

INSTALLATION RESTORATION PROGRAM

DECISION DOCUMENT

SITE SS-003
FUEL OIL SPILL (BUILDING 205)

PLATTSBURGH AIR FORCE BASE PLATTSBURGH, NEW YORK

FINAL



MAY 1990

Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831
operated by
Martin Marietta Energy Systems, Inc.
for the
U.S. DEPARTMENT OF ENERGY

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Prepared for:

HAZWRAP SUPPORT CONTRACTOR OFFICE OAK RIDGE NATIONAL LABORATORY OAK RIDGE, TENNESSEE

Operated by:

MARTIN MARIETTA ENERGY SYSTEMS, INC.

FOR THE

U.S. DEPARTMENT OF ENERGY

UNDER CONTRACT 128-97386C

Prepared by:

E.C. JORDAN CO. PORTIAND, MAINE Job No. 5329-36

MAY 1990

TECHNICAL DOCUMENT TO SUPPORT NO FURTHER ACTION

RECORD OF DECISION

SITE NAME AND LOCATION

Installation Restoration Program Site Heating Oil Spill (Building 205), Site SS-003 Plattsburgh AFB, New York

STATEMENT OF BASIS

This decision is based on the results of Installation Restoration Program (IRP) Phase I Records Search and Site Inspection studies conducted at Plattsburgh AFB, with reports dated April 1985 and July 1989, respectively.

DESCRIPTION OF THE SELECTED REMEDY

Based on the current conditions at IRP Site SS-003, it has been determined that no significant risk or threat to public health or the environment exists. Therefore, it has been determined that no further action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) is required.

DECLARATION

This decision document represents the selected action for this site developed in accordance with CERCLA, as amended by the Superfund Amendment and Reauthorization Act of 1986 (SARA), and the National Contingency Plan (NCP). It has been determined that the selected remedy of no further action is protective of human health and the environment, attains Federal and State requirements that are applicable or relevant and appropriate, and is cost-effective. The statutory preference for further treatment is not satisfied because treatment was found to be impracticable. Contaminant levels at the site were determined to present no significant threat to human health or the environment; thus, no treatment is necessary.

STEVEN G. JOSEPH Colonel, USAF

Commander, 380th Combat Support Group

29 MAY 90

20 May 90

Date

DAVID M. JAMESON, JR.
Colonel, USAF

Vice Commander, 380th Bombardment Wing

INSTALLATION RESTORATION PROGRAM REMEDIAL INVESTIGATION/FEASIBILITY STUDY PLATTSBURGH AIR FORCE BASE PLATTSBURGH, NEW YORK

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SITE SS-003 DECISION DOCUMENT PLATTSBURGH AIR FORCE BASE

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1.0 INTRODUCTION

This Decision Document (1) describes the history of the Plattsburgh Air Force Base (AFB) fuel oil spill at Building 205 (Site SS-003) (2) presents the rationale for and results of field investigations at this site, (3) presents results of the public health and ecological risk assessments for the site, and (4) explains why no further action is recommended for this site. Site SS-003 was identified initially in the Phase I Records Search, a preliminary assessment of Plattsburgh AFB conducted by Radian Corporation (Radian) (Radian Corporation, 1985). Site SS-003 was further investigated by E.C. Jordan Co. (Jordan) during the Site Inspection (SI) Study (E.C. Jordan Co., 1989). On the basis of those results, no further action is recommended for this site.

Site SS-003 was formerly designated Site SP-2. Site SP-2 was officially changed to SS-003 because IRP site designations were restructured for programming and tracking requirements.

2.0 SITE DESCRIPTION AND HISTORY

Site SS-003 is located in the "old base housing area" at the northern end of the base (Figures 1 and 2). As part of the former Phase I Installation Restoration Program (IRP) studies, Radian conducted a records search regarding Site SS-003. Appendix A compares former IRP terminology and the currently used CERCIA terminology. Radian's findings are summarized in the following paragraphs.

In 1982, a leak was detected in a No. 2 fuel oil underground storage tank (UST) located next to Building 205 (the fuel oil was used to heat Building 205). Initially, fuel oil was found by a fisherman at a city storm sewer outfall discharging to the Saranac River. The storm sewer outfall was traced back to the Plattsburgh AFB storm sewer system and subsequently back to the leaking fuel oil UST. Fuel oil leaked to an existing underground tile drain designed to regulate the groundwater level in the area. The tile drain discharges to a base storm sewer, which connects to the city storm sewer system and discharges to the Saranac River.

Base personnel estimated that approximately 1,000 gallons of fuel oil leaked from the UST before the problem was discovered. According to Plattsburgh AFB personnel, the 550-gallon UST constructed of fiberglass-reinforced plastic was installed in 1979 at approximately 2 feet below ground surface. In 1982, the leaking UST was replaced with a steel UST of the same capacity buried at approximately the same depth. The leaking UST was removed along with several cubic feet of surrounding soil. Absorbent pads and booms were placed in the drainage path to collect fuel oil draining from the UST. These were maintained until material was no longer observed on the surface of the water.

Because a leak of potentially hazardous material was discovered, the site received a Hazard Assessment Rating Methodology score of 54. Based on its Phase I report, Radian recommended that Phase II studies (i.e., Confirmation/Quantification) be undertaken at the site.



3.0 SITE INSPECTION RESULTS

Jordan's Site Inspection Study for Site SS-003 investigated potential No. 2 fuel-oil-related soil contamination near the tank and tile drainfield. Exploration and sampling techniques included the following:

- o completion of a soil gas survey to determine the presence or absence of volatile organic compounds (VOCs) in the soils
- o collection of one surface water sample from the city storm sewer discharge at the Saranac River
- o completion of two soil borings to investigate the potential for residual fuel oil contamination

Soil gas samples were analyzed on-site with a portable gas chromatograph. Surface water and soil samples were analyzed in the laboratory. Field activities investigating Site SS-003 and results of laboratory analyses are summarized in Section 3.1 through Section 3.3. A summary of the data validation is presented in Section 3.4.

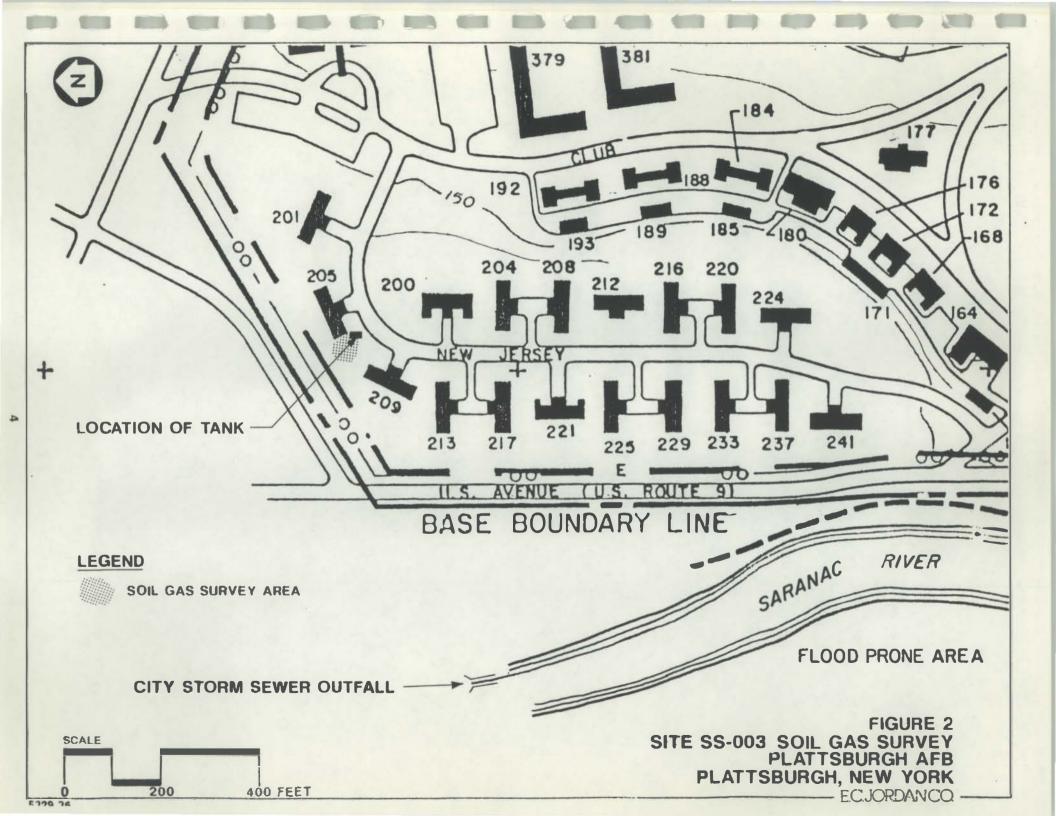
Limited information exists for this site concerning geology and hydrogeology. Explorations at Site SS-003 consisted of two hand-auger borings to 6 feet in depth. Soils encountered consisted of sand, silty sand, and clay. Groundwater is anticipated to be shallow; less than 10 feet below ground surface based on local hydrogeological information. Groundwater was not encountered in either boring during exploration activities.

