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INSTALLATION RESTORATION REMEDIAL INVESTIGATION FEASIBILITY STUDY SITE 12

NAS FORT WORTH TX

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NAVAL AIR STATION
FORT WORTH JRB
CARSWELL FIELD
TEXAS

ADMINISTRATIVE RECORD
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RADIAN
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D.B. 17A-19
47 01 47

8501 Mo-Pac Blvd.
P.O. Box 201088
Austin, TX 78720-1088
(512)454-4797

227-005-04-28

US AIR FORCE
INSTALLATION RESTORATION PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
SITE 12
CARSWELL AFB, TEXAS

DECISION PAPER

Prepared by:

Radian Corporation
8501 Mo-Pac Blvd.
P. O. Box 201088
Austin, Texas 77820-1088

Prepared for:

Headquarters Strategic Air Command
Directorate of Engineering and Services
Offutt AFB, Nebraska 68113

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1.0 INTRODUCTION

This decision paper presents the results of an evaluation of remedial alternatives for the Fire Department Training Area 2 (FDTA 2) (Site 12) at Carswell AFB, TX. The evaluation was conducted as part of the IRP RI/FS Stage 2 investigation at Carswell AFB. The decision paper describes the history of Site 12, the geological setting at the site, and identifies and evaluates alternative control measures to achieve remediation of contamination at the site. The no-action alternative is included in the evaluation as required by the "Air Force Installation Restoration Program Management Guidance." The alternatives have been evaluated to recommend a cost-effective plan for mitigating potential threats to the environment from contaminated sediment and soil. Alternative control measures have been evaluated on the basis of site conditions described in the IRP RI/FS investigation reports prepared by CH_2M-Hill (Records Search) and Radian Corporation (RI/FS Stage 1 and Stage 2).

2.0 BACKGROUND

Site 12 is located between the north-south taxiway and the radar facility. Since 1963, fire department training exercises have been performed at this site, which consists of a fire ring that is gravel-lined with a low earthen berm around its perimeter. Two tanks located at the site have been used for storage of flammable liquids prior to training exercises. An 8,500-gallon above-ground tank is used to store fuel, which is delivered to the fire training area via a pump and various pipes. An underground tank of approximately 9,500 gallons has been used for storage of waste oils and solvents from the Flightline shops.

Surface drainage at Site 12 is to the north to an unnamed tributary of Farmers Branch. The surficial soils (termed the "upper zone") consist of clayey silt with variable amounts of fine sand and gravel, in turn underlain by sand and gravel deposits. The thickness of the upper zone deposits range from 18 to 40 feet. Limestone underlies the upper zone deposits and crops out just southeast of the site in a tributary of Farmers Branch.

Results of soil sampling and analysis during the RI/FS studies have shown that several organic constituents occur in the soil beneath Site 12. These include benzene, ethylbenzene, xylenes, 2-methylnaphthalene, 4-methylphenol, phenol, and naphthalene. Typically, the highest contaminant concentrations occur at the surface, decreasing with depth. However, in boreholes that encountered a sand zone at approximately 24 feet below land surface, the maximum values of contaminants were found in the sand strata above the water table. Petroleum hydrocarbon constituents were also detected in ground water, which is receiving continuing study in the RI/FS program. Soil sampling locations and upper zone monitor wells at Site 12 are shown on Figure 2-1. Analytical results for soil and ground-water samples collected in IRP Phase II Stage 2 are summarized in Tables 2-1 through 2-5.

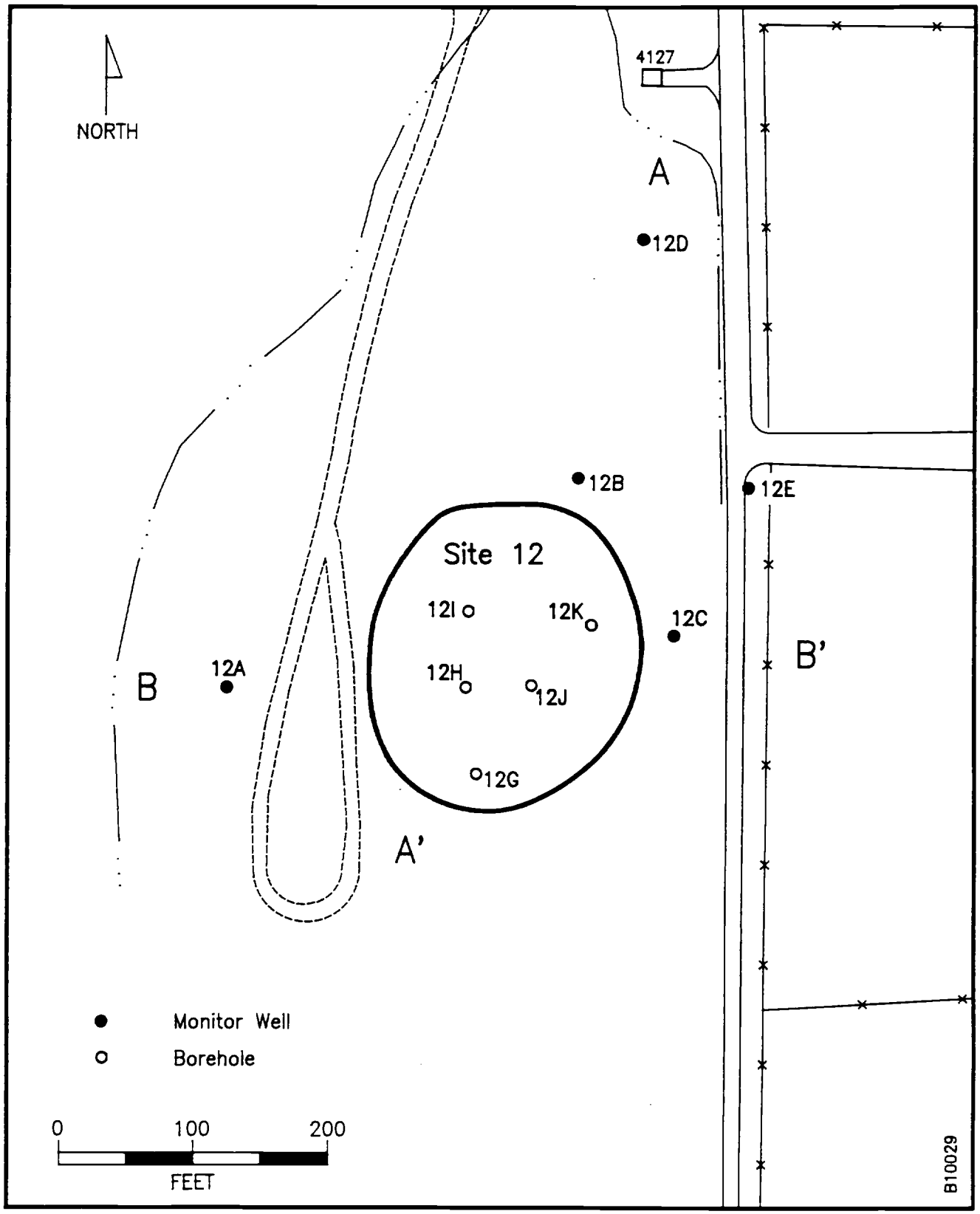

Figure 2-1. Locations of Monitor Wells and Boreholes at Site 12, Carswell AFB, Texas

Based on the results of the baseline risk assessment conducted during the RI/FS, this site does not pose an immediate and direct health hazard, but remedial action is appropriate prior to the construction of a concrete pad over FDTA 2 to reduce the low risk.

TABLE 2-1. RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS

	Primary Results							
	Monitor Well							
	Sample ID							
	Date Sampled							
	Beg. Depth - End Depth							
	12D		12D		12E		12E	
	12D-4		12D-6		12E-2		12E-4	
	19-Feb-88		19-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER	(15 - 20)		(25 - 30)		(4 - 6)		(14 - 19)	
Soil Moisture % MOISTURE								
Dry Weight Determination	3.0		14.0		27.0		16.0	
Metal Screen (ICP) MG/KG								
Ag Silver	1.1	(0.88)	ND	(0.89)	ND	(0.88)	1.5	(0.87)
Al Aluminum	820.0E	(20.0)	740.0E	(20.0)	8600.0	(20.0)	510.0	(19.0)
As Arsenic	ND	(29.0)	ND	(30.0)	ND	(29.0)	ND	(29.0)
B Boron	ND	(59.0)	ND	(59.0)	ND	(59.0)	ND	(58.0)
Ba Barium	4.9E	(0.88)	5.8E	(0.89)	43.0	(0.88)	2.6	(0.87)
Be Beryllium	0.1	(0.098)	0.1	(0.099)	0.5	(0.098)	0.1	(0.096)
Ca Calcium	650.0	(5.9)	44000.0	(5.9)	51000.0	(5.9)	340.0	(5.8)
Cd Cadmium	ND	(0.29)	0.3	(0.30)	ND	(0.29)	0.5	(0.29)
Co Cobalt	ND	(0.98)	ND	(0.99)	3.8	(0.98)	1.9	(0.96)
Cr Chromium	2.2	(0.88)	3.0	(0.89)	9.6	(0.88)	2.4	(0.87)
Cu Copper	1.9	(0.98)	1.3	(0.99)	3.0	(0.98)	ND	(0.96)
Fe Iron	2700.0	(2.9)	2600.0	(3.0)	8800.0	(2.9)	3200.0	(2.9)
K Potassium	80.0	(29.0)	80.0	(30.0)	1200.0	(29.0)	45.0	(29.0)
Mg Magnesium	120.0E	(9.8)	350.0E	(9.9)	1700.0	(9.8)	74.0	(9.6)
Mn Manganese	21.0E	(0.29)	41.0E	(0.30)	76.0	(0.29)	21.0	(0.29)
Mo Molybdenum	ND	(4.9)	ND	(5.0)	ND	(4.9)	ND	(4.8)
Na Sodium	70.0E	(7.8)	140.0E	(7.9)	40.0	(7.8)	39.0	(7.7)
Ni Nickel	2.0	(2.0)	ND	(2.0)	9.0	(2.0)	4.0	(1.9)
Pb Lead	ND	(4.9)	ND	(5.0)	13.0	(4.9)	6.0	(4.8)
Sb Antimony	ND	(5.9)	ND	(5.9)	7.0	(5.9)	ND	(5.8)
Se Selenium	ND	(29.0)	NDE	(30.0)	ND	(29.0)	ND	(29.0)
Si Silicon	350.0E	(29.0)	440.0	(30.0)	310.0	(29.0)	280.0	(29.0)
Tl Thallium	ND	(8.8)	ND	(8.9)	9.0	(8.8)	ND	(8.7)

E: The reported value is estimated due to the presence of an interferant.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-1. RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

		Primary Results							
		Monitor Well							
		Sample ID							
		Date Sampled							
		Beg. Depth - End Depth							
		12D		12D		12E		12E	
		12D-4		12D-6		12E-2		12E-4	
		19-Feb-88		19-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER		(15 - 20)		(25 - 30)		(4 - 6)		(14 - 19)	
V	Vanadium	4.0	(2.0)	7.0	(2.0)	22.0E	(2.0)	6.0E	(1.9)
Zn	Zinc	3.3E	(0.59)	3.2E	(0.59)	17.0	(0.59)	3.7	(0.58)

E: The reported value is estimated due to the presence of an interferant.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-1. RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

	Primary Results					
	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12E		12G		12H	
	12E-6		12G-4		12H-1	
	23-Feb-88		20-Feb-88		23-Feb-88	
PARAMETER	(24 - 29)		(14 - 17)		(0 - 4)	
Soil Moisture % MOISTURE						
Dry Weight Determination	26.0		28.0		29.0	
Metal Screen (ICP) MG/KG						
Ag Silver	1.4	(0.88)	1.3	(0.89)	ND	(0.88)
Al Aluminum	2000.0	(20.0)	7100.0	(79.0)	13000.0	(20.0)
As Arsenic	ND	(29.0)	ND	(30.0)	30.0	(29.0)
B Boron	ND	(59.0)	ND	(59.0)	ND	(59.0)
Ba Barium	8.6	(0.88)	33.0	(0.89)	86.0	(0.88)
Be Beryllium	0.2	(0.098)	0.3	(0.099)	0.7	(0.098)
Ca Calcium	5600.0	(5.9)	120000.0	(24.0)	41000.0	(5.9)
Cd Cadmium	ND	(0.29)	0.7	(0.30)	0.6	(0.29)
Co Cobalt	2.3	(0.98)	1.6	(0.99)	4.6	(0.98)
Cr Chromium	6.4	(0.88)	8.7	(0.89)	14.0	(0.88)
Cu Copper	2.0	(0.98)	1.6	(0.99)	3.4	(0.98)
Fe Iron	7800.0	(2.9)	7700.0	(3.0)	12000.0	(2.9)
K Potassium	270.0	(29.0)	690.0	(30.0)	1100.0	(29.0)
Mg Magnesium	420.0	(9.8)	1400.0	(9.9)	1700.0	(9.8)
Mn Manganese	60.0	(0.29)	47.0	(0.30)	250.0	(0.29)
Mo Molybdenum	ND	(4.9)	ND	(5.0)	ND	(4.9)
Na Sodium	43.0	(7.8)	93.0	(7.9)	74.0	(7.8)
Ni Nickel	6.0	(2.0)	6.0	(2.0)	10.0	(2.0)
Pb Lead	11.0	(4.9)	9.0	(5.0)	16.0	(4.9)
Sb Antimony	ND	(5.9)	19.0	(5.9)	ND	(5.9)
Se Selenium	ND	(29.0)	ND	(30.0)	50.0	(29.0)
Si Silicon	330.0	(29.0)	320.0	(30.0)	350.0	(29.0)
Tl Thallium	ND	(8.8)	12.0	(8.9)	ND	(8.8)

E: The reported value is estimated due to the presence of an interferant.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-1. RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

		Primary Results					
		Monitor Well					
		Sample ID					
		Date Sampled					
		Beg. Depth - End Depth					
		12E		12G		12H	
		12E-6		12G-4		12H-1	
		23-Feb-88		20-Feb-88		23-Feb-88	
PARAMETER		(24 - 29)		(14 - 17)		(0 - 4)	
V	Vanadium	15.0E	(2.0)	27.0E	(2.0)	30.0E	(2.0)
Zn	Zinc	9.8	(0.59)	12.0	(0.59)	18.0	(0.59)

E: The reported value is estimated due to the presence of an interferant.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-1. RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

	Primary Results							
	Monitor Well							
	Sample ID							
	Date Sampled							
	Beg. Depth - End Depth							
	12H		12H		12H		12H	
	12H-2		12H-2		12H-3		12H-4	
	23-Feb-88		23-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER	(4 - 9)		(4 - 9)		(9 - 14)		(14 - 19)	
Soil Moisture % MOISTURE								
Dry Weight Determination	27.0		27.0		25.0		27.0	
Metal Screen (ICP) MG/KG								
Ag Silver	2.3	(0.89)	1.4	(0.87)	2.0	(0.87)	2.7	(0.87)
Al Aluminum	10000.0	(40.0)	7800.0	(39.0)	5400.0	(78.0)	5900.0	(19.0)
As Arsenic	ND	(30.0)	ND	(29.0)	ND	(29.0)	ND	(29.0)
B Boron	ND	(59.0)	ND	(58.0)	ND	(58.0)	ND	(58.0)
Ba Barium	170.0	(0.89)	97.0	(0.87)	37.0	(0.87)	37.0	(0.87)
Be Beryllium	0.5	(0.099)	0.5	(0.097)	0.3	(0.097)	0.5	(0.097)
Ca Calcium	120000.0	(12.0)	91000.0	(12.0)	160000.0	(23.0)	61000.0	(5.8)
Cd Cadmium	ND	(0.30)	ND	(0.29)	ND	(0.29)	ND	(0.29)
Co Cobalt	3.0	(0.99)	4.4	(0.97)	3.2	(0.97)	4.5	(0.97)
Cr Chromium	12.0	(0.89)	9.9	(0.87)	9.5	(0.87)	9.1	(0.87)
Cu Copper	1.2	(0.99)	1.5	(0.97)	2.9	(0.97)	5.2	(0.97)
Fe Iron	9000.0	(3.0)	8200.0	(2.9)	8400.0	(2.9)	9900.0	(2.9)
K Potassium	1000.0	(30.0)	930.0	(29.0)	640.0	(29.0)	730.0	(29.0)
Mg Magnesium	1800.0	(9.9)	1600.0	(9.7)	1400.0	(9.7)	1200.0	(9.7)
Mn Manganese	190.0	(0.30)	130.0	(0.29)	180.0	(0.29)	280.0	(0.29)
Mo Molybdenum	ND	(5.0)	ND	(4.9)	ND	(4.9)	ND	(4.9)
Na Sodium	88.0	(7.9)	91.0	(7.8)	87.0	(7.8)	71.0	(7.8)
Ni Nickel	9.0	(2.0)	9.0	(1.9)	8.0	(1.9)	9.0	(1.9)
Pb Lead	11.0	(5.0)	10.0	(4.9)	11.0	(4.9)	14.0	(4.9)
Sb Antimony	16.0	(5.9)	10.0	(5.8)	40.0	(23.0)	9.0	(5.8)
Se Selenium	30.0	(30.0)	ND	(29.0)	ND	(29.0)	ND	(29.0)
Si Silicon	280.0	(30.0)	230.0	(29.0)	290.0	(29.0)	290.0	(29.0)
Tl Thallium	ND	(8.9)	9.0	(8.7)	10.0	(8.7)	16.0	(8.7)

E: The reported value is estimated due to the presence of an interferant.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-1. RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

		Primary Results							
		Monitor Well							
		Sample ID							
		Date Sampled							
		Beg. Depth - End Depth							
		12H		12H		12H		12H	
		12H-2		12H-2		12H-3		12H-4	
		23-Feb-88		23-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER		(4 - 9)		(4 - 9)		(9 - 14)		(14 - 19)	
V	Vanadium	28.0E	(2.0)	23.0E	(1.9)	29.0E	(1.9)	24.0E	(1.9)
Zn	Zinc	15.0	(0.59)	15.0	(0.58)	12.0	(0.58)	16.0	(0.58)

E: The reported value is estimated due to the presence of an interferant.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-1. RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

