APPENDIX K

URS 2004 Pipeline Soil and Groundwater Investigation

Table 1
Soil and Groundwater Samples Locations and Depths
Former Benicia Arsenal and Nike Battery 10 Site
Concord to Sacramento Pipeline Project

Soil Boring ID	Matrix (S/GW)	Sample ID	Location
1	S	SB-1-0-0.5	Benicia Arsenal
1	S	SB-1-5-5.5	Benicia Arsenal
1	GW	SB-1	Benicia Arsenal
2	S	SB-2-0-0.5	Benicia Arsenal
2	GW	SB-2-0-0.5	Benicia Arsenal
3	S	SB-3-0-0.5	Benicia Arsenal
3	S	SB-3-5-5.5	Benicia Arsenal
3	GW	SB-3	Benicia Arsenal
4	S	SB-4-0-0.5	Benicia Arsenal
4	S	SB-4-4-5	Benicia Arsenal
4	GW	SB-4	Benicia Arsenal
5	S	SB-5-0-0.5	Benicia Arsenal
5	S	SB-5-5-5.5	Benicia Arsenal
5	GW	SB-5	Benicia Arsenal
6	S	SB-6-0-0.5	Benicia Arsenal
6	S	SB-6-5-5.5	Benicia Arsenal
6	GW	SB-6	Benicia Arsenal
7	S	SB-7-0-0.5	Benicia Arsenal
7	S	SB-7-5-5.5	Benicia Arsenal
7	GW	SB-7	Benicia Arsenal
A	S	SB-A-0-0.5	Benicia Arsenal
A	S	SB-A-5-5.5	Benicia Arsenal
A	S	SB-A-9.5-10	Benicia Arsenal
B	S	SB-B-0-0.5	Benicia Arsenal
B	S	SB-B-5-5.5	Benicia Arsenal
B	GW	SB-B	Benicia Arsenal
B	GW	SB-B-DUP	Benicia Arsenal
C	S	SB-C-0-0.5	Benicia Arsenal
C	S	SB-C-5-5.5	Benicia Arsenal
C	GW	SB-C	Benicia Arsenal
D	S	SB-D-0-0.5	Benicia Arsenal
D	S	SB-D-5.5-6	Benicia Arsenal
D	S	SB-D-9.5-10	Benicia Arsenal
W	S	SB-W-0-0.5	NIKE Battery
W	S	SB-W-5-5.5	NIKE Battery
W	S	SB-W-9.5-10	NIKE Battery
X	S	SB-X-0-0.5	NIKE Battery
X	S	SB-X-5-5.5	NIKE Battery
X	S	SB-X-9.5-10	NIKE Battery
Y	S	SB-Y-0-0.5	NIKE Battery
Y	S	SB-Y-5-5.5	NIKE Battery
Y	S	SB-Y-9.5-10	NIKE Battery
Z	S	SB-Z-0-0.5	NIKE Battery
Z	S	SB-Z-5-5.5	NIKE Battery
Z	S	SB-Z-9.5-10	NIKE Battery

Table 2. Metals Results in Soils (mg/kg)
Former Benicia Arsenal and Nike Battery 10 Site
Concord to Sacramento Pipeline Project

