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NAS CECIL FIELD, FL
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TECHNICAL MEMORANDUM REGARDING BEST MANAGEMENT PRACTICES PLAN FOR OPERABLE UNIT 8 (OU 8) SITE 3 STORMWATER RUNOFF GENERATED BY THE REMEDIAL ACTION AT NORTH FUEL FARM NAS CECIL FIELD FL

12/18/1995

ABB ENVIRONMENTAL SERVICES INC

NAS Cecil Field Administrative Record
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TECHNICAL MEMORANDUM

Date: December 18, 1995

To: Mike Goldston, P.E., Bryan Kizer - SOUTHDIV
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From: Robert C. Lunardini, Jr., P.E., ABB-ES
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Subject: Best Management Practices Plan for Site 3 Stormwater Generated by the Interim Remedial Action for the North Fuel Farm (NFF).

INTRODUCTION

This technical memorandum presents Best Management Practices (BMPs) for minimizing the stormwater runoff generated at Site 3 and makes recommendations for handling the stormwater that is generated. The site is currently being used to thermally treat petroleum contaminated soils from the NFF. Also presented in this technical memorandum are results from an initial sampling event, a decision tree and responsibility matrix, and proposed action levels for contaminants in stormwater.

BEST MANAGEMENT PRACTICES

The term best management practice refers to that practice which is used for a given set of conditions to achieve satisfactory water quality and quantity enhancement at minimal cost. BMPs include any type of pollution control measure including structural, regulatory, maintenance, education, or volume reduction action designed to minimize contaminated media into the environment. The goals of these BMPs are: reduction of stormwater pollutants, surface drainage improvements, and erosion/sedimentation control.

Non-structural BMPs will be employed at Site 3. Non-structural controls are those which are intended to improve stormwater quality by reducing the generation and accumulation of potential stormwater pollutants at their sources. These include the

following good housekeeping techniques on construction sites.

Isolation of Contaminated Stockpile Area. The contaminated soil and debris stockpile area should be isolated from the rest of the site using a lined berm. The berms on the west and southern portion of the noncontaminated area (see Figure 1) should be removed to allow stormwater to runoff. This practice will minimize the amount of potentially contaminated stormwater that is generated at the site.

Grading. The grading under the contaminated stockpile area should not be altered. Regrade the clean soil stockpile area to ensure that surface runoff is to the south - southwest away from the contaminated soil stockpile area.

Solids Control. Haybales should be placed across the entrance to the sump to intercept and filter runoff and control erosion of the contaminated soil stockpile area. By placing haybales at the sump entrance, the percent of total solids in the stormwater that drains into the sump will be minimal.

Covering of Contaminated Soil Stockpile Area. The contaminated soil stockpile should be covered with continuous geotextile fabric (20 mil minimum) that is placed over the entire stockpile area as well as the outer berms. The perimeter of the stockpile area can be anchored down with sandbags or with an equivalent weight. The contaminated soil stockpile area should be covered at the completion of each day's activities and prior to every storm event.

STORMWATER HANDLING RECOMMENDATIONS

If the BMPs are implemented the stormwater that is generated should be essentially contaminant free. Therefore, the first, and least expensive, option should be direct discharge from the sump onto the ground east of the site. An analytical program should accompany this action to insure the stormwater quality remains acceptable. This recommendation is consistent with those made in the technical memorandum "Stormwater Management at Remedial Sites on NAS Cecil Field" dated 12 May 1995.

A sample of the stormwater was collected from the sump on 11 December 1995. The sample was analyzed for VOCs, SVOCs, TOC, and metals, filtered and unfiltered. Results are attached. The results are nondetect for VOCs and SVOCs and a TOC concentration of 52.6 mg/l. The metals hits are summarized in Table 1 and compared to the values listed in the General Permit for discharge to a fresh water. Discharge from the sump is expected to percolate into the ground and should never reach the nearest surface water, Rowell Creek. The discharge may enter the upland area of the wetland adjacent to Rowell Creek however, no impact is anticipated.