	Primary Results					
	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12H		12I		12I	
	12H-5		12I-2		12I-3	
	23-Feb-88		23-Feb-88		24-Feb-88	
PARAMETER	(19 - 25)		(4 - 9)		(9 - 14)	
Soil Moisture % MOISTURE						
Dry Weight Determination	16.0		16.0		15.0	
Metal Screen (ICP) MG/KG						
Ag Silver	3.9	(0.88)	ND	(0.88)	ND	(0.87)
Al Aluminum	380.0	(20.0)	13000.0	(78.0)	9500.0	(78.0)
As Arsenic	ND	(29.0)	ND	(29.0)	ND	(29.0)
B Boron	ND	(59.0)	ND	(59.0)	ND	(58.0)
Ba Barium	3.4	(0.88)	54.0E	(0.88)	42.0E	(0.87)
Be Beryllium	ND	(0.098)	0.5	(0.098)	0.4	(0.097)
Ca Calcium	520.0	(5.9)	130000.0E	(24.0)	110000.0E	(23.0)
Cd Cadmium	0.8	(0.29)	0.7	(0.29)	ND	(0.29)
Co Cobalt	1.6	(0.98)	2.6	(0.98)	2.8	(0.97)
Cr Chromium	3.6	(0.88)	13.0	(0.88)	11.0	(0.87)
Cu Copper	ND	(0.98)	2.1	(0.98)	3.6	(0.97)
Fe Iron	3900.0	(2.9)	10000.0	(2.9)	8800.0	(2.9)
K Potassium	90.0	(29.0)	1200.0	(29.0)	1100.0	(29.0)
Mg Magnesium	66.0	(9.8)	2200.0E	(9.8)	1800.0E	(9.7)
Mn Manganese	40.0	(0.29)	170.0	(0.29)	200.0	(0.29)
Mo Molybdenum	ND	(4.9)	ND	(4.9)	ND	(4.9)
Na Sodium	44.0	(7.8)	22.0	(7.8)	ND	(7.8)
Ni Nickel	ND	(2.0)	9.0	(2.0)	7.0	(1.9)
Pb Lead	6.0	(4.9)	14.0	(4.9)	7.0	(4.9)
Sb Antimony	ND	(5.9)	28.0	(5.9)	22.0	(5.8)
Se Selenium	ND	(29.0)	42.0	(29.0)	ND	(29.0)
Si Silicon	250.0	(29.0)	330.0	(29.0)	320.0	(29.0)
Tl Thallium	ND	(8.8)	ND	(8.8)	11.0	(8.7)

E: The reported value is estimated due to the presence of an interferant.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-1. RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

		Primary Results					
		Monitor Well					
		Sample ID					
		Date Sampled					
		Beg. Depth - End Depth					
		12H		12I		12I	
		12H-5		12I-2		12I-3	
		23-Feb-88		23-Feb-88		24-Feb-88	
PARAMETER		(19 - 25)		(4 - 9)		(9 - 14)	
V	Vanadium	8.0E	(2.0)	32.0	(2.0)	22.0	(1.9)
Zn	Zinc	2.6	(0.59)	18.0E	(0.59)	15.0E	(0.58)

E: The reported value is estimated due to the presence of an interferant.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-1. RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

		Primary Results					
		Monitor Well					
		Sample ID					
		Date Sampled					
		Beg. Depth - End Depth					
		12I		12J		12J	
		12I-5		12J-2		12J-2	
		24-Feb-88		24-Feb-88		24-Feb-88	
PARAMETER		(19 - 24)		(4 - 9)		(4 - 9)	
Soil Moisture % MOISTURE							
Dry Weight Determination		4.0		15.0		14.0	
Metal Screen (ICP) MG/KG							
Ag	Silver	ND	(0.87)	2.0	(0.90)	1.2	(0.86)
Al	Aluminum	590.0	(19.0)	14000.0	(80.0)	21000.0	(76.0)
As	Arsenic	ND	(29.0)	ND	(30.0)	ND	(29.0)
B	Boron	ND	(58.0)	ND	(60.0)	ND	(57.0)
Ba	Barium	15.0E	(0.87)	48.0E	(0.90)	91.0E	(0.86)
Be	Beryllium	0.1	(0.097)	0.7	(0.10)	0.8	(0.095)
Ca	Calcium	5600.0E	(5.8)	120000.0E	(24.0)	81000.0E	(23.0)
Cd	Cadmium	0.5	(0.29)	0.6	(0.30)	0.5	(0.29)
Co	Cobalt	1.2	(0.97)	2.0	(1.0)	4.8	(0.95)
Cr	Chromium	4.2	(0.87)	16.0	(0.90)	19.0	(0.86)
Cu	Copper	1.3	(0.97)	5.0	(1.0)	4.8	(0.95)
Fe	Iron	5500.0	(2.9)	11000.0	(3.0)	13000.0	(2.9)
K	Potassium	ND	(29.0)	1400.0	(30.0)	1900.0	(29.0)
Mg	Magnesium	110.0E	(9.7)	2300.0E	(10.0)	2700.0E	(9.5)
Mn	Manganese	170.0	(0.29)	140.0	(0.30)	240.0	(0.29)
Mo	Molybdenum	ND	(4.9)	ND	(5.0)	ND	(4.8)
Na	Sodium	ND	(7.8)	ND	(8.0)	ND	(7.6)
Ni	Nickel	3.0	(1.9)	10.0	(2.0)	12.0	(1.9)
Pb	Lead	7.0	(4.9)	13.0	(5.0)	20.0	(4.8)
Sb	Antimony	ND	(5.8)	31.0	(6.0)	20.0	(5.7)
Se	Selenium	ND	(29.0)	50.0	(30.0)	70.0	(29.0)
Si	Silicon	260.0	(29.0)	290.0	(30.0)	250.0	(29.0)
Tl	Thallium	9.0	(8.7)	ND	(9.0)	ND	(8.6)

E: The reported value is estimated due to the presence of an interferant.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-1. RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

		Primary Results					
		Monitor Well					
		Sample ID					
		Date Sampled					
		Beg. Depth - End Depth					
		12I		12J		12J	
		12I-5		12J-2		12J-2	
		24-Feb-88		24-Feb-88		24-Feb-88	
PARAMETER		(19 - 24)		(4 - 9)		(4 - 9)	
V	Vanadium	11.0	(1.9)	42.0	(2.0)	38.0	(1.9)
Zn	Zinc	3.4E	(0.58)	18.0E	(0.60)	24.0E	(0.57)

E: The reported value is estimated due to the presence of an interferant.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-1. RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

		Primary Results					
				Monitor Well			
				Sample ID			
				Date Sampled			
				Beg. Depth - End Depth			
		12J		12J		12K	
		12J-3		12J-5		12K-5	
		24-Feb-88		24-Feb-88		20-Feb-88	
PARAMETER		(9 - 14)		(19 - 23)		(20 - 25)	
Soil Moisture % MOISTURE							
Dry Weight Determination		17.0		4.0		16.0	
Metal Screen (ICP) MG/KG							
Ag	Silver	1.4	(0.83)	1.7	(0.82)	1.9	(0.89)
Al	Aluminum	10000.0	(74.0)	900.0	(18.0)	5300.0	(20.0)
As	Arsenic	ND	(28.0)	ND	(27.0)	ND	(30.0)
B	Boron	ND	(56.0)	ND	(55.0)	ND	(59.0)
Ba	Barium	38.0E	(0.83)	7.0E	(0.82)	49.0	(0.89)
Be	Beryllium	0.5	(0.093)	0.090	(0.091)	0.4	(0.099)
Ca	Calcium	110000.0E	(22.0)	980.0E	(5.5)	27000.0	(5.9)
Cd	Cadmium	0.5	(0.28)	0.3	(0.27)	ND	(0.30)
Co	Cobalt	5.2	(0.93)	1.7	(0.91)	4.6	(0.99)
Cr	Chromium	13.0	(0.83)	4.0	(0.82)	9.9	(0.89)
Cu	Copper	4.8	(0.93)	2.0	(0.91)	5.1	(0.99)
Fe	Iron	10000.0	(2.8)	3400.0	(2.7)	11000.0	(3.0)
K	Potassium	1300.0	(28.0)	130.0	(27.0)	670.0	(30.0)
Mg	Magnesium	2000.0E	(9.3)	150.0E	(9.1)	930.0	(9.9)
Mn	Manganese	150.0	(0.28)	100.0	(0.27)	230.0	(0.30)
Mo	Molybdenum	ND	(4.6)	ND	(4.5)	ND	(5.0)
Na	Sodium	65.0	(7.4)	ND	(7.3)	68.0	(7.9)
Ni	Nickel	8.0	(1.9)	4.0	(1.8)	9.0	(2.0)
Pb	Lead	12.0	(4.6)	12.0	(4.5)	11.0	(5.0)
Sb	Antimony	30.0	(5.6)	10.0	(5.5)	6.0	(5.9)
Se	Selenium	30.0	(28.0)	ND	(27.0)	ND	(30.0)
Si	Silicon	230.0	(28.0)	270.0	(27.0)	330.0	(30.0)
Tl	Thallium	ND	(8.3)	ND	(8.2)	10.0	(8.9)

E: The reported value is estimated due to the presence of an interferant.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-1. RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

		Primary Results					
		Monitor Well					
		Sample ID					
		Date Sampled					
		Beg. Depth - End Depth					
		12J		12J		12K	
		12J-3		12J-5		12K-5	
		24-Feb-88		24-Feb-88		20-Feb-88	
PARAMETER		(9 - 14)		(19 - 23)		(20 - 25)	
V	Vanadium	26.0	(1.9)	9.0	(1.8)	25.0E	(2.0)
Zn	Zinc	17.0E	(0.56)	4.7E	(0.55)	17.0	(0.59)

E: The reported value is estimated due to the presence of an interferant.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS

Primary Results

	Monitor Well							
	Sample ID							
	Date Sampled							
	Beg. Depth - End Depth							
	12D		12D		12E		12E	
	12D-4		12D-6		12E-2		12E-4	
	19-Feb-88		19-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER	15 - 20		25 - 30		4 - 6		14 - 19	
Petroleum Hydrocarbons MG/KG								
Petroleum Hydrocarbons	ND	(5.0)	ND	(2.0)	ND	(5.0)	14.0	
Volatile Organic Compounds MG/KG								
1,1,1-trichloroethane	ND	(0.0040)	ND	(0.0045)	ND	(0.0044)	ND	(0.0039)
1,1,2,2-tetrachloroethane	ND	(0.0073)	ND	(0.0081)	ND	(0.0080)	ND	(0.0071)
1,1,2-trichloroethane	ND	(0.0053)	ND	(0.0059)	ND	(0.0058)	ND	(0.0052)
1,2-dichloroethane	ND	(0.0030)	ND	(0.0033)	ND	(0.0032)	ND	(0.0029)
1,2-dichloropropane	ND	(0.0064)	ND	(0.0071)	ND	(0.0070)	ND	(0.0062)
2-butanone	ND	(0.027)	ND	(0.030)	ND	(0.029)	ND	(0.026)
2-chloroethylvinyl ether	ND	(0.0053)	ND	(0.0059)	ND	(0.0058)	ND	(0.0052)
2-hexanone	ND	(0.038)	ND	(0.042)	ND	(0.042)	ND	(0.037)
4-methyl-2-pentanone	ND	(0.049)	ND	(0.054)	ND	(0.053)	ND	(0.047)
Benzene	ND	(0.0047)	ND	(0.0052)	ND	(0.0051)	ND	(0.0045)
Ethylbenzene	ND	(0.0076)	ND	(0.0085)	ND	(0.0084)	ND	(0.0074)
Toluene	ND	(0.0064)	0.029	(0.0071)	0.018	(0.0070)	0.0019J	(0.0062)
Trichloroethene	ND	(0.0020)	ND	(0.0022)	ND	(0.0022)	ND	(0.0020)
acetone	0.011B	(0.0080)	0.014B	(0.0089)	0.012B	(0.0087)	0.015B	(0.0077)
bromodichloromethane	ND	(0.0023)	ND	(0.0026)	ND	(0.0026)	ND	(0.0023)
bromoform	ND	(0.0050)	ND	(0.0055)	ND	(0.0055)	ND	(0.0048)
bromomethane	ND	(0.0053)	ND	(0.0059)	ND	(0.0058)	ND	(0.0052)
carbon disulfide	ND	(0.0018)	ND	(0.0020)	ND	(0.0020)	ND	(0.0018)
carbon tetrachloride	ND	(0.0030)	ND	(0.0033)	ND	(0.0032)	ND	(0.0029)
chlorobenzene	ND	(0.0064)	ND	(0.0071)	ND	(0.0070)	ND	(0.0062)
chloroethane	ND	(0.0053)	ND	(0.0059)	ND	(0.0058)	ND	(0.0052)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well							
	Sample ID							
	Date Sampled							
	Beg. Depth - End Depth							
	12D		12D		12E		12E	
	12D-4		12D-6		12E-2		12E-4	
	19-Feb-88		19-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER	15 - 20		25 - 30		4 - 6		14 - 19	
chloroform	ND	(0.0017)	ND	(0.0019)	ND	(0.0019)	ND	(0.0016)
chloromethane	ND	(0.0053)	ND	(0.0059)	ND	(0.0058)	ND	(0.0052)
cis-1,3-Dichloropropene	ND	(0.0053)	ND	(0.0059)	ND	(0.0058)	ND	(0.0052)
dibromochloromethane	ND	(0.0033)	ND	(0.0037)	ND	(0.0036)	ND	(0.0032)
methylene chloride	ND	(0.0030)	ND	(0.0033)	ND	(0.0032)	ND	(0.0029)
styrene	ND	(0.0032)	ND	(0.0035)	ND	(0.0035)	ND	(0.0031)
tetrachloroethene	ND	(0.0043)	ND	(0.0048)	ND	(0.0048)	ND	(0.0042)
total xylenes	ND	(0.0049)	ND	(0.0054)	ND	(0.0053)	ND	(0.0047)
trans-1,2-Dichloroethene	ND	(0.0017)	ND	(0.0019)	ND	(0.0019)	ND	(0.0016)
trans-1,3-Dichloropropene	ND	(0.0053)	ND	(0.0059)	ND	(0.0058)	ND	(0.0052)
trichlorofluoromethane	ND	(0.0053)	ND	(0.0059)	ND	(0.0058)	ND	(0.0052)
vinyl acetate	ND	(0.0073)	ND	(0.0081)	ND	(0.0080)	ND	(0.0071)
vinyl chloride	ND	(0.0053)	ND	(0.0059)	ND	(0.0058)	ND	(0.0052)
Semivolatile Organic Compounds MG/KG								
1,2,4-trichlorobenzene	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
1,2-dichlorobenzene	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
1,3-dichlorobenzene	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
1,4-dichlorobenzene	ND	(0.30)	ND	(0.34)	ND	(0.40)	ND	(0.35)
2,4,5-trichlorophenol	ND	(0.68)	ND	(0.77)	ND	(0.91)	ND	(0.79)
2,4,6-trichlorophenol	ND	(0.18)	ND	(0.21)	ND	(0.25)	ND	(0.21)
2,4-dichlorophenol	ND	(0.18)	ND	(0.21)	ND	(0.25)	ND	(0.21)
2,4-dimethylphenol	ND	(0.18)	ND	(0.21)	ND	(0.25)	ND	(0.21)
2,4-dinitrophenol	ND	(2.9)	ND	(3.2)	ND	(3.8)	ND	(3.3)
2,4-dinitrotoluene	ND	(0.39)	ND	(0.44)	ND	(0.52)	ND	(0.45)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection Limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well							
	Sample ID							
	Date Sampled							
	Beg. Depth - End Depth							
	12D		12D		12E		12E	
	12D-4		12D-6		12E-2		12E-4	
	19-Feb-88		19-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER	15 - 20		25 - 30		4 - 6		14 - 19	
2,6-dinitrotoluene	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
2-chloronaphthalene	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
2-chlorophenol	ND	(0.23)	ND	(0.25)	ND	(0.30)	ND	(0.26)
2-methylnaphthalene	ND	(0.68)	ND	(0.77)	ND	(0.91)	ND	(0.79)
2-methylphenol	ND	(0.68)	ND	(0.77)	ND	(0.91)	ND	(0.79)
2-nitroaniline	ND	(3.4)	ND	(3.9)	ND	(4.6)	ND	(4.0)
2-nitrophenol	ND	(0.25)	ND	(0.28)	ND	(0.33)	ND	(0.29)
3,3'-dichlorobenzidine	ND	(1.1)	ND	(1.3)	ND	(1.5)	ND	(1.3)
3-nitroaniline	ND	(3.4)	ND	(3.9)	ND	(4.6)	ND	(4.0)
4,6-dinitro-2-methylphenol	ND	(1.6)	ND	(1.9)	ND	(2.2)	ND	(1.9)
4-bromophenyl-phenylether	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
4-chloro-3-methylphenol	ND	(0.21)	ND	(0.23)	ND	(0.27)	ND	(0.24)
4-chloroaniline	ND	(0.68)	ND	(0.77)	ND	(0.91)	ND	(0.79)
4-chlorophenyl-phenylether	ND	(0.29)	ND	(0.32)	ND	(0.38)	ND	(0.33)
4-methylphenol	ND	(0.68)	ND	(0.77)	ND	(0.91)	ND	(0.79)
4-nitroaniline	ND	(3.4)	ND	(3.9)	ND	(4.6)	ND	(4.0)
4-nitrophenol	ND	(0.16)	ND	(0.19)	ND	(0.22)	ND	(0.19)
acenaphthene	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
acenaphthylene	ND	(0.24)	ND	(0.27)	ND	(0.32)	ND	(0.28)
aniline	ND	(0.68)	ND	(0.77)	ND	(0.91)	ND	(0.79)
anthracene	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
benzidine	ND	(3.0)	ND	(3.4)	ND	(4.0)	ND	(3.5)
benzo(a)anthracene	ND	(0.53)	ND	(0.60)	ND	(0.71)	ND	(0.62)
benzo(a)pyrene	ND	(0.17)	ND	(0.19)	ND	(0.23)	ND	(0.20)
benzo(b)fluoranthene	ND	(0.33)	ND	(0.37)	ND	(0.44)	ND	(0.38)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well							
	Sample ID							
	Date Sampled							
	Beg. Depth - End Depth							
	12D		12D		12E		12E	
	12D-4		12D-6		12E-2		12E-4	
	19-Feb-88		19-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER	15 - 20		25 - 30		4 - 6		14 - 19	
benzo(k)fluoranthene	ND	(0.17)	ND	(0.19)	ND	(0.23)	ND	(0.20)
benzoic acid	ND	(3.4)	ND	(3.9)	ND	(4.6)	ND	(4.0)
benzyl alcohol	ND	(3.4)	ND	(3.9)	ND	(4.6)	ND	(4.0)
bis(2-chloroethoxy)methane	ND	(0.36)	ND	(0.41)	ND	(0.48)	ND	(0.42)
bis(2-chloroethyl) ether	ND	(0.39)	ND	(0.44)	ND	(0.52)	ND	(0.45)
bis(2-chloroisopropyl)ether	ND	(0.39)	ND	(0.44)	ND	(0.52)	ND	(0.45)
bis(2-ethylhexyl)phthalate	ND	(0.17)	0.15BJ	(0.19)	0.11J	(0.23)	0.16J	(0.20)
butylbenzylphthalate	ND	(0.17)	ND	(0.19)	ND	(0.23)	ND	(0.20)
chrysene	ND	(0.17)	ND	(0.19)	ND	(0.23)	ND	(0.20)
di-n-butylphthalate	0.21	(0.17)	0.096J	(0.19)	0.15BJ	(0.23)	0.25B	(0.20)
di-n-octyl phthalate	ND	(0.17)	ND	(0.19)	0.10J	(0.23)	ND	(0.20)
dibenzo(a,h)anthracene	ND	(0.17)	ND	(0.19)	ND	(0.23)	ND	(0.20)
dibenzofuran	ND	(0.68)	ND	(0.77)	ND	(0.91)	ND	(0.79)
diethylphthalate	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
dimethyl phthalate	ND	(0.11)	ND	(0.12)	ND	(0.15)	ND	(0.13)
fluoranthene	ND	(0.15)	ND	(0.17)	ND	(0.20)	ND	(0.17)
fluorene	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
hexachlorobenzene	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
hexachlorobutadiene	ND	(0.062)	ND	(0.069)	ND	(0.082)	ND	(0.071)
hexachlorocyclopentadiene	ND	(0.41)	ND	(0.46)	ND	(0.55)	ND	(0.48)
hexachloroethane	ND	(0.11)	ND	(0.12)	ND	(0.15)	ND	(0.13)
indeno(1,2,3-cd)pyrene	ND	(0.25)	ND	(0.29)	ND	(0.34)	ND	(0.29)
isophorone	ND	(0.15)	ND	(0.17)	ND	(0.20)	ND	(0.17)
n-nitroso-di-n-propylamine	ND	(0.82)	ND	(0.93)	ND	(1.1)	ND	(0.95)
n-nitrosodimethylamine	ND	(0.68)	ND	(0.77)	ND	(0.91)	ND	(0.79)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well							
	Sample ID							
	Date Sampled							
	Beg. Depth - End Depth							
	12D		12D		12E		12E	
	12D-4		12D-6		12E-2		12E-4	
	19-Feb-88		19-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER	15 - 20		25 - 30		4 - 6		14 - 19	
n-nitrosodiphenylamine	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
naphthalene	ND	(0.11)	ND	(0.12)	ND	(0.15)	ND	(0.13)
nitrobenzene	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)
pentachlorophenol	ND	(0.25)	ND	(0.28)	ND	(0.33)	ND	(0.29)
phenanthrene	ND	(0.37)	ND	(0.42)	ND	(0.49)	ND	(0.43)
phenol	ND	(0.10)	ND	(0.12)	ND	(0.14)	ND	(0.12)
pyrene	ND	(0.13)	ND	(0.15)	ND	(0.17)	ND	(0.15)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12E		12G		12H	
	12E-6		12G-4		12H-1	
	23-Feb-88		20-Feb-88		23-Feb-88	
PARAMETER	24 - 29		14 - 17		0 - 4	
Petroleum Hydrocarbons MG/KG						
Petroleum Hydrocarbons	ND	(5.0)	ND	(5.0)	3230.0	
Volatile Organic Compounds MG/KG						
1,1,1-trichloroethane	ND	(0.0040)	ND	(0.0044)	ND	(0.95)
1,1,2,2-tetrachloroethane	ND	(0.0072)	ND	(0.0079)	ND	(1.7)
1,1,2-trichloroethane	ND	(0.0053)	ND	(0.0058)	ND	(1.3)
1,2-dichloroethane	ND	(0.0029)	ND	(0.0032)	ND	(0.70)
1,2-dichloropropane	ND	(0.0063)	ND	(0.0069)	ND	(1.5)
2-butanone	ND	(0.026)	ND	(0.029)	3.6BJ	(6.3)
2-chloroethylvinyl ether	ND	(0.0053)	ND	(0.0058)	ND	(1.3)
2-hexanone	ND	(0.038)	ND	(0.041)	ND	(9.0)
4-methyl-2-pentanone	ND	(0.048)	ND	(0.053)	ND	(12.0)
Benzene	ND	(0.0046)	ND	(0.0051)	0.37J	(1.1)
Ethylbenzene	ND	(0.0076)	ND	(0.0083)	4.1	(1.8)
Toluene	0.0042J	(0.0063)	0.019	(0.0069)	11.0	(1.5)
Trichloroethene	ND	(0.0020)	ND	(0.0022)	ND	(0.48)
acetone	0.029B	(0.0079)	0.015B	(0.0086)	0.74BJ	(1.9)
bromodichloromethane	ND	(0.0023)	ND	(0.0025)	ND	(0.55)
bromoform	ND	(0.0049)	ND	(0.0054)	ND	(1.2)
bromomethane	ND	(0.0053)	ND	(0.0058)	ND	(1.3)
carbon disulfide	ND	(0.0018)	ND	(0.0020)	ND	(0.43)
carbon tetrachloride	ND	(0.0029)	ND	(0.0032)	ND	(0.70)
chlorobenzene	ND	(0.0063)	ND	(0.0069)	ND	(1.5)
chloroethane	ND	(0.0053)	ND	(0.0058)	ND	(1.3)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12E		12G		12H	
	12E-6		12G-4		12H-1	
	23-Feb-88		20-Feb-88		23-Feb-88	
PARAMETER	24 - 29		14 - 17		0 - 4	
chloroform	ND	(0.0017)	ND	(0.0018)	ND	(0.40)
chloromethane	ND	(0.0053)	ND	(0.0058)	ND	(1.3)
cis-1,3-Dichloropropene	ND	(0.0053)	ND	(0.0058)	ND	(1.3)
dibromochloromethane	ND	(0.0033)	ND	(0.0036)	ND	(0.78)
methylene chloride	ND	(0.0029)	ND	(0.0032)	ND	(0.70)
styrene	ND	(0.0032)	ND	(0.0035)	ND	(0.75)
tetrachloroethene	ND	(0.0043)	ND	(0.0047)	ND	(1.0)
total xylenes	ND	(0.0048)	ND	(0.0053)	32.0	(1.2)
trans-1,2-Dichloroethene	ND	(0.0017)	ND	(0.0018)	ND	(0.40)
trans-1,3-Dichloropropene	ND	(0.0053)	ND	(0.0058)	ND	(1.3)
trichlorofluoromethane	ND	(0.0053)	ND	(0.0058)	ND	(1.3)
vinyl acetate	ND	(0.0072)	ND	(0.0079)	ND	(1.7)
vinyl chloride	ND	(0.0053)	ND	(0.0058)	ND	(1.3)
Semivolatile Organic Compounds MG/KG						
1,2,4-trichlorobenzene	ND	(0.17)	ND	(0.18)	ND	(0.22)
1,2-dichlorobenzene	ND	(0.17)	ND	(0.18)	ND	(0.22)
1,3-dichlorobenzene	ND	(0.17)	ND	(0.18)	ND	(0.22)
1,4-dichlorobenzene	ND	(0.39)	ND	(0.41)	ND	(0.51)
2,4,5-trichlorophenol	ND	(0.89)	ND	(0.92)	ND	(1.2)
2,4,6-trichlorophenol	ND	(0.24)	ND	(0.25)	ND	(0.32)
2,4-dichlorophenol	ND	(0.24)	ND	(0.25)	ND	(0.32)
2,4-dimethylphenol	ND	(0.24)	ND	(0.25)	ND	(0.32)
2,4-dinitrophenol	ND	(3.8)	ND	(3.9)	ND	(4.9)
2,4-dinitrotoluene	ND	(0.51)	ND	(0.53)	ND	(0.67)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12E		12G		12H	
	12E-6		12G-4		12H-1	
	23-Feb-88		20-Feb-88		23-Feb-88	
PARAMETER	24 - 29		14 - 17		0 - 4	
2,6-dinitrotoluene	ND	(0.17)	ND	(0.18)	ND	(0.22)
2-chloronaphthalene	ND	(0.17)	ND	(0.18)	ND	(0.22)
2-chlorophenol	ND	(0.30)	ND	(0.30)	ND	(0.39)
2-methylnaphthalene	ND	(0.89)	ND	(0.92)	8.7	(1.2)
2-methylphenol	ND	(0.89)	ND	(0.92)	ND	(1.2)
2-nitroaniline	ND	(4.5)	ND	(4.6)	ND	(5.8)
2-nitrophenol	ND	(0.32)	ND	(0.33)	ND	(0.42)
3,3'-dichlorobenzidine	ND	(1.5)	ND	(1.5)	ND	(1.9)
3-nitroaniline	ND	(4.5)	ND	(4.6)	ND	(5.8)
4,6-dinitro-2-methylphenol	ND	(2.1)	ND	(2.2)	ND	(2.8)
4-bromophenyl-phenylether	ND	(0.17)	ND	(0.18)	ND	(0.22)
4-chloro-3-methylphenol	ND	(0.27)	ND	(0.28)	ND	(0.35)
4-chloroaniline	ND	(0.89)	ND	(0.92)	ND	(1.2)
4-chlorophenyl-phenylether	ND	(0.38)	ND	(0.39)	ND	(0.49)
4-methylphenol	ND	(0.89)	ND	(0.92)	4.2	(1.2)
4-nitroaniline	ND	(4.5)	ND	(4.6)	ND	(5.8)
4-nitrophenol	ND	(0.21)	ND	(0.22)	ND	(0.28)
acenaphthene	ND	(0.17)	ND	(0.18)	ND	(0.22)
acenaphthylene	ND	(0.31)	ND	(0.32)	ND	(0.41)
aniline	ND	(0.89)	ND	(0.92)	ND	(1.2)
anthracene	ND	(0.17)	ND	(0.18)	ND	(0.22)
benzidine	ND	(3.9)	ND	(4.1)	ND	(5.1)
benzo(a)anthracene	ND	(0.70)	ND	(0.72)	ND	(0.91)
benzo(a)pyrene	ND	(0.22)	ND	(0.23)	ND	(0.29)
benzo(b)fluoranthene	ND	(0.43)	ND	(0.44)	ND	(0.56)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12E		12G		12H	
	12E-6		12G-4		12H-1	
	23-Feb-88		20-Feb-88		23-Feb-88	
PARAMETER	24 - 29		14 - 17		0 - 4	
benzo(k)fluoranthene	ND	(0.22)	ND	(0.23)	ND	(0.29)
benzoic acid	ND	(4.5)	ND	(4.6)	ND	(5.8)
benzyl alcohol	ND	(4.5)	ND	(4.6)	ND	(5.8)
bis(2-chloroethoxy)methane	ND	(0.47)	ND	(0.49)	ND	(0.62)
bis(2-chloroethyl) ether	ND	(0.51)	ND	(0.53)	ND	(0.67)
bis(2-chloroisopropyl)ether	ND	(0.51)	ND	(0.53)	ND	(0.67)
bis(2-ethylhexyl)phthalate	0.094J	(0.22)	0.19J	(0.23)	0.53	(0.29)
butylbenzylphthalate	ND	(0.22)	ND	(0.23)	ND	(0.29)
chrysene	ND	(0.22)	ND	(0.23)	ND	(0.29)
di-n-butylphthalate	0.24B	(0.22)	0.31B	(0.23)	0.62B	(0.29)
di-n-octyl phthalate	0.092J	(0.22)	0.18J	(0.23)	0.15J	(0.29)
dibenzo(a,h)anthracene	ND	(0.22)	ND	(0.23)	ND	(0.29)
dibenzofuran	ND	(0.89)	ND	(0.92)	0.17J	(1.2)
diethylphthalate	ND	(0.17)	ND	(0.18)	ND	(0.22)
dimethyl phthalate	ND	(0.14)	ND	(0.15)	ND	(0.19)
fluoranthene	ND	(0.20)	ND	(0.20)	ND	(0.26)
fluorene	ND	(0.17)	ND	(0.18)	ND	(0.22)
hexachlorobenzene	ND	(0.17)	ND	(0.18)	ND	(0.22)
hexachlorobutadiene	ND	(0.080)	ND	(0.083)	ND	(0.11)
hexachlorocyclopentadiene	ND	(0.54)	ND	(0.55)	ND	(0.70)
hexachloroethane	ND	(0.14)	ND	(0.15)	ND	(0.19)
indeno(1,2,3-cd)pyrene	ND	(0.33)	ND	(0.34)	ND	(0.43)
isophorone	ND	(0.20)	ND	(0.20)	ND	(0.26)
n-nitroso-di-n-propylamine	ND	(1.1)	ND	(1.1)	ND	(1.4)
n-nitrosodimethylamine	ND	(0.89)	ND	(0.92)	ND	(1.2)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12E		12G		12H	
	12E-6		12G-4		12H-1	
	23-Feb-88		20-Feb-88		23-Feb-88	
PARAMETER	24 - 29		14 - 17		0 - 4	
n-nitrosodiphenylamine	ND	(0.17)	ND	(0.18)	ND	(0.22)
naphthalene	ND	(0.14)	ND	(0.15)	3.9	(0.19)
nitrobenzene	ND	(0.17)	ND	(0.18)	ND	(0.22)
pentachlorophenol	ND	(0.32)	ND	(0.33)	ND	(0.42)
phenanthrene	ND	(0.48)	ND	(0.50)	ND	(0.63)
phenol	ND	(0.13)	ND	(0.14)	0.50	(0.18)
pyrene	ND	(0.17)	ND	(0.18)	ND	(0.22)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well							
	Sample ID							
	Date Sampled							
	Beg. Depth - End Depth							
	12H		12H		12H		12H	
	12H-2		12H-2		12H-3		12H-4	
	23-Feb-88		23-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER	4 - 9		4 - 9		9 - 14		14 - 19	
Petroleum Hydrocarbons MG/KG								
Petroleum Hydrocarbons	2110.0		1200.0		450.0		340.0	
Volatile Organic Compounds MG/KG								
1,1,1-trichloroethane	ND	(0.95)	ND	(0.55)	ND	(0.56)	ND	(0.56)
1,1,2,2-tetrachloroethane	ND	(1.7)	ND	(1.0)	ND	(1.0)	ND	(1.0)
1,1,2-trichloroethane	ND	(1.3)	ND	(0.73)	ND	(0.74)	ND	(0.74)
1,2-dichloroethane	ND	(0.70)	ND	(0.41)	ND	(0.41)	ND	(0.41)
1,2-dichloropropane	ND	(1.5)	ND	(0.87)	ND	(0.88)	ND	(0.88)
2-butanone	4.3BJ	(6.3)	5.1B	(3.6)	8.0B	(3.7)	5.7B	(3.7)
2-chloroethylvinyl ether	ND	(1.3)	ND	(0.73)	ND	(0.74)	ND	(0.74)
2-hexanone	ND	(9.0)	ND	(5.2)	ND	(5.3)	ND	(5.3)
4-methyl-2-pentanone	ND	(12.0)	ND	(6.7)	ND	(6.8)	ND	(6.8)
Benzene	ND	(1.1)	ND	(0.64)	ND	(0.65)	ND	(0.65)
Ethylbenzene	4.8	(1.8)	3.6	(1.0)	1.1J	(1.1)	0.89J	(1.1)
Toluene	8.8	(1.5)	7.5	(0.87)	1.9	(0.88)	0.24J	(0.88)
Trichloroethene	ND	(0.48)	ND	(0.28)	ND	(0.28)	ND	(0.28)
acetone	4.0B	(1.9)	2.6B	(1.1)	2.5B	(1.1)	11.0B	(1.1)
bromodichloromethane	ND	(0.55)	ND	(0.32)	ND	(0.32)	ND	(0.32)
bromoform	ND	(1.2)	ND	(0.68)	ND	(0.69)	ND	(0.69)
bromomethane	ND	(1.3)	ND	(0.73)	ND	(0.74)	ND	(0.74)
carbon disulfide	ND	(0.43)	ND	(0.25)	ND	(0.25)	ND	(0.25)
carbon tetrachloride	ND	(0.70)	ND	(0.41)	ND	(0.41)	ND	(0.41)
chlorobenzene	ND	(1.5)	ND	(0.87)	ND	(0.88)	ND	(0.88)
chloroethane	ND	(1.3)	ND	(0.73)	ND	(0.74)	ND	(0.74)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well							
	Sample ID							
	Date Sampled							
	Beg. Depth - End Depth							
	12H		12H		12H		12H	
	12H-2		12H-2		12H-3		12H-4	
	23-Feb-88		23-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER	4 - 9		4 - 9		9 - 14		14 - 19	
chloroform	ND	(0.40)	ND	(0.23)	ND	(0.24)	ND	(0.24)
chloromethane	ND	(1.3)	ND	(0.73)	ND	(0.74)	ND	(0.74)
cis-1,3-Dichloropropene	ND	(1.3)	ND	(0.73)	ND	(0.74)	ND	(0.74)
dibromochloromethane	ND	(0.78)	ND	(0.45)	ND	(0.46)	ND	(0.46)
methylene chloride	ND	(0.70)	ND	(0.41)	ND	(0.41)	ND	(0.41)
styrene	ND	(0.75)	ND	(0.44)	ND	(0.44)	ND	(0.44)
tetrachloroethene	ND	(1.0)	ND	(0.59)	ND	(0.60)	ND	(0.60)
total xylenes	31.0	(1.2)	23.0	(0.67)	6.4	(0.68)	4.0	(0.68)
trans-1,2-Dichloroethene	ND	(0.40)	ND	(0.23)	ND	(0.24)	ND	(0.24)
trans-1,3-Dichloropropene	ND	(1.3)	ND	(0.73)	ND	(0.74)	ND	(0.74)
trichlorofluoromethane	ND	(1.3)	ND	(0.73)	ND	(0.74)	ND	(0.74)
vinyl acetate	ND	(1.7)	ND	(1.0)	ND	(1.0)	ND	(1.0)
vinyl chloride	ND	(1.3)	ND	(0.73)	ND	(0.74)	ND	(0.74)
Semivolatile Organic Compounds MG/KG								
1,2,4-trichlorobenzene	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
1,2-dichlorobenzene	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
1,3-dichlorobenzene	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
1,4-dichlorobenzene	ND	(0.40)	ND	(0.40)	ND	(0.39)	ND	(0.40)
2,4,5-trichlorophenol	ND	(0.92)	ND	(0.91)	ND	(0.89)	ND	(0.92)
2,4,6-trichlorophenol	ND	(0.25)	ND	(0.25)	ND	(0.24)	ND	(0.25)
2,4-dichlorophenol	ND	(0.25)	ND	(0.25)	ND	(0.24)	ND	(0.25)
2,4-dimethylphenol	ND	(0.25)	ND	(0.25)	ND	(0.24)	ND	(0.25)
2,4-dinitrophenol	ND	(3.8)	ND	(3.8)	ND	(3.7)	ND	(3.9)
2,4-dinitrotoluene	ND	(0.52)	ND	(0.52)	ND	(0.51)	ND	(0.52)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well							
	Sample ID							
	Date Sampled							
	Beg. Depth - End Depth							
	12H		12H		12H		12H	
	12H-2		12H-2		12H-3		12H-4	
	23-Feb-88		23-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER	4 - 9		4 - 9		9 - 14		14 - 19	
2,6-dinitrotoluene	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
2-chloronaphthalene	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
2-chlorophenol	ND	(0.30)	ND	(0.30)	ND	(0.29)	ND	(0.30)
2-methylnaphthalene	4.0	(0.92)	4.8	(0.91)	0.66J	(0.89)	0.95	(0.92)
2-methylphenol	ND	(0.92)	ND	(0.91)	ND	(0.89)	ND	(0.92)
2-nitroaniline	ND	(4.6)	ND	(4.6)	ND	(4.4)	ND	(4.6)
2-nitrophenol	ND	(0.33)	ND	(0.33)	ND	(0.32)	ND	(0.33)
3,3'-dichlorobenzidine	ND	(1.5)	ND	(1.5)	ND	(1.5)	ND	(1.5)
3-nitroaniline	ND	(4.6)	ND	(4.6)	ND	(4.4)	ND	(4.6)
4,6-dinitro-2-methylphenol	ND	(2.2)	ND	(2.2)	ND	(2.1)	ND	(2.2)
4-bromophenyl-phenylether	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
4-chloro-3-methylphenol	ND	(0.27)	ND	(0.27)	ND	(0.27)	ND	(0.28)
4-chloroaniline	ND	(0.92)	ND	(0.91)	ND	(0.89)	ND	(0.92)
4-chlorophenyl-phenylether	ND	(0.38)	ND	(0.38)	ND	(0.37)	ND	(0.39)
4-methylphenol	0.54J	(0.92)	0.76J	(0.91)	ND	(0.89)	ND	(0.92)
4-nitroaniline	ND	(4.6)	ND	(4.6)	ND	(4.4)	ND	(4.6)
4-nitrophenol	ND	(0.22)	ND	(0.22)	ND	(0.21)	ND	(0.22)
acenaphthene	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
acenaphthylene	ND	(0.32)	ND	(0.32)	ND	(0.31)	ND	(0.32)
aniline	ND	(0.92)	ND	(0.91)	ND	(0.89)	ND	(0.92)
anthracene	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
benzidine	ND	(4.0)	ND	(4.0)	ND	(3.9)	ND	(4.0)
benzo(a)anthracene	ND	(0.71)	ND	(0.71)	ND	(0.69)	ND	(0.72)
benzo(a)pyrene	ND	(0.23)	ND	(0.23)	ND	(0.22)	ND	(0.23)
benzo(b)fluoranthene	ND	(0.44)	ND	(0.44)	ND	(0.43)	ND	(0.44)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well							
	Sample ID							
	Date Sampled							
	Beg. Depth - End Depth							
	12H		12H		12H		12H	
	12H-2		12H-2		12H-3		12H-4	
	23-Feb-88		23-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER	4 - 9		4 - 9		9 - 14		14 - 19	
benzo(k)fluoranthene	ND	(0.23)	ND	(0.23)	ND	(0.22)	ND	(0.23)
benzoic acid	ND	(4.6)	ND	(4.6)	ND	(4.4)	ND	(4.6)
benzyl alcohol	ND	(4.6)	ND	(4.6)	ND	(4.4)	ND	(4.6)
bis(2-chloroethoxy)methane	ND	(0.48)	ND	(0.48)	ND	(0.47)	ND	(0.49)
bis(2-chloroethyl) ether	ND	(0.52)	ND	(0.52)	ND	(0.51)	ND	(0.52)
bis(2-chloroisopropyl)ether	ND	(0.52)	ND	(0.52)	ND	(0.51)	ND	(0.52)
bis(2-ethylhexyl)phthalate	0.28	(0.23)	0.33	(0.23)	1.1B	(0.22)	1.4B	(0.23)
butylbenzylphthalate	ND	(0.23)	ND	(0.23)	ND	(0.22)	ND	(0.23)
chrysene	ND	(0.23)	ND	(0.23)	ND	(0.22)	ND	(0.23)
di-n-butylphthalate	0.28B	(0.23)	0.61B	(0.23)	ND	(0.22)	ND	(0.23)
di-n-octyl phthalate	0.10J	(0.23)	0.22J	(0.23)	0.14BJ	(0.22)	ND	(0.23)
dibenzo(a,h)anthracene	ND	(0.23)	ND	(0.23)	ND	(0.22)	ND	(0.23)
dibenzofuran	ND	(0.92)	ND	(0.91)	ND	(0.89)	ND	(0.92)
diethylphthalate	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
dimethyl phthalate	ND	(0.15)	ND	(0.15)	ND	(0.14)	ND	(0.15)
fluoranthene	ND	(0.20)	ND	(0.20)	ND	(0.20)	ND	(0.20)
fluorene	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
hexachlorobenzene	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
hexachlorobutadiene	ND	(0.082)	ND	(0.082)	ND	(0.080)	ND	(0.083)
hexachlorocyclopentadiene	ND	(0.55)	ND	(0.55)	ND	(0.53)	ND	(0.55)
hexachloroethane	ND	(0.15)	ND	(0.15)	ND	(0.14)	ND	(0.15)
indeno(1,2,3-cd)pyrene	ND	(0.34)	ND	(0.34)	ND	(0.33)	ND	(0.34)
isophorone	ND	(0.20)	ND	(0.20)	ND	(0.20)	ND	(0.20)
n-nitroso-di-n-propylamine	ND	(1.1)	ND	(1.1)	ND	(1.1)	ND	(1.1)
n-nitrosodimethylamine	ND	(0.92)	ND	(0.91)	ND	(0.89)	ND	(0.92)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well							
	Sample ID							
	Date Sampled							
	Beg. Depth - End Depth							
	12H		12H		12H		12H	
	12H-2		12H-2		12H-3		12H-4	
	23-Feb-88		23-Feb-88		23-Feb-88		23-Feb-88	
PARAMETER	4 - 9		4 - 9		9 - 14		14 - 19	
n-nitrosodiphenylamine	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
naphthalene	2.1	(0.15)	2.7	(0.15)	0.31	(0.14)	0.37	(0.15)
nitrobenzene	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)
pentachlorophenol	ND	(0.33)	ND	(0.33)	ND	(0.32)	ND	(0.33)
phenanthrene	ND	(0.49)	ND	(0.49)	ND	(0.48)	ND	(0.50)
phenol	0.33	(0.14)	0.36	(0.14)	ND	(0.13)	ND	(0.14)
pyrene	ND	(0.17)	ND	(0.17)	ND	(0.17)	ND	(0.17)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	Monitor Well Sample ID Date Sampled Beg. Depth - End Depth 12H 12H-5 23-Feb-88 19 - 25		12I 12I-2 23-Feb-88 4 - 9		12I 12I-3 24-Feb-88 9 - 14	
Petroleum Hydrocarbons MG/KG						
Petroleum Hydrocarbons	5760.0		670.0^		450.0	
Volatile Organic Compounds MG/KG						
1,1,1-trichloroethane	ND	(2.4)	ND	(0.55)	ND	(0.55)
1,1,2,2-tetrachloroethane	1.3J	(4.3)	ND	(1.0)	ND	(0.99)
1,1,2-trichloroethane	ND	(3.1)	ND	(0.73)	ND	(0.72)
1,2-dichloroethane	ND	(1.8)	ND	(0.41)	ND	(0.40)
1,2-dichloropropane	ND	(3.8)	ND	(0.87)	ND	(0.86)
2-butanone	ND	(16.0)	5.0B	(3.6)	6.0B	(3.6)
2-chloroethylvinyl ether	ND	(3.1)	ND	(0.73)	ND	(0.72)
2-hexanone	ND	(23.0)	ND	(5.2)	ND	(5.2)
4-methyl-2-pentanone	ND	(29.0)	ND	(6.7)	ND	(6.6)
Benzene	ND	(2.8)	ND	(0.64)	0.54J	(0.63)
Ethylbenzene	5.0	(4.5)	1.3	(1.0)	5.6	(1.0)
Toluene	3.7J	(3.8)	1.7	(0.87)	2.2	(0.86)
Trichloroethene	ND	(1.2)	ND	(0.28)	ND	(0.27)
acetone	0.87BJ	(4.7)	8.2B	(1.1)	5.4B	(1.1)
bromodichloromethane	ND	(1.4)	ND	(0.32)	ND	(0.32)
bromoform	ND	(2.9)	ND	(0.68)	ND	(0.68)
bromomethane	ND	(3.1)	ND	(0.73)	ND	(0.72)
carbon disulfide	ND	(1.1)	ND	(0.25)	ND	(0.24)
carbon tetrachloride	ND	(1.8)	ND	(0.41)	ND	(0.40)
chlorobenzene	ND	(3.8)	ND	(0.87)	ND	(0.86)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