SAMPLE LOCATION	DEPTH INTERVAL (ft)	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Vanadium	Zinc
PRG industrial (mg/kg) [1]		1.6	67000	1900	7.4	450	1900	41000	750	62	5100	20000	5100	7200	100000
PRG residential (mg/kg) [2]		0.39	5400	150	1.7	210	900	3100	150	6.1	390	1600	390	550	23000
10*STLC (mg/kg) [3]		50	1000	7.5	10	5600	800	250	50	2	3500	200	10	240	2500
TTLC (mg/kg)-Landfill Class III [4]		500	10000	75	100	2500	8000	2500	350	20	3500	134	100	2400	5000
Former Benicia Arsenal															
SB-1	0 - 0.5	9.7	140	0.31	0.36	47	17	47	28	0.2	< 1.3	50	1.1	79	75
SB-1	5.0 - 5.5	8.3	500	0.56	0.46	54	13	63	[illegible]	0.058	<1	55	0.9	53	130
SB-2	0 - 0.5	4.4	100	0.18	0.38	28	15	32	3.6	0.25	< 0.94	34	1.3	100	51
SB-3	0 - 0.5	5.2	82	0.28	< 0.26	39	14	24	4.8	0.54	<1	40	2.6	87	42
SB-3	5.0 - 5.5	7.6	88	0.4	< 0.31	65	13	49	36	0.5	<1.2	61	2.4	68	87
SB-4	0 - 0.5	2.2	75	0.13	< 0.22	25	12	23	2	0.37	<0.9	37	2.3	71	31
SB-4	4 - 5	18	55	0.26	< 0.31	71	8.1	57	29	0.52	2.3	56	2.7	77	72
SB-5	0 - 0.5	1.3	22	0.24	0.4	13	18	38	1.3	0.22	<1	22	1.7	120	52
SB-5	5.0 - 5.5	4.8	99	0.31	[illegible]	37	8.7	94	[illegible]	0.33	< 1.5	31	1.5	35	1000
SB-6	0 - 0.5	3.2	63	0.21	0.8	27	5.8	58	[illegible]	0.35	<1	23	0.78	27	740
SB-6	5.0 - 5.5	4.5	71	0.25	0.6	34	7.1	57	[illegible]	0.07	< 0.84	28	0.95	33	420
SB-7	0 - 0.5	2.3	36	0.33	0.56	18	22	46	3.1	0.31	<1	27	1.6	130	60
SB-7	5.0 - 5.5	4.7	98	0.23	0.56	34	3.2	41	9.3	0.064	< 0.98	17	< 0.24	18	210
SB-A	0 - 0.5	0.63	26	0.11	< 0.24	15	23	54	0.8	1.4	< 0.98	19	3.1	150	53
SB-A	5.0 - 5.5	6.7	240	0.5	< 0.3	32	11	33	8.3	0.21	<1.2	34	2.3	52	43
SB-A	9.5 - 10	13	350	0.86	< 0.39	57	14	64	50	0.28	< 1.6	50	4.1	93	93
SB-B	0 - 0.5	1.3	30	0.15	< 0.29	120	22	48	2	0.2	<1.2	84	3.5	160	56
SB-B	5 - 6	7.3	130	0.26	< 0.31	64	19	31	4.4	0.082	<1.2	96	2.6	72	53
SB-C	0 - 0.5	< 0.29	12	0.13	0.94	17	23	49	1.3	0.29	<1.2	26	1.2	170	67
SB-C	5.0 - 5.5	6.6	140	0.32	< 0.78	42	15	43	8.6	--	< 3.1	47	2.2	79	75
SB-D	0 - 0.5	6.4	270	0.36	< 0.25	30	11	31	5.5	0.092	< 0.98	35	2	48	46
SB-D	5.5 - 6	7.8	260	0.49	0.29	33	13	37	6.8	0.11	<1.1	42	1.6	53	58
SB-D	9.5 - 10	7.1	270	0.5	0.61	67	17	50	7.1	0.12	<1.1	95	1.7	82	70
NIKE Battery 10 Site															
SB-W	0 - 0.5	6.6	110	0.39	< 0.28	32	9.8	21	14	0.04	<1.1	30	< 0.28	38	51
SB-W	5.0 - 5.5	10	81	0.53	< 0.28	29	14	27	8.1	0.068	<1.1	36	0.45	59	54
SB-W	9.5 - 10.0	8.1	95	0.52	< 0.31	33	6.8	29	7.9	0.074	<1.2	25	< 0.31	52	59
SB-X	0 - 0.5	6.9	130	0.41	< 0.24	22	8.9	21	11	0.023	< 0.97	17	0.33	39	45
SB-X	5.0 - 5.5	8	140	0.64	< 0.29	28	9.6	32	8.2	0.059	<1.2	42	0.33	46	61
SB-X	9.5 - 10.0	12	140	0.6	< 0.32	30	16	36	11	0.037	< 1.3	38	< 0.32	62	69
SB-Y	0 - 0.5	6.7	140	0.48	< 0.26	25	7.3	23	[illegible]	< 0.021	<1	20	0.52	43	79
SB-Y	5.0 - 5.5	12	170	0.54	< 0.29	24	14	25	8.8	0.04	<1.2	28	0.44	50	54
SB-Y	9.5 - 10.0	9	100	0.47	< 0.26	27	8.6	26	6.1	0.027	<1	28	< 0.26	48	53
SB-Z	0 - 0.5	8.6	200	0.56	< 0.24	26	19	24	14	0.023	< 0.96	23	0.36	52	55
SB-Z	5.5 - 8.0	8.5	110	0.66	< 0.31	33	10	32	8.3	0.3	<1.2	34	< 0.31	52	71
SB-Z	9.5 - 10.0	10	110	0.5	< 0.25	27	12	29	9.1	0.047	< 1	37	< 0.25	52	59

