



DEPARTMENT OF THE NAVY

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
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08.11-09/24/98-00321

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IN REPLY REFER TO:

5090
1822:RGS:cag

SEP 24 1998

Docket Coordinator, Headquarters
U.S. Environmental Protection Agency
CERCLA Docket Office
1235 Jefferson Davis Highway
Crystal Gateway #1 First Floor
Arlington, Virginia 22202

Re: Comments on FRL-6131-1, National Priorities List
(NPL) for Uncontrolled Hazardous Waste Sites,
Proposed Rule Number 25, Little Creek Naval
Amphibious Base, Virginia Beach

Dear Sir:

This is a formal comment letter to the proposed NPL listing of the Little Creek Naval Amphibious Base as reported in the subject Federal Register. The Navy's comments are of two types, the first being general concerns regarding the HRS scoring package not adequately reflecting the Navy's Installation Restoration Program to date, and the second being technical comments (4 copies enclosed) regarding information contained in the docket. Please note that the correct name for this facility is the Naval Amphibious Base Little Creek (NAVPHIBASE Little Creek).

The Navy's general concerns center around the juxtaposition of the proposed NPL listing versus ongoing Navy efforts at the NAVPHIBASE Little Creek being undertaken pursuant to CERCLA. The Navy currently has an active Installation Restoration Program (IRP) underway at NAVPHIBASE Little Creek in which the United States Environmental Protection Agency (USEPA) and the Virginia Department of Environmental Quality (VDEQ) regularly participate. All of the sources analyzed by the HRS evaluation (IR Sites 7, 9, 10, 11, 12 & 13) are included in the NAVPHIBASE Little Creek's IRP and are already under investigation by the Navy. The status of the sources analyzed by the HRS evaluation follows:

Quality Performance ... Quality Results

Re: Comments on FRL-6131-1, National Priorities List (NPL) for Uncontrolled Hazardous Waste Sites, Proposed Rule Number 25, Little Creek Naval Amphibious Base, Virginia Beach

Site 7, (Amphibious Base Landfill)

- Remedial Investigation & Feasibility Study Completed
- Decision Document signed
- Soil Cover and Debris Removal contracts completed
- Long term monitoring started (May 1998)

Site 9 (Driving Range Landfill)

- Remedial Investigation & Preliminary Feasibility Study Completed
- Proposed Remedial Action Plan approved
- Long Term Monitoring started (May 1996)

Site 10 (Sewage Treatment Plant Landfill)

- Remedial Investigation & Preliminary Feasibility Study Completed
- Proposed Remedial Action Plan approved
- Long Term Monitoring started (May 1996)

Site 11 (School of Music Plating Shop)

- Remedial Investigation completed
- Removal Action (soil, neutralization tank, piping and surrounding soil) completed in November 1995
- Supplemental Remedial Investigation/Feasibility Study currently under way

Site 12 (Exchange Laundry Waste Disposal Area)

- Remedial Investigation and Phase I Supplemental Remedial Investigation completed
- Phase II Supplemental Remedial Investigation/Feasibility Study currently under way

Re: Comments on FRL-6131-1, National Priorities List (NPL) for Uncontrolled Hazardous Waste Sites, Proposed Rule Number 25, Little Creek Naval Amphibious Base, Virginia Beach

Site 13 (Public Works PCP Dip Tank and Wash Rack)

- Remedial Investigation and Phase I Supplemental Remedial Investigation completed
- Phase II Supplemental Remedial Investigation/Feasibility Study currently under way
- PCP soil removal scheduled for Spring 1999- Engineering Evaluation/Cost Assessment currently being reviewed by VDEQ and USEPA.

In addition, evaluations of the Solid Waste Management Units (SWMUs) are currently under way to determine if remedial efforts are also warranted in locations other than those already being addressed via the IRP. The above information indicates that the Navy has been proactively addressing the environmental concerns at NAVPHIBASE Little Creek since 1986.

With respect to the HRS score developed for NAVPHIBASE Little Creek, the Navy requests reconsideration of NAVPHIBASE Little Creek's scoring package to address the 42 technical comments attached. The Navy believes this reconsideration may result in a reduced HRS score for NAVPHIBASE Little Creek.

The Navy is committed to continue its assessment and remediation of NAVPHIBASE Little Creek's existing sites and to proceed with plans to evaluate additional sites of concern as discussed above.

Re: Comments on FRL-6131-1, National Priorities List
(NPL) for Uncontrolled Hazardous Waste Sites,
Proposed Rule Number 25, Little Creek Naval
Amphibious Base, Virginia Beach

We request you keep us informed of decisions or changes
associated with the proposed listing. If you have any
questions or require additional information, please contact
the Remedial Project Manager, Mr. Bob Schirmer, P.E. at
(757) 322-4751.

Sincerely,



P. A. RAKOWSKI, P.E.

Head

Environmental Programs Branch

Environmental Division

By direction of the Commander

Copy to:

CNO (N45) (w/o encl)

CINCLANTFLT (N46) (w/o encl)

COMNAVFACENGCOM HQ (Env.) (w/o encl)

Regional Environmental Commander (Ms. Cheryl Barnett)

NAVPHIBASE Little Creek (Code 464, Ms. Kelly Greaser)

VDEQ (Mr. Robert Weld)

EPA Region III (Mr. Bruce Beach)

NAVAL AMPHIBIOUS BASE LITTLE CREEK

TECHNICAL COMMENTS ON THE

HRS SCORING PACKAGE

23 September, 1998

Comment 1

- Pgs 8-11: References
- Reference 19 (Draft Final Remedial Investigation/Feasibility Study) was finalized in November 1994 by submittal of replacement sheets. Please change accordingly.
- Reference 48 (Draft Final Feasibility Study, Site 7) is indicated to contain 6 sheets and Reference 49 (Final Submitted Debris Removal Design, Site 7) is indicated to contain 62 sheets. Reference 48 (Draft Final Feasibility Study, Site 7) actually contains 62 sheets and Reference 49 (Final Submitted Debris Removal Design, Site 7) actually contains 6 sheets. Please change accordingly.
- Reference 48 (Draft Final Feasibility Study, Site 7) was finalized in October 1997 by letter response to comments received. The changes due to the comments were not significant enough to reprint the document. Please change accordingly.
- The following documents have been submitted to the USEPA, VDEQ and the public, and should be considered in the scoring of NAB Little Creek:
 - Draft Final Supplemental Ecological Assessment, May 1996
 - Draft Final Site Management Plan, February 1997
 - Draft Final Monitoring Plan, Site 7, February 1997
 - Final Soil Cover Design, Site 7, May 1997
 - Final Proposed Remedial Action Plan, Site 7, October 1997
 - Final Decision Document, Site 7, January 1998
 - Draft Final Contractor Closeout Report for Debris Removal, Summary for Soil Cover, Site 7, July 1998
 - Final Groundwater Monitoring Plans, Sites 5, 9, 10, and 11, June 1997
 - Groundwater Monitoring Letter Report Rounds 1-4 for Sites 9 and 10, May 1996 - Dec 1996
 - Final Proposed Remedial Action Plan, Sites 9 and 10, January 1997
 - Draft Final Decision Document, June 1997
 - Final Decision Document for Soil Removal Action, Site 11, November 1994
 - Final Groundwater Monitoring Report, Sites 5 and 11, February 1998

Comment 2

- Pg 18: Source 7 (Naval Amphibious Base Landfill), Section titled "Name and description of the source", third paragraph, last sentence: "No analysis for PCP was conducted for the samples taken at Source 7 (Ref. 19, p 3-1A, Table 3-1)."
- This statement is in error. Pentachlorophenol (PCP) is an SVOC that is included in the Priority Pollutant list. The 1986 Round 1 Verification Step (RVS) analyzed for Priority Pollutants in nine groundwater wells, and five surface water and sediment samples and all results were non-detect. In the 1991 Interim Remedial Investigation (IRI), SVOCs were analyzed for in nine groundwater wells and six surface water samples, and all results were non-detect. The 1994 Remedial Investigation/ Feasibility Study (RI/FS) sampled 8 surface soil locations and 5 subsurface soil location for SVOCs, and again all results were non-detect. Semi-annual monitoring at this site was started in June 1998, and SVOCs are currently being analyzed for in all samples taken in groundwater, surface water, and sediment.
- The following table summarizes the samples collected and analyzed for PCP:

1986 RVS	Sample ID	Lab Data Sheet ID
Groundwater	LC7-GW1 through LC7-GW9	
Surface Water	LC7-SW1 through LC7-SW5	
Sediment	LC7-SED1 through LC7-SED5	
1991 IRI		
Groundwater	7-GW1 through 7-GW9	LC07SGW0102 - LC07SGW0902
Surface Water	7-SW1 through 7-SW6	LC07SSW0101 - LC07SSW0602
1994 RI/FS		
Surface Soil	07-SS-101 through 07-SS-108	Same
Subsurface Soil	07-SB-101D, 103D, 105D, 6D, 9D	Same
- Immediately following this comment is information provided for the three sampling events:
 - 1986 RVS: Table 1 summarizing the samples collected; Table 2 listing the Priority Pollutants, which include PCP and other phenols; Table 3 listing the analytical results; and Table 13 listing the Detection Limits for the organic compounds of the Priority Pollutants in water and soil. As stated, PCP does not appear in Table 3 because it was not detected in any of the samples.
 - 1991 IRI: Table 2-1 summarizing the samples collected; Table 4-1 listing the analytical results; and the Data Sheets for SVOCs from the laboratory. As stated, PCP does not appear in Table 4-1 because it was not detected in any of the samples. The Data Sheets indicate the Detection Limit for PCP in the samples analyzed. However, some of the Data Sheets for 7-GW2, 7-GW3 duplicate, 7-GW5, and 7-SW6 could not be located, although the originals were received from the lab and the results reported in Table 4-1.
 - 1994 RI/FS: Table 3-1 summarizing the samples collected; Table 5-2 listing the analytical results in the surface soil; Table 5-8 listing the analytical results in the subsurface soil; and the Data Sheets for SVOCs from the laboratory. As stated PCP does not appear in Tables 5-2 and 5-8 because it was not detected in any of the samples. The Data Sheets indicate the Detection Limit for PCP in the samples analyzed. However, the second page for 07-SS-102 could not be located, although the original was received from the laboratory and the results reported in Table 5-2.
- Therefore the sentence should be deleted in its entirety and replaced by the following sentence: "Three rounds of sampling at this site have analyzed for SVOCs (including PCP) and all results have been non-detect."

1986 RVS ATTACHMENTS

Table 1
ANALYTICAL PROTOCOL FOR VERIFICATION STEP ROUND ONE
NAVAL AMPHIBIOUS BASE

Site Number	Ground-water	Surface Water	Sediment	Soil	Analytical Parameters
7	9	5	5	-	PP, O&G, X, MEK, MIBK, EDB, Cr ⁺⁶
9	6	-	-	-	PP, O&G, X, MEK, MIBK, EDB, Cr ⁺⁶
10	8	-	-	-	PP, O&G, X, MEK, MIBK, EDB, Cr ⁺⁶
11	3	-	-	9	Cr, Cr ⁺⁶ , CN, VOC, A
12	-	6	6	-	PCE, TCE
13	5	-	-	6	O&G, VOC, A, B/N
	31	11	11	15	Total Samples Per Medium

- *PP - Priority Pollutants
- *VOC - Priority Pollutant Volatile Organic Compounds
- *A - Priority Pollutant Acid Extractable Compounds
- *B/N - Priority Pollutant Base/Neutral Extractable Compounds
- O&G - Oil and Grease
- X - Xylene
- MIBK - Methyl Isobutyl Ketone
- MEK - Methyl Ethyl Ketone
- EDB - Ethylene Dibromide
- TCE - Trichloroethylene
- PCE - Perchloroethylene (Tetrachloroethene)
- Cr - Total Chromium
- Cr⁺⁶ - Chromium (hexavalent)
- CN - Cyanide

*See Table 2 for the list of Priority Pollutants

Table 2
THE PRIORITY POLLUTANTS

Volatile Organic Compounds (28)

Acrolein	1,2-trans-Dichloroethylene
Acrylonitrile	1,2-Dichloropropane
Benzene	1,3-Dichloropropene
Carbon tetrachloride	Ethylbenzene
Chlorobenzene	Methylene chloride
1,1-Dichloroethane	Chloromethane
1,2-Dichloroethane	Bromomethane
1,1,1-Trichloroethane	Bromoform
1,1,2-Trichloroethane	Bromodichloromethane
1,1,2,2-Tetrachloroethane	Chlorodibromomethane
Chloroethane	Tetrachloroethylene
2-Chloroethyl vinyl ether	Toluene
Chloroform	Trichloroethylene
1,1-Dichloroethylene	Vinyl chloride

Base-Neutral Extractable Organic Compounds (47)

Acenaphthene	Hexachlorocyclopentadiene
Benzidine	N-Nitrosodimethylamine
1,2,4-Trichlorobenzene	N-Nitrosodiphenylamine
Hexachlorobenzene	N-Nitrosodi-n-propylamine
Hexachloroethane	Butyl benzyl phthalate
bis (2-Chloroethyl) ether	Di-n-butyl phthalate
2-Chloronaphthalene	Di-n-octyl phthalate
1,2-Dichlorobenzene	Diethyl phthalate
1,3-Dichlorobenzene	Dimethyl phthalate
1,4-Dichlorobenzene	Benzo (a) anthracene
3,3'-Dichlorobenzidine	Benzo (a) pyrene
2,4-Dinitrotoluene	Benzo (b) fluoranthene
2,6-Dinitrotoluene	Benzo (k) fluoranthene
Fluoranthene	Chrysene
4-Chlorophenyl phenyl ether	Acenaphthylene
4-Bromophenyl phenyl ether	Anthracene
bis (2-Chloroisopropyl) ether	Benzo (g,h,i) perylene
bis (2-Chloroethoxy) methane	Fluorene
Hexachlorobutadiene	Phenanthrene
Isophorone	Dibenzo (a,h) anthracene
Naphthalene	Ideno (1,2,3-cd) pyrene
Nitrobenzene	Pyrene
1,2-diphenylhydrazine	bis (2-Ethylhexyl) phthalate
2,3,7,8-Tetrachlorodibenzo-p-dioxin	

Table 2
(Continued)

Acid Extractable Organic Compounds (11)

2,4,6-Trichlorophenol	4-Nitrophenol
p-Chloro-m-cresol	2,4-dinitrophenol
2-Chlorophenol	4,6-Dinitro-o-cresol
(4-chloro-3-methylphenol)	(2-methyl-4,6-dinitro-phenol)
2-Nitrophenol	2,4-Dichlorophenol
Pentachlorophenol	Phenol
2,4-Dimethylphenol	

Pesticides and PCBs (25)

Aldrin	alpha-BHC
Dieldrin	beta-BHC
Chlordane	gamma-BHC
4,4'-DDT	delta-BHC
4,4'-DDE	PCB-1242
4,4'-DDD	PCB-1254
Endosulfan I	PCB-1221
Endosulfan II	PCB-1232
Endosulfan sulfate	PCB-1248
Endrin	PCB-1260
Endrin aldehyde	PCB-1016
Heptachlor	Toxaphene
Heptachlor epoxide	

Metals (13)

Antimony	Mercury
Arsenic	Nickel
Beryllium	Selenium
Cadmium	Silver
Chromium	Thallium
Copper	Zinc
Lead	

Table
ANALYTICAL RESULTS--SITE 7, BIOUS BASE LANDFILL

	GROUNDWATER (ppb)									SURFACE WATER (ppb)					SEDIMENT (ppm)				
	LC7 GW1	LC7 GW2	LC7 GW3	LC7 GW4	LC7 GW5	LC7 GW6	LC7 GW7	LC7 GW8	LC7 GW9	LC7 SW1	LC7 SW2	LC7 SW3	LC7 SW4	LC7 SW5	LC7 SED1	LC7 SED2	LC7 SED3	LC7 SED4	LC7 SED5
Antimony	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	30	<20	<20	<2	<2	<2	<2	<2
Arsenic	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	24	7	<5	<8	19.6	4.8	30.7	34	15.6
Beryllium	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<0.3	<0.3	0.6	0.7	0.3
Cadmium	<4	<4	<4	<4	<4	<4	<4	<4	7	<4	<4	<4	<4	<4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (Total)	<5	<5	<5	<5	<5	<5	<5	<5	9	<5	<5	9	6	5	12.2	5	14.4	19.9	8.2
Chromium (Hex.)	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	--	--	--	--	--
Copper	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	50	50	<30	<30	5.2	11.6	33.9	11.6	11.5
Lead	<3	<3	<3	<3	<3	<3	<3	<3	<3	<2	4	31*	26*	22*	4.3	12.7	39.3	20.7	16.4
Mercury	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.15	<0.15	<0.15	<0.15	<0.15
Nickel	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	200*	<90	<90	6.3	5	19.9	19	10
Selenium	<4	<4	<4	<4	<4	<4	23*	21*	27*	<4	<4	40*	95*	53*	<0.8	<0.8	<0.8	<0.8	<0.8
Silver	<1	<1	1	1	3	4	10	9	14	<1	2	20	31	31	<5	<5	<5	<5	<5
Thallium	<50	<50	<50	<50	<50	<50	83	<50	<50	<50	<50	130	128	111	0.37	0.64	0.64	1.4	1.6
Zinc	10	20	90	410	30	40	50	80	260	<20	30	110	60	30	12.4	28.2	135	53	56
EDB	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	NR	BMDL	BMDL
Oil and Grease	6,000	8,000	6,000	8,000	3,000	10,000	35,000	25,000	47,000	20,000	8,000	5,000	9,000	9,000	297	567	2,206	536	1,306
VOC ^a																			
Methylene Chloride	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	23	73	21	96	43
Acetone	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	18	16	27	16	BMDL
Carbon Disulfide	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	2.2	2.2	BMDL
Chloroform	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	4.6	13	BMDL	3.2	1.9
Bromodichloromethane	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	1.1	2.7	BMDL	BMDL	BMDL
Toluene	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	2.6	BMDL

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Table 3 (ed)

	GROUNDWATER (ppb)									SURFACE WATER (ppb)					SEDIMENT (ppm)				
	LC7 GW1	LC7 GW2	LC7 GW3	LC7 GW4	LC7 GW5	LC7 GW6	LC7 GW7	LC7 GW8	LC7 GW9	LC7 SW1	LC7 SW2	LC7 SW3	LC7 SW4	LC7 SW5	LC7 SED1	LC7 SED2	LC7 SED3	LC7 SED4	LC7 SED5
Base/Neutrals^a																			
Total Saturated Hydrocarbons	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	330	250	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	45	130
Acenaphthene	BMDL	BMDL	BMDL	16	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL
Bis (2-ethylhexyl) phthalate	BMDL	BMDL	BMDL	19	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL
Pesticides + PCBs (a)																			
Chlordane	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	0.018	BMDL	BMDL	0.012
DDD	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	0.0028	BMDL	BMDL	0.0041
DDE	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	0.0024	BMDL	BMDL	0.0029
PCB 1260	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	0.033	BMDL	BMDL	BMDL
Acids^a																			
Phenols	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	1.8	2.0	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL

^a Compounds in this group that are not shown in this table were below detection limits.

BMDL--All compounds in this group were below method detection limits. Values for detection limits are given in Table 13.

<--Below detection limit shown.

NR--Value not reported, insufficient sample volume.

(--)--Unable to report useable data due to matrix interference.

*--Concentration exceeds a regulatory standard, guideline, or criterion (Table 11).

Table 13
DETECTION LIMITS FOR ORGANIC COMPOUNDS

Base/Neutral Compounds	Method Detection Limit	
	Water (ppb)	Soil (ppm)
Bis(2-chloroethyl)ether	10	0.4
1,3-Dichlorobenzene	10	0.4
1,4-Dichlorobenzene	10	0.4
1,2-Dichlorobenzene	10	0.4
Bis(2-Chloroisopropyl)ether	10	0.4
Hexachloroethane	10	0.4
N-nitroso-di-n-propylamine	10	0.4
Nitrobenzene	10	0.4
Isophorone	10	0.4
Bis(2-chloroethoxy)methane	10	0.4
1,2,4-Trichlorobenzene	10	0.4
Naphthalene	10	0.4
Hexachlorobutadiene	10	0.4
Hexachlorocyclopentadiene	10	0.4
2-Chloronaphthalene	10	0.4
Acenaphthylene	10	0.4
Dimethylphthalate	10	0.4
2,6-Dinitrotoluene	10	0.4
Acenaphthene	10	0.4
2,4-Dinitrotoluene	10	0.4
Fluorene	10	0.4
4-Chlorophenyl phenyl ether	10	0.4
Diethyl phthalate	10	0.4
N-nitrosodiphenylamine 3	10	0.4
1,2-Diphenylhydrazine 4	10	0.4
4-Bromophenyl phenyl ether	10	0.4
Hexachlorobenzene	10	0.4
Phenanthrene	10	0.4
Anthracene	10	0.4
Dibutyl phthalate	10	0.4
Fluoranthene	10	0.4
Pyrene	10	0.4
Benzidine	40	1.6
Butyl benzyl phthalate	10	0.4
2,3,7,8-Tetrachlorodibenzo-p-dioxin	10	0.4
Benzo (a) anthracene	10	0.4
Chrysene	10	0.4
3,3'-Dichlorobenzidine	40	1.6
Bis (2-ethylhexyl) phthalate	10	0.4
Di-n-octyl phthalate	10	0.4
Benzo (b) fluoranthene	10	0.4
Benzo (k) fluoranthene	10	0.4
Benzo (a) pyrene	10	0.4
Indeno (1,2,3-cd) pyrene	10	0.4
Dibenzo (a,h) anthracene	10	0.4
Benzo (g,h,i) perylene	10	0.4
N-nitrosodimethylamine	5	0.4
Bis (chloromethyl) ether	5	0.4

Table 13 (Continued)
DETECTION LIMITS FOR ORGANIC COMPOUNDS

<u>Acid Compounds</u>	<u>Method Detection Limit</u>	
	<u>Water (ppb)</u>	<u>Soil (ppb)</u>
Phenol	10	400
2-Chlorophenol	10	400
2-Nitrophenol	10	400
2-4-Dimethylphenol	10	400
2-4-Dichlorophenol	10	400
4-Chloro-3-methylphenol	10	400
2,4,6-Trichlorophenol	10	400
2,4-Dinitrophenol	50	2,000
4-Nitrophenol	10	400
2-Methyl-4,6-dinitrophenol	50	2,000
Pentachlorophenol	10	400
O-Cresol	10	400
M/P-Cresol	10	400
<u>Volatile Compounds</u>		
Chloromethane	5	5
Bromomethane	5	5
Vinyl Chloride	5	5
Chloroethane	5	5
Methylene Chloride	5	5
Trichlorofluoromethane	5	5
1,1-Dichloroethene	5	5
1,1-Dichloroethane	5	5
Trans-1,2-Dichloroethene	5	5
Chloroform	5	5
1,2-Dichloroethane	5	5
1,1,1-Trichloroethane	5	5
Carbon Tetrachloride	5	5
Bromodichloromethane	5	5
1,2-Dichloropropane	5	5
Trans-1,3-Dichloropropene	5	5
Trichloroethylene	5	5
Benzene	5	5
Dibromochloromethane	5	5
1,1,2-Trichloroethane	5	5
Cis-1,3-Dichloropropene	5	5
2-Chloroethyl vinyl ether	10	10
Bromoform	5	5
1,1,2,2-Tetrachloroethane	5	5
Tetrachloroethene	5	5
Toluene	5	5
Chlorobenzene	5	5
Ethyl Benzene	5	5
Acrylonitrile	100	100
Acrolein	100	100
Dichlorodifluoromethane	3	3

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Table 13 (Continued)
DETECTION LIMITS FOR ORGANIC COMPOUNDS

<u>Pesticides and PCBs</u>	<u>Method Detection Limit</u>	
	<u>Water (ppb)</u>	<u>Soil (ppb)</u>
Aldrin	0.01	1
a-BHC	0.01	1
b-BHC	0.02	2
d-BHC	0.01	1
g-BHC	0.01	1
Chlordane	0.10	10
4,4'-DDD	0.02	2
4,4'-DDE	0.02	2
4,4'-DDT	0.02	2
Dieldrin	0.02	2
Endosulfan I	0.02	2
Endosulfan II	0.02	2
Endosulfan Sulfate	0.02	2
Endrin	0.02	2
Endrin Aldehyde	0.10	10
Heptachlor	0.01	1
Heptachlor Epoxide	0.01	1
Toxaphene	0.50	50
PCB - 1016	0.80	80
PCB - 1221	2.00	200
PCB - 1232	2.00	200
PCB - 1242	0.80	80
PCB - 1248	0.40	40
PCB - 1254	0.20	20
PCB - 1260	0.20	20
4,4'-Methoxychlor	0.08	8
<u>Ethylene Dibromide</u>	0.04	0.1

NOTE: The detection limits listed were not always achievable if matrix interferences are present. See lab data sheets for sample specific detection limits.

1991 IRI ATTACHMENTS

TABLE 2-1
SUMMARY OF SAMPLING PROGRAM - 1990
NAB, LITTLE CREEK
INTERIM REMEDIAL INVESTIGATION

SITE NO.	SITE NAME	MEDIA SAMPLED	TOTAL NO. OF SAMPLES	NUMBER OF ANALYSES				
				TCL		ACID EXTRACT	TAL METALS	
				VOC	SVOC		UNFILTERED	FILTERED
7	Amphibious Base Landfill	Groundwater	9 ^a	9	9	-	9	3
		Surface Water	11 ^b	6	6	-	11	-
9	Driving Range Landfill	Groundwater	6 ^a	6	6	-	6	5
10	Sewage Treatment Plant Landfills	Groundwater	8	8	8	-	8	6
11	School of Music Plating Shop	Groundwater	3	3	-	3	3	-
		Tank Liquids	1	1	-	1	1	-
		Tank Solids	2	2	-	2	2	-
12	Exchange Laundry Waste Disposal Area	Surface Water	8 ^a	8	-	-	-	-
		Sediment	4 ^a	4	-	-	-	-
13	Public Works Compound PCP Dip Tank	Groundwater	6 ^a	6	6	-	6	-

Notes:

a = Includes 1 duplicate
b = Includes 2 duplicates
TCL = Target Compound List - Volatile Organic Compounds
SVOC = - Semivolatile Organic Compounds - Base/Neutral/Acid
Pest/PCBs = Pesticides/Polychlorinated Biphenyls
Acid Extract = Acid Extractable Fraction
EDB = Ethylene Dibromide
TPH = Total Petroleum Hydrocarbons
TOC = Total Organic Carbon
TAL-metals = Target Analyte List - Metals
TOX = Total Organic Halogen
CR⁶⁺ = Hexavalent Chromium

TABLE 2-1 (Cont'd)

SITE NO.	SITE NAME	MEDIA SAMPLED	NUMBER OF ANALYSES						
			EDB	TPH	TOC	TOX	CYANIDE	IONS	CR ⁶⁺
7	Amphibious Base Landfill	Groundwater	9	9	8	8	-	9	9
		Surface Water	6	6	5	5	-	11	6
9	Driving Range Landfill	Groundwater	6	6	6	6	-	6	6
10	Sewage Treatment Plant Landfills	Groundwater	8	8	8	8	-	8	8
11	School of Music Plating Shop	Groundwater	-	-	-	-	3	-	3
		Tank Liquids	-	-	-	-	1	-	1
		Tank Solids	-	-	-	-	2	-	2
12	Exchange Laundry Waste Disposal Area	Surface Water	-	-	-	-	-	-	-
		Sediment	-	-	-	-	-	-	-
13	Public Works compound PCP Dip Tank	Groundwater	-	6	-	-	-	-	-

Notes:

a = Includes 1 duplicate
 b = Includes 2 duplicates
 TCL = Target Compound List - Volatile Organic Compounds
 SVOC = - Semivolatile Organic Compounds
 Pest/PCBs = Pesticides/Polychlorinated Biphenyls
 Acid Extract = Acid Extractable Fraction
 EDB = Ethylene Dibromide
 TPH = Total Petroleum Hydrocarbons
 TOC = Total Organic Carbon
 TAL-metals = Target Analyte List - Metals
 TOX = Total Organic Halogen
 CR⁶⁺ = Hexavalent Chromium

TABLE 4-1
 SUMMARY OF 1986 AND 1990 GROUNDWATER DATA
 ANALYTICAL RESULTS
 AMPHIBIOUS BASE LANDFILL (SITE 7)
 LITTLE CREEK RI - (CONTRACT #: M62470-90-D-7646)

Sample No:	7-GW1		7-GW2		7-GW3			7-GW4		7-GW5		7-GW6		7-GW7		7-GW8		7-GW9	
	1986	1990	1986	1990	1986	1990	F. DUPL 1990	1986	1990	1986	1990*	1986	1990	1986	F. DUPL 1990	1986	1990	1986	1990
UNITS (UG/L)																			
VOLATILE FRACTION																			
Methylene chloride	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND
Acetone	BMDL	9B	BMDL	ND	BMDL	11B	10B	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	34B	BMDL	34B	BMDL	13B
Carbon disulfide	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND
Chloroform	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND
Bromodichloromethane	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND
Toluene	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND
UNITS (MG/L)																			
TOTAL PETROLEUM HYDROCARBO	NA	<1.0	NA	<1.0	NA	<1.0	NA	NA	<1.0	NA	NA	NA	<1.0	NA	<1.0	NA	<1.0	NA	<1.0
UNITS (UG/L)																			
ETHYLENE DIKROMIDE	NA	<0.01B	NA	<0.01B	NA	<0.01B	<0.01B	NA	<0.01B	NA	<0.01B	NA	<0.01B	NA	<0.01B	NA	<0.01B	NA	<0.01B
UNITS (UG/L)																			
BASE/NEUTRAL/ACID FRACTIONS																			
Acenaphthene	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND
Bis(2-ethylhexyl)phthalate	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND
Phenols	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND
Naphthalene	NA	ND	NA	ND	NA	ND	ND	NA	3J	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND
UNITS (UG/L)																			
TOC	NA	14.6	NA	16.9	NA	NA	NA	NA	NA	NA	20.9	NA	19.1	NA	15.3	NA	14.9	NA	13
UNITS (UG/L)																			
TOX	NA	27.9	NA	72.4	NA	NA	NA	NA	NA	NA	49.4	NA	51.3	NA	67.5	NA	124	NA	175
UNITS (UG/L)																			
PESTICIDES/PCBs FRACTION																			
Chlordane	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND
DDD	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND
DDE	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND
PCB 1248	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND
UNITS (MG/L)																			
IONS																			
Chloride	NA	325	NA	19	NA	335	NA	NA	84	NA	NA	NA	491	NA	11300	NA	10400	NA	12300
Sulfate	NA	11	NA	24	NA	352	NA	NA	622	NA	NA	NA	644	NA	398	NA	614	NA	1778
Alkalinity	NA	146	NA	219	NA	53	NA	NA	54	NA	NA	NA	721	NA	1410	NA	1270	NA	901

BMDL = Below Method Detect
 NA = Not Analysed
 ND = Not Detected
 B = Blank Contamination
 * = Monitoring Well LC7-GW

TABLE
SUMMARY OF 1986 AND 1990 SURFACE WATER DATA
ANALYTICAL RESULTS
AMPHIBIOUS BASE LANDFILL (SITE 7)
LITTLE CREEK - RI (CONTRACT #: M62470-90-D-7646)

Sample No: Date	7-SW1		7-SW2		7-SW3			7-SW4		7-SW5		7-SW6		
	1986	1990	1986	1990	1986	1990	1990DUP	1986	1990	1986	1990	1986	1990	1990DUP
UNITS (UG/L)														
VOLATILE FRACTION														
Methylene chloride	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	NA	NA	NA
Acetone	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	10B	BMDL	ND	NA	NA	NA
Carbon disulfide	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	NA	NA	NA
Chloroform	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	NA	NA	NA
Bromodichloromethane	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	NA	NA	NA
Toluene	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	NA	NA	NA
UNITS (MG/L)														
TOTAL PETROLEUM HYDROCARBONS	NA	1.0U	NA	1.0U	NA	1.0U	NA	NA	1.0U	NA	1.0U	NA	NA	NA
UNITS (UG/L)														
ETHYLENE DIBROMIDE	NA	0.018U	NA	0.018U	NA	0.018U	NA	NA	0.018U	NA	0.018U	NA	NA	NA
UNITS (UG/L)														
BASE/NEUTRAL/ACID FRACTIONS														
Acenaphthene	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	NA	NA	NA
Bis(2-ethylhexyl)phthalate	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	NA	NA	NA
Phenols	1.8	ND	2	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	NA	NA	NA
UNITS (MG/L)														
TOC	NA	4.44	NA	3.99	NA	3.9	NA	NA	2.44	NA	2.9	NA	NA	NA
UNITS (UG/L)														
TOX	NA	131	NA	53.3	NA	89.9	NA	NA	80	NA	59.1	NA	NA	NA
UNITS (UG/L)														
PESTICIDES/PCBs FRACTION														
Chlordane	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	NA	NA	NA
DDD	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	NA	NA	NA
DDE	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	NA	NA	NA
PCB 1260	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	NA	NA	NA
UNITS (MG/L)														
IONS														
Chloride	NA	20	NA	76	NA	3570	NA	NA	4270	NA	4090	NA	8430	8060
Sulfate	NA	27	NA	55	NA	549	NA	NA	590	NA	613	NA	1260	1210
Alkalinity	NA	61	NA	78	NA	51	NA	NA	46	NA	68	NA	69	76

BMDL = BELOW METHOD DETECTION LIMIT
NA = NOT ANALYSED
ND = NOT DETECTED
U = Sample Quantitation Limit
B = Blank Contamination

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0102

Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK

SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#529

Sample (wt/vol): 1000 mL

Lab File ID: >DB062

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/12/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2-----	Phenol	10.	U
111-44-4-----	bis(2-Chloroethyl) Ether	10.	U
95-57-8-----	2-Chlorophenol	10.	U
541-73-1-----	1,3-Dichlorobenzene	10.	U
106-46-7-----	1,4-Dichlorobenzene	10.	U
100-51-6-----	Benzyl alcohol	10.	U
95-50-1-----	1,2-Dichlorobenzene	10.	U
95-48-7-----	2-Methylphenol	10.	U
39638-32-9-----	bis(2-chloroisopropyl) ether	10.	U
106-44-5-----	4-Methylphenol	10.	U
621-64-7-----	N-Nitroso-Di-n-propylamine	10.	U
67-72-1-----	Hexachloroethane	10.	U
98-95-3-----	Nitrobenzene	10.	U
78-59-1-----	Isophorone	10.	U
88-75-5-----	2-Nitrophenol	10.	U
105-67-9-----	2,4-Dimethylphenol	10.	U
65-85-0-----	Benzoic acid	50.	U
111-91-1-----	bis(2-Chloroethoxy) methane	10.	U
120-83-2-----	2,4-Dichlorophenol	10.	U
120-82-1-----	1,2,4-Trichlorobenzene	10.	U
91-20-3-----	Naphthalene	10.	U
106-47-8-----	4-Chloroaniline	10.	U
87-68-3-----	Hexachlorobutadiene	10.	U
59-50-7-----	4-Chloro-3-methylphenol	10.	U
91-57-6-----	2-Methylnaphthalene	10.	U
77-47-4-----	Hexachlorocyclopentadiene	10.	U
88-06-2-----	2,4,6-Trichlorophenol	10.	U
95-95-4-----	2,4,5-Trichlorophenol	50.	U
91-58-7-----	2-Chloronaphthalene	10.	U
88-74-4-----	2-Nitroaniline	50.	U
131-11-3-----	Dimethylphthalate	10.	U
208-96-8-----	Acenaphthylene	10.	U
606-20-2-----	2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0102

Name: HITTMAN EBASCO Contract: ESI0-2901

Lab Code: HITTMAN Case No: LIT CRK SAS No: N.A. SDG No: N.A.