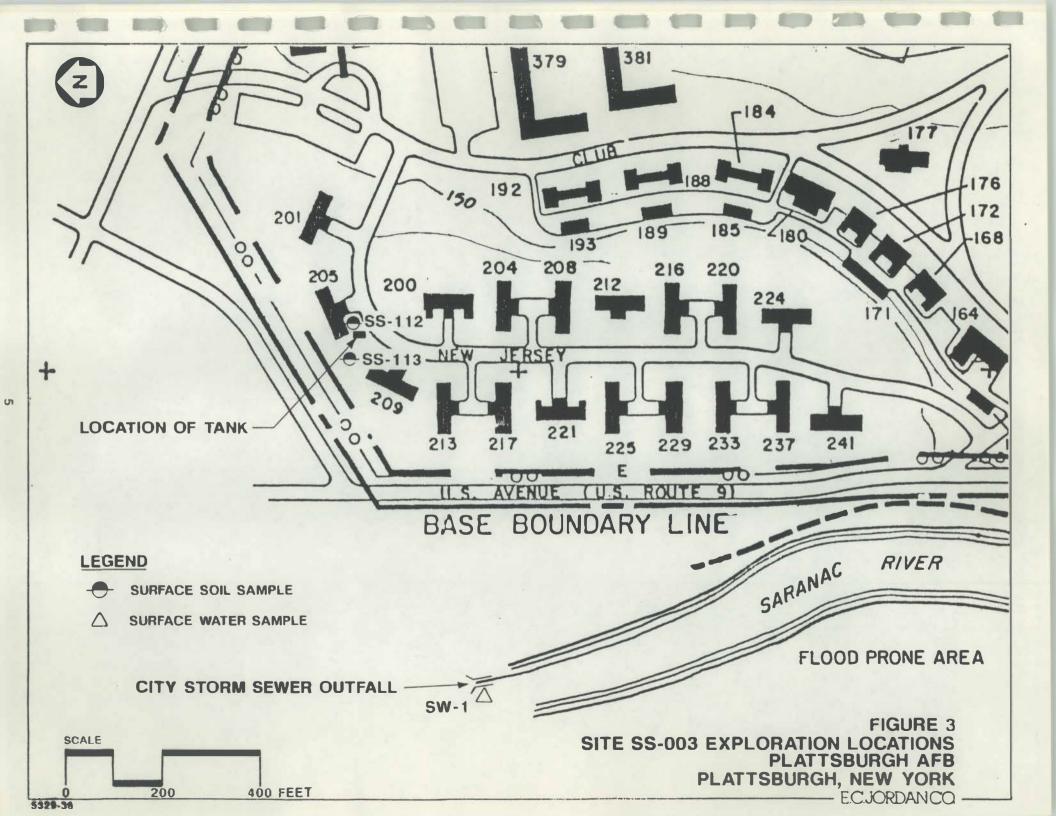
3.1 Soil Gas Survey

On October 16, 1987, a soil gas survey was conducted west of Building 205 at Site SS-003 (see Figure 2). A soil gas survey, primarily used to locate soil sampling points, provides unconfirmed volatile organic results by using head space readings as indicators of soil contamination. Five probes to depths of 5 feet below ground surface were completed. Soil gas samples were analyzed for benzene, toluene, xylene, trichloroethane, trichloroethylene, and perchloroethylene. Trace concentrations of benzene, toluene, and xylene all fuel-related compounds, were detected in three of the six samples (including one duplicate). Trichloroethane was not detected in any of the samples. Low levels of trichloroethylene were detected in all six samples and low levels of perchloroethylene were detected in five of the six samples. Results of the soil gas survey are in Appendix B.

3.2 Surface Water

On December 9, 1987, one surface water sample (SW-1) was collected at the city storm sewer outfall on the Saranac River (Figure 3). The surface water sampling location was selected because the local drainage system represents the likely migration pathway for residual contaminants. As stated in Section 2.0, the tile drain was installed to regulate the groundwater level in the area. The tile drain discharges to the base storm sewer, and subsequently to the city storm sewer which outfalls to the Saranac River.





The surface water sampling results appear in summary data Table 1. The sample was analyzed for VOCs and petroleum hydrocarbons (PHCs); neither were detected. The VOC and PHC analyses were performed in accordance with Contract Laboratory Program (CLP) Caucus Organic Protocol (COP), and U.S. Environmental Protection Agency (USEPA) Method 418.1.

3.3 Soil

On November 10, 1987, two hand-auger soil borings, SS-112 (located within the excavation area of the former tank) and SS-113 (located within the downgradient soil gas survey area between the former UST location and the storm sewer outfall), were drilled west of Building 205 to a depth of 6 feet (see Figure 3). Eighteen soil samples were collected (including six duplicate samples). Selected samples were analyzed for some or all of the following compounds: VOCs, semivolatile organic compounds (SVOCs), and PHCs. VOC and SVOC analyses were performed in accordance with CLP-COP. PHC analyses were performed using USEPA Method 418.1.

Results of the VOC, SVOC, and PHC analyses for SS-112 are presented in summary data Table 2. VOCs were not detected at 1-, 2-, and 3-foot depths. SVOC analyses were not requested for the 1-, 2-, or 3-foot samples. PHCs were not detected in the 1- and 2-foot samples. The 3-foot sample was taken in duplicate; low levels of PHCs (82 milligrams per kilogram [mg/kg]) were detected in the first sample; PHCs were not analyzed for in the duplicate sample. The 4-foot sample was collected in duplicate and analyzed for VOCs and SVOCs. Acetone was estimated (26 μ g/kg) and not detected in the duplicate. Xylene was detected in the sample (300 ug/kg) and estimated in the duplicate (470 ug/kg). Ethylbenzene was detected in the sample (150 $\mu g/kg$) and estimated in the duplicate (100 μ g/kg). SVOC analyses in the first 4-foot sample estimated elevated concentrations of phenanthrene (8,000 μg/kg) and 2-methylnaphthalene (18,000 μg/kg). Duplicate samples collected at 5 feet were analyzed for VOCs; results were consistent. Ethylbenzene (estimated at 200 and 260 μ g/kg), xylenes (estimated at 480 and 610 $\mu g/kg$), and a low concentration of toluene (estimated at 33 ug/kg in the duplicate sample only) were detected. The 5-foot sample also contained elevated concentrations of PHCs (6,900 mg/kg). One sample, collected at 6 feet was analyzed for VOCs and PHCs. VOCs were not detected and PHCs were detected at 160 mg/kg.

Selected samples from SS-113 were analyzed for VOCs and PHCs (summary data Table 2). 2-Butanone (27 μ g/kg) was estimated in the 1-foot sample; low levels of PHCs were found at 1 and 2 feet (25 and 33 mg/kg, respectively).

3.4 Data Validation Summary

The following is a review of the laboratory sample and quality control data associated with samples collected from site SS-003 on November 10, 1987. One surface water sample (JSWP-2X01) was collected at the storm sewer outfall on the Saranac River. The sample was analyzed for VOCs and PHCs. Two soil borings were completed west of building 205 to a depth of 6 feet, and 12 soil samples and 6 duplicate samples (S2XSS11201, S2XSS11202, S2XSS11203, S2DSS11203, S2XSS11204, S2DSS11204, S2XSS11205, S2DSS11205, S2XSS11206, S2XSS11301,

S2XSS11302, S2DSS11302, S2XSS11303, S2XSS11304, S2DSS11304, S2XSS11305, S2DSS11305, S2XSS11306) were collected. Samples were analyzed for some or all of the following parameters: VOCs, SVOCs, and PHCs.

3.4.1 Quality Assurance. The sample data were reviewed and evaluated in accordance with USEPA Region I "Laboratory Data Validation; Functional Guidelines for Evaluating Inorganic and Organic Analyses", 1988. Laboratory and field blanks, laboratory and field duplicate analyses, surrogate recoveries, calibrations, field notes, chain-of-custody documentation, and analytical sequences were reviewed. The data were also reviewed for outliers and technical credibility versus the sample setting.

3.4.2 Analytical Analyses. The analytical analyses for VOCs, SVOCs, and PHCs are reviewed in this section.

Volatile Organics

The following samples were evaluated for method blank contamination for acetone and methylene chloride, and the corrected results were all non-detects: S2XSS11201, S2XSS11202, S2XSS11203, S2DSS11203, S2DSS11204, S2XSS11204, S2XSS11205, S2DSS11205, S2XSS11206, S2XSS11301, S2XSS11302, S2DSS11303, S2XSS11304, S2DSS11304, S2XSS11305, S2XSS11306.

Sample S2DSS11204 was blank corrected for chloroform; the corrected result was non-detect.