Detected concentration exceeded 10*STLC and sample was submitted for the Waste Extraction Test (WET)
Detected concentration exceeding residential PRGs
[1] USEPA 2003 Region IX Preliminary Remediation Goals for Industrial Soils
[2] USEPA 2003 Region IX Preliminary Remediation Goals for Residential Soils
[3] 10*STLC = 10 times Soluble Threshold Limit Concentration, Title 22 Environmental Health Standards for Hazardous Waste, 1998

Table 3. VOCs Resul[illegible]ils [ug/kg]
Former Benicia Arsenal an[illegible] Battery 10 Site
Concord to Sacramento Pipeline

SAMPLE LOCATION	DEPTH INTERVAL [ft]	Methylene Chloride	Acetone	2-Butanone	cis-1,2-DCE	trans-1,2-DCE	TCE	Benzene	Toluene	Ethylbenzene	m,p-Xylenes	o-Xylene	Isopropyl benzene	Propyl benzene	1,3,5-Trimethyl benzene	1,2,4-Trimethyl benzene	sec-Butyl benzene	n-Butyl benzene	para-Isopropyl toluene	Carbon Disulfide
PRG industrial (ug/kg) [1]		2.1E+04	6.0E+06	na	1.5E+05	2.3E+05	110	1300	5.2E+05	2.0E+04	4.2E+04	4.2E+04	5.2E+05	na	7.0E+04	1.7E+05	2.2E+05	2.4E+05	na	7.2E+05
PRG residential (ug/kg) [1]		9100	1.6E+06	na	4.3E+04	6.9E+04	53	600	5.2E+05	8900	2.7E+04	1.7E+04	1.6E+05	na	2.1E+04	5.2E+04	2.2E+05	2.4E+05	na	3.6E+05
10*STLC (ug/kg) [3]		na	na	na	na	na	2.E+06	na	na	na	na	na	na	na	na	na	na	na	na	na
Former Benicia Arsenal																				
SB-1	0 - 0.5	90	72	< 11	55	< 5.6	[illegible]	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5
SB-1	5.0 - 5.5	230	< 130	< 63	2100	35	[illegible]	95	130	230	160	38	120	160	33	120	400	580	89	< 31
SB-2	0 - 0.5	89	36	< 11	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3
SB-3	0 - 0.5	100	< 22	< 11	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4
SB-3	5.0 - 5.5	140	51	< 17	< 8.7	< 8.7	< 8.7	< 8.7	< 8.7	< 8.7	< 8.7	< 8.7	< 8.7	< 8.7	< 8.7	< 8.7	< 8.7	< 8.7	< 8.7	9.3
SB-4	0 - 0.5	58	< 21	< 10	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2
SB-4	5.0 - 5.5	98	24	< 11	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3
SB-5	0 - 0.5	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2
SB-5	5.0 - 5.5	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7
SB-6	0 - 0.5	< 5.2	880	< 5.2	< 5.2	< 5.2	53	< 5.2	< 5.2	140	1200	420	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2
SB-6	5.0 - 5.5	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8
SB-7	0 - 0.5	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2	< 5.2
SB-7	5.0 - 5.5	27	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8
SB-A	0 - 0.5	< 21	< 21	< 11	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3
SB-A	5.0 - 5.5	< 23	< 23	< 11	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7
SB-A	9.5 - 10.0	< 26	73	15	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7
SB-B	0 - 0.5	< 23	< 23	< 12	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8
SB-B	5.0 - 5.5	< 23	< 23	< 12	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8
SB-C	0 - 0.5	< 21	< 21	< 11	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3
SB-C	5.0 - 5.5	< 19	25	< 9.6	< 4.8	< 4.8	< 4.8	< 4.8	< 4.8	< 4.8	5.5	< 4.8	< 4.8	< 4.8	< 4.8	< 4.8	< 4.8	< 4.8	< 4.8	< 4.8
SB-D	0 - 0.5	< 20	< 20	< 9.8	< 4.9	< 4.9	< 4.9	< 4.9	< 4.9	< 4.9	< 4.9	< 4.9	< 4.9	< 4.9	< 4.9	< 4.9	< 4.9	< 4.9	< 4.9	< 4.9
SB-D	5.5 - 6	< 22	< 22	< 11	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4	< 5.4
SB-D	9.5 - 10.0	< 23	< 23	< 11	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7
NIKE Battery 10 Site																				
SB-W	0 - 0.5	< 20	< 20	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
SB-W	5.0 - 5.5	< 22	< 22	< 11	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5
SB-W	9.5 - 10.0	38	< 24	< 12	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9
SB-X	0 - 0.5	< 20	< 20	< 10	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1
SB-X	5.0 - 5.5	49	< 23	< 12	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9
SB-X	9.5 - 10.0	53	< 22	< 11	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5
SB-Y	0 - 0.5	43	< 20	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
SB-Y	5.0 - 5.5	29	< 23	< 12	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8
SB-Y	9.5 - 10.0	71	< 24	< 12	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9	< 5.9
SB-Z	0 - 0.5	38	< 21	< 11	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3
SB-Z	5.5 - 8.0	79	< 23	< 11	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7
SB-Z	9.5 - 10.0	61	< 21	< 11	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3	< 5.3

