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GROUNDWATER DATA EVALUATION
AND
LONG-TERM GROUNDWATER MONITORING PLAN

Waste Disposal, Inc. Superfund Site
Santa Fe Springs, California

PRESENTATION

CDM FEDERAL
PRELIMINARY DRAFT REPORT

Agency Review Meeting
June 23, 1998 - DTSC Glendale Office

GROUNDWATER DATA EVALUATION
AND
LONG-TERM GROUNDWATER MONITORING PLAN

Waste Disposal, Inc. Superfund Site

- AGENDA -

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   - Soil Gas Hot Spots

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   - New Monitoring Wells
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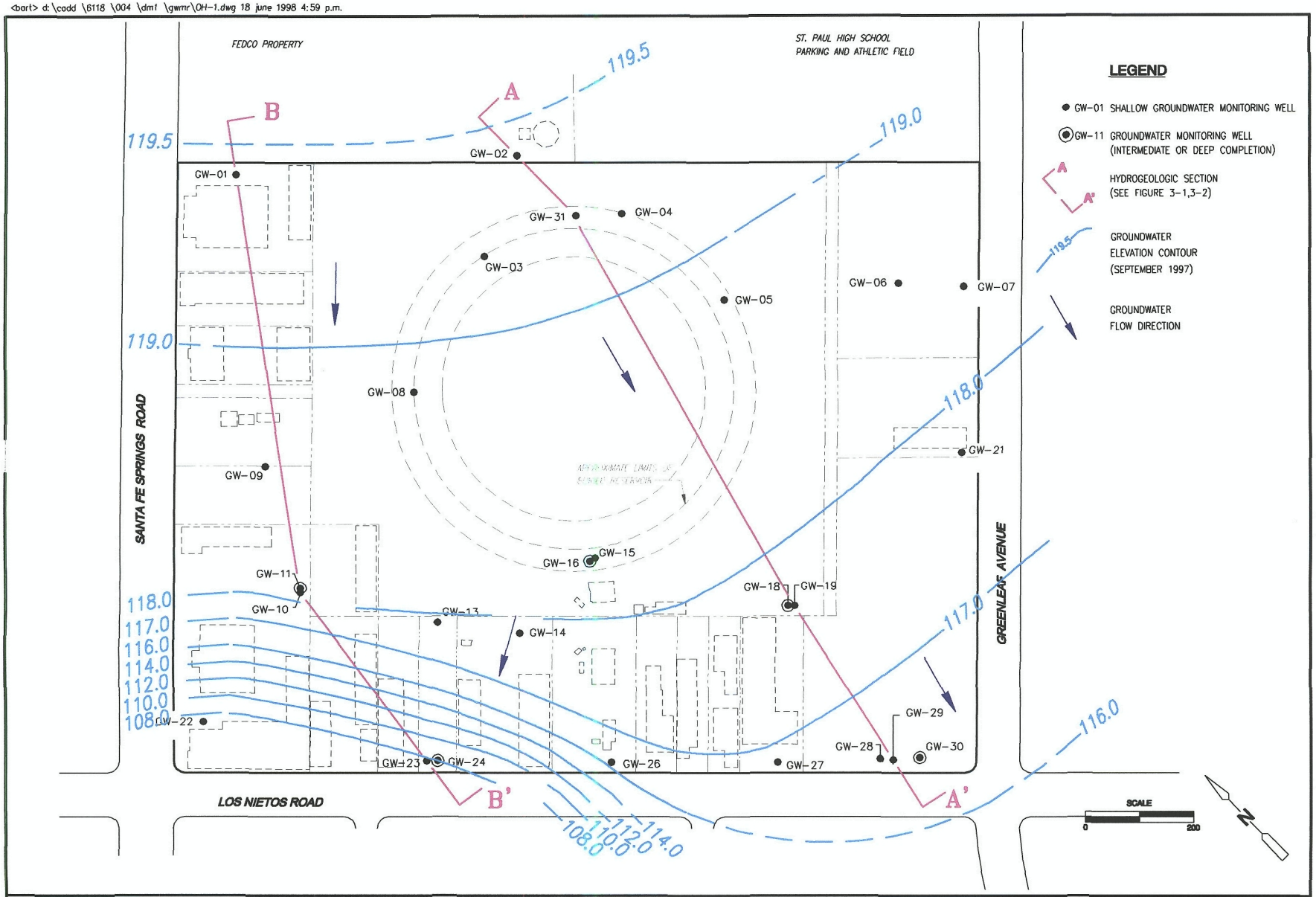

Location of Groundwater Monitoring Wells and Cross Sections

Waste Disposal, Inc., Santa Fe Springs, California

Figure 1

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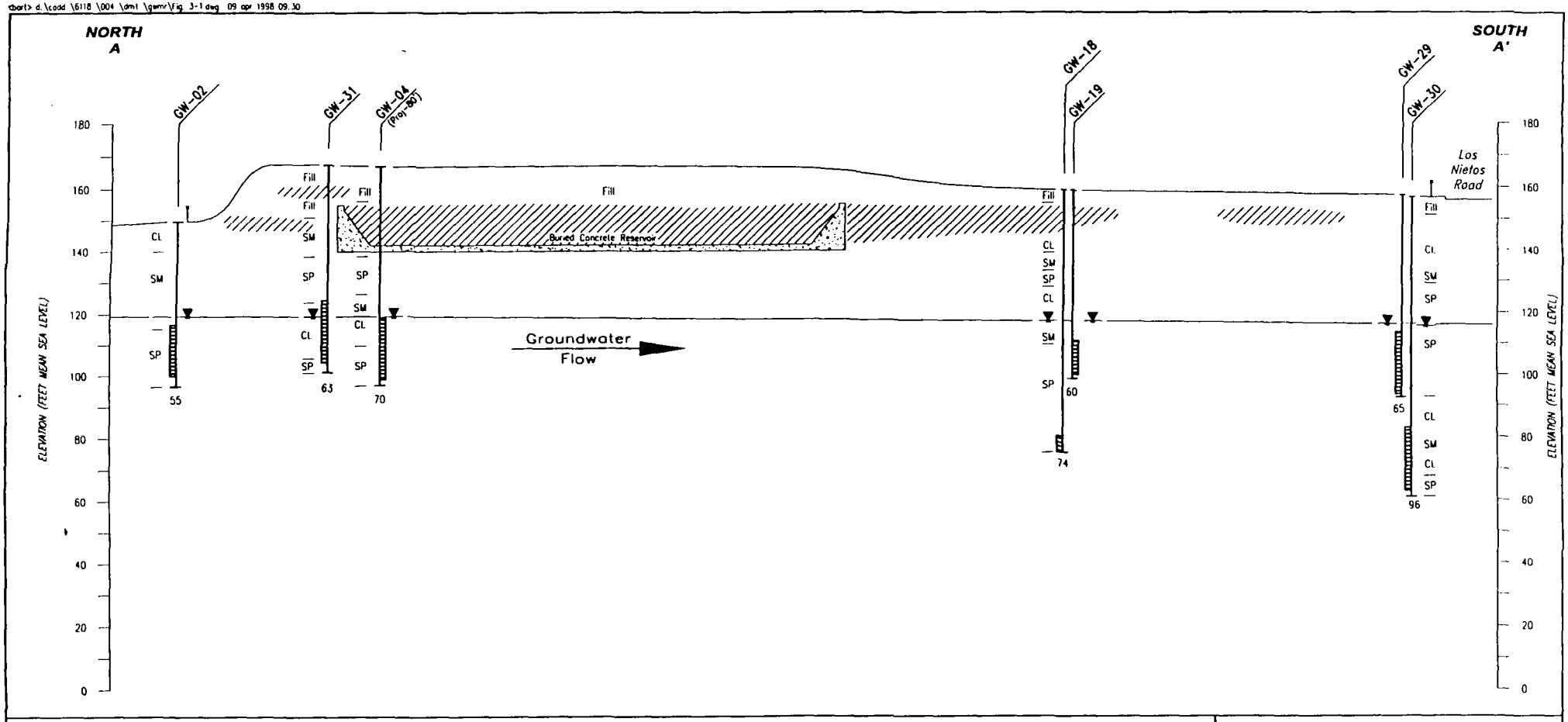
Table 2-1: Existing Groundwater Monitoring Wells
Waste Disposal, Inc. Site

Well Number	Top of Well Casing Elevation (ft above MSL)	Well Type	Well Screen (ft BGS)	Sep-97 Depth to Water (ft below TOC)	Location Relative to WDI Waste Sources
GW - 01	153.5	shallow	38 - 58	34.1	upgradient
GW - 02	149.3	shallow	33 - 53	30.0	upgradient
GW - 03	167.5	shallow	48 - 68	48.3	north perimeter of Reservoir
GW - 04	166.8	shallow	48 - 68	47.5	north perimeter of Reservoir
GW - 05	166.7	shallow	43 - 63	48.0	east perimeter of Reservoir
GW - 06	158.4	shallow	43 - 63	39.9	underlies OWS (east area)
GW - 07	154.5	shallow	38 - 58	36.3	cross-gradient to OWS (east area)
GW - 08	163.4	shallow	43 - 63	44.5	west perimeter of Reservoir
GW - 09	153.5	shallow	38 - 58	34.8	cross-gradient to OWS (west area)
GW - 10	154.7	well cluster - shallow	38 - 58	36.5	cross-gradient to OWS (west area)
GW - 11	154.7	well cluster - deep	118 - 128	37.1	cross-gradient to OWS (west area)
GW - 13	157.5	shallow	39 - 59	39.6	downgradient of OWS (west area)
GW - 14	157.8	shallow	38 - 58	39.8	downgradient of Reservoir
GW - 15	163.3	well cluster - shallow	48 - 68	45.0	downgradient of Reservoir
GW - 16	163.1	well cluster - interm.	74 - 79	45.3	downgradient of Reservoir
GW - 18	159.1	well cluster - interm.	69 - 74	41.7	downgradient of Reservoir
GW - 19	158.9	well cluster - shallow	39 - 59	41.5	downgradient of Reservoir
GW - 21	155.2	shallow	36 - 56	37.9	downgradient of OWS (east area)
GW - 22	156.7	shallow	58 - 78	49.0	cross-gradient to OWS (west area)
GW - 23	157.0	well cluster - shallow	43 - 63	47.8	downgradient of OWS (west area)
GW - 24	156.7	well cluster - deep	103 - 113	49.4	downgradient of OWS (west area)
GW - 26	156.0	shallow	44 - 64	39.1	downgradient of OWS (east area)
GW - 27	157.0	shallow	43 - 63	40.3	downgradient of OWS (east area)
GW - 28	157.3	shallow	44 - 64	40.8	downgradient of OWS (east area)
GW - 29	157.4	well cluster - shallow	44 - 64	41.0	downgradient of OWS (east area)
GW - 30	156.8	well cluster - deep	74 - 94	40.7	downgradient of OWS (east area)
GW - 31	167.2	shallow	43 - 63	48.0	north perimeter of Reservoir

ABBREVIATIONS:
BGS = below ground surface
ft - feet
MSL - mean sea level
OWS - oil waste sump (disposal areas outside of reservoir), see Figure 4-1
TOC - top of casing



Horizontal Scale

0 100 200 Feet

Vertical Scale

0 30 60 Feet

Monitoring Well/ Boring Diagram

Well ID

Ground surface

Water level, September 1997

Screened portion of well

Total depth, soil boring (feet below ground surface)

75

Legend

Fill	Fill soils
	Oily Waste, drilling mud, sump material
CL	Clay
ML	Silt
SM,SC	Silty sand, clayey sand
SP,SW	Medium to coarse sand

Refer to Figure 2-2 for location of Hydrogeologic Section A-A'

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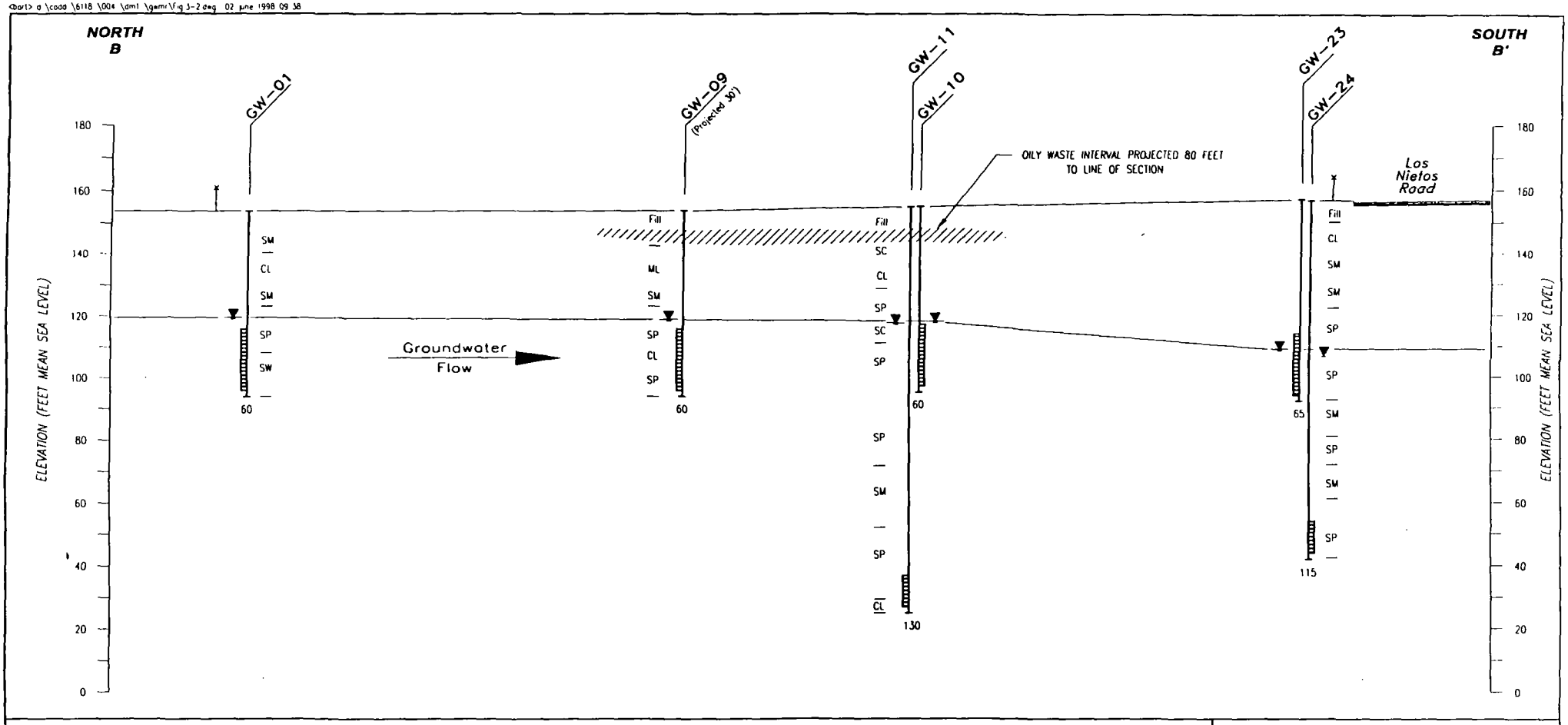
Figure 3-1