^: Indicates duplicate analysis is not within control limits.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12H		12I		12I	
	12H-5		12I-2		12I-3	
	23-Feb-88		23-Feb-88		24-Feb-88	
PARAMETER	19 - 25		4 - 9		9 - 14	
chloroethane	ND	(3.1)	ND	(0.73)	ND	(0.72)
chloroform	ND	(1.0)	ND	(0.23)	ND	(0.23)
chloromethane	ND	(3.1)	ND	(0.73)	ND	(0.72)
cis-1,3-Dichloropropene	ND	(3.1)	ND	(0.73)	ND	(0.72)
dibromochloromethane	ND	(1.9)	ND	(0.45)	ND	(0.45)
methylene chloride	ND	(1.8)	ND	(0.41)	ND	(0.40)
styrene	ND	(1.9)	ND	(0.44)	ND	(0.43)
tetrachloroethene	ND	(2.6)	ND	(0.59)	ND	(0.59)
total xylenes	32.0	(2.9)	8.6	(0.67)	35.0	(0.66)
trans-1,2-Dichloroethene	ND	(1.0)	ND	(0.23)	ND	(0.23)
trans-1,3-Dichloropropene	ND	(3.1)	ND	(0.73)	ND	(0.72)
trichlorofluoromethane	ND	(3.1)	ND	(0.73)	ND	(0.72)
vinyl acetate	ND	(4.3)	ND	(1.0)	ND	(0.99)
vinyl chloride	ND	(3.1)	ND	(0.73)	ND	(0.72)
Semivolatile Organic Compounds MG/KG						
1,2,4-trichlorobenzene	ND	(1.4)	ND	(0.15)	ND	(0.15)
1,2-dichlorobenzene	ND	(1.4)	ND	(0.15)	ND	(0.15)
1,3-dichlorobenzene	ND	(1.4)	ND	(0.15)	ND	(0.15)
1,4-dichlorobenzene	ND	(3.3)	ND	(0.35)	ND	(0.35)
2,4,5-trichlorophenol	ND	(7.6)	ND	(0.80)	ND	(0.79)
2,4,6-trichlorophenol	ND	(2.0)	ND	(0.22)	ND	(0.21)
2,4-dichlorophenol	ND	(2.0)	ND	(0.22)	ND	(0.21)
2,4-dimethylphenol	ND	(2.0)	ND	(0.22)	ND	(0.21)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

^: Indicates duplicate analysis is not within control limits.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12H		12I		12I	
	12H-5		12I-2		12I-3	
	23-Feb-88		23-Feb-88		24-Feb-88	
PARAMETER	19 - 25		4 - 9		9 - 14	
2,4-dinitrophenol	ND	(32.0)	ND	(3.4)	ND	(3.3)
2,4-dinitrotoluene	ND	(4.3)	ND	(0.45)	ND	(0.45)
2,6-dinitrotoluene	ND	(1.4)	ND	(0.15)	ND	(0.15)
2-chloronaphthalene	ND	(1.4)	ND	(0.15)	ND	(0.15)
2-chlorophenol	ND	(2.5)	ND	(0.26)	ND	(0.26)
2-methylnaphthalene	11.0	(7.6)	2.0	(0.80)	2.0	(0.79)
2-methylphenol	ND	(7.6)	ND	(0.80)	ND	(0.79)
2-nitroaniline	ND	(38.0)	ND	(4.0)	ND	(3.9)
2-nitrophenol	ND	(2.7)	ND	(0.29)	ND	(0.28)
3,3'-dichlorobenzidine	ND	(12.0)	ND	(1.3)	ND	(1.3)
3-nitroaniline	ND	(38.0)	ND	(4.0)	ND	(3.9)
4,6-dinitro-2-methylphenol	ND	(18.0)	ND	(1.9)	ND	(1.9)
4-bromophenyl-phenylether	ND	(1.4)	ND	(0.15)	ND	(0.15)
4-chloro-3-methylphenol	ND	(2.3)	ND	(0.24)	ND	(0.24)
4-chloroaniline	ND	(7.6)	ND	(0.80)	ND	(0.79)
4-chlorophenyl-phenylether	ND	(3.2)	ND	(0.34)	ND	(0.33)
4-methylphenol	ND	(7.6)	1.4	(0.80)	0.26J	(0.79)
4-nitroaniline	ND	(38.0)	ND	(4.0)	ND	(3.9)
4-nitrophenol	ND	(1.8)	ND	(0.19)	ND	(0.19)
acenaphthene	ND	(1.4)	ND	(0.15)	ND	(0.15)
acenaphthylene	ND	(2.6)	ND	(0.28)	ND	(0.27)
aniline	ND	(7.6)	ND	(0.80)	ND	(0.79)
anthracene	ND	(1.4)	ND	(0.15)	ND	(0.15)
benzidine	ND	(33.0)	ND	(3.5)	ND	(3.5)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

^: Indicates duplicate analysis is not within control limits.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12H		12I		12I	
	12H-5		12I-2		12I-3	
	23-Feb-88		23-Feb-88		24-Feb-88	
PARAMETER	19 - 25		4 - 9		9 - 14	
benzo(a)anthracene	ND	(5.9)	ND	(0.62)	ND	(0.61)
benzo(a)pyrene	ND	(1.9)	ND	(0.20)	ND	(0.20)
benzo(b)fluoranthene	ND	(3.6)	ND	(0.38)	ND	(0.38)
benzo(k)fluoranthene	ND	(1.9)	ND	(0.20)	ND	(0.20)
benzoic acid	ND	(38.0)	ND	(4.0)	ND	(3.9)
benzyl alcohol	ND	(38.0)	ND	(4.0)	ND	(3.9)
bis(2-chloroethoxy)methane	ND	(4.0)	ND	(0.42)	ND	(0.42)
bis(2-chloroethyl) ether	ND	(4.3)	ND	(0.45)	ND	(0.45)
bis(2-chloroisopropyl)ether	ND	(4.3)	ND	(0.45)	ND	(0.45)
bis(2-ethylhexyl)phthalate	12.0B	(1.9)	1.4B	(0.20)	0.58B	(0.20)
butylbenzylphthalate	ND	(1.9)	ND	(0.20)	ND	(0.20)
chrysene	ND	(1.9)	ND	(0.20)	ND	(0.20)
di-n-butylphthalate	ND	(1.9)	ND	(0.20)	ND	(0.20)
di-n-octyl phthalate	ND	(1.9)	0.21	(0.20)	0.47	(0.20)
dibenzo(a,h)anthracene	ND	(1.9)	ND	(0.20)	ND	(0.20)
dibenzofuran	ND	(7.6)	ND	(0.80)	ND	(0.79)
diethylphthalate	ND	(1.4)	ND	(0.15)	ND	(0.15)
dimethyl phthalate	ND	(1.2)	ND	(0.13)	ND	(0.13)
fluoranthene	ND	(1.7)	ND	(0.18)	ND	(0.17)
fluorene	ND	(1.4)	ND	(0.15)	ND	(0.15)
hexachlorobenzene	ND	(1.4)	ND	(0.15)	ND	(0.15)
hexachlorobutadiene	ND	(0.68)	ND	(0.072)	ND	(0.071)
hexachlorocyclopentadiene	ND	(4.5)	ND	(0.48)	ND	(0.47)
hexachloroethane	ND	(1.2)	ND	(0.13)	ND	(0.13)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

^: Indicates duplicate analysis is not within control limits.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12H		12I		12I	
	12H-5		12I-2		12I-3	
	23-Feb-88		23-Feb-88		24-Feb-88	
PARAMETER	19 - 25		4 - 9		9 - 14	
indeno(1,2,3-cd)pyrene	ND	(2.8)	ND	(0.30)	ND	(0.29)
isophorone	ND	(1.7)	ND	(0.18)	ND	(0.17)
n-nitroso-di-n-propylamine	ND	(9.1)	ND	(0.96)	ND	(0.94)
n-nitrosodimethylamine	ND	(7.6)	ND	(0.80)	ND	(0.79)
n-nitrosodiphenylamine	ND	(1.4)	ND	(0.15)	ND	(0.15)
naphthalene	4.7	(1.2)	0.95	(0.13)	0.94	(0.13)
nitrobenzene	ND	(1.4)	ND	(0.15)	ND	(0.15)
pentachlorophenol	ND	(2.7)	ND	(0.29)	ND	(0.28)
phenanthrene	ND	(4.1)	ND	(0.43)	ND	(0.42)
phenol	ND	(1.1)	ND	(0.12)	ND	(0.12)
pyrene	ND	(1.4)	ND	(0.15)	ND	(0.15)

B: Detected in Reagent Blank; background subtraction not performed

BJ: Analyte detected in blank. Estimated value below detection limit.