Notes:
DCE = Dichloroethene
TCE = Trichloroethene
Detected concentration exceeding residential PRGs
Detected concentration exceeding residential & Industrial PRGs
[1] USEPA 2003 Region IX Preliminary Remediation Goals for Industrial Soils
[2] USEPA 2003 Region IX Preliminary Remediation Goals for Residential Soils
[3] 10*STLC = 10 times Soluble Threshold Limit Concentration, Title 22 Environmental Health Standards for Hazardous Waste, 1998

Table 4. SVOC Results in Soils [ug/kg]
Former Benicia Arsenal and Nike Battery 10 Site
Concord to Sacramento Pipeline Project

SAMPLE LOCATION	DEPTH INTERVAL [ft]	Benzo(b)fluoranthene	Pyrene
PRG industrial (ug/kg) (1)		2100	2.91E+07
PRG residential (ug/kg) (2)		610	2.32E+06
Former Benicia Arsenal			
SB-1	0 - 0.5	< 78	< 78
SB-1	5.0 - 5.5	**350**	< 350
SB-2	0 - 0.5	< 77	< 77
SB-3	0 - 0.5	< 80	< 80
SB-3	5.0 - 5.5	< 92	< 92
SB-4	0 - 0.5	< 740	< 740
SB-4	4.0 - 5.0	**160**	**140**
SB-5	0 - 0.5	< 720	< 720
SB-5	5.0 - 5.5	< 100	< 100
SB-6	0 - 0.5	**110**	< 71
SB-6	5.0 - 5.5	< 81	< 81
SB-7	0 - 0.5	**100**	< 70
SB-7	5.0 - 5.5	< 79	< 79
SB-A	0 - 0.5	< 360	< 360
SB-A	5.0 - 5.5	< 79	< 79
SB-A	9.5 - 10.0	< 96	< 96
SB-B	0 - 0.5	< 140	< 140
SB-B	5.0 - 6.0	< 88	< 88
SB-C	0 - 0.5	< 830	< 830
SB-C	5.0 - 5.5	< 1300	< 1300
SB-D	0 - 0.5	< 350	< 350
SB-D	5.5 - 6.0	< 78	< 78
SB-D	9.5 - 10.0	< 82	< 82

Notes:
(1) USEPA 2003 Region IX Preliminary Remediation Goals for Industrial Soils
(2) USEPA 2003 Region IX Preliminary Remediation Goals for Residential Soils

Table 5. TPHs Results in Soils [mg/kg]
Former Benicia Arsenal and Nike Battery 10 Site
Concord to Sacramento Pipeline Project