Matrix: WATER Lab Sample ID: HE#529

Sample (wt/vol): 1000 mL Lab File ID: >DB062

Level: LOW Date Received: 01/11/91

% Moisture: not dec.N.A. Date Extracted: 01/15/91

Extraction: SONC Date Analyzed: 2/12/91

GPC Cleanup: N pH: 7.2 Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2-----	3-Nitroaniline	50.	U
83-32-9-----	Acenaphthene	10.	U
51-28-5-----	2,4-Dinitrophenol	50.	U
100-02-7-----	4-Nitrophenol	50.	U
132-64-9-----	Dibenzofuran	10.	U
121-14-2-----	2,4-Dinitrotoluene	10.	U
84-66-2-----	Diethylphthalate	10.	U
7005-72-3-----	4-Chlorophenyl-phenylether	10.	U
86-73-7-----	Fluorene	10.	U
100-01-6-----	4-Nitroaniline	50.	U
534-52-1-----	4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----	N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----	4-Bromophenyl-phenylether	10.	U
118-74-1-----	Hexachlorobenzene	10.	U
87-86-5-----	Pentachlorophenol	50.	U
85-01-8-----	Phenanthrene	10.	U
120-12-7-----	Anthracene	10.	U
84-74-2-----	Di-n-butylphthalate	10.	U
206-44-0-----	Fluoranthene	10.	U
129-00-0-----	Pyrene	10.	U
85-68-7-----	Butylbenzylphthalate	10.	U
91-94-1-----	3,3'-Dichlorobenzidine	20.	U
56-55-3-----	Benzo(a)anthracene	10.	U
218-01-9-----	Chrysene	10.	U
117-81-7-----	bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----	Di-n-octylphthalate	10.	U
205-99-2-----	Benzo(b)fluoranthene	10.	U
207-08-9-----	Benzo(k)fluoranthene	10.	U
50-32-8-----	Benzo(a)pyrene	10.	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----	Dibenz(a,h)anthracene	10.	U
191-24-2-----	Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0202

Lab Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#530

Sample (wt/vol): 1000 mL

Lab File ID: >DB073

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/13/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2-----	3-Nitroaniline	50.	U
83-32-9-----	Acenaphthene	10.	U
51-28-5-----	2,4-Dinitrophenol	50.	U
100-02-7-----	4-Nitrophenol	50.	U
132-64-9-----	Dibenzofuran	10.	U
121-14-2-----	2,4-Dinitrotoluene	10.	U
84-66-2-----	Diethylphthalate	10.	U
7005-72-3-----	4-Chlorophenyl-phenylether	10.	U
86-73-7-----	Fluorene	10.	U
100-01-6-----	4-Nitroaniline	50.	U
534-52-1-----	4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----	N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----	4-Bromophenyl-phenylether	10.	U
118-74-1-----	Hexachlorobenzene	10.	U
87-86-5-----	Pentachlorophenol	50.	U
85-01-8-----	Phenanthrene	10.	U
120-12-7-----	Anthracene	10.	U
84-74-2-----	Di-n-butylphthalate	10.	U
206-44-0-----	Fluoranthene	10.	U
129-00-0-----	Pyrene	10.	U
85-68-7-----	Butylbenzylphthalate	10.	U
91-94-1-----	3,3'-Dichlorobenzidine	20.	U
56-55-3-----	Benzo(a)anthracene	10.	U
218-01-9-----	Chrysene	10.	U
117-81-7-----	bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----	Di-n-octylphthalate	10.	U
205-99-2-----	Benzo(b)fluoranthene	10.	U
207-08-9-----	Benzo(k)fluoranthene	10.	U
50-32-8-----	Benzo(a)pyrene	10.	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----	Dibenz(a,h)anthracene	10.	U
191-24-2-----	Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0302

Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK

SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#539

Sample (wt/vol): 1000 mL

Lab File ID: >DB074

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/13/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

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

108-95-2-----Phenol	10.	U
111-44-4-----bis(2-Chloroethyl) Ether	10.	U
95-57-8-----2-Chlorophenol	10.	U
541-73-1-----1,3-Dichlorobenzene	10.	U
106-46-7-----1,4-Dichlorobenzene	10.	U
100-51-6-----Benzyl alcohol	10.	U
95-50-1-----1,2-Dichlorobenzene	10.	U
95-48-7-----2-Methylphenol	10.	U
39638-32-9-----bis(2-chloroisopropyl) ether	10.	U
106-44-5-----4-Methylphenol	10.	U
621-64-7-----N-Nitroso-Di-n-propylamine	10.	U
67-72-1-----Hexachloroethane	10.	U
98-95-3-----Nitrobenzene	10.	U
78-59-1-----Isophorone	10.	U
88-75-5-----2-Nitrophenol	10.	U
105-67-9-----2,4-Dimethylphenol	10.	U
65-85-0-----Benzoic acid	50.	U
111-91-1-----bis(2-Chloroethoxy)methane	10.	U
120-83-2-----2,4-Dichlorophenol	10.	U
120-82-1-----1,2,4-Trichlorobenzene	10.	U
91-20-3-----Naphthalene	10.	U
106-47-8-----4-Chloroaniline	10.	U
87-68-3-----Hexachlorobutadiene	10.	U
59-50-7-----4-Chloro-3-methylphenol	10.	U
91-57-6-----2-Methylnaphthalene	10.	U
77-47-4-----Hexachlorocyclopentadiene	10.	U
88-06-2-----2,4,6-Trichlorophenol	10.	U
95-95-4-----2,4,5-Trichlorophenol	50.	U
91-58-7-----2-Chloronaphthalene	10.	U
88-74-4-----2-Nitroaniline	50.	U
131-11-3-----Dimethylphthalate	10.	U
208-96-8-----Acenaphthylene	10.	U
606-20-2-----2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0302

Lab Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK

SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#539

Sample (wt/vol): 1000 mL

Lab File ID: >DB074

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/13/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

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

CAS NO.

COMPOUND

Q

99-09-2-----3-Nitroaniline	50.	U
83-32-9-----Acenaphthene	10.	U
51-28-5-----2,4-Dinitrophenol	50.	U
100-02-7-----4-Nitrophenol	50.	U
132-64-9-----Dibenzofuran	10.	U
121-14-2-----2,4-Dinitrotoluene	10.	U
84-66-2-----Diethylphthalate	10.	U
7005-72-3-----4-Chlorophenyl-phenylether	10.	U
86-73-7-----Fluorene	10.	U
100-01-6-----4-Nitroaniline	50.	U
534-52-1-----4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----4-Bromophenyl-phenylether	10.	U
118-74-1-----Hexachlorobenzene	10.	U
87-86-5-----Pentachlorophenol	50.	U
85-01-8-----Phenanthrene	10.	U
120-12-7-----Anthracene	10.	U
84-74-2-----Di-n-butylphthalate	10.	U
206-44-0-----Fluoranthene	10.	U
129-00-0-----Pyrene	10.	U
85-68-7-----Butylbenzylphthalate	10.	U
91-94-1-----3,3'-Dichlorobenzidine	20.	U
56-55-3-----Benzo(a)anthracene	10.	U
218-01-9-----Chrysene	10.	U
117-81-7-----bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----Di-n-octylphthalate	10.	U
205-99-2-----Benzo(b)fluoranthene	10.	U
207-08-9-----Benzo(k)fluoranthene	10.	U
50-32-8-----Benzo(a)pyrene	10.	U
193-39-5-----Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----Dibenz(a,h)anthracene	10.	U
191-24-2-----Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07DGW0302

Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK

SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#540

Sample (wt/vol): 1000 mL

Lab File ID: >DB075

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/13/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10.	U
111-44-4	bis(2-Chloroethyl) Ether	10.	U
95-57-8	2-Chlorophenol	10.	U
541-73-1	1,3-Dichlorobenzene	10.	U
106-46-7	1,4-Dichlorobenzene	10.	U
100-51-6	Benzyl alcohol	10.	U
95-50-1	1,2-Dichlorobenzene	10.	U
95-48-7	2-Methylphenol	10.	U
39638-32-9	bis(2-chloroisopropyl) ether	10.	U
106-44-5	4-Methylphenol	10.	U
621-64-7	N-Nitroso-Di-n-propylamine	10.	U
67-72-1	Hexachloroethane	10.	U
98-95-3	Nitrobenzene	10.	U
78-59-1	Isophorone	10.	U
88-75-5	2-Nitrophenol	10.	U
105-67-9	2,4-Dimethylphenol	10.	U
65-85-0	Benzoic acid	50.	U
111-91-1	bis(2-Chloroethoxy)methane	10.	U
120-83-2	2,4-Dichlorophenol	10.	U
120-82-1	1,2,4-Trichlorobenzene	10.	U
91-20-3	Naphthalene	10.	U
106-47-8	4-Chloroaniline	10.	U
87-68-3	Hexachlorobutadiene	10.	U
59-50-7	4-Chloro-3-methylphenol	10.	U
91-57-6	2-Methylnaphthalene	10.	U
77-47-4	Hexachlorocyclopentadiene	10.	U
88-06-2	2,4,6-Trichlorophenol	10.	U
95-95-4	2,4,5-Trichlorophenol	50.	U
91-58-7	2-Chloronaphthalene	10.	U
88-74-4	2-Nitroaniline	50.	U
131-11-3	Dimethylphthalate	10.	U
208-96-8	Acenaphthylene	10.	U
606-20-2	2,6-Dinitrotoluene	10.	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0402

Name: Hittman Ebasco

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK

SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#531

Sample (wt/vol): 1000 mL

Lab File ID: >BB071

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SEPF

Date Analyzed: 2/12/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2-----	Phenol	10.	U
111-44-4-----	bis(-2-Chloroethyl) Ether	10.	U
95-57-8-----	2-Chlorophenol	10.	U
541-73-1-----	1,3-Dichlorobenzene	10.	U
106-46-7-----	1,4-Dichlorobenzene	10.	U
100-51-6-----	Benzyl alcohol	10.	U
95-50-1-----	1,2-Dichlorobenzene	10.	U
95-48-7-----	2-Methylphenol	10.	U
39638-32-9-----	bis(2-chloroisopropyl) ether	10.	U
106-44-5-----	4-Methylphenol	10.	U
621-64-7-----	N-Nitroso-Di-n-propylamine	10.	U
67-72-1-----	Hexachloroethane	10.	U
98-95-3-----	Nitrobenzene	10.	U
78-59-1-----	Isophorone	10.	U
88-75-5-----	2-Nitrophenol	10.	U
105-67-9-----	2,4-Dimethylphenol	10.	U
65-85-0-----	Benzoic acid	50.	U
111-91-1-----	bis(-2-Chloroethoxy) methane	10.	U
120-83-2-----	2,4-Dichlorophenol	10.	U
120-82-1-----	1,2,4-Trichlorobenzene	10.	U
91-20-3-----	Naphthalene	3.	J
106-47-8-----	4-Chloroaniline	10.	U
87-68-3-----	Hexachlorobutadiene	10.	U
59-50-7-----	4-Chloro-3-methylphenol	10.	U
91-57-6-----	2-Methylnaphthalene	10.	U
77-47-4-----	Hexachlorocyclopentadiene	10.	U
88-06-2-----	2,4,6-Trichlorophenol	10.	U
95-95-4-----	2,4,5-Trichlorophenol	50.	U
91-58-7-----	2-Chloronaphthalene	10.	U
88-74-4-----	2-Nitroaniline	50.	U
131-11-3-----	Dimethyl Phthalate	10.	U
208-96-8-----	Acenaphthylene	10.	U
606-20-2-----	2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0402

Name: Hittman Ebasco

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK

SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#531

Sample (wt/vol): 1000 mL

Lab File ID: >BB071

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SEPF

Date Analyzed: 2/12/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
---------	----------	--	---

99-09-2-----3-Nitroaniline	50.	U
83-32-9-----Acenaphthene	10.	U
51-28-5-----2,4-Dinitrophenol	50.	U
100-02-7-----4-Nitrophenol	50.	U
132-64-9-----Dibenzofuran	10.	U
121-14-2-----2,4-Dinitrotoluene	10.	U
84-66-2-----Diethylphthalate	10.	U
7005-72-3-----4-Chlorophenyl-phenylether	10.	U
86-73-7-----Fluorene	10.	U
100-01-6-----4-Nitroaniline	50.	U
534-52-1-----4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----4-Bromophenyl-phenylether	10.	U
118-74-1-----Hexachlorobenzene	10.	U
87-86-5-----Pentachlorophenol	50.	U
85-01-8-----Phenanthrene	10.	U
120-12-7-----Anthracene	10.	U
84-74-2-----Di-n-butylphthalate	10.	U
206-44-0-----Fluoranthene	10.	U
129-00-0-----Pyrene	10.	U
85-68-7-----Butylbenzylphthalate	10.	U
91-94-1-----3,3'-Dichlorobenzidine	10.	U
56-55-3-----Benzo(a)anthracene	10.	U
218-01-9-----Chrysene	10.	U
117-81-7-----bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----Di-n-octyl Phthalate	10.	U
205-99-2-----Benzo(b)fluoranthene	10.	U
207-08-9-----Benzo(k)fluoranthene	10.	U
50-32-8-----Benzo(a)pyrene	10.	U
193-39-5-----Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----Dibenzo(a,h)anthracene	10.	U
191-24-2-----Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0602

Lab Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK

SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#532

Sample (wt/vol): 1000 mL

Lab File ID: >DB084

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/13/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
---------	----------	--	---

108-95-2-----	Phenol	10.	U
111-44-4-----	bis(2-Chloroethyl) Ether	10.	U
95-57-8-----	2-Chlorophenol	10.	U
541-73-1-----	1,3-Dichlorobenzene	10.	U
106-46-7-----	1,4-Dichlorobenzene	10.	U
100-51-6-----	Benzyl alcohol	10.	U
95-50-1-----	1,2-Dichlorobenzene	10.	U
95-48-7-----	2-Methylphenol	10.	U
39638-32-9-----	bis(2-chloroisopropyl) ether	10.	U
106-44-5-----	4-Methylphenol	10.	U
621-64-7-----	N-Nitroso-Di-n-propylamine	10.	U
67-72-1-----	Hexachloroethane	10.	U
98-95-3-----	Nitrobenzene	10.	U
78-59-1-----	Isophorone	10.	U
88-75-5-----	2-Nitrophenol	10.	U
105-67-9-----	2,4-Dimethylphenol	10.	U
65-85-0-----	Benzoic acid	50.	U
111-91-1-----	bis(2-Chloroethoxy)methane	10.	U
120-83-2-----	2,4-Dichlorophenol	10.	U
120-82-1-----	1,2,4-Trichlorobenzene	10.	U
91-20-3-----	Naphthalene	10.	U
106-47-8-----	4-Chloroaniline	10.	U
87-68-3-----	Hexachlorobutadiene	10.	U
59-50-7-----	4-Chloro-3-methylphenol	10.	U
91-57-6-----	2-Methylnaphthalene	10.	U
77-47-4-----	Hexachlorocyclopentadiene	10.	U
88-06-2-----	2,4,6-Trichlorophenol	10.	U
95-95-4-----	2,4,5-Trichlorophenol	50.	U
91-58-7-----	2-Chloronaphthalene	10.	U
88-74-4-----	2-Nitroaniline	50.	U
131-11-3-----	Dimethylphthalate	10.	U
208-96-8-----	Acenaphthylene	10.	U
606-20-2-----	2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0602

Lab Name: HITTMAN EBASCO Contract: ESI0-2901

Lab Code: HITTMAN Case No: LIT CRK SAS No: N.A. SDG No: N.A.

Matrix: WATER Lab Sample ID: HE#532

Sample (wt/vol): 1000 mL Lab File ID: >DB084

Level: LOW Date Received: 01/11/91

% Moisture: not dec.N.A. Date Extracted: 01/15/91

Extraction: SONC Date Analyzed: 2/13/91

GPC Cleanup: N pH: 7.2 Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2-----	3-Nitroaniline	50.	U
83-32-9-----	Acenaphthene	10.	U
51-28-5-----	2,4-Dinitrophenol	50.	U
100-02-7-----	4-Nitrophenol	50.	U
132-64-9-----	Dibenzofuran	10.	U
121-14-2-----	2,4-Dinitrotoluene	10.	U
84-66-2-----	Diethylphthalate	10.	U
7005-72-3-----	4-Chlorophenyl-phenylether	10.	U
86-73-7-----	Fluorene	10.	U
100-01-6-----	4-Nitroaniline	50.	U
534-52-1-----	4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----	N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----	4-Bromophenyl-phenylether	10.	U
118-74-1-----	Hexachlorobenzene	10.	U
87-86-5-----	Pentachlorophenol	50.	U
85-01-8-----	Phenanthrene	10.	U
120-12-7-----	Anthracene	10.	U
84-74-2-----	Di-n-butylphthalate	10.	U
206-44-0-----	Fluoranthene	10.	U
129-00-0-----	Pyrene	10.	U
85-68-7-----	Butylbenzylphthalate	10.	U
91-94-1-----	3,3'-Dichlorobenzidine	20.	U
56-55-3-----	Benzo(a)anthracene	10.	U
218-01-9-----	Chrysene	10.	U
117-81-7-----	bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----	Di-n-octylphthalate	10.	U
205-99-2-----	Benzo(b)fluoranthene	10.	U
207-08-9-----	Benzo(k)fluoranthene	10.	U
50-32-8-----	Benzo(a)pyrene	10.	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----	Dibenz(a,h)anthracene	10.	U
191-24-2-----	Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0702

1 Name: HITTMAN EBASCO Contract: ESI0-2901
 Lab Code: HITTMAN Case No: LIT CRK SAS No: N.A. SDG No: N.A.
 Matrix: WATER Lab Sample ID: HE#535
 Sample (wt/vol): 1000 mL Lab File ID: >DB102
 Level: LOW Date Received: 01/11/91
 % Moisture: not dec.N.A. Date Extracted: 01/15/91
 Extraction: SONC Date Analyzed: 2/14/91
 GPC Cleanup: N pH: 7.2 Dilution Factor: 1.0000

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

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10.	U
111-44-4	bis(2-Chloroethyl) Ether	10.	U
95-57-8	2-Chlorophenol	10.	U
541-73-1	1,3-Dichlorobenzene	10.	U
106-46-7	1,4-Dichlorobenzene	10.	U
100-51-6	Benzyl alcohol	10.	U
95-50-1	1,2-Dichlorobenzene	10.	U
95-48-7	2-Methylphenol	10.	U
39638-32-9	bis(2-chloroisopropyl) ether	10.	U
106-44-5	4-Methylphenol	10.	U
621-64-7	N-Nitroso-Di-n-propylamine	10.	U
67-72-1	Hexachloroethane	10.	U
98-95-3	Nitrobenzene	10.	U
78-59-1	Isophorone	10.	U
88-75-5	2-Nitrophenol	10.	U
105-67-9	2,4-Dimethylphenol	10.	U
65-85-0	Benzoic acid	50.	U
111-91-1	bis(2-Chloroethoxy)methane	10.	U
120-83-2	2,4-Dichlorophenol	10.	U
120-82-1	1,2,4-Trichlorobenzene	10.	U
91-20-3	Naphthalene	10.	U
106-47-8	4-Chloroaniline	10.	U
87-68-3	Hexachlorobutadiene	10.	U
59-50-7	4-Chloro-3-methylphenol	10.	U
91-57-6	2-Methylnaphthalene	10.	U
77-47-4	Hexachlorocyclopentadiene	10.	U
88-06-2	2,4,6-Trichlorophenol	10.	U
95-95-4	2,4,5-Trichlorophenol	50.	U
91-58-7	2-Chloronaphthalene	10.	U
88-74-4	2-Nitroaniline	50.	U
131-11-3	Dimethylphthalate	10.	U
208-96-8	Acenaphthylene	10.	U
606-20-2	2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0702

Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#535

Sample (wt/vol): 1000 mL

Lab File ID: >DB102

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/14/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
---------	----------	--	---

99-09-2-----3-Nitroaniline	50.	U
83-32-9-----Acenaphthene	10.	U
51-28-5-----2,4-Dinitrophenol	50.	U
100-02-7-----4-Nitrophenol	50.	U
132-64-9-----Dibenzofuran	10.	U
121-14-2-----2,4-Dinitrotoluene	10.	U
84-66-2-----Diethylphthalate	10.	U
7005-72-3-----4-Chlorophenyl-phenylether	10.	U
86-73-7-----Fluorene	10.	U
100-01-6-----4-Nitroaniline	50.	U
534-52-1-----4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----4-Bromophenyl-phenylether	10.	U
118-74-1-----Hexachlorobenzene	10.	U
87-86-5-----Pentachlorophenol	50.	U
85-01-8-----Phenanthrene	10.	U
120-12-7-----Anthracene	10.	U
84-74-2-----Di-n-butylphthalate	10.	U
206-44-0-----Fluoranthene	10.	U
129-00-0-----Pyrene	10.	U
85-68-7-----Butylbenzylphthalate	10.	U
91-94-1-----3,3'-Dichlorobenzidine	20.	U
56-55-3-----Benzo(a)anthracene	10.	U
218-01-9-----Chrysene	10.	U
117-81-7-----bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----Di-n-octylphthalate	10.	U
205-99-2-----Benzo(b)fluoranthene	10.	U
207-08-9-----Benzo(k)fluoranthene	10.	U
50-32-8-----Benzo(a)pyrene	10.	U
193-39-5-----Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----Dibenz(a,h)anthracene	10.	U
191-24-2-----Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0802

Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK

SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#534

Sample (wt/vol): 1000 mL

Lab File ID: >DB086

Level: LOW

Date Received: 01/11/91

* Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/14/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2-----	Phenol	10.	U
111-44-4-----	bis(2-Chloroethyl) Ether	10.	U
95-57-8-----	2-Chlorophenol	10.	U
541-73-1-----	1,3-Dichlorobenzene	10.	U
106-46-7-----	1,4-Dichlorobenzene	10.	U
100-51-6-----	Benzyl alcohol	10.	U
95-50-1-----	1,2-Dichlorobenzene	10.	U
95-48-7-----	2-Methylphenol	10.	U
39638-32-9-----	bis(2-chloroisopropyl) ether	10.	U
106-44-5-----	4-Methylphenol	10.	U
621-64-7-----	N-Nitroso-Di-n-propylamine	10.	U
67-72-1-----	Hexachloroethane	10.	U
98-95-3-----	Nitrobenzene	10.	U
78-59-1-----	Isophorone	10.	U
88-75-5-----	2-Nitrophenol	10.	U
105-67-9-----	2,4-Dimethylphenol	10.	U
65-85-0-----	Benzoic acid	50.	U
111-91-1-----	bis(2-Chloroethoxy)methane	10.	U
120-83-2-----	2,4-Dichlorophenol	10.	U
120-82-1-----	1,2,4-Trichlorobenzene	10.	U
91-20-3-----	Naphthalene	10.	U
106-47-8-----	4-Chloroaniline	10.	U
87-68-3-----	Hexachlorobutadiene	10.	U
59-50-7-----	4-Chloro-3-methylphenol	10.	U
91-57-6-----	2-Methylnaphthalene	10.	U
77-47-4-----	Hexachlorocyclopentadiene	10.	U
88-06-2-----	2,4,6-Trichlorophenol	10.	U
95-95-4-----	2,4,5-Trichlorophenol	50.	U
91-58-7-----	2-Chloronaphthalene	10.	U
88-74-4-----	2-Nitroaniline	50.	U
131-11-3-----	Dimethylphthalate	10.	U
208-96-8-----	Acenaphthylene	10.	U
606-20-2-----	2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0802

1 Name: HITTMAN EBASCO Contract: ESI0-2901

Lab Code: HITTMAN Case No: LIT CRK SAS No: N.A. SDG No: N.A.

Matrix: WATER Lab Sample ID: HE#534

Sample (wt/vol): 1000 mL Lab File ID: >DB086

Level: LOW Date Received: 01/11/91

% Moisture: not dec.N.A. Date Extracted: 01/15/91

Extraction: SONC Date Analyzed: 2/14/91

GPC Cleanup: N pH: 7.2 Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	50.	U
83-32-9	Acenaphthene	10.	U
51-28-5	2,4-Dinitrophenol	50.	U
100-02-7	4-Nitrophenol	50.	U
132-64-9	Dibenzofuran	10.	U
121-14-2	2,4-Dinitrotoluene	10.	U
84-66-2	Diethylphthalate	10.	U
7005-72-3	4-Chlorophenyl-phenylether	10.	U
86-73-7	Fluorene	10.	U
100-01-6	4-Nitroaniline	50.	U
534-52-1	4,6-Dinitro-2-methylphenol	50.	U
86-30-6	N-Nitrosodiphenylamine (1)	10.	U
101-55-3	4-Bromophenyl-phenylether	10.	U
118-74-1	Hexachlorobenzene	10.	U
87-86-5	Pentachlorophenol	50.	U
85-01-8	Phenanthrene	10.	U
120-12-7	Anthracene	10.	U
84-74-2	Di-n-butylphthalate	10.	U
206-44-0	Fluoranthene	10.	U
129-00-0	Pyrene	10.	U
85-68-7	Butylbenzylphthalate	10.	U
91-94-1	3,3'-Dichlorobenzidine	20.	U
56-55-3	Benzo(a)anthracene	10.	U
218-01-9	Chrysene	10.	U
117-81-7	bis(2-Ethylhexyl)phthalate	10.	U
117-84-0	Di-n-octylphthalate	10.	U
205-99-2	Benzo(b)fluoranthene	10.	U
207-08-9	Benzo(k)fluoranthene	10.	U
50-32-8	Benzo(a)pyrene	10.	U
193-39-5	Indeno(1,2,3-cd)pyrene	10.	U
53-70-3	Dibenz(a,h)anthracene	10.	U
191-24-2	Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0902

Name: HITTMAN EBASCO Contract: ESI0-2901

Lab Code: HITTMAN Case No: LIT CRK SAS No: N.A. SDG No: N.A.

Matrix: WATER Lab Sample ID: HE#533

Sample (wt/vol): 1000 mL Lab File ID: >DB085

Level: LOW Date Received: 01/11/91

% Moisture: not dec.N.A. Date Extracted: 01/15/91

Extraction: SONC Date Analyzed: 2/14/91

GPC Cleanup: N pH: 7.2 Dilution Factor: 1.0000

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

CAS NO. COMPOUND Q

108-95-2-----Phenol	10.	U
111-44-4-----bis(2-Chloroethyl) Ether	10.	U
95-57-8-----2-Chlorophenol	10.	U
541-73-1-----1,3-Dichlorobenzene	10.	U
106-46-7-----1,4-Dichlorobenzene	10.	U
100-51-6-----Benzyl alcohol	10.	U
95-50-1-----1,2-Dichlorobenzene	10.	U
95-48-7-----2-Methylphenol	10.	U
39638-32-9-----bis(2-chloroisopropyl) ether	10.	U
106-44-5-----4-Methylphenol	10.	U
621-64-7-----N-Nitroso-Di-n-propylamine	10.	U
67-72-1-----Hexachloroethane	10.	U
98-95-3-----Nitrobenzene	10.	U
78-59-1-----Isophorone	10.	U
88-75-5-----2-Nitrophenol	10.	U
105-67-9-----2,4-Dimethylphenol	10.	U
65-85-0-----Benzoic acid	50.	U
111-91-1-----bis(2-Chloroethoxy) methane	10.	U
120-83-2-----2,4-Dichlorophenol	10.	U
120-82-1-----1,2,4-Trichlorobenzene	10.	U
91-20-3-----Naphthalene	10.	U
106-47-8-----4-Chloroaniline	10.	U
87-68-3-----Hexachlorobutadiene	10.	U
59-50-7-----4-Chloro-3-methylphenol	10.	U
91-57-6-----2-Methylnaphthalene	10.	U
77-47-4-----Hexachlorocyclopentadiene	10.	U
88-06-2-----2,4,6-Trichlorophenol	10.	U
95-95-4-----2,4,5-Trichlorophenol	50.	U
91-58-7-----2-Chloronaphthalene	10.	U
88-74-4-----2-Nitroaniline	50.	U
131-11-3-----Dimethylphthalate	10.	U
208-96-8-----Acenaphthylene	10.	U
606-20-2-----2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SGW0902

Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK

SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#533

Sample (wt/vol): 1000 mL

Lab File ID: >DB085

Level: LOW

Date Received: 01/11/91

Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/14/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

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

99-09-2-----3-Nitroaniline	50.	U
83-32-9-----Acenaphthene	10.	U
51-28-5-----2,4-Dinitrophenol	50.	U
100-02-7-----4-Nitrophenol	50.	U
132-64-9-----Dibenzofuran	10.	U
121-14-2-----2,4-Dinitrotoluene	10.	U
84-66-2-----Diethylphthalate	10.	U
7005-72-3-----4-Chlorophenyl-phenylether	10.	U
86-73-7-----Fluorene	10.	U
100-01-6-----4-Nitroaniline	50.	U
534-52-1-----4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----4-Bromophenyl-phenylether	10.	U
118-74-1-----Hexachlorobenzene	10.	U
87-86-5-----Pentachlorophenol	50.	U
85-01-8-----Phenanthrene	10.	U
120-12-7-----Anthracene	10.	U
84-74-2-----Di-n-butylphthalate	10.	U
206-44-0-----Fluoranthene	10.	U
129-00-0-----Pyrene	10.	U
85-68-7-----Butylbenzylphthalate	10.	U
91-94-1-----3,3'-Dichlorobenzidine	20.	U
56-55-3-----Benzo(a)anthracene	10.	U
218-01-9-----Chrysene	10.	U
117-81-7-----bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----Di-n-octylphthalate	10.	U
205-99-2-----Benzo(b)fluoranthene	10.	U
207-08-9-----Benzo(k)fluoranthene	10.	U
50-32-8-----Benzo(a)pyrene	10.	U
193-39-5-----Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----Dibenz(a,h)anthracene	10.	U
191-24-2-----Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SSW0102

Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK

SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#523

Sample (wt/vol): 1000 mL

Lab File ID: >DB056

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/12/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
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108-95-2-----	Phenol	10.	U
111-44-4-----	bis(2-Chloroethyl) Ether	10.	U
95-57-8-----	2-Chlorophenol	10.	U
541-73-1-----	1,3-Dichlorobenzene	10.	U
106-46-7-----	1,4-Dichlorobenzene	10.	U
100-51-6-----	Benzyl alcohol	10.	U
95-50-1-----	1,2-Dichlorobenzene	10.	U
95-48-7-----	2-Methylphenol	10.	U
39638-32-9-----	bis(2-chloroisopropyl) ether	10.	U
106-44-5-----	4-Methylphenol	10.	U
621-64-7-----	N-Nitroso-Di-n-propylamine	10.	U
67-72-1-----	Hexachloroethane	10.	U
98-95-3-----	Nitrobenzene	10.	U
78-59-1-----	Isophorone	10.	U
88-75-5-----	2-Nitrophenol	10.	U
105-67-9-----	2,4-Dimethylphenol	10.	U
65-85-0-----	Benzoic acid	50.	U
111-91-1-----	bis(2-Chloroethoxy) methane	10.	U
120-83-2-----	2,4-Dichlorophenol	10.	U
120-82-1-----	1,2,4-Trichlorobenzene	10.	U
91-20-3-----	Naphthalene	10.	U
106-47-8-----	4-Chloroaniline	10.	U
87-68-3-----	Hexachlorobutadiene	10.	U
59-50-7-----	4-Chloro-3-methylphenol	10.	U
91-57-6-----	2-Methylnaphthalene	10.	U
77-47-4-----	Hexachlorocyclopentadiene	10.	U
88-06-2-----	2,4,6-Trichlorophenol	10.	U
95-95-4-----	2,4,5-Trichlorophenol	50.	U
91-58-7-----	2-Chloronaphthalene	10.	U
88-74-4-----	2-Nitroaniline	50.	U
131-11-3-----	Dimethylphthalate	10.	U
208-96-8-----	Acenaphthylene	10.	U
606-20-2-----	2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SSW0102

Name: HITTMAN EBASCO Contract: ESI0-2901

Lab Code: HITTMAN Case No: LIT CRK SAS No: N.A. SDG No: N.A.

Matrix: WATER Lab Sample ID: HE#523

Sample (wt/vol): 1000 mL Lab File ID: >DB056

Level: LOW Date Received: 01/11/91

% Moisture: not dec.N.A. Date Extracted: 01/15/91

Extraction: SONC Date Analyzed: 2/12/91

GPC Cleanup: N pH: 7.2 Dilution Factor: 1.0000

CONCENTRATION UNITS:
CAS NO. COMPOUND (ug/L or ug/Kg) ug/L Q

99-09-2-----3-Nitroaniline	50.	U
83-32-9-----Acenaphthene	10.	U
51-28-5-----2,4-Dinitrophenol	50.	U
100-02-7-----4-Nitrophenol	50.	U
132-64-9-----Dibenzofuran	10.	U
121-14-2-----2,4-Dinitrotoluene	10.	U
84-66-2-----Diethylphthalate	10.	U
7005-72-3-----4-Chlorophenyl-phenylether	10.	U
86-73-7-----Fluorene	10.	U
100-01-6-----4-Nitroaniline	50.	U
534-52-1-----4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----4-Bromophenyl-phenylether	10.	U
118-74-1-----Hexachlorobenzene	10.	U
87-86-5-----Pentachlorophenol	50.	U
85-01-8-----Phenanthrene	10.	U
120-12-7-----Anthracene	10.	U
84-74-2-----Di-n-butylphthalate	10.	U
206-44-0-----Fluoranthene	10.	U
129-00-0-----Pyrene	10.	U
85-68-7-----Butylbenzylphthalate	10.	U
91-94-1-----3,3'-Dichlorobenzidine	20.	U
56-55-3-----Benzo(a)anthracene	10.	U
218-01-9-----Chrysene	10.	U
117-81-7-----bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----Di-n-octylphthalate	10.	U
205-99-2-----Benzo(b)fluoranthene	10.	U
207-08-9-----Benzo(k)fluoranthene	10.	U
50-32-8-----Benzo(a)pyrene	10.	U
193-39-5-----Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----Dibenz(a,h)anthracene	10.	U
191-24-2-----Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SSW0202

Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK

SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#524

Sample (wt/vol): 1000 mL

Lab File ID: >DB057

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/12/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
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108-95-2-----	Phenol	10.	U
111-44-4-----	bis(2-Chloroethyl) Ether	10.	U
95-57-8-----	2-Chlorophenol	10.	U
541-73-1-----	1,3-Dichlorobenzene	10.	U
106-46-7-----	1,4-Dichlorobenzene	10.	U
100-51-6-----	Benzyl alcohol	10.	U
95-50-1-----	1,2-Dichlorobenzene	10.	U
95-48-7-----	2-Methylphenol	10.	U
39638-32-9-----	bis(2-chloroisopropyl) ether	10.	U
106-44-5-----	4-Methylphenol	10.	U
621-64-7-----	N-Nitroso-Di-n-propylamine	10.	U
67-72-1-----	Hexachloroethane	10.	U
98-95-3-----	Nitrobenzene	10.	U
78-59-1-----	Isophorone	10.	U
88-75-5-----	2-Nitrophenol	10.	U
105-67-9-----	2,4-Dimethylphenol	10.	U
65-85-0-----	Benzoic acid	50.	U
111-91-1-----	bis(2-Chloroethoxy) methane	10.	U
120-83-2-----	2,4-Dichlorophenol	10.	U
120-82-1-----	1,2,4-Trichlorobenzene	10.	U
91-20-3-----	Naphthalene	10.	U
106-47-8-----	4-Chloroaniline	10.	U
87-68-3-----	Hexachlorobutadiene	10.	U
59-50-7-----	4-Chloro-3-methylphenol	10.	U
91-57-6-----	2-Methylnaphthalene	10.	U
77-47-4-----	Hexachlorocyclopentadiene	10.	U
88-06-2-----	2,4,6-Trichlorophenol	10.	U
95-95-4-----	2,4,5-Trichlorophenol	50.	U
91-58-7-----	2-Chloronaphthalene	10.	U
88-74-4-----	2-Nitroaniline	50.	U
131-11-3-----	Dimethylphthalate	10.	U
208-96-8-----	Acenaphthylene	10.	U
606-20-2-----	2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SSW0202

Name: HITTMAN EBASCO Contract: ESIO-2901

Lab Code: HITTMAN Case No: LIT CRK SAS No: N.A. SDG No: N.A.

Matrix: WATER Lab Sample ID: HE#524

Sample (wt/vol): 1000 mL Lab File ID: >DB057

Level: LOW Date Received: 01/11/91

% Moisture: not dec.N.A. Date Extracted: 01/15/91

Extraction: SONC Date Analyzed: 2/12/91

GPC Cleanup: N pH: 7.2 Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2-----	3-Nitroaniline	50.	U
83-32-9-----	Acenaphthene	10.	U
51-28-5-----	2,4-Dinitrophenol	50.	U
100-02-7-----	4-Nitrophenol	50.	U
132-64-9-----	Dibenzofuran	10.	U
121-14-2-----	2,4-Dinitrotoluene	10.	U
84-66-2-----	Diethylphthalate	10.	U
7005-72-3-----	4-Chlorophenyl-phenylether	10.	U
86-73-7-----	Fluorene	10.	U
100-01-6-----	4-Nitroaniline	50.	U
534-52-1-----	4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----	N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----	4-Bromophenyl-phenylether	10.	U
118-74-1-----	Hexachlorobenzene	10.	U
87-86-5-----	Pentachlorophenol	50.	U
85-01-8-----	Phenanthrene	10.	U
120-12-7-----	Anthracene	10.	U
84-74-2-----	Di-n-butylphthalate	10.	U
206-44-0-----	Fluoranthene	10.	U
129-00-0-----	Pyrene	10.	U
85-68-7-----	Butylbenzylphthalate	10.	U
91-94-1-----	3,3'-Dichlorobenzidine	20.	U
56-55-3-----	Benzo(a)anthracene	10.	U
218-01-9-----	Chrysene	10.	U
117-81-7-----	bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----	Di-n-octylphthalate	10.	U
205-99-2-----	Benzo(b)fluoranthene	10.	U
207-08-9-----	Benzo(k)fluoranthene	10.	U
50-32-8-----	Benzo(a)pyrene	10.	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----	Dibenz(a,h)anthracene	10.	U
191-24-2-----	Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SSW0302

Name: HITTMAN EBASCO Contract: ESI0-2901

Lab Code: HITTMAN Case No: LIT CRK SAS No: N.A. SDG No: N.A.

Matrix: WATER Lab Sample ID: HE#525

Sample (wt/vol): 1000 mL Lab File ID: >DB058

Level: LOW Date Received: 01/11/91

% Moisture: not dec.N.A. Date Extracted: 01/15/91

Extraction: SONC Date Analyzed: 2/12/91

GPC Cleanup: N pH: 7.2 Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2-----	Phenol	10.	U
111-44-4-----	bis(2-Chloroethyl) Ether	10.	U
95-57-8-----	2-Chlorophenol	10.	U
541-73-1-----	1,3-Dichlorobenzene	10.	U
106-46-7-----	1,4-Dichlorobenzene	10.	U
100-51-6-----	Benzyl alcohol	10.	U
95-50-1-----	1,2-Dichlorobenzene	10.	U
95-48-7-----	2-Methylphenol	10.	U
39638-32-9-----	bis(2-chloroisopropyl) ether	10.	U
106-44-5-----	4-Methylphenol	10.	U
621-64-7-----	N-Nitroso-Di-n-propylamine	10.	U
67-72-1-----	Hexachloroethane	10.	U
98-95-3-----	Nitrobenzene	10.	U
78-59-1-----	Isophorone	10.	U
88-75-5-----	2-Nitrophenol	10.	U
105-67-9-----	2,4-Dimethylphenol	10.	U
65-85-0-----	Benzoic acid	50.	U
111-91-1-----	bis(2-Chloroethoxy)methane	10.	U
120-83-2-----	2,4-Dichlorophenol	10.	U
120-82-1-----	1,2,4-Trichlorobenzene	10.	U
91-20-3-----	Naphthalene	10.	U
106-47-8-----	4-Chloroaniline	10.	U
87-68-3-----	Hexachlorobutadiene	10.	U
59-50-7-----	4-Chloro-3-methylphenol	10.	U
91-57-6-----	2-Methylnaphthalene	10.	U
77-47-4-----	Hexachlorocyclopentadiene	10.	U
88-06-2-----	2,4,6-Trichlorophenol	10.	U
95-95-4-----	2,4,5-Trichlorophenol	50.	U
91-58-7-----	2-Chloronaphthalene	10.	U
88-74-4-----	2-Nitroaniline	50.	U
131-11-3-----	Dimethylphthalate	10.	U
208-96-8-----	Acenaphthylene	10.	U
606-20-2-----	2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SSW0302

Lab Name: HITTMAN EBASCO Contract: ESI0-2901

Lab Code: HITTMAN Case No: LIT CRK SAS No: N.A. SDG No: N.A.

