Table 1-1: Relationships Among the Zone, Sector, Management Areas and Groundwater Extraction and Treatment Facilities

Zone	Sector	Management Area	Existing GET Facility
1	D	Areas 20, 46, 49, and Central Disposal Area	GET D, ARGET
2	E	Line 00, 02, 05, 06, Chemical Plant 1	GET E/F*
	F	Lines 01, 03, 04, Chemical Plant 2	GET E/F*
	G	Line 04	None
3	B	Areas 34, 37, 38, 39, 40	GET B
4	A	Areas 30, 31, 32	GET A
	C	Area 46, Solid Waste Landfill	None

* Note: GETs E/F included in Western Groundwater Operable Unit (OU-3).

Table 1-2: Summary of Results - Private Well Survey (1 mile radius from Site)

Aerojet Well No.	State Well No.	Owner/Well Location	Well Type	Well Compl. Date	gse (ft, msl)	Well Depth (ft, bgs)	Perf. Interval (ft, bgs)	Well Status - 1991	Well Status - January 2005	Monitored between 1991-2004?	Posted
925/926	9N/7E-32D14	Cordova Chemical Co./200 yds west of plant #2. Located within zone 2 on Aerojet property.	other	10/27/76		504	380-480		Destroyed. Wells were used as injection wells.	No	Figure 1-5B
1002	9N/7E-16K3	Twilight Trailer Court	DW					Out of service. Historically monitored by Aerojet.	Abandoned. Well not in use. Pump not connected. Attempted to monitor in 1997.	1x in 91	Figure 1-5B
1003	9N/7E-16Q6	Twilight Mobile Home Park, 12415 Folsom Blvd.	DW					Unconfirmed. Well not located in field (possible location - Space #34). Historically monitored by Aerojet.	Abandoned. Well not in use. Park on municipal water.	No	Figure 1-5B
1004	9N/7E-32B1	Cora Rogers, 11801 Old White Rock Road	DW		175	130		Aerojet owns property - fenced and locked. Well not in use. Historically monitored by Aerojet.	Abandoned. Well not in use. Aerojet owns property - fenced and locked. Historically monitored by Aerojet.	No	Figure 1-5B
1005	9N/7E-27Q1	Eva Collier, 11700 Old White Rock Road	DW					House burned. Well not in use. Historically monitored by Aerojet.	Abandoned. Well not in use. House burned. Historically monitored by Aerojet.	No	Figure 1-5B
1007	9N/7E-16	Rudy's Hideaway, 12303 Folsom Blvd.	DW					Abandoned.	Destroyed.	No	not posted
1008	9N/7E-16P4	Rudy's Hideaway, 12303 Folsom Blvd. in fenced area with garbage bins	DW	1/79	140	195	148-195	Alternative water supply provided. Historically monitored by Aerojet.	Abandoned. Well capped. Historically monitored by Aerojet.	No	Figure 1-5B
1009	9N/7E-16K2	Aerojet Credit Union	DW	2/14/64	149.82	106	102-106	Aerojet monitoring well.	Well not located. Area redeveloped. Building expanded over well location.	No	Figure 1-5B
1010	9N/7E-16K1	James Johnson (prev. H. Greenhalgh). 0.1 mile west of Gate #2, Folsom Blvd.	DW					Building demolished, area graded. Historically monitored by Aerojet.	Well not located. Area redeveloped. Building demolished, area graded. Historically monitored by Aerojet.	No	Figure 1-5B
1019	9N/7E-25E1	Yost (Prairie City Off-Hwy Vehicle Park)	DW	5/14/75	308.38	169	50-169	Historically monitored by Aerojet. Poor access in winter.	Abandoned. Well not in use. Historically monitored by Aerojet.	5x thru 92	Figure 1-5B
1020	9N/7E-16J2	Pruett Manufacturing	DW			480		Abandoned.	Destroyed.	No	Figure 1-5B
1021	9N/7E-15F4	William (Helen) Casten, 12724 Folsom Blvd.	DW		157	95		Historically monitored by Aerojet.	Abandoned. Well not in use. Historically monitored by Aerojet.	2x in 92	Figure 1-5B
1022	9N/7E-15F3	Travelers Mobile Home Park, 12717 Folsom Blvd. Now Auto Mall.	DW					Building demolished, area graded. Historically monitored by Aerojet.	Well not located. Area redeveloped. Building demolished, area graded. Historically monitored by Aerojet.	No	Figure 1-5B

Table 1-2: Summary of Results - Private Well Survey (1 mile radius from Site)

Aerojet Well No.	State Well No.	Owner/Well Location	Well Type	Well Compl. Date	gse (ft, msl)	Well Depth (ft, bgs)	Perf. Interval (ft, bgs)	Well Status - 1991	Well Status - January 2005	Monitored between 1991-2004?	Posted
1023	9N/7E-15C2	Shady Oaks Trailer Park	DW					Abandoned.	Destroyed.	No	Figure 1-5B
1024	**9N/7E-16Q8**	**Russell Knauer, 12401 Folsom Blvd.**	**DW**	**4/16/79**		**125**	**100-125**		**Well in use for irrigation, per property owner. Well added to 2005-2006 Exhibit IV monitoring plan.**	**No**	**Figure 1-5A**
1027	9N/7E-16P3	Rancho Cordova Fire District #3. Well below grade (with wooden cover) behind the station.	DW	8/14/79	140	120	110-120	Aerojet monitoring well. Historically monitored by Aerojet.	Abandoned. Well not in use. Historically monitored by Aerojet.	Yes, thru 2/00	Figure 1-5B
1028	**9N/7E-33E1**	**By-Dry Feed Products, Clark Cattle company (prev. McDonnell Douglas) 12300 White Rock Road**	**DW**	**9/5/64**	**188**	**224**	**107-224**	**Well not in use, but has not been destroyed. Historically monitored by Aerojet.**	**Well in use for stock watering. Well historically monitored by Aerojet. Bi-Annual water level monitoring.**	**Yes, thru 02**	**Figure 1-5A**
1029	**9N/7E-34E1**	**Grant Line Road Properties, Trucking/Asphalt Recycling Center (prev. Olson Ranch, Clark Cattle Co.) 12584 White Rock Road**	**DW**	**9/5/64**	**188**	**224**	**107-224**	**Historically monitored by Aerojet.**	**Well in use for dust control and process water. Historically monitored by Aerojet.**		**Figure 1-5A**
1031	**8N/7E-3P1**	**US Home of KB North Douglas (formerly Archel Cupp), 12515 Douglas Road (Cupp Road)**	**DW**	**8/23/78**		**316**	**274-316**		**Well in use for domestic purposes and irrigation. Well added to 2005-2006 Exhibit IV monitoring plan.**	**No**	**Figure 1-5A**
1032	9N/7E-26J3	Patricia Timm (Ehnize). East of Prairie City Road, South of White Rock.	DW	12/29/80	279.99	210	170-210	House destroyed. Well not in use. Historically monitored by Aerojet.	Abandoned. Well not in use. Historically monitored by Aerojet.	Yes, thru 93	Figure 1-5B
1035	9N/7E-21D1	Schnitzer Steel, 12000 Folsom Blvd. (916) 985-4810	DW	5/56	140.2	398.7	217-264	Well in use. Owner stated well was in use for industrial purposes. Historically monitored by Aerojet.	Abandoned. Well not in use. Historically monitored by Aerojet.	1x in 92	Figure 1-5B
1041	9N/7E-17J2	Department of Fish and Game, Nimbus Fish Hatchery off Hazel (near Hwy 50)	DW	10/25/77	107.96	222	101-197	Well not in use. Pump out of service; water from Natoma. Historically monitored by Aerojet.	Abandoned. Well not in use. Pump out of service; water from Natoma. Historically monitored by Aerojet.	No	Figure 1-5B
1042	9N/7E-15E3	Prev. Wallace Wilcox res., 12643 Folsom Blvd.	DW					Well not located in field. Structure demolished. Historically monitored by Aerojet.	Well not located in field. Area redeveloped. Structure demolished. Historically monitored by Aerojet.	No	Figure 1-5B

Table 1-2: Summary of Results - Private Well Survey (1 mile radius from Site)

