 limits. As a result, a few of the VOA results reported did not meet the SW-846 acceptance criteria and should be flagged. Several samples were reanalyzed when initial results did not meet the CLP acceptance criteria.
   b) BNA were within acceptable limits in 73 of 98 samples. Several samples were reanalyzed when initial results did not meet the acceptance criteria.
   c) Pest/PCB were within acceptable limits in 42 out of 45 samples.
2) Matrix spike/matrix spike duplicate (MS/MSD) recoveries were reported for some batches and the same data was repeated for other Nytest logins. Some of these reports were as much as a month apart. Sometimes the laboratory "narrative" indicated that the MS/MSD was taken from another login but the origin was not referenced. The login number on the report was changed to match the report.
   a) For 9 reported pairs, VOA were within acceptable limits for 6 pairs.
   b) For 9 reported pairs, BNA were within acceptable limits for 7 pairs. For one batch four samples were rerun. For another batch two samples should have been rerun but were not.
   c) For 6 reported pairs, PCB were within acceptable limits for 3 pairs.
   d) Metal spikes were reported and several elements failed to meet the acceptable limits.

b. PRECISION: Factors indicating the precision of the project data include:
1) Relative percent differences (RPD) for MS/MSD for:
   a) VOA, 9 reported pairs were within acceptable limits for 5 pairs.
   b) BNA, 9 reported pairs were within acceptable limits for 7 pairs.
   c) No duplicate spike data was reported for metals.
2) Field duplicate analyses for samples pairs showed good agreement except for:
   a) One pair showed serious disagreements in chloroethane, ethylbenzene, and xylenes.
   b) One pair showed disagreement in the value for antimony.
   c) One pair showed disagreement is the value for sodium.

c. LABORATORY CONTAMINANTS: Method blanks for:
1) Most VOA showed contamination of methylene chloride and 2-propanone at low levels.
2) Most BNA showed contamination with phthalates at low levels.

d. HOLDING TIMES: Most holding times were met. When holding times were missed, the data was marked.

2. QA/QC COMPARISON: The following discrepancies were noted:

Table Number	Discrepancy Minor	Major
002		acetone
	Sb, di-N-butylphthalate	Cd, Ca
003	Trichloroethene	
	di-N-butylphthalate, Ni	
004		Sb, Pb
006	Methylene chloride, Sb	
007	Total 1,2-Dichloroethene	
009	Ni	PCB-1248
		Be, Cd, Se
010	cyanide, Al, Sb, As,Ba,	Sb
	Co, Cu, Fe, Pb, Mg, Mn,	
	Ni, V	
011	bis(2-ethylhexyl)phthalate	

3. OTHER PROBLEMS: Some chain-of-custody and sample receipt errors were noted for the sample shipments received by MRD Laboratory.

   a. Sample bottles were missing time of sampling and signature in most cases.

   b. In one shipment the metals were not preserved (for samples WC-3S and WC-8S). This data should be flagged as estimated.

   c. In one shipment the sample vials for VOA analysis arrived with air space.

4. QUALITY ASSURANCE SUPPORT ACTIONS: The sample shipment which was received by MRD Laboratory on 11-Jun-92 arrived at 14° C. This shipment was cancelled. Discrepancies between the custody papers and the bottle labels and questions concerning metals analyses were resolved through discussion between Omaha District and MRD Laboratory personnel.

5. SUMMARY: The data package submitted for this project met the USACE minimum chemistry data reporting requirements. The method quality control information submitted met the method acceptance requirements with the exception of the VOA surrogate recoveries. Due to the expanded ranges used, some data which was reported as acceptable should be flagged. Some of the metal's data should also be flagged due to the absence of chemical preservation.

   Data discrepancies were noted for 8 samples. The data discrepancies noted for soil sample WC-8S-2.5-4.5 for cadmium and calcium is probably due to a laboratory transcription error. The discrepancies noted for methylene chloride and the phthalates are most likely due to differing levels of laboratory contamination.

Submitted by:

Douglas B. Taggart

DOUGLAS B. TAGGART
Director, MRD Laboratory

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: BR-1-0.5-2.5 Contractor's Sample ID.: 0.5-2.5
Material Description: Soil Date Sampled: 17 Jun 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
VOLATILE ORGANICS							
Acetone	<21.7	<11	µg/kg	1,2-Dichloropropane	<4.4	<5	µg/kg
Benzene	<5.4	<5	µg/kg	cis-1,3-Dichloropropene	<2.2	<5	µg/kg
Bromodichloromethane	<4.4	<5	µg/kg	trans-1,3-Dichloropropene	<2.2	<5	µg/kg
Bromoform	<10.9	<5	µg/kg	Ethylbenzene	<5.4	<5	µg/kg
Bromomethane	<2.2	<11	µg/kg	2-Hexanone	<10.9	<11	µg/kg
2-Butanone	<32.6	<11	µg/kg	Methylene chloride	2.8 BJ	10	µg/kg
Carbon disulfide	<4.4	<5	µg/kg	4-Methyl-2-pentanone	<27.2	<11	µg/kg
Carbon tetrachloride	<4.4	<5	µg/kg	Styrene	<4.4	<5	µg/kg
Chlorobenzene	<4.4	<5	µg/kg	1,1,2,2-Tetrachloroethane	<10.9	<5	µg/kg
Chloroethane	<5.4	<11	µg/kg	Tetrachloroethene	<4.4	2 BJ	µg/kg
2-Chloroethyl vinyl ether	-	<5	µg/kg	Toluene	<4.4	<5	µg/kg
Chloroform	<4.4	<5	µg/kg	1,1,1-Trichloroethane	<5.4	<5	µg/kg
Chloromethane	<10.9	<11	µg/kg	1,1,2-Trichloroethane	<10.9	<5	µg/kg
Dibromochloromethane	<5.4	<5	µg/kg	Trichloroethene	<10.9	<5	µg/kg
1,1-Dichloroethane	<4.4	<5	µg/kg	Vinyl acetate	-	<11	µg/kg
1,2-Dichloroethane	<4.4	<5	µg/kg	Vinyl chloride	<5.4	<11	µg/kg
1,1-Dichloroethene	<4.4	<5	µg/kg	Total Xylenes	<4.4	<5	µg/kg
Total 1,2-Dichloroethene	<4.4	<5	µg/kg				

C S:

-: Not analyzed or not reported.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: BR-1-0.5-2.5 Contractor's Sample ID.: 0.5-2.5
Material Description: Soil Date Sampled: 17 Jun 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
EXTRACTABLE ORGANICS (BNA)							
Acenaphthene	<543	<350	µg/kg	4,6-Dinitro-2-methylphenol	<5430	<1770	µg/kg
Acenaphthylene	<543	<350	µg/kg	2,4-Dinitrophenol	<10900	<1770	µg/kg
Anthracene	<543	<350	µg/kg	2,4-Dinitrotoluene	<1090	<350	µg/kg
Benzoic acid	-	7 J	µg/kg	2,6-Dinitrotoluene	<1090	<350	µg/kg
Benzo(a)anthracene	<543	<350	µg/kg	Di-n-octylphthalate	<543	<350	µg/kg
Benzo(b)fluoranthene	<2170	<350	µg/kg	Fluoranthene	<543	6 J	µg/kg
Benzo(k)fluoranthene	<2170	<350	µg/kg	Fluorene	<543	<350	µg/kg
Benzo(g,h,i)perylene	<2170	<350	µg/kg	Hexachlorobenzene	<1090	<350	µg/kg
Benzo(a)pyrene	<1090	<350	µg/kg	Hexachlorobutadiene	<3610	<350	µg/kg
Benzyl alcohol	-	<350	µg/kg	Hexachlorocyclopentadiene	<3260	<350	µg/kg
bis(2-Chloroethoxy)methane	<543	<350	µg/kg	Hexachloroethane	<1090	<350	µg/kg
bis(2-Chloroethyl)ether	<543	<350	µg/kg	Indeno(1,2,3-cd)pyrene	<2170	<350	µg/kg
2,2'-Oxybis(1-chloropropane)	-	-	µg/kg	Isophorone	<543	<350	µg/kg
bis(2-Ethylhexyl)phthalate	<326	84 BJ	µg/kg	2-Methylnaphthalene	<326	<350	µg/kg
4-Bromophenyl phenyl ether	<1090	<350	µg/kg	2-Methylphenol (o-cresol)	<543	<350	µg/kg
Butyl benzyl phthalate	<543	<350	µg/kg	4-Methylphenol (p-cresol)	<543	<350	µg/kg
4-Chloroaniline	<3260	<350	µg/kg	Naphthalene	<326	<350	µg/kg
2-Chloronaphthalene	<543	<350	µg/kg	2-Nitroaniline	<3260	<1770	µg/kg
4-Chloro-3-methylphenol	<543	<350	µg/kg	3-Nitroaniline	<3260	<1770	µg/kg
2-Chlorophenol	<543	<350	µg/kg	4-Nitroaniline	<5430	<1770	µg/kg
4-Chlorophenyl phenyl ether	<1090	<350	µg/kg	Nitrobenzene	<543	<350	µg/kg
Chrysene	<543	<350	µg/kg	2-Nitrophenol	<1090	<350	µg/kg
Dibenz(a,h)anthracene	<2170	<350	µg/kg	4-Nitrophenol	<5430	<1770	µg/kg
Dibenzofuran	<1090	<350	µg/kg	N-Nitrosodiphenylamine	<543	<350	µg/kg
Di-n-butylphthalate	1610 B	<350	µg/kg	N-Nitrosodipropylamine	<1090	<350	µg/kg
1,2-Dichlorobenzene	<1090	<350	µg/kg	Pentachlorophenol	<5430	<1770	µg/kg
1,3-Dichlorobenzene	<1090	<350	µg/kg	Phenanthrene	<543	<350	µg/kg
1,4-Dichlorobenzene	<1090	<350	µg/kg	Phenol	<543	<350	µg/kg
3,3'-Dichlorobenzidine	<5430	<710	µg/kg	Pyrene	<326	7 J	µg/kg
2,4-Dichlorophenol	<1090	<350	µg/kg	1,2,4-Trichlorobenzene	<1090	<350	µg/kg
Diethylphthalate	<543	<350	µg/kg	2,4,5-Trichlorophenol	<1090	<1770	µg/kg
2,4-Dimethylphenol	<543	<350	µg/kg	2,4,6-Trichlorophenol	<1090	<350	µg/kg
Dimethylphthalate	<543	<350	µg/kg				

COMMENTS:

-: Not analyzed or not reported.
*: Data disagreement.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: BR-1-0.5-2.5 Contractor's Sample ID.: 0.5-2.5
Material Description: Soil Date Sampled: 17 Jun 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
METALS							
Aluminum	6540	7410	mg/kg	Magnesium	1870	1920	mg/kg
Antimony	<1.4	<5.0	mg/kg	Manganese	133	152	mg/kg
Arsenic	3.0	2.0	mg/kg	Mercury	<0.03	<0.1	mg/kg
Barium	15.9	18.3	mg/kg	Nickel	7.9	11.9	mg/kg
Beryllium	0.30	<1.0	mg/kg	Potassium	453	674	mg/kg
Cadmium	<0.32	<1.0	mg/kg	Selenium	<0.22	<1.0	mg/kg
Calcium	750	642	mg/kg	Silver	<0.22	<5.0	mg/kg
Chromium	8.3	10.4	mg/kg	Sodium	84.1	160	mg/kg
Cobalt	4.0	5.4	mg/kg	Thallium	<17.3	<1.0	mg/kg
Copper	9.1	6.3	mg/kg	Vanadium	11.2	13.4	mg/kg
Iron	8680	9760	mg/kg	Zinc	21.5	31.5	mg/kg
Lead	4.8	16	mg/kg				

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
TCLP METALS							
A	2.8	<500	µg/L	Lead	<12.0	<500	µg/L
B	102	<10000	µg/L	Mercury	<0.10	<20	µg/L
C	<3.0	<100	µg/L	Selenium	<2.0	<100	µg/L
Chromium	12.2	<500	µg/L	Silver	<2.0	<500	µg/L

COMMENTS:

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-8S-2.5-4.5 Contractor's Sample ID.: 8S-2.5-4.5
Material Description: Soil Date Sampled: 18 Jun 92

Analysis	QA Lab Result		Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
VOLATILE ORGANICS								
Acetone	<24.1	**	320	µg/kg	1,2-Dichloropropane	<4.8	<6	µg/kg
Benzene	<6.0		<6	µg/kg	cis-1,3-Dichloropropene	<2.4	<6	µg/kg
Bromodichloromethane	<4.8		<6	µg/kg	trans-1,3-Dichloropropene	<2.4	<6	µg/kg
Bromoform	<12.0		<6	µg/kg	Ethylbenzene	<6.0	<6	µg/kg
Bromomethane	<2.4		<12	µg/kg	2-Hexanone	<12.0	<12	µg/kg
2-Butanone	<36.1		11 J	µg/kg	Methylene chloride	5.2 B	11	µg/kg
Carbon disulfide	<4.8		<6	µg/kg	4-Methyl-2-pentanone	<30.1	<12	µg/kg
Carbon tetrachloride	<4.8		<6	µg/kg	Styrene	<4.8	<6	µg/kg
Chlorobenzene	<4.8		<6	µg/kg	1,1,2,2-Tetrachloroethane	<12.0	<6	µg/kg
Chloroethane	<6.0		<12	µg/kg	Tetrachloroethene	<4.8	<6	µg/kg
2-Chloroethyl vinyl ether	-		<6	µg/kg	Toluene	<4.8	<6	µg/kg
Chloroform	<4.8		<6	µg/kg	1,1,1-Trichloroethane	<6.0	<6	µg/kg
Chloromethane	<12.0		<12	µg/kg	1,1,2-Trichloroethane	<12.0	<6	µg/kg
Dibromochloromethane	<6.0		<6	µg/kg	Trichloroethene	<12.0	<6	µg/kg
1,1-Dichloroethane	<4.8		<6	µg/kg	Vinyl acetate	-	<12	µg/kg
1,2-Dichloroethane	<4.8		<6	µg/kg	Vinyl chloride	<6.0	<12	µg/kg
1,1-Dichloroethene	<4.8		<6	µg/kg	Total Xylenes	<4.8	<6	µg/kg
Total 1,2-Dichloroethene	2.6 J		<6	µg/kg				

COMMENTS:
-: Not analyzed or not reported.
**: Major data disagreement.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-8S-2.5-4.5 Contractor's Sample ID.: 8S-2.5-4.5
Material Description: Soil Date Sampled: 18 Jun 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
EXTRACTABLE ORGANICS (BNA)							
Acenaphthene	<602	<400	µg/kg	4,6-Dinitro-2-methylphenol	<6020	<2000	µg/kg
Acenaphthylene	<602	<400	µg/kg	2,4-Dinitrophenol	<12000	<2000	µg/kg
Anthracene	<602	<400	µg/kg	2,4-Dinitrotoluene	<1200	<400	µg/kg
Benzoic acid	-	<2000	µg/kg	2,6-Dinitrotoluene	<1200	<400	µg/kg
Benzo(a)anthracene	<602	30 J	µg/kg	Di-n-octylphthalate	<602	8 J	µg/kg
Benzo(b)fluoranthene	<2410	<400	µg/kg	Fluoranthene	<602	44 J	µg/kg
Benzo(k)fluoranthene	<2410	<400	µg/kg	Fluorene	<602	<400	µg/kg
Benzo(g,h,i)perylene	<2410	<400	µg/kg	Hexachlorobenzene	<1200	<400	µg/kg
Benzo(a)pyrene	<1200	<400	µg/kg	Hexachlorobutadiene	<3610	<400	µg/kg
Benzyl alcohol	-	<400	µg/kg	Hexachlorocyclopentadiene	<3610	<400	µg/kg
bis(2-Chloroethoxy)methane	<602	<400	µg/kg	Hexachloroethane	<1200	<400	µg/kg
bis(2-Chloroethyl)ether	<602	<400	µg/kg	Indeno(1,2,3-cd)pyrene	<2410	<400	µg/kg
2,2'-Oxybis(1-chloropropane)	-	-	µg/kg	Isophorone	<602	<400	µg/kg
bis(2-Ethylhexyl)phthalate	<361	170 BJ	µg/kg	2-Methylnaphthalene	<361	<400	µg/kg
4-Bromophenyl phenyl ether	<1200	<400	µg/kg	2-Methylphenol (o-cresol)	<602	<400	µg/kg
Butyl benzyl phthalate	<602	<400	µg/kg	4-Methylphenol (p-cresol)	<602	<400	µg/kg
4-Chloroaniline	<3610	<400	µg/kg	Naphthalene	<361	<400	µg/kg
2 [illegible]onaphthalene	<602	<400	µg/kg	2-Nitroaniline	<3610	<2000	µg/kg
4 [illegible]o-3-methylphenol	<602	<400	µg/kg	3-Nitroaniline	<3610	<2000	µg/kg
2 [illegible]ophenol	<602	<400	µg/kg	4-Nitroaniline	<6020	<2000	µg/kg
4-Chlorophenyl phenyl ether	<1200	<400	µg/kg	Nitrobenzene	<602	<400	µg/kg
Chrysene	<602	28 J	µg/kg	2-Nitrophenol	<1200	<400	µg/kg
Dibenz(a,h)anthracene	<2410	<400	µg/kg	4-Nitrophenol	<6020	<2000	µg/kg
Dibenzofuran	<1200	<400	µg/kg	N-Nitrosodiphenylamine	<602	<400	µg/kg
Di-n-butylphthalate	1610 B *	56 J	µg/kg	N-Nitrosodipropylamine	<1200	<400	µg/kg
1,2-Dichlorobenzene	<1200	<400	µg/kg	Pentachlorophenol	<6020	<2000	µg/kg
1,3-Dichlorobenzene	<1200	<400	µg/kg	Phenanthrene	<602	17 J	µg/kg
1,4-Dichlorobenzene	<1200	<400	µg/kg	Phenol	<602	<400	µg/kg
3,3'-Dichlorobenzidine	<6020	<800	µg/kg	Pyrene	<361	24 J	µg/kg
2,4-Dichlorophenol	<1200	<400	µg/kg	1,2,4-Trichlorobenzene	<1200	<400	µg/kg
Diethylphthalate	<602	<400	µg/kg	2,4,5-Trichlorophenol	<1200	<2000	µg/kg
2,4-Dimethylphenol	<602	<400	µg/kg	2,4,6-Trichlorophenol	<1200	<400	µg/kg
Dimethylphthalate	<602	<400	µg/kg				

COMMENTS:
-: Not analyzed or not reported.
*: Data disagreement.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-8S-2.5-4.5 Contractor's Sample ID.: 8S-2.5-4.5
Material Description: Soil Date Sampled: 18 Jun 92

Analysis	QA Lab Result		Contractor Result	Units	Analysis	QA Lab Result		Contractor Result	Units
METALS									
Aluminum	11100		11900	mg/kg	Magnesium	2020		2070	mg/kg
Antimony	<1.6	*	11.6	mg/kg	Manganese	216		229	mg/kg
Arsenic	6.1		4.2	mg/kg	Mercury	0.23		0.31	mg/kg
Barium	36.5		47.1	mg/kg	Nickel	8.3		8.9	mg/kg
Beryllium	0.54		<1.0	mg/kg	Potassium	456		494	mg/kg
Cadmium	<0.36	**	1110	mg/kg	Selenium	0.29		<1.0	mg/kg
Calcium	1030	**	<50.0	mg/kg	Silver	<0.24		<5.0	mg/kg
Chromium	11.1		11	mg/kg	Sodium	114		104	mg/kg
Cobalt	4.4		5.4	mg/kg	Thallium	<19.2		<1.0	mg/kg
Copper	11.6		8.5	mg/kg	Vanadium	16.2		17.4	mg/kg
Iron	11200		12500	mg/kg	Zinc	30.0		48.8	mg/kg
Lead	20.9		50	mg/kg					

Analysis	QA Lab Result		Contractor Result	Units	Analysis	QA Lab Result		Contractor Result	Units
TCLP METALS									
Arsenic	41.5		<500	µg/L	Lead	126		<500	µg/L
Barium	291		<10000	µg/L	Mercury	<0.10		<20	µg/L
Cadmium	<3.0		<100	µg/L	Selenium	<2.0		<100	µg/L
Chromium	26.8		<500	µg/L	Silver	<2.0		<500	µg/L

COMMENTS:
*: Data disagreement.
**: Major Data disagreement.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-2D-2.5-4.5 Contractor's Sample ID.: WC-2D-2.5
Material Description: Soil Date Sampled: 23 Jun 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
VOLATILE ORGANICS							
Acetone	<106	<11	µg/kg	1,2-Dichloropropane	<21.3	<5	µg/kg
Benzene	<26.6	<5	µg/kg	cis-1,3-Dichloropropene	<10.6	<5	µg/kg
Bromodichloromethane	<21.3	<5	µg/kg	trans-1,3-Dichloropropene	<10.6	<5	µg/kg
Bromoform	<53.2	<5	µg/kg	Ethylbenzene	<26.6	<5	µg/kg
Bromomethane	<10.6	<11	µg/kg	2-Hexanone	<53.2	<11	µg/kg
2-Butanone	<160	<11	µg/kg	Methylene chloride	<21.3	21	µg/kg
Carbon disulfide	<21.3	<5	µg/kg	4-Methyl-2-pentanone	<133	3 J	µg/kg
Carbon tetrachloride	<21.3	<5	µg/kg	Styrene	<21.3	<5	µg/kg
Chlorobenzene	<21.3	<5	µg/kg	1,1,2,2-Tetrachloroethane	<53.2	<5	µg/kg
Chloroethane	<26.6	<11	µg/kg	Tetrachloroethene	<21.3	<5	µg/kg
2-Chloroethyl vinyl ether	-	<5	µg/kg	Toluene	<21.3	1 J	µg/kg
Chloroform	<21.3	<5	µg/kg	1,1,1-Trichloroethane	<26.6	<5	µg/kg
Chloromethane	<53.2	<11	µg/kg	1,1,2-Trichloroethane	<53.2	<5	µg/kg
Dibromochloromethane	<26.6	<5	µg/kg	Trichloroethene	19.1 J *	3 J	µg/kg
1,1-Dichloroethane	<21.3	<5	µg/kg	Vinyl acetate	-	<11	µg/kg
1,2-Dichloroethane	<21.3	<5	µg/kg	Vinyl chloride	<26.6	<11	µg/kg
1,1-Dichloroethene	<21.3	<5	µg/kg	Total Xylenes	<21.3	<5	µg/kg
Total 1,2-Dichloroethene	14.6 J	<5	µg/kg				

1 TS:
-: Not analyzed or not reported.
*: Data disagreement.
J: Estimated concentration below the quantifiable detection limit.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-2D-2.5-4.5 Contractor's Sample ID.: WC-2D-2.5
Material Description: Soil Date Sampled: 23 Jun 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
EXTRACTABLE ORGANICS (BNA)							
Acenaphthene	<5320	570 J	µg/kg	4,6-Dinitro-2-methylphenol	<53200	<6900	µg/kg
Acenaphthylene	<5320	<1400	µg/kg	2,4-Dinitrophenol	<106000	<6900	µg/kg
Anthracene	<5320	200 J	µg/kg	2,4-Dinitrotoluene	<10600	<1400	µg/kg
Benzoic acid	-	<6900	µg/kg	2,6-Dinitrotoluene	<10600	<1400	µg/kg
Benzo(a)anthracene	<5320	400 J	µg/kg	Di-n-octylphthalate	<5320	<1400	µg/kg
Benzo(b)fluoranthene	<21300	220 J	µg/kg	Fluoranthene	1130	1400	µg/kg
Benzo(k)fluoranthene	<21300	230 J	µg/kg	Fluorene	<5320	360 J	µg/kg
Benzo(g,h,i)perylene	<21300	<1400	µg/kg	Hexachlorobenzene	<10600	<1400	µg/kg
Benzo(a)pyrene	<10600	210 J	µg/kg	Hexachlorobutadiene	<31900	<1400	µg/kg
Benzyl alcohol	-	<1400	µg/kg	Hexachlorocyclopentadiene	<31900	<1400	µg/kg
bis(2-Chloroethoxy)methane	<5320	<1400	µg/kg	Hexachloroethane	<10600	<1400	µg/kg
bis(2-Chloroethyl)ether	<5320	<1400	µg/kg	Indeno(1,2,3-cd)pyrene	<21300	<1400	µg/kg
2,2'-Oxybis(1-chloropropane)	-	-	µg/kg	Isophorone	<5320	<1400	µg/kg
bis(2-Ethylhexyl)phthalate	<3190	500 BJ	µg/kg	2-Methylnaphthalene	6480	5300	µg/kg
4-Bromophenyl phenyl ether	<10600	<1400	µg/kg	2-Methylphenol (o-cresol)	<5320	<1400	µg/kg
Butyl benzyl phthalate	<5320	<1400	µg/kg	4-Methylphenol (p-cresol)	<5320	<1400	µg/kg
4-Chloroaniline	<31900	<1400	µg/kg	Naphthalene	1970	1200 J	µg/kg
2-Chloronaphthalene	<5320	<1400	µg/kg	2-Nitroaniline	<31900	<6900	µg/kg
4-Chloro-3-methylphenol	<5320	<1400	µg/kg	3-Nitroaniline	<31900	<6900	µg/kg
2-Chlorophenol	<5320	<1400	µg/kg	4-Nitroaniline	<53200	<6900	µg/kg
4-Chlorophenyl phenyl ether	<10600	<1400	µg/kg	Nitrobenzene	<5320	<1400	µg/kg
Chrysene	<5320	480 J	µg/kg	2-Nitrophenol	<10600	<1400	µg/kg
Dibenz(a,h)anthracene	<21300	<1400	µg/kg	4-Nitrophenol	<53200	<6900	µg/kg
Dibenzofuran	<10600	630 J	µg/kg	N-Nitrosodiphenylamine	<5320	260 J	µg/kg
Di-n-butylphthalate	1810 B *	120 J	µg/kg	N-Nitrosodipropylamine	<10600	<1400	µg/kg
1,2-Dichlorobenzene	<10600	<1400	µg/kg	Pentachlorophenol	<53200	<6900	µg/kg
1,3-Dichlorobenzene	<10600	<1400	µg/kg	Phenanthrene	1560	2000	µg/kg
1,4-Dichlorobenzene	<10600	<1400	µg/kg	Phenol	<5320	<1400	µg/kg
3,3'-Dichlorobenzidine	<53200	<2800	µg/kg	Pyrene	1040	1000 J	µg/kg
2,4-Dichlorophenol	<10600	<1400	µg/kg	1,2,4-Trichlorobenzene	<10600	<1400	µg/kg
Diethylphthalate	<5320	<1400	µg/kg	2,4,5-Trichlorophenol	<10600	<6900	µg/kg
2,4-Dimethylphenol	<5320	<1400	µg/kg	2,4,6-Trichlorophenol	<10600	<1400	µg/kg
Dimethylphthalate	<5320	<1400	µg/kg				

COMMENTS:
-: Not analyzed or not reported.
*: Data disagreement.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-2D-2.5-4.5 Contractor's Sample ID.: WC-2D-2.5
Material Description: Soil Date Sampled: 23 Jun 92

Analysis	QA Lab Result	Contractor Result	Units
PCBs			
PCB-1016	<26.3	<84.000	µg/kg
PCB-1221	<26.3	<84.000	µg/kg
PCB-1232	<26.3	<84.000	µg/kg
PCB-1242	<26.3	<84.000	µg/kg
PCB-1248	<26.3	<84.000	µg/kg
PCB-1254	<26.3	<170.000	µg/kg
PCB-1260	96.6	<170.000	µg/kg

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result		Contractor Result	Units
METALS								
Aluminum	4410	3569	mg/kg	Magnesium	2040		1682	mg/kg
Antimony	<1.4	<5.0	mg/kg	Manganese	262		238	mg/kg
Arsenic	2.0	2.4	mg/kg	Mercury	0.28		0.12	mg/kg
Barium	26.9	22.9	mg/kg	Nickel	11.9	*	91	mg/kg
ium	0.25	<1.0	mg/kg	Potassium	1010		874	mg/kg
m	<0.32	<1.0	mg/kg	Selenium	<0.21		<1.0	mg/kg
Calcium	1790	1289	mg/kg	Silver	<0.21		<5.0	mg/kg
Chromium	32.2	30	mg/kg	Sodium	119		53	mg/kg
Cobalt	4.3	4.0	mg/kg	Thallium	<17.0		<1.0	mg/kg
Copper	41.5	40	mg/kg	Vanadium	13.5		11.4	mg/kg
Iron	8760	7562	mg/kg	Zinc	47.2		49	mg/kg
Lead	8.2	10	mg/kg					

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
TCLP METALS							
Arsenic	4.3	-	µg/L	Lead	69.2	-	µg/L
Barium	391	-	µg/L	Mercury	<0.10	-	µg/L
Cadmium	34.3	-	µg/L	Selenium	<2.0	-	µg/L
Chromium	105	-	µg/L	Silver	<2.0	-	µg/L

COMMENTS:
-: Not analyzed or not reported.
*: Data disagreement.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
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Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-3S
Material Description: Water
Contractor's Sample ID.: WC-3S
Date Sampled: 29 Jul 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
VOLATILE ORGANICS							
Acetone	<3.0	6 B	µg/L	1,2-Dichloropropane	<2.0	<5	µg/L
Benzene	<2.0	<5	µg/L	cis-1,3-Dichloropropene	<2.0	<5	µg/L
Bromodichloromethane	<2.0	2 J	µg/L	trans-1,3-Dichloropropene	<1.0	<5	µg/L
Bromoform	<3.0	<5	µg/L	Ethylbenzene	<1.0	<5	µg/L
Bromomethane	<7.0	<10	µg/L	2-Hexanone	<2.0	<10	µg/L
2-Butanone	<3.0	<10	µg/L	Methylene chloride	13.7 B	6 B	µg/L
Carbon disulfide	<4.0	<5	µg/L	4-Methyl-2-pentanone	<2.0	<10	µg/L
Carbon tetrachloride	<2.0	<5	µg/L	Styrene	<2.0	<5	µg/L
Chlorobenzene	<1.0	1 J	µg/L	1,1,2,2-Tetrachloroethane	<2.0	<5	µg/L
Chloroethane	93.6	190	µg/L	Tetrachloroethene	<1.0	3 J	µg/L
2-Chloroethyl vinyl ether	-	-	µg/L	Toluene	<2.0	<5	µg/L
Chloroform	33.1	32	µg/L	1,1,1-Trichloroethane	17.1	15	µg/L
Chloromethane	<5.0	<10	µg/L	1,1,2-Trichloroethane	<2.0	<5	µg/L
Dibromochloromethane	<2.0	<5	µg/L	Trichloroethene	17.2	15	µg/L
1,1-Dichloroethane	20.5	17	µg/L	Vinyl acetate	-	<10	µg/L
1,2-Dichloroethane	<1.0	<5	µg/L	Vinyl chloride	<5.0	<10	µg/L
1,1-Dichloroethene	<4.0	<5	µg/L	Total Xylenes	<1.0	<5	µg/L
Total 1,2-Dichloroethene	19.0	17	µg/L				

COMMENTS:

-: Not analyzed or not reported.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-3S
Material Description: Water
Contractor's Sample ID.: WC-3S
Date Sampled: 29 Jul 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
EXTRACTABLE ORGANICS (BNA)							
Acenaphthene	<4.0	<10	µg/L	4,6-Dinitro-2-methylphenol	<40.0	<50	µg/L
Acenaphthylene	<4.0	<10	µg/L	2,4-Dinitrophenol	<80.0	<50	µg/L
Anthracene	<4.0	<10	µg/L	2,4-Dinitrotoluene	<12.0	<10	µg/L
Benzoic acid	-	<50	µg/L	2,6-Dinitrotoluene	<12.0	<10	µg/L
Benzo(a)anthracene	<6.0	<10	µg/L	Di-n-octylphthalate	<4.0	<10	µg/L
Benzo(b)fluoranthene	<20.0	<10	µg/L	Fluoranthene	<4.0	<10	µg/L
Benzo(k)fluoranthene	<20.0	<10	µg/L	Fluorene	<6.0	<10	µg/L
Benzo(g,h,i)perylene	<20.0	<10	µg/L	Hexachlorobenzene	<10.0	<10	µg/L
Benzo(a)pyrene	<12.0	<10	µg/L	Hexachlorobutadiene	<24.0	<10	µg/L
Benzyl alcohol	-	<10	µg/L	Hexachlorocyclopentadiene	<24.0	<10	µg/L
bis(2-Chloroethoxy)methane	<4.0	<10	µg/L	Hexachloroethane	<12.0	<10	µg/L
bis(2-Chloroethyl)ether	<4.0	<10	µg/L	Indeno(1,2,3-cd)pyrene	<20.0	<10	µg/L
2,2'-Oxybis(1-chloropropane)	-	-	µg/L	Isophorone	<4.0	<10	µg/L
bis(2-Ethylhexyl)phthalate	<4.0	7 BJ	µg/L	2-Methylnaphthalene	<2.0	<10	µg/L
4-Bromophenyl phenyl ether	<12.0	<10	µg/L	2-Methylphenol (o-cresol)	<6.0	<10	µg/L
Butyl benzyl phthalate	<6.0	<10	µg/L	4-Methylphenol (p-cresol)	<6.0	<10	µg/L
4-Chloroaniline	<20.0	<10	µg/L	Naphthalene	<2.0	<10	µg/L
2-Chloronaphthalene	<6.0	<10	µg/L	2-Nitroaniline	<20.0	<50	µg/L
4 [illegible]o-3-methylphenol	<6.0	<10	µg/L	3-Nitroaniline	<20.0	<50	µg/L
2 [illegible]ophenol	<4.0	<10	µg/L	4-Nitroaniline	<20.0	<50	µg/L
4 [illegible]ophenyl phenyl ether	<12.0	<10	µg/L	Nitrobenzene	<6.0	<10	µg/L
Chrysene	<4.0	<10	µg/L	2-Nitrophenol	<8.0	<10	µg/L
Dibenz(a,h)anthracene	<20.0	<10	µg/L	4-Nitrophenol	<40.0	<50	µg/L
Dibenzofuran	<12.0	<10	µg/L	N-Nitrosodiphenylamine	<6.0	<10	µg/L
Di-n-butylphthalate	<2.0	3 BJ	µg/L	N-Nitrosodipropylamine	<8.0	<10	µg/L
1,2-Dichlorobenzene	<12.0	<10	µg/L	Pentachlorophenol	<40.0	<50	µg/L
1,3-Dichlorobenzene	<12.0	<10	µg/L	Phenanthrene	<4.0	<10	µg/L
1,4-Dichlorobenzene	<12.0	<10	µg/L	Phenol	<6.0	<10	µg/L
3,3'-Dichlorobenzidine	<20.0	<20	µg/L	Pyrene	<4.0	<10	µg/L
2,4-Dichlorophenol	<8.0	<10	µg/L	1,2,4-Trichlorobenzene	<12.0	<10	µg/L
Diethylphthalate	<4.0	<10	µg/L	2,4,5-Trichlorophenol	<10.0	<50	µg/L
2,4-Dimethylphenol	<6.0	<10	µg/L	2,4,6-Trichlorophenol	<10.0	<10	µg/L
Dimethylphthalate	<6.0	<10	µg/L				

COMMENTS:

-: Not analyzed or not reported.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-3S
Material Description: Water
Contractor's Sample ID.: WC-3S
Date Sampled: 29 Jul 92

Analysis	QA Lab Result		Contractor Result	Units
PCBs				
PCB-1016	<0.5		<0.500	µg/L
PCB-1221	<0.5		<0.500	µg/L
PCB-1232	<0.5		<0.500	µg/L
PCB-1242	<0.5		<0.500	µg/L
PCB-1248	<0.5		<0.500	µg/L
PCB-1254	<0.5		<1.000	µg/L
PCB-1260	<0.5		<1.000	µg/L

Analysis	QA Lab Result		Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
TOTAL METALS								
Aluminum	59700		111000	µg/L	Magnesium	65200	87500	µg/L
Antimony	<13.0	**	179	µg/L	Manganese	17700	21100	µg/L
Arsenic	64.4		27	µg/L	Mercury	2.4	0.8	µg/L
Barium	418		719	µg/L	Nickel	186	327	µg/L
Beryllium	5.9		<10	µg/L	Potassium	14700	19400	µg/L
Cadmium	43.9		54	µg/L	Selenium	<2.0	<10	µg/L
Calcium	163000		164000	µg/L	Silver	<2.0	<10	µg/L
Chromium	649		1120	µg/L	Sodium	254000	237000	µg/L
Cobalt	70.1		136	µg/L	Thallium	<160	<5	µg/L
Copper	528		1230	µg/L	Vanadium	779	976	µg/L
Iron	171000		147000	µg/L	Zinc	2400	3620	µg/L
Lead	<1.0	**	1310	µg/L				

COMMENTS:
-: Not analyzed or not reported.
**: Major data disagreement.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-3S
Material Description: Water
Contractor's Sample ID.: WC-3S
Date Sampled: 29 Jul 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
DISSOLVED METALS							
Aluminum	116	<200	µg/L	Magnesium	27000	87500	µg/L
Antimony	<13.0	<50	µg/L	Manganese	175	192	µg/L
Arsenic	3.3	<10	µg/L	Mercury	<0.10	<0.2	µg/L
Barium	38.5	<200	µg/L	Nickel	<2.0	<40	µg/L
Beryllium	<1.0	<10	µg/L	Potassium	11300	11100	µg/L
Cadmium	<3.0	<10	µg/L	Selenium	<2.0	<10	µg/L
Calcium	91300	94000	µg/L	Silver	<2.0	<10	µg/L
Chromium	<4.0	<10	µg/L	Sodium	263000	264000	µg/L
Cobalt	<2.0	<50	µg/L	Thallium	<160	<5	µg/L
Copper	<3.0	<25	µg/L	Vanadium	32.1	<50	µg/L
Iron	39.5	<50	µg/L	Zinc	3.9	<20	µg/L

COMMENTS:

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: TB072992 Contractor's Sample ID.: TB072992
Material Description: Water Date Sampled: 29 Jul 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
VOLATILE ORGANICS							
Acetone	<3.0	<10	µg/L	1,2-Dichloropropane	<2.0	<5	µg/L
Benzene	<2.0	<5	µg/L	cis-1,3-Dichloropropene	<2.0	<5	µg/L
Bromodichloromethane	<2.0	<5	µg/L	trans-1,3-Dichloropropene	<1.0	<5	µg/L
Bromoform	<3.0	<5	µg/L	Ethylbenzene	<1.0	<5	µg/L
Bromomethane	<7.0	<10	µg/L	2-Hexanone	<2.0	<10	µg/L
2-Butanone	<3.0	<10	µg/L	Methylene chloride	6.6 B	<9	µg/L
Carbon disulfide	<4.0	<5	µg/L	4-Methyl-2-pentanone	<2.0	<10	µg/L
Carbon tetrachloride	<2.0	<5	µg/L	Styrene	<2.0	<5	µg/L
Chlorobenzene	<1.0	<5	µg/L	1,1,2,2-Tetrachloroethane	<2.0	<5	µg/L
Chloroethane	<3.0	<10	µg/L	Tetrachloroethene	<1.0	<5	µg/L
2-Chloroethyl vinyl ether	-	-	µg/L	Toluene	<2.0	<5	µg/L
Chloroform	<1.0	<5	µg/L	1,1,1-Trichloroethane	<3.0	<5	µg/L
Chloromethane	<5.0	<10	µg/L	1,1,2-Trichloroethane	<2.0	<5	µg/L
Dibromochloromethane	<2.0	<5	µg/L	Trichloroethene	<2.0	<5	µg/L
1,1-Dichloroethane	<2.0	<5	µg/L	Vinyl acetate	-	<10	µg/L
1,2-Dichloroethane	<1.0	<5	µg/L	Vinyl chloride	<5.0	<10	µg/L
1,1-Dichloroethene	<4.0	<5	µg/L	Total Xylenes	<1.0	<5	µg/L
Total 1,2-Dichloroethene	<2.0	<5	µg/L				

COMMENTS:
-: Not analyzed or not reported.
B: Compound also found in method or instrument blank.

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
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Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-8S
Material Description: Water
Contractor's Sample ID.: WC-8S
Date Sampled: 29 Jul 92

Analysis	QA Lab Result	Contractor Result	Units
MISCELLANEOUS			
Cyanide	<0.01	<0.01	mg/L

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
VOLATILE ORGANICS							
Acetone	8.2	4 BJ	µg/L	1,2-Dichloropropane	<2.0	<5	µg/L
Benzene	3.1	2 J	µg/L	cis-1,3-Dichloropropene	<2.0	<5	µg/L
Bromodichloromethane	<2.0	<5	µg/L	trans-1,3-Dichloropropene	<1.0	<5	µg/L
Bromoform	<3.0	<5	µg/L	Ethylbenzene	<1.0	<5	µg/L
Bromomethane	<7.0	<10	µg/L	2-Hexanone	<2.0	<10	µg/L
2-Butanone	<3.0	<10	µg/L	Methylene chloride	15.1 B *	2 BJ	µg/L
Carbon disulfide	<4.0	<5	µg/L	4-Methyl-2-pentanone	3.1	<10	µg/L
Carbon tetrachloride	<2.0	<5	µg/L	Styrene	<2.0	<5	µg/L
Chlorobenzene	<1.0	<5	µg/L	1,1,2,2-Tetrachloroethane	<2.0	<5	µg/L
Chloroethane	461 X	490	µg/L	Tetrachloroethene	<1.0	2 J	µg/L
2-Chloroethyl vinyl ether	-	-	µg/L	Toluene	<2.0	<5	µg/L
Chloroform	<1.0	<5	µg/L	1,1,1-Trichloroethane	11.3	8	µg/L
Chloromethane	11.3	<10	µg/L	1,1,2-Trichloroethane	<2.0	<5	µg/L
Dibromochloromethane	<2.0	<5	µg/L	Trichloroethene	19.0	15	µg/L
1,1-Dichloroethane	950 X	480	µg/L	Vinyl acetate	-	<10	µg/L
1,2-Dichloroethane	4.3	3 J	µg/L	Vinyl chloride	37.8	43	µg/L
1,1-Dichloroethene	28.9	22	µg/L	Total Xylenes	<1.0	<5	µg/L
Total 1,2-Dichloroethene	44.0	39	µg/L				

COMMENTS:

-: Not analyzed or not reported.
*: Data disagreement.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.
X: Other comments: 1:5 dilution for these compounds.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-8S
Material Description: Water
Contractor's Sample ID.: WC-8S
Date Sampled: 29 Jul 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
EXTRACTABLE ORGANICS (BNA)							
Acenaphthene	<4.0	<10	µg/L	4,6-Dinitro-2-methylphenol	<40.0	<50	µg/L
Acenaphthylene	<4.0	<10	µg/L	2,4-Dinitrophenol	<80.0	<50	µg/L
Anthracene	<4.0	<10	µg/L	2,4-Dinitrotoluene	<12.0	<10	µg/L
Benzoic acid	-	<50	µg/L	2,6-Dinitrotoluene	<12.0	<10	µg/L
Benzo(a)anthracene	<6.0	<10	µg/L	Di-n-octylphthalate	<4.0	<10	µg/L
Benzo(b)fluoranthene	<20.0	<10	µg/L	Fluoranthene	<4.0	<10	µg/L
Benzo(k)fluoranthene	<20.0	<10	µg/L	Fluorene	<6.0	<10	µg/L
Benzo(g,h,i)perylene	<20.0	<10	µg/L	Hexachlorobenzene	<10.0	<10	µg/L
Benzo(a)pyrene	<12.0	<10	µg/L	Hexachlorobutadiene	<24.0	<10	µg/L
Benzyl alcohol	-	<10	µg/L	Hexachlorocyclopentadiene	<24.0	<10	µg/L
bis(2-Chloroethoxy)methane	<4.0	<10	µg/L	Hexachloroethane	<12.0	<10	µg/L
bis(2-Chloroethyl)ether	<4.0	<10	µg/L	Indeno(1,2,3-cd)pyrene	<20.0	<10	µg/L
2,2'-Oxybis(1-chloropropane)	-	-	µg/L	Isophorone	<4.0	<10	µg/L
bis(2-Ethylhexyl)phthalate	<4.0	10 B	µg/L	2-Methylnaphthalene	<2.0	<10	µg/L
4-Bromophenyl phenyl ether	<12.0	<10	µg/L	2-Methylphenol (o-cresol)	<6.0	<10	µg/L
Butyl benzyl phthalate	<6.0	<10	µg/L	4-Methylphenol (p-cresol)	<6.0	<10	µg/L
4-Chloroaniline	<20.0	<10	µg/L	Naphthalene	<2.0	<10	µg/L
2-Chloronaphthalene	<6.0	<10	µg/L	2-Nitroaniline	<20.0	<50	µg/L
4-Chloro-3-methylphenol	<6.0	<10	µg/L	3-Nitroaniline	<20.0	<50	µg/L
2-Chlorophenol	<4.0	<10	µg/L	4-Nitroaniline	<20.0	<50	µg/L
4-Chlorophenyl phenyl ether	<12.0	<10	µg/L	Nitrobenzene	<6.0	<10	µg/L
Chrysene	<4.0	<10	µg/L	2-Nitrophenol	<8.0	<10	µg/L
Dibenz(a,h)anthracene	<20.0	<10	µg/L	4-Nitrophenol	<40.0	<50	µg/L
Dibenzofuran	<12.0	<10	µg/L	N-Nitrosodiphenylamine	<6.0	<10	µg/L
Di-n-butylphthalate	<2.0	1 BJ	µg/L	N-Nitrosodipropylamine	<8.0	<10	µg/L
1,2-Dichlorobenzene	<12.0	<10	µg/L	Pentachlorophenol	<40.0	<50	µg/L
1,3-Dichlorobenzene	<12.0	<10	µg/L	Phenanthrene	<4.0	<10	µg/L
1,4-Dichlorobenzene	<12.0	<10	µg/L	Phenol	<6.0	<10	µg/L
3,3'-Dichlorobenzidine	<20.0	<20	µg/L	Pyrene	<4.0	<10	µg/L
2,4-Dichlorophenol	<8.0	<10	µg/L	1,2,4-Trichlorobenzene	<12.0	<10	µg/L
Diethylphthalate	<4.0	<10	µg/L	2,4,5-Trichlorophenol	<10.0	<50	µg/L
2,4-Dimethylphenol	<6.0	<10	µg/L	2,4,6-Trichlorophenol	<10.0	<10	µg/L
Dimethylphthalate	<6.0	<10	µg/L				

COMMENTS:

-: Not analyzed or not reported.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-8S
Material Description: Water
Contractor's Sample ID.: WC-8S
Date Sampled: 29 Jul 92

Analysis	QA Lab Result		Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
TOTAL METALS								
Aluminum	29600		25300	µg/L	Magnesium	18400	17500	µg/L
Antimony	<13.0	*	69	µg/L	Manganese	4780	4530	µg/L
Arsenic	45.8		27	µg/L	Mercury	0.21	<0.2	µg/L
Barium	137		<200	µg/L	Nickel	39.0	<40	µg/L
Beryllium	1.7		<10	µg/L	Potassium	14200	12600	µg/L
Cadmium	<3.0		<10	µg/L	Selenium	2.2	<10	µg/L
Calcium	54900		48900	µg/L	Silver	<2.0	<10	µg/L
Chromium	41.7		38	µg/L	Sodium	43300	38900	µg/L
Cobalt	30.5		<50	µg/L	Thallium	<160	<5	µg/L
Copper	91.3		59	µg/L	Vanadium	66.1	66	µg/L
Iron	90600		84000	µg/L	Zinc	95.2	90	µg/L

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
DISSOLVED METALS							
Aluminum	67.3	<200	µg/L	Magnesium	12200	17500	µg/L
Antimony	<13.0	<50	µg/L	Manganese	4190	4300	µg/L
A :	12.6	<10	µg/L	Mercury	<0.10	<0.2	µg/L
B	47.2	<200	µg/L	Nickel	7.8	<40	µg/L
B..,..lum	<1.0	<10	µg/L	Potassium	12100	13600	µg/L
Cadmium	<3.0	<10	µg/L	Selenium	<2.0	<10	µg/L
Calcium	52300	51100	µg/L	Silver	<2.0	<10	µg/L
Chromium	<4.0	<10	µg/L	Sodium	44100	41800	µg/L
Cobalt	11.6	<50	µg/L	Thallium	<160	<5	µg/L
Copper	<3.0	<25	µg/L	Vanadium	<8.0	<50	µg/L
Iron	38000	30500	µg/L	Zinc	13.0	<20	µg/L
Lead	<1.0	<5	µg/L				

COMMENTS:
*: Data disagreement.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: OF-SW
Material Description: Water
Contractor's Sample ID.: 07-SW
Date Sampled: 22 Oct 92

Analysis	QA Lab Result	Contractor Result	Units
MISCELLANEOUS			
Cyanide	0.011	0.01	mg/L

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
VOLATILE ORGANICS							
Acetone	79.7	59 B	µg/L	1,2-Dichloropropane	<2.0	<5	µg/L
Benzene	<2.0	<5	µg/L	cis-1,3-Dichloropropene	<2.0	<5	µg/L
Bromodichloromethane	6.6	5	µg/L	trans-1,3-Dichloropropene	<1.0	<5	µg/L
Bromoform	<3.0	<5	µg/L	Ethylbenzene	<1.0	<5	µg/L
Bromomethane	<7.0	<10	µg/L	2-Hexanone	<2.0	<10	µg/L
2-Butanone	<3.0	<10	µg/L	Methylene chloride	2.4 BJ	1 BJ	µg/L
Carbon disulfide	<4.0	<5	µg/L	4-Methyl-2-pentanone	<2.0	<10	µg/L
Carbon tetrachloride	<2.0	<5	µg/L	Styrene	<2.0	<5	µg/L
Chlorobenzene	<1.0	<5	µg/L	1,1,2,2-Tetrachloroethane	<2.0	<5	µg/L
Chloroethane	<3.0	<10	µg/L	Tetrachloroethene	4.4	<5	µg/L
2-Chloroethyl vinyl ether	-	-	µg/L	Toluene	<2.0	<5	µg/L
Chloroform	20.4	15	µg/L	1,1,1-Trichloroethane	18.9	15	µg/L
Chloromethane	<5.0	<10	µg/L	1,1,2-Trichloroethane	<2.0	<5	µg/L
Dibromochloromethane	1.8 J	<5	µg/L	Trichloroethene	12.2	8	µg/L
1,1-Dichloroethane	15.9	13	µg/L	Vinyl acetate	-	<10	µg/L
1,2-Dichloroethane	1.2	<5	µg/L	Vinyl chloride	2.9 J	<10	µg/L
1,1-Dichloroethene	<4.0	3 J	µg/L	Total Xylenes	<1.0	<5	µg/L
Total 1,2-Dichloroethene	<2.0 **	48	µg/L				

COMMENTS:
-: Not analyzed or not reported.
**: Major data disagreement.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: OF-SW
Material Description: Water
Contractor's Sample ID.: 07-SW
Date Sampled: 22 Oct 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
EXTRACTABLE ORGANICS (BNA)							
Acenaphthene	<2.0	<10	µg/L	4,6-Dinitro-2-methylphenol	<20.0	<50	µg/L
Acenaphthylene	<2.0	<10	µg/L	2,4-Dinitrophenol	<40.0	<50	µg/L
Anthracene	<2.0	<10	µg/L	2,4-Dinitrotoluene	4.6 J	<10	µg/L
Benzoic acid	-	1 J	µg/L	2,6-Dinitrotoluene	<6.0	<10	µg/L
Benzo(a)anthracene	<3.0	<10	µg/L	Di-n-octylphthalate	<2.0	<10	µg/L
Benzo(b)fluoranthene	<10.0	<10	µg/L	Fluoranthene	<2.0	<10	µg/L
Benzo(k)fluoranthene	<10.0	<10	µg/L	Fluorene	<3.0	1 J	µg/L
Benzo(g,h,i)perylene	<10.0	<10	µg/L	Hexachlorobenzene	<10.0	<10	µg/L
Benzo(a)pyrene	<6.0	<10	µg/L	Hexachlorobutadiene	<12.0	<10	µg/L
Benzyl alcohol	-	<10	µg/L	Hexachlorocyclopentadiene	<12.0	<10	µg/L
bis(2-Chloroethoxy)methane	<2.0	<10	µg/L	Hexachloroethane	<6.0	<10	µg/L
bis(2-Chloroethyl)ether	<2.0	<10	µg/L	Indeno(1,2,3-cd)pyrene	<10.0	<10	µg/L
2,2'-Oxybis(1-chloropropane)	-	-	µg/L	Isophorone	<2.0	<10	µg/L
bis(2-Ethylhexyl)phthalate	<2.0	1 BJ	µg/L	2-Methylnaphthalene	2.5	1 J	µg/L
4-Bromophenyl phenyl ether	<6.0	<10	µg/L	2-Methylphenol (o-cresol)	<3.0	<10	µg/L
Butyl benzyl phthalate	<3.0	<10	µg/L	4-Methylphenol (p-cresol)	<3.0	1 J	µg/L
*-Chloroaniline	<10.0	<10	µg/L	Naphthalene	<2.0	1 J	µg/L
2-Chloronaphthalene	<3.0	<10	µg/L	2-Nitroaniline	<10.0	<50	µg/L
4-Chloro-3-methylphenol	<3.0	<10	µg/L	3-Nitroaniline	<10.0	<50	µg/L
[illegible]rophenol	<2.0	<10	µg/L	4-Nitroaniline	<10.0	<50	µg/L
[illegible]rophenyl phenyl ether	<6.0	<10	µg/L	Nitrobenzene	<3.0	<10	µg/L
Chrysene	<2.0	<10	µg/L	2-Nitrophenol	<8.0	<10	µg/L
Dibenz(a,h)anthracene	<10.0	<10	µg/L	4-Nitrophenol	<20.0	<50	µg/L
Dibenzofuran	<6.0	<10	µg/L	N-Nitrosodiphenylamine	<3.0	<10	µg/L
Di-n-butylphthalate	<2.0	8 BJ	µg/L	N-Nitrosodipropylamine	<8.0	<10	µg/L
1,2-Dichlorobenzene	<6.0	<10	µg/L	Pentachlorophenol	<20.0	<50	µg/L
1,3-Dichlorobenzene	<6.0	<10	µg/L	Phenanthrene	<2.0	1 J	µg/L
1,4-Dichlorobenzene	<6.0	<10	µg/L	Phenol	<3.0	<10	µg/L
3,3'-Dichlorobenzidine	<10.0	<20	µg/L	Pyrene	<2.0	<10	µg/L
2,4-Dichlorophenol	<8.0	<10	µg/L	1,2,4-Trichlorobenzene	<6.0	<10	µg/L
Diethylphthalate	<2.0	<10	µg/L	2,4,5-Trichlorophenol	<10.0	<50	µg/L
2,4-Dimethylphenol	<3.0	<10	µg/L	2,4,6-Trichlorophenol	<10.0	<10	µg/L
Dimethylphthalate	<3.0	<10	µg/L				

COMMENTS:

-: Not analyzed or not reported.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: OF-SW
Material Description: Water
Contractor's Sample ID.: 07-SW
Date Sampled: 22 Oct 92

Analysis	QA Lab Result	Contractor Result	Units
PCBs			
PCB-1016	<0.25	<0.500	µg/L
PCB-1221	<0.25	<0.500	µg/L
PCB-1232	<0.25	<0.500	µg/L
PCB-1242	<0.25	<0.500	µg/L
PCB-1248	<0.25	<0.500	µg/L
PCB-1254	<0.25	<1.000	µg/L
PCB-1260	<0.25	<1.000	µg/L

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
METALS							
Aluminum	1150	1280	µg/L	Magnesium	6640	7000	µg/L
Antimony	<18.0	<39	µg/L	Manganese	46.0	50	µg/L
Arsenic	<1.0	<5	µg/L	Mercury	<0.10	<0.2	µg/L
Barium	11.3	16	µg/L	Nickel	<7.0	<19	µg/L
Beryllium	<1.0	<1	µg/L	Potassium	3420	3610	µg/L
Cadmium	<4.0	<3	µg/L	Selenium	<2.0	<5	µg/L
Calcium	20500	21000	µg/L	Silver	<4.0	<4	µg/L
Chromium	<8.0	<5	µg/L	Sodium	74500	81300	µg/L
Cobalt	<3.0	<5	µg/L	Thallium	<194	<5	µg/L
Copper	19.1	6	µg/L	Vanadium	<3.0	<5	µg/L
Iron	381	443	µg/L	Zinc	270	294	µg/L
Lead	<17.0	<3	µg/L				

COMMENTS:

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: TB102292 Contractor's Sample ID.: TB102292
Material Description: Water Date Sampled: 22 Oct 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
VOLATILE ORGANICS							
Acetone	13.5	14 B	µg/L	1,2-Dichloropropane	<2.0	<5	µg/L
Benzene	<2.0	<5	µg/L	cis-1,3-Dichloropropene	<2.0	<5	µg/L
Bromodichloromethane	<2.0	<5	µg/L	trans-1,3-Dichloropropene	<1.0	<5	µg/L
Bromoform	<3.0	<5	µg/L	Ethylbenzene	<1.0	<5	µg/L
Bromomethane	<7.0	<10	µg/L	2-Hexanone	<2.0	<10	µg/L
2-Butanone	<3.0	<10	µg/L	Methylene chloride	5.7 B	3 BJ	µg/L
Carbon disulfide	4.1	<5	µg/L	4-Methyl-2-pentanone	2.0 J	<10	µg/L
Carbon tetrachloride	<2.0	<5	µg/L	Styrene	<2.0	<5	µg/L
Chlorobenzene	<1.0	<5	µg/L	1,1,2,2-Tetrachloroethane	<2.0	<5	µg/L
Chloroethane	<3.0	<10	µg/L	Tetrachloroethene	3.2	<5	µg/L
2-Chloroethyl vinyl ether	-	-	µg/L	Toluene	3.0	<5	µg/L
Chloroform	<1.0	<5	µg/L	1,1,1-Trichloroethane	<3.0	<5	µg/L
Chloromethane	<5.0	<10	µg/L	1,1,2-Trichloroethane	<2.0	<5	µg/L
Dibromochloromethane	<2.0	<5	µg/L	Trichloroethene	<2.0	<5	µg/L
1,1-Dichloroethane	<2.0	<5	µg/L	Vinyl acetate	-	<10	µg/L
1,2-Dichloroethane	4.2	<5	µg/L	Vinyl chloride	<5.0	<10	µg/L
1,1-Dichloroethene	<4.0	<5	µg/L	Total Xylenes	<1.0	<5	µg/L
Total 1,2-Dichloroethene	<2.0	<5	µg/L				

TS:

-: Not analyzed or not reported.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: 07-0-12 Contractor's Sample ID.: 07-0-12
Material Description: Solid Date Sampled: 28 Oct 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
MISCELLANEOUS							
Cyanide	<0.50	<0.20	mg/kg				
Analysis	**QA Lab Result**	**Contractor Result**	**Units**	**Analysis**	**QA Lab Result**	**Contractor Result**	**Units**
VOLATILE ORGANICS							
Acetone	<25.0	<13	µg/kg	1,2-Dichloropropane	<5.0	<7	µg/kg
Benzene	<6.3	<7	µg/kg	cis-1,3-Dichloropropene	<2.5	<7	µg/kg
Bromodichloromethane	<5.0	<7	µg/kg	trans-1,3-Dichloropropene	<2.5	<7	µg/kg
Bromoform	<12.5	<5	µg/kg	Ethylbenzene	<6.3	<7	µg/kg
Bromomethane	<2.5	<13	µg/kg	2-Hexanone	<12.5	<13	µg/kg
2-Butanone	<37.5	<13	µg/kg	Methylene chloride	<5.0	8 B	µg/kg
Carbon disulfide	<5.0	<7	µg/kg	4-Methyl-2-pentanone	<31.3	<13	µg/kg
Carbon tetrachloride	<5.0	<7	µg/kg	Styrene	<5.0	<7	µg/kg
Chlorobenzene	<5.0	<7	µg/kg	1,1,2,2-Tetrachloroethane	<12.5	<7	µg/kg
Chloroethane	<6.3	<13	µg/kg	Tetrachloroethene	6.4 B	<7	µg/kg
2-Chloroethyl vinyl ether	-	<7	µg/kg	Toluene	<5.0	<7	µg/kg
Chloroform	<5.0	<7	µg/kg	1,1,1-Trichloroethane	<6.3	<7	µg/kg
Chloromethane	<12.5	<13	µg/kg	1,1,2-Trichloroethane	<12.5	<7	µg/kg
Dibromochloromethane	<6.3	<7	µg/kg	Trichloroethene	<12.5	<7	µg/kg
1,1-Dichloroethane	<5.0	<7	µg/kg	Vinyl acetate	-	<13	µg/kg
1,2-Dichloroethane	<5.0	<7	µg/kg	Vinyl chloride	<6.3	<13	µg/kg
1,1-Dichloroethene	8.1	<7	µg/kg	Total Xylenes	<5.0	<7	µg/kg
Total 1,2-Dichloroethene	56.2 *	<7	µg/kg				

COMMENTS:
-: Not analyzed or not reported.
*: Data disagreement.
B: Compound also found in method or instrument blank.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: 07-0-12
Material Description: Solid
Contractor's Sample ID.: 07-0-12
Date Sampled: 28 Oct 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
EXTRACTABLE ORGANICS (BNA)							
Acenaphthene	<539	9 J	µg/kg	4,6-Dinitro-2-methylphenol	<5390	<2200	µg/kg
Acenaphthylene	<539	17 J	µg/kg	2,4-Dinitrophenol	<10800	<2200	µg/kg
Anthracene	<539	18 J	µg/kg	2,4-Dinitrotoluene	<1080	<400	µg/kg
Benzoic acid	-	42 J	µg/kg	2,6-Dinitrotoluene	<1080	<400	µg/kg
Benzo(a)anthracene	<539	<400	µg/kg	Di-n-octylphthalate	<539	<400	µg/kg
Benzo(b)fluoranthene	<2160	34 J	µg/kg	Fluoranthene	<539	110 J	µg/kg
Benzo(k)fluoranthene	<2160	28 J	µg/kg	Fluorene	<539	<400	µg/kg
Benzo(g,h,i)perylene	<2160	<400	µg/kg	Hexachlorobenzene	<1080	<400	µg/kg
Benzo(a)pyrene	<1080	31 J	µg/kg	Hexachlorobutadiene	<3610	<400	µg/kg
Benzyl alcohol	-	<400	µg/kg	Hexachlorocyclopentadiene	<323	<400	µg/kg
bis(2-Chloroethoxy)methane	<539	<400	µg/kg	Hexachloroethane	<1080	<400	µg/kg
bis(2-Chloroethyl)ether	<539	<400	µg/kg	Indeno(1,2,3-cd)pyrene	<2160	<400	µg/kg
2,2'-Oxybis(1-chloropropane)	-	-	µg/kg	Isophorone	<539	<400	µg/kg
bis(2-Ethylhexyl)phthalate	<323	110 BJ	µg/kg	2-Methylnaphthalene	<323	<400	µg/kg
4-Bromophenyl phenyl ether	<1080	<400	µg/kg	2-Methylphenol (o-cresol)	<539	<400	µg/kg
Butyl benzyl phthalate	<539	31 BJ	µg/kg	4-Methylphenol (p-cresol)	<539	<400	µg/kg
4-Chloroaniline	<3230	<400	µg/kg	Naphthalene	<323	<400	µg/kg
[illegible]ronaphthalene	<539	<400	µg/kg	2-Nitroaniline	<3230	<2200	µg/kg
[illegible]ro-3-methylphenol	<539	<400	µg/kg	3-Nitroaniline	<3230	<2200	µg/kg
[illegible]rophenol	<539	<400	µg/kg	4-Nitroaniline	<5390	<2200	µg/kg
4-Chlorophenyl phenyl ether	<1080	<400	µg/kg	Nitrobenzene	<539	<400	µg/kg
Chrysene	<539	<400	µg/kg	2-Nitrophenol	<1080	<400	µg/kg
Dibenz(a,h)anthracene	<2160	<400	µg/kg	4-Nitrophenol	<5390	<2200	µg/kg
Dibenzofuran	<1080	4 J	µg/kg	N-Nitrosodiphenylamine	<539	<400	µg/kg
Di-n-butylphthalate	214 J	10 BJ	µg/kg	N-Nitrosodipropylamine	<1080	<400	µg/kg
1,2-Dichlorobenzene	<1080	<400	µg/kg	Pentachlorophenol	<5390	<2200	µg/kg
1,3-Dichlorobenzene	<1080	<400	µg/kg	Phenanthrene	<539	65 J	µg/kg
1,4-Dichlorobenzene	<1080	<400	µg/kg	Phenol	<539	<400	µg/kg
3,3'-Dichlorobenzidine	<5390	<900	µg/kg	Pyrene	<323	130 J	µg/kg
2,4-Dichlorophenol	<1080	<400	µg/kg	1,2,4-Trichlorobenzene	<1080	21 J	µg/kg
Diethylphthalate	<539	6 J	µg/kg	2,4,5-Trichlorophenol	<1080	<2200	µg/kg
2,4-Dimethylphenol	<539	<400	µg/kg	2,4,6-Trichlorophenol	<1080	<400	µg/kg
Dimethylphthalate	<539	<400	µg/kg				

COMMENTS:

-: Not analyzed or not reported.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: 07-0-12 Contractor's Sample ID.: 07-0-12
Material Description: Solid Date Sampled: 28 Oct 92

Analysis	QA Lab Result		Contractor Result	Units
PCBs				
PCB-1016	<31.3		<100.000	µg/kg
PCB-1221	<31.3		<100.000	µg/kg
PCB-1232	<31.3		<100.000	µg/kg
PCB-1242	<31.3		<100.000	µg/kg
PCB-1248	<31.3	**	290.000	µg/kg
PCB-1254	<31.3		<200.000	µg/kg
PCB-1260	<31.3		<200.000	µg/kg

Analysis	QA Lab Result		Contractor Result	Units	Analysis	QA Lab Result		Contractor Result	Units
METALS									
Aluminum	2920		4990.000	mg/kg	Magnesium	1350		2200.000	mg/kg
Antimony	<2.2		<0.039	mg/kg	Manganese	77.2		102.000	mg/kg
Arsenic	6.8		4.500	mg/kg	Mercury	<0.06		0.1800	mg/kg
Barium	45.2		42.400	mg/kg	Nickel	9.6	*	38.800	mg/kg
Beryllium	0.25	**	<0.001	mg/kg	Potassium	710		912.000	mg/kg
Cadmium	0.68	**	<0.003	mg/kg	Selenium	0.29	**	<0.005	mg/kg
Calcium	646		860.000	mg/kg	Silver	<0.48		<0.004	mg/kg
Chromium	38.3		121.000	mg/kg	Sodium	1610		1550.000	mg/kg
Cobalt	4.2		6.500	mg/kg	Thallium	<23.4		<0.005	mg/kg
Copper	28.0		64.600	mg/kg	Vanadium	10.1		19.300	mg/kg
Iron	10300		13700.00	mg/kg	Zinc	52.9		125.000	mg/kg
Lead	5.7		12.700	mg/kg					

COMMENTS:
-: Not analyzed or not reported.
*: Data disagreement.
**: Major data disagreement.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: ECD-4 Contractor's Sample ID.: ECD-4
Material Description: Water Date Sampled: 28 Oct 92

Analysis	QA Lab Result		Contractor Result	Units
MISCELLANEOUS				
Cyanide	0.20	*	0.81	mg/L

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
VOLATILE ORGANICS							
Acetone	<50	<10	µg/L	1,2-Dichloropropane	<2.0	<5	µg/L
Benzene	<2.0	<5	µg/L	cis-1,3-Dichloropropene	<2.0	<5	µg/L
Bromodichloromethane	<2.0	<5	µg/L	trans-1,3-Dichloropropene	<2.0	<5	µg/L
Bromoform	<2.0	<5	µg/L	Ethylbenzene	<2.0	<5	µg/L
Bromomethane	<10	<10	µg/L	2-Hexanone	<25	<10	µg/L
2-Butanone	<50	<10	µg/L	Methylene chloride	<2.0	1 BJ	µg/L
Carbon disulfide	<2.0	<5	µg/L	4-Methyl-2-pentanone	<25	<10	µg/L
Carbon tetrachloride	<2.0	<5	µg/L	Styrene	<2.0	<5	µg/L
Chlorobenzene	<2.0	<5	µg/L	1,1,2,2-Tetrachloroethane	<2.0	<5	µg/L
Chloroethane	<10	<10	µg/L	Tetrachloroethene	2.8	5	µg/L
2-Chloroethyl vinyl ether	-	-	µg/L	Toluene	<2.0	<5	µg/L
(orm	1.6 J	2 J	µg/L	1,1,1-Trichloroethane	85	170	µg/L
(ethane	<10	<10	µg/L	1,1,2-Trichloroethane	<2.0	<5	µg/L
[... chloromethane	<2.0	<5	µg/L	Trichloroethene	25	53	µg/L
1,1-Dichloroethane	21	18	µg/L	Vinyl acetate	<25	<10	µg/L
1,2-Dichloroethane	<2.0	<5	µg/L	Vinyl chloride	<10	<10	µg/L
1,1-Dichloroethene	21	23	µg/L	Total Xylenes	<4.0	<5	µg/L
Total 1,2-Dichloroethene	6.1	7	µg/L				

COMMENTS:

-: Not analyzed or not reported.
*: Data disagreement.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: ECD-4
Material Description: Water
Contractor's Sample ID.: ECD-4
Date Sampled: 28 Oct 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
EXTRACTABLE ORGANICS (BNA)							
Acenaphthene	<5	<10	µg/L	4,6-Dinitro-2-methylphenol	<50	<50	µg/L
Acenaphthylene	<5	<10	µg/L	2,4-Dinitrophenol	<50	<50	µg/L
Anthracene	<5	<10	µg/L	2,4-Dinitrotoluene	<5	<10	µg/L
Benzoic acid	<50	<50	µg/L	2,6-Dinitrotoluene	<5	<10	µg/L
Benzo(a)anthracene	<5	<10	µg/L	Di-n-octylphthalate	<5	<10	µg/L
Benzo(b)fluoranthene	<5	<10	µg/L	Fluoranthene	<5	<10	µg/L
Benzo(k)fluoranthene	<5	<10	µg/L	Fluorene	<5	<10	µg/L
Benzo(g,h,i)perylene	<5	<10	µg/L	Hexachlorobenzene	<5	<10	µg/L
Benzo(a)pyrene	<5	<10	µg/L	Hexachlorobutadiene	<5	<10	µg/L
Benzyl alcohol	<50	<10	µg/L	Hexachlorocyclopentadiene	<5	<10	µg/L
bis(2-Chloroethoxy)methane	<5	<10	µg/L	Hexachloroethane	<5	<10	µg/L
bis(2-Chloroethyl)ether	<5	<10	µg/L	Indeno(1,2,3-cd)pyrene	<5	<10	µg/L
2,2'-Oxybis(1-chloropropane)	-	-	µg/L	Isophorone	<5	<10	µg/L
bis(2-Ethylhexyl)phthalate	7.2 B	3 J	µg/L	2-Methylnaphthalene	<5	<10	µg/L
4-Bromophenyl phenyl ether	<5	<10	µg/L	2-Methylphenol (o-cresol)	<5	<10	µg/L
Butyl benzyl phthalate	<5	<10	µg/L	4-Methylphenol (p-cresol)	<5	<10	µg/L
4-Chloroaniline	<10	<10	µg/L	Naphthalene	<5	<10	µg/L
2-Chloronaphthalene	<5	<10	µg/L	2-Nitroaniline	<50	<50	µg/L
4-Chloro-3-methylphenol	<10	<10	µg/L	3-Nitroaniline	<50	<50	µg/L
2-Chlorophenol	<5	<10	µg/L	4-Nitroaniline	<50	<50	µg/L
4-Chlorophenyl phenyl ether	<5	<10	µg/L	Nitrobenzene	<5	<10	µg/L
Chrysene	<5	<10	µg/L	2-Nitrophenol	<10	<10	µg/L
Dibenz(a,h)anthracene	<5	<10	µg/L	4-Nitrophenol	<50	<50	µg/L
Dibenzofuran	<5	<10	µg/L	N-Nitrosodiphenylamine	<5	<10	µg/L
Di-n-butylphthalate	2 BJ	<10	µg/L	N-Nitrosodipropylamine	<5	<10	µg/L
1,2-Dichlorobenzene	<5	<10	µg/L	Pentachlorophenol	<50	<50	µg/L
1,3-Dichlorobenzene	<5	<10	µg/L	Phenanthrene	<5	<10	µg/L
1,4-Dichlorobenzene	<5	<10	µg/L	Phenol	<5	<10	µg/L
3,3'-Dichlorobenzidine	<20	<20	µg/L	Pyrene	<5	<10	µg/L
2,4-Dichlorophenol	<5	<10	µg/L	1,2,4-Trichlorobenzene	<5	<10	µg/L
Diethylphthalate	<5	<10	µg/L	2,4,5-Trichlorophenol	<5	<50	µg/L
2,4-Dimethylphenol	<10	<10	µg/L	2,4,6-Trichlorophenol	<5	<10	µg/L
Dimethylphthalate	<5	<10	µg/L				

COMMENTS:

-: Not analyzed or not reported.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: ECD-4 Contractor's Sample ID.: ECD-4
Material Description: Water Date Sampled: 28 Oct 92

Analysis	QA Lab Result		Contractor Result	Units	Analysis	QA Lab Result		Contractor Result	Units
TOTAL METALS									
Aluminum	51100	*	139000	µg/L	Magnesium	16500	*	43300	µg/L
Antimony	<18.0	**	220	µg/L	Manganese	9210	*	19800	µg/L
Arsenic	42.8	*	<10	µg/L	Mercury	0.44		0.3	µg/L
Barium	373	*	891	µg/L	Nickel	73.4	*	224	µg/L
Beryllium	3.7		<10	µg/L	Potassium	36900	*	81200	µg/L
Cadmium	<4.0		<10	µg/L	Selenium	2.5		<10	µg/L
Calcium	27900		35800	µg/L	Silver	<4.0		<10	µg/L
Chromium	4260		5360	µg/L	Sodium	83700		144000	µg/L
Cobalt	70.6	*	176	µg/L	Thallium	<194		<5	µg/L
Copper	140	*	375	µg/L	Vanadium	105	*	385	µg/L
Iron	74600	*	307000	µg/L	Zinc	264		502	µg/L
Lead	64.8	*	171	µg/L					

Analysis	QA Lab Result		Contractor Result	Units	Analysis	QA Lab Result		Contractor Result	Units
DISSOLVED METALS									
Aluminum	29.7		<200	µg/L	Magnesium	5760		6180	µg/L
[illegible]ny	<18.0	*	60	µg/L	Manganese	234		298	µg/L
c	3.1		<10	µg/L	Mercury	<0.10		<0.2	µg/L
[illegible]	49.8		<200	µg/L	Nickel	13.0		<40	µg/L
Beryllium	<1.0		<10	µg/L	Potassium	29400		72400	µg/L
Cadmium	<4.0		<10	µg/L	Selenium	2.7		<10	µg/L
Calcium	24000		17800	µg/L	Silver	<4.0		<10	µg/L
Chromium	3540		5080	µg/L	Sodium	81900		171000	µg/L
Cobalt	4.4		<50	µg/L	Thallium	<194		<5	µg/L
Copper	<11.0		<25	µg/L	Vanadium	3.6		<50	µg/L
Iron	92.4		200	µg/L	Zinc	7.6		<20	µg/L
Lead	<17.0		<5	µg/L					

COMMENTS:
*: Data disagreement.
**: Major data disagreement.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-15 Contractor's Sample ID.: WC-1S
Material Description: Water Date Sampled: 28 Oct 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
VOLATILE ORGANICS							
Acetone	<50	<10	µg/L	1,2-Dichloropropane	<2.0	<5	µg/L
Benzene	<2.0	<5	µg/L	cis-1,3-Dichloropropene	<2.0	<5	µg/L
Bromodichloromethane	<2.0	<5	µg/L	trans-1,3-Dichloropropene	<2.0	<5	µg/L
Bromoform	<2.0	<5	µg/L	Ethylbenzene	<2.0	<5	µg/L
Bromomethane	<10	<10	µg/L	2-Hexanone	<25	<10	µg/L
2-Butanone	<50	<10	µg/L	Methylene chloride	<2.0	3 J	µg/L
Carbon disulfide	<2.0	<5	µg/L	4-Methyl-2-pentanone	<25	<10	µg/L
Carbon tetrachloride	<2.0	<5	µg/L	Styrene	<2.0	<5	µg/L
Chlorobenzene	<2.0	<5	µg/L	1,1,2,2-Tetrachloroethane	<2.0	<5	µg/L
Chloroethane	<10	<10	µg/L	Tetrachloroethene	8.8	7	µg/L
2-Chloroethyl vinyl ether	-	-	µg/L	Toluene	<2.0	<5	µg/L
Chloroform	<2.0	<5	µg/L	1,1,1-Trichloroethane	16	12	µg/L
Chloromethane	<10	<10	µg/L	1,1,2-Trichloroethane	<2.0	<5	µg/L
Dibromochloromethane	<2.0	<5	µg/L	Trichloroethene	13	9	µg/L
1,1-Dichloroethane	17	15	µg/L	Vinyl acetate	<25	<10	µg/L
1,2-Dichloroethane	<2.0	<5	µg/L	Vinyl chloride	<10	<10	µg/L
1,1-Dichloroethene	3.6	1 J	µg/L	Total Xylenes	<4.0	<5	µg/L
Total 1,2-Dichloroethene	4.7	3 J	µg/L				

COMMENTS:
-: Not analyzed or not reported.
J: Estimated concentration below the quantifiable detection limit.