Matrix: WATER Lab Sample ID: HE#525

Sample (wt/vol): 2000 mL Lab File ID: >DB058

Level: LOW Date Received: 01/11/91

‡ Moisture: not dec.N.A. dec. N.A. Date Extracted: 01/15/91

Extraction: SONC Date Analyzed: 2/12/91

GPC Cleanup: N pH: 7.2 Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2-----	3-Nitroaniline	50.	U
83-32-9-----	Acenaphthene	10.	U
51-28-5-----	2,4-Dinitrophenol	50.	U
100-02-7-----	4-Nitrophenol	50.	U
132-64-9-----	Dibenzofuran	10.	U
121-14-2-----	2,4-Dinitrotoluene	10.	U
84-66-2-----	Diethylphthalate	10.	U
7005-72-3-----	4-Chlorophenyl-phenylether	10.	U
86-73-7-----	Fluorene	10.	U
100-01-6-----	4-Nitroaniline	50.	U
534-52-1-----	4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----	N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----	4-Bromophenyl-phenylether	10.	U
118-74-1-----	Hexachlorobenzene	10.	U
87-86-5-----	Pentachlorophenol	50.	U
85-01-8-----	Phenanthrene	10.	U
120-12-7-----	Anthracene	10.	U
84-74-2-----	Di-n-butylphthalate	10.	U
206-44-0-----	Fluoranthene	10.	U
129-00-0-----	Pyrene	10.	U
85-68-7-----	Butylbenzylphthalate	10.	U
91-94-1-----	3,3'-Dichlorobenzidine	20.	U
56-55-3-----	Benzo(a)anthracene	10.	U
218-01-9-----	Chrysene	10.	U
117-81-7-----	bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----	Di-n-octylphthalate	10.	U
205-99-2-----	Benzo(b)fluoranthene	10.	U
207-08-9-----	Benzo(k)fluoranthene	10.	U
50-32-8-----	Benzo(a)pyrene	10.	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----	Dibenz(a,h)anthracene	10.	U
191-24-2-----	Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07DSW0302

Lab Name: HITTMAN EBASCO Contract: ESI0-2901

Lab Code: HITTMAN Case No: LIT CRK SAS No: N.A. SDG No: N.A.

Matrix: WATER Lab Sample ID: HE#526

Sample (wt/vol): 1000 mL Lab File ID: >DB071

Level: LOW Date Received: 01/11/91

% Moisture: not dec.N.A. Date Extracted: 01/15/91

Extraction: SONC Date Analyzed: 2/13/91

GPC Cleanup: N pH: 7.2 Dilution Factor: 1.0000

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

108-95-2-----Phenol	10.	U
111-44-4-----bis(2-Chloroethyl) Ether	10.	U
95-57-8-----2-Chlorophenol	10.	U
541-73-1-----1,3-Dichlorobenzene	10.	U
106-46-7-----1,4-Dichlorobenzene	10.	U
100-51-6-----Benzyl alcohol	10.	U
95-50-1-----1,2-Dichlorobenzene	10.	U
95-48-7-----2-Methylphenol	10.	U
39638-32-9-----bis(2-chloroisopropyl) ether	10.	U
106-44-5-----4-Methylphenol	10.	U
621-64-7-----N-Nitroso-Di-n-propylamine	10.	U
67-72-1-----Hexachloroethane	10.	U
98-95-3-----Nitrobenzene	10.	U
78-59-1-----Isophorone	10.	U
88-75-5-----2-Nitrophenol	10.	U
105-67-9-----2,4-Dimethylphenol	10.	U
65-85-0-----Benzoic acid	50.	U
111-91-1-----bis(2-Chloroethoxy)methane	10.	U
120-83-2-----2,4-Dichlorophenol	10.	U
120-82-1-----1,2,4-Trichlorobenzene	10.	U
91-20-3-----Naphthalene	10.	U
106-47-8-----4-Chloroaniline	10.	U
87-68-3-----Hexachlorobutadiene	10.	U
59-50-7-----4-Chloro-3-methylphenol	10.	U
91-57-6-----2-Methylnaphthalene	10.	U
77-47-4-----Hexachlorocyclopentadiene	10.	U
88-06-2-----2,4,6-Trichlorophenol	10.	U
95-95-4-----2,4,5-Trichlorophenol	50.	U
91-58-7-----2-Chloronaphthalene	10.	U
88-74-4-----2-Nitroaniline	50.	U
131-11-3-----Dimethylphthalate	10.	U
208-96-8-----Acenaphthylene	10.	U
606-20-2-----2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07DSW0302

Lab Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#526

Sample (wt/vol): 1000 mL

Lab File ID: >DB071

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/13/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

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

99-09-2-----3-Nitroaniline	50.	U
83-32-9-----Acenaphthene	10.	U
51-28-5-----2,4-Dinitrophenol	50.	U
100-02-7-----4-Nitrophenol	50.	U
132-64-9-----Dibenzofuran	10.	U
121-14-2-----2,4-Dinitrotoluene	10.	U
84-66-2-----Diethylphthalate	10.	U
7005-72-3-----4-Chlorophenyl-phenylether	10.	U
86-73-7-----Fluorene	10.	U
100-01-6-----4-Nitroaniline	50.	U
534-52-1-----4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----4-Bromophenyl-phenylether	10.	U
118-74-1-----Hexachlorobenzene	10.	U
87-86-5-----Pentachlorophenol	50.	U
85-01-8-----Phenanthrene	10.	U
120-12-7-----Anthracene	10.	U
84-74-2-----Di-n-butylphthalate	10.	U
206-44-0-----Fluoranthene	10.	U
129-00-0-----Pyrene	10.	U
85-68-7-----Butylbenzylphthalate	10.	U
91-94-1-----3,3'-Dichlorobenzidine	20.	U
56-55-3-----Benzo(a)anthracene	10.	U
218-01-9-----Chrysene	10.	U
117-81-7-----bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----Di-n-octylphthalate	10.	U
205-99-2-----Benzo(b)fluoranthene	10.	U
207-08-9-----Benzo(k)fluoranthene	10.	U
50-32-8-----Benzo(a)pyrene	10.	U
193-39-5-----Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----Dibenz(a,h)anthracene	10.	U
191-24-2-----Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SSW0402

Lab Name: HITTMAN EBASCO Contract: ESI0-2901

Lab Code: HITTMAN Case No: LIT CRK SAS No: N.A. SDG No: N.A.

Matrix: WATER Lab Sample ID: HE#528

Sample (wt/vol): 1000 mL Lab File ID: >DB061

Level: LOW Date Received: 01/11/91

% Moisture: not dec.N.A. Date Extracted: 01/15/91

Extraction: SONC Date Analyzed: 2/12/91

GPC Cleanup: N pH: 7.2 Dilution Factor: 1.0000

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

108-95-2-----Phenol	10.	U
111-44-4-----bis(2-Chloroethyl) Ether	10.	U
95-57-8-----2-Chlorophenol	10.	U
541-73-1-----1,3-Dichlorobenzene	10.	U
106-46-7-----1,4-Dichlorobenzene	10.	U
100-51-6-----Benzyl alcohol	10.	U
95-50-1-----1,2-Dichlorobenzene	10.	U
95-48-7-----2-Methylphenol	10.	U
39638-32-9-----bis(2-chloroisopropyl) ether	10.	U
106-44-5-----4-Methylphenol	10.	U
621-64-7-----N-Nitroso-Di-n-propylamine	10.	U
67-72-1-----Hexachloroethane	10.	U
98-95-3-----Nitrobenzene	10.	U
78-59-1-----Isophorone	10.	U
88-75-5-----2-Nitrophenol	10.	U
105-67-9-----2,4-Dimethylphenol	10.	U
65-85-0-----Benzoic acid	50.	U
111-91-1-----bis(2-Chloroethoxy)methane	10.	U
120-83-2-----2,4-Dichlorophenol	10.	U
120-82-1-----1,2,4-Trichlorobenzene	10.	U
91-20-3-----Naphthalene	10.	U
106-47-8-----4-Chloroaniline	10.	U
87-68-3-----Hexachlorobutadiene	10.	U
59-50-7-----4-Chloro-3-methylphenol	10.	U
91-57-6-----2-Methylnaphthalene	10.	U
77-47-4-----Hexachlorocyclopentadiene	10.	U
88-06-2-----2,4,6-Trichlorophenol	10.	U
95-95-4-----2,4,5-Trichlorophenol	50.	U
91-58-7-----2-Chloronaphthalene	10.	U
88-74-4-----2-Nitroaniline	50.	U
131-11-3-----Dimethylphthalate	10.	U
208-96-8-----Acenaphthylene	10.	U
606-20-2-----2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SSW0402

Name: HITTMAN EBASCO Contract: ESI0-2901

Lab Code: HITTMAN Case No: LIT CRK SAS No: N.A. SDG No: N.A.

Matrix: WATER Lab Sample ID: HE#528

Sample (wt/vol): 1000 mL Lab File ID: >DB061

Level: LOW Date Received: 01/11/91

% Moisture: not dec.N.A. Date Extracted: 01/15/91

Extraction: SONC Date Analyzed: 2/12/91

GPC Cleanup: N pH: 7.2 Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2-----	3-Nitroaniline	50.	U
83-32-9-----	Acenaphthene	10.	U
51-28-5-----	2,4-Dinitrophenol	50.	U
100-02-7-----	4-Nitrophenol	50.	U
132-64-9-----	Dibenzofuran	10.	U
121-14-2-----	2,4-Dinitrotoluene	10.	U
84-66-2-----	Diethylphthalate	10.	U
7005-72-3-----	4-Chlorophenyl-phenylether	10.	U
86-73-7-----	Fluorene	10.	U
100-01-6-----	4-Nitroaniline	50.	U
534-52-1-----	4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----	N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----	4-Bromophenyl-phenylether	10.	U
118-74-1-----	Hexachlorobenzene	10.	U
87-86-5-----	Pentachlorophenol	50.	U
85-01-8-----	Phenanthrene	10.	U
120-12-7-----	Anthracene	10.	U
84-74-2-----	Di-n-butylphthalate	10.	U
206-44-0-----	Fluoranthene	10.	U
129-00-0-----	Pyrene	10.	U
85-68-7-----	Butylbenzylphthalate	10.	U
91-94-1-----	3,3'-Dichlorobenzidine	20.	U
56-55-3-----	Benzo(a)anthracene	10.	U
218-01-9-----	Chrysene	10.	U
117-81-7-----	bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----	Di-n-octylphthalate	10.	U
205-99-2-----	Benzo(b)fluoranthene	10.	U
207-08-9-----	Benzo(k)fluoranthene	10.	U
50-32-8-----	Benzo(a)pyrene	10.	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----	Dibenz(a,h)anthracene	10.	U
191-24-2-----	Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SSW0502

Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK

SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#527

Sample (wt/vol): 1000 mL

Lab File ID: >DB060

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/12/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
---------	----------	--	---

108-95-2-----	Phenol	10.	U
111-44-4-----	bis(2-Chloroethyl) Ether	10.	U
95-57-8-----	2-Chlorophenol	10.	U
541-73-1-----	1,3-Dichlorobenzene	10.	U
106-46-7-----	1,4-Dichlorobenzene	10.	U
100-51-6-----	Benzyl alcohol	10.	U
95-50-1-----	1,2-Dichlorobenzene	10.	U
95-48-7-----	2-Methylphenol	10.	U
39638-32-9-----	bis(2-chloroisopropyl) ether	10.	U
106-44-5-----	4-Methylphenol	10.	U
621-64-7-----	N-Nitroso-Di-n-propylamine	10.	U
67-72-1-----	Hexachloroethane	10.	U
98-95-3-----	Nitrobenzene	10.	U
78-59-1-----	Isophorone	10.	U
88-75-5-----	2-Nitrophenol	10.	U
105-67-9-----	2,4-Dimethylphenol	10.	U
65-85-0-----	Benzoic acid	50.	U
111-91-1-----	bis(2-Chloroethoxy)methane	10.	U
120-83-2-----	2,4-Dichlorophenol	10.	U
120-82-1-----	1,2,4-Trichlorobenzene	10.	U
91-20-3-----	Naphthalene	10.	U
106-47-8-----	4-Chloroaniline	10.	U
87-68-3-----	Hexachlorobutadiene	10.	U
59-50-7-----	4-Chloro-3-methylphenol	10.	U
91-57-6-----	2-Methylnaphthalene	10.	U
77-47-4-----	Hexachlorocyclopentadiene	10.	U
88-06-2-----	2,4,6-Trichlorophenol	10.	U
95-95-4-----	2,4,5-Trichlorophenol	50.	U
91-58-7-----	2-Chloronaphthalene	10.	U
88-74-4-----	2-Nitroaniline	50.	U
131-11-3-----	Dimethylphthalate	10.	U
208-96-8-----	Acenaphthylene	10.	U
606-20-2-----	2,6-Dinitrotoluene	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LC07SSW0502

Lab Name: HITTMAN EBASCO

Contract: ESI0-2901

Lab Code: HITTMAN

Case No: LIT CRK SAS No: N.A.

SDG No: N.A.

Matrix: WATER

Lab Sample ID: HE#527

Sample (wt/vol): 1000 mL

Lab File ID: >DB060

Level: LOW

Date Received: 01/11/91

% Moisture: not dec.N.A.

Date Extracted: 01/15/91

Extraction: SONC

Date Analyzed: 2/12/91

GPC Cleanup: N

pH: 7.2

Dilution Factor: 1.0000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2-----	3-Nitroaniline	50.	U
83-32-9-----	Acenaphthene	10.	U
51-28-5-----	2,4-Dinitrophenol	50.	U
100-02-7-----	4-Nitrophenol	50.	U
132-64-9-----	Dibenzofuran	10.	U
121-14-2-----	2,4-Dinitrotoluene	10.	U
84-66-2-----	Diethylphthalate	10.	U
7005-72-3-----	4-Chlorophenyl-phenylether	10.	U
86-73-7-----	Fluorene	10.	U
100-01-6-----	4-Nitroaniline	50.	U
534-52-1-----	4,6-Dinitro-2-methylphenol	50.	U
86-30-6-----	N-Nitrosodiphenylamine (1)	10.	U
101-55-3-----	4-Bromophenyl-phenylether	10.	U
118-74-1-----	Hexachlorobenzene	10.	U
87-86-5-----	Pentachlorophenol	50.	U
85-01-8-----	Phenanthrene	10.	U
120-12-7-----	Anthracene	10.	U
84-74-2-----	Di-n-butylphthalate	10.	U
206-44-0-----	Fluoranthene	10.	U
129-00-0-----	Pyrene	10.	U
85-68-7-----	Butylbenzylphthalate	10.	U
91-94-1-----	3,3'-Dichlorobenzidine	20.	U
56-55-3-----	Benzo(a)anthracene	10.	U
218-01-9-----	Chrysene	10.	U
117-81-7-----	bis(2-Ethylhexyl)phthalate	10.	U
117-84-0-----	Di-n-octylphthalate	10.	U
205-99-2-----	Benzo(b)fluoranthene	10.	U
207-08-9-----	Benzo(k)fluoranthene	10.	U
50-32-8-----	Benzo(a)pyrene	10.	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	10.	U
53-70-3-----	Dibenz(a,h)anthracene	10.	U
191-24-2-----	Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

1994 RI/FS ATTACHMENTS

TABLE 3-1

**SAMPLING SUMMARY
SITE 7 - AMPHIBIOUS BASE LANDFILL
NAB LITTLE CREEK
VIRGINIA BEACH, VIRGINIA**

MEDIA	SAMPLE DESIGNATION	SAMPLE LOCATION	TOTAL NUMBER OF SAMPLES PER MEDIA	LABORATORY ANALYSIS
SURFACE SOIL	07-SS-101 07-SS-102 07-SS-103 07-SS-104 07-SS-105 07-SS-106 07-SS-107 07-SS-108	7SS-101 7SS-102 7SS-103 7SS-104 7SS-105 7SS-106 7SS-107 7SS-108	8	TCL/TAL TPH TOC
SURFACE SOIL SHELBY TUBES	07ST-101 07ST-102 07ST-103 07ST-104 LC7-ST1D	7ST-101 7ST-102 7ST-103 7ST-104 LC7-SB1D	5	Grain Size Hydraulic Conductivity
SEDIMENT	07-SED-101 07-SED-102 07-SED-103 07-SED-104 07-SED-105 07-SED-106	LC7-SED101 LC7-SED102 LC7-SED103 LC7-SED104 LC7-SED105 LC7-SED106	6	TCL VOCs TAL metals TOC Anions
GROUNDWATER	07GW-101 07GW-102 07GW-103 07GW-104 07GW-105 07GW-106 07GW-107 07GW-108 07GW-109	LC7-GW1 LC7-GW2 LC7-GW3 LC7-GW4 LC7-GW5 LC7-GW6 LC7-GW7 LC7-GW8 LC7-GW9	9	TCL VOCs TAL metals (total and dissolved) Anions
SURFACE WATER	07SW-101 07SW-102 07SW-103 07SW-104 07SW-105 07SW-106	LC7-SW101 LC7-SW102 LC7-SW103 LC7-SW104 LC7-SW105 LC7-SW106	6	TCL VOCs, TAL metals (total) Anions
SUBSURFACE SOIL	07-SB-101D 07-SB-103D 07-SB-105D 07-SB-6D 07-SB-9D	LC7-SB1D LC7-SB3D LC7-GW5 LC7-SB6D LC7-SB9D	6	TCL/TAL TPH

NOTES:

- 1) TCL/TAL indicates Target Compound List/Target Analyte List
- 2) TCL/TAL includes Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds (SVOCs), Pesticides/PCBs, Metals, and Cyanide
- 3) TAL analysis for water samples can be either filtered to determine dissolved metal content or unfiltered to determine total metal content. Analysis is noted as either dissolved or total. TPH indicates Total Petroleum Hydrocarbons
- 4) TOC indicates Total Organic Carbon
- 6) Anions include chloride, sulfate, and alkalinity.

TABLE 5-2

SUMMARY OF SEMI-VOLATILE ORGANIC COMPOUNDS
DETECTED IN SURFACE SOIL SAMPLES
AND ASSOCIATED QUALITY CONTROL SAMPLES
SITE 7 - AMPHIBIOUS BASE LANDFILL
NAVAL AMPHIBIOUS BASE - LITTLE CREEK
VIRGINIA BEACH, VIRGINIA
MAY 13, 1993

SAMPLE LOCATION/NUMBER	07-88-101	07-88-102	07-88-100 (Duplicate 07-88-102)	07-88-103	07-88-104 ⁽¹⁾
SAMPLE MATRIX UNITS	Soil ug/kg	Soil ug/kg	Soil ug/kg	Soil ug/kg	Soil ug/kg
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs):					
2-Methylnaphthalene	ND	ND	ND	ND	ND
Fluorene	60 J	ND	ND	ND	ND
Phenanthrene	830	ND	ND	ND	ND
Anthracene	220 J	ND	ND	ND	ND
Fluoranthene	1,300	ND	ND	ND	ND
Pyrene	1,600	ND	ND	62 J	52 J
Butylbenzylphthalate	58 J	ND	ND	ND	ND
Benzo (a) anthracene	710	ND	ND	ND	ND
Chrysene	390	ND	ND	ND	ND
bis (2-Ethylhexyl) phthalate	150 J	ND	58 J	120 J	140 J
Benzo (b) fluoranthene	510	ND	ND	ND	ND
Benzo (k) fluoranthene	380	ND	ND	ND	ND
Benzo (a) pyrene	450	ND	ND	ND	ND
Indeno (1,2,3-cd) pyrene	230 J	ND	ND	ND	ND
Benzo (g,h,i) perylene	210 J	ND	ND	ND	ND
TOTAL SVOCs:	7,098 J	ND	58 J	182 J	192 J
TOTAL TICs:	1,444 J	962 J	640 J	1,718 J	1,508 J

SAMPLE LOCATION/NUMBER	07-88-105	07-88-106	07-88-107	07-88-108
SAMPLE MATRIX UNITS	Soil ug/kg	Soil ug/kg	Soil ug/kg	Soil ug/kg
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs):				
2-Methylnaphthalene	ND	ND	62 J	ND
Fluorene	ND	ND	ND	ND
Phenanthrene	190 J	39 J	52 J	ND
Anthracene	51 J	ND	ND	ND
Fluoranthene	240 J	76 J	46 J	ND
Pyrene	250 J	88 J	120 J	ND
Butylbenzylphthalate	ND	ND	ND	ND
Benzo (a) anthracene	110 J	ND	ND	ND
Chrysene	82 J	ND	ND	ND
bis (2-Ethylhexyl) phthalate	56 J	190 J	180 J	47 J
Benzo (b) fluoranthene	100 J	ND	ND	ND
Benzo (k) fluoranthene	ND	ND	ND	ND
Benzo (a) pyrene	57 J	ND	ND	ND
Indeno (1,2,3-cd) pyrene	ND	ND	ND	ND
Benzo (g,h,i) perylene	ND	ND	ND	ND
TOTAL SVOCs:	1,136 J	393 J	460 J	47 J
TOTAL TICs:	430 J	431 J	6,568 J	1,990 J

NOTES:

ND indicates compound was not detected.

ug/kg indicates micrograms per kilogram.

J indicates an estimated value.

TICs indicates tentatively identified compounds.

(1) indicates matrix spike/matrix spike duplicate (MS/MSD) sample was collected with this sample.

Equipment rinsate and field blank in common with Site 11.

TABLE 5-8

SUMMARY OF SEMI-VOLATILE ORGANIC COMPOUNDS
 DETECTED IN SUBSURFACE SOIL SAMPLES
 AND ASSOCIATED QUALITY CONTROL SAMPLES
 SITE 7 - AMPHIBIOUS BASE LANDFILL
 NAVAL AMPHIBIOUS BASE - LITTLE CREEK
 VIRGINIA BEACH, VIRGINIA
 JULY 14-16, 1993

SAMPLE LOCATION/NUMBER	07-SB-101D	07-SB-103D	07-SB-110 (Duplicate 07-SB-103D)	07-SB-105D ⁽¹⁾	07SB6D
SAMPLE MATRIX UNITS	Soil ug/kg	Soil ug/kg	Soil ug/kg	Soil ug/kg	Soil ug/kg
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs):					
1,4-Dichlorobenzene	ND	38 J	ND	ND	ND
bis (2-Ethylhexyl) phthalate	ND	ND	ND	ND	100 J
TOTAL SVOCs:	ND	38 J	ND	ND	100 J
TOTAL TICs:	1,830 J	228 J	154 J	260 J	73 J

SAMPLE LOCATION/NUMBER	07SB9D	07-ERB-05	07-ERB-06	07-ERB-07	07-FB-05
SAMPLE MATRIX UNITS	Soil ug/kg	Water ug/L	Water ug/L	Water ug/L	Water ug/L
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs):					
1,4-Dichlorobenzene	ND	ND	ND	ND	ND
bis (2-Ethylhexyl) phthalate	ND	ND	1 J	ND	ND
TOTAL SVOCs:	ND	ND	ND	ND	ND
TOTAL TICs:	198 J	10 J	9 J	18 J	12 J

NOTES:

ND indicates compound was not detected.

ug/kg indicates micrograms per kilogram.

ug/L indicates micrograms per liter.

J indicates an estimated value.

TICs indicates tentatively identified compounds.

D indicates sample taken in deep boring. All samples taken above water table.

(1) indicates a matrix spike/matrix spike duplicate (MS/MSD) sample was collected with this sample.

ERB indicates equipment rinse blank

FB indicates field blank

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SS-101

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: 07-SS-101

Matrix: (soil/water) SOIL

Lab Sample ID: 930298-01

Sample wt/vol: 30.10 (g/mL) G

Lab File ID: J5372

Level: (low/med) LOW

Date Received: 05/14/93

Moisture: 8 decanted: (Y/N) N

Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 06/04/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

SPC Cleanup: (Y/N) Y

pH: 6.8

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

108-95-2	Phenol	360	IU	
111-44-4	bis(2-Chloroethyl)Ether	360	IU	
95-57-8	2-Chlorophenol	360	IU	
541-73-1	1,3-Dichlorobenzene	360	IU	
106-46-7	1,4-Dichlorobenzene	360	IU	
95-50-1	1,2-Dichlorobenzene	360	IU	
95-48-7	2-Methylphenol	360	IU	
108-60-1	2,2'-oxybis(1-Chloropropane)	360	IU	
106-44-5	4-Methylphenol	360	IU	
621-64-7	N-Nitroso-Di-n-Propylamine	360	IU	
67-72-1	Hexachloroethane	360	IU	
98-95-3	Nitrobenzene	360	IU	
78-59-1	Isophorone	360	IU	
88-75-5	2-Nitrophenol	360	IU	
105-67-9	2,4-Dimethylphenol	360	IU	
111-91-1	bis(2-Chloroethoxy)Methane	360	IU	
120-83-2	2,4-Dichlorophenol	360	IU	
120-82-1	1,2,4-Trichlorobenzene	360	IU	
91-20-3	Naphthalene	360	IU	
106-47-8	4-Chloroaniline	360	IU	4
87-68-3	Hexachlorobutadiene	360	IU	
59-50-7	4-Chloro-3-Methylphenol	360	IU	
91-57-6	2-Methylnaphthalene	360	IU	
77-47-4	Hexachlorocyclopentadiene	360	IU	
88-06-2	2,4,6-Trichlorophenol	360	IU	
95-95-4	2,4,5-Trichlorophenol	870	IU	
91-58-7	2-Chloronaphthalene	360	IU	
88-74-4	2-Nitroaniline	870	IU	
131-11-3	Dimethyl Phthalate	360	IU	
208-96-8	Acenaphthylene	360	IU	
606-30-2	2,6-Dinitrotoluene	360	IU	
99-09-2	3-Nitroaniline	870	IU	
83-32-9	Acenaphthene	360	IU	33

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000152

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SS-101

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: 07-SS-1C

Matrix: (soil/water) SOIL

Lab Sample ID: 930298-01

Sample wt/vol: 30.10 (g/mL) G

Lab File ID: J5372

Level: (low/med) LOW

Date Received: 05/14/93

Moisture: 8 decanted: (Y/N) N

Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 06/04/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

PC Cleanup: (Y/N) Y

pH: 6.8

CONCENTRATION UNITS:

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

Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	870	IU
100-02-7	4-Nitrophenol	870	IU
132-64-9	Dibenzofuran	360	IU
121-14-2	2,4-Dinitrotoluene	360	IU
84-66-2	Diethylphthalate	360	IU
7005-72-3	4-Chlorophenyl-phenylether	360	IU
86-73-7	Fluorene	60	IJ
100-01-6	4-Nitroaniline	870	IU
534-52-1	4,6-Dinitro-2-Methylphenol	870	IU
86-30-6	N-Nitrosodiphenylamine (1)	360	IU
101-55-3	4-Bromophenyl-phenylether	360	IU
118-74-1	Hexachlorobenzene	360	IU
87-86-5	Pentachlorophenol	870	IU
85-01-8	Phenanthrene	830	I
120-12-7	Anthracene	220	IJ
84-74-2	Di-n-Butylphthalate	360	IU
206-44-0	Fluoranthene	1300	I
86-74-8	Carbazole	360	IU
129-00-0	Pyrene	1600	I
85-68-7	Butylbenzylphthalate	58	IJ
91-94-1	3,3'-Dichlorobenzidine	360	IU
56-55-3	Benzo(a)Anthracene	710	I
218-01-9	Chrysene	390	I
117-81-7	bis(2-Ethylhexyl)Phthalate	150	IJ
117-84-0	Di-n-Octyl Phthalate	360	IU
205-99-2	Benzo(b)Fluoranthene	510	I
207-08-9	Benzo(k)Fluoranthene	380	I
50-32-8	Benzo(a)Pyrene	450	I
193-39-5	Indeno(1,2,3-cd)Pyrene	230	IJ
53-70-3	Dibenzo(a,h)Anthracene	360	IU
191-24-2	Benzo(g,h,i)Perylene	210	IJ

(1) - Cannot be separated from Diphenylamine

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

Name: CEIMIC CORP

Contract: BAKER

07-SS-122

Lab Code: CEIMIC Case No.: 19042 SAS No.: SDG No.: 07-SS-1

Matrix: (soil/water) SOIL Lab Sample ID: 930298-02

Sample wt/vol: 30.10 (g/mL) G Lab File ID: J5373

Level: (low/med) LOW Date Received: 05/14/93

% Moisture: 7 decanted: (Y/N) N Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 06/04/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

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

CAS NO.	COMPOUND	UG/KG		
108-95-2	Phenol	350	IU	1
111-44-4	bis(2-Chloroethyl)Ether	350	IU	1
95-57-8	2-Chlorophenol	350	IU	1
541-73-1	1,3-Dichlorobenzene	350	IU	1
106-46-7	1,4-Dichlorobenzene	350	IU	1
95-50-1	1,2-Dichlorobenzene	350	IU	1
95-48-7	2-Methylphenol	350	IU	1
108-60-1	2,2'-oxybis(1-Chloropropane)	350	IU	1
106-44-5	4-Methylphenol	350	IU	1
621-64-7	N-Nitroso-Di-n-Propylamine	350	IU	1
67-72-1	Hexachloroethane	350	IU	1
98-95-3	Nitrobenzene	350	IU	1
78-59-1	Isophorone	350	IU	1
88-75-5	2-Nitrophenol	350	IU	1
105-67-9	2,4-Dimethylphenol	350	IU	1
111-91-1	bis(2-Chloroethoxy)Methane	350	IU	1
120-83-2	2,4-Dichlorophenol	350	IU	1
120-82-1	1,2,4-Trichlorobenzene	350	IU	1
91-20-3	Naphthalene	350	IU	1
106-47-8	4-Chloroaniline	350	IU	1
87-68-3	Hexachlorobutadiene	350	IU	1
59-50-7	4-Chloro-3-Methylphenol	350	IU	1
91-57-6	2-Methylnaphthalene	350	IU	1
77-47-4	Hexachlorocyclopentadiene	350	IU	1
88-06-2	2,4,6-Trichlorophenol	350	IU	1
95-95-4	2,4,5-Trichlorophenol	860	IU	1
91-58-7	2-Chloronaphthalene	350	IU	1
88-74-4	2-Nitroaniline	860	IU	1
131-11-3	Dimethyl Phthalate	350	IU	1
208-96-8	Acenaphthylene	350	IU	1
606-20-2	2,6-Dinitrotoluene	350	IU	1
99-09-2	3-Nitroaniline	860	IU	1
83-32-9	Acenaphthene	350	IU	1

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3/98
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18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SS-103

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: 07-SS-101

Matrix: (soil/water) SOIL

Lab Sample ID: 930298-03

Sample wt/vol: 30.10 (g/mL) G

Lab File ID: J5374

Level: (low/med) LOW

Date Received: 05/14/93

% Moisture: 3 decanted: (Y/N) N

Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 06/04/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.2

CAS NO.

COMPOUND

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

Q

108-95-2	Phenol	340	10
111-44-4	bis(2-Chloroethyl)Ether	340	10
95-57-8	2-Chlorophenol	340	10
541-73-1	1,3-Dichlorobenzene	340	10
106-46-7	1,4-Dichlorobenzene	340	10
95-50-1	1,2-Dichlorobenzene	340	10
95-48-7	2-Methylphenol	340	10
108-60-1	2,2'-oxybis(1-Chloropropane)	340	10
106-44-5	4-Methylphenol	340	10
621-64-7	N-Nitroso-Di-n-Propylamine	340	10
67-72-1	Hexachloroethane	340	10
98-95-3	Nitrobenzene	340	10
78-59-1	Isophorone	340	10
88-75-5	2-Nitrophenol	340	10
105-67-9	2,4-Dimethylphenol	340	10
111-91-1	bis(2-Chloroethoxy)Methane	340	10
120-83-2	2,4-Dichlorophenol	340	10
120-82-1	1,2,4-Trichlorobenzene	340	10
91-20-3	Naphthalene	340	10
106-47-8	4-Chloroaniline	340	10,4
87-68-3	Hexachlorobutadiene	340	10
59-50-7	4-Chloro-3-Methylphenol	340	10
91-57-6	2-Methylnaphthalene	340	10
77-47-4	Hexachlorocyclopentadiene	340	10
88-06-2	2,4,6-Trichlorophenol	340	10
95-95-4	2,4,5-Trichlorophenol	820	10
91-58-7	2-Chloronaphthalene	340	10
88-74-4	2-Nitroaniline	820	10
131-11-3	Dimethyl Phthalate	340	10
208-96-8	Acenaphthylene	340	10
606-20-2	2,6-Dinitrotoluene	340	10
99-09-2	3-Nitroaniline	820	10
83-32-9	Acenaphthene	340	10

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SS-103

Name: CEIMIC CORP Contract: BAKER

Lab Code: CEIMIC Case No.: 19042 SAS No.: SDG No.: 07-SS-101

Matrix: (soil/water) SOIL Lab Sample ID: 930298-03

Sample wt/vol: 30.10 (g/mL) G Lab File ID: J5374

Level: (low/med) LOW Date Received: 05/14/93

% Moisture: 3 decanted: (Y/N) N Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 06/04/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	820	10
100-02-7	4-Nitrophenol	820	10
132-64-9	Dibenzofuran	340	5
121-14-2	2,4-Dinitrotoluene	340	5
84-66-2	Diethylphthalate	340	5
7005-72-3	4-Chlorophenyl-phenylether	340	10
86-73-7	Fluorene	340	5
100-01-6	4-Nitroaniline	820	5
534-52-1	4,6-Dinitro-2-Methylphenol	820	10
86-30-6	N-Nitrosodiphenylamine (1)	340	10
101-55-3	4-Bromophenyl-phenylether	340	10
118-74-1	Hexachlorobenzene	340	5
87-86-5	Pentachlorophenol	820	10
85-01-8	Phenanthrene	340	5
120-12-7	Anthracene	340	5
84-74-2	Di-n-Butylphthalate	340	5
206-44-0	Fluoranthene	340	5
86-74-8	Carbazole	340	10,7
129-00-0	Pyrene	62	10,7
85-68-7	Butylbenzylphthalate	340	5
91-94-1	3,3'-Dichlorobenzidine	340	5
56-55-3	Benzo(a)Anthracene	340	5
218-01-9	Chrysene	340	5
117-81-7	bis(2-Ethylhexyl)Phthalate	120	10,7
117-84-0	Di-n-Octyl Phthalate	340	10,7
205-99-2	Benzo(b)Fluoranthene	340	5
207-08-9	Benzo(k)Fluoranthene	340	5
50-32-8	Benzo(a)Pyrene	340	5
193-39-5	Indeno(1,2,3-cd)Pyrene	340	5
53-70-3	Dibenzo(a,h)Anthracene	340	5
191-24-2	Benzo(g,h,i)Perylene	340	5

(1) - Cannot be separated from Diphenylamine

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SS-104

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: 07-SS-101

Matrix: (soil/water) SOIL

Lab Sample ID: 930298-04

Sample wt/vol: 30.20 (g/mL) G

Lab File ID: J5375

Level: (low/med) LOW

Date Received: 05/14/93

% Moisture: 3 decanted: (Y/N) N

Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 06/04/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.3

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	340	IU
111-44-4	bis(2-Chloroethyl)Ether	340	IU
95-57-8	2-Chlorophenol	340	IU
541-73-1	1,3-Dichlorobenzene	340	IU
106-46-7	1,4-Dichlorobenzene	340	IU
95-50-1	1,2-Dichlorobenzene	340	IU
95-48-7	2-Methylphenol	340	IU
108-60-1	2,2'-oxybis(1-Chloropropane)	340	IU
106-44-5	4-Methylphenol	340	IU
621-64-7	N-Nitroso-Di-n-Propylamine	340	IU
67-72-1	Hexachloroethane	340	IU
98-95-3	Nitrobenzene	340	IU
78-59-1	Isophorone	340	IU
88-75-5	2-Nitrophenol	340	IU
105-67-9	2,4-Dimethylphenol	340	IU
111-91-1	bis(2-Chloroethoxy)Methane	340	IU
120-83-2	2,4-Dichlorophenol	340	IU
120-82-1	1,2,4-Trichlorobenzene	340	IU
91-20-3	Naphthalene	340	IU
106-47-8	4-Chloroaniline	340	IU
87-68-3	Hexachlorobutadiene	340	IU
59-50-7	4-Chloro-3-Methylphenol	340	IU
91-57-6	2-Methylnaphthalene	340	IU
77-47-4	Hexachlorocyclopentadiene	340	IU
88-06-2	2,4,6-Trichlorophenol	340	IU
95-95-4	2,4,5-Trichlorophenol	820	IU
91-58-7	2-Chloronaphthalene	340	IU
88-74-4	2-Nitroaniline	820	IU
131-11-3	Dimethyl Phthalate	340	IU
208-96-8	Acenaphthylene	340	IU
606-20-2	2,6-Dinitrotoluene	340	IU
99-09-2	3-Nitroaniline	820	IU
83-32-9	Acenaphthene	340	IU

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SS-104

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: 07-SS-104

Matrix: (soil/water) SOIL

Lab Sample ID: 930298-04

Sample wt/vol: 30.20 (g/mL) G

Lab File ID: J5375

Level: (low/med) LOW

Date Received: 05/14/93

% Moisture: 3 decanted: (Y/N) N

Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 06/04/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.3

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

51-28-5	2,4-Dinitrophenol	820	IU
100-02-7	4-Nitrophenol	820	IU
132-64-9	Dibenzofuran	340	IU
121-14-2	2,4-Dinitrotoluene	340	IU
84-66-2	Diethylphthalate	340	IU
7005-72-3	4-Chlorophenyl-phenylether	340	IU
86-73-7	Fluorene	340	IU
100-01-6	4-Nitroaniline	820	IU
534-52-1	4,6-Dinitro-2-Methylphenol	820	IU
86-30-6	N-Nitrosodiphenylamine (1)	340	IU
101-55-3	4-Bromophenyl-phenylether	340	IU
118-74-1	Hexachlorobenzene	340	IU
87-86-5	Pentachlorophenol	820	IU
85-01-8	Phenanthrene	340	IU
120-12-7	Anthracene	340	IU
84-74-2	Di-n-Butylphthalate	340	IU
206-44-0	Fluoranthene	340	IU
86-74-8	Carbazole	340	IU
129-00-0	Pyrene	52	IJ
85-68-7	Butylbenzylphthalate	340	IU
91-94-1	3,3'-Dichlorobenzidine	340	IU
56-55-3	Benzo(a)Anthracene	340	IU
218-01-9	Chrysene	340	IU
117-81-7	bis(2-Ethylhexyl)Phthalate	140	IJ
117-84-0	Di-n-Octyl Phthalate	340	IU
205-99-2	Benzo(b)Fluoranthene	340	IU
207-08-9	Benzo(k)Fluoranthene	340	IU
50-33-8	Benzo(a)Pyrene	340	IU
193-39-5	Indeno(1,2,3-cd)Pyrene	340	IU
53-70-3	Dibenzo(a,h)Anthracene	340	IU
191-24-2	Benzo(g,h,i)Perylene	340	IU