Aerojet Well No.	State Well No.	Owner/Well Location	Well Type	Well Compl. Date	gse (ft, msl)	Well Depth (ft, bgs)	Perf. Interval (ft, bgs)	Well Status - 1991	Well Status - January 2005	Monitored between 1991-2004?	Posted
1044	9N/7E-16	Nimbus Dam	DW						Abandoned. Well not in use in 1992. Well not found in the field in 2004.	No	not posted
1045	**9N/7E-16**	**Folsom South Canal Headworks**	**DW**						**Well located at base of aerial antenna next to Aquatic center building. Well in use for irrigation. Well was historically monitored by Aerojet, however has not been monitored recently. Well added to 2005-2006 Exhibit IV monitoring plan.**	**No**	**Figure 1-5A**
1047	9N/6E-12Q1	**Fair Oaks Water District, Well #1, "Town Well", Sacramento and Main**	**WS/MUN**		**137**	**600**			**FOWD public water supply well. Well monitored under Exhibit IV Monitoring Plan.**	**Yes**	**Figure 1-5A**
1049	9N/7E-7F1	**Fair Oaks Irrig. Dist./Chicago Ave (Well 4) 34-1087**	**WS/MUN**	**4/42**		**600**	**472-600**		**FOWD public water supply well. Well monitored under Exhibit IV monitoring plan.**	**Yes**	**Figure 1-5A**
1054	8N/7E-4F1	Cal-Am well; Douglas Aircraft - Sigma Complex, (east of Nike Rd)	WS/MUN	9/21/61	175.4	175	126-157		Abandoned. Well not in use. Well periodically monitored under IRCTS.	Yes, thru 99	Figure 1-5B
1056	9N/7E-33Q1	Cal-Am well; DM14 (near Nike Rd in Zone 2). Nimbus road, south of White Rock Road.	WS/MUN		185.2	120			Abandoned. Well not in use. Well historically monitored by Aerojet.	Yes, thru 02	Figure 1-5B
1059	9N/7E-36F1	**Prairie City State Off-Hwy Vehicle Park (OHV-1)**	**DW**	**5/3/1978**		**305**	**197-269**		**Well in use for irrigation. Well monitored under Exhibit IV monitoring plan.**	**Yes**	**Figure 1-5A**
1064	9N/7E-20A1	Becks, 11850 Folsom Blvd (prev. R & M Office Furniture and Overhead Door)	DW	12/70	137	240	190-240	Well appears operational.	Abandoned. Well not in use. Business is on municipal water.	2x in 92	Figure 1-5B
1065	9N/7E-15F1	Prev. Hoffman (Mott), Folsom Blvd. across from Aerojet, Gate 5	DW					Well not located in field; structure demolished.	Well not located. Area redeveloped, structure demolished.	No	Figure 1-5B
1084	9N/7E-16	Lake Natomas, Drake	DW					Unconfirmed. Historically monitored and sampled by Aerojet.	Abandoned. Well not in use in 1992. Well not located in the field 2004.	No	not posted
1086	9N/7E-16	Barton- Barton Ranch Area, East of Prairie City Road and South of White Rock Road.	DW						Well outside survey area. Status not confirmed.	No	not posted
1089	9N/7E-16Q5	Darr Trailer Sales. North of Folsom in area near auto mall.	DW					Sampled as part of AOI.	Abandoned. Area redeveloped. Structure demolished.	1x in 91	not posted

Table 1-2: Summary of Results - Private Well Survey (1 mile radius from Site)

Aerojet Well No.	State Well No.	Owner/Well Location	Well Type	Well Compl. Date	gse (ft, msl)	Well Depth (ft, bgs)	Perf. Interval (ft, bgs)	Well Status - 1991	Well Status - January 2005	Monitored between 1991-2004?	Posted
1090	9N/7E-16J1	Daves, Keith (prev. W. Clarkson). Well off Folsom near Cattlemans.	DW		150	120		Building demolished, area graded.	Well not located. Area redeveloped. Building demolished, area graded.	No	Figure 1-5B
1095	9N/7E-15F5	Prev. Y. Ehrhadt/B.E. Morgan, Folsom Blvd across from Aerojet, Gate 5	DW	1947	156	50		Unconfirmed; well not located in field; structure demolished. Historically monitored by Aerojet.	Well not located. Area redeveloped. Structure demolished. Historically monitored by Aerojet.	No	Figure 1-5B
1096	9N/7E-34G1	Prev. Nicolicci/Capitol Dredging Co (#7). North of White Rock Road, East of Nimbus Road.	DW	3/47	240	204	108-192	Unconfirmed; well not located in field. Historically monitored by Aerojet.	Abandoned. Well not in use. Historically monitored by Aerojet.	No	Figure 1-5B
1132	9N/7E-15	Mott. Across from Gate 5 on Folsom Blvd.	DW					Building demolished, area graded.	Well not located. Area redeveloped. Building demolished, area graded.	No	not posted
1154	9N/7E-16G1	**Nimbus Flat Park (#1) Zone 1**	**DW**						**Well in use for irrigation. Well monitored under Exhibit IV monitoring plan.**	**Yes, many x**	**Figure 1-5A**
1155	9N/7E-15	Prev. Robert Baker, Folsom Blvd across from Aerojet, Gate 5	DW		153.1	47		Building demolished, area graded.	Well not located. Area redeveloped. Building demolished, area graded.	No	Figure 1-5B
1156	9N/7E-17F	**Sailor Bar (County Parks & Rec)**	**DW**		**135**	**478**	**87-478**	**Aerojet monitoring well.**	**Well in use to fill pond in Sailor Bar Park. Wellhead treatment provided, monitored by Aerojet.**	**Yes, many x**	**Figure 1-5A**
1159	8N/7E-3A1	**Lash, 3450 Grant Line Road (SW corner of Ehnizs in Zone 3)**	**DW**		**253.8**	**175**			**Well monitored under Exhibit IV monitoring plan.**	**Yes, many x**	**Figure 1-5A**
1161	9N/7E-25E2	Yost, Prairie City Off Hwy Vehicle Park. North of road near park entrance.	DW		313.39	170	100-170	Historically monitored by Aerojet.	Abandoned. Well not in use. Field location not verified. Historically monitored by Aerojet.	No	Figure 1-5B
1198	9N/7E-26J2	Timm Irrigation, 32 B Ehinez. Same as well 1032	DW	2/6/81	279.99	494			This well log is for deepening Well 1032. See Well 1032 for status. Well Abandoned, not in use.	Yes, thru 93	Figure 1-5B
1221	**9N/7E-16H1**	**Parks and Recreation - Nimbus Flat Park #2**	**DW**		**124.8**	**80**	**60-80**	**Historically monitored by Aerojet.**	**Well in use for irrigation. Well monitored under Exhibit IV monitoring plan.**	**Yes, many x**	**Figure 1 5A**
1224	9N/7E-17J1	Dept. of Fish and Game, Nimbus Fish Hatchery #1	DW	10/8/77	107.76	251	143-251	Well not in use; pump out of service; water from Natoma	Abandoned. Well not in use. Pump out of service; water from Lake Natoma.	4x in 4/92	Figure 1-5B
1250	9N/7E-16	Giffs Rail Road Ties, corner of Folsom and Hazel in vacant dirt lot next to Fire Station.	DW		144.2	90.5		Historically monitored by Aerojet.	Abandoned. Well not in use. Well not field checked. Historically monitored by Aerojet.	No	Figure 1-5B

Table 1-2: Summary of Results - Private Well Survey (1 mile radius from Site)

Aerojet Well No.	State Well No.	Owner/Well Location	Well Type	Well Compl. Date	gse (ft, msl)	Well Depth (ft, bgs)	Perf. Interval (ft, bgs)	Well Status - 1991	Well Status - January 2005	Monitored between 1991-2004?	Posted
1289	9N/7E-31G1	McDonnell Douglas (Clark) Aerojet, 11550 White Rock Rd.	DW		134.8	150		Building demolished; area graded. Aerojet owns property.	Destroyed.	5x thru 2002	Figure 1-5B
1298	**8N/7E-2N1**	**John and Peter Tracy/ Grantline Road (2.25 mi. South of White Rock Road). Irrigation well.**	**DW**	**1956**				**Irrigation.**	**Well has not been used in 2 years, however, is available for irrigation and domestic use, if needed. If owner elects to use, Aerojet will conduct monitoring.**	**No**	**Figure 1-5A**
1299	**8N/7E-2N1**	**John and Peter Tracy/ Grantline Road (2.25 mi. South of White Rock Road). House well.**	**DW**	**4/19/56**	**258**	**675**	**180-200 220-235 254-276**	**House and Irrigation**	**Well used for irrigation and domestic purposes. Monitored under Exhibit IV monitoring plan.**	**Yes, many x**	**Figure 1-5A**
1301	**8N/7E-3Q1**	**US Home of KB North Douglas (formerly James D Weidinger and Victor Murphy)12575 Douglas Road (985-0625) (near Cupp lane)**	**DW**	**8/20/78**		**330**	**260-300**		**Well in use for domestic purposes and irrigation. Well added to Exhibit IV 2005-2006 Exhibit IV monitoring plan.**	**No**	**Figure 1-5A**
1366	**9N/6E-12N**	**Fair Oaks Water District, New York north of Fair Oaks Blvd.**	**WS/MUN**		**162.63**	**475**	**150-475**		**FOWD public water supply well. Well operational. J120.**		**Figure 1-5A**
1368	**9N/7E-10D1**	**Shadow Glen Riding Stables, 4854 Main (prev. Sacramento County Sewage Disposal Plant) (989-1826). Well on left at property entrance.**	**DW**	**11/20/56**	**157.5**	**175**	**91-175**	**Well appears operational; well on bluff.**	**Well in use for domestic purposes and irrigation. Well upgradient of Aerojet Site; not monitored.**	**No**	**Figure 1-5A**
1433	9N/7E-16K	Sacramento Regional Sanitation District at sanitary sewer lift station (north of Folsom, east of Hazel).	DW					Unconfirmed; well not located in field.	Abandoned. Well not in use.	1x in 91	Figure 1-5B