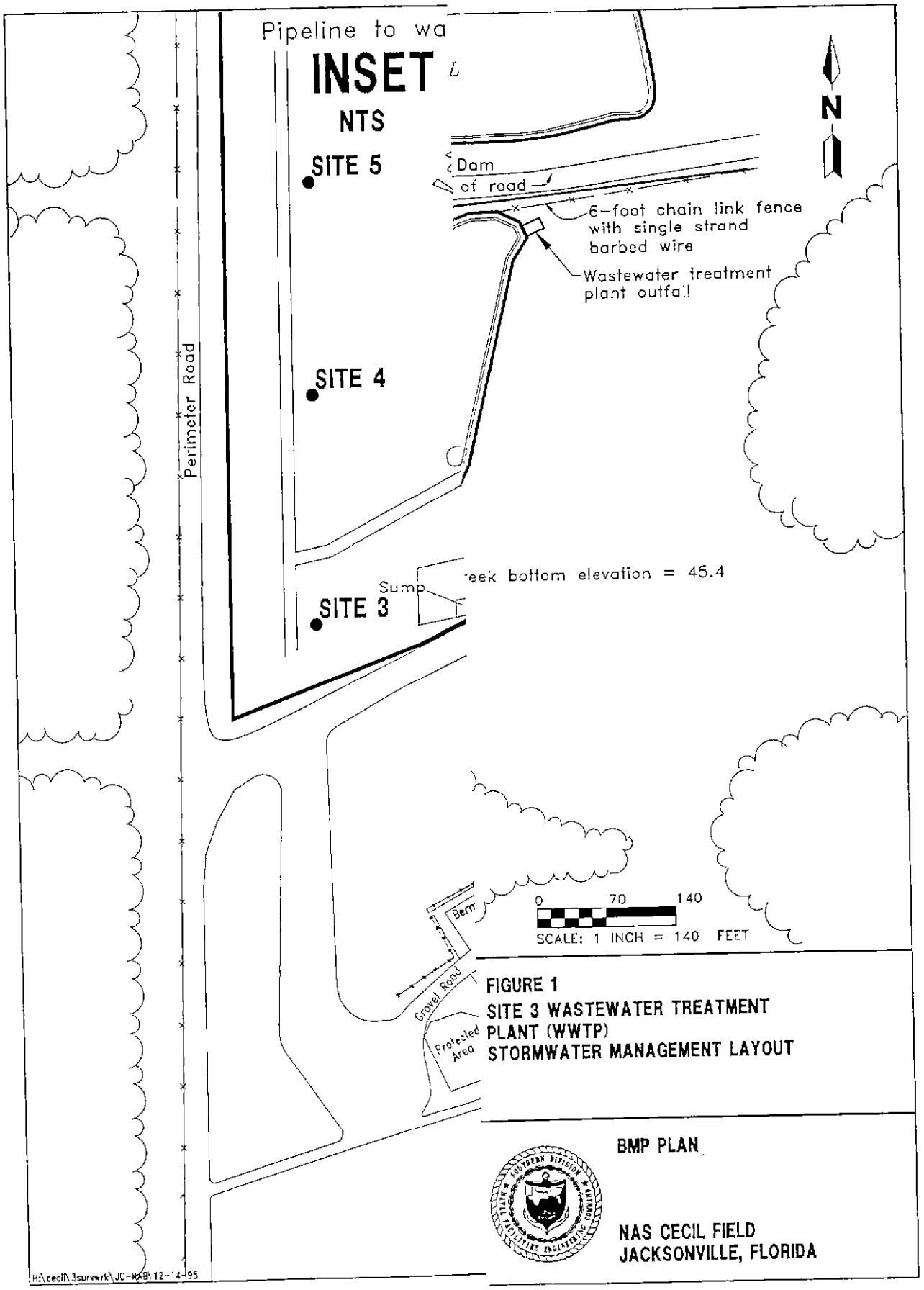

FIGURE 1
SITE 3 WASTEWATER TREATMENT PLANT (WWTP) STORMWATER MANAGEMENT LAYOUT

BMP PLAN

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Table 1
Hits Table, Initial Sampling Event

Site 3, Stormwater BMP
NAS Cecil Field, Jacksonville, Florida

Inorganic	Unfiltered	Filtered	General Permit
Lead	40	10	30
Mercury	45	ND	0.012
Zinc	309	ND	11

All units are ug/l.