The 2-butanone results were all reported by the laboratory as non-detects but were rejected for the following samples because the calibration response factor was below the acceptance limit: S2XSS11201, S2XSS11202, S2XSS11203, S2DSS11204, S2XSS11204, S2XSS11205, S2DSS11205, S2XSS11206, S2XSS11302, S2DSS11302, S2XSS11303, S2XSS11304, S2DSS11304, S2XSS11305, S2DSS11306.

The positive 2-butanone result for S2XSS11301 was estimated because the calibration response factor was below the acceptance limits.

The sample result for S2DSS11204 was corrected because of a reporting error. The result reported for chlorobenzene in the SI Report (E.C. Jordan Co., 1989) was actually ethylbenzene, and this change is reflected in the data tables presented within this report. The sample was also analyzed outside of hold time, and the entire volatile fraction is reported as estimated.

Sample S2DSS11205 had high surrogate recovery for toluene-8; the reported values for ethylbenzene and total xylenes are estimated.

Sample S2XSS11205 total xylene result is reported as estimated since the reported value exceeded the instrument's calibration range.

Semivolatile Organics

Sample S2XSS11204 was extracted beyond the hold time; therefore all results are reported as estimated for this fraction.

Petroleum Hydrocarbons

PHC results were not validated due to insufficient supporting documentation.

4.0 PUBLIC HEALTH AND ECOLOGICAL RISK ASSESSMENTS

This section presents results of the public health and ecological risk assessments based on site history, current usage, and field investigations.

4.1 Public Health Risk Assessment

PHCs were the only site-related contaminants detected in the surface soil at site SS-003. As a source of exposure to humans, soil contaminants are generally a concern only to depths of 1 foot. Site SS-003 located in the "old base housing area", is easily accessible to children, who could be exposed to site-related contaminants from direct contact with and/or ingestion of soil during play activities. However, because the levels of PHCs detected in surface soil were low (25 mg/kg in sample SS-113), and the site size is small (i.e., less than 100 square feet), the risk assessment found that exposures and potential health risks are negligible. Although fuel oil was discharged to the Saranac River via the storm sewer during the spill, no site-related contaminants were detected in surface water near the outfall. Therefore, exposure via direct contact with and/or ingestion of surface water is not a concern.

4.2 Ecological Risk Assessment

Contamination at this site does not appear to be adversely affecting the natural environment. PHCs were the only site-related contaminants detected in the surface soil at site SS-003 (25 mg/kg in SS-113). Risk-based standards have not been developed for PHCs, however, fuel-related compounds are not known to bioconcentrate in the terrestrial food chain. The site is located in a developed area providing limited habitat for wildlife, indicating that species diversity and population densities are low, which further reduces the likelihood of significant exposure.

Migration of fuel oil from the UST to the storm sewer and subsequently into the Saranac River could have resulted in toxic effects to aquatic biota. However, no VOCs or PHCs were detected in a water sample collected from the storm sewer outfall indicating that migration of contaminants from the site to the Saranac River no longer occurs. Therefore, the site does not appear to be adversely affecting aquatic biota in the Saranac River.

4.3 Conclusions

Based on the risk assessment of the low concentrations of PHCs detected at Site SS-003 and the relatively small size of the site, potential public health

risks associated with exposure at the site are negligible. Additionally, because the site is located in a developed area providing minimal wildlife habitat, exposure is unlikely. Also, the chemicals reported are not prone to bioconcentration in the terrestrial food chain. Because there is no likely route of exposure for terrestrial wildlife, ecological risks due to contamination are minimal or nonexistent.

5.0 REMEDIAL ALTERNATIVES

Because results of the public health and ecological risk assessments indicate that concentrations of fuel-related contaminants detected in Site SS-003 surface soils pose negligible risks, remediation of this site is unwarranted under present conditions. The remedial alternative recommended for this site is no further action. In the event of a future site activity requiring excavation of subsurface soil (e.g., removal or replacement of the existing UST) site conditions should be reevaluated to address potential risks such as worker exposure to contaminated subsurface soil.

6.0 RATIONALE FOR NO FURTHER ACTION

The spill source at Site SS-003 has been removed. Based on results from the SI study and the public health and ecological risk assessments it is concluded that there is currently no significant threat to public health or environment at Site SS-003. On the basis of these findings, it is recommended that this site be removed from further consideration in the IRP process.

TABLE 1

PROJECT: Plattsburgh

SURFACE WATER SAMPLE - SS-003 (SP-2) Fuel Oil Spill (Building 205)

19-Har-90

SAMPLE LOCATION: JSWSP-2X01 LAB NUMBER: 171315	SAMPLE 1D:	SW-1
LAB NUMBER: 171315	SAMPLE LOCATION:	JSWSP-2X01
	LAB NUMBER:	171315
DATE SAMPLED: 12/09/89	DATE SAMPLED:	12/09/89
DATE ANALYZED: 12/14/87	DATE AHALYZED:	12/14/87

ANALYTE UNITS: Ug/L

CPOL

	UNITS: ug/L	CRQL	
	Chloromethane	10	
	Bromomethane	10	
	Vinyl Chloride	10	
	Chloroethane	10	
	Methylene Chloride	5	
	Acetone	10	
	Carbon Disulfide		
	1, 1-Dichloroethene	5	
	1 1-Dichlereethere	2	•
	1, 1-Dichloroethane	2	
	1,2-Dichloroethene (total)	5	
	Chloroform	5 5 5 5 5	-
	1,2-Dichloroethane		-
	2-Butanone	10	
	1,1.1-Trichloroethane	5	
)	Carbon Tetrachloride	5	
	Vinyl Acetate	10	
	Bromodichloromethane	5 5 5 5 5 5	
	1,2-Dichtoropropane	5	
	Cis-1,3-Dichloropropene	5	
	Trichloroethene	5	
	Dibromochloromethane	5	
	1,1,2-Irlchloroethane	5	
	Benzene	5	
	Trans-1,3-Dichloropropene	5	
	Bronoform	5	
	4-Methyl · 2-Pentanone	10	
	2-Hexanone	10	*
	Tetrachloroethene	5	
	1,1,2,2-Tetrachloroethane	5	
	Toluene	5	
	Chlorobenzene	5 5 5	
	Ethylbenzene	5	
	Styrene	5	
	Xylene (Total)	5	

Dilution factor; 1

Associated Method Blank: CB871214C13

TABLE 1, cont.

PROJECT: Plattsburgh

SURFACE WATER SAMPLE AMALYSIS- SS-003 (SP-2) Fuel Oil Spill (Building 205)

19-Mar-90

SAMPLE ID: SW-1
SAMPLE LOCATION: JMWSP-2X01
LAB NUMBER: 171297
DATE SAMPLED: 12/09/87
DATE ANALYZED: 12/17/87

ANALYTE UNITS: Mg/L

DL

Total Petroleum Hydrocarbons

Page 1

TABLE 2

PROJECT: Plattsburgh SOIL BORING SAMPLE ANALYSIS - SS-003 (SP-2) Fuel Oil Spill (Building 205)

19-Mar-90

SAMPLE LOC	UMBER: (Ft.): MPLED:	SS-112 S2XSS11201 164661 1 11/10/87 11/21/87	\$\$-112 \$2X\$\$11202 164663 2 11/10/87 11/21/87	\$\$-112 \$2X\$\$11203 164665 3 11/10/87 11/21/87	\$\$-1120 \$20\$\$11203 164667 3 11/10/87 11/21/87	SS-112 S2XSS11204 164940 4 11/10/87 11/21/87	\$\$-112D \$2D\$\$11204 164668 4 11/10/87 11/25/87	\$\$-112 \$2x\$\$11205 164669 5 11/10/87 11/21/87	\$\$-1120 \$20\$\$11205 164685 5 11/10/87 11/21/87
ANALYTE UNITS: ug/kg	CRQL								
Chloromethane	10								
Brononiethane	10								
Vinyl Chloride	10								
Chloroethane	10								
Methylene Chloride	5								-
Acetone	10		-			26 J			
Carbon Disutfide	5								
1,1-Dichtoroethene	5								
1,1-Dichloroethane	5								
1.2-Dichloroethene (total)	5								
Chloroform	5								
1,2.Dichtoroethane	5								
2. Butanone	10	R	R	R	R	R	R	R	R
1,1,1-Trichtoroethane	5			. "	2 "	. "		4	- "
Carbon Tetrachloride	5								
Vinyl Acetate	10								
Bromodichloromethane	5								
1,2-Dichloropropane	5								
Cis-1,3-Olchloropropene	5				-				
Irlchloroethene	5			-					
Dibramochloromethane	5								
1,1,2-Irlchloroethane	5								
Benzene	5								-
Trans-1,3-Dichloropropene	5								
Bromoform	5								
4-Methyl-2-Pentanone	10								
2-Hexanone	10								-
Tetrachloroethene	5								-
1,1,2,2-Tetrachtoroethane	5								
Toluene	5								33 J
Chlorobenzene	5								33 0
Ethylbenzene	5					150	100 J	200	260 EJ
Styrene	5							-	200 20
Xylene (Total)	5					300	470 J	480 EJ	610 EJ
Dilution f		=======================================	1	1		***************************************	2.5	1	:=====================================
Percent S		94	97	94	96	79	84	85	83
Associated Method			GB871121C13	G8871121C13	GB871121A13	GH066315C10	G0871124814		GC871121814

Page 1

TABLE 2, cont.