SAMPLE LOCATION	DEPTH INTERVAL [ft]	Gasoline (mg/kg)	Diesel (mg/kg)	Motor Oil (mg/kg)
Former Benicia Arsenal				
SB-1	0 - 0.5	19 HYJ	12 HY	170
SB-1	5.0 - 5.5	46 YJ	180 HLY	600
SB-2	0 - 0.5	< 1.1	14 HY	130
SB-3	0 - 0.5	< 1.2	5.1 HY	--
SB-3	5.0 - 5.5	< 2	65 HY	--
SB-4	0 - 0.5	< 1.2	72 HY	--
SB-4	4 - 5	< 1.2	34 HY	--
SB-5	0 - 0.5	< 1.1	130 HY	--
SB-5	5.0 - 5.5	< 1.6	25 HLY	--
SB-6	0 - 0.5	4.4	48 HY	--
SB-6	5.0 - 5.5	< 1.1	3.4 HY	--
SB-7	0 - 0.5	< 1.1	27 HY	--
SB-7	5.0 - 5.5	< 1.3	3 HY	--
SB-A	0 - 0.5	< 1.1	120 HY	--
SB-A	5.0 - 5.5	< 1.2	6.4 HY	--
SB-A	9.5 - 10.0	< 1.5	20 HY	--
SB-B	0 - 0.5	< 1.3	14 HY	--
SB-B	5.0 - 6.0	< 1.2	< 1.3	--
SB-C	0 - 0.5	< 1.1	12 HY	150
SB-C	5.0 - 5.5	< 1.1	51 HY	--
SB-D	0 - 0.5	< 1	150 HY	--
SB-D	5.5 - 6	< 1.3	15 HY	--
SB-D	9.5 - 10.0	< 1.3	< 1.2	--
NIKE Battery 10 Site				
SB-W	0 - 0.5	< 1.1	8.9 HY	--
SB-W	5.0 - 5.5	< 1.2	1.6 Y	--
SB-W	9.5 - 10.0	< 1.3	< 1.2	--
SB-X	0 - 0.5	< 1	23 HY	--
SB-X	5.0 - 5.5	< 1.2	3.8 Y	--
SB-X	9.5 - 10.0	< 1.1	6.3 Y	--
SB-Y	0 - 0.5	< 1.2	47 HY	--
SB-Y	5.0 - 5.5	< 1.1	1.3 Y	--
SB-Y	9.5 - 10.0	< 1.2	< 1.2	--
SB-Z	0 - 0.5	< 1.2	18 HY	--
SB-Z	5.5 - 8.0	< 1.2	2.6 Y	--
SB-Z	9.5 - 10.0	< 1.2	< 1.2	--

Notes:

Motor Oil not requested on COC

H = Heavier hydrocarbons contributed to the quantification.

L = Lighter hydrocarbons contributed to the quantification.

Y = Sample exhibits chromatographic pattern not resembling standard.

J = The result is estimated due to high surrogate recoveries.

Table 6. Organochlorine Pesticide Results in Soils [ug/kg]
Former Benicia Arsenal and Nike Battery 10 Site
Concord to Sacramento Pipeline Project

SAMPLE LOCATION	DEPTH INTERVAL [ft]	alpha-BHC	Heptachlor
PRG industrial (ug/kg) (1)		NA	380
PRG residential (ug/kg) (2)		NA	110
10*STLC (ug/kg) (3)		NA	470
Former Benicia Arsenal			
SB-1	0 - 0.5	80 C	61
SB-1	5.0 - 5.5	< 11	< 11
SB-2	0 - 0.5	< 9.8	< 9.8
SB-3	0 - 0.5	< 10 b	< 10 b
SB-3	5.0 - 5.5	< 120	< 120
SB-4	0 - 0.5	< 19 b	< 19 b
SB-4	4 - 5	< 120	< 120
SB-5	0 - 0.5	< 72	< 72
SB-5	5.0 - 5.5	< 2.6	< 2.6
SB-6	0 - 0.5	< 18	< 18
SB-6	5.0 - 5.5	< 2.1	< 2.1
SB-7	0 - 0.5	< 18	< 18
SB-7	5.0 - 5.5	< 2.1	< 2.1
SB-A	0 - 0.5	< 9.1 b	< 9.1 b
SB-A	5.0 - 5.5	< 10 b	< 10 b
SB-A	9.5 - 10.0	< 120	< 120
SB-B	0 - 0.5	< 9 b	< 9 b
SB-B	5.0 - 6.0	< 2.2	< 2.2
SB-C	0 - 0.5	< 22	< 22
SB-C	5.0 - 5.5	< 85	< 85
SB-D	0 - 0.5	< 9 b	< 9 b
SB-D	5.5 - 6	< 10 b	< 10 b
SB-D	9.5 - 10.0	< 2.1	< 2.1