J: Estimated value (GC test codes)

^: Indicates duplicate analysis is not within control limits.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12I		12J		12J	
	12I-5		12J-2		12J-2	
	24-Feb-88		24-Feb-88		24-Feb-88	
PARAMETER	19 - 24		4 - 9		4 - 9	
Petroleum Hydrocarbons MG/KG						
Petroleum Hydrocarbons	1250.0		ND	(5.0)	ND	(5.0)
Volatile Organic Compounds MG/KG						
1,1,1-trichloroethane	ND	(0.0039)	ND	(0.0045)	ND	(0.0044)
1,1,2,2-tetrachloroethane	ND	(0.0070)	ND	(0.0081)	ND	(0.0080)
1,1,2-trichloroethane	ND	(0.0051)	ND	(0.0059)	ND	(0.0058)
1,2-dichloroethane	ND	(0.0029)	ND	(0.0033)	ND	(0.0032)
1,2-dichloropropane	ND	(0.0061)	ND	(0.0071)	ND	(0.0070)
2-butanone	ND	(0.026)	ND	(0.030)	ND	(0.029)
2-chloroethylvinyl ether	ND	(0.0051)	ND	(0.0059)	ND	(0.0058)
2-hexanone	ND	(0.037)	ND	(0.042)	ND	(0.042)
4-methyl-2-pentanone	ND	(0.047)	0.023J	(0.054)	ND	(0.053)
Benzene	ND	(0.0045)	ND	(0.0052)	ND	(0.0051)
Ethylbenzene	ND	(0.0073)	ND	(0.0085)	ND	(0.0084)
Toluene	0.016	(0.0061)	0.0062J	(0.0071)	0.013	(0.0070)
Trichloroethene	ND	(0.0019)	ND	(0.0022)	ND	(0.0022)
acetone	0.057B	(0.0077)	ND	(0.0089)	0.035B	(0.0087)
bromodichloromethane	ND	(0.0022)	ND	(0.0026)	ND	(0.0026)
bromoform	ND	(0.0048)	ND	(0.0055)	ND	(0.0055)
bromomethane	ND	(0.0051)	ND	(0.0059)	ND	(0.0058)
carbon disulfide	ND	(0.0017)	ND	(0.0020)	ND	(0.0020)
carbon tetrachloride	ND	(0.0029)	ND	(0.0033)	ND	(0.0032)
chlorobenzene	ND	(0.0061)	ND	(0.0071)	ND	(0.0070)
chloroethane	ND	(0.0051)	ND	(0.0059)	ND	(0.0058)
chloroform	ND	(0.0016)	ND	(0.0019)	ND	(0.0019)

B: Detected in Reagent Blank; background subtraction not performed

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12I		12J		12J	
	12I-5		12J-2		12J-2	
	24-Feb-88		24-Feb-88		24-Feb-88	
PARAMETER	19 - 24		4 - 9		4 - 9	
chloromethane	ND	(0.0051)	ND	(0.0059)	ND	(0.0058)
cis-1,3-Dichloropropene	ND	(0.0051)	ND	(0.0059)	ND	(0.0058)
dibromochloromethane	ND	(0.0032)	ND	(0.0037)	ND	(0.0036)
methylene chloride	0.0050	(0.0029)	0.12	(0.0033)	0.018	(0.0032)
styrene	ND	(0.0031)	ND	(0.0035)	ND	(0.0035)
tetrachloroethene	ND	(0.0042)	ND	(0.0048)	ND	(0.0048)
total xylenes	0.0063	(0.0047)	ND	(0.0054)	ND	(0.0053)
trans-1,2-Dichloroethene	ND	(0.0016)	ND	(0.0019)	ND	(0.0019)
trans-1,3-Dichloropropene	ND	(0.0051)	ND	(0.0059)	ND	(0.0058)
trichlorofluoromethane	ND	(0.0051)	ND	(0.0059)	ND	(0.0058)
vinyl acetate	ND	(0.0070)	ND	(0.0081)	ND	(0.0080)
vinyl chloride	ND	(0.0051)	ND	(0.0059)	ND	(0.0058)
Semivolatile Organic Compounds MG/KG						
1,2,4-trichlorobenzene	ND	(0.13)	ND	(0.15)	ND	(0.15)
1,2-dichlorobenzene	ND	(0.13)	ND	(0.15)	ND	(0.15)
1,3-dichlorobenzene	ND	(0.13)	ND	(0.15)	ND	(0.15)
1,4-dichlorobenzene	ND	(0.30)	ND	(0.35)	ND	(0.34)
2,4,5-trichlorophenol	ND	(0.69)	ND	(0.79)	ND	(0.77)
2,4,6-trichlorophenol	ND	(0.19)	ND	(0.21)	ND	(0.21)
2,4-dichlorophenol	ND	(0.19)	ND	(0.21)	ND	(0.21)
2,4-dimethylphenol	ND	(0.19)	ND	(0.21)	ND	(0.21)
2,4-dinitrophenol	ND	(2.9)	ND	(3.3)	ND	(3.2)
2,4-dinitrotoluene	ND	(0.39)	ND	(0.45)	ND	(0.44)
2,6-dinitrotoluene	ND	(0.13)	ND	(0.15)	ND	(0.15)
2-chloronaphthalene	ND	(0.13)	ND	(0.15)	ND	(0.15)

B: Detected in Reagent Blank; background subtraction not performed

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	Monitor Well Sample ID Date Sampled Beg. Depth - End Depth 12I 12I-5 24-Feb-88 19 - 24		12J 12J-2 24-Feb-88 4 - 9		12J 12J-2 24-Feb-88 4 - 9	
2-chlorophenol	ND	(0.23)	ND	(0.26)	ND	(0.25)
2-methylnaphthalene	0.84	(0.69)	ND	(0.79)	ND	(0.77)
2-methylphenol	ND	(0.69)	ND	(0.79)	ND	(0.77)
2-nitroaniline	ND	(3.4)	ND	(3.9)	ND	(3.9)
2-nitrophenol	ND	(0.25)	ND	(0.28)	ND	(0.28)
3,3'-dichlorobenzidine	ND	(1.1)	ND	(1.3)	ND	(1.3)
3-nitroaniline	ND	(3.4)	ND	(3.9)	ND	(3.9)
4,6-dinitro-2-methylphenol	ND	(1.6)	ND	(1.9)	ND	(1.8)
4-bromophenyl-phenylether	ND	(0.13)	ND	(0.15)	ND	(0.15)
4-chloro-3-methylphenol	ND	(0.21)	ND	(0.24)	ND	(0.23)
4-chloroaniline	ND	(0.69)	ND	(0.79)	ND	(0.77)
4-chlorophenyl-phenylether	ND	(0.29)	ND	(0.33)	ND	(0.32)
4-methylphenol	0.16J	(0.69)	ND	(0.79)	ND	(0.77)
4-nitroaniline	ND	(3.4)	ND	(3.9)	ND	(3.9)
4-nitrophenol	ND	(0.16)	ND	(0.19)	ND	(0.18)
acenaphthene	ND	(0.13)	ND	(0.15)	ND	(0.15)
acenaphthylene	ND	(0.24)	ND	(0.27)	ND	(0.27)
aniline	ND	(0.69)	ND	(0.79)	ND	(0.77)
anthracene	ND	(0.13)	ND	(0.15)	ND	(0.15)
benzidine	ND	(3.0)	ND	(3.5)	ND	(3.4)
benzo(a)anthracene	ND	(0.54)	ND	(0.61)	ND	(0.60)
benzo(a)pyrene	ND	(0.17)	ND	(0.20)	ND	(0.19)
benzo(b)fluoranthene	ND	(0.33)	ND	(0.38)	ND	(0.37)
benzo(k)fluoranthene	ND	(0.17)	ND	(0.20)	ND	(0.19)
benzoic acid	ND	(3.4)	ND	(3.9)	ND	(3.9)
benzyl alcohol	ND	(3.4)	ND	(3.9)	ND	(3.9)

B: Detected in Reagent Blank; background subtraction not performed

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12I		12J		12J	
	12I-5		12J-2		12J-2	
	24-Feb-88		24-Feb-88		24-Feb-88	
PARAMETER	19 - 24		4 - 9		4 - 9	
bis(2-chloroethoxy)methane	ND	(0.36)	ND	(0.42)	ND	(0.41)
bis(2-chloroethyl) ether	ND	(0.39)	ND	(0.45)	ND	(0.44)
bis(2-chloroisopropyl)ether	ND	(0.39)	ND	(0.45)	ND	(0.44)
bis(2-ethylhexyl)phthalate	0.86B	(0.17)	ND	(0.20)	ND	(0.19)
butylbenzylphthalate	ND	(0.17)	ND	(0.20)	ND	(0.19)
chrysene	ND	(0.17)	ND	(0.20)	ND	(0.19)
di-n-butylphthalate	ND	(0.17)	ND	(0.20)	ND	(0.19)
di-n-octyl phthalate	0.095J	(0.17)	ND	(0.20)	ND	(0.19)
dibenzo(a,h)anthracene	ND	(0.17)	ND	(0.20)	ND	(0.19)
dibenzofuran	ND	(0.69)	ND	(0.79)	ND	(0.77)
diethylphthalate	ND	(0.13)	ND	(0.15)	ND	(0.15)
dimethyl phthalate	ND	(0.11)	ND	(0.13)	ND	(0.12)
fluoranthene	ND	(0.15)	ND	(0.17)	ND	(0.17)
fluorene	ND	(0.13)	ND	(0.15)	ND	(0.15)
hexachlorobenzene	ND	(0.13)	ND	(0.15)	ND	(0.15)
hexachlorobutadiene	ND	(0.062)	ND	(0.071)	ND	(0.069)
hexachlorocyclopentadiene	ND	(0.41)	ND	(0.47)	ND	(0.46)
hexachloroethane	ND	(0.11)	ND	(0.13)	ND	(0.12)
indeno(1,2,3-cd)pyrene	ND	(0.25)	ND	(0.29)	ND	(0.28)
isophorone	ND	(0.15)	ND	(0.17)	ND	(0.17)
n-nitroso-di-n-propylamine	ND	(0.82)	ND	(0.94)	ND	(0.92)
n-nitrosodimethylamine	ND	(0.69)	ND	(0.79)	ND	(0.77)
n-nitrosodiphenylamine	ND	(0.13)	ND	(0.15)	ND	(0.15)
naphthalene	0.28	(0.11)	ND	(0.13)	ND	(0.12)
nitrobenzene	ND	(0.13)	ND	(0.15)	ND	(0.15)
pentachlorophenol	ND	(0.25)	ND	(0.28)	ND	(0.28)

B: Detected in Reagent Blank; background subtraction not performed

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12I		12J		12J	
	12I-5		12J-2		12J-2	
	24-Feb-88		24-Feb-88		24-Feb-88	
PARAMETER	19 - 24		4 - 9		4 - 9	
phenanthrene	ND	(0.37)	ND	(0.42)	ND	(0.42)
phenol	ND	(0.10)	ND	(0.12)	ND	(0.12)
pyrene	ND	(0.13)	ND	(0.15)	ND	(0.15)

B: Detected in Reagent Blank; background subtraction not performed

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12J		12J		12K	
	12J-3		12J-5		12K-5	
	24-Feb-88		24-Feb-88		20-Feb-88	
PARAMETER	9 - 14		19 - 23		20 - 25	
Petroleum Hydrocarbons MG/KG						
Petroleum Hydrocarbons	ND	(6.0)	17.0		14.0	
Volatile Organic Compounds MG/KG						
1,1,1-trichloroethane	ND	(0.0045)	ND	(0.0039)	ND	(0.0040)
1,1,2,2-tetrachloroethane	ND	(0.0081)	ND	(0.0070)	ND	(0.0072)
1,1,2-trichloroethane	ND	(0.0059)	ND	(0.0051)	ND	(0.0053)
1,2-dichloroethane	ND	(0.0033)	ND	(0.0029)	ND	(0.0029)
1,2-dichloropropane	ND	(0.0071)	ND	(0.0061)	ND	(0.0063)
2-butanone	ND	(0.030)	ND	(0.026)	0.034	(0.026)
2-chloroethylvinyl ether	ND	(0.0059)	ND	(0.0051)	ND	(0.0053)
2-hexanone	ND	(0.042)	ND	(0.037)	ND	(0.038)
4-methyl-2-pentanone	ND	(0.054)	ND	(0.047)	ND	(0.048)
Benzene	ND	(0.0052)	ND	(0.0045)	ND	(0.0046)
Ethylbenzene	ND	(0.0085)	ND	(0.0073)	ND	(0.0076)
Toluene	ND	(0.0071)	0.0064	(0.0061)	0.0011J	(0.0063)
Trichloroethene	ND	(0.0022)	ND	(0.0019)	ND	(0.0020)
acetone	0.016B	(0.0089)	0.014B	(0.0077)	0.013B	(0.0079)
bromodichloromethane	ND	(0.0026)	ND	(0.0022)	ND	(0.0023)
bromoform	ND	(0.0055)	ND	(0.0048)	ND	(0.0049)
bromomethane	ND	(0.0059)	ND	(0.0051)	ND	(0.0053)
carbon disulfide	ND	(0.0020)	ND	(0.0017)	ND	(0.0018)
carbon tetrachloride	ND	(0.0033)	ND	(0.0029)	ND	(0.0029)
chlorobenzene	ND	(0.0071)	ND	(0.0061)	ND	(0.0063)
chloroethane	ND	(0.0059)	ND	(0.0051)	ND	(0.0053)
chloroform	ND	(0.0019)	ND	(0.0016)	ND	(0.0017)

B: Detected in Reagent Blank; background subtraction not performed

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12J		12J		12K	
	12J-3		12J-5		12K-5	
	24-Feb-88		24-Feb-88		20-Feb-88	
PARAMETER	9 - 14		19 - 23		20 - 25	
chloromethane	ND	(0.0059)	ND	(0.0051)	ND	(0.0053)
cis-1,3-Dichloropropene	ND	(0.0059)	ND	(0.0051)	ND	(0.0053)
dibromochloromethane	ND	(0.0037)	ND	(0.0032)	ND	(0.0033)
methylene chloride	0.0039	(0.0033)	0.0062	(0.0029)	ND	(0.0029)
styrene	ND	(0.0035)	ND	(0.0031)	ND	(0.0032)
tetrachloroethene	ND	(0.0048)	ND	(0.0042)	ND	(0.0043)
total xylenes	ND	(0.0054)	ND	(0.0047)	ND	(0.0048)
trans-1,2-Dichloroethene	ND	(0.0019)	ND	(0.0016)	ND	(0.0017)
trans-1,3-Dichloropropene	ND	(0.0059)	ND	(0.0051)	ND	(0.0053)
trichlorofluoromethane	ND	(0.0059)	ND	(0.0051)	ND	(0.0053)
vinyl acetate	ND	(0.0081)	ND	(0.0070)	ND	(0.0072)
vinyl chloride	ND	(0.0059)	ND	(0.0051)	ND	(0.0053)
Semivolatile Organic Compounds MG/KG						
1,2,4-trichlorobenzene	ND	(0.15)	ND	(0.13)	ND	(0.15)
1,2-dichlorobenzene	ND	(0.15)	ND	(0.13)	ND	(0.15)
1,3-dichlorobenzene	ND	(0.15)	ND	(0.13)	ND	(0.15)
1,4-dichlorobenzene	ND	(0.35)	ND	(0.30)	ND	(0.35)
2,4,5-trichlorophenol	ND	(0.80)	ND	(0.69)	ND	(0.79)
2,4,6-trichlorophenol	ND	(0.22)	ND	(0.19)	ND	(0.21)
2,4-dichlorophenol	ND	(0.22)	ND	(0.19)	ND	(0.21)
2,4-dimethylphenol	ND	(0.22)	ND	(0.19)	ND	(0.21)
2,4-dinitrophenol	ND	(3.4)	ND	(2.9)	ND	(3.3)
2,4-dinitrotoluene	ND	(0.46)	ND	(0.39)	ND	(0.45)
2,6-dinitrotoluene	ND	(0.15)	ND	(0.13)	ND	(0.15)
2-chloronaphthalene	ND	(0.15)	ND	(0.13)	ND	(0.15)

B: Detected in Reagent Blank; background subtraction not performed

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12J		12J		12K	
	12J-3		12J-5		12K-5	
	24-Feb-88		24-Feb-88		20-Feb-88	
PARAMETER	9 - 14		19 - 23		20 - 25	
2-chlorophenol	ND	(0.26)	ND	(0.23)	ND	(0.26)
2-methylnaphthalene	ND	(0.80)	ND	(0.69)	ND	(0.79)
2-methylphenol	ND	(0.80)	ND	(0.69)	ND	(0.79)
2-nitroaniline	ND	(4.0)	ND	(3.5)	ND	(3.9)
2-nitrophenol	ND	(0.29)	ND	(0.25)	ND	(0.28)
3,3'-dichlorobenzidine	ND	(1.3)	ND	(1.1)	ND	(1.3)
3-nitroaniline	ND	(4.0)	ND	(3.5)	ND	(3.9)
4,6-dinitro-2-methylphenol	ND	(1.9)	ND	(1.7)	ND	(1.9)
4-bromophenyl-phenylether	ND	(0.15)	ND	(0.13)	ND	(0.15)
4-chloro-3-methylphenol	ND	(0.24)	ND	(0.21)	ND	(0.24)
4-chloroaniline	ND	(0.80)	ND	(0.69)	ND	(0.79)
4-chlorophenyl-phenylether	ND	(0.34)	ND	(0.29)	ND	(0.33)
4-methylphenol	ND	(0.80)	ND	(0.69)	ND	(0.79)
4-nitroaniline	ND	(4.0)	ND	(3.5)	ND	(3.9)
4-nitrophenol	ND	(0.19)	ND	(0.17)	ND	(0.19)
acenaphthene	ND	(0.15)	ND	(0.13)	ND	(0.15)
acenaphthylene	ND	(0.28)	ND	(0.24)	ND	(0.28)
aniline	ND	(0.80)	ND	(0.69)	ND	(0.79)
anthracene	ND	(0.15)	ND	(0.13)	ND	(0.15)
benzidine	ND	(3.5)	ND	(3.0)	ND	(3.5)
benzo(a)anthracene	ND	(0.62)	ND	(0.54)	ND	(0.61)
benzo(a)pyrene	ND	(0.20)	ND	(0.17)	ND	(0.20)
benzo(b)fluoranthene	ND	(0.38)	ND	(0.33)	ND	(0.38)
benzo(k)fluoranthene	ND	(0.20)	ND	(0.17)	ND	(0.20)
benzoic acid	ND	(4.0)	ND	(3.5)	ND	(3.9)
benzyl alcohol	ND	(4.0)	ND	(3.5)	ND	(3.9)