PROJECT: Plattsburgh

SOIL BORING SAMPLE AWALYSIS - SS-003 (SP-2) Fuel Oil Spill (Building 205)

19-Mar-90

SAMPLE LOC	UMBER: (ft.): MPLED:	SS-112 S2XSS11206 164689 6 11/10/87 11/21/87	SS-113 S2XSS11301 164694 1 11/10/87 11/21/87	SS-113 S2XSS11302 164713 2 11/10/87 11/21/87	SS-1130 S2DSS11302 164742 2 11/10/87 11/21/87	SS-113 S2xSS11303 164759 3 11/10/87 11/21/87	SS-113 S2XSS11304 164763 4 11/10/87 11/21/87	\$\$-1130 \$20\$\$11304 164766 4 11/10/87 11/21/87	SS-113 S2XSS11305 164767 5 11/10/87 11/21/87	
ANALYTE UNITS: ug/kg	CRQL									
Chloromethane	10		-							
Bromomethane	10							-		
Vinyl Chloride	10							-		
Chloroethane	10									
Methylene Chloride	5									
Acetone	10	-								
Carbon Disulfide	5				*			,		
1.1-Dichloroethene	5									
1,1-Dichloroethane	5									
1,2-Dichloroethene (total)	5									
Chloroform	5									
1,2-Dichloroethane	5									
2-Butanone	10	R	27 J	R	R	R	R	R	R	
1,1,1-Irichloroethane	5									
Carbon Tetrachloride	5								-	
Vinyl Acetate	10			*					-	
Bromodichloromethane	5									
1,2-Dichloropropane	5									
Cis-1,3-Dichloropropene	5	2						21		
Trichloroethene	5							2		
Dibromochloromethane	5								-	
1,1,2-Trichloroethane	5									
Benzene	5									
Trans-1,3-Dichloropropene	5					-				
Bromoform	5					*:				
4-Methyl-2-Pentanone	10				*					
2-Hexanone	10					-		*		
Tetrachloroethene	5					-				
1,1,2,2-Tetrachloroethane	5						-			
Toluene	5					-				
Chlorobenzene	5									
Ethylbenzene	5					-				
Styrene	5								*	
Xylene (Total)	5		100	+	*			*		
		=========								:=
Dilution F		1	1		1	1	1	71	1	
Percent S	olids:	83	83	81	82	76	81	71	77	4
Associated Hethod	Blank:	GC871121C14	GC871120A14	GC871121C14	G8871121C10	G8871121C10	GB871121C10	GB871121C10	GB871121C10	

PROJECT: Plattsburgh

SOIL BORING SAMPLE AMALYSIS - SS-003 (SP-2) Fuel Oil Spill (Building 205)

19-Mar-90

SAMPLE L DE DAT	SAMPLE ID: LOCATION: AB NUMBER: PTK (Ft.): E SAMPLED: ANALYZED:	5 11/10/89	\$\$-113 \$2x\$\$11306 164770 6 11/10/87 11/21/87
ANALYTE UNITS: ug/kg	CROL		
Chloromethane	10		
Bromomethane	10		
Vinyl Chloride	10		
Chloroethane	10		
Hethylene Chloride	5		
Acetone	10		
Carbon Disulfide	5		
1,1-Dichloroethene	5 5		
1,1-Dichloroethane		-	*
1,2-Dichloroethene (tota Chloroform	5		
1,2-Dichloroethane	5		
2-Butanone	10	R	
1,1,1-Trichloroethane	5	K	R
Carbon Tetrachloride	5		
Vinyl Acetate	10		
Bromodichloromethane	5		
1,2-Dichloropropane	5		
Cis-1,3-Dichloropropene	5		
Trichloroethene	5		
Dibromochloromethane	5		
1,1,2-Trichloroethane	5		
Benzene	5		
Trans-1,3-0ichloropropen			
Bronoform	5		
4-Methyl-2-Pentanone	10		
2-Hexanone	10		***
Tetrachloroethene	5		
1,1,2,2-Tetrachloroethane			
Toluene Chlorobenzene	5 5 5 5		
E thylbenzene	5		
Styrene	5	5	
Xylene (Total)	5		
=======================================			
	o Footon		1

Dilution Factor: Percent Solids: 75

Associated Nethod Blank: GB871121C10 GB871121C10

TABLE 2, cont.

PROJECT: Plattsburgh

SOIL BORING SAMPLE ANALYSIS - SS-003 (SP-2) Fuel Oil Spill (Building 205)

19-Har-90

SAMPLE ID:	SS-112
SAMPLE LOCATION:	S2XSS11204
LAB NUMBER:	164940
DEPTH (ft.):	4
DATE SAMPLED:	11/10/87
DATE EXTRACTED:	11/20/87
DATE ANALYZED:	12/01/87

ANALYTE

ANALYTE		
UNITS: U9/kg	CROL	
Phenol	330	
bis(2-Chloroethyl)ether	330	
2-Chlorophenol	330	
1,3-Dichlorobenzene	330	-
1,4-Dichlorobenzene	330	-
Benzyl alcohol	330	*
1,2-Dichlorobenzene	330	*
2-Methylphenol	330	
bis(2-Chloroisopropyl)ether	330	-
4-Methylphenol	330	-
N-Nitroso-di-n-propylamine	330	
Hexachloro	330	
Nitrobenzene	330	7.
Isophorone	330	*
2·Ni trophenol	330	
2,4-Dimethylphenol	330	*
Benzoic acid	1600	
bis(2-Chloroethoxy)methane	330	-
2,4-Dichlorophenol	330	
1,2,4-Trichlorobenzeno	330	
Naphthal ene	330	
4-Chloroaniline	330	
Hexachlorobutadiene	330	•
4-Chloro-3-Methylphenol	330	19000
2-Methylnaphthalene	330	18000 .
Hexachlorocyclopentadiene	330	
2,4,6-Trichlorophenol	330	
2,4,5-Trichlorophenol	1600	
2-Chloronaphthalene	330	
2-Nitroaniline	1600	
Dimethylphthalate	330	
Acenaphthylene	330	-
2,6-0 initrotoluene	330	

PROJECT: Plattsburgh

SOIL BORING SAMPLE ANALYSIS - SS-003 (SP-2) Fuel Oil Spill (Building 205)

19-Mar-90

SAMPLE ID:	SS-112
SAMPLE LOCATION:	S2XSS11204
LAB NUMBER:	164940
DEPTH (Ft.):	4
DATE SAMPLED:	11/10/87
DATE EXTRACTED:	11/20/87
DATE ANALYZED:	12/01/87

ANALYTE

UNITS: ug/kg	CRQL	
3-Witroaniline	1600	
Acenaphthene	330	
2,4-Dinitrophenol	1600	
4-Nitrophenol	1600	
Dibenzofuran	330	
2,4-Dinitrotoluene	330	
Diethylphthalate	330	
4-Chlorophenyl-phenylether	330	
fluorene	330	-
4.Nitroaniline	1600	-
4,6-Dinitro-2-methylphenol	1600	-
H-Nitrosodiphenylamine	330	-
4-Bromophenyl-phenylether	330	-
Hexach Lorobenzene	330	
Pentachlorophenol	1600	-
Phenanthrene	330	8000 J
Anthracene	330	
Di-n-butylphthalate	330	
fluoranthene	330	
Pyrene	330	
Butylbenzylphthalate	330	
3,3'-Dichlorobenzidine	660	
Benzo(a)Anthracene	330	
Chrysene	330	
bis(2-Ethylhexyl)phthalate	330	
Di-n-octylphthalate	330	
Benzo(b)fluoranthene	330	
Benzo(k)Fluoranthene	330	
Benzo(a)Pyrene	330	
Indeno(1,2,3-cd)pyrene	330	
Dibenz(a,h)anthracene	330	
Benzo(g,h,i,)perylene	330	

Dilution Factor: 5.0 Percent Solids: 79

Associated Method Blank: GH066636A16

TABLE 2, cont.