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-15 Contractor's Sample ID.: WC-1S
Material Description: Water Date Sampled: 28 Oct 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
EXTRACTABLE ORGANICS (BNA)							
Acenaphthene	<5	<10	µg/L	4,6-Dinitro-2-methylphenol	<50	<50	µg/L
Acenaphthylene	<5	<10	µg/L	2,4-Dinitrophenol	<50	<50	µg/L
Anthracene	<5	<10	µg/L	2,4-Dinitrotoluene	<5	<10	µg/L
Benzoic acid	<50	<50	µg/L	2,6-Dinitrotoluene	<5	<10	µg/L
Benzo(a)anthracene	<5	<10	µg/L	Di-n-octylphthalate	<5	<10	µg/L
Benzo(b)fluoranthene	<5	<10	µg/L	Fluoranthene	<5	<10	µg/L
Benzo(k)fluoranthene	<5	<10	µg/L	Fluorene	<5	<10	µg/L
Benzo(g,h,i)perylene	<5	<10	µg/L	Hexachlorobenzene	<5	<10	µg/L
Benzo(a)pyrene	<5	<10	µg/L	Hexachlorobutadiene	<5	<10	µg/L
Benzyl alcohol	<50	<10	µg/L	Hexachlorocyclopentadiene	<5	<10	µg/L
bis(2-Chloroethoxy)methane	<5	<10	µg/L	Hexachloroethane	<5	<10	µg/L
bis(2-Chloroethyl)ether	<5	<10	µg/L	Indeno(1,2,3-cd)pyrene	<5	<10	µg/L
2,2'-Oxybis(1-chloropropane)	-	-	µg/L	Isophorone	<5	<10	µg/L
bis(2-Ethylhexyl)phthalate	7.0 B *	1 J	µg/L	2-Methylnaphthalene	<5	<10	µg/L
4-Bromophenyl phenyl ether	<5	<10	µg/L	2-Methylphenol (o-cresol)	<5	<10	µg/L
Butyl benzyl phthalate	<5	<10	µg/L	4-Methylphenol (p-cresol)	<5	<10	µg/L
4-Chloroaniline	<10	<10	µg/L	Naphthalene	<5	<10	µg/L
2-Chloronaphthalene	<5	<10	µg/L	2-Nitroaniline	<50	<50	µg/L
oro-3-methylphenol	<10	<10	µg/L	3-Nitroaniline	<50	<50	µg/L
ophenol	<5	<10	µg/L	4-Nitroaniline	<50	<50	µg/L
4-Chlorophenyl phenyl ether	<5	<10	µg/L	Nitrobenzene	<5	<10	µg/L
Chrysene	<5	<10	µg/L	2-Nitrophenol	<10	<10	µg/L
Dibenz(a,h)anthracene	<5	<10	µg/L	4-Nitrophenol	<50	<50	µg/L
Dibenzofuran	<5	<10	µg/L	N-Nitrosodiphenylamine	<5	<10	µg/L
Di-n-butylphthalate	2 BJ	1 BJ	µg/L	N-Nitrosodipropylamine	<5	<10	µg/L
1,2-Dichlorobenzene	<5	<10	µg/L	Pentachlorophenol	<50	<50	µg/L
1,3-Dichlorobenzene	<5	<10	µg/L	Phenanthrene	<5	<10	µg/L
1,4-Dichlorobenzene	<5	<10	µg/L	Phenol	<5	<10	µg/L
3,3'-Dichlorobenzidine	<20	<20	µg/L	Pyrene	<5	<10	µg/L
2,4-Dichlorophenol	<5	<10	µg/L	1,2,4-Trichlorobenzene	<5	<10	µg/L
Diethylphthalate	<5	<10	µg/L	2,4,5-Trichlorophenol	<5	<50	µg/L
2,4-Dimethylphenol	<10	<10	µg/L	2,4,6-Trichlorophenol	<5	<10	µg/L
Dimethylphthalate	<5	<10	µg/L				

COMMENTS:

-: Not analyzed or not reported.
*: Data disagreement.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: WC-15
Material Description: Water
Contractor's Sample ID.: WC-1S
Date Sampled: 28 Oct 92

Analysis	QA Lab Result	Contractor Result	Units
PCBs			
PCB-1016	<0.5	<0.500	µg/L
PCB-1221	<0.5	<0.500	µg/L
PCB-1232	<0.5	<0.500	µg/L
PCB-1242	<0.5	<0.500	µg/L
PCB-1248	<0.5	<0.500	µg/L
PCB-1254	<0.5	<1.000	µg/L
PCB-1260	<0.5	<1.000	µg/L

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
TOTAL METALS							
Aluminum	15900	17000	µg/L	Magnesium	8210	8400	µg/L
Antimony	<18.0	<39	µg/L	Manganese	1500	1530	µg/L
Arsenic	34.5	16	µg/L	Mercury	0.35	0.3	µg/L
Barium	59.7	66	µg/L	Nickel	15.4	27	µg/L
Beryllium	1.4	1	µg/L	Potassium	10500	8620	µg/L
Cadmium	<4.0	<3	µg/L	Selenium	<2.0	<5	µg/L
Calcium	24800	22100	µg/L	Silver	<4.0	<4	µg/L
Chromium	30.2	42	µg/L	Sodium	27000	24800	µg/L
Cobalt	24.4	31	µg/L	Thallium	<194	<5	µg/L
Copper	117	98	µg/L	Vanadium	32.3	38	µg/L
Iron	55700	55500	µg/L	Zinc	109	110	µg/L
Lead	39.9	35	µg/L				

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
DISSOLVED METALS							
Aluminum	36.6	<45	µg/L	Magnesium	5500	5650	µg/L
Antimony	<18.0	<39	µg/L	Manganese	1110	1200	µg/L
Arsenic	<1.0	<5	µg/L	Mercury	<0.10	<0.2	µg/L
Barium	11.0	13	µg/L	Nickel	<7.0	<19	µg/L
Beryllium	<1.0	<1	µg/L	Potassium	7040	7500	µg/L
Cadmium	<4.0	<3	µg/L	Selenium	<2.0	<5	µg/L
Calcium	21300	21700	µg/L	Silver	<4.0	<4	µg/L
Chromium	<8.0	<5	µg/L	Sodium	28600	28900	µg/L
Cobalt	8.5	9	µg/L	Thallium	<194	<5	µg/L
Copper	<11.0	<4	µg/L	Vanadium	<3.0	<5	µg/L
Iron	2680	3000	µg/L	Zinc	7.7	<5	µg/L
Lead	<17.0	<3	µg/L				

COMMENTS:

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: Stratford Army Engine Plant, Stratford, CT
QA Sample ID.: TB102892 Contractor's Sample ID.: TB102892
Material Description: Water Date Sampled: 28 Oct 92

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
VOLATILE ORGANICS							
Acetone	<50	<10	µg/L	1,2-Dichloropropane	<2.0	<5	µg/L
Benzene	<2.0	<5	µg/L	cis-1,3-Dichloropropene	<2.0	<5	µg/L
Bromodichloromethane	<2.0	<5	µg/L	trans-1,3-Dichloropropene	<2.0	<5	µg/L
Bromoform	1.1 J	<5	µg/L	Ethylbenzene	<2.0	<5	µg/L
Bromomethane	<10	<10	µg/L	2-Hexanone	<25	<10	µg/L
2-Butanone	<50	<10	µg/L	Methylene chloride	<2.0	2 BJ	µg/L
Carbon disulfide	<2.0	<5	µg/L	4-Methyl-2-pentanone	<25	<10	µg/L
Carbon tetrachloride	<2.0	<5	µg/L	Styrene	<2.0	<5	µg/L
Chlorobenzene	<2.0	<5	µg/L	1,1,2,2-Tetrachloroethane	<2.0	<5	µg/L
Chloroethane	<10	<10	µg/L	Tetrachloroethene	<2.0	<5	µg/L
2-Chloroethyl vinyl ether	-	-	µg/L	Toluene	<2.0	<5	µg/L
Chloroform	<2.0	<5	µg/L	1,1,1-Trichloroethane	<2.0	<5	µg/L
Chloromethane	<10	<10	µg/L	1,1,2-Trichloroethane	<2.0	<5	µg/L
Dibromochloromethane	1.0 J	<5	µg/L	Trichloroethene	<2.0	<5	µg/L
1,1-Dichloroethane	<2.0	<5	µg/L	Vinyl acetate	<25	<10	µg/L
1,2-Dichloroethane	<2.0	<5	µg/L	Vinyl chloride	<10	<10	µg/L
1,1-Dichloroethene	<2.0	<5	µg/L	Total Xylenes	<4.0	<5	µg/L
Total 1,2-Dichloroethene	<2.0	<5	µg/L				

[illegible]S:

-: Not analyzed or not reported.
B: Compound also found in method or instrument blank.
J: Estimated concentration below the quantifiable detection limit.

Data agreed.

MRD Lab Project No. 1341

12 MAY 1993

DEPARTMENT OF THE ARMY
MISSOURI RIVER DIVISION, CORPS OF ENGINEERS
DIVISION LABORATORY
OMAHA, NEBRASKA 68102

Subject: Quality Assurance Test Results

Project: Stratford Army Engine Plant - Stratford, CT
Intended Use: IRP-Army RI/FS
Source of Material:

Submitted by: John Barrett, CEMRO-ED-EA
Date Sampled: 09 Jun - 28 Oct 92 , **Date Received:** 11 Jun - 29 Oct 92
Method of Test or Specification: See attached test result sheets.

References: Omaha District Request No. ENE 2574 dated 23 Nov 92

-- REMARKS --

1. The samples arrived in good condition, however, there were some sample labelling errors, chain-of-custody errors, metal preservation errors, and headspace in some VOA vials.

2. Enclosed please find the following:

   Part A: Sample Receipt Information (1 page)
   Part B: Chain-of-Custody Information (16 pages)
   Part C: Quality Assurance Test Results (261 pages)

3. The Chemical Quality Assurance Report will be forwarded to you under separate cover on or about 11 May 93.

Submitted by:

Douglas B. Taggart

DOUGLAS B. TAGGART
Director, MRD Laboratory

LP 5/12/93
Percifield/glm/444-4313

PART A

SAMPLE RECEIPT INFORMATION

QA/QC Table #	Customer Sample #	Date Sampled	Matrix	MRD Lab # Assigned	Tests Assigned	QA Test Results Page Number
	BR-8-0.5-25*	09 Jun 92	Soil	920611-019	VOAs (Cancelled)	
				920611-020	BNAs (Cancelled)	
1	BR-1-0.5-2.5	17 Jun 92	Soil	920620-015	VOAs (to EHRT)	C1
				920620-016	Metals (to EHRT)	C185
				920620-016	BNAs (to EHRT)	C70-C71
				920620-017	TCLP Metals (to EHRT)	C186
2	WC-8S-2.5-4.5	18 Jun 92	Soil	920620-018	VOAs (to EHRT)	C2
				920620-019	Metals (to EHRT)	C187-C189
				920620-019	BNA (to EHRT)	C72-C73
				920620-020	TCLP Metals (to EHRT)	C190
3	WC-2D-2.5-4.5	23 Jun 92	Soil	920625-019	VOAs (to EHRT)	C12-C13
				920625-020	BNAs (to EHRT)	C88-C90
				920625-020	Metals (to EHRT)	C206
				920625-020	PCBs (to EHRT)	C164
				920625-021	TCLP Metals (to EHRT)	C207
4	WC-3S	29 Jul 92	Water	920730-016	VOAs (to EHRT)	C23-C24
				920730-017	BNAs (to EHRT)	C105-C106
				920730-018	PCBs	C166
				920730-019	Total Metals (to EHRT)	C220
				920730-020	Dissolved Metals (to EHRT)	C221
5	TB072992	29 Jul 92	Water	920730-021	VOAs (to EHRT)	C25
6	WC-8S	29 Jul 92	Water	920730-022	VOAs (to EHRT)	C26-C27
				920730-023	BNAs (to EHRT)	C107-C108
				920730-024	Cyanide	C256
				920730-025	Total Metals (to EHRT)	C222
				920730-026	Dissolved Metals (to EHRT)	C223
7	OF-SW**	22 Oct 92	Water	921026-035	Cyanide (to EHRT)	C260
				921026-036	Metals (to EHRT)	C233
				921026-037	PCBs (to EHRT)	C170
				921026-038	BNAs (to EHRT)	C119-C120
				921026-039	VOAs (to EHRT)	C40
8	TB102292	22 Oct 92	Water	921026-040	VOAs (to EHRT)	C41
9	07-0-12	28 Oct 92	Solid	921102-023	BNAs (to EHRT)	C136-C137
				921102-023	Cyanide (to EHRT)	C261
				921102-023	Metals (to EHRT)	C243
				921102-023	PCBs (to EHRT)	C175
				921102-024	VOAs (to EHRT)	C52-C53
10	ECD-4	28 Oct 92	Water	921102-025	BNAs	C151-C153
				921102-026	VOAs	C65
				921102-027	Total Metals (to EHRT)	C244
				921102-028	Dissolved Metals (to EHRT)	C245
				921102-029	Cyanide (to EHRT)	C261
11	WC-15***	28 Oct 92	Water	921102-030	BNAs	C154-C156
				921102-031	PCBs	C180
				921102-032	Total Metals (to EHRT)	C246
				921102-033	Dissolved Metals (to EHRT)	C247-C249
				921102-034	VOAs	C66
12	TB102892	28 Oct 92	Water	921102-035	VOAs	C67

*: Sample BR-8-0.5-25 was incorrectly logged in at MRD. The correct sample # for this sample is BR-8-0.5-2.5.

**: Sample OF-SW was incorrectly logged in at MRD. The correct customer sample # for this sample is 07-SW.

***: Sample WC-15 was incorrectly logged in at MRD. The correct customer sample # for this sample is WC-1S.

PART B

CHAIN-OF-CUSTODY INFORMATION

Page No.	Chain-of-Custody No.	Date Signed
B1	920611-WC	10 Jun 92
B4	920619-WC-3	18 Jun 92
B6	920625-STRAT	24 Jun 92
B9	WCC 73092-1	29 Jul 92
B12	921024-WC	23 Oct 92
B14	921029-WWC	28 Oct 92

B1

CHAIN-OF-CUSTODY RECORD

WOODWARD-CLYDE CONSULTANTS

201 WILLOWBROOK BLVD.
WAYNE NEW JERSEY 07470
(201) 785-0700

LIMS #1341

92061l-wc

PROJECT NUMBER:	PROJECT / SITE NAME:	PROJECT / SITE LOCATION:	TEAM LEADER: Marc Jacobsen SAMPLERS: Marc Jacobsen Mary Dombrowski (SIGNATURES)
89C114NN	Remedial Investigation Stratford Army Engine Plant	SAEP Stratford, Connecticut	

Sample I.D. Number	Sample Location	Sample Collection Date	Sample Collection Time	Sample Matrix	Container Description (Size / Type)	Quantity	Requested Analysis	Comments
BR-8-0.5-2.5	BR-8	6-9-92	1445	Soil	125ml voa 250ml amber	(1) (1)	Volatiles with TCL search Semi-Volatiles with TCL search TAL Metals and RCRA Metals (TCLP Extraction)	

6-10-92

CHAIN - OF - CUSTODY CHRONICLE

Relinquished by:	Date	Time	Received by:	Date	Time
Marc Jacobsen WCC	6-10-92	1000			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received at Laboratory by:	Date 6-11-92	Time 0810
Method of Shipment: Federal Express			Airbill (Shipping Number): 454181617 1		

COOLER RECEIPT FORM

LIMS# 1341 MRD Cooler # N/A Number of Coolers 1 Contractor Cooler WC

PROJECT: SAEP / STRATFORD CT. Date received: 6-11-92

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 6-11-92 C-of-C Number: 92061I-WC

by (print) Vicki L. Rich (sign) Vicki L. Rich

1. Did cooler come with a shipping slip (air bill, etc.)? ..... (YES) NO

If YES, enter carrier name & air bill number here: FEDX: 4541816171

2. Were custody seals on outside of cooler? ..... (YES) NO

How many & where: 1- Side, seal date: 6-10-92, seal name MJ

3. Were custody seals unbroken and intact at the date and time of arrival? ..... (YES) NO

4. Did you screen samples for radioactivity using the Geiger Counter..... (YES) NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? ..... YES (NO)

6. Were custody papers filled out properly (ink, signed, etc.)? ..... (YES) NO

7. Did you sign custody papers in the appropriate place? ..... (YES) NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. (YES) NO

9. If required, was enough ice used? ..... Type of ice: Blue 1.4°C YES (NO)

10. Have designated person initial here to acknowledge receipt of cooler: VDK (date) 6-11-92

B. LOG-IN PHASE: Date samples were logged-in: 6-11-92

by (print) Jim Barton (sign) Jim Barton

11. Describe type of packing in cooler: Bubble wrap

12. Were all bottles sealed in separate plastic bags? ..... (YES) NO

13. Did all bottles arrive unbroken & were labels in good condition? ..... (YES) NO

14. Were all bottle labels complete (ID, date, time, no signature, preservative, etc.)? ..... YES (NO)

15. Did all bottle labels agree with custody papers? ..... (YES) NO

16. Were correct containers used for the tests indicated? ..... (YES) NO

17. Were correct preservatives added to samples? ..... YES NO/NA

18. Was a sufficient amount of sample sent for tests indicated? ..... (YES) NO

19. Were bubbles absent in Volatile samples? If NO, list by QA#: _____ YES NO/NA

20. Was the project manager called and status discussed? If YES, give details on the back of this form. YES NO

21. Who was called ? _____ By whom ? _____ (date)_____

9. Blue ice melted.

B4

920619-WC-3

CHAIN-OF-CUSTODY RECORD

WOODWARD-CLYDE CONSULTANTS

201 WILLOWBROOK BLVD.
WAYNE NEW JERSEY 07470
(201) 785-0700

LIMS #1341

PROJECT NUMBER:	PROJECT / SITE NAME:	PROJECT / SITE LOCATION:	TEAM LEADER: Marc E. Jacobsen
89C114NN	Remedial Investigation Stratford Army Engine Plant	SAEP Stratford, Connecticut	SAMPLERS: Marc Jacobsen / Mary Ambrose (SIGNATURES):

Sample I.D. Number	Sample Location	Sample Collection Date	Sample Collection Time	Sample Matrix	Container Description (Size / Type)	Quantity	Requested Analysis	Comments
BR-1-0.5-2.5	BR-1	6-17-92	1305	Soil	125ml voa vial 250ml amber	(1) (1)	Volatiles with TCL Search	
WC-85-25-4.5	WC-85	6-18-92	0930	Soil	125ml voa vial 250ml amber	(1) (1)	Semi-Volatiles with TCL Search TAL Metals and RCRA Metals (TCLP Extraction	

6-18-92

CHAIN - OF - CUSTODY CHRONICLE

Relinquished by:	Date	Time	Received by:	Date	Time
Marc Jacobsen WCC	6-18-92	1500			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received at Laboratory by: Vicki L. Rick	Date	Time

Method of Shipment: Federal Express

Airbill (Shipping Number): 454181613 4

B5

COOLER RECEIPT FORM

LIMS# 1341 MRD Cooler # ____ Number of Coolers 1 Contractor Cooler Woodward Clyde

PROJECT: SAEP Date received: 19 Jun 92

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 19 Jun 92 C-of-C Number: 9206WC-3

by (print) Vicki L. Rich (sign) Vicki L. Rich

1. Did cooler come with a shipping slip (air bill, etc.)? ..... (YES) NO

If YES, enter carrier name & air bill number here: FEDX: 4541816134

2. Were custody seals on outside of cooler? ..... (YES) NO

How many & where: 2-Front-Back; seal date: 6-18-92; seal name ____

3. Were custody seals unbroken and intact at the date and time of arrival? ..... (YES) NO

4. Did you screen samples for radioactivity using the Geiger Counter..... (YES) NO

5. Were custody papers sealed in a plastic bag & (taped inside to the lid)? ..... YES (NO)

6. Were custody papers filled out properly (ink, signed, etc.)? ..... (YES) NO

7. Did you sign custody papers in the appropriate place? ..... (YES) NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. (YES) NO

9. If required, was enough ice used? ..... Type of ice: Blue (4) 6.9°C ..... (YES) NO

10. Have designated person initial here to acknowledge receipt of cooler: VPC (date) 6-20-92

B. LOG-IN PHASE: Date samples were logged-in: 20 Jun 92

by (print) Vicki L. Rich (sign) Vicki L. Rich

11. Describe type of packing in cooler: Bubble Wrap

12. Were all bottles sealed in separate plastic bags? ..... (YES) NO

13. Did all bottles arrive unbroken & were labels in good condition? ..... (YES) NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? ..... YES (NO)

15. Did all bottle labels agree with custody papers? ..... (YES) NO

16. Were correct containers used for the tests indicated? ..... (YES) NO

17. Were correct preservatives added to samples? ..... N.A. ~~YES NO~~

18. Was a sufficient amount of sample sent for tests indicated? ..... (YES) NO

19. Were bubbles absent in Volatile samples? If NO, list by QA#: N/A ~~YES NO~~

20. Was the project manager called and status discussed? If YES, give details on the back of this form. YES NO

21. Who was called ? ____ By whom ? ____ (date) ____

BQ

920625-STLAS

CHAIN-OF-CUSTODY RECORD

WOODWARD-CLYDE CONSULTANTS

201 WILLOWBROOK BLVD.
WAYNE NEW JERSEY 07470
(201) 785-0700

LIMS # 1341

PROJECT NUMBER:	PROJECT / SITE NAME:	PROJECT / SITE LOCATION:	TEAM LEADER: Marc E. Jacobson SAMPLERS: Marc E. Jacobson (SIGNATURES):
89C1141NN	Remedial Investigation Stratford Army Engine Plant	SAEP Stratford, Connecticut	

Sample I.D. Number	Sample Location	Sample Collection Date	Sample Collection Time	Sample Matrix	Container Description (Size / Type)	Quantity	Requested Analysis	Comments
WC-20-25-4.5	WC-20	6/23/92	1550	Soil	125ml VOA 250ml amber	(1) (1)	Volatiles with TCL Search Semi-volatiles with TCL Search TAL Metals and RCRA Metals CLP Extra	

6-23-92

CHAIN - OF - CUSTODY CHRONICLE

Relinquished by:	Date	Time	Received by:	Date	Time
Marc Jacobson WCC	6-24-92	1500			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received at Laboratory by:	Date	Time

Meth Shipment: Federal Express

Airbill (Shipping Number): 408730789

PAGE 1

B1

COOLER RECEIPT FORM

LIMS# 1341 MRD Cooler # N/A Number of Coolers 1 Contractor Cooler STRAT

PROJECT: Stanford Remedial Date received: 6/25/92

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 6/25/92 C-of-C Number: 920625-STRAT

by (print) Robert N Pshenichka (sign) [signature]

1. Did cooler come with a shipping slip (air bill, etc.)? ..... (YES) NO

If YES, enter carrier name & air bill number here: FEDX: 4087 307895

2. Were custody seals on outside of cooler? ..... (YES) NO

How many & where: (1) Front, seal date: 6/24/92, seal name illegible

3. Were custody seals unbroken and intact at the date and time of arrival? ..... (YES) NO

4. Did you screen samples for radioactivity using the Geiger Counter..... (YES) NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? .....Not taped..... YES (NO)

6. Were custody papers filled out properly (ink, signed, etc.)? ..... (YES) NO

7. Did you sign custody papers in the appropriate place? ..... (YES) NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. (YES) NO

9. If required, was enough ice used? ..... Type of ice: reg/blue ..... ok ..... (YES) NO

10. Have designated person initial here to acknowledge receipt of cooler: RP (date) 25 Jun 92

B. LOG-IN PHASE: Date samples were logged-in: 6-25-92

by (print) Conrad L. German (sign) [signature]

11. Describe type of packing in cooler: Bubble wrap also.

12. Were all bottles sealed in separate plastic bags? ..... (YES) NO

13. Did all bottles arrive unbroken & were labels in good condition? ..... (YES) NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? ..... YES (NO)

15. Did all bottle labels agree with custody papers? ..... YES (NO)

16. Were correct containers used for the tests indicated? ..... (YES) NO

17. Were correct preservatives added to samples? .....N/A YES NO

18. Was a sufficient amount of sample sent for tests indicated? ..... YES (NO)

19. Were bubbles absent in Volatile samples? If NO, list by QA#: N/A YES NO

20. Was the project manager called and status discussed? If YES, give details on the back of this form. YES NO

21. Who was called ? _____ By whom ? _____ (date)_____

14. Bottle labels do not have:

a) time Sampled

b) sampler initials

15. For analysis:

Container labeled	C-O-C
PCB	PCB is not stated.

B5

CHAIN-OF-CUSTODY RECORD

WCC 73092-1

WOODWARD-CLYDE CONSULTANTS
201 WILLOWBROOK BLVD.
WAYNE NEW JERSEY 07470
(201) 785-0700

LIMS # 1341

PROJECT NUMBER:	PROJECT / SITE NAME:	PROJECT / SITE LOCATION:	TEAM LEADER: Marc Jacobsen
89C114NN	Remedial Investigation Stratford Army Engine Plant	SAEP Stratford CT	SAMPLERS: Marc Jacobsen Mike Rivers (SIGNATURES)

Sample I.D. Number	Sample Location	Sample Collection Date	Sample Collection Time	Sample Matrix	Container Description (Size / Type)	Quantity	Requested Analysis	Comments
WC-35	wc-35	7/29/92	1545	water	1/2 Gallon amber	1	PCB	
WC-85	wc-85	7/29/92	1425	water	1 pint plastic	1	Cyanide	NaOH preservative added
WC-35	wc-35		1545	water	40ml voa vial	2	VO*	HCL preservative added
WC-35	↓		↓	↓	1/2 Gallon amber	1	Semi-VO*	
WC-35	↓		↓		1 Quart plastic	2	Dissolved metals Total metals (TAL)	HNO3 preservative added
WC-85	wc-85		1425		40ml voa vial	2	VO*	HCL preservative added
WC-85	↓		↓		1/2 Gallon amber	1	Semi-VO*	
WC-85	↓	↓	↓	↓	1 Quart plastic	2	Dissolved metals Total metals (TAL)	HNO3 preservative added
TB072992	—	7/29/92	—	DI water	40ml voa vial	2	VO*	Trip Blank

Void

CHAIN - OF - CUSTODY CHRONICLE

(*TCL with library search)

Relinquished by:	Date	Time	Received by:	Date	Time
Mary E. Jacobsen Mike Rivers	7-29-92	1845			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received at Laboratory by: Carol Gleason	Date 7-30-92	Time 0910
Method of Shipment: Federal Express			Airbill (Shipping Number): 408730 7921		

B10

COOLER RECEIPT FORM

LIMS# 1311 MRD Cooler # N/A Number of Coolers 1 Contractor Cooler WCC

PROJECT: Stratford Army Engine Plant Date received: 7-30-92

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 7-30-92 C-of-C Number: WCC 7309Z-1

by (print) Conrad German (sign) Conrad L German

1. Did cooler come with a shipping slip (air bill, etc.)? ..... (YES) NO

If YES, enter carrier name & air bill number here: FEDX: 408730 7921

2. Were custody seals on outside of cooler? ..... (YES) NO

How many & where: 2-across front of lid, seal date: 7-29-92, seal name illegible

3. Were custody seals unbroken and intact at the date and time of arrival? ..... (YES) NO

4. Did you screen samples for radioactivity using the Geiger Counter..... (YES) NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? ..... (YES) NO

6. Were custody papers filled out properly (ink, signed, etc.)? ..... (YES) NO

7. Did you sign custody papers in the appropriate place? ..... (YES) NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. (YES) NO

9. If required, was enough ice used? ..... Type of ice: Regular + Blue 2°C ..... (YES) NO

10. Have designated person initial here to acknowledge receipt of cooler: [illegible] (date) [illegible]

B. LOG-IN PHASE: Date samples were logged-in: 7-30-92

by (print) Conrad German (sign) Conrad L German

11. Describe type of packing in cooler: Bubble wrap

12. Were all bottles sealed in separate plastic bags? ..... N/A YES (NO)

13. Did all bottles arrive unbroken & were labels in good condition? ..... (YES) NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? ..... YES (NO)

15. Did all bottle labels agree with custody papers? ..... (YES) NO

16. Were correct containers used for the tests indicated? ..... (YES) NO

17. Were correct preservatives added to samples? ..... YES (NO)

18. Was a sufficient amount of sample sent for tests indicated? ..... (YES) NO

19. Were bubbles absent in Volatile samples? If NO, list by QA#: 92730-HC21 YES (NO)

20. Was the project manager called and status discussed? If YES, give details on the back of this form. YES NO

14. No samples contain the C-O-C.

17. None of the samples for Metals test were preserved.

B12

921024-WC

CHAIN-OF-CUSTODY RECORD

WOODWARD-CLYDE CONSULTANTS

201 WILLOWBROOK BLVD.
WAYNE NEW JERSEY 07470
(201) 785-0700

LIMS #1341

PROJECT NUMBER:	PROJECT / SITE NAME:	PROJECT / SITE LOCATION:	TEAM LEADER: Marc Jacobson
89C114NN	Remedial Investigation Stratford Army Engine Plant	SAEP Stratford, CT	SAMPLERS: Marc Jacobson (SIGNATURES):

Sample I.D. Number	Sample Location	Sample Collection Date	Sample Collection Time	Sample Matrix	Container Description (Size / Type)	Quantity	Requested Analysis	Comments
07-SW	007	10/22/92	1330	water	40 ml amber vial	2	TCL VO*	HCL preserved
07-SW	↓	↓	↓	↓	1/2 gallon amber	2	TCL Semi-VO*/PCB	
07-SW					1 quart plastic	1	TAL Metals (Total)	HNO3 preserved
07-SW	↓	↓	↓	↓	1 pint plastic	1	Cyanide	NaOH preserved
TB102292	Trip Blank	10/22/92	—	DI Water	40ml amber	1	TCL VO*	

CHAIN - OF - CUSTODY CHRONICLE *TCL with Library Search

Relinquished by:	Date	Time	Received by:	Date	Time
Marc Jacobson WCC	10-23-92	2000			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received at Laboratory by: Vicki L. Kuk	24 Oct 92	0930

Method of Shipment: Federal Express

Airbill (Shipping Number): ~~408730792~~ 4700238163

COOLER RECEIPT FORM

LIMS# 1341 MRD Cooler # _____ Number of Coolers 1 Contractor Cooler Waterwise Clyde

PROJECT: Stratford Army Eng. Plant Date received: 24 Oct 92

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 24 Oct 92 C-of-C Number: 921024-WC

by (print) Vicki L. Rick (sign) Vicki L. Rick

1. Did cooler come with a shipping slip (air bill, etc.)? ..... (YES) NO

If YES, enter carrier name & air bill number here: FEDX: 4700238163

2. Were custody seals on outside of cooler? ..... (YES) NO

How many & where: 2 - Front Back, seal date: 22 Oct 92 seal name: Marc J.

3. Were custody seals unbroken and intact at the date and time of arrival? ..... (YES) NO

4. Did you screen samples for radioactivity using the Geiger Counter..... (YES) NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? ..... (YES) NO

6. Were custody papers filled out properly (ink, signed, etc.)? ..... (YES) NO

7. Did you sign custody papers in the appropriate place? ..... (YES) NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. (YES) NO

9. If required, was enough ice used? ..... Type of ice: Reg + Blue 5.8°C (YES) NO

10. Have designated person initial here to acknowledge receipt of cooler: RDK (date) 10-24-92

B. LOG-IN PHASE: Date samples were logged-in: 10-26-92

by (print) Shelly Swink (sign) Shelly Swink

11. Describe type of packing in cooler: Bubble Wrap

12. Were all bottles sealed in separate plastic bags? ..... YES (NO)

13. Did all bottles arrive unbroken & were labels in good condition? ..... (YES) NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? ..... (YES) NO

15. Did all bottle labels agree with custody papers? ..... (YES) NO

16. Were correct containers used for the tests indicated? ..... (YES) NO

17. Were correct preservatives added to samples? ..... (YES) NO

18. Was a sufficient amount of sample sent for tests indicated? ..... (YES) NO

19. Were bubbles absent in Volatile samples? If NO, list by QA#: _____ (YES) NO

20. Was the project manager called and status discussed? If YES, give details on the back of this form. YES NO

21. Who was called ? _____ By whom ? _____ (date) _____

921029-WWC

BIF

CHAIN-OF-CUSTODY RECORD

WOODWARD-CLYDE CONSULTANTS

201 WILLOWBROOK BLVD.
WAYNE NEW JERSEY 07470
(201) 785-0700

LIMS # 1341

PROJECT NUMBER:	PROJECT / SITE NAME:	PROJECT / SITE LOCATION:	TEAM LEADER: Marc E. Jacobsen
84C114NN	Remedial Investigation Stratford Army Engine Plant	SAEP Stratford, CT	SAMPLERS: Marc E. Jacobsen (SIGNATURES):

Sample I.D. Number	Sample Location	Sample Collection Date	Sample Collection Time	Sample Matrix	Container Description (Size / Type)	Quantity	Requested Analysis	Comments
07-0-12	007	10-28-92	0840	sediment	1 Quart amber	1	Semi-VO/PCB/TAL Metals/Cyanide*	
↓	↓	↓	↓	↓	40 ml amber vial	2	VO*	
ECD-4	ECD-4	10-28-92	1400	water	40 ml amber vial	2	VO*	HCL Preserved
					1/2 Gallon amber	~~2~~ 1	Semi-VO*	
					1 Quart plastic	1	TAL Metals - Total	HNO_3 Preserved
					1 pint plastic	1	Cyanide	NaOH Preserved
↓	↓	↓	↓	↓	1 Quart plastic	1	TAL Metals - Dissolved	HNO_3 Preserved + filtered
WC-15	WC-15	10-28-92	1500	water	40ml amber vial	2	VO*	HCL Preserved
					1/2 Gallon amber	2	Semi-VO* PCB	
					1 Quart Plastic	1	TAL Metals - Total	HNO_3 Preserved
↓	↓	↓	↓	↓	1 Quart Plastic	1	TAL Metals - Dissolved	HNO_3 Preserved + filtered
					~~1 Pint Plastic~~	~~1~~	~~[illegible]~~	
TB102892	Trip Blank	10-28-92	—	water	40 ml amber vial	1	VO*	HCL Preserved

CHAIN - OF - CUSTODY CHRONICLE *TCL with Library Search

Relinquished by:	Date	Time	Received by:	Date	Time
Marc Jacobsen WCC	10-28-92	1800			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received at Laboratory by: L Rossfield	Date 29 Oct 92	Time 0930

Method of Shipment: Federal Express

Airbill (Shipping Number): 408730 7965

COOLER RECEIPT FORM

LIMS# 1341 MRD Cooler # — Number of Coolers 1 Contractor Cooler Woodward Clyde

PROJECT: Stratford Army Engine Plant Date received: 29 Oct 92

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 29 Oct 92 C-of-C Number: 921029-WWC

by (print) Laura Percifield (sign) Laura Percifield

1. Did cooler come with a shipping slip (air bill, etc.)? ..... (YES) NO

If YES, enter carrier name & air bill number here: FEDX: 408730079165

2. Were custody seals on outside of cooler? ..... (YES) NO

How many & where: 2 - front, seal date: 28 Oct 92 seal name MJ

3. Were custody seals unbroken and intact at the date and time of arrival? ..... (YES) NO

4. Did you screen samples for radioactivity using the Geiger Counter..... (YES) NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? ..... (YES) NO

6. Were custody papers filled out properly (ink, signed, etc.)? ..... (YES) NO

7. Did you sign custody papers in the appropriate place? ..... (YES) NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. (YES) NO

9. If required, was enough ice used? ..... Type of ice: both ..... 3° C. (YES) NO

10. Have designated person initial here to acknowledge receipt of cooler: AP (date) 29 Oct 92

B. LOG-IN PHASE: Date samples were logged-in: 02 NOV 92

by (print) Laura Percifield (sign) Laura Percifield

11. Describe type of packing in cooler: bubble wrap + plastic

12. Were all bottles sealed in separate plastic bags? ..... YES (NO)

13. Did all bottles arrive unbroken & were labels in good condition? ..... (YES) NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? ..... YES (NO)

15. Did all bottle labels agree with custody papers? ..... YES (NO)

16. Were correct containers used for the tests indicated? ..... (YES) NO

17. Were correct preservatives added to samples? ..... (YES) NO

18. Was a sufficient amount of sample sent for tests indicated? ..... (YES) NO

19. Were bubbles absent in Volatile samples? If NO, list by QA#: _____ (YES) NO

20. Was the project manager called and status discussed? If YES, give details on the back of this form. YES NO

21. Who was called ? _____ By whom ? _____ (date) _____

(14+15) No sample w initials

⇒ Sample time discrepancy between btl labels + C-of-C

Used C-of-C.

PART C

QUALITY ASSURANCE TEST RESULTS

C1

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. 920620-H015

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2222

Source: Stratford Army Engine Plant (BR-1-0.5-2.5)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15209-001

Lab Notebook:	242, Pg. 88	Date Sampled:	06-17-92
Sample Weight:	5.0 (g)	Date Received:	06-23-92
Column(pack/cap):	PACK	Date Analyzed:	07-02-92
Percent Solids:	92	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	74-87-3	Chloromethane	10.9	U	
2.	74-83-9	Bromomethane	2.2	U	
3.	75-01-4	Vinyl Chloride	5.4	U	
4.	75-00-3	Chloroethane	5.4	U	
5.	75-09-2	Methylene Chloride	4.4	2.8	B,J
6.	67-64-1	Acetone	21.7	U	
7.	75-15-0	Carbon Disulfide	4.4	U	
8.	75-35-4	1,1-Dichloroethene	4.4	U	
9.	75-34-3	1,1-Dichloroethane	4.4	U	
10.	540-59-0	1,2-Dichloroethene (total)	4.4	U	
11.	67-66-3	Chloroform	4.4	U	
12.	107-06-2	1,2-Dichloroethane	4.4	U	
13.	78-93-3	2-Butanone	32.6	U	
14.	71-55-6	1,1,1-Trichloroethane	5.4	U	
15.	56-23-5	Carbon Tetrachloride	4.4	U	
16.	75-27-4	Bromodichloromethane	4.4	U	
17.	78-87-5	1,2-Dichloropropane	4.4	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.2	U	
19.	79-01-6	Trichloroethene	10.9	U	
20.	124-48-1	Dibromochloromethane	5.4	U	
21.	79-00-5	1,1,2-Trichloroethane	10.9	U	
22.	71-43-2	Benzene	5.4	U	
23.	10061-02-6	trans-1,3-Dichloropropene	2.2	U	
24.	75-25-2	Bromoform	10.9	U	
25.	108-10-1	4-Methyl-2-Pentanone	27.2	U	
26.	591-78-6	2-Hexanone	10.9	U	
27.	127-18-4	Tetrachloroethene	4.4	U	
28.	79-34-5	1,1,2,2-Tetrachloroethane	10.9	U	
29.	108-88-3	Toluene	4.4	U	
30.	108-90-7	Chlorobenzene	4.4	U	
31.	100-41-4	Ethyl Benzene	5.4	U	
32.	100-42-5	Styrene	4.4	U	
33.	1330-20-7	Xylene (total)	4.4	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
34.	1,2-Dichloroethane-d4	93	70-112	250
35.	Toluene-d8	105	84-138	250
36.	Bromofluorobenzene	86	59-113	250

U: Below Detection Limit

C2

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. 920620-H018

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2222

Source: Stratford Army Engine Plant (WC-8S-2.5-4.5)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15209-004

Lab Notebook: 242, Pg. 88 Date Sampled: 06-18-92
Sample Weight: 5.0 (g) Date Received: 06-23-92
Column(pack/cap): PACK Date Analyzed: 07-02-92
Percent Solids: 83 Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	74-87-3	Chloromethane	12.0	U	
2.	74-83-9	Bromomethane	2.4	U	
3.	75-01-4	Vinyl Chloride	6.0	U	
4.	75-00-3	Chloroethane	6.0	U	
5.	75-09-2	Methylene Chloride	4.8	5.2	B
6.	67-64-1	Acetone	24.1	U	
7.	75-15-0	Carbon Disulfide	4.8	U	
8.	75-35-4	1,1-Dichloroethene	4.8	U	
9.	75-34-3	1,1-Dichloroethane	4.8	U	
10.	540-59-0	1,2-Dichloroethene (total)	4.8	2.6	J
11.	67-66-3	Chloroform	4.8	U	
12.	107-06-2	1,2-Dichloroethane	4.8	U	
13.	78-93-3	2-Butanone	36.1	U	
14.	71-55-6	1,1,1-Trichloroethane	6.0	U	
15.	56-23-5	Carbon Tetrachloride	4.8	U	
16.	75-27-4	Bromodichloromethane	4.8	U	
17.	78-87-5	1,2-Dichloropropane	4.8	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.4	U	
19.	79-01-6	Trichloroethene	12.0	U	
20.	124-48-1	Dibromochloromethane	6.0	U	
21.	79-00-5	1,1,2-Trichloroethane	12.0	U	
22.	71-43-2	Benzene	6.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	2.4	U	
24.	75-25-2	Bromoform	12.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	30.1	U	
26.	591-78-6	2-Hexanone	12.0	U	
27.	127-18-4	Tetrachloroethene	4.8	U	
28.	79-34-5	1,1,2,2-Tetrachloroethane	12.0	U	
29.	108-88-3	Toluene	4.8	U	
30.	108-90-7	Chlorobenzene	4.8	U	
31.	100-41-4	Ethyl Benzene	6.0	U	
32.	100-42-5	Styrene	4.8	U	
33.	1330-20-7	Xylene (total)	4.8	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
34.	1,2-Dichloroethane-d4	89	70-112	250
35.	Toluene-d8	106	84-138	250
36.	Bromofluorobenzene	92	59-113	250

U: Below Detection Limit

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2222

Source: Stratford Army Engine Plant

Matrix: (soil/water) Method Blank EHRT Sample I.D.: N/A

Lab Notebook: 242, Pg. 88
Sample Weight: 5.0 (g)
Column(pack/cap): PACK
Percent Solids: 100

Date Sampled: N/A
Date Received: N/A
Date Analyzed: 07-02-92
Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	74-87-3	Chloromethane	10.0	U	
2.	74-83-9	Bromomethane	2.0	U	
3.	75-01-4	Vinyl Chloride	5.0	U	
4.	75-00-3	Chloroethane	5.0	U	
5.	75-09-2	Methylene Chloride	4.0	4.4	*
6.	67-64-1	Acetone	20.0	U	
7.	75-15-0	Carbon Disulfide	4.0	U	
8.	75-35-4	1,1-Dichloroethene	4.0	U	
9.	75-34-3	1,1-Dichloroethane	4.0	U	
10.	540-59-0	1,2-Dichloroethene (total)	4.0	U	
11.	67-66-3	Chloroform	4.0	U	
12.	107-06-2	1,2-Dichloroethane	4.0	U	
13.	78-93-3	2-Butanone	30.0	U	
14.	71-55-6	1,1,1-Trichloroethane	5.0	U	
15.	56-23-5	Carbon Tetrachloride	4.0	U	
16.	75-27-4	Bromodichloromethane	4.0	U	
17.	78-87-5	1,2-Dichloropropane	4.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.0	U	
19.	79-01-6	Trichloroethene	10.0	U	
20.	124-48-1	Dibromochloromethane	5.0	U	
21.	79-00-5	1,1,2-Trichloroethane	10.0	U	
22.	71-43-2	Benzene	5.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	2.0	U	
24.	75-25-2	Bromoform	10.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	25.0	U	
26.	591-78-6	2-Hexanone	10.0	U	
27.	127-18-4	Tetrachloroethene	4.0	U	
28.	79-34-5	1,1,2,2-Tetrachloroethane	10.0	U	
29.	108-88-3	Toluene	4.0	U	
30.	108-90-7	Chlorobenzene	4.0	U	
31.	100-41-4	Ethyl Benzene	5.0	U	
32.	100-42-5	Styrene	4.0	U	
33.	1330-20-7	Xylene (total)	4.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
34.	1,2-Dichloroethane-d4	92	70-112	250
35.	Toluene-d8	103	84-138	250
36.	Bromofluorobenzene	91	59-113	250

U: Below Detection Limit

* Lab Contamination

C4

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Environmental Health Research & Testing, Inc. EHRT Proj. No.: 15209

Contract: U.S. Army Corps of Engineers Work Order No.: 2222

Lab File ID (Standard): LCK02 Date Analyzed: 7/2/92

Instrument ID: 10276A10254 Time Analyzed: 9:48

GC Column: PACK ID: 2 (mm) Heated Purge: (Y/N) N

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	10156	9.84	40173	20.46	34490	25.39
	UPPER LIMIT	20312	10.34	80346	21.96	68980	26.89
	LOWER LIMIT	5078	9.34	20087	19.96	17245	24.89
	EPA SAMPLE NO.						
01	Soil Blank	6107	9.98	23636	20.44	18900	25.39
02	920620-H015	8716	9.71	33231	20.38	27372	25.31
03	920620-H018	8814	9.74	33850	20.38	27591	25.34
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

QUALITY CONTROL

C6

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Sample Source: Grissom AFB (GSB*513)

Customer Sample No.: 920613-H004 Work Order: 2200

EHRT Sample No.: 15152-003 Project No.: 15152

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS% REC #	QC LIMITS REC.
1,1-Dichloroethene	250	0.0	235	94	59-172
Trichloroethene	250	0.0	269	108	62-137
Benzene	250	0.0	245	98	66-142
Toluene	250	0.0	275	110	59-139
Chlorobenzene	250	0.0	289	116	60-133

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONC. (ug/kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	250	209	84	11	22	59-172
Trichloroethene	250	232	93	15	24	62-137
Benzene	250	209	84	15	21	66-142
Toluene	250	227	91	19	21	59-139
Chlorobenzene	250	240	94	19	21	60-133

Column to be used to flag recovery and RPD values with an asterick

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS:

3B

VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY
QUALITY CONTROL

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Customer Sample No.: N/A Work Order: 2200

EHRT Sample No.: N/A Project No.: 15152

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS% REC #	QC LIMITS REC.
1,1-Dichloroethene	250	0.0	188	75	59-172
Trichloroethene	250	0.0	217	87	62-137
Benzene	250	0.0	184	74	66-142
Toluene	250	0.0	201	80	59-139
Chlorobenzene	250	0.0	221	88	60-133

COMPOUND	SPIKED ADDED (ug/kg)	MSD CONC. (ug/kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	250	225	90	18	22	59-172
Trichloroethene	250	211	84	3	24	62-137
Benzene	250	173	69	7	21	66-142
Toluene	250	209	84	5	21	59-139
Chlorobenzene	250	214	86	2	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:

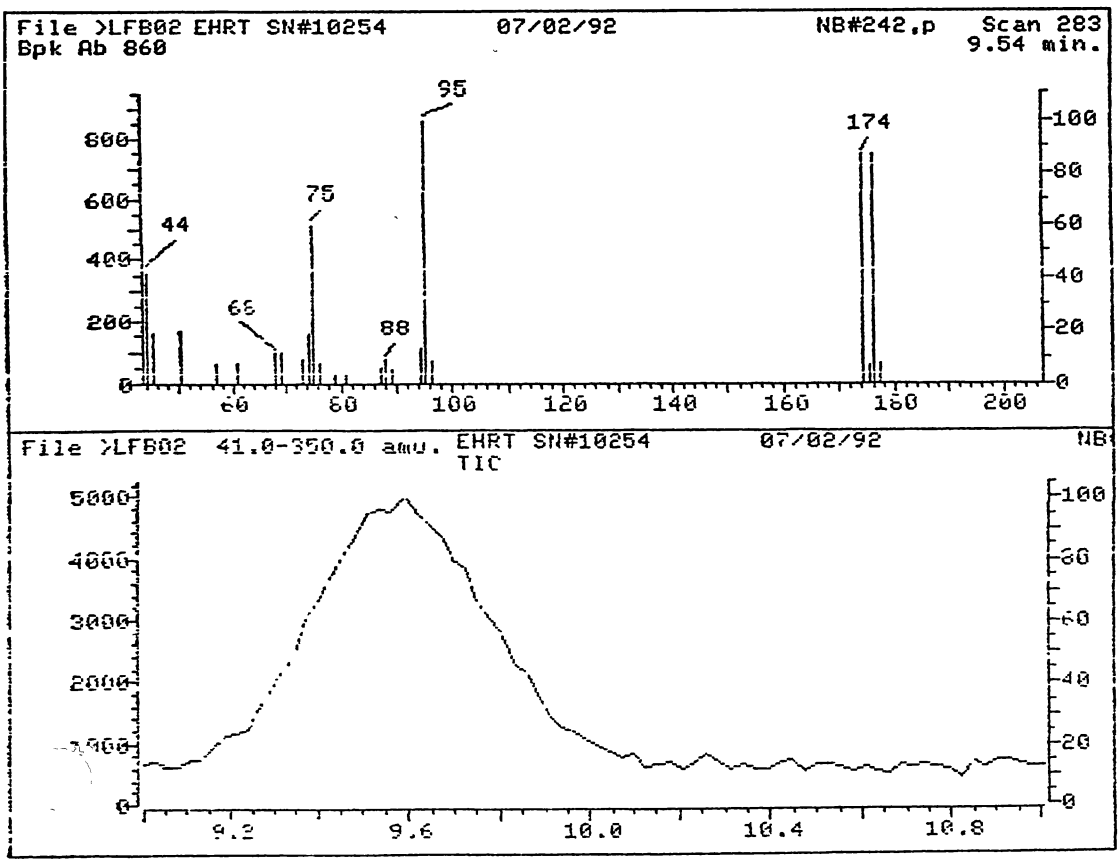
WON 2222 PNO 1341 38

GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	19.88	19.88	Ok
75	30-60% of mass 95	60.00	60.00	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	8.14	8.14	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	86.16	86.16	Ok
175	5-9% of mass 174	5.93	6.88	Ok
176	95-101% of mass 174	86.05	99.87	Ok
177	5-9% of mass 176	6.98	8.11	Ok

Injection Date: 07/02/92
Injection Time: 09:07
Data File: >LFB02
Scan: 283



Continuing Calibration Check
HSL Compounds

Case No: _____ Calibration Date: 07/02/92

Contractor: EHRT Time: 09:48

Contract No: Laboratory ID: >LCK02

Instrument ID: 10276A10254 Initial Calibration Date: 05/22/92

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Chloromethane	.81516	1.03968	27.54		**	
Dichlorodifluoromethane	1.75507	-	-			
Bromomethane	1.62873	1.97509	21.27			
Vinyl Chloride	1.28726	1.40735	9.33	*		
Chloroethane	.75864	.79106	4.27			
Ethanol	.07531	-	-			
Iodomethane	-	-	-			
Methylene Chloride	1.13144	1.62682	43.78			
Acrylonitrile	.18109	.22957	26.77			(Conc=100.00)
Acrolein	-	-	-			
Acetone	.26471	.46593	76.01			(Conc=50.00)
Carbon Disulfide	1.70298	2.29185	34.58			
Trichlorofluoromethane	3.14103	4.42212	40.79			
Ethyl methacrylate	-	-	-			
1,1-Dichloroethene	1.95411	2.38125	21.86	*		
1,1-Dichloroethane	2.09939	2.37603	13.18		**	
1,2-Dichloroethene	1.79900	2.38499	32.57			
Ethyl ether	.22930	-	-			
Trichlorotrifluoroethane	2.77110	-	-			
Chloroform	2.89749	3.52462	21.64	*		
1,2-Dichloroethane-d4	1.82171	2.27452	24.86			(Conc=25.00)
1,2-Dichloroethane	2.07352	3.00492	44.92			
Dibromomethane	.42706	.53944	26.31			
2-Butanone	.07464	.12419	66.38			(Conc=50.00)
1,1,1-Trichloroethane	.65622	.93227	42.07			
Ethyl Acetate	.13839	-	-			(Conc=100.00)
Carbon Tetrachloride	.60066	.79073	31.64			
Vinyl Acetate	.07931	.63214	697.03			(Conc=50.00)
1-Butanol	.00235	-	-			(Conc=3750.00)
Bromodichloromethane	.71223	.98743	38.64			
1,2-Dichloropropane	.31842	.39121	22.86	*		
cis-1,3-Dichloropropene	.48834	.72849	49.18			(Conc=81.00)

RF - Response Factor from daily standard file at 50.00 ug/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 (**)

Continuing Calibration Check
HSL Compounds

No: Calibration Date: 07/02/92

Contractor: EHRT Time: 09:48

Contract No: Laboratory ID: >LCK02

Instrument ID: 10276A10254 Initial Calibration Date: 05/22/92

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Trichloroethene	.44297	.50078	13.05			
Dibromochloromethane	.47287	.63610	34.52			
1,1,2-Trichloroethane	.34587	.42140	21.84			
Benzene	.80412	.96172	19.60			
trans-1,3-Dichloropropene	.23741	.75620	218.52			(Conc=19.00)
2-Chloroethylvinylether	.31842	.39121	22.86			
1,2-dibromoethane	.40980	-	-			(Conc=50.00)
Bromoform	.38489	.59513	54.62		**	(Conc=50.00)
4-Methyl-2-Pentanone	.17334	.20307	17.15			(Conc=50.00)
1,2,3 Trichloropropane	.70376	1.10661	57.24			
2-Hexanone	.06768	.03865	42.89			
Tetrachloroethene	.50807	.56190	10.60			
,2-Tetrachloroethane	.42116	.86709	105.88		**	
_,_ichloro_2_butane	-	-	-			
Toluene	1.19313	1.42665	19.57	*		
Toluene-d8	1.00848	1.08750	7.84			(Conc=25.00)
Chlorobenzene	.94781	1.05578	11.39		**	
Ethylbenzene	1.55252	1.94943	25.57	*		
1,2-Dibromo-3-Chloropropane	.09785	-	-			(Conc=800.00)
Bromofluorobenzene	.77490	.89516	15.52			(Conc=25.00)
Styrene	.87443	1.01015	15.52			
Xylene (total)	1.34962	1.59432	18.13			
1,3-Dichlorobenzene	1.22551	-	-			
1,2-Dichlorobenzene	1.29155	-	-			
1,4-Dichlorobenzene	1.02196	-	-			
m-Xylene	-	-	-			
p-Xylene	-	-	-			
1,2,4-Trimethylbenzene	-	-	-			
1,3,5-Trimethylbenzene	-	-	-			
p-Cymene	-	-	-			
Isopropyl Benzene	-	-	-			
Sec-Butyl Benzene	-	-	-			

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

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

% - % Difference from original average or curve

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

C11

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 07/02/92

Contractor: EHRT Time: 09:48

Contract No: Laboratory ID: >LCK02

Instrument ID: 10276A10254 Initial Calibration Date: 05/22/92

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
p-Chlorotoluene	-	-	-			
T-Butylbenzene	-	-	-			
n-Propylbenzene	-	-	-			
n-Butylbenzene	-	-	-			
Hexachlorobutadiene	.41910	-	-			(Conc=100.00)

RF - Response Factor from daily standard file at 50.0 ug 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 (**)

C12

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. 920625-H019

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2236

Source: Stratford Army Engine Plant (WC-2D-2.5-4.5)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15223-001

Lab Notebook:	242, Pg. 91	Date Sampled:	06-23-92
Sample Weight:	1.0 (g)	Date Received:	06-26-92
Column(pack/cap):	PACK	Date Analyzed:	07-06-92
Percent Solids:	94	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	74-87-3	Chloromethane	53.2	U	
2.	74-83-9	Bromomethane	10.6	U	
3.	75-01-4	Vinyl Chloride	26.6	U	
4.	75-00-3	Chloroethane	26.6	U	
5.	75-09-2	Methylene Chloride	21.3	U	
6.	67-64-1	Acetone	106	U	
7.	75-15-0	Carbon Disulfide	21.3	U	
8.	75-35-4	1,1-Dichloroethene	21.3	U	
9.	75-34-3	1,1-Dichloroethane	21.3	U	
10.	540-59-0	1,2-Dichloroethene (total)	21.3	14.6	J
11.	67-66-3	Chloroform	21.3	U	
12.	107-06-2	1,2-Dichloroethane	21.3	U	
13.	78-93-3	2-Butanone	160	U	
14.	71-55-6	1,1,1-Trichloroethane	26.6	U	
15.	56-23-5	Carbon Tetrachloride	21.3	U	
16.	75-27-4	Bromodichloromethane	21.3	U	
17.	78-87-5	1,2-Dichloropropane	21.3	U	
18.	10061-01-5	cis-1,3-Dichloropropene	10.6	U	
19.	79-01-6	Trichloroethene	53.2	19.1	J
20.	124-48-1	Dibromochloromethane	26.6	U	
21.	79-00-5	1,1,2-Trichloroethane	53.2	U	
22.	71-43-2	Benzene	26.6	U	
23.	10061-02-6	trans-1,3-Dichloropropene	10.6	U	
24.	75-25-2	Bromoform	53.2	U	
25.	108-10-1	4-Methyl-2-Pentanone	133	U	
26.	591-78-6	2-Hexanone	53.2	U	
27.	127-18-4	Tetrachloroethene	21.3	U	
28.	79-34-5	1,1,2,2-Tetrachloroethane	53.2	U	
29.	108-88-3	Toluene	21.3	U	
30.	108-90-7	Chlorobenzene	21.3	U	
31.	100-41-4	Ethyl Benzene	26.6	U	
32.	100-42-5	Styrene	21.3	U	
33.	1330-20-7	Xylene (total)	21.3	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
34.	1,2-Dichloroethane-d4	98	70-112	250
35.	Toluene-d8	109	84-138	250
36.	Bromofluorobenzene	84	59-113	250

U: Below Detection Limit

C13

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
(EPA Method 8240)

SAMPLE NO.
920625-H019

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2236

Source: Stratford Army Engine Plant (WC-2D-2.5-4.5)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15223-001

Lab Notebook: 242, Pg. 91 Date Sampled: 06-23-92
Sample Weight: 1.0 (g) Date Received: 06-26-92
Column(pack/cap): PACK Date Analyzed: 07-06-92
Percent Solids: 94 Dilution Factor: 1

	CAS NO.	COMPOUND NAME	RT/Scan #	EST. CONC. (ug/kg)
1.	110827	Cyclohexane (Dot	14.58	65.0
2.	96377	Cyclopentane, methyl	15.44	55.0
3.		C4 H6O	19.38	45.0
4.		C7 H14	20.16	170
5.	1640897	Cyclopentane, ethyl	21.04	45.0
6.	565593	Pentane, 2,3-dimethyl	21.29	80.0
7.	123751	Pyrrolidine	21.66	50.0
8.		C8 H16	22.52	750
9.		C6 H13 BR	23.05	145
10.		C12 H26	23.81	700
11.		C7 H12	24.66	80.0
12.	6876239	Cyclohexane, 1,2-dimethyl - trans	26.54	405
13.	3073663	Cyclohex, 1,1,3-trimethyl	27.16	1,500
14.		C9 H18	28.15	430
15.		C9 H18	28.88	450
16.		C9 H18	32.33	1700
17.				
18.				
19.				
20.				