Table 1-2: Summary of Results - Private Well Survey (1 mile radius from Site)

Aerojet Well No.	State Well No.	Owner/Well Location	Well Type	Well Compl. Date	gse (ft, msl)	Well Depth (ft, bgs)	Perf. Interval (ft, bgs)	Well Status - 1991	Well Status - January 2005	Monitored between 1991-2004?	Posted
1816	**8N/7E-3E1**	**Larry McKenna/ 12535 Douglas Road (Prev. Fagundus Well). Located ~2 mi E of Sunrise, 1/2 mi N of Douglas.**	**DW**	**8/15/78**	**244**	**330**	**260-300**		**Well is in use for domestic purposes. Well head treatment provided. Well monitored under WRND monitoring plan.**	**Yes, many x**	**Figure 1-5A**
1832	9N/7E-12L1	Intel (prev. M. Brown), Prairie City Rd and Hwy 50	DW	12/49	290	103		Unconfirmed; well not located in field. Well reported "abandoned" on 8/21/57, water level measurements continue to 3/12/80 [reference DWR files - Well #9N/7E-12L1]; upgradient of Aerojet site.	Destroyed.	No	Figure 1-5B
1834	9N/7E-16Q1	Knauer (Prev. Libby, McNeill & Libby Olive Plant), 12401 Folsom Blvd at Hazel	DW	10/16/60	144.5	138	80-130	Unconfirmed; well not located in field. Well reported "abandoned" on 6 or 7/78 due to construction of sewer interceptor line [reference DWR files - Well #9N/7E-16Q1].	Destroyed, per communication with owner (2004).	No	Figure 1-5B
1842	9N/7E-15F7	Prev. Shady Oaks Travelers Park, Folsom Blvd across from Aerojet, Gate 5	DW					Unconfirmed; well not located in field. Alternative water was offered, but refused (1982).	Well not located. Area redeveloped. Structures have been demolished. Currently an auto mall.	No	Figure 1-5B
1843	9N/7E-15F8	Pacific Bell, Folsom & Alabama (Aerojet, Gate 5)	DW					Well not in use; well not destroyed. Employee stated that business went on public water supply approximately 3 years ago.	Abandoned. Well not in use.	No	Figure 1-5B
1848	9N/7E-11R1	Intel 5S	MW		280.91	57	35-55	Unconfirmed; well not located in field; upgradient.	Monitoring well. Bi-Annual water level monitoring	2x thru 00	not posted
1849	9N/7E-11RS	Intel 5M	MW		279.71	80	60-80	Unconfirmed; well not located in field; upgradient. Historically monitored by Aerojet.	Monitoring well. Bi-Annual water level monitoring	6x thru 00	not posted
1850	9N/7E-12N1	Intel 2M			282.61	100	80-100	Unconfirmed; well not located in field; upgradient.	Destroyed.	6x thru 00	Figure 1-5B
1851	9N/7E-12P2	Intel 1M (prev. Brown)		1/1/49	282.16	100	80-100	Unconfirmed; well not located in field; upgradient.	Destroyed.	1x in 96	Figure 1-5B

Table 1-2: Summary of Results - Private Well Survey (1 mile radius from Site)

Aerojet Well No.	State Well No.	Owner/Well Location	Well Type	Well Compl. Date	gse (ft, msl)	Well Depth (ft, bgs)	Perf. Interval (ft, bgs)	Well Status - 1991	Well Status - January 2005	Monitored between 1991-2004?	Posted
1852	9N/7E-12P3	Intel 1S			282.03	55	35-55	Unconfirmed; well not located in field; upgradient. Historically monitored by Aerojet.	Destroyed.	6x thru 00	Figure 1-5B
1853	9N/7E-12Q1	Intel (Brown), Prairie City Rd and Hwy 50 (MW-9M)	DW	1/53	308.62	130		Well in use; observed locked metal cap; appears to be used as a monitoring well. No log available in DWR files.	Destroyed.	1x in 96	Figure 1-5B
1854	9N/7E-12L2	Intel 4s			278.35	58	30-52	Unconfirmed; well not located in field; upgradient.	Destroyed.	No	Figure 1-5B
1855	9N/7E-12M1	Intel 3s			277.44	60	40-60	Unconfirmed; well not located in field; upgradient.	Destroyed.	No	Figure 1-5B
1856	9N/7E-12M2	Intel 3m			277.3	102	82-102	Unconfirmed; well not located in field; upgradient.	Destroyed.	No	Figure 1-5B
1857	9N/7E-11D1	Intel West, Blue Ravine Rd	DW					Unconfirmed; well not located in field.	Abandoned. Well not in use per owner; upgradient.	No	Figure 1-5B
1858	9N/7E-11D2	Intel West, Blue Ravine Rd	DW					Unconfirmed; well not located in field.	Abandoned. Well not in use per owner; upgradient.	No	Figure 1-5B
1859	9N/7E-11E1	Intel West, Blue Ravine Rd	DW					Unconfirmed; well not located in field.	Abandoned. Well not in use per owner; upgradient.	No	Figure 1-5B
1861	9N/7E-35	AKT Corporation, Grant Line Road south of White Rock Road	other	02/16/89		412	160-175	Test well for development.	Well was actually a boring.	No	not posted
1862	9N/7E-35	AKT Corporation, Grant Line Road	other					Test well for development.	Well was actually a boring.	No	not posted
1864		**Divine, David and Alaina**	**DW**						**Well in use for drinking and irrigation. Well monitored under Exhibit IV monitoring plan.**		**Figure 1 5A**
1871		**Intel**	**WS/IND**	**2003**		**220**	**77-177**		**Well only used in an emergency for industrial purposes; not monitored.**	**No**	**Figure 1-5A**
1874	9N/7E-20F	2300 Mine Shaft Lane (off Folsom and Sunrise)	DW	12/91		240			Well not in use. Well pump is currently not operable and well cannot be monitored. Owner has indicated a desire to use the well for irrigation in the future. Well is included in Exhibit IV monitoring plan.	No.	Figure 1-5B

Table 1-2: Summary of Results - Private Well Survey (1 mile radius from Site)