PROJECT: Plattsburgh SOIL BORING SAMPLE ANALYSIS - SP-2 Fuel Oil Spill (Building 205)

19-Mar-90

	SAMPLE ID: SAMPLE LOCATION: LAB NUMBER: DEPTH (Ft.):	SS-112 S2XSS11201 164662	SS-112 S2XSS11202 164664 2	SS-112 S2XSS11203 164666	SS-112 S2XSS11205 164672	SS-112 S2XSS11206 164692	SS-113 S2XSS11301 164704	SS-113 S2XSS11302 164717	SS-113 S2XSS11303 164761
	DATE SAMPLED: DATE ANALYZED:	11/10/87 11/25/87	11/10/87 11/25/87	11/10/87 11/25/87	11/10/87 11/25/87	11/10/87 11/25/87	11/10/87 12/31/87	11/10/87 11/25/87	11/10/87 11/25/87
ANALYTE UNITS: mg/kg	DL								
Total Petroleum H	ydrocarbons 25			82	6900	160	25	33	

TABLE 2, cont.

PROJECT: Plattsburgh

SOIL BORING SAMPLE ANALYSIS - SP-2 Fuel Oil Spill (Building 205)

19-Mar-90

SAMPLE ID:	SS-113	SS-113	SS-113
SAMPLE LOCATION:	S2XSS11304	S2XSS11305	S2XSS11306
LAB NUMBER:	164765	164768	164771
DEPTH (ft.):	4	5	6
DATE SAMPLED:	11/10/87	11/10/87	11/10/87
DATE ANALYZED:	11/25/87	11/25/87	11/25/87

ANALYTE

UNITS: mg/kg

DL

Total Petroleum Hydrocarbons 25

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

AFB Air Force Base

CERCLA Comprehensive Environmental Response, Compensation, and Liability

CLP Contract Laboratory Program
COP Caucus Organic Protocol

CRQL Contract Required Quantitation Limit

IRP Installation Restoration Program

mg/kg Milligrams Per Kilogram

NCP National Contingency Plan

PHC Petroleum Hydrocarbon

RI/FS Remedial Investigation/Feasibility Study

SI Site Inspection

SVOC Semivolatile Organic Compound

 μ g/kg Micrograms Per Kilogram μ g/L Micrograms Per Liter

USEPA U.S. Environmental Protection Agency

UST Underground Storage Tank

VOC Volatile Organic Compound

DEFINITION OF DATA QUALIFIERS

Organic Data Qualifiers

- J Indicates an estimated concentration because results are either below the contract required detection level (CRQL) or quality control criteria were not met.
- JJ Validation qualifier for concentrations below the CRQL.
- U Indicates that compound was analyzed but not detected.
- UJ Indicates that quantitation level was estimated because QC criteria were not met.
- B Indicates analyte was detected in both the sample and the associated laboratory method blank.
- E Indicates that the analyte concentration exceeded the calibration range of the GC/MS and that a re-analysis of a diluted sample is required.
- Indicates that sample concentration was obtained by dilution to bring result within calibration range.
- R Indicates that data is unusable because QC criteria were not met.
- Laboratory-defined qualifier used to provide additional information not covered by the other qualifiers.

Inorganic Data Qualifiers

- E The reported concentration is estimated because of the presence of an interference.
- J Indicates an estimated concentration because QC criteria were not met.
- R Indicates that data is unusable because QC criteria were not met.
- M Duplicate precision criteria were not met.
- N Spiked sample recovery not within control limits.
- The reported concentration was determined by the method of standard additions.
- Postdigestion spike for furnace atomic adsorption analysis is outside control limits.

DEFINITION OF DATA QUALIFIERS

- [] Concentration reported is below CRQL.
- * Duplicate analysis not within control limits.
- + Correlation coefficient for the method of standard additions was less than 0.995

Other Notations

NR - Analysis not requested.

NA - Analysis requested by not performed.

- - Compound analyzed but not detected.

REFERENCES

- E.C. Jordan Co., 1989. "Site Inspection Report"; Installation Restoration Program; Plattsburgh Air Force Base, New York; July 1989.
- Radian Corporation, 1985. "Installation Restoration Program, Phase I: Records Search, Plattsburgh AFB, New York"; U.S. Air Force; HQ SAC/DEPVQ; Offutt AFB, Nebraska; April 1985.

APPENDIX A

COMPARISON OF FORMER INSTALLATION RESTORATION PROGRAM
AND CERCLA TERMINOLOGY

The SI performed at Plattsburgh AFB originally was assigned within the four-phase IRP structure as the Site Confirmation Study (Phase II, Stage 1). The U.S. Air Force has since revised the terminology of stages within the IRP to correspond directly with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCIA) and the National Contingency Plan (NCP). A general comparison of the former IRP and CERCLA terminology follows:

CERCIA

Former IRP

Preliminary Assessment Site Inspection Remedial Investigation Feasibility Study Remedial Design Implementation/Operation

Phase I Records Search
Phase II Stage 1 Site Confirmation
Phase II Stage 2 Site Quantification
Phase IV(A) Alternative Analysis
Phase IV(B) Remedial Design
Phase IV(B) Implementation

In the IRP, Phase III was reserved for technology development and testing, which can be likened to treatability studies that may be conducted during the RI/FS process.

APPENDIX B

SOIL GAS SURVEY RESULTS

SS-003 - SOV SURVEY

PLATTSBURGH AFB

DATE: 10/16/87 HUMBER OF PROBES: 5

SAMPLE	MPLE DEPTH OF HALOCARBORS (nq/L)						, HYDROCARBORS (ug/L)			
HUMBER	PROBE (FT)	TCA	TCE	PCR	TOTAL	DENZENE	TOLUENE	XATENE	TOTAI,	
SP2-1	5	<1	2	2	4	0.19	0.91	0.58	1.68	
SP2-2	5	<1	4	3	7	<0.02	0.09	0.03	0.12	
SP2-3	5	<1	4	4	8	0.08	0.2	0.08	0.36	
SP2-4	5	<1	5	2	7	<0.02	<0.02	<0.02	<0.02	
SP2-4D	5	<1	7	2	9	<0.02	<0.02	<0.02	<0.02	
SP2-5	5	<1	6	<1	6	<0.02	<0.02	<0.02	<0.02	

MOTE: D denotes a duplicate sample.

APPENDIX C

SURFACE WATER AND SOIL SAMPLE RESULTS LABORATORY AND FLAGGED DATA TABLES

LABORATORY DATA TABLES

SAMPLE ID: SW-1
SAMPLE LOCATION: JSWSP-2X01
LAB NUMBER: 171315
DATE SAMPLED: 12/09/89
DATE ANALYZED: 12/14/87

ANALYTE UNITS: ug/L

UNITS: ug/L	CROL	
Chloromethane	10	10 U
Bromomethane	10	10 U
Vinyl Chloride	10	10 U
Chloroethane	10	10 U
Methylene Chloride	5	5 U
Acetone	10	10 U
Carbon Disulfide	5	5 U
1,1-Dichloroethene	5	5 U
1,1-Dichloroethane	5	5 U
1,2-Dichloroethene (total)	5 5 5 5	5 U 5 U 5 U
Chloroform	5	5 U
1,2-Dichloroethane	5	5 U
2-Butanone	10	10 U
1,1,1-Trichloroethane	5	5 U
Carbon Tetrachloride	5	5 U
Vinyl Acetate	10	10 U
Bromodichloromethane	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 u 5 u 5 u 5 u 5 u 5 u 5 u
1,2-Dichloropropane	5	5 U
Cis-1,3-Dichloropropene	5	5 U
Trichloroethene	5	5 U
Dibromochloromethane	5	2 0
1,1,2-Trichtoroethane	5	2 0
Benzene	5	5 0
Trans-1,3-Dichtoropropene Bromoform	5	5 U
4-Methyl-2-Pentanone	10	10 U
2- Hexanone	10	10 U
Tetrachtoroethene	5	5 U
1,1,2,2-Tetrachloroethane	5	5 U
Toluene	- 5	5 U
Chlorobenzene	5 5 5 5	5 U
Ethylbenzene	5	5 U
Styrene	5	5 U
Xylene (Total)	5	5 U
Afterie (Total)		, 0

Dilution Factor:

Associated Hethod Blank: CB871214C13

Page 1 PL2W-CV1

SAMPLE LOC LAB M DEPTH DATE SA	(Ft.):	\$\$-112 \$2x\$\$11201 164661 1 11/10/87	SS-112 S2XSS11202 164663 2 11/10/87	\$\$-112 \$2x\$\$11203 164665 3 11/10/87	\$\$-1120 \$20\$\$11203 164667 3 11/10/87	\$\$-112 \$2x\$\$11204 164940 4 11/10/87	SS-112D S2DSS11204 164668 4 11/10/87	SS-112 S2XSS11205 164669 5 11/10/87	\$\$-1120 \$20\$\$11205 164685 5 11/10/87
DATE ANA	ILYZED:	11/21/87	11/21/87	11/21/87	11/21/87	11/21/87	11/25/87	11/21/87	11/21/87
ANALYTE UNITS: ug/kg	CRQL								
Chloromethane	10	11 U	10 U	11 U	10 U	12 U	29 U	12 U	12 U
Bromomethane	10	11 U	10 U	11 U	10 U	12 U	29 U	12 U	12 U
Vinyl Chloride	10	11 U	10 U	11 U	10 U	12 U	29 U	12 U	12 U
Chloroethane	10	11 U	10 U	11 U	10 U	12 U	29 U	12 U	12 U
Methylene Chloride	5	10	6 B	3 JB	6 B	9.6 B	25 B	10 B	12 B
Acetone	10	39	16 B	11 U	49 B	26 B	19 JB	14 B	38 B
Carbon Disulfide	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
Chloroform	5	5 U	5 U	5 U	5 U	6.2 U	3 JB	6 U	6 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
2-Butanone	10	11 U	10 U	11 U	10 U	12 U	29 U	12 U	12 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
Carbon Tetrachloride	10	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
Vinyl Acetate Bromodichloromethane	5	5 U	10 U 5 U	11 U 5 U	10 U 5 U	12 U 6.2 U	29 U 15 U	12 U 6 U	12 U 6 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
Cis-1,3-Dichloropropene	5	5 U	5 0	5 U	5 U	6.2 U	15 U	6 U	6 U
Trichloroethene	Š	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
1, 1, 2-Trichloroethane	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
Benzene	5	2 1	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
Bromoform	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
4-Methyl-2-Pentanone	10	11 U	10 U	11 U	10 U	12 U	29 U	12 U	12 U
2- Hexanone	10	11 U	10 U	11 U	10 U	12 U	29 U	12 U	12 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
Toluene	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	33
Chlorobenzene	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	150	100 B	200	260 E
Styrene	5	5 U	5 U	5 U	5 U	6.2 U	15 U	6 U	6 U
Xylene (Total)	5	5 U	5 U	5 U	5 U	300	470 B	480 E	610 E
			==========						
Dilution Percent S		0/	07	0/	1	1.25		1	1
rercent	out ias:	94	97	94	96	79	84	85	83
Associated Method	Blank:	GB871121C13	GB871121c13	GB871121C13	GB871121A13	GHD66315C10	GD871124B14	GB871121C13	GC871121B14

SAMPLE LOC	UMBER: (Ft.): MPLED:	SS-112 S2XSS11206 164689 6 11/10/87 11/21/87	\$\$-113 \$2x\$\$11301 164694 1 11/10/87 11/21/87	SS-113 S2XSS11302 164713 2 11/10/87 11/21/87	SS-1130 S20SS11302 164742 2 11/10/87 11/21/87	\$\$-113 \$2x\$\$11303 164759 3 11/10/87 11/21/87	SS-113 S2XSS11304 164763 4 11/10/87 11/21/87	\$\$-1130 \$20\$\$11304 164766 4 11/10/87 11/21/87	SS-113 S2XSS11305 164767 5 11/10/87 11/21/87
ANALYTE UNITS: ug/kg	CRQL								
Chloromethane	10	12 U	12 U	12 U	12 U	13 U	12 U	14 U	13 U
romomethane	10	12 U	12 U	12 U	12 U	13 U	12 U	14 U	13 U
inyl Chloride	10	12 U	12 U	12 U	12 U	13 U	12 U	14 U	13 U
hloroethane	10	12 U	12 U	12 U	12 U	13 U	12 U	14 U	13 U
ethylene Chloride	5	25 B	14 B	20 B	23 B	17 B	17 B	19 B	20 B
cetone	10	68 B	14 B	42 B	21 B	13 U	18 8	13 JB	13 U
arbon Disulfide	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
,1-Oichloroethene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
,1-Dichloroethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
,2-Dichloroethene (total)	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 L
hloroform	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	61
,2-Dichloroethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	61
Butanone	10	12 U	27	12 U	12 U	13 U	12 U	14 U	13 t
, 1, 1-Trichloroethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	61
arbon Tetrachloride	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 L
inyl Acetate	10	12 U	12 U	12 U	12 U	13 U	12 U	14 U	13 U
romodichloromethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
2-Dichloropropane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	61
is-1,3-Dichloropropene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 (
richloroethene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	61
ibromochloromethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	61
,1,2-Trichloroethone	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	61
enzene rans-1,3-Dichloropropene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	61
romoform	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	61
-Methyl-2-Pentanone	10	12 U	12 U	6 U 12 U	6 U	7 U	6 U	7 U	61
- Hexanone	10	12 U	12 U	12 U	12 U 12 U	13 U 13 U	12 U	14 U	13 (
etrachloroethene	5	6 U	6 U	6 U	6 U	7 U	12 U	14 U	13 (
,1,2,2-Tetrachloroethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 1
oluene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 (
hlorobenzene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 (
thylbenzene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 (
tyrene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U 7 U	61
ylene (Total)	5	6 U	6 U	6 U	6 U	7 U	6 11	7 U	6 L
	======	==========	=======================================						
Dilution F	actor:	1	1	1	1	1	1	1	1
Percent S	olids:	83	83	81	82	76	81	71	77

SAMPLE LOC	ATION:	\$2D\$\$11305 164769	S2XSS11306 164770		
	(ft.):	5	6		
DATE SA	MPLED:	11/10/89	11/10/87		
DATE ANA	LYZED:	11/21/87	11/21/87		
ANALYTE					
UNITS: ug/kg	CRQL				
Chloromethane '	10	13 U	13 U		
Bromomethane	10	13 U	13 U		
Vinyl Chloride	10	13 U	13 U		
Chloroethane	10	13 U	13 U		
Methylene Chloride	5	19 B	22 B		
Acetone	10	23 B	26 B		
Carbon Disulfide	5	6 U	7 U		
1,1-Dichloroethene	5	6 U	7 U		
1,1-Dichloroethane 1,2-Dichloroethene (total)	5	6 U	7 U		
Chloroform	5	6 U	7 U		
1,2-Dichloroethane	5	6 U	7 U		
2-Butanone	10	13 U	13 U		
1,1,1-Trichloroethane	5	6 U	7 U		
Carbon Tetrachloride	5	6 U	7 U		
Vinyl Acetate	10	13 U	13 U		
Bromodichloromethane	5	6 U	7 U		
1,2-Dichloropropane	5	6 U	7 U		
Cis-1,3-Dichloropropene	5	6 U	7 U		
Trichloroethene	5 5 5 5 5	6 U	7 U		
Dibromochloromethane	5	6 U	7 U		
1,1,2-Trichloroethane	5	6 U	7 U		
Benzene	5	6 U	7 U		
Trans-1,3-Dichloropropene	5	6 U	7 U		
Bromoform	5	6 U	7 U		
4-Hethyl-2-Pentanone	10	13 U	13 U		
2-Hexanone Tetrachloroethene	5	13 U 6 U	13 U 7 U		
1, 1, 2, 2-Tetrachloroethane	5	6 U			
Toluene	5		`7 U		
Chlorobenzene	5	6 U	7 U		
Ethylbenzene	5 5 5	6 U	7 U 7 U		
Styrene	5	6 U	7 U		
Xylene (Total)	5	6 U	7 U		
	======				

SAMPLE ID: SS-1130

SS-113

Dilution Factor: Percent Solids: 77 75

Associated Method Blank: GB871121C10 GB871121C10 SAMPLE 1D: SS-112
SAMPLE LOCATION: S2XSS11204
LAB NUMBER: 164940
DEPTH (Ft.): 4
DATE SAMPLED: 11/10/87
DATE EXTRACTED: 11/20/87
DATE ANALYZED: 12/01/87

ANALYTE UNITS: ug/kg

CRQL

Phenol	330	2100 U
bis(2-Chloroethyl)ether	330	2100 U
2-Chlorophenol	330	2100 U
1,3-Dichlorobenzene	330	2100 U
1,4-Dichlorobenzene	330	2100 U
Benzyl alcohol	330	2100 U
1,2-Dichlorobenzene	330	2100 U
2-Methylphenol	330	2100 U
bis(2-Chloroisopropyl)ether	330	2100 U
4-Methylphenol	330	2100 U
N-Nitroso-di-n-propylamine	330	2100 U
Hexachloro	330	2100 U
Nitrobenzene	330	2100 U
1 sophorone	330	2100 U
2-Nitrophenol	330	2100 บ
2,4-Dimethylphenol	330	2100 U
Benzoic acid	1600	10000 U
bis(2-Chloroethoxy)methane	330	2100 U
2,4-Dichlorophenol	330	2100 U
1,2,4-Trichtorobenzene	330	2100 U
Naphthalene	330	2100 U
4-Chloroaniline	330	2100 U
Hexachlorobutadiene	330	2100 U
4-Chloro-3-Methylphenol	330	2100 U
2-Methylnaphthalene	330	18000
Hexachlorocyclopentadiene	330	2100 U
2,4,6-Trichlorophenol	330	2100 U
2,4,5-Trichlorophenol	1600	10000 U
2-Chloronaphthalene	330	2100 U
2-Nitroaniline	1600	10000 U
Dimethylphthalate	330	2100 U
Acenaphthylene	330	2100 U
2,6-Dinitrotoluene	330	2100 U