(1) - Cannot be separated from Diphenylamine

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SS-106

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: 07-SS-101

Matrix: (soil/water) SOIL

Lab Sample ID: 930298-06

Sample wt/vol: 30.10 (g/mL) G

Lab File ID: J5379

Level: (low/med) LOW

Date Received: 05/14/93

% Moisture: 6 decanted: (Y/N) N

Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 06/04/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 6.6

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

CAS NO. COMPOUND Q

108-95-2	Phenol	350	IU
111-44-4	bis(2-Chloroethyl)Ether	350	IU
95-57-8	2-Chlorophenol	350	IU
541-73-1	1,3-Dichlorobenzene	350	IU
106-46-7	1,4-Dichlorobenzene	350	IU
95-50-1	1,2-Dichlorobenzene	350	IU
95-48-7	2-Methylphenol	350	IU
108-60-1	2,2'-oxybis(1-Chloropropane)	350	IU
106-44-5	4-Methylphenol	350	IU
621-64-7	N-Nitroso-Di-n-Propylamine	350	IU
67-72-1	Hexachloroethane	350	IU
98-95-3	Nitrobenzene	350	IU
78-59-1	Isophorone	350	IU
88-75-5	2-Nitrophenol	350	IU
105-67-9	2,4-Dimethylphenol	350	IU
111-91-1	bis(2-Chloroethoxy)Methane	350	IU
120-83-2	2,4-Dichlorophenol	350	IU
120-82-1	1,2,4-Trichlorobenzene	350	IU
91-20-3	Naphthalene	350	IU
106-47-8	4-Chloroaniline	350	IU
87-68-3	Hexachlorobutadiene	350	IU
59-50-7	4-Chloro-3-Methylphenol	350	IU
91-57-6	2-Methylnaphthalene	350	IU
77-47-4	Hexachlorocyclopentadiene	350	IU
88-06-2	3,4,6-Trichlorophenol	350	IU
95-95-4	2,4,5-Trichlorophenol	850	IU
91-58-7	2-Chloronaphthalene	350	IU
88-74-4	2-Nitroaniline	850	IU
131-11-3	Dimethyl Phthalate	350	IU
208-96-8	Acenaphthylene	350	IU
606-20-2	2,6-Dinitrotoluene	350	IU
99-09-2	3-Nitroaniline	850	IU
83-32-9	Acenaphthene	350	IU

not 4

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SS-106

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: 07-SS-106

Matrix: (soil/water) SOIL

Lab Sample ID: 930298-06

Sample wt/vol: .30.10 (g/mL) G

Lab File ID: J5379

Level: (low/med) LOW

Date Received: 05/14/93

% Moisture: 6 decanted: (Y/N) N

Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 06/04/93

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

SFC Cleanup: (Y/N) Y

pH: 6.6

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

51-28-5	2,4-Dinitrophenol	850	IU	
100-02-7	4-Nitrophenol	850	IU	
132-64-9	Dibenzofuran	350	IU	
121-14-2	2,4-Dinitrotoluene	350	IU	
84-66-2	Diethylphthalate	350	IU	
7005-72-3	4-Chlorophenyl-phenylether	350	IU	
86-73-7	Fluorene	350	IU	
100-01-6	4-Nitroaniline	850	IU	
534-52-1	4,6-Dinitro-2-Methylphenol	850	IU	
86-30-6	N-Nitrosodiphenylamine (1)	350	IU	
101-55-3	4-Bromophenyl-phenylether	350	IU	
118-74-1	Hexachlorobenzene	350	IU	
87-86-5	Pentachlorophenol	850	IU	
85-01-8	Phenanthrene	39	IJ	J 8
120-12-7	Anthracene	350	IU	
84-74-2	Di-n-Butylphthalate	350	IU	
206-44-0	Fluoranthene	76	IJ	J 8
86-74-8	Carbazole	350	IU	
129-00-0	Pyrene	88	IJ	
85-68-7	Butylbenzylphthalate	350	IU	
91-94-1	3,3'-Dichlorobenzidine	350	IU	
56-55-3	Benzo(a)Anthracene	350	IU	
218-01-9	Chrysene	350	IU	
117-81-7	bis(2-Ethylhexyl)Phthalate	190	IJ	
117-84-0	Di-n-Octyl Phthalate	350	IU	
205-99-2	Benzo(b)Fluoranthene	350	IU	
207-08-9	Benzo(k)Fluoranthene	350	IU	
50-32-8	Benzo(a)Pyrene	350	IU	
193-39-5	Indeno(1,2,3-cd)Pyrene	350	IU	
53-70-3	Dibenzo(a,h)Anthracene	350	IU	
191-24-2	Benzo(g,h,i)Perylene	350	IU	

(1) - Cannot be separated from Diphenylamine

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SS-107

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: 07-SS-101

Matrix: (soil/water) SOIL

Lab Sample ID: 930298-07

Sample wt/vol: 30.00 (g/mL) G

Lab File ID: J5380

Level: (low/med) LOW

Date Received: 05/14/93

% Moisture: 10 decanted: (Y/N) N

Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 06/04/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 6.6

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

108-95-2	Phenol	370	IU	
111-44-4	bis(2-Chloroethyl)Ether	370	IU	
95-57-8	2-Chlorophenol	370	IU	
541-73-1	1,3-Dichlorobenzene	370	IU	
106-46-7	1,4-Dichlorobenzene	370	IU	
95-50-1	1,2-Dichlorobenzene	370	IU	
95-48-7	2-Methylphenol	370	IU	
108-60-1	2,2'-oxybis(1-Chloropropane)	370	IU	
106-44-5	4-Methylphenol	370	IU	
621-64-7	N-Nitroso-Di-n-Propylamine	370	IU	
67-72-1	Hexachloroethane	370	IU	
98-95-3	Nitrobenzene	370	IU	
78-59-1	Isophorone	370	IU	
88-75-5	2-Nitrophenol	370	IU	
105-67-9	2,4-Dimethylphenol	370	IU	
111-91-1	bis(2-Chloroethoxy)Methane	370	IU	
120-83-2	2,4-Dichlorophenol	370	IU	
120-82-1	1,2,4-Trichlorobenzene	370	IU	
91-20-3	Naphthalene	370	IU	
106-47-8	4-Chloroaniline	370	IU	54
87-68-3	Hexachlorobutadiene	370	IU	
59-50-7	4-Chloro-3-Methylphenol	370	IU	
91-57-6	2-Methylnaphthalene	62	IJ	
77-47-4	Hexachlorocyclopentadiene	370	IU	
88-06-2	2,4,6-Trichlorophenol	370	IU	
95-95-4	2,4,5-Trichlorophenol	890	IU	
91-58-7	2-Chloronaphthalene	370	IU	
88-74-4	2-Nitroaniline	890	IU	
131-11-3	Dimethyl Phthalate	370	IU	
208-96-8	Acenaphthylene	370	IU	63
606-20-2	2,6-Dinitrotoluene	370	IU	
99-09-2	3-Nitroaniline	890	IU	
83-32-9	Acenaphthene	370	IU	

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000118

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SS-107

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: 07-SS-101

Matrix: (soil/water) SOIL

Lab Sample ID: 930298-07

Sample wt/vol: 30.00 (g/mL) G

Lab File ID: J5380

Level: (low/med) LOW

Date Received: 05/14/93

% Moisture: 10 decanted: (Y/N) N

Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 06/04/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 6.6

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

51-28-5	2,4-Dinitrophenol	890	IU	
100-02-7	4-Nitrophenol	890	IU	
132-64-9	Dibenzofuran	370	IU	
121-14-2	2,4-Dinitrotoluene	370	IU	
84-66-2	Diethylphthalate	370	IU	
7005-72-3	4-Chlorophenyl-phenylether	370	IU	
86-73-7	Fluorene	370	IU	
100-01-6	4-Nitroaniline	890	IU	
534-52-1	4,6-Dinitro-2-Methylphenol	890	IU	
86-30-6	N-Nitrosodiphenylamine (I)	370	IU	
101-55-3	4-Bromophenyl-phenylether	370	IU	
118-74-1	Hexachlorobenzene	370	IU	
87-86-5	Pentachlorophenol	890	IU	
85-01-8	Phenanthrene	52	IJ	J 8
120-12-7	Anthracene	370	IU	
84-74-2	Di-n-Butylphthalate	370	IU	
206-44-0	Fluoranthene	46	IJ	J 8
86-74-8	Carbazole	370	IU	
129-00-0	Pyrene	120	IJ	
85-68-7	Butylbenzylphthalate	370	IU	
91-94-1	3,3'-Dichlorobenzidine	370	IU	
56-55-3	Benzo(a)Anthracene	370	IU	
218-01-9	Chrysene	370	IU	
117-81-7	bis(2-Ethylhexyl)Phthalate	180	IJ	
117-84-0	Di-n-Octyl Phthalate	370	IU	
205-99-2	Benzo(b)Fluoranthene	370	IU	
207-08-9	Benzo(k)Fluoranthene	370	IU	
50-32-8	Benzo(a)Pyrene	370	IU	
193-39-5	Indeno(1,2,3-cd)Pyrene	370	IU	
53-70-3	Dibenzo(a,h)Anthracene	370	IU	
191-24-2	Benzo(g,h,i)Perylene	370	IU	

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(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

07-SS-108

Company Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC Case No.: 19042 SAS No.: SDG No.: 07-SS-101

Matrix: (soil/water) SOIL Lab Sample ID: 930298-08

Sample wt/vol: 30.00 (g/mL) G Lab File ID: J5396

Level: (low/med) LOW Date Received: 05/14/93

% Moisture: 9 decanted: (Y/N) N Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 06/05/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 3.4

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

108-95-2	Phenol	360	TU
111-44-4	bis(2-Chloroethyl)Ether	360	IU
95-57-8	2-Chlorophenol	360	IU
541-73-1	1,3-Dichlorobenzene	360	IU
106-46-7	1,4-Dichlorobenzene	360	IU
95-50-1	1,2-Dichlorobenzene	360	IU
95-48-7	2-Methylphenol	360	IU
108-60-1	2,2'-oxybis(1-Chloropropane)	360	IU
106-44-5	4-Methylphenol	360	IU
621-64-7	N-Nitroso-Di-n-Propylamine	360	IU
67-72-1	Hexachloroethane	360	IU
98-95-3	Nitrobenzene	360	IU
78-59-1	Isophorone	360	IU
88-75-5	2-Nitrophenol	360	IU
105-67-9	2,4-Dimethylphenol	360	IU
111-91-1	bis(2-Chloroethoxy)Methane	360	IU
120-83-2	2,4-Dichlorophenol	360	IU
120-82-1	1,2,4-Trichlorobenzene	360	IU
91-20-3	Naphthalene	360	IU
106-47-8	4-Chloroaniline	360	IU
87-68-3	Hexachlorobutadiene	360	IU
59-50-7	4-Chloro-3-Methylphenol	360	IU
91-57-6	2-Methylnaphthalene	360	IU
77-47-4	Hexachlorocyclopentadiene	360	IU
88-06-2	2,4,6-Trichlorophenol	360	IU
95-95-4	2,4,5-Trichlorophenol	880	IU
91-58-7	2-Chloronaphthalene	360	IU
88-74-4	2-Nitroaniline	880	IU
131-11-3	Dimethyl Phthalate	360	IU
208-96-8	Acenaphthylene	360	IU
606-20-2	2,6-Dinitrotoluene	360	IU
99-09-2	3-Nitroaniline	880	IU
83-32-9	Acenaphthene	360	IU

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00011
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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SS-108

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 1904E

SAS No.:

SDG No.: 07-SS-101

Matrix: (soil/water) SOIL

Lab Sample ID: 930E98-08

Sample wt/vol: 30.00 (g/mL) G

Lab File ID: J5396

Level: (low/med) LOW

Date Received: 05/14/93

% Moisture: 9 decanted: (Y/N) N

Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 06/05/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 3.4

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

51-28-5	2,4-Dinitrophenol	880	IU
100-02-7	4-Nitrophenol	880	IU
132-64-9	Dibenzofuran	360	IU
121-14-2	2,4-Dinitrotoluene	360	IU
84-66-2	Diethylphthalate	360	IU
7005-72-3	4-Chlorophenyl-phenylether	360	IU
86-73-7	Fluorene	360	IU
100-01-6	4-Nitroaniline	880	IU
534-52-1	4,6-Dinitro-2-Methylphenol	880	IU
86-30-6	N-Nitrosodiphenylamine (1)	360	IU
101-55-3	4-Bromophenyl-phenylether	360	IU
118-74-1	Hexachlorobenzene	360	IU
87-86-5	Pentachlorophenol	880	IU
85-01-8	Phenanthrene	360	IU
120-12-7	Anthracene	360	IU
84-74-2	Di-n-Butylphthalate	360	IU
206-44-0	Fluoranthene	360	IU
86-74-8	Carbazole	360	IU
129-00-0	Pyrene	360	IU
85-68-7	Butylbenzylphthalate	360	IU
91-94-1	3,3'-Dichlorobenzidine	360	IU
56-55-3	Benzo(a)Anthracene	360	IU
218-01-9	Chrysene	360	IU
117-81-7	bis(2-Ethylhexyl)Phthalate	47	IJ
117-84-0	Di-n-Octyl Phthalate	360	IU
205-99-2	Benzo(b)Fluoranthene	360	IU
207-08-9	Benzo(k)Fluoranthene	360	IU
50-32-8	Benzo(a)Pyrene	360	IU
193-39-5	Indeno(1,2,3-cd)Pyrene	360	IU
53-70-3	Dibenzo(a,h)Anthracene	360	IU
191-24-2	Benzo(g,h,i)Perylene	360	IU

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

07-SS-109

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: 07-SS-101

Matrix: (soil/water) SOIL

Lab Sample ID: 930298-09

Sample wt/vol: 30.40 (g/mL) G

Lab File ID: J5371

Level: (low/med) LOW

Date Received: 05/14/93

% Moisture: 7 decanted: (Y/N) N

Date Extracted: 05/21/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 06/04/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 5.4

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q-
108-95-2	Phenol	350	1U
111-44-4	bis(2-Chloroethyl)Ether	350	1U
95-57-8	2-Chlorophenol	350	1U
541-73-1	1,3-Dichlorobenzene	350	1U
106-46-7	1,4-Dichlorobenzene	350	1U
95-50-1	1,2-Dichlorobenzene	350	1U
95-48-7	2-Methylphenol	350	1U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	1U
106-44-5	4-Methylphenol	350	1U
621-64-7	N-Nitroso-Di-n-Propylamine	350	1U
67-72-1	Hexachloroethane	350	1U
98-95-3	Nitrobenzene	350	1U
78-59-1	Isophorone	350	1U
88-75-5	3-Nitrophenol	350	1U
105-67-9	2,4-Dimethylphenol	350	1U
111-91-1	bis(2-Chloroethoxy)Methane	350	1U
120-83-2	2,4-Dichlorophenol	350	1U
120-82-1	1,2,4-Trichlorobenzene	350	1U
91-20-3	Naphthalene	350	1U
106-47-8	4-Chloroaniline	350	1U
87-68-3	Hexachlorobutadiene	350	1U
59-50-7	4-Chloro-3-Methylphenol	350	1U
91-57-6	2-Methylnaphthalene	350	1U
77-47-4	Hexachlorocyclopentadiene	350	1U
98-06-2	2,4,6-Trichlorophenol	350	1U
95-95-4	2,4,5-Trichlorophenol	350	1U
91-58-7	2-Chloronaphthalene	350	1U
88-74-4	2-Nitroaniline	350	1U
131-11-3	Dimethyl Phthalate	350	1U
208-96-8	Acenaphthylene	350	1U
606-20-2	2,6-Dinitrotoluene	350	1U
99-09-2	3-Nitroaniline	350	1U
83-32-9	Acenaphthene	350	1U

405 4

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SS-109

Name: CEIMIC CORP Contract: BAKER
 Lab Code: CEIMIC Case No.: 19042 SAS No.: SDG No.: 07-SS-101
 Matrix: (soil/water) SOIL Lab Sample ID: 930298-09
 Sample wt/vol: .30.40 (g/mL) G Lab File ID: J5371
 Level: (low/med) LOW Date Received: 05/14/93
 % Moisture: 7 decanted: (Y/N) N Date Extracted: 05/21/93
 Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 06/04/93
 Injection Volume: 2.0(uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) Y pH: 5.4

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

CAS NO.	COMPOUND	UG/KG	Q
51-28-5	2,4-Dinitrophenol	850	IU
100-02-7	4-Nitrophenol	850	IU
132-64-9	Dibenzofuran	350	IU
121-14-2	2,4-Dinitrotoluene	350	IU
84-66-2	Diethylphthalate	350	IU
7005-72-3	4-Chlorophenyl-phenylether	350	IU
86-73-7	Fluorene	350	IU
100-01-6	4-Nitroaniline	850	IU
534-52-1	4,6-Dinitro-2-Methylphenol	850	IU
86-30-6	N-Nitrosodiphenylamine (1)	350	IU
101-55-3	4-Bromophenyl-phenylether	350	IU
118-74-1	Hexachlorobenzene	350	IU
87-86-5	Pentachlorophenol	850	IU
85-01-8	Phenanthrene	350	IU
120-12-7	Anthracene	350	IU
84-74-2	Di-n-Butylphthalate	350	IU
206-44-0	Fluoranthene	350	IU
86-74-8	Carbazole	350	IU
129-00-0	Pyrene	350	IU
85-68-7	Butylbenzylphthalate	350	IU
91-94-1	3,3'-Dichlorobenzidine	350	IU
56-55-3	Benzo(a)Anthracene	350	IU
218-01-9	Chrysene	350	IU
117-81-7	bis(2-Ethylhexyl)Phthalate	58	IJ
117-84-0	Di-n-Octyl Phthalate	350	IU
205-99-2	Benzo(b)Fluoranthene	350	IU
207-08-9	Benzo(k)Fluoranthene	350	IU
50-32-8	Benzo(a)Pyrene	350	IU
193-39-5	Indeno(1,2,3-cd)Pyrene	350	IU
53-70-3	Dibenzo(a,h)Anthracene	350	IU
191-24-2	Benzo(g,h,i)Perylene	350	IU

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(1) - Cannot be separated from Diphenylamine

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: CEIMIC CORP

Contract: BAKER

07-S2-101D

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: LC10-GW-10

Matrix: (soil/water) SOIL

Lab Sample ID: 930454-17

Sample wt/vol: 30.00 (g/mL) G

Lab File ID: AD045

Level: (low/med) LOW

Date Received: 07/19/93

% Moisture: 16 decanted: (Y/N) N

Date Extracted: 07/19/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 07/28/93

Injection Volume: 2.0 (uL)

Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y

pH: 7.1

CONCENTRATION UNITS:

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

Q

CAS NO.	COMPOUND	CONCENTRATION UNITS:	Q
		(ug/L or ug/Kg) UG/KG	
108-95-2	Phenol	790	IU
111-44-4	bis(2-Chloroethyl)Ether	790	IU
95-57-8	2-Chlorophenol	790	IU
541-73-1	1,3-Dichlorobenzene	790	IU
106-46-7	1,4-Dichlorobenzene	790	IU
95-50-1	1,2-Dichlorobenzene	790	IU
95-48-7	2-Methylphenol	790	IU
108-60-1	2,2'-oxybis(1-Chloropropane)	790	IU
106-44-5	4-Methylphenol	790	IU
621-64-7	N-Nitroso-Di-n-Propylamine	790	IU
67-72-1	Hexachloroethane	790	IU
98-95-3	Nitrobenzene	790	IU
78-59-1	Isophorone	790	IU
88-75-5	2-Nitrophenol	790	IU
105-67-9	2,4-Dimethylphenol	790	IU
111-91-1	bis(2-Chloroethoxy)Methane	790	IU
120-83-2	2,4-Dichlorophenol	790	IU
120-82-1	1,2,4-Trichlorobenzene	790	IU
91-20-3	Naphthalene	790	IU
106-47-8	4-Chloroaniline	790	IU
87-68-3	Hexachlorobutadiene	790	IU
59-50-7	4-Chloro-3-Methylphenol	790	IU
91-57-6	2-Methylnaphthalene	790	IU
77-47-4	Hexachlorocyclopentadiene	790	IU
88-06-2	2,4,6-Trichlorophenol	790	IU
95-95-4	2,4,5-Trichlorophenol	1900	IU
91-58-7	2-Chloronaphthalene	790	IU
88-74-4	2-Nitroaniline	1900	IU
131-11-3	Dimethyl Phthalate	790	IU
208-96-8	Acenaphthylene	790	IU
606-20-2	2,6-Dinitrotoluene	790	IU
99-09-2	3-Nitroaniline	1900	IU
83-32-9	Acenaphthene	790	IU

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SB-101D

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 1904E

SAS No.:

SDG No.: LC10-GW-10

Matrix: (soil/water) SOIL

Lab Sample ID: 930454-17

Sample wt/vol: 30.00 (g/mL) G

Lab File ID: AD045

Level: (low/med) LOW

Date Received: 07/19/93

% Moisture: 16 decanted: (Y/N) N

Date Extracted: 07/19/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 07/29/93

Injection Volume: 2.0 (uL)

Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y

pH: 7.1

CONCENTRATION UNITS:

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

Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1900	IU
100-03-7	4-Nitrophenol	1900	IU
132-64-9	Dibenzofuran	790	IU
121-14-2	2,4-Dinitrotoluene	790	IU
84-66-2	Diethylphthalate	790	IU
7005-72-3	4-Chlorophenyl-phenylether	790	IU
86-73-7	Fluorene	790	IU
100-01-6	4-Nitroaniline	1900	IU
534-52-1	4,6-Dinitro-2-Methylphenol	1900	IU
86-30-6	N-Nitrosodiphenylamine (1)	790	IU
101-55-3	4-Bromophenyl-phenylether	790	IU
118-74-1	Hexachlorobenzene	790	IU
87-86-5	Pentachlorophenol	1900	IU
85-01-8	Phenanthrene	790	IU
120-12-7	Anthracene	790	IU
84-74-2	Di-n-Butylphthalate	790	IU
206-44-0	Fluoranthene	790	IU
86-74-8	Carbazole	790	IU
129-00-0	Pyrene	790	IU
85-68-7	Butylbenzylphthalate	790	IU
91-94-1	3,3'-Dichlorobenzidine	790	IU
56-55-3	Benzo(a)Anthracene	790	IU
218-01-9	Chrysene	790	IU
117-81-7	bis(2-Ethylhexyl)Phthalate	790	IU
117-84-0	Di-n-Octyl Phthalate	790	IU
205-99-2	Benzo(b)Fluoranthene	790	IU
207-08-9	Benzo(k)Fluoranthene	790	IU
50-32-8	Benzo(a)Pyrene	790	IU
193-39-5	Indeno(1,2,3-cd)Pyrene	790	IU
53-70-3	Dibenzo(a,h)Anthracene	790	IU
191-24-2	Benzo(g,h,i)Perylene	790	IU

(1) - Cannot be separated from Diphenylamine

18
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-SB-103D

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: LC10-GW-10

Matrix: (soil/water) SOIL

Lab Sample ID: 930454-12

Sample wt/vol: 30.40 (g/mL) G

Lab File ID: J5798

Level: (low/med) LOW

Date Received: 07/16/93

% Moisture: 14 decanted: (Y/N) N

Date Extracted: 07/19/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 07/21/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.3

CONCENTRATION UNITS:

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

CAS NO.	COMPOUND	CONCENTRATION UNITS:	UG/KG
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-Di-n-Propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
98-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)Methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-Methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethyl Phthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	930	U
83-32-9	Acenaphthene	380	U

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1C
SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: CEIMIC CORP

Contract: BAKER

07-SB-103D

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: LC10-GW-10

Matrix: (soil/water) SOIL

Lab Sample ID: 930454-12

Sample wt/vol: 30.40 (g/mL) G

Lab File ID: J5798

Level: (low/med) LOW

Date Received: 07/16/93

% Moisture: 14 decanted: (Y/N) N

Date Extracted: 07/19/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 07/21/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.3

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	920	U
100-02-7	4-Nitrophenol	920	U
132-64-9	Dibenzofuran	380	U
121-14-3	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	920	U
534-52-1	4,6-Dinitro-2-Methylphenol	920	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	920	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
84-74-2	Di-n-Butylphthalate	380	U
206-44-0	Fluoranthene	380	U
86-74-8	Carbazole	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)Anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)Phthalate	310	U
117-84-0	Di-n-Octyl Phthalate	380	U
205-99-2	Benzo(b)Fluoranthene	380	U
207-08-9	Benzo(k)Fluoranthene	380	U
50-32-8	Benzo(a)Pyrene	380	U
193-39-5	Indeno(1,2,3-cd)Pyrene	380	U
53-70-3	Dibenzo(a,h)Anthracene	380	U
191-24-2	Benzo(g,h,i)Perylene	380	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

Co Name: CEIMIC CORP	Contract: BAKER	07-SB-110 <u>Duplicate of</u> 07-SB-103D
Lab Code: CEIMIC	Case No.: 19042	SDG No.: LC10-GW-1
Matrix: (soil/water) SOIL		Lab Sample ID: 930454-14
Sample wt/vol: 30.50 (g/mL) G		Lab File ID: J5802
Level: (low/med) LOW		Date Received: 07/16/93
% Moisture: 15 decanted: (Y/N) N		Date Extracted: 07/19/93
Concentrated Extract Volume: 500.0 (uL)		Date Analyzed: 07/21/93
Injection Volume: 2.0 (uL)		Dilution Factor: 1.0
GPC Cleanup: (Y/N) Y	pH: 6.3	

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
108-95-2	Phenol	380	IU	
111-44-4	bis(2-Chloroethyl)Ether	380	IU	
95-57-8	2-Chlorophenol	380	IU	
541-73-1	1,3-Dichlorobenzene	380	IU	
106-46-7	1,4-Dichlorobenzene	380	IU	
95-50-1	1,2-Dichlorobenzene	380	IU	
95-48-7	2-Methylphenol	380	IU	
108-60-1	2,2'-oxybis(1-Chloropropane)	380	IU	
106-44-5	4-Methylphenol	380	IU	
621-64-7	N-Nitroso-Di-n-Propylamine	380	IU	
67-72-1	Hexachloroethane	380	IU	
98-95-3	Nitrobenzene	380	IU	
78-59-1	Isophorone	380	IU	
88-75-5	2-Nitrophenol	380	IU	
105-67-9	2,4-Dimethylphenol	380	IU	
111-91-1	bis(2-Chloroethoxy)Methane	380	IU	
120-83-2	2,4-Dichlorophenol	380	IU	
120-82-1	1,2,4-Trichlorobenzene	380	IU	
91-20-3	Naphthalene	380	IU	
106-47-8	4-Chloroaniline	380	IU	117
87-68-3	Hexachlorobutadiene	380	IU	
59-50-7	4-Chloro-3-Methylphenol	380	IU	
91-57-6	2-Methylnaphthalene	380	IU	
77-47-4	Hexachlorocyclopentadiene	380	IU	
88-06-2	2,4,6-Trichlorophenol	380	IU	
95-95-4	2,4,5-Trichlorophenol	930	IU	
91-58-7	2-Chloronaphthalene	380	IU	
88-74-4	2-Nitroaniline	930	IU	
131-11-3	Dimethyl Fthalate	380	IU	
208-96-8	Acenaphthylene	380	IU	64
606-20-2	2,6-Dinitrotoluene	380	IU	
99-09-2	3-Nitroaniline	930	IU	117
83-32-9	Acenaphthene	380	IU	

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: CEIMIC CORP

Contract: BAKER

07-SB-110

Duplicate of

07-SB-103D

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: LC10-GW-1C

Matrix: (soil/water) SOIL

Lab Sample ID: 930454-14

Sample wt/vol: 30.50 (g/mL) G

Lab File ID: J5802

Level: (low/med) LOW

Date Received: 07/16/93

% Moisture: 15 decanted: (Y/N) N

Date Extracted: 07/19/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 07/21/93

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 6.3

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	930	IU
100-02-7	4-Nitrophenol	930	IU
132-64-9	Dibenzofuran	380	IU
121-14-2	2,4-Dinitrotoluene	380	IU
84-66-2	Diethylphthalate	380	IU
7005-72-3	4-Chlorophenyl-phenylether	380	IU
86-73-7	Fluorene	380	IU
100-01-6	4-Nitroaniline	930	IU
534-52-1	4,6-Dinitro-2-Methylphenol	930	IU
86-30-6	N-Nitrosodiphenylamine (1)	380	IU
101-55-3	4-Bromophenyl-phenylether	380	IU
118-74-1	Hexachlorobenzene	380	IU
87-86-5	Pentachlorophenol	930	IU
85-01-8	Phenanthrene	380	IU
120-12-7	Anthracene	380	IU
84-74-2	Di-n-Butylphthalate	380	IU
206-44-0	Fluoranthene	380	IU
86-74-8	Carbazole	380	IU
129-00-0	Pyrene	380	IU
85-68-7	Butylbenzylphthalate	380	IU
91-94-1	3,3'-Dichlorobenzidine	380	IU
56-55-3	Benzo(a)Anthracene	380	IU
218-01-9	Chrysene	380	IU
117-81-7	bis(2-Ethylhexyl)Phthalate	380	IU
117-84-0	Di-n-Octyl Phthalate	380	IU
205-99-2	Benzo(b)Fluoranthene	380	IU
207-08-9	Benzo(k)Fluoranthene	380	IU
50-32-9	Benzo(a)Pyrene	380	IU
193-39-5	Indeno(1,2,3-cd)Pyrene	380	IU
53-70-3	Dibenzo(a,h)Anthracene	380	IU
191-24-2	Benzo(g,h,i)Perylene	380	IU

(1) - Cannot be separated from Diphenylamine

FORM I SU-2

00009

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07-S2-105D

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC Case No.: 19042 SAS No.: SDG No.: LC10-GW-101

Matrix: (soil/water) SOIL Lab Sample ID: 930454-13

Sample wt/vol: 30.30 (g/mL) G Lab File ID: J5799

Level: (low/med) LOW Date Received: 07/16/93

% Moisture: 23 decanted: (Y/N) N Date Extracted: 07/19/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 07/21/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GFC Cleanup: (Y/N) Y pH: 7.1

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

108-95-2	Phenol	420	IU	J
111-44-4	bis(2-Chloroethyl)Ether	420	IU	I
95-57-8	2-Chlorophenol	420	IU	I
541-73-1	1,3-Dichlorobenzene	420	IU	I
106-46-7	1,4-Dichlorobenzene	420	IU	I
95-50-1	1,2-Dichlorobenzene	420	IU	I
95-48-7	2-Methylphenol	420	IU	I
108-60-1	2,2'-oxybis(1-Chloropropane)	420	IU	I
106-44-5	4-Methylphenol	420	IU	I
621-64-7	N-Nitroso-Di-n-Propylamine	420	IU	I
67-72-1	Hexachloroethane	420	IU	I
98-95-3	Nitrobenzene	420	IU	I
78-59-1	Isophorone	420	IU	I
88-75-5	2-Nitrophenol	420	IU	I
105-67-9	2,4-Dimethylphenol	420	IU	I
111-91-1	bis(2-Chloroethoxy)Methane	420	IU	I
120-83-2	2,4-Dichlorophenol	420	IU	I
120-82-1	1,2,4-Trichlorobenzene	420	IU	I
91-20-3	Naphthalene	420	IU	I
106-47-8	4-Chloroaniline	420	IU	17
87-68-3	Hexachlorobutadiene	420	IU	I
59-50-7	4-Chloro-3-Methylphenol	420	IU	I
91-57-6	3-Methylnaphthalene	420	IU	I
77-47-4	Hexachlorocyclopentadiene	420	IU	I
88-06-2	2,4,6-Trichlorophenol	420	IU	I
95-95-4	2,4,5-Trichlorophenol	1000	IU	I
91-58-7	3-Chloronaphthalene	420	IU	I
88-74-4	3-Nitroaniline	1000	IU	I
131-11-3	Dimethyl Phthalate	420	IU	I
208-96-8	Acenaphthylene	420	IU	I
606-20-2	2,6-Dinitrotoluene	420	IU	I
99-09-2	3-Nitroaniline	1000	IU	57
83-32-9	Acenaphthene	420	IU	17

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

07-SB-1050

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC Case No.: 19042 SAS No.: SDG No.: LC10-GW-1

Matrix: (soil/water) SOIL Lab Sample ID: 930454-13

Sample wt/vol: 30.30 (g/mL) G Lab File ID: J5799

Level: (low/med) LOW Date Received: 07/16/93

% Moisture: 23 - decanted: (Y/N) N Date Extracted: 07/19/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 07/21/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

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

CAS NO.	COMPOUND	UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	IU
100-02-7	4-Nitrophenol	1000	IU
132-64-9	Dibenzofuran	420	IU
121-14-2	2,4-Dinitrotoluene	420	IU
84-66-2	Diethylphthalate	420	IU
7005-72-3	4-Chlorophenyl-phenylether	420	IU
86-73-7	Fluorene	420	IU
100-01-6	4-Nitroaniline	1000	IU
534-52-1	4,6-Dinitro-2-Methylphenol	1000	IU
86-30-6	N-Nitrosodiphenylamine (1)	420	IU
101-55-3	4-Bromophenyl-phenylether	420	IU
118-74-1	Hexachlorobenzene	420	IU
87-86-5	Pentachlorophenol	1000	IU
85-01-8	Phenanthrene	420	IU
120-12-7	Anthracene	420	IU
84-74-2	Di-n-Butylphthalate	420	IU
206-44-0	Fluoranthene	420	IU
86-74-8	Carbazole	420	IU
129-00-0	Pyrene	420	IU
85-68-7	Butylbenzylphthalate	420	IU
91-94-1	3,3'-Dichlorobenzidine	420	IU
56-55-3	Benzo(a)Anthracene	420	IU
218-01-9	Chrysene	420	IU
117-81-7	bis(2-Ethylhexyl)Phthalate	420	IU
117-84-0	Di-n-Octyl Phthalate	420	IU
205-99-2	Benzo(b)Fluoranthene	420	IU
207-08-9	Benzo(k)Fluoranthene	420	IU
50-32-8	Benzo(a)Pyrene	420	IU
193-39-5	Indeno(1,2,3-cd)Pyrene	420	IU
53-70-3	Dibenzo(a,h)Anthracene	420	IU
191-24-2	Benzo(g,h,i)Perylene	420	IU

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07S260

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC Case No.: 19042 SAS No.: SDG No.: LC10-GW-10

Matrix: (soil/water) SOIL Lab Sample ID: 930454-08

Sample wt/vol: 30.50 (g/mL) G Lab File ID: AD042

Level: (low/med) LOW Date Received: 07/15/93

% Moisture: 10 - decanted: (Y/N) N Date Extracted: 07/18/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 07/28/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.3

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

108-95-2	Phenol	360	1U
111-44-4	bis(2-Chloroethyl)Ether	360	1U
95-57-8	2-Chlorophenol	360	1U
541-73-1	1,3-Dichlorobenzene	360	1U
106-46-7	1,4-Dichlorobenzene	360	1U
95-50-1	1,2-Dichlorobenzene	360	1U
95-48-7	2-Methylphenol	360	1U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	1U
106-44-5	4-Methylphenol	360	1U
621-64-7	N-Nitroso-Di-n-Propylamine	360	1U
67-72-1	Hexachloroethane	360	1U
98-95-3	Nitrobenzene	360	1U
78-59-1	Isophorone	360	1U
88-75-5	2-Nitrophenol	360	1U
105-67-9	3,4-Dimethylphenol	360	1U
111-91-1	bis(2-Chloroethoxy)Methane	360	1U
120-83-2	2,4-Dichlorophenol	360	1U
120-82-1	1,2,4-Trichlorobenzene	360	1U
91-20-3	Naphthalene	360	1U
106-47-8	4-Chloroaniline	360	1U
87-68-3	Hexachlorobutadiene	360	1U
59-50-7	4-Chloro-3-Methylphenol	360	1U
91-57-6	2-Methylnaphthalene	360	1U
77-47-4	Hexachlorocyclopentadiene	360	1U
88-06-2	2,4,6-Trichlorophenol	360	1U
95-95-4	2,4,5-Trichlorophenol	870	1U
91-58-7	2-Chloronaphthalene	360	1U
88-74-4	2-Nitroaniline	870	1U
131-11-3	Dimethyl Phthalate	360	1U
209-96-8	Acenaphthylene	360	1U
606-20-2	2,6-Dinitrotoluene	360	1U
99-09-2	3-Nitroaniline	870	1U
83-32-9	Acenaphthene	360	1U

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07S260

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: LC10-GW-10

Matrix: (soil/water) SOIL

Lab Sample ID: 930454-08

Sample wt/vol: 30.50 (g/mL) G

Lab File ID: AD042

Level: (low/med) LOW

Date Received: 07/15/93

% Moisture: 10 decanted: (Y/N) N

Date Extracted: 07/18/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 07/29/93