Hydrogeologic Section A-A'

Groundwater Data Evaluation Report

Waste Disposal, Inc.
Santa Fe Springs, California



Monitoring Well/ Soil Boring Diagram

Horizontal Scale

0 100 200 Feet

Vertical Scale

0 30 60 Feet

Well ID

Ground surface

Water level, September 1997

Screened potion of well

75 Total depth, soil boring (feet below ground surface)

Legend

Fill	Fill soils
▨	Oily Waste, Sump Material
CL	Clay
ML	Silt
SM,SC	Silty sand, clayey sand
SP,SW	Medium to coarse sand

Refer to Figure 2-2 for location of Hydrogeologic Section B-B'

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A Subsidiary of Camp Dresser & McKee Inc

Figure 3-2

Hydrogeologic Section B-B'

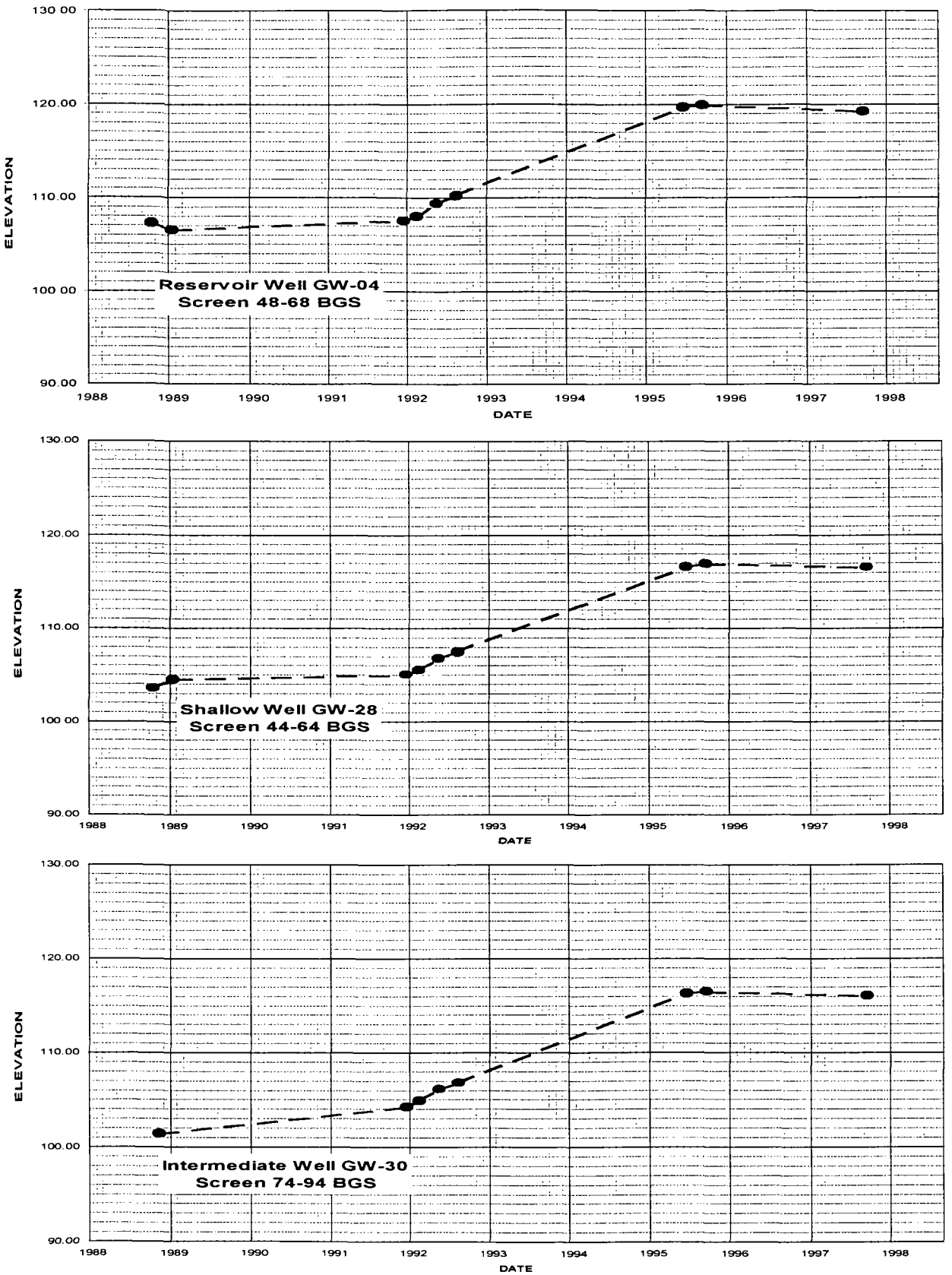
Groundwater Data Evaluation Report

Waste Disposal, Inc.
Santa Fe Springs, California

Table 3-1: Vertical Hydraulic Gradients, September 1997 and December 1991
Waste Disposal, Inc. Site

		September 1997 Water Level Measurements					December 1991 Water Level Measurements				
Well Cluster	Distance Between Well Screens (feet)	Shallow Well Groundwater Elevation (ft MSL)	Deep Well Groundwater Elevation (ft MSL)	Elevation Difference (feet)	Vertical Gradient (feet/foot)	Vertical Flow	Shallow Well Groundwater Elevation (ft MSL)	Deep Well Groundwater Elevation (ft MSL)	Elevation Difference (feet)	Vertical Gradient (feet/foot)	Vertical Flow
GW-10 / GW-11	70	118.19	117.61	0.58	0.008	downward	106.15	105.7	0.45	0.006	downward
GW-15 / GW-16	11	118.31	117.74	0.57	0.052	downward	106.48	105.91	0.57	0.052	downward
GW-19 / GW-18	15	117.44	117.45	0.01	0.001	neglible	105.74	105.80	0.06	0.004	upward
GW-23 / GW-24	50	109.18	107.28	1.90	0.038	downward	98.40	92.37	6.03	0.121	downward
GW-29 / GW-30	30	116.42	116.07	0.35	0.012	downward	104.85	104.26	0.59	0.020	downward

MSL = mean sea level



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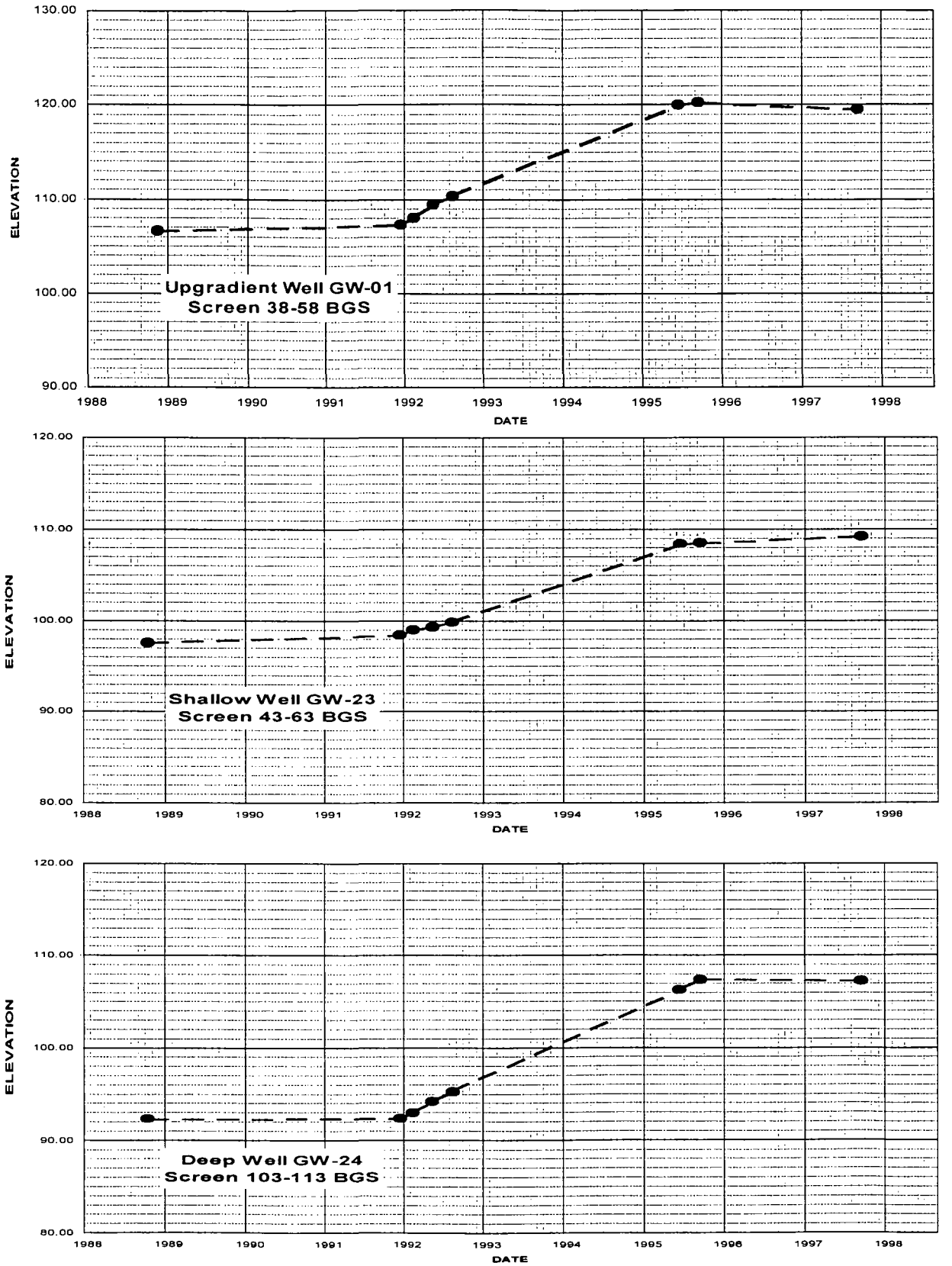
Groundwater Elevation Hydrographs, West Area
WDI Superfund Site
Santa Fe Springs, California

Figure 3-4



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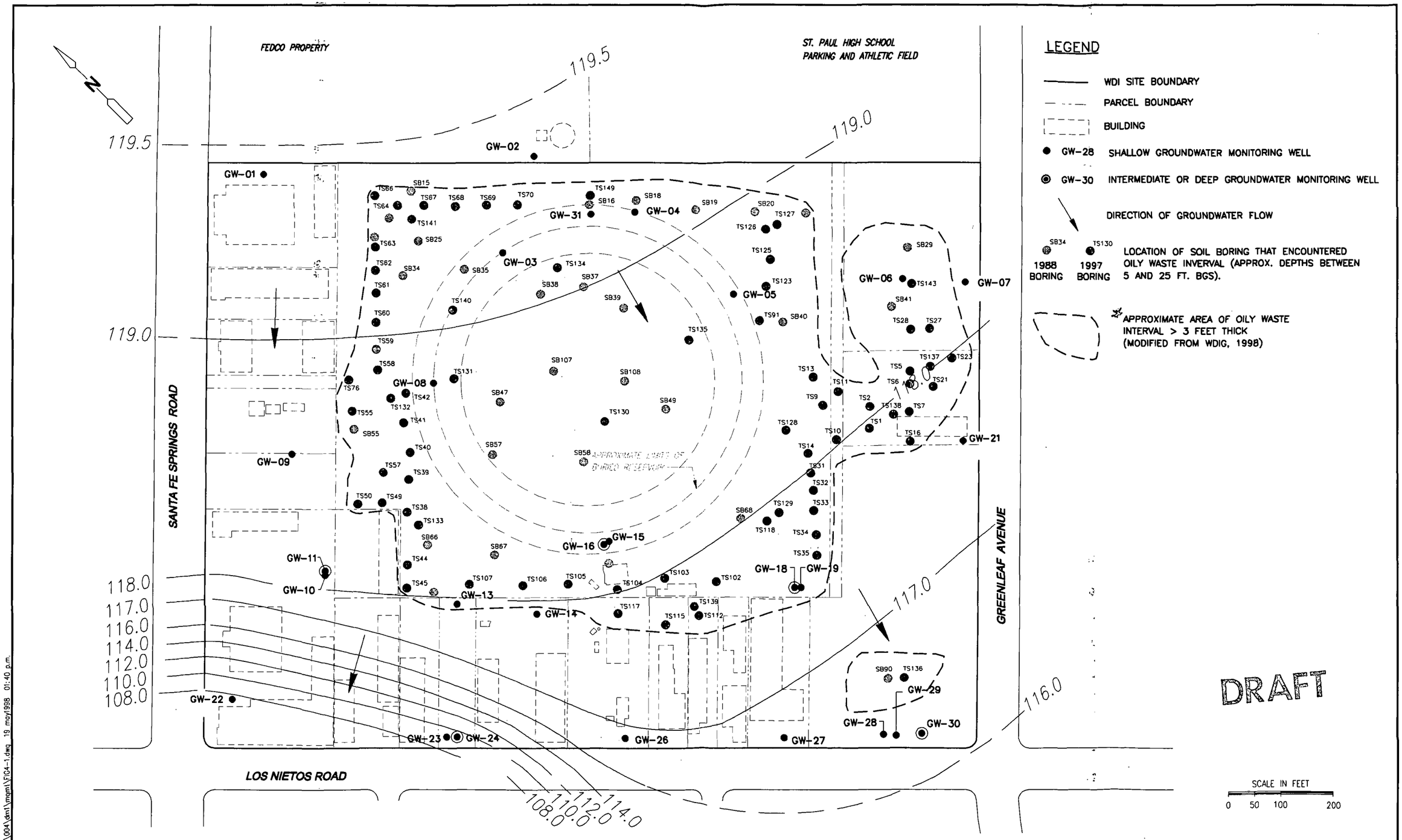
Groundwater Elevation Hydrographs, Reservoir and East Area
WDI Superfund Site
Santa Fe Springs, California

Figure 3-5



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Location of Liquid and Oily Waste Source Areas
Waste Disposal, Inc., Santa Fe Springs, California

Figure 4-1

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Table 4-1: Soil Boring Data Summary - 1988 Remedial Investigation
Waste Disposal, Inc. Site