Aerojet Well No.	State Well No.	Owner/Well Location	Well Type	Well Compl. Date	gse (ft, msl)	Well Depth (ft, bgs)	Perf. Interval (ft, bgs)	Well Status - 1991	Well Status - January 2005	Monitored between 1991-2004?	Posted
1884	9N/7E-12	Intel, 1900 Prairie City Rd and Hwy 50 (Lake well)	DW	8/9/85		238	70-233	Well in use; upgradient.	Abandoned. Well not in use per owner; upgradient.	No	not posted
1893	**9N/7E-9A1**	**Rudek (prev. Nazimoff, Roediger), 9151 Sunset Ave.**	**DW**		**192**	**130**		**Unconfirmed; well not located in field - no visual evidence of municipal water supply to residence; on bluff.**	**Well in use for irrigation. House on Municipal water. Well in gully behind house. Upgradient of Aerojet; not monitored.**	**No**	**Figure 1-5A**
1894	9N/7E-10Q1	State Dept. Parks and Recreation. 700' NE of Folsom and route 50 near pumphouse	DW	1936	170	318		Well not found in 1992.	Well not located. Personnel not aware of domestic well.	No	not posted
1895	9N/7E-10Q2	State Dept. Parks and Recreation	DW					Well not found in 1992.	Destroyed.	No	not posted
1896	9N/7E-12K1	Intel (Brown),1900 Prairie City Rd and Hwy 50	DW	5/46		103		Well not in use; well not destroyed; upgradient.	Abandoned. Well not in use per owner. Well is upgradient of Aerojet Site.	No	not posted
1897	9N/7E-12Q2	State Dept. Parks and Recreation. Prairie City road and U.S. 50.	DW	1947	295	60			Destroyed.	No	not posted
1899	9N/7E-15E1	Shady Oaks Investments	DW		143	185		Building demolished, area graded.	Well not located. Area redeveloped. Building demolished, area graded.	No	not posted
1900	9N/7E-12K1	Rogers	DW						Well not located in 1992 or 2004. No additional information available.	No	not posted
1901	9N/7E-16A1	State Dept. Parks and Recreation	DW		131			Unconfirmed.	Destroyed.	No	not posted
1902	9N/7E-16P1	Natomas Land Co. (200' w of cannery at Nimbus Road on Folsom Bvd, 150' north of road behind houses)	DW					Well not found in 1992.	Well not located. Area redeveloped.	No	not posted
1903	9N/7E-16P2	Thompson, R. 300' w of Nimbus road on Folsom Blvd, 40' north of road and 30' w. of Jet Club	DW					Well not found in 1992.	Well not located. Area redeveloped.	No	not posted
1905	9N/7E-19B1	DWR - Water Problem Area, Folsom/East Sacramento Study	MW	1/8/63	100	80	76-80	Area graded.	Monitoring well. Well not found in 2004.	No	not posted
1909	9N/7E-34D1	Capital Dredging Co. (Well 5) / 4400 ft N, 4200 ft W of SE corner of Section 34 (S of White Rock Rd)	DW			197	70-145		Abandoned. Well not in use. Well location not field checked.		not posted
1910	9N/7E-34R1	Grant Line Road Properties, Prev. A.E. Cummings 12545 Douglas Road (Cupp Lane)	DW	9/20/50		112	64-112	Unconfirmed; well not located in field.	Well not located. Spoke with Grant Line Road Properties manager. They have no knowledge of well.	No	not posted

Table 1-2: Summary of Results - Private Well Survey (1 mile radius from Site)

Aerojet Well No.	State Well No.	Owner/Well Location	Well Type	Well Compl. Date	gse (ft, msl)	Well Depth (ft, bgs)	Perf. Interval (ft, bgs)	Well Status - 1991	Well Status - January 2005	Monitored between 1991-2004?	Posted
1911	9N/7E-36C1	Capitol Dredging #4. Near moon building at Prairie City.	WS/IND	8/27		420	158-355	Well supplied water for dredging operations.	Abandoned. Well not in use. Not field checked.	No	not posted
1912	9N/7E-36C2	Capitol Dredging #6. Near moon building at Prairie City.	WS/IND	3/25	320	489	155-262	Well supplied water for dredging operations.	Abandoned. Well not in use. Not field checked.	No	not posted
1913	9N/7E-36N1	Capitol Dredging	WS/IND	1/33	295	500		Well supplied water for dredging operations.	Abandoned. Well not in use. Not field checked.	No	not posted
1917	**9N/7E-34**	**12525 A Calif General Partnership (previously owned by Whitlow and Lehman). 12525 Douglas Rd (Cupp Lane)**	**DW**					**Unconfirmed; well not located in field.**	**Neighbor stated well in use for domestic and irrigation purposes. Added to 2005-2006 Exhibit IV monitoring plan.**	**No**	**Figure 1-5A**
1921	9N/7E	near Main Ave and Dredger Way at end of Sunset	MW	6/25/886		27		Well not in use. Well has been destroyed.	Destroyed.	No	not posted
1922	9N/7E	near Main Ave and Dredger Way at end of Sunset	MW	6/27/86		18		Well not in use. Well has been destroyed.	Destroyed.	No	not posted
1923	9N/7E	near Main Ave and Dredger Way at end of Sunset	MW	6/27/86		15		Well not in use. Well has been destroyed.	Destroyed.	No	not posted
1925	9N/7E-9B	Prev. Robert G. Burris, 9101 Sunset Ave.	DW	7/18/63		208	160-208	Well in use; neighbor stated that well was in use for domestic purposes; on bluff; well upgradient of site.	Well not located. Area redeveloped. Status unknown. No such address.	No	not posted
1926	9N/7E-9B	Mearly Brown. Sunset Ave.	DW	3/20/63		210	96-210	Well upgradient of site. Well not found in field.	Well not located. Upgradient of site.	No	not posted
1927	9N/7E-9B	McCann, Bill and Elizabeth (prev. William Ludwig) 9110 Sunset Ave.	DW	11/58		187	34-187	Well in use; neighbor stated that well was in use for domestic purposes; on bluff; well upgradient of site.	Abandoned. Well not in use. Pump does not work and well has not been operated in approximately 25 years. House on muni water.	No	Figure 1-5B
1929	**9N/7E-9B**	**William Ludwig 9106 Sunset Ave**	**DW**	**8/4/67**		**195**	**85-195**	**Well upgradient of site.**	**Well in use for domestic purposes. Well upgradient of site; not monitored.**	**No**	**Figure 1-5A**
1930	**9N/7E-9G1**	**Prev. A.E. Cummings, 9251 Sunset Ave**	**DW**	**5/15/50**		**210**	**91-210**	**Well in use; owner stated that they were trying to connect to municipal water supply; on bluff; well upgradient of site.**	**Well in use for irrigation, possibly for domestic purposes. Well upgradient of site; not monitored.**	**No**	**Figure 1-5A**
1931	9N/7E-9G	near Serena Dr in Zone 1	other			692		Well is actually a test hole. No well was set.	Well is actually a test hole. No well was set.	No	not posted
1932	9N/7E-9G	Fair Oaks Irrigation Dist., Kruithof Ave. Phoenix Field Well.	WS/MUN	6/12/69		420	178-411		Abandoned. Well not in use per water district.	No	Figure 1-5B

Table 1-2: Summary of Results - Private Well Survey (1 mile radius from Site)

Aerojet Well No.	State Well No.	Owner/Well Location	Well Type	Well Compl. Date	gse (ft, msl)	Well Depth (ft, bgs)	Perf. Interval (ft, bgs)	Well Status - 1991	Well Status - January 2005	Monitored between 1991-2004?	Posted
1933	**9N/7E-9A**	**Joel Leach, 9105 Sunset Ave.**	**DW**	**6/9/74**		**250**	**125-175**	**Well in use; neighbor stated that well was in use for domestic purposes; on bluff.**	**Well in use; neighbor stated that well was in use for domestic purposes; upgradient of site on bluff; not monitored.**	**No**	**Figure 1-5A**
1939	9N/7E-12	Orangevale Sportsmans club. Off Prairie City Road, North of Willow Hill Reservoir.	DW	4/10/59		80	40-80	Well not in use.	Abandoned. Well not in use in 1992. Area redeveloped. Well location not field checked.	No	not posted
1941	9N/7E-16Q2	Nimbus Winery, 9101 Folsom Blvd. (prev. Libby, McNeill & Libby Olive Plant)	DW	8/23/55		135	90-132	Well appears to be operational.	Destroyed.	No	not posted
1943	**9N/7E-35**	**AKT Corporation (AKT-1), Grant Line Road south of White Rock Road**	**DW**	**2/6/89**		**412**	**160-390**	**Test well - Extraction well (see WRND Database).**	**Well in use by Teichert Plant as extraction well. Well head treatment provided by Aerojet. Well monitored by Aerojet.**	**2x in 01**	**Figure 1-5A**
1944	9N/7E-35	AKT Corporation. SW corner of Ehnizs in Zone 3	MW					Test well - monitor well (see WRND Database). EX IV.	Monitor well. Monitored by Aerojet under Exhibit IV.		not posted
1970	9N/7E-12	Intel, 1900 Prairie City Rd/Hwy 50 (Lawn well #1)	DW	7/3/84		70	70-130	Unconfirmed; well not located in field; upgradient.	Abandoned. Well not in use per owner; upgradient.	No	not posted
2000	9N/8E-7	Kemp, John. East of Illinois, South of Sunset.	DW	6/14/84		350	270-350		Well not located. Well not in use in 1992. Area north of known groundwater impacts.	No	not posted
2001	9N/8E-17N	Rick Davies. White Rock Road	DW	7/29/83		300	52-350		Well not located. Well not in use in 1992. Area redeveloped since 1983.	No	not posted
2054	9N/7E-7A2	Fair Oaks Irrig. Dist./Sunset Ave (Well 2) 34-1086. Sunset and Kenneth.	WS/MUN	1945	180	592			Abandoned. Well not in use per water district.	No	Figure 1-5B
2066	**9N/7E-20C**	**SCWC, 11715 Gold Country Blvd. (#21)**	**WS/MUN**	**5/5/1994**	**120**	**620**	**290-580**		**SCWC public water supply well. Well monitored under WGOU monitoring plan.**	**Yes, many x**	**Figure 1-5A**
		Sailor Bar, Olive (near 9N/7E-17)	DW						Well is a standby well for fire suppression.		not posted
	9N/7E-34	Yost well/4400 ft north, 3250 ft west of SE corner of Section 34	DW	4/23/40	225				Abandoned. Well not in use.		not posted
		Dalton, 8001 Alta Vista Court	DW						Well located in Galt.		not posted