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 6.3

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

CAS NO.	COMPOUND	UG/KG	Q
51-28-5	2,4-Dinitrophenol	870	IU
100-03-7	4-Nitrophenol	870	IU
132-64-9	Dibenzofuran	360	IU
121-14-2	2,4-Dinitrotoluene	360	IU
84-66-2	Diethylphthalate	360	IU
7005-72-3	4-Chlorophenyl-phenylether	360	IU
86-73-7	Fluorene	360	IU
100-01-6	4-Nitroaniline	870	IU
534-52-1	4,6-Dinitro-2-Methylphenol	870	IU
96-30-6	N-Nitrosodiphenylamine (1)	360	IU
101-55-3	4-Bromophenyl-phenylether	360	IU
118-74-1	Hexachlorobenzene	360	IU
87-86-5	Pentachlorophenol	870	IU
85-01-8	Phenanthrene	360	IU
120-12-7	Anthracene	360	IU
84-74-2	Di-n-Butylphthalate	360	IU
206-44-0	Fluoranthene	360	IU
86-74-8	Carbazole	360	IU
129-00-0	Pyrene	360	IU
85-68-7	Butylbenzylphthalate	360	IU
91-94-1	3,3'-Dichlorobenzidine	360	IU
56-55-3	Benzo(a)Anthracene	360	IU
218-01-9	Chrysene	360	IU
117-81-7	bis(2-Ethylhexyl)Phthalate	100	IJ
117-84-0	Di-n-Octyl Phthalate	360	IU
203-99-2	Benzo(b)Fluoranthene	360	IU
207-08-9	Benzo(k)Fluoranthene	360	IU
50-32-8	Benzo(a)Pyrene	360	IU
193-39-5	Indeno(1,2,3-cd)Pyrene	360	IU
53-70-3	Dibenzo(a,h)Anthracene	360	IU
191-24-3	Benzo(g,h,i)Perylene	360	IU

(1) - Cannot be separated from Diphenylamine

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07S29D

Lab Name: CEIMIC CORP Contract: BAKER

Lab Code: CEIMIC Case No.: 19042 SAS No.: SDG No.: LC10-GW-10

Matrix: (soil/water) SOIL Lab Sample ID: 930454-09

Sample wt/vol: 30.10 (g/mL) G Lab File ID: AD043

Level: (low/med) LOW Date Received: 07/15/93

% Moisture: 15 decanted: (Y/N) N Date Extracted: 07/18/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 07/28/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	IU
111-44-4	bis(2-Chloroethyl)Ether	390	IU
95-57-8	2-Chlorophenol	390	IU
541-73-1	1,3-Dichlorobenzene	390	IU
106-46-7	1,4-Dichlorobenzene	390	IU
95-50-1	1,2-Dichlorobenzene	390	IU
95-48-7	2-Methylphenol	390	IU
108-60-1	2,2'-oxybis(1-Chloropropane)	390	IU
106-44-5	4-Methylphenol	390	IU
621-64-7	N-Nitroso-Di-n-Propylamine	390	IU
67-72-1	Hexachloroethane	390	IU
98-95-3	Nitrobenzene	390	IU
78-59-1	Isophorone	390	IU
88-75-5	2-Nitrophenol	390	IU
105-67-9	2,4-Dimethylphenol	390	IU
111-91-1	bis(2-Chloroethoxy)Methane	390	IU
120-83-2	2,4-Dichlorophenol	390	IU
120-82-1	1,2,4-Trichlorobenzene	390	IU
91-20-3	Naphthalene	390	IU
106-47-8	4-Chloroaniline	390	IU
87-68-3	Hexachlorobutadiene	390	IU
59-50-7	4-Chloro-3-Methylphenol	390	IU
91-57-6	2-Methylnaphthalene	390	IU
77-47-4	Hexachlorocyclopentadiene	390	IU
88-06-2	2,4,6-Trichlorophenol	390	IU
95-95-4	2,4,5-Trichlorophenol	940	IU
91-58-7	2-Chloronaphthalene	390	IU
88-74-4	2-Nitroaniline	940	IU
131-11-3	Dimethyl Phthalate	390	IU
208-96-8	Acenaphthylene	390	IU
606-20-2	2,6-Dinitrotoluene	390	IU
99-09-2	3-Nitroaniline	940	IU
83-32-9	Acenaphthene	390	IU

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

07SB9D

Name: CEIMIC CORP

Contract: BAKER

Lab Code: CEIMIC

Case No.: 19042

SAS No.:

SDG No.: LC10-SW-10

Matrix: (soil/water) SOIL

Lab Sample ID: 930454-09

Sample wt/vol: 30.10 (g/mL) G

Lab File ID: AD043

Level: (low/med) LOW

Date Received: 07/15/93

% Moisture: 15 decanted: (Y/N) N

Date Extracted: 07/18/93

Concentrated Extract Volume: 500.0 (uL)

Date Analyzed: 07/28/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 6.5

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND	UG/KG	Q
51-28-5	2,4-Dinitrophenol	940	IU
100-02-7	4-Nitrophenol	940	IU
132-64-9	Dibenzofuran	390	IU
121-14-2	2,4-Dinitrotoluene	390	IU
84-66-2	Diethylphthalate	390	IU
7005-72-3	4-Chlorophenyl-phenylether	390	IU
86-73-7	Fluorene	390	IU
100-01-6	4-Nitroaniline	940	IU
534-52-1	4,6-Dinitro-2-Methylphenol	940	IU
86-30-6	N-Nitrosodiphenylamine (1)	390	IU
101-55-3	4-Bromophenyl-phenylether	390	IU
118-74-1	Hexachlorobenzene	390	IU
87-86-5	Pentachlorophenol	940	IU
85-01-8	Phenanthrene	390	IU
120-12-7	Anthracene	390	IU
84-74-2	Di-n-Butylphthalate	390	IU
206-44-0	Fluoranthene	390	IU
86-74-8	Carbazole	390	IU
129-00-0	Pyrene	390	IU
85-68-7	Butylbenzylphthalate	390	IU
91-94-1	3,3'-Dichlorobenzidine	390	IU
56-55-3	Benzo(a)Anthracene	390	IU
218-01-9	Chrysene	390	IU
117-81-7	bis(2-Ethylhexyl)Phthalate	390	IU
117-84-0	Di-n-Octyl Phthalate	390	IU
205-99-2	Benzo(b)Fluoranthene	390	IU
207-08-9	Benzo(k)Fluoranthene	390	IU
50-32-8	Benzo(a)Pyrene	390	IU
193-39-5	Indeno(1,2,3-cd)Pyrene	390	IU
53-70-3	Dibenzo(a,h)Anthracene	390	IU
191-24-2	Benzo(g,h,i)Perylene	390	IU

(1) - Cannot be separated from Diphenylamine

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Comment 3

- Pg 20: Figure 3 Source 7 Amphibious Base Landfill
- The Site Boundary provided is slightly incorrect. The area to the south of Amphibious Dr. was determined not to have received wastes based on soil borings and investigation of the files on the construction of the HRSD buildings, located to the south of the landfill.
- Please replace or update the figure with the map provided following this page.

Comment 4

- Pg 20: Source 7 (Naval Amphibious Base Landfill), Section titled "Name and description of the source", first paragraph at the top, third sentence: "In October 1984, a two to three-inch topsoil cover was spread on all open areas of the landfill and the area was seeded to promote vegetative growth (Ref. 48, p. 1-5)."
- The date October 1984 was mistyped. The two to three inch topsoil cover was placed in October 1994.
- Therefore, please change "October 1984" to "October 1994".

Comment 5

- Pg 20: Source 7 (Naval Amphibious Base Landfill), Section titled "Name and description of the source", first paragraph at the top: "The landfill was constructed so that the central portion is comprised of a broad flat area bounded by gentle slopes on all sides. Most of the waste has been covered with soil and very little remains visible on the surface. In October 1994, a two to three-inch topsoil cover was spread on all open areas of the landfill and the area was seeded to promote vegetative growth (Ref. 48, p. 1-5)."
- The information in this paragraph concerning soil cover placement stops in 1994, and does not include the large amount of work the Navy has done at this site within the last two years. The Deputy Base Civil Engineer for NAB Little Creek has stated that after the landfill was closed, it was covered with 24 inches of compacted soil. This depth of soil cover was largely confirmed by hand auger soil borings taken by CH2MHILL in preparation of the soil cover design. In addition, the Navy completed a soil cover construction contract in June 1998 that placed 8,640 cubic yards of fill material and 11,260 cubic yards of topsoil over the central portion of this site. This resulted in 12-18" extra fill in some areas and 6-8" topsoil over the entire area. Due to the placement of the soil cover, the waste in the landfill is an average of 30" below the current ground surface. The soil cover area was then revegetated with wildlife grasses. An earthen berm was also constructed on the northern portion of the site to prevent overland flow from entering Little Creek Cove. The design for the remedial action was approved by the Virginia Department of Environmental Quality (VDEQ), the USEPA, and the public in June 1997. The Decision Document for this site was signed in January 1998, with VDEQ agreeing with the remedial action selected. A summary of the soil cover construction and other phases of the remedial action recently completed is detailed in the Draft Final Contractor Closeout Report from OHM (July 17, 1998) submitted to VDEQ, USEPA, and the public for review and comment.
- A copy of the As-Built is provided immediately following this page. The As-Built shows the area of the soil cover, and the earthen berm on the north side of the site. After placement of the soil cover, it was vegetated with wildlife grasses.
- Therefore, please change the paragraph to the following: "The landfill was constructed so that the central portion is comprised of a broad flat area bounded by gentle slopes on all sides. After closing the landfill, it was covered with 24 inches of compacted soil. In October 1994, a two to three-inch topsoil cover was spread on all open areas of the landfill and the area was seeded to promote vegetative growth (Ref. 48, p. 1-5). This depth of soil cover was largely confirmed by hand auger soil borings taken by CH2MHILL in preparation of the soil cover design. In addition, the Navy completed a soil cover construction contract in June 1998 that placed 8,640 cubic yards of fill material and 11,260 cubic yards of topsoil over the central portion of this site. This resulted in 12-18" extra fill in some areas and 6-8" topsoil over the entire area. Due to the placement of the soil cover, the waste in the landfill is an average of 30" below the current ground surface. The soil cover area was then revegetated with wildlife grasses. An earthen berm was also constructed on the northern portion of the site to prevent overland flow from entering Little Creek Cove."

NOTES:

1. COORDINATES SHOWN ARE IN FEET AND ARE BASED ON THE VIRGINIA STATE PLANE COORDINATE SYSTEM, SOUTH. CONTROL STATIONS WERE TAKEN FROM THE CH2MHILL CONTRACT DRAWINGS.

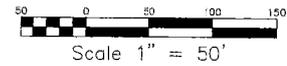
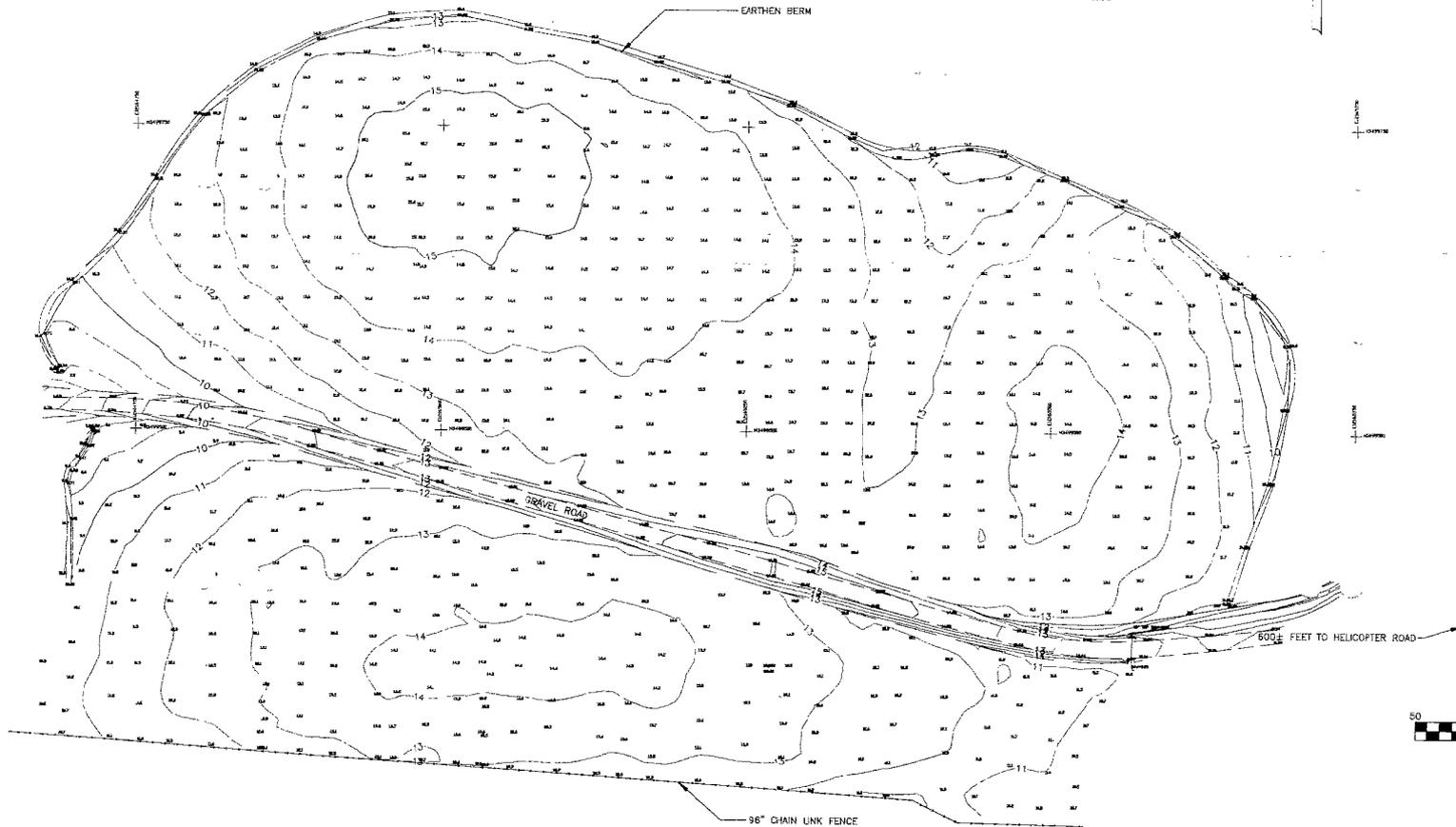
2. ELEVATION SHOWN IN FEET AND BASED ON THE NATIONAL GEODETIC VERTICAL DATUM, 1929 (1972 ADJUSTMENT). BENCH MARKS WERE TAKEN FROM THE CH2MHILL CONTRACT DRAWINGS.

COORDINATES TABLE

TRAVERSE	34993075200	21652700500	13.8200
TRAVERSE	34993813535	21662932023	10.27.0

LEGEND

- DITCH (EDGE)
- DITCH (C/L)
- STORM INVERT
- HEADWALL / ENDWALL
- TOP OF BANK
- GROUND SURF
- BOTTOM OF BANK
- GRAVEL (EDGE)
- FENCE (CHAINLINK)
- TRAVERSE
- 10.93



NO.	REVISIONS	DATE

DATE:	5-18-1
SCALE:	1" = 5'
DESIGN:	NA
CHECK:	DWA
JOB NO.:	v
P.R. NO.:	
SHEET:	1 OF 1
FILE NO.:	
SITE:	

ASBUILT
OF
SOIL COVER DESIGN SITE 7 LANDFILL
AT
SAYAL ALUMINUM PLANT



BENGTSON, DeBELL & ELKIN, LTD.
ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS
104 BUSINESS PARK DRIVE, SUITE 202, VIRGINIA BEACH, VIRGINIA
757.436.2662

Comment 6

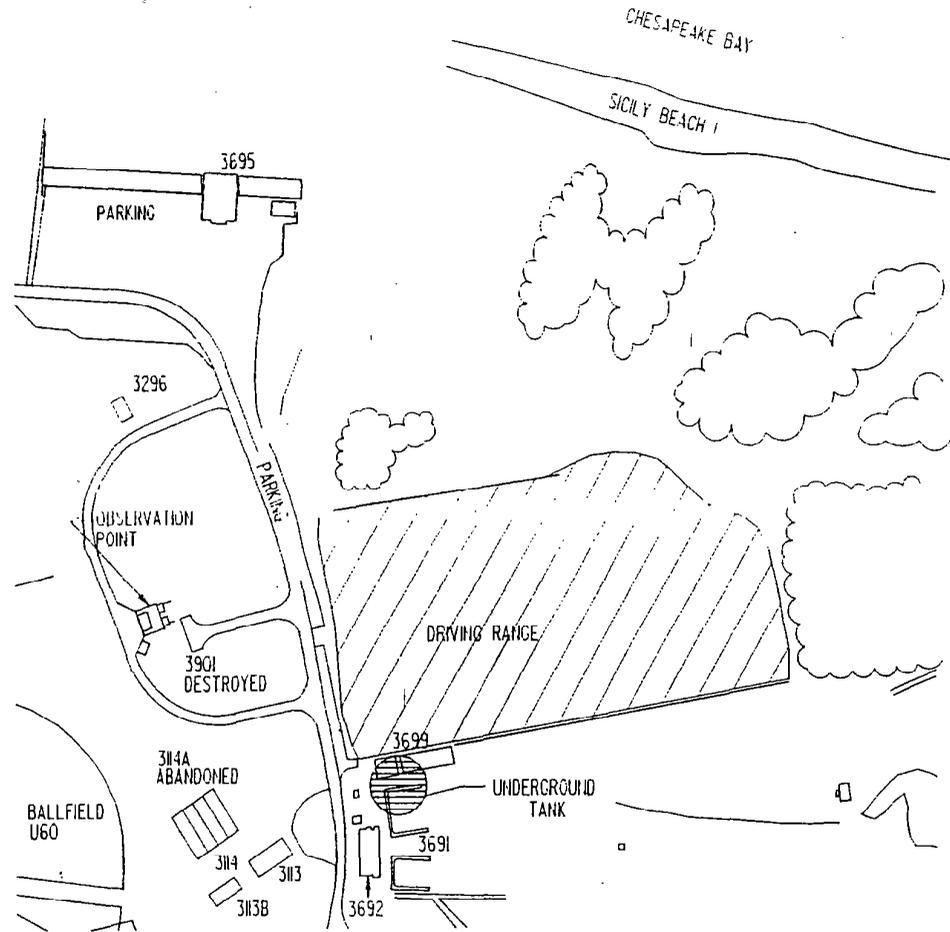
- Pg 20: Source 7 (Naval Amphibious Base Landfill), Section titled "Name and description of the source", second paragraph at the top: "Debris is located in several piles along the shoreline on the north side of the landfill. Debris included wooden timbers, floats, large metal objects such as tanks, an anchor, and drums, and miscellaneous rubbish such as plastic bottles and household items (Ref. 49, p. 3)."
- The information in this paragraph concerning shoreline debris is outdated, and does not include the large amount of work the Navy has done at this site within the last two years. The debris indicated by this paragraph has been removed. The Navy completed a debris removal contract in March 1998 that removed 610 cubic yards from this site. The design for the remedial action was approved by VDEQ, USEPA, and the public in June 1997. The Decision Document for this site was signed in January 1998, with VDEQ agreeing with the remedial action selected. A copy of the Draft Final Contractor Closeout Report from OHM (July 17, 1998) for the debris removal contract was submitted to VDEQ, USEPA, and the public for comment and review. The report details the debris removal with several pictures.
- Therefore, please change the existing paragraph to the following: "Debris was located in several piles along the shoreline on the north side of the landfill. Debris included wooden timbers, floats, large metal objects such as tanks, an anchor, and drums, and miscellaneous rubbish such as plastic bottles and household items (Ref. 49, p. 3). However, 610 cubic yards of debris was removed from the north shore from January to March 1998. The types of debris removed included wood, metal, tires, and general debris. The tanks and drums were removed with no spillage or release. An attempt was made to remove the anchor, however, it was buried too deep in the mud. The Navy may, in the future, make other attempts to remove the metal anchor."

Comment 7

- Pg 20: Source 7 (Naval Amphibious Base Landfill), Paragraph 2.4.1 Hazardous Substances, Hazardous Substance Table:
- While the compounds Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Phenanthrene, and Pyrene were detected in the surface soil, it should be noted that these compounds have not been detected in the groundwater, surface water or sediment at this site at any time.
- Therefore, please insert the following sentence below the Hazardous Substance Table in Paragraph 2.4.1: "While the compounds Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Phenanthrene, and Pyrene were detected in the surface soil, none of these compounds have been detected in the groundwater, surface water, or sediment at this site at any time."

Comment 8

- Pg 24: Figure 4 Source 9 Driving Range Landfill
- The Site Boundary provided is slightly incorrect. It appears that the entire area of the landfill is too far to the south. The actual southern edge of the landfill is to the north of the fence and building 3699.
- Please replace or modify the figure with the map provided following this page.



LEGEND

 APPROXIMATE LANDFILL BOUNDARY

SOURCE: BASE MAP PROVIDED BY LANTDV



SCALE IN FEET

FIGURE 2-2
SITE MAP
SITE 9
DRIVING RANGE LANDFILL MAP
NAB - LITTLE CREEK
VIRGINIA BEACH, VIRGINIA



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THAT FOR WHICH IT IS SPECIFICALLY PREPARED.

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Comment 9

- Pg 25: Source 9 (Driving Range Landfill), Paragraph 2.4.1 Hazardous Substances, Hazardous Substance Table:
- While the pesticides (DDD, DDE, Dieldrin, Endrin) and toluene were detected in the surface soil, it should be noted that these compounds have not been detected in the groundwater at this site at any time.
- Therefore, please insert the following sentence below the Hazardous Substance Table in Paragraph 2.4.1: "While the pesticides (DDD, DDE, Dieldrin, Endrin) and toluene were detected in the surface soil, none of these compounds have been detected in the groundwater at this site at any time."

Comment 10

- Pg 30: Source 10 (Sewage Treatment Plant Landfill), Paragraph 2.4.1 Hazardous Substances, Hazardous Substance Table
- While some of the pesticides (DDE, DDT, Dieldrin, Gamma-Chlordane) and toluene were detected in the surface soil, it should be noted that these compounds have not been detected in the groundwater at this site. DDD has been detected only once in GW6 at 0.02 ppb.
- Therefore, please insert the following sentences below the Hazardous Substance Table in Paragraph 2.4.1: “While some of the pesticides (DDE, DDT, Dieldrin, Gamma-Chlordane) and toluene have been detected in the surface soil, none of these compounds have been detected in the groundwater at this site. In addition, DDD has only been detected once in GW6 at 0.02 ppb.”

Comment 11

- Pg 33: Source 11A (School of Music Plating Shop Contaminated Soil and Debris), Paragraph 2.2, Name and description of the source, third paragraph: "The previously described removal action is not considered a qualifying removal action, as the confirmatory sampling did not include groundwater samples; therefore, the source is evaluated according to pre-removal conditions (Ref. 23 and 23 A)."
- The Navy does not agree with this statement since all removal actions and groundwater monitoring at this site were coordinated with and approved by VDEQ and USEPA. The Engineering Evaluation/Cost Analysis (EE/CA) for the Removal Action was submitted to the VDEQ, USEPA, and the public for review and comment (submittals letters/notice attached). The only comments received were from VDEQ (submittal letter attached). Of important note from the VDEQ comments is "The removal of the tank contents, tank, ancillary equipment, and associated soils is supported." All comments were addressed in the Final Decision Document for the Removal Action at Site 11, including the Action Memorandum, the Final EE/CA and Responsiveness Summary. The 1995 Removal Action removed the neutralization tank, associated piping, and surrounding contaminated soils. An Interim Removal Action Draft Final Closeout Report was issued in June 1996 and was finalized without additional comments (VDEQ and USEPA submittal letters attached). The Final Groundwater Monitoring Plans (GWMP), stating that two rounds of post-removal monitoring would be completed were submitted to VDEQ, USEPA, and the public for review and comment. Page 1-1 from the GWMP is attached. It states that two rounds would be completed at Site 11 for post-removal analysis. The only comments received were from VDEQ and were incorporated into the Final document (submittal letter and comments attached). The Work Plan for the Monitoring was also submitted to VDEQ, for which approval was obtained (submittal letter attached). The two rounds of post-removal groundwater sampling were completed in May and December 1996. While high concentrations of metals such as aluminum, chromium, copper, lead, mercury, nickel and zinc were found in the solid material within the neutralization tank prior to the removal action, none of these metals have been found in the groundwater at concentrations above MCLs or Region III RBCs for drinking/tap water after the removal action. The Draft Final Groundwater Monitoring Report (GWMR) was submitted to the VDEQ, USEPA, and the public in June 1997. The only comments received were from VDEQ and were incorporated into the final document, submitted in February 1998 (submittal letter and comments attached). Although the Final GWMR concluded that more investigation was necessary for Volatile Organic Compounds, it reported that the Removal Action was successful due to the lack of significant metals in the groundwater after the removal action.
- Attached following this page are: Submittal letters/notice for the EE/CA, VDEQ submittal letter for comments on the EE/CA (the only comments received); VDEQ submittal letter for response to the Draft Final Closeout Report for Site 11 (no comments necessary); USEPA submittal letter for response to Closeout Report and GWMP for Site 11 (deferring to VDEQ); page 1-1 from the GWMP stating two post-removal rounds of monitoring was proposed for Site 11; VDEQ submittal letter and comments for GWMP (comments incorporated, no changes to sampling protocol); VDEQ submittal letter for Work Plan for GWM (no comments necessary); VDEQ submittal letter and comments on the GWMR (further monitoring for post-removal reasons was not requested). Note that with the exception of the Work Plan for GWM, all documents were submitted to VDEQ, USEPA, and the public for review and comment.
- Therefore, considering the extensive coordination with VDEQ, USEPA, and the public before, during, and after the removal action, and the approved and successful completion of two rounds of groundwater monitoring, please consider the removal action as "qualifying," delete Source 11A and 11B entirely, and change the Score accordingly.



DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1510 GILBERT ST
NORFOLK VA 23511-2699

TELEPHONE NO:

(804) 322-4788

IN REPLY REFER TO:

5090

18223:SRP:jam

AUG 12 1993

Remedial Project Manager (3HW71)
Office of Superfund
VA/WV Federal Facilities Section
Region III, U. S. Environmental Protection Agency
Mr. Robert G. Thomson, P.E.
841 Chestnut Building
Philadelphia, Pennsylvania 19107

Re: Site 11 Removal Action,
Naval Amphibious Base, Little Creek
Virginia Beach, Virginia

Dear Mr. Thomson:

On August 12, 1993, you received a copy of the Draft Final Engineering Evaluation/Cost Analysis (EE/CA) for the referenced project for your review.

As required by 40 CFR § 300.415 and 40 CFR § 300.820, the public will be notified of the availability of both the EE/CA and the Administrative Record File for this project. After being published on August 22, 1993, a copy of the public notice will be forwarded for your records. Comments on the Draft Final EE/CA are requested by September 10, 1993.

If you have any questions, please contact Mr. Scott R. Park at (804) 322-4788.

Sincerely,

N. M. JOHNSON, P.E.
Head, Installation Restoration
Section (North)
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Copy to:
NAB Little Creek (Richard Stryker, Code N462),

Quality Performance . . . Quality Results



DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1510 GILBERT ST
NORFOLK VA 23511-2699

TELEPHONE NO:

(804) 322-4788

IN REPLY REFER TO:

5090

18223:SRP:jam

AUG 12 1993

Commonwealth of Virginia
Department of Environmental Quality
Waste Division
Attn: Ms. Michele Monti
Federal Facilities Project Officer
11th Floor, Monroe Building
101 N. 14th Street
Richmond, Virginia 23219

Re: Site 11 Removal Action,
Naval Amphibious Base, Little Creek
Virginia Beach, Virginia

Dear Ms. Monti:

On August 12, 1993, you received two copies of the Draft Final Engineering Evaluation/Cost Analysis (EE/CA) for the referenced project for your review.

As required by 40 CFR § 300.415 and 40 CFR § 300.820, the public will be notified of the availability of both the EE/CA and the Administrative Record File for this project. After being published on August 22, 1993, a copy of the public notice will be forwarded for your records. Comments on the Draft Final EE/CA are requested by September 10, 1993.

If you have any questions, please contact Mr. Scott R. Park at (804) 322-4788.

Sincerely,

N. M. JOHNSON, P.E.
Head, Installation Restoration
Section (North)
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Copy to:
NAB Little Creek (Richard Stryker, Code N462)

Quality Performance . . . Quality Results

THE U.S. DEPARTMENT OF THE NAVY
 INVITES PUBLIC COMMENT ON THE
 DRAFT FINAL ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)
 FOR PROPOSED REMOVAL ACTION
 AT
 INSTALLATION RESTORATION (IR) SITE 11
 THE NAVAL AMPHIBIOUS BASE, LITTLE CREEK, VIRGINIA BEACH, VIRGINIA
 AND
 ANNOUNCES THE AVAILABILITY OF THE ADMINISTRATIVE RECORD FILE
 FOR THE IR PROGRAM

In accordance with the Department of the Navy IR Program, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) of 1980, the Department of the Navy invites public comment on the Draft Final EE/CA for the proposed removal action at IR Site 11, the School of Music Plating Shop, at the Naval Amphibious Base (NAB), Little Creek, Virginia Beach, Virginia. The EE/CA consists of a brief analysis of removal alternatives for IR Site 11. Criteria used to evaluate each alternative include effectiveness in reducing environmental and human health risks, technical implementability, institutional considerations, and total costs. The EE/CA provides the following specific information:

- Site description (Including analytical data from previous studies),
- Removal action objectives,
- Removal action alternatives,
- Evaluation of alternatives and the recommended removal alternative, and
- Schedule and estimated cost to implement recommended alternative.

The review period for the EE/CA for Site 11 is 30 calendar days from the date of this notice. Comments on the Draft Final EE/CA for Site 11 will be considered in preparing the Final EE/CA and will be incorporated into the Removal Work Plans as appropriate.

The Navy also seeks to inform the public of the availability of the Administrative Record File and to encourage public comment on documents placed in the record. The Administrative Record File documents relating to the IR Program, as well as documents which form the basis for the selection of the specific removal action at Site 11, NAB Little Creek. The record includes the index of documents, factual information and data, regulatory policy and guidance and other agency documentation. Other documents may be added to the Administrative Record File as site work progresses. These additional documents may include formal changes to the scope of work of the study or clean up effort, comments and new information submitted by interested persons, and Navy responses to significant comments. Comments on the Administrative Record File may be made at any time.

The Administrative Record File is available for public review at the Virginia Beach Central Library. The library hours are 10:00 a.m. to 9:00 p.m. and Monday -Thursday, 10:00 a.m. to 5:00 p.m. on Fridays and Saturdays. The library is closed on Sundays and holidays.

The Draft Final EE/CA is available for public review at each of the following information repositories:

Central Library 4100 Virginia Beach Boulevard Virginia Beach, Virginia 23452 (804) 431-3000	Monday-Thursday Friday-Saturday	10:00 a.m.-9:00 p.m. 10:00 a.m.-5:00 p.m.
NAB Little Creek Library Building 3004 8th Street NAB Little Creek Norfolk, Virginia 23521 (804) 464-7691	Monday-Thursday Friday Saturday	9:00 a.m.-8:00 p.m. 9:00 a.m.-5:00 p.m. 10:00 a.m.-3:00 p.m.
Little Creek Library 7853 Tarpoon Place Norfolk, Virginia 23518 (804) 441-1751	Monday Tue/Wed/Thurs Friday Saturday	12:30 p.m.-9:00 p.m. 10:00 a.m.-5:30 p.m. Closed 10:00 a.m.-5:00 p.m.
Bayside Area library 956 Independence Boulevard Virginia Beach, Virginia 23455 (804) 460-8406	Monday-Thursday Friday-Saturday	10:00 a.m.-9:00 p.m. 10:00 a.m.-5:00 p.m.

Interested citizens may provide oral and/or written comments on the EE/CA from August 22 to September 20, 1993 to Ms. Barbara Jennings at the address below:

Public Affairs Officer
 Naval Amphibious Base, Little Creek
 Public Affairs Office
 1450 D Street
 Norfolk, VA 23521.
 (804) 464-7923.

Virginian Pilot
August 22, 1993



COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

September 13, 1993

Nina M. Johnson, P.E.
Head, Installation Restoration Section (North)
Department of the Navy
Atlantic Division
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, VA 23511-2699

Re: Naval Amphibious Base, Little Creek Site 11
Draft Final Engineering Evaluation/Cost Analysis

Dear Ms. Johnson:

Thank you for providing the Department of Environmental Quality, Waste Division Superfund Federal Facilities Program, the opportunity to comment on the "Draft Final Engineering Evaluation /Cost Analysis, Site 11: School of Music Plating Shop, Naval Amphibious Base, Little Creek, Virginia."

Attached are our comments and questions concerning the draft report. Additional comments may be forwarded to you from the RCRA Enforcement and Compliance Section.

If you have any questions concerning these comments or questions, please contact me at (804) 225-2927.

Sincerely,

A handwritten signature in cursive script that reads "Michele M. Monti".

Michele M. Monti
Environmental Program Planner
Superfund Federal Facilities

cc: Richard Stryker, NAB Little Creek

Nitin Apte, Foster Wheeler Environmental Services

Ron Smith, DEQ Waste Division
K. C. Das, DEQ Waste Division
Erica Dameron, DEQ Waste Division



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219

Mailing address: P.O. Box 10009, Richmond, Virginia 23240

Fax (804) 698-4500 TDD (804) 698-4021

<http://www.deq.state.va.us>

George Allen
Governor

Becky Norton Dunlop
Secretary of Natural Resources

Thomas L. Hopkins
Director

(804) 698-4000
1-800-592-5482

August 21, 1996

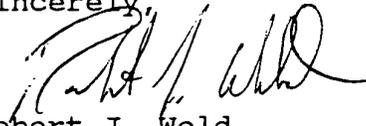
Mr. Scott R. Park
Department of the Navy
Atlantic Division, Code 1822
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, Virginia 23511-2699

Dear Mr. Park:

Thank you for providing the Department of Environmental Quality, Waste Division, Office of Federal Facilities Restoration, the opportunity to review the *Final Closeout Report for Site 11 Music Plating Shop at Naval Amphibious Base Little Creek, Norfolk, Virginia.*

Our staff has reviewed the subject document and has no comments at this time regarding the report. There are, however, some potential outstanding RCRA issues that may need to be addressed. These issues should be able to be discussed and resolved in conjunction with the submittal/review of the Groundwater Monitoring Report that will be generated for this site. In the meantime, if you have any questions, please feel free to contact me at (804) 698-4227.

Sincerely,



Robert J. Weld
Remedial Project Officer
Federal Facilities Restoration

cc: Erica Dameron - VDEQ
Durwood Willis - VDEQ
Kelly Greaser - NABLC



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

November 27, 1996

Mr. Scott Park (Code 1822)
Remedial Project Manager
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, VA 23511-2699

Re: Groundwater monitoring report and final closeout reports at NAB Little Creek

Dear Mr. Park:

This letter is to confirm my E-mail message of October 18, 1996 and to clarify EPA's position on certain issues concerning NAB Little Creek's groundwater investigation. My E-mail message stated that EPA has concurred with the VDEQ comments on reports submitted to EPA in late September 1996. The reports are as follows: Final Closeout reports for sites 11 and 16, groundwater monitoring plan for sites 5, 9, 10 and 11, and the PRAP for sites 9 and 10. I have also reviewed the sampling and analysis plans for sites 5, 9, 10, and 11 and we have discussed my comments on that document and I have no comments at this time. In regards to the issue concerning using bailers as opposed to pumps at sites 5 and 11, EPA does not have a concern with this issue.

Scott, please keep in mind that EPA is conducting a National Priorities List Pre-Score for the NAB Little creek site and depending on the outcome these reports will have to be used to confirm to EPA that previous investigations have been conducted at the site. To that end, please try to ensure that all data generated from these reports goes through thorough QA/QC procedures. If you have any questions or comments regarding this letter, please contact me at (215) 566-3366 or send me an E-mail message at STROUD.ROBERT@EPAMAIL.EPA.GOV.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert W. Stroud".

Robert W. Stroud, RPM
Federal Facilities Branch
(3HW50)

cc: Kelly Greaser (NAB)
Robert Weld (VDEQ)

1.0 INTRODUCTION

This Groundwater Monitoring Plan (GMP) was prepared for the Navy CLEAN Program, Contract Number N62470-89-D-4814, Contract Task Order (CTO) 0247, for the Naval Amphibious Base (NAB) Little Creek, located in Virginia Beach, Virginia. Foster Wheeler Environmental Corporation (FWENC) was awarded this CTO for NAB Little Creek on June 24, 1994. Figure 1-1 provides the location of NAB Little Creek.

An Implementation Plan and Fee Proposal (IP/FP) for CTO-0247 was issued on June 24, 1994. A Site Management Plan (SMO) for CTO-0247 was issued on May 26, 1995. The GMP has been prepared according to the guidelines included in the (1) Request for Proposal (RFP) dated April 1994, (2) the IP/FP dated June 24, 1994, and (3) recommendations provided by FWENC in the November 1994 report entitled "Final Remedial Investigation/Feasibility Study, Naval Amphibious Base Little Creek, Virginia."

The purpose of the GMP is to establish protocols for long-term monitoring activities, as follows:

- To collect groundwater samples to establish the present quality of groundwater at four sites:
 - ⇒ Site 5 - Building 9-11 Motor Oil Disposal Area
 - ⇒ Site 9 - Driving Range Landfill
 - ⇒ Site 10 - Sewage Treatment Plant Landfill
 - ⇒ Site 11 - School of Music Plating Shop
- To monitor groundwater quality on a periodic basis, the results of which will be compared to the baseline and/or background analysis to evaluate the presence of any contaminants in the groundwater.

* The GMP entails long-term monitoring at Sites 9 and 10, verification sampling at Site 5, and post-removal sampling at Site 11. For Sites 5 and 11, sampling results will be assessed and the sampling program re-evaluated after two rounds of sampling. For Sites 9 and 10, concentration levels which will trigger additional assessment/action are required as stated in the Navy/Marine Corps Installation Restoration Program (IR) Manual. The locations of the four sites are provided in Figure 1-2.

The GMP has been developed in accordance with EPA's *Guidelines for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final*, EPA/540/G-89/004 dated October 1988. The technical approach for this document was obtained from a program outlined in the Final IP/FP, dated June 1994.