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2236

Source: Stratford Army Engine Plant

Matrix: (soil/water) Soil Blank EHRT Sample I.D.: N/A

Lab Notebook:	242, Pg. 91	Date Sampled:	N/A
Sample Weight:	5.0 (g)	Date Received:	N/A
Column(pack/cap):	PACK	Date Analyzed:	07-06-92
Percent Solids:	100	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	74-87-3	Chloromethane	10.0	U	
2.	74-83-9	Bromomethane	2.0	U	
3.	75-01-4	Vinyl Chloride	5.0	U	
4.	75-00-3	Chloroethane	5.0	U	
5.	75-09-2	Methylene Chloride	4.0	2.0	J*
6.	67-64-1	Acetone	20.0	U	
7.	75-15-0	Carbon Disulfide	4.0	U	
8.	75-35-4	1,1-Dichloroethene	4.0	U	
9.	75-34-3	1,1-Dichloroethane	4.0	U	
10.	540-59-0	1,2-Dichloroethene (total)	4.0	U	
11.	67-66-3	Chloroform	4.0	U	
12.	107-06-2	1,2-Dichloroethane	4.0	U	
13.	78-93-3	2-Butanone	30.0	U	
14.	71-55-6	1,1,1-Trichloroethane	5.0	U	
15.	56-23-5	Carbon Tetrachloride	4.0	U	
16.	75-27-4	Bromodichloromethane	4.0	U	
17.	78-87-5	1,2-Dichloropropane	4.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.0	U	
19.	79-01-6	Trichloroethene	10.0	U	
20.	124-48-1	Dibromochloromethane	5.0	U	
21.	79-00-5	1,1,2-Trichloroethane	10.0	U	
22.	71-43-2	Benzene	5.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	2.0	U	
24.	75-25-2	Bromoform	10.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	25.0	U	
26.	591-78-6	2-Hexanone	10.0	U	
27.	127-18-4	Tetrachloroethene	4.0	U	
28.	79-34-5	1,1,2,2-Tetrachloroethane	10.0	U	
29.	108-88-3	Toluene	4.0	U	
30.	108-90-7	Chlorobenzene	4.0	U	
31.	100-41-4	Ethyl Benzene	5.0	U	
32.	100-42-5	Styrene	4.0	U	
33.	1330-20-7	Xylene (total)	4.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
34.	1,2-Dichloroethane-d4	100	70-112	250
35.	Toluene-d8	105	84-138	250
36.	Bromofluorobenzene	96	59-113	250

U: Below Detection Limit

* Lab Contamination

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Environmental Health Research & Testing, Inc. EHRT Proj. No.: 15223

Contract: U.S. Army Corps of Engineers Work Order No.: 2236

Lab File ID (Standard): LCK06 Date Analyzed: 7/6/92

Instrument ID: 10276A10254 Time Analyzed: 8:51

GC Column: PACK ID: 2 (mm) Heated Purge: (Y/N) _____

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	16512	10.06	64282	20.62	55296	25.58
	UPPER LIMIT	33024	10.56	128564	21.12	110592	26.08
	LOWER LIMIT	8256	9.56	32141	20.12	27648	25.08
	EPA SAMPLE NO.						
01	Soil Blank	9828	9.94	41335	20.55	33892	25.49
02	920625-H019	9581	9.87	34828	20.56	28361	25.50
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

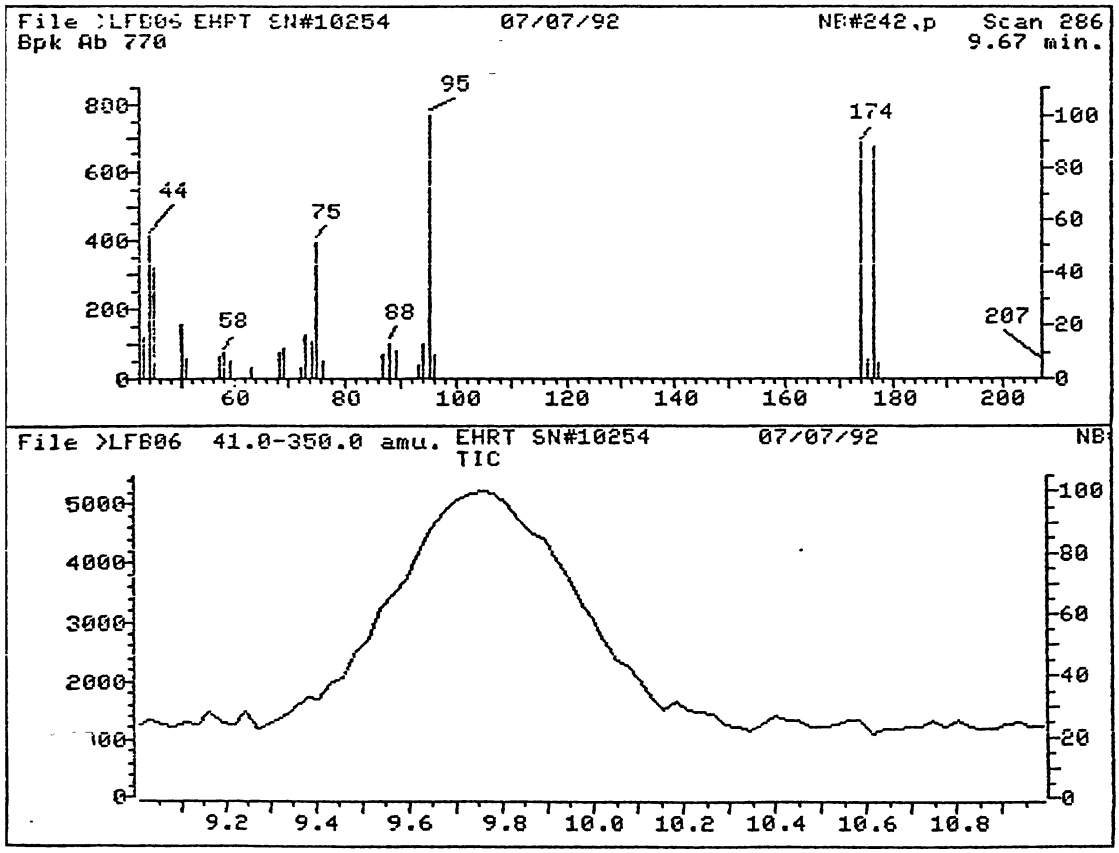
Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	20.13	20.13	Ok
75	30-60% of mass 95	51.04	51.04	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	8.96	8.96	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	88.70	88.70	Ok
175	5-9% of mass 174	6.75	7.61	Ok
176	95-101% of mass 174	86.88	97.95	Ok
177	5-9% of mass 176	5.71	6.58	Ok

Injection Date: 07/06/92
Injection Time: 08:25
Data File: >LFB06
Scan: 286



C17

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 07/06/92

Contractor: EHRT Time: 08:51

Contract No: Laboratory ID: >LCK06

Instrument ID: 10276A10254 Initial Calibration Date: 05/22/92

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Chloromethane	.81516	1.14250	40.16		**	
Dichlorodifluoromethane	1.75507	-	-			
Bromomethane	1.62873	2.44889	50.36			
Vinyl Chloride	1.28726	1.58242	22.93	*		
Chloroethane	.75864	1.15916	52.79			
Ethanol	.07531	-	-			
Iodomethane	-	-	-			
Methylene Chloride	1.13144	1.41915	25.43			
Acrylonitrile	.18109	.19307	6.62			(Conc=100.00)
Acrolein	-	-	-			
Acetone	.26471	.86894	228.26			(Conc=50.00)
Carbon Disulfide	1.70298	2.23444	31.21			
Trichlorofluoromethane	3.14103	3.45633	10.04			
Ethyl methacrylate	-	-	-			
1,1-Dichloroethene	1.95411	1.90692	2.41	*		
1,1-Dichloroethane	2.09939	1.99322	5.06		**	
1,2-Dichloroethene	1.79900	2.04306	13.57			
Ethyl ether	.22930	-	-			
Trichlorotrifluoroethane	2.77110	-	-			
Chloroform	2.89749	3.06874	5.91	*		
1,2-Dichloroethane-d4	1.82171	2.03161	11.52			(Conc=25.00)
1,2-Dichloroethane	2.07352	2.29942	10.89			
Dibromomethane	.42706	.44132	3.34			
2-Butanone	.07464	.15088	102.14			(Conc=50.00)
1,1,1-Trichloroethane	.65622	.80262	22.31			
Ethyl Acetate	.13839	-	-			(Conc=100.00)
Carbon Tetrachloride	.60066	.10096	83.19			
Vinyl Acetate	.07931	.51910	554.51			(Conc=50.00)
1-Butanol	.00235	.00160	31.91			(Conc=3750.00)
Bromodichloromethane	.71223	.82818	16.28			
1,2-Dichloropropane	.31842	.33313	4.62	*		
cis-1,3-Dichloropropene	.48834	.64280	31.63			(Conc=81.00)

RF - Response Factor from daily standard file at 50.00 ug/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 (**)

Continuing Calibration Check
HSL Compounds

___ No: _____ Calibration Date: 07/06/92 _____

Contractor: EHRT _____ Time: 08:51 _____

Contract No: _____ Laboratory ID: >LCK06 _____

Instrument ID: 10276A10254 _____ Initial Calibration Date: 05/22/92 _____

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Trichloroethene	.44297	.43669	1.42			
Dibromochloromethane	.47287	.54877	16.05			
1,1,2-Trichloroethane	.34587	.35659	3.10			
Benzene	.80412	.84630	5.25			
trans-1,3-Dichloropropene	.23741	.66266	179.12			(Conc=19.00)
2-Chloroethylvinylether	.31842	.33313	4.62			
1,2-dibromoethane	.40980	-	-			(Conc=50.00)
Bromoform	.38489	.53909	40.07		**	(Conc=50.00)
4-Methyl-2-Pentanone	.17334	.21311	22.94			(Conc=50.00)
1,2,3 Trichloropropane	.70376	.86135	22.39			
2-Hexanone	.06768	.05085	24.86			
achloroethene	.50807	.48459	4.62			
2,2-Tetrachloroethane	.42116	.67254	59.69		**	
1,4_Dichloro_2_butane	-	-	-			
Toluene	1.19313	1.24873	4.66	*		
Toluene-d8	1.00848	1.08485	7.57			(Conc=25.00)
Chlorobenzene	.94781	.89724	5.34		**	
Ethylbenzene	1.55252	1.65542	6.63	*		
1,2-Dibromo-3-Chloropropane	.09785	-	-			(Conc=800.00)
Bromofluorobenzene	.77490	.87247	12.59			(Conc=25.00)
Styrene	.87443	.85091	2.69			
Xylene (total)	1.34962	1.33004	1.45			
1,3-Dichlorobenzene	1.22551	-	-			
1,2-Dichlorobenzene	1.29155	-	-			
1,4-Dichlorobenzene	1.02196	-	-			
m-Xylene	-	-	-			
p-Xylene	-	-	-			
1,2,4-Trimethylbenzene	-	-	-			
1,3,5-Trimethylbenzene	-	-	-			
p-Cymene	-	-	-			
Isopropryl Benzene	-	-	-			
Sec-Butyl Benzene	-	-	-			

RF - Response Factor from daily standard file at 50.00 ug/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 (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 07/06/92

Contractor: EHRT Time: 08:51

Contract No: Laboratory ID: >LCK06

Instrument ID: 10276A10254 Initial Calibration Date: 05/22/92

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
p-Chlorotoluene	-	-	-			
T-Butylbenzene	-	-	-			
n-Propylbenzene	-	-	-			
n-Butylbenzene	-	-	-			
Hexachlorobutadiene	.41910	-	-			(Conc=100.00)

RF - Response Factor from daily standard file at 50.00 ug/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 (**)

C20

QUALITY CONTROL

ORGANICS

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Sample Source: Grissom AFB (GSB*513)

Customer Sample No.: 920613-H004 Work Order: 2200

EHRT Sample No.: 15152-003 Project No.: 15152

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS% REC #	QC LIMITS REC.
1,1-Dichloroethene	250	0.0	235	94	59-172
Trichloroethene	250	0.0	269	108	62-137
Benzene	250	0.0	245	98	66-142
Toluene	250	0.0	275	110	59-139
Chlorobenzene	250	0.0	289	116	60-133

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONC. (ug/kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	250	209	84	11	22	59-172
Trichloroethene	250	232	93	15	24	62-137
Benzene	250	209	84	15	21	66-142
Toluene	250	227	91	19	21	59-139
Chlorobenzene	250	240	94	19	21	60-133

Column to be used to flag recovery and RPD values with an asterick

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS:

C22

3B

VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY
QUALITY CONTROL

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Customer Sample No.: N/A Work Order: 2200

EHRT Sample No.: N/A Project No.: 15152

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS% REC #	QC LIMITS REC.
1,1-Dichloroethene	250	0.0	188	75	59-172
Trichloroethene	250	0.0	217	87	62-137
Benzene	250	0.0	184	74	66-142
Toluene	250	0.0	201	80	59-139
Chlorobenzene	250	0.0	221	88	60-133

COMPOUND	SPIKED ADDED (ug/kg)	MSD CONC. (ug/kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1-Dichloroethene	250	225	90	18	22	59-172
Trichloroethene	250	211	84	3	24	62-137
Benzene	250	173	69	7	21	66-142
Toluene	250	209	84	5	21	59-139
Chlorobenzene	250	214	86	2	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:

C23

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. 920730-H016

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant (WC-3S)

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15367-001

Lab Notebook:	253, Pg. 38	Date Sampled:	07-29-92
Sample Volume:	5.0 (mL)	Date Received:	07-31-92
Column(pack/cap):	CAP	Date Analyzed:	08-04-92
Percent Solids:	N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	74-87-3	Chloromethane	5.0	U	
2.	74-83-9	Bromomethane	7.0	U	
3.	75-01-4	Vinyl Chloride	5.0	U	
4.	75-00-3	Chloroethane	3.0	93.6	
5.	75-09-2	Methylene Chloride	3.0	13.7	B
6.	67-64-1	Acetone	3.0	U	
7.	75-15-0	Carbon Disulfide	4.0	U	
8.	75-35-4	1,1-Dichloroethene	4.0	U	
9.	75-34-3	1,1-Dichloroethane	2.0	20.5	
10.	540-59-0	1,2-Dichloroethene (total)	2.0	U	— see TIC
11.	67-66-3	Chloroform	1.0	33.1	
12.	107-06-2	1,2-Dichloroethane	1.0	U	
13.	78-93-3	2-Butanone	3.0	U	
14.	71-55-6	1,1,1-Trichloroethane	3.0	17.1	
15.	56-23-5	Carbon Tetrachloride	2.0	U	
16.	75-27-4	Bromodichloromethane	2.0	U	
17.	78-87-5	1,2-Dichloropropane	2.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.0	U	
19.	79-01-6	Trichloroethene	2.0	17.2	
20.	124-48-1	Dibromochloromethane	2.0	U	
21.	79-00-5	1,1,2-Trichloroethane	2.0	U	
22.	71-43-2	Benzene	2.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	1.0	U	
24.	75-25-2	Bromoform	3.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	2.0	U	
26.	591-78-6	2-Hexanone	2.0	U	
27.	127-18-4	Tetrachloroethene	1.0	U	
28.	79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	
29.	108-88-3	Toluene	2.0	U	
30.	108-90-7	Chlorobenzene	1.0	U	
31.	100-41-4	Ethyl Benzene	1.0	U	
32.	100-42-5	Styrene	2.0	U	
33.	1330-20-7	Xylene (total)	1.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
34.	1,2-Dichloroethane-d4	111	76-114	25
35.	Toluene-d8	94	88-110	25
36.	Bromofluorobenzene	101	86-115	25

U: Below Detection Limit

C24

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
(EPA Method 8240)

SAMPLE NO.
920730-H016

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant (WC-3S)

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15367-001

Lab Notebook: 253, Pg. 38
Sample Volume: 5.0 (mL)
Column(pack/cap): CAP
Percent Solids: N/A

Date Sampled: 07-29-92
Date Received: 07-31-92
Date Analyzed: 08-04-92
Dilution Factor: 1

	CAS NO.	COMPOUND NAME	RT/Scan #	EST. CONC. (ug/L)
1.	156605	Ethene, 1,2-dichloro-, (e) -	5.65	19.0
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. 920730-H021

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant (TB072992)

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15367-005

Lab Notebook:	253, Pg. 38	Date Sampled:	07-29-92
Sample Volume:	5.0 (mL)	Date Received:	07-31-92
Column(pack/cap):	CAP	Date Analyzed:	08-04-92
Percent Solids:	N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	74-87-3	Chloromethane	5.0	U	
2.	74-83-9	Bromomethane	7.0	U	
3.	75-01-4	Vinyl Chloride	5.0	U	
4.	75-00-3	Chloroethane	3.0	U	
5.	75-09-2	Methylene Chloride	3.0	6.6	B
6.	67-64-1	Acetone	3.0	U	
7.	75-15-0	Carbon Disulfide	4.0	U	
8.	75-35-4	1,1-Dichloroethene	4.0	U	
9.	75-34-3	1,1-Dichloroethane	2.0	U	
10.	540-59-0	1,2-Dichloroethene (total)	2.0	U	
11.	67-66-3	Chloroform	1.0	U	
12.	107-06-2	1,2-Dichloroethane	1.0	U	
13.	78-93-3	2-Butanone	3.0	U	
14.	71-55-6	1,1,1-Trichloroethane	3.0	U	
15.	56-23-5	Carbon Tetrachloride	2.0	U	
16.	75-27-4	Bromodichloromethane	2.0	U	
17.	78-87-5	1,2-Dichloropropane	2.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.0	U	
19.	79-01-6	Trichloroethene	2.0	U	
20.	124-48-1	Dibromochloromethane	2.0	U	
21.	79-00-5	1,1,2-Trichloroethane	2.0	U	
22.	71-43-2	Benzene	2.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	1.0	U	
24.	75-25-2	Bromoform	3.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	2.0	U	
26.	591-78-6	2-Hexanone	2.0	U	
27.	127-18-4	Tetrachloroethene	1.0	U	
28.	79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	
29.	108-88-3	Toluene	2.0	U	
30.	108-90-7	Chlorobenzene	1.0	U	
31.	100-41-4	Ethyl Benzene	1.0	U	
32.	100-42-5	Styrene	2.0	U	
33.	1330-20-7	Xylene (total)	1.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
34.	1,2-Dichloroethane-d4	119	76-114	25
35.	Toluene-d8	96	88-110	25
36.	Bromofluorobenzene	100	86-115	25

U: Below Detection Limit

C26

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. 920730-H022

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant (WC-8S)

Matrix: (soil/water) Water w/Seds Sample EHRT Sample I.D.: 15367-006

Lab Notebook: 253, Pg. 38 Date Sampled: 07-29-92
Sample Volume: 5.0 (mL) Date Received: 07-31-92
Column(pack/cap): CAP Date Analyzed: 08-04-92
Percent Solids: N/A Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	74-87-3	Chloromethane	5.0	11.3	
2.	74-83-9	Bromomethane	7.0	U	
3.	75-01-4	Vinyl Chloride	5.0	37.8	
4.	75-00-3	Chloroethane	3.0	461 *	
5.	75-09-2	Methylene Chloride	3.0	15.1	B
6.	67-64-1	Acetone	3.0	8.2	
7.	75-15-0	Carbon Disulfide	4.0	U	
8.	75-35-4	1,1-Dichloroethene	4.0	28.9	
9.	75-34-3	1,1-Dichloroethane	2.0	950 *	
10.	540-59-0	1,2-Dichloroethene (total)	2.0	5.2	
11.	67-66-3	Chloroform	1.0	U	
12.	107-06-2	1,2-Dichloroethane	1.0	4.3	
13.	78-93-3	2-Butanone	3.0	U	
14.	71-55-6	1,1,1-Trichloroethane	3.0	11.3	
15.	56-23-5	Carbon Tetrachloride	2.0	U	
16.	75-27-4	Bromodichloromethane	2.0	U	
17.	78-87-5	1,2-Dichloropropane	2.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.0	U	
19.	79-01-6	Trichloroethene	2.0	19.0	
20.	124-48-1	Dibromochloromethane	2.0	U	
21.	79-00-5	1,1,2-Trichloroethane	2.0	U	
22.	71-43-2	Benzene	2.0	3.1	
23.	10061-02-6	trans-1,3-Dichloropropene	1.0	U	
24.	75-25-2	Bromoform	3.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	2.0	3.1	
26.	591-78-6	2-Hexanone	2.0	U	
27.	127-18-4	Tetrachloroethene	1.0	U	
28.	79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	
29.	108-88-3	Toluene	2.0	U	
30.	108-90-7	Chlorobenzene	1.0	U	
31.	100-41-4	Ethyl Benzene	1.0	U	
32.	100-42-5	Styrene	2.0	U	
33.	1330-20-7	Xylene (total)	1.0	U	

SEE TIC

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
34.	1,2-Dichloroethane-d4	116	76-114	25
35.	Toluene-d8	98	88-110	25
36.	Bromofluorobenzene	106	86-115	25

U: Below Detection Limit

* 1:5 dilution for these compounds.

C27

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
(EPA Method 8240)

SAMPLE NO.
920730-H022

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant (WC-8S)

Matrix: (soil/water) Water w/Seds Sample EHRT Sample I.D.: 15367-006

Lab Notebook:	253, Pg. 38	Date Sampled:	07-29-92
Sample Volume:	5.0 (mL)	Date Received:	07-31-92
Column(pack/cap):	CAP	Date Analyzed:	08-04-92
Percent Solids:	N/A	Dilution Factor:	1

	CAS NO.	COMPOUND NAME	RT/Scan #	EST. CONC. (ug/L)
1.	354234	Ethane, 1,2-dichloro-1, 1,2-trifluoro	3.04	18.0
2.	156605	Ethene, 1,2-dichloro (E)	5.58	39.0
3.		C4 H8 Cl2	15.38	15.0
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

C28

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant

Matrix: (soil/water) Water Blank EHRT Sample I.D.: N/A

Lab Notebook: 253, Pg. 38 Date Sampled: N/A
Sample Volume: 5.0 (mL) Date Received: N/A
Column(pack/cap): CAP Date Analyzed: 08-04-92
Percent Solids: N/A Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	74-87-3	Chloromethane	5.0	U	
2.	74-83-9	Bromomethane	7.0	U	
3.	75-01-4	Vinyl Chloride	5.0	U	
4.	75-00-3	Chloroethane	3.0	U	
5.	75-09-2	Methylene Chloride	3.0	4.7	*
6.	67-64-1	Acetone	3.0	U	
7.	75-15-0	Carbon Disulfide	4.0	U	
8.	75-35-4	1,1-Dichloroethene	4.0	U	
9.	75-34-3	1,1-Dichloroethane	2.0	U	
10.	540-59-0	1,2-Dichloroethene (total)	2.0	U	
11.	67-66-3	Chloroform	1.0	U	
12.	107-06-2	1,2-Dichloroethane	1.0	U	
13.	78-93-3	2-Butanone	3.0	U	
14.	71-55-6	1,1,1-Trichloroethane	3.0	U	
15.	56-23-5	Carbon Tetrachloride	2.0	U	
16.	75-27-4	Bromodichloromethane	2.0	U	
17.	78-87-5	1,2-Dichloropropane	2.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.0	U	
19.	79-01-6	Trichloroethene	2.0	U	
20.	124-48-1	Dibromochloromethane	2.0	U	
21.	79-00-5	1,1,2-Trichloroethane	2.0	U	
22.	71-43-2	Benzene	2.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	1.0	U	
24.	75-25-2	Bromoform	3.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	2.0	U	
26.	591-78-6	2-Hexanone	2.0	U	
27.	127-18-4	Tetrachloroethene	1.0	U	
28.	79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	
29.	108-88-3	Toluene	2.0	U	
30.	108-90-7	Chlorobenzene	1.0	U	
31.	100-41-4	Ethyl Benzene	1.0	U	
32.	100-42-5	Styrene	2.0	U	
33.	1330-20-7	Xylene (total)	1.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
34.	1,2-Dichloroethane-d4	99	76-114	25
35.	Toluene-d8	100	88-110	25
36.	Bromofluorobenzene	99	86-115	25

U: Below Detection Limit

* Lab Contamination

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Environmental Health Research & Testing, Inc. EHRT Proj. No.: 15367

Contract: U.S. Army Corps of Engineers Work Order No.: 2310

Lab File ID (Standard): NCK04 Date Analyzed: 8/4/92

Instrument ID: 2716A10255 Time Analyzed: 17:16

GC Column: CAP ID: 0.25 (m) Heated Purge: (Y/N) N

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	7741	6.02	38445	7.66	32511	15.79
	UPPER LIMIT	15482	6.52	76890	8.16	65022	16.29
	LOWER LIMIT	3871	5.52	19223	7.16	16256	15.29
	EPA SAMPLE NO.						
01	Water Blank	11638	6.01	56943	7.67	50520	15.80
02	920730-H016	9015	5.99	43838	7.64	39484	15.78
03	920730-H021	11996	6.00	57154	7.66	52435	15.78
04	920730-H022	11657	5.93	56189	7.62	52593	15.77
05							
06							
07							
08							
09							
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11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

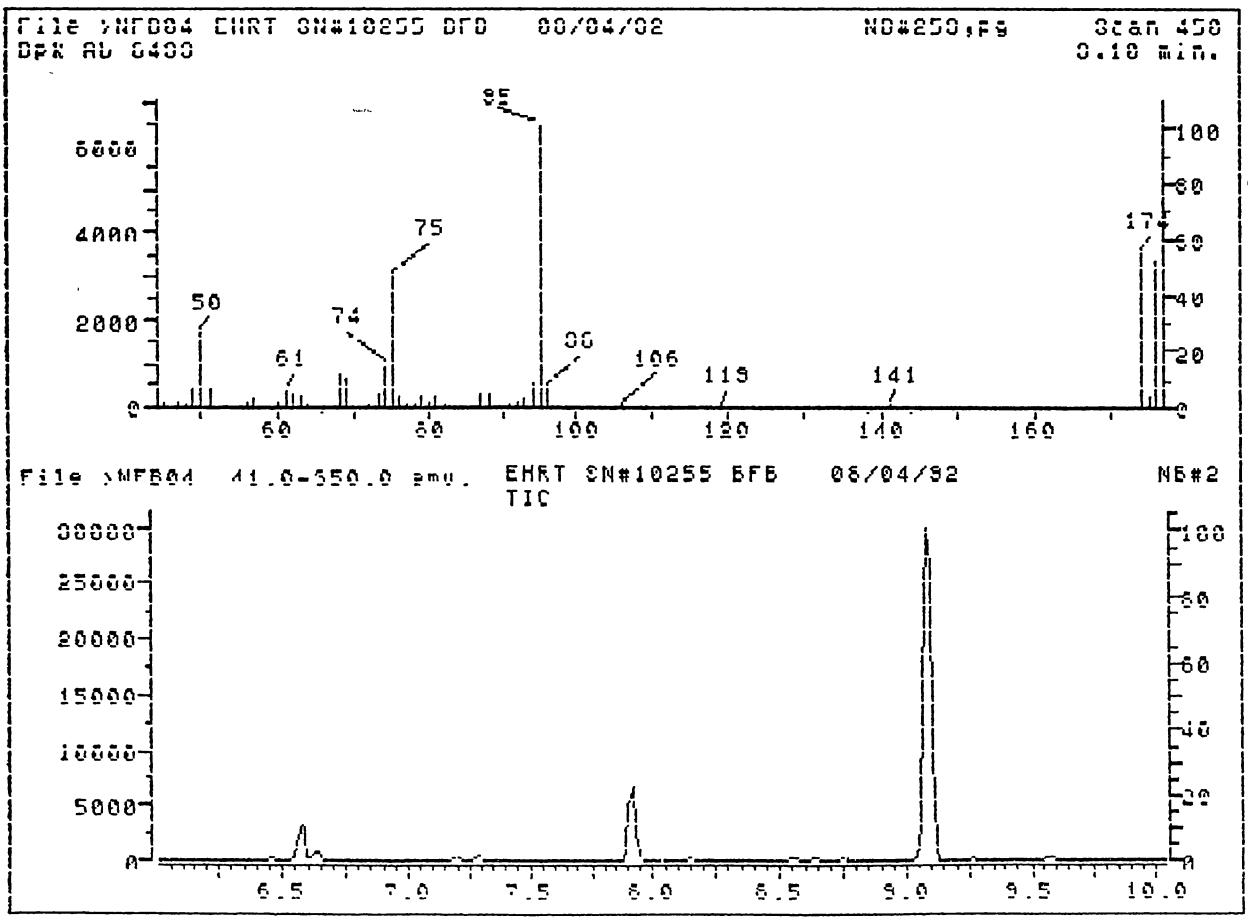
Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	26.29	26.29	Ok
75	30-60% of mass 95	46.71	46.71	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.26	6.26	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	55.03	55.03	Ok
175	5-9% of mass 174	3.54	6.44	Ok
176	95-101% of mass 174	52.62	95.62	Ok
177	5-9% of mass 176	3.67	6.97	Ok

Injection Date: 08/04/92
Injection Time: 16:24
Data File: >NFB04
Scan: 450



Continuing Calibration Check
HSL Compounds

Case No: _____ Calibration Date: 08/04/92

Contractor: EHRT Time: 17:16

Contract No: 1201 Laboratory ID: >NCK04

Instrument ID: SN#2716A10255 Initial Calibration Date: 08/03/92

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Chloromethane	.68485	1.19610	74.65		**	
Dichlorodifluoromethane	-	-	-			
Bromomethane	.09571	.16316	70.47			
Vinyl Chloride	1.70832	1.74551	2.18	*		
Chloroethane	.13014	.17685	35.89			
Ethanol	-	-	-			
Iodomethane	-	-	-			
Methylene Chloride	3.97018	7.69384	93.79			
Acrylonitrile	1.22503	1.72097	40.48			(Conc=50.00)
Acrolein	-	-	-			
Acetone	1.25725	1.32451	5.35			
Carbon Disulfide	4.63055	4.95285	6.96			
Trichlorofluoromethane	.22615	.26947	19.16			
Ethyl methacrylate	-	-	-			
Propanenitrile	-	-	-			
Allyl Chloride	-	-	-			
1,1-Dichloroethene	2.64627	3.19209	20.63	*		
Acetonitrile	-	-	-			
1,1-Dichloroethane	3.46067	3.64152	5.23		**	
1,2-Dichloroethene	2.75596	3.28058	19.04			
Ethyl ether	-	-	-			
Chloroform	3.42302	3.54218	3.48	*		
Trichlorotrifluoroethane	-	-	-			
1,2-Dichloroethane-d4	2.89385	2.72549	5.82			(Conc=25.00)
1,2-Dichloroethane	3.17672	3.44180	8.34			
Methacrylonitrile	-	-	-			
Dibromomethane	.33922	.33965	.13			
2-Butanone	.35812	.38897	8.62			
1,1,1-Trichloroethane	.46848	.53911	15.08			
1,4_Dioxane	-	-	-			
Ethyl Acetate	.02160	-	-			
Carbon Tetrachloride	.38676	.41691	7.80			

RF - Response Factor from daily standard file at 50.00 UG/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 (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 08/04/92

Contractor: EHRT Time: 17:16

Contract No: 1201 Laboratory ID: >NCK04

Instrument ID: SN#2716A10255 Initial Calibration Date: 08/03/92

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Vinyl Acetate	.94719	.68155	28.05			(Conc=50.00)
Bromodichloromethane	.58168	.60533	4.07			
1-Butanol	-	-	-			
Chloroprene	-	-	-			
1,2-Dichloropropane	.46884	.47975	2.33	*		
cis-1,3-Dichloropropene	.69138	.67947	1.72			(Conc=81.00)
Trichloroethene	.35855	.37152	3.62			
Dibromochloromethane	.31947	.31388	1.75			
1,1,2-Trichloroethane	.32351	.32987	1.97			
Benzene	1.15941	1.34171	15.72			
trans-1,3-Dichloropropene	.61354	.70668	15.18			(Conc=19.00)
2-Chloroethylvinylether	.46884	.47975	2.33			
Bromoform	.29377	.30168	2.69		**	
4-Methyl-2-Pentanone	.78531	.65257	16.90			
1,2,3 Trichloropropane	.46259	.85725	85.32			
2-Hexanone	.52719	.54120	2.66			
Tetrachloroethene	.27551	.30257	9.82			
1,1,2,2-Tetrachloroethane	.55171	.56313	2.07		**	
1,4_Dichloro_2_butane	-	-	-			
Toluene	1.39498	1.61936	16.09	*		
Toluene-d8	1.39836	1.39614	.16			(Conc=25.00)
Chlorobenzene	.93450	1.00406	7.44		**	
Ethylbenzene	1.66594	1.95275	17.22	*		
Bromofluorobenzene	.74570	.74239	.44			(Conc=25.00)
Styrene	.94747	1.11974	18.18			
Xylene (total)	1.38928	1.55458	11.90			
1,3-Dichlorobenzene	.81352	-	-			(Conc=20.00)
1,2-Dichlorobenzene	.84038	-	-			(Conc=20.00)
1,4-Dichlorobenzene	.86135	-	-			(Conc=20.00)
1,2,4 Trichlorobenzene	-	-	-			

RF - Response Factor from daily standard file at 50.00 UG/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 (**)

C33

BATCH SPECIFIC

QUALITY CONTROL

ORGANICS

for

STRATFORD ARMY ENGINE PLANT

QUALITY CONTROL
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: [redacted]

EHRT Sample No.: N/A Customer Sample No.: N/A

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS% REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0.0	59.3	119	61-145
Trichloroethene	50.0	0.0	56.0	112	71-120
Benzene	50.0	0.0	44.6	89	76-127
Toluene	50.0	0.0	44.7	89	76-125
Chlorobenzene	50.0	0.0	51.1	102	75-130

Column to be used to flag recovery values with an asterisk

Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS:

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: [redacted]

EHRT Sample No.: 15388-001 Customer Sample No.: 8/5/92

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS% REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0.0	61.7	123	61-145
Trichloroethene	50.0	0.0	56.7	113	71-120
Benzene	50.0	0.0	48.2	96	76-127
Toluene	50.0	0.0	45.2	90	76-125
Chlorobenzene	50.0	0.0	53.7	107	75-130

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS% REC #	% RPD #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0.0	65.9	132	7	61-145
Trichloroethene	50.0	0.0	62.7	125	10	71-120
Benzene	50.0	0.0	54.0	108	11	76-127
Toluene	50.0	0.0	52.6	105	15	76-125
Chlorobenzene	50.0	0.0	61.9	124	14	75-130

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:

ENVIRONMENTAL HEALTH RESEARCH AND TESTING, INC.

VOLATILE ORGANICS ANALYSIS

CUSTOMER NAME:	[redacted]		
SAMPLE TYPE:	Water Sample	DATE ANALYZED:	08-10-92
SAMPLE VOLUME:	5.0 mL	DILUTION FACTOR:	1
CUSTOMER SAMPLE NO.:	8/5/92	EHRT SAMPLE NO.:	15388-001
LAB NOTEBOOK NO.:	253, Pg. 46	METHOD NO.:	EPA 8240

	COMPOUNDS		RESULT ug/L
1.	Acetone		49.8
2.	Acrolein	<	2.0
3.	Acrylonitrile	<	2.0
4.	Benzene	<	5.0
5.	Bromodichloromethane	<	4.0
6.	Bromoform	<	10.0
7.	Bromomethane	<	2.0
8.	2-Butanone	<	30.0
9.	Carbon Disulfide	<	4.0
10.	Carbon Tetrachloride	<	4.0
11.	Chlorobenzene	<	4.0
12.	Chlorodibromomethane	<	5.0
13.	Chloroethane	<	5.0
14.	2-Chloroethylvinylether	<	5.0
15.	Chloroform		5.7
16.	Chloromethane	<	10.0
17.	Dibromomethane	<	5.0
18.	1,4-Dichloro-2-butane	<	2.0
19.	Dichlorodifluoromethane	<	5.0
20.	1,1-Dichloroethane	<	4.0
21.	1,2-Dichloroethane	<	4.0
22.	1,1-Dichloroethene	<	4.0
23.	1,2-Dichloroethene	<	4.0
24.	Trans-1,2-Dichloroethylene	<	1.0
25.	1,2-Dichloropropane	<	4.0

CUSTOMER SAMPLE NO.: 8/5/92 EHRT SAMPLE NO.: 15388-001

26.	cis-1,3-Dichloropropene	<	2.0
27.	trans-1,3-Dichloropropene	<	2.0
28.	Ethanol	<	400
29.	Ethylbenzene	<	5.0
30.	Ethyl methacrylate	<	5.0
31.	2-Hexanone	<	10.0
32.	Iodomethane	<	2.0
33.	Methylene Chloride		28.0
34.	4-Methyl-2-Pentanone	<	25.0
35.	Styrene		5.6
36.	1,1,2,2-Tetrachloroethane	<	10.0
37.	Tetrachloroethene	<	4.0
38.	Toluene	<	4.0
39.	1,1,1,-Trichloroethane	<	5.0
40.	1,1,2-Trichloroethane	<	10.0
41.	Trichloroethene	<	10.0
42.	Trichlorofluoromethane	<	4.0
43.	1,2,3-Trichloropropane	<	15.0
44.	Vinyl Acetate	<	20.0
45.	Vinyl Chloride	<	5.0
46.	Xylene	<	4.0

SURROGATE STANDARDS - % RECOVERIES

1,2-Dichloroethane-d4	-	107%
Toluene-d8	-	100%
Bromofluorobenzene	-	105%

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ENVIRONMENTAL HEALTH RESEARCH AND TESTING, INC.

VOLATILE ORGANICS ANALYSIS

CUSTOMER NAME:	[redacted]		
SAMPLE TYPE:	Water Duplicate	DATE ANALYZED:	08-10-92
SAMPLE VOLUME:	5.0 mL	DILUTION FACTOR:	1
CUSTOMER SAMPLE NO.:	8/5/92	EHRT SAMPLE NO.:	15388-001B
LAB NOTEBOOK NO.:	253, Pg. 46	METHOD NO.:	EPA 8240

	COMPOUNDS		RESULT ug/L
1.	Acetone		51.5
2.	Acrolein	<	2.0
3.	Acrylonitrile	<	2.0
4.	Benzene	<	5.0
5.	Bromodichloromethane	<	4.0
6.	Bromoform	<	10.0
7.	Bromomethane	<	2.0
8.	2-Butanone	<	30.0
9.	Carbon Disulfide	<	4.0
10.	Carbon Tetrachloride	<	4.0
11.	Chlorobenzene	<	4.0
12.	Chlorodibromomethane	<	5.0
13.	Chloroethane	<	5.0
14.	2-Chloroethylvinylether	<	5.0
15.	Chloroform		4.5
16.	Chloromethane	<	10.0
17.	Dibromomethane	<	5.0
18.	1,4-Dichloro-2-butane	<	2.0
19.	Dichlorodifluoromethane	<	5.0
20.	1,1-Dichloroethane	<	4.0
21.	1,2-Dichloroethane	<	4.0
22.	1,1-Dichloroethene	<	4.0
23.	1,2-Dichloroethene	<	4.0
24.	Trans-1,2-Dichloroethylene	<	1.0
25.	1,2-Dichloropropane	<	4.0

CUSTOMER SAMPLE NO.: 8/5/92 EHRT SAMPLE NO.: 15388-001B

26.	cis-1,3-Dichloropropene	<	2.0
27.	trans-1,3-Dichloropropene	<	2.0
28.	Ethanol	<	400
29.	Ethylbenzene	<	5.0
30.	Ethyl methacrylate	<	5.0
31.	2-Hexanone	<	10.0
32.	Iodomethane	<	2.0
33.	Methylene Chloride		19.1
34.	4-Methyl-2-Pentanone	<	25.0
35.	Styrene		4.7
36.	1,1,2,2-Tetrachloroethane	<	10.0
37.	Tetrachloroethene	<	4.0
38.	Toluene	<	4.0
39.	1,1,1,-Trichloroethane	<	5.0
40.	1,1,2-Trichloroethane	<	10.0
41.	Trichloroethene	<	10.0
42.	Trichlorofluoromethane	<	4.0
43.	1,2,3-Trichloropropane	<	15.0
44.	Vinyl Acetate	<	20.0
45.	Vinyl Chloride	<	5.0
46.	Xylene	<	4.0

SURROGATE STANDARDS - % RECOVERIES

1,2-Dichloroethane-d4	-	111%
Toluene-d8	-	93%
Bromofluorobenzene	-	101%

C40

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. 921026-H039

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2533

Source: Stratford Army Engine Plant (OF-SW)

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15785-005

Lab Notebook: 308, Pg. 54
Sample Volume: 5.0 (mL)
Column(pack/cap): CAP
Percent Solids: N/A

Date Sampled: 10-22-92
Date Received: 10-29-92
Date Analyzed: 11-02-92
Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	74-87-3	Chloromethane	5.0	U	
2.	74-83-9	Bromomethane	7.0	U	
3.	75-01-4	Vinyl Chloride	5.0	2.9	J
4.	75-00-3	Chloroethane	3.0	U	
5.	75-09-2	Methylene Chloride	3.0	2.4	B,J
6.	67-64-1	Acetone	3.0	79.7	
7.	75-15-0	Carbon Disulfide	4.0	U	
8.	75-35-4	1,1-Dichloroethene	4.0	U	
9.	75-34-3	1,1-Dichloroethane	2.0	15.9	
10.	540-59-0	1,2-Dichloroethene (total)	2.0	U	
11.	67-66-3	Chloroform	1.0	20.4	
12.	107-06-2	1,2-Dichloroethane	1.0	1.2	
13.	78-93-3	2-Butanone	3.0	U	
14.	71-55-6	1,1,1-Trichloroethane	3.0	18.9	
15.	56-23-5	Carbon Tetrachloride	2.0	U	
16.	75-27-4	Bromodichloromethane	2.0	6.6	
17.	78-87-5	1,2-Dichloropropane	2.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.0	U	
19.	79-01-6	Trichloroethene	2.0	12.2	
20.	124-48-1	Dibromochloromethane	2.0	1.8	J
21.	79-00-5	1,1,2-Trichloroethane	2.0	U	
22.	71-43-2	Benzene	2.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	1.0	U	
24.	75-25-2	Bromoform	3.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	2.0	U	
26.	591-78-6	2-Hexanone	2.0	U	
27.	127-18-4	Tetrachloroethene	1.0	4.4	
28.	79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	
29.	108-88-3	Toluene	2.0	U	
30.	108-90-7	Chlorobenzene	1.0	U	
31.	100-41-4	Ethyl Benzene	1.0	U	
32.	100-42-5	Styrene	2.0	U	
33.	1330-20-7	Xylene (total)	1.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
34.	1,2-Dichloroethane-d4	95	76-114	25
35.	Toluene-d8	97	88-110	25
36.	Bromofluorobenzene	98	86-115	25

U: Below Detection Limit

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. 921026-H040

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2533

Source: Stratford Army Engine Plant (TB102292)

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15785-006

Lab Notebook: 308, Pg. 54
Sample Volume: 5.0 (mL)
Column(pack/cap): CAP
Percent Solids: N/A

Date Sampled: 10-22-92
Date Received: 10-29-92
Date Analyzed: 11-02-92
Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	74-87-3	Chloromethane	5.0	U	
2.	74-83-9	Bromomethane	7.0	U	
3.	75-01-4	Vinyl Chloride	5.0	U	
4.	75-00-3	Chloroethane	3.0	U	
5.	75-09-2	Methylene Chloride	3.0	5.7	B
6.	67-64-1	Acetone	3.0	13.5	
7.	75-15-0	Carbon Disulfide	4.0	4.1	
8.	75-35-4	1,1-Dichloroethene	4.0	U	
9.	75-34-3	1,1-Dichloroethane	2.0	U	
10.	540-59-0	1,2-Dichloroethene (total)	2.0	U	
11.	67-66-3	Chloroform	1.0	U	
12.	107-06-2	1,2-Dichloroethane	1.0	4.2	
13.	78-93-3	2-Butanone	3.0	U	
14.	71-55-6	1,1,1-Trichloroethane	3.0	U	
15.	56-23-5	Carbon Tetrachloride	2 0	U	
16.	75-27-4	Bromodichloromethane	2.0	U	
17.	78-87-5	1,2-Dichloropropane	2.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.0	U	
19.	79-01-6	Trichloroethene	2.0	U	
20.	124-48-1	Dibromochloromethane	2.0	U	
21.	79-00-5	1,1,2-Trichloroethane	2.0	U	
22.	71-43-2	Benzene	2.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	1.0	U	
24.	75-25-2	Bromoform	3.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	2.0	2.0	J
26.	591-78-6	2-Hexanone	2.0	U	
27.	127-18-4	Tetrachloroethene	1.0	3.2	
28.	79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	
29.	108-88-3	Toluene	2.0	3.0	
30.	108-90-7	Chlorobenzene	1.0	U	
31.	100-41-4	Ethyl Benzene	1.0	U	
32.	100-42-5	Styrene	2.0	U	
33.	1330-20-7	Xylene (total)	1.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
34.	1,2-Dichloroethane-d4	104	76-114	25
35.	Toluene-d8	101	88-110	25
36.	Bromofluorobenzene	100	86-115	25

U: Below Detection Limit

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2533

Source: Stratford Army Engine Plant

Matrix: (soil/water) Water Blank EHRT Sample I.D.: N/A

Lab Notebook: 305, Pg. 53 Date Sampled: N/A
Sample Volume: 5.0 (mL) Date Received: N/A
Column(pack/cap): CAP Date Analyzed: 11-02-92
Percent Solids: N/A Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	74-87-3	Chloromethane	5.0	U	
2.	74-83-9	Bromomethane	7.0	U	
3.	75-01-4	Vinyl Chloride	5.0	U	
4.	75-00-3	Chloroethane	3.0	U	
5.	75-09-2	Methylene Chloride	3.0	1.8	J *
6.	67-64-1	Acetone	3.0	U	
7.	75-15-0	Carbon Disulfide	4.0	U	
8.	75-35-4	1,1-Dichloroethene	4.0	U	
9.	75-34-3	1,1-Dichloroethane	2.0	U	
10.	540-59-0	1,2-Dichloroethene (total)	2.0	U	
11.	67-66-3	Chloroform	1.0	U	
12.	107-06-2	1,2-Dichloroethane	1.0	U	
13.	78-93-3	2-Butanone	3.0	U	
14.	71-55-6	1,1,1-Trichloroethane	3.0	U	
15.	56-23-5	Carbon Tetrachloride	2.0	U	
16.	75-27-4	Bromodichloromethane	2.0	U	
17.	78-87-5	1,2-Dichloropropane	2.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.0	U	
19.	79-01-6	Trichloroethene	2.0	U	
20.	124-48-1	Dibromochloromethane	2.0	U	
21.	79-00-5	1,1,2-Trichloroethane	2.0	U	
22.	71-43-2	Benzene	2.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	1.0	U	
24.	75-25-2	Bromoform	3.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	2.0	U	
26.	591-78-6	2-Hexanone	2.0	U	
27.	127-18-4	Tetrachloroethene	1.0	U	
28.	79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	
29.	108-88-3	Toluene	2.0	U	
30.	108-90-7	Chlorobenzene	1.0	U	
31.	100-41-4	Ethyl Benzene	1.0	U	
32.	100-42-5	Styrene	2.0	U	
33.	1330-20-7	Xylene (total)	1.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
34.	1,2-Dichloroethane-d4	98	76-114	25
35.	Toluene-d8	101	88-110	25
36.	Bromofluorobenzene	87	86-115	25

U: Below Detection Limit

* Lab Contamination

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Environmental Health Research & Testing, Inc. EHRT Proj. No.: 15785

Contract: U.S. Army Corps of Engineers Work Order No.: 2533

Lab File ID (Standard): NCK32 Date Analyzed: 11/2/92

Instrument ID: 2716A10255 Time Analyzed: 12:35

GC Column: CAP ID: 0.25 (mm) Heated Purge: (Y/N) N

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	12242	6.00	50611	7.65	50607	15.73
	UPPER LIMIT	24484	6.50	101222	8.15	101214	16.23
	LOWER LIMIT	6121	5.50	25306	7.15	25304	15.23
	EPA SAMPLE NO.						
01	Water Blank	8423	5.91	35412	7.58	24357	15.65
02	921026-H039	9469	5.98	41134	7.62	36441	15.65
03	921026-H040	12208	6.00	54892	7.64	49695	15.66
04							
05							
06							
07							
08							
09							
10							
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13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

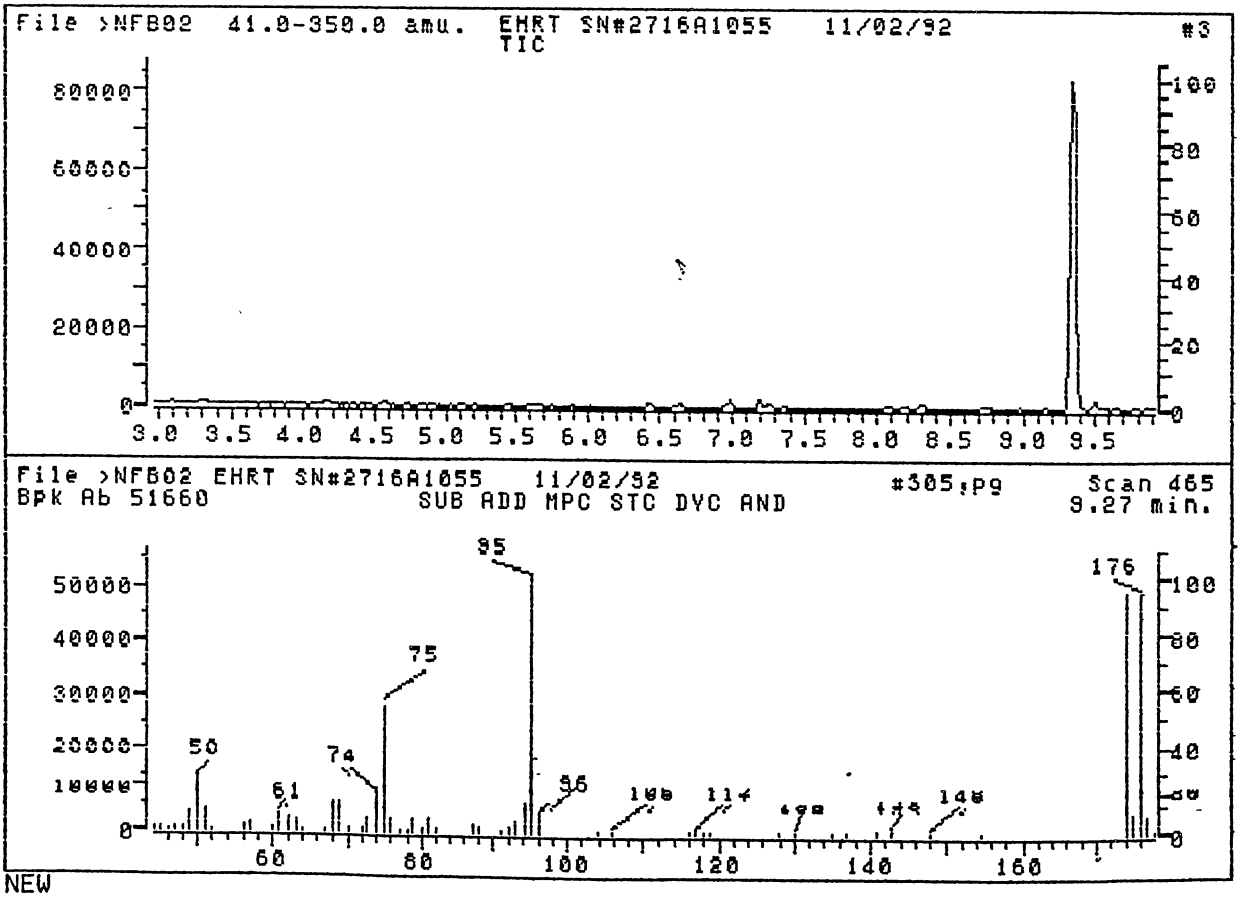
GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	26.82	26.82	Ok
75	30-60% of mass 95	54.14	54.14	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.63	6.63	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	94.34	94.34	Ok
175	5-9% of mass 174	6.42	6.81	Ok
176	95-101% of mass 174	94.35	100.01	Ok
177	5-9% of mass 176	5.75	6.10	Ok

Injection Date: 11/02/92
Injection Time: 10:21
Data File: >NFB02
Scan: 465

:



NEW

:

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 11/02/92

Contractor: EHRT Time: 12:35

Contract No: 1201 Laboratory ID: >NCK3Z

Instrument ID: SN#2716A10255 Initial Calibration Date: 10/14/92

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Chloromethane	.45397	.54125	19.23		**	
Dichlorodifluoromethane	-	-	-			
Bromomethane	.23003	.38033	65.34			
Vinyl Chloride	1.09029	1.33491	22.44	*		
Chloroethane	.61223	.37608	38.57			
Ethanol	-	-	-			
Iodomethane	-	-	-			
Methylene Chloride	2.74326	2.22611	18.85			
Acrylonitrile	1.31466	.58867	55.22			(Conc=100.00)
Acrolein	-	-	-			
Acetone	.61956	1.04370	68.46			
Carbon Disulfide	2.81246	2.32960	17.17			
Trichlorofluoromethane	.88715	1.64981	85.97			
Ethyl methacrylate	-	-	-			
Propanenitrile	-	-	-			
Allyl Chloride	-	-	-			
1,1-Dichloroethene	2.40962	2.04672	15.06	*		
Acetonitrile	-	-	-			
1,1-Dichloroethane	2.81651	3.27324	16.22		**	
1,2-Dichloroethene	2.25709	1.74596	22.65			
Ethyl ether	-	-	-			
Chloroform	3.32118	3.36244	1.24	*		
Trichlorotrifluoroethane	-	-	-			
1,2-Dichloroethane-d4	3.33091	2.98203	10.47			(Conc=25.00)
1,2-Dichloroethane	3.22480	3.45311	7.08			
Methacrylonitrile	-	-	-			
Dibromomethane	.34449	.38482	11.71			
2-Butanone	1.54200	1.75560	13.85			
1,1,1-Trichloroethane	.60526	.70702	16.81			
1,4-Dioxane	-	-	-			
Ethyl Acetate	.02160	-	-			
Carbon Tetrachloride	.53241	.57618	8.22			

RF - Response Factor from daily standard file at 50.00 UG/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 (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 11/02/92

Contractor: EHRT Time: 12:35

Contract No: 1201 Laboratory ID: >MCK32

Instrument ID: SN#2716A10255 Initial Calibration Date: 10/14/92

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Vinyl Acetate	.91165	1.34655	47.70			(Conc=50.00)
Bromodichloromethane	.64714	.79121	22.26			
1-Butanol	-	-	-			
Chloroprene	-	-	-			
1,2-Dichloropropane	.32673	.40045	22.56	*		
cis-1,3-Dichloropropene	.66185	.83011	25.42			(Conc=47.30)
Trichloroethene	.35248	.38549	9.36			
Dibromochloromethane	.39688	.48849	23.08			
1,1,2-Trichloroethane	.31596	.40250	27.39			
Benzene	1.08451	1.31722	21.46			
trans-1,3-Dichloropropene	.71165	.91473	28.54			(Conc=52.80)
2-Chloroethylvinylether	.32673	.40045	22.56			
Bromoform	.40808	.72061	76.59		**	
4-Methyl-2-Pentanone	.49560	.74367	50.06			
1,2,3 Trichloropropane	.51699	.50625	2.08			
2-Hexanone	.40725	.49337	21.15			
Tetrachloroethene	.32315	.47177	45.99			
1,1,2,2-Tetrachloroethane	.55087	.61077	10.87		**	
1,4_Dichloro_2_butane	-	-	-			
Toluene	1.35950	1.43429	5.50	*		
Toluene-d8	1.36577	1.29954	4.85			(Conc=25.00)
Chlorobenzene	.91390	.95212	4.18		**	
Ethylbenzene	1.77300	1.94945	9.95	*		
Bromofluorobenzene	.73994	.67682	8.53			(Conc=25.00)
Styrene	.96650	.99494	2.94			
Xylene (total)	1.45133	1.41722	2.35			
1,3-Dichlorobenzene	.80619	-	-			(Conc=50.00)
1,2-Dichlorobenzene	.75255	-	-			(Conc=50.00)
1,4-Dichlorobenzene	.81075	-	-			(Conc=50.00)
1,2,4 Trichlorobenzene	-	-	-			

RF - Response Factor from daily standard file at 50.00 UG/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 (**)

C47

BATCH SPECIFIC

QUALITY CONTROL

ORGANICS

for

WO # 2533

STRATFORD ARMY ENGINE PLANT

C48

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. 921028-H025

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2535

Source: [redacted]

Matrix: (soil/water) Water Sample **EHRT Sample I.D.:** 15794-002A

Lab Notebook:	305, Pg. 54	Date Sampled:	10-23-92
Sample Volume:	5.0 (mL)	Date Received:	10-29-92
Column(pack/cap):	CAP	Date Analyzed:	11-02-92
Percent Solids:	N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	74-87-3	Chloromethane	5.0	U	
2.	74-83-9	Bromomethane	7.0	U	
3.	75-01-4	Vinyl Chloride	5.0	U	
4.	75-00-3	Chloroethane	3.0	U	
5.	75-09-2	Methylene Chloride	3.0	U	
6.	67-64-1	Acetone	3.0	2.9	
7.	75-15-0	Carbon Disulfide	4.0	U	
8.	75-35-4	1,1-Dichloroethene	4.0	U	
9.	75-34-3	1,1-Dichloroethane	2.0	U	
10.	540-59-0	1,2-Dichloroethene (total)	2.0	U	
11.	67-66-3	Chloroform	1.0	U	
12.	107-06-2	1,2-Dichloroethane	1.0	U	
13.	78-93-3	2-Butanone	3.0	U	
14.	71-55-6	1,1,1-Trichloroethane	3.0	U	
15.	56-23-5	Carbon Tetrachloride	2.0	U	
16.	75-27-4	Bromodichloromethane	2.0	U	
17.	78-87-5	1,2-Dichloropropane	2.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.0	U	
19.	79-01-6	Trichloroethene	2.0	U	
20.	124-48-1	Dibromochloromethane	2.0	U	
21.	79-00-5	1,1,2-Trichloroethane	2.0	U	
22.	71-43-2	Benzene	2.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	1.0	U	
24.	75-25-2	Bromoform	3.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	2.0	U	
26.	591-78-6	2-Hexanone	2.0	U	
27.	127-18-4	Tetrachloroethene	1.0	U	
28.	79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	
29.	108-88-3	Toluene	2.0	U	
30.	108-90-7	Chlorobenzene	1.0	U	
31.	100-41-4	Ethyl Benzene	1.0	U	
32.	100-42-5	Styrene	2.0	U	
33.	1330-20-7	Xylene (total)	1.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
34.	1,2-Dichloroethane-d4	97	76-114	25
35.	Toluene-d8	107	88-110	25
36.	Bromofluorobenzene	93	86-115	25

U: Below Detection Limit

C49

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO.: ~~921028-H025~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2535

Source: [redacted]

Matrix: (soil/water) Water Duplicate EHRT Sample I.D.: 15794-002B

Lab Notebook: 305, Pg. 53
Sample Volume: 5.0 (mL)
Column(pack/cap): CAP
Percent Solids: N/A

Date Sampled: 10-23-92
Date Received: 10-29-92
Date Analyzed: 11-03-92
Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	74-87-3	Chloromethane	5.0	U	
2.	74-83-9	Bromomethane	7.0	U	
3.	75-01-4	Vinyl Chloride	5.0	U	
4.	75-00-3	Chloroethane	3.0	U	
5.	75-09-2	Methylene Chloride	3.0	5.1	B
6.	67-64-1	Acetone	3.0	4.4	
7.	75-15-0	Carbon Disulfide	4.0	2.3	J
8.	75-35-4	1,1-Dichloroethene	4.0	U	
9.	75-34-3	1,1-Dichloroethane	2.0	U	
10.	540-59-0	1,2-Dichloroethene (total)	2.0	U	
11.	67-66-3	Chloroform	1.0	U	
12.	107-06-2	1,2-Dichloroethane	1.0	U	
13.	78-93-3	2-Butanone	3.0	U	
14.	71-55-6	1,1,1-Trichloroethane	3.0	U	
15.	56-23-5	Carbon Tetrachloride	2.0	U	
16.	75-27-4	Bromodichloromethane	2.0	U	
17.	78-87-5	1,2-Dichloropropane	2.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.0	U	
19.	79-01-6	Trichloroethene	2.0	U	
20.	124-48-1	Dibromochloromethane	2.0	U	
21.	79-00-5	1,1,2-Trichloroethane	2.0	U	
22.	71-43-2	Benzene	2.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	1.0	U	
24.	75-25-2	Bromoform	3.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	2.0	U	
26.	591-78-6	2-Hexanone	2.0	U	
27.	127-18-4	Tetrachloroethene	1.0	3.6	B
28.	79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	
29.	108-88-3	Toluene	2.0	U	
30.	108-90-7	Chlorobenzene	1.0	U	
31.	100-41-4	Ethyl Benzene	1.0	U	
32.	100-42-5	Styrene	2.0	U	
33.	1330-20-7	Xylene (total)	1.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
34.	1,2-Dichloroethane-d4	84	76-114	25
35.	Toluene-d8	91	88-110	25
36.	Bromofluorobenzene	106	86-115	25

U: Below Detection Limit

C50

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Sample Source: [redacted]

EHRT Project No.: 15794 Customer Project No.: 2535

EHRT Sample No.: 15794-002 Customer Sample No.: 921028-H025

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS% REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0.0	37.6	75	61-145
Trichloroethene	50.0	0.0	46.6	93	71-120
Benzene	50.0	0.0	43.3	87	76-127
Toluene	50.0	0.0	45.9	92	76-125
Chlorobenzene	50.0	0.0	52.3	105	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD% REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.0	37.2	74	1	14	61-145
Trichloroethene	50.0	49.1	98	5	14	71-120
Benzene	50.0	43.7	87	0	11	76-127
Toluene	50.0	45.1	90	2	13	76-125
Chlorobenzene	50.0	53.1	106	1	13	75-130

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:

WATER VOLATILE BLANK SPIKE

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Sample Source: [redacted]

EHRT Project No.: 15794 Customer Project No.: 2535

EHRT Sample No.: N/A Customer Sample No.: N/A

COMPOUND :	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS% REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0.0	36.9	74	61-145
Trichloroethene	50.0	0.0	45.1	90	71-120
Benzene	50.0	0.0	43.5	87	76-127
Toluene	50.0	0.0	43.6	87	76-125
Chlorobenzene	50.0	0.0	50.2	100	75-130

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS:

C52

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. 921102-H024

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2555

Source: Stratford Army Engine Plant (07-0-12)

Matrix: (soil/water) Solid Sample EHRT Sample I.D.: 15827-002

Lab Notebook: 308, Pg. 58
Sample Weight: 5.0 (g)
Column(pack/cap): PACK
Percent Solids: 80

Date Sampled: 10-28-92
Date Received: 11-04-92
Date Analyzed: 11-09-92
Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	74-87-3	Chloromethane	12.5	U	
2.	74-83-9	Bromomethane	2.5	U	
3.	75-01-4	Vinyl Chloride	6.3	U	
4.	75-00-3	Chloroethane	6.3	U	
5.	75-09-2	Methylene Chloride	5.0	U	
6.	67-64-1	Acetone	25.0	U	
7.	75-15-0	Carbon Disulfide	5.0	U	
8.	75-35-4	1,1-Dichloroethene	5.0	8.1	
9.	75-34-3	1,1-Dichloroethane	5.0	U	
10.	540-59-0	1,2-Dichloroethene (total)	5.0	56.2	
11.	67-66-3	Chloroform	5.0	U	
12.	107-06-2	1,2-Dichloroethane	5.0	U	
13.	78-93-3	2-Butanone	37.5	U	
14.	71-55-6	1,1,1-Trichloroethane	6.3	U	
15.	56-23-5	Carbon Tetrachloride	5.0	U	
16.	75-27-4	Bromodichloromethane	5.0	U	
17.	78-87-5	1,2-Dichloropropane	5.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.5	U	
19.	79-01-6	Trichloroethene	12.5	U	
20.	124-48-1	Dibromochloromethane	6.3	U	
21.	79-00-5	1,1,2-Trichloroethane	12.5	U	
22.	71-43-2	Benzene	6.3	U	
23.	10061-02-6	trans-1,3-Dichloropropene	2.5	U	
24.	75-25-2	Bromoform	12.5	U	
25.	108-10-1	4-Methyl-2-Pentanone	31.3	U	
26.	591-78-6	2-Hexanone	12.5	U	
27.	127-18-4	Tetrachloroethene	5.0	6.4	B
28.	79-34-5	1,1,2,2-Tetrachloroethane	12.5	U	
29.	108-88-3	Toluene	5.0	U	
30.	108-90-7	Chlorobenzene	5.0	U	
31.	100-41-4	Ethyl Benzene	6.3	U	
32.	100-42-5	Styrene	5.0	U	
33.	1330-20-7	Xylene (total)	5.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
34.	1,2-Dichloroethane-d4	96	70-112	25
35.	Toluene-d8	107	84-138	25
36.	Bromofluorobenzene	92	59-113	25

U: Below Detection Limit

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
(EPA Method 8240)

SAMPLE NO.
921102-H024

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2555

Source: Stratford Army Engine Plant (07-0-12)

Matrix: (soil/water) Solid Sample EHRT Sample I.D.: 15827-002

Lab Notebook:	308, Pg. 58	Date Sampled:	10-28-92
Sample Weight:	5.0 (g)	Date Received:	11-04-92
Column(pack/cap):	PACK	Date Analyzed:	11-09-92
Percent Solids:	80	Dilution Factor:	1

	CAS NO.	COMPOUND NAME	RT/Scan #	EST. CONC. (ug/kg)
1.	76131	Trichlorotrifluoroethane	11.80	79
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

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VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2555

Source: Stratford Army Engine Plant

Matrix: (soil/water) Soil Blank EHRT Sample I.D.: N/A

Lab Notebook: 308, Pg. 56 Date Sampled: N/A
Sample Weight: 5.0 (g) Date Received: N/A
Column(pack/cap): PACK Date Analyzed: 11-09-92
Percent Solids: 100 Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	74-87-3	Chloromethane	10.0	U	
2.	74-83-9	Bromomethane	2.0	U	
3.	75-01-4	Vinyl Chloride	5.0	U	
4.	75-00-3	Chloroethane	5.0	U	
5.	75-09-2	Methylene Chloride	4.0	U	
6.	67-64-1	Acetone	20.0	U	
7.	75-15-0	Carbon Disulfide	4.0	U	
8.	75-35-4	1,1-Dichloroethene	4.0	U	
9.	75-34-3	1,1-Dichloroethane	4.0	U	
10.	540-59-0	1,2-Dichloroethene (total)	4.0	U	
11.	67-66-3	Chloroform	4.0	U	
12.	107-06-2	1,2-Dichloroethane	4.0	U	
13.	78-93-3	2-Butanone	30.0	U	
14.	71-55-6	1,1,1-Trichloroethane	5.0	U	
15.	56-23-5	Carbon Tetrachloride	4.0	U	
16.	75-27-4	Bromodichloromethane	4.0	U	
17.	78-87-5	1,2-Dichloropropane	4.0	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.0	U	
19.	79-01-6	Trichloroethene	10.0	U	
20.	124-48-1	Dibromochloromethane	5.0	U	
21.	79-00-5	1,1,2-Trichloroethane	10.0	U	
22.	71-43-2	Benzene	5.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	2.0	U	
24.	75-25-2	Bromoform	10.0	U	
25.	108-10-1	4-Methyl-2-Pentanone	25.0	U	
26.	591-78-6	2-Hexanone	10.0	U	
27.	127-18-4	Tetrachloroethene	4.0	2.2	J *
28.	79-34-5	1,1,2,2-Tetrachloroethane	10.0	U	
29.	108-88-3	Toluene	4.0	U	
30.	108-90-7	Chlorobenzene	4.0	U	
31.	100-41-4	Ethyl Benzene	5.0	U	
32.	100-42-5	Styrene	4.0	U	
33.	1330-20-7	Xylene (total)	4.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
34.	1,2-Dichloroethane-d4	99	70-112	25
35.	Toluene-d8	111	84-138	25
36.	Bromofluorobenzene	90	59-113	25