For the NDs the detection limit was 2 ug/l for mercury and 100 ug/l for zinc. This data indicates that the mercury and zinc and most of the lead are most likely associated with suspended solids and are not in the dissolved phase. Therefore, continued analysis of metals is not recommended.

Decision Tree and Responsibility Matrix. A decision tree showing the entities responsible for performing the tasks in this plan are shown on Figure 2.

Sampling Protocol. Before every discharge sampling of stormwater should occur at the Site 3 sump as long as no free product sheen is observed on the water. If a visible sheen is observed the water will be sampled and pumped to the temporary holding tanks A, B, or C. Table 2 shows action levels to be used to determine the final disposition of the stormwater.

The stormwater in the initial sampling event was sampled for EPA Methods 624 and 625, TOC, and RCRA metals both filtered and unfiltered. All future samples collected will be analyzed for pH, benzene (EPA Method 602), and naphthalene (EPA Method 610). Flow measurements from the Site 3 sump will be recorded using an inline flow meter.

Figure 2

NAS Cecil Field Site 3 Stormwater Management

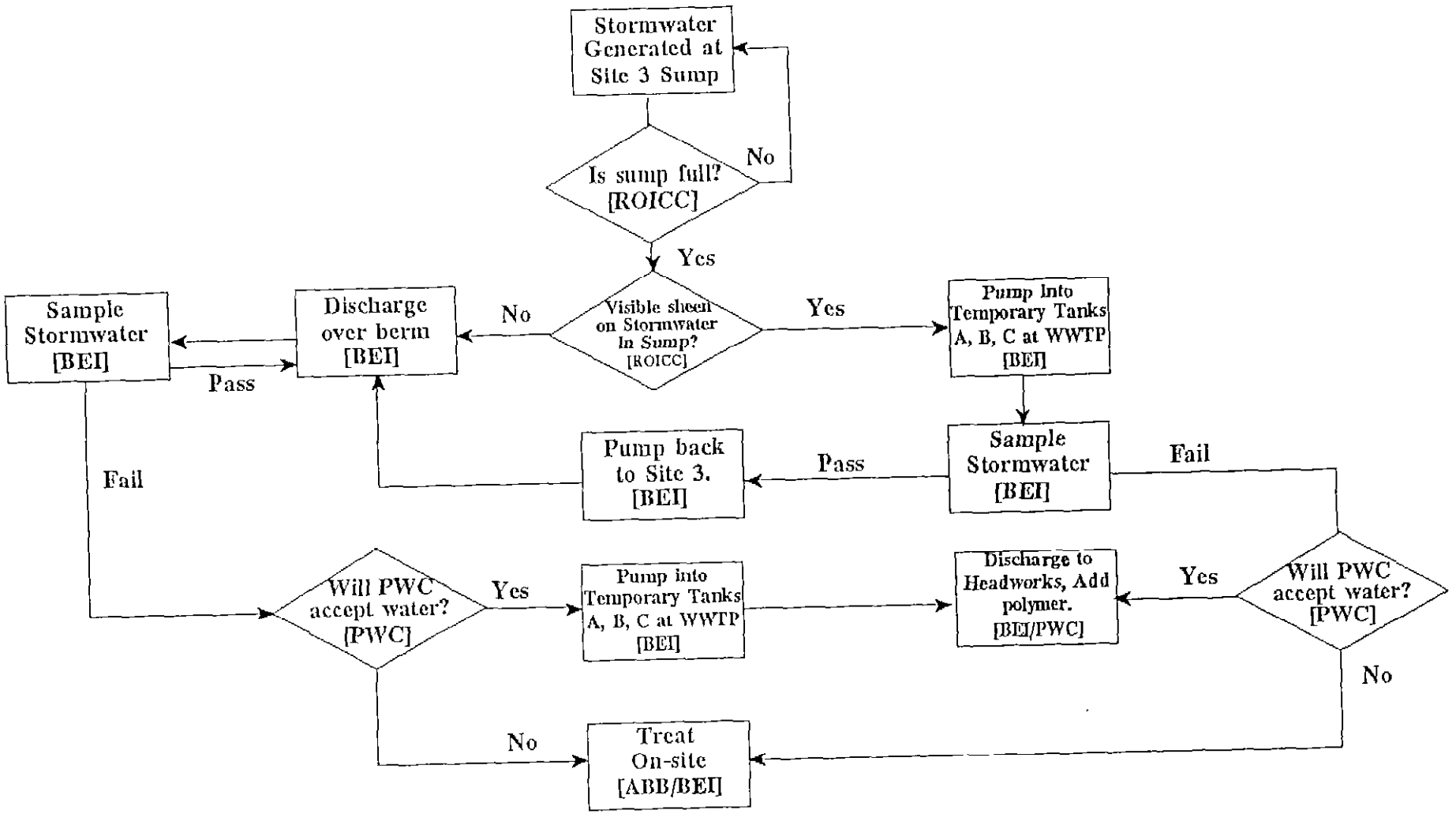

Table 2
Stormwater Criteria

Site 3, Stormwater BMP
NAS Cecil Field, Jacksonville, Florida

Potential Receptor	Groundwater			Soil	Surface Water	
Parameter	Federal MCL	Florida FAC - 62-770	Florida Guidance Concentration[1]	Florida Leaching Cleanup Goal	Florida Surface Water Standard [2]	Federal AWQC [3]