SOIL BORING SAMPLE ANALYSIS - SS-003 (SP-2) Fuel Oil Spill (Building 205)

19-Mar-90

SAMPLE ID: SS-112
SAMPLE LOCATION: S2XS\$11204
LAB NUMBER: 164940
DEPTH (Ft.): 4
DATE SAMPLED: 11/10/87
DATE EXTRACTED: 11/20/87
DATE ANALYZED: 12/01/87

ANALYTE

UNITS: Ug/kg CRQL

3-Nitroaniline	1600	10000 U
Acenaphthene	330	2100 U
2,4-Dinitrophenol	1600	10000 U
4-Nitrophenol	1600	10000 U
Dibenzofuran	330	2100 U
2,4-Dinitrotoluene	330	2100 U
Diethylphthalate	330	2100 U
4-Chlorophenyl-phenylether	330	2100 U
Fluorene	330	2100 U
4-Nitroaniline	1600	10000 U
4,6-Dinitro-2-methylphenol	1600	10000 U
N-Nitrosodiphenylamine	330	2100 U
4-Bromophenyl-phenylether	330	2100 U
Hexachlorobenzene	330	2100 U
Pentachlorophenol	1600	10000 U
Phenanthrene	330	8000
Anthracene	330	2100 U
Di-n-butylphthalate	330	2100 U
Fluoranthene	330	2100 U
Pyrene	330	1400 J
Butylbenzylphthalate	330	L 008
3,3'-Dichlorobenzidine	660	4200 U
Benzo(a)Anthracene	330	2100 U
Chrysene	330	2100 U
bis(2-Ethylhexyl)phthalate	330	2100 U
Di-n-octylphthalate	330	2100 U
Benzo(b)Fluoranthene	330	2100 U
Benzo(k)fluoranthene	330	2100 U
Benzo(a)Pyrene	330	2100 U
Indeno(1,2,3-cd)pyrene	330	2100 U
Dibenz(a,h)anthracene	330	2100 U
Benzo(g,h,i,)perylene	330	2100 U
		_100 0

Dilution Factor: 6.3
Percent Solids: 79

Associated Method Blank: GH066636A16

SOIL BORING SAMPLE ANALYSIS - SS-003 (SP-2) Fuel Oil Spill (Building 205)

19-Mar-90

	SAMPLE ID: SAMPLE LOCATION: LAB NUMBER:	\$\$-112 \$2X\$\$11201 164662	\$\$-112 \$2X\$\$11202 164664	SS-112 S2XSS11203 164666	\$\$-112 \$2X\$\$11205 164672	SS-112 S2XSS11206 164692	SS-113 S2XSS11301 164704	SS-113 S2XSS11302 164717	SS-113 S2XSS11303 164761
	DEPTH (Ft.):		. 2	3	5	6	1	2	3
	DATE SAMPLED: DATE ANALYZED:	11/10/87 11/25/87	11/10/87 11/25/87	11/10/87 11/25/87	11/10/87 11/25/87	11/10/87 11/25/87	11/10/87 12/31/87	11/10/87 11/25/87	11/10/87 11/25/87
ANALYTE UNITS: mg/kg	DL								
Total Petroleum H	ydrocarbons 25	25 U	25 U	82	6900	160	25	33	25 U

SOIL BORING SAMPLE ANALYSIS - SS-003 (SP-2) Fuel Oil Spill (Building 205)

19-Mar-90

SAMPLE ID:	SS-113	SS-113	SS-113
SAMPLE LOCATION:	S2XSS11304	S2XSS11305	S2XSS11306
LAB NUMBER:	164765	164768	164771
DEPTH (Ft.):	4	5	6
DATE SAMPLED:	11/10/87	11/10/87	11/10/87
DATE ANALYZED:	11/25/87	11/25/87	11/25/87

ANALYTE

UNITS: mg/kg

DL

Total Petroleum Hydrocarbons 25 25 U 25 U 25 U

SURFACE WATER SAMPLE ANALYSIS - SS-003 (SP-2) Fuel Oil Spill (Building 205)

19-Har-90

SAMPLE 1D: SW-1
SAMPLE LOCATION: JMWSP-2X01
LAB NUMBER: 171297
DATE SAMPLED: 12/09/87
DATE ANALYZED: 12/17/87

ANALYTE UNITS: mg/L

DL

Total Petroleum Hydrocarbons

1 υ

FLAGGED DATA TABLES

SAMPLE ID:	SW-1
SAMPLE LOCATION:	JSWSP-2x01
LAB NUMBER:	171315
DATE SAMPLED:	12/09/89
DATE ANALYZED:	12/14/87

	AN	AL	Y	ΙE	
UN	IT	S:	·	Ja	/L

UNITS: Ug/L	CRQL	
Chloromethane	10	10 U
Bromomethane	10	10 U
Vinyl Chloride	10	10 U
Chloroethane	10	10 U
Methylene Chloride	5	5 U
Acetone	10	10 U
Carbon Disulfide		5 U
1,1-Dichloroethene	5 5 5 5 5	5 U
1,1-Dichloroethane	5	5 U
1,2-Dichloroethene (total)	5	5 U
Chloroform	5	5 U
1,2-Dichloroethane	5	5 U
2-Butanone	10	10 UR
1,1,1-Trichloroethane		5 U
Carbon Tetrachloride	5	5 U
Vinyl Acetate	10	10 U
Bromodichloromethane		5 U
1,2-Dichloropropane	5 5 5 5 5 5 5 5	5 U
Cis-1,3-Dichloropropene	5	5 U
Trichloroethene	5	5 U
Dibromochloromethane	5	5 U
1,1,2-Trichloroethane	5	5 U
Benzene	5	5 U
Trans-1,3-Dichloropropene	5	5 0
Bromoform	5	5 U
4-Methyl-2-Pentanone	10	10 U
2-Rexanone	10	10 U
Tetrachloroethene		5 U
1,1,2,2-Tetrachloroethane	5	5 U
Toluene	ś	5 U
Chlorobenzene	5	5 11
Ethylbenzene	5	5 U 5 U
Styrene	5	5 U
Xylene (Total)	5 5 5 5 5	5 U
A) COLOR (TOTAL)	,	, ,

Dilution Factor: 1

Associated Method Blank: CB871214C13

SAMPLE II SAMPLE LOCATIO LAB NUMBE DEPTH (ft. DATE SAMPLE DATE ANALYZEI	N: S2 R:): D:	SS-112 2XSS11201 164661 1 11/10/87 11/21/87	SS-112 S2XSS11202 164663 2 11/10/87 11/21/87	\$5-112 \$2X\$\$11203 164665 3 11/10/87 11/21/87	SS-112D S2DSS11203 164667 3 11/10/87 11/21/87	SS-112 S2XSS11204 164940 4 11/10/87 11/21/87	SS-112D S2DSS11204 164668 4 11/10/87 11/25/87	SS-112 S2XSS11205 164669 5 11/10/87 11/21/87	\$\$-1120 \$20\$\$11205 164685 5 11/10/87 11/21/87
ANALYTE UNITS: ug/kg CR	QL								
Chloromethane	10	11 U	10 U	11 U	10 U	12 U	29 UJ	12 U	12 U
Bromomethane	10	11 U	10 U	11 U	10 U	12 U	29 UJ	12 U	12 U
Vinyl Chloride	10	11 U	10 U	11 U	10 U	12 U	29 UJ	12 U	12 U
Chloroethane	10	11 U	10 U	11 U	10 U	12 U	29 UJ	12 U	12 U
Methylene Chloride	5	10 U	6 U	5 U	6 U	9.6 U	25 UJ	10 U	12 U
Acetone	10	39 UJ	16 UJ	11 UJ	49 UJ	26 J	29 UJ	14 UJ	38 UJ
Carbon Disulfide	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
Chloroform	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
2-Butanone	10	11 UR	10 UR	11 UR	10 UR	12 UR	29 UR	12 UR	12 UR
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
Vinyl Acetate	10	11 U	10 U	11 U	10 U	12 U	29 UJ	12 U	12 U
Bromodichtoromethane	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
Trichloroethene	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
Dibromochtoromethane	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
Benzene	5	2 JJ	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
Bromoform	5	5 U	5 U	5 U	5 U	6.2 UJ	15 UJ	6 U	6 U
	10	11 U	10 U	11 U	10 U	12 U	29 UJ	12 U	12 U
	10	1 <u>1</u> U	10 U	11 U	10 U	12 U	59 NT	12 U	12 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
1, 1, 2, 2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
Toluene	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 UJ	33 J
Chlorobenzene	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	150	100 J	200	260 EJ
Styrene	5	5 U	5 U	5 U	5 U	6.2 U	15 UJ	6 U	6 U
Xylene (Total)	5	5 U	5 U	5 U	5 U	300	470 J	480 EJ	610 EJ
Dilution Facto		1	1	1		1	2.5	======================================	1
Percent Solid	s:	94	97	94	96	79	84	85	83
Associated Method Blan	k: GB8	871121c13	GB871121C13	GB871121C13	GB871121A13	GH066315C10	GD871124B14	GB871121C13	GC871121814