B: Detected in Reagent Blank; background subtraction not performed

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12J		12J		12K	
	12J-3		12J-5		12K-5	
	24-Feb-88		24-Feb-88		20-Feb-88	
PARAMETER	9 - 14		19 - 23		20 - 25	
bis(2-chloroethoxy)methane	ND	(0.42)	ND	(0.37)	ND	(0.42)
bis(2-chloroethyl) ether	ND	(0.46)	ND	(0.39)	ND	(0.45)
bis(2-chloroisopropyl)ether	ND	(0.46)	ND	(0.39)	ND	(0.45)
bis(2-ethylhexyl)phthalate	ND	(0.20)	0.32B	(0.17)	0.12J	(0.20)
butylbenzylphthalate	ND	(0.20)	ND	(0.17)	ND	(0.20)
chrysene	ND	(0.20)	ND	(0.17)	ND	(0.20)
di-n-butylphthalate	ND	(0.20)	ND	(0.17)	ND	(0.20)
di-n-octyl phthalate	ND	(0.20)	ND	(0.17)	ND	(0.20)
dibenzo(a,h)anthracene	ND	(0.20)	ND	(0.17)	ND	(0.20)
dibenzofuran	ND	(0.80)	ND	(0.69)	ND	(0.79)
diethylphthalate	ND	(0.15)	ND	(0.13)	ND	(0.15)
dimethyl phthalate	ND	(0.13)	ND	(0.11)	ND	(0.13)
fluoranthene	ND	(0.18)	ND	(0.15)	ND	(0.17)
fluorene	ND	(0.15)	ND	(0.13)	ND	(0.15)
hexachlorobenzene	ND	(0.15)	ND	(0.13)	ND	(0.15)
hexachlorobutadiene	ND	(0.072)	ND	(0.062)	ND	(0.071)
hexachlorocyclopentadiene	ND	(0.48)	ND	(0.41)	ND	(0.47)
hexachloroethane	ND	(0.13)	ND	(0.11)	ND	(0.13)
indeno(1,2,3-cd)pyrene	ND	(0.30)	ND	(0.26)	ND	(0.29)
isophorone	ND	(0.18)	ND	(0.15)	ND	(0.17)
n-nitroso-di-n-propylamine	ND	(0.96)	ND	(0.83)	ND	(0.94)
n-nitrosodimethylamine	ND	(0.80)	ND	(0.69)	ND	(0.79)
n-nitrosodiphenylamine	ND	(0.15)	ND	(0.13)	ND	(0.15)
naphthalene	ND	(0.13)	ND	(0.11)	ND	(0.13)
nitrobenzene	ND	(0.15)	ND	(0.13)	ND	(0.15)
pentachlorophenol	ND	(0.29)	ND	(0.25)	ND	(0.28)

B: Detected in Reagent Blank; background subtraction not performed

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-2. RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

	Monitor Well					
	Sample ID					
	Date Sampled					
	Beg. Depth - End Depth					
	12J		12J		12K	
	12J-3		12J-5		12K-5	
	24-Feb-88		24-Feb-88		20-Feb-88	
PARAMETER	9 - 14		19 - 23		20 - 25	
phenanthrene	ND	(0.43)	ND	(0.37)	ND	(0.42)
phenol	ND	(0.12)	ND	(0.10)	ND	(0.12)
pyrene	ND	(0.15)	ND	(0.13)	ND	(0.15)

B: Detected in Reagent Blank; background subtraction not performed

J: Estimated value (GC test codes)

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-3. RESULTS OF INORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS

Primary Results

PARAMETER	EPA Standards, Criteria		Monitor Well Sample ID / Date Sampled: 12A 02-154 25-Feb-88		12A 04-04 06-Apr-88		12B 03-24 03-Mar-88		12B 03-25 03-Mar-88	
Total Dissolved Solids MG/L										
Total Dissolved Solids			380.0	(1.0)	430.0	(1.0)	450.0	(1.0)	510.0	(1.0)
Fluoride MG/L										
Fluoride	4.0(M)	2.0(G)	0.34		0.33		0.25		0.25	
Chloride MG/L										
Chloride	250.0(G)		15.0		4.4		6.0		6.0	
Nitrate MG/L										
Nitrate + Nitrite	10.0(M)		0.52				0.26		0.25	
Nitrate, colorimetric					0.46@					
Orthophosphate MG/L										
Orthophosphate			0.040	(0.020)	0.15	(0.020)	0.080	(0.020)	ND	(0.020)
Sulfate MG/L										
Sulfate, nephelometry	250.0(G)		29.0		30.0		26.0		28.0	
Metals MG/L										
Arsenic, graphite AA	0.050(M)		0.010^		0.039		0.044^		0.051	
Mercury	0.0020(M)		ND	(0.00012)	ND	(0.00012)	ND	(0.00012)	0.00010	(0.00012)
Lead, graphite AA	0.050(M)		0.0060				0.066^		0.048	
Selenium, graphite AA	0.010(M)		0.0040		ND	(0.0030)	ND	(0.0050)	ND	(0.0050)

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

@: Indicates that the analytical spike recovery for this analysis was not within acceptance limits indicating an interferent present.

B: Detected in Reagent Blank; background subtraction not performed

R: Indicates that the matrix spike recovery for this analysis was not within acceptance limits indicating an interferent present.

^: Indicates duplicate analysis is not within control limits.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-3. RESULTS OF INORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER		EPA Standards, Criteria	Monitor Well Sample ID Date Sampled 12A 02-154 25-Feb-88		12A 04-04 06-Apr-88		12B 03-24 03-Mar-88		12B 03-25 03-Mar-88	
Metal Screen (ICP) MG/L										
Ag	Silver		ND	(0.0090)	ND	(0.0090)	ND	(0.0090)	ND	(0.0090)
Al	Aluminum		16.0	(0.20)	63.0	(0.20)	100.0	(0.20)	130.0B	(0.20)
As	Arsenic	0.050(M)	ND	(0.30)	1.0	(0.015)	ND	(0.30)	NDR	(0.30)
B	Boron		ND	(0.60)	ND	(0.60)	ND	(0.60)	NDR	(0.60)
Ba	Barium	1.0(M)	0.14	(0.0090)	0.29	(0.0090)	0.46	(0.0090)	0.53	(0.0090)
Be	Beryllium		0.0010	(0.0010)	0.0030	(0.0010)	0.0020	(0.0010)	0.0030	(0.0010)
Ca	Calcium		220.0	(0.060)	620.0	(0.060)	1100.0	(0.12)	1200.0B	(0.12)
Cd	Cadmium	0.010(M)	0.0030	(0.0030)	0.0040	(0.0030)	0.0070	(0.0030)	0.0080	(0.0030)
Co	Cobalt		ND	(0.010)	ND	(0.010)	0.060	(0.010)	0.070	(0.010)
Cr	Chromium	0.050(M)	0.033	(0.0090)	0.10	(0.0090)	0.18	(0.0090)	0.22	(0.0090)
Cu	Copper	1.0(G)	ND	(0.010)	0.010	(0.010)	0.070	(0.010)	0.080	(0.010)
Fe	Iron	0.30(G)	15.0	(0.030)	58.0	(0.030)	120.0	(0.030)	150.0B	(0.030)
K	Potassium		3.2	(0.30)	13.0	(0.30)	15.0	(0.60)	19.0R	(0.60)
Mg	Magnesium		6.4	(0.10)	17.0	(0.10)	24.0	(0.10)	29.0	(0.10)
Mn	Manganese	0.050(G)	0.17	(0.0030)	0.59	(0.0030)	3.1	(0.0030)	3.5	(0.0030)
Mo	Molybdenum		ND	(0.050)	ND	(0.050)	ND	(0.050)	ND	(0.050)
Na	Sodium		13.0	(0.080)	14.0	(0.080)	23.0	(0.080)	22.0	(0.080)
Ni	Nickel		ND	(0.020)	0.060	(0.020)	0.16	(0.020)	0.20	(0.020)
Pb	Lead	0.050(M)	0.041	(0.050)	0.060	(0.050)	0.13	(0.050)	0.11	(0.050)
Sb	Antimony		ND	(0.060)	0.15	(0.060)	0.30	(0.060)	0.24R	(0.060)
Se	Selenium	0.010(M)	ND	(0.30)	ND	(0.30)	ND	(0.30)	0.50	(0.30)
Si	Silicon		42.0	(0.30)	78.0^	(0.30)	150.0	(0.30)	160.0B	(0.30)

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

@: Indicates that the analytical spike recovery for this analysis was not within acceptance limits indicating an interferent present.

B: Detected in Reagent Blank; background subtraction not performed

R: Indicates that the matrix spike recovery for this analysis was not within acceptance limits indicating an interferent present.

^: Indicates duplicate analysis is not within control limits.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-3. RESULTS OF INORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER		EPA Standards, Criteria	Monitor Well / Sample ID / Date Sampled: 12A 02-154 25-Feb-88		12A 04-04 06-Apr-88		12B 03-24 03-Mar-88		12B 03-25 03-Mar-88	
Tl	Thallium		0.077	(0.090)	ND	(0.090)	ND	(0.090)	ND	(0.090)
V	Vanadium		0.053	(0.020)	0.17	(0.020)	0.33	(0.020)	0.39	(0.020)
Zn	Zinc	5.0(G)	0.018	(0.0060)	0.11	(0.0060)	0.23	(0.0060)	0.31	(0.0060)

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

@: Indicates that the analytical spike recovery for this analysis was not within acceptance limits indicating an interferent present.

B: Detected in Reagent Blank; background subtraction not performed

R: Indicates that the matrix spike recovery for this analysis was not within acceptance limits indicating an interferent present.

^: Indicates duplicate analysis is not within control limits.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-3. RESULTS OF INORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria		Monitor Well Sample ID Date Sampled: 12B 04-57 13-Apr-88		12C 03-26 03-Mar-88		12C 04-59 11-Apr-88		12D 03-23 03-Mar-88	
Total Dissolved Solids MG/L										
Total Dissolved Solids			490.0	(1.0)	540.0	(1.0)	550.0	(1.0)	590.0	(1.0)
Fluoride MG/L										
Fluoride	4.0(M)	2.0(G)	0.29		0.26		0.34		0.31	
Chloride MG/L										
Chloride	250.0(G)		28.0		18.0		26.0		9.0	
Nitrate MG/L										
Nitrate + Nitrite	10.0(M)		0.43		ND	(0.10)	ND	(0.20)	0.46	
Orthophosphate MG/L										
Orthophosphate			0.040	(0.020)	0.070	(0.020)	ND	(0.020)	0.050	(0.020)
Sulfate MG/L										
Sulfate, nephelometry	250.0(G)		52.0		15.0		18.0		61.0	
Metals MG/L										
Arsenic, graphite AA	0.050(M)		0.019		0.056		0.074		0.082B	
Mercury	0.0020(M)		ND#	(0.00012)	0.00030	(0.00012)	0.00020#	(0.00012)	0.00030	(0.00012)
Lead, graphite AA	0.050(M)				0.050				0.13B+	
Selenium, graphite AA	0.010(M)		ND	(0.0030)	ND@	(0.020)	ND	(0.0030)	NDR	(0.0050)

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

#: Matrix spike outside control limits.

@: Indicates that the analytical spike recovery for this analysis was not within acceptance limits indicating an interferent present.

B: Detected in Reagent Blank; background subtraction not performed

B+: Analyte detected in Reagent Blank. % Difference (MS and MS duplicate) outside control limits.

R: Indicates that the matrix spike recovery for this analysis was not within acceptance limits indicating an interferent present.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-3. RESULTS OF INORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER		EPA Standards, Criteria	Monitor Well Sample ID / Date Sampled: 12B 04-57 13-Apr-88		12C 03-26 03-Mar-88		12C 04-59 11-Apr-88		12D 03-23 03-Mar-88	
Metal Screen (ICP) MG/L										
Ag	Silver		ND	(0.0090)	ND	(0.0090)	0.010	(0.0090)	0.010	(0.0090)
Al	Aluminum		21.0	(0.20)	100.0	(0.20)	97.0	(0.20)	190.0	(0.20)
As	Arsenic	0.050(M)	ND#	(0.30)	ND	(0.30)	ND#	(0.30)	ND	(0.30)
B	Boron		ND	(0.60)	ND	(0.60)	ND	(0.60)	ND	(0.60)
Ba	Barium	1.0(M)	0.17	(0.0090)	0.66	(0.0090)	0.76	(0.0090)	0.79	(0.0090)
Be	Beryllium		ND	(0.0010)	0.0030	(0.0010)	0.0030	(0.0010)	0.0060	(0.0010)
Ca	Calcium		310.0	(0.060)	2000.0	(0.24)	2600.0	(0.24)	2300.0	(0.24)
Cd	Cadmium	0.010(M)	0.0040	(0.0030)	ND	(0.0030)	0.011	(0.0030)	0.015	(0.0030)
Co	Cobalt		0.010	(0.010)	0.050	(0.010)	0.080	(0.010)	0.12	(0.010)
Cr	Chromium	0.050(M)	0.035	(0.0090)	0.22	(0.0090)	0.23	(0.0090)	0.35	(0.0090)
Cu	Copper	1.0(G)	ND	(0.010)	0.050	(0.010)	0.080	(0.010)	0.24	(0.010)
Fe	Iron	0.30(G)	25.0	(0.030)	120.0	(0.030)	140.0	(0.030)	330.0	(0.030)
K	Potassium		2.7	(0.30)	18.0	(1.2)	16.0	(0.30)	28.0	(1.2)
Mg	Magnesium		8.4	(0.10)	34.0	(0.10)	39.0	(0.10)	45.0	(0.10)
Mn	Manganese	0.050(G)	0.79	(0.0030)	7.2	(0.0030)	7.9	(0.0030)	4.0	(0.0030)
Mo	Molybdenum		ND	(0.050)	ND	(0.050)	ND	(0.050)	ND	(0.050)
Na	Sodium		22.0	(0.080)	25.0	(0.080)	28.0	(0.080)	32.0	(0.080)
Ni	Nickel		0.030	(0.020)	0.18	(0.020)	0.18	(0.020)	0.31	(0.020)
Pb	Lead	0.050(M)	ND	(0.050)	0.090	(0.050)	0.19	(0.050)	0.27	(0.050)
Sb	Antimony		ND	(0.060)	0.39	(0.060)	0.39	(0.060)	0.50	(0.060)
Se	Selenium	0.010(M)	ND	(0.30)	ND	(0.30)	0.50	(0.30)	0.60	(0.30)

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

#: Matrix spike outside control limits.

@: Indicates that the analytical spike recovery for this analysis was not within acceptance limits indicating an interferent present.

B: Detected in Reagent Blank; background subtraction not performed

B+: Analyte detected in Reagent Blank. % Difference (MS and MS duplicate) outside control limits.

R: Indicates that the matrix spike recovery for this analysis was not within acceptance limits indicating an interferent present.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-3. RESULTS OF INORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER		EPA Standards, Criteria	Monitor Well / Sample ID / Date Sampled							
			12B / 04-57 / 13-Apr-88		12C / 03-26 / 03-Mar-88		12C / 04-59 / 11-Apr-88		12D / 03-23 / 03-Mar-88	
Si	Silicon		48.0	(0.30)	130.0	(0.30)	110.0	(0.30)	140.0	(0.30)
Tl	Thallium		0.13	(0.090)	ND	(0.090)	ND	(0.090)	ND	(0.090)
V	Vanadium		0.060	(0.020)	0.36	(0.020)	0.40	(0.020)	0.93	(0.020)
Zn	Zinc	5.0(G)	0.034	(0.0060)	0.19	(0.0060)	0.22	(0.0060)	0.55	(0.0060)

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

#: Matrix spike outside control limits.

@: Indicates that the analytical spike recovery for this analysis was not within acceptance limits indicating an interferent present.

B: Detected in Reagent Blank; background subtraction not performed

B+: Analyte detected in Reagent Blank. % Difference (MS and MS duplicate) outside control limits.