Notes:
b = The %D in the continuing calibration verification was outside acceptance limits, however the average %D was acceptable on the quantitation column, therefore, there is no affect on the quality
C = Presence confirmed, but RPD between columns exceeds 40%
(1) USEPA 2003 Region IX Preliminary Remediation Goals for Industrial Soils
(2) USEPA 2003 Region IX Preliminary Remediation Goals for Residential Soils
(3) 10*STLC = 10 times Soluble Threshold Limit Concentration, Title 22 Environmental Health Standards for Hazardous Waste, 1998

Table 7. pH Results in Soils
Former Benicia Arsenal and Nike Battery 10 Site
Concord to Sacramento Pipeline Project

SAMPLE LOCATION	DEPTH INTERVAL [ft]	pH
Former Benicia Arsenal		
SB-1	0 - 0.5	8
SB-1	5.0 - 5.5	7.9
SB-2	0 - 0.5	8.4
SB-3	0 - 0.5	8.1
SB-3	5.0 - 5.5	7.4
SB-4	0 - 0.5	8.1
SB-4	4 - 5	6.9
SB-5	0 - 0.5	7.6
SB-5	5.0 - 5.5	7
SB-6	0 - 0.5	8
SB-6	5.0 - 5.5	7.7
SB-7	0 - 0.5	7.9
SB-7	5.0 - 5.5	7.8
SB-A	0 - 0.5	8.1
SB-A	5.0 - 5.5	7.8
SB-A	9.5 - 10.0	7.8
SB-B	0 - 0.5	7.9
SB-B	5 - 6	8.8
SB-C	0 - 0.5	7.9
SB-C DUP	0 - 0.5	7.94
SB-C	5.0 - 5.5	7.6
SB-D	0 - 0.5	8.5
SB-D	5.5 - 6	8.3
SB-D	9.5 - 10.0	8.1
NIKE Battery 10 Site		
SB-W	0 - 0.5	6.1
SB-W	5.0 - 5.5	8.4
SB-W	9.5 - 10.0	8
SB-W DUP	0 - 0.5	6.12
SB-X	0 - 0.5	6
SB-X	5.0 - 5.5	7.6
SB-X	9.5 - 10.0	7.4
SB-Y	0 - 0.5	6.8
SB-Y	5.0 - 5.5	7.6
SB-Y	9.5 - 10.0	7.6
SB-Z	0 - 0.5	5.8
SB-Z	5.5 - 8.0	7.7
SB-Z	9.5 - 10.0	7.7

Table 8. Metals Results in Groundwater [ug/L]
Former Benicia Arsenal and Nike Battery 10 Site
Concord to Sacramento Pipeline Project

SAMPLE LOCATION	Arsenic	Barium	Cobalt	Molybdenum	Nickel	Vanadium	Zinc
STLC [ug/L][1]	5.0E+03	1.0E+05	8.0E+04	3.5E+05	2.0E+04	2.4E+04	2.5E+05
Instantaneous Maximum Limit [ug/L][2]	55	--	--	--	550	--	1284
Former Benicia Arsenal							
SB-1	27	1100	< 20	24	< 20	< 10	< 20
SB-2	28	2100	< 20	< 20	< 20	< 10	< 20
SB-3	12	440	< 20	< 20	< 20	< 10	< 20
SB-3-8/4	18	1400	29	< 20	< 20	< 10	29
SB-3 -8/4-filtrate	11	1400	31	< 20	< 20	< 10	< 20
SB-4	53	2200	< 20	< 20	< 20	< 10	< 20
SB-B	8.3	58	23	< 20	36	13	< 20
SB-B-DUP	7.5	63	25	< 20	38	14	< 20
SB-C	< 5	120	< 20	< 20	< 20	< 10	< 20

Notes:

Instantaneous maximum limits assume a discharge flow of 10 gallons per minute

-- Indicates that an instantaneous maximum limit was not available.