Table 1-2: Summary of Results - Private Well Survey (1 mile radius from Site)

Aerojet Well No.	State Well No.	Owner/Well Location	Well Type	Well Compl. Date	gse (ft, msl)	Well Depth (ft, bgs)	Perf. Interval (ft, bgs)	Well Status - 1991	Well Status - January 2005	Monitored between 1991-2004?	Posted
		McMillan, Fair Oaks Blvd, North of Sunset	DW						Well not located. Area served by municipal water.		not posted
	9N/7E-6C1	W.K. Tiffany, Tiffany Way (34-1084),	DW	6/1/51		102	open hole		Well not located. Area served by municipal water.		not posted
	9N/7E-6M1	Herbert Niessen, Fair Oaks Blvd, North of Sunset (34-1085)	DW	5/7/51		206	open hole		Well not located. Area served by municipal water.		not posted

Notes:

Wells highlighted in bold are active public or private water supply wells.

1. Survey results from *Revised Scoping Operable Unit Analysis* (ICF Technology, 1991) and November 2003 survey of DWR files (CVEI, Nov 2003).
2. Monitoring wells and piezometers identified during the August 1991 and November 2003 well surveys were not included in this water supply well list.
3. November 2003 survey included review of DWR files for the following township/range/section areas:

8N, 6E, 1	9N, 6E, 12	9N, 7E, 7	9N, 7E, 33
8N, 6E, 2	9N, 6E, 13	9N, 7E, 8	9N, 7E, 34
8N, 7E, 1	9N, 6E, 23	9N, 7E, 9	9N, 7E, 36
8N, 7E, 2	9N, 6E, 24	9N, 7E, 10	9N, 8E, 6
8N, 7E, 3	9N, 6E, 25	9N, 7E, 11	9N, 8E, 7
8N, 7E, 4	9N, 6E, 26	9N, 7E, 12	9N, 8E, 8
8N, 7E, 5	9N, 6E, 35	9N, 7E, 15	9N, 8E, 17
8N, 7E, 6	9N, 6E, 36	9N, 7E, 16	9N, 8E, 18
8N, 7E, 10	9N, 7E, 1	9N, 7E, 17	9N, 8E, 19
8N, 7E, 11	9N, 7E, 2	9N, 7E, 18	9N, 8E, 20
8N, 7E, 12	9N, 7E, 3	9N, 7E, 19	9N, 8E, 29
8N, 8E, 5	9N, 7E, 4	9N, 8E, 20	9N, 8E, 30
8N, 8E, 6	9N, 7E, 5	9N, 7E, 25	9N, 8E, 31
9N, 6E, 1	9N, 7E, 6	9N, 7E, 32	9N, 8E, 32

Abbreviations:

gse = ground surface elevation
ft. msl = feet above mean sea level
ft, bgs = feet below ground surface
other = well type is other than domestic, industrial, municipal, or monitoring well. See well status for description.
DW = Domestic water supply well. May be used for domestic purposes or irrigation.
MW = Monitor well
WS/IND = Public water supply well used for industrial purposes.
WS/MUN = Public water supply well used for municipal purposes.
CalAm = Cal-American Water Company, previously Citizens Utilities Company
SCWC = Southern California Water Company, includes Arden-Cordova Water Service
SWMD = Sunrise Water Maintenance District

Table 4-1: Alternative Z1-2 Extraction Well Design and Chemistry Data

Well ID	Layer	Depth (ft, bgs)	Screened Interval (ft, bgs)	Modeled Flow (gpm)	Chemistry[1] (µg/l)			Mass (lbs/day)		
					TCE	ClO_4	NDMA	TCE	ClO_4	NDMA
Through 10" secondary containment pipeline										
4035	C	140	50-123	200	49	210	0	1.2E-01	5.0E-01	0.00E+00
4325	C	108	72-88	187	91	0	0	2.0E-01	0.0E+00	0.00E+00
4330	C/D	154.5	101-137	290	280	28	0	9.8E-01	9.8E-02	0.00E+00
4335	D/E	204	169-184	90	680	22	0	7.4E-01	2.4E-02	0.00E+00
5020	C	132	82-122	200	100	40	0	2.4E-01	9.6E-02	0.00E+00
5105	C/D	148	76-136	150	200	1,000	0	3.6E-01	1.8E+00	0.00E+00
		Flow Subtotal:		**1,117**		**Mass Subtotal:**		**2.6E+00**	**2.5E+00**	**0.00E+00**
		Flow Weighted Average:			**196**	**188**	**0.00**			
Through 20" pipeline										
Z1-C1	C	TBD[2]	TBD[2]	500	25	0	0	1.5E-01	0.0E+00	0.00E+00
Z1-C2	C	TBD[2]	TBD[2]	250	5	50	0	1.5E-02	1.5E-01	0.00E+00
4302	D	201	166-186	23	34	0	0	9.4E-03	0.0E+00	0.00E+00
4380	D	228	200-218	40	42	0	0	2.0E-02	0.0E+00	0.00E+00
4580	D/E	255	196-241	200	110	0	0	2.6E-01	0.0E+00	0.00E+00
4585	E	341	245-315	297	81	0	0	2.9E-01	0.0E+00	0.00E+00
4620	E	317	263-303	280	19	0	0	6.4E-02	0.0E+00	0.00E+00
Z1-D1	D	TBD[2]	TBD[2]	600	25	0	0	1.8E-01	0.0E+00	0.00E+00
Z1-D2	D	TBD[2]	TBD[2]	250	5	50	0	1.5E-02	1.5E-01	0.00E+00
		Flow Subtotal:		**2,440**		**Mass Subtotal:**		**1.0E+00**	**3.0E-01**	**0.00E+00**
		Flow Weighted Average:			**34**	**10**	**0**			

Table 4-1: Alternative Z1-2 Extraction Well Design and Chemistry Data

Existing and Proposed Extraction Wells:

Total Flow:	**3,557**	**Total Mass:**	**3.6E+00**	**2.8E+00**	**0.00E+00**

Total Flow Weighted Avg:	**85**	**66**	**0.00**

Notes:

1. Chemical concentrations for proposed wells are estimated concentrations.
2. Total depths and screened intervals for proposed extraction wells will be determined during well construction.
3. Actual flow data for proposed wells may be adjusted based on aquifer test data. For purposes of estimating average influent concentrations and sizing piping and treatment facilities, the modeled flow rates were used.

Abbreviations:

bgs = below ground surface
ClO_4 = Perchlorate
gpm = gallons per minute
lbs = pounds
NDMA = N-nitrosodimethylamine
NA = Not analyzed
TBD = To be determined
TCE = Trichloroethylene
µg/l = micrograms per liter

Table 4-2: Alternative Z1-3 Extraction Well Design and Chemistry Data

Well ID	Layer	Depth (ft, bgs)	Screened Interval (ft, bgs)	Modeled Flow (gpm)	Chemistry[1] (µg/l)			Mass (lbs/day)		
					TCE	ClO_4	NDMA	TCE	ClO_4	NDMA
Through existing 10" secondary containment pipeline										
4035	C	140	50-123	200	49	210	0	1.2E-01	5.0E-01	0.00E+00
4220	D	207	125-195	192	20	710	0	4.6E-02	1.6E+00	0.00E+00
4320	D	270	162-228	150	48	220	0	8.7E-02	4.0E-01	0.00E+00
4325	C	108	72-88	187	91	0	0	2.0E-01	0.0E+00	0.00E+00
4330	C/D	154.5	101-137	290	280	28	0	9.8E-01	9.8E-02	0.00E+00
4335	D/E	204	169-184	90	680	22	0	7.4E-01	2.4E-02	0.00E+00
5020	C	132	82-122	200	100	40	0	2.4E-01	9.6E-02	0.00E+00
5105	C/D	148	76-136	150	200	1,000	0	3.6E-01	1.8E+00	0.00E+00
		Flow Subtotal:		**1,459**			**Mass Subtotal:**	**2.8E+00**	**4.6E+00**	**0.00E+00**
		Flow Weighted Average:			**158**	**260**	**0.00**			
Through new 8" pipeline										
Z1-C2	C	TBD[2]	TBD[2]	250	5	50	0	1.5E-02	1.5E-01	0.00E+00
Z1-D2	D	TBD[2]	TBD[2]	250	5	50	0	1.5E-02	1.5E-01	0.00E+00
		Flow Subtotal:		**500**			**Mass Subtotal:**	**3.0E-02**	**3.0E-01**	**0.00E+00**
		Flow Weighted Average:			**5**	**50**	**0.00**			