U: Below Detection Limit

* Lab Contamination

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Environmental Health Research & Testing, Inc. EHRT Proj. No.: 15827

Contract: U.S. Army Corps of Engineers Work Order No.: 2555

Lab File ID (Standard): LCK09 Date Analyzed: 11/9/92

Instrument ID: 2716A10254 Time Analyzed: 10:50

GC Column: PACK ID: 2 (mm) Heated Purge: (Y/N) N

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	8145	9.20	27857	19.83	24959	24.71
	UPPER LIMIT	16290	9.70	55714	20.33	49918	25.21
	LOWER LIMIT	4073	8.70	13929	19.33	12480	24.21
	EPA SAMPLE NO.						
01	Soil Blank	11954	9.17	43389	19.82	34630	24.70
02	921102-H024	12536	9.14	46170	19.82	38109	24.73
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

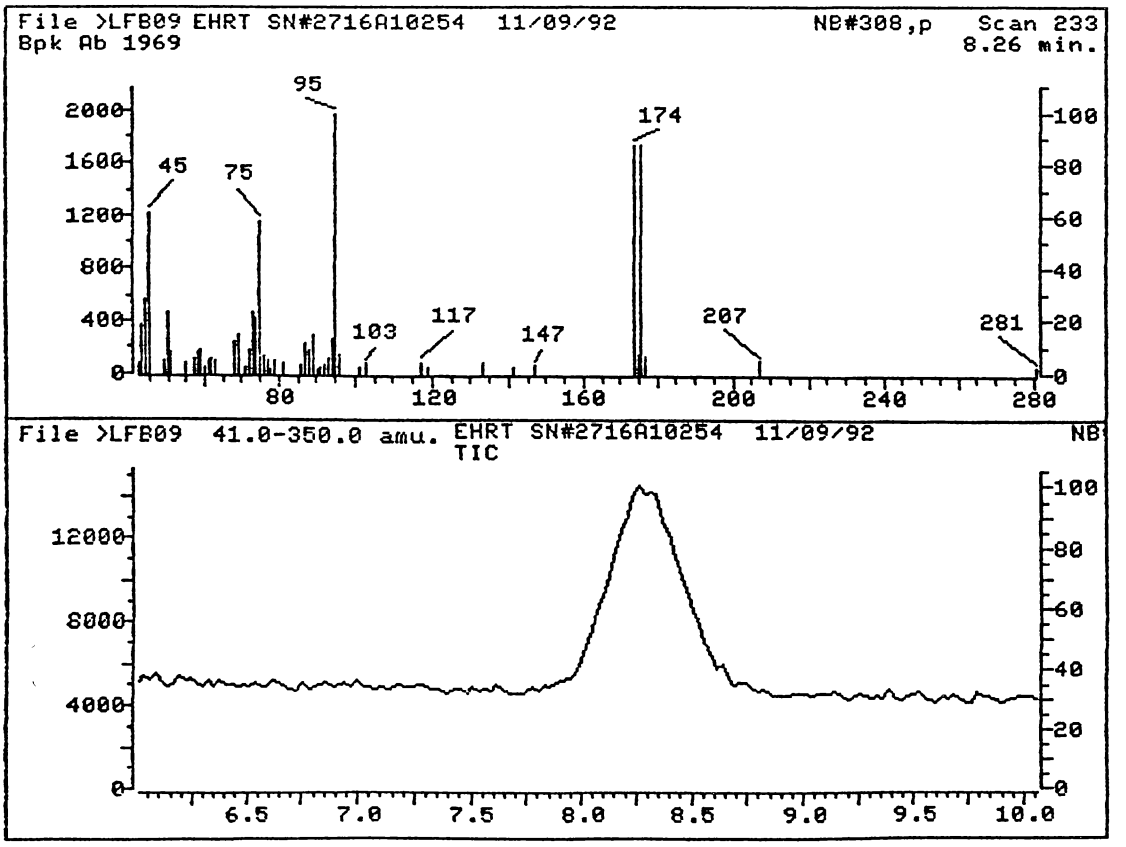
C56

GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	23.51	23.51	Ok
75	30-60% of mass 95	58.46	58.46	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.11	7.11	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	87.51	87.51	Ok
175	5-9% of mass 174	7.47	8.53	Ok
176	95-101% of mass 174	87.25	99.71	Ok
177	5-9% of mass 176	6.15	7.04	Ok

Injection Date: 11/09/92
Injection Time: 10:11
Data File: >LFB09
Scan: 233



Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 11/09/92

Contractor: EHRT Time: 10:50

Contract No: Laboratory ID: >LCK09

Instrument ID: 2716A10254 Initial Calibration Date: 11/04/92

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Chloromethane	.56277	.49957	11.23		**	
Dichlorodifluoromethane	1.51649	-	-			
Bromomethane	.64114	1.05120	63.96			
Vinyl Chloride	.76496	.72204	5.61	*		
Chloroethane	.50032	.47219	5.62			
Ethanol	.07531	-	-			
Iodomethane	-	-	-			
Methylene Chloride	1.24174	1.09392	11.90			
Acrylonitrile	.14720	.07477	49.21			(Conc=100.00)
Acrolein	-	-	-			
Acetone	.26754	.51627	92.97			(Conc=50.00)
Carbon Disulfide	1.82361	1.58821	12.91			
Trichlorofluoromethane	3.16703	4.13419	30.54			
Ethyl methacrylate	-	-	-			
1,1-Dichloroethene	1.78353	1.84432	3.41	*		
1,1-Dichloroethane	2.00662	1.85083	7.76		**	
1,2-Dichloroethene	1.73282	1.69724	2.05			
Ethyl ether	.22930	-	-			
Trichlorotrifluoroethane	2.77110	-	-			
Chloroform	2.94524	3.06163	3.95	*		
1,2-Dichloroethane-d4	1.96013	2.13996	9.17			(Conc=25.00)
1,2-Dichloroethane	2.01227	2.29871	14.23			
Dibromomethane	.40857	.46021	12.64			
2-Butanone	.12775	.11017	13.76			(Conc=50.00)
1,1,1-Trichloroethane	.71297	1.00366	40.77			
Ethyl Acetate	.14153	-	-			(Conc=100.00)
Carbon Tetrachloride	.62750	.85975	37.01			
Vinyl Acetate	.39292	.40539	3.17			(Conc=50.00)
1-Butanol	.00235	-	-			(Conc=3750.00)
Bromodichloromethane	.84422	.95200	12.77			
1,2-Dichloropropane	.30831	.27548	10.65	*		
cis-1,3-Dichloropropene	.58472	.96950	65.81			(Conc=47.30)

RF - Response Factor from daily standard file at 50.00 ug/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 (**)

Continuing Calibration Check
HSL Compounds

Case No: _____ Calibration Date: 11/09/92

Contractor: EHRT Time: 10:50

Contract No: _____ Laboratory ID: >LCK09

Instrument ID: 2716A10254 Initial Calibration Date: 11/04/92

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Trichloroethene	.42689	.44524	4.30			
Dibromochloromethane	.50210	.57077	13.68			
1,1,2-Trichloroethane	.32429	.32013	1.28			
Benzene	.76700	.71465	6.83			
trans-1,3-Dichloropropene	.52491	.86851	65.46			(Conc=52.80)
2-Chloroethylvinylether	.30831	.27548	10.65			
1,2-dibromoethane	.40980	-	-			(Conc=50.00)
bform	.37913	.33108	12.67		**	(Conc=50.00)
thyl-2-Pentanone	.32558	.28101	13.69			(Conc=50.00)
1,2,3 Trichloropropane	.51864	.51965	.20			
2-Hexanone	.27236	.21002	22.89			
Tetrachloroethene	.55510	.55062	.81			
1,1,2,2-Tetrachloroethane	.64209	.52434	18.34		**	
1,4_Dichloro_2_butane	-	-	-			
Toluene	1.18656	1.01671	14.31	*		
Toluene-d8	1.09718	.99058	9.72			(Conc=25.00)
Chlorobenzene	.90420	.81205	10.19		**	
Ethylbenzene	1.66937	1.44817	13.25	*		
1,2-Dibromo-3-Chloropropane	.09785	-	-			(Conc=800.00)
Bromofluorobenzene	.87657	.94739	8.08			(Conc=25.00)
Styrene	.84134	.77279	8.15			
Xylene (total)	1.16176	1.29460	11.44			(Conc=50.00)
1,3-Dichlorobenzene	1.14243	-	-			
1,2-Dichlorobenzene	1.16674	-	-			
1,4-Dichlorobenzene	1.12193	-	-			
m-Xylene	-	-	-			
p-Xylene	-	-	-			
1,2,4-Trimethylbenzene	-	-	-			
1,3,5-Trimethylbenzene	-	-	-			
p-Cymene	-	-	-			
Isopropryl Benzene	-	-	-			
Sec-Butyl Benzene	-	-	-			

RF - Response Factor from daily standard file at 50.00 ug/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 (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 11/09/92

Contractor: EHRT Time: 10:50

Contract No: Laboratory ID: >LCK09

Instrument ID: 2716A10254 Initial Calibration Date: 11/04/92

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % Diff for CCC is 25%%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
p-Chlorotoluene	-	-	-			
T-Butylbenzene	-	-	-			
n-Propylbenzene	-	-	-			
n-Butylbenzene	-	-	-			
Hexachlorobutadiene	.41910	-	-			(Conc=100.00)

RF - Response Factor from daily standard file at 50.00 ug/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 (**)

BATCH SPECIFIC

QUALITY CONTROL

ORGANICS

for

WORK ORDER NO.: 2555

STRATFORD ARMY ENGINE PLANT

C61

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. 921031-H014

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2550

Source: [redacted]

Matrix: (soil/water) Soil Sample **EHRT Sample I.D.:** 15820-010A

Lab Notebook:	308, Pg. 52	Date Sampled:	10-29-92
Sample Weight:	5.0 (g)	Date Received:	11-03-92
Column(pack/cap):	PACK	Date Analyzed:	11-05-92
Percent Solids:	84	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	74-87-3	Chloromethane	11.9	U	
2.	74-83-9	Bromomethane	2.4	U	
3.	75-01-4	Vinyl Chloride	6.0	U	
4.	75-00-3	Chloroethane	6.0	U	
5.	75-09-2	Methylene Chloride	4.8	U	
6.	67-64-1	Acetone	23.8	U	
7.	75-15-0	Carbon Disulfide	4.8	U	
8.	75-35-4	1,1-Dichloroethene	4.8	U	
9.	75-34-3	1,1-Dichloroethane	4.8	U	
10.	540-59-0	1,2-Dichloroethene (total)	4.8	U	
11.	67-66-3	Chloroform	4.8	U	
12.	107-06-2	1,2-Dichloroethane	4.8	U	
13.	78-93-3	2-Butanone	35.7	U	
14.	71-55-6	1,1,1-Trichloroethane	6.0	U	
15.	56-23-5	Carbon Tetrachloride	4.8	U	
16.	75-27-4	Bromodichloromethane	4.8	U	
17.	78-87-5	1,2-Dichloropropane	4.8	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.4	U	
19.	79-01-6	Trichloroethene	11.9	U	
20.	124-48-1	Dibromochloromethane	6.0	U	
21.	79-00-5	1,1,2-Trichloroethane	11.9	U	
22.	71-43-2	Benzene	6.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	2.4	U	
24.	75-25-2	Bromoform	11.9	U	
25.	108-10-1	4-Methyl-2-Pentanone	29.8	U	
26.	591-78-6	2-Hexanone	11.9	U	
27.	127-18-4	Tetrachloroethene	4.8	U	
28.	79-34-5	1,1,2,2-Tetrachloroethane	11.9	U	
29.	108-88-3	Toluene	4.8	U	
30.	108-90-7	Chlorobenzene	4.8	U	
31.	100-41-4	Ethyl Benzene	6.0	U	
32.	100-42-5	Styrene	4.8	U	
33.	1330-20-7	Xylene (total)	4.8	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
34.	1,2-Dichloroethane-d4	99	70-112	25
35.	Toluene-d8	108	84-138	25
36.	Bromofluorobenzene	97	59-113	25

U: Below Detection Limit

VOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8240)

SAMPLE NO. 921031-H014

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2550

Source: [redacted]

Matrix: (soil/water) Soil Duplicate **EHRT Sample I.D.:** 15820-010B

Lab Notebook:	308, Pg. 59	Date Sampled:	10-29-92
Sample Weight:	5.0 (g)	Date Received:	11-03-92
Column(pack/cap):	PACK	Date Analyzed:	11-10-92
Percent Solids:	84	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	74-87-3	Chloromethane	11.9	U	
2.	74-83-9	Bromomethane	2.4	U	
3.	75-01-4	Vinyl Chloride	6.0	U	
4.	75-00-3	Chloroethane	6.0	U	
5.	75-09-2	Methylene Chloride	4.8	6.5	B
6.	67-64-1	Acetone	23.8	U	
7.	75-15-0	Carbon Disulfide	4.8	U	
8.	75-35-4	1,1-Dichloroethene	4.8	U	
9.	75-34-3	1,1-Dichloroethane	4.8	U	
10.	540-59-0	1,2-Dichloroethene (total)	4.8	U	
11.	67-66-3	Chloroform	4.8	U	
12.	107-06-2	1,2-Dichloroethane	4.8	U	
13.	78-93-3	2-Butanone	35.7	U	
14.	71-55-6	1,1,1-Trichloroethane	6.0	U	
15.	56-23-5	Carbon Tetrachloride	4.8	U	
16.	75-27-4	Bromodichloromethane	4.8	U	
17.	78-87-5	1,2-Dichloropropane	4.8	U	
18.	10061-01-5	cis-1,3-Dichloropropene	2.4	U	
19.	79-01-6	Trichloroethene	11.9	U	
20.	124-48-1	Dibromochloromethane	6.0	U	
21.	79-00-5	1,1,2-Trichloroethane	11.9	U	
22.	71-43-2	Benzene	6.0	U	
23.	10061-02-6	trans-1,3-Dichloropropene	2.4	U	
24.	75-25-2	Bromoform	11.9	U	
25.	108-10-1	4-Methyl-2-Pentanone	29.8	U	
26.	591-78-6	2-Hexanone	11.9	U	
27.	127-18-4	Tetrachloroethene	4.8	11.5	B
28.	79-34-5	1,1,2,2-Tetrachloroethane	11.9	U	
29.	108-88-3	Toluene	4.8	U	
30.	108-90-7	Chlorobenzene	4.8	U	
31.	100-41-4	Ethyl Benzene	6.0	U	
32.	100-42-5	Styrene	4.8	U	
33.	1330-20-7	Xylene (total)	4.8	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
34.	1,2-Dichloroethane-d4	100	70-112	25
35.	Toluene-d8	107	84-138	25
36.	Bromofluorobenzene	91	59-113	25

U: Below Detection Limit

3B
QUALITY CONTROL
SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Source: [redacted]

Customer Sample No.: 921031-H014 Work Order: 2550

EHRT Sample No.: 15820-010 Project No.: 15820

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS% REC #	QC LIMITS REC.
1,1-Dichloroethene	50	0.0	43.2	86	59-172
Trichloroethene	50	0.0	56.5	113	62-137
Benzene	50	0.0	50.6	101	66-142
Toluene	50	0.0	56.0	112	59-139
Chlorobenzene	50	0.0	59.1	118	60-133

COMPOUND	SPIKED ADDED (ug/kg)	MSD CONC. (ug/kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50	36.0	72	18	22	59-172
Trichloroethene	50	49.5	99	13	24	62-137
Benzene	50	44.2	88	14	21	66-142
Toluene	50	50.7	101	10	21	59-139
Chlorobenzene	50	53.7	107	10	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:

QUALITY CONTROL
SOIL VOLATILE BLANK SPIKE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Sample Source: [redacted]

Project No.: 15820 Work Order: 2550

Customer Sample No.: N/A EHRT No.: N/A

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS% REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0.0	36.4	73	61-145
Trichloroethene	50.0	0.0	45.0	90	71-120
Benzene	50.0	0.0	40.2	80	76-127
Toluene	50.0	0.0	42.4	85	76-125
Chlorobenzene	50.0	0.0	46.3	93	75-130

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS:

DEPARTMENT OF THE ARMY, Corps of Engineers
Missouri River Division Laboratory, Omaha, Nebraska

Volatile Organics Analysis

FAMIS No: 1341
Project: Stratford Army Engine Plant

Date Sample Taken: 28 Oct 92
Date Sample Received: 29 Oct 92
Date Analyzed: 05 Nov 92
Analyst: Leuschen
GC/MS File ID: water0701007
Instrument ID: GCMSA
Customer Sample No: ECD-4
MRD Lab Sample No: 921102-H026
Sample Container(s): 2-40 mL vials
Sample Matrix: Water
EPA Method: SW-846, Method 8240
Dilution Factor: 1.00

	Analyte	Result	Units	Detection Limits
1.	Chloromethane	u	µg/L	10
2.	Bromomethane	u	µg/L	10
3.	Vinyl Chloride	u	µg/L	10
4.	Chloroethane	u	µg/L	10
5.	Dichloromethane	u	µg/L	2.0
6.	Acetone	u	µg/L	50
7.	Carbon Disulfide	u	µg/L	2.0
8.	1,1-Dichloroethene	21	µg/L	2.0
9.	1,1-Dichloroethane	21	µg/L	2.0
10.	1,2-Dichloroethene (total)	6.1	µg/L	2.0
11.	Chloroform	1.6 J	µg/L	2.0
12.	2-Butanone	u	µg/L	50
13.	1,2-Dichloroethane	u	µg/L	2.0
14.	1,1,1-Trichloroethane	85	µg/L	2.0
15.	Carbon Tetrachloride	u	µg/L	2.0
16.	Vinyl Acetate	u	µg/L	25
17.	Dichlorobromomethane	u	µg/L	2.0
18.	1,2-Dichloropropane	u	µg/L	2.0
19.	cis-1,3-Dichloropropene	u	µg/L	2.0
20.	Trichloroethene	25	µg/L	2.0
21.	Dibromochloromethane	u	µg/L	2.0
22.	Benzene	u	µg/L	2.0
23.	1,1,2-Trichloroethane	u	µg/L	2.0
24.	trans-1,3-Dichloropropene	u	µg/L	2.0
25.	Bromoform	u	µg/L	2.0
26.	4-Methyl-2-Pentanone	u	µg/L	25
27.	2-Hexanone	u	µg/L	25
28.	1,1,2,2-Tetrachloroethane	u	µg/L	2.0
29.	Tetrachloroethene	2.8	µg/L	2.0
30.	Toluene	u	µg/L	2.0
31.	Chlorobenzene	u	µg/L	2.0
32.	Ethylbenzene	u	µg/L	2.0
33.	Styrene	u	µg/L	2.0
34.	meta-Xylene	u	µg/L	2.0
35.	ortho-/para-Xylene	u	µg/L	2.0

	Surrogate Standard	Recovery (%)	Acceptable	Spike(µg/L)
36.	1,2-Dichloroethane-d4	109	76-114	50
37.	Toluene-d8	98	88-110	50
38.	p-Bromofluorobenzene	99	86-115	50

u: Below Detection Limit J: Estimated Concentration

Approved By: David E. Splichal **Date:** 19 Nov. 92

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DEPARTMENT OF THE ARMY, Corps of Engineers
Missouri River Division Laboratory, Omaha, Nebraska

Volatile Organics Analysis

FAMIS No: 1341
Project: Stratford Army Engine Plant

Date Sample Taken: 28 Oct 92
Date Sample Received: 29 Oct 92
Date Analyzed: 05 Nov 92
Analyst: Leuschen
GC/MS File ID: water0801008
Instrument ID: GCMSA
Customer Sample No: WC-15
MRD Lab Sample No: 921102-H034
Sample Container(s): 2-40 mL vials
Sample Matrix: Water
EPA Method: SW-846, Method 8240
Dilution Factor: 1.00

	Analyte	Result	Units	Detection Limits
1.	Chloromethane	u	µg/L	10
2.	Bromomethane	u	µg/L	10
3.	Vinyl Chloride	u	µg/L	10
4.	Chloroethane	u	µg/L	10
5.	Dichloromethane	u	µg/L	2.0
6.	Acetone	u	µg/L	50
7.	Carbon Disulfide	u	µg/L	2.0
8.	1,1-Dichloroethene	3.6	µg/L	2.0
9.	1,1-Dichloroethane	17	µg/L	2.0
10.	1,2-Dichloroethene (total)	4.7	µg/L	2.0
11.	Chloroform	u	µg/L	2.0
12.	2-Butanone	u	µg/L	50
13.	1,2-Dichloroethane	u	µg/L	2.0
14.	1,1,1-Trichloroethane	16	µg/L	2.0
15.	Carbon Tetrachloride	u	µg/L	2.0
16.	Vinyl Acetate	u	µg/L	25
17.	Dichlorobromomethane	u	µg/L	2.0
18.	1,2-Dichloropropane	u	µg/L	2.0
19.	cis-1,3-Dichloropropene	u	µg/L	2.0
20.	Trichloroethene	13	µg/L	2.0
21.	Dibromochloromethane	u	µg/L	2.0
22.	Benzene	u	µg/L	2.0
23.	1,1,2-Trichloroethane	u	µg/L	2.0
24.	trans-1,3-Dichloropropene	u	µg/L	2.0
25.	Bromoform	u	µg/L	2.0
26.	4-Methyl-2-Pentanone	u	µg/L	25
27.	2-Hexanone	u	µg/L	25
28.	1,1,2,2-Tetrachloroethane	u	µg/L	2.0
29.	Tetrachloroethene	8.8	µg/L	2.0
30.	Toluene	u	µg/L	2.0
31.	Chlorobenzene	u	µg/L	2.0
32.	Ethylbenzene	u	µg/L	2.0
33.	Styrene	u	µg/L	2.0
34.	meta-Xylene	u	µg/L	2.0
35.	ortho-/para-Xylene	u	µg/L	2.0

	Surrogate Standard	Recovery (%)	Acceptable	Spike(µg/L)
36.	1,2-Dichloroethane-d4	109	76-114	50
37.	Toluene-d8	97	88-110	50
38.	p-Bromofluorobenzene	95	86-115	50

Tentatively Identified Compounds: (Estimated Concentration)
trichlorotrifluoroethane 170 µg/L

u: Below Detection Limit

Approved By: David E. Spilchal Date: 19 Nov. 92

DEPARTMENT OF THE ARMY, Corps of Engineers
Missouri River Division Laboratory, Omaha, Nebraska

Volatile Organics Analysis

FAMIS No: 1341
Project: Stratford Army Engine Plant

Date Sample Taken: 28 Oct 92
Date Sample Received: 29 Oct 92
Date Analyzed: 05 Nov 92
Analyst: Leuschen
GC/MS File ID: water0401004
Instrument ID: GCMSA
Customer Sample No: TB102892
MRD Lab Sample No: 921102-H035
Sample Container(s): 1-40 mL vial
Sample Matrix: Water
EPA Method: SW-846, Method 8240
Dilution Factor: 1.00

	Analyte	Result	Units	Detection Limits
1.	Chloromethane	u	µg/L	10
2.	Bromomethane	u	µg/L	10
3.	Vinyl Chloride	u	µg/L	10
4.	Chloroethane	u	µg/L	10
5.	Dichloromethane	u	µg/L	2.0
6.	Acetone	u	µg/L	50
7.	Carbon Disulfide	u	µg/L	2.0
8.	1,1-Dichloroethene	u	µg/L	2.0
9.	1,1-Dichloroethane	u	µg/L	2.0
10.	1,2-Dichloroethene (total)	u	µg/L	2.0
11.	Chloroform	u	µg/L	2.0
12.	2-Butanone	u	µg/L	50
13.	1,2-Dichloroethane	u	µg/L	2.0
14.	1,1,1-Trichloroethane	u	µg/L	2.0
15.	Carbon Tetrachloride	u	µg/L	2.0
16.	Vinyl Acetate	u	µg/L	25
17.	Dichlorobromomethane	u	µg/L	2.0
18.	1,2-Dichloropropane	u	µg/L	2.0
19.	cis-1,3-Dichloropropene	u	µg/L	2.0
20.	Trichloroethene	u	µg/L	2.0
21.	Dibromochloromethane	1.0 J	µg/L	2.0
22.	Benzene	u	µg/L	2.0
23.	1,1,2-Trichloroethane	u	µg/L	2.0
24.	trans-1,3-Dichloropropene	u	µg/L	2.0
25.	Bromoform	1.1 J	µg/L	2.0
26.	4-Methyl-2-Pentanone	u	µg/L	25
27.	2-Hexanone	u	µg/L	25
28.	1,1,2,2-Tetrachloroethane	u	µg/L	2.0
29.	Tetrachloroethene	u	µg/L	2.0
30.	Toluene	u	µg/L	2.0
31.	Chlorobenzene	u	µg/L	2.0
32.	Ethylbenzene	u	µg/L	2.0
33.	Styrene	u	µg/L	2.0
34.	meta-Xylene	u	µg/L	2.0
35.	ortho-/para-Xylene	u	µg/L	2.0

	Surrogate Standard	Recovery (%)	Acceptable	Spike(µg/L)
36.	1,2-Dichloroethane-d4	108	76-114	50
37.	Toluene-d8	97	88-110	50
38.	p-Bromofluorobenzene	96	86-115	50

u: Below Detection Limit J: Estimated Concentration

Approved By: David E. Splichal **Date:** 19 Nov. 92

C108

DEPARTMENT OF THE ARMY, Corps of Engineers
Missouri River Division Laboratory, Omaha, Nebraska

Volatile Organics Analysis

QC Identifier: Instrument/Method Blank
FAMIS Number: 1341
Project Name: Stratford Army Engine Plant

Sample Matrix: Water
MRDL Sample #: 921105-Q003
GC/MS File ID: water0201002
Sequence ID: 921103w

Analyst: Leuschen
EPA Method: SW-846, Method 8240
Date Analyzed: 05 Nov 92
Batch ID: 921105w1

	Analyte	Result	Units	Detection Limits
1.	Chloromethane	u	µg/L	10
2.	Bromomethane	u	µg/L	10
3.	Vinyl Chloride	u	µg/L	10
4.	Chloroethane	u	µg/L	10
5.	Dichloromethane	u	µg/L	2.0
6.	Acetone	u	µg/L	50
7.	Carbon Disulfide	u	µg/L	2.0
8.	1,1-Dichloroethene	u	µg/L	2.0
9.	1,1-Dichloroethane	u	µg/L	2.0
10.	1,2-Dichloroethene (total)	u	µg/L	2.0
11.	Chloroform	u	µg/L	2.0
12.	2-Butanone	u	µg/L	50
13.	1,2-Dichloroethane	u	µg/L	2.0
14.	1,1,1-Trichloroethane	u	µg/L	2.0
15.	Carbon Tetrachloride	u	µg/L	2.0
16.	Vinyl Acetate	u	µg/L	25
17.	Dichlorobromomethane	u	µg/L	2.0
18.	1,2-Dichloropropane	u	µg/L	2.0
19.	cis-1,3-Dichloropropene	u	µg/L	2.0
20.	Trichloroethene	u	µg/L	2.0
21.	Dibromochloromethane	u	µg/L	2.0
22.	Benzene	u	µg/L	2.0
23.	1,1,2-Trichloroethane	u	µg/L	2.0
24.	trans-1,3-Dichloropropene	u	µg/L	2.0
25.	Bromoform	u	µg/L	2.0
26.	4-Methyl-2-Pentanone	u	µg/L	25
27.	2-Hexanone	u	µg/L	25
28.	1,1,2,2-Tetrachloroethane	u	µg/L	2.0
29.	Tetrachloroethene	u	µg/L	2.0
30.	Toluene	u	µg/L	2.0
31.	Chlorobenzene	u	µg/L	2.0
32.	Ethylbenzene	u	µg/L	2.0
33.	Styrene	u	µg/L	2.0
34.	Meta-Xylene	u	µg/L	2.0
35.	Ortho-&Para-Xylene	u	µg/L	2.0

	Surrogate Standard	Recovery (%)	Acceptable	Spike(µg/L)
36.	1,2-Dichloroethane-d4	98	76-114	50
37.	Toluene-d8	99	88-110	50
38.	p-Bromofluorobenzene	97	86-115	50

u: Below Detection Limit

Approved By: David E. Splichal **Date:** 19 Nov. 92

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

QC Identifier: Laboratory Control Sample **Project:** Stratford AEP, (#1341)
Date Analyzed: 05 Nov 92 **EPA Method:** SW-846, Method 8240
Sample Description: Water **Analyst:** Thomas G. Leuschen
Check Sample ID: Lot VOA 389 **GC/MS File ID:** water0301003

Analyte	* Result	* True Value	** Acceptable Range
Methylene Chloride	12.0	10.4	0.1-22.1
1,1-Dichloroethane	10.3	10.0	5.9-15.5
Chloroform	10.4	10.1	4.7-15.0
1,1,1-Trichloroethane	8.4	10.1	5.2-16.2
Bromodichloromethane	10.1	10.2	3.5-15.5
Trichloroethene	8.5	10.2	7.1-15.7
Dibromochloromethane	9.4	10.1	5.3-14.9
Benzene	9.5	10.3	3.7-15.1
Bromoform	7.8	10.0	4.5-16.9
1,1,2,2-Tetrachloroethane	9.5	10.0	4.6-15.7
Toluene	9.4	10.3	4.7-15.0

*: Units = µg/L

**: Units = µg/L. Acceptable ranges found in Method #8240, Page 34, Table 6, Column 4.

Surrogate Standard Compound	Percent Recovered	Acceptable Range(%Rec)	Amount of Spike(µg/L)
1,2-Dichloroethane-d_4	106	76-114	25
Toluene-d_8	102	88-110	25
P-Bromofluorobenzene	98	86-115	25

Approved By: David E. Splichal **Date:** 19 Nov 92

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 920620-H016

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2222

Source: Stratford Army Engine Plant (BR-1-0.5-2.5)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15209-002

Lab Notebook:	240, Pg. 85	Date Sampled:	06-17-92
Sample Weight:	10.0 (g)	Date Received:	06-23-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-25-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-26-92
pH: 8.0	Percent Solid: 92	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	543	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	543	U	
3.	95-57-8	2-Chlorophenol	543	U	
4.	541-73-1	1,3-Dichlorobenzene	1090	U	
5.	106-46-7	1,4-Dichlorobenzene	1090	U	
6.	95-50-1	1,2-Dichlorobenzene	1090	U	
7.	95-48-7	2-Methylphenol	543	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1090	U	
9.	106-44-5	4-Methylphenol	543	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1090	U	
11.	67-72-1	Hexachloroethane	1090	U	
12.	98-95-3	Nitrobenzene	543	U	
13.	78-59-1	Isophorone	543	U	
14.	88-75-5	2-Nitrophenol	1090	U	
15.	105-67-9	2,4-Dimethylphenol	543	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	543	U	
17.	120-83-2	2,4-Dichlorophenol	1090	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1090	U	
19.	91-20-3	Naphthalene	326	U	
20.	106-47-8	4-Chloroaniline	3260	U	
21.	87-68-3	Hexachlorobutadiene	3260	U	
22.	59-50-7	4-Chloro-3-methylphenol	543	U	
23.	91-57-6	2-Methylnaphthalene	326	U	
24.	77-47-4	Hexachlorocyclopentadiene	3260	U	
25.	88-06-2	2,4,6-Trichlorophenol	1090	U	
26.	95-95-4	2,4,5-Trichlorophenol	1090	U	
27.	91-58-7	2-Chloronaphthalene	543	U	
28.	88-74-4	2-Nitroaniline	3260	U	
29.	131-11-3	Dimethylphthalate	543	U	
30.	208-96-8	Acenaphthylene	543	U	
31.	606-20-2	2,6-Dinitrotoluene	1090	U	
32.	99-09-2	3-Nitroaniline	3260	U	
33.	83-32-9	Acenaphthene	543	U	
34.	51-28-5	2,4-Dinitrophenol	10900	U	
35.	100-02-7	4-Nitrophenol	5430	U	
36.	132-64-9	Dibenzofuran	1090	U	
37.	121-14-2	2,4-Dinitrotoluene	1090	U	
38.	84-66-2	Diethylphthalate	543	U	

C71

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 920620-H016

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2222

Source: Stratford Army Engine Plant (BR-1-0.5-2.5)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15209-002

Lab Notebook:	240, Pg. 85	Date Sampled:	06-17-92
Sample Weight:	10.0 (g)	Date Received:	06-23-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-25-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-26-92
pH: 8.0	Percent Solid: 92	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1090	U	
40.	86-73-7	Fluorene	543	U	
41.	100-01-6	4-Nitroaniline	5430	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	5430	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	543	U	
44.	101-55-3	4-Bromophenyl-phenylether	1090	U	
45.	118-74-1	Hexachlorobenzene	1090	U	
46.	87-86-5	Pentachlorophenol	5430	U	
47.	85-01-8	Phenanthrene	543	U	
48.	120-12-7	Anthracene	543	U	
49.	86-74-8	Carbazole	1090	U	
50.	84-74-2	Di-n-butylphthalate	326	1610	B
51.	206-44-0	Fluoranthene	543	U	
52.	129-00-0	Pyrene	326	U	
53.	85-68-7	Butylbenzylphthalate	543	U	
54.	91-94-1	3,3'-Dichlorobenzidine	5430	U	
55.	56-55-3	Benzo(a)anthracene	543	U	
56.	218-01-9	Chrysene	543	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	326	U	
58.	117-84-0	Di-n-octylphthalate	543	U	
59.	205-99-2	Benzo(b)fluoranthene	2170	U	
60.	207-08-9	Benzo(k)fluoranthene	2170	U	
61.	50-32-8	Benzo(a)pyrene	1090	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2170	U	
63.	53-70-3	Dibenz(a,h)anthracene	2170	U	
64.	191-24-2	Benzo(g,h,i)perylene	2170	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	61	23-120	100
66.	2-Fluorobiphenyl	72	30-115	100
67.	Terphenyl-d14	118	18-137	100
68.	Phenol-d5	77	24-113	200
69.	2-Fluorophenol	57	25-112	200
70.	2,4,6-Tribromophenol	64	19-122	200

U: Below Detection Limit

C72

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 920620-H019

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2222

Source: Stratford Army Engine Plant (WC-8S-2.5-4.5)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15209-005

Lab Notebook: 240, Pg. 85
Sample Weight: 10.0 (g)
Conc. Extract Vol.: 1.0 (mL)
Injection Volume: 1.0 (uL)
pH: 6.0 Percent Solid: 83

Date Sampled: 06-18-92
Date Received: 06-23-92
Date Extracted: 06-25-92
Date Analyzed: 06-26-92
Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	602	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	602	U	
3.	95-57-8	2-Chlorophenol	602	U	
4.	541-73-1	1,3-Dichlorobenzene	1200	U	
5.	106-46-7	1,4-Dichlorobenzene	1200	U	
6.	95-50-1	1,2-Dichlorobenzene	1200	U	
7.	95-48-7	2-Methylphenol	602	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1200	U	
9.	106-44-5	4-Methylphenol	602	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1200	U	
11.	67-72-1	Hexachloroethane	1200	U	
12.	98-95-3	Nitrobenzene	602	U	
13.	78-59-1	Isophorone	602	U	
14.	88-75-5	2-Nitrophenol	1200	U	
15.	105-67-9	2,4-Dimethylphenol	602	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	602	U	
17.	120-83-2	2,4-Dichlorophenol	1200	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1200	U	
19.	91-20-3	Naphthalene	361	U	
20.	106-47-8	4-Chloroaniline	3610	U	
21.	87-68-3	Hexachlorobutadiene	3610	U	
22.	59-50-7	4-Chloro-3-methylphenol	602	U	
23.	91-57-6	2-Methylnaphthalene	361	U	
24.	77-47-4	Hexachlorocyclopentadiene	3610	U	
25.	88-06-2	2,4,6-Trichlorophenol	1200	U	
26.	95-95-4	2,4,5-Trichlorophenol	1200	U	
27.	91-58-7	2-Chloronaphthalene	602	U	
28.	88-74-4	2-Nitroaniline	3610	U	
29.	131-11-3	Dimethylphthalate	602	U	
30.	208-96-8	Acenaphthylene	602	U	
31.	606-20-2	2,6-Dinitrotoluene	1200	U	
32.	99-09-2	3-Nitroaniline	3610	U	
33.	83-32-9	Acenaphthene	602	U	
34.	51-28-5	2,4-Dinitrophenol	12000	U	
35.	100-02-7	4-Nitrophenol	6020	U	
36.	132-64-9	Dibenzofuran	1200	U	
37.	121-14-2	2,4-Dinitrotoluene	1200	U	
38.	84-66-2	Diethylphthalate	602	U	

C73

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 920620-H019

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2222

Source: Stratford Army Engine Plant (WC-8S-2.5-4.5)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15209-005

Lab Notebook: 240, Pg. 85
Sample Weight: 10.0 (g)
Conc. Extract Vol.: 1.0 (mL)
Injection Volume: 1.0 (uL)
pH: 6.0 Percent Solid: 83

Date Sampled: 06-18-92
Date Received: 06-23-92
Date Extracted: 06-25-92
Date Analyzed: 06-26-92
Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1200	U	
40.	86-73-7	Fluorene	602	U	
41.	100-01-6	4-Nitroaniline	6020	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	6020	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	602	U	
44.	101-55-3	4-Bromophenyl-phenylether	1200	U	
45.	118-74-1	Hexachlorobenzene	1200	U	
46.	87-86-5	Pentachlorophenol	6020	U	
47.	85-01-8	Phenanthrene	602	U	
48.	120-12-7	Anthracene	602	U	
49.	86-74-8	Carbazole	1200	U	
50.	84-74-2	Di-n-butylphthalate	361	1610	B
51.	206-44-0	Fluoranthene	602	U	
52.	129-00-0	Pyrene	361	U	
53.	85-68-7	Butylbenzylphthalate	602	U	
54.	91-94-1	3,3'-Dichlorobenzidine	6020	U	
55.	56-55-3	Benzo(a)anthracene	602	U	
56.	218-01-9	Chrysene	602	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	361	U	
58.	117-84-0	Di-n-octylphthalate	602	U	
59.	205-99-2	Benzo(b)fluoranthene	2410	U	
60.	207-08-9	Benzo(k)fluoranthene	2410	U	
61.	50-32-8	Benzo(a)pyrene	1200	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2410	U	
63.	53-70-3	Dibenz(a,h)anthracene	2410	U	
64.	191-24-2	Benzo(g,h,i)perylene	2410	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	52	23-120	100
66.	2-Fluorobiphenyl	62	30-115	100
67.	Terphenyl-d14	132	18-137	100
68.	Phenol-d5	72	24-113	200
69.	2-Fluorophenol	58	25-112	200
70.	2,4,6-Tribromophenol	61	19-122	200

U: Below Detection Limit

C74

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2222

Source: Stratford Army Engine Plant

Matrix: (soil/water) Method Blank EHRT Sample I.D.: N/A

Lab Notebook:	240, Pg. 85	Date Sampled:	N/A
Sample Weight:	10.0 (g)	Date Received:	N/A
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-25-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-26-92
pH: 7.0	Percent Solid: 100	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	500	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	500	U	
3.	95-57-8	2-Chlorophenol	500	U	
4.	541-73-1	1,3-Dichlorobenzene	1000	U	
5.	106-46-7	1,4-Dichlorobenzene	1000	U	
6.	95-50-1	1,2-Dichlorobenzene	1000	U	
7.	95-48-7	2-Methylphenol	500	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1000	U	
9.	106-44-5	4-Methylphenol	500	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1000	U	
11.	67-72-1	Hexachloroethane	1000	U	
12.	98-95-3	Nitrobenzene	500	U	
13.	78-59-1	Isophorone	500	U	
14.	88-75-5	2-Nitrophenol	1000	U	
15.	105-67-9	2,4-Dimethylphenol	500	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	500	U	
17.	120-83-2	2,4-Dichlorophenol	1000	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1000	U	
19.	91-20-3	Naphthalene	300	U	
20.	106-47-8	4-Chloroaniline	3000	U	
21.	87-68-3	Hexachlorobutadiene	3000	U	
22.	59-50-7	4-Chloro-3-methylphenol	500	U	
23.	91-57-6	2-Methylnaphthalene	300	U	
24.	77-47-4	Hexachlorocyclopentadiene	3000	U	
25.	88-06-2	2,4,6-Trichlorophenol	1000	U	
26.	95-95-4	2,4,5-Trichlorophenol	1000	U	
27.	91-58-7	2-Chloronaphthalene	500	U	
28.	88-74-4	2-Nitroaniline	3000	U	
29.	131-11-3	Dimethylphthalate	500	U	
30.	208-96-8	Acenaphthylene	500	U	
31.	606-20-2	2,6-Dinitrotoluene	1000	U	
32.	99-09-2	3-Nitroaniline	3000	U	
33.	83-32-9	Acenaphthene	500	U	
34.	51-28-5	2,4-Dinitrophenol	10000	U	
35.	100-02-7	4-Nitrophenol	5000	U	
36.	132-64-9	Dibenzofuran	1000	U	
37.	121-14-2	2,4-Dinitrotoluene	1000	U	
38.	84-66-2	Diethylphthalate	500	U	

C75

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2222

Source: Stratford Army Engine Plant

Matrix: (soil/water) Method Blank EHRT Sample I.D.: N/A

Lab Notebook:	240, Pg. 85	Date Sampled:	N/A
Sample Weight:	10.0 (g)	Date Received:	N/A
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-25-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-26-92
pH: 7.0	Percent Solid: 100	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1000	U	
40.	86-73-7	Fluorene	500	U	
41.	100-01-6	4-Nitroaniline	5000	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	5000	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	500	U	
44.	101-55-3	4-Bromophenyl-phenylether	1000	U	
45.	118-74-1	Hexachlorobenzene	1000	U	
46.	87-86-5	Pentachlorophenol	5000	U	
47.	85-01-8	Phenanthrene	500	U	
48.	120-12-7	Anthracene	500	U	
49.	86-74-8	Carbazole	1000	U	
50.	84-74-2	Di-n-butylphthalate	300	5800	*
51.	206-44-0	Fluoranthene	500	U	
52.	129-00-0	Pyrene	300	U	
53.	85-68-7	Butylbenzylphthalate	500	U	
54.	91-94-1	3,3'-Dichlorobenzidine	5000	U	
55.	56-55-3	Benzo(a)anthracene	500	U	
56.	218-01-9	Chrysene	500	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	300	U	
58.	117-84-0	Di-n-octylphthalate	500	U	
59.	205-99-2	Benzo(b)fluoranthene	2000	U	
60.	207-08-9	Benzo(k)fluoranthene	2000	U	
61.	50-32-8	Benzo(a)pyrene	1000	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2000	U	
63.	53-70-3	Dibenz(a,h)anthracene	2000	U	
64.	191-24-2	Benzo(g,h,i)perylene	2000	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	66	23-120	100
66.	2-Fluorobiphenyl	72	30-115	100
67.	Terphenyl-d14	137	18-137	100
68.	Phenol-d5	84	24-113	200
69.	2-Fluorophenol	66	25-112	200
70.	2,4,6-Tribromophenol	75	19-122	200

U: Below Detection Limit

*Lab Contamination

#2222 C7

/... Top level. Select a softkey... *KSHEL Keys <891208.0903>

-Global(20) = 678.0000
RU,PS,20R

eg	type	# pts	scan#	range: amu\r.t.		base	file	ion range
X	MS	281	678	36.90-	444.25	54408.2	>DFT26	

CA,5,4,+,1
IF,5,1E,10,-5
TR,*DFTP'
***DFTP' FROM HP TO YOUR LIVING ROOM
CA,1:P,5
RU,TUNER,=DFTPP

GC/MS #1
2824 A 11156
6/26/92

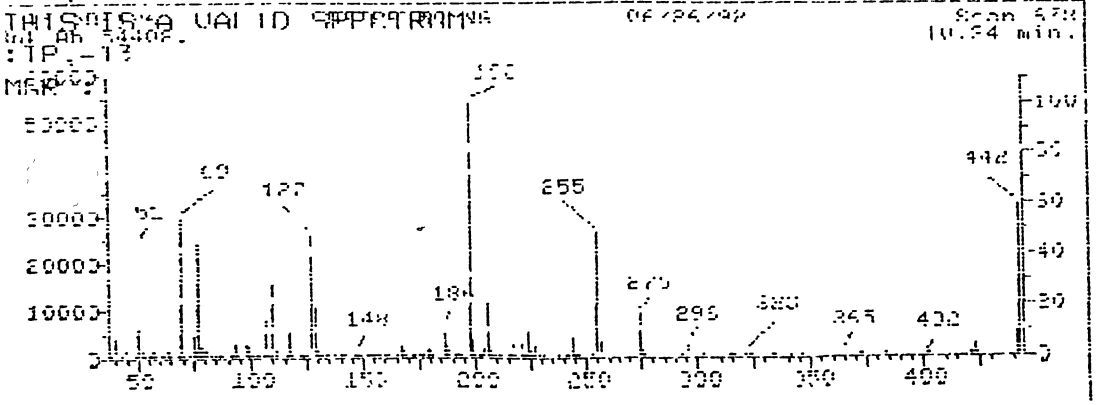
GC/MS PERFORMANCE STANDARD

Decafluorotriphenylphospine (DFTPP)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	Appropriate Peak	Status
51	30-60% of mass 198	44.95	44.95	Ok
	Less than 2% of mass 69	.93	1.70	Ok
	(reference only)	54.45	54.45	Ok
70	Less than 2% of mass 69	.39	.72	Ok
127	40-60% of mass 198	47.32	47.32	Ok
197	Less than 1% of mass 198	.28	.28	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	6.20	6.20	Ok
275	10-30% of mass 198	16.87	16.87	Ok
365	Greater than 1% of mass 198	1.74	1.74	Ok
441	0-100% of mass 443	9.01	81.42	Ok
442	Greater than 40% of mass 198	59.02	59.02	Ok
443	17-23% of mass 442	11.07	18.76	Ok

Injection Date: 06/26/92
Injection Time: 09:03
Data File: >DFT26
Scan: 678

:IF,0,FQ,1,2
:DP,THIS IS A VALID SPECTRUM



C77

Continuing Calibration Check
HSL Compounds

Case No: _____ Calibration Date: 06/26/92

Contractor: _____ Time: 09:29

Contract No: _____ Laboratory ID: >BNA26

Instrument ID: 2824A11156 Initial Calibration Date: 06/09/92

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

GC/MS#1
2824 A11156
6/26/92

Compound	RF	RF	%Diff	CCC	SPCC	
Pyridine	-	-	-			
Aniline	.84648	.67765	19.94			
2-Fluorophenol	.71560	.66033	7.72			(Conc=100.00)
Phenol-d5	.65841	.58269	11.50			(Conc=100.00)
Phenol	.88341	.78142	11.55	*	✓	
Benzyl alcohol	.43234	.41060	5.03			
bis(2-Chloroethyl)Ether	1.02029	.94273	7.60			
2-Methylphenol	.52929	.49518	6.45			
3-Methylphenol	.60598	.60788	.31			
4-Methylphenol	.47905	.47794	.23			
2-Chlorophenol	.83629	.82517	1.33			
1,3-Dichlorobenzene	1.13190	1.13390	.18		✓	
1,4-Dichlorobenzene	1.04007	1.01510	2.40	*		
1,2-Dichlorobenzene	1.05939	1.07228	1.69			
Bis(2-Chloroisopropyl)ether	1.16814	1.13987	2.42		✓	
N-Nitroso-Di-n-propylamine	.69863	.64632	7.49		**	
Hexachloroethane	.48855	.47078	3.64			
Nitrobenzene-d5	.44159	.53520	21.20			(Conc=50.00)
Nitrobenzene	.56378	.68666	21.79			
Isophorone	1.03446	1.19284	15.31		✓	
2-Nitrophenol	.22266	.28131	26.34	*		
2,4-Dimethylphenol	.46900	.51305	9.39			
Benzoic acid	.10344	.12529	21.12			
bis(2-Chloroethoxy)methane	.56363	.63958	13.48		✓	
2,4-Dichlorophenol	.30134	.36068	19.69	*		
1,2,4-Trichlorobenzene	.39826	.48148	20.89			
Naphthalene	.85305	.86552	1.46			
4-Chloroaniline	.25387	.22200	12.55		✓	
Hexachlorobutadiene	.22906	.24347	9.64	*		
4-Chloro-3-methylphenol	.29961	.34504	15.16	*	✓	
2-Methylnaphthalene	.53997	.63900	18.34			
Hexachlorocyclopentadiene	.65872	.57895	12.11		**	

RF - Response Factor from daily standard file at 50.00 ng/ul

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: 06/26/92

Contractor: Time: 09:29

Contract No: Laboratory ID: >RNA26

Instrument ID: 2824A11156 Initial Calibration Date: 06/09/92

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

Compound	RF	RF	%Diff	CCC	SPCC	
2,4,6-Trichlorophenol	.47621	.45919	3.57	*	✓	
2-Chloronaphthalene	1.61445	1.55950	3.40			
2-Fluorobiphenyl	1.52018	1.38954	8.59			(Conc=50.00)
Dimethylphthalate	1.61296	1.59624	1.04			
Acenaphthylene	2.00743	1.81786	9.44			
Acenaphthene	1.32013	1.26537	4.15	*		
2,4-Dinitrophenol	.08770	.11222	27.96		**	
4-Nitrophenol	.20110	.15610	22.38		**	✓
2,4-Dinitrotoluene	.42899	.41428	3.43			
2 itrotoluene	.36699	.38321	4.42			
2 aniline	.48921	.46734	4.47			
3-Nitroaniline	.19397	.19609	1.10			
4-Nitroaniline	.29805	.25341	14.98			
Diethylphthalate	1.44748	1.46769	1.40			
Dibenzofuran	1.55432	1.48487	4.47			
2,4,5-Trichlorophenol	.38272	.36362	4.99			
4-Chlorophenyl-phenylether	.65658	.56211	14.39			
Fluorene	1.20702	1.18021	2.22			
2,4,6 Tribromophenol	.11132	.09007	19.09			(Conc=100.00)
N-Nitrosodiphenylamine	.68665	.66730	2.82	*	✓	
4,6-Dinitro-2-methylphenol	.09990	.08630	13.61			
4-Bromophenyl-phenylether	.24609	.24350	1.05			
Hexachlorobenzene	.28274	.24113	14.72			
Pentachlorophenol	.11547	.13451	16.48	*	✓	
Phenanthrene	1.17590	1.21028	2.92			
Anthracene	1.19822	1.21166	1.12			
Carbazole	.98787	.85463	13.49			
Di-n-Butylphthalate	1.42496	1.44732	1.57		✓	
Fluoranthene	1.05421	1.06028	.58	*		
Benzidine	.09803	-	-			
Pyrene	3.02871	2.88102	4.88			
Terphenyl-d14	1.46299	1.36779	7.19			(Conc=50.00)

RF - Response Factor from daily standard file at 50.00 ng/ul

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: 06/26/92

Contractor: _____ Time: 09:29

Contract No: _____ Laboratory ID: >RNA26

Instrument ID: 2824A11156 Initial Calibration Date: 06/09/92

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

Compound	RF	RF	%Diff	CCC	SPCC
Butylbenzylphthalate	1.02431	1.31391	28.27		
3,3'-Dichlorobenzidine	.09783	.08569	12.41		
Benzo(a)Anthracene	1.37104	1.37307	.14		
Bis(2-Ethylhexyl)phthalate	.90371	1.10831	22.64		
Chrysene	1.32547	1.31360	.90		✓
Di-n-octylphthalate	2.12243	2.25307	6.16	*	
Benzo(b)Fluoranthene	1.71804	1.49677	12.88		
Benzo(k)fluoranthene	1.71893	1.57044	8.64		✓
Benzo(a)pyrene	1.42410	1.32530	6.94	*	
Indeno(1,2,3-cd)Pyrene	.87532	.92770	5.98		
Dibenz(a,h)Anthracene	.87325	.93442	7.00		
Benzo(g,h,i)Perylene	.95019	1.02290	7.65		

RF - Response Factor from daily standard file at 50.00 ng/uL

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 (**)

QUALITY CONTROL

C81

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
~~920613-H004~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2200

Source: [redacted]

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15152-003A

Lab Notebook:	240, Pg. 73	Date Sampled:	06-10-92
Sample Weight:	10.0 (g)	Date Received:	06-16-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-17-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-18-92
pH: 7.0	Percent Solid: 86	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	581	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	581	U	
3.	95-57-8	2-Chlorophenol	581	U	
4.	541-73-1	1,3-Dichlorobenzene	1160	U	
5.	106-46-7	1,4-Dichlorobenzene	1160	U	
6.	95-50-1	1,2-Dichlorobenzene	1160	U	
7.	95-48-7	2-Methylphenol	581	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1160	U	
9.	106-44-5	4-Methylphenol	581	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1160	U	
11.	67-72-1	Hexachloroethane	1160	U	
12.	98-95-3	Nitrobenzene	581	U	
13.	78-59-1	Isophorone	581	U	
14.	88-75-5	2-Nitrophenol	1160	U	
15.	105-67-9	2,4-Dimethylphenol	581	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	581	U	
17.	120-83-2	2,4-Dichlorophenol	1160	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1160	U	
19.	91-20-3	Naphthalene	349	U	
20.	106-47-8	4-Chloroaniline	3490	U	
21.	87-68-3	Hexachlorobutadiene	3490	U	
22.	59-50-7	4-Chloro-3-methylphenol	581	U	
23.	91-57-6	2-Methylnaphthalene	349	U	
24.	77-47-4	Hexachlorocyclopentadiene	3490	U	
25.	88-06-2	2,4,6-Trichlorophenol	1160	U	
26.	95-95-4	2,4,5-Trichlorophenol	1160	U	
27.	91-58-7	2-Chloronaphthalene	581	U	
28.	88-74-4	2-Nitroaniline	3490	U	
29.	131-11-3	Dimethylphthalate	581	U	
30.	208-96-8	Acenaphthylene	581	U	
31.	606-20-2	2,6-Dinitrotoluene	1160	U	
32.	99-09-2	3-Nitroaniline	3490	U	
33.	83-32-9	Acenaphthene	581	U	
34.	51-28-5	2,4-Dinitrophenol	11600	U	
35.	100-02-7	4-Nitrophenol	5810	U	
36.	132-64-9	Dibenzofuran	1160	U	
37.	121-14-2	2,4-Dinitrotoluene	1160	U	
38.	84-66-2	Diethylphthalate	581	U	

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
920618-H004

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS Work Order: 2200

Source: [redacted]

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15152-003A

Lab Notebook:	240, Pg. 73	Date Sampled:	06-10-92
Sample Weight:	10.0 (g)	Date Received:	06-16-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-17-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-18-92
pH: 7.0	Percent Solid: 86	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1160	U	
40.	86-73-7	Fluorene	581	U	
41.	100-01-6	4-Nitroaniline	5810	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	5810	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	581	U	
44.	101-55-3	4-Bromophenyl-phenylether	1160	U	
45.	118-74-1	Hexachlorobenzene	1160	U	
46.	87-86-5	Pentachlorophenol	5810	U	
47.	85-01-8	Phenanthrene	581	U	
48.	120-12-7	Anthracene	581	U	
49.	86-74-8	Carbazole	1160	U	
50.	84-74-2	Di-n-butylphthalate	349	523	
51.	206-44-0	Fluoranthene	581	U	
52.	129-00-0	Pyrene	349	U	
53.	85-68-7	Butylbenzylphthalate	581	U	
54.	91-94-1	3,3'-Dichlorobenzidine	5810	U	
55.	56-55-3	Benzo(a)anthracene	581	U	
56.	218-01-9	Chrysene	581	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	349	490	
58.	117-84-0	Di-n-octylphthalate	581	U	
59.	205-99-2	Benzo(b)fluoranthene	2330	U	
60.	207-08-9	Benzo(k)fluoranthene	2330	U	
61.	50-32-8	Benzo(a)pyrene	1160	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2330	U	
63.	53-70-3	Dibenz(a,h)anthracene	2330	U	
64.	191-24-2	Benzo(g,h,i)perylene	2330	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	52	23-120	100
66.	2-Fluorobiphenyl	54	30-115	100
67.	Terphenyl-d14	69	18-137	100
68.	Phenol-d5	75	24-113	200
69.	2-Fluorophenol	65	25-112	200
70.	2,4,6-Tribromophenol	63	19-122	200

U: Below Detection Limit

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
~~920613-H004~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2200

Source: ~~Grissom AFB (GOB*516)~~

Matrix: (soil/water) Soil Duplicate EHRT Sample I.D.: 15152-003B

Lab Notebook: 234, Pg. 82
Sample Weight: 10.0 (g)
Conc. Extract Vol.: 1.0 (mL)
Injection Volume: 1.0 (uL)
pH: 7.0 Percent Solid: 86

Date Sampled: 06-10-92
Date Received: 06-16-92
Date Extracted: 06-18-92
Date Analyzed: 06-19-92
Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	581	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	581	U	
3.	95-57-8	2-Chlorophenol	581	U	
4.	541-73-1	1,3-Dichlorobenzene	1160	U	
5.	106-46-7	1,4-Dichlorobenzene	1160	U	
6.	95-50-1	1,2-Dichlorobenzene	1160	U	
7.	95-48-7	2-Methylphenol	581	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1160	U	
9.	106-44-5	4-Methylphenol	581	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1160	U	
11.	67-72-1	Hexachloroethane	1160	U	
12.	98-95-3	Nitrobenzene	581	U	
13.	78-59-1	Isophorone	581	U	
14.	88-75-5	2-Nitrophenol	1160	U	
15.	105-67-9	2,4-Dimethylphenol	581	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	581	U	
17.	120-83-2	2,4-Dichlorophenol	1160	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1160	U	
19.	91-20-3	Naphthalene	349	U	
20.	106-47-8	4-Chloroaniline	3490	U	
21.	87-68-3	Hexachlorobutadiene	3490	U	
22.	59-50-7	4-Chloro-3-methylphenol	581	U	
23.	91-57-6	2-Methylnaphthalene	349	U	
24.	77-47-4	Hexachlorocyclopentadiene	3490	U	
25.	88-06-2	2,4,6-Trichlorophenol	1160	U	
26.	95-95-4	2,4,5-Trichlorophenol	1160	U	
27.	91-58-7	2-Chloronaphthalene	581	U	
28.	88-74-4	2-Nitroaniline	3490	U	
29.	131-11-3	Dimethylphthalate	581	U	
30.	208-96-8	Acenaphthylene	581	U	
31.	606-20-2	2,6-Dinitrotoluene	1160	U	
32.	99-09-2	3-Nitroaniline	3490	U	
33.	83-32-9	Acenaphthene	581	U	
34.	51-28-5	2,4-Dinitrophenol	11600	U	
35.	100-02-7	4-Nitrophenol	5810	U	
36.	132-64-9	Dibenzofuran	1160	U	
37.	121-14-2	2,4-Dinitrotoluene	1160	U	
38.	84-66-2	Diethylphthalate	581	U	

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
920613-H004

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2200

Source: [redacted]

Matrix: (soil/water) Soil Duplicate EHRT Sample I.D.: 15152-003B

Lab Notebook:	234, Pg. 82	Date Sampled:	06-10-92
Sample Weight:	10.0 (g)	Date Received:	06-16-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-18-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-19-92
pH: 7.0	Percent Solid: 86	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1160	U	
40.	86-73-7	Fluorene	581	U	
41.	100-01-6	4-Nitroaniline	5810	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	5810	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	581	U	
44.	101-55-3	4-Bromophenyl-phenylether	1160	U	
45.	118-74-1	Hexachlorobenzene	1160	U	
46.	87-86-5	Pentachlorophenol	5810	U	
47.	85-01-8	Phenanthrene	581	U	
48.	120-12-7	Anthracene	581	U	
49.	86-74-8	Carbazole	1160	U	
50.	84-74-2	Di-n-butylphthalate	349	1500	
51.	206-44-0	Fluoranthene	581	U	
52.	129-00-0	Pyrene	349	U	
53.	85-68-7	Butylbenzylphthalate	581	U	
54.	91-94-1	3,3'-Dichlorobenzidine	5810	U	
55.	56-55-3	Benzo(a)anthracene	581	U	
56.	218-01-9	Chrysene	581	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	349	366	
58.	117-84-0	Di-n-octylphthalate	581	U	
59.	205-99-2	Benzo(b)fluoranthene	2330	U	
60.	207-08-9	Benzo(k)fluoranthene	2330	U	
61.	50-32-8	Benzo(a)pyrene	1160	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2330	U	
63.	53-70-3	Dibenz(a,h)anthracene	2330	U	
64.	191-24-2	Benzo(g,h,i)perylene	2330	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	57	23-120	100
66.	2-Fluorobiphenyl	72	30-115	100
67.	Terphenyl-d14	77	18-137	100
68.	Phenol-d5	56	24-113	200
69.	2-Fluorophenol	98	25-112	200
70.	2,4,6-Tribromophenol	52	19-122	200

U: Below Detection Limit

C85

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
~~920613-H001~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2200

Source: ~~Orlando AFB (CSP#200)~~

Matrix: (soil/water) Soil Sample **EHRT Sample I.D.:** 920613-H001

Lab Notebook:	240, Pg. 73	Date Sampled:	06-11-92
Sample Weight:	10.0 (g)	Date Received:	06-16-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-17-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-18-92
pH: 7.0	Percent Solid: 88	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	568	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	568	U	
3.	95-57-8	2-Chlorophenol	568	U	
4.	541-73-1	1,3-Dichlorobenzene	1140	U	
5.	106-46-7	1,4-Dichlorobenzene	1140	U	
6.	95-50-1	1,2-Dichlorobenzene	1140	U	
7.	95-48-7	2-Methylphenol	568	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1140	U	
9.	106-44-5	4-Methylphenol	568	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1140	U	
11.	67-72-1	Hexachloroethane	1140	U	
12.	98-95-3	Nitrobenzene	568	U	
13.	78-59-1	Isophorone	568	U	
14.	88-75-5	2-Nitrophenol	1140	U	
15.	105-67-9	2,4-Dimethylphenol	568	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	568	U	
17.	120-83-2	2,4-Dichlorophenol	1140	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1140	U	
19.	91-20-3	Naphthalene	341	U	
20.	106-47-8	4-Chloroaniline	3410	U	
21.	87-68-3	Hexachlorobutadiene	3410	U	
22.	59-50-7	4-Chloro-3-methylphenol	568	U	
23.	91-57-6	2-Methylnaphthalene	341	U	
24.	77-47-4	Hexachlorocyclopentadiene	3410	U	
25.	88-06-2	2,4,6-Trichlorophenol	1140	U	
26.	95-95-4	2,4,5-Trichlorophenol	1140	U	
27.	91-58-7	2-Chloronaphthalene	568	U	
28.	88-74-4	2-Nitroaniline	3410	U	
29.	131-11-3	Dimethylphthalate	568	U	
30.	208-96-8	Acenaphthylene	568	U	
31.	606-20-2	2,6-Dinitrotoluene	1140	U	
32.	99-09-2	3-Nitroaniline	3410	U	
33.	83-32-9	Acenaphthene	568	U	
34.	51-28-5	2,4-Dinitrophenol	11400	U	
35.	100-02-7	4-Nitrophenol	5680	U	
36.	132-64-9	Dibenzofuran	1140	U	
37.	121-14-2	2,4-Dinitrotoluene	1140	U	
38.	84-66-2	Diethylphthalate	568	U	

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
~~920613-H001~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2200

Source: [redacted]

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 920613-H001

Lab Notebook:	240, Pg. 73	Date Sampled:	06-11-92
Sample Weight:	10.0 (g)	Date Received:	06-16-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-17-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-18-92
pH: 7.0	Percent Solid: 88	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1140	U	
40.	86-73-7	Fluorene	568	U	
41.	100-01-6	4-Nitroaniline	5680	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	5680	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	568	U	
44.	101-55-3	4-Bromophenyl-phenylether	1140	U	
45.	118-74-1	Hexachlorobenzene	1140	U	
46.	87-86-5	Pentachlorophenol	5680	U	
47.	85-01-8	Phenanthrene	568	U	
48.	120-12-7	Anthracene	568	U	
49.	86-74-8	Carbazole	1140	U	
50.	84-74-2	Di-n-butylphthalate	341	1120	
51.	206-44-0	Fluoranthene	568	U	
52.	129-00-0	Pyrene	341	U	
53.	85-68-7	Butylbenzylphthalate	568	U	
54.	91-94-1	3,3'-Dichlorobenzidine	5680	U	
55.	56-55-3	Benzo(a)anthracene	568	U	
56.	218-01-9	Chrysene	568	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	341	470	
58.	117-84-0	Di-n-octylphthalate	568	U	
59.	205-99-2	Benzo(b)fluoranthene	2270	U	
60.	207-08-9	Benzo(k)fluoranthene	2270	U	
61.	50-32-8	Benzo(a)pyrene	1140	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2270	U	
63.	53-70-3	Dibenz(a,h)anthracene	2270	U	
64.	191-24-2	Benzo(g,h,i)perylene	2270	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	59	23-120	100
66.	2-Fluorobiphenyl	55	30-115	100
67.	Terphenyl-d14	90	18-137	100
68.	Phenol-d5	60	24-113	200
69.	2-Fluorophenol	54	25-112	200
70.	2,4,6-Tribromophenol	46	19-122	200

U: Below Detection Limit

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Customer Sample No.: 920613-H001 Work Order: 2200

EHRT Sample No.: 15152-001 Project No.: 15152

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS% REC #	QC LIMITS REC.
Phenol	20,000	0.0	7,982	40	26-90
2-Chlorophenol	20,000	0.0	8,390	42	25-102
1,4-Dichlorobenzene	10,000	0.0	2,784	28	28-104
N-Nitroso-di-n-Propylamine	10,000	0.0	4,125	41	41-126
1,2,4-Trichlorobenzene	10,000	0.0	2,661	27*	38-107
4-Chloro-3-Methylphenol	20,000	0.0	6,434	32	26-103
Acenaphthene	10,000	0.0	4,377	44	31-137
4-Nitrophenol	20,000	0.0	7,672	38	11-114
2,4-Dinitrotoluene	10,000	0.0	4,468	45	28-89
Pentachlorophenol	20,000	0.0	7,122	36	17-109
Pyrene	10,000	0.0	3,918	39	35-142

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONC. (ug/kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	20,000	8,044	40	0	35	26-90
2-Chlorophenol	20,000	8,889	44	5	50	25-102
1,4-Dichlorobenzene	10,000	2,820	28	0	27	28-104
N-Nitroso-di-n-Propylamine	10,000	4,469	45	9	38	41-126
1,2,4-Trichlorobenzene	10,000	2,852	29*	7	23	38-107
4-Chloro-3-Methylphenol	20,000	7,123	36	12	33	26-103
Acenaphthene	10,000	4,743	47	7	19	31-137
4-Nitrophenol	20,000	7,853	39	3	50	11-114
2,4-Dinitrotoluene	10,000	4,912	49	9	47	28-89
Pentachlorophenol	20,000	7,773	39	8	47	17-109
Pyrene	10,000	3,922	39	0	36	35-142

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

* Values outside of QC limits

RPD: 0 out of 11 outside limits

Spike Recovery: 2 out of 22 outside limits

COMMENTS:

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 920625-H020

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2236

Source: Stratford Army Engine Plant (WC-2D-2.5-4.5)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15223-002

Lab Notebook: 240, Pg. 91
Sample Weight: 10.0 (g)
Conc. Extract Vol.: 1.0 (mL)
Injection Volume: 1.0 (uL)
pH: 7.0 Percent Solid: 94