R: Indicates that the matrix spike recovery for this analysis was not within acceptance limits indicating an interferent present.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-3. RESULTS OF INORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria		Monitor Well Sample ID Date Sampled 12D 04-53 13-Apr-88		12E 03-27 03-Mar-88		12E 04-56 13-Apr-88	
Total Dissolved Solids MG/L								
Total Dissolved Solids			570.0	(1.0)	530.0	(1.0)	590.0	(1.0)
Fluoride MG/L								
Fluoride	4.0(M)	2.0(G)	0.33		0.22		0.27	
Chloride MG/L								
Chloride	250.0(G)		23.0		15.0		16.0	
Nitrate MG/L								
Nitrate + Nitrite	10.0(M)		0.72		0.13		1.2	
Orthophosphate MG/L								
Orthophosphate			0.030	(0.020)	ND	(0.020)	ND	(0.020)
Sulfate MG/L								
Sulfate, nephelometry	250.0(G)		120.0		31.0		88.0	
Metals MG/L								
Arsenic, graphite AA	0.050(M)		0.054		0.028		0.033	
Mercury	0.0020(M)		ND#	(0.00012)	0.00010	(0.00012)	ND#	(0.00012)
Lead, graphite AA	0.050(M)				0.061			
Selenium, graphite AA	0.010(M)		ND	(0.0030)	ND	(0.0050)	ND	(0.0030)
Metal Screen (ICP) MG/L								
Ag Silver			ND	(0.0090)	ND	(0.0090)	ND	(0.0090)
Al Aluminum			76.0	(0.20)	120.0	(0.20)	27.0	(0.20)

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

#: Matrix spike outside control limits.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-3. RESULTS OF INORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER		EPA Standards, Criteria	Monitor Well Sample ID Date Sampled 12D 04-53 13-Apr-88		12E 03-27 03-Mar-88		12E 04-56 13-Apr-88	
As	Arsenic	0.050(M)	ND#	(0.30)	ND	(0.30)	ND#	(0.30)
B	Boron		ND	(0.60)	ND	(0.60)	ND	(0.60)
Ba	Barium	1.0(M)	0.46	(0.0090)	0.70	(0.0090)	0.34	(0.0090)
Be	Beryllium		0.0030	(0.0010)	0.0020	(0.0010)	ND	(0.0010)
Ca	Calcium		1300.0	(0.24)	2900.0	(0.60)	860.0	(0.24)
Cd	Cadmium	0.010(M)	0.0040	(0.0030)	0.0070	(0.0030)	ND	(0.0030)
Co	Cobalt		0.060	(0.010)	0.060	(0.010)	0.020	(0.010)
Cr	Chromium	0.050(M)	0.17	(0.0090)	0.31	(0.0090)	0.089	(0.0090)
Cu	Copper	1.0(G)	0.11	(0.010)	0.13	(0.010)	0.040	(0.010)
Fe	Iron	0.30(G)	160.0	(0.030)	200.0	(0.030)	56.0	(0.030)
K	Potassium		10.0	(0.30)	20.0	(3.0)	3.8	(0.30)
Mg	Magnesium		25.0	(0.10)	40.0	(0.10)	13.0	(0.10)
Mn	Manganese	0.050(G)	1.9	(0.0030)	5.7	(0.0030)	1.8	(0.0030)
Mo	Molybdenum		ND	(0.050)	ND	(0.050)	ND	(0.050)
Na	Sodium		34.0	(0.080)	23.0	(0.080)	23.0	(0.080)
Ni	Nickel		0.15	(0.020)	0.23	(0.020)	0.060	(0.020)
Pb	Lead	0.050(M)	0.11	(0.050)	0.13	(0.050)	0.080	(0.050)
Sb	Antimony		0.16	(0.060)	0.59	(0.060)	ND	(0.060)
Se	Selenium	0.010(M)	0.60	(0.30)	0.50	(0.30)	ND	(0.30)
Si	Silicon		92.0	(0.30)	120.0	(0.30)	50.0	(0.30)
Tl	Thallium		0.11	(0.090)	0.11	(0.090)	0.12	(0.090)
V	Vanadium		0.46	(0.020)	0.53	(0.020)	0.15	(0.020)
Zn	Zinc	5.0(G)	0.27	(0.0060)	0.33	(0.0060)	0.12	(0.0060)

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

#: Matrix spike outside control limits.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-4. RESULTS OF ORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS

Primary Results

PARAMETER	EPA Standards, Criteria		Monitor Well / Sample ID / Date Sampled: 12A 02-154 25-Feb-88		12A 04-04 06-Apr-88		12B 03-24 03-Mar-88		12B 03-25 03-Mar-88	
Petroleum Hydrocarbons UG/L										
Petroleum Hydrocarbons			ND	(200.0)	ND	(200.0)	ND	(200.0)	ND	(200.0)
Purgeable Halocarbons UG/L										
1,1,1-Trichloroethane	200.0(M)	200.0(G)	ND	(0.090)	ND	(0.090)	ND	(2.3)	ND	(2.3)
1,1,2,2-Tetrachloroethane			ND	(0.12)	ND	(0.12)	ND	(3.0)	ND	(3.0)
1,1,2-Trichloroethane			ND	(0.070)	ND	(0.070)	ND	(1.8)	ND	(1.8)
1,1-Dichloroethane			ND	(0.090)	ND	(0.090)	ND	(2.3)	ND	(2.3)
1,1-Dichloroethene	7.0(M)	7.0(G)	ND	(0.10)	ND	(0.10)	ND	(2.5)	ND	(2.5)
1,2-Dichlorobenzene	620.0(G)		ND	(0.50)	ND	(0.50)	ND	(13.0)	ND	(13.0)
1,2-Dichloroethane	5.0(M)	0.0(G)	ND	(0.030)	ND	(0.030)	ND	(0.75)	ND	(0.75)
1,2-Dichloropropane			ND	(0.10)	ND	(0.10)	ND	(2.5)	ND	(2.5)
1,3-Dichlorobenzene	400.0(G)		ND	(0.30)	ND	(0.30)	ND	(7.5)	ND	(7.5)
1,4-Dichlorobenzene	750.0(M)	750.0(G)	ND	(0.40)	ND	(0.40)	ND	(10.0)	ND	(10.0)
2-Chloroethylvinyl ether			ND	(0.20)	ND	(0.20)	ND	(5.0)	ND	(5.0)
Bromodichloromethane			ND	(0.10)	ND	(0.10)	ND	(2.5)	ND	(2.5)
Bromoform			ND	(0.30)	ND	(0.30)	ND	(7.5)	ND	(7.5)
Bromomethane			ND	(1.2)	ND	(1.2)	ND	(30.0)	ND	(30.0)
Carbon tetrachloride	5.0(M)	0.0(G)	ND	(0.10)	ND	(0.10)	ND	(2.5)	ND	(2.5)
Chlorobenzene	60.0(G)		ND	(0.30)	ND	(0.30)	ND	(7.5)	ND	(7.5)
Chloroethane			ND	(0.50)	ND	(0.50)	ND	(13.0)	ND	(13.0)
Chloroform			ND	(0.050)	0.20	(0.050)	ND	(1.3)	ND	(1.3)
Chloromethane			ND	(0.30)	ND	(0.30)	ND	(7.5)	ND	(7.5)
Dibromochloromethane			ND	(0.20)	ND	(0.20)	ND	(5.0)	ND	(5.0)
Methylene chloride			ND	(0.30)	ND	(0.30)	ND	(7.5)	ND	(7.5)

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

&: cis-1,3-Dichloropropene cannot be quantitated due to coelution.

B: Detected in Reagent Blank; background subtraction not performed

Q: Daily EPA QC recovery outside 95% confidence limit.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-4. RESULTS OF ORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria		Monitor Well Sample ID Date Sampled 12A 02-154 25-Feb-88		12A 04-04 06-Apr-88		12B 03-24 03-Mar-88		12B 03-25 03-Mar-88	
Tetrachloroethene	8.0(G)		ND	(0.030)	0.030	(0.030)	42.0	(0.75)	43.0	(0.75)
Trichloroethene	5.0(M)	0.0(G)	ND	(0.20)	0.20	(0.20)	110.0	(5.0)	110.0	(5.0)
Trichlorofluoromethane			ND	(0.10)	ND	(0.10)	ND	(2.5)	ND	(2.5)
Vinyl chloride	2.0(M)	0.0(G)	ND	(0.20)	ND	(0.20)	ND	(5.0)	ND	(5.0)
cis-1,3-Dichloropropene			ND&		ND&		ND&		ND&	
trans-1,2-Dichloroethene	70.0(G)		ND	(0.20)	ND	(0.20)	ND	(5.0)	ND	(5.0)
trans-1,3-Dichloropropene			ND	(0.30)	ND	(0.30)	ND	(7.5)	ND	(7.5)
Purgeable Aromatics UG/L										
1,2-Dichlorobenzene	620.0(G)		ND	(0.40)	ND	(0.40)	ND	(10.0)	ND	(10.0)
1,3-Dichlorobenzene	400.0(G)		ND	(0.40)	ND	(0.40)	ND	(10.0)	ND	(10.0)
1,4-Dichlorobenzene	750.0(M)	750.0(G)	ND	(0.30)	ND	(0.30)	ND	(8.0)	ND	(8.0)
Benzene	5.0(M)	0.0(G)	ND	(0.20)	ND	(0.20)	ND	(5.0)	ND	(5.0)
Chlorobenzene	60.0(G)		ND	(0.30)	ND	(0.30)	ND	(8.0)	ND	(8.0)
Ethylbenzene	680.0(G)		ND	(0.30)	ND	(0.30)	ND	(8.0)	ND	(8.0)
Toluene	2000.0(G)		1.1	(0.20)	1.2	(0.20)	9.0	(5.0)	ND	(5.0)
m-Xylene			ND	(0.20)	ND	(0.20)	ND	(5.0)	ND	(5.0)
o-Xylene			ND	(0.10)	ND	(0.10)	ND	(3.0)	ND	(3.0)
p-Xylene			NDQ	(0.20)	ND	(0.20)	ND	(5.0)	ND	(5.0)
Extractable Priority Pollutants UG/L										
1,2,4-trichlorobenzene			ND	(2.0)						
1,2-dichlorobenzene			ND	(2.0)						
1,3-dichlorobenzene			ND	(2.0)						
1,4-dichlorobenzene	750.0(G)		ND	(4.5)						

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

&: cis-1,3-Dichloropropene cannot be quantitated due to coelution.

B: Detected in Reagent Blank; background subtraction not performed

Q: Daily EPA QC recovery outside 95% confidence limit.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-4. RESULTS OF ORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria	Monitor Well / Sample ID / Date Sampled: 12A 02-154 25-Feb-88	12A 04-04 06-Apr-88	12B 03-24 03-Mar-88	12B 03-25 03-Mar-88
2,4,5-trichlorophenol		ND (10.0)			
2,4,6-trichlorophenol		ND (2.8)			
2,4-dichlorophenol	3090.0(G)	ND (2.8)			
2,4-dimethylphenol	400.0(G)	ND (2.8)			
2,4-dinitrophenol		ND (43.0)			
2,4-dinitrotoluene		ND (5.9)			
2,6-dinitrotoluene		ND (2.0)			
2-chloronaphthalene		ND (2.0)			
2-chlorophenol		ND (3.4)			
2-methylnaphthalene		ND (10.0)			
2-methylphenol		ND (10.0)			
2-nitroaniline		ND (52.0)			
2-nitrophenol		ND (3.7)			
3,3'-dichlorobenzidine		ND (17.0)			
4,6-dinitro-2-methylphenol		ND (25.0)			
4-bromophenyl-phenylether		ND (2.0)			
4-chloro-3-methylphenol		ND (3.1)			
4-chloroaniline		ND (10.0)			
4-chlorophenyl-phenylether		ND (4.3)			
4-methylphenol		ND (10.0)			
4-nitroaniline		ND (52.0)			
4-nitrophenol		ND (2.5)			
acenaphthene	0.030(G)	ND (2.0)			
acenaphthylene		ND (3.6)			
aniline		ND (10.0)			

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

&: cis-1,3-Dichloropropene cannot be quantitated due to coelution.

B: Detected in Reagent Blank; background subtraction not performed

Q: Daily EPA QC recovery outside 95% confidence limit.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-4. RESULTS OF ORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria	Monitor Well Sample ID Date Sampled: 12A 02-154 25-Feb-88		12A 04-04 06-Apr-88	12B 03-24 03-Mar-88	12B 03-25 03-Mar-88
anthracene		ND	(2.0)			
benzidine		ND	(45.0)			
benzo(a)anthracene		ND	(8.0)			
benzo(a)pyrene		ND	(2.6)			
benzo(b)fluoranthene		ND	(4.9)			
benzo(g,h,i)perylene		ND	(4.2)			
benzo(k)fluoranthene		ND	(2.6)			
benzoic acid		ND	(52.0)			
benzyl alcohol		ND	(52.0)			
bis(2-chloroethoxy)methane		ND	(5.5)			
bis(2-chloroethyl) ether		ND	(5.9)			
bis(2-chloroisopropyl)ether		ND	(5.9)			
bis(2-ethylhexyl)phthalate	15000.0(G)	17.0	(2.6)			
butylbenzylphthalate	940.0(G)	ND	(2.6)			
chrysene		ND	(2.6)			
di-n-butylphthalate	35000.0(G)	4.2B	(2.6)			
di-n-octyl phthalate		ND	(2.6)			
dibenzo(a,h)anthracene		ND	(2.6)			
dibenzofuran		ND	(10.0)			
diethylphthalate		ND	(2.0)			
dimethyl phthalate		ND	(1.6)			
fluoranthene	0.030(G)	ND	(2.3)			
fluorene	0.030(G)	ND	(2.0)			
hexachlorobenzene		ND	(2.0)			
hexachlorobutadiene		ND	(0.93)			

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

&: cis-1,3-Dichloropropene cannot be quantitated due to coelution.

B: Detected in Reagent Blank; background subtraction not performed

Q: Daily EPA QC recovery outside 95% confidence limit.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-4. RESULTS OF ORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria	Monitor Well Sample ID Date Sampled 12A 02-154 25-Feb-88	12A 04-04 06-Apr-88	12B 03-24 03-Mar-88	12B 03-25 03-Mar-88
hexachlorocyclopentadiene		ND (6.2)			
hexachloroethane		ND (1.6)			
indeno(1,2,3-cd)pyrene		ND (3.8)			
isophorone	5200.0(G)	ND (2.3)			
n-nitroso-di-n-propylamine		ND (12.0)			
n-nitrosodimethylamine		ND (10.0)			
n-nitrosodiphenylamine		ND (2.0)			
naphthalene	620.0(G)	ND (1.6)			
nitrobenzene		ND (2.0)			
pentachlorophenol	200.0(G)	ND (3.7)			
phenanthrene	0.030(G)	ND (5.6)			
phenol	3500.0(G)	ND (1.5)			
pyrene	0.030(G)	ND (2.0)			

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

&: cis-1,3-Dichloropropene cannot be quantitated due to coelution.

B: Detected in Reagent Blank; background subtraction not performed

Q: Daily EPA QC recovery outside 95% confidence limit.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-4. RESULTS OF ORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria		Monitor Well / Sample ID / Date Sampled: 12B 04-57 13-Apr-88		12C 03-26 03-Mar-88		12C 04-59 11-Apr-88		12D 03-23 03-Mar-88	
Petroleum Hydrocarbons UG/L										
Petroleum Hydrocarbons			ND	(200.0)	600.0		ND	(200.0)	ND	(200.0)
Purgeable Halocarbons UG/L										
1,1,1-Trichloroethane	200.0(M)	200.0(G)	ND	(2.3)	0.30	(0.090)	ND	(0.90)	ND	(2.3)
1,1,2,2-Tetrachloroethane			ND	(3.0)	ND	(0.12)	ND	(1.2)	ND	(3.0)
1,1,2-Trichloroethane			ND	(1.8)	ND	(0.070)	ND	(0.70)	ND	(1.8)
1,1-Dichloroethane			ND	(2.3)	3.2	(0.090)	ND	(0.90)	ND	(2.3)
1,1-Dichloroethene	7.0(M)	7.0(G)	ND	(2.5)	ND	(0.10)	ND	(1.0)	ND	(2.5)
1,2-Dichlorobenzene	620.0(G)		ND	(13.0)	ND	(2.5)	ND	(5.0)	ND	(13.0)
1,2-Dichloroethane	5.0(M)	0.0(G)	ND	(0.75)	ND	(0.030)	ND	(0.30)	ND	(0.75)
1,2-Dichloropropane			ND	(2.5)	ND	(0.10)	ND	(1.0)	ND	(2.5)
1,3-Dichlorobenzene	400.0(G)		ND	(7.5)	ND	(1.5)	ND	(3.0)	ND	(7.5)
1,4-Dichlorobenzene	750.0(M)	750.0(G)	ND	(10.0)	ND	(2.0)	ND	(4.0)	ND	(10.0)
2-Chloroethylvinyl ether			ND	(5.0)	ND	(0.20)	ND	(2.0)	ND	(5.0)
Bromodichloromethane			ND	(2.5)	ND	(0.10)	ND	(1.0)	ND	(2.5)
Bromoform			ND	(7.5)	ND	(0.30)	ND	(3.0)	ND	(7.5)
Bromomethane			ND	(30.0)	ND	(1.2)	ND	(12.0)	ND	(30.0)
Carbon tetrachloride	5.0(M)	0.0(G)	ND	(2.5)	ND	(0.10)	ND	(1.0)	ND	(2.5)
Chlorobenzene	60.0(G)		ND	(7.5)	ND	(1.5)	ND	(3.0)	ND	(7.5)
Chloroethane			ND	(13.0)	ND	(0.50)	ND	(5.0)	ND	(13.0)
Chloroform			ND	(1.3)	ND	(0.050)	ND	(0.50)	ND	(1.3)
Chloromethane			ND	(7.5)	ND	(0.30)	ND	(3.0)	ND	(7.5)
Dibromochloromethane			ND	(5.0)	ND	(0.20)	ND	(2.0)	ND	(5.0)
Methylene chloride			ND	(7.5)	ND	(0.30)	ND	(3.0)	ND	(7.5)

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

&: cis-1,3-Dichloropropene cannot be quantitated due to coelution.

J: Estimated value (GC test codes)

Q: Daily EPA QC recovery outside 95% confidence limit.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-4. RESULTS OF ORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria		Monitor Well / Sample ID / Date Sampled: 12B 04-57 13-Apr-88		12C 03-26 03-Mar-88		12C 04-59 11-Apr-88		12D 03-23 03-Mar-88	
Tetrachloroethene	8.0(G)		49.0	(0.75)	2.5	(0.030)	2.7	(0.30)	ND	(0.75)
Trichloroethene	5.0(M)	0.0(G)	100.0	(5.0)	3.0	(0.20)	ND	(2.0)	48.0	(5.0)
Trichlorofluoromethane			ND	(2.5)	ND	(0.10)	ND	(1.0)	ND	(2.5)
Vinyl chloride	2.0(M)	0.0(G)	ND	(5.0)	18.0	(0.20)	15.0	(2.0)	ND	(5.0)
cis-1,3-Dichloropropene			ND&		ND&		ND&		ND&	
trans-1,2-Dichloroethene	70.0(G)		ND	(5.0)	ND	(0.20)	ND	(2.0)	ND	(5.0)
trans-1,3-Dichloropropene			ND	(7.5)	ND	(0.30)	ND	(3.0)	ND	(7.5)
Purgeable Aromatics UG/L										
1,2-Dichlorobenzene	620.0(G)		ND	(2.0)	ND	(0.40)	2.3	(0.40)	ND	(0.40)
1,3-Dichlorobenzene	400.0(G)		ND	(2.0)	ND	(0.40)	ND	(0.40)	ND	(0.40)
1,4-Dichlorobenzene	750.0(M)	750.0(G)	ND	(2.0)	ND	(0.30)	1.4	(0.30)	ND	(0.30)
Benzene	5.0(M)	0.0(G)	ND	(1.0)	ND	(0.20)	ND	(0.20)	ND	(0.20)
Chlorobenzene	60.0(G)		ND	(2.0)	ND	(0.30)	ND	(0.30)	ND	(0.30)
Ethylbenzene	680.0(G)		ND	(2.0)	ND	(0.30)	ND	(0.30)	ND	(0.30)
Toluene	2000.0(G)		ND	(1.0)	17.0	(0.20)	1.0	(0.20)	7.6	(0.20)
m-Xylene			ND	(1.0)	ND	(0.20)	ND	(0.20)	ND	(0.20)
o-Xylene			ND	(0.50)	ND	(0.10)	ND	(0.10)	ND	(0.10)
p-Xylene			NDQ	(1.0)	ND	(0.20)	NDQ	(0.20)	ND	(0.20)
Extractable Priority Pollutants UG/L										
1,2,4-trichlorobenzene							ND	(2.5)		
1,2-dichlorobenzene							2.3J	(2.5)		
1,3-dichlorobenzene							ND	(2.5)		
1,4-dichlorobenzene	750.0(G)						ND	(5.8)		

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

&: cis-1,3-Dichloropropene cannot be quantitated due to coelution.