Table 4-2: Alternative Z1-3 Extraction Well Design and Chemistry Data

		Depth	Screened Interval	Modeled	Chemistry[1] (µg/l)			Mass (lbs/day)		
Through existing 20" pipeline										
Z1-C1	C	TBD[2]	TBD[2]	500	25	0	0	1.5E-01	0.0E+00	0.00E+00
4302	D	201	166-186	23	34	0	0	9.4E-03	0.0E+00	0.00E+00
4380	D	228	200-218	40	42	0	0	2.0E-02	0.0E+00	0.00E+00
4580	D/E	255	196-241	200	110	0	0	2.6E-01	0.0E+00	0.00E+00
4585	E	341	245-315	297	81	0	0	2.9E-01	0.0E+00	0.00E+00
4620	E	317	263-303	280	19	0	0	6.4E-02	0.0E+00	0.00E+00
Z1-D1	D	TBD[2]	TBD[2]	600	25	0	0	1.8E-01	0.0E+00	0.00E+00
		Flow Subtotal:		**1,940**		**Mass Subtotal:**		**9.8E-01**	**0.0E+00**	**0.00E+00**
		Flow Weighted Average:			**42**	**0**	**0**			
Existing and Proposed Extraction Wells:										
		Total Flow:		**3,899**		**Total Mass:**		**3.8E+00**	**4.9E+00**	**0.0E+00**
		Total Flow Weighted Avg:			**81**	**104**	**0.00**			

Notes:

1. Chemical concentrations for proposed wells are estimated concentrations.
2. Total depths and screened intervals for proposed extraction wells will be determined during well construction.
3. Actual flow data for proposed wells may be adjusted based on aquifer test data. For purposes of estimating average influent concentrations and sizing piping and treatment facilities, the modeled flow rates were used.

Abbreviations:

bgs = below ground surface
ClO_4 = Perchlorate
gpm = gallons per minute
lbs = pounds
NDMA = N-nitrosodimethylamine

Table 4-3: Alternative Z2-2 Extraction Well Design and Chemistry Data

Well ID	Layer	Depth (ft, bgs)	Screened Interval (ft, bgs)	Modeled Flow (gpm)	Chemistry[1] (µg/l)			Mass (lbs/day)		
					TCE	ClO_4	NDMA	TCE	ClO_4	NDMA
Proposed Extraction Wells:										
C1	C	TBD[2]	TBD[2]	450	20	80	0	0.1	0.4	0.00E+00
C2	C	TBD[2]	TBD[2]	500	40	150	0	0.2	0.9	0.00E+00
C3	C	TBD[2]	TBD[2]	450	120	100	0	0.6	0.5	0.00E+00
		Flow Subtotal:		**1,400**			**Mass Subtotal:**	**1.0**	**1.9**	**0.00E+00**
		Flow Weighted Average:			**59**	**111**	**0**			

Notes:
1. Chemical concentrations for proposed wells are estimated concentrations.
2. Total depths and screened intervals for proposed extraction wells will be determined during well construction.
3. Actual flow data for proposed wells may be adjusted based on aquifer test data. For purposes of estimating average influent concentrations and sizing piping and treatment facilities, the modeled flow rates were used.

Abbreviations:
bgs = below ground surface
ClO_4 = Perchlorate
gpm = gallons per minute
lbs = pounds
NDMA = N-nitrosodimethylamine
NA = Not analyzed
TBD = To be determined
TCE = Trichloroethylene
µg/l = micrograms per liter

Table 4-4: Alternative Z2-3 Extraction Well Design and Chemistry Data

Well ID	Layer	Depth (ft, bgs)	Screened Interval (ft, bgs)	Modeled Flow (gpm)	Chemistry[1] (µg/l)			Mass (lbs/day)		
					TCE	ClO_4	NDMA	TCE	ClO_4	NDMA
Existing Extraction Wells:										
4420	C	175	125-160	150	300	1,000	0	0.5	1.8	0.00E+00
		Flow Subtotal:		**150**		**Mass Subtotal:**		**0.5**	**1.8**	**0.00E+00**
		Flow Weighted Average:			**300**	**1,000**	**0**			
Proposed Extraction Wells:										
C1	C	TBD[2]	TBD[2]	450	20	80	0	0.1	0.4	0.00E+00
C2	C	TBD[2]	TBD[2]	500	40	150	0	0.2	0.9	0.00E+00
C3	C	TBD[2]	TBD[2]	450	120	100	0	0.6	0.5	0.00E+00
		Flow Subtotal:		**1,400**		**Mass Subtotal:**		**1.0**	**1.9**	**0.00E+00**
		Flow Weighted Average:			**59**	**111**	**0**			
Existing and Proposed Extraction Wells:										
		Total Flow:		**1,550**		**Total Mass:**		**1.5**	**3.7**	**0.000**
		Total Flow Weighted Avg:			**83**	**197**	**0**			

Notes:

1. Chemical concentrations for proposed wells are estimated concentrations.
2. Total depths and screened intervals for proposed extraction wells will be determined during well construction.
3. Actual flow data for proposed wells may be adjusted based on aquifer test data. For purposes of estimating average influent concentrations and sizing piping and treatment facilities, the modeled flow rates were used.

Table 4-4: Alternative Z2-3 Extraction Well Design and Chemistry Data

Abbreviations:
bgs = below ground surface
ClO_4 = Perchlorate
gpm = gallons per minute
lbs = pounds
NDMA = N-nitrosodimethylamine

Table 4-5: Alternative Z3-2 Extraction Well Design and Chemistry Data

Well ID	Layer	Depth (ft, bgs)	Screened Interval (ft, bgs)	Modeled Flow (gpm)	Chemistry[1] (µg/l)			Mass (lbs/day)		
					TCE	ClO_4	NDMA	TCE	ClO_4	NDMA
Existing Extraction Wells:										
4505	B	178	155-165	12	28	0	0	4.0E-03	0.0E+00	0.00E+00
4510	B	159	138-158	4	65	0	0.0024	3.1E-03	0.0E+00	1.15E-07
4515	B	159	143-153	6	160	0	0.002	1.2E-02	0.0E+00	1.44E-07
4520	B	160	138-148	10	57	0	0.013	6.9E-03	0.0E+00	1.56E-06
4525	B	163	145-155	20	90	0	0.0024	2.2E-02	0.0E+00	5.77E-07
4570	C/D	285	191-271	400	2.3	31	0.052	1.1E-02	1.5E-01	2.50E-04
		Flow Subtotal:		**452**			**Mass Subtotal:**	**5.8E-02**	**1.5E-01**	**2.52E-04**
		Flow Weighted Average:			**11**	**27**	**0.05**			
Proposed Extraction Wells:										
Z3-C1	C	TBD[2]	TBD[2]	100	20	25	0.05	2.4E-02	3.0E-02	6.01E-05
Z3-C2	C	TBD[2]	TBD[2]	100	5	10	0.05	6.0E-03	1.2E-02	6.01E-05
Z3-C3	C	TBD[2]	TBD[2]	50	70	20	0.1	4.2E-02	1.2E-02	6.01E-05
Z3-D1	D	TBD[2]	TBD[2]	100	10	10	0.05	1.2E-02	1.2E-02	6.01E-05
Z3-D2	D	TBD[2]	TBD[2]	250	10	25	0.1	3.0E-02	7.5E-02	3.01E-04
Z3-D3	D	TBD[2]	TBD[2]	250	20	70	0.5	6.0E-02	2.1E-01	1.50E-03
Z3-E1	E	TBD[2]	TBD[2]	150	30	40	0.01	5.4E-02	7.2E-02	1.80E-05
Z3-E2	E	TBD[2]	TBD[2]	75	30	50	25	2.7E-02	4.5E-02	2.25E-02
Z3-E3	E	TBD[2]	TBD[2]	80	30	50	50	2.9E-02	4.8E-02	4.81E-02
Z3-F1	F	TBD[2]	TBD[2]	125	100	20	40	1.5E-01	3.0E-02	6.01E-02
Z3-F2	F	TBD[2]	TBD[2]	50	200	50	20	1.2E-01	3.0E-02	1.20E-02
Z3-F3	F	TBD[2]	TBD[2]	120	100	50	70	1.4E-01	7.2E-02	1.01E-01
		Flow Subtotal:		**1,450**			**Mass Subtotal:**	**7.0E-01**	**6.5E-01**	**2.46E-01**
		Flow Weighted Average:			**40**	**37**	**14**			

Table 4-5: Alternative Z3-2 Extraction Well Design and Chemistry Data

Existing and Proposed Extraction Wells:

Total Flow:	**1,902**	**Total Mass:**	**7.6E-01**	**8.0E-01**	**2.46E-01**

Total Flow Weighted Avg:	**33**	**35**	**11**

Notes:

1. Chemical concentrations for proposed wells are estimated concentrations.
2. Total depths and screened intervals for proposed extraction wells will be determined during well construction.
3. Actual flow data for proposed wells may be adjusted based on aquifer test data. For purposes of estimating average influent concentrations and sizing piping and treatment facilities, the modeled flow rates were used.