Date Sampled: 06-23-92
Date Received: 06-26-92
Date Extracted: 07-02-92
Date Analyzed: 07-03-92
Dilution Factor: 10

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	5320	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	5320	U	
3.	95-57-8	2-Chlorophenol	5320	U	
4.	541-73-1	1,3-Dichlorobenzene	10600	U	
5.	106-46-7	1,4-Dichlorobenzene	10600	U	
6.	95-50-1	1,2-Dichlorobenzene	10600	U	
7.	95-48-7	2-Methylphenol	5320	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	10600	U	
9.	106-44-5	4-Methylphenol	5320	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	10600	U	
11.	67-72-1	Hexachloroethane	10600	U	
12.	98-95-3	Nitrobenzene	5320	U	
13.	78-59-1	Isophorone	5320	U	
14.	88-75-5	2-Nitrophenol	10600	U	
15.	105-67-9	2,4-Dimethylphenol	5320	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	5320	U	
17.	120-83-2	2,4-Dichlorophenol	10600	U	
18.	120-82-1	1,2,4-Trichlorobenzene	10600	U	
19.	91-20-3	Naphthalene	3190	1970	
20.	106-47-8	4-Chloroaniline	31900	U	
21.	87-68-3	Hexachlorobutadiene	31900	U	
22.	59-50-7	4-Chloro-3-methylphenol	5320	U	
23.	91-57-6	2-Methylnaphthalene	3190	6480	
24.	77-47-4	Hexachlorocyclopentadiene	31900	U	
25.	88-06-2	2,4,6-Trichlorophenol	10600	U	
26.	95-95-4	2,4,5-Trichlorophenol	10600	U	
27.	91-58-7	2-Chloronaphthalene	5320	U	
28.	88-74-4	2-Nitroaniline	31900	U	
29.	131-11-3	Dimethylphthalate	5320	U	
30.	208-96-8	Acenaphthylene	5320	U	
31.	606-20-2	2,6-Dinitrotoluene	10600	U	
32.	99-09-2	3-Nitroaniline	31900	U	
33.	83-32-9	Acenaphthene	5320	U	
34.	51-28-5	2,4-Dinitrophenol	106000	U	
35.	100-02-7	4-Nitrophenol	53200	U	
36.	132-64-9	Dibenzofuran	10600	U	
37.	121-14-2	2,4-Dinitrotoluene	10600	U	
38.	84-66-2	Diethylphthalate	5320	U	

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 920625-H020

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2236

Source: Stratford Army Engine Plant (WC-2D-2.5-4.5)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15223-002

Lab Notebook:	240, Pg. 91	Date Sampled:	06-23-92
Sample Weight:	10.0 (g)	Date Received:	06-26-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	07-02-92
Injection Volume:	1.0 (uL)	Date Analyzed:	07-03-92
pH: 7.0	Percent Solid: 94	Dilution Factor:	10

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	10600	U	
40.	86-73-7	Fluorene	5320	U	
41.	100-01-6	4-Nitroaniline	53200	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	53200	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	5320	U	
44.	101-55-3	4-Bromophenyl-phenylether	10600	U	
45.	118-74-1	Hexachlorobenzene	10600	U	
46.	87-86-5	Pentachlorophenol	53200	U	
47.	85-01-8	Phenanthrene	5320	1560	
48.	120-12-7	Anthracene	5320	U	
49.	86-74-8	Carbazole	10600	U	
50.	84-74-2	Di-n-butylphthalate	3190	1810	B
51.	206-44-0	Fluoranthene	5320	1130	
52.	129-00-0	Pyrene	3190	1040	
53.	85-68-7	Butylbenzylphthalate	5320	U	
54.	91-94-1	3,3'-Dichlorobenzidine	53200	U	
55.	56-55-3	Benzo(a)anthracene	5320	U	
56.	218-01-9	Chrysene	5320	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	3190	U	
58.	117-84-0	Di-n-octylphthalate	5320	U	
59.	205-99-2	Benzo(b)fluoranthene	21300	U	
60.	207-08-9	Benzo(k)fluoranthene	21300	U	
61.	50-32-8	Benzo(a)pyrene	10600	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	21300	U	
63.	53-70-3	Dibenz(a,h)anthracene	21300	U	
64.	191-24-2	Benzo(g,h,i)perylene	21300	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	56	23-120	100
66.	2-Fluorobiphenyl	93	30-115	100
67.	Terphenyl-d14	77	18-137	100
68.	Phenol-d5	79	24-113	200
69.	2-Fluorophenol	84	25-112	200
70.	2,4,6-Tribromophenol	47	19-122	200

U: Below Detection Limit

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
(EPA Method 8270)

SAMPLE NO.
920625-H020

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2236

Source: Stratford Army Engine Plant (WC-2D-2.5-4.5)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15223-002

Lab Notebook:	240, Pg. 91	Date Sampled:	06-23-92
Sample Weight:	10.0 (g)	Date Received:	06-26-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	07-02-92
Injection Volume:	1.0 (uL)	Date Analyzed:	07-03-92
pH: 7.0	Percent Solid: 94	Dilution Factor:	10

	CAS NO.	COMPOUND NAME	RT/Scan #	EST. CONC. (ug/kg)
1.	15869940	Octane, 3,6-dimethyl-	11.00	6,400
2.	17302282	Nonane, 2,6-dimethyl-	13.88	12,000
3.		C10 H20	14.17	6,800
4.		C11 H24	14.32	5,700
5.		C11 H24	14.77	5,900
6.	493027	Naphthalene, decahydro-, trans-	14.85	11,000
7.		C10 H14	15.29	11,000
8.		C9 H14 S	15.74	4,500
9.	2958761	Naphthalene, decahydro-2-methyl-	16.17	9,700
10.		C11 H20	16.52	8,100
11.		C10 H14	16.92	11,000
12.		C6 H10 Cl N	17.81	7,100
13.	6044719	Dodecane, 6-methyl-	18.06	17,000
14.		C12 H24	18.59	7,300
15.		C9 H13 N3 O	18.74	4,000
16.	26730143	Tridecane, 7-methyl-	19.07	15,000
17.	90120	Naphthalene, 1-methyl-	19.88	4,500
18.		C6 H10 O	20.31	8,100
19.	573988	Naphthalene, 1,2-dimethyl-	21.53	7,100
20.		C15 H28	21.65	8,800
21.	17312628	Decane, 5-propyl-	21.92	14,000

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2236

Source: Stratford Army Engine Plant

Matrix: (soil/water) Soil Blank EHRT Sample I.D.: N/A

Lab Notebook: 240, Pg. 91
Sample Weight: 10.0 (g)
Conc. Extract Vol.: 1.0 (mL)
Injection Volume: 1.0 (uL)
pH: 7.0 Percent Solid: 100

Date Sampled: N/A
Date Received: N/A
Date Extracted: 07-02-92
Date Analyzed: 07-03-92
Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	500	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	500	U	
3.	95-57-8	2-Chlorophenol	500	U	
4.	541-73-1	1,3-Dichlorobenzene	1000	U	
5.	106-46-7	1,4-Dichlorobenzene	1000	U	
6.	95-50-1	1,2-Dichlorobenzene	1000	U	
7.	95-48-7	2-Methylphenol	500	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1000	U	
9.	106-44-5	4-Methylphenol	500	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1000	U	
11.	67-72-1	Hexachloroethane	1000	U	
12.	98-95-3	Nitrobenzene	500	U	
13.	78-59-1	Isophorone	500	U	
14.	88-75-5	2-Nitrophenol	1000	U	
15.	105-67-9	2,4-Dimethylphenol	500	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	500	U	
17.	120-83-2	2,4-Dichlorophenol	1000	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1000	U	
19.	91-20-3	Naphthalene	300	U	
20.	106-47-8	4-Chloroaniline	3000	U	
21.	87-68-3	Hexachlorobutadiene	3000	U	
22.	59-50-7	4-Chloro-3-methylphenol	500	U	
23.	91-57-6	2-Methylnaphthalene	300	U	
24.	77-47-4	Hexachlorocyclopentadiene	3000	U	
25.	88-06-2	2,4,6-Trichlorophenol	1000	U	
26.	95-95-4	2,4,5-Trichlorophenol	1000	U	
27.	91-58-7	2-Chloronaphthalene	500	U	
28.	88-74-4	2-Nitroaniline	3000	U	
29.	131-11-3	Dimethylphthalate	500	U	
30.	208-96-8	Acenaphthylene	500	U	
31.	606-20-2	2,6-Dinitrotoluene	1000	U	
32.	99-09-2	3-Nitroaniline	3000	U	
33.	83-32-9	Acenaphthene	500	U	
34.	51-28-5	2,4-Dinitrophenol	10000	U	
35.	100-02-7	4-Nitrophenol	5000	U	
36.	132-64-9	Dibenzofuran	1000	U	
37.	121-14-2	2,4-Dinitrotoluene	1000	U	
38.	84-66-2	Diethylphthalate	500	U	

C92

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2236

Source: Stratford Army Engine Plant

Matrix: (soil/water) Soil Blank EHRT Sample I.D.: N/A

Lab Notebook: 240, Pg. 91 Date Sampled: N/A
Sample Weight: 10.0 (g) Date Received: N/A
Conc. Extract Vol.: 1.0 (mL) Date Extracted: 07-02-92
Injection Volume: 1.0 (uL) Date Analyzed: 07-03-92
pH: 7.0 Percent Solid: 100 Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1000	U	
40.	86-73-7	Fluorene	500	U	
41.	100-01-6	4-Nitroaniline	5000	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	5000	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	500	U	
44.	101-55-3	4-Bromophenyl-phenylether	1000	U	
45.	118-74-1	Hexachlorobenzene	1000	U	
46.	87-86-5	Pentachlorophenol	5000	U	
47.	85-01-8	Phenanthrene	500	U	
48.	120-12-7	Anthracene	500	U	
49.	86-74-8	Carbazole	1000	U	
50.	84-74-2	Di-n-butylphthalate	300	2830	*
51.	206-44-0	Fluoranthene	500	U	
52.	129-00-0	Pyrene	300	U	
53.	85-68-7	Butylbenzylphthalate	500	U	
54.	91-94-1	3,3'-Dichlorobenzidine	5000	U	
55.	56-55-3	Benzo(a)anthracene	500	U	
56.	218-01-9	Chrysene	500	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	300	U	
58.	117-84-0	Di-n-octylphthalate	500	U	
59.	205-99-2	Benzo(b)fluoranthene	2000	U	
60.	207-08-9	Benzo(k)fluoranthene	2000	U	
61.	50-32-8	Benzo(a)pyrene	1000	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2000	U	
63.	53-70-3	Dibenz(a,h)anthracene	2000	U	
64.	191-24-2	Benzo(g,h,i)perylene	2000	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	70	23-120	100
66.	2-Fluorobiphenyl	68	30-115	100
67.	Terphenyl-d14	97	18-137	100
68.	Phenol-d5	74	24-113	200
69.	2-Fluorophenol	50	25-112	200
70.	2,4,6-Tribromophenol	77	19-122	200

U: Below Detection Limit

* Lab Contamination

MGR : TUNER,=DFTPP

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GC/MS PERFORMANCE STANDARD

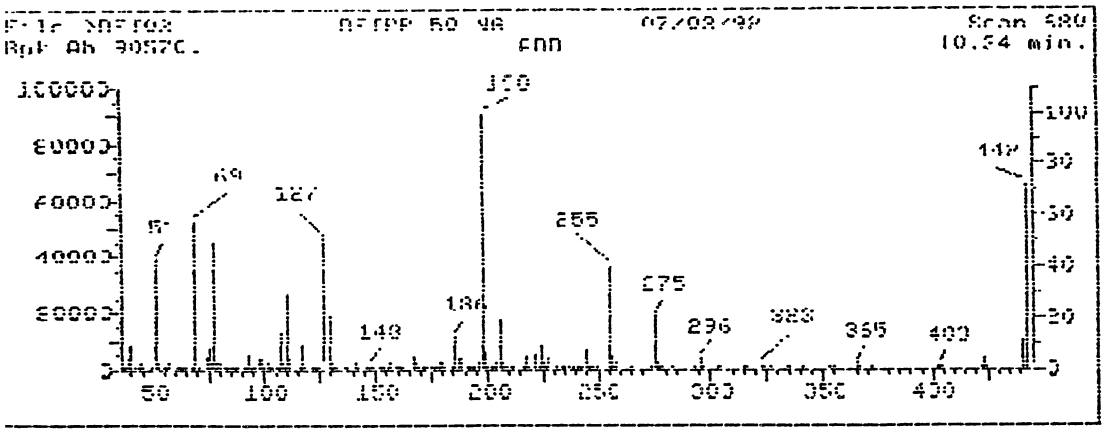
Decafluorotriphenylphospine (DFTPP)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	43.15	43.15	Ok
68	Less than 2% of mass 69	.87	1.51	Ok
69	(reference only)	57.76	57.76	Ok
70	Less than 2% of mass 69	.40	.70	Ok
127	40-60% of mass 198	50.80	50.80	Ok
197	Less than 1% of mass 198	.33	.33	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	6.41	6.41	Ok
275	10-30% of mass 198	20.50	20.50	Ok
365	Greater than 1% of mass 198	1.97	1.97	Ok
441	0-100% of mass 443	10.70	80.36	Ok
442	Greater than 40% of mass 198	71.75	71.75	Ok
443	17-23% of mass 442	13.32	18.57	Ok

Injection Date: 07/03/92
Injection Time: 08:22
Data File: >DFT03
Scan: 680

GC/MS #1
2824 A 11156
7/3/92

MGR :



C-74

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 07/03/92

Contractor: Time: 09:55

Contract No: Laboratory ID: >BNA03

Instrument ID: 2824A11156 Initial Calibration Date: 06/09/92

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

Compound	RF	RF	%Diff	CCC	SPCC	
Pyridine	-	-	-			
Aniline	.84648	.99798	17.90			
2-Fluorophenol	.71560	.67995	5.08			(Conc=100.00)
Phenol-d5	.65841	.56868	13.63			(Conc=100.00)
Phenol	.88341	.80800	8.54	*		
Benzyl alcohol	.43234	.51388	18.86			
bis(2-Chloroethyl)Ether	1.02029	.99749	2.24			
2-Methylphenol	.52929	.47584	10.10			
3-Methylphenol	.60598	.62679	3.43			
ylphenol	.47905	.49039	2.35			
irophenol	.83629	.86513	3.45			
1,3-Dichlorobenzene	1.13190	1.07617	4.92			
1,4-Dichlorobenzene	1.04007	.94331	9.30	*		
1,2-Dichlorobenzene	1.05939	1.03734	2.08			
Bis(2-Chloroisopropyl)ether	1.16814	1.28859	10.29			
N-Nitroso-Di-n-propylamine	.69863	.70905	1.49		**	
Hexachloroethane	.48855	.50177	2.71			
Nitrobenzene-d5	.44159	.54205	22.75			(Conc=50.00)
Nitrobenzene	.56378	.70888	25.72			
Isophorone	1.03446	1.09863	6.20			
2-Nitrophenol	.22266	.24201	8.69	*		
2,4-Dimethylphenol	.46900	.59679	27.25			
Benzoic acid	.10344	.09595	7.24			
bis(2-Chloroethoxy)methane	.56363	.66585	18.14			
2,4-Dichlorophenol	.30134	.33895	12.48	*		
1,2,4-Trichlorobenzene	.39826	.48106	20.79			
Naphthalene	.85305	.84251	1.24			
4-Chloroaniline	.25387	-	-			
Hexachlorobutadiene	.22206	.26973	21.47	*		
4-Chloro-3-methylphenol	.29961	.36041	20.29	*		
2-Methylnaphthalene	.53997	.63472	17.55			
Hexachlorocyclopentadiene	.65879	.56932	13.57		**	

GC/MS #1
2824A11156
7/3/92

CF - Response Factor from daily standard file at 50.00 ng/ul

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: 07/03/99

Contractor: Time: 09:55

Contract No: Laboratory ID: >RNA03

Instrument ID: 2824A11156 Initial Calibration Date: 06/09/99

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

Compound	RF	RF	%Diff	CCC	SPCC	
2,4,6-Trichlorophenol	.47621	.41361	13.15	*		
2-Chloronaphthalene	1.61445	1.37427	14.88			
2-Fluorobiphenyl	1.52018	1.25347	18.86			(Conc=50.00)
Dimethylphthalate	1.61296	1.46605	9.11			
Acenaphthylene	2.00743	1.53981	23.29			
Acenaphthene	1.32013	1.20100	9.02	*		
2,4-Dinitrophenol	.08770	.08833	.72		**	
4-Nitrophenol	.20110	.13377	33.48		**	
2,4-Dinitrotoluene	.42899	.37700	12.12			
2,6-Dinitrotoluene	.36699	.36520	.49			
2-Nitroaniline	.48921	.41315	15.55			
3-Nitroaniline	.19397	.18735	3.41			
4-Nitroaniline	.29805	.24253	18.63			
Diethylphthalate	1.44748	1.30884	9.58			
Dibenzofuran	1.55432	1.36695	12.05			
2,4,5-Trichlorophenol	.38272	.41361	8.07			
4-Chlorophenyl-phenylether	.65658	.59538	9.32			
Fluorene	1.20702	1.07494	10.94			
2,4,6 Tribromophenol	.11132	.06946	37.61			(Conc=100.00)
N-Nitrosodiphenylamine	.68665	.67616	1.53	*		
4,6-Dinitro-2-methylphenol	.09990	.11220	12.32			
4-Bromophenyl-phenylether	.24609	.24626	.07			
Hexachlorobenzene	.28274	.26202	7.33			
Pentachlorophenol	.11547	.09399	18.61	*		
Phenanthrene	1.17590	1.15520	1.76			
Anthracene	1.19822	1.18284	1.28			
Carbazole	.98787	.77338	21.71			
Di-n-Butylphthalate	1.42496	1.30907	8.13			
Fluoranthene	1.05421	.90638	14.02	*		
Benzidine	.09803	-	-			
Pyrene	3.02821	3.76662	24.36			
Terphenyl-d14	1.46299	1.61424	10.34			(Conc=50.00)

RF - Response Factor from daily standard file at 50.00 ng/ul

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: 07/03/92

Contractor: Time: 09:55

Contract No: Laboratory ID: >RNA03

Instrument ID: 2824A11156 Initial Calibration Date: 06/09/92

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

Compound	RF	RF	%Diff	CCC	SPCC
Butylbenzylphthalate	1.02431	1.23717	20.78		
3,3'-Dichlorobenzidine	.09783	.03186	67.44		
Benzo(a)Anthracene	1.37104	1.30311	4.95		
Bis(2-Ethylhexyl)phthalate	.90371	1.02335	13.24		
Chrysene	1.32547	1.24098	6.37		
Di-n-octylphthalate	2.12243	2.19324	3.34	*	
Benzo(b)Fluoranthene	1.71804	1.61150	6.20		
Benzo(k)fluoranthene	1.71893	1.96676	14.42		
[illegible](a)pyrene	1.42410	1.35862	4.60	*	
(1,2,3-cd)Pyrene	.87539	.72887	16.73		
[illegible](a,h)Anthracene	.87325	.85011	2.65		
Benzo(g,h,i)Perylene	.95019	.80115	15.69		

RF - Response Factor from daily standard file at 50.00 ng/ul

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 (**)

C97

QUALITY CONTROL

ORGANICS

C96

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
~~920613-H~~004

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2200

Source: ~~Grissom AFB (GOB-03~~3)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15152-003A

Lab Notebook:	240, Pg. 73	Date Sampled:	06-10-92
Sample Weight:	10.0 (g)	Date Received:	06-16-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-17-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-18-92
pH: 7.0	Percent Solid: 86	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	581	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	581	U	
3.	95-57-8	2-Chlorophenol	581	U	
4.	541-73-1	1,3-Dichlorobenzene	1160	U	
5.	106-46-7	1,4-Dichlorobenzene	1160	U	
6.	95-50-1	1,2-Dichlorobenzene	1160	U	
7.	95-48-7	2-Methylphenol	581	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1160	U	
9.	106-44-5	4-Methylphenol	581	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1160	U	
11.	67-72-1	Hexachloroethane	1160	U	
12.	98-95-3	Nitrobenzene	581	U	
13.	78-59-1	Isophorone	581	U	
14.	88-75-5	2-Nitrophenol	1160	U	
15.	105-67-9	2,4-Dimethylphenol	581	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	581	U	
17.	120-83-2	2,4-Dichlorophenol	1160	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1160	U	
19.	91-20-3	Naphthalene	349	U	
20.	106-47-8	4-Chloroaniline	3490	U	
21.	87-68-3	Hexachlorobutadiene	3490	U	
22.	59-50-7	4-Chloro-3-methylphenol	581	U	
23.	91-57-6	2-Methylnaphthalene	349	U	
24.	77-47-4	Hexachlorocyclopentadiene	3490	U	
25.	88-06-2	2,4,6-Trichlorophenol	1160	U	
26.	95-95-4	2,4,5-Trichlorophenol	1160	U	
27.	91-58-7	2-Chloronaphthalene	581	U	
28.	88-74-4	2-Nitroaniline	3490	U	
29.	131-11-3	Dimethylphthalate	581	U	
30.	208-96-8	Acenaphthylene	581	U	
31.	606-20-2	2,6-Dinitrotoluene	1160	U	
32.	99-09-2	3-Nitroaniline	3490	U	
33.	83-32-9	Acenaphthene	581	U	
34.	51-28-5	2,4-Dinitrophenol	11600	U	
35.	100-02-7	4-Nitrophenol	5810	U	
36.	132-64-9	Dibenzofuran	1160	U	
37.	121-14-2	2,4-Dinitrotoluene	1160	U	
38.	84-66-2	Diethylphthalate	581	U	

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.: 920613-H004

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2200

Source: [redacted]

Matrix: (soil/water) Soil Sample **EHRT Sample I.D.:** 15152-003A

Lab Notebook:	240, Pg. 73	Date Sampled:	06-10-92
Sample Weight:	10.0 (g)	Date Received:	06-16-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-17-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-18-92
pH: 7.0	Percent Solid: 86	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1160	U	
40.	86-73-7	Fluorene	581	U	
41.	100-01-6	4-Nitroaniline	5810	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	5810	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	581	U	
44.	101-55-3	4-Bromophenyl-phenylether	1160	U	
45.	118-74-1	Hexachlorobenzene	1160	U	
46.	87-86-5	Pentachlorophenol	5810	U	
47.	85-01-8	Phenanthrene	581	U	
48.	120-12-7	Anthracene	581	U	
49.	86-74-8	Carbazole	1160	U	
50.	84-74-2	Di-n-butylphthalate	349	523	
51.	206-44-0	Fluoranthene	581	U	
52.	129-00-0	Pyrene	349	U	
53.	85-68-7	Butylbenzylphthalate	581	U	
54.	91-94-1	3,3'-Dichlorobenzidine	5810	U	
55.	56-55-3	Benzo(a)anthracene	581	U	
56.	218-01-9	Chrysene	581	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	349	490	
58.	117-84-0	Di-n-octylphthalate	581	U	
59.	205-99-2	Benzo(b)fluoranthene	2330	U	
60.	207-08-9	Benzo(k)fluoranthene	2330	U	
61.	50-32-8	Benzo(a)pyrene	1160	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2330	U	
63.	53-70-3	Dibenz(a,h)anthracene	2330	U	
64.	191-24-2	Benzo(g,h,i)perylene	2330	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	52	23-120	100
66.	2-Fluorobiphenyl	54	30-115	100
67.	Terphenyl-d14	69	18-137	100
68.	Phenol-d5	75	24-113	200
69.	2-Fluorophenol	65	25-112	200
70.	2,4,6-Tribromophenol	63	19-122	200

U: Below Detection Limit

C10

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
~~920613-H004~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2200

Source: [redacted] AFB (GSP#5[redacted])

Matrix: (soil/water) Soil Duplicate **EHRT Sample I.D.:** 15152-003B

Lab Notebook:	234, Pg. 82	Date Sampled:	06-10-92
Sample Weight:	10.0 (g)	Date Received:	06-16-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-18-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-19-92
pH: 7.0	Percent Solid: 86	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	581	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	581	U	
3.	95-57-8	2-Chlorophenol	581	U	
4.	541-73-1	1,3-Dichlorobenzene	1160	U	
5.	106-46-7	1,4-Dichlorobenzene	1160	U	
6.	95-50-1	1,2-Dichlorobenzene	1160	U	
7.	95-48-7	2-Methylphenol	581	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1160	U	
9.	106-44-5	4-Methylphenol	581	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1160	U	
11.	67-72-1	Hexachloroethane	1160	U	
12.	98-95-3	Nitrobenzene	581	U	
13.	78-59-1	Isophorone	581	U	
14.	88-75-5	2-Nitrophenol	1160	U	
15.	105-67-9	2,4-Dimethylphenol	581	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	581	U	
17.	120-83-2	2,4-Dichlorophenol	1160	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1160	U	
19.	91-20-3	Naphthalene	349	U	
20.	106-47-8	4-Chloroaniline	3490	U	
21.	87-68-3	Hexachlorobutadiene	3490	U	
22.	59-50-7	4-Chloro-3-methylphenol	581	U	
23.	91-57-6	2-Methylnaphthalene	349	U	
24.	77-47-4	Hexachlorocyclopentadiene	3490	U	
25.	88-06-2	2,4,6-Trichlorophenol	1160	U	
26.	95-95-4	2,4,5-Trichlorophenol	1160	U	
27.	91-58-7	2-Chloronaphthalene	581	U	
28.	88-74-4	2-Nitroaniline	3490	U	
29.	131-11-3	Dimethylphthalate	581	U	
30.	208-96-8	Acenaphthylene	581	U	
31.	606-20-2	2,6-Dinitrotoluene	1160	U	
32.	99-09-2	3-Nitroaniline	3490	U	
33.	83-32-9	Acenaphthene	581	U	
34.	51-28-5	2,4-Dinitrophenol	11600	U	
35.	100-02-7	4-Nitrophenol	5810	U	
36.	132-64-9	Dibenzofuran	1160	U	
37.	121-14-2	2,4-Dinitrotoluene	1160	U	
38.	84-66-2	Diethylphthalate	581	U	

C101

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.: ~~920613-H004~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS Work Order: 2200

Source: Grissom AFB [redacted]

Matrix: (soil/water) Soil Duplicate EHRT Sample I.D.: 15152-003B

Lab Notebook:	234, Pg. 82	Date Sampled:	06-10-92
Sample Weight:	10.0 (g)	Date Received:	06-16-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-18-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-19-92
pH: 7.0	Percent Solid: 86	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1160	U	
40.	86-73-7	Fluorene	581	U	
41.	100-01-6	4-Nitroaniline	5810	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	5810	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	581	U	
44.	101-55-3	4-Bromophenyl-phenylether	1160	U	
45.	118-74-1	Hexachlorobenzene	1160	U	
46.	87-86-5	Pentachlorophenol	5810	U	
47.	85-01-8	Phenanthrene	581	U	
48.	120-12-7	Anthracene	581	U	
49.	86-74-8	Carbazole	1160	U	
50.	84-74-2	Di-n-butylphthalate	349	1500	
51.	206-44-0	Fluoranthene	581	U	
52.	129-00-0	Pyrene	349	U	
53.	85-68-7	Butylbenzylphthalate	581	U	
54.	91-94-1	3,3'-Dichlorobenzidine	5810	U	
55.	56-55-3	Benzo(a)anthracene	581	U	
56.	218-01-9	Chrysene	581	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	349	366	
58.	117-84-0	Di-n-octylphthalate	581	U	
59.	205-99-2	Benzo(b)fluoranthene	2330	U	
60.	207-08-9	Benzo(k)fluoranthene	2330	U	
61.	50-32-8	Benzo(a)pyrene	1160	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2330	U	
63.	53-70-3	Dibenz(a,h)anthracene	2330	U	
64.	191-24-2	Benzo(g,h,i)perylene	2330	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	57	23-120	100
66.	2-Fluorobiphenyl	72	30-115	100
67.	Terphenyl-d14	77	18-137	100
68.	Phenol-d5	56	24-113	200
69.	2-Fluorophenol	98	25-112	200
70.	2,4,6-Tribromophenol	52	19-122	200

U: Below Detection Limit

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
920613-H001

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2200

Source: [redacted] AFB ([redacted])

Matrix: (soil/water) Soil Sample **EHRT Sample I.D.:** 920613-H001

Lab Notebook:	240, Pg. 73	Date Sampled:	06-11-92
Sample Weight:	10.0 (g)	Date Received:	06-16-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-17-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-18-92
pH: 7.0	Percent Solid: 88	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	568	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	568	U	
3.	95-57-8	2-Chlorophenol	568	U	
4.	541-73-1	1,3-Dichlorobenzene	1140	U	
5.	106-46-7	1,4-Dichlorobenzene	1140	U	
6.	95-50-1	1,2-Dichlorobenzene	1140	U	
7.	95-48-7	2-Methylphenol	568	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1140	U	
9.	106-44-5	4-Methylphenol	568	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1140	U	
11.	67-72-1	Hexachloroethane	1140	U	
12.	98-95-3	Nitrobenzene	568	U	
13.	78-59-1	Isophorone	568	U	
14.	88-75-5	2-Nitrophenol	1140	U	
15.	105-67-9	2,4-Dimethylphenol	568	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	568	U	
17.	120-83-2	2,4-Dichlorophenol	1140	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1140	U	
19.	91-20-3	Naphthalene	341	U	
20.	106-47-8	4-Chloroaniline	3410	U	
21.	87-68-3	Hexachlorobutadiene	3410	U	
22.	59-50-7	4-Chloro-3-methylphenol	568	U	
23.	91-57-6	2-Methylnaphthalene	341	U	
24.	77-47-4	Hexachlorocyclopentadiene	3410	U	
25.	88-06-2	2,4,6-Trichlorophenol	1140	U	
26.	95-95-4	2,4,5-Trichlorophenol	1140	U	
27.	91-58-7	2-Chloronaphthalene	568	U	
28.	88-74-4	2-Nitroaniline	3410	U	
29.	131-11-3	Dimethylphthalate	568	U	
30.	208-96-8	Acenaphthylene	568	U	
31.	606-20-2	2,6-Dinitrotoluene	1140	U	
32.	99-09-2	3-Nitroaniline	3410	U	
33.	83-32-9	Acenaphthene	568	U	
34.	51-28-5	2,4-Dinitrophenol	11400	U	
35.	100-02-7	4-Nitrophenol	5680	U	
36.	132-64-9	Dibenzofuran	1140	U	
37.	121-14-2	2,4-Dinitrotoluene	1140	U	
38.	84-66-2	Diethylphthalate	568	U	

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
~~920613-H001~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS Work Order: 2200

Source: [redacted]

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 920613-H001

Lab Notebook:	240, Pg. 73	Date Sampled:	06-11-92
Sample Weight:	10.0 (g)	Date Received:	06-16-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	06-17-92
Injection Volume:	1.0 (uL)	Date Analyzed:	06-18-92
pH: 7.0	Percent Solid: 88	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1140	U	
40.	86-73-7	Fluorene	568	U	
41.	100-01-6	4-Nitroaniline	5680	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	5680	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	568	U	
44.	101-55-3	4-Bromophenyl-phenylether	1140	U	
45.	118-74-1	Hexachlorobenzene	1140	U	
46.	87-86-5	Pentachlorophenol	5680	U	
47.	85-01-8	Phenanthrene	568	U	
48.	120-12-7	Anthracene	568	U	
49.	86-74-8	Carbazole	1140	U	
50.	84-74-2	Di-n-butylphthalate	341	1120	
51.	206-44-0	Fluoranthene	568	U	
52.	129-00-0	Pyrene	341	U	
53.	85-68-7	Butylbenzylphthalate	568	U	
54.	91-94-1	3,3'-Dichlorobenzidine	5680	U	
55.	56-55-3	Benzo(a)anthracene	568	U	
56.	218-01-9	Chrysene	568	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	341	470	
58.	117-84-0	Di-n-octylphthalate	568	U	
59.	205-99-2	Benzo(b)fluoranthene	2270	U	
60.	207-08-9	Benzo(k)fluoranthene	2270	U	
61.	50-32-8	Benzo(a)pyrene	1140	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2270	U	
63.	53-70-3	Dibenz(a,h)anthracene	2270	U	
64.	191-24-2	Benzo(g,h,i)perylene	2270	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	59	23-120	100
66.	2-Fluorobiphenyl	55	30-115	100
67.	Terphenyl-d14	90	18-137	100
68.	Phenol-d5	60	24-113	200
69.	2-Fluorophenol	54	25-112	200
70.	2,4,6-Tribromophenol	46	19-122	200

U: Below Detection Limit

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Customer Sample No.: 920613-H001 Work Order: 2200

EHRT Sample No.: 15152-001 Project No.: 15152

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS% REC #	QC LIMITS REC.
Phenol	20,000	0.0	7,982	40	26-90
2-Chlorophenol	20,000	0.0	8,390	42	25-102
1,4-Dichlorobenzene	10,000	0.0	2,784	28	28-104
N-Nitroso-di-n-Propylamine	10,000	0.0	4,125	41	41-126
1,2,4-Trichlorobenzene	10,000	0.0	2,661	27*	38-107
4-Chloro-3-Methylphenol	20,000	0.0	6,434	32	26-103
Acenaphthene	10,000	0.0	4,377	44	31-137
4-Nitrophenol	20,000	0.0	7,672	38	11-114
2,4-Dinitrotoluene	10,000	0.0	4,468	45	28-89
Pentachlorophenol	20,000	0.0	7,122	36	17-109
Pyrene	10,000	0.0	3,918	39	35-142

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONC. (ug/kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	20,000	8,044	40	0	35	26-90
2-Chlorophenol	20,000	8,889	44	5	50	25-102
1,4-Dichlorobenzene	10,000	2,820	28	0	27	28-104
N-Nitroso-di-n-Propylamine	10,000	4,469	45	9	38	41-126
1,2,4-Trichlorobenzene	10,000	2,852	29*	7	23	38-107
4-Chloro-3-Methylphenol	20,000	7,123	36	12	33	26-103
Acenaphthene	10,000	4,743	47	7	19	31-137
4-Nitrophenol	20,000	7,853	39	3	50	11-114
2,4-Dinitrotoluene	10,000	4,912	49	9	47	28-89
Pentachlorophenol	20,000	7,773	39	8	47	17-109
Pyrene	10,000	3,922	39	0	36	35-142

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

* Values outside of QC limits

RPD: 0 out of 11 outside limits

Spike Recovery: 2 out of 22 outside limits

COMMENTS:

C10

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 920730-H017

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant (WC-3S)

Matrix: (soil/water) Water w/Seds Sample EHRT Sample I.D.: 15367-002

Lab Notebook:	256, Pg. 24	Date Sampled:	07-29-92
Sample Volume:	500.0 (mL)	Date Received:	07-31-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	08-04-92
Injection Volume:	1.0 (uL)	Date Analyzed:	08-06-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	108-95-2	Phenol	6.0	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	4.0	U	
3.	95-57-8	2-Chlorophenol	4.0	U	
4.	541-73-1	1,3-Dichlorobenzene	12.0	U	
5.	106-46-7	1,4-Dichlorobenzene	12.0	U	
6.	95-50-1	1,2-Dichlorobenzene	12.0	U	
7.	95-48-7	2-Methylphenol	6.0	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	8.0	U	
9.	106-44-5	4-Methylphenol	6.0	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	8.0	U	
11.	67-72-1	Hexachloroethane	12.0	U	
12.	98-95-3	Nitrobenzene	6.0	U	
13.	78-59-1	Isophorone	4.0	U	
14.	88-75-5	2-Nitrophenol	8.0	U	
15.	105-67-9	2,4-Dimethylphenol	6.0	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	4.0	U	
17.	120-83-2	2,4-Dichlorophenol	8.0	U	
18.	120-82-1	1,2,4-Trichlorobenzene	12.0	U	
19.	91-20-3	Naphthalene	2.0	U	
20.	106-47-8	4-Chloroaniline	20.0	U	
21.	87-68-3	Hexachlorobutadiene	24.0	U	
22.	59-50-7	4-Chloro-3-methylphenol	6.0	U	
23.	91-57-6	2-Methylnaphthalene	2.0	U	
24.	77-47-4	Hexachlorocyclopentadiene	24.0	U	
25.	88-06-2	2,4,6-Trichlorophenol	10.0	U	
26.	95-95-4	2,4,5-Trichlorophenol	10.0	U	
27.	91-58-7	2-Chloronaphthalene	6.0	U	
28.	88-74-4	2-Nitroaniline	20.0	U	
29.	131-11-3	Dimethylphthalate	6.0	U	
30.	208-96-8	Acenaphthylene	4.0	U	
31.	606-20-2	2,6-Dinitrotoluene	12.0	U	
32.	99-09-2	3-Nitroaniline	20.0	U	
33.	83-32-9	Acenaphthene	4.0	U	
34.	51-28-5	2,4-Dinitrophenol	80.0	U	
35.	100-02-7	4-Nitrophenol	40.0	U	
36.	132-64-9	Dibenzofuran	12.0	U	
37.	121-14-2	2,4-Dinitrotoluene	12.0	U	
38.	84-66-2	Diethylphthalate	4.0	U	

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 920730-H017

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant (WC-3S)

Matrix: (soil/water) Water w/Seds Sample EHRT Sample I.D.: 15367-002

Lab Notebook:	256, Pg. 24	Date Sampled:	07-29-92
Sample Volume:	500.0 (mL)	Date Received:	07-31-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	08-04-92
Injection Volume:	1.0 (uL)	Date Analyzed:	08-06-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	12.0	U	
40.	86-73-7	Fluorene	6.0	U	
41.	100-01-6	4-Nitroaniline	20.0	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	40.0	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	6.0	U	
44.	101-55-3	4-Bromophenyl-phenylether	12.0	U	
45.	118-74-1	Hexachlorobenzene	10.0	U	
46.	87-86-5	Pentachlorophenol	40.0	U	
47.	85-01-8	Phenanthrene	4.0	U	
48.	120-12-7	Anthracene	4.0	U	
49.	86-74-8	Carbazole	10.0	U	
50.	84-74-2	Di-n-butylphthalate	2.0	U	
51.	206-44-0	Fluoranthene	4.0	U	
52.	129-00-0	Pyrene	4.0	U	
53.	85-68-7	Butylbenzylphthalate	6.0	U	
54.	91-94-1	3,3'-Dichlorobenzidine	20.0	U	
55.	56-55-3	Benzo(a)anthracene	6.0	U	
56.	218-01-9	Chrysene	6.0	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	4.0	U	
58.	117-84-0	Di-n-octylphthalate	4.0	U	
59.	205-99-2	Benzo(b)fluoranthene	20.0	U	
60.	207-08-9	Benzo(k)fluoranthene	20.0	U	
61.	50-32-8	Benzo(a)pyrene	12.0	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	20.0	U	
63.	53-70-3	Dibenz(a,h)anthracene	20.0	U	
64.	191-24-2	Benzo(g,h,i)perylene	20.0	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
65.	Nitrobenzene-d5	36	35-114	100
66.	2-Fluorobiphenyl	55	43-116	100
67.	Terphenyl-d14	50	33-141	100
68.	Phenol-d5	42	10-110	100
69.	2-Fluorophenol	38	21-110	100
70.	2,4,6-Tribromophenol	40	10-123	100

U: Below Detection Limit

C107

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 920730-H023

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant (WC-8S)

Matrix: (soil/water) Water w/Seds Sample EHRT Sample I.D.: 15367-007A

Lab Notebook:	256, Pg. 24	Date Sampled:	07-29-92
Sample Volume:	500.0 (mL)	Date Received:	07-31-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	08-04-92
Injection Volume:	1.0 (uL)	Date Analyzed:	08-06-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	108-95-2	Phenol	6.0	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	4.0	U	
3.	95-57-8	2-Chlorophenol	4.0	U	
4.	541-73-1	1,3-Dichlorobenzene	12.0	U	
5.	106-46-7	1,4-Dichlorobenzene	12.0	U	
6.	95-50-1	1,2-Dichlorobenzene	12.0	U	
7.	95-48-7	2-Methylphenol	6.0	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	8.0	U	
9.	106-44-5	4-Methylphenol	6.0	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	8.0	U	
11.	67-72-1	Hexachloroethane	12.0	U	
12.	98-95-3	Nitrobenzene	6.0	U	
13.	78-59-1	Isophorone	4.0	U	
14.	88-75-5	2-Nitrophenol	8.0	U	
15.	105-67-9	2,4-Dimethylphenol	6.0	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	4.0	U	
17.	120-83-2	2,4-Dichlorophenol	8.0	U	
18.	120-82-1	1,2,4-Trichlorobenzene	12.0	U	
19.	91-20-3	Naphthalene	2.0	U	
20.	106-47-8	4-Chloroaniline	20.0	U	
21.	87-68-3	Hexachlorobutadiene	24.0	U	
22.	59-50-7	4-Chloro-3-methylphenol	6.0	U	
23.	91-57-6	2-Methylnaphthalene	2.0	U	
24.	77-47-4	Hexachlorocyclopentadiene	24.0	U	
25.	88-06-2	2,4,6-Trichlorophenol	10.0	U	
26.	95-95-4	2,4,5-Trichlorophenol	10.0	U	
27.	91-58-7	2-Chloronaphthalene	6.0	U	
28.	88-74-4	2-Nitroaniline	20.0	U	
29.	131-11-3	Dimethylphthalate	6.0	U	
30.	208-96-8	Acenaphthylene	4.0	U	
31.	606-20-2	2,6-Dinitrotoluene	12.0	U	
32.	99-09-2	3-Nitroaniline	20.0	U	
33.	83-32-9	Acenaphthene	4.0	U	
34.	51-28-5	2,4-Dinitrophenol	80.0	U	
35.	100-02-7	4-Nitrophenol	40.0	U	
36.	132-64-9	Dibenzofuran	12.0	U	
37.	121-14-2	2,4-Dinitrotoluene	12.0	U	
38.	84-66-2	Diethylphthalate	4.0	U	

C108

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 920730-H023

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant (WC-8S)

Matrix: (soil/water) Water w/Seds Sample EHRT Sample I.D.: 15367-007A

Lab Notebook:	256, Pg. 24	Date Sampled:	07-29-92
Sample Volume:	500.0 (mL)	Date Received:	07-31-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	08-04-92
Injection Volume:	1.0 (uL)	Date Analyzed:	08-06-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	12.0	U	
40.	86-73-7	Fluorene	6.0	U	
41.	100-01-6	4-Nitroaniline	20.0	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	40.0	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	6.0	U	
44.	101-55-3	4-Bromophenyl-phenylether	12.0	U	
45.	118-74-1	Hexachlorobenzene	10.0	U	
46.	87-86-5	Pentachlorophenol	40.0	U	
47.	85-01-8	Phenanthrene	4.0	U	
48.	120-12-7	Anthracene	4.0	U	
49.	86-74-8	Carbazole	10.0	U	
50.	84-74-2	Di-n-butylphthalate	2.0	U	
51.	206-44-0	Fluoranthene	4.0	U	
52.	129-00-0	Pyrene	4.0	U	
53.	85-68-7	Butylbenzylphthalate	6.0	U	
54.	91-94-1	3,3'-Dichlorobenzidine	20.0	U	
55.	56-55-3	Benzo(a)anthracene	6.0	U	
56.	218-01-9	Chrysene	6.0	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	4.0	U	
58.	117-84-0	Di-n-octylphthalate	4.0	U	
59.	205-99-2	Benzo(b)fluoranthene	20.0	U	
60.	207-08-9	Benzo(k)fluoranthene	20.0	U	
61.	50-32-8	Benzo(a)pyrene	12.0	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	20.0	U	
63.	53-70-3	Dibenz(a,h)anthracene	20.0	U	
64.	191-24-2	Benzo(g,h,i)perylene	20.0	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
65.	Nitrobenzene-d5	52	35-114	100
66.	2-Fluorobiphenyl	47	43-116	100
67.	Terphenyl-d14	74	33-141	100
68.	Phenol-d5	67	10-110	100
69.	2-Fluorophenol	55	21-110	100
70.	2,4,6-Tribromophenol	64	10-123	100

U: Below Detection Limit

C109

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant

Matrix: (soil/water) Water Blank EHRT Sample I.D.: N/A

Lab Notebook:	256, Pg. 24	Date Sampled:	N/A
Sample Volume:	1000.0 (mL)	Date Received:	N/A
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	08-04-92
Injection Volume:	1.0 (uL)	Date Analyzed:	08-06-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	108-95-2	Phenol	3.0	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	2.0	U	
3.	95-57-8	2-Chlorophenol	2.0	U	
4.	541-73-1	1,3-Dichlorobenzene	6.0	U	
5.	106-46-7	1,4-Dichlorobenzene	6.0	U	
6.	95-50-1	1,2-Dichlorobenzene	6.0	U	
7.	95-48-7	2-Methylphenol	3.0	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	4.0	U	
9.	106-44-5	4-Methylphenol	3.0	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	4.0	U	
11.	67-72-1	Hexachloroethane	6.0	U	
12.	98-95-3	Nitrobenzene	3.0	U	
13.	78-59-1	Isophorone	2.0	U	
14.	88-75-5	2-Nitrophenol	4.0	U	
15.	105-67-9	2,4-Dimethylphenol	3.0	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	2.0	U	
17.	120-83-2	2,4-Dichlorophenol	4.0	U	
18.	120-82-1	1,2,4-Trichlorobenzene	6.0	U	
19.	91-20-3	Naphthalene	1.0	U	
20.	106-47-8	4-Chloroaniline	10.0	U	
21.	87-68-3	Hexachlorobutadiene	12.0	U	
22.	59-50-7	4-Chloro-3-methylphenol	3.0	U	
23.	91-57-6	2-Methylnaphthalene	1.0	U	
24.	77-47-4	Hexachlorocyclopentadiene	12.0	U	
25.	88-06-2	2,4,6-Trichlorophenol	5.0	U	
26.	95-95-4	2,4,5-Trichlorophenol	5.0	U	
27.	91-58-7	2-Chloronaphthalene	3.0	U	
28.	88-74-4	2-Nitroaniline	10.0	U	
29.	131-11-3	Dimethylphthalate	3.0	U	
30.	208-96-8	Acenaphthylene	2.0	U	
31.	606-20-2	2,6-Dinitrotoluene	6.0	U	
32.	99-09-2	3-Nitroaniline	10.0	U	
33.	83-32-9	Acenaphthene	2.0	U	
34.	51-28-5	2,4-Dinitrophenol	40.0	U	
35.	100-02-7	4-Nitrophenol	20.0	U	
36.	132-64-9	Dibenzofuran	6.0	U	
37.	121-14-2	2,4-Dinitrotoluene	6.0	U	
38.	84-66-2	Diethylphthalate	2.0	U	

C110

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant

Matrix: (soil/water) Water Blank EHRT Sample I.D.: N/A

Lab Notebook:	256, Pg. 24	Date Sampled:	N/A
Sample Volume:	1000.0 (mL)	Date Received:	N/A
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	08-04-92
Injection Volume:	1.0 (uL)	Date Analyzed:	08-06-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	6.0	U	
40.	86-73-7	Fluorene	3.0	U	
41.	100-01-6	4-Nitroaniline	10.0	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	20.0	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	3.0	U	
44.	101-55-3	4-Bromophenyl-phenylether	6.0	U	
45.	118-74-1	Hexachlorobenzene	5.0	U	
46.	87-86-5	Pentachlorophenol	20.0	U	
47.	85-01-8	Phenanthrene	2.0	U	
48.	120-12-7	Anthracene	2.0	U	
49.	86-74-8	Carbazole	5.0	U	
50.	84-74-2	Di-n-butylphthalate	1.0	U	
51.	206-44-0	Fluoranthene	2.0	U	
52.	129-00-0	Pyrene	2.0	U	
53.	85-68-7	Butylbenzylphthalate	3.0	U	
54.	91-94-1	3,3'-Dichlorobenzidine	10.0	U	
55.	56-55-3	Benzo(a)anthracene	3.0	U	
56.	218-01-9	Chrysene	3.0	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	2.0	U	
58.	117-84-0	Di-n-octylphthalate	2.0	U	
59.	205-99-2	Benzo(b)fluoranthene	10.0	U	
60.	207-08-9	Benzo(k)fluoranthene	10.0	U	
61.	50-32-8	Benzo(a)pyrene	6.0	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	10.0	U	
63.	53-70-3	Dibenz(a,h)anthracene	10.0	U	
64.	191-24-2	Benzo(g,h,i)perylene	10.0	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
65.	Nitrobenzene-d5	54	35-114	100
66.	2-Fluorobiphenyl	49	43-116	100
67.	Terphenyl-d14	87	33-141	100
68.	Phenol-d5	66	10-110	100
69.	2-Fluorophenol	55	21-110	100
70.	2,4,6-Tribromophenol	72	10-123	100

U: Below Detection Limit

C111

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 920730-H023

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant (WC-8S)

Matrix: (soil/water) Water w/Seds Duplicate EHRT Sample I.D.: 15367-007B

Lab Notebook:	256, Pg. 24	Date Sampled:	07-29-92
Sample Volume:	500.0 (mL)	Date Received:	07-31-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	08-04-92
Injection Volume:	1.0 (uL)	Date Analyzed:	08-06-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	108-95-2	Phenol	6.0	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	4.0	U	
3.	95-57-8	2-Chlorophenol	4.0	U	
4.	541-73-1	1,3-Dichlorobenzene	12.0	U	
5.	106-46-7	1,4-Dichlorobenzene	12.0	U	
6.	95-50-1	1,2-Dichlorobenzene	12.0	U	
7.	95-48-7	2-Methylphenol	6.0	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	8.0	U	
9.	106-44-5	4-Methylphenol	6.0	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	8.0	U	
11.	67-72-1	Hexachloroethane	12.0	U	
12.	98-95-3	Nitrobenzene	6.0	U	
13.	78-59-1	Isophorone	4.0	U	
14.	88-75-5	2-Nitrophenol	8.0	U	
15.	105-67-9	2,4-Dimethylphenol	6.0	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	4.0	U	
17.	120-83-2	2,4-Dichlorophenol	8.0	U	
18.	120-82-1	1,2,4-Trichlorobenzene	12.0	U	
19.	91-20-3	Naphthalene	2.0	U	
20.	106-47-8	4-Chloroaniline	20.0	U	
21.	87-68-3	Hexachlorobutadiene	24.0	U	
22.	59-50-7	4-Chloro-3-methylphenol	6.0	U	
23.	91-57-6	2-Methylnaphthalene	2.0	U	
24.	77-47-4	Hexachlorocyclopentadiene	24.0	U	
25.	88-06-2	2,4,6-Trichlorophenol	10.0	U	
26.	95-95-4	2,4,5-Trichlorophenol	10.0	U	
27.	91-58-7	2-Chloronaphthalene	6.0	U	
28.	88-74-4	2-Nitroaniline	20.0	U	
29.	131-11-3	Dimethylphthalate	6.0	U	
30.	208-96-8	Acenaphthylene	4.0	U	
31.	606-20-2	2,6-Dinitrotoluene	12.0	U	
32.	99-09-2	3-Nitroaniline	20.0	U	
33.	83-32-9	Acenaphthene	4.0	U	
34.	51-28-5	2,4-Dinitrophenol	80.0	U	
35.	100-02-7	4-Nitrophenol	40.0	U	
36.	132-64-9	Dibenzofuran	12.0	U	
37.	121-14-2	2,4-Dinitrotoluene	12.0	U	
38.	84-66-2	Diethylphthalate	4.0	U	

C112

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 920730-H023

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2310

Source: Stratford Army Engine Plant (WC-8S)

Matrix: (soil/water) Water w/Seds Duplicate EHRT Sample I.D.: 15367-007B

Lab Notebook:	256, Pg. 24	Date Sampled:	07-29-92
Sample Volume:	500.0 (mL)	Date Received:	07-31-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	08-04-92
Injection Volume:	1.0 (uL)	Date Analyzed:	08-06-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	12.0	U	
40.	86-73-7	Fluorene	6.0	U	
41.	100-01-6	4-Nitroaniline	20.0	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	40.0	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	6.0	U	
44.	101-55-3	4-Bromophenyl-phenylether	12.0	U	
45.	118-74-1	Hexachlorobenzene	10.0	U	
46.	87-86-5	Pentachlorophenol	40.0	U	
47.	85-01-8	Phenanthrene	4.0	U	
48.	120-12-7	Anthracene	4.0	U	
49.	86-74-8	Carbazole	10.0	U	
50.	84-74-2	Di-n-butylphthalate	2.0	U	
51.	206-44-0	Fluoranthene	4.0	U	
52.	129-00-0	Pyrene	4.0	U	
53.	85-68-7	Butylbenzylphthalate	6.0	U	
54.	91-94-1	3,3'-Dichlorobenzidine	20.0	U	
55.	56-55-3	Benzo(a)anthracene	6.0	U	
56.	218-01-9	Chrysene	6.0	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	4.0	U	
58.	117-84-0	Di-n-octylphthalate	4.0	U	
59.	205-99-2	Benzo(b)fluoranthene	20.0	U	
60.	207-08-9	Benzo(k)fluoranthene	20.0	U	
61.	50-32-8	Benzo(a)pyrene	12.0	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	20.0	U	
63.	53-70-3	Dibenz(a,h)anthracene	20.0	U	
64.	191-24-2	Benzo(g,h,i)perylene	20.0	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
65.	Nitrobenzene-d5	50	35-114	100
66.	2-Fluorobiphenyl	48	43-116	100
67.	Terphenyl-d14	84	33-141	100
68.	Phenol-d5	68	10-110	100
69.	2-Fluorophenol	52	21-110	100
70.	2,4,6-Tribromophenol	67	10-123	100

U: Below Detection Limit

3C
QUALITY CONTROL
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Sample Source: Stratford Army Engine Plant (WC-3S)

Customer Sample No.: 920730-H017 Work Order No.: 2310

EHRT Sample No.: 15367-002 Project No.: 15367

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS% REC #	QC LIMITS REC.
Phenol	200	0.0	111	56	12-110
2-Chlorophenol	200	0.0	99.2	50	27-123
1,4-Dichlorobenzene	100	0.0	50.8	51	36-97
N-Nitroso-di-n-Propylamine	100	0.0	56.7	57	41-116
1,2,4-Trichlorobenzene	100	0.0	51.8	52	39-98
4-Chloro-3-Methylphenol	200	0.0	103	52	23-97
Acenaphthene	100	0.0	54.6	55	46-118
4-Nitrophenol	200	0.0	104	52	10-80
2,4-Dinitrotoluene	100	0.0	67.3	67	24-96
Pentachlorophenol	200	0.0	155	78	9-103
Pyrene	100	0.0	60.6	61	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	200	112	56	0	42	12-110
2-Chlorophenol	200	99.0	50	0	40	27-123
1,4-Dichlorobenzene	100	50.0	50	2	28	36-97
N-Nitroso-di-n-Propylamine	100	57.9	58	2	38	41-116
1,2,4-Trichlorobenzene	100	52.8	53	2	28	39-98
4-Chloro-3-Methylphenol	200	106	53	4	42	23-97
Acenaphthene	100	54.3	54	2	31	46-118
4-Nitrophenol	200	86.5	43	18	50	10-80
2,4-Dinitrotoluene	100	69.6	70	4	38	24-96
Pentachlorophenol	200	143	72	9	50	9-103
Pyrene	100	73.2	73	18	31	26-127

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

COMMENTS:

QUALITY CONTROL
WATER SEMIVOLATILE BLANK SPIKE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Sample Source: Stratford Army Engine Plant

Customer Sample No.: N/A Work Order No.: 2310

EHRT Sample No.: N/A Project No.: 15367

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS% REC #	QC LIMITS REC.
Phenol	200	0.0	49.5	25	12-110
2-Chlorophenol	200	0.0	86.7	43	27-123
1,4-Dichlorobenzene	100	0.0	47.4	47	36-97
N-Nitroso-di-n-Propylamine	100	0.0	53.1	53	41-116
1,2,4-Trichlorobenzene	100	0.0	46.7	47	39-98
4-Chloro-3-Methylphenol	200	0.0	70.0	35	23-97
Acenaphthene	100	0.0	21.5	22 *	46-118
4-Nitrophenol	200	0.0	81.8	41	10-80
2,4-Dinitrotoluene	100	0.0	52.5	53	24-96
Pentachlorophenol	200	0.0	149	75	9-103
Pyrene	100	0.0	35.2	35	26-127

Column to be used to flag recovery values with an asterisk
* Values outside of QC limits

Spike Recovery: 1 out of 11 outside limits

COMMENTS:

X MS 293 665 32.00- 444.15 28464.1 >DFTPA
SR : TUNER,=DFTPP

GC/MS PERFORMANCE STANDARD

Decafluorotriphenylphosphine (DFTPP)

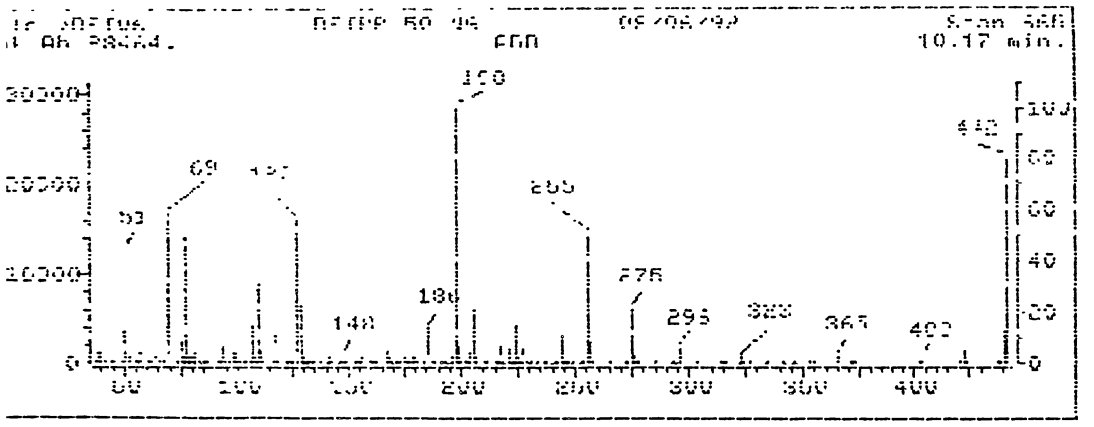
m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	45.05	45.05	Ok
68	Less than 2% of mass 69	.12	.21	Ok
69	(reference only)	58.45	58.45	Ok
70	Less than 2% of mass 69	.21	.37	Ok
197	40-60% of mass 198	55.96	55.96	Ok
197	Less than 1% of mass 198	.15	.15	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	6.83	6.83	Ok
275	10-30% of mass 198	21.36	21.36	Ok
365	Greater than 1% of mass 198	2.90	2.90	Ok
441	0-100% of mass 443	12.56	82.77	Ok
442	Greater than 40% of mass 198	79.63	79.63	Ok
443	17-23% of mass 442	15.17	19.05	Ok

Injection Date: 08/06/92
Injection Time: 07:36
Data File: >DFTPA
Scan: 665

GC/MS#1

2824A 11156

SR :



C116

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 08/06/92

Contractor: Time: 0833

Contract No: Laboratory ID: >ENAM6

Instrument ID: 2824A11156 Initial Calibration Date: 07/21/92

Maximum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

GC/MS#1
2824 A11156
8/6/92

Compound	RF	RF	%Diff	CCC	SPCC	
Pyridine	-	-	-			
Aniline	.51562	.69919	35.61			
2-Fluorophenol	.80210	.78559	2.06			(Conc=100.00)
Phenol-d5	.66766	.65662	.91			(Conc=1000.000)
Phenol	.73595	.69771	4.94	*		
Benzyl alcohol	.97413	.05675	79.38			
bis(2-Chloroethyl)Ether	.91811	.87285	4.95			
2-Methylphenol	.65999	.65885	.21			
3-Methylphenol	.68727	.66680	2.98			
4- lphenol	.65717	.62594	2.71			
2- nphenol	.72382	.72911	2.63			
1,3-Dichlorobenzene	.98748	.94742	4.98			
1,4-Dichlorobenzene	.85241	.86938	3.87	*		
1,2-Dichlorobenzene	.88516	.90998	2.80			
bis(2-Chloroisopropyl)ether	.92294	.85156	7.76			
N-Nitroso-Di-n-propylamine	.59864	.51289	14.35		**	
Hexachloroethane	.42511	.37771	11.17			
Nitrobenzene-d5	.51154	.44443	12.95			(Conc=50.000)
Nitrobenzene	.45147	.45969	2.17			
Isophorone	.82998	.82741	0.31			
2-Nitrophenol	.19558	.22457	14.77	*		
2,4-Dimethylphenol	.37119	.37945	2.22			
Benzoic acid	.08957	.07554	17.71			
bis(2-Chloroethoxy)methane	.45895	.47282	3.03			
2,4-Dichlorophenol	.24485	.18475	24.46	*		
1,2,4-Trichlorobenzene	.31252	.34242	9.56			
Naphthalene	.85258	1.05545	26.56			
4-Chloroaniline	.19375	.26242	35.47			
Hexachlorobutadiene	.16884	.18963	12.31	*		
4-Chloro-3-methylphenol	.22258	.21229	2.28	*		
2-Methylnaphthalene	.52518	.57285	9.07			
Hexachlorocyclopentadiene	.46947	.61455	30.84		**	

RF - Response Factor from daily standard file at 50.00 ng/uL

AVG - Average Response Factor from Initial Calibration Form 6

%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: 08/06/92

Contractor: Time: 08:35

Contract No: Laboratory ID: >RNA06

Instrument ID: 2824A11156 Initial Calibration Date: 07/21/92

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 50.00%

Compound	RF	RF	%Diff	CCC	SPCC	
2,4,6-Trichlorophenol	.56107	.45479	20.43	*		
2-Chloronaphthalene	1.30608	1.46634	12.27			
2-Fluorobiphenyl	1.65791	1.59642	3.67			(Conc=50.00)
Dimethylphthalate	1.25817	1.30547	5.43			
Acenaphthylene	1.84915	1.99305	7.78			
Acenaphthene	1.14747	1.17877	5.15	*		
2,4-Dinitrophenol	.07936	.09326	17.51		**	
4-Nitrophenol	.09148	.10514	14.81		**	
2,4-Dinitrotoluene	.31500	.30454	3.32			
2,6-Dinitrotoluene	.28743	.29546	2.79			
2-Nitroaniline	.40959	.41129	.42			
3-Nitroaniline	.17556	.17856	2.96			
4-Nitroaniline	.16615	.17979	8.22			
Diethylphthalate	1.16208	1.11271	4.68			
Dibenzofuran	1.48488	1.44574	2.64			
2,4,5-Trichlorophenol	.56487	.59361	7.89			
4-Chlorophenyl-phenylether	.46525	.48127	3.44			
Fluorene	1.00926	.97599	5.18			
Azobenzene	-	-	-			
2,4,6-Tribromophenol	.08166	.09186	11.51			(Conc=100.00)
N-Nitrosodiphenylamine	.51585	.61383	18.96	*		
4,6-Dinitro-2-methylphenol	.10757	.16024	49.05			
4-Bromophenyl-phenylether	.17916	.24394	36.15			
Hexachlorobenzene	.20662	.25756	24.68			
Pentachlorophenol	.06871	.06488	6.85	*		
Phenanthrene	1.07647	1.14496	6.46			
Anthracene	1.09719	1.15278	5.07			
Carbazole	.47779	.56989	19.26			
Di-n-Butylphthalate	1.21865	.96887	20.66			
Fluoranthene	.94758	.68799	27.39	*		
Benzidine	-	-	-			
Pyrene	2.99687	2.22857	25.61			

RF - Response Factor from daily standard file at 50.00 ng/ul

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
BSI Compounds

ase No: Calibration Date: 08/06/92

ontractor: Time: 08:53

ontract No: Laboratory ID: >BNA06

nstrument ID: 2B74A11156 Initial Calibration Date: 07/21/92

Maximum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

Compound	RF	RF	%Diff	CCC	SPCC	
erphenyl-d14	1.56497	1.19521	23.14			(Conc=50.00)
utylbenzylphthalate	.90695	.85729	7.58			
,3'-Dichlorobenzidine	.06956	.07198	3.48			
enzo(a)Anthracene	1.25616	1.17298	4.71			
is(2-Ethylhexyl)phthalate	1.00881	1.01878	.97			
hrysene	1.21696	1.15854	4.80			
i-n-octylphthalate	2.22563	1.97938	11.11	*		
enzo(b)Fluoranthene	1.40727	1.28449	8.76			
enzo(k)Fluoranthene	1.44727	1.28913	10.93			
en yrene	1.28598	1.17187	8.87	*		
nd 2,3-cd)Pyrene	.95585	1.08671	8.78			
ibenz(a,h)Anthracene	.99986	1.01764	9.00			
enzo(g,h,i)Perylene	1.05894	1.10154	4.01			

RF - Response Factor from daily standard file at 50.00 ng/ul

RF - Average Response Factor from Initial Calibration Form 6I

%Diff - % Difference from original average or curve

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

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 921026-H038

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2533

Source: Stratford Army Engine Plant (OF-SW)

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15785-004

Lab Notebook:	310, Pg. 21	Date Sampled:	10-22-92
Sample Volume:	1000.0 (mL)	Date Received:	10-28-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	10-29-92
Injection Volume:	1.0 (uL)	Date Analyzed:	11-03-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	108-95-2	Phenol	3.0	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	2.0	U	
3.	95-57-8	2-Chlorophenol	2.0	U	
4.	541-73-1	1,3-Dichlorobenzene	6.0	U	
5.	106-46-7	1,4-Dichlorobenzene	6.0	U	
6.	95-50-1	1,2-Dichlorobenzene	6.0	U	
7.	95-48-7	2-Methylphenol	3.0	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	4.0	U	
9.	106-44-5	4-Methylphenol	3.0	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	4.0	U	
11.	67-72-1	Hexachloroethane	6.0	U	
12.	98-95-3	Nitrobenzene	3.0	U	
13.	78-59-1	Isophorone	2.0	U	
14.	88-75-5	2-Nitrophenol	4.0	U	
15.	105-67-9	2,4-Dimethylphenol	3.0	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	2.0	U	
17.	120-83-2	2,4-Dichlorophenol	4.0	U	
18.	120-82-1	1,2,4-Trichlorobenzene	6.0	U	
19.	91-20-3	Naphthalene	1.0	U	
20.	106-47-8	4-Chloroaniline	10.0	U	
21.	87-68-3	Hexachlorobutadiene	12.0	U	
22.	59-50-7	4-Chloro-3-methylphenol	3.0	U	
23.	91-57-6	2-Methylnaphthalene	1.0	2.5	
24.	77-47-4	Hexachlorocyclopentadiene	12.0	U	
25.	88-06-2	2,4,6-Trichlorophenol	5.0	U	
26.	95-95-4	2,4,5-Trichlorophenol	5.0	U	
27.	91-58-7	2-Chloronaphthalene	3.0	U	
28.	88-74-4	2-Nitroaniline	10.0	U	
29.	131-11-3	Dimethylphthalate	3.0	U	
30.	208-96-8	Acenaphthylene	2.0	U	
31.	606-20-2	2,6-Dinitrotoluene	6.0	U	
32.	99-09-2	3-Nitroaniline	10.0	U	
33.	83-32-9	Acenaphthene	2.0	U	
34.	51-28-5	2,4-Dinitrophenol	40.0	U	
35.	100-02-7	4-Nitrophenol	20.0	U	
36.	132-64-9	Dibenzofuran	6.0	U	
37.	121-14-2	2,4-Dinitrotoluene	6.0	4.6	J
38.	84-66-2	Diethylphthalate	2.0	U	

(12)

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 921026-H038

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2533

Source: Stratford Army Engine Plant (OF-SW)