Soil Boring No.	Boring Depth (ft bgs)	Oily Waste Interval: Depth Encountered (ft bgs)	Oily Waste Interval: Approx. Thickness (feet)	Oily Waste Interval: Logging Observations	Soil Analyses of Oily Waste Interval - Maximum Concentrations: No. of Samples Analyzed	VOCs Detected (> 1 mg/kg)	mg/kg	SVOCs Detected (> 1 mg/kg)	mg/kg	Selected Metals	mg/kg
Borings Outside of Reservoir											
SB-015	20	15-20	5	black sumpy material	2	ND		ND		As	27
										Cr	70
										Cu	147
										Pb	583
SB-016	65	5-6	1	black mud w/ hydrocarbon odor	1	ND		2-Methylnaphthalene	1.2	As	10.6
								Fluorene	1.8	Pb	398
								Phenanthrene	4.3		
SB-018	35	15-20	5	black sludge	1	ND		ND		As	6.2
SB-019	35	15-20	5	sludge	1	ND		ND			
SB-024	35	5-25	20	sludgy; minor liquid	2	Toluene	1.9	ND		Cr	50
										Cu	81
										Pb	292
SB-025	35	10-25	15	black sludge	2	Benzene	4.2	2-Methylnaphthalene	74	As	68.7
						Toluene	9.5	Naphthalene	24	Cr	75.7
						Xylenes	110	Phenanthrene	24	Cu	243
						Ethylbenzene	24			Pb	1,140
SB-029	67.5	30-35	5	hydrocarbon staining	1	ND		ND			
SB-034	37	15-20	1	black sludge	1	Ethylbenzene	11	2-Methylnaphthalene	16		
						Toluene	12	Fluorene	2		
								Naphthalene	12		
								Phenanthrene	4.5		
SB-040	35	30-35	5	black sludge	1	ND		ND			

Table 4-1: Soil Boring Data Summary - 1988 Remedial Investigation
Waste Disposal, Inc. Site

Soil Boring No.	Boring Depth (ft bgs)	Oily Waste Interval: Depth Encountered (ft bgs)	Oily Waste Interval: Approx. Thickness (feet)	Oily Waste Interval: Logging Observations	Soil Analyses of Oily Waste Interval - Maximum Concentrations: No. of Samples Analyzed	VOCs Detected (> 1 mg/kg)	mg/kg	SVOCs Detected (> 1 mg/kg)	mg/kg	Selected Metals	mg/kg
SB-041	40	15-20	5	black sump material	2	ND		2-Methylnaphthalene	51	As	6.2
								Anthracene	16		
								Benzo(a)anthracene	1.5		
								Fluorene	6.4		
								Naphthalene	24		
								Pyrene	1.5		
SB-055	35	10-20	10	sump material, sludge	2	Ethylbenzene	3	2-Methylnaphthalene	3.5	As	12.8
						Toluene	7.6	Naphthalene	8.5	Pb	543
						Xylenes	14				
SB-066	45	10-25	15	viscous black sludge	2	ND		ND		As	7.36
										Pb	836
SB-067	45	15-20	5	black petroleum sludge & mud	1	ND		ND		As	13
										Cu	101
SB-068	25	10-25	15	free product 20-25 ft	2	ND		2-Methylnaphthalene	12	As	11
SB-075	60	0-10	10	black mud, hydrocarbon stained	2	Toluene	2.7	2-Methylnaphthalene	6.8	As	5.6
						Ethylbenzene	1.5	Naphthalene	1.9		
						Xylenes	2.5	Phenanthrene	1.3		
SB-077	35	5-10	5	black mud	2	ND		ND			

Table 4-1: Soil Boring Data Summary - 1988 Remedial Investigation
Waste Disposal, Inc. Site

Soil Boring No.	Boring Depth (ft bgs)	Oily Waste Interval: Depth Encountered (ft bgs)	Oily Waste Interval: Approx. Thickness (feet)	Oily Waste Interval: Logging Observations	Soil Analyses of Oily Waste Interval - Maximum Concentrations: No. of Samples Analyzed	VOCs Detected (> 1 mg/kg)	mg/kg	SVOCs Detected (> 1 mg/kg)	mg/kg	Selected Metals	mg/kg
SB-084	35	5-10	5	sludge; drilling mud	2	Ethylbenzene	11	2-Methylnaphthalene	16		
						Toluene	12	Fluorene	2		
						Xylenes	2.8	Phenanthrene	4.5		
						1,1,1-TCA	1.8				
SB-010	35	17.5-20	2.5	oily material	0						
SB-014	15	10-15	5	black-gray liquid at 12 ft	0						
SB-020	35	10-20	10	black sludge	0						
SB-023	40	15	1	minor black streaks 15-20 ft	0						
SB-035	25	10-15	5	black mud, sump material	0						
SB-090	35	10-20	10	drilling mud, hydrocarbon staining	0						
Borings Inside of Reservoir											
SB-037	20	3-20	17	black sludge	0						
SB-038	18	6-18	12	free product at 16 ft	1	Benzene	12	2-Methylnaphthalene	88	As	13.0
						Ethylbenzene	29	Chrysene	7.4	Cr	74
						Toluene	44	Fluoranthene	1.3	Pb	218
						Xylenes	140	Naphthalene	52		
								Phenanthrene	33		
								Pyrene	2.6		
SB-039	18	6-18	12	black muck, sump material	0						
SB-047	20	10-20	10	free product	2	Benzene	4.5	2-Methylnaphthalene	120	As	14.2
						Ethylbenzene	16	Dibenzofuran	1.3	Cu	162
						Toluene	34	Fluorene	8.1	Pb	1,050
						PCE	1.2	Naphthalene	48		
								Phenanthrene	27		
								Pyrene	1.7		

Table 4-1: Soil Boring Data Summary - 1988 Remedial Investigation
Waste Disposal, Inc. Site

Soil Boring No.	Boring Depth (ft bgs)	Oily Waste Interval: Depth Encountered (ft bgs)	Oily Waste Interval: Approx. Thickness (feet)	Oily Waste Interval: Logging Observations	Soil Analyses of Oily Waste Interval - Maximum Concentrations: No. of Samples Analyzed	VOCs Detected (> 1 mg/kg)	mg/kg	SVOCs Detected (> 1 mg/kg)	mg/kg	Selected Metals	mg/kg
SB-049	21.5	15-20	5	black mud	2	ND		ND		As	9.6
										Cr	67.5
										Cu	136
										Pb	744
SB-057	45	15-20	5	black sludge	2	Benzene	19	2-Methylnaphthalene	170	As	337
						Ethylbenzene	30	Naphthalene	6.9	Cr	58.1
						Toluene	120	Phenanthrene	44	Cu	78.4
						Xylenes	250			Pb	1,880
						PCE	43				
						TCE	5				
SB-058	23	10-15	5	free product	2	ND		ND			
SB-107	20	18-20	2	black mud	1	Ethylbenzene	5.1	2-Methylnaphthalene	12	As	11.7
						Xylenes	7.3	Naphthalene	6.8	Pb	312
								Phenanthrene	4.6		
SB-108	18	10-15	5	free product	2	Xylenes	1.3	2-Methylnaphthalene	1.4	As	89.4

EXPLANATION:

1. Soil boring data and soil sample analyses from Remedial Investigation (Ebasco, 1989). Only borings that encountered oily waste interval are listed
2. Abbreviations: ft = feet; bgs = below ground surface; mg/kg = milligrams per kilogram, ND = not detected above 1 mg/kg; VOCs = volatile organic compounds; SVOCs = semivolatile organic compounds; TCE = Trichloroethene; PCE = Tetrachloroethene; TCA = Trichloroethane; As = Arsenic; Cr = Chromium; Cu = Copper; Pb = Lead

Table 4-2: Soil Boring Summary - 1997 WDIG Investigation
Waste Disposal, Inc. Site

Soil Boring No.	Depth of Boring (ft bgs)	Oily Waste Interval: Depth Encountered (ft bgs)	Oily Waste Interval: Interval Thickness (feet)	Logging Remarks
Borings Advanced for Logging Only; No Soil Analyses				
TS-01	27	12-16	4	
TS-02	26	8-26	18	
TS-05	22	8-14	6	
TS-06	22	6-12	6	
TS-07	24	8-21	13	
TS-09	22	8-14	6	
TS-10	26	7-22	15	
TS-11	26	6-22	16	
TS-13	20	8-11	3	
TS-14	20	6-17	11	saturated with black oily liquid
TS-15	18	10-12	2	
TS-16	20	4-8	4	
TS-21	10	7-10	3	
TS-22	10	8-10	2	oily liquid on sampler
TS-23	10	3-7	4	
TS-25	10	8-10	2	
TS-27	22	6-22	16	
TS-28	26	9-26	17	
TS-29	12	8-12	4	
TS-30	22	11-16	5	
TS-31	16	8-16	8	
TS-32	18	6-16	10	
TS-33	12	4-12	8	
TS-34	16	4-12	8	
TS-35	14	4-8	4	
TS-36	10	2-4	2	
TS-38	20	7-14	7	
TS-39	22	13-21	8	
TS-40	20	8-18	10	
TS-41	18	8-17	9	
TS-42	16	7-15	8	
TS-43	10	8-10	2	
TS-44	16	9-13	4	
TS-45	16	8-12	4.	
TS-46	8	6-8	2	
TS-47	8	6-8	2	
TS-48	18	7-16	9	
TS-49	14	6-10	4	
TS-50	14	7-11	4	
TS-54	12	5-7	2	
TS-55	12	5-8	3	
TS-57	20	11-18	7	
TS-58	16	6-10	4	
TS-59	14	6-12	6	
TS-60	14	8-11	3	
TS-61	14	7-12	5	
TS-62	16	9-12	3	
TS-63	14	5-10	5	
TS-64	14	10-14	4	

Table 4-2: Soil Boring Summary - 1997 WDIG Investigation
Waste Disposal, Inc. Site

Soil Boring No.	Depth of Boring (ft bgs)	Oily Waste Interval: Depth Encountered (ft bgs)	Oily Waste Interval: Interval Thickness (feet)	Logging Remarks
TS-66	18	8-16	8	
TS-67	18	11-18	7	
TS-68	20	12-18	6	
TS-69	20	7-18	11	
TS-70	20	12-18	6	liquids in tube
TS-76	14	3-6	3	
TS-91	16	5-12	7	
TS-98	14	3.5-4	0.5	
TS-102	14	9-12	3	
TS-103	14	5-10	5	
TS-104	14	7-11	4	
TS-105	14	7-10	3	
TS-106	16	10-13	3	
TS-107	18	7-15	8	
TS-112	12	5-10	5	
TS-113	12	5-6	1	
TS-115	12	4-10	6	
TS-117	12	2-9	7	
TS-118	18	5-15	10	
TS-120	12	5-7	2	
TS-123	16	8-14	6	
TS-125	16	8-15	7	
TS-126	16	5-15	10	
TS-143	30	10-28	18	
TS-144	20	6-8	2	
TS-148	20	10-12	2	
TS-149	20	11-16	5	
TS-152	16	3.5-4	0.5	
Borings Advanced for Soil Analyses; No Boring Log				
TS-127	20			
TS-128	20			
TS-129	17			
TS-130	12			boring inside reservoir
TS-131	3			boring inside reservoir
TS-132	17			
TS-133	19			
TS-134	11			boring inside reservoir
TS-135	12			boring inside reservoir
TS-136	18			
TS-137	32			
TS-138	25			
TS-139	15			
TS-140	19			boring inside reservoir
TS-141	19			
TS-142	17			

EXPLANATION:

1. Soil boring data from WDIG Site Characterization Report (TRC, 1998). See Table 4-3 for soil analyses. Only borings which encountered oily waste interval listed.

Table 4-3: Soil Analyses of Oily Waste Interval
1997 WDIG Investigation

NO TOLUENE

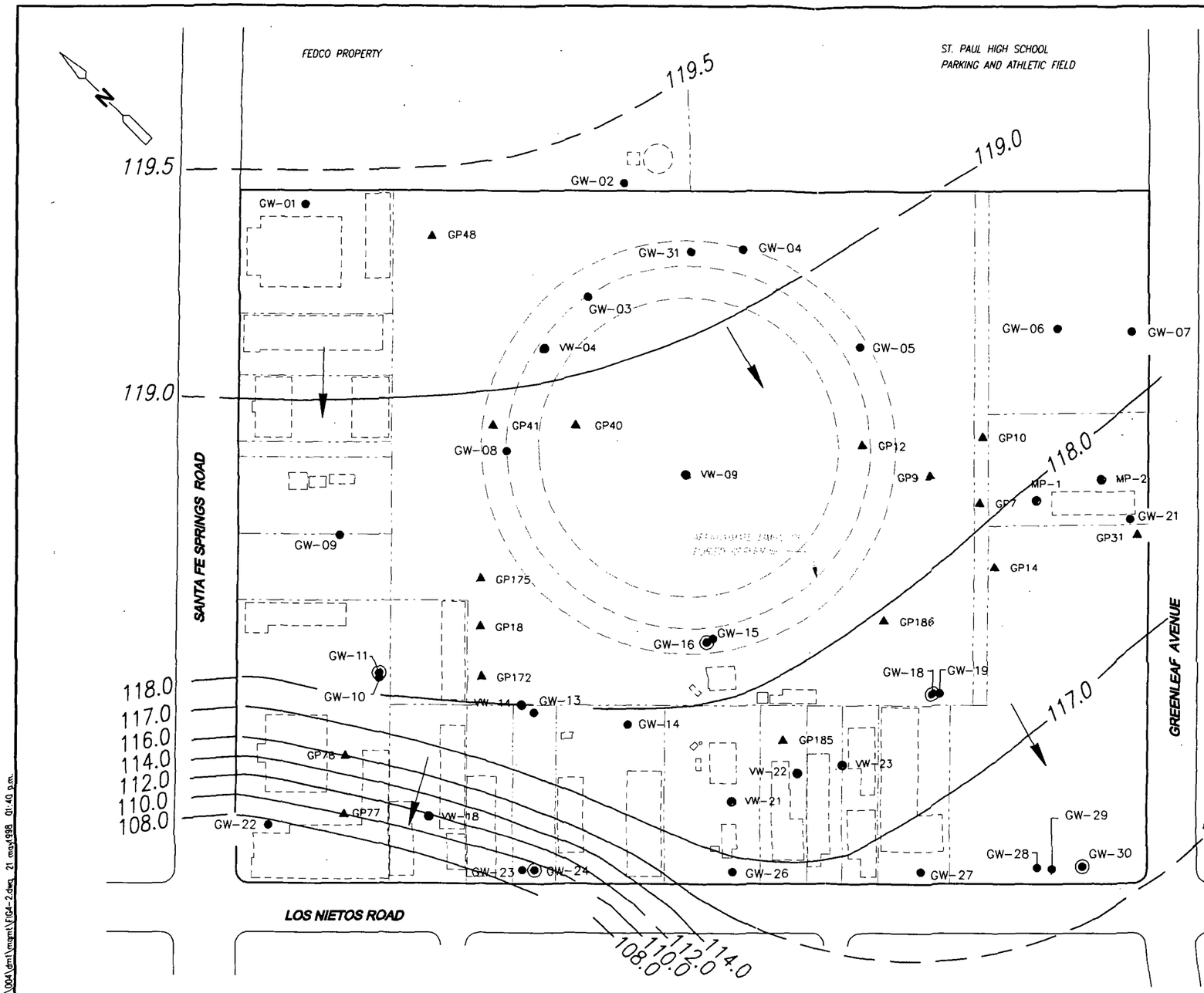
Soil Boring No.	No. of Samples Analyzed	Sample Depths	Soil Analyses - Maximum Concentrations			
			Total Hydrocarbons mg/kg	VOCs Detected (> 1 mg/kg) mg/kg	SVOCs Detected (> 1 mg/kg) mg/kg	Selected Metals mg/kg
Borings Outside of Reservoir						
TS-127	3	4, 8, 20 ft	23,000	ND	NA	As 13 Pb 1,700
TS-128	3	4, 13, 20 ft	84,000	ND	NA	Cu 1,600 Pb 300
TS-129	3	4, 9, 17 ft	45,000	ND	NA	As 8.4 Cu 120 Pb 1,600
TS-132	3	3, 10, 17 ft	49,000	Benzene 7.7	2-Methylnapthalene 23 Naphthalene 8.6 Phenanthrene 7.4	As 23 Cu 160 Cr 68 Pb 850
TS-133	3	4, 10, 19 ft	16,000	Benzene 5.0	2-Methylnapthalene 26	As 6.9 Cu 56 Pb 2,500
TS-136	3	3, 12, 18 ft	34,000	ND	Fluoranthene 2.3 Phenanthrene 20 Pyrene 7.3 2-Methylnapthalene 74 Naphthalene 31	
TS-137	3	3, 10, 32 ft	8,000	ND	2-Methylnapthalene 26 Naphthalene 11 Phenanthrene 5.5 Fluorene 2.8	
TS-138	3	3, 12, 25 ft	2,700	ND	ND	
TS-139	3	3, 8, 15 ft	2,500	ND	2-Methylnapthalene 7.7 Naphthalene 3.1	As 16
TS-141	3	2, 16, 19 ft	16,000	ND	NA	Pb 190
TS-142	3	4, 13, 17 ft	2,100	ND	NA	Pb 92