Abbreviations:

bgs = below ground surface
ClO_4 = Perchlorate
gpm = gallons per minute
lbs = pounds
NDMA = N-nitrosodimethylamine
NA = Not analyzed
TBD = To be determined
TCE = Trichloroethylene
µg/l = micrograms per liter

Table 4-6: Alternative Z3-3 Extraction Well Design and Chemistry Data

Well ID	Layer	Depth (ft, bgs)	Screened Interval (ft, bgs)	Modeled Flow (gpm)	Chemistry[1] (µg/l)			Mass (lbs/day)		
					TCE	ClO_4	NDMA	TCE	ClO_4	NDMA
Existing Extraction Wells:										
4011	C	220	127-159	25	430	93	51	1.3E-01	2.8E-02	1.53E-02
4303	C/D	270	170-230	53	75	20	37	4.8E-02	1.3E-02	2.36E-02
4405	C	220	175-210	75	94	16	39	8.5E-02	1.4E-02	3.52E-02
4450	C/D	275	198-258	150	110	20	38	2.0E-01	3.6E-02	6.85E-02
4475	D/E	290	175-270	100	43	14	4.3	5.2E-02	1.7E-02	5.17E-03
4480	D/E	334.5	190-321	250	47	24	34	1.4E-01	7.2E-02	1.02E-01
4505	B	178	155-165	12	28	0	0	4.0E-03	0.0E+00	0.00E+00
4510	B	159	138-158	4	65	0	0.0024	3.1E-03	0.0E+00	1.15E-07
4515	B	159	143-153	6	160	0	0.002	1.2E-02	0.0E+00	1.44E-07
4520	B	160	138-148	10	57	0	0.013	6.9E-03	0.0E+00	1.56E-06
4525	B	163	145-155	20	90	0	0.0024	2.2E-02	0.0E+00	5.77E-07
4570	C/D	285	191-271	400	2.3	31	0.052	1.1E-02	1.5E-01	2.50E-04
		Flow Subtotal:		**1,105**		**Mass Subtotal:**		**7.1E-01**	**3.3E-01**	**2.50E-01**
		Flow Weighted Average:			**54**	**25**	**19**			
Proposed Extraction Wells:										
Z3-C1	C	TBD[2]	TBD[2]	100	20	25	0.05	2.4E-02	3.0E-02	6.01E-05
Z3-C2	C	TBD[2]	TBD[2]	100	5	10	0.05	6.0E-03	1.2E-02	6.01E-05
Z3-C3	C	TBD[2]	TBD[2]	50	70	20	0.1	4.2E-02	1.2E-02	6.01E-05
Z3-D1	D	TBD[2]	TBD[2]	100	10	10	0.05	1.2E-02	1.2E-02	6.01E-05
Z3-D2	D	TBD[2]	TBD[2]	250	10	25	0.1	3.0E-02	7.5E-02	3.01E-04
Z3-D3	D	TBD[2]	TBD[2]	250	20	70	0.5	6.0E-02	2.1E-01	1.50E-03
Z3-E1	E	TBD[2]	TBD[2]	150	30	40	0.01	5.4E-02	7.2E-02	1.80E-05
Z3-E2	E	TBD[2]	TBD[2]	75	30	50	25	2.7E-02	4.5E-02	2.25E-02
Z3-E3	E	TBD[2]	TBD[2]	80	30	50	50	2.9E-02	4.8E-02	4.81E-02
Z3-F1	F	TBD[2]	TBD[2]	125	100	20	40	1.5E-01	3.0E-02	6.01E-02
Z3-F2	F	TBD[2]	TBD[2]	50	200	50	20	1.2E-01	3.0E-02	1.20E-02
Z3-F3	F	TBD[2]	TBD[2]	120	100	50	70	1.4E-01	7.2E-02	1.01E-01
		Flow Subtotal:		**1,450**		**Mass Subtotal:**		**7.0E-01**	**6.5E-01**	**2.46E-01**
		Flow Weighted Average:			**40**	**37**	**14**			

Table 4-6: Alternative Z3-3 Extraction Well Design and Chemistry Data

Existing and Proposed Extraction Wells:

Total Flow:	**2,555**	**Total Mass:**	**1.4E+00**	**9.8E-01**	**4.96E-01**

Total Flow Weighted Avg:	**46**	**32**	**16**

Notes:

1. Chemical concentrations for proposed wells are estimated concentrations.
2. Total depths and screened intervals for proposed extraction wells will be determined during well construction.
3. Actual flow data for proposed wells may be adjusted based on aquifer test data. For purposes of estimating average influent concentrations and sizing piping and treatment facilities, the modeled flow rates were used.

Abbreviations:

bgs = below ground surface
ClO_4 = Perchlorate
gpm = gallons per minute
lbs = pounds
NDMA = N-nitrosodimethylamine
NA = Not analyzed
TBD = To be determined
TCE = Trichloroethylene
µg/l = micrograms per liter

Table 4-7: Alternative Z4-2 Extraction Well Design and Chemistry Data

Well ID	Layer	Depth (ft, bgs)	Screened Interval (ft, bgs)	Modeled Flow (gpm)	Chemistry[1] (µg/l)			Mass (lbs/day)		
					TCE	ClO_4	NDMA	TCE	ClO_4	NDMA
Existing Extraction Wells:										
4100	A	90	54-74	49	49	0	3.4	2.9E-02	0.0E+00	2.00E-03
4105	A	76	39-59	10	3.2	0	3.3	3.8E-04	0.0E+00	3.97E-04
4110	A	85	40-60	8	6.2	0	7.8	6.0E-04	0.0E+00	7.50E-04
4120	A	84	50-70	42	0	0	20	0.0E+00	0.0E+00	1.01E-02
4125	A	70	39-59	4	0	0	12	0.0E+00	0.0E+00	5.77E-04
4130	A	80	40-60	6	0	0	4.6	0.0E+00	0.0E+00	3.32E-04
4500	A	80	38-64	95	0	0	2.6	0.0E+00	0.0E+00	2.97E-03
		Flow Subtotal:		**214**			**Mass Subtotal:**	**3.0E-02**	**0.0E+00**	**1.71E-02**
		Flow Weighted Average:			**12**	**0**	**7**			
Proposed Extraction Wells:										
Z4-A1	A	TBD[2]	TBD[2]	15	250	25	0.01	4.5E-02	4.5E-03	1.80E-06
Z4-A2	A	TBD[2]	TBD[2]	25	50	5	0	1.5E-02	1.5E-03	0.00E+00
Z4-A3	A	TBD[2]	TBD[2]	100	5	40	0	6.0E-03	4.8E-02	0.00E+00
Z4-A4	A	TBD[2]	TBD[2]	50	5	0	0.05	3.0E-03	0.0E+00	3.01E-05
Z4-A5	A	TBD[2]	TBD[2]	75	5	0	0.05	4.5E-03	0.0E+00	4.51E-05
Z4-A6	A	TBD[2]	TBD[2]	40	0	4	0.025	0.0E+00	1.9E-03	1.20E-05
Z4-B1	B	TBD[2]	TBD[2]	125	0	10	0.3	0.0E+00	1.5E-02	4.51E-04
		Flow Subtotal:		**430**			**Mass Subtotal:**	**7.4E-02**	**7.1E-02**	**5.40E-04**
		Flow Weighted Average:			**14**	**14**	**0.1**			
Existing and Proposed Extraction Wells:										
		Total Flow:		**644**			**Total Mass:**	**1.0E-01**	**7.1E-02**	**1.77E-02**
		Total Flow Weighted Avg:			**13**	**9**	**2**			

Table 4-7: Alternative Z4-2 Extraction Well Design and Chemistry Data

Notes:
1. Chemical concentrations for proposed wells are estimated concentrations.
2. Total depths and screened intervals for proposed extraction wells will be determined during well construction.
3. Actual flow data for proposed wells may be adjusted based on aquifer test data. For purposes of estimating average influent concentrations and sizing piping and treatment facilities, the modeled flow rates were used.