Flow Rate (MGD)	NA	NA	NA	NA	NA	NA
pH (Standard Units)	NA	NA	NA	NA	6 - 8.5	NA
Benzene (ug/L)	5	1	1	3 ug/kg	71.28	5,300
Naphthalene (ug/L)	NA	100	6.8[4]	100 ug/kg	NA	2,300

Notes:
A) Shading represents the selected groundwater (GW) and surface water (SW) criteria.

[1] Florida Guidance (Primary and Secondary) Concentrations are taken from Chapter 6 (Guidance Concentrations Index) of the FDEP Groundwater Guidance Concentrations (June 1994).

[2] Florida Surface Water Standard taken from Chapter 62 (Surface Water Quality Standards) of the Florida Administrative Code (FAC 62-302), January 23, 1995.

[3] Federal Ambient Water Quality Criteria taken from Office of Guidance (aquatic life, freshwater, acute effects, 40 CFR, Part 131).

[4] Florida Secondary Standard for Taste and Odor (Organoleptic)

Notes: AWQC = Ambient Water Quality Criteria.
FAC = Florida Administrative Code.
GW = groundwater.
ND = non-detect.
µg/l = micrograms per liter.
MCL = maximum contaminant level.
NA = not available.
NAS = naval air station.
SW = surface water.
USEPA = U.S. Environmental Protection Agency.
FDEP = Florida Department of Environmental Protection

PROJECT NAME

NAS CECIL FIELD OPERABLE UNIT 8 SITE 3

CLIENT NAME

ABB ENVIRONMENTAL SERVICES, INC.
2590 Executive Ctr. Circle East
Berkely Building
Tallahassee, Florida 32301

PROJECT MANAGER:
Barry Lester

COPY TO:
Charles Donahue

REQUESTED COMP. DATE:
24 – 48 hrs.