Table 4-3: Soil Analyses of Oily Waste Interval
1997 WDIG Investigation

Soil Boring No.	No. of Samples Analyzed	Sample Depths	Soil Analyses - Maximum Concentrations							
			Total Hydrocarbons mg/kg	VOCs Detected (> 1 mg/kg)	mg/kg	SVOCs Detected (> 1 mg/kg)	mg/kg	Selected Metals	mg/kg
Borings Inside of Reservoir									
TS-130	2	4, 12 ft	26,000	Benzene	20	1,2-Dichlorobenzene	13	As	13
				TCE	62	2-Methylnapthalene	30	Cu	320
				PCE	450	Naphthalene	9.9	Pb	460
				cis 1,2-DCE	1.4	Phenanthrene	6.2		
TS-131	1	3 ft	< 50	ND		ND		As	5.2
TS-134	2	3, 11 ft	4,400	ND		ND		Pb	260
TS-135	2	3, 12 ft	38,000	cis 1,2-DCE	1.1	Naphthalene	12	As	40
						Phenanthrene	8.3	Cu	61
								Pb	450
TS-140	2	3, 11 ft	7,500	ND		2-Methylnapthalene	8.3	As	11
						Naphthalene	2.5	Pb	169

EXPLANATION:

1. Soil boring/soil sample analyses from WDIG Site Characterization Report (TRC, 1998).
2. Abbreviations: TCE = Trichloroethene, PCE = Tetrachloroethene, DCE = Dichloroethene, As = Arsenic, Cu = Copper, Pb = lead; mg/kg = milligrams per kilogram; NA = no analysis performed; ND = not detected above 1 mg/kg
3. Toluene was not reported in VOC analyses for WDIG Investigation



LEGEND

- WDI SITE BOUNDARY
- PARCEL BOUNDARY
- BUILDING
- ● GW-28 SHALLOW GROUNDWATER MONITORING WELL
- ◉ GW-30 INTERMEDIATE OR DEEP GROUNDWATER MONITORING WELL
- DIRECTION OF GROUNDWATER FLOW

SOIL GAS VOC HOT SPOTS – EPA 1997 SAMPLING

VW-19 ● VAPOR WELL GP145 ▲ GEOPROBE

Sample Location	Concentration of Selected VOCs (ppbv)			
	BTEX	TCE	PCE	Vinyl Chloride
VW-04	320	ND	ND	370
VW-08	ND	ND	ND	521
VW-09	73,500	310	110	1,700
VW-14	1,594	51	30	521
VW-18	750	ND	ND	ND
VW-21	2,630	29	52	ND
VW-22	ND	1,817	1,088	1,039
VW-23	ND	820	38	24
MP-1	4,443	626	620	280
MP-2	16,693	1,817	221	1,039
GP7	1,803	ND	ND	ND
GP9	8,870	ND	ND	320
GP10	578	ND	ND	ND
GP12	32,600	ND	ND	530
GP14	37	19	ND	520
GP16	526	ND	ND	ND
GP18	4,250	ND	ND	ND
GP31	ND	ND	670	ND
GP40	897	ND	ND	1,600
GP41	726	180	35	720
GP48	11,990	ND	ND	ND
GP77	32	790	32	ND
GP78	400	230	280	210
GP172	2,171	43	1,300	340
GP175	1,294	ND	ND	ND
GP185	ND	620	63	ND
GP186	8,115	ND	ND	ND

Map shows only well/probe locations with selected VOC concentrations >500 ppbv
Refer to EPA Soil Gas Data Report for complete sampling results.
BTEX = benzene, toluene, ethylbenzene, xylenes TCE = trichloroethene
PCE = tetrachloroethene ppbv = parts per billion, vapor ND = not detected

SCALE IN FEET
0 50 100 200

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DRAFT

Location of Soil Gas VOC Hot Spots
Waste Disposal, Inc., Santa Fe Springs, California

Figure 4-2

<cad> d:\cadd\6118\004\dm1\mgnt\FIG4-2.dwg 21 may 1998 01:40 p.m.

Table 4-4: Summary of Groundwater Sampling Results -- Detected VOCs
Waste Disposal, Inc. Site

				Groundwater Sample VOC Analyses -- Concentrations in Micrograms per Liter (ug/L)									
Well No.	Well Screen Interval (ft BGS)	Sample Date	Source	TCE		PCE		cis 1,2-DCE		Toluene		Other VOCs Detected	
GW - 01	38 - 58	Nov-88	EPA		ND		ND		ND		ND		
		Feb-92	EPA		ND		ND		ND		ND		
		May-92	EPA		ND		ND		ND		ND		
		Aug-92	EPA		ND		ND		ND		ND		
		Jun-95	WDIG		ND	13.0			ND	3.0		Methylene Chloride	1.0
		Sep-95	WDIG		ND	11.0			ND		ND		
		Sep-97	EPA	2.0		6.0		1.0		3.0			
		Sep-97	WDIG	2.7		6.6		1.2			--	1,2-Dichloroethane	0.5
		Jan-98	WDIG		ND	5.9			ND		--		
GW - 02	33 - 53	Nov-88	EPA		ND		ND		ND		ND		
		Feb-92	EPA		ND		ND		ND		ND		
		May-92	EPA		ND		ND		ND		ND		
		Aug-92	EPA		ND		ND		ND		ND		
		Jun-95	WDIG		ND		ND		ND	1.2		Methylene Chloride	1.2
		Sep-95	WDIG		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	1.0		1,2-Dichloroethane	1.0
		Sep-97	WDIG		ND		ND		ND		--	1,2-Dichloroethane	0.9
		Jan-98	WDIG		ND		ND		ND		--		
GW - 03	48 - 68	Nov-88	EPA		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	2.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 04	48 - 68	Nov-88	EPA		ND		ND		ND		ND		
		Feb-92	EPA		ND		ND		ND		ND		
		May-92	EPA		ND		ND		ND		ND		
		Aug-92	EPA		ND		ND		ND		ND		
		Jun-95	WDIG		ND		ND		ND		ND	Methylene Chloride	1.4
		Sep-95	WDIG		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	64.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 05	43 - 63	Nov-88	EPA		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	2.0		2-Hexanone	4.0
		Sep-97	EPA									4-Methyl-2-Pentanone	4.0
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 06	43 - 63	Nov-88	EPA		ND		ND		ND	2.0		Chloroform	9.0
		Sep-97	EPA		ND		ND		ND	3.0		Chloroform	0.9
		Sep-97	WDIG		ND		ND		ND		--	Chloroform	1.4
		Jan-98	WDIG		ND		ND		ND		--	Chloroform	1.5

Table 4-4: Summary of Groundwater Sampling Results -- Detected VOCs
Waste Disposal, Inc. Site

				Groundwater Sample VOC Analyses -- Concentrations in Micrograms per Liter (ug/L)									
Well No.	Well Screen Interval (ft BGS)	Sample Date	Source	TCE		PCE		cis 1,2-DCE		Toluene		Other VOCs Detected	
GW - 07	38 - 58	Nov-88	EPA		ND		ND		ND	1.0		Chloroform	8.0
		Feb-92	EPA		ND		ND		ND		ND		
		May-92	EPA		ND		ND		ND		ND		
		Aug-92	EPA		ND		ND		ND		ND	2-Butanone	41.0
		Jun-95	WDIG		ND		ND		ND		ND	Chloroform	3.1
		Sep-95	WDIG		ND		ND		ND		ND	Chloroform	3.0
		Sep-97	EPA		ND		ND		ND	7.0		Chloroform	3.0
		Sep-97	WDIG		ND		ND		ND		--	Chloroform	3.5
		Jan-98	WDIG		ND		ND		ND		--	Chloroform	2.9
GW - 08	43 - 63	Nov-88	EPA		ND		ND		ND	4.0			
		Sep-97	EPA		ND	1.0			ND	2.0			
		Sep-97	WDIG		ND	1.7			ND		--		
		Jan-98	WDIG		ND	2.0			ND		--		
GW - 09	38 - 58	Nov-88	EPA		ND		ND		ND		ND		
		Jan-98	WDIG		ND	4.7			ND		--		
GW - 10	38 - 58	Nov-88	EPA		ND		ND		ND	3.0			
		Feb-92	EPA		ND		ND		ND		ND		
		May-92	EPA		ND		ND		ND		ND		
		Aug-92	EPA		ND		ND		ND		ND		
		Jun-95	WDIG		ND		ND		ND	4.1			
		Sep-95	WDIG		ND		ND		ND		ND		
		Sep-97	EPA		ND	0.6			ND	3.0			
		Sep-97	WDIG		ND	1.0			ND		--		
		Jan-98	WDIG		ND	1.2			ND		--		
GW - 11	118 - 128	Nov-88	EPA		ND	11.0			ND		ND		
		Feb-92	EPA		ND		ND		ND		ND		
		May-92	EPA		ND	8.0			ND		ND		
		Aug-92	EPA		ND	17.0			ND		ND		
		Jun-95	WDIG		ND		ND		ND	3.7			
		Sep-95	WDIG		ND	2.9			ND		ND		
		Sep-97	EPA	4.0		30.0		0.6		1.0			
		Sep-97	WDIG	4.6		40.0		0.8			--	1,1-Dichloroethene	0.63
		Jan-98	WDIG	6.8		74.0		0.71			--		
GW - 13	39 - 59	Nov-88	EPA		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	1.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 14	38 - 58	Nov-88	EPA		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	3.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 15	48 - 68	Nov-88	EPA		ND		ND		ND	5.0			
		Sep-97	EPA		ND		ND		ND	2.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		

Table 4-4: Summary of Groundwater Sampling Results -- Detected VOCs
Waste Disposal, Inc. Site

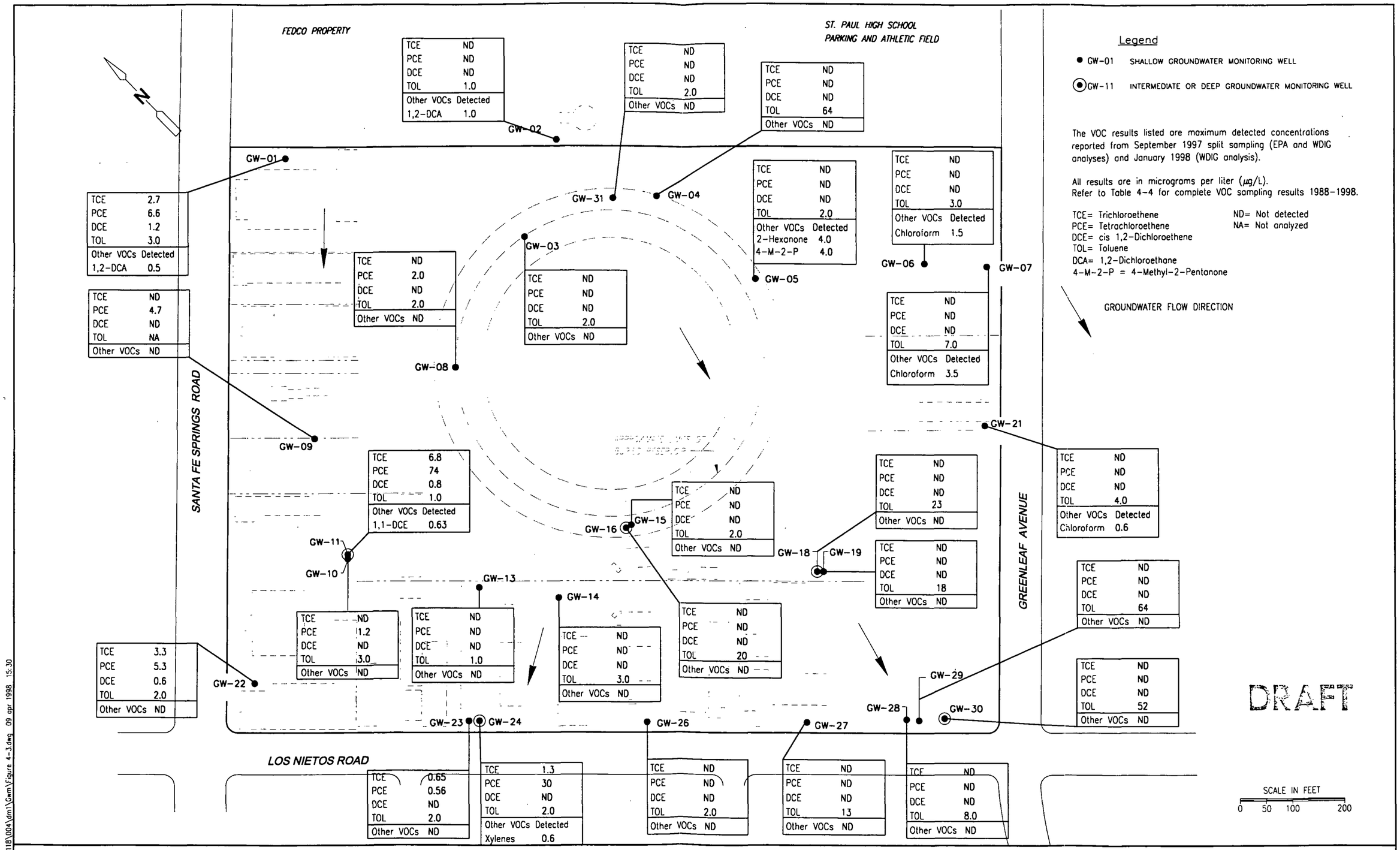
				Groundwater Sample VOC Analyses -- Concentrations in Micrograms per Liter (ug/L)									
Well No.	Well Screen Interval (ft BGS)	Sample Date	Source	TCE		PCE		cis 1,2-DCE		Toluene		Other VOCs Detected	
GW - 16	74 - 79	Nov-88	EPA		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	20.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 18	69 - 74	Nov-88	EPA		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	23.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 19	39 - 59	Nov-88	EPA		ND		ND		ND	4.0			
		Sep-97	EPA		ND		ND		ND	18.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 21	36 - 56	Nov-88	EPA		ND	1.0			ND		ND		
		Sep-97	EPA		ND		ND		ND	4.0			
		Sep-97	WDIG		ND		ND		ND		--	Chloroform	0.6
		Jan-98	WDIG		ND		ND		ND		--		
GW - 22	58 - 78	Nov-88	EPA		ND		ND		ND	5.0			
		Sep-97	EPA	2.0		3.0		0.6		2.0			
		Sep-97	WDIG	3.3		4.3		0.59			--		
		Jan-98	WDIG		ND	5.3			ND		--		
GW - 23	43 - 63	Nov-88	EPA		ND		ND		ND		ND		
		Feb-92	EPA		ND		ND		ND		ND		
		May-92	EPA		ND		ND		ND		ND		
		Aug-92	EPA		ND		ND		ND		ND		
		Jun-95	WDIG		ND		ND		ND	2.6			
		Sep-95	WDIG		ND		ND		ND		ND	2-Butanone	5.5
		Sep-97	EPA		ND		ND		ND	2.0			
		Sep-97	WDIG	0.65		0.56			ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 24	103 - 113	Nov-88	EPA		ND		ND		ND		ND		
		Feb-92	EPA		ND	2.0			ND		ND		
		May-92	EPA		ND		ND		ND		ND		
		Aug-92	EPA		ND		ND		ND		ND		
		Jun-95	WDIG		ND		ND	1.1		5.9		Xylenes	4.6
		Sep-95	WDIG		ND		ND		ND		ND		
		Sep-97	EPA	1.0		9.0			ND	2.0		Xylenes	0.6
		Sep-97	WDIG	1.3		13.0			ND		--		
		Jan-98	WDIG		ND	30.0			ND		--		