The GMP discusses field activities and sample collection methods and procedures to be followed. Section 1 of the plan presents a brief history and background of the four sites being investigated at NAB Little Creek. Section 2 discusses the principal purpose and objectives of the



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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George Allen
Governor

Becky Norton Dunlop
Secretary of Natural Resources

Thomas L. Hopkins
Director

(804) 698-4000
1-800-592-5482

June 10, 1996

Mr. Scott R. Park
Department of the Navy
Atlantic Division, Code 1822
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, Virginia 23511-2699

Dear Mr. Park:

Thank you for providing the Department of Environmental Quality, Waste Division, the opportunity to review the *Final Draft Proposed Remedial Action Plan for Sites 9 and 10, May 1996* and *Draft Final Groundwater Monitoring Plans for Sites 5, 9, 10, and 11, May 1996* at Naval Amphibious Base Little Creek.

Attached are our comments and questions regarding the report. If you have any questions concerning the comments, please contact me at (804) 698-4227.

Sincerely,

A handwritten signature in black ink, appearing to read "R. J. Weld".

Robert J. Weld
Remedial Project Officer
Federal Facilities Restoration

cc: Durwood Willis - VDEQ
Kelly Greaser - NAB

**VDEQ Comments and Questions on
Final Draft PRAP (Proposed Remedial Action Plan) Sites 9 and 10**

1. Page 1-1, Section 1.3: Please add the phrase "under current conditions" to the end of the second sentence in this section.
2. Page 1-2, Section 1.3: It is not clear how the determination was made that the aquifer is Class III. The RI states that high concentrations of anions detected in groundwater supports the assumption that the shallow aquifer is not potable. However, the levels of alkalinity, chloride, and sulfates detected were below the Virginia Secondary Maximum Contaminant Levels and/or Groundwater Criteria. These values would therefore not support the assumption of nonpotability. Values for TDS (total dissolved solids) were not provided. Please add clarification of this issue or reference the section of the RI that discusses it in detail.
3. Page 4-1, Sections 4.1 and 4.2: The scope of actions for both sites includes institutional controls and deed restrictions. It should be noted that the deed restrictions must include a stipulation that groundwater may not be used as either a potable or nonpotable source. They must also stipulate that the subsurface soils should not be disturbed since risk due to exposure to subsurface soils has not been evaluated.

Please clarify in the second paragraph of each of these sections that no risk was determined under the current scenario. The future use scenario indicated a hazard index slightly above one for soils at Site 9 and groundwater at Site 10.

4. Page 5-1, Sections 5.1 and 5.2: These sections need to be expanded to include a discussion of the scenarios under which risk was evaluated. Note that a standard drinking water scenario has not been included. The statement that risks fall below the target range is misleading since the risk for some scenarios and/or receptors falls within the target range and above the target hazard index.
5. Page 6-1, Sections 6.1 and 6.2: Discussions of the specific institutional controls to be implemented should be added to this section (Refer to Comment # 3).

**VDEQ Comments and Questions on
Draft Final Groundwater Monitoring Plans for
Sites 5, 9, 10, and 11**

6. Page 2-2, Section 2.1.1: This section indicates that only TCL volatiles and semivolatiles will be analyzed. How have metals and pesticides/PCBs been ruled out in previous investigations?
7. Page 2-10, Section 2.14: The basis for the trigger levels is unclear. Some of the contaminants have trigger levels that are

three times the background concentration. The RI/FS presents data taken from the background wells. However, there is no discussion of how the background data were used. There was no discussion of statistical methods used in background evaluation.

For example, it is not clear whether an upper tolerance limit, maximum concentration, or average value is used to calculate the three times background level. It would be helpful if a table were included in this section to present actual values for the trigger levels at each site. These values need to be checked for protectiveness. For example, if the maximum manganese background concentration is used, three times background results in a hazard quotient exceeding one, even in the non-conservative scenario used for the risk assessment. If a standard drinking water scenario is used, several contaminants would result in an unacceptable risk using three times background or three times the RBC. Please add further rationale for the development of the trigger levels as well as a table presenting the trigger levels.

The trigger level for zinc is specified for Site 10 but not Site 9. Please clarify.

As noted in Comment 2 above, sufficient justification for designating the aquifer as nonpotable has not been provided. If sufficient rationale cannot be provided, trigger levels may need to be based on drinking water standards or risk-based levels.

8. Page 2-11, Section 2.14: The statement regarding zinc and beryllium is unclear. Trigger levels should not be dependent on the magnitude of previous detections. Rather they should be based on a mutually agreeable risk-based level.

Also note that VDEQ and EPA Region III should be involved in the decision whether to continue monitoring. In addition, note that the remedial actions for Sites 9 and 10 include long-term monitoring. Therefore, it would not be expected that a decision regarding continued monitoring would be made after one sampling event as implied in this section.



COMMONWEALTH of VIRGINIA

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Thomas L. Hopkins
Director

Becky Norton Dunlop
Secretary of Natural Resources

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October 24, 1996

Mr. Scott R. Park
Department of the Navy
Atlantic Division, Code 1822
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, Virginia 23511-2699

Dear Mr. Park:

Thank you for providing the Department of Environmental Quality, Waste Division, Office of Federal Facilities Restoration, the opportunity to review the *Draft Work Plan and Sampling and Analysis Plan for Groundwater Monitoring at Sites 5, 9, 10, and 11, Naval Amphibious Base Little Creek, Norfolk, Virginia.*

As requested, I have quickly reviewed the report and have no comments at this time. It should be noted, however, that the final trigger levels for action have not yet been agreed upon based on previous discussions between VDEQ and the Navy. If you have any questions, please feel free to contact me at (804) 698-4227.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert J. Weld".

Robert J. Weld
Remedial Project Officer
Federal Facilities Restoration

cc: Durwood Willis - VDEQ
Kelly Greaser - NABLC



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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Thomas L. Hop
Director

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July 15, 1997

Mr. Scott R. Park
Department of the Navy
Atlantic Division, Code 1822
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, Virginia 23511-2699

Dear Mr. Park:

Thank you for providing the Department of Environmental Quality Waste Division, Office of Federal Facilities Restoration, a copy of the *Draft Final Groundwater Monitoring Report for Sites 5 and 11, Nava Amphibious Base Little Creek, Virginia Beach, Virginia.*

Attached are our comments and questions regarding the report. If you have any questions concerning these comments, feel free to contact me at (804) 698-4227.

Sincerely,

Robert J. Weld
Remedial Project Officer
Federal Facilities Restoration

cc: Durwood Willis - VDEQ
Kelly Greaser - NABLC
Bob Stroud - U.S. EPA

**VDEQ Comments and Questions on
Draft Final Groundwater Monitoring Report for Sites 5 and 11
Naval Amphibious Base Little Creek (NABLC), Virginia Beach, Virginia**

- 1) Section 1.1, pg. 1-1: This section indicates that no further monitoring or remedial activities are planned for these sites. However, Section 4.2, page 4-3 recommends additional work be performed at Site 11. Please explain the discrepancy. VDEQ agrees that additional work is necessary at Site 11 to characterize the VOC contamination in the groundwater.
- 2) Section 2.1, pg. 2-2, Table 2-2: Please provide a rationale for why the specific conductance data was determined to be unreliable for the 5-21-96 sampling event.
- 3) Section 2.2, pg. 2-4, Figure 2-2: This figure indicates that the direction of groundwater flow is to the west based on water table elevations from the December 1996 sampling event. However, Table 4-1 (page 4-2) indicates that groundwater flow is to the southwest based December 1996 groundwater data. Please correct Figure 2-2 or clarify the issue.
- 4) Table 3-1, pg. 3-2: It is assumed that the data qualifier "U" indicates that the contaminant was not detected above the stated detection limit (i.e. - 10U, where 10 equals the detection limit). Please provide a footnote explaining the "U" qualifier.
- 5) Section 4.2, pg. 4-1, Last Paragraph: The paragraph indicates the baseline risk assessment conducted as part of the 1994 RI/FS did not find any current or future risk associated with metals in groundwater at Site 11. What did the risk assessment show with regard to risk associated with the VOC contamination in groundwater at Site 11?
- 6) Section 4.2, pg. 4-3, Last Paragraph: VDEQ agrees that additional work is necessary to fully characterize the VOC contamination in groundwater at Site 11. Please ensure that VDEQ has an opportunity to review the work plan prior to the work being performed. A scoping meeting, which includes VDEQ, to develop an appropriate course of action for future work is recommended.

End of Comments

Comment 12

- Pg 33: Source 11A (School of Music Plating Shop Contaminated Soil and Debris), Paragraph 2.2, Containment, Release via overland migration and/or flood, first paragraph: "There is evidence of migration of hazardous substances from the source area (Ref. 22 pp. D-2 through D-4); therefore, a containment factor of 10 is assigned (Ref. 1, Table 4-2, p. 51609)."
- The sampling results discussed in this paragraph are the characterization samples taken for disposal purposes as part of the 1995 Removal Action discussed in the previous comment. These sources were removed as part of the removal action and no releases or spillage of any kind occurred. All of the debris was transported off-site according to applicable federal regulations. The liquid (150 gallons) and limestone chips (2 cubic yards) from inside the tank were transported, treated, and disposed at Clean Harbors Inc., of Baltimore, MD. Approximately 94 tons (5 rolloffs) of soil were removed from the site, transported, treated, and disposed at Wayne Disposal Inc., located in Belleville, MI. The concrete tank, piping, and other concrete debris (10.76 tons) were transported, treated and disposed at Envirosafe Services of Ohio, Inc., located in Oregon, OH. After all excavation was completed, 18 confirmatory samples (plus two QA/QC samples) were randomly collected to verify that all potentially contaminated soil had been removed. The results confirmed that all constituents of concern were below the USEPA Region III Risk Based Concentration (RBC) action limits. Therefore, the soil remaining after the removal action met the closure criteria.
- Attached immediately following this page are pages 9 through 12 from the Final Closeout Report for the Removal Action stating no releases or spillage occurred during removal of the waste, confirmatory samples indicated closure criteria had been achieved, and reporting the final destination of all waste removed from the site.
- Therefore, please modify the paragraph to read as follows: "While there was evidence of migration of hazardous substances from the original source area, a 1995 Removal Action removed the neutralization tank, associated piping, and surrounding contaminated soils." Also, please change the containment factor and Score accordingly.

3.4.1 Topsoil Removal and Staging

IT began the actual removal action by removing the uppermost two feet of soil from around the neutralization tank and from above the piping which was determined not to be contaminated. This soil was stripped off by excavating a 3 foot wide trench to a depth of 2 feet using a backhoe. The material was then stockpiled and designated for reuse during site restoration activities. The stockpile was surrounded by silt fence to prevent erosion.

3.4.2 Neutralization Tank and Contents Removal

Since the neutralization tank contained both solids (limestone chips) and liquids, it was necessary to remove a portion of the tank to gain access to the limestone chips. Prior to beginning the removal activities, the tank interior was inspected and it was determined that the liquid level in the tank was below both the inlet and outlet piping, therefore no liquid was present within the piping. The following sections detail the removal in a step wise order.

Liquid Removal. Prior to removing any portion of the tank, the liquids from within the tank were pumped from the tank by a submersible pump, then transferred to and containerized in three 55 gallon steel drums. All work was done on polyethylene sheeting to prevent any spills from contacting the in situ soils. These drums were properly labelled, palletized, banded and placed in the staging area.

Tank Removal Step 1. In order to remove the tank, the inlet and outlet piping were removed and directly placed in the lined rolloff container designated to contain only debris. Because the piping was empty, clean, and free of any liquids and scale, no spilling of pipe contents could occur. The manhole ring section was then removed and staged on and encapsulated with polyethylene sheeting by lifting the section off the tank body with the backhoe boom. The soil around the tank was then excavated to a depth of 12 feet to expose the sidewalls of the tank. (As previously discussed, the first 2 foot interval was determined to be clean and was placed in the topsoil stockpile). All soils in the 2 to 12 foot interval were previously determined to be contaminated and were placed in a separate lined rolloff container designated to contain only contaminated soil. The upper 3 foot section of the tank was then lifted off and placed on polyethylene sheeting using the excavator boom. Sheeting was used to encapsulate the tank to prevent any liquids from spilling. A 10 foot by 10 foot steel trench box was then lowered over the remaining tank section to prevent the excavation side walls from collapsing.

Limestone Chip Removal. The limestone chips were then removed from the tank using both heavy equipment and hand tools, then containerized in seven 55 gallon steel drums. These drums were labelled and placed in the staging area adjacent to the liquid containing drums.

Tank Removal Step 2. The lower 7 foot section of the tank was then removed with the boom of the excavator and placed and encapsulated with the other sections on polyethylene sheeting.

Demolition. The tank and the polyethylene sheeting were placed directly in the debris rolloff container, then broken into manageable pieces.

3.4.3 Inlet and Outlet Piping Removal

The cast iron inlet and vitrified clay outlet pipes were removed and placed into the lined rolloff container holding the debris which was staged nearby, then broken into manageable pieces. Because the piping was empty, clean, and free of any liquids and scale, no spilling of pipe contents could occur. Upon closer inspection, the piping was determined to be competent with no cracks or leaks evident.

A portion of the inlet piping was located beneath the concrete floor of Building 3651, and as such, it was necessary to demolish a 12 foot by 8 foot section of the 4-inch thick floor. The concrete was broken into manageable pieces, and placed into the lined rolloff container designated to contain debris. A four foot wide trench was then excavated by hand to expose the piping. The piping was removed and soil to a depth of 5 feet was then excavated. All of the soil excavated was placed into the lined rolloff container designated to hold contaminated soils.

In addition to the piping removal within Building 3651, the stainless steel sink, vent pipe and associated plumbing were removed and placed into the lined rolloff container holding debris.

3.4.4 Contaminated Soil Removal

After the tank and all associated piping had been removed, the soil interval from 2 to 5 feet along the pipeline was excavated and placed into the lined rolloff container holding contaminated soil. The 2 foot interval of soil below the tank bottom was excavated and placed in the lined rolloff.

3.4.4.1 Post Excavation Sampling

At the completion of excavation activities, eighteen confirmatory samples and two QA/QC samples were collected in accordance with the SAP, along the bottom and side walls of the excavation at the locations shown in Figure 1. These sample locations were selected randomly to avoid sample location bias. The samples were then placed in appropriately labeled containers along with properly completed chain of custody documentation, then shipped via overnight courier to Quanterra Environmental Services Inc., (Quanterra) in Pittsburgh, PA. The Sample Collection Logs are located in Appendix A.

3.4.4.2 Post Excavation Sample Analyses

All analyses were conducted in accordance with the SAP. The results of the analyses were submitted to the Navy under separate cover as part of the document entitled: *"Test Results Summary Report, Site 11-School of Music Plating Shop, NAB Little Creek."* The analytical data indicated that all constituents of concern were below the EPA Region III Risk Based Concentration (RBC) action limits. Therefore, the in situ soils met the closure criteria. A summary of the analytical results are presented in Appendix D.

3.5 Disposal of Contaminated Materials

Several hazardous waste streams were disposed of as part of the interim remedial action. These waste streams consisted of both hazardous liquids and solids. The waste streams are detailed in the following sections. Copies of the completed hazardous waste manifests are located in Appendix C.

3.5.1 Liquid Wastes

The liquid waste streams disposed of as a result of the removal action were:

- Liquid neutralization tank contents
- Decontamination rinse water.

Liquid Neutralization Tank Contents. Approximately 150 gallons (3 drums) of hazardous liquid (Waste Codes F003, F006, F007 and F009) was transported to Clean Harbors Inc., of Baltimore Maryland for treatment and disposal.

Decontamination Rinse Water. Approximately 40 gallons (1 drum) of hazardous liquid (Waste Codes F001, F002, F003, F005, F006, F007, F009) was transported to Clean Harbors Inc., of Baltimore, MD for treatment and disposal.

3.5.2 Solid Wastes

The solid wastes disposed of as a result of the removal action were:

- Contaminated soils
- Limestone chips
- Concrete neutralization tank
- Concrete debris from the floor of Building 3651
- Vitrified clay and cast iron piping
- Contractor generated debris (PPE, Polyethylene sheeting, PVC liner, etc.)

Contaminated Soils. Approximately 94 tons (5 rolloffs) of contaminated soils were transported to Wayne Disposal Inc., located in Belleville, MI for treatment and disposal.

Limestone Chips. Approximately 2 cubic yards (7 drums) of limestone chips were transported to Clean Harbors Inc., located in Baltimore, MD for treatment and disposal.

Concrete and Piping Debris. Approximately 10.76 tons (1 rolloff) consisting of the tank, the concrete floor, all piping, and the contractor generated debris were transported to Envirosafe Services of Ohio, Inc., located in Oregon, OH for treatment and disposal.

4.0 Site Restoration

The crew was remobilized on 23 January 1996 after the laboratory analyses confirmed that the in situ soils were below the RBC action levels. Site restoration activities included:

- Backfill of excavations
- Replacement of Building 3651 flooring
- Replacement of cooling tower condensation line
- Placement and spreading of stockpiled topsoil.

Comment 13

- Pg 35: Source 11A (School of Music Plating Shop Contaminated Soil and Debris), Paragraph 2.4.1, Hazardous Substances Source 11A, Hazardous Substance Table.
- The first five compounds listed (Aluminum, Chromium, Copper, Lead, and Mercury) are representative of the solid compounds that were present inside the neutralization tank, and are not representative of the surrounding soil. As described in previous comments, the tank and its contents were removed without spillage or release of any kind during the 1995 Removal Action.
- Therefore, please delete the first five compounds listed (Aluminum, Chromium, Copper, Lead, and Mercury).

Comment 14

- Pg 35: Source 11A (School of Music Plating Shop Contaminated Soil and Debris), Paragraph 2.4.1, Hazardous Substances Source 11A, Hazardous Substance Table, Cyanide.
- Cyanide has not been detected in the groundwater, but was detected in the material inside the neutralization tank before the removal action occurred. As described in previous comments, the tank and its contents were removed without spillage or release of any kind during the 1995 Removal Action.
- Therefore, please delete "Cyanide", and its associated information from the Hazardous Substance Table.

Comment 15

- Pg 35: Source 11A (School of Music Plating Shop Contaminated Soil and Debris), Paragraph 2.4.1, Hazardous Substances Source 11A, Hazardous Substance Table, 1,1-Dichloroethane, Chloroform and *trans* 1,2-Dichloropropane.
- 1,1-Dichloroethane, Chloroform and *trans* 1,2-Dichloropropane were detected many years ago in Reference 7 (Round 1 Final Progress Report, 1986), but have not been detected recently in Reference 4 (Draft Final Interim Remedial Investigation, 1991). However, Reference 4 did include the previous investigation results of Reference 7 for historical purposes.
- Therefore, for 1,1-Dichloroethane, Chloroform and *trans* 1,2-Dichloropropane, please change "Reference 4" to "Reference 7".

Comment 16

- Pg 35: Source 11A (School of Music Plating Shop Contaminated Soil and Debris), Paragraph 2.4.1, Hazardous Substances Source 11A, Hazardous Substance Table, DDD.
- No DDD has ever been detected at this site. In addition, there is no GW-6 as indicated in the evidence column.
- Therefore, please delete "DDD" and its associated information from the Hazardous Substance Table.

Comment 17

- Pg 38: Source 11B (School of Music Plating Shop Tank), Paragraph 2.2, Name and description of the source, third paragraph: "The previously described removal action is not considered a qualifying removal action, as the confirmatory sampling did not include ground water samples: therefore, the source is evaluated according to pre-removal conditions (Ref. 23 and 23 A)."
- The Navy does not agree with this statement since all removal actions and groundwater monitoring at this site were coordinated with and approved by VDEQ and USEPA. The Engineering Evaluation/Cost Analysis (EE/CA) for the Removal Action was submitted to the VDEQ, USEPA, and the public for review and comment (submittals letters/notice attached). The only comments received were from VDEQ (submittal letter attached). Of important note from the VDEQ comments is "The removal of the tank contents, tank, ancillary equipment, and associated soils is supported." All comments were addressed in the Final Decision Document for the Removal Action at Site 11, including the Action Memorandum, the Final EE/CA and Responsiveness Summary. The 1995 Removal Action removed the neutralization tank, associated piping, and surrounding contaminated soils. An Interim Removal Action Draft Final Closeout Report was issued in June 1996 and was finalized without additional comments (VDEQ and USEPA submittal letters attached). The Final Groundwater Monitoring Plans (GWMP), stating that two rounds of post-removal monitoring would be completed were submitted to VDEQ, USEPA, and the public for review and comment. Page 1-1 from the GWMP is attached. It states that two rounds would be completed at Site 11 for post-removal analysis. The only comments received were from VDEQ and were incorporated into the Final document (submittal letter and comments attached). The Work Plan for the Monitoring was also submitted to VDEQ, for which approval was obtained (submittal letter attached). The two rounds of post-removal groundwater sampling were completed in May and December 1996. While high concentrations of metals such as aluminum, chromium, copper, lead, mercury, nickel and zinc were found in the solid material within the neutralization tank prior to the removal action, none of these metals have been found in the groundwater at concentrations above MCLs or Region III RBCs for drinking/tap water after the removal action. The Draft Final Groundwater Monitoring Report (GWMR) was submitted to the VDEQ, USEPA, and the public in June 1997. The only comments received were from VDEQ and were incorporated into the final document, submitted in February 1998 (submittal letter and comments attached). Although the Final GWMR concluded that more investigation was necessary for Volatile Organic Compounds, it reported that the Removal Action was successful due to the lack of significant metals in the groundwater after the removal action.
- Attached following this page are: Submittal letters/notice for the EE/CA, VDEQ submittal letter for comments on the EE/CA (the only comments received); VDEQ submittal letter for response to the Draft Final Closeout Report for Site 11 (no comments necessary); USEPA submittal letter for response to Closeout Report and GWMP for Site 11 (deferring to VDEQ); page 1-1 from the GWMP stating two post-removal rounds of monitoring was proposed for Site 11; VDEQ submittal letter and comments for GWMP (comments incorporated, no changes to sampling protocol); VDEQ submittal letter for Work Plan for GWM (no comments necessary); VDEQ submittal letter and comments on the GWMR (Further monitoring for post-removal reasons was not requested. Note that with the exception of the Work Plan for GWM, all documents were submitted to VDEQ, USEPA, and the public for review and comment.
- Therefore, considering the extensive coordination with VDEQ, USEPA, and the public before, during, and after the removal action, and the approved and successful completion of two rounds of groundwater monitoring, please consider the removal action as "qualifying," delete Source 11A and 11B entirely, and change the Score accordingly.



DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1510 GILBERT ST
NORFOLK VA 23511-2699

TELEPHONE NO.

(804) 322-4788

IN REPLY REFER TO:

5090

18223:SRP:jam

AUG 12 1993

Remedial Project Manager (3HW71)
Office of Superfund
VA/WV Federal Facilities Section
Region III, U. S. Environmental Protection Agency
Mr. Robert G. Thomson, P.E.
841 Chestnut Building
Philadelphia, Pennsylvania 19107

Re: Site 11 Removal Action,
Naval Amphibious Base, Little Creek
Virginia Beach, Virginia

Dear Mr. Thomson:

On August 12, 1993, you received a copy of the Draft Final Engineering Evaluation/Cost Analysis (EE/CA) for the referenced project for your review.

As required by 40 CFR § 300.415 and 40 CFR § 300.820, the public will be notified of the availability of both the EE/CA and the Administrative Record File for this project. After being published on August 22, 1993, a copy of the public notice will be forwarded for your records. Comments on the Draft Final EE/CA are requested by September 10, 1993.

If you have any questions, please contact Mr. Scott R. Park at (804) 322-4788.

Sincerely,

N. M. JOHNSON, P.E.
Head, Installation Restoration
Section (North)
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Copy to:
NAB Little Creek (Richard Stryker, Code N462),

Quality Performance . . . Quality Results



DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1510 GILBERT ST
NORFOLK VA 23511-2699

TELEPHONE NO:

(804) 322-4788

IN REPLY REFER TO:

5090

18223:SRP:jam

AUG 12 1993

Commonwealth of Virginia
Department of Environmental Quality
Waste Division
Attn: Ms. Michele Monti
Federal Facilities Project Officer
11th Floor, Monroe Building
101 N. 14th Street
Richmond, Virginia 23219

Re: Site 11 Removal Action,
Naval Amphibious Base, Little Creek
Virginia Beach, Virginia

Dear Ms. Monti:

On August 12, 1993, you received two copies of the Draft Final Engineering Evaluation/Cost Analysis (EE/CA) for the referenced project for your review.

As required by 40 CFR § 300.415 and 40 CFR § 300.820, the public will be notified of the availability of both the EE/CA and the Administrative Record File for this project. After being published on August 22, 1993, a copy of the public notice will be forwarded for your records. Comments on the Draft Final EE/CA are requested by September 10, 1993.

If you have any questions, please contact Mr. Scott R. Park at (804) 322-4788.

Sincerely,

N. M. Johnson

N. M. JOHNSON, P.E.
Head, Installation Restoration
Section (North)
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Copy to:
NAB Little Creek (Richard Stryker, Code N462)

Quality Performance . . . Quality Results

THE U.S. DEPARTMENT OF THE NAVY
 INVITES PUBLIC COMMENT ON THE
 DRAFT FINAL ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)
 FOR PROPOSED REMOVAL ACTION
 AT
 INSTALLATION RESTORATION (IR) SITE 11
 THE NAVAL AMPHIBIOUS BASE, LITTLE CREEK, VIRGINIA BEACH, VIRGINIA
 AND
 ANNOUNCES THE AVAILABILITY OF THE ADMINISTRATIVE RECORD FILE
 FOR THE IR PROGRAM

In accordance with the Department of the Navy IR Program, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) of 1980, the Department of the Navy invites public comment on the Draft Final EE/CA for the proposed removal action at IR Site 11, the School of Music Plating Shop, at the Naval Amphibious Base (NAB), Little Creek, Virginia Beach, Virginia. The EE/CA consists of a brief analysis of removal alternatives for IR Site 11. Criteria used to evaluate each alternative include effectiveness in reducing environmental and human health risks, technical implementability, institutional considerations, and total costs. The EE/CA provides the following specific information:

- Site description (including analytical data from previous studies),
- Removal action objectives,
- Removal action alternatives,
- Evaluation of alternatives and the recommended removal alternative, and
- Schedule and estimated cost to implement recommended alternative.

The review period for the EE/CA for Site 11 is 30 calendar days from the date of this notice. Comments on the Draft Final EE/CA for Site 11 will be considered in preparing the Final EE/CA and will be incorporated into the Removal Work Plans as appropriate.

The Navy also seeks to inform the public of the availability of the Administrative Record File and to encourage public comment on documents placed in the record. The Administrative Record File documents relating to the IR Program, as well as documents which form the basis for the selection of the specific removal action at Site 11, NAB Little Creek. The record includes the index of documents, factual information and data, regulatory policy and guidance and other agency documentation. Other documents may be added to the Administrative Record File as site work progresses. These additional documents may include formal changes to the scope of work of the study or clean up effort, comments and new information submitted by interested persons, and Navy responses to significant comments. Comments on the Administrative Record File may be made at any time.

The Administrative Record File is available for public review at the Virginia Beach Central Library. The library hours are 10:00 a.m. to 9:00 p.m. and Monday -Thursday, 10:00 a.m. to 5:00 p.m. on Fridays and Saturdays. The library is closed on Sundays and holidays.

The Draft Final EE/CA is available for public review at each of the following information repositories:

Central Library 4100 Virginia Beach Boulevard Virginia Beach, Virginia 23452 (804) 431-3000	Monday-Thursday Friday-Saturday	10:00 a.m.-9:00 p.m. 10:00 a.m.-5:00 p.m.
NAB Little Creek Library Building 3004 8th Street NAB Little Creek Norfolk, Virginia 23521 (804) 464-7691	Monday-Thursday Friday Saturday	9:00 a.m.-8:00 p.m. 9:00 a.m.-5:00 p.m. 10:00 a.m.-3:00 p.m.
Little Creek Library 7853 Tarpoon Place Norfolk, Virginia 23518 (804) 441-1751	Monday Tue/Wed/Thurs Friday Saturday	12:30 p.m.-9:00 p.m. 10:00 a.m.-5:30 p.m. Closed 10:00 a.m.-5:00 p.m.
Bayside Area library 956 Independence Boulevard Virginia Beach, Virginia 23455 (804) 460-8406	Monday-Thursday Friday-Saturday	10:00 a.m.-9:00 p.m. 10:00 a.m.-5:00 p.m.

Interested citizens may provide oral and/or written comments on the EE/CA from August 22 to September 20, 1993 to Ms. Barbara Jennings at the address below:

Public Affairs Officer
 Naval Amphibious Base, Little Creek
 Public Affairs Office
 1450 D Street
 Norfolk, VA 23521.
 (804) 464-7923.

Virginian Pilot
August 22, 1993



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

September 13, 1993

Nina M. Johnson, P.E.
Head, Installation Restoration Section (North)
Department of the Navy
Atlantic Division
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, VA 23511-2699

Re: Naval Amphibious Base, Little Creek Site 11
Draft Final Engineering Evaluation/Cost Analysis

Dear Ms. Johnson:

Thank you for providing the Department of Environmental Quality, Waste Division Superfund Federal Facilities Program, the opportunity to comment on the "Draft Final Engineering Evaluation /Cost Analysis, Site 11: School of Music Plating Shop, Naval Amphibious Base, Little Creek, Virginia."

Attached are our comments and questions concerning the draft report. Additional comments may be forwarded to you from the RCRA Enforcement and Compliance Section.

If you have any questions concerning these comments or questions, please contact me at (804) 225-2927.

Sincerely,

A handwritten signature in cursive script that reads "Michele M. Monti".

Michele M. Monti
Environmental Program Planner
Superfund Federal Facilities

cc: Richard Stryker, NAB Little Creek

Nitin Apte, Foster Wheeler Environmental Services

Ron Smith, DEQ Waste Division
K. C. Das, DEQ Waste Division
Erica Dameron, DEQ Waste Division

James Monroe Building, 101 North 14th Street, Richmond, Virginia 23219



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DEPARTMENT OF ENVIRONMENTAL QUALITY

George Allen
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Thomas L. Hopkins
Director

Becky Norton Dunlop
Secretary of Natural Resources

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August 21, 1996

Mr. Scott R. Park
Department of the Navy
Atlantic Division, Code 1822
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, Virginia 23511-2699

Dear Mr. Park:

Thank you for providing the Department of Environmental Quality, Waste Division, Office of Federal Facilities Restoration, the opportunity to review the *Final Closeout Report for Site 11 Music Plating Shop at Naval Amphibious Base Little Creek, Norfolk, Virginia.*

Our staff has reviewed the subject document and has no comments at this time regarding the report. There are, however, some potential outstanding RCRA issues that may need to be addressed. These issues should be able to be discussed and resolved in conjunction with the submittal/review of the Groundwater Monitoring Report that will be generated for this site. In the meantime, if you have any questions, please feel free to contact me at (804) 698-4227.

Sincerely,

Robert J. Weld
Remedial Project Officer
Federal Facilities Restoration

cc: Erica Dameron - VDEQ
Durwood Willis - VDEQ
Kelly Greaser - NABLC



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

November 27, 1996

Mr. Scott Park (Code 1822)
Remedial Project Manager
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, VA 23511-2699

Re: Groundwater monitoring report and final closeout reports at NAB Little Creek

Dear Mr. Park:

This letter is to confirm my E-mail message of October 18, 1996 and to clarify EPA's position on certain issues concerning NAB Little Creek's groundwater investigation. My E-mail message stated that EPA has concurred with the VDEQ comments on reports submitted to EPA in late September 1996. The reports are as follows: Final Closeout reports for sites 11 and 16, groundwater monitoring plan for sites 5, 9, 10 and 11, and the PRAP for sites 9 and 10. I have also reviewed the sampling and analysis plans for sites 5, 9, 10, and 11 and we have discussed my comments on that document and I have no comments at this time. In regards to the issue concerning using bailers as opposed to pumps at sites 5 and 11, EPA does not have a concern with this issue.

Scott, please keep in mind that EPA is conducting a National Priorities List Pre-Score for the NAB Little creek site and depending on the outcome these reports will have to be used to confirm to EPA that previous investigations have been conducted at the site. To that end, please try to ensure that all data generated from these reports goes through thorough QA/QC procedures. If you have any questions or comments regarding this letter, please contact me at (215) 566-3366 or send me an E-mail message at STROUD.ROBERT@EPAMAIL.EPA.GOV.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert W. Stroud".

Robert W. Stroud, RPM
Federal Facilities Branch
(3HW50)

cc: Kelly Greaser (NAB)
Robert Weld (VDEQ)

1.0 INTRODUCTION

This Groundwater Monitoring Plan (GMP) was prepared for the Navy CLEAN Program, Contract Number N62470-89-D-4814, Contract Task Order (CTO) 0247, for the Naval Amphibious Base (NAB) Little Creek, located in Virginia Beach, Virginia. Foster Wheeler Environmental Corporation (FWENC) was awarded this CTO for NAB Little Creek on June 24, 1994. Figure 1-1 provides the location of NAB Little Creek.

An Implementation Plan and Fee Proposal (IP/FP) for CTO-0247 was issued on June 24, 1994. A Site Management Plan (SMO) for CTO-0247 was issued on May 26, 1995. The GMP has been prepared according to the guidelines included in the (1) Request for Proposal (RFP) dated April 1994, (2) the IP/FP dated June 24, 1994, and (3) recommendations provided by FWENC in the November 1994 report entitled "Final Remedial Investigation/Feasibility Study, Naval Amphibious Base Little Creek, Virginia."

The purpose of the GMP is to establish protocols for long-term monitoring activities, as follows:

- To collect groundwater samples to establish the present quality of groundwater at four sites:
 - ⇒ Site 5 - Building 9-11 Motor Oil Disposal Area
 - ⇒ Site 9 - Driving Range Landfill
 - ⇒ Site 10 - Sewage Treatment Plant Landfill
 - ⇒ Site 11 - School of Music Plating Shop
- To monitor groundwater quality on a periodic basis, the results of which will be compared to the baseline and/or background analysis to evaluate the presence of any contaminants in the groundwater.

* The GWP entails long-term monitoring at Sites 9 and 10, verification sampling at Site 5, and post-removal sampling at Site 11. For Sites 5 and 11, sampling results will be assessed and the sampling program re-evaluated after two rounds of sampling. For Sites 9 and 10, concentration levels which will trigger additional assessment/action are required as stated in the Navy/Marine Corps Installation Restoration Program (IR) Manual. The locations of the four sites are provided in Figure 1-2.

The GMP has been developed in accordance with EPA's *Guidelines for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final*, EPA/540/G-89/004 dated October 1988. The technical approach for this document was obtained from a program outlined in the Final IP/FP, dated June 1994.

The GMP discusses field activities and sample collection methods and procedures to be followed. Section 1 of the plan presents a brief history and background of the four sites being investigated at NAB Little Creek. Section 2 discusses the principal purpose and objectives of the



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George Allen
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Thomas L. Hopkins
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June 10, 1996

Mr. Scott R. Park
Department of the Navy
Atlantic Division, Code 1822
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, Virginia 23511-2699

Dear Mr. Park:

Thank you for providing the Department of Environmental Quality, Waste Division, the opportunity to review the *Final Draft Proposed Remedial Action Plan for Sites 9 and 10, May 1996* and *Draft Final Groundwater Monitoring Plans for Sites 5, 9, 10, and 11, May 1996* at Naval Amphibious Base Little Creek.

Attached are our comments and questions regarding the report. If you have any questions concerning the comments, please contact me at (804) 698-4227.

Sincerely,

A handwritten signature in black ink, appearing to read "R. J. Weld".

Robert J. Weld
Remedial Project Officer
Federal Facilities Restoration

cc: Durwood Willis - VDEQ
Kelly Greaser - NAB

**VDEQ Comments and Questions on
Final Draft PRAP (Proposed Remedial Action Plan) Sites 9 and 10**

1. Page 1-1, Section 1.3: Please add the phrase "under current conditions" to the end of the second sentence in this section.
2. Page 1-2, Section 1.3: It is not clear how the determination was made that the aquifer is Class III. The RI states that high concentrations of anions detected in groundwater supports the assumption that the shallow aquifer is not potable. However, the levels of alkalinity, chloride, and sulfates detected were below the Virginia Secondary Maximum Contaminant Levels and/or Groundwater Criteria. These values would therefore not support the assumption of nonpotability. Values for TDS (total dissolved solids) were not provided. Please add clarification of this issue or reference the section of the RI that discusses it in detail.
3. Page 4-1, Sections 4.1 and 4.2: The scope of actions for both sites includes institutional controls and deed restrictions. It should be noted that the deed restrictions must include a stipulation that groundwater may not be used as either a potable or nonpotable source. They must also stipulate that the subsurface soils should not be disturbed since risk due to exposure to subsurface soils has not been evaluated.

Please clarify in the second paragraph of each of these sections that no risk was determined under the current scenario. The future use scenario indicated a hazard index slightly above one for soils at Site 9 and groundwater at Site 10.
4. Page 5-1, Sections 5.1 and 5.2: These sections need to be expanded to include a discussion of the scenarios under which risk was evaluated. Note that a standard drinking water scenario has not been included. The statement that risks fall below the target range is misleading since the risk for some scenarios and/or receptors falls within the target range and above the target hazard index.
5. Page 6-1, Sections 6.1 and 6.2: Discussions of the specific institutional controls to be implemented should be added to this section (Refer to Comment # 3).

**VDEQ Comments and Questions on
Draft Final Groundwater Monitoring Plans for
Sites 5, 9, 10, and 11**

6. Page 2-2, Section 2.1.1: This section indicates that only TCL volatiles and semivolatiles will be analyzed. How have metals and pesticides/PCBs been ruled out in previous investigations?
7. Page 2-10, Section 2.14: The basis for the trigger levels is unclear. Some of the contaminants have trigger levels that are

three times the background concentration. The RI/FS presents data taken from the background wells. However, there is no discussion of how the background data were used. There was no discussion of statistical methods used in background evaluation.

For example, it is not clear whether an upper tolerance limit, maximum concentration, or average value is used to calculate the three times background level. It would be helpful if a table were included in this section to present actual values for the trigger levels at each site. These values need to be checked for protectiveness. For example, if the maximum manganese background concentration is used, three times background results in a hazard quotient exceeding one, even in the non-conservative scenario used for the risk assessment. If a standard drinking water scenario is used, several contaminants would result in an unacceptable risk using three times background or three times the RBC. Please add further rationale for the development of the trigger levels as well as a table presenting the trigger levels.