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15785-004

Lab Notebook:	310, Pg. 21	Date Sampled:	10-22-92
Sample Volume:	1000.0 (mL)	Date Received:	10-28-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	10-29-92
Injection Volume:	1.0 (uL)	Date Analyzed:	11-03-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	6.0	U	
40.	86-73-7	Fluorene	3.0	U	
41.	100-01-6	4-Nitroaniline	10.0	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	20.0	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	3.0	U	
44.	101-55-3	4-Bromophenyl-phenylether	6.0	U	
45.	118-74-1	Hexachlorobenzene	5.0	U	
46.	87-86-5	Pentachlorophenol	20.0	U	
47.	85-01-8	Phenanthrene	2.0	U	
48.	120-12-7	Anthracene	2.0	U	
49.	86-74-8	Carbazole	5.0	U	
50.	84-74-2	Di-n-butylphthalate	1.0	U	
51.	206-44-0	Fluoranthene	2.0	U	
52.	129-00-0	Pyrene	2.0	U	
53.	85-68-7	Butylbenzylphthalate	3.0	U	
54.	91-94-1	3,3'-Dichlorobenzidine	10.0	U	
55.	56-55-3	Benzo(a)anthracene	3.0	U	
56.	218-01-9	Chrysene	3.0	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	2.0	U	
58.	117-84-0	Di-n-octylphthalate	2.0	U	
59.	205-99-2	Benzo(b)fluoranthene	10.0	U	
60.	207-08-9	Benzo(k)fluoranthene	10.0	U	
61.	50-32-8	Benzo(a)pyrene	6.0	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	10.0	U	
63.	53-70-3	Dibenz(a,h)anthracene	10.0	U	
64.	191-24-2	Benzo(g,h,i)perylene	10.0	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
65.	Nitrobenzene-d5	105	35-114	100
66.	2-Fluorobiphenyl	112	43-116	100
67.	Terphenyl-d14	66	33-141	100
68.	Phenol-d5	83	10-110	100
69.	2-Fluorophenol	93	21-110	100
70.	2,4,6-Tribromophenol	86	10-123	100

U: Below Detection Limit

C121

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2533

Source: Stratford Army Engine Plant

Matrix: (soil/water) Water Blank EHRT Sample I.D.: N/A

Lab Notebook: 310, Pg. 21
Sample Volume: 1000.0 (mL)
Conc. Extract Vol.: 1.0 (mL)
Injection Volume: 1.0 (uL)
pH: 7.0 Percent Solid: N/A

Date Sampled: N/A
Date Received: N/A
Date Extracted: 10-29-92
Date Analyzed: 11-02-92
Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	108-95-2	Phenol	3.0	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	2.0	U	
3.	95-57-8	2-Chlorophenol	2.0	U	
4.	541-73-1	1,3-Dichlorobenzene	6.0	U	
5.	106-46-7	1,4-Dichlorobenzene	6.0	U	
6.	95-50-1	1,2-Dichlorobenzene	6.0	U	
7.	95-48-7	2-Methylphenol	3.0	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	4.0	U	
9.	106-44-5	4-Methylphenol	3.0	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	4.0	U	
11.	67-72-1	Hexachloroethane	6.0	U	
12.	98-95-3	Nitrobenzene	3.0	U	
13.	78-59-1	Isophorone	2.0	U	
14.	88-75-5	2-Nitrophenol	4.0	U	
15.	105-67-9	2,4-Dimethylphenol	3.0	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	2.0	U	
17.	120-83-2	2,4-Dichlorophenol	4.0	U	
18.	120-82-1	1,2,4-Trichlorobenzene	6.0	U	
19.	91-20-3	Naphthalene	1.0	U	
20.	106-47-8	4-Chloroaniline	10.0	U	
21.	87-68-3	Hexachlorobutadiene	12.0	U	
22.	59-50-7	4-Chloro-3-methylphenol	3.0	U	
23.	91-57-6	2-Methylnaphthalene	1.0	U	
24.	77-47-4	Hexachlorocyclopentadiene	12.0	U	
25.	88-06-2	2,4,6-Trichlorophenol	5.0	U	
26.	95-95-4	2,4,5-Trichlorophenol	5.0	U	
27.	91-58-7	2-Chloronaphthalene	3.0	U	
28.	88-74-4	2-Nitroaniline	10.0	U	
29.	131-11-3	Dimethylphthalate	3.0	U	
30.	208-96-8	Acenaphthylene	2.0	U	
31.	606-20-2	2,6-Dinitrotoluene	6.0	U	
32.	99-09-2	3-Nitroaniline	10.0	U	
33.	83-32-9	Acenaphthene	2.0	U	
34.	51-28-5	2,4-Dinitrophenol	40.0	U	
35.	100-02-7	4-Nitrophenol	20.0	U	
36.	132-64-9	Dibenzofuran	6.0	U	
37.	121-14-2	2,4-Dinitrotoluene	6.0	U	
38.	84-66-2	Diethylphthalate	2.0	U	

C122

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2533

Source: Stratford Army Engine Plant

Matrix: (soil/water) Water Blank EHRT Sample I.D.: N/A

Lab Notebook:	310, Pg. 21	Date Sampled:	N/A
Sample Volume:	1000.0 (mL)	Date Received:	N/A
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	10-29-92
Injection Volume:	1.0 (uL)	Date Analyzed:	11-02-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	6.0	U	
40.	86-73-7	Fluorene	3.0	U	
41.	100-01-6	4-Nitroaniline	10.0	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	20.0	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	3.0	U	
44.	101-55-3	4-Bromophenyl-phenylether	6.0	U	
45.	118-74-1	Hexachlorobenzene	5.0	U	
46.	87-86-5	Pentachlorophenol	20.0	U	
47.	85-01-8	Phenanthrene	2.0	U	
48.	120-12-7	Anthracene	2.0	U	
49.	86-74-8	Carbazole	5.0	U	
50.	84-74-2	Di-n-butylphthalate	1.0	U	
51.	206-44-0	Fluoranthene	2.0	U	
52.	129-00-0	Pyrene	2.0	U	
53.	85-68-7	Butylbenzylphthalate	3.0	U	
54.	91-94-1	3,3'-Dichlorobenzidine	10.0	U	
55.	56-55-3	Benzo(a)anthracene	3.0	U	
56.	218-01-9	Chrysene	3.0	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	2.0	U	
58.	117-84-0	Di-n-octylphthalate	2.0	U	
59.	205-99-2	Benzo(b)fluoranthene	10.0	U	
60.	207-08-9	Benzo(k)fluoranthene	10.0	U	
61.	50-32-8	Benzo(a)pyrene	6.0	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	10.0	U	
63.	53-70-3	Dibenz(a,h)anthracene	10.0	U	
64.	191-24-2	Benzo(g,h,i)perylene	10.0	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
65.	Nitrobenzene-d5	61	35-114	100
66.	2-Fluorobiphenyl	63	43-116	100
67.	Terphenyl-d14	75	33-141	100
68.	Phenol-d5	57	10-110	100
69.	2-Fluorophenol	46	21-110	100
70.	2,4,6-Tribromophenol	94	10-123	100

U: Below Detection Limit

C123

```
C/MS Top level.    Select a softkey...    <KSHFL      Keys      <891208.0903>

R-Global(20) =      642.0000
:RU,PS,20R
seq type  # pts  scan#    range: amu\r.t.      base    file      ion range
--- ----  -----  -----  ----------------  -------  -----  --------------
 X   MS     213    642    36.80-   445.00  10510.0 >DFT02
:CA,5,5,+,1
:IF,6,LE,10,-5
:TR,*DFTP*
:***DFTP* FROM HP TO YOUR LIVING ROOM
:CA,1:P,5
:RU,TUNER,=DFTPP
```

GC/MS PERFORMANCE STANDARD

Decafluorotriphenylphospine (DFTPP)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	41.12	41.12	Ok
68	Less than 2% of mass 69	.90	1.73	Ok
69	(reference only)	52.11	52.11	Ok
70	Less than 2% of mass 69	.23	.44	Ok
127	40-60% of mass 198	48.37	48.37	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	6.09	6.09	Ok
275	10-30% of mass 198	20.02	20.02	Ok
365	Greater than 1% of mass 198	2.29	2.29	Ok
441	0-100% of mass 443	10.70	76.79	Ok
442	Greater than 40% of mass 198	73.00	73.00	Ok
443	17-23% of mass 442	13.94	19.10	Ok

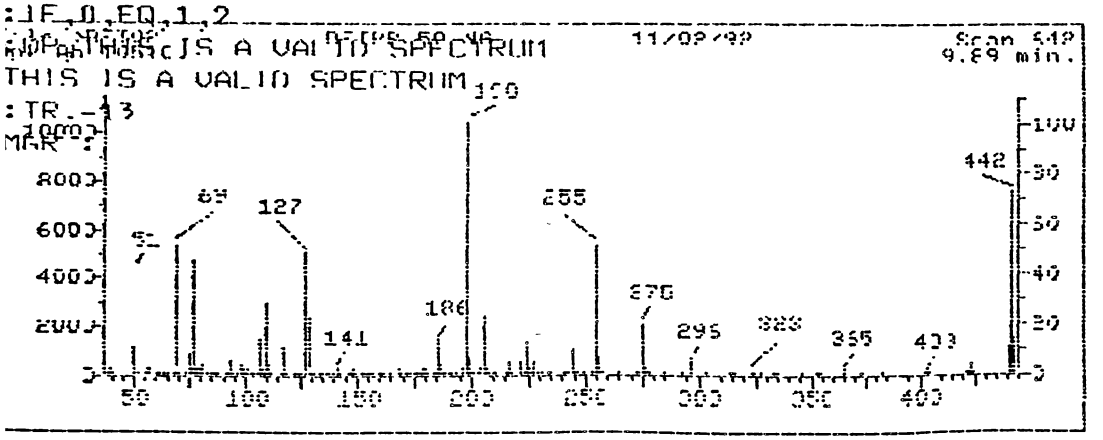
Injection Date: 11/02/92
Injection Time: 15:36
Data File: >DFT02
Scan: 642

GC/MS #1

2824 A 11156

11/2/92

```
:IF,0,EQ,1,2
:TR,-13
THIS IS A VALID SPECTRUM
```



C124

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 11/07/92

Contractor: Time: 16:17

Contract No: Laboratory ID: >RNA07

Instrument ID: 2824A11156 Initial Calibration Date: 10/30/92

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

GC/MS#1
2824A11156
11/2/92

Compound	RF	RF	%Diff	CCC	SPCC	
Pyridine	-	-	-			
Aniline	.22210	.31499	41.82			
2-Fluorophenol	.52023	.49750	4.37			(Conc=100.00)
Phenol-d5	.50598	.44910	11.24			(Conc=100.00)
Phenol	.59876	.47859	20.08	*		
Benzyl alcohol	.12864	.16814	30.70			
bis(2-Chloroethyl)Ether	.55051	.46899	14.82			
2-Methylphenol	.36795	.32986	12.29			
3-Methylphenol	.49106	.40547	17.44			
4- phenol	.39235	.32316	17.63			
2- phenol	.42948	.44780	3.10			
1,3-Dichlorobenzene	.54851	.55325	.86			
1,4-Dichlorobenzene	.52701	.53799	3.05	*		
1,2-Dichlorobenzene	.52740	.54717	3.75			
Bis(2-Chloroisopropyl)ether	.69988	.38829	44.52			
N-Nitroso-Di-n-propylamine	.37097	.26520	28.51		**	
Hexachloroethane	.24004	.23798	.86			
Nitrobenzene-d5	.24844	.19848	20.11			(Conc=50.00)
Nitrobenzene	.26084	.21302	18.33			
Isophorone	.54655	.38724	29.15			
2-Nitrophenol	.11719	.10109	13.74	*		
2,4-Dimethylphenol	.20950	.19223	8.24			
Benzoic acid	.06309	.05163	18.17			
bis(2-Chloroethoxy)methane	.28964	.20601	28.87			
2,4-Dichlorophenol	.14222	.14486	1.85	*		
1,2,4-Trichlorobenzene	.17179	.19809	15.31			
Naphthalene	.50928	.55325	8.63			
4-Chloroaniline	.16867	.10939	35.15			
Hexachlorobutadiene	.07796	.06779	13.04	*		
4-Chloro-3-methylphenol	.13513	.11689	13.50	*		
2-Methylnaphthalene	.31493	.31040	1.44			
Hexachlorocyclopentadiene	.22913	.32896	43.57		**	

RF - Response Factor from daily standard file at 50.00 ng/ul

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 (**)

C125

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 11/07/92

Contractor: Time: 16:17

Contract No: Laboratory ID: >BNA07

Instrument ID: 2824A11196 Initial Calibration Date: 10/30/92

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

Compound	RF	RF	%Diff	CCC	SPCC	
2,4,6-Trichlorophenol	.21009	.22703	8.06	*		
2-Chloronaphthalene	.73896	.73574	.44			
2-Fluorobiphenyl	.85051	.81846	3.77			(Conc=50.00)
Dimethylphthalate	.74465	.65964	11.42			
Acenaphthylene	1.07591	1.07812	.21			
Acenaphthene	.66870	.63032	5.74	*		
2,4-Dinitrophenol	.08368	.05653	32.45		**	
4-Nitrophenol	.05122	.05829	13.81		**	
2,4-Dinitrotoluene	.19957	.15274	23.46			
2,6-Dinitrotoluene	.14978	.13762	8.11			
2-Nitroaniline	.25413	.17247	32.13			
3-Nitroaniline	.13237	.07282	44.99			
4-Nitroaniline	.09367	.07888	15.82			
Diethylphthalate	.69026	.57420	16.81			
Dibenzofuran	.84020	.78311	6.79			
2,4,5-Trichlorophenol	.21359	.21928	2.02			
4-Chlorophenyl-phenylether	.28080	.28500	1.50			
Fluorene	.61016	.55225	9.49			
Azobenzene	1.08861	-	-			
2,4,6 Tribromophenol	.05447	.06696	22.93			(Conc=100.00)
N-Nitrosodiphenylamine	.27438	.25810	5.93	*		
4,6-Dinitro-2-methylphenol	.07907	.06095	22.91			
4-Bromophenyl-phenylether	.09766	.12724	30.29			
Hexachlorobenzene	.10587	.14327	35.32			
Pentachlorophenol	.03871	.04656	20.30	*		
Phenanthrene	.57653	.56416	2.15			
Anthracene	.59055	.57074	3.35			
Carbazole	.42418	.29206	31.15			
Di-n-Butylphthalate	.70888	.54899	22.56			
Fluoranthene	.49935	.41095	17.71	*		
Benzidine	.09338	-	-			
Pyrene	1.24600	2.78026	123.13			

RF - Response Factor from daily standard file at 50.00 ng/uL

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 (**)

C126

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 11/02/92

Contractor: Time: 16:17

Contract No: Laboratory ID: >HNA02

Instrument ID: 2824A11156 Initial Calibration Date: 10/30/92

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

Compound	RF	RF	%Diff	CCC	SPCC	
Terphenyl-d14	.71999	1.41701	96.81			(Conc=50.00)
Butylbenzylphthalate	.63154	.51018	19.22			
3,3'-Dichlorobenzidine	.11908	-	-			
Benzo(a)Anthracene	.76178	.68550	10.22			
Bis(2-Ethylhexyl)phthalate	.81745	.44760	45.24			
Chrysene	.72474	.71095	2.04			
Di-n-octylphthalate	1.72294	1.32958	22.83	*		
Benzo(b)Fluoranthene	.83203	.98797	18.74			
Benzo(k)fluoranthene	.83449	1.08729	30.29			
B[illegible]a)pyrene	.74036	.71736	3.11	*		
I (1,2,3-cd)Pyrene	.56144	.43007	23.40			
Dibenz(a,h)Anthracene	.55826	.32784	41.27			
Benzo(g,h,i)Perylene	.59771	.38720	35.22			

RF - Response Factor from daily standard file at 50.00 ng/ul

R[illegible] - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

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

C127

BATCH SPECIFIC

QUALITY CONTROL

ORGANICS

for

WO # 2533

STRATFORD ARMY ENGINE PLANT

C 128

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
~~921022-H~~067

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2526

Source: [redacted]

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15767-002A

Lab Notebook:	310, Pg. 15	Date Sampled:	10-19-92
Sample Volume:	500.0 (mL)	Date Received:	10-23-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	10-26-92
Injection Volume:	1.0 (uL)	Date Analyzed:	10-29-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	108-95-2	Phenol	6.0	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	4.0	U	
3.	95-57-8	2-Chlorophenol	4.0	U	
4.	541-73-1	1,3-Dichlorobenzene	12.0	U	
5.	106-46-7	1,4-Dichlorobenzene	12.0	68.1	
6.	95-50-1	1,2-Dichlorobenzene	12.0	U	
7.	95-48-7	2-Methylphenol	6.0	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	8.0	U	
9.	106-44-5	4-Methylphenol	6.0	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	8.0	59.9	
11.	67-72-1	Hexachloroethane	12.0	U	
12.	98-95-3	Nitrobenzene	6.0	U	
13.	78-59-1	Isophorone	4.0	U	
14.	88-75-5	2-Nitrophenol	8.0	U	
15.	105-67-9	2,4-Dimethylphenol	6.0	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	4.0	U	
17.	120-83-2	2,4-Dichlorophenol	8.0	U	
18.	120-82-1	1,2,4-Trichlorobenzene	12.0	63.3	
19.	91-20-3	Naphthalene	2.0	U	
20.	106-47-8	4-Chloroaniline	20.0	U	
21.	87-68-3	Hexachlorobutadiene	24.0	U	
22.	59-50-7	4-Chloro-3-methylphenol	6.0	U	
23.	91-57-6	2-Methylnaphthalene	2.0	U	
24.	77-47-4	Hexachlorocyclopentadiene	24.0	U	
25.	88-06-2	2,4,6-Trichlorophenol	10.0	U	
26.	95-95-4	2,4,5-Trichlorophenol	10.0	U	
27.	91-58-7	2-Chloronaphthalene	6.0	U	
28.	88-74-4	2-Nitroaniline	20.0	U	
29.	131-11-3	Dimethylphthalate	6.0	U	
30.	208-96-8	Acenaphthylene	4.0	U	
31.	606-20-2	2,6-Dinitrotoluene	12.0	U	
32.	99-09-2	3-Nitroaniline	20.0	U	
33.	83-32-9	Acenaphthene	4.0	73.4	
34.	51-28-5	2,4-Dinitrophenol	80.0	U	
35.	100-02-7	4-Nitrophenol	40.0	U	
36.	132-64-9	Dibenzofuran	12.0	U	
37.	121-14-2	2,4-Dinitrotoluene	12.0	34.9	
38.	84-66-2	Diethylphthalate	4.0	U	

C129

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
921022-H067

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2526

Source: [redacted])

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15767-002A

Lab Notebook:	310, Pg. 15	Date Sampled:	10-19-92
Sample Volume:	500.0 (mL)	Date Received:	10-23-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	10-26-92
Injection Volume:	1.0 (uL)	Date Analyzed:	10-29-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	12.0	U	
40.	86-73-7	Fluorene	6.0	U	
41.	100-01-6	4-Nitroaniline	20.0	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	40.0	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	6.0	U	
44.	101-55-3	4-Bromophenyl-phenylether	12.0	U	
45.	118-74-1	Hexachlorobenzene	10.0	U	
46.	87-86-5	Pentachlorophenol	40.0	U	
47.	85-01-8	Phenanthrene	4.0	U	
48.	120-12-7	Anthracene	4.0	U	
49.	86-74-8	Carbazole	10.0	U	
50.	84-74-2	Di-n-butylphthalate	2.0	U	
51.	206-44-0	Fluoranthene	4.0	U	
52.	129-00-0	Pyrene	4.0	125	
53.	85-68-7	Butylbenzylphthalate	6.0	U	
54.	91-94-1	3,3'-Dichlorobenzidine	20.0	U	
55.	56-55-3	Benzo(a)anthracene	6.0	U	
56.	218-01-9	Chrysene	6.0	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	4.0	U	
58.	117-84-0	Di-n-octylphthalate	4.0	U	
59.	205-99-2	Benzo(b)fluoranthene	20.0	U	
60.	207-08-9	Benzo(k)fluoranthene	20.0	U	
61.	50-32-8	Benzo(a)pyrene	12.0	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	20.0	U	
63.	53-70-3	Dibenz(a,h)anthracene	20.0	U	
64.	191-24-2	Benzo(g,h,i)perylene	20.0	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
65.	Nitrobenzene-d5	52	35-114	100
66.	2-Fluorobiphenyl	56	43-116	100
67.	Terphenyl-d14	109	33-141	100
68.	Phenol-d5	75	10-110	100
69.	2-Fluorophenol	84	21-110	100
70.	2,4,6-Tribromophenol	84	10-123	100

U: Below Detection Limit

C135

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. ~~921022-H1067~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2526

Source: [redacted]

Matrix: (soil/water) Water Duplicate **EHRT Sample I.D.:** 15767-002B

Lab Notebook:	310, Pg. 15	Date Sampled:	10-19-92
Sample Volume:	500.0 (mL)	Date Received:	10-23-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	10-26-92
Injection Volume:	1.0 (uL)	Date Analyzed:	10-29-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	108-95-2	Phenol	6.0	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	4.0	U	
3.	95-57-8	2-Chlorophenol	4.0	U	
4.	541-73-1	1,3-Dichlorobenzene	12.0	U	
5.	106-46-7	1,4-Dichlorobenzene	12.0	85.6	
6.	95-50-1	1,2-Dichlorobenzene	12.0	U	
7.	95-48-7	2-Methylphenol	6.0	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	8.0	U	
9.	106-44-5	4-Methylphenol	6.0	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	8.0	73.4	
11.	67-72-1	Hexachloroethane	12.0	U	
12.	98-95-3	Nitrobenzene	6.0	U	
13.	78-59-1	Isophorone	4.0	U	
14.	88-75-5	2-Nitrophenol	8.0	U	
15.	105-67-9	2,4-Dimethylphenol	6.0	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	4.0	U	
17.	120-83-2	2,4-Dichlorophenol	8.0	U	
18.	120-82-1	1,2,4-Trichlorobenzene	12.0	88.4	
19.	91-20-3	Naphthalene	2.0	U	
20.	106-47-8	4-Chloroaniline	20.0	U	
21.	87-68-3	Hexachlorobutadiene	24.0	U	
22.	59-50-7	4-Chloro-3-methylphenol	6.0	U	
23.	91-57-6	2-Methylnaphthalene	2.0	U	
24.	77-47-4	Hexachlorocyclopentadiene	24.0	U	
25.	88-06-2	2,4,6-Trichlorophenol	10.0	U	
26.	95-95-4	2,4,5-Trichlorophenol	10.0	U	
27.	91-58-7	2-Chloronaphthalene	6.0	U	
28.	88-74-4	2-Nitroaniline	20.0	U	
29.	131-11-3	Dimethylphthalate	6.0	U	
30.	208-96-8	Acenaphthylene	4.0	U	
31.	606-20-2	2,6-Dinitrotoluene	12.0	U	
32.	99-09-2	3-Nitroaniline	20.0	U	
33.	83-32-9	Acenaphthene	4.0	71.9	
34.	51-28-5	2,4-Dinitrophenol	80.0	U	
35.	100-02-7	4-Nitrophenol	40.0	U	
36.	132-64-9	Dibenzofuran	12.0	U	
37.	121-14-2	2,4-Dinitrotoluene	12.0	35.4	
38.	84-66-2	Diethylphthalate	4.0	U	

CB1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
~~921022-H067~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2526

Source: [redacted]

Matrix: (soil/water) Water Duplicate EHRT Sample I.D.: 15767-002B

Lab Notebook:	310, Pg. 15	Date Sampled:	10-19-92
Sample Volume:	500.0 (mL)	Date Received:	10-23-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	10-26-92
Injection Volume:	1.0 (uL)	Date Analyzed:	10-29-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	12.0	U	
40.	86-73-7	Fluorene	6.0	U	
41.	100-01-6	4-Nitroaniline	20.0	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	40.0	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	6.0	U	
44.	101-55-3	4-Bromophenyl-phenylether	12.0	U	
45.	118-74-1	Hexachlorobenzene	10.0	U	
46.	87-86-5	Pentachlorophenol	40.0	U	
47.	85-01-8	Phenanthrene	4.0	U	
48.	120-12-7	Anthracene	4.0	U	
49.	86-74-8	Carbazole	10.0	U	
50.	84-74-2	Di-n-butylphthalate	2.0	U	
51.	206-44-0	Fluoranthene	4.0	U	
52.	129-00-0	Pyrene	4.0	115	
53.	85-68-7	Butylbenzylphthalate	6.0	U	
54.	91-94-1	3,3'-Dichlorobenzidine	20.0	U	
55.	56-55-3	Benzo(a)anthracene	6.0	U	
56.	218-01-9	Chrysene	6.0	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	4.0	U	
58.	117-84-0	Di-n-octylphthalate	4.0	U	
59.	205-99-2	Benzo(b)fluoranthene	20.0	U	
60.	207-08-9	Benzo(k)fluoranthene	20.0	U	
61.	50-32-8	Benzo(a)pyrene	12.0	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	20.0	U	
63.	53-70-3	Dibenz(a,h)anthracene	20.0	U	
64.	191-24-2	Benzo(g,h,i)perylene	20.0	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
65.	Nitrobenzene-d5	76	35-114	100
66.	2-Fluorobiphenyl	79	43-116	100
67.	Terphenyl-d14	127	33-141	100
68.	Phenol-d5	56	10-110	100
69.	2-Fluorophenol	104	21-110	100
70.	2,4,6-Tribromophenol	98	10-123	100

U: Below Detection Limit

WATER SEMIVOLATILE BLANK SPIKE

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Sample Source: [redacted]

EHRT Project No.: 15767 Customer Project No.: 2526

EHRT Sample No.: N/A Customer Sample No.: N/A

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS% REC #	QC LIMITS REC.
Phenol	200	0.0	183	92	12-110
2-Chlorophenol	200	0.0	186	93	27-123
1,4-Dichlorobenzene	100	0.0	79.1	79	36-97
N-Nitroso-di-n-Propylamine	100	0.0	85.8	86	41-116
1,2,4-Trichlorobenzene	100	0.0	80.6	81	39-98
4-Chloro-3-Methylphenol	200	0.0	170	85	23-97
Acenaphthene	100	0.0	109	109	46-118
4-Nitrophenol	200	0.0	117	59	10-80
2,4-Dinitrotoluene	100	0.0	59.2	59	24-96
Pentachlorophenol	200	0.0	198	99	9-103
Pyrene	100	0.0	99.8	100	26-127

Column to be used to flag recovery values with an asterisk
* Values outside of QC limits

Spike Recovery: 0 out of 11 outside limits

COMMENTS:

C133

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.
~~921022-H073~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2526

Source: [redacted]

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15767-007

Lab Notebook:	310, Pg. 15	Date Sampled:	10-19-92
Sample Volume:	500.0 (mL)	Date Received:	10-23-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	10-26-92
Injection Volume:	1.0 (uL)	Date Analyzed:	10-29-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	108-95-2	Phenol	6.0	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	4.0	U	
3.	95-57-8	2-Chlorophenol	4.0	4.2	
4.	541-73-1	1,3-Dichlorobenzene	12.0	U	
5.	106-46-7	1,4-Dichlorobenzene	12.0	83.3	
6.	95-50-1	1,2-Dichlorobenzene	12.0	U	
7.	95-48-7	2-Methylphenol	6.0	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	8.0	U	
9.	106-44-5	4-Methylphenol	6.0	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	8.0	72.4	
11.	67-72-1	Hexachloroethane	12.0	U	
12.	98-95-3	Nitrobenzene	6.0	U	
13.	78-59-1	Isophorone	4.0	U	
14.	88-75-5	2-Nitrophenol	8.0	U	
15.	105-67-9	2,4-Dimethylphenol	6.0	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	4.0	U	
17.	120-83-2	2,4-Dichlorophenol	8.0	U	
18.	120-82-1	1,2,4-Trichlorobenzene	12.0	85.0	
19.	91-20-3	Naphthalene	2.0	U	
20.	106-47-8	4-Chloroaniline	20.0	U	
21.	87-68-3	Hexachlorobutadiene	24.0	U	
22.	59-50-7	4-Chloro-3-methylphenol	6.0	U	
23.	91-57-6	2-Methylnaphthalene	2.0	U	
24.	77-47-4	Hexachlorocyclopentadiene	24.0	U	
25.	88-06-2	2,4,6-Trichlorophenol	10.0	U	
26.	95-95-4	2,4,5-Trichlorophenol	10.0	U	
27.	91-58-7	2-Chloronaphthalene	6.0	U	
28.	88-74-4	2-Nitroaniline	20.0	U	
29.	131-11-3	Dimethylphthalate	6.0	U	
30.	208-96-8	Acenaphthylene	4.0	U	
31.	606-20-2	2,6-Dinitrotoluene	12.0	U	
32.	99-09-2	3-Nitroaniline	20.0	U	
33.	83-32-9	Acenaphthene	4.0	95.4	
34.	51-28-5	2,4-Dinitrophenol	80.0	U	
35.	100-02-7	4-Nitrophenol	40.0	U	
36.	132-64-9	Dibenzofuran	12.0	U	
37.	121-14-2	2,4-Dinitrotoluene	12.0	36.0	
38.	84-66-2	Diethylphthalate	4.0	U	

C136

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO.: ~~921022-H073~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2526

Source: [redacted]

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15767-007

Lab Notebook:	310, Pg. 15	Date Sampled:	10-19-92
Sample Volume:	500.0 (mL)	Date Received:	10-23-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	10-26-92
Injection Volume:	1.0 (uL)	Date Analyzed:	10-29-92
pH: 7.0	Percent Solid: N/A	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	12.0	U	
40.	86-73-7	Fluorene	6.0	U	
41.	100-01-6	4-Nitroaniline	20.0	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	40.0	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	6.0	U	
44.	101-55-3	4-Bromophenyl-phenylether	12.0	U	
45.	118-74-1	Hexachlorobenzene	10.0	U	
46.	87-86-5	Pentachlorophenol	40.0	U	
47.	85-01-8	Phenanthrene	4.0	U	
48.	120-12-7	Anthracene	4.0	U	
49.	86-74-8	Carbazole	10.0	U	
50.	84-74-2	Di-n-butylphthalate	2.0	U	
51.	206-44-0	Fluoranthene	4.0	U	
52.	129-00-0	Pyrene	4.0	136	
53.	85-68-7	Butylbenzylphthalate	6.0	U	
54.	91-94-1	3,3'-Dichlorobenzidine	20.0	U	
55.	56-55-3	Benzo(a)anthracene	6.0	U	
56.	218-01-9	Chrysene	6.0	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	4.0	U	
58.	117-84-0	Di-n-octylphthalate	4.0	U	
59.	205-99-2	Benzo(b)fluoranthene	20.0	U	
60.	207-08-9	Benzo(k)fluoranthene	20.0	U	
61.	50-32-8	Benzo(a)pyrene	12.0	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	20.0	U	
63.	53-70-3	Dibenz(a,h)anthracene	20.0	U	
64.	191-24-2	Benzo(g,h,i)perylene	20.0	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
65.	Nitrobenzene-d5	72	35-114	100
66.	2-Fluorobiphenyl	77	43-116	100
67.	Terphenyl-d14	125	33-141	100
68.	Phenol-d5	92	10-110	100
69.	2-Fluorophenol	98	21-110	100
70.	2,4,6-Tribromophenol	96	10-123	100

U: Below Detection Limit

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Sample Source: [redacted]

EHRT Project No.: 15767 Customer Project No.: 2526

EHRT Sample No.: 15767-007 Customer Sample No.: 921022-H073

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS% REC #	QC LIMITS REC.
Phenol	400	0.0	318	80	12-110
2-Chlorophenol	400	4.2	334	82	27-123
1,4-Dichlorobenzene	200	83.3	134	25 *	36-97
N-Nitroso-di-n-Propylamine	200	72.4	182	55	41-116
1,2,4-Trichlorobenzene	200	85.0	136	25 *	39-98
4-Chloro-3-Methylphenol	400	0.0	344	86	23-97
Acenaphthene	200	95.4	190	47	46-118
4-Nitrophenol	400	0.0	282	71	10-80
2,4-Dinitrotoluene	200	36.0	122	43	24-96
Pentachlorophenol	400	0.0	427	107 *	9-103
Pyrene	200	136	273	68	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	400	317	79	1	42	12-110
2-Chlorophenol	400	336	83	1	40	27-123
1,4-Dichlorobenzene	200	133	24 *	4	28	36-97
N-Nitroso-di-n-Propylamine	200	185	57	4	38	41-116
1,2,4-Trichlorobenzene	200	137	26 *	4	28	39-98
4-Chloro-3-Methylphenol	400	342	86	0	42	23-97
Acenaphthene	200	191	48	2	31	46-118
4-Nitrophenol	400	166	42	51 *	50	10-80
2,4-Dinitrotoluene	200	141	53	21	38	24-96
Pentachlorophenol	400	450	113 *	5	50	9-103
Pyrene	200	296	80	16	31	26-127

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

* Values outside of QC limits

RPD: 1 out of 11 outside limits

Spike Recovery: 6 out of 22 outside limits

COMMENTS:

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. CB5

921102-H023

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2555

Source: Stratford Army Engine Plant (07-0-12)

Matrix: (soil/water) Solid Sample EHRT Sample I.D.: 15827-001

Lab Notebook:	310, Pg. 30	Date Sampled:	10-28-92
Sample Weight:	11.6 (g)	Date Received:	11-04-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	11-05-92
Injection Volume:	1.0 (uL)	Date Analyzed:	11-10-92
pH: 6.0	Percent Solid: 80	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	539	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	539	U	
3.	95-57-8	2-Chlorophenol	539	U	
4.	541-73-1	1,3-Dichlorobenzene	1080	U	
5.	106-46-7	1,4-Dichlorobenzene	1080	U	
6.	95-50-1	1,2-Dichlorobenzene	1080	U	
7.	95-48-7	2-Methylphenol	539	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1080	U	
9.	106-44-5	4-Methylphenol	539	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1080	U	
11.	67-72-1	Hexachloroethane	1080	U	
12.	98-95-3	Nitrobenzene	539	U	
13.	78-59-1	Isophorone	539	U	
14.	88-75-5	2-Nitrophenol	1080	U	
15.	105-67-9	2,4-Dimethylphenol	539	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	539	U	
17.	120-83-2	2,4-Dichlorophenol	1080	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1080	U	
19.	91-20-3	Naphthalene	323	U	
20.	106-47-8	4-Chloroaniline	3230	U	
21.	87-68-3	Hexachlorobutadiene	3230	U	
22.	59-50-7	4-Chloro-3-methylphenol	539	U	
23.	91-57-6	2-Methylnaphthalene	323	U	
24.	77-47-4	Hexachlorocyclopentadiene	3230	U	
25.	88-06-2	2,4,6-Trichlorophenol	1080	U	
26.	95-95-4	2,4,5-Trichlorophenol	1080	U	
27.	91-58-7	2-Chloronaphthalene	539	U	
28.	88-74-4	2-Nitroaniline	3230	U	
29.	131-11-3	Dimethylphthalate	539	U	
30.	208-96-8	Acenaphthylene	539	U	
31.	606-20-2	2,6-Dinitrotoluene	1080	U	
32.	99-09-2	3-Nitroaniline	3230	U	
33.	83-32-9	Acenaphthene	539	U	
34.	51-28-5	2,4-Dinitrophenol	10800	U	
35.	100-02-7	4-Nitrophenol	5390	U	
36.	132-64-9	Dibenzofuran	1080	U	
37.	121-14-2	2,4-Dinitrotoluene	1080	U	
38.	84-66-2	Diethylphthalate	539	U	

C137

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 921102-H023

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2555

Source: Stratford Army Engine Plant (07-0-12)

Matrix: (soil/water) Solid Sample EHRT Sample I.D.: 15827-001

Lab Notebook: 310, Pg. 30
Sample Weight: 11.6 (g)
Conc. Extract Vol.: 1.0 (mL)
Injection Volume: 1.0 (uL)
pH: 6.0 Percent Solid: 80

Date Sampled: 10-28-92
Date Received: 11-04-92
Date Extracted: 11-05-92
Date Analyzed: 11-10-92
Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1080	U	
40.	86-73-7	Fluorene	539	U	
41.	100-01-6	4-Nitroaniline	5390	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	5390	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	539	U	
44.	101-55-3	4-Bromophenyl-phenylether	1080	U	
45.	118-74-1	Hexachlorobenzene	1080	U	
46.	87-86-5	Pentachlorophenol	5390	U	
47.	85-01-8	Phenanthrene	539	U	
48.	120-12-7	Anthracene	539	U	
49.	86-74-8	Carbazole	1080	U	
50.	84-74-2	Di-n-butylphthalate	323	214	J
51.	206-44-0	Fluoranthene	539	U	
52.	129-00-0	Pyrene	323	U	
53.	85-68-7	Butylbenzylphthalate	539	U	
54.	91-94-1	3,3'-Dichlorobenzidine	5390	U	
55.	56-55-3	Benzo(a)anthracene	539	U	
56.	218-01-9	Chrysene	539	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	323	U	
58.	117-84-0	Di-n-octylphthalate	539	U	
59.	205-99-2	Benzo(b)fluoranthene	2160	U	
60.	207-08-9	Benzo(k)fluoranthene	2160	U	
61.	50-32-8	Benzo(a)pyrene	1080	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2160	U	
63.	53-70-3	Dibenz(a,h)anthracene	2160	U	
64.	191-24-2	Benzo(g,h,i)perylene	2160	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	52	23-120	100
66.	2-Fluorobiphenyl	49	30-115	100
67.	Terphenyl-d14	55	18-137	100
68.	Phenol-d5	52	24-113	200
69.	2-Fluorophenol	39	25-112	200
70.	2,4,6-Tribromophenol	49	19-122	200

U: Below Detection Limit

C138

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2555

Source: Stratford Army Engine Plant

Matrix: (soil/water) Soil Blank EHRT Sample I.D.: N/A

Lab Notebook: 310, Pg. 29 Date Sampled: N/A
Sample Weight: 10.0 (g) Date Received: N/A
Conc. Extract Vol.: 1.0 (mL) Date Extracted: 11-05-92
Injection Volume: 1.0 (uL) Date Analyzed: 11-09-92
pH: 7.0 Percent Solid: 100 Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	500	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	500	U	
3.	95-57-8	2-Chlorophenol	500	U	
4.	541-73-1	1,3-Dichlorobenzene	1000	U	
5.	106-46-7	1,4-Dichlorobenzene	1000	U	
6.	95-50-1	1,2-Dichlorobenzene	1000	U	
7.	95-48-7	2-Methylphenol	500	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1000	U	
9.	106-44-5	4-Methylphenol	500	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1000	U	
11.	67-72-1	Hexachloroethane	1000	U	
12.	98-95-3	Nitrobenzene	500	U	
13.	78-59-1	Isophorone	500	U	
14.	88-75-5	2-Nitrophenol	1000	U	
15.	105-67-9	2,4-Dimethylphenol	500	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	500	U	
17.	120-83-2	2,4-Dichlorophenol	1000	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1000	U	
19.	91-20-3	Naphthalene	300	U	
20.	106-47-8	4-Chloroaniline	3000	U	
21.	87-68-3	Hexachlorobutadiene	3000	U	
22.	59-50-7	4-Chloro-3-methylphenol	500	U	
23.	91-57-6	2-Methylnaphthalene	300	U	
24.	77-47-4	Hexachlorocyclopentadiene	3000	U	
25.	88-06-2	2,4,6-Trichlorophenol	1000	U	
26.	95-95-4	2,4,5-Trichlorophenol	1000	U	
27.	91-58-7	2-Chloronaphthalene	500	U	
28.	88-74-4	2-Nitroaniline	3000	U	
29.	131-11-3	Dimethylphthalate	500	U	
30.	208-96-8	Acenaphthylene	500	U	
31.	606-20-2	2,6-Dinitrotoluene	1000	U	
32.	99-09-2	3-Nitroaniline	3000	U	
33.	83-32-9	Acenaphthene	500	U	
34.	51-28-5	2,4-Dinitrophenol	10000	U	
35.	100-02-7	4-Nitrophenol	5000	U	
36.	132-64-9	Dibenzofuran	1000	U	
37.	121-14-2	2,4-Dinitrotoluene	1000	U	
38.	84-66-2	Diethylphthalate	500	U	

C139

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2555

Source: Stratford Army Engine Plant

Matrix: (soil/water) Soil Blank EHRT Sample I.D.: N/A

Lab Notebook: 310, Pg. 29
Sample Weight: 10.0 (g)
Conc. Extract Vol.: 1.0 (mL)
Injection Volume: 1.0 (uL)
pH: 7.0 Percent Solid: 100

Date Sampled: N/A
Date Received: N/A
Date Extracted: 11-05-92
Date Analyzed: 11-09-92
Dilution Factor: 1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1000	U	
40.	86-73-7	Fluorene	500	U	
41.	100-01-6	4-Nitroaniline	5000	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	5000	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	500	U	
44.	101-55-3	4-Bromophenyl-phenylether	1000	U	
45.	118-74-1	Hexachlorobenzene	1000	U	
46.	87-86-5	Pentachlorophenol	5000	U	
47.	85-01-8	Phenanthrene	500	U	
48.	120-12-7	Anthracene	500	U	
49.	86-74-8	Carbazole	1000	U	
50.	84-74-2	Di-n-butylphthalate	300	U	
51.	206-44-0	Fluoranthene	500	U	
52.	129-00-0	Pyrene	300	U	
53.	85-68-7	Butylbenzylphthalate	500	U	
54.	91-94-1	3,3'-Dichlorobenzidine	5000	U	
55.	56-55-3	Benzo(a)anthracene	500	U	
56.	218-01-9	Chrysene	500	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	300	U	
58.	117-84-0	Di-n-octylphthalate	500	U	
59.	205-99-2	Benzo(b)fluoranthene	2000	U	
60.	207-08-9	Benzo(k)fluoranthene	2000	U	
61.	50-32-8	Benzo(a)pyrene	1000	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2000	U	
63.	53-70-3	Dibenz(a,h)anthracene	2000	U	
64.	191-24-2	Benzo(g,h,i)perylene	2000	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	54	23-120	100
66.	2-Fluorobiphenyl	49	30-115	100
67.	Terphenyl-d14	93	18-137	100
68.	Phenol-d5	56	24-113	200
69.	2-Fluorophenol	50	25-112	200
70.	2,4,6-Tribromophenol	63	19-122	200

U: Below Detection Limit

C140

```
:
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:RU,PS,20R
reg type  # pts  scan#    range: amu\r.t.      base   file      ion range
--- ----  -----  -----   ----------------   -------  -----  --------------
 X   MS       64    634    40.05-   444.00    1127.0 >DFT10
:CA,5,4,+,1
:IF,5,LE,10,-5
:TR,*DFTP'
:***DFTP' FROM HP TO YOUR LIVING ROOM
:CA,1:P,5
:RU,TUNER,=DFTPP
```

GC/MS PERFORMANCE STANDARD

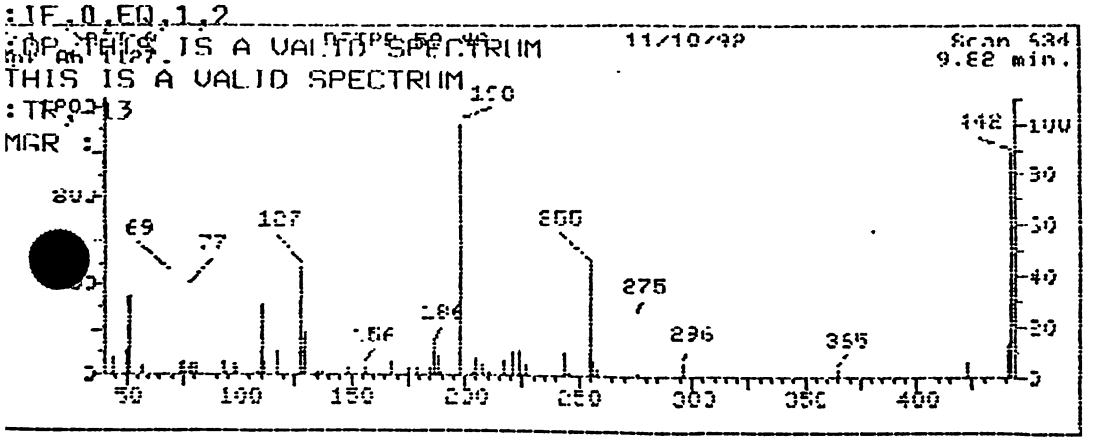
Decafluorotriphenylphospine (DFTPP)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	31.50	31.50	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
[illegible]	(reference only)	39.75	39.75	Ok
[illegible]0	Less than 2% of mass 69	0.00	0.00	Ok
127	40-60% of mass 198	42.86	42.86	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	6.65	6.65	Ok
275	10-30% of mass 198	23.25	23.25	Ok
365	Greater than 1% of mass 198	2.66	2.66	Ok
441	0-100% of mass 443	13.04	73.50	Ok
442	Greater than 40% of mass 198	88.73	88.73	Ok
443	17-23% of mass 442	17.75	20.00	Ok

Injection Date: 11/10/92
Injection Time: 08:35
Data File: >DFT10
Scan: 634

GC/MS #1
2824 A 11156
11/10/92

```
:IF,0,EQ,1,2
:DP,'THIS IS A VALID SPECTRUM
THIS IS A VALID SPECTRUM
:TR,13
MGR :
```



Continuing Calibration Check
HSL Compounds

Case No: _____ Calibration Date: 11/10/92

Contractor: _____ Time: 09:00

Contract No: _____ Laboratory ID: >RNA10

Instrument ID: 2824A11156 Initial Calibration Date: 10/30/92

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

GC/MS # 1
2824 A11156
11/10/92

Compound	RF	RF	%Diff	CCC	SPCC	
Pyridine	-	-	-			
Aniline	.22210	.40265	81.29			
2-Fluorophenol	.52023	.44678	14.12			(Conc=100.00)
Phenol-d5	.50598	.38447	24.02			(Conc=100.00)
Phenol	.59876	.46636	22.11	*		
Benzyl alcohol	.12864	.17807	38.42			
bis(2-Chloroethyl)Ether	.55051	.50347	8.55			
2-Methylphenol	.36795	.30865	16.12			
3-Methylphenol	.49106	.44536	9.31			
4-Methylphenol	.39235	.34262	12.68			
2-Chlorophenol	.42948	.45893	6.86			
1,3-Dichlorobenzene	.54851	.56553	3.10			
1,4-Dichlorobenzene	.52201	.54887	5.14	*		
1,2-Dichlorobenzene	.52740	.56867	7.82			
Bis(2-Chloroisopropyl)ether	.69988	.46243	33.93			
N-Nitroso-Di-n-propylamine	.37097	.28615	22.86		**	
Hexachloroethane	.24004	.22621	5.76			
Nitrobenzene-d5	.24844	.21957	11.62			(Conc=50.00)
Nitrobenzene	.26084	.24788	4.97			
Isophorone	.54655	.46922	14.14			
2-Nitrophenol	.11719	.12460	6.32	*		
2,4-Dimethylphenol	.20950	.20971	.10			
Benzoic acid	.06309	.06991	10.81			
bis(2-Chloroethoxy)methane	.28964	.25218	12.93			
2,4-Dichlorophenol	.14272	.16955	19.21	*		
1,2,4-Trichlorobenzene	.17179	.22199	29.22			
Naphthalene	.50928	.59124	16.09			
4-Chloroaniline	.16867	.15155	10.14			
Hexachlorobutadiene	.07796	.07668	1.63	*		
4-Chloro-3-methylphenol	.13515	.14768	9.29	*		
2-Methylnaphthalene	.31493	.36459	15.77			
Hexachlorocyclopentadiene	.22913	.26602	16.10		**	

RF - Response Factor from daily standard file at 50.00 ng/ul.

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: 11/10/92

Contractor: Time: 09:00

Contract No: Laboratory ID: >RNA10

Instrument ID: 2824A11156 Initial Calibration Date: 10/30/92

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

Compound	RF	RF	%Diff	CCC	SPCC	
2,4,6-Trichlorophenol	.21009	.23965	10.74	*		
2-Chloronaphthalene	.73896	.77024	4.23			
2-Fluorobiphenyl	.85051	.83775	1.50			(Conc=50.00)
Dimethylphthalate	.74465	.71697	3.72			
Acenaphthylene	1.07591	1.09244	1.54			
Acenaphthene	.66870	.65895	1.46	*		
2,4-Dinitrophenol	.08368	.06276	25.01		**	
4-Nitrophenol	.05122	.06227	21.58		**	
2,4-Dinitrotoluene	.19957	.18296	8.32			
2,6-Dinitrotoluene	.14978	.14452	3.51			
2- iniline	.25413	.20599	18.94			
3- iniline	.13237	.14924	12.74			
4-Nitroaniline	.09367	.07729	17.49			
Diethylphthalate	.69026	.57779	16.29			
Dibenzofuran	.84020	.86062	2.43			
2,4,5-Trichlorophenol	.21359	.22381	4.79			
4-Chlorophenyl-phenylether	.28080	.29643	5.57			
Fluorene	.61016	.59904	1.82			
Azobenzene	1.08861	-	-			
2,4,6 Tribromophenol	.05447	.06339	16.37			(Conc=100.00)
N-Nitrosodiphenylamine	.27438	.28746	4.77	*		
4,6-Dinitro-2-methylphenol	.07907	.06285	20.51			
4-Bromophenyl-phenylether	.09766	.11565	18.41			
Hexachlorobenzene	.10587	.13459	27.13			
Pentachlorophenol	.03871	.04081	5.43	*		
Phenanthrene	.57653	.56205	2.51			
Anthracene	.59055	.57963	1.85			
Carbazole	.42418	.37221	12.25			
Di-n-Butylphthalate	.70888	.53683	24.27			
Fluoranthene	.49935	.43732	12.42	*		
Benzidine	.09338	-	-			
Pyrene	1.24600	1.24680	.06			

RF - Response Factor from daily standard file at 50.00 ng/ul

RF Averane 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: 11/10/92

Contractor: _____ Time: 09:00

Contract No: _____ Laboratory ID: >BNA10

Instrument ID: 2824A11156 Initial Calibration Date: 10/30/92

Minimum RF for SPCC is 0.050 Maximum % Diff for CCC is 30.00%

Compound	RF	RF	%Diff	CCC	SPCC	
Terphenyl-d14	.71999	.71962	.05			(Conc=50.00)
Butylbenzylphthalate	.63154	.42195	33.19			
3,3'-Dichlorobenzidine	.11908	.08307	30.24			
Benzo(a)Anthracene	.76128	.67087	11.88			
Bis(2-Ethylhexyl)phthalate	.81743	.74688	8.64			
Chrysene	.72474	.68226	5.86			
Di-n-octylphthalate	1.72994	1.62194	5.86	*		
Benzo(b)Fluoranthene	.83203	.76330	8.26			
Benzo(k)fluoranthene	.83449	.81193	2.79			
Benzo(a)pyrene	.74036	.73396	.96	*		
Indeno(1,2,3-cd)Pyrene	.56144	.56861	1.28			
Dibenz(a,h)Anthracene	.55826	.56051	.40			
Benzo(g,h,i)Perylene	.59771	.58985	1.32			

RF - Response Factor from daily standard file at 50.00 ng/ul

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 (**)

BATCH SPECIFIC

QUALITY CONTROL

ORGANICS

for

WORK ORDER NO.: 2555

STRATFORD ARMY ENGINE PLANT

C145

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. ~~921109-H014~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2576

Source: [redacted]

Matrix: (soil/water) Soil Sample **EHRT Sample I.D.:** 15857-013A

Lab Notebook:	310, Pg. 43	Date Sampled:	11-05-92
Sample Weight:	10.0 (g)	Date Received:	11-10-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	11-17-92
Injection Volume:	1.0 (uL)	Date Analyzed:	11-18-92
pH: 8.0	Percent Solid: 75	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	667	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	667	U	
3.	95-57-8	2-Chlorophenol	667	U	
4.	541-73-1	1,3-Dichlorobenzene	1330	U	
5.	106-46-7	1,4-Dichlorobenzene	1330	U	
6.	95-50-1	1,2-Dichlorobenzene	1330	U	
7.	95-48-7	2-Methylphenol	667	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1330	U	
9.	106-44-5	4-Methylphenol	667	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1330	U	
11.	67-72-1	Hexachloroethane	1330	U	
12.	98-95-3	Nitrobenzene	667	U	
13.	78-59-1	Isophorone	667	U	
14.	88-75-5	2-Nitrophenol	1330	U	
15.	105-67-9	2,4-Dimethylphenol	667	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	667	U	
17.	120-83-2	2,4-Dichlorophenol	1330	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1330	U	
19.	91-20-3	Naphthalene	400	523	
20.	106-47-8	4-Chloroaniline	4000	U	
21.	87-68-3	Hexachlorobutadiene	4000	U	
22.	59-50-7	4-Chloro-3-methylphenol	667	U	
23.	91-57-6	2-Methylnaphthalene	400	1100	
24.	77-47-4	Hexachlorocyclopentadiene	4000	U	
25.	88-06-2	2,4,6-Trichlorophenol	1330	U	
26.	95-95-4	2,4,5-Trichlorophenol	1330	U	
27.	91-58-7	2-Chloronaphthalene	667	U	
28.	88-74-4	2-Nitroaniline	4000	U	
29.	131-11-3	Dimethylphthalate	667	U	
30.	208-96-8	Acenaphthylene	667	U	
31.	606-20-2	2,6-Dinitrotoluene	1330	U	
32.	99-09-2	3-Nitroaniline	4000	U	
33.	83-32-9	Acenaphthene	667	U	
34.	51-28-5	2,4-Dinitrophenol	13300	U	
35.	100-02-7	4-Nitrophenol	6670	U	
36.	132-64-9	Dibenzofuran	1330	U	
37.	121-14-2	2,4-Dinitrotoluene	1330	U	
38.	84-66-2	Diethylphthalate	667	U	

C146

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 921109-H014

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2576

Source: [redacted] (DB60B-M)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15857-013A

Lab Notebook:	310, Pg. 43	Date Sampled:	11-05-92
Sample Weight:	10.0 (g)	Date Received:	11-10-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	11-17-92
Injection Volume:	1.0 (uL)	Date Analyzed:	11-18-92
pH: 8.0	Percent Solid: 75	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1330	U	
40.	86-73-7	Fluorene	667	U	
41.	100-01-6	4-Nitroaniline	6670	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	6670	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	667	U	
44.	101-55-3	4-Bromophenyl-phenylether	1330	U	
45.	118-74-1	Hexachlorobenzene	1330	U	
46.	87-86-5	Pentachlorophenol	6670	U	
47.	85-01-8	Phenanthrene	667	647	J
48.	120-12-7	Anthracene	667	U	
49.	86-74-8	Carbazole	1330	U	
50.	84-74-2	Di-n-butylphthalate	400	3550	B
51.	206-44-0	Fluoranthene	667	U	
52.	129-00-0	Pyrene	400	U	
53.	85-68-7	Butylbenzylphthalate	667	U	
54.	91-94-1	3,3'-Dichlorobenzidine	6670	U	
55.	56-55-3	Benzo(a)anthracene	667	U	
56.	218-01-9	Chrysene	667	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	400	369	J,B
58.	117-84-0	Di-n-octylphthalate	667	U	
59.	205-99-2	Benzo(b)fluoranthene	2670	U	
60.	207-08-9	Benzo(k)fluoranthene	2670	U	
61.	50-32-8	Benzo(a)pyrene	1330	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2670	U	
63.	53-70-3	Dibenz(a,h)anthracene	2670	U	
64.	191-24-2	Benzo(g,h,i)perylene	2670	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	89	23-120	100
66.	2-Fluorobiphenyl	77	30-115	100
67.	Terphenyl-d14	91	18-137	100
68.	Phenol-d5	84	24-113	200
69.	2-Fluorophenol	58	25-112	200
70.	2,4,6-Tribromophenol	88	19-122	200

U: Below Detection Limit

C147

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 921109-H014

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2576

Source: [redacted]

Matrix: (soil/water) Soil Duplicate **EHRT Sample I.D.:** 15857-013B

Lab Notebook:	310, Pg. 43	Date Sampled:	11-05-92
Sample Weight:	10.0 (g)	Date Received:	11-10-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	11-17-92
Injection Volume:	1.0 (uL)	Date Analyzed:	11-18-92
pH: 8.0	Percent Solid: 75	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	108-95-2	Phenol	667	U	
2.	111-44-4	bis(2-Chloroethyl)Ether	667	U	
3.	95-57-8	2-Chlorophenol	667	U	
4.	541-73-1	1,3-Dichlorobenzene	1330	U	
5.	106-46-7	1,4-Dichlorobenzene	1330	U	
6.	95-50-1	1,2-Dichlorobenzene	1330	U	
7.	95-48-7	2-Methylphenol	667	U	
8.	108-60-1	bis(2-chloroisopropyl)ether	1330	U	
9.	106-44-5	4-Methylphenol	667	U	
10.	621-64-7	N-Nitroso-Di-n-propylamine	1330	U	
11.	67-72-1	Hexachloroethane	1330	U	
12.	98-95-3	Nitrobenzene	667	U	
13.	78-59-1	Isophorone	667	U	
14.	88-75-5	2-Nitrophenol	1330	U	
15.	105-67-9	2,4-Dimethylphenol	667	U	
16.	111-91-1	bis(2-Chloroethoxy)methane	667	U	
17.	120-83-2	2,4-Dichlorophenol	1330	U	
18.	120-82-1	1,2,4-Trichlorobenzene	1330	U	
19.	91-20-3	Naphthalene	400	368	J
20.	106-47-8	4-Chloroaniline	4000	U	
21.	87-68-3	Hexachlorobutadiene	4000	U	
22.	59-50-7	4-Chloro-3-methylphenol	667	U	
23.	91-57-6	2-Methylnaphthalene	400	817	
24.	77-47-4	Hexachlorocyclopentadiene	4000	U	
25.	88-06-2	2,4,6-Trichlorophenol	1330	U	
26.	95-95-4	2,4,5-Trichlorophenol	1330	U	
27.	91-58-7	2-Chloronaphthalene	667	U	
28.	88-74-4	2-Nitroaniline	4000	U	
29.	131-11-3	Dimethylphthalate	667	U	
30.	208-96-8	Acenaphthylene	667	U	
31.	606-20-2	2,6-Dinitrotoluene	1330	U	
32.	99-09-2	3-Nitroaniline	4000	U	
33.	83-32-9	Acenaphthene	667	U	
34.	51-28-5	2,4-Dinitrophenol	13300	U	
35.	100-02-7	4-Nitrophenol	6670	U	
36.	132-64-9	Dibenzofuran	1330	U	
37.	121-14-2	2,4-Dinitrotoluene	1330	U	
38.	84-66-2	Diethylphthalate	667	U	

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
(EPA Method 8270)

SAMPLE NO. 921109-1014

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2576

Source: [redacted]

Matrix: (soil/water) Soil Duplicate EHRT Sample I.D.: 15857-013B

Lab Notebook:	310, Pg. 43	Date Sampled:	11-05-92
Sample Weight:	10.0 (g)	Date Received:	11-10-92
Conc. Extract Vol.:	1.0 (mL)	Date Extracted:	11-17-92
Injection Volume:	1.0 (uL)	Date Analyzed:	11-18-92
pH: 8.0	Percent Solid: 75	Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
39.	7005-72-3	4-Chlorophenyl-phenylether	1330	U	
40.	86-73-7	Fluorene	667	U	
41.	100-01-6	4-Nitroaniline	6670	U	
42.	534-52-1	4,6-Dinitro-2-methylphenol	6670	U	
43.	86-30-6	N-Nitrosodiphenylamine (1)	667	U	
44.	101-55-3	4-Bromophenyl-phenylether	1330	U	
45.	118-74-1	Hexachlorobenzene	1330	U	
46.	87-86-5	Pentachlorophenol	6670	U	
47.	85-01-8	Phenanthrene	667	500	J
48.	120-12-7	Anthracene	667	U	
49.	86-74-8	Carbazole	1330	U	
50.	84-74-2	Di-n-butylphthalate	400	1960	B
51.	206-44-0	Fluoranthene	667	U	
52.	129-00-0	Pyrene	400	U	
53.	85-68-7	Butylbenzylphthalate	667	U	
54.	91-94-1	3,3'-Dichlorobenzidine	6670	U	
55.	56-55-3	Benzo(a)anthracene	667	U	
56.	218-01-9	Chrysene	667	U	
57.	117-81-7	bis(2-Ethylhexyl)phthalate	400	344	J,B
58.	117-84-0	Di-n-octylphthalate	667	U	
59.	205-99-2	Benzo(b)fluoranthene	2670	U	
60.	207-08-9	Benzo(k)fluoranthene	2670	U	
61.	50-32-8	Benzo(a)pyrene	1330	U	
62.	193-39-5	Indeno(1,2,3-cd)pyrene	2670	U	
63.	53-70-3	Dibenz(a,h)anthracene	2670	U	
64.	191-24-2	Benzo(g,h,i)perylene	2670	U	

(1) - Cannot be separated from Diphenylamine

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
65.	Nitrobenzene-d5	82	23-120	100
66.	2-Fluorobiphenyl	69	30-115	100
67.	Terphenyl-d14	79	18-137	100
68.	Phenol-d5	80	24-113	200
69.	2-Fluorophenol	58	25-112	200
70.	2,4,6-Tribromophenol	80	19-122	200

U: Below Detection Limit

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Source: [redacted]

Customer Sample No.: 921109-H014 Work Order No.: 2576

EHRT Sample No.: 15857-013 Project No.: 15857

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS% REC #	QC LIMITS REC.
Phenol	20,000	0.0	8,150	41	26-90
2-Chlorophenol	20,000	0.0	8,020	40	25-102
1,4-Dichlorobenzene	10,000	0.0	6,810	68	28-104
N-Nitroso-di-n-Propylamine	10,000	0.0	8,020	80	41-126
1,2,4-Trichlorobenzene	10,000	0.0	7,530	75	38-107
4-Chloro-3-Methylphenol	20,000	0.0	12,600	63	26-103
Acenaphthene	10,000	0.0	7,260	73	31-137
4-Nitrophenol	20,000	0.0	4,790	24	11-114
2,4-Dinitrotoluene	10,000	0.0	8,440	84	28-89
Pentachlorophenol	20,000	0.0	7,740	39	17-109
Pyrene	10,000	0.0	4,860	49	35-142

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONC. (ug/kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	20,000	9,700	49	18	35	26-90
2-Chlorophenol	20,000	9,880	49	20	50	25-102
1,4-Dichlorobenzene	10,000	7,290	73	7	27	28-104
N-Nitroso-di-n-Propylamine	10,000	8,730	87	8	38	41-126
1,2,4-Trichlorobenzene	10,000	8,220	82	9	23	38-107
4-Chloro-3-Methylphenol	20,000	13,600	68	8	33	26-103
Acenaphthene	10,000	7,820	78	7	19	31-137
4-Nitrophenol	20,000	3,960	20	18	50	11-114
2,4-Dinitrotoluene	10,000	8,340	83	1	47	28-89
Pentachlorophenol	20,000	8,000	40	3	47	17-109
Pyrene	10,000	4,940	49	0	36	35-142

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

* Values outside of QC limits

RPD: 0 out of 11 outside limits

Spike Recovery: 0 out of 22 outside limits

COMMENTS:

QUALITY CONTROL
SEMIVOLATILE SOIL BLANK SPIKE

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS

Source: [redacted]

Customer Sample No.: N/A Work Order No.: 2576

EHRT Sample No.: N/A Project No.: 15857

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS% REC #	QC LIMITS REC.
Phenol	20,000	0.0	159	80	26-90
2-Chlorophenol	20,000	0.0	197	99	25-102
1,4-Dichlorobenzene	10,000	0.0	91.7	92	28-104
N-Nitroso-di-n-Propylamine	10,000	0.0	97.4	97	41-126
1,2,4-Trichlorobenzene	10,000	0.0	97.5	97	38-107
4-Chloro-3-Methylphenol	20,000	0.0	188	94	26-103
Acenaphthene	10,000	0.0	98.0	98	31-137
4-Nitrophenol	20,000	0.0	197	99	11-114
2,4-Dinitrotoluene	10,000	0.0	47.8	48	28-89
Pentachlorophenol	20,000	0.0	105	53	17-109
Pyrene	10,000	0.0	81.9	82	35-142

Column to be used to flag recovery values with an asterisk
* Values outside of QC limits

Spike Recovery: 0 out of 11 outside limits

COMMENTS:

C151

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

LIMS No: 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: 921102-H025
Customer Sample No.: ECD-4
Sample Description: Water **Sample Container Used:** 1/2 gal. Amber glass
Amount Used: 1000 mL **Final Volume:** 1.0 mL
Date Sample Taken: 28 Oct 92 **Sample analyzed for:** Semivolatiles
Date Sample Received: 29 Oct 92 **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna0601027

Analyte	Result	Units	Detection Limits
1. Phenol	u	µg/L	5
2. bis(2-Chloroethyl)ether	u	µg/L	5
3. 2-Chlorophenol	u	µg/L	5
4. 1,3-Dichlorobenzene	u	µg/L	5
5. 1,4-Dichlorobenzene	u	µg/L	5
6. Benzyl Alcohol	u	µg/L	50
7. 1,2-Dichlorobenzene	u	µg/L	5
8. 2-Methylphenol	u	µg/L	5
9. 2,2'-Oxybis(1-chloropropane)	u	µg/L	5
10. 4-Methylphenol	u	µg/L	5
11. N-Nitroso-di-n-propylamine	u	µg/L	5
12. Hexachloroethane	u	µg/L	5
13. Nitrobenzene	u	µg/L	5
14. Isophorone	u	µg/L	5
15. 2-Nitrophenol	u	µg/L	10
16. 2,4-Dimethylphenol	u	µg/L	10
17. Benzoic Acid	u	µg/L	50
18. bis(2-Chloroethoxy)methane	u	µg/L	5
19. 2,4-Dichlorophenol	u	µg/L	5
20. 1,2,4-Trichlorobenzene	u	µg/L	5
21. Naphthalene	u	µg/L	5
22. 4-Chloroaniline	u	µg/L	10
23. Hexachlorobutadiene	u	µg/L	5
24. 4-Chloro-3-methylphenol	u	µg/L	10
25. 2-Methylnaphthalene	u	µg/L	5
26. Hexachlorocyclopentadiene	u	µg/L	5
27. 2,4,6-Trichlorophenol	u	µg/L	5
28. 2,4,5-Trichlorophenol	u	µg/L	5
29. 2-Chloronaphthalene	u	µg/L	5
30. 2-Nitroaniline	u	µg/L	50
31. Dimethylphthalate	u	µg/L	5
32. Acenaphthylene	u	µg/L	5
33. 2,6-Dinitrotoluene	u	µg/L	5
34. 3-Nitroaniline	u	µg/L	50
35. Acenaphthene	u	µg/L	5
36. 2,4-Dinitrophenol	u	µg/L	50
37. 4-Nitrophenol	u	µg/L	50
38. Dibenzofuran	u	µg/L	5
39. 2,4-Dinitrotoluene	u	µg/L	5

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

LIMS No: 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: 921102-H025
Customer Sample No.: ECD-4
Sample Description: Water **Sample Container Used:** 1/2 gal. Amber glass
Amount Used: 1000 mL **Final Volume:** 1.0 mL
Date Sample Taken: 28 Oct 92 **Sample analyzed for:** Semivolatiles
Date Sample Received: 29 Oct 92 **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna0601027

Analyte	Result	Units	Detection Limits
40. Diethylphthalate	u	µg/L	5
41. 4-Chlorophenyl-phenylether	u	µg/L	5
42. Fluorene	u	µg/L	5
43. 4-Nitroaniline	u	µg/L	50
44. 4,6-Dinitro-2-methylphenol	u	µg/L	50
45. N-Nitrosodiphenylamine	u	µg/L	5
46. 4-Bromophenyl-phenylether	u	µg/L	5
47. Hexachlorobenzene	u	µg/L	5
48. Pentachlorophenol	u	µg/L	50
49. Phenanthrene	u	µg/L	5
50. Anthracene	u	µg/L	5
51. Di-n-butylphthalate	2 BJ	µg/L	5
52. Fluoranthene	u	µg/L	5
53. Pyrene	u	µg/L	5
54. Butylbenzylphthalate	u	µg/L	5
55. 3,3'-Dichlorobenzidine	u	µg/L	20
56. Benzo(a)anthracene	u	µg/L	5
57. Chrysene	u	µg/L	5
58. bis(2-Ethylhexyl)phthalate	7.2 B	µg/L	5
59. Di-n-octylphthalate	u	µg/L	5
60. Benzo(b)fluoranthene	u	µg/L	5
61. Benzo(k)fluoranthene	u	µg/L	5
62. Benzo(a)pyrene	u	µg/L	5
63. Indeno(1,2,3-cd)pyrene	u	µg/L	5
64. Dibenz(a,h)anthracene	u	µg/L	5
65. Benzo(g,h,i)perylene	u	µg/L	5

Surrogate Standard Compound	Percent Recovered	Acceptable Range(%Rec)	Amount of Spike(µg/L)
66. Nitrobenzene-d5	80	35-114	50
67. 2-Fluorobiphenyl	102	43-116	50
68. Terphenyl-d14	56	33-141	50
69. Phenol-d5	52	10-110	75
70. 2-Fluorophenol	52	21-110	75
71. 2,4,6-Tribromophenol	16	10-123	75

u : Below Detection Limit
B : Compound also found in method blank.
J : Estimated concentration.