Table 4-4: Summary of Groundwater Sampling Results -- Detected VOCs
Waste Disposal, Inc. Site

				Groundwater Sample VOC Analyses -- Concentrations in Micrograms per Liter (ug/L)									
Well No.	Well Screen Interval (ft BGS)	Sample Date	Source	TCE		PCE		cis 1,2-DCE		Toluene		Other VOCs Detected	
GW - 26	44 - 64	Nov-88	EPA	18.0			ND		ND	4.0			
		Feb-92	EPA	8.0			ND		ND		ND		
		May-92	EPA	7.0			ND		ND		ND		
		Aug-92	EPA		ND		ND		ND		ND		
		Jun-95	WDIG		ND		ND		ND	1.8			
		Sep-95	WDIG		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	2.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 27	43 - 63	Nov-88	EPA		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	13.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 28	44 - 64	Nov-88	EPA		ND		ND		ND		ND		
		Feb-92	EPA		ND		ND		ND		ND		
		May-92	EPA		ND		ND		ND		ND		
		Aug-92	EPA		ND		ND		ND		ND		
		Jun-95	WDIG		ND		ND	1.9		9.4		Xylenes	7.1
		Sep-95	WDIG		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	8.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 29	44 - 64	Nov-88	EPA		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	64.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 30	74 - 94	Nov-88	EPA		ND		ND		ND		ND	Acetone	1,100
		Feb-92	EPA		ND		ND		ND		ND		
		May-92	EPA		ND		ND		ND		ND		
		Aug-92	EPA		ND		ND		ND		ND		
		Jun-95	WDIG		ND		ND		ND		ND		
		Sep-95	WDIG		ND		ND		ND		ND		
		Sep-97	EPA		ND		ND		ND	52.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		
GW - 31	43 - 63	Nov-88	EPA		ND		ND		ND	2.0			
		Sep-97	EPA		ND		ND		ND	2.0			
		Sep-97	WDIG		ND		ND		ND		--		
		Jan-98	WDIG		ND		ND		ND		--		

Abbreviations: TCE = Trichloroethene; PCE = Tetrachloroethene; DCE = Dichloroethene; ND = not detected; (--) = not analyzed

Maximum Contaminant Levels (MCLs): Trichloroethene = 5 ug/L, Tetrachloroethene = 5 ug/L, cis 1,2-DCE = 6 ug/L, Toluene = 150 ug/L



CDM Federal Programs Corporation
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VOCs Detected in Groundwater, 1997-1998 Sampling

Waste Disposal, Inc., Santa Fe Springs, California

Figure 4-3

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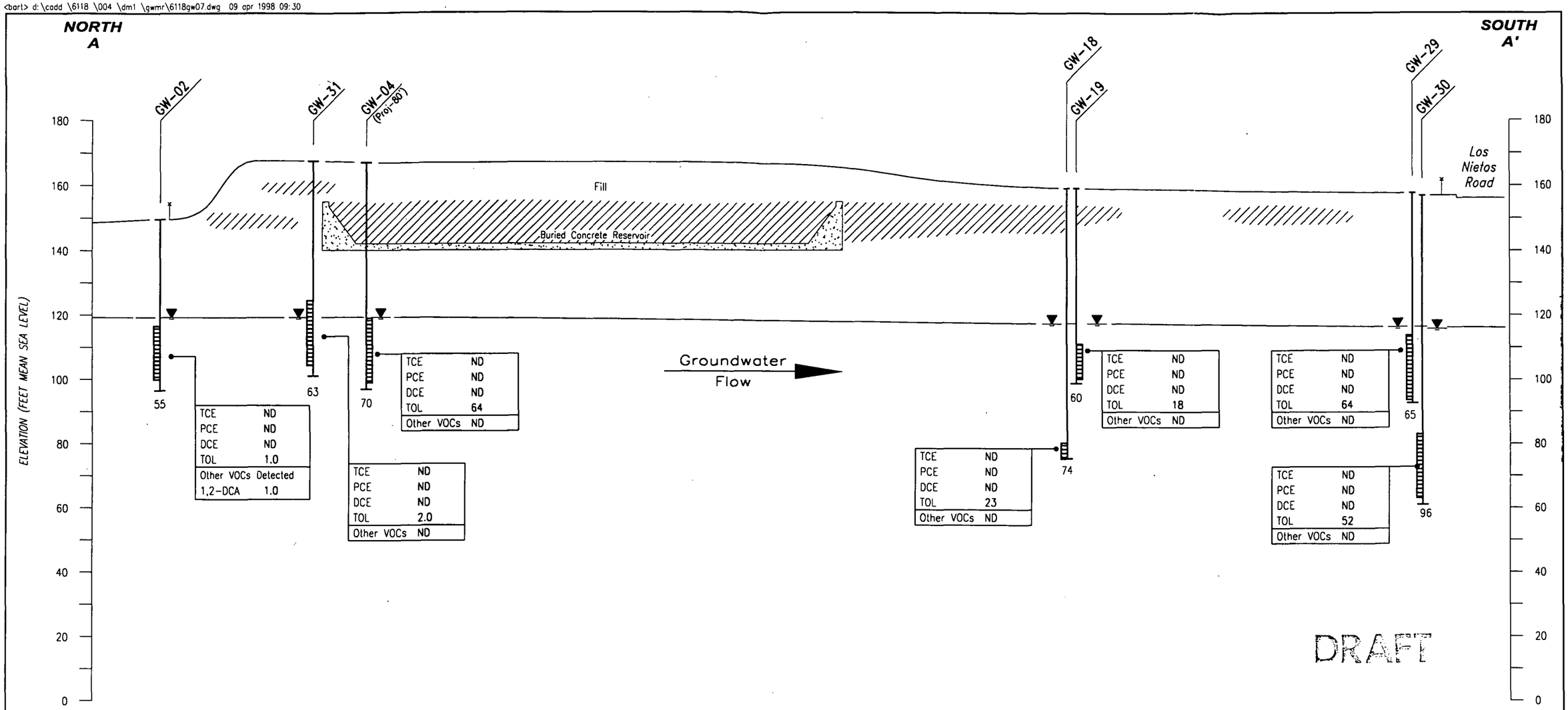


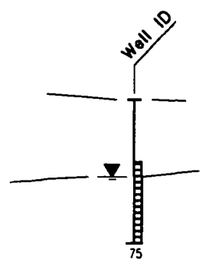
Monitoring Well/ Boring Diagram

Horizontal Scale

0 100 200 Feet

Vertical Scale

0 30 60 Feet



Ground surface

Water level, September 1997

Screened portion of well

Total depth, soil boring (feet below ground surface)

Legend

The VOC results listed are maximum detected concentrations reported from September 1997 split sampling (EPA and WDIG analyses) and January 1998 (WDIG analysis).

All results are in micrograms per liter ($\mu g/L$).
Refer to Table 4-4 for complete VOC sampling results 1988-1998.
Refer to Figure 2-2 for location of Hydrogeologic Section A-A'.

TCE= Trichloroethene
PCE= Tetrachloroethene
DCE= cis 1,2-Dichloroethene
TOL= Toluene
ND= Not detected
NA= Not analyzed
DCA= 1,2-Dichloroethane

//////////////// Oily Waste Interval

CDM Federal Programs Corporation
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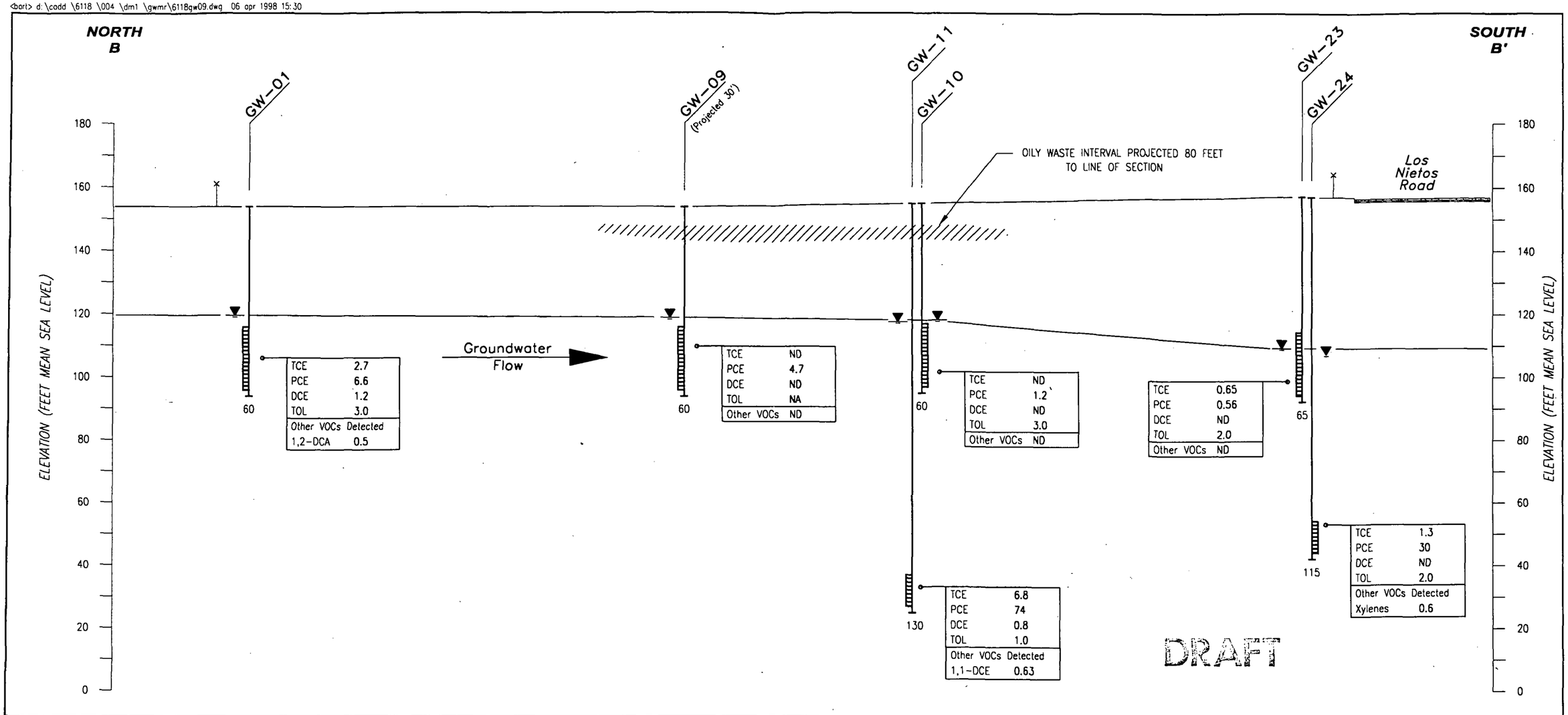
Figure 4-4

Groundwater VOC Sample Results 1997-1998 Section A-A'

Groundwater Data Evaluation Report

Waste Disposal, Inc.
Santa Fe Springs, California



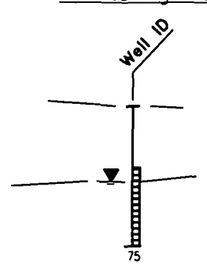
Horizontal Scale

0 100 200 Feet

Vertical Scale

0 30 60 Feet

Monitoring Well/ Boring Diagram



Ground surface

Water level, September 1997

Screened portion of well

Total depth, soil boring (feet below ground surface)

Legend

The VOC results listed are maximum detected concentrations reported from September 1997 split sampling (EPA and WDIG analyses) and January 1998 (WDIG analysis).