SAMPLE LOC LAB N	(ft.):	\$\$-112 \$2X\$\$11206 164689 6 11/10/87 11/21/87	\$\$-113 \$2x\$\$11301 164694 1 11/10/87 11/21/87	\$\$-113 \$2x\$\$11302 164713 2 11/10/87 11/21/87	\$\$-1130 \$20\$\$11302 164742 2 11/10/87 11/21/87	\$\$-113 \$2x\$\$11303 164759 3 11/10/87 11/21/87	\$\$-113 \$2x\$\$11304 164763 4 11/10/87 11/21/87	\$\$-1130 \$20\$\$11304 164766 4 11/10/87 11/21/87	SS-113 S2XSS11305 164767 5 11/10/87 11/21/87
AMALYTE UNITS: ug/kg	CRQL								
Chloromethane	10	12 U	12 U	12 U	12 U	13 U	12 U	14 U	13 U
Bromomethane	10	12 U	12 U	12 U	12 U	13 U	12 U	14 U	13 U
Vinyl Chloride	10	12 U	12 U	12 U	12 U	13 U	12 U	14 U	13 U
Chloroethane	10	12 U	12 U	12 U	12 U	13 U	12 U	14 U	13 U
Methylene Chloride	5	25 U	14 U	20 U	23 U	17 U	17 U	19 U	20 U
Acetone	10	68 UJ	14 UJ	42 UJ	21 U	13 U	18 U	14 U	13 U
Carbon Disulfide	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
1,1.Dichloroethene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
1,1-Dichloroethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
1,2-Dichloroethene (total)	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Chloroform	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
1,2-Dichloroethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
2-Butanone	10	12 UR	27 J	12 UR	12 UR	13 UR	12 UR	14 UR	13 UR
1,1,1-Trichloroethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Carbon Tetrachloride	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Vinyl Acetate	10	12 U	12 U	12 U	12 U	13 U	12 U	14 U	13 U
Bromodichloromethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
1,2-Dichloropropane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Cis-1,3-Dichloropropene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Trichloroethene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Dibromochloromethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
1, 1, 2-Trichloroethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Benzene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Trans-1,3-Dichloropropene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Bromoform 4-Methyl-2-Pentanone	10	6 U 12 U	6 U 12 U	6 U 12 U	6 U 12 U	7 U	6 U	7 U	6 U
2-Hexanone	10	12 U	12 U	12 U	12 U	13 U 13 U	12 U 12 U	14 U 14 U	13 U
Tetrachloroethene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	13 U 6 U
1,1,2,2.Tetrachloroethane	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Toluene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Chlorobenzene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
E thylbenzene	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Styrene	5	6 U	6 U	6 U	6 U	7 0	6 U	7 U	6 U
Xylene (Total)	5	6 U	6 U	6 U	6 U	7 U	6 U	7 U	6 U
Dilution F		1		=======================================	=======================================	=======================================	=======================================		4
Percent S		. 83	83	81	82	76	81	71	77
Associated Method	Blank:	GC871121C14	GC871120A14	GC871121C14	GB871121C10	GB871121C10	GB871121C10	GB871121C10	GB871121C10

	DEPTH DATE S	IPLE ID: DCATION: NUMBER: I (Ft.): SAMPLED: IALYZED:	SS-1130 S2DSS11305 164769 5 11/10/89 11/21/87		SS-113 S2XSS11306 164770 6 11/10/87 11/21/87
ANALYTE UNITS: ug/kg		CRQL			
Chloromethane Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Acetone Carbon Disulfide 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 2-Butanone 1,1,1-Trichloroetha Carbon Tetrachlorid Vinyl Acetate Bromodichloromethan 1,2-Dichloropropani Cis-1,3-Dichloropropani Cis-1,3-D	ane de de de de de de de de de de de de de	10 10 10 10 5 5 5 5 5 5 5 5 5 5 5 5 5 5	6 6 6 6 13 6 6 13 6 6 6 6 6 6 6 6 6 6 6	000000000000000000000000000000000000000	13 U 13 U 13 U 13 U 13 U 22 U 26 U 7 U 7 U 7 U 7 U 7 U 7 U 7 U 7 U 7 U 7
Styrene Xylene (Total)		5 5	_	U	7 U 7 U
	ilution Percent	Factor:	1 77		1 75

Associated Method Blank: GB871121C10

Page 3

GB871121C10

SOIL BORING SAMPLE ANALYSIS - SS-003 (SP-2) Fuel Oil Spill (Building 205)

19-Mar-90

SAMPLE ID: SS-112
SAMPLE LOCATION: S2XSS11204
LAB NUMBER: 164940
DEPTH (Ft.): 4
DATE SAMPLED: 11/10/87
DATE EXTRACTED: 11/20/87
DATE ANALYZED: 12/01/87

ANALYTE UNITS: ug/kg

CRQL

Phenol	330	2100 UJ
bis(2-Chloroethyl)ether	330	2100 UJ
2-Chlorophenol	330	2100 UJ
1,3-Dichlorobenzene	330	2100 UJ
1,4-Dichlorobenzene	330	2100 UJ
Benzyl alcohol	330	2100 UJ
1,2-Dichlorobenzene	330	2100 UJ
2-Methylphenol	330	2100 UJ
bis(2-Chloroisopropyl)ether	330	2100 UJ
4-Methylphenol	330	2100 UJ
N-Nitroso-di-n-propylamine	330	2100 UJ
Kexachloro	330	2100 UJ
Ritrobenzene	330	2100 UJ
Isophorone	330	2100 UJ
2-Ni trophenol	330	2100 UJ
2,4.Dimethylphenol	330	2100 UJ
Benzoic acid	1600	10000 UJ
bis(2-Chloroethoxy)methane	330	2100 UJ
2,4-Dichlorophenol	330	2100 UJ
1,2,4-Trichlorobenzene	330	2100 UJ
Naphthalene	330	2100 UJ
4-Chloroaniline	330	2100 UJ
Hexachlorobutadiene	330	2100 UJ
4-Chloro-3-Hethylphenol	330	2100 UJ
2-Methylnaphthalene	330	18000 J
Hexachlorocyclopentadiene	330	2100 UJ
2,4,6-Trichlorophenol	330	2100 UJ
2,4,5-Trichlorophenol	1600	10000 UJ
2-Chloronaphthalene	330	2100 UJ
2-Nitroaniline	1600	10000 UJ
Dimethylphthalate	330	2100 UJ
Acenaphthylene	330	2100 UJ
2,6-Dinitrotoluene	330	2100 UJ
-,	330	F 100 03

SAMPLE 1D: SS-112
SAMPLE LOCATION: S2XSS11204
LAB NUMBER: 164940
DEPTH (Ft.):
DATE SAMPLED: 11/10/87
DATE EXTRACTED: 11/20/87
DATE ANALYZED: 12/01/87

ANALYTE UNITS: ug/kg

CROL

3-Nitroaniline	1600	10000 UJ
Acenaphthene	330	2100 UJ
2,4-Dinitrophenol	1600	10000 UJ
4-Nitrophenol	1600	10000 UJ
Dibenzofuran	330	2100 UJ
2,4-Dinitrotoluene	330	2100 UJ
Diethylphthalate	330	2100 UJ
4-Chlorophenyl-phenylether	330	2100 UJ
Fluorene	330	2100 UJ
4-Nitroaniline	1600	10000 UJ
4,6-Dinitro-2-methylphenol	1600	10000 UJ
N-Nitrosodiphenylamine	330	2100 UJ
4-Bromophenyl-phenylether	330	2100 UJ
Hexachlorobenzene	330	2100 UJ
Pentachlorophenol	1600	10000 UJ
Phenanthrene	330	8000 J
Anthracene	330	2100 UJ
Di-n-butylphthalate	330	2100 UJ
Fluoranthene	330	2100 UJ
Pyrene	330	1400 JJ
Butylbenzylphthalate	330	800 JJ
3,31-Dichlorobenzidine	660	4200 UJ
Benzo(a)Anthracene	330	2100 UJ
Chrysene	330	2100 UJ
bis(2-Ethylhexyl)phthalate	330	2100 UJ
Di-n-octylphthalate	330	2100 UJ
Benzo(b)fluoranthene	330	2100 UJ
Benzo(k)Fluorenthene	330	2100 UJ
Benzo(a)Pyrene	330	2100 UJ
Indeno(1,2,3-cd)pyrene	330	2100 UJ
Dibenz(a,h)anthracene	330	2100 UJ
Benzo(g,h,i,)perylene	330	2100 UJ

Dilution Factor: 5.0

Dilution Factor: 5.
Percent Solids: 7

Associated Method Blank: GH066636A16