The trigger level for zinc is specified for Site 10 but not Site 9. Please clarify.

As noted in Comment 2 above, sufficient justification for designating the aquifer as nonpotable has not been provided. If sufficient rationale cannot be provided, trigger levels may need to be based on drinking water standards or risk-based levels.

8. Page 2-11, Section 2.14: The statement regarding zinc and beryllium is unclear. Trigger levels should not be dependent on the magnitude of previous detections. Rather they should be based on a mutually agreeable risk-based level.

Also note that VDEQ and EPA Region III should be involved in the decision whether to continue monitoring. In addition, note that the remedial actions for Sites 9 and 10 include long-term monitoring. Therefore, it would not be expected that a decision regarding continued monitoring would be made after one sampling event as implied in this section.



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October 24, 1996

Mr. Scott R. Park
Department of the Navy
Atlantic Division, Code 1822
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, Virginia 23511-2699

Dear Mr. Park:

Thank you for providing the Department of Environmental Quality, Waste Division, Office of Federal Facilities Restoration, the opportunity to review the *Draft Work Plan and Sampling and Analysis Plan for Groundwater Monitoring at Sites 5, 9, 10, and 11, Naval Amphibious Base Little Creek, Norfolk, Virginia.*

As requested, I have quickly reviewed the report and have no comments at this time. It should be noted, however, that the final trigger levels for action have not yet been agreed upon based on previous discussions between VDEQ and the Navy. If you have any questions, please feel free to contact me at (804) 698-4227.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert J. Weld".

Robert J. Weld
Remedial Project Officer
Federal Facilities Restoration

cc: Durwood Willis - VDEQ
Kelly Greaser - NABLC



COMMONWEALTH of VIRGINIA

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Thomas L. Hopk
Director

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July 15, 1997

Mr. Scott R. Park
Department of the Navy
Atlantic Division, Code 1822
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, Virginia 23511-2699

Dear Mr. Park:

Thank you for providing the Department of Environmental Quality Waste Division, Office of Federal Facilities Restoration, a copy of the *Draft Final Groundwater Monitoring Report for Sites 5 and 11, Naval Amphibious Base Little Creek, Virginia Beach, Virginia.*

Attached are our comments and questions regarding the report. If you have any questions concerning these comments, feel free to contact me at (804) 698-4227.

Sincerely,

Robert J. Weld
Remedial Project Officer
Federal Facilities Restoration

cc: Durwood Willis - VDEQ
Kelly Greaser - NABLC
Bob Stroud - U.S. EPA

**VDEQ Comments and Questions on
Draft Final Groundwater Monitoring Report for Sites 5 and 11
Naval Amphibious Base Little Creek (NABLC), Virginia Beach, Virginia**

- 1) Section 1.1, pg. 1-1: This section indicates that no further monitoring or remedial activities are planned for these sites. However, Section 4.2, page 4-3 recommends additional work be performed at Site 11. Please explain the discrepancy. VDEQ agrees that additional work is necessary at Site 11 to characterize the VOC contamination in the groundwater.
- 2) Section 2.1, pg. 2-2, Table 2-2: Please provide a rationale for why the specific conductance data was determined to be unreliable for the 5-21-96 sampling event.
- 3) Section 2.2, pg. 2-4, Figure 2-2: This figure indicates that the direction of groundwater flow is to the west based on water table elevations from the December 1996 sampling event. However, Table 4-1 (page 4-2) indicates that groundwater flow is to the southwest based December 1996 groundwater data. Please correct Figure 2-2 or clarify the issue.
- 4) Table 3-1, pg. 3-2: It is assumed that the data qualifier "U" indicates that the contaminant was not detected above the stated detection limit (i.e. - 10U, where 10 equals the detection limit). Please provide a footnote explaining the "U" qualifier.
- 5) Section 4.2, pg. 4-1, Last Paragraph: The paragraph indicates the baseline risk assessment conducted as part of the 1994 RI/FS did not find any current or future risk associated with metals in groundwater at Site 11. What did the risk assessment show with regard to risk associated with the VOC contamination in groundwater at Site 11?
- 6) Section 4.2, pg. 4-3, Last Paragraph: VDEQ agrees that additional work is necessary to fully characterize the VOC contamination in groundwater at Site 11. Please ensure that VDEQ has an opportunity to review the work plan prior to the work being performed. A scoping meeting, which includes VDEQ, to develop an appropriate course of action for future work is recommended.

End of Comments

Comment 18

- Pg 38: Source 11B (School of Music Plating Shop Tank), Paragraph 2.2, Containment, Release via overland migration and/or flood, first paragraph: “There is evidence of migration of hazardous substances from the source area (Ref. 22 pp. D-2 through D-4); therefore, a containment factor of 10 is assigned (Ref. 1, Table 4-2, p. 51609).”
- The sampling results discussed in this paragraph by Reference 22 are the characterization samples taken for disposal purposes as part of the 1995 Removal Action discussed in the previous comment. These sources were removed as part of the removal action and no releases or spillage of any kind occurred. All of the debris was transported off-site according to applicable federal regulations. The liquid (150 gallons) and limestone chips (2 cubic yards) from inside the tank were transported, treated, and disposed at Clean Harbors Inc., of Baltimore, MD. Approximately 94 tons (5 rolloffs) of soil were removed from the site, transported, treated, and disposed at Wayne Disposal Inc., located in Belleville, MI. The concrete tank, piping, and other concrete debris (10.76 tons) were transported, treated and disposed at Envirosafe Services of Ohio, Inc., located in Oregon, OH. After all excavation was completed, 18 confirmatory samples (plus two QA/QC samples) were randomly collected to verify that all potentially contaminated soil had been removed. The results confirmed that all constituents of concern were below the USEPA Region III Risk Based Concentration (RBC) action limits. Therefore, the soil remaining after the removal action met the closure criteria.
- Attached immediately following this page are pages 9 through 12 from the Final Closeout Report for the Removal Action stating no releases or spillage occurred during removal of the waste, confirmatory samples indicated closure criteria had been achieved, and reporting the final destination of all waste removed from the site.
- Therefore, please modify the paragraph to read as follows: “While there was evidence of migration of hazardous substances from the original source area, a 1995 Removal Action removed the neutralization tank, associated piping, and surrounding contaminated soils.” Also, please change the containment factor and Score accordingly.

3.4.1 Topsoil Removal and Staging

IT began the actual removal action by removing the uppermost two feet of soil from around the neutralization tank and from above the piping which was determined not to be contaminated. This soil was stripped off by excavating a 3 foot wide trench to a depth of 2 feet using a backhoe. The material was then stockpiled and designated for reuse during site restoration activities. The stockpile was surrounded by silt fence to prevent erosion.

3.4.2 Neutralization Tank and Contents Removal

Since the neutralization tank contained both solids (limestone chips) and liquids, it was necessary to remove a portion of the tank to gain access to the limestone chips. Prior to beginning the removal activities, the tank interior was inspected and it was determined that the liquid level in the tank was below both the inlet and outlet piping, therefore no liquid was present within the piping. The following sections detail the removal in a step wise order.

Liquid Removal. Prior to removing any portion of the tank, the liquids from within the tank were pumped from the tank by a submersible pump, then transferred to and containerized in three 55 gallon steel drums. All work was done on polyethylene sheeting to prevent any spills from contacting the in situ soils. These drums were properly labelled, palletized, banded and placed in the staging area.

Tank Removal Step 1. In order to remove the tank, the inlet and outlet piping were removed and directly placed in the lined rolloff container designated to contain only debris. Because the piping was empty, clean, and free of any liquids and scale, no spilling of pipe contents could occur. The manhole ring section was then removed and staged on and encapsulated with polyethylene sheeting by lifting the section off the tank body with the backhoe boom. The soil around the tank was then excavated to a depth of 12 feet to expose the sidewalls of the tank. (As previously discussed, the first 2 foot interval was determined to be clean and was placed in the topsoil stockpile). All soils in the 2 to 12 foot interval were previously determined to be contaminated and were placed in a separate lined rolloff container designated to contain only contaminated soil. The upper 3 foot section of the tank was then lifted off and placed on polyethylene sheeting using the excavator boom. Sheeting was used to encapsulate the tank to prevent any liquids from spilling. A 10 foot by 10 foot steel trench box was then lowered over the remaining tank section to prevent the excavation side walls from collapsing.

Limestone Chip Removal. The limestone chips were then removed from the tank using both heavy equipment and hand tools, then containerized in seven 55 gallon steel drums. These drums were labelled and placed in the staging area adjacent to the liquid containing drums.

Tank Removal Step 2. The lower 7 foot section of the tank was then removed with the boom of the excavator and placed and encapsulated with the other sections on polyethylene sheeting.

Demolition. The tank and the polyethylene sheeting were placed directly in the debris rolloff container, then broken into manageable pieces.

3.4.3 Inlet and Outlet Piping Removal

The cast iron inlet and vitrified clay outlet pipes were removed and placed into the lined rolloff container holding the debris which was staged nearby, then broken into manageable pieces. Because the piping was empty, clean, and free of any liquids and scale, no spilling of pipe contents could occur. Upon closer inspection, the piping was determined to be competent with no cracks or leaks evident.

A portion of the inlet piping was located beneath the concrete floor of Building 3651, and as such, it was necessary to demolish a 12 foot by 8 foot section of the 4-inch thick floor. The concrete was broken into manageable pieces, and placed into the lined rolloff container designated to contain debris. A four foot wide trench was then excavated by hand to expose the piping. The piping was removed and soil to a depth of 5 feet was then excavated. All of the soil excavated was placed into the lined rolloff container designated to hold contaminated soils.

In addition to the piping removal within Building 3651, the stainless steel sink, vent pipe and associated plumbing were removed and placed into the lined rolloff container holding debris.

3.4.4 Contaminated Soil Removal

After the tank and all associated piping had been removed, the soil interval from 2 to 5 feet along the pipeline was excavated and placed into the lined rolloff container holding contaminated soil. The 2 foot interval of soil below the tank bottom was excavated and placed in the lined rolloff.

3.4.4.1 Post Excavation Sampling

At the completion of excavation activities, eighteen confirmatory samples and two QA/QC samples were collected in accordance with the SAP, along the bottom and side walls of the excavation at the locations shown in Figure 1. These sample locations were selected randomly to avoid sample location bias. The samples were then placed in appropriately labeled containers along with properly completed chain of custody documentation, then shipped via overnight courier to Quanterra Environmental Services Inc., (Quanterra) in Pittsburgh, PA. The Sample Collection Logs are located in Appendix A.

3.4.4.2 Post Excavation Sample Analyses

All analyses were conducted in accordance with the SAP. The results of the analyses were submitted to the Navy under separate cover as part of the document entitled: *"Test Results Summary Report, Site 11-School of Music Plating Shop, NAB Little Creek."* The analytical data indicated that all constituents of concern were below the EPA Region III Risk Based Concentration (RBC) action limits. Therefore, the in situ soils met the closure criteria. A summary of the analytical results are presented in Appendix D.

3.5 Disposal of Contaminated Materials

Several hazardous waste streams were disposed of as part of the interim remedial action. These waste streams consisted of both hazardous liquids and solids. The waste streams are detailed in the following sections. Copies of the completed hazardous waste manifests are located in Appendix C.

3.5.1 Liquid Wastes

The liquid waste streams disposed of as a result of the removal action were:

- Liquid neutralization tank contents
- Decontamination rinse water.

Liquid Neutralization Tank Contents. Approximately 150 gallons (3 drums) of hazardous liquid (Waste Codes F003, F006, F007 and F009) was transported to Clean Harbors Inc., of Baltimore Maryland for treatment and disposal.

Decontamination Rinse Water. Approximately 40 gallons (1 drum) of hazardous liquid (Waste Codes F001, F002, F003, F005, F006, F007, F009) was transported to Clean Harbors Inc., of Baltimore, MD for treatment and disposal.

3.5.2 Solid Wastes

The solid wastes disposed of as a result of the removal action were:

- Contaminated soils
- Limestone chips
- Concrete neutralization tank
- Concrete debris from the floor of Building 3651
- Vitrified clay and cast iron piping
- Contractor generated debris (PPE, Polyethylene sheeting, PVC liner, etc.)

Contaminated Soils. Approximately 94 tons (5 rolloffs) of contaminated soils were transported to Wayne Disposal Inc., located in Belleville, MI for treatment and disposal.

Limestone Chips. Approximately 2 cubic yards (7 drums) of limestone chips were transported to Clean Harbors Inc., located in Baltimore, MD for treatment and disposal.

Concrete and Piping Debris. Approximately 10.76 tons (1 rolloff) consisting of the tank, the concrete floor, all piping, and the contractor generated debris were transported to EnviroSAFE Services of Ohio, Inc., located in Oregon, OH for treatment and disposal.

4.0 Site Restoration

The crew was remobilized on 23 January 1996 after the laboratory analyses confirmed that the in situ soils were below the RBC action levels. Site restoration activities included:

- Backfill of excavations
- Replacement of Building 3651 flooring
- Replacement of cooling tower condensation line
- Placement and spreading of stockpiled topsoil.

Comment 19

- Pg 39: Source 11B (School of Music Plating Shop Tank), Paragraph 2.4.1, Hazardous Substances Source 11B, Hazardous Substance Table.
- All of the samples listed as evidence were collected from within the tank prior to its removal. Since the removal, there has been no evidence of release or transport of these metals to the surrounding soil or groundwater, as shown by the Final Closeout Report for the Removal Action and the GWMR, which stated that all MCLs and Region III RBCs for drinking/tap water have been attained. Therefore, all sources of metal contamination were removed in 1995.
- Therefore, please delete Sources 11A and 11B entirely and change the Score accordingly.

Comment 20

- Pg 49: Source 13 (PCP Dip Tank and Wash Rack Area), Paragraph 2.4.1, first sentence, background monitoring well 13-GW2.
- At this site, monitoring well 13-GW2 is used as a background well. However, monitoring well 13-GW1 is also located upgradient from site 13 and should be used as a background.
- Therefore, please modify the first sentence to include 13-GW1 as a background well and change the Table accordingly.

Comment 21

- Pg 49: Source 13 (PCP Dip Tank and Wash Rack Area), Paragraph 2.4.1, Hazardous Substance Table, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, and Chlorobenzene:
- 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, and Chlorobenzene were detected many years ago in Reference 7 (Round 1 Final Progress Report, 1986), but have not been detected recently in Reference 4 (Draft Final Interim Remedial Investigation, 1991). Reference 4 only restated the previous investigation results of Reference 7 for historical purposes.
- Therefore, for 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, and Chlorobenzene please delete "13-GW4" from the Evidence column and "Reference 4" from the Reference column.

Comment 22

- Pg 49: Source 13 (PCP Dip Tank and Wash Rack Area), Paragraph 2.4.1, Hazardous Substance Table, Tetrachloroethene, Trichloroethene, and Acetone:
- In Reference 4 (Draft Final Interim Remedial Investigation, 1991) data results were repeated for historical information from Reference 7 (Round 1 Final Progress Report, 1986). Some of the detections reported for Reference 4 in the Evidence column are in error. Tetrachloroethene was not detected in 13-GW3 (Ref. 4). Trichloroethene was not detected in 13-GW1, 13-GW3, or 13-GW5 (Ref. 4). Acetone was not detected in LC13GW5 (Ref. 7).
- Therefore, for Tetrachloroethene please delete 13-GW3 (Ref. 4) from the Evidence column. For Trichloroethene please delete 13-GW1, 13-GW3, or 13-GW5 (Ref. 4) from the Evidence column. For Acetone please delete LC13GW5 (Ref. 7) from the evidence column.

Comment 23

- Pg 49: Source 13 (PCP Dip Tank and Wash Rack Area), Paragraph 2.4.1, Hazardous Substance Table, Naphthalene down to Tri-methylnaphthalene:
- In the Evidence column the full sample ID for these chemicals is "LC13-S3" from Reference 7.
- Therefore, for Naphthalene down to Tri-methylnaphthalene please change "LC13" to "LC13-S3" in the Evidence column.

Comment 24

- Pg 49: Source 13 (PCP Dip Tank and Wash Rack Area), Paragraph 2.4.1, Hazardous Substance Table, 1,2-Dichlorobenzene, Bis(2-ethyl hexyl)phthalate, Phenanthrene, Fluoranthene, Pyrene, 1-Methylnaphthalene, Di- Methylnaphthalene, Tri-methylnaphthalene, Methylene Chloride, and Acetone:
- While 1,2-Dichlorobenzene, Bis(2-ethyl hexyl)phthalate, Phenanthrene, Fluoranthene, Pyrene, 1-Methylnaphthalene, Di- Methylnaphthalene, Tri-methylnaphthalene, Methylene Chloride, and Acetone were detected in groundwater in the past, these same chemicals were non-detect in the most recent investigation, Reference 19, Remedial Investigation/Feasibility Study, 1994. The Navy would also like to point out that the majority of the remaining chemicals in the Hazardous Substance Table were detected at very low concentrations, in most cases below the MCLs for drinking water and the RBCs for tap water.
- Therefore, please insert the following sentences below the Hazardous Substance Table in Paragraph 2.4.1: “While 1,2-Dichlorobenzene, Bis(2-ethyl hexyl)phthalate, Phenanthrene, Fluoranthene, Pyrene, 1-Methylnaphthalene, Di- Methylnaphthalene, Tri-methylnaphthalene, Methylene Chloride, and Acetone were detected in groundwater in the past, these same chemicals were non-detect in the most recent investigation, Reference 19, Remedial Investigation/Feasibility Study, 1994.”

Comment 25

- Pg 53: Surface Water Migration Pathway, Overland/Flood Migration Component, Paragraph 4.1, second paragraph, fourth sentence: “Little Creek Cove was closed for fishing and crabbing because of site-related contamination (Ref. 30, p.1).”
- This statement is incorrect. Reference 30 states that Little Creek Cove was closed as a precautionary measure due to lack of analytical data. Once proper data was obtained, the Navy lifted the ban on fishing and crabbing in Little Creek Cove. The ban had nothing to do with contamination related to any of the sites. Also, the waters of Little Creek Harbor have never been closed to fishing or crabbing. NAB Little Creek has no jurisdiction over any areas other than Navy-owned *shoreline*. NAB Little Creek cannot and does not control the Harbor because the Harbor is not Navy property, only portions of the shoreline of the Harbor. Furthermore, the fishing and crabbing from the shorelines of Harbor was banned for a short period of time because neither the Navy nor the State had data available on whether fish and crab meat would meet Federal Drug Administration (FDA) standards. At the time of this ban, access to our shorelines was limited to Navy personnel, so the NAB environmental staff felt it would be prudent to verify the safety of the potential food source. Samples of fish and crabs were collected and analyzed and found to meet FDA action levels, after which time the ban was lifted.
- Please find attached directly behind this page a copy of Reference 30.
- Therefore, please change the existing sentence to the following: “Little Creek Cove was closed as a precautionary measure due to lack of analytical data. Once proper data was obtained, the Navy lifted the ban on fishing and crabbing in Little Creek Cove (Ref. 30, p.1).” Alternately, the sentence may be deleted entirely since the ban was in no way related to site contamination. Similar discussions on pages 81 and 83 should also be clarified.

TETRA TECH EM, INC.

RECORD OF TELEPHONE CONVERSATION

Date 04/17/98 : Project Number 393N9801122
 Month/Day/Year :
 Name Catherine Cooney : Contact Maureen Connors
 : Title Environmental Program Branch Manager
 Initiated Call : Firm/Agency Little Creek Naval Amphibious Base
 Returned Call : Street _____
 Received Call : City Virginia Beach State Virginia
 Time am 3:30 pm : Zip _____
 EAS CEN MTN PAC : Phone (757) 464-7063 Ext. _____

SUBJECT: Fishing and crabbing ban in Little Creek Cove

TELECON SUMMARY

Ms. Connors stated that the fishing and crabbing ban that was in effect for Little Creek Cove was put in place as a precautionary measure due to lack of analytical data. Since the ban was put in place the Navy did sample the Cove and determined that there was no risk and they lifted the ban.

Catherine Cooney
 4/17/98

REQUIRED RESPONSE

None Phone Call Memo Letter Report

cc: File Proj. Mgr. Other _____
 Specify

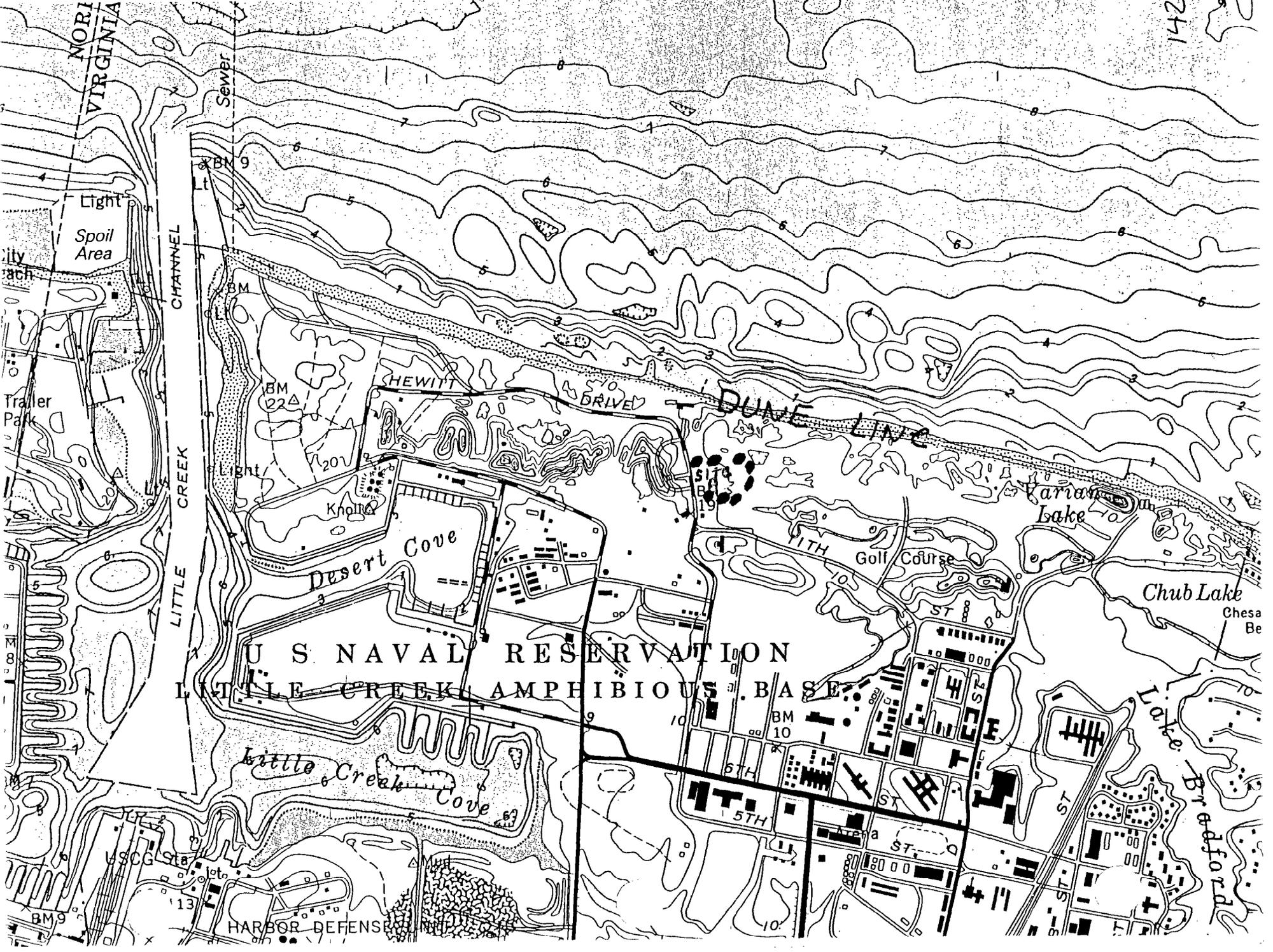
04/17/98

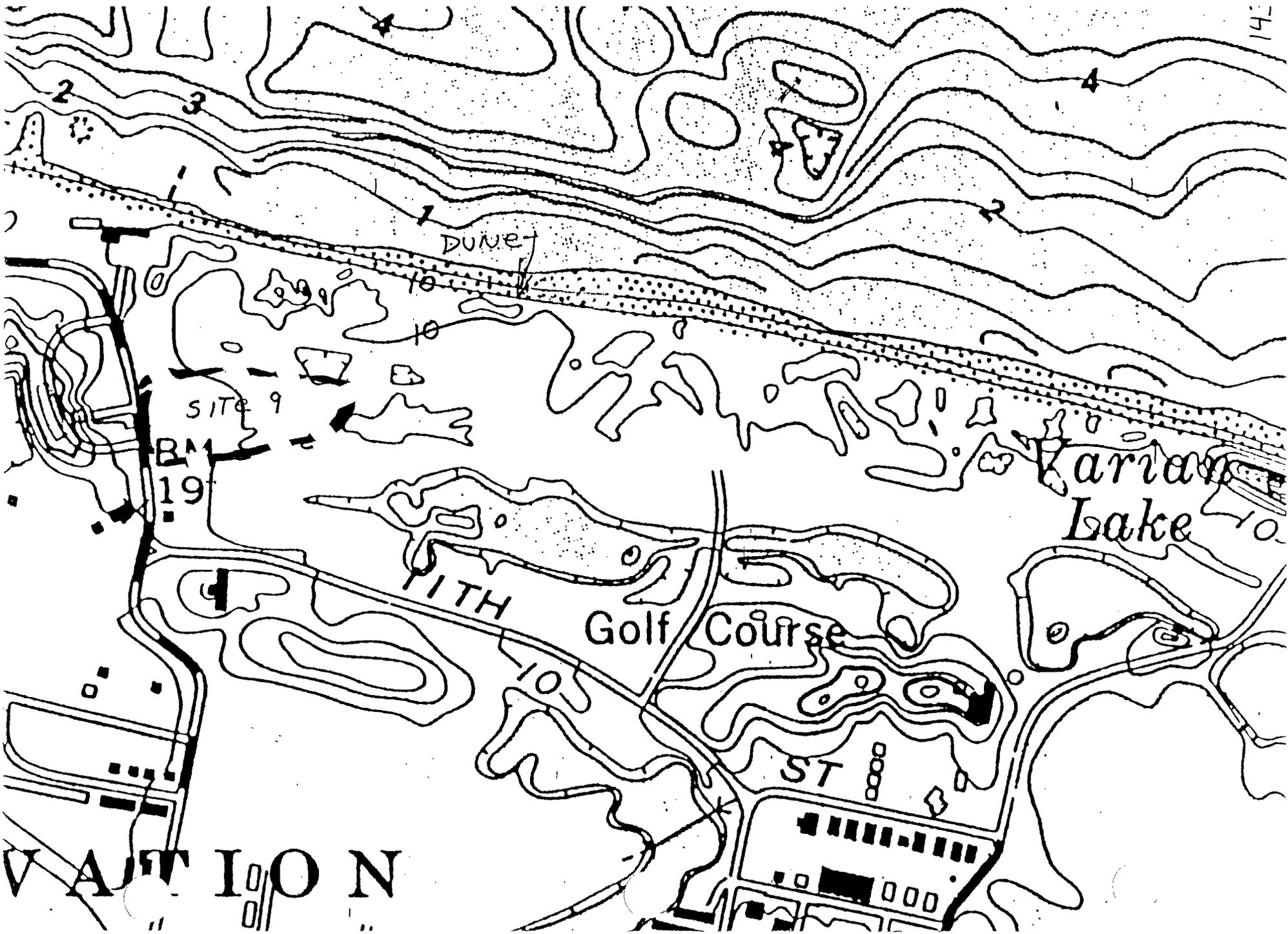
Comment 26

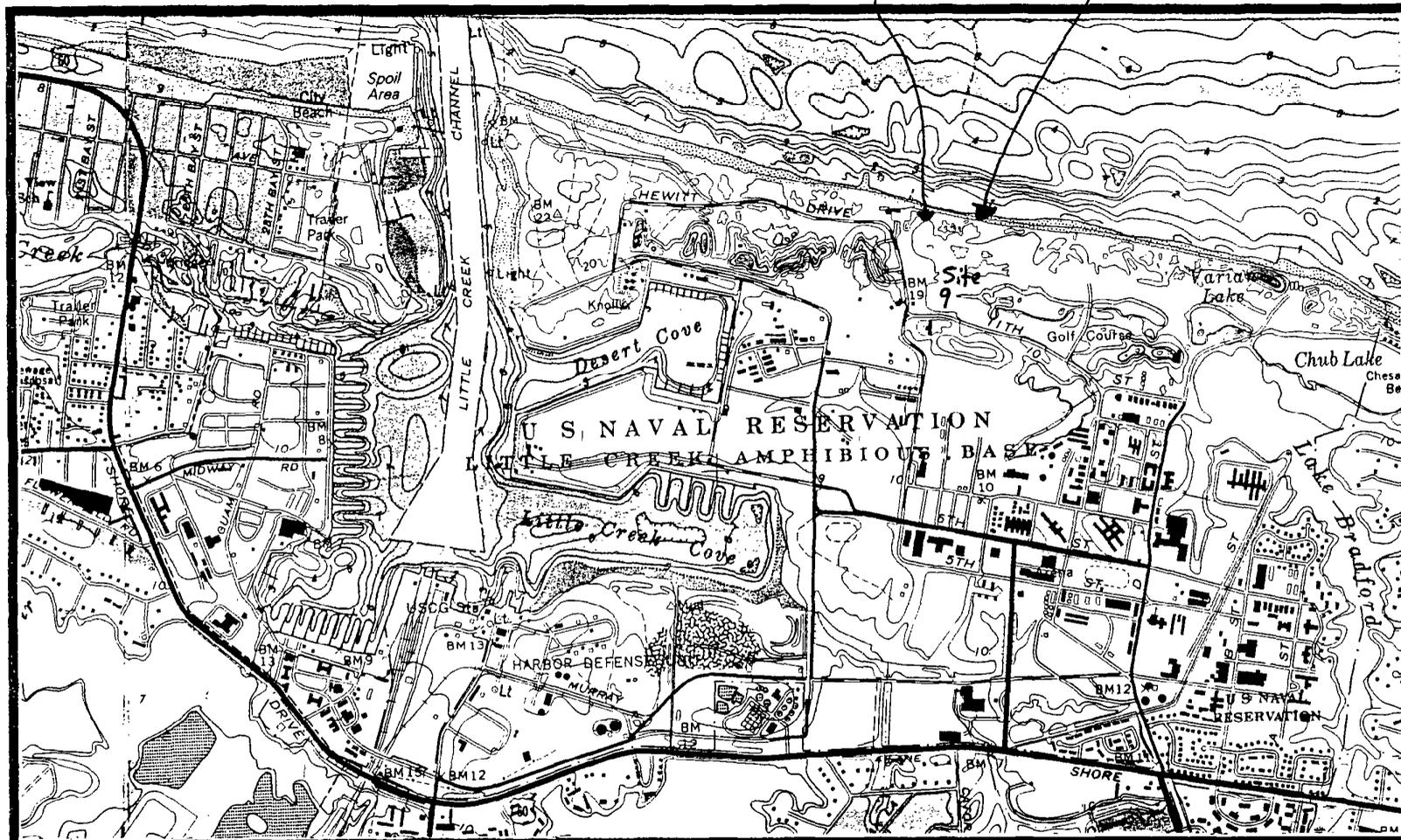
- Pg 53: Surface Water Migration Pathway, Overland/Flood Migration Component, Paragraph 4.1, fourth paragraph, fifth sentence: “It is possible that, during extreme weather, water could flow from the cove to any of these three fresh water bodies (Ref. 44).”
- While this statement is correct, it is important to note that the spillways of the three fresh water bodies mentioned are 5.67’ above Mean High Water (MHW). Backflow of the spillways generally would not occur during even the most extreme weather. A direct hit of a Category 2 Hurricane would be required to cause backflow into the fresh water lakes.
- Therefore, please change the existing sentence to the following: “It is possible that, during a direct hit of a Category 2 Hurricane, water could flow from the cove to any of these three fresh water bodies (Ref. 44).” Alternately, the sentence may be deleted entirely since backflow would be an extremely rare incidence.

Comment 27

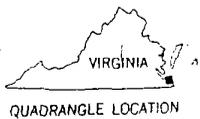
- Pg 54: Surface Water Migration Pathway, Paragraph 4.1.1.1, Segment Chart, Overland Source 9, segment description: "Landfill edge overland to Chesapeake Bay."
- This statement is incorrect. There are dunes located on the north side of Site 9 adjacent to the Chesapeake Bay that prevent overland flow directly to the Chesapeake Bay. Overland flow would follow a similar path as Source 10 to Desert Cove.
- Attached immediately following this page are copies of two topographic maps at different scales that show the area near Site 9 and the dune line.
- Therefore, please recalculate a new segment length for Overland Source 9, based on the attached topographic maps and change the segment description accordingly.



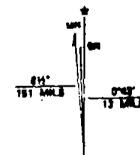




**LITTLE CREEK AMPHIBIOUS BASE
 VIRGINIA BEACH, VIRGINIA
 SITE LOCATION MAP**



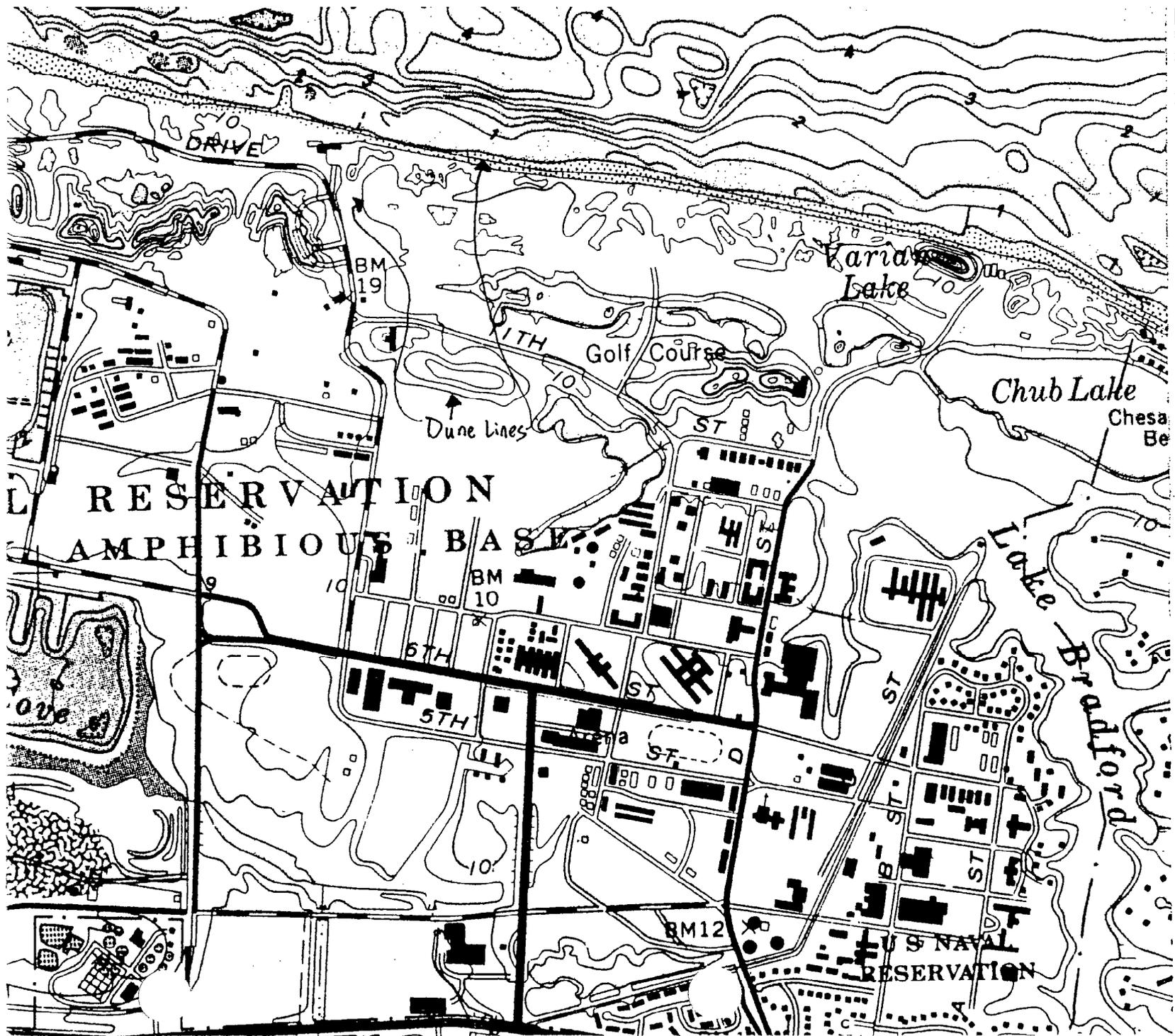
Little Creek, VA Quadrangle
 7.5 Minute Series (Topographic)



UTM GRID AND 1984 MAGNETIC NORTH
 DECLINATION AT CENTER OF SHEET

Prepared by:
 Foster Wheeler Enviresponse, Inc.

Figure 1.1
 Scale: 1" = 2000'



Comment 28

- Pg 56: Overland Flood Migration Component, Par 4.1.2.1.1, Observed Release, Chemical Analysis-Sediment Round 1 Final Progress Report, Source 7, first sentence: “An observed release of metals, a PCB, and pesticides to Little Creek Cove has been established through the results of analysis of sediment samples as documented below.”
- Contrary to this sentence, the release of any PCBs has not been established. None of the reported release samples (LC7SED3, LC7SED4, LC7SED5) for surface water or sediment detected any PCBs. In order to establish an observed release, a hazardous substance must be detected at 3X background, or if background is non-detect, the substance must be detected at levels above detection limits. Neither case has been established for any PCBs.
- Therefore, please delete “PCB” from the first sentence referenced above.