All results are in micrograms per liter (ug/L).
Refer to Table 4-4 for complete VOC sampling results 1988-1998.
Refer to Figure 2-2 for location of Hydrogeologic Section B-B'

TCE= Trichloroethene
PCE= Tetrachloroethene
DCE= cis 1,2-Dichloroethene
TOL= Toluene

ND= Not detected
NA= Not analyzed

DCA= 1,2-Dichloroethane

////////// Oily Waste Interval

CDM Federal Programs Corporation
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Figure 4-5

Groundwater VOC Sample Results 1997-1998 Section B-B'

Groundwater Data Evaluation Report

Waste Disposal, Inc.
Santa Fe Springs, California

Table 4-5: Groundwater Metals Analyses -- Selected Metals Present in Oily Waste
Waste Disposal, Inc. Site

Well No.	Location Relative to WDI Waste Sources	Sample Date	Metals Analysis	Selected Metals (Concentrations in ug/L)					
				Arsenic		Chromium		Lead	
GW - 01	upgradient	Nov-88	tm	25.0		91.3		34.0	
		Feb-92	tm	12.7		81.6		26.8	
		May-92	tm		ND	9.3		2.2	
		Aug-92	tm	4.7		19.9		2.4	
		Jun-95	dm		ND		ND		ND
		Sep-95	dm	57.0			ND	47.0	
		Sep-97	dm		ND	2.1			ND
		Jan-98	dm		ND		ND		ND
GW - 02	upgradient	Nov-88	tm	3.4		26.8		3.6	
		Feb-92	tm	2.3		13.8		2.4	
		May-92	tm		ND	10.8		3.4	
		Aug-92	tm		ND	7.9		1.8	
		Jun-95	dm		ND	12.0			ND
		Sep-95	dm	16.0			ND	15.0	
		Sep-97	dm		ND	5.8			ND
		Jan-98	dm		ND		ND		ND
GW - 03	north perimeter of Reservoir	Nov-88	tm	4.0		13.0		6.0	
		Sep-97	dm		ND	3.3			ND
		Jan-98	dm		ND		ND	2.8	
GW - 04	north perimeter of Reservoir	Nov-88	tm		ND	10.0			ND
		Feb-92	tm	2.0		16.5		3.7	
		May-92	tm		ND	18.9		7.2	
		Aug-92	tm	5.8		39.6		17.7	
		Jun-95	dm		ND	9.7			ND
		Sep-95	dm	56.0			ND	63.0	
		Sep-97	dm		ND	4.1			ND
		Jan-98	dm		ND		ND	5.8	
GW - 05	east perimeter of Reservoir	Nov-88	tm	2.9			ND		ND
		Sep-97	dm	10.4		1.9		1.2	
		Jan-98	dm	16.0			ND		ND
GW - 06	underlies OWS (east area)	Nov-88	tm	3.0		16.0		5.0	
		Sep-97	dm	4.5		14.1		2.4	
		Jan-98	dm		ND		ND		ND
GW - 07	cross-gradient to OWS (east area)	Nov-88	tm		ND		ND	3.0	
		Feb-92	tm		ND		ND		ND
		May-92	tm		ND	3.9		1.3	
		Aug-92	tm		ND	6.5			ND
		Jun-95	dm		ND	9.4			ND
		Sep-95	dm		ND		ND		ND
		Sep-97	dm		ND	4.6		4.5	
		Jan-98	dm		ND		ND		ND
GW - 08	west perimeter of Reservoir	Nov-88	tm	12.0		8.0		3.0	
		Sep-97	dm	31.1		1.2			ND
		Jan-98	dm	27.0			ND		ND
GW - 09	cross-gradient to OWS (west area)	Nov-88	tm	13.1		25.4		3.7	
		Jan-98	dm		ND		ND		ND

Table 4-5: Groundwater Metals Analyses -- Selected Metals Present in Oily Waste
Waste Disposal, Inc. Site

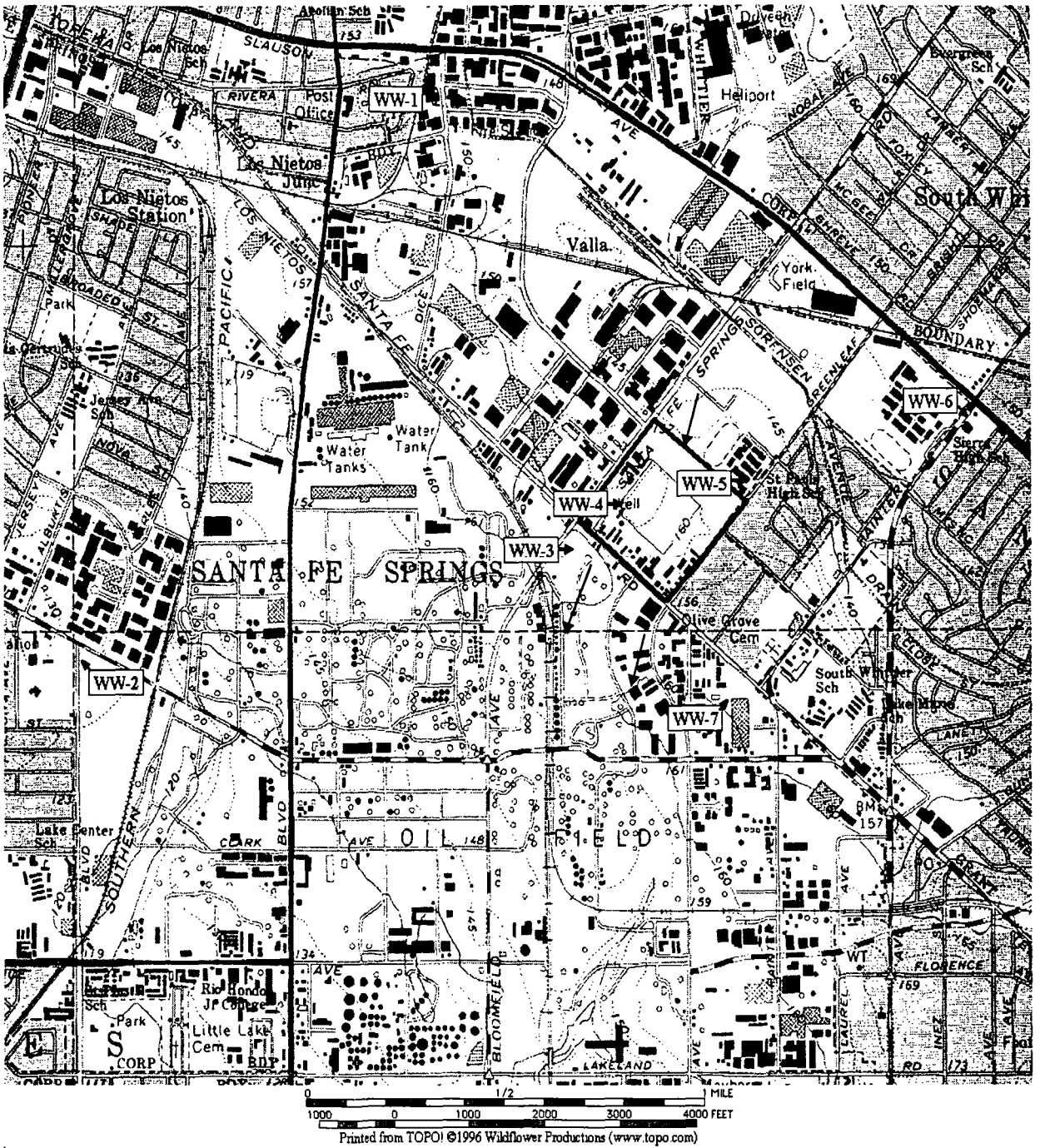
Well No.	Location Relative to WDI Waste Sources	Sample Date	Metals Analysis	Selected Metals (Concentrations in ug/L)					
				Arsenic		Chromium		Lead	
GW - 10	cross-gradient to OWS (west area)	Nov-88	tm	8.0		13.0		4.0	
		Feb-92	tm	15.6		41.6		17.4	
		May-92	tm	9.5		18.1		8.7	
		Aug-92	tm		ND	5.3		2.1	
		Jun-95	dm	3.4			ND		ND
		Sep-95	dm	19.0			ND	3.3	
		Sep-97	dm		ND	1.2			ND
		Jan-98	dm		ND		ND	2.9	
GW - 11	cross-gradient to OWS (west area)	Nov-88	tm		ND		ND		ND
		Feb-92	tm		ND	4.9		5.1	
		May-92	tm		ND	5.9			ND
		Aug-92	tm		ND	3.1			ND
		Jun-95	dm		ND		ND		ND
		Sep-95	dm	7.5			ND	5.3	
		Sep-97	dm		ND	3.0			ND
		Jan-98	dm		ND		ND	2.5	
GW - 13	downgradient of OWS (west area)	Nov-88	tm		ND	11.9		2.2	
		Sep-97	dm		ND	1.3		2.1	
		Jan-98	dm		ND	12.0		6.3	
GW - 14	downgradient of Reservoir	Nov-88	tm		ND		ND		ND
		Sep-97	dm		ND	1.3		2.7	
		Jan-98	dm		ND		ND	6.6	
GW - 15	downgradient of Reservoir	Nov-88	tm	11.0		25.0		13.0	
		Sep-97	dm	12.0		1.0			ND
		Jan-98	dm		ND		ND	2.7	
GW - 16	downgradient of Reservoir	Nov-88	tm		ND		ND	1.7	
		Sep-97	dm		ND	5.1			ND
		Jan-98	dm		ND		ND	4.0	
GW - 18	downgradient of Reservoir	Nov-88	tm		ND		ND	1.8	
		Sep-97	dm		ND	4.6			ND
		Jan-98	dm		ND		ND		ND
GW - 19	downgradient of Reservoir	Nov-88	tm	3.0		18.0		4.0	
		Sep-97	dm		ND	1.3			ND
		Jan-98	dm		ND		ND		ND
GW - 21	downgradient of OWS (east area)	Nov-88	tm	6.6		8.8			ND
		Sep-97	dm		ND		ND		ND
		Jan-98	dm	2.0			ND	4.1	
GW - 22	cross-gradient to OWS (west area)	Nov-88	tm	11.0		17.0		12.0	
		Sep-97	dm		ND		ND	2.1	
		Jan-98	dm		ND		ND		ND
GW - 23	downgradient of OWS (west area)	Nov-88	tm	9.5		33.1		4.3	
		Feb-92	tm	2.2		15.2		2.1	
		May-92	tm		ND	5.6		1.7	
		Aug-92	tm		ND	6.4			ND
		Jun-95	dm		ND		ND		ND
		Sep-95	dm	19.0			ND	18.0	
		Sep-97	dm		ND	1.8			ND
		Jan-98	dm		ND		ND	2.0	

Table 4-5: Groundwater Metals Analyses -- Selected Metals Present in Oily Waste
Waste Disposal, Inc. Site

Well No.	Location Relative to WDI Waste Sources	Sample Date	Metals Analysis	Selected Metals (Concentrations in ug/L)					
				Arsenic		Chromium		Lead	
GW - 24	downgradient of OWS (west area)	Nov-88	tm		ND		ND	1.5	
		Feb-92	tm		ND	5.5			ND
		May-92	tm		ND	3.1		1.3	
		Aug-92	tm		ND	3.9			ND
		Jun-95	dm		ND	11.0			ND
		Sep-95	dm		ND		ND	4.2	
		Sep-97	dm		ND	2.8			ND
		Jan-98	dm		ND		ND	9.9	
GW - 26	downgradient of OWS (east area)	Nov-88	tm	8.0		33.0		12.0	
		Feb-92	tm	9.9		33.4		17.8	
		May-92	tm		ND	6.6		2.8	
		Aug-92	tm	2.6		11.5		3.9	
		Jun-95	dm		ND	12.0			ND
		Sep-95	dm	51.0			ND	49.0	
		Sep-97	dm		ND	2.6			ND
		Jan-98	dm		ND		ND		ND
GW - 27	downgradient of OWS (east area)	Nov-88	tm	7.0		53.0		10.0	
		Sep-97	dm	4.5		1.3			ND
		Jan-98	dm		ND		ND	2.8	
GW - 28	downgradient of OWS (east area)	Nov-88	tm	7.0		24.4		16.3	
		Feb-92	tm	11.8		55.1		13.7	
		May-92	tm	6.5		21.6		11.1	
		Aug-92	tm	6.9		49.1		6.6	
		Jun-95	dm		ND	9.9			ND
		Sep-95	dm	32.0			ND	37.0	
		Sep-97	dm		ND	1.3			ND
		Jan-98	dm		ND		ND	2.5	
GW - 29	downgradient of OWS (east area)	Nov-88	tm		ND		ND	7.8	
		Sep-97	dm		ND	4.4			ND
		Jan-98	dm		ND		ND	9.0	
GW - 30	downgradient of OWS (east area)	Nov-88	tm	7.0		33.3		11.3	
		Feb-92	tm		ND	4.1		1.0	
		May-92	tm		ND	5.2		3.6	
		Aug-92	tm		ND		ND	2.2	
		Jun-95	dm		ND		ND	3.7	
		Sep-95	dm	46.0			ND	39.0	
		Sep-97	dm		ND	2.1			ND
		Jan-98	dm		ND		ND	2.1	
GW - 31	north perimeter of Reservoir	Nov-88	tm		ND	17.0		3.0	
		Sep-97	dm		ND	5.5		1.1	
		Jan-98	dm		ND		ND	4.6	

EXPLANATION

1. Abbreviations: ND = not detected; OWS = oily waste sump (disposal areas outside reservoir)
   ug/L = micrograms per liter; tm = total metals analysis; dm = dissolved metals analysis
2. Maximum Contaminat Levels (MCLs): Arsenic = 50 ug/L; Chromium = 50 ug/L
   Lead has an action level of 15 ug/L
   Shading denotes MCL or action level exceedance



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LEGEND

WW-1 Water Supply Well

GW Flow Direction

DRAFT

Location of Water Supply Wells in Vicinity of WDI
Santa Fe Springs, CA
Groundwater Data Evaluation Report

CDM Federal Programs Corporation
A Subsidiary of Camp Dresser & McKee Inc.