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Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

LIMS No: 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: 921102-H025
Customer Sample No.: ECD-4
Sample Description: Water **Sample Container Used:** 1/2 gal. Amber glass
Amount Used: 1000 mL **Final Volume:** 1.0 mL
Date Sample Taken: 28 Oct 92 **Sample analyzed for:** Semivolatiles
Date Sample Received: 29 Oct 92 **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna0601027

Tentatively Identified Compounds: (TICs):

	Compound	CAS#	RT(min)	Approximate concentration (µg/L)
1.	Unidentifiable	-	6.2	10 B
2.	Unidentifiable	-	8.9	28 B
3.	Unidentifiable	-	9.5	16 B
4.	Cyclohexane, 1-methyl-2-propyl-	004291-79-6	9.6	17 B
5.	Six hydrocarbons approximately C_{23} to C_{28}	-	27.5 to 34.3	51 B

Approved By: David E. Splichal **Date:** 17Nov.92

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Division Laboratory
Omaha, Nebraska

LIMS No: 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: 921102-H030
Customer Sample No.: WC-15
Sample Description: Water **Sample Container Used:** 1/2 gal. Amber glass
Amount Used: 1010 mL **Final Volume:** 1.0 mL
Date Sample Taken: 28 Oct 92 **Sample analyzed for:** Semivolatiles
Date Sample Received: 29 Oct 92 **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna0701028

Analyte	Result	Units	Detection Limits
1. Phenol	u	µg/L	5
2. bis(2-Chloroethyl)ether	u	µg/L	5
3. 2-Chlorophenol	u	µg/L	5
4. 1,3-Dichlorobenzene	u	µg/L	5
5. 1,4-Dichlorobenzene	u	µg/L	5
6. Benzyl Alcohol	u	µg/L	50
7. 1,2-Dichlorobenzene	u	µg/L	5
8. 2-Methylphenol	u	µg/L	5
9. 2,2'-Oxybis(1-chloropropane)	u	µg/L	5
10. 4-Methylphenol	u	µg/L	5
11. N-Nitroso-di-n-propylamine	u	µg/L	5
12. Hexachloroethane	u	µg/L	5
13. Nitrobenzene	u	µg/L	5
14. Isophorone	u	µg/L	5
15. 2-Nitrophenol	u	µg/L	10
16. 2,4-Dimethylphenol	u	µg/L	10
17. Benzoic Acid	u	µg/L	50
18. bis(2-Chloroethoxy)methane	u	µg/L	5
19. 2,4-Dichlorophenol	u	µg/L	5
20. 1,2,4-Trichlorobenzene	u	µg/L	5
21. Naphthalene	u	µg/L	5
22. 4-Chloroaniline	u	µg/L	10
23. Hexachlorobutadiene	u	µg/L	5
24. 4-Chloro-3-methylphenol	u	µg/L	10
25. 2-Methylnaphthalene	u	µg/L	5
26. Hexachlorocyclopentadiene	u	µg/L	5
27. 2,4,6-Trichlorophenol	u	µg/L	5
28. 2,4,5-Trichlorophenol	u	µg/L	5
29. 2-Chloronaphthalene	u	µg/L	5
30. 2-Nitroaniline	u	µg/L	50
31. Dimethylphthalate	u	µg/L	5
32. Acenaphthylene	u	µg/L	5
33. 2,6-Dinitrotoluene	u	µg/L	5
34. 3-Nitroaniline	u	µg/L	50
35. Acenaphthene	u	µg/L	5
36. 2,4-Dinitrophenol	u	µg/L	50
37. 4-Nitrophenol	u	µg/L	50
38. Dibenzofuran	u	µg/L	5
39. 2,4-Dinitrotoluene	u	µg/L	5

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

LIMS No: 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: 921102-H030
Customer Sample No.: WC-15
Sample Description: Water **Sample Container Used:** 1/2 gal. Amber glass
Amount Used: 1010 mL **Final Volume:** 1.0 mL
Date Sample Taken: 28 Oct 92 **Sample analyzed for:** Semivolatiles
Date Sample Received: 29 Oct 92 **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna0701028

Analyte	Result	Units	Detection Limits
40. Diethylphthalate	u	µg/L	5
41. 4-Chlorophenyl-phenylether	u	µg/L	5
42. Fluorene	u	µg/L	5
43. 4-Nitroaniline	u	µg/L	50
44. 4,6-Dinitro-2-methylphenol	u	µg/L	50
45. N-Nitrosodiphenylamine	u	µg/L	5
46. 4-Bromophenyl-phenylether	u	µg/L	5
47. Hexachlorobenzene	u	µg/L	5
48. Pentachlorophenol	u	µg/L	50
49. Phenanthrene	u	µg/L	5
50. Anthracene	u	µg/L	5
51. Di-n-butylphthalate	2 BJ	µg/L	5
52. Fluoranthene	u	µg/L	5
53. Pyrene	u	µg/L	5
54. Butylbenzylphthalate	u	µg/L	5
55. 3,3'-Dichlorobenzidine	u	µg/L	20
56. Benzo(a)anthracene	u	µg/L	5
57. Chrysene	u	µg/L	5
58. bis(2-Ethylhexyl)phthalate	7.0 B	µg/L	5
59. Di-n-octylphthalate	u	µg/L	5
60. Benzo(b)fluoranthene	u	µg/L	5
61. Benzo(k)fluoranthene	u	µg/L	5
62. Benzo(a)pyrene	u	µg/L	5
63. Indeno(1,2,3-cd)pyrene	u	µg/L	5
64. Dibenz(a,h)anthracene	u	µg/L	5
65. Benzo(g,h,i)perylene	u	µg/L	5

Surrogate Standard Compound	Percent Recovered	Acceptable Range(%Rec)	Amount of Spike(µg/L)
66. Nitrobenzene-d5	84	35-114	50
67. 2-Fluorobiphenyl	107	43-116	50
68. Terphenyl-d14	84	33-141	50
69. Phenol-d5	78	10-110	75
70. 2-Fluorophenol	96	21-110	75
71. 2,4,6-Tribromophenol	80	10-123	75

u : Below Detection Limit
B : Compound also found in method blank.
J : Estimated concentration.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

LIMS No: 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: 921102-H030
Customer Sample No.: WC-15
Sample Description: Water **Sample Container Used:** 1/2 gal. Amber glass
Amount Used: 1010 mL **Final Volume:** 1.0 mL
Date Sample Taken: 28 Oct 92 **Sample analyzed for:** Semivolatiles
Date Sample Received: 29 Oct 92 **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna0701028

Tentatively Identified Compounds: (TICs):

	Compound	CAS#	RT(min)	Approximate concentration (µg/L)
1.	Unidentifiable	-	6.2	11 B
2.	Unidentifiable	-	8.9	26 B
3.	Unidentifiable	-	9.5	13 B
4.	Unidentifiable	-	9.6	13 B
5.	Six hydrocarbons approximately C_{23} to C_{28}	-	27.5 to 34.3	41 B

Approved By: David E. Splichal Date: 17 Nov. 92

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Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

LIMS No: 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: N/A
QC Identifier No.: Method Blank
Sample Description: Water **Sample Container Used:** N/A
Amount Used: 1000 mL **Final Volume:** 1.0 mL
Date Sample Taken: N/A **Sample analyzed for:** Semivolatiles
Date Sample Received: N/A **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna0101022

Analyte	Result	Units	Detection Limits
1. Phenol	u	µg/L	5
2. bis(2-Chloroethyl)ether	u	µg/L	5
3. 2-Chlorophenol	u	µg/L	5
4. 1,3-Dichlorobenzene	u	µg/L	5
5. 1,4-Dichlorobenzene	u	µg/L	5
6. Benzyl Alcohol	u	µg/L	50
7. 1,2-Dichlorobenzene	u	µg/L	5
8. 2-Methylphenol	u	µg/L	5
9. 2,2'-Oxybis(1-chloropropane)	u	µg/L	5
10. 4-Methylphenol	u	µg/L	5
11. N-Nitroso-di-n-propylamine	u	µg/L	5
12. Hexachloroethane	u	µg/L	5
13. Nitrobenzene	u	µg/L	5
14. Isophorone	u	µg/L	5
15. 2-Nitrophenol	u	µg/L	10
16. 2,4-Dimethylphenol	u	µg/L	10
17. Benzoic Acid	u	µg/L	50
18. bis(2-Chloroethoxy)methane	u	µg/L	5
19. 2,4-Dichlorophenol	u	µg/L	5
20. 1,2,4-Trichlorobenzene	u	µg/L	5
21. Naphthalene	u	µg/L	5
22. 4-Chloroaniline	u	µg/L	10
23. Hexachlorobutadiene	u	µg/L	5
24. 4-Chloro-3-methylphenol	u	µg/L	10
25. 2-Methylnaphthalene	u	µg/L	5
26. Hexachlorocyclopentadiene	u	µg/L	5
27. 2,4,6-Trichlorophenol	u	µg/L	5
28. 2,4,5-Trichlorophenol	u	µg/L	5
29. 2-Chloronaphthalene	u	µg/L	5
30. 2-Nitroaniline	u	µg/L	50
31. Dimethylphthalate	u	µg/L	5
32. Acenaphthylene	u	µg/L	5
33. 2,6-Dinitrotoluene	u	µg/L	5
34. 3-Nitroaniline	u	µg/L	50
35. Acenaphthene	u	µg/L	5
36. 2,4-Dinitrophenol	u	µg/L	50
37. 4-Nitrophenol	u	µg/L	50
38. Dibenzofuran	u	µg/L	5
39. 2,4-Dinitrotoluene	u	µg/L	5

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

LIMS No: 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: N/A
QC Identifier No.: Method Blank
Sample Description: Water **Sample Container Used:** N/A
Amount Used: 1000 mL **Final Volume:** 1.0 mL
Date Sample Taken: N/A **Sample analyzed for:** Semivolatiles
Date Sample Received: N/A **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna0101022

Analyte	Result	Units	Detection Limits
40. Diethylphthalate	u	µg/L	5
41. 4-Chlorophenyl-phenylether	u	µg/L	5
42. Fluorene	u	µg/L	5
43. 4-Nitroaniline	u	µg/L	50
44. 4,6-Dinitro-2-methylphenol	u	µg/L	50
45. N-Nitrosodiphenylamine	u	µg/L	5
46. 4-Bromophenyl-phenylether	u	µg/L	5
47. Hexachlorobenzene	u	µg/L	5
48. Pentachlorophenol	u	µg/L	50
49. Phenanthrene	u	µg/L	5
50. Anthracene	u	µg/L	5
51. Di-n-butylphthalate	1 J	µg/L	5
52. Fluoranthene	u	µg/L	5
53. Pyrene	u	µg/L	5
54. Butylbenzylphthalate	u	µg/L	5
55. 3,3'-Dichlorobenzidine	u	µg/L	20
56. Benzo(a)anthracene	u	µg/L	5
57. Chrysene	u	µg/L	5
58. bis(2-Ethylhexyl)phthalate	7.1	µg/L	5
59. Di-n-octylphthalate	u	µg/L	5
60. Benzo(b)fluoranthene	u	µg/L	5
61. Benzo(k)fluoranthene	u	µg/L	5
62. Benzo(a)pyrene	u	µg/L	5
63. Indeno(1,2,3-cd)pyrene	u	µg/L	5
64. Dibenz(a,h)anthracene	u	µg/L	5
65. Benzo(g,h,i)perylene	u	µg/L	5

Surrogate Standard Compound	Percent Recovered	Acceptable Range(%Rec)	Amount of Spike(µg/L)
66. Nitrobenzene-d5	83	35-114	50
67. 2-Fluorobiphenyl	101	43-116	50
68. Terphenyl-d14	105	33-141	50
69. Phenol-d5	78	10-110	75
70. 2-Fluorophenol	98	21-110	75
71. 2,4,6-Tribromophenol	72	10-123	75

u : Below Detection Limit
J : Estimated concentration

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

LIMS No: 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: N/A
QC Identifier No.: Method Blank
Sample Description: Water **Sample Container Used:** N/A
Amount Used: 1000 mL **Final Volume:** 1.0 mL
Date Sample Taken: N/A **Sample analyzed for:** Semivolatiles
Date Sample Received: N/A **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna0101022

Tentatively Identified Compounds: (TICs):

	Compound	CAS#	RT(min)	Approximate concentration (µg/L)
1.	Unidentifiable	-	6.2	16
2.	Unidentifiable	-	8.0	29
3.	Unidentifiable	-	8.3	10
4.	Unidentifiable	-	8.5	13
5.	Unidentifiable	-	8.9	100
6.	Unidentifiable	-	9.1	25
7.	Unidentifiable	-	9.2	25
8.	Unidentifiable	-	9.4	11
9.	Unidentifiable	-	9.5	76
10.	Unidentifiable	-	9.6	79
11.	Unidentifiable	-	9.7	19
12.	Eight hydrocarbons approximately C_{22} to C_{29}	-	26.6 to 36.6	190

NOTE: The first eleven tentatively identified compounds above were found in a solvent blank for the batch of methylene chloride used for the samples extracted on 03 Nov 92.

Approved By: David E. Splichal **Date:** 17 Nov 92

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

LIMS No: 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: N/A
Customer Sample No.: Laboratory Control Sample (LCS)
Sample Description: Water **Sample Container Used:** N/A
Amount Used: 1000 mL **Final Volume:** 1.0 mL
Date Sample Taken: N/A **Sample analyzed for:** Semivolatiles
Date Sample Received: N/A **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna0801029

Analyte	* Result	* True Value	** Acceptable Range
Phenol	88	100	16.6-100.0
bis(2-Chloroethyl)ether	85	100	42.9-126.0
2-Chlorophenol	87	100	36.2-120.4
1,3-Dichlorobenzene	77	100	16.7-153.7
1,2-Dichlorobenzene	78	100	48.6-112.0
N-Nitrosodipropylamine	100	100	13.6-197.9
Isophorone	80	100	46.6-180.2
2-Nitrophenol	96	100	45.0-166.7
2,4-Dimethylphenol	69	100	41.8-109.0
bis(2-Chloroethoxy)methane	90	100	49.2-164.7
2,4-Dichlorophenol	93	100	52.5-121.7
1,2,4-Trichlorobenzene	77	100	57.3-129.2
Hexachlorobutadiene	76	100	37.8-102.2
4-Chloro-3-methylphenol	93	100	40.8-127.9
2,4,6-Trichlorophenol	92	100	52.4-129.2
2-Chloronaphthalene	80	100	64.5-113.5
2,6-Dinitrotoluene	80	100	68.1-136.7
2,4-Dinitrophenol	66	100	0.1-172.9
4-Nitrophenol	91	100	13.0-106.5
2,4-Dinitrotoluene	86	100	47.5-126.9
Diethylphthalate	86	100	0.1-100.0
4,6-Dinitro-2-methylphenol	94	100	53.0-100.0
Hexachlorobenzene	84	100	7.8-141.5
Pentachlorophenol	91	100	38.1-151.8
Phenanthrene	91	100	65.2-108.7
Di-n-butyl phthalate	85	100	8.4-111.0
Pyrene	91	100	69.6-100.0
Benzo(a)anthracene	94	100	41.8-133.0
Di-n-octyl phthalate	89	100	18.6-131.8
Benzo(k)fluoranthene	92	100	25.2-145.7

*: Units = µg/L

**: Units = µg/L. Acceptable ranges found in Federal Register, 26 October 1984, Method 625, Table 6, Column 3.

C16;

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

LIMS No: 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: N/A
Customer Sample No.: Laboratory Control Sample (LCS)
Sample Description: Water **Sample Container Used:** N/A
Amount Used: 1000 mL **Final Volume:** 1.0 mL
Date Sample Taken: N/A **Sample analyzed for:** Semivolatiles
Date Sample Received: N/A **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna0801029

Surrogate Standard Compound	Percent Recovered	Acceptable Range(%Rec)	Amount of Spike(µg/L)
Nitrobenzene-d5	98	35-114	50
2-Fluorobiphenyl	122	43-116	50
Terphenyl-d14	109	33-141	50
Phenol-d5	98	10-110	75
2-Fluorophenol	135	21-110	75
2,4,6-Tribromophenol	100	10-123	75

Approved By: David E. Splichal Date: 17 Nov 92

C162

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

LIMS No: Batch Specific for 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: 921031-H087
Customer Sample No.: Matrix Spike/Matrix Spike Duplicate, (MS/MSD)
Sample Description: Water **Sample Container Used:** 1-1 L. amber glass
Amount Used: 450/480 mL **Final Volume:** 1.0 mL/1.1 mL
Date Sample Taken: 26 Oct 92 **Sample analyzed for:** Semivolatiles
Date Sample Received: 28 Oct 92 **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna1001031/1101032

Analyte	Sample Result	Spike Added	Conc MS	%Rec MS	Conc MSD	%Rec MSD	RPD	QC Limits RPD	QC Limits %Rec
PHENOL	u	100	75	75	82	82	9	42	12-110
2-CHPH	u	100	75	75	81	81	8	40	27-123
14-DCB	u	50	31	62	34	68	9	28	36- 97
N-NDPA	u	50	44	88	49	98	11	38	41-116
124-TCB	u	50	32	64	35	70	9	28	39- 98
H3MPH	u	100	78	78	82	82	5	42	23- 97
ENAPH	u	50	39	78	42	84	7	31	46-118
4-NITPH	u	100	77	77	80	80	4	50	10- 80
24-DNT	u	50	39	78	40	80	3	38	24- 96
PENCHPH	u	100	88	88	91	91	3	50	9-103
PYRENE	u	50	47	94	50	100	6	31	26-127
Units	µg/L	µg/L	µg/L	%	µg/L	%	%	%	%

u = Below Detection Limit.

MS - Matrix Spike
MSD - Matrix Spike Duplicate
RPD - Relative Percent Difference

$$RPD = \frac{|MS - MSD| \times 100}{((MS + MSD)/2)}$$

Compound Identification:

PHENOL = Phenol
1,4-DCB = 1,4-Dichlorobenzene
124-TCB = 1,2,4-Trichlorobenzene
ACENAPH = Acenaphthene
24-DNT = 2,4-Dinitrotoluene
PYRENE = Pyrene
2-CHPH = 2-Chlorophenol
N-NDPA = N-Nitroso-di-n-propylamine
4CH3MPH = 4-Chloro-3-methylphenol
4-NITPH = 4-Nitrophenol
PENCHPH = Pentachlorophenol

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

LIMS No: Batch Specific for 1341
Project: Stratford Army Engine Plant, Stratford, CT
Lab Sample No.: 921031-H087
Customer Sample No.: Matrix Spike/Matrix Spike Duplicate, (MS/MSD)
Sample Description: Water **Sample Container Used:** 1-1 L. amber glass
Amount Used: 450/480 mL **Final Volume:** 1.0 mL/1.1 mL
Date Sample Taken: 26 Oct 92 **Sample analyzed for:** Semivolatiles
Date Sample Received: 28 Oct 92 **Analyst:** Greg O. Shearer
Date Extracted: 03 Nov 92 **Extraction Method:** SW-846, Method #3520 & CLP
Date Analyzed: 12 Nov 92 **Analysis Method:** SW-846, Method #8270 & CLP
GPC Cleanup?: No **GC/MS File ID:** bna1001031/1101032

Surrogate Standard Compound	Percent Recovered	Acceptable Range(%Rec)	Amount of Spike(µg/L)
Nitrobenzene-d5	88/97	35-114	50
2-Fluorobiphenyl	113/120	43-116	50
Terphenyl-d14	112/117	33-141	50
Phenol-d5	87/96	10-110	75
2-Fluorophenol	110/121	21-110	75
2,4,6-Tribromophenol	93/95	10-123	75

u : Below Detection Limit **Approved By:** David E. Splichal **Date:** 17 Nov. 92

C104

PCB ORGANICS ANALYSIS DATA SHEET
(EPA Method 8080)

SAMPLE NO. 920625-H020

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2236

Source: Stratford Army Engine Plant (WC-2D-2.5-4.5)

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15223-002

Lab Notebook:	163, Pg. 70	Date Sampled:	06-23-92
Sample Weight:	10.1 (g)	Date Received:	06-26-92
Final Volume:	10.0 (mL)	Date Extracted:	07-01-92
Percent Solid:	94	Date Analyzed:	07-13-92
		Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	12674-11-2	Aroclor-1016	26.3	U	
2.	11104-28-2	Aroclor-1221	26.3	U	
3.	11141-16-5	Aroclor-1232	26.3	U	
4.	53469-22-9	Aroclor-1242	26.3	U	
5.	12672-29-6	Aroclor-1248	26.3	U	
6.	11097-69-1	Aroclor-1254	26.3	U	
7.	11096-82-5	Aroclor-1260	26.3	96.6	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
8.	2,4,5,6-Tetrachloro-m-xylene	82	69-121	100

U: Below Detection Limit

C165

PCB ORGANICS ANALYSIS DATA SHEET
(EPA Method 8080)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2236

Source: Stratford Army Engine Plant

Matrix: (soil/water) Soil Blank EHRT Sample I.D.: N/A

Lab Notebook:	163, Pg. 70	Date Sampled:	N/A
Sample Weight:	10.0 (g)	Date Received:	N/A
Final Volume:	10.0 (mL)	Date Extracted:	07-01-92
Percent Solid:	100	Date Analyzed:	07-13-92
		Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	12674-11-2	Aroclor-1016	25.0	U	
2.	11104-28-2	Aroclor-1221	25.0	U	
3.	11141-16-5	Aroclor-1232	25.0	U	
4.	53469-22-9	Aroclor-1242	25.0	U	
5.	12672-29-6	Aroclor-1248	25.0	U	
6.	11097-69-1	Aroclor-1254	25.0	U	
7.	11096-82-5	Aroclor-1260	25.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
8.	2,4,5,6-Tetrachloro-m-xylene	73	69-121	100

U: Below Detection Limit

C166

DEPARTMENT OF THE ARMY, Corps of Engineers
Missouri River Division Laboratory, Omaha, Nebraska

PCBs

FAMIS No: 1341
Project: Stratford Army Engine Plant

Customer Sample No: WC-3S
MRD Lab Sample No: 920730-H018

Date Sample Taken: 29 Jul 92
Date Sample Received: 30 Jul 92
Date Extracted: 03 Aug 92
Date Analyzed: 07 Aug 92
Dilution Factor: 1.0

Sample Description: Water w/seds
Sample Container: 1-1/2 gal amber glass
Analysis Method: EPA Method 3510/8080
Analyst: A. Asuncion
Concentration Units: µg/L

Analysis for	Result	Det Limit
PCB 1016	u	0.5
PCB 1221	u	0.5
PCB 1232	u	0.5
PCB 1242	u	0.5
PCB 1248	u	0.5
PCB 1254	u	0.5
PCB 1260	u	0.5

Surrogate Standard Compound	Percent Recovered	Acceptable Range (% Rec)	Spike Amount µg/L
Dibutylchlorendate	85	20-150	1.0

u: Below Detection Limit

Laboratory Comments:

Approved By: Prem N. Arora Date: 8.17.92

C167

DEPARTMENT OF THE ARMY, Corps of Engineers
Missouri River Division Laboratory, Omaha, NE

PCBs Method Blank

LIMS#: 1341
Project: Stratford Army Engine Plant

Sample Description: Water
Extraction/Analysis Method: EPA Method 3510/8080
Date Extracted: 03 Aug 92
Date Analyzed: 07 Aug 92

Analyst: A. Asuncion

RESULTS (µg/L)

Analysis for	Result	Detection Limits
PCB 1016	u	0.5
PCB 1221	u	0.5
PCB 1232	u	0.5
PCB 1242	u	0.5
PCB 1248	u	0.5
PCB 1254	u	0.5
PCB 1260	u	0.5

Surrogate	Recovery (%)	Acceptance (%)	Amount (µg/L)
Dibutylchlorendate	78	20-150	1.0

u: Below Detection Limit

Laboratory Comments:

Approved by: Prem. N. Arora **Date:** 8.17.92

C168

DEPARTMENT OF THE ARMY, Corps of Engineers
Missouri River Division Laboratory, Omaha, NE

PCBs Duplicate

LIMS#: 1341
Project: Stratford Army Engine Plant

Lab Sample No: 920731-H012
Sample Description: Water
Extraction/Analysis Method: EPA Method 3510/8080
Date Extracted: 03 Aug 92
Date Analyzed: 07 Aug 92

Analyst: A. Asuncion

RESULTS (µg/L)

Analysis for	Run #1	Run #2	Detection Limits	RPD	Acceptable RPD
PCB 1016	u	u	0.5		25
PCB 1221	u	u	0.5		25
PCB 1232	u	u	0.5		25
PCB 1242	u	u	0.5		25
PCB 1248	u	u	0.5		25
PCB 1254	u	u	0.5		25
PCB 1260	u	u	0.5		25

rrogate	Recovery (%)		Acceptance (%)	Amount (µg/L)
Dibutylchlorendate	62	72	20-150	1.0

u: Below Detection Limit

Approved by: Prem N. Arora **Date:** 8.17.92

C169

DEPARTMENT OF THE ARMY, Corps of Engineers
Missouri River Division Laboratory, Omaha, NE

PCB Matrix Spike, Matrix Spike Duplicate

LIMS#: 1341
Project: Stratford Army Engine Plant

Method: EPA Method 3550/8080
Sample Description: Water
Date Extracted: 03 Aug 92
Date Analyzed: 07 Aug 92

Analyst: A. Asuncion

RESULTS (µg/L)

Analyte	Sample Result	Spike Added	Conc MS	%Rec MS	Conc MSD	%Rec MSD	RPD	QC Limits RPD	QC Limits Recovery
PCB 1254	u	1.0	0.85	85	0.92	92	8	30	60-140

u: Below Detection Limit
MS: Matrix Spike
MSD: Matrix Spike Duplicate
%Rec: Percent of the spike recovered from the matrix
RPD: Relative Percent Difference;

$$RPD = [(|MS - MSD|)/(MS + MSD)/2)] \times 100$$

Approved by: Prem. V. Arora **Date:** 8.17.92

C170

PCB ORGANICS ANALYSIS DATA SHEET
(EPA Method 8080)

SAMPLE NO. 921026-H037

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2533

Source: Stratford Army Engine Plant (OF-SW)

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15785-003

Lab Notebook:	311, Pg. 22	Date Sampled:	10-22-92
Sample Volume:	1000.0 (mL)	Date Received:	10-28-92
Final Volume:	10.0 (mL)	Date Extracted:	10-28-92
Percent Solid:	N/A	Date Analyzed:	11-07-92
		Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	12674-11-2	Aroclor-1016	0.25	U	
2.	11104-28-2	Aroclor-1221	0.25	U	
3.	11141-16-5	Aroclor-1232	0.25	U	
4.	53469-22-9	Aroclor-1242	0.25	U	
5.	12672-29-6	Aroclor-1248	0.25	U	
6.	11097-69-1	Aroclor-1254	0.25	U	
7.	11096-82-5	Aroclor-1260	0.25	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
8.	2,4,5,6-Tetrachloro-m-xylene	60	60-150	100

U: Below Detection Limit

C171

PCB ORGANICS ANALYSIS DATA SHEET
(EPA Method 8080)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2533

Source: Stratford Army Engine Plant

Matrix: (soil/water) Water Blank EHRT Sample I.D.: N/A

Lab Notebook:	311, Pg. 20	Date Sampled:	N/A
Sample Volume:	1000.0 (mL)	Date Received:	N/A
Final Volume:	10.0 (mL)	Date Extracted:	10-29-92 *
Percent Solid:	N/A	Date Analyzed:	11-05-92
		Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	12674-11-2	Aroclor-1016	0.25	U	
2.	11104-28-2	Aroclor-1221	0.25	U	
3.	11141-16-5	Aroclor-1232	0.25	U	
4.	53469-22-9	Aroclor-1242	0.25	U	
5.	12672-29-6	Aroclor-1248	0.25	U	
6.	11097-69-1	Aroclor-1254	0.25	U	
7.	11096-82-5	Aroclor-1260	0.25	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
8.	2,4,5,6-Tetrachloro-m-xylene	95	60-150	100

U: Below Detection Limit

* The continuous extraction flask was broken for the blank on 10-28-92

C172

1341

BATCH SPECIFIC

QUALITY CONTROL

ORGANICS

for

WORK ORDER NO.: 2533

Stratford Army Engine Plant

C173

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET
(EPA Method 8080)

SAMPLE NO.
~~921104-H038~~

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2564

Source: [redacted]

Matrix: (soil/water) Water Sample EHRT Sample I.D.: 15839-001

Lab Notebook:	311, pg. 22	Date Sampled:	11-03-92
Sample Volume:	1000.0 (mL)	Date Received:	11-06-92
Final Volume:	10.0 (mL)	Date Extracted:	11-09-92
Percent Solid:	N/A	Date Analyzed:	11-10-92
		Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/L)	RESULTS	FLAG
1.	319-84-6	alpha-BHC	0.0038	U	
2.	319-85-7	beta-BHC	0.010	U	
3.	319-86-8	delta-BHC	0.0072	U	
4.	58-89-9	gamma-BHC (Lindane)	0.0052	U	
5.	76-44-8	Heptachlor	0.0044	U	
6.	309-00-2	Aldrin	0.010	U	
7.	1024-57-3	Heptachlor epoxide	0.016	U	
8.	959-98-8	Endosulfan I	0.0035	U	
9.	60-57-1	Dieldrin	0.0065	U	
10.	72-55-9	4,4'-DDE	0.026	U	
11.	72-20-8	Endrin	0.0076	U	
12.	33213-65-9	Endosulfan II	0.023	U	
13.	72-54-8	4,4'DDD	0.0076	U	
14.	1031-07-8	Endosulfan sulfate	0.022	U	
15.	50-29-3	4,4'-DDT	0.0072	U	
16.	72-43-5	Methoxychlor	0.025	U	
17.	53494-70-5	Endrin Ketone	0.021	U	
18.	5103-71-9	alpha-Chlordane	0.012	U	
19.	5103-74-2	gamma-Chlordane	0.010	U	
20.	8001-35-2	Toxaphene	0.015	U	
21.	12674-11-2	Aroclor-1016	0.25	U	
22.	11104-28-2	Aroclor-1221	0.25	U	
23.	11141-16-5	Aroclor-1232	0.25	U	
24.	53469-22-9	Aroclor-1242	0.25	U	
25.	12672-29-6	Aroclor-1248	0.25	U	
26.	11097-69-1	Aroclor-1254	0.25	U	
27.	11096-82-5	Aroclor-1260	0.25	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/L)
28.	2,4,5,6-Tetrachloro-m-xylene	102	60-150	100

U: Below Detection Limit

3F
QUALITY CONTROL
WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Customer Name: U.S. ARMY CORPS OF ENGINEERS

Sample Source: [redacted]

Project No.: 15839 Method No.: EPA 8080

Customer Sample No.: 921104-H038 EHRT No.: 15839-001

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONC. (ug/L)	MS% REC #	QC LIMITS REC.
gamma-BHC (Lindane)	25.0	0.0	27.5	110	56-123
Heptachlor	25.0	0.0	29.8	119	40-131
Aldrin	25.0	0.0	25.2	101	40-120
Dieldrin	50.0	0.0	54.3	109	52-126
Endrin	50.0	0.0	59.1	118	56-121
4,4'-DDT	50.0	0.0	54.8	110	38-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	25.0	25.9	104	6	15	56-123
Heptachlor	25.0	26.9	108	10	20	40-131
Aldrin	25.0	23.1	92	9	22	40-120
Dieldrin	50.0	48.9	98	11	18	52-126
Endrin	50.0	52.6	105	12	21	56-121
4,4'-DDT	50.0	48.7	97	13	27	38-127

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

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 6 outside limits

COMMENTS:

C175

PCB ORGANICS ANALYSIS DATA SHEET
(EPA Method 8080)

SAMPLE NO. 921102-H023

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2555

Source: Stratford Army Engine Plant (07-0-12)

Matrix: (soil/water) Solid Sample EHRT Sample I.D.: 15827-001

Lab Notebook:	311, Pg. 34	Date Sampled:	10-28-92
Sample Weight:	10.0 (g)	Date Received:	11-04-92
Final Volume:	10.0 (mL)	Date Extracted:	11-09-92
Percent Solid:	80	Date Analyzed:	12-02-92
		Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	12674-11-2	Aroclor-1016	31.3	U	
2.	11104-28-2	Aroclor-1221	31.3	U	
3.	11141-16-5	Aroclor-1232	31.3	U	
4.	53469-22-9	Aroclor-1242	31.3	U	
5.	12672-29-6	Aroclor-1248	31.3	U	
6.	11097-69-1	Aroclor-1254	31.3	U	
7.	11096-82-5	Aroclor-1260	31.3	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
8.	2,4,5,6-Tetrachloro-m-xylene	70	60-150	100

U: Below Detection Limit

C176

PCB ORGANICS ANALYSIS DATA SHEET
(EPA Method 8080)

SAMPLE NO. N/A

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2555

Source: Stratford Army Engine Plant

Matrix: (soil/water) Soil Blank EHRT Sample I.D.: N/A

Lab Notebook:	311, Pg. 17	Date Sampled:	N/A
Sample Weight:	10.0 (g)	Date Received:	N/A
Final Volume:	10.0 (mL)	Date Extracted:	11-09-92
Percent Solid:	100	Date Analyzed:	12-02-92
		Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	12674-11-2	Aroclor-1016	25.0	U	
2.	11104-28-2	Aroclor-1221	25.0	U	
3.	11141-16-5	Aroclor-1232	25.0	U	
4.	53469-22-9	Aroclor-1242	25.0	U	
5.	12672-29-6	Aroclor-1248	25.0	U	
6.	11097-69-1	Aroclor-1254	25.0	U	
7.	11096-82-5	Aroclor-1260	25.0	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
8.	2,4,5,6-Tetrachloro-m-xylene	77	60-150	100

U: Below Detection Limit

C177

BATCH SPECIFIC

QUALITY CONTROL

ORGANICS

for

WORK ORDER NO.: 2555

STRATFORD ARMY ENGINE PLANT

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET
(EPA Method 8080)

SAMPLE NO. 921102-H044

Lab Name: Environmental Health Research & Testing, Inc.

Contract: U.S. ARMY CORPS OF ENGINEERS **Work Order:** 2556

Source: [redacted]

Matrix: (soil/water) Soil Sample EHRT Sample I.D.: 15828-005

Lab Notebook:	311, Pg. 22	Date Sampled:	10-28-92
Sample Weight:	10.6 (g)	Date Received:	11-04-92
Final Volume:	10.0 (mL)	Date Extracted:	11-09-92
Percent Solid:	80	Date Analyzed:	11-11-92
		Dilution Factor:	1

	CAS NO.	COMPOUND	Detection Limits (ug/kg)	RESULTS	FLAG
1.	319-84-6	alpha-BHC	0.45	U	
2.	319-85-7	beta-BHC	1.2	U	
3.	319-86-8	delta-BHC	0.85	U	
4.	58-89-9	gamma-BHC (Lindane)	0.61	U	
5.	76-44-8	Heptachlor	0.52	U	
6.	309-00-2	Aldrin	1.2	U	
7.	1024-57-3	Heptachlor epoxide	1.9	U	
8.	959-98-8	Endosulfan I	0.41	U	
9.	60-57-1	Dieldrin	0.77	U	
10.	72-55-9	4,4'-DDE	3.1	U	
11.	72-20-8	Endrin	0.90	U	
12.	33213-65-9	Endosulfan II	2.7	U	
13.	72-54-8	4,4'DDD	0.90	U	
14.	1031-07-8	Endosulfan sulfate	2.6	U	
15.	50-29-3	4,4'-DDT	0.85	U	
16.	72-43-5	Methoxychlor	2.9	U	
17.	53494-70-5	Endrin Ketone	2.5	U	
18.	5103-71-9	alpha-Chlordane	1.5	U	
19.	5103-74-2	gamma-Chlordane	1.2	U	
20.	8001-35-2	Toxaphene	1.8	U	
21.	12674-11-2	Aroclor-1016	29.5	U	
22.	11104-28-2	Aroclor-1221	29.5	U	
23.	11141-16-5	Aroclor-1232	29.5	U	
24.	53469-22-9	Aroclor-1242	29.5	U	
25.	12672-29-6	Aroclor-1248	29.5	U	
26.	11097-69-1	Aroclor-1254	29.5	U	
27.	11096-82-5	Aroclor-1260	29.5	U	

	Surrogate Standard	Recovery (%)	Acceptable	Spike (ug/kg)
28.	2,4,5,6-Tetrachloro-m-xylene	109	60-150	100

U: Below Detection Limit

C179

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Health Research & Testing, Inc.

Customer Name: U.S. ARMY CORPS OF ENGINEERS

Sample Source: [redacted]

Work Order No.: 2556 Project No.: 15828

Customer Sample No.: 921102-H044 EHRT No.: 15828-005

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONC. (ug/kg)	MS% REC #	QC LIMITS REC.
gamma-BHC (Lindane)	25.0	0.0	20.1	81	46-127
Heptachlor	25.0	0.0	21.2	85	35-130
Aldrin	25.0	0.0	16.5	66	34-132
Dieldrin	50.0	0.0	32.9	66	31-134
Endrin	50.0	0.0	35.4	71	42-139
4,4'-DDT	50.0	0.0	33.0	66	23-134

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATION (ug/kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	25.0	16.1	64	23	50	46-127
Heptachlor	25.0	18.0	72	17	31	35-130
Aldrin	25.0	12.2	49	30	43	34-132
Dieldrin	50.0	29.4	59	11	38	31-134
Endrin	50.0	38.9	78	9	45	42-139
4,4'-DDT	50.0	31.8	64	3	50	23-134

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

* Values outside of QC limits

RPD: 0 out of 6 outside limits

Spike Recovery: 0 out of 12 outside limits

COMMENTS:

C180

DEPARTMENT OF THE ARMY, Corps of Engineers
Missouri River Division Laboratory, Omaha, Nebraska

PCBs

FAMIS No: 1341
Project: Stratford Army Engine Plant

Customer Sample No: WC-15
MRD Lab Sample No: 921102-H031

Date Sample Taken: 28 Oct 92
Date Sample Received: 29 Oct 92
Date Extracted: 03 Nov 92
Date Analyzed: 06 Nov 92
Dilution Factor: 1.0
Sample Description: Water
Sample Container: 1-1/2 gal amber glass
Analysis Method: EPA Method 3510/8080
Analyst: A. Asuncion
Concentration Units: µg/L

Analysis for	Result	Det Limit
PCB 1016	u	0.5
PCB 1221	u	0.5
PCB 1232	u	0.5
PCB 1242	u	0.5
PCB 1248	u	0.5
PCB 1254	u	0.5
PCB 1260	u	0.5

Surrogate Standard Compound	Percent Recovered	Acceptable Range (% Rec)	Spike Amount µg/L
Dibutylchlorendate	96	24-154	1.0

u: Below Detection Limit

Laboratory Comments:

Approved By: David E. Splichal Date: 17 Nov 92

DEPARTMENT OF THE ARMY, Corps of Engineers
Missouri River Division Laboratory, Omaha, NE

PCBs Method Blank

LIMS#: 1341
Project: Stratford Army Engine Plant

Sample Description: Water
Extraction/Analysis Method: EPA Method 3510/8080
Date Extracted: 03 Nov 92
Date Analyzed: 06 Nov 92

Analyst: A. Asuncion

RESULTS (µg/L)

Analysis for	Result	Detection Limits
PCB 1016	u	0.5
PCB 1221	u	0.5
PCB 1232	u	0.5
PCB 1242	u	0.5
PCB 1248	u	0.5
PCB 1254	u	0.5
PCB 1260	u	0.5

Surrogate	Recovery (%)	Acceptance (%)	Amount (µg/L)
Dibutylchlorendate	96	24-154	1.0

u: Below Detection Limit

Laboratory Comments:

Approved by: David E. Splichal **Date:** 17 Nov. 92

C182

DEPARTMENT OF THE ARMY, Corps of Engineers
Missouri River Division Laboratory, Omaha, NE

PCBs Duplicate

LIMS#: 1341
Project: Stratford Army Engine Plant

Lab Sample No: 921031-H086
Sample Description: Water
Extraction/Analysis Method: EPA Method 3510/8080
Date Extracted: 02 Nov 92
Date Analyzed: 06 Nov 92

Analyst: A. Asuncion

	RESULTS (µg/L)				
Analysis for	**Run #1**	**Run #2**	**Detection Limits**	**RPD**	**Acceptable RPD**
PCB 1016	u	u	0.5		25
PCB 1221	u	u	0.5		25
PCB 1232	u	u	0.5		25
PCB 1242	u	u	0.5		25
PCB 1248	u	u	0.5		25
PCB 1254	u	u	0.5		25
PCB 1260	u	u	0.5		25

Surrogate	**Recovery (%)**		**Acceptance (%)**	**Amount (µg/L)**
Dibutylchlorendate	100	102	24-154	1.0

u: Below Detection Limit

Approved by: David E. Splichal **Date:** 17 Nov. 92

C183

DEPARTMENT OF THE ARMY, Corps of Engineers
Missouri River Division Laboratory, Omaha, NE

Pesticides Matrix Spike, Matrix Spike Duplicate

LIMS#: 1341
Project: Stratford Army Engine Plant

Method: EPA Method 3510/8080
Sample Description: Water
Date Extracted: 06 Nov 92
Date Analyzed: 06 Nov 92

Analyst: A. Asuncion

RESULTS (µg/L)

Analyte	Sample Result	Spike Added	Conc MS*	%Rec MS*	Conc MSD*	%Rec MSD*	RPD	QC Limits RPD	QC Limits Recovery
Lindane	u	0.5	0.42	84	0.42	84	0	15	56-123
Heptachlor	u	0.5	0.42	84	0.41	82	2	20	40-131
Aldrin	u	0.5	0.42	84	0.42	84	0	22	40-120
Dieldrin	u	2.0	1.80	90	1.59	80	12	18	52-126
Endrin	u	2.0	1.76	88	1.65	82	7	21	56-121
4,4'-DDT	u	2.0	2.01	100	1.85	92	8	27	38-127
Surrogate: DBC	u	1.0	0.70	70	0.74	74	6	25	24-154

u: Below Detection Limit
MS: Matrix Spike
MSD: Matrix Spike Duplicate
%Rec: Percent of the spike recovered from the matrix
RPD: Relative Percent Difference;

$$RPD = (|MS - MSD|) / [(MS + MSD)/2] \times 100$$

* Due to insufficient samples received, blank spike and blank spike duplicate were analyzed instead of matrix spike and matrix spike duplicate.

Approved by: David E. Splichal **Date:** 17 Nov. 92

C184

ENVIRONMENTAL HEALTH RESEARCH & TESTING

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2222_ Project: 15209_ SDG No.:000000

SOW No.: 3/90_

EPA Sample No.	Lab Sample ID
_620016_____	__002_____
_620017_____	__003_____
_620019_____	__005_____
_620019D_____	__005D_____
_620019S_____	__005S_____
_620020_____	__006_____

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
____STRATFORD_ARMY_ENGINE_PLANT__DATE_OF_ANALYSIS_07/22/92_____
____ICP_NB263PG1_METHOD_6010/_FURNACE_NB258PG25_METHOD_AS7060_PB7421_____
____SE7740/_COLD_VAPOR_NB255PG12_METHOD_7470&7471/_PERCENT_SOLIDS_NB215_____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Geraldine S. Luna Name: GERALDINE S. LUNA

Date: 7/29/92 Title: QA/QC MANAGER

C185

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

620016

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2222_ Project: 15209_ SDG No.: 000000

Matrix (soil/water): SOIL_ Lab Sample ID: 002_____

Level (low/med): LOW__ Date Received: 06/23/92

% Solids: _92.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6540			P
7440-36-0	Antimony	1.4	U		P
7440-38-2	Arsenic	3.0			F
7440-39-3	Barium	15.9			P
7440-41-7	Beryllium	0.30	B		P
7440-43-9	Cadmium	0.32	U		P
7440-70-2	Calcium	750			P
7440-47-3	Chromium	8.3			P
7440-48-4	Cobalt	4.0	B		P
7440-50-8	Copper	9.1			P
7439-89-6	Iron	8680			P
7439-92-1	Lead	4.8			F
7439-95-4	Magnesium	1870			P
7439-96-5	Manganese	133			P
7439-97-6	Mercury	0.03	U		CV
7440-02-0	Nickel	7.9			P
7440-09-7	Potassium	453	B		P
7782-49-2	Selenium	0.22	U		F
7440-22-4	Silver	0.22	U		P
7440-23-5	Sodium	84.1	B		P
7440-28-0	Thallium	17.3	U		P
7440-62-2	Vanadium	11.2			P
7440-66-6	Zinc	21.5			P
	Boron				NR

Color Before: BROWN____ Clarity Before: _____ Texture: SOIL__

Color After: BROWN____ Clarity After: _____ Artifacts: _____

Comments:

920620-H016__BR-1-0.5-2.5__TOTAL_METALS

POST_DIGEST_SPIKE_(ARSENIC)_=_96%_RECOVERY

POST_DIGEST_SPIKE_(LEAD)_=_102%_RECOVERY

POST_DIGEST_SPIKE_(SELENIUM)_=_98%_RECOVERY

C186

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

620017

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2222_ Project: 15209_ SDG No.: 000000

Matrix (soil/water): WATER Lab Sample ID: 003_____

Level (low/med): LOW__ Date Received: 06/23/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	2.8	B		F
7440-39-3	Barium	102			P
7440-41-7	Beryllium				NR
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	12.2			P
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	12.0	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Boron				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

920620-H016/-H017__BR-1-0.5-2.5_____

TCLP_METALS_____

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C187

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

620019

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2222_ Project: 15209_ SDG No.: 000000

Matrix (soil/water): SOIL_ Lab Sample ID: 005_____

Level (low/med): LOW__ Date Received: 06/23/92

% Solids: _83.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11100			P
7440-36-0	Antimony	1.6	U		P
7440-38-2	Arsenic	6.1			F
7440-39-3	Barium	36.5			P
7440-41-7	Beryllium	0.54	B		P
7440-43-9	Cadmium	0.36	U		P
7440-70-2	Calcium	1030			P
7440-47-3	Chromium	11.1			P
7440-48-4	Cobalt	4.4	B		P
7440-50-8	Copper	11.6			P
7439-89-6	Iron	11200			P
7439-92-1	Lead	20.9			F
7439-95-4	Magnesium	2020			P
7439-96-5	Manganese	216			P
7439-97-6	Mercury	0.23			CV
7440-02-0	Nickel	8.3			P
7440-09-7	Potassium	456	B		P
7782-49-2	Selenium	0.29	B		F
7440-22-4	Silver	0.24	U		P
7440-23-5	Sodium	114	B		P
7440-28-0	Thallium	19.2	U		P
7440-62-2	Vanadium	16.2			P
7440-66-6	Zinc	30.0			P
	Boron				NR

Color Before: BLACK____ Clarity Before: _____ Texture: SOIL__

Color After: BLACK____ Clarity After: _____ Artifacts: _____

Comments:

920620-H019__WC-8S-2.5-4.5__TOTAL_METALS_____

C188

ENVIRONMENTAL HEALTH RESEARCH & TESTING

6
DUPLICATES

EPA SAMPLE NO.

620019D

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2222_ Project: 15209_ SDG No.: 000000

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _83.0 % Solids for Duplicate: __83.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		11133.2008		11433.7349		2.7		P
Antimony		1.5569	U	1.5663	U			P
Arsenic		6.1319		6.4217		4.6		F
Barium		36.4679		37.7108		3.4		P
Beryllium		0.5389	B	0.5422	B	0.6		P
Cadmium		0.3593	U	0.3614	U			P
Calcium	598.8	1025.6533		1049.2771		2.3		P
Chromium		11.1260		11.9759		7.4		P
Cobalt		4.3714	B	4.4699	B	2.2		P
Copper	3.0	11.6290		11.6988		0.6		P
Iron		11179.9085		11497.5904		2.8		P
Lead		20.9346		24.8193		17.0		F
Magnesium	598.8	2020.4077		2067.4699		2.3		P
Manganese		216.1728		222.4096		2.8		P
Mercury	0.1	0.2255		0.1899		17.1		CV
Nickel	4.8	8.3475		8.6265		3.3		P
Potassium		456.4181	B	454.9398	B	0.3		P
Selenium		0.2874	B	0.2410	U	200.0		F
Silver		0.2395	U	0.2410	U			P
Sodium		113.8949	B	115.2651	B	1.2		P
Thallium		19.1621	U	19.2771	U			P
Vanadium	6.0	16.2040		16.8072		3.7		P
Zinc		30.0486		31.1205		3.5		P
Boron								NR

ENVIRONMENTAL HEALTH RESEARCH & TESTING

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
620019S

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194

Lab Code: _____ Work Order: #2222_ Project: 15209_ SDG No.: 000000

Matrix (soil/water): SOIL__ Level (low/med): LOW___

% Solids for Sample: _83.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	61.7575		1.5569	U	60.18	102.6		P
Arsenic	75-125	62.8287		6.1319		60.18	94.2		F
Barium	75-125	93.9422		36.4679		60.18	95.5		P
Beryllium	75-125	52.0323		0.5389	B	60.18	85.6		P
Cadmium	75-125	51.3101		0.3593	U	60.18	85.3		P
Calcium									NR
Chromium	75-125	63.2500		11.1260		60.18	86.6		P
Cobalt	75-125	56.9069		4.3714	B	60.18	87.3		P
Copper	75-125	63.5629		11.6290		60.18	86.3		P
Iron									NR
Lead	75-125	73.0595		20.9346		60.18	86.6		F
Magnesium									NR
Manganese	75-125	280.5628		216.1728		60.18	107.0		P
Mercury	75-125	1.6714		0.2255		1.48	97.7		CV
Nickel	75-125	59.4706		8.3475		60.18	85.0		P
Potassium									NR
Selenium	75-125	51.0333		0.2874	B	60.18	84.3		F
Silver	75-125	50.3834		0.2395	U	60.18	83.7		P
Sodium									NR
Thallium	75-125	191.7360		19.1621	U	240.72	79.7		P
Vanadium	75-125	69.8338		16.2040		60.18	89.1		P
Zinc	75-125	84.5660		30.0486		60.18	90.6		P
Boron									NR

Comments:
920620-H019__WC-8S-2.5-4.5__TOTAL_METALS

C190

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

620020

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2222_ Project: 15209_ SDG No.: 000000

Matrix (soil/water): WATER Lab Sample ID: 006_____

Level (low/med): LOW__ Date Received: 06/23/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_		_		NR
7440-36-0	Antimony_		_		NR
7440-38-2	Arsenic__	41.5	_		F_
7440-39-3	Barium___	291	_		P_
7440-41-7	Beryllium		_		NR
7440-43-9	Cadmium__	3.0	U		P_
7440-70-2	Calcium__		_		NR
7440-47-3	Chromium_	26.8	_		P_
7440-48-4	Cobalt___		_		NR
7440-50-8	Copper___		_		NR
7439-89-6	Iron____		_		NR
7439-92-1	Lead____	126	_		P_
7439-95-4	Magnesium		_		NR
7439-96-5	Manganese		_		NR
7439-97-6	Mercury__	0.10	U		CV
7440-02-0	Nickel___		_		NR
7440-09-7	Potassium		_		NR
7782-49-2	Selenium_	2.0	U		F_
7440-22-4	Silver___	2.0	U		P_
7440-23-5	Sodium___		_		NR
7440-28-0	Thallium_		_		NR
7440-62-2	Vanadium_		_		NR
7440-66-6	Zinc____		_		NR
_____	Boron____		_		NR
_____	_____		_		__

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

920620-H019/-H020__WC-8S-2.5-4.5_____

TCLP_METALS_____

_____

_____

FORM I - IN

ILMO2.1

ENVIRONMENTAL HEALTH RESEARCH & TESTING

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2222_ Project: 15209_ SDG No.: 000000

Initial Calibration Source: SPEX_____

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum	5000.0	4869.00	97.4	5000.0	4800.00	96.0			P
Antimony	500.0	482.50	96.5	500.0	474.10	94.8			P
Arsenic	50.0	46.20	92.4	50.0	50.10	100.2	49.50	99.0	F
Barium	500.0	487.20	97.4	500.0	486.00	97.2			P
Beryllium	500.0	478.70	95.7	500.0	475.70	95.1			P
Cadmium	500.0	488.50	97.7	500.0	488.10	97.6			P
Calcium	5000.0	5136.00	102.7	5000.0	5085.00	101.7			P
Chromium	500.0	491.70	98.3	500.0	491.40	98.3			P
Cobalt	500.0	493.20	98.6	500.0	492.20	98.4			P
Copper	500.0	490.00	98.0	500.0	486.30	97.3			P
Iron	500.0	481.20	96.2	500.0	475.70	95.1			P
Lead	500.0	497.30	99.5	500.0	497.70	99.5			P
Magnesium	500.0	471.60	94.3	500.0	474.10	94.8			P
Manganese	500.0	491.30	98.3	500.0	485.10	97.0			P
Mercury	5.0	5.49	109.8	5.0	5.36	107.2			CV
Nickel	500.0	486.70	97.3	500.0	481.20	96.2			P
Potassium	5000.0	5002.00	100.0	5000.0	5082.00	101.6			P
Selenium	20.0	18.30	91.5	20.0	18.70	93.5			F
Silver	100.0	105.60	105.6	100.0	102.00	102.0			P
Sodium	5000.0	4878.00	97.6	5000.0	4827.00	96.5			P
Thallium	5000.0	4660.00	93.2	5000.0	4652.00	93.0			P
Vanadium	500.0	487.80	97.6	500.0	483.80	96.8			P
Zinc	500.0	500.10	100.0	500.0	494.00	98.8			P
Boron									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

C192

ENVIRONMENTAL HEALTH RESEARCH & TESTING

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2222_ Project: 15209_ SDG No.: 000000

Initial Calibration Source: SPEX_____

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead	50.0	48.40	96.8	50.0	46.80	93.6	46.50	93.0	F
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Boron									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

ENVIRONMENTAL HEALTH RESEARCH & TESTING

3
BLANKS

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2222_ Project: 15209_ SDG No.: 000000

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	15.0	U	15.0	U					1.500	U	P
Antimony	13.0	U	13.0	U					1.300	U	P
Arsenic	1.0	U	1.0	U	1.0	U			0.100	U	F
Barium	1.0	U	1.0	U					0.100	U	P
Beryllium	1.0	U	1.0	U					0.100	U	P
Cadmium	3.0	U	3.0	U					0.300	U	P
Calcium	49.0	U	49.0	U					4.900	U	P
Chromium	4.0	U	4.0	U					0.400	U	P
Cobalt	2.0	U	2.0	U					0.200	U	P
Copper	3.0	U	3.0	U					0.300	U	P
Iron	2.0	U	2.0	U					0.200	U	P
Lead	12.0	U	12.0	U					1.200	U	P
Magnesium	14.0	U	14.0	U					1.400	U	P
Manganese	1.0	U	1.0	U					0.100	U	P
Mercury	0.1	U	0.1	U					0.025	U	CV
Nickel	2.0	U	5.1	B					0.200	U	P
Potassium	63.0	U	63.0	U					6.300	U	P
Selenium	2.0	U	2.0	U					0.200	U	F
Silver	2.0	U	2.0	U					0.200	U	P
Sodium	18.0	U	18.0	U					1.800	U	P
Thallium	160.0	U	160.0	U					16.000	U	P
Vanadium	8.0	U	8.0	U					0.800	U	P
Zinc	1.0	U	1.0	U					0.100	U	P
Boron											NR

C194

ENVIRONMENTAL HEALTH RESEARCH & TESTING

3
BLANKS

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2222_ Project: 15209_ SDG No.: 000000

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
senic											NR
rium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	1.0	U	1.0	U	1.0	U			0.100	U	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Boron											NR

ENVIRONMENTAL HEALTH RESEARCH & TESTING

3
BLANKS

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2222_ Project: 15209_ SDG No.: 000000

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	TCLP Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic									1.000	U	F
Barium									1.000	U	P
Beryllium											NR
Cadmium									3.000	U	P
Calcium											NR
Chromium									4.000	U	P
Cobalt											NR
Copper											NR
Iron											NR
Lead									12.000	U	P
Magnesium											NR
Manganese											NR
Mercury									0.100	U	CV
Nickel											NR
Potassium											NR
Selenium									2.000	U	F
Silver									2.000	U	P
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Boron											NR

ENVIRONMENTAL HEALTH RESEARCH & TESTING

4
ICP INTERFERENCE CHECK SAMPLE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order:#2222_ Project: 15209_ SDG No.: 000000

ICP ID Number: SER# 49483__ ICS Source: _____

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	500000	500000	481400	486000.0	97.2	511700	509100.0	101.8
Antimony								
Arsenic								
Barium		500		480.3	96.1		521.5	104.3
Beryllium		500		482.8	96.6		492.7	98.5
Cadmium		1000		907.2	90.7		925.6	92.6
Calcium	500000	500000	457500	474100.0	94.8	486500	483500.0	96.7
Chromium		500		488.2	97.6		485.8	97.2
Cobalt		500		450.4	90.1		473.6	94.7
Copper		500		466.9	93.4		506.3	101.3
Iron	200000	200000	169300	175000.0	87.5	179300	179400.0	89.7
Lead		1000		1020.0	102.0		1018.0	101.8
Magnesium	500000	500000	481600	488400.0	97.7	520500	515500.0	103.1
Manganese		500		505.7	101.1		527.2	105.4
Mercury								
Nickel		1000		891.7	89.2		915.4	91.5
Potassium								
Selenium								
Silver		1000		1030.0	103.0		1048.0	104.8
Sodium								
Thallium								
Vanadium		500		452.9	90.6		474.6	94.9
Zinc		1000		901.4	90.1		925.6	92.6

QUALITY CONTROL

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

~~MERD01~~

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 63D20046__

Lab Code: EHRT__ Case No.: 18357_ SAS No.: _____ SDG No.: MERDO1

Matrix (soil/water): SOIL_ Lab Sample ID: MERD01____

Level (low/med): LOW__ Date Received: 07/23/92

% Solids: _81.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2250			P
7440-36-0	Antimony	3.0	U		P
7440-38-2	Arsenic	2.1	B		F
7440-39-3	Barium	17.7	B		P
7440-41-7	Beryllium	0.28	B		P
7440-43-9	Cadmium	0.98	B		P
7440-70-2	Calcium	79800			P
7440-47-3	Chromium	9.4			P
7440-48-4	Cobalt	2.0	B		P
7440-50-8	Copper	10.9			P
7439-89-6	Iron	6340			P
7439-92-1	Lead	11.0		*	F
7439-95-4	Magnesium	33800			P
7439-96-5	Manganese	153			P
7439-97-6	Mercury	0.03	U		CV
7440-02-0	Nickel	5.0	B		P
7440-09-7	Potassium	322	B		P
7782-49-2	Selenium	0.39	U	W	F
7440-22-4	Silver	2.1	B		P
7440-23-5	Sodium	196	B		P
7440-28-0	Thallium	0.27	U		F
7440-62-2	Vanadium	9.7	B		P
7440-66-6	Zinc	29.2		E	P
	Cyanide	0.61	U		C

Color Before: BROWN____ Clarity Before: CLOUDY Texture: FINE__

Color After: YELLOW___ Clarity After: CLOUDY Artifacts: _____

Comments:

CLP4

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

~~MERD01D~~

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 68D20046__

Lab Code: EHRT__ Case No.: 18357_ SAS No.: _____ SDG No.: MERD01

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _81.7 % Solids for Duplicate: __81.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		2246.0373		1963.9961		13.4		P
Antimony		2.9751	U	2.9808	U			P
Arsenic	2.4	2.0704	B	2.7091		26.7		F
Barium		17.6559	B	21.2690	B	18.6		P
Beryllium		0.2764	B	0.2793	B	1.0		P
Cadmium	1.2	0.9768	B	1.8659		62.6		P
Calcium		79834.8677		80477.7364		0.8		P
Chromium	2.3	9.4429		8.8766		6.2		P
Cobalt		1.9982	B	2.1828	B	8.8		P
Copper	5.9	10.9351		9.5995		13.0		P
Iron		6342.7102		6134.4817		3.3		P
Lead		10.9852		8.6158		24.2	*	F
Magnesium		33825.3266		31438.5793		7.3		P
Manganese		152.9906		161.4775		5.4		P
Mercury		0.0303	U	0.0304	U			CV
Nickel		5.0154	B	5.4170	B	7.7		P
Potassium		321.9200	B	298.4306	B	7.6		P
Selenium		0.3897	U	0.3905	U			F
Silver		2.0896	B	2.0983	B	0.4		P
Sodium		195.8572	B	164.8409	B	17.2		P
Thallium		0.2679	U	0.2685	U			F
Vanadium		9.7287	B	9.4516	B	2.9		P
Zinc		29.2094		31.1971		6.6		P
Cyanide		0.6120	U	0.6120	U			C

C200

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MERD01S

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 68D20046__

Lab Code: EHRT__ Case No.: 18357_ SAS No.: _____ SDG No.: MERD01

Matrix (soil/water): SOIL__ Level (low/med): LOW___

% Solids for Sample: _81.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	97.6739		2.9751	U	121.43	80.4		P
Arsenic	75-125	9.5265		2.0704	B	9.48	78.7		F
Barium	75-125	488.4401		17.6559	B	485.71	96.9		P
Beryllium	75-125	11.4506		0.2764	B	12.14	92.0		P
Cadmium	75-125	12.3565		0.9768	B	12.14	93.7		P
lcium									NR
romium	75-125	53.3577		9.4429		48.57	90.4		P
obalt	75-125	120.8957		1.9982	B	121.43	97.9		P
Copper	75-125	70.8287		10.9351		60.71	98.7		P
Iron									NR
Lead	75-125	16.8728		10.9852		4.74	124.2		F
Magnesium									NR
Manganese	75-125	271.5364		152.9906		121.43	97.6		P
Mercury	75-125	0.3135		0.0303	U	0.30	104.5		CV
Nickel	75-125	120.7015		5.0154	B	121.43	95.3		P
Potassium									NR
Selenium	75-125	2.0143		0.3897	U	2.37	85.0		F
Silver	75-125	12.8835		2.0896	B	12.14	88.9		P
Sodium									NR
Thallium	75-125	11.2801		0.2679	U	11.85	95.2		F
Vanadium	75-125	123.8829		9.7287	B	121.43	94.0		P
Zinc	75-125	147.8600		29.2094		121.43	97.7		P
Cyanide	75-125	23.7968		0.6120	U	30.60	77.8		C

Comments:

C201

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

~~MERD05~~

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 68D20C46__

Lab Code: EHRT__ Case No.: 18357_ SAS No.: _____ SDG No.: MERD01

Matrix (soil/water): WATER Lab Sample ID: MERD05____

Level (low/med): LOW__ Date Received: 07/23/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	121	B		P
7440-36-0	Antimony	12.7	U		P
7440-38-2	Arsenic	1.1	U	W	F
7440-39-3	Barium	67.7	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	2.5	U		P
7440-70-2	Calcium	64900			P
7440-47-3	Chromium	7.8	B		P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	2.6	U		P
7439-89-6	Iron	172		E	P
7439-92-1	Lead	1.5	B		F
7439-95-4	Magnesium	27700			P
7439-96-5	Manganese	24.1		E	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	6.4	B		P
7440-09-7	Potassium	7620			P
7782-49-2	Selenium	1.6	U	W	F
7440-22-4	Silver	2.8	B		P
7440-23-5	Sodium	68700			P
7440-28-0	Thallium	1.1	U	W	F
7440-62-2	Vanadium	7.7	U		P
7440-66-6	Zinc	25.2			P
	Cyanide	10.0	U		C

Color Before: CLEAR____ Clarity Before: CLEAR_ Texture: _____

Color After: CLEAR____ Clarity After: CLEAR_ Artifacts: _____

Comments:

_____

_____

_____

_____

C202

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

~~MERD05D~~

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 68D20046__

Lab Code: EHRT__ Case No.: 18357_ SAS No.: _____ SDG No.: MERD01

Matrix (soil/water): WATER Level (low/med): _LOW__

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		121.4300	B	117.9200	B	2.9		P
Antimony		12.7000	U	12.7000	U			P
Arsenic		1.1000	U	1.1000	U			F
Barium		67.7100	B	68.3900	B	1.0		P
Beryllium		0.2000	U	0.2000	U			P
Cadmium		2.5000	U	2.5000	U			P
Calcium		64874.4800		65356.4700		0.7		P
Chromium		7.8200	B	7.5700	B	3.2		P
Cobalt		1.8000	U	1.8000	U			P
Copper		2.6000	U	2.6000	U			P
Iron	100.0	172.0000		174.3900		1.4		P
Lead		1.5000	B	1.2000	B	22.2		F
Magnesium		27691.8600		27923.7800		0.8		P
Manganese	15.0	24.1100		24.4600		1.4		P
Mercury		0.1000	U	0.1000	U			CV
Nickel		6.3500	B	4.5400	B	33.2		P
Potassium	5000.0	7624.5100		8057.7000		5.5		P
Selenium		1.6000	U	1.6000	U			F
Silver		2.8300	B	2.3900	B	16.9		P
Sodium		68655.1900		69264.4800		0.9		P
Thallium		1.1000	U	1.1000	U			F
Vanadium		7.7000	U	7.7000	U			P
Zinc	20.0	25.1700		25.9200		2.9		P
Cyanide		10.0000	U	10.0000	U			C

29.