FIELD OPERATION LEADER:

NAME:
NAS Cecil Field
(904) 868-0425

SAMPLING REQUIREMENTS
SDWA NPDES RCRA OTHER

FOR LAB USE ONLY
Client Code: 026023

Enseco – Wadsworth/ALERT Laboratories
4101 Shuffel Drive N.W.
North Canton, Ohio 44720

Contact:
Deb Hula
(216) 497-9396 (Voice)
(216) 497-0772 (Fax)

QUOTE # 16467

ANALYSES REQUESTED

SITE ID CODE xx	SAMPLE MATRIX CODE XX	SAMPLE LOCATION CODE xxx	SAMPLE SEQUENCE CODE xx	DATE	TIME	DEPTH	AIR	WTR	SOIL	NO. OF CONTAINERS	~~CLP~~-VOC (~~40oz. gl~~ 40 ml) ice (3) HCl	~~CLP~~-SVOC (~~40oz. gl~~ 2L Amber) ice	PCB/PEST (4oz. gl) ice	~~TAL~~-METALS (~~16oz. gl~~ 1L Plastic) ice HNO_3	TOC (~~40oz. gl~~ 40 ml) ice (2) H_2SO_4	TPH (4oz. gl) ice		~~TAL~~-METALS Filtered (1-L Plastic HNO_3)						LAB ID	REMARKS
CF	3	SP1.		12/11/95	1810			X		9	✓	✓		✓	✓			✓							
																								*	VOC analysis – 624/625
																									METALS analysis – Mercury, Cadmium, Copper, Lead, Zinc, Hex Chromium, Arsenic, Barium, Selenium, Silver
																									LEVEL E ANALYSIS

* NOTE: Detection limit for Benzene must be 1 µg/L or less

SAMPLED BY AND TITLE: M. Pynenburg / ABB-ES	DATE/TIME: 12/11/95 1900 hrs.	RELINQUISHED BY: M. Pynenburg	DATE/TIME: 12/12/95 1305
RECEIVED BY: Robert C Lenard Jr	DATE/TIME: 12/12/95 1305	RELINQUISHED BY: Robert C Lenard Jr	DATE/TIME: 12/12/95 1315
RECEIVED BY: Fred Seagle	DATE/TIME: 12/12/95 1305	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY LAB: [signature]	DATE/TIME: 12-12-95 1305	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER	AIR BILL NUMBER

REMARKS

HAZWRAP/NEESA Y N
QC LEVEL 1 2 3 4 5
COC | ICE
ANA REQ | TEMP
CUST SEAL | Ph
SAMPLE CONDITION

ENTERED INTO LIMS ____ COC REVIEWED ____

ENCO LABORATORIES
REPORT # : JR1293
DATE REPORTED: December 15, 1995
REFERENCE : 22567-227
PROJECT NAME : Site 3

RESULTS OF ANALYSIS

EPA METHOD 624 - VOLATILE ORGANICS	SF-1 D5	LAB BLANK	Units
Chloromethane	5 U	1 U	µg/L
Vinyl Chloride	5 U	1 U	µg/L
Bromomethane	10 U	2 U	µg/L
Chloroethane	10 U	2 U	µg/L
1,1-Dichloroethene	5 U	1 U	µg/L
Trichlorofluoromethane	5 U	1 U	µg/L
Methylene Chloride	10 U	2 U	µg/L
trans-1,2-Dichloroethene	5 U	1 U	µg/L
Methyl tert-butyl ether	30 U	6 U	µg/L
1-Dichloroethane	5 U	1 U	µg/L
Chloroform	5 U	1 U	µg/L
1,1,1-Trichloroethane	5 U	1 U	µg/L
Carbon tetrachloride	5 U	1 U	µg/L
Benzene	2 U	1 U	µg/L
1,2-Dichloroethane	5 U	1 U	µg/L
Trichloroethene	5 U	1 U	µg/L
1,2-Dichloropropane	5 U	1 U	µg/L
Bromodichloromethane	5 U	1 U	µg/L
2-Chloroethyl vinyl ether	10 U	2 U	µg/L