Comment 29

- Pg 56: Overland Flood Migration Component, Par 4.1.2.1.1, Observed Release, Background Concentration: "Sediment Sample LC7SED1 was chosen as the background sediment sample for this sampling round."
- Since LC7SED2 is within 200 feet of LC7SED1, and both samples are upgradient of Site 7, both sediment samples should be considered background. LC7SED2 is approximately 350 feet upgradient from the nearest Site 7 boundary.
- As more data was collected from Site 7 and the hydrology was investigated, samples collected in these areas were referred to as upstream/background. Copies of the RI/FS in 1994 (Ref. 19) and the Draft Final Monitoring Plan for Site 7 are included. These documents show that samples taken in the same area have been treated as background, and in the upcoming monitoring period, will be treated as background. Copies of the sample results are also included.
- Therefore, please modify this paragraph, the Background Table and the Release Table for detections of Copper, Lead, Thallium, Zinc, Methylene Chloride, Chlordane, DDD, and DDE and use both LC7SED1 and LC7SED2 as background.

3.1.6 Surface Water and Sediment Samples

* Six surface water and six sediment samples were collected at Site 7. The locations of these samples are provided on Figure 3-1. The samples were collected under worst case conditions, i.e., low tide based on information collected during the tidal survey, to minimize the effect of tidal surface water inflow and dilution. Three of the sampling locations were at upstream locations, and two sampling locations were downstream of the landfill in the west canal. One surface water and sediment sample also was collected from the east canal. The surface water and sediment sampling was conducted sequentially. Sampling progressed from downstream locations to upstream locations, and the surface water sample was collected first. Sampling personnel were careful not to disturb the bottom sediment or create any unnecessary agitation at the sampling location. Both the surface water and sediment samples were collected near the shoreline, with the sediment sample being collected from the uppermost 6 inches of sediment using a decontaminated stainless steel spoon. The volatile sample for the sediment was collected first, and the remaining sample was homogenized in a decontaminated stainless steel bowl before being placed into the laboratory supplied containers. The surface water and sediment samples were analyzed for TCL VOCs, TAL metals, and anions. The sediment samples were also analyzed for TOC. Appendix G provides the chain-of-custody documentation that accompanied the surface water and sediment samples.

3.1.7 Shelby Tube Samples

Four shelly tube samples were collected between 0.0 and 2.0 feet below ground surface (bgs) to characterize the geotechnical and hydraulic properties of the landfill cover materials. The samples were tested for grain size and hydraulic conductivity. An additional shelly tube was collected at the bottom of the soil boring 07-SB-05 to ascertain the nature of the confining layer underlying the site. This sample also was analyzed for grain size and hydraulic conductivity. Appendix H provides the shelly tube analysis.

3.1.8 Survey

All new and existing groundwater monitoring wells, and surface soil and shelly tube sample locations, were surveyed by Hoggard-Eure Associates of Portsmouth, Virginia. Elevations of the top of casing and concrete well pad were surveyed for each monitoring well.

3.2 Site 9 - Driving Range Landfill

The Driving Range Landfill is approximately 6 acres in size and located in the northeast portion of the installation. Field activities at these sites included a tidal survey, groundwater sampling, surface soil sampling, shelly tube sampling, and surveying. Table 3-2 provides a sampling summary for Site 9. Figure 3-2 presents a site map with sample locations for Site 9.

Surface Water Monitoring

* The seven surface water sample locations include: four locations within the canal that runs along the west side of the site (two background samples upstream of the site where the canal enters Navy property, one at the midpoint of the site, and one at the downstream-most point along the site); one in the canal on the east side of the site (this canal may receive surface water runoff and groundwater discharges from portions of the eastern half of the landfill); and two along the north side of the site in two small ditches that channel surface runoff from the landfill directly to Little Creek Cove. Location LC7-SW-LT6 is within a surface water ditch that connects a small pond on the site to the cove. Location LC7-SW-LT7 is in the outfall of a drainage ditch that collects runoff from the central section of the landfill.

The two background samples in the canal should be collected at least 50 feet apart and should be collected from dissimilar areas if possible; they should not be duplicate samples.

Both of these shallow ditches, as well as the other surface water bodies that will be sampled under this plan, are tidally influenced and contain standing water at all times. Surface water samples will be analyzed for TCL VOCs, SVOCs, and PCBs; TAL metals (total and dissolved); and hardness. A summary of the surface water samples to be collected at Site 7 is presented in Table 2-2.

Sediment Monitoring

The seven sediment sample locations coincide with the ^{seven} eight surface water sample locations identified in the previous section. Sediment samples will be analyzed for TCL SVOCs and PCBs; TAL metals; and total organic carbon (TOC). A summary of the sediment samples to be collected at Site 7 is presented in Table 2-3.

2.3 Sampling Approach and Equipment

The purpose of sampling at the Amphibious Base Landfill is to obtain sufficient data to establish the present quality of the groundwater, surface water, and sediment at the site, to meet the Data Quality Objectives (DQOs), and fulfill the goals of the long-term groundwater quality monitoring while simultaneously minimizing analytical costs. The sampling procedures which will be utilized during field activities are based on the following documents:

- "A Compendium of Superfund Field Operations Methods," EPA, December 1987;
- "Methods for Chemical Analysis of Water and Wastewater," EPA, 1984;
- "Test Methods for Evaluating Solid Waste," EPA SW846, Third Edition, 1987;
- "Sampling Procedures for Hazardous Waste Streams," deVera et al, EPA 600/27-80-018, January 1980;
- "Manual of Ground Water Quality Sampling Procedures," Scalf et al, EPA 600/2-81-160;
- "Practical Guide for Ground Water Sampling," Kerr, EPA 600/2-85/104;

3
ANALYTICAL RESULTS--SITE 77 AMPHIBIOUS BASE LANDFILL

	GROUNDWATER (ppb)									SURFACE WATER (ppb)					SEDIMENT (ppm)				
	LC7 GW1	LC7 GW2	LC7 GW3	LC7 GW4	LC7 GW5	LC7 GW6	LC7 GW7	LC7 GW8	LC7 GW9	LC7 SW1	LC7 SW2	LC7 SW3	LC7 SW4	LC7 SW5	LC7 SED1	LC7 SED2	LC7 SED3	LC7 SED4	LC7 SED5
Antimony	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	30	<20	<20	<2	<2	<2	<2	<2
Arsenic	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	24	7	<5	<8	19.6	4.8	30.7	34	15.6
Beryllium	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<0.3	<0.3	0.6	0.7	0.3
Cadmium	<4	<4	<4	<4	<4	<4	<4	<4	7	<4	<4	<4	<4	<4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (Total)	<5	<5	<5	<5	<5	<5	<5	<5	9	<5	<5	9	6	5	12.2	5	14.4	19.9	8.2
Chromium (Hex.)	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	--	--	--	--	--
Copper	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	50	50	<30	<30	5.2	11.6	33.9	11.6	11.5
Lead	<3	<3	<3	<3	<3	<3	<3	<3	<3	<2	4	31*	26*	22*	4.3	12.7	39.3	20.7	16.4
Mercury	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.15	<0.15	<0.15	<0.15	<0.15
Nickel	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	200 ^h	<90	<90	6.3	5	19.9	19	10
Selenium	<4	<4	<4	<4	<4	<4	23*	21*	27*	<4	<4	40 ^h	95*	53*	<0.8	<0.8	<0.8	<0.8	<0.8
Silver	<1	<1	1	1	3	4	10	9	14	<1	2	20	31	31	<5	<5	<5	<5	<5
Thallium	<50	<50	<50	<50	<50	<50	83	<50	<50	<50	<50	130	128	111	0.37	0.64	0.64	1.4	1.6
Zinc	10	20	90	410	30	40	50	80	260	<20	30	110	60	30	12.4	28.2	135	53	56
EDB	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	NR	BMDL	BMDL
Oil and Grease	6,000	8,000	6,000	8,000	3,000	10,000	35,000	25,000	47,000	20,000	8,000	5,000	9,000	9,000	297	567	2,206	536	1,306
VOC ^a																			
Methylene Chloride	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	23	73	21	96	43
Acetone	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	18	16	27	16	BMDL
Carbon Disulfide	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	2.2	2.2	BMDL
Chloroform	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	4.6	13	BMDL	3.2	1.9
Bromodichloromethane	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	1.1	2.7	BMDL	BMDL	BMDL
Toluene	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	2.6	BMDL

WDR185/028/1

15C

Table (nued)

	GROUNDWATER (ppb)									SURFACE WATER (ppb)					SEDIMENT (ppm)				
	LC7 GW1	LC7 GW2	LC7 GW3	LC7 GW4	LC7 GW5	LC7 GW6	LC7 GW7	LC7 GW8	LC7 GW9	LC7 SW1	LC7 SW2	LC7 SW3	LC7 SW4	LC7 SW5	LC7 SED1	LC7 SED2	LC7 SED3	LC7 SED4	LC7 SED5
Base/Neutrals^a																			
Total Saturated Hydrocarbons	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	330	250	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	45	130
Acenaphthene	BMDL	BMDL	BMDL	16	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL
Bis (2-ethylhexyl) phthalate	BMDL	BMDL	BMDL	19	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL
Pesticides + PCBs (a)																			
Chlordane	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	0.018	BMDL	BMDL	0.012
DDD	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	0.0028	BMDL	BMDL	0.0041
DDE	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	0.0024	BMDL	BMDL	0.0029
PCB 1260	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	0.033	BMDL	BMDL	BMDL
Acids^a																			
Phenols	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	1.8	2.0	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL

^a Compounds in this group that are not shown in this table were below detection limits.

BMDL--All compounds in this group were below method detection limits. Values for detection limits are given in Table 13.

<--Below detection limit shown.

NR--Value not reported, insufficient sample volume.

(--)--Unable to report useable data due to matrix interference.

*--Concentration exceeds a regulatory standard, guideline, or criterion (Table 11).

Comment 30

- Pg 58: Overland Flood Migration Component, Par 4.1.2.1.1, Observed Release, Background Concentration: "Surface Water sample LC7SW1 was chosen as the background surface water sample for this sampling round."
- Since LC7SW2 is within 200 feet of LC7SW1, and both samples are upgradient of Site 7, both surface water samples should be considered background. LC7SW2 is approximately 350 feet upgradient from Site 7.
- As more data was collected from site 7 and the hydrology was investigated, samples collected in these areas were referred to as upstream/background. Copies of the RI/FS in 1994 (Ref. 19) and the Draft Final Monitoring Plan for Site 7 are included. These documents show that samples taken in the same area have been treated as background, and in the upcoming monitoring period, will be treated as background. Copies of the sample results are also included.
- Therefore, please modify this paragraph, the Background Table and the Release Table for detections of Arsenic, Copper, Lead, Silver, and Zinc and use both LC7SW1 and LC7SW2 as background.

3.1.6 Surface Water and Sediment Samples

* Six surface water and six sediment samples were collected at Site 7. The locations of these samples are provided on Figure 3-1. The samples were collected under worst case conditions, i.e., low tide based on information collected during the tidal survey, to minimize the effect of tidal surface water inflow and dilution. Three of the sampling locations were at upstream locations, and two sampling locations were downstream of the landfill in the west canal. One surface water and sediment sample also was collected from the east canal. The surface water and sediment sampling was conducted sequentially. Sampling progressed from downstream locations to upstream locations, and the surface water sample was collected first. Sampling personnel were careful not to disturb the bottom sediment or create any unnecessary agitation at the sampling location. Both the surface water and sediment samples were collected near the shoreline, with the sediment sample being collected from the uppermost 6 inches of sediment using a decontaminated stainless steel spoon. The volatile sample for the sediment was collected first, and the remaining sample was homogenized in a decontaminated stainless steel bowl before being placed into the laboratory supplied containers. The surface water and sediment samples were analyzed for TCL VOCs, TAL metals, and anions. The sediment samples were also analyzed for TOC. Appendix G provides the chain-of-custody documentation that accompanied the surface water and sediment samples.

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The two background samples in the canal should be collected at least 50 feet apart and should be collected from dissimilar areas if possible; they should not be duplicate samples.

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- "Test Methods for Evaluating Solid Waste," EPA SW846, Third Edition, 1987;
- "Sampling Procedures for Hazardous Waste Streams," deVera et al, EPA 600/27-80-018, January 1980;
- "Manual of Ground Water Quality Sampling Procedures," Scalf et al, EPA 600/2-81-160;
- "Practical Guide for Ground Water Sampling," Kerr, EPA 600/2-85/104;

ANALYTICAL RESULTS--SITE 3, AMPHIBIOUS BASE LANDFILL

	GROUNDWATER (ppb)									SURFACE WATER (ppb)					SEDIMENT (ppm)				
	LC7 GW1	LC7 GW2	LC7 GW3	LC7 GW4	LC7 GW5	LC7 GW6	LC7 GW7	LC7 GW8	LC7 GW9	LC7 SW1	LC7 SW2	LC7 SW3	LC7 SW4	LC7 SW5	LC7 SED1	LC7 SED2	LC7 SED3	LC7 SED4	LC7 SED5
Antimony	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	30	<20	<20	<2	<2	<2	<2	<2
Arsenic	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	24	7	<5	<8	19.6	4.8	30.7	34	15.6
Beryllium	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<0.3	<0.3	0.6	0.7	0.3
Cadmium	<4	<4	<4	<4	<4	<4	<4	<4	7	<4	<4	<4	<4	<4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (Total)	<5	<5	<5	<5	<5	<5	<5	<5	9	<5	<5	9	6	5	12.2	5	14.4	19.9	8.2
Chromium (Hex.)	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	--	--	--	--	--
Copper	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	50	50	<30	<30	5.2	11.6	33.9	11.6	11.5
Lead	<3	<3	<3	<3	<3	<3	<3	<3	<3	<2	4	31*	26*	22*	4.3	12.7	39.3	20.7	16.4
Mercury	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.15	<0.15	<0.15	<0.15	<0.15
Nickel	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	200 ^u	<90	<90	6.3	5	19.9	19	10
Selenium	<4	<4	<4	<4	<4	<4	23*	21*	27*	<4	<4	40*	95*	53*	<0.8	<0.8	<0.8	<0.8	<0.8
Silver	<1	<1	1	1	3	4	10	9	14	<1	2	20	31	31	<5	<5	<5	<5	<5
Thallium	<50	<50	<50	<50	<50	<50	83	<50	<50	<50	<50	130	128	111	0.37	0.64	0.64	1.4	1.6
Zinc	10	20	90	410	30	40	50	80	260	<20	30	110	60	30	12.4	28.2	135	53	56
EDB	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	NR	BMDL	BMDL
Oil and Grease	6,000	8,000	6,000	8,000	3,000	10,000	35,000	25,000	47,000	20,000	8,000	5,000	9,000	9,000	297	567	2,206	536	1,306
VOC ^a																			
Methylene Chloride	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	23	73	21	96	43
Acetone	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	18	16	27	16	BMDL
Carbon Disulfide	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	2.2	2.2	BMDL
Chloroform	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	4.6	13	BMDL	3.2	1.9
Bromodichloromethane	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	1.1	2.7	BMDL	BMDL	BMDL
Toluene	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	2.6	BMDL

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Table (inverted)

	GROUNDWATER (ppb)									SURFACE WATER (ppb)					SEDIMENT (ppm)				
	LC7 GW1	LC7 GW2	LC7 GW3	LC7 GW4	LC7 GW5	LC7 GW6	LC7 GW7	LC7 GW8	LC7 GW9	LC7 SW1	LC7 SW2	LC7 SW3	LC7 SW4	LC7 SW5	LC7 SED1	LC7 SED2	LC7 SED3	LC7 SED4	LC7 SED5
Base/Neutrals^a																			
Total Saturated Hydrocarbons	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	330	250	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	45	130
Acenaphthene	BMDL	BMDL	BMDL	16	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL
Bis (2-ethylhexyl) phthalate	BMDL	BMDL	BMDL	19	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL
Pesticides + PCBs^(a)																			
Chlordane	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	0.018	BMDL	BMDL	0.012	
DDD	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	0.0028	BMDL	BMDL	0.0041	
DDE	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	0.0024	BMDL	BMDL	0.0029	
PCB 1260	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	0.033	BMDL	BMDL	BMDL	
Acids^a																			
Phenols	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	1.8	2.0	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	BMDL	

^a Compounds in this group that are not shown in this table were below detection limits.

BMDL--All compounds in this group were below method detection limits. Values for detection limits are given in Table 13.

<--Below detection limit shown.

NR--Value not reported, insufficient sample volume.

(--)--Unable to report useable data due to matrix interference.

*--Concentration exceeds a regulatory standard, guideline, or criterion (Table 11).

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Comment 31

- Pg 67: Overland Flood Migration Component, Par 4.1.2.1.1, Observed Release, Release Samples for Source 12, Surface Water Sample Table: Concentrations reported for LC12SW4, LC12SW5 and LC12SW6.
- According to the table on page 65, the date for the samples in this table is 12/90 from Reference 4, the 1991 Interim Remedial Investigation. However, the compounds listed were detected in samples during the Round 1 Final Progress Report dated 1986 (Reference 7), but were not detected in the investigations for the Final Interim Remedial Investigation in 1991 (Reference 4). The 1986 Final Progress Report results are only presented in the 1991 Final Interim Remedial Investigation report (Reference 4) for historical purposes. This does not represent another sampling round of detections. In fact, during the 1991 Interim Remedial Investigation, all of the Surface Water and Sediment sample results were non-detect for these compounds. Also, another round of Surface Water and Sediment samples were taken in October 1997 and again all samples were reported as non-detect, with a detection limit of 1 ppb.
- Copies of the sampling results for Surface Water and Sediment from the Interim Remedial Investigation are attached immediately after this page.
- Therefore, on the table on page 67, please change all of the detections reported to non-detect.

TABLE 4-11
SUMMARY OF 1986 AND 1990 SURFACE WATER DATA
ANALYTICAL RESULTS
EXCHANGE LAUNDRY WASTE DISPOSAL AREA (SITE 12)
LITTLE CREEK RI - (CONTRACT #: N62470-90-D-7646)

Sample No:	12-SW1		12-SW2			12-SW3		12-SW4		12-SW5		12-SW6		12-SW7	
	1986	1990	1986	1990	1990DUP	1986	1990	1986	1990	1986	1990	1986	1990	1986	1990
UNITS (UG/L)															
VOLATILE FRACTION	1986	1990	1986	1990	1990DUP	1986	1990	1986	1990	1986	1990	1986	1990	1986	1990
Trichloroethene	BMDL	5U	BMDL	5U	5U	BMDL	5U	7.3	5U	4.1	5U	3.1	5U	NA	5U
Tetrachloroethene	BMDL	5U	BMDL	5U	5U	BMDL	5U	17	5U	6.7	5U	5.3	5U	NA	5U
Trans-1,2-Dichloroethene	BMDL	5U	BMDL	5U	5U	BMDL	5U	BMDL	5U	26	5U	19	5U	NA	5U
Vinyl chloride	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	NA	ND
Toluene	BMDL	ND	BMDL	ND	ND	BMDL	ND	BMDL	ND	BMDL	ND	BMDL	ND	NA	ND
Methylene chloride	BMDL	ND	BMDL	ND	ND	BMDL	ND	19B	ND	BMDL	ND	BMDL	ND	NA	ND
Acetone	BMDL	31B	BMDL	ND	16B	BMDL	51B	BMDL	ND	BMDL	ND	BMDL	ND	NA	ND
Chloroform	7.1	5U	BMDL	5U	5U	BMDL	5U	BMDL	5U	1.6	5U	BMDL	5U	NA	5U

BMDL = Below Method Detection Limit
NA = Not Analyzed
ND = Not Detected
B = Blank Contamination
U = Sample Quantitation Limit

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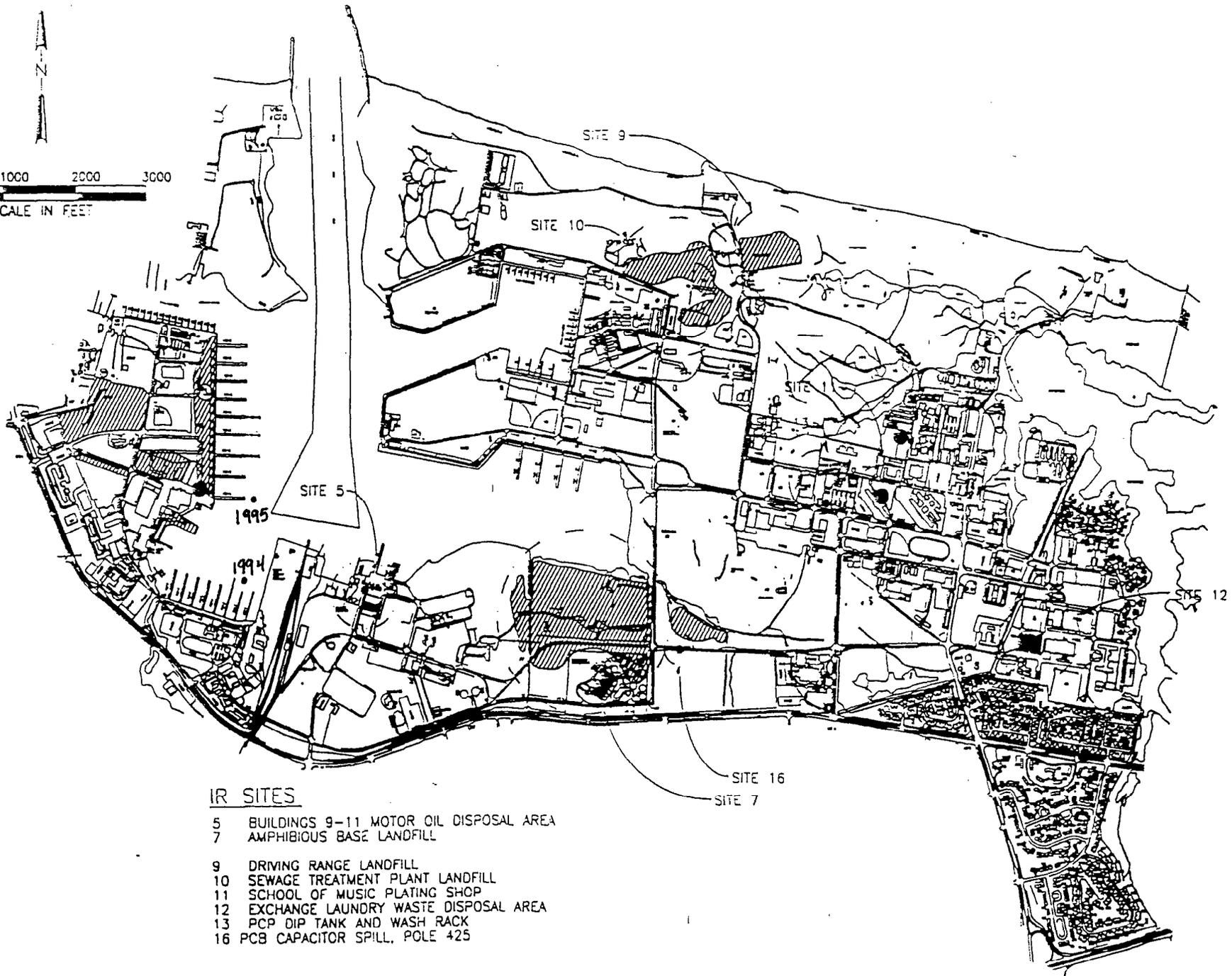
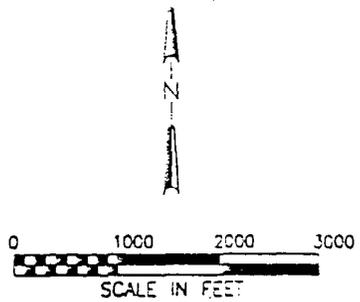
TABLE 4-12
SUMMARY OF 1986 AND 1990 SEDIMENT DATA
ANALYTICAL RESULTS
EXCHANGE LAUNDRY WASTE DISPOSAL AREA (SITE 12)
LITTLE CREEK RI - (CONTRACT #: N62470-90-D-7646)

Sample No:	12-SRD1		12-SRD2		12-SRD3			12-SRD4		12-SRD5		12-SRD6	
	1986	1990	1986	1990	1986	1990	1990	1986	1990	1986	1990	1986	1990
UNITS (UG/KG)													
VOLATILE FRACTION													
Trichloroethene	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	NA	BMDL	NA	BMDL	NA
Tetrachloroethene	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	NA	BMDL	NA	BMDL	NA
Trans-1,2-Dichloroethene	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	NA	BMDL	NA	2.5	NA
Vinyl chloride	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	NA	BMDL	NA	2.9	NA
Toluene	BMDL	ND	BMDL	ND	BMDL	ND	ND	BMDL	NA	BMDL	NA	9.1	NA
Methylene chloride	280	6U	22	4B	11	9U	6U	0.79	NA	37	NA	5.5	NA
Acetone	230	13U	BMDL	92B	BMDL	150B	160B	18	NA	BMDL	NA	BMDL	NA
Chloroform	BMDL	ND	4.6	ND	BMDL	ND	ND	BMDL	NA	2.4	NA	2.7	NA
Trichloro-trifluoroethane	71	NA	NR	NA	NR	ND	NA	NR	NA	NR	NA	NR	NA
3-Methyl pentane	17	NA	NR	NA	NR	ND	NA	NR	NA	NR	NA	NR	NA

BMDL = Below Method Detection Limit
 NA = Not Analyzed
 ND = Not Detected
 NR = Not Required
 B = Blank Contamination
 U = Sample Quantitation Limit

Comment 32

- Pg 67: Overland Flood Migration Component, Par 4.1.2.1.1, Observed Release, Chemical Analysis - Little Creek Harbor, first paragraph: "During a sediment and water quality study of Little Creek Harbor conducted in January 1995, two sediment samples were obtained from Little Creek Cove. Due to the enclosed nature of the cove, no background sample could be collected." Also Contaminated Samples - Sediment Table:
- This section identifies sample results from locations on the western portion of the Harbor, not near any of the previously identified Sources. As shown in the next comment, the drainage basin for Little Creek Harbor spans 16,420 acres of land to the south of the Harbor. Two of the canals draining this large area are between Source 7 (the nearest Source) and the sample locations. Also, there are other industries in the Harbor, discharging directly to the water body in between the sample location and Source 7. Furthermore, these samples were taken for qualitative purposes only and should not be quantified. The samples taken in 1994 and 1995 were analyzed with different Clean Water Act (CWA) test methods and therefore are not comparable to each other. CWA test methods are also not comparable to the CERCLA test methods used for the Sources identified. The analyses for these samples did not include any type of Quality Assurance/Quality Control measures. Not only are test methods, quantification, and validity of the samples in question, but also NONE of the compounds reported for this sample has been established as an observed release from any of the Sources previously identified. According to the Release samples in the previous pages, the only compounds directly attributable to the Sources identified are Antimony, Beryllium, Chromium, Lead, Nickel, Selenium, Silver, Thallium, Zinc, Acetone, Methylene Chloride, Tetrachloroethene, *trans* 1,2-Dichloroethene, and Trichloroethene as shown by co-detections in surface water or sediment and soil at the Sources. The sample at Site# 4-S reported detections of Mercury, Tributyl-tin, Cadmium, Anthracene, Benzo(g,h,i)perylene, and Indeno(1,2,3-cd)pyrene, which weren't detected in site soils above limits. Also, although the remaining compounds Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Chrysene, Fluoranthene, Phenanthene, and Pyrene were detected in site soils, they were all non-detect in surface water, sediment, and groundwater, indicating they have not been transported from the site and have not "released."
- A copy of the base map with the approximate locations of the samples is attached immediately following this page.
- Therefore, please do not use sample ID Site# 4 as evidence of Release.

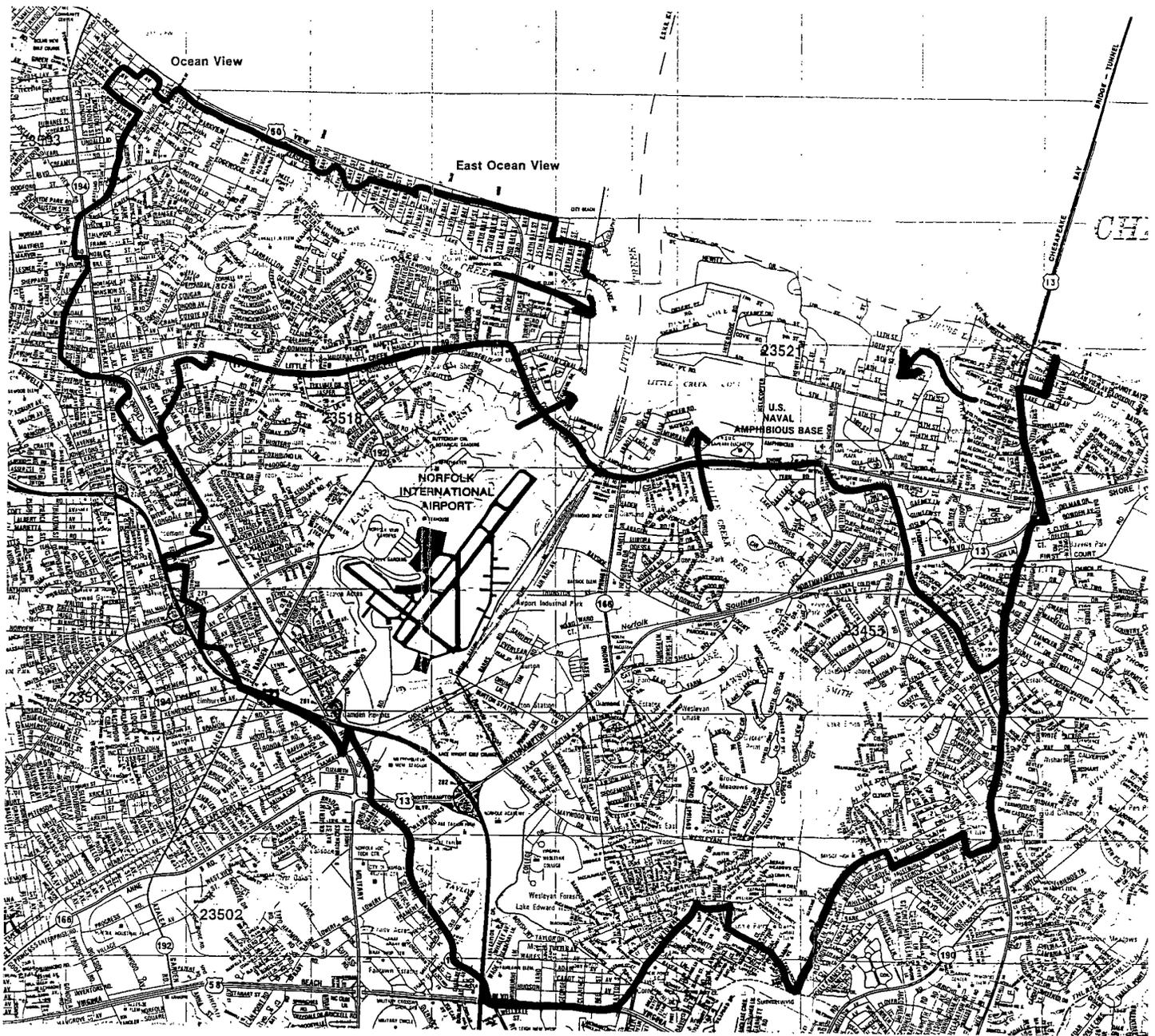


IR SITES

- 5 BUILDINGS 9-11 MOTOR OIL DISPOSAL AREA
- 7 AMPHIBIOUS BASE LANDFILL
- 9 DRIVING RANGE LANDFILL
- 10 SEWAGE TREATMENT PLANT LANDFILL
- 11 SCHOOL OF MUSIC PLATING SHOP
- 12 EXCHANGE LAUNDRY WASTE DISPOSAL AREA
- 13 PCP DIP TANK AND WASH RACK
- 16 PCB CAPACITOR SPILL, POLE 425

Comment 33

- Pg 69: Overland Flood Migration Component, Par 4.1.2.1.1, Attribution paragraph, first sentence: “Other than Little Creek NAB, there are two other potential sources of contamination for hazardous substances at the site: the Hampton Roads Sanitation District Treatment Plant, located adjacent to Source 7, and the Norfolk International Airport, located south of the facility and connected by perennial surface water (Ref. 8).”
- The drainage area for Little Creek Harbor has been compiled from the City of Norfolk’s “Master Storm Drain Plans” and the City of Virginia Beach’s “Watershed Maps”. This compilation indicates that the storm sewer and surface runoff from approximately 16,420 acres of land area drains into Little Creek Harbor. As stated on p. 53 of this docket, “Overflow discharge from both the Little Creek Reservoir and the Lake Whitehurst Reservoir is released to Little Creek Cove by canals.” Since NAB Little Creek comprises only 2,147 acres of the 16,420 acres in the drainage area, there appears to be other possible sources of contamination of Little Creek Harbor besides those listed. Also, besides the Navy, there are other industries discharging directly into the Harbor. Reference 31, p. 12 (EPA Site Analysis), describes one of the industries in the Harbor: “The railroad terminal south of Little Creek exhibits “poor housekeeping” practices based on the observed discarded objects, staining, disposal areas, and general surface disturbance. The proximity of the terminal to Little Creek may be environmentally significant because materials from this area may have been discarded into the creek. The terminal remains this way throughout this analysis ...”. This statement was made from observations of a 1958 aerial photograph. The Site Analysis covered the period up to 1992, implying that “poor housekeeping” continued at least until that time.
- A copy of the drainage map for Little Creek Harbor is attached immediately after this page.
- Therefore, please include the following in the sentence: “Due to the large drainage area that empties into Little Creek Harbor, there may be a number of other sources of contamination for hazardous substances.”



Comment 34

- Pg 69: Overland Flood Migration Component, Par 4.1.2.1.1, Attribution Table.
- As stated in a previous comment, the only compounds reported as released from specific Sources are Antimony, Beryllium, Chromium, Lead, Nickel, Selenium, Silver, Thallium, Zinc, Acetone, Methylene Chloride, Tetrachloroethene, *trans* 1,2-Dichloroethene, and Trichloroethene, although Acetone and Methylene Chloride are common laboratory contaminants.
- Therefore, the remaining compounds cannot be directly attributed to the Sources as having been released and should be deleted from the table. Please change the Score accordingly.

Comment 35

- Pgs 72-74: Waste Characteristics, Paragraph 4.1.2.2.1, Toxicity/Persistence Factor Value Table.
- As stated in a previous comment, the only compounds reported as released from specific Sources are Antimony, Beryllium, Chromium, Lead, Nickel, Selenium, Silver, Thallium, Zinc, Acetone, Methylene Chloride, Tetrachloroethene, *trans* 1,2-Dichloroethene, and Trichloroethene, although Acetone and Methylene Chloride are common laboratory contaminants.
- Therefore, the remaining compounds cannot be directly attributed to the Sources as having been released and should be deleted from the table. Please change the Score accordingly.

Comment 36

- Pgs 77-79: Waste Characteristics, Paragraph 4.1.3.2.1, Toxicity/Persistence/Bioaccumulation Factor Value Table.
- As stated in a previous comment, the only compounds reported as released from specific Sources are Antimony, Beryllium, Chromium, Lead, Nickel, Selenium, Silver, Thallium, Zinc, Acetone, Methylene Chloride, Tetrachloroethene, *trans* 1,2-Dichloroethene, and Trichloroethene, although Acetone and Methylene Chloride are common laboratory contaminants.
- Therefore, the remaining compounds cannot be directly attributed to the Sources as having been released and should be deleted from the table. The Toxicity/Persistence/Bioaccumulation Factor Value should be 5×10^7 vice 5×10^8 . Please change the Score accordingly.

Comment 37

- Pg 82: Human Food Chain Threat Targets, Paragraph 4.1.3.3, Bioaccumulation Potential Factor Value Table.
- As stated in a previous comment, the sample ID Site# 4-S cannot be attributed to the specific Sources identified.
- Therefore, the sample Site# 4-S and associated information should be deleted from this table. Please change the Score accordingly.

Comment 38

- Pg 84: Human Food Chain Threat Targets, Paragraph 4.1.3.3, Identity of Fishery Table.
- As stated in a previous comment, the sample IDs Site# 4-S cannot be attributed to the specific Sources identified.
- Therefore, the samples Site# 4-S/7-6-94 and Site# 4-S/7-14-94 and associated information should be deleted from this table. Please change the Score accordingly.

Comment 39

- Pg 85: Human Food Chain Threat Targets, Paragraph 4.1.3.3, Benchmark Table.
- As stated in a previous comment, the sample IDs Site# 4-S cannot be attributed to the specific Sources identified.
- Therefore, the samples Site# 4-S/7-6-94 and Site# 4-S/7-14-94 and associated information should be deleted from this table. Please change the Score accordingly.

Comment 40

- Pg 86: Human Food Chain Threat Targets, Paragraph 4.1.3.3.1, Bioaccumulation Potential Factor Value Table.
- As stated in a previous comment, the sample IDs Site# 4-S cannot be attributed to the specific Sources identified.
- Therefore, the samples Site# 4-S/7-6-94 and Site# 4-S/7-14-94 and associated information should be deleted from this table. Change the Food Chain Individual Factor Value accordingly. Please change the Score accordingly.

Comment 41

- Pgs 89-91: Environmental Threat, Waste Characteristics, Paragraph 4.1.4.2.1, Ecosystem Toxicity/Persistence Factor Value Table.
- As stated in a previous comment, the only compounds reported as released from specific Sources are Antimony, Beryllium, Chromium, Lead, Nickel, Selenium, Silver, Thallium, Zinc, Acetone, Methylene Chloride, Tetrachloroethene, *trans* 1,2-Dichloroethene, and Trichloroethene, although Acetone and Methylene Chloride are common laboratory contaminants.
- Therefore, the remaining compounds cannot be directly attributed to the Sources as having been released and should be deleted from the table. Please change the Score accordingly.

Comment 42

- Pgs 92-94: Environmental Threat, Waste Characteristics, Paragraph 4.1.4.2.1, Ecosystem Toxicity/Persistence/Bioaccumulation Factor Value Table.
- As stated in a previous comment, the only compounds reported as released from specific Sources are Antimony, Beryllium, Chromium, Lead, Nickel, Selenium, Silver, Thallium, Zinc, Acetone, Methylene Chloride, Tetrachloroethene, *trans* 1,2-Dichloroethene, and Trichloroethene, although Acetone and Methylene Chloride are common laboratory contaminants.
- Therefore, the remaining compounds cannot be directly attributed to the Sources as having been released and should be deleted from the table. The Toxicity/Persistence/Bioaccumulation Factor Value should be 5×10^6 vice 5×10^8 . Please change the Score accordingly.