Figure 5-1

Table 5-1: Water Supply Wells in Vicinity of WDI
Santa Fe Springs, CA

Map ID (Fig. 5-1)	DWR Well Designation	LACFD Well Number	Location / Property	Distance & direction from WDI	Owner	WELL USE / STATUS			WELL CONSTRUCTION DATA			References
						Date Constructed	Well Use	Well Status (1997-98)	Total Depth (ft bgs)	Screened Intervals (ft bgs)	Depth to Water (date) (ft bgs)	
WW-1	02/11W-30R03S	1633B	Dice and Burke Streets	1.02 miles NW	City of Santa Fe Springs	1961	municipal water supply	active	900	200 - 288 300 - 900	106 53 5 (1992)	City of Santa Fe Springs, R. Hughes
WW-2	03S/11W-06D03S	NA	Telegraph & Pioneer Streets	1.37 miles SW	City of Santa Fe Springs	1978	municipal water supply	inactive	840	620 - 760	82	City of Santa Fe Springs, R Hughes
WW-3	NA	1645	Bloomfield & Los Nietos	SW	Southern California Edison	NA		*Abandoned*	228	NA	NA	EBASCO, 1989a
WW-4	NA NA	1634 1634D	Onsite Onsite	-- --	NA NA	NA NA	NA NA	NA NA	210 210	NA 120-210	NA NA	EBASCO, 1989a
WW-5	2S/11W-32K5	1644G	St Paul H.S.	1000-1500 ft NE	City of Santa Fe Springs	NA	NA	NA	84	40-58 88 102 131-139 604-628	32.6 (no date)	EBASCO, 1989a
WW-6	2S/11W-32J04S	NA	Painter & Mulberry (Sierra H.S.)	NE	Whittier Union H.S. District	NA	Domestic & Irrigation	NA	804	NA	NA	EBASCO, 1989a
WW-7	2S/11W-32Q3	1645H	Between Los Nietos & Telegraph	775 ft SE	Charles Boring	1925 (?)	Public Supply & Irrigation (1925-1951)	Capped in 1957	648	40-58 88 102 131-134 535-545 558-562 567-570 590-594 604-624	32.6 (no date)	EBASCO, 1989a

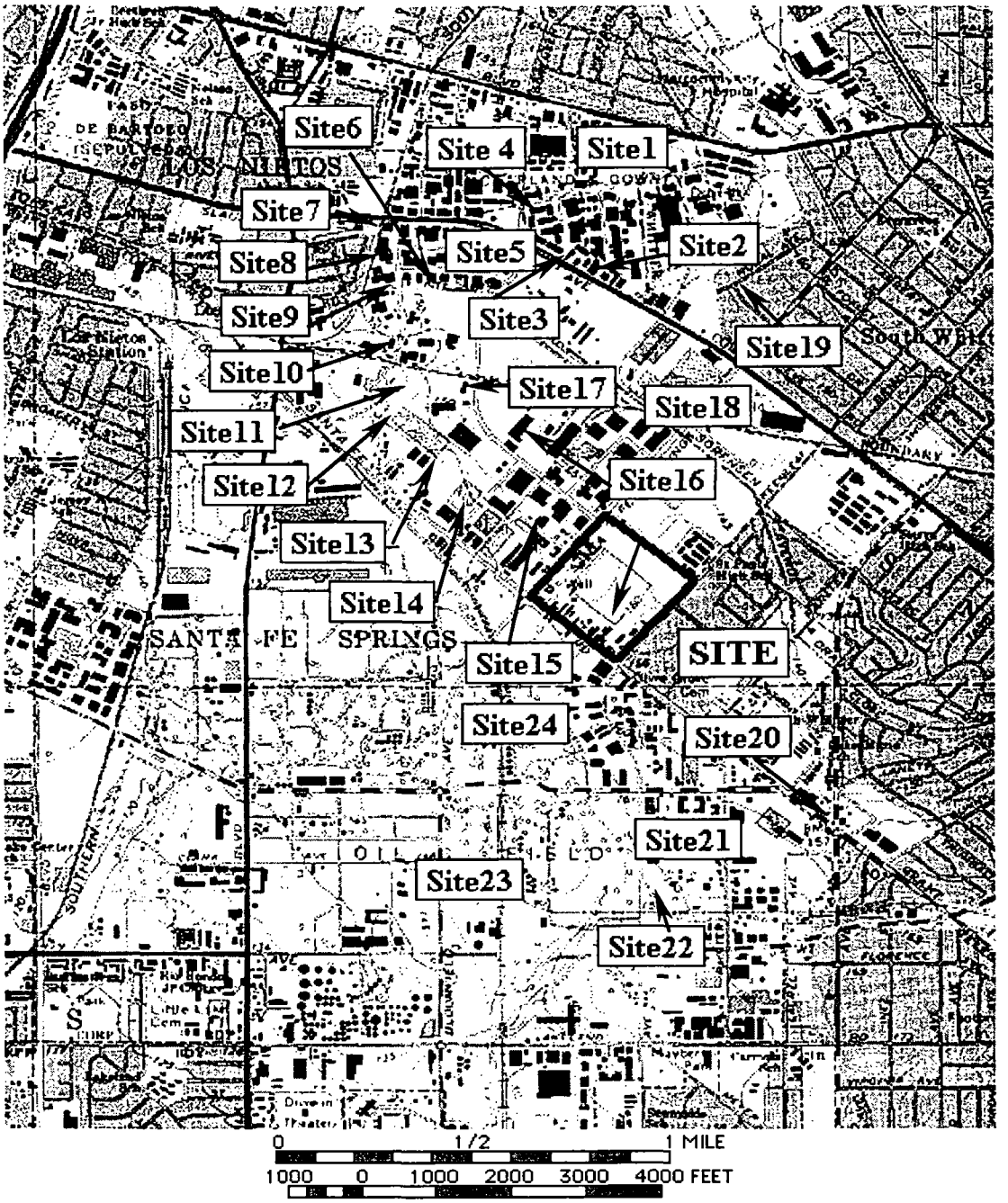
DWR = Department of Water Resources
LACFD = Los Angeles County Fire Department
NA = Not available

TABLE 5-2

TYPES AND NUMBER OF SITES INCLUDED
IN VISTA REPORT

AGENCY TYPE	NAME OF LIST	NUMBER OF SITES
USEPA	National Priority List	1 (WDI)
USEPA	RCRA Corrective Actions	5
USEPA	RCRA permitted treatment, storage, disposal facilities	0
STATE	State equivalent priority list	3
STATE	State equivalent CERCLIS list	24
USEPA	Sites under review by USEPA	2
STATE/REG/CO	Leaking Underground Storage Tanks	78
STATE/REG/CO	Solid waster landfills, incinerators, or transfer stations	10
STATE	Additional state and regional lists	96
USEPA	Toxic Release Inventory System database	21
STATE/CO	Registered underground storage tanks	211
STATE	Registered aboveground storage tanks	3
USEPA	RCRA registered small or large hazardous waste generators	215
USEPA	RCRA violations/enforcement actions	6
USEPA/STATE	ERNS and state spills lists	71
TOTAL NUMBER OF SITES		**746**

USEPA = United States Environmental Protection Agency
REG = Regional Water Quality Control Board
CO = County Los Angeles



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N

LEGEND

Site1 Chemical Release Site

GW Flow Direction

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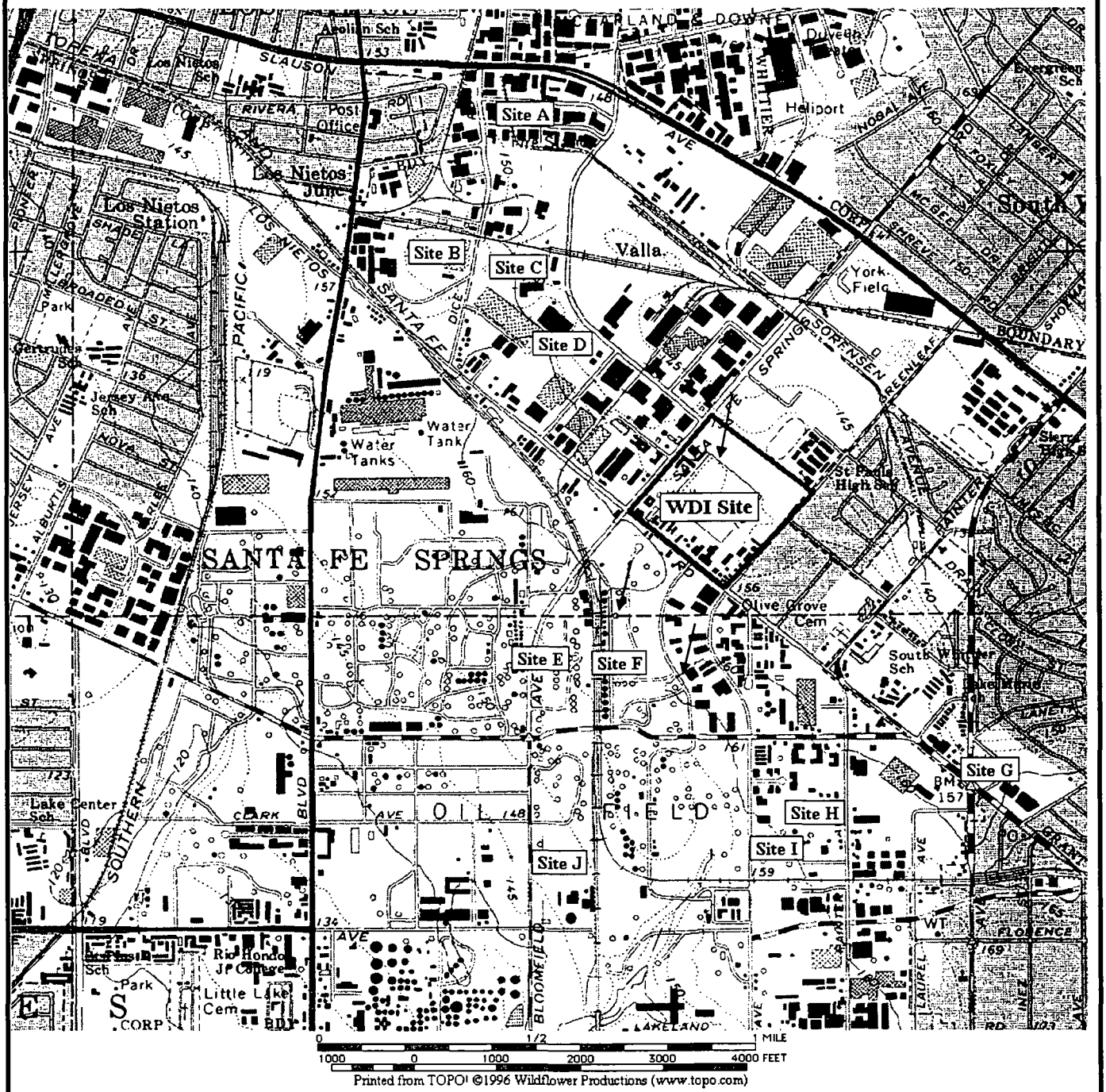
Chemical Release Sites in Vicinity of WDI
Santa Fe Springs, CA
Groundwater Data Evaluation Report

Figure 5-2

Table 5-3: Chemical Release Sites in Vicinity of WDI
Santa Fe Springs, CA

Map ID *	Address	Site Name(s)	Distance from WDI (miles)	Direction from WDI	Nature of Release
1	8140 Secura Way Santa Fe Springs, CA 90670	Foss Plating Co. Inc.	1.09	N	TCE release - 11,200 lbs
2	8427 Secura Way Santa Fe Springs, CA 90670	Santa Fe Enameling Metal Finishing Company	0.77	N	TCE release - 13,100 lbs
3	12140 Slauson Ave. Santa Fe Spnngs, CA 90670	Catellus Development Corp.	0.77	N	Leaking UST of VOCs
4	11919 Rivera Road Santa Fe Springs, CA 90670	Cal-Tron Plating Inc.	0.98	N	TCE release - 15,800 lbs
5	11845 Burke Street Santa Fe Springs, CA 90670	Techni Braze, Inc.	0.91	NW	Leaking UST of VOCs CERCLIS
6	11808 Burke Street Santa Fe Springs, CA 90670	Parker Hanninfin Corp.	0.97	NW	TCE release - 13,000 lbs
7	8535 Dice Road Santa Fe Springs, CA 90670	Aerospace Rivet Mfg. Corp.	1.03	NW	Unknown chemical release CERCLIS
8	8623 Dice Road Santa Fe Spnngs, CA 90670	West Bent Bolt	0.96	NW	Unknown chemical release CERCLIS
9	8733 S. Dice Road Santa Fe Springs, CA 90670	Witco Corporation	0.88	NW	Many chemical spills - unknown, ethylene Oxide, diethanolamine
10	8851 Dice Road Santa Fe Springs, CA 90670	Southern California Chemical	0.82	NW	Many chemical spills - unknown, Copper chloride, HCL
11	8921 Dice Rd. Santa Fe Springs, CA 90670	Diversey Wyandotte Corp.	0.76	NW	Many corrective actions - "Stabilization Measures Evaluation", CERCLIS
12	9110 S. Dice Road Santa Fe Springs, CA 90670	Mobil INSP Service Inc.	0.69	NW	60 gal. benzene release to storm drain
12	9028 S. Dice Road Santa Fe Springs, CA 90670	T-Chem Products	0.71	NW	1377 lb. unknown chemical release
13	12143 Altamar Place Santa Fe Springs, CA 90670	Witco Corp. - Oleo/Surfactants Group	0.52	NW	Unknown chemical release 500 lbs
14	9520 S. John Street Santa Fe Springs, CA 90670	Valvoline Oil Co.	0.37	NW	Unknown chemical release 300 lbs
15	9636 Ann Street Santa Fe Springs, CA 90670	Associated Plating Co.	0.23	NW	PCE release - 14,500 lbs
16	9200 Sorensen Ave Santa Fe Springs, CA 90670	Calavar Corporation	0.46	NW	Leaking UST of VOCs
17	9005 Sorensen Ave Santa Fe Springs, CA 90670	McKesson Chemical Corporation	0.57	NW	Leaking tank of unknown substance Has DTSC Work Plan
17	9101 S. Sorensen Santa Fe Springs, CA 90670	Peterson/Puritan Inc.	0.51	NW	Leaking solvents tank
18	9300 Santa Fe Spnngs Road Santa Fe Springs, CA 90670	Rifkin Realty Partners	0.35	N	Leaking tank of unknown substance
18	9215 Santa Fe Springs Road Santa Fe Springs, CA 90670	Salz Leather	0.39	N	Leaking tank of unknown substance
18	9215 Santa Fe Spring Road Santa Fe Springs, CA 90670	PFI, Inc.	0.39	N	Xylene release - 1,500 lbs Methyl Ethyl Ketone release - 1,000 lbs
19	8922 S. Nogal Santa Fe Springs, CA 90670	UNK Vehicle	0.77	N	Unknown chemical release
20	13401-13473 E. Telegraph Rd. Santa Fe Springs, CA 90670	Nadar's Cleaners	0.81	SE	Leaking tank of VOCs
21	10505 S. Painter Avenue Santa Fe Springs, CA 90670	Ashland Chemical Finishing Company	0.71	S	Leaking solvents tank
22	10600 Shoemaker Avenue Santa Fe Springs, CA 90670	Yozya Development Shoemaker Industrial Park	0.73	S	Soil contaminated with crude oil - former Mobil Oil Company property
23	Florence & Shoemaker Avenues Santa Fe Springs, CA 90670	McGranahan, Carlson, and Co. Commerce Center II	0.79	S	Site has been, and in some places continues to be, an oil production field (as of 1991)
24	10051 S. Romadel Santa Fe Springs, CA 90670	PMC Specialties Group	0.42	SW	Leaking solvents tank

* See Figure 5-2 for site locations



LEGEND

N

Site A — Offsite Property with GW Monitoring Wells

GW Flow Direction

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Properties with Groundwater Investigations and Groundwater Monitoring Wells in Vicinity of WDI
Santa Fe Springs, CA
Groundwater Data Evaluation Report

Figure 5-3

Table 5-4: Groundwater Monitoring Sites in the Vicinity of WDI
Santa Fe Springs, CA