= Analyzed @ 1:5 dilution
U = Compound was analyzed for but not detected

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RESULTS OF ANALYSIS

EPA METHOD 624 (cont.) -

VOLATILE ORGANICS	SP-1 D5	LAB BLANK	Units
cis-1,3-Dichloropropene	5 U	1 U	µg/L
Toluene	5 U	1 U	µg/L
trans-1,3-Dichloropropene	5 U	1 U	µg/L
1,1,2-Trichloroethane	5 U	1 U	µg/L
Tetrachloroethene	15 U	3 U	µg/L
Dibromochloromethane	5 U	1 U	µg/L
Chlorobenzene	5 U	1 U	µg/L
Ethylbenzene	5 U	1 U	µg/L
m-Xylene & p-Xylene	5 U	1 U	µg/L
o-Xylene	5 U	1 U	µg/L
Styrene	5 U	1 U	µg/L
Bromoform	5 U	1 U	µg/L
1,1,2,2-Tetrachloroethane	5 U	1 U	µg/L
Total Xylenes	10 U	2 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
D4-1,2-Dichloroethane (surr)	96	104	75-121
D8-Toluene (surr)	106	100	80-122
Bromofluorobenzene (surr)	92	102	82-122
Date Analyzed	12/14/95	12/14/95	

= Analyzed @ 1:5 dilution
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RESULTS OF ANALYSIS

EPA METHOD 625 - SEMIVOLATILE ORGANICS	SP-1	LAB BLANK	Units
Acenaphthene	10 U	10 U	µg/L
Acenaphthylene	10 U	10 U	µg/L
Anthracene	10 U	10 U	µg/L
p-(dimethylamino)azobenzene	10 U	10 U	µg/L
Benzidine	10 U	10 U	µg/L
Benzo(a)anthracene	10 U	10 U	µg/L
Benzo(b)fluoranthene	10 U	10 U	µg/L
Benzo(k)fluoranthene	10 U	10 U	µg/L
Benzo(g,h,i)perylene	10 U	10 U	µg/L
Benzo(a)pyrene	10 U	10 U	µg/L
Benzylbutyl phthalate	10 U	10 U	µg/L
Bis(2-chloroethoxy)methane	10 U	10 U	µg/L
Bis(2-chloroethyl)ether	10 U	10 U	µg/L
Bis(2-chloroisopropyl)ether	10 U	10 U	µg/L
Bis(2-ethylhexyl)phthalate	10 U	10 U	µg/L
4-Bromophenylphenyl ether	10 U	10 U	µg/L
2-Chloronaphthalene	10 U	10 U	µg/L
4-Chlorophenyl phenyl ether	10 U	10 U	µg/L
Chrysene	10 U	10 U	µg/L
Dibenzo(a,h)anthracene	10 U	10 U	µg/L
1,2-Dichlorobenzene	10 U	10 U	µg/L
1,3-Dichlorobenzene	10 U	10 U	µg/L
1,4-Dichlorobenzene	10 U	10 U	µg/L
3,3'-Dichlorobenzidine	20 U	20 U	µg/L
Diethyl phthalate	10 U	10 U	µg/L
Dimethyl phthalate	10 U	10 U	µg/L
Di-n-butyl phthalate	10 U	10 U	µg/L
Di-n-octyl phthalate	10 U	10 U	µg/L
2,4-Dinitrotoluene	10 U	10 U	µg/L
2,6-Dinitrotoluene	10 U	10 U	µg/L
Fluoranthene	10 U	10 U	µg/L
Fluorene	10 U	10 U	µg/L
Hexachlorobenzene	10 U	10 U	µg/L
Hexachlorobutadiene	10 U	10 U	µg/L
Hexachlorocyclopentadiene	10 U	10 U	µg/L