[1] Soluble Threshold Limit Concentration, Title 22 Environmental Health Standards for Hazardous Waste, 1998

[2] Instantaneous Maximum Limit, RWQCB Region 2 General Construction Groundwater Discharge Permit

Table 9. VOCs Results [illegible]oundwater [ug/L]
Former Benicia Arsenal [illegible]ke Battery 10 Site
Concord to Sacramento Pipeline Project

SAMPLE LOCATION	Benzene	Toluene	Ethylbenzene	m,p-Xylenes	o-Xylene	TCE	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Acetone	Carbon Disulfide	Isopropyl benzene	para-Isopropyl Toluene	Propyl benzene	n-Butyl benzene	sec-Butyl benzene	Naphthalene
STLC [ug/L][1]	--	--	--	--	--	2.04E+05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Instantaneous Maximum Limit [ug/L][2]	1	5	5	5	5	5	5	5	5	0.5	5	5	5	5	5	5	5	5	5	5
Former Benicia Arsenal																				
SB-1	3.1	0.9	2.5	2.2	0.6	29	0.7	93	3.9	65	54	2.7	< 10	< 0.5	0.7	0.7	1.2	1	0.8	< 0.5
SB-2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
SB-3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 10	0.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
SB-3-8/4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 10	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	2.8
SB-3 -8/4-filtrate	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.2
SB-4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 10	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
SB-B	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	2.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
SB-B-DUP	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
SB-C	< 0.5	1	1.1	3	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	[illegible]	[illegible]	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Notes:

Concentration exceeds Instantaneous Maximum Limit

-- Indicates that an instantaneous maximum limit was not available.

[1] Soluble Threshold Limit Concentration, Title 22 Environmental Health Standards for Hazardous Waste, 1998

[2] Instantaneous Maximum Limit, RWQCB Region 2 General Construction Groundwater Discharge Permit

TCE = Trichlorothene

DCE = Dichloroethene

Table 10. TPHs Results in Groundwater [ug/L]
Former Benicia Arsenal and Nike Battery 10 Site
Concord to Sacramento Pipeline Project

SAMPLE LOCATION	Gasoline	Diesel	Motor Oil
Instantaneous Maximum Limit [ug/L][1]	50	50	50
Former Benicia Arsenal			
SB-1	380HJ	3900HY	2300HY
SB-2	< 50	5700H	1800HY
SB-3	< 50	610HY	--
SB-4	< 50	660HY	--
SB-B	< 50	1000HY	--
SB-B-DUP	< 50	740HY	--
SB-C	< 50	1800YZ	--

Notes:
Concentration exceeds Instantaneous Maximum Limit
Motor oil was not requested for analysis on the chain-of-custody
H = Heavier hydrocarbons contributed to the quantitation
Y = Sample exhibits chromatographic pattern which does not resemble standard
Z = Sample exhibits unknown single peak or peaks
J = Result is an estimate due to high surrogate recoveries from hydrocarbons co-eluting with the surrogate
-- = Not analyzed
[1] Instantaneous Maximum Limit, RWQCB Region 2 General Construction Groundwater Discharge Permit

Table 11. Organochlorine Pesticides Results in Groundwater [ug/L]
Former Benicia Arsenal and Nike Battery 10 Site
Concord to Sacramento Pipeline Project

SAMPLE LOCATION	4,4'-DDT
STLC [ug/L][1]	100
Former Benicia Arsenal	
SB-1	0.2 C
SB-2	0.1
SB-3	< 0.9
SB-4	< 0.9
SB-B	< 0.9
SB-B-DUP	< 0.9
SB-C	< 0.9

Notes:
C = Presence confirmed, but RPD between columns exceeds 40%
RPD = Relative Percent Difference

[1] Soluble Threshold Limit Concentration, Title 22 Environmental Health Standards for Hazardous Waste, 1998

Table 12. pH Results in Groundwater [ug/L]
Former Benicia Arsenal and Nike Battery 10 Site
Concord to Sacramento Pipeline Project

SAMPLE LOCATION	pH
Former Benicia Arsenal	
SB-1	6.7
SB-2	7.1
SB-2	7.1
SB-3	6.7
SB-4	6.6
SB-B	7.5
SB-B-DUP	7.5
SB-C	6.6