					GROUNDWATER QUALITY DATA					
Map ID Figure 5-3	Well Designation	Property/Location	Distance from WDI (miles)	Date Constructed	Sampling Date	Analyses Conducted	Contaminant	Maximum Detection (ug/L)	Notes	References
A	4 GW monitoring wells	Techni-Braze, Inc	0.95	Aug-91	Aug-91	VOCs	PCE	7,400	Alloy brazing and heat treatment of metals	Kleinfelder, 1991
		11845 Burke Street					TCE	100	facility	
							1,1,1-TCA	17		
							1,1-DCE	28		
B	4 GW monitoring wells	Diversey Wyandotte Corp.	0.77	Jan-86	Oct-97	VOCs, PAHs	PCE	38	In '97 sampling round, GW-1 could not be	Environmental Strategies Corp., 1997
	4 extraction wells	8921 Dice Road		Dec-89			TCE	210	located. Kerosene product on groundwater	
							1,1,1-TCA	64		
							1,1-DCE	90		
C	23 GW monitoring wells	McKesson Corporation	0.72		Feb-94	VOCs	PCE	15,000		Geomatrix Consultants, 1995
		9005 Sorensen Ave					TCE	14,300		
							1,1,1-TCA	114,000		
							1,1-DCE	11,800		
D	NA	Calavar Corp.	0.45		Mar-97				Letter d 3/1/8/97 from LARWQCB states site is	Ross, 1997
		9200 Sorenson Ave.							not a source of the VOCs (TCE, PCE and 1,1-DCE)	
									found in groundwater - no further action required	
E	27 GW monitoring wells	Oil Fields Reclamation Project	0.57	1993 - 1994 & 1996	Apr-95	VOCs, TPH	TPH	110,000		Various
							Benzene	2,200		
							PCE	830		
							TCE	300		
F	4 GW monitoring wells	PMC Specialties/Ferro Corp.	0.37		5/86, 7/86	cresylic & napthenic	Petroleum hydrocarbons	120,000		Kleinfelder, 1986
		10051 S. Romandel				acids, trihalo-methanes				
G	8 GW monitoring wells	Nadar Cleaners	0.81		Nov-97	VOCs	PCE	39		SECOR, 1997
		13401-13473 E. Telegraph Rd.					TCE	3.2		
							Cis-1,2-DCE	1.6		
H	33 GW monitoring wells	Ashland Chemical	0.67		Oct-95	VOCs	PCE	9,300		Groundwater Technology, Inc., 1996
		10505 S. Painter Ave.					TCE	11,000		
I	6 GW monitoring wells	Yozya Development	0.73	1984	Oct-88		PCE	120	Former Mobil Oil property	Maness Environmental Services, Inc., 1989
		Shoemaker Industrial Prk		1986			TCE	370		
		10600 Shoemaker Ave.		1988			1,1-DCE	1,600		
J	4 GW monitoring wells	MC&C Commerce Center	0.79	May 1991	May-91	VOCs, SVOCs	TCE	5	Former (and in some places present) Mobil Oil	Dineen, 1991
		Florence & Shoemaker					Cis-1,2-DCE	90	property	

ABBREVIATIONS:

DCE = Dichloroethene
GW = Groundwater
PAHs = Polycyclic aromatic hydrocarbons
PCE = Tetrachloroethane
SVOCs = Semivolatile organic compounds
TCA = Trichloroethane
TCE = Trichloroethene
VOCs = Volatile organic compounds

SITE CHARACTERIZATION CONCLUSIONS

GROUNDWATER FLOW

- Groundwater gradient and southerly flow direction are well-defined and consistent over past 10 years
  Groundwater depression in SW corner (offsite pumping)

- Depth to groundwater has ranged from:
  34 ft below base elev. of Reservoir (Nov-88) to
  22 ft below base elev. of Reservoir (Sep-97)
  Further rise in water table (direct contact w/ sources) is unlikely

- Minimal downward vertical gradient, primary flow will be horizontal
  Sandy aquifer units appear interconnected (no extensive confining beds)

- Estimated maximum groundwater velocity of 60 feet/year

WDI SOURCE CHARACTERIZATION

- Sources to monitor for groundwater impacts:
  - Buried Reservoir
  - Oily Waste Sumps / Disposal Areas
  - Soil Gas Hot Spots

- 1988 & 1997 soil investigations have defined depth, extent, and chemistry of Oily Waste source (oily liquids, BTEX, SVOC, PP metals)

- Soil gas hot spots confirmed; high levels of BTEX and PCE/TCE in vadose zone may be contributing source of VOCs in groundwater

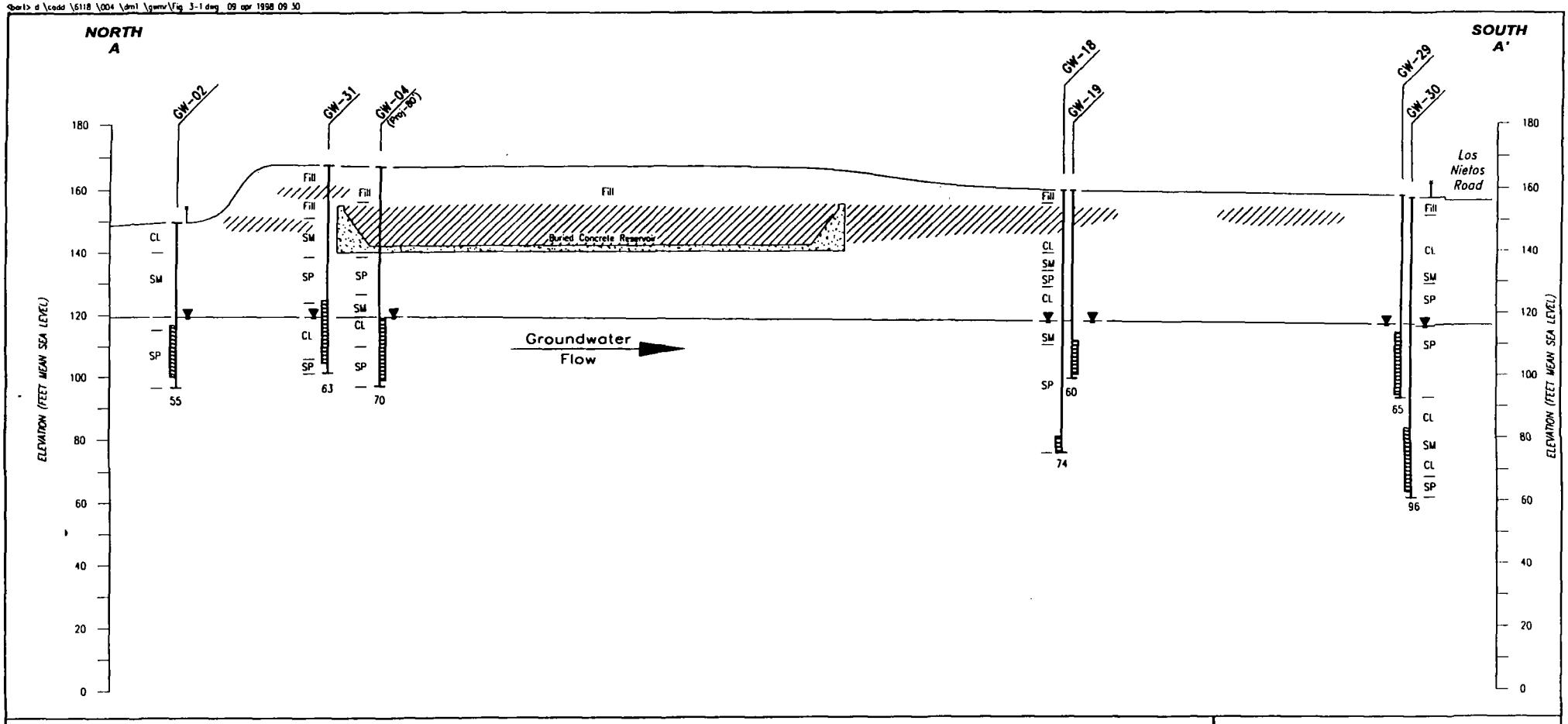
GROUNDWATER SAMPLING CONCLUSIONS

- No classic "VOC-plume" or oily waste/SVOC groundwater impacts observed downgradient of WDI sources
- PCE, TCE, and Toluene are primary VOCs detected, max. 74 ug/L Toluene is only VOC consistently detected in wells downgradient of WDI sources
- PCE and TCE in western deep zone monitoring wells appear related to upgradient solvent release site(s)
- Priority pollutant (PP) metals present in oily waste not detected in groundwater
- Lack of oil sheen, PP metals, and SVOC impacts support conclusion that releases or migration of oily waste to groundwater is not occurring
- Other metals detected above drinking water standards (Al, Fe, Mn, Se) appear to be regional water quality condition
- General chemistry groundwater quality data are lacking

water chem, background, etc

POTENTIAL FOR DNAPL / LNAPL

- Release of "product" has occurred
- Release is sufficient to saturate soil and soil column to top of the aquifer
- Release is sufficient that "product" maintains a separate phase as DNAPL / LNAPL
- Review of soil data / observations for saturated soil conditions
- Review of soil gas data for saturated soil conditions
- Review of groundwater data for DNAPL / LNAPL indicators:
  - oily sheen
  - high groundwater concentrations
- Concern for potential for LNAPL remains



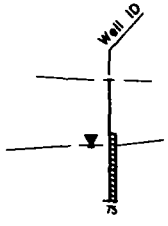
Horizontal Scale

0 100 200 Feet

Vertical Scale

0 30 60 Feet

Monitoring Well/ Boring Diagram



Ground surface

Water level, September 1997

Screened portion of well

Total depth, soil boring (feet below ground surface)

Legend

Fill	Fill soils
	Oily Waste, drilling mud, sump material
CL	Clay
ML	Silt
SM,SC	Silty sand, clayey sand
SP,SW	Medium to coarse sand

Refer to Figure 2-2 for location of Hydrogeologic Section A-A'

CDM Federal Programs Corporation

A Subsidiary of Camp Dresser & McKee Inc

Figure 3-1

Hydrogeologic Section A-A'

Groundwater Data Evaluation Report

Waste Disposal, Inc.
Santa Fe Springs, California

LONG-TERM GROUNDWATER MONITORING

OBJECTIVES

- Establish Detection Monitoring Program to detect potential release and migration of contaminants from WDI waste sources

- Maintain water level monitoring to document conditions or changes in groundwater flow and contaminant migration

MONITORING WELL NETWORK

- Point of Compliance Detection Wells
  - downgradient edge of WDI waste areas
  - monitor shallow zone, 200-foot well spacing

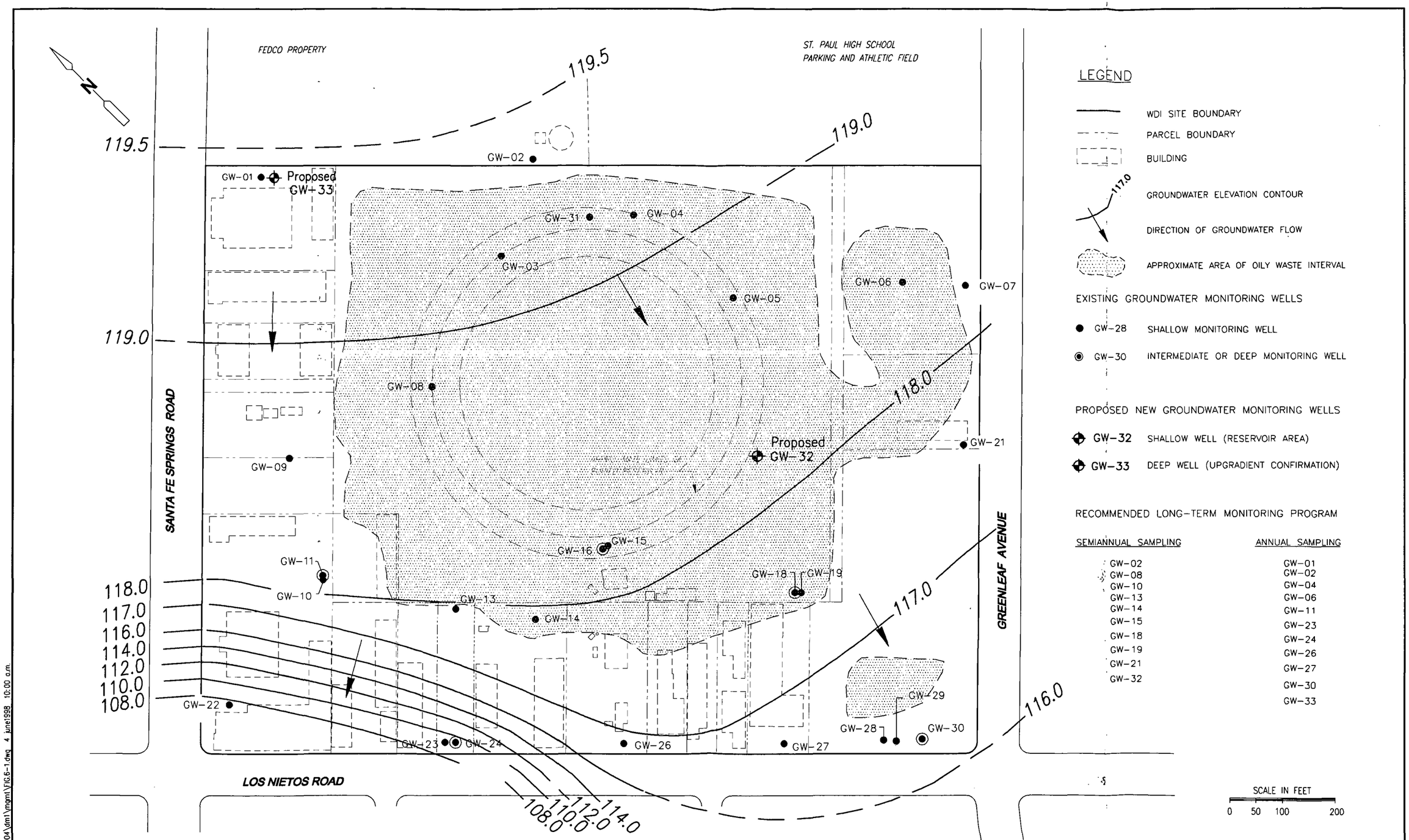
- Downgradient Property-Line Compliance Wells (shallow and deep)

- Upgradient Background Well

PROPOSED NEW MONITORING WELLS

- Near-Source Confirmation Well (eastern Oily Waste area)

- Upgradient Monitoring Well (verify upgradient source of deep VOC migration)



CDM Federal Programs Corporation
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Proposed New Groundwater Monitoring Wells and Recommended Long-Term Monitoring Program
Waste Disposal, Inc., Santa Fe Springs, California

Figure 6-1

<chart> d:\codd\6118\004\dm1\mgm1\FIG.6-1.dwg 4 june1998 10:00 a.m.

GROUNDWATER MONITORING PROGRAM

WATER LEVEL MONITORING

- Semiannual Water Level Measurements all Site Wells
- Collect bailer grab samples and inspect for oil sheen

SEMIANNUAL GROUNDWATER TESTING

- Sample 8-10 Point of Compliance (POC) & Near-Source Detection Wells
- Analyses: VOCs and General Chemistry parameters
- Four quarters of landfill water quality parameters

ANNUAL GROUNDWATER TESTING

- Sample POC Detection Wells plus 10-12 additional wells:
  - Background Well (GW-02)
  - Downgradient Property- Line Verification Wells (shallow & deep)
  - West Area Verification Wells (upgradient VOC migration)
- Analyses: VOCs, General Chemistry, PP Metals, and SVOCs