J: Estimated value (GC test codes)

Q: Daily EPA QC recovery outside 95% confidence limit.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-4. RESULTS OF ORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria	Monitor Well Sample ID Date Sampled 12B 04-57 13-Apr-88	12C 03-26 03-Mar-88	12C 04-59 11-Apr-88	12D 03-23 03-Mar-88
2,4,5-trichlorophenol				ND (13.0)	
2,4,6-trichlorophenol				ND (3.6)	
2,4-dichlorophenol	3090.0(G)			ND (3.6)	
2,4-dimethylphenol	400.0(G)			ND (3.6)	
2,4-dinitrophenol				ND (55.0)	
2,4-dinitrotoluene				ND (7.5)	
2,6-dinitrotoluene				ND (2.5)	
2-chloronaphthalene				ND (2.5)	
2-chlorophenol				ND (4.4)	
2-methylnaphthalene				ND (13.0)	
2-methylphenol				ND (13.0)	
2-nitroaniline				ND (66.0)	
2-nitrophenol				ND (4.8)	
3,3'-dichlorobenzidine				ND (22.0)	
4,6-dinitro-2-methylphenol				ND (32.0)	
4-bromophenyl-phenylether				ND (2.5)	
4-chloro-3-methylphenol				ND (4.0)	
4-chloroaniline				ND (13.0)	
4-chlorophenyl-phenylether				ND (5.5)	
4-methylphenol				ND (13.0)	
4-nitroaniline				ND (66.0)	
4-nitrophenol				ND (3.2)	
acenaphthene	0.030(G)			ND (2.5)	
acenaphthylene				ND (4.6)	
anthracene				ND (2.5)	

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

&: cis-1,3-Dichloropropene cannot be quantitated due to coelution.

J: Estimated value (GC test codes)

Q: Daily EPA QC recovery outside 95% confidence limit.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-4. RESULTS OF ORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria	Monitor Well Sample ID Date Sampled 12B 04-57 13-Apr-88	12C 03-26 03-Mar-88	12C 04-59 11-Apr-88	12D 03-23 03-Mar-88
benzo(a)anthracene				ND (10.0)	
benzo(a)pyrene				ND (3.3)	
benzo(b)fluoranthene				ND (6.3)	
benzo(g,h,i)perylene				ND (5.4)	
benzo(k)fluoranthene				ND (3.3)	
benzoic acid				ND (66.0)	
benzyl alcohol				ND (66.0)	
bis(2-chloroethoxy)methane				ND (7.0)	
bis(2-chloroethyl) ether				ND (7.5)	
bis(2-chloroisopropyl)ether				ND (7.5)	
bis(2-ethylhexyl)phthalate	15000.0(G)			2.3J (3.3)	
butylbenzylphthalate	940.0(G)			8.9 (3.3)	
chrysene				ND (3.3)	
di-n-butylphthalate	35000.0(G)			1.4J (3.3)	
di-n-octyl phthalate				ND (3.3)	
dibenzo(a,h)anthracene				ND (3.3)	
dibenzofuran				ND (13.0)	
diethylphthalate				ND (2.5)	
dimethyl phthalate				ND (2.1)	
fluoranthene	0.030(G)			ND (2.9)	
fluorene	0.030(G)			ND (2.5)	
hexachlorobenzene				ND (2.5)	
hexachlorobutadiene				ND (1.2)	
hexachlorocyclopentadiene				ND (7.9)	
hexachloroethane				ND (2.1)	

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

&: cis-1,3-Dichloropropene cannot be quantitated due to coelution.

J: Estimated value (GC test codes)

Q: Daily EPA QC recovery outside 95% confidence limit.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-4. RESULTS OF ORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria	Monitor Well Sample ID Date Sampled 12B 04-57 13-Apr-88	12C 03-26 03-Mar-88	12C 04-59 11-Apr-88	12D 03-23 03-Mar-88
indeno(1,2,3-cd)pyrene				ND (4.9)	
isophorone	5200.0(G)			ND (2.9)	
n-nitroso-di-n-propylamine				ND (16.0)	
n-nitrosodiphenylamine				ND (2.5)	
naphthalene	620.0(G)			ND (2.1)	
nitrobenzene				ND (2.5)	
pentachlorophenol	200.0(G)			ND (4.8)	
phenanthrene	0.030(G)			ND (7.1)	
phenol	3500.0(G)			ND (2.0)	
pyrene	0.030(G)			ND (2.5)	

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

&: cis-1,3-Dichloropropene cannot be quantitated due to coelution.

J: Estimated value (GC test codes)

Q: Daily EPA QC recovery outside 95% confidence limit.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-4. RESULTS OF ORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria		Monitor Well Sample ID Date Sampled 12D 04-53 13-Apr-88		12E 03-27 03-Mar-88		12E 04-56 13-Apr-88	
Petroleum Hydrocarbons UG/L								
Petroleum Hydrocarbons			ND	(200.0)	ND	(200.0)	ND	(200.0)
Purgeable Halocarbons UG/L								
1,1,1-Trichloroethane	200.0(M)	200.0(G)	ND	(2.3)	ND	(0.090)	0.40	(0.090)
1,1,2,2-Tetrachloroethane			ND	(3.0)	ND	(0.12)	ND	(0.12)
1,1,2-Trichloroethane			ND	(1.8)	ND	(0.070)	ND	(0.070)
1,1-Dichloroethane			ND	(2.3)	0.80	(0.090)	0.40	(0.090)
1,1-Dichloroethene	7.0(M)	7.0(G)	ND	(2.5)	ND	(0.10)	ND	(0.10)
1,2-Dichlorobenzene	620.0(G)		ND	(13.0)	ND	(0.50)	ND	(0.50)
1,2-Dichloroethane	5.0(M)	0.0(G)	ND	(0.75)	ND	(0.030)	ND	(0.030)
1,2-Dichloropropane			ND	(2.5)	ND	(0.10)	ND	(0.10)
1,3-Dichlorobenzene	400.0(G)		ND	(7.5)	ND	(0.30)	ND	(0.30)
1,4-Dichlorobenzene	750.0(M)	750.0(G)	ND	(10.0)	2.6	(0.40)	1.6	(0.40)
2-Chloroethylvinyl ether			ND	(5.0)	ND	(0.20)	ND	(0.20)
Bromodichloromethane			ND	(2.5)	ND	(0.10)	ND	(0.10)
Bromoform			ND	(7.5)	ND	(0.30)	ND	(0.30)
Bromomethane			ND	(30.0)	ND	(1.2)	ND	(1.2)
Carbon tetrachloride	5.0(M)	0.0(G)	ND	(2.5)	ND	(0.10)	ND	(0.10)
Chlorobenzene	60.0(G)		ND	(7.5)	ND	(0.30)	ND	(0.30)
Chloroethane			ND	(13.0)	1.5	(0.50)	0.60	(0.50)
Chloroform			ND	(1.3)	ND	(0.050)	ND	(0.050)
Chloromethane			ND	(7.5)	ND	(0.30)	ND	(0.30)
Dibromochloromethane			ND	(5.0)	ND	(0.20)	ND	(0.20)
Methylene chloride			ND	(7.5)	ND	(0.30)	ND	(0.30)
Tetrachloroethene	8.0(G)		ND	(0.75)	ND	(0.030)	0.30	(0.030)

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

&: cis-1,3-Dichloropropene cannot be quantitated due to coelution.

Q: Daily EPA QC recovery outside 95% confidence limit.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-4. RESULTS OF ORGANIC ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Primary Results

PARAMETER	EPA Standards, Criteria		Monitor Well Sample ID Date Sampled 12D 04-53 13-Apr-88		12E 03-27 03-Mar-88		12E 04-56 13-Apr-88	
Trichloroethene	5.0(M)	0.0(G)	55.0	(5.0)	0.80	(0.20)	1.1	(0.20)
Trichlorofluoromethane			ND	(2.5)	ND	(0.10)	ND	(0.10)
Vinyl chloride	2.0(M)	0.0(G)	ND	(5.0)	3.4	(0.20)	1.8	(0.20)
cis-1,3-Dichloropropene			ND&		ND&		ND&	
trans-1,2-Dichloroethene	70.0(G)		ND	(5.0)	ND	(0.20)	ND	(0.20)
trans-1,3-Dichloropropene			ND	(7.5)	ND	(0.30)	ND	(0.30)
Purgeable Aromatics UG/L								
1,2-Dichlorobenzene	620.0(G)		ND	(0.40)	ND	(0.40)	ND	(0.40)
1,3-Dichlorobenzene	400.0(G)		ND	(0.40)	ND	(0.40)	ND	(0.40)
1,4-Dichlorobenzene	750.0(M)	750.0(G)	ND	(0.30)	5.2	(0.30)	5.1	(0.30)
Benzene	5.0(M)	0.0(G)	ND	(0.20)	ND	(0.20)	0.30	(0.20)
Chlorobenzene	60.0(G)		ND	(0.30)	ND	(0.30)	ND	(0.30)
Ethylbenzene	680.0(G)		ND	(0.30)	ND	(0.30)	ND	(0.30)
Toluene	2000.0(G)		1.8	(0.20)	47.0	(0.20)	1.0	(0.20)
m-Xylene			ND	(0.20)	ND	(0.20)	ND	(0.20)
o-Xylene			ND	(0.10)	ND	(0.10)	ND	(0.10)
p-Xylene			ND	(0.20)	ND	(0.20)	NDQ	(0.20)

EPA Standards and Criteria are designated: M-Maximum Contaminant Level (MCL), G-Maximum Contaminant Level Goal (MCLG) or other secondary or proposed standard (Refer to Tables 4.1-1 and 4.1-2).

&: cis-1,3-Dichloropropene cannot be quantitated due to coelution.

Q: Daily EPA QC recovery outside 95% confidence limit.

ND: Not detected at specified detection limit

( ): Detection limit

TABLE 2-5. RESULTS OF FIELD ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS

Analyte	Unit of Measure	Monitor Well Sample ID Date Sampled							
		12A 02-154 25-Feb-88		12A 04-04 06-Apr-88		12B 03-24 03-Mar-88		12B 04-57 13-Apr-88	
Alkalinity	mg/L			845.0	(5.0)			1215.0	(5.0)
Specific Conductance	uMHOS/CM	550.0	(10.0)	490.0	(10.0)	738.0	(1.0)	740.0	(10.0)
Temperature	C	19.0	(1.0)	17.0	(1.0)	19.0	(1.0)	19.0	(1.0)
pH	S.U.	7.1	(0.010)	6.9	(0.010)	6.5	(0.010)	6.9	(0.010)

( ): Detection Limit

TABLE 2-5. RESULTS OF FIELD ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, Texas (Cont.)

Analyte	Unit of Measure	Monitor Well Sample ID Date Sampled							
		12C 03-26 03-Mar-88		12C 04-59 11-Apr-88		12D 03-23 03-Mar-88		12D 04-53 13-Apr-88	
Alkalinity	mg/L			9235.0	(5.0)			3285.0	(5.0)
Specific Conductance	uMHOS/CM	820.0	(1.0)	820.0	(10.0)	838.0	(1.0)	820.0	(10.0)
Temperature	C	19.0	(1.0)	19.0	(1.0)	18.0	(1.0)	20.0	(1.0)
pH	S.U.	6.7	(0.010)	7.0	(0.010)	6.6	(0.010)	6.9	(0.010)

( ): Detection Limit

TABLE 2-5. RESULTS OF FIELD ANALYSES FOR WATER SAMPLES, SITE 12 (FDTA 2), CARSWELL AFB, TEXAS (Cont.)

Analyte	Unit of Measure	Monitor Well Sample ID Date Sampled			
		12E 03-27 03-Mar-88		12E 04-56 13-Apr-88	
Alkalinity	mg/L			4180.0	(5.0)
Specific Conductance	uMHOS/CM	930.0	(1.0)	830.0	(10.0)
Temperature	C	18.0	(1.0)	19.0	(1.0)
pH	S.U.	6.5	(0.10)	6.6	(0.010)

( ): Detection Limit

3.0 ALTERNATIVE CONTROL MEASURES

3.1 Identification of Alternative Control Measures

A matrix of possible remedial technologies was developed for consideration of contaminant control at Site 12 as part of the RI/FS investigation. All of the options for site remediation presume that Carswell AFB will replace the existing training area with an impermeable (probably concrete) pad equipped with drainage control features to prevent soil and surface water contamination. Further analysis and evaluation of these technologies has resulted in condensing the technologies into seven alternative control measures, listed below:

1. No further action.

2. Excavate the top 2 feet of contaminated soil located within the outer 200-foot earthen berm. The contaminated soil would then be aerated on site. This simple aeration technique involves placing the contaminated soil on an impermeable surface and spreading the soil over an area to a thickness of approximately 8 inches to 1 foot. The aerated soil will then need to be sampled to confirm the volatile compounds in the soil have been reduced to an acceptable level. Runoff and leaching of the contaminated soil will have to be controlled during this treatment.

3. Excavate the top 2 feet of contaminated soil located within the outer 200-foot berm and dispose of this soil in an approved landfill.

4. Excavate the top 2 feet of contaminated soil located within the outer 200-foot berm and haul the soil to an off-site incineration facility.

5. Excavate contaminated soil located within the 200-foot earthen berm to bedrock, approximately 25 feet below the ground surface. Then dispose of the contaminated soil in an approved landfill. The excavated area will then be filled with borrow material.

6. Excavate the top 2 feet of contaminated soil located within the outer 200-foot berm. Vacuum extraction would be used to treat the deep soil in-situ. This technique induces a flow of air through the soil resulting in a volatilization of any volatile constituents. The air emissions from the extraction wells will be sampled and an air discharge permit obtained. The air emissions from the extraction wells at this site should not require treatment, however, if treatment is required vacuum extraction will not prove feasible at this site because of the excessive cost of organic vapor treatment.

7. Same as option 6 except the excavated soil is disposed of in an approved landfill instead of aerated.

3.2 Screening of Alternative Control Measures

The alternative control measures identified in Section 3.1 were screened to select a technically feasible and cost-effective plan for control of soil contamination at Site 12. The control measures were screened according to the following criteria:

1. Concentration and distribution of contaminants at Site 12;

2. Technical feasibility and effectiveness of possible remedial alternatives;

3. Estimated cost of each alternative; and

4. Regulatory compliance.

3.3 Evaluation of Alternative Control Measures

Table 3-1 summarizes results of the evaluations of the alternative control measures. The estimated costs listed in the table have been developed from a conceptual application of various control technologies to the site, and as such should be used for comparative purposes only. These costs should therefore not be used as a basis for budgetary planning or funding purposes for contractors or subcontractors. When a specific design alternative is chosen and regulatory compliance is assured, a detailed cost analysis can then be performed. If the site is to continue operation after it has been remediated, an impermeable cap will need to be constructed to control any future contamination. The cost for an impermeable cap is not included in any of the alternatives listed in Table 3-1.

TABLE 3-1. NARRATIVE MATRIX
TECHNICAL EVALUATION OF ALTERNATIVES

Alternative	Cost[1] ($)	Engineering Feasibility	Regulatory Compliance
1. No action	0	----------	----------
2. Excavate top 2 ft/ aerate	27,000[2]	Proven technology	TWC approval necessary
3. Excavate top 2 ft/ landfill	93,000[2]	Proven technology	TWC approval necessary
4. Excavate top 2 ft/ incinerate	4,490,000[2]	Proven technology	TWC approval necessary
5. Excavate to bedrock/landfill	1,541,000[3]	Proven technology	TWC approval necessary
6. Excavate top 2 ft/ aerate/vacuum extraction	74,000	Proven technology	TWC approval necessary
7. Excavate top 2 ft/ landfill/vacuum extraction	140,000	Proven technology	TWC approval necessary

[1] Costs are based on a conceptual application of remedial technologies, and therefore should not be used for detailed budget planning purposes.

[2] Costs based on excavation and hauling of 2,328 yd^3 of contaminated soil.

[3] Cost based on excavation, hauling, and fill of 29,128 yd^3 of soil.

4.0 RECOMMENDATION

Alternative 2 is recommended for selection as the preferred remedial action alternative. In the past, Texas Water Commission (TWC) has used 100 ppm-500 ppm as upper limits for total benzene, toluene, and xylenes (BTX) for soil. At the FDTA 2 all test locations had less than 50 ppm BTX. This eliminates the need to treat the soil from ground surface to bedrock. Instead, it is recommended that the top 2 feet or visually contaminated soil be excavated from the area within the outer berm. This contaminated soil then should be aerated to remove any volatile contaminants.

If the site is to experience continued use by the fire department as a training area, an impermeable cap should be placed over the excavated area to prevent any further contamination.

TWC approval will need to be obtained before any remedial action is implemented. TWC criteria for contaminated soils has varied from site to site. Alternatives 3 and 4 are included in the event TWC would not approve the aeration technique. Alternatives 5, 6, and 7 would provide treatment for the entire volume of soil within the outer berm to bedrock (approximately 25 feet).

"This action is taken under the authority of the Air Force under Executive Order 12580 to conduct removal in accordance with Section 104 of CERCLA (42 USC 9604). In accordance with 10 USC 2705, immediate notification of this decision will be provided to USEPA Region 6 and to the Texas Water Commission for review and comment prior to implementation.

CHARLES A. JACKSON, Colonel, USAF
Base Civil Engineer

DONALD G. COOK, Colonel, USAF
Chairman, Environmental Protection Committee

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