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RESULTS OF ANALYSIS

EPA METHOD 625 (cont.) - SEMIVOLATILE ORGANICS	SP-1	LAB BLANK	Units
Hexachloroethane	10 U	10 U	µg/L
Indeno(1,2,3-cd)pyrene	10 U	10 U	µg/L
Isophorone	10 U	10 U	µg/L
1-Methylnaphthalene	10 U	10 U	µg/L
2-Methylnaphthalene	10 U	10 U	µg/L
Naphthalene	10 U	10 U	µg/L
Nitrobenzene	10 U	10 U	µg/L
N-Nitrosodimethylamine	10 U	10 U	µg/L
N-Nitrosodi-n-propylamine	10 U	10 U	µg/L
N-Nitrosodiphenylamine	10 U	10 U	µg/L
Phenanthrene	10 U	10 U	µg/L
Pyrene	10 U	10 U	µg/L
1,2,4-Trichlorobenzene	10 U	10 U	µg/L
4-Chloro-3-methylphenol	10 U	10 U	µg/L
2-Chlorophenol	10 U	10 U	µg/L
2,4-Dichlorophenol	10 U	10 U	µg/L
2,4-Dimethylphenol	10 U	10 U	µg/L
2,4-Dinitrophenol	50 U	50 U	µg/L
2-Methyl-4,6-dinitrophenol	30 U	30 U	µg/L
2-Nitrophenol	10 U	10 U	µg/L
4-Nitrophenol	10 U	10 U	µg/L
Pentachlorophenol	10 U	10 U	µg/L
Phenol	10 U	10 U	µg/L
2,4,6-Trichlorophenol	10 U	10 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Nitrobenzene -D5 (surr)	84	72	30-106
2-Fluorobiphenyl (surr)	70	67	38-107
Terphenyl -D14 (surr)	89	118	29-131
Phenol -D5 (surr)	35	46	12-87
2-Fluorophenol (surr)	42	56	19-115
2,4,6-Tribromophenol (surr)	62	75	43-126
Date Extracted	12/14/95	12/14/95	
Date Analyzed	12/15/95	12/15/95	

U = Compound was analyzed for but not detected

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RESULTS OF ANALYSIS

DISSOLVED METALS	METHOD	SP-1	LAB BLANK	Units
Arsenic, filtered	200.7	0.01 U	0.01 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Barium, filtered	200.7	0.1 U	0.1 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Cadmium, filtered	200.7	0.001 U	0.001 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Chromium, filtered	200.7	0.01 U	0.01 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Copper, filtered	200.7	0.05 U	0.05 U	mg/L
te Analyzed		12/15/95	12/15/95	
Lead, filtered	200.7	0.01 PQL	0.01 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Mercury, filtered	245.1	0.0002 U	0.0002 U	mg/L
Date Analyzed		12/14/95	12/14/95	
Selenium, filtered	200.7	0.01 U	0.01 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Silver, filtered	200.7	0.01 U	0.01 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Zinc, filtered	200.7	0.1 U	0.1 U	mg/L
Date Analyzed		12/15/95	12/15/95	

PQL = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL)
U = Compound was analyzed for but not detected

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RESULTS OF ANALYSIS

TOTAL METALS	METHOD	SP-1	LAB BLANK	Units
Arsenic	200.7	0.01 U	0.01 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Barium	200.7	0.1 U	0.1 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Cadmium	200.7	0.001 PQL	0.001 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Chromium	200.7	0.044	0.01 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Copper	200.7	0.05 U	0.05 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Lead	200.7	0.04	0.005 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Mercury	245.1	0.00045	0.0002 U	mg/L
Date Analyzed		12/14/95	12/14/95	
Selenium	200.7	0.01 PQL	0.01 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Silver	200.7	0.01 U	0.01 U	mg/L
Date Analyzed		12/15/95	12/15/95	
Zinc	200.7	0.309	0.1 U	mg/L
Date Analyzed		12/15/95	12/15/95	

* Compound was analyzed for but not detected

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RESULTS OF ANALYSIS

MISCELLANEOUS	METHOD	SP-1	LAB BLANK	Units
Hex. Cr.	SM3500-CR-D	0.005 U	0.005 U	mg/L
Date Analyzed		12/14/95	12/14/95	
Hex. Cr., filtered	SM3500-CR-D	0.005 U	0.005 U	mg/L
Date Analyzed		12/14/95	12/14/95	
Total Organic Carbon	415.1	52.6	1 U	mg/L
Date Analyzed		12/14/95	12/14/95	

= Compound was analyzed for but not detected