C203

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

~~MERD05S~~

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 68D20046__

Lab Code: EHRT__ Case No.: 18357_ SAS No.: _____ SDG No.: MERDO1

Matrix (soil/water): WATER_ Level (low/med): LOW___

% Solids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2054.6500		121.4300	B	2000.00	96.7		P
Antimony	75-125	543.5200		12.7000	U	500.00	108.7		P
Arsenic	75-125	34.8000		1.1000	U	40.00	87.0		F
Barium	75-125	2048.4900		67.7100	B	2000.00	99.0		P
Beryllium	75-125	49.5400		0.2000	U	50.00	99.1		P
Cadmium	75-125	48.4500		2.5000	U	50.00	96.9		P
Calcium									NR
Chromium	75-125	196.8300		7.8200	B	200.00	94.5		P
Cobalt	75-125	525.2500		1.8000	U	500.00	105.0		P
Copper	75-125	244.7800		2.6000	U	250.00	97.9		P
Iron	75-125	1113.3400		172.0000		1000.00	94.1		P
Lead	75-125	21.3000		1.5000	B	20.00	99.0		F
Magnesium									NR
Manganese	75-125	540.8000		24.1100		500.00	103.3		P
Mercury	75-125	0.9800		0.1000	U	1.00	98.0		CV
Nickel	75-125	524.6100		6.3500	B	500.00	103.7		P
Potassium									NR
Selenium	75-125	8.9000		1.6000	U	10.00	89.0		F
Silver	75-125	49.9600		2.8300	B	50.00	94.3		P
Sodium									NR
Thallium	75-125	41.4000		1.1000	U	50.00	82.8		F
Vanadium	75-125	510.9600		7.7000	U	500.00	102.2		P
Zinc	75-125	556.1100		25.1700		500.00	106.2		P
Cyanide	75-125	52.0850		10.0000	U	50.00	104.2		C

Comments:

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 68D20046__

Lab Code: EHRT__ Case No.: 18357_ SAS No.: _____ SDG No.: MERDO1

Solid LCS Source: EPA-LV_____

Aqueous LCS Source: EPA-LV_____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				325.0	335.6		225.0	424.0	103.3
Antimony				211.0	227.4		127.0	294.0	107.8
Arsenic	50.4	48.30	95.8	917.0	926.9		635.0	1199.0	101.1
Barium				4.8	3.1	B	0.0	40.0	64.6
yllium				19.4	18.2		16.5	22.3	93.8
mium				45.4	45.0		35.7	55.1	99.1
Calcium				19620.0	19957.5		16680.0	22560.0	101.7
Chromium				99.6	95.6		79.2	120.0	96.0
Cobalt				144.0	131.1		125.0	162.0	91.0
Copper				6910.0	6578.9		6006.0	7820.0	95.2
Iron				22430.0	19061.9		17770.0	27080.0	85.0
Lead	98.4	109.00	110.8	236.0	254.5		188.0	285.0	107.8
Magnesium				118100.0	111131.3		100400.0	129900.0	94.1
Manganese				208.0	189.7		177.0	239.0	91.2
Mercury				12.7	15.6		8.5	17.0	122.8
Nickel				60.9	57.2		49.2	72.6	93.9
Potassium				50.0	25.4	B	0.0	1000.0	50.8
Selenium	50.3	53.00	105.4	39.2	45.7		19.1	59.4	116.6
Silver				22.2	23.5		15.5	29.0	105.9
Sodium				50.0	86.2	B	0.0	1000.0	172.4
Thallium	100.7	98.00	97.3	39.0	37.1		24.6	53.5	95.1
Vanadium				65.8	68.1		51.7	79.9	103.5
Zinc				187.0	138.9		138.0	236.0	74.3
Cyanide				5.6	5.2		4.3	6.9	92.9

C205

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Case No.: #2236 SAS No.: 15223_ SDG No.:000000

SOW No.: 3/90_

EPA Sample No.	Lab Sample ID
_625020_____	__002_____
_625021_____	__002_____

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
____STRATFORD_ARMY_ENGINE_PLANT__DATE_OF_ANALYSIS_JULY_22,_1992_____
____ICP_NB263PG2_METHOD_6010/_FURNACE_NB258PG1_METHODS_AS7060_SE7740_____
____PB7421/_COLD_VAPOR_NB255PG17&54_METHOD_HG7470&7471/_PERCENT_SOLIDS_NB2___

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Geraldine S. Luna Name: GERALDINE S. LUNA

Date: 7/31/92 Title: QA/QC MANAGER

C206

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

625020

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Case No.: #2236 SAS No.: 15223_ SDG No.: 000000

Matrix (soil/water): SOIL_ Lab Sample ID: 002_____

Level (low/med): LOW__ Date Received: 06/26/92

% Solids: _94.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4410			P
7440-36-0	Antimony	1.4	U		P
7440-38-2	Arsenic	2.0			F
7440-39-3	Barium	26.9			P
7440-41-7	Beryllium	0.25	B		P
7440-43-9	Cadmium	0.32	U		P
7440-70-2	Calcium	1790			P
7440-47-3	Chromium	32.2			P
7440-48-4	Cobalt	4.3	B		P
7440-50-8	Copper	41.5			P
7439-89-6	Iron	8760			P
7439-92-1	Lead	8.2			F
7439-95-4	Magnesium	2040			P
7439-96-5	Manganese	262			P
7439-97-6	Mercury	0.28			CV
7440-02-0	Nickel	11.9			P
7440-09-7	Potassium	1010			P
7782-49-2	Selenium	0.21	U		F
7440-22-4	Silver	0.21	U		P
7440-23-5	Sodium	119	B		P
7440-28-0	Thallium	17.0	U		P
7440-62-2	Vanadium	13.5			P
7440-66-6	Zinc	47.2			P

Color Before: BROWN____ Clarity Before: _____ Texture: SOIL__

Color After: BROWN____ Clarity After: _____ Artifacts: _____

Comments:

920625-H020__WC-2D-2.5-4.5__TOTAL_METALS_ANALYSIS

POST_DIGEST_SPIKE_(ARSENIC)_=_109%_RECOVERY

POST_DIGEST_SPIKE_(LEAD)_=_98%_RECOVERY

POST_DIGEST_SPIKE_(SELENIUM)_=_87%_RECOVERY

C207

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

625021

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Case No.: #2236 SAS No.: 15223_ SDG No.: 000000

Matrix (soil/water): WATER Lab Sample ID: 002_____

Level (low/med): LOW__ Date Received: 06/26/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_		_		NR
7440-36-0	Antimony_		_		NR
7440-38-2	Arsenic__	4.3	B		F_
7440-39-3	Barium___	391	_		P_
7440-41-7	Beryllium		_		NR
7440-43-9	Cadmium__	34.3	_		P_
7440-70-2	Calcium__		_		NR
7440-47-3	Chromium_	105	_		P_
7440-48-4	Cobalt___		_		NR
7440-50-8	Copper___		_		NR
7439-89-6	Iron_____		_		NR
7439-92-1	Lead_____	69.2	_		P_
7439-95-4	Magnesium		_		NR
7439-96-5	Manganese		_		NR
7439-97-6	Mercury__	0.10	U		CV
7440-02-0	Nickel___		_		NR
7440-09-7	Potassium		_		NR
7782-49-2	Selenium_	2.0	U		F_
7440-22-4	Silver___	2.0	U		P_
7440-23-5	Sodium___		_		NR
7440-28-0	Thallium_		_		NR
7440-62-2	Vanadium_		_		NR
7440-66-6	Zinc_____		_		NR
_____	_____		_		__
_____	_____		_		__

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

920625-H020/-H021__WC-2D-2.5-4.5_____

TCLP_METALS_____

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Case No.: #2236 SAS No.: 15223_ SDG No.: 000000

Initial Calibration Source: SPEX_____

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum	5000.0	4965.00	99.3	5000.0	4901.00	98.0			P
Antimony	500.0	494.80	99.0	500.0	487.10	97.4			P
Arsenic	50.0	49.90	99.8	50.0	47.80	95.6	48.30	96.6	F
Barium	500.0	499.90	100.0	500.0	493.90	98.8			P
Beryllium	500.0	485.50	97.1	500.0	486.20	97.2			P
Cadmium	500.0	502.60	100.5	500.0	504.20	100.8			P
Calcium	5000.0	5261.00	105.2	5000.0	5229.00	104.6			P
Chromium	500.0	502.50	100.5	500.0	499.50	99.9			P
Cobalt	500.0	504.00	100.8	500.0	501.70	100.3			P
Copper	500.0	499.60	99.9	500.0	496.60	99.3			P
Iron	500.0	491.60	98.3	500.0	488.70	97.7			P
Lead	500.0	506.00	101.2	500.0	507.30	101.5			P
Magnesium	500.0	490.10	98.0	500.0	485.00	97.0			P
Manganese	500.0	498.60	99.7	500.0	495.00	99.0			P
Mercury	5.0	5.98	119.6	5.0	5.90	118.0			CV
Nickel	500.0	498.60	99.7	500.0	495.80	99.2			P
Potassium	5000.0	5196.00	103.9	5000.0	5121.00	102.4			P
Selenium	20.0	18.70	93.5	20.0	21.70	108.5			F
Silver	100.0	104.40	104.4	100.0	104.80	104.8			P
Sodium	5000.0	5001.00	100.0	5000.0	4931.00	98.6			P
Thallium	5000.0	4966.00	99.3	5000.0	5083.00	101.7			P
Vanadium	500.0	495.80	99.2	500.0	494.80	99.0			P
Zinc	500.0	512.80	102.6	500.0	508.10	101.6			P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

C209

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Case No.: #2236 SAS No.: 15223_ SDG No.: 000000

Initial Calibration Source: SPEX_____

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead	50.0	46.80	93.6	50.0	46.50	93.0			F
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

3
BLANKS

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Case No.: #2236 SAS No.: 15223_ SDG No.: 000000

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	15.0	U	15.0	U					2.230	B	P
Antimony	13.0	U	13.0	U					1.300	U	P
Arsenic	1.0	U	1.0	U	1.0	U			0.100	U	F
Barium	1.0	U	1.0	U					0.100	U	P
Beryllium	1.0	U	1.0	U					0.100	U	P
Cadmium	3.0	U	3.0	U					0.300	U	P
Calcium	49.0	U	49.0	U					4.900	U	P
Chromium	4.0	U	4.0	U					0.400	U	P
Cobalt	2.0	U	2.0	U					0.200	U	P
Copper	3.0	U	3.0	U					0.300	U	P
Iron	2.0	U	2.0	U					0.200	U	P
Lead	12.0	U	12.0	U					1.200	U	P
Magnesium	14.0	U	14.0	U					1.400	U	P
Manganese	1.0	U	1.0	U					0.100	U	P
Mercury	0.1	U	0.1	U					0.025	U	CV
Nickel	2.0	U	2.0	U					0.200	U	P
Potassium	63.0	U	63.0	U					6.420	B	P
Selenium	2.0	U	2.0	U					0.200	U	F
Silver	2.0	U	2.0	U					0.200	U	P
Sodium	18.0	U	18.0	U					4.240	B	P
Thallium	160.0	U	160.0	U					16.000	U	P
Vanadium	8.0	U	8.0	U					0.800	U	P
Zinc	1.0	U	1.0	U					0.100	U	P

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3
BLANKS

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Case No.: #2236 SAS No.: 15223_ SDG No.: 000000

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	TCLP Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic									1.000	U	F
Barium									1.000	U	P
Beryllium											NR
Cadmium									3.000	U	P
Calcium											NR
Chromium									4.000	U	P
Cobalt											NR
Copper											NR
Iron											NR
Lead									12.000	U	P
Magnesium											NR
Manganese											NR
Mercury									0.100	U	CV
Nickel											NR
Potassium											NR
Selenium									2.000	U	F
Silver									2.000	U	P
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR

U.S. EPA - CLP

3
BLANKS

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Case No.: #2236 SAS No.: 15223_ SDG No.: 000000

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	1.0	U	1.0	U					0.100	U	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR

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4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Case No.: #2236 SAS No: 15223_ SDG No.: 000000

ICP ID Number: SER# 49483__ ICS Source: _____

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	500000	500000	481400	486000.0	97.2	511700	509100.0	101.8
Antimony								
Arsenic								
Barium		500		480.3	96.1		521.5	104.3
Beryllium		500		482.8	96.6		492.7	98.5
Cadmium		1000		907.2	90.7		925.6	92.6
Calcium	500000	500000	457500	474100.0	94.8	486500	483500.0	96.7
Chromium		500		488.2	97.6		485.8	97.2
Cobalt		500		450.4	90.1		473.6	94.7
Copper		500		466.9	93.4		506.3	101.3
Iron	200000	200000	169300	175000.0	87.5	179300	179400.0	89.7
Lead		1000		1020.0	102.0		1018.0	101.8
Magnesium	500000	500000	481600	488400.0	97.7	520500	515500.0	103.1
Manganese		500		505.7	101.1		527.2	105.4
Mercury								
Nickel		1000		891.7	89.2		915.4	91.5
Potassium								
Selenium								
Silver		1000		1030.0	103.0		1048.0	104.8
Sodium								
Thallium								
Vanadium		500		452.9	90.6		474.6	94.9
Zinc		1000		901.4	90.1		925.6	92.6

C214

QUALITY CONTROL

METALS

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

~~MERD01~~

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 63D20046__

Lab Code: EHRT__ Case No.: 18357_ SAS No.: _____ SDG No.: MERD01

Matrix (soil/water): SOIL_ Lab Sample ID: MERD01____

Level (low/med): LOW__ Date Received: 07/23/92

% Solids: _81.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2250			P
7440-36-0	Antimony	3.0	U		P
7440-38-2	Arsenic	2.1	B		F
7440-39-3	Barium	17.7	B		P
7440-41-7	Beryllium	0.28	B		P
7440-43-9	Cadmium	0.98	B		P
7440-70-2	Calcium	79800			P
7440-47-3	Chromium	9.4			P
7440-48-4	Cobalt	2.0	B		P
7440-50-8	Copper	10.9			P
7439-89-6	Iron	6340			P
7439-92-1	Lead	11.0		*	F
7439-95-4	Magnesium	33800			P
7439-96-5	Manganese	153			P
7439-97-6	Mercury	0.03	U		CV
7440-02-0	Nickel	5.0	B		P
7440-09-7	Potassium	322	B		P
7782-49-2	Selenium	0.39	U	W	F
7440-22-4	Silver	2.1	B		P
7440-23-5	Sodium	196	B		P
7440-28-0	Thallium	0.27	U		F
7440-62-2	Vanadium	9.7	B		P
7440-66-6	Zinc	29.2		E	P
	Cyanide	0.61	U		C

Color Before: BROWN____ Clarity Before: CLOUDY Texture: FINE__

Color After: YELLOW___ Clarity After: CLOUDY Artifacts: _____

Comments:

C216

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

~~MERD01D~~

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 68D20046__

Lab Code: EHRT__ Case No.: 18357_ SAS No.: _____ SDG No.: MERD01

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _81.7 % Solids for Duplicate: __81.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		2246.0373		1963.9961		13.4		P
Antimony		2.9751	U	2.9808	U			P
Arsenic	2.4	2.0704	B	2.7091		26.7		F
Barium		17.6559	B	21.2690	B	18.6		P
Beryllium		0.2764	B	0.2793	B	1.0		P
Cadmium	1.2	0.9768	B	1.8659		62.6		P
Calcium		79834.8677		80477.7364		0.8		P
Chromium	2.3	9.4429		8.8766		6.2		P
Cobalt		1.9982	B	2.1828	B	8.8		P
Copper	5.9	10.9351		9.5995		13.0		P
Iron		6342.7102		6134.4817		3.3		P
Lead		10.9852		8.6158		24.2	*	F
Magnesium		33825.3266		31438.5793		7.3		P
Manganese		152.9906		161.4775		5.4		P
Mercury		0.0303	U	0.0304	U			CV
Nickel		5.0154	B	5.4170	B	7.7		P
Potassium		321.9200	B	298.4306	B	7.6		P
Selenium		0.3897	U	0.3905	U			F
Silver		2.0896	B	2.0983	B	0.4		P
Sodium		195.8572	B	164.8409	B	17.2		P
Thallium		0.2679	U	0.2685	U			F
Vanadium		9.7287	B	9.4516	B	2.9		P
Zinc		29.2094		31.1971		6.6		P
Cyanide		0.6120	U	0.6120	U			C

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
~~MERD01S~~

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 68D20046__

Lab Code: EHRT__ Case No.: 18357_ SAS No.: _____ SDG No.: MERD01

Matrix (soil/water): SOIL__ Level (low/med): LOW___

% Solids for Sample: _81.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	97.6739		2.9751	U	121.43	80.4		P
Arsenic	75-125	9.5265		2.0704	B	9.48	78.7		F
Barium	75-125	488.4401		17.6559	B	485.71	96.9		P
Beryllium	75-125	11.4506		0.2764	B	12.14	92.0		P
Cadmium	75-125	12.3565		0.9768	B	12.14	93.7		P
Calcium									NR
Chromium	75-125	53.3577		9.4429		48.57	90.4		P
Cobalt	75-125	120.8957		1.9982	B	121.43	97.9		P
Copper	75-125	70.8287		10.9351		60.71	98.7		P
Iron									NR
Lead	75-125	16.8728		10.9852		4.74	124.2		F
Magnesium									NR
Manganese	75-125	271.5364		152.9906		121.43	97.6		P
Mercury	75-125	0.3135		0.0303	U	0.30	104.5		CV
Nickel	75-125	120.7015		5.0154	B	121.43	95.3		P
Potassium									NR
Selenium	75-125	2.0143		0.3897	U	2.37	85.0		F
Silver	75-125	12.8835		2.0896	B	12.14	88.9		P
Sodium									NR
Thallium	75-125	11.2801		0.2679	U	11.85	95.2		F
Vanadium	75-125	123.8829		9.7287	B	121.43	94.0		P
Zinc	75-125	147.8600		29.2094		121.43	97.7		P
Cyanide	75-125	23.7968		0.6120	U	30.60	77.8		C

Comments:

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 68D20046

Lab Code: EHRT Case No.: 18357_ SAS No.: _____ SDG No.: MERDO1

Solid LCS Source: EPA-LV

Aqueous LCS Source: EPA-LV

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				325.0	335.6		225.0	424.0	103.3
Antimony				211.0	227.4		127.0	294.0	107.8
Arsenic	50.4	48.30	95.8	917.0	926.9		635.0	1199.0	101.1
Barium				4.8	3.1	B	0.0	40.0	64.6
Beryllium				19.4	18.2		16.5	22.3	93.8
lmium				45.4	45.0		35.7	55.1	99.1
.cium				19620.0	19957.5		16680.0	22560.0	101.7
Chromium				99.6	95.6		79.2	120.0	96.0
Cobalt				144.0	131.1		125.0	162.0	91.0
Copper				6910.0	6578.9		6006.0	7820.0	95.2
Iron				22430.0	19061.9		17770.0	27080.0	85.0
Lead	98.4	109.00	110.8	236.0	254.5		188.0	285.0	107.8
Magnesium				118100.0	111131.3		100400.0	129900.0	94.1
Manganese				208.0	189.7		177.0	239.0	91.2
Mercury				12.7	15.6		8.5	17.0	122.8
Nickel				60.9	57.2		49.2	72.6	93.9
Potassium				50.0	25.4	B	0.0	1000.0	50.8
Selenium	50.3	53.00	105.4	39.2	45.7		19.1	59.4	116.6
Silver				22.2	23.5		15.5	29.0	105.9
Sodium				50.0	86.2	B	0.0	1000.0	172.4
Thallium	100.7	98.00	97.3	39.0	37.1		24.6	53.5	95.1
Vanadium				65.8	68.1		51.7	79.9	103.5
Zinc				187.0	138.9		138.0	236.0	74.3
Cyanide				5.6	5.2		4.3	6.9	92.9

31.

ENVIRONMENTAL HEALTH RESEARCH & TESTING

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2310_ Project: 15367_ SDG No.:000000

SOW No.: 3/90_

EPA Sample No.	Lab Sample ID
_730019_____	__003_____
_730020_____	__004_____
_730025_____	__008_____
_730026_____	__009_____

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES

If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

____STRATFORD_ARMY_ENGINE_PLANT__DATE_OF_ANALYSIS_AUGUST_15,_1992_____

____ICP_NB263PG53_METHOD_6010/_FURNACE_NB254PG47,48&50;NB258PG56&57_____

____METHOD_AS7060_PB7421_SE7740/_COLD_VAPOR_NB255PG80_METHOD_HG7470_____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Geraldine S. Luna Name: GERALDINE S. LUNA

Date: 8/19/92 Title: QA/QC MANAGER

C220

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

730019

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2310_ Project: 15367_ SDG No.: 000000

Matrix (soil/water): WATER Lab Sample ID: 003_____

Level (low/med): LOW__ Date Received: 07/31/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	59700			P
7440-36-0	Antimony	13.0	U		P
7440-38-2	Arsenic	64.4			F
7440-39-3	Barium	418			P
7440-41-7	Beryllium	5.9			P
7440-43-9	Cadmium	43.9			P
7440-70-2	Calcium	163000			P
7440-47-3	Chromium	649			P
7440-48-4	Cobalt	70.1			P
7440-50-8	Copper	528			P
7439-89-6	Iron	171000			P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	65200			P
7439-96-5	Manganese	17700			P
7439-97-6	Mercury	2.4			CV
7440-02-0	Nickel	186			P
7440-09-7	Potassium	14700			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	254000			P
7440-28-0	Thallium	160	U		P
7440-62-2	Vanadium	779			P
7440-66-6	Zinc	2400			P
	Boron				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

920730-H019__WC-3S__TOTAL_METALS_ANALYSIS

POST_DIGEST_SPIKE_(ARSENIC)_=_92%_RECOVERY

POST_DIGEST_SPIKE_(LEAD)_=_86%_RECOVERY

POST_DIGEST_SPIKE_(SELENIUM)_=_93%_RECOVERY

C221

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
730020

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2310_ Project: 15367_ SDG No.: 000000

Matrix (soil/water): WATER Lab Sample ID: 004_____

Level (low/med): LOW__ Date Received: 07/31/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	116	B		P
7440-36-0	Antimony	13.0	U		P
7440-38-2	Arsenic	3.3	B		F
7440-39-3	Barium	38.5			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	91300			P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	3.0	U		P
7439-89-6	Iron	39.5	B		P
7439-92-1	Lead				NR
7439-95-4	Magnesium	27000			P
7439-96-5	Manganese	175			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	2.0	U		P
7440-09-7	Potassium	11300			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	263000			P
7440-28-0	Thallium	160	U		P
7440-62-2	Vanadium	32.1	B		P
7440-66-6	Zinc	3.9	B		P
	Boron				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
920730-H020__WC-3S__DISSOLVED_METALS_ANALYSIS_____

C222

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

730025

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2310_ Project: 15367_ SDG No.: 000000

Matrix (soil/water): WATER Lab Sample ID: 008_____

Level (low/med): LOW__ Date Received: 07/31/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	29600			P
7440-36-0	Antimony	13.0	U		P
7440-38-2	Arsenic	45.8			F
7440-39-3	Barium	137			P
7440-41-7	Beryllium	1.7	B		P
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	54900			P
7440-47-3	Chromium	41.7			P
7440-48-4	Cobalt	30.5	B		P
7440-50-8	Copper	91.3			P
7439-89-6	Iron	90600			P
7439-92-1	Lead				NR
7439-95-4	Magnesium	18400			P
7439-96-5	Manganese	4780			P
7439-97-6	Mercury	0.21			CV
7440-02-0	Nickel	39.0	B		P
7440-09-7	Potassium	14200			P
7782-49-2	Selenium	2.2	B		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	43300			P
7440-28-0	Thallium	160	U		P
7440-62-2	Vanadium	66.1			P
7440-66-6	Zinc	95.2			P
	Boron				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

920730-H025__WC-8S__TOTAL_METALS_ANALYSIS_____

FORM I - IN

ILMO2.1

C223

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

730026

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2310_ Project: 15367_ SDG No.: 000000

Matrix (soil/water): WATER Lab Sample ID: 009_____

Level (low/med): LOW__ Date Received: 07/31/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	67.3	B		P
7440-36-0	Antimony_	13.0	U		P
7440-38-2	Arsenic__	12.6			F
7440-39-3	Barium___	47.2			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium__	3.0	U		P
7440-70-2	Calcium__	52300			P
7440-47-3	Chromium_	4.0	U		P
7440-48-4	Cobalt___	11.6	B		P
7440-50-8	Copper___	3.0	U		P
7439-89-6	Iron_____	38000			P
7439-92-1	Lead_____	1.0	U		F
7439-95-4	Magnesium	12200			P
7439-96-5	Manganese	4190			P
7439-97-6	Mercury__	0.10	U		CV
7440-02-0	Nickel___	7.8	B		P
7440-09-7	Potassium	12100			P
7782-49-2	Selenium_	2.0	U		F
7440-22-4	Silver___	2.0	U		P
7440-23-5	Sodium___	44100			P
7440-28-0	Thallium_	160	U		P
7440-62-2	Vanadium_	8.0	U		P
7440-66-6	Zinc_____	13.0	B		P
_____	Boron____	_____			NR
_____	_____	_____			

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

920730-H026__WC-8S__DISSOLVED_METALS_ANALYSIS_____

ENVIRONMENTAL HEALTH RESEARCH & TESTING

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2310_ Project: 15367_ SDG No.: 000000

Initial Calibration Source: SPEX_____

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum	5000.0	5060.00	101.2	5000.0	5043.00	100.9			P
Antimony	500.0	487.80	97.6	500.0	490.50	98.1			P
Arsenic	50.0	47.80	95.6	50.0	50.30	100.6			F
Barium	500.0	494.00	98.8	500.0	490.60	98.1			P
yllium	500.0	497.10	99.4	500.0	493.60	98.7			P
mium	500.0	519.50	103.9	500.0	513.70	102.7			P
Calcium	5000.0	5297.00	105.9	5000.0	5279.00	105.6			P
Chromium	500.0	495.00	99.0	500.0	490.60	98.1			P
Cobalt	500.0	518.80	103.8	500.0	515.00	103.0			P
Copper	500.0	495.00	99.0	500.0	491.90	98.4			P
Iron	500.0	505.50	101.1	500.0	505.70	101.1			P
Lead	50.0	54.80	109.6	50.0	54.90	109.8	53.90	107.8	F
Magnesium	500.0	500.60	100.1	500.0	477.20	95.4			P
Manganese	500.0	501.10	100.2	500.0	498.00	99.6			P
Mercury	5.0	5.16	103.2	5.0	5.05	101.0			CV
Nickel	500.0	513.30	102.7	500.0	513.30	102.7			P
Potassium	5000.0	5019.00	100.4	5000.0	5109.00	102.2			P
Selenium	20.0	20.50	102.5	20.0	19.50	97.5	19.90	99.5	F
Silver	100.0	106.10	106.1	100.0	107.10	107.1			P
Sodium	5000.0	5083.00	101.7	5000.0	5161.00	103.2			P
Thallium	5000.0	5117.00	102.3	5000.0	5102.00	102.0			P
Vanadium	500.0	487.20	97.4	500.0	487.20	97.4			P
Zinc	500.0	509.70	101.9	500.0	507.30	101.5			P
Boron									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

C225

ENVIRONMENTAL HEALTH RESEARCH & TESTING

3
BLANKS

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order: #2310_ Project: 15367_ SDG No.: 000000

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	22.9	B	34.3	B					15.000	U	P
Antimony	13.0	U	13.0	U					13.000	U	P
Arsenic	1.0	U	1.0	U					1.000	U	F
Barium	1.0	U	1.0	U					1.000	U	P
Beryllium	1.0	U	1.0	U					1.000	U	P
Cadmium	3.0	U	3.0	U					3.000	U	P
Calcium	49.0	U	49.0	U					888.000	B	P
Chromium	4.0	U	4.0	U					4.000	U	P
Cobalt	2.0	U	2.0	U					2.000	U	P
Copper	3.0	U	3.0	U					3.000	U	P
Iron	2.0	U	2.0	U					2.800	B	P
Lead	1.0	U	1.0	U	1.0	U			1.000	U	F
Magnesium	14.0	U	14.0	U					75.200	B	P
Manganese	1.0	U	1.0	U					1.000	U	P
Mercury	0.1	U	0.1	U					0.100	U	CV
Nickel	2.0	U	2.0	U					2.000	U	P
Potassium	63.0	U	80.0	B					119.200	B	P
Selenium	2.0	U	2.0	U	2.0	U			2.000	U	F
Silver	5.2	B	5.8	B					5.800	B	P
Sodium	58.6	B	54.6	B					190.700	B	P
Thallium	160.0	U	160.0	U					160.000	U	P
Vanadium	8.0	U	8.0	U					8.000	U	P
Zinc	1.0	U	1.0	U					4.800	B	P
Boron											NR

C226

ENVIRONMENTAL HEALTH RESEARCH & TESTING

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Lab Code: _____ Work Order:#2310_ Project: 15367_ SDG No.: 000000

ICP ID Number: SER# 49483__ ICS Source: _____

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	500000	500000	501200	505000.0	101.0	498100	500900.0	100.2
Antimony								
Arsenic								
Barium		500		476.6	95.3		479.3	95.9
Beryllium		500		500.2	100.0		483.8	96.8
Cadmium		1000		893.5	89.4		882.5	88.2
Calcium	500000	500000	462800	474800.0	95.0	465000	467700.0	93.5
Chromium		500		465.4	93.1		456.3	91.3
Cobalt		500		450.9	90.2		453.9	90.8
Copper		500		487.3	97.5		482.4	96.5
Iron	200000	200000	174900	179100.0	89.6	173900	175900.0	88.0
Lead		1000		988.2	98.8		964.3	96.4
Magnesium	500000	500000	481000	485900.0	97.2	486000	487500.0	97.5
Manganese		500		501.4	100.3		502.1	100.4
Mercury								
Nickel		1000		932.6	93.3		910.0	91.0
Potassium								
Selenium								
Silver		1000		961.6	96.2		953.8	95.4
Sodium								
Thallium								
Vanadium		500		453.2	90.6		447.3	89.5
Zinc		1000		911.7	91.2		903.7	90.4

C227

BATCH SPECIFIC

QUALITY CONTROL

METALS

for

STRATFORD ARMY ENGINE PLANT

C228

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

[redacted]

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: [redacted]

Lab Code: EHRT__ Case No.: [redacted] SAS No.: _____ SDG No.: [redacted]

Matrix (soil/water): SOIL_ Lab Sample ID: [redacted]

Level (low/med): LOW__ Date Received: 07/30/92

% Solids: _88.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9440			P
7440-36-0	Antimony	4.5	B	N	P
7440-38-2	Arsenic	11.6			F
7440-39-3	Barium	60.0			P
7440-41-7	Beryllium	0.58	B		P
7440-43-9	Cadmium	4.9			P
7440-70-2	Calcium	63500			P
7440-47-3	Chromium	17.9			P
7440-48-4	Cobalt	9.0	B		P
7440-50-8	Copper	19.9			P
7439-89-6	Iron	18000			P
7439-92-1	Lead	11.0		N	F
7439-95-4	Magnesium	19200		*	P
7439-96-5	Manganese	405			P
7439-97-6	Mercury	0.03	U		CV
7440-02-0	Nickel	24.9			P
7440-09-7	Potassium	1520		E	P
7782-49-2	Selenium	0.35	U	WN	F
7440-22-4	Silver	1.6	B		P
7440-23-5	Sodium	93.0	B		P
7440-28-0	Thallium	0.42	B		F
7440-62-2	Vanadium	26.6			P
7440-66-6	Zinc	53.1			P
	Cyanide	0.57	U		C

Color Before: BROWN Clarity Before: SOIL Texture: COARSE

Color After: YELLOW Clarity After: SOIL Artifacts: _____

Comments:

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: [illegible]

Lab Code: EHRT__ Case No.: [illegible] SAS No.: _____ SDG No.: [illegible]

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _88.2 % Solids for Duplicate: __87.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		9440.5237		8905.5355		5.8		P
Antimony		4.5440	B	6.1754	B	30.4		P
Arsenic		11.6354		11.4151		1.9		F
Barium	44.2	59.9669		53.9075		10.6		P
Beryllium		0.5813	B	0.5830	B	0.3		P
Cadmium	1.1	4.9241		4.0874		18.6		P
Calcium		63488.3991		77529.9406		19.9		P
Chromium		17.8533		17.4956		2.0		P
Cobalt		9.0371	B	7.8467	B	14.1		P
Copper	5.5	19.8822		17.9145		10.4		P
Iron		17994.4990		16532.5074		8.5		P
Lead		11.0179		10.3770		6.0		F
Magnesium		19244.0471		30190.8109		44.3	*	P
Manganese		404.5696		388.9942		3.9		P
Mercury		0.0279	U	0.0281	U			CV
Nickel	8.8	24.9411		24.2008		3.0		P
Potassium	1105.1	1516.4344		1413.0708		7.1		P
Selenium		0.3526	U	0.3533	U			F
Silver		1.5935	B	2.1900	B	31.5		P
Sodium		92.9838	B	120.0883	B	25.4		P
Thallium		0.4187	B	0.4195	B	0.2		F
Vanadium	11.1	26.6142		26.9316		1.2		P
Zinc		53.0537		49.2970		7.3		P
Cyanide		0.5669	U	0.5669	U			C

23
24

C230

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

[redacted]

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: [redacted]

Lab Code: EHRT__ Case No.: [redacted] SAS No.: _____ SDG No.: [redacted]

Matrix (soil/water): SOIL__ Level (low/med): LOW___

% Solids for Sample: _88.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	51.1871		4.5440	B	110.40	42.2	N	P
Arsenic	75-125	21.1993		11.6354		8.81	108.6		F
Barium	75-125	488.5065		59.9669		441.59	97.0		P
Beryllium	75-125	10.8543		0.5813	B	11.04	93.1		P
Cadmium	75-125	14.5173		4.9241		11.04	86.9		P
Calcium									NR
omium	75-125	60.9330		17.8533		44.16	97.6		P
alt	75-125	112.9548		9.0371	B	110.40	94.1		P
Copper	75-125	73.7304		19.8822		55.20	97.6		P
Iron									NR
Lead	75-125	19.8330		11.0179		4.41	199.9	N	F
Magnesium									NR
Manganese	75-125	512.5092		404.5696		110.40	97.8		P
Mercury	75-125	0.3143		0.0279	U	0.28	112.2		CV
Nickel	75-125	126.5999		24.9411		110.40	92.1		P
Potassium									NR
Selenium	75-125	1.3442		0.3526	U	2.20	61.1	N	F
Silver	75-125	11.1060		1.5935	B	11.04	86.2		P
Sodium									NR
Thallium	75-125	10.5115		0.4187	B	11.02	91.6		F
Vanadium	75-125	131.8416		26.6142		110.40	95.3		P
Zinc	75-125	157.2486		53.0537		110.40	94.4		P
Cyanide	75-125	26.4529		0.5669	U	28.34	93.3		C

Comments:

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: [illegible]

Lab Code: EHRT Case No.: [illegible] SAS No.: _____ SDG No.: [illegible]

Solid LCS Source: EPA-LV

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				325.0	334.0		225.0	424.0	102.8
Antimony				211.0	200.9		127.0	294.0	95.2
Arsenic				917.0	1042.3		635.0	1199.0	113.7
Barium				4.8	3.4	B	0.0	40.0	70.8
Beryllium				19.4	17.8		16.5	22.3	91.8
Cadmium				45.4	42.1		35.7	55.1	92.
Calcium				19620.0	20257.4		16680.0	22560.0	103.
Chromium				99.6	95.0		79.2	120.0	95.4
Cobalt				144.0	133.5		125.0	162.0	92.7
Copper				6910.0	6727.2		6006.0	7820.0	97.4
Iron				22430.0	19481.1		17770.0	27080.0	86.9
Lead				236.0	245.9		188.0	285.0	104.2
Magnesium				118100.0	111916.1		100400.0	129900.0	94.8
Manganese				208.0	191.1		177.0	239.0	91.9
Mercury				12.7	16.7		8.5	17.0	131.5
Nickel				60.9	52.4		49.2	72.6	86.0
Potassium				50.0	60.1	B	0.0	1000.0	120.2
Selenium				39.2	40.4		19.1	59.4	103.1
Silver				22.2	22.0		15.5	29.0	99.1
Sodium				50.0	3.6	U	0.0	1000.0	0.0
Thallium				39.0	44.4		24.6	53.5	113.8
Vanadium				65.8	70.3		51.7	79.9	106.8
Zinc				187.0	146.0		138.0	236.0	78.1
Cyanide				5.6	5.3		4.3	6.9	94.6

24
25

C232

ENVIRONMENTAL HEALTH RESEARCH & TESTING

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2533_ Project: 15785_ Date Analyzed: 11/03/92_____

SOW No.: 3/90_

EPA Sample No.	Lab Sample ID
_026036_____	__002_____

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
____STRATFORD_ARMY_ENGINE_PLANT__ICP_NB314PG22_METHOD_6010/_____
____FURNACE_NB309PG89;NB316PG14&15_METHOD_AS7060_SE7740/_____
____COLD_VAPOR_NB312PG21_METHOD_HG7470_____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Geraldine S. Luna Name: GERALDINE S. LUNA

Date: 11/16/92 Title: QA/QC MANAGER

C233

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

026036

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2533_ Project: 15785_ Date Analyzed: 11/03/92_____

Matrix (soil/water): WATER Lab Sample ID: 002_____

Level (low/med): LOW__ Date Received: 10/28/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1150			P
7440-36-0	Antimony	18.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	11.3			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	4.0	U		P
7440-70-2	Calcium	20500			P
7440-47-3	Chromium	8.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	19.1	B		P
7439-89-6	Iron	381			P
7439-92-1	Lead	17.0	U		P
7439-95-4	Magnesium	6640			P
7439-96-5	Manganese	46.0			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	7.0	U		P
7440-09-7	Potassium	3420	B		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	74500			P
7440-28-0	Thallium	194	U		P
7440-62-2	Vanadium	3.0	U		P
7440-66-6	Zinc	270			P
	Tin				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

921026-H036__OF-SW

POST_DIGEST_SPIKE_(ARSENIC)_=_113%_RECOVERY

POST_DIGEST_SPIKE_(SELENIUM)_=_93%_RECOVERY

C234

ENVIRONMENTAL HEALTH RESEARCH & TESTING

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2533_ Project: 15785_ Date Analyzed: 11/03/92_____

Initial Calibration Source: SPEX_____

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum	5000.0	4909.00	98.2	5000.0	4847.00	96.9			P
Antimony	500.0	487.70	97.5	500.0	470.30	94.1			P
Arsenic	50.0	52.00	104.0	50.0	51.40	102.8			F
Barium	500.0	506.10	101.2	500.0	497.00	99.4			P
ryllium	500.0	489.50	97.9	500.0	486.40	97.3			P
dmium	500.0	515.70	103.1	500.0	521.80	104.4			P
alcium	5000.0	5135.00	102.7	5000.0	5177.00	103.5			P
Chromium	500.0	484.80	97.0	500.0	483.10	96.6			P
Cobalt	500.0	513.60	102.7	500.0	520.50	104.1			P
Copper	500.0	513.20	102.6	500.0	494.10	98.8			P
Iron	500.0	495.60	99.1	500.0	516.70	103.3			P
Lead	500.0	510.90	102.2	500.0	516.70	103.3			P
Magnesium	500.0	494.60	98.9	500.0	495.50	99.1			P
Manganese	500.0	506.50	101.3	500.0	503.40	100.7			P
Mercury	5.0	5.48	109.6	5.0	5.61	112.2			CV
Nickel	500.0	496.00	99.2	500.0	496.60	99.3			P
Potassium	5000.0	5073.00	101.5	5000.0	5034.00	100.7			P
Selenium	20.0	18.20	91.0	20.0	20.30	101.5			F
Silver	100.0	99.30	99.3	100.0	101.80	101.8			P
Sodium	5000.0	4973.00	99.5	5000.0	4854.00	97.1			P
Thallium	5000.0	4888.00	97.8	5000.0	4846.00	96.9			P
Vanadium	500.0	493.70	98.7	500.0	489.40	97.9			P
Zinc	500.0	508.50	101.7	500.0	513.20	102.6			P
Tin									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

C235

ENVIRONMENTAL HEALTH RESEARCH & TESTING

3
BLANKS

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2533_ Project: 15785_ Date Analyzed: 11/03/92_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	21.0	U	21.0	U					21.000	U	P
Antimony	18.0	U	18.0	U					18.000	U	P
Arsenic	1.0	U	1.0	U					1.000	U	F
Barium	2.0	U	2.0	U					2.000	U	P
Beryllium	1.0	U	1.0	U					1.000	U	P
Cadmium	4.0	U	4.0	U					4.000	U	P
Calcium	81.0	U	81.0	U					81.000	U	P
Chromium	8.0	U	8.0	U					8.000	U	P
Cobalt	3.0	U	3.0	U					3.000	U	P
Copper	11.0	U	11.0	U					11.000	U	P
Iron	4.0	U	4.0	U					4.000	U	P
Lead	17.0	U	17.0	U					17.000	U	P
Magnesium	12.0	U	12.0	U					20.300	B	P
Manganese	1.0	U	1.0	U					1.000	U	P
Mercury	0.1	U	0.1	U					0.100	U	CV
Nickel	7.0	U	7.0	U					7.000	U	P
Potassium	209.0	U	209.0	U					209.000	U	P
Selenium	2.0	U	2.0	U					2.000	U	F
Silver	4.0	U	4.0	U					4.000	U	P
Sodium	90.0	U	90.0	U					153.700	B	P
Thallium	194.0	U	194.0	U					194.000	U	P
Vanadium	3.0	U	3.0	U					3.000	U	P
Zinc	5.0	U	5.0	U					5.000	U	P
Tin											NR

C2364

ENVIRONMENTAL HEALTH RESEARCH & TESTING

4
ICP INTERFERENCE CHECK SAMPLE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2533_ Project: 15785_ Date Analyzed: 11/03/92___

ICP ID Number: SER# 49483__ ICS Source: _____

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	500000	500000	473800	473100.0	94.6	458700	457200.0	91.4
Antimony								
Arsenic								
Barium		500		512.1	102.4		495.8	99.2
Beryllium		500		476.4	95.3		460.3	92.1
Cadmium		1000		927.2	92.7		904.3	90.4
Calcium	500000	500000	460100	458500.0	91.7	452600	448100.0	89.6
Chromium		500		463.7	92.7		443.1	88.6
Cobalt		500		467.7	93.5		461.2	92.2
Copper		500		507.4	101.5		481.0	96.2
Iron	200000	200000	167900	168500.0	84.2	164000	163100.0	81.6
Lead		1000		1010.0	101.0		1011.0	101.1
Magnesium	500000	500000	475300	476100.0	95.2	463400	463300.0	92.7
Manganese		500		521.8	104.4		506.1	101.2
Mercury								
Nickel		1000		873.7	87.4		845.6	84.6
Potassium								
Selenium								
Silver		1000		974.5	97.4		948.9	94.9
Sodium								
Thallium								
Vanadium		500		444.3	88.9		434.3	86.9
Zinc		1000		899.7	90.0		878.8	87.9

C237

BATCH SPECIFIC

QUALITY CONTROL

METALS

Date Analyzed: 11/1/92

for

WO #2533

STRATFORD ARMY ENGINE PLANT

C238

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

~~022074~~

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2526_ Project: 15767_ Date Analyzed: 11/01/92_____

Matrix (soil/water): WATER Lab Sample ID: 008A_____

Level (low/med): LOW__ Date Received: 10/23/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_		_		NR
7440-36-0	Antimony_	1.0	U		F_
7440-38-2	Arsenic__	2.2	B		F_
7440-39-3	Barium___		_		NR
7440-41-7	Beryllium		_		NR
7440-43-9	Cadmium__	5.0	_		F_
7440-70-2	Calcium__		U		NR
7440-47-3	Chromium_	8.0	U		P_
7440-48-4	Cobalt___		U		NR
7440-50-8	Copper___	11.0	U		P_
7439-89-6	Iron____		U		NR
7439-92-1	Lead____	1.0	U		F_
7439-95-4	Magnesium		_		NR
7439-96-5	Manganese		_		NR
7439-97-6	Mercury__		_		NR
7440-02-0	Nickel___		_		NR
7440-09-7	Potassium		_		NR
7782-49-2	Selenium_		_		NR
7440-22-4	Silver___		_		NR
7440-23-5	Sodium___		U		NR
7440-28-0	Thallium_	1.0	U		F_
7440-62-2	Vanadium_		U		NR
7440-66-6	Zinc____	5.0	U		P_
	Tin_____		_		NR
			_		

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

921022-H074__RN-PS-2_____

FORM I - IN

ILMO2.1

C239

ENVIRONMENTAL HEALTH RESEARCH & TESTING

6
DUPLICATES

EPA SAMPLE NO.

~~022074~~D

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2526_ Project: 15767_ Date Analyzed: 11/01/92_____

Matrix (soil/water): WATER Level (low/med): _LOW__

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony		1.0000	U	1.0000	U			F
Arsenic		2.2000	B	1.0000	U	200.0		F
Barium								NR
Beryllium								NR
Cadmium	5.0	5.0000		3.2000	B	43.9		F
Calcium								NR
Chromium		8.0000	U	8.0000	U			P
Cobalt								NR
Copper		11.0000	U	11.0000	U			P
Iron								NR
Lead		1.0000	U	1.0000	U			F
Magnesium								NR
Manganese								NR
Mercury								NR
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium		1.0000	U	1.0000	U			F
Vanadium								NR
Zinc		5.0000	U	5.0000	U			P
Tin								NR

C240

ENVIRONMENTAL HEALTH RESEARCH & TESTING

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
~~022074S~~

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194

Work_Order: #2526_ Project: 15767_ Date Analyzed: 11/01/92

Matrix (soil/water): WATER_ Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	524.0000		1.0000	U	500.00	104.8		F
Arsenic	75-125	522.0000		2.2000	B	500.00	104.0		F
Barium									NR
Beryllium									NR
Cadmium	75-125	541.0000		5.0000		500.00	107.2		F
[illegible]cium									NR
[illegible]romium	75-125	495.1000		8.0000	U	500.00	99.0		P
Cobalt									NR
Copper	75-125	494.1000		11.0000	U	500.00	98.8		P
Iron									NR
Lead	75-125	501.0000		1.0000	U	500.00	100.2		F
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium	75-125	2115.0000		1.0000	U	2000.00	105.8		F
Vanadium									NR
Zinc	75-125	494.8000		5.0000	U	500.00	99.0		P
Tin									NR

Comments:
921022-H074 RN-PS-2

ENVIRONMENTAL HEALTH RESEARCH & TESTING

7

LABORATORY CONTROL SAMPLE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2526_ Project: 15767_ Date Analyzed: 11/01/92_____

Solid LCS Source: _____

Aqueous LCS Source: EPA-LV_____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony	1024.0	983.20	96.0						
Arsenic	50.4	51.70	102.6						
Barium									
Beryllium									
Cadmium	100.9	98.00	97.1						
Calcium									
Chromium	514.0	480.50	93.5						
Cobalt									
Copper	525.0	561.40	106.9						
Iron									
Lead	98.4	96.80	98.4						
Magnesium									
Manganese									
Mercury	5.0	4.82	96.4						
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium	100.7	109.00	108.2						
Vanadium									
Zinc	3052.0	2886.00	94.6						
Tin									

C242

ENVIRONMENTAL HEALTH RESEARCH & TESTING

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92_____

SOW No.: 3/90_

EPA Sample No.	Lab Sample ID
_102023_____	__001_____
_102027_____	__003_____
_102028_____	__004_____
_102032_____	__006_____
_102033_____	__007A_____
_102033D_____	__007B_____
_102033S_____	__007S_____

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
____STRATFORD_ARMY_ENGINE_PLANT___ICP_NB314PG33_METHOD_6010/_____
____FURNACE_NB316PG33&51_METHOD_AS7060_SE7740/_____
____COLD_VAPOR_NB312PG36_METHOD_HG7470/7471/_PERCENT_SOLIDS_NB306_____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Geraldine S. Luna Name: GERALDINE S. LUNA

Date: 12/3/92 Title: QA/QC MANAGER

C243

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

102023

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92_____

Matrix (soil/water): SOIL_ Lab Sample ID: 001_____

Level (low/med): LOW__ Date Received: 11/04/92

% Solids: _80.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2920			P
7440-36-0	Antimony	2.2	U		P
7440-38-2	Arsenic	6.8			F
7440-39-3	Barium	45.2			P
7440-41-7	Beryllium	0.25	B		P
7440-43-9	Cadmium	0.68			P
7440-70-2	Calcium	646			P
7440-47-3	Chromium	38.3			P
7440-48-4	Cobalt	4.2	B		P
7440-50-8	Copper	28.0			P
7439-89-6	Iron	10300			P
7439-92-1	Lead	5.7			P
7439-95-4	Magnesium	1350			P
7439-96-5	Manganese	77.2			P
7439-97-6	Mercury	0.06	U		CV
7440-02-0	Nickel	9.6			P
7440-09-7	Potassium	710			P
7782-49-2	Selenium	0.29	B		F
7440-22-4	Silver	0.48	U		P
7440-23-5	Sodium	1610			P
7440-28-0	Thallium	23.4	U		P
7440-62-2	Vanadium	10.1			P
7440-66-6	Zinc	52.9			P
	Tin				NR

Color Before: BROWN____ Clarity Before: _____ Texture: SOLID_

Color After: BROWN____ Clarity After: _____ Artifacts: _____

Comments:

921102-H023__07-0-12

POST_DIGEST_SPIKE_(ARSENIC)_=_107%_RECOVERY

POST_DIGEST_SPIKE_(SELENIUM)_=_90%_RECOVERY

FORM I - IN

ILMO2.1

C244

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

102027

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92

Matrix (soil/water): WATER Lab Sample ID: 003

Level (low/med): LOW Date Received: 11/04/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	51100			P
7440-36-0	Antimony	18.0	U		P
7440-38-2	Arsenic	42.8			F
7440-39-3	Barium	373			P
7440-41-7	Beryllium	3.7	B		P
7440-43-9	Cadmium	4.0	U		P
7440-70-2	Calcium	27900			P
7440-47-3	Chromium	4260			P
7440-48-4	Cobalt	70.6			P
7440-50-8	Copper	140			P
7439-89-6	Iron	74600			P
7439-92-1	Lead	64.8			P
7439-95-4	Magnesium	16500			P
7439-96-5	Manganese	9210			P
7439-97-6	Mercury	0.44			CV
7440-02-0	Nickel	73.4			P
7440-09-7	Potassium	36900			P
7782-49-2	Selenium	2.5	B		F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	83700			P
7440-28-0	Thallium	194	U		P
7440-62-2	Vanadium	105			P
7440-66-6	Zinc	264			P
	Tin				NR

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

921102-H027 ECD-4 TOTAL METALS ANALYSIS

POST_DIGEST_SPIKE_(ARSENIC)_=_114%_RECOVERY

POST_DIGEST_SPIKE_(SELENIUM)_=_88%_RECOVERY

FORM I - IN

ILMO2.1

C245

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

102028

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92_____

Matrix (soil/water): WATER Lab Sample ID: 004_____

Level (low/med): LOW__ Date Received: 11/04/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	29.7	B		P
7440-36-0	Antimony	18.0	U		P
7440-38-2	Arsenic	3.1	B		F
7440-39-3	Barium	49.8			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	4.0	U		P
7440-70-2	Calcium	24000			P
7440-47-3	Chromium	3540			P
7440-48-4	Cobalt	4.4	B		P
7440-50-8	Copper	11.0	U		P
7439-89-6	Iron	92.4	B		P
7439-92-1	Lead	17.0	U		P
7439-95-4	Magnesium	5760			P
7439-96-5	Manganese	234			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	13.0	B		P
7440-09-7	Potassium	29400			P
7782-49-2	Selenium	2.7	B		F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	81900			P
7440-28-0	Thallium	194	U		P
7440-62-2	Vanadium	3.6	B		P
7440-66-6	Zinc	7.6	B		P
	Tin				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

921102-H028__ECD-4__DISSOLVED_METALS_ANALYSIS_____

C246

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

102032

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92_____

Matrix (soil/water): WATER Lab Sample ID: 006_____

Level (low/med): LOW__ Date Received: 11/04/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15900			P
7440-36-0	Antimony	18.0	U		P
7440-38-2	Arsenic	34.5			F
7440-39-3	Barium	59.7			P
7440-41-7	Beryllium	1.4	B		P
7440-43-9	Cadmium	4.0	U		P
7440-70-2	Calcium	24800			P
7440-47-3	Chromium	30.2			P
7440-48-4	Cobalt	24.4	B		P
7440-50-8	Copper	117			P
7439-89-6	Iron	55700			P
7439-92-1	Lead	39.9			P
7439-95-4	Magnesium	8210			P
7439-96-5	Manganese	1500			P
7439-97-6	Mercury	0.35			CV
7440-02-0	Nickel	15.4	B		P
7440-09-7	Potassium	10500			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	27000			P
7440-28-0	Thallium	194	U		P
7440-62-2	Vanadium	32.3	B		P
7440-66-6	Zinc	109			P
	Tin				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

921102-H032__WC-15__TOTAL_METALS_ANALYSIS_____

C247

ENVIRONMENTAL HEALTH RESEARCH & TESTING

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

102033

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92_____

Matrix (soil/water): WATER Lab Sample ID: 007A_____

Level (low/med): LOW__ Date Received: 11/04/92

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	36.6	B		P_
7440-36-0	Antimony_	18.0	U		P_
7440-38-2	Arsenic__	1.0	U		F_
7440-39-3	Barium___	11.0			P_
7440-41-7	Beryllium	1.0	U		P_
7440-43-9	Cadmium__	4.0	U		P_
7440-70-2	Calcium__	21300			P_
7440-47-3	Chromium_	8.0	U		P_
7440-48-4	Cobalt___	8.5	B		P_
7440-50-8	Copper___	11.0	U		P_
7439-89-6	Iron_____	2680			P_
7439-92-1	Lead_____	17.0	U		P_
7439-95-4	Magnesium	5500			P_
7439-96-5	Manganese	1110			P_
7439-97-6	Mercury__	0.10	U		CV
7440-02-0	Nickel___	7.0	U		P_
7440-09-7	Potassium	7040			P_
7782-49-2	Selenium_	2.0	U		F_
7440-22-4	Silver___	4.0	U		P_
7440-23-5	Sodium___	28600			P_
7440-28-0	Thallium_	194	U		P_
7440-62-2	Vanadium_	3.0	U		P_
7440-66-6	Zinc_____	7.7	B		P_
_____	Tin_____	_____	_		NR
_____	_____	_____	_		__

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

921102-H033__WC-15__DISSOLVED_METALS_ANALYSIS_____

C248

ENVIRONMENTAL HEALTH RESEARCH & TESTING

6
DUPLICATES

EPA SAMPLE NO.
102033D

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92_____

Matrix (soil/water): WATER Level (low/med): _LOW__

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		36.6000	B	34.3000	B	6.5		P
Antimony		18.0000	U	18.0000	U			P
Arsenic		1.0000	U	2.8000	B	200.0		F
Barium	5.0	11.0000		11.2000		1.8		P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		4.0000	U	4.0000	U			P
Calcium	5000.0	21320.0000		21310.0000		0.0		P
Chromium		8.0000	U	8.0000	U			P
Cobalt		8.5000	B	8.9000	B	4.6		P
Copper		11.0000	U	11.0000	U			P
Iron		2679.0000		2675.0000		0.1		P
Lead		17.0000	U	17.0000	U			P
Magnesium	5000.0	5500.0000		5451.0000		0.9		P
Manganese		1108.0000		1108.0000		0.0		P
Mercury		0.1000	U	0.1000	U			CV
Nickel		7.0000	U	7.0000	U			P
Potassium	5000.0	7044.0000		7116.0000		1.0		P
Selenium		2.0000	U	2.0000	U			F
Silver		4.0000	U	4.0000	U			P
Sodium		28650.0000		28500.0000		0.5		P
Thallium		194.0000	U	194.0000	U			P
Vanadium		3.0000	U	3.0000	U			P
Zinc		7.7000	B	10.3000	B	28.9		P
Tin								NR

C249

ENVIRONMENTAL HEALTH RESEARCH & TESTING

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
102033S

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92___

Matrix (soil/water): WATER_ Level (low/med): LOW___

% Solids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2110.0000		36.6000	B	2000.00	103.7		P
Antimony	75-125	487.3000		18.0000	U	500.00	97.5		P
Arsenic	75-125	508.0000		1.0000	U	500.00	101.6		F
Barium	75-125	517.1000		11.0000		500.00	101.2		P
Beryllium	75-125	494.9000		1.0000	U	500.00	99.0		P
Cadmium	75-125	505.7000		4.0000	U	500.00	101.1		P
Calcium									NR
Chromium	75-125	480.7000		8.0000	U	500.00	96.1		P
Cobalt	75-125	513.2000		8.5000	B	500.00	100.9		P
Copper	75-125	504.3000		11.0000	U	500.00	100.9		P
Iron	75-125	4686.0000		2679.0000		2000.00	100.4		P
Lead	75-125	492.9000		17.0000	U	500.00	98.6		P
Magnesium									NR
Manganese	75-125	1592.0000		1108.0000		500.00	96.8		P
Mercury	75-125	4.7900		0.1000	U	5.00	95.8		CV
Nickel	75-125	493.2000		7.0000	U	500.00	98.6		P
Potassium									NR
Selenium	75-125	427.0000		2.0000	U	500.00	85.4		F
Silver	75-125	405.0000		4.0000	U	500.00	81.0		P
Sodium									NR
Thallium	75-125	1783.0000		194.0000	U	2000.00	89.2		P
Vanadium	75-125	485.7000		3.0000	U	500.00	97.1		P
Zinc	75-125	508.2000		7.7000	B	500.00	100.1		P
Tin									NR

Comments:
921102-H033__WC-15__DISSOLVED_METALS_ANALYSIS

C250

ENVIRONMENTAL HEALTH RESEARCH & TESTING

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92_____

Initial Calibration Source: SPEX_____

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum	5000.0	4914.00	98.3	5000.0	4936.00	98.7			P
Antimony	500.0	483.10	96.6	500.0	488.00	97.6			P
Arsenic	50.0	49.10	98.2	50.0	47.30	94.6	47.80	95.6	F
Barium	500.0	514.90	103.0	500.0	514.20	102.8			P
Beryllium	500.0	502.50	100.5	500.0	502.00	100.4			P
Cadmium	500.0	530.00	106.0	500.0	520.20	104.0			P
Calcium	5000.0	5203.00	104.1	5000.0	5207.00	104.1			P
Chromium	500.0	497.30	99.5	500.0	490.60	98.1			P
Cobalt	500.0	530.00	106.0	500.0	523.90	104.8			P
Copper	500.0	516.00	103.2	500.0	517.60	103.5			P
Iron	500.0	510.80	102.2	500.0	507.50	101.5			P
Lead	500.0	512.90	102.6	500.0	517.20	103.4			P
Magnesium	500.0	513.00	102.6	500.0	510.20	102.0			P
Manganese	500.0	517.90	103.6	500.0	512.80	102.6			P
Mercury	5.0	4.50	90.0	5.0	4.30	86.0			CV
Nickel	500.0	510.80	102.2	500.0	507.60	101.5			P
Potassium	5000.0	5240.00	104.8	5000.0	5195.00	103.9			P
Selenium	20.0	21.50	107.5	20.0	21.40	107.0	19.00	95.0	F
Silver	100.0	100.50	100.5	100.0	98.20	98.2			P
Sodium	5000.0	5089.00	101.8	5000.0	5077.00	101.5			P
Thallium	5000.0	4830.00	96.6	5000.0	4909.00	98.2			P
Vanadium	500.0	493.10	98.6	500.0	495.50	99.1			P
Zinc	500.0	516.40	103.3	500.0	514.60	102.9			P
Tin									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

C251

ENVIRONMENTAL HEALTH RESEARCH & TESTING

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92_____

Initial Calibration Source: SPEX_____

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found 3	%R(1)	Found 4	%R(1)	M
Aluminum									NR
Antimony									NR
Arsenic				50.0	47.10	94.2	47.90	95.8	F
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Tin									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

C25

ENVIRONMENTAL HEALTH RESEARCH & TESTING

3
BLANKS

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	21.0	U	21.0	U					21.000	U	P
Antimony	18.0	U	18.0	U					18.000	U	P
Arsenic	1.0	U	1.0	U	1.0	U	1.0	U	1.000	U	F
Barium	2.0	U	2.0	U					2.000	U	P
Beryllium	1.0	U	1.0	U					1.000	U	P
Cadmium	4.0	U	4.0	U					4.000	U	P
Calcium	81.0	U	81.0	U					81.000	U	P
Chromium	8.0	U	8.0	U					8.000	U	P
Cobalt	3.6	B	3.0	U					3.000	U	P
Copper	11.0	U	11.0	U					11.000	U	P
Iron	4.0	U	4.0	U					4.000	U	P
Lead	17.0	U	17.0	U					17.000	U	P
Magnesium	12.0	U	12.0	U					12.000	U	P
Manganese	1.0	U	1.0	U					1.000	U	P
Mercury	0.1	U	0.1	U					0.100	U	CV
Nickel	7.0	U	7.0	U					7.000	U	P
Potassium	209.0	U	209.0	U					209.000	U	P
Selenium	2.0	U	2.0	U	2.0	U			2.000	U	F
Silver	4.0	U	4.0	U					4.000	U	P
Sodium	90.0	U	90.0	U					90.000	U	P
Thallium	194.0	U	194.0	U					194.000	U	P
Vanadium	3.0	U	3.0	U					3.000	U	P
Zinc	5.0	U	5.0	U					5.000	U	P
Tin											NR

C253

ENVIRONMENTAL HEALTH RESEARCH & TESTING

3
BLANKS

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92_____

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum									2.100	U	P
Antimony									1.800	U	P
Arsenic			1.0	U					0.100	U	F
Barium									0.200	U	P
Beryllium									0.100	U	P
Cadmium									0.400	U	P
Calcium									8.100	U	P
Chromium									0.800	U	P
Cobalt									0.340	B	P
Copper									1.100	U	P
Iron									0.400	U	P
Lead									1.700	U	P
Magnesium									1.200	U	P
Manganese									0.100	U	P
Mercury									0.050	U	CV
Nickel									0.700	U	P
Potassium									20.900	U	P
Selenium									0.200	U	F
Silver									0.400	U	P
Sodium									9.000	U	P
Thallium									19.400	U	P
Vanadium									0.300	U	P
Zinc									0.500	U	P
Tin											NR

C254

ENVIRONMENTAL HEALTH RESEARCH & TESTING

4
ICP INTERFERENCE CHECK SAMPLE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92___

ICP ID Number: SER# 49483__ ICS Source: _____

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	500000	500000	486200	489800.0	98.0	490000	494700.0	98.9
Antimony								
Arsenic								
Barium		500		527.8	105.6		528.4	105.7
Beryllium		500		507.8	101.6		492.7	98.5
Cadmium		1000		999.2	99.9		945.5	94.6
Calcium	500000	500000	484200	495200.0	99.0	474200	478100.0	95.6
Chromium		500		474.9	95.0		475.8	95.2
Cobalt		500		499.9	100.0		482.6	96.5
Copper		500		518.0	103.6		529.8	106.0
Iron	200000	200000	173400	177400.0	88.7	172900	174900.0	87.4
Lead		1000		1084.0	108.4		1009.0	100.9
Magnesium	500000	500000	488600	494500.0	98.9	492500	497600.0	99.5
Manganese		500		563.4	112.7		540.3	108.1
Mercury								
Nickel		1000		917.3	91.7		903.7	90.4
Potassium								
Selenium								
Silver		1000		953.5	95.4		953.6	95.4
Sodium								
Thallium								
Vanadium		500		471.3	94.3		465.0	93.0
Zinc		1000		997.3	99.7		959.1	95.9

C25

ENVIRONMENTAL HEALTH RESEARCH & TESTING

7

LABORATORY CONTROL SAMPLE

Lab Name: ENV._HEALTH_RESEARCH_TEST Contract: 1194_____

Work_Order: #2555_ Project: 15827_ Date Analyzed: 11/10/92_____

Solid LCS Source: _____

Aqueous LCS Source: EPA-LV_____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	1878.0	1787.00	95.2						
Antimony	1024.0	951.40	92.9						
Arsenic	50.4	46.40	92.1						
Barium	1891.0	1848.00	97.7						
Beryllium	478.0	486.00	101.7						
Cadmium	493.0	474.30	96.2						
Calcium	48810.0	46990.00	96.3						
Chromium	480.0	455.90	95.0						
Cobalt	487.0	467.20	95.9						
Copper	486.0	538.30	110.8						
Iron	1962.0	1834.00	93.5						
Lead	4739.0	4750.00	100.2						
Magnesium	23860.0	23140.00	97.0						
Manganese	474.0	466.80	98.5						
Mercury	5.0	4.47	89.4						
Nickel	488.0	478.10	98.0						
Potassium	49180.0	46620.00	94.8						
Selenium	50.3	48.90	97.2						
Silver	478.0	430.80	90.1						
Sodium	46800.0	46090.00	98.5						
Thallium									
Vanadium	482.0	461.50	95.7						
Zinc	2921.0	2766.00	94.7						
Tin									

C256

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Project: Stratford Army Engine Plant (#1341)
Date Sample Taken: 29 Jul 92 **Customer Sample No:** WC-8S
Date Sample Received: 30 Jul 92 **Lab Sample No:** 920730-H024
Sample Description: Water W/Seds

Analysis Proc. No.	Analysis	Result	Units	Detection Limits	Date Completed
EPA-335.2	Total Cyanide	u	mg/L	0.01	11 Aug 92

u: Below Detection Limit

Analyst: Gene McKenzie Date Extracted: 07 Aug 92

Approved by: Thomas V. Arra Date: 11-20-92

C257

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Project: Stratford Army Engine Plant (#1341)
Date Sample Taken: **Customer Sample:**
Date Sample Received: **Lab Sample No:** Method Blank
Sample Description: Water

Analysis Proc. No.	Analysis	Result	Units	Detection Limits	Date Completed
EPA-335.2	Total Cyanide	u	mg/L	0.01	11 Aug 92

u: Below Detection Limit

Analyst: Gene McKenzie Date Extracted: 07 Aug 92

Approved By: Glenn N. Arne Date: 11-20-92

C258

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Project: Stratford Army Engine Plant (#1341)
Lab Sample No: Method Blank Spike
Sample Description: Water
Analysis Procedure: EPA-9010
Comment:

Analyst: Gene Mckenzie

Analysis	Sample Results	Spike Added	Conc MS+	Rec MS	QC Limits %Rec
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CN	u	0.040	0.0385	96	75-125
Units	mg/L	mg/L	mg/L	%	%

\+ Date Extracted: 07 Aug 92 Date Analyzed: 11 Aug 92

Final Extracted Volume: 250 mL

CN = Cyanide

Res = Result
Rec = Recovery
MS = Matrix Spike

Approved By: Prem N. Arora Date: 11.20.92

C259

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Matrix Duplicate

Project: Stratford Army Engine Plant (#1341)
Lab Sample No: 920804-H003 Project (#1132)
Sample Description: Soil
Sample Container Used: 1-8 oz glass
Comment: Water
Analysis Procedure: EPA-9010
Analyst: Gene Mckenzie

Analysis	Sample Run # 1	Results Run # 2	RPD	Acceptable RPD	Detection Limit
Cyanide	u	u	NC	25	25
Units	mg/kg	mg/kg	%	%	mg/kg

Date Extracted: 11 Aug 92 Date Analyzed: 07 Aug 92

RPD = Relative Percent Difference

RPD = [Run 1 - Run 2] x 100 / [(Run 1 + Run 2) / 2]

Approved By: Prem. N. Arora Date: 11.20.92

2260

ENVIRONMENTAL HEALTH RESEARCH AND TESTING, INC.

RESULT SHEET

CUSTOMER NAME: U.S. ARMY CORPS OF ENGINEERS

SAMPLE SOURCE: Stratford Army Engine Plant

WORK ORDER: 2533 PROJECT NO.: 15785

ANALYSIS PERFORMED: Cyanide (EPA 9012)

DATE ANALYZED: 11/10/92 LAB NOTEBOOK NO.: 236, Pg. 84

SAMPLE NO. EHRT NO.	CUSTOMER NO.	SAMPLE DESCRIPTION	MATRIX	RESULTS (mg/L)
15785-001	921026-H035	OF-SW	Water	0.011
		QUALITY CONTROL		
Method Blank	N/A	N/A	Water	BDL
Blank Spike	N/A	N/A	Water	87% Recovery
Laboratory Control Sample (EPA)	N/A	N/A	Water	88% Recovery

Detection Limit: < 0.010 mg/L

C261

ENVIRONMENTAL HEALTH RESEARCH AND TESTING, INC.

RESULT SHEET

CUSTOMER NAME: U.S. ARMY CORPS OF ENGINEERS

SAMPLE SOURCE: Stratford Army Engine Plant

WORK ORDER: 2555 PROJECT NO.: 15827

ANALYSIS PERFORMED: Cyanide (EPA 9012)

DATE ANALYZED: 11/10/92 LAB NOTEBOOK NO.: 236, Pg. 84

SAMPLE NO. EHRT NO.	CUSTOMER NO.	SAMPLE DESCRIPTION	MATRIX	RESULTS
15827-001	921102-H023	07-0-12	Solid	< 0.50 mg/kg
15827-005	921102-H029	ECD-4	Water	0.20 mg/L
		QUALITY CONTROL		
Method Blank	N/A	N/A	Soil	< 0.50 mg/kg
Method Blank	N/A	N/A	Water	< 0.010 mg/L
Blank Spike	N/A	N/A	Water	80% Recovery
Laboratory Control Sample (EPA)	N/A	N/A	Soil	76% Recovery
Laboratory Control Sample (EPA)	N/A	N/A	Water	93% Recovery