Abbreviations:
bgs = below ground surface
ClO_4 = Perchlorate
gpm = gallons per minute
lbs = pounds
NDMA = N-nitrosodimethylamine
NA = Not analyzed
TBD = To be determined
TCE = Trichloroethylene
µg/l = micrograms per liter

Table 4-8: Alternative Z4-3 Extraction Well Design and Chemistry Data

Well ID	Layer	Depth (ft, bgs)	Screened Interval (ft, bgs)	Modeled Flow (gpm)	Chemistry[1] (µg/l)			Mass (lbs/day)		
					TCE	ClO_4	NDMA	TCE	ClO_4	NDMA
Existing Extraction Wells:										
4100	A	90	54-74	49	49	0	3.4	2.9E-02	0.0E+00	2.00E-03
4105	A	76	39-59	10	3.2	0	3.3	3.8E-04	0.0E+00	3.97E-04
4110	A	85	40-60	8	6.2	0	7.8	6.0E-04	0.0E+00	7.50E-04
4120	A	84	50-70	42	0	0	20	0.0E+00	0.0E+00	1.01E-02
4125	A	70	39-59	4	0	0	12	0.0E+00	0.0E+00	5.77E-04
4130	A	80	40-60	6	0	0	4.6	0.0E+00	0.0E+00	3.32E-04
4500	A	80	38-64	95	0	0	2.6	0.0E+00	0.0E+00	2.97E-03
4012	A	138	60-80	11	300	60	10	4.0E-02	7.9E-03	1.32E-03
4013	A	138	100-127	4	300	60	10	1.4E-02	2.9E-03	4.81E-04
4430	A	111	58-96	8	800	60	1	7.7E-02	5.8E-03	9.62E-05
		Flow Subtotal:		**237**			**Mass Subtotal:**	**1.6E-01**	**1.7E-02**	**1.90E-02**
		Flow Weighted Average:			**56**	**6**	**7**			
Proposed Extraction Wells:										
Z4-A1	A	TBD[2]	TBD[2]	15	250	25	0.01	4.5E-02	4.5E-03	1.80E-06
Z4-A2	A	TBD[2]	TBD[2]	25	50	5	0	1.5E-02	1.5E-03	0.00E+00
Z4-A3	A	TBD[2]	TBD[2]	100	5	40	0	6.0E-03	4.8E-02	0.00E+00
Z4-A4	A	TBD[2]	TBD[2]	50	5	0	0.05	3.0E-03	0.0E+00	3.01E-05
Z4-A5	A	TBD[2]	TBD[2]	75	5	0	0.05	4.5E-03	0.0E+00	4.51E-05
Z4-A6	A	TBD[2]	TBD[2]	40	0	4	0.025	0.0E+00	1.9E-03	1.20E-05
Z4-B1	B	TBD[2]	TBD[2]	125	0	10	0.3	0.0E+00	1.5E-02	4.51E-04
		Flow Subtotal:		**430**			**Mass Subtotal:**	**7.4E-02**	**7.1E-02**	**5.40E-04**
		Flow Weighted Average:			**14**	**14**	**0.1**			

Table 4-8: Alternative Z4-3 Extraction Well Design and Chemistry Data

Existing and Proposed Extraction Wells:

Total Flow:	**667**	**Total Mass:**	**2.3E-01**	**8.8E-02**	**1.96E-02**

Total Flow Weighted Avg:	**29**	**11**	**2**

Notes:

1. Chemical concentrations for proposed wells are estimated concentrations.
2. Total depths and screened intervals for proposed extraction wells will be determined during well construction.
3. Actual flow data for proposed wells may be adjusted based on aquifer test data. For purposes of estimating average influent concentrations and sizing piping and treatment facilities, the modeled flow rates were used.

Abbreviations:

bgs = below ground surface
ClO_4 = Perchlorate
gpm = gallons per minute
lbs = pounds
NDMA = N-nitrosodimethylamine

Table 5-1: Estimated Time Until RAOs are Achieved Calculations

Flowpath	Layer	Single Pore Flush Time (1) (yrs)	TCE @ Cwt = 5 ug/L			Perchlorate @ Cwt = 4 ug/L			NDMA @ Cwt = 0.0017 ug/L			Longest Time Until RAOs Achieved	Chemical Driver
			Ci(2)	NPV(3)	Time (yrs)(4)	Ci	NPV	Time (yrs)	Ci	NPV	Time (yrs)		
Alternative Z1-2													
Source Area to Downgradient Wells	Layer C	24	100	6.3	151	60	2.7	65	-	-	-	151	TCE
	Layer D	24	100	6.3	151	60	2.7	65	-	-	-	151	TCE
	Layer E	24	100	6.3	151	60	2.7	65	-	-	-	151	TCE
Alternative Z1-3													
Source to GET D	Layer C	8	500	9.7	77	600	5.0	40	-	-	-	77	TCE
	Layer D	8	500	9.7	77	60	2.7	22	-	-	-	77	TCE
	Layer E	8	100	6.3	50	60	2.7	22	-	-	-	50	TCE
GET D to to Downgradient Wells	Layer C	16	100	6.3	101	60	2.7	43	-	-	-	101	TCE
	Layer D	16	200	7.7	124	60	2.7	43	-	-	-	124	TCE
	Layer E	16	100	6.3	101	60	2.7	43	-	-	-	101	TCE
Alternative Z2-2													
Source Area to Downgradient Wells	Layer B	24	500	9.7	232	3000	6.6	159	-	-	-	232	TCE
	Layer C	24	500	9.7	232	3000	6.6	159	-	-	-	232	TCE
Alternative Z2-3													
Source Area to Mass Removal Well	Layer B	6	500	9.7	58	6000	7.3	44	-	-	-	58	TCE
	Layer C	6	1000	11.1	67	6000	7.3	44	-	-	-	67	TCE
Mass Removal Wells	Layer B	16	250	8.2	131	600	5.0	80	-	-	-	131	TCE
to Downgradient Wells	Layer C	16	100	6.3	101	200	3.9	63	-	-	-	101	TCE
Alternative Z3-2													
Source Area to Downgradient Wells	Layer C	32	50	4.8	155	60	2.7	87	1	10.2	327	327	NDMA
	Layer D	28	50	4.8	135	60	2.7	76	1	10.2	286	286	NDMA
	Layer E	17	5	0.0	0	6	0.4	7	1	10.2	173	173	NDMA
	Layer F	16	50	4.8	77	6	0.4	6	1	10.2	163	163	NDMA

Table 5-1: Estimated Time Until RAOs are Achieved Calculations

Flowpath	Layer	Single Pore Flush Time (1) (yrs)	TCE @ Cwt = 5 ug/L			Perchlorate @ Cwt = 4 ug/L			NDMA @ Cwt = 0.0017 ug/L			Longest Time Until RAOs Achieved	Chemical Driver
			Ci(2)	NPV(3)	Time (yrs)(4)	Ci	NPV	Time (yrs)	Ci	NPV	Time (yrs)		
Alternative Z3-3													
Source Area to Interior Wells	Layer B	12	100	6.3	75	20	1.6	19	50	16.5	198	198	NDMA
	Layer C	16	100	6.3	101	20	1.6	26	50	16.5	263	263	NDMA
	Layer D	14	100	6.3	88	20	1.6	23	10	13.9	194	194	NDMA
	Layer E	17	5	0.0	0	6	0.4	7	1	10.2	173	173	NDMA
	Layer F	16	50	4.8	77	6	0.4	6	10	13.9	222	222	NDMA
Interior to Downgradient Wells	Layer C	10	25	3.4	34	40	2.3	23	1	10.2	102	102	NDMA
	Layer D	12	25	3.4	41	40	2.3	28	0.1	6.5	78	78	TCE
	Layer E	-	-	-	-	-	-	-	-	-	-	-	-
	Layer F	-	-	-	-	-	-	-	-	-	-	-	-
Alternative Z4-2													
Source Area to Downgradient Wells	Layer A	25	100	6.3	157	6	0.4	10	10	13.9	347	347	NDMA
Source Area to Western Wells	Layer A	15	10	1.5	22	6	0.4	6	0.1	6.5	98	98	NDMA
Alternative Z4-3													
Source Area to Interior Wells	Layer A	15	100	6.3	94	6	0.4	6	10	13.9	208	208	NDMA
Interior to Downgradient Wells	Layer A	10	25	3.4	34	6	0.4	4	10	13.9	139	139	NDMA
Source Area to Western Wells	Layer A	15	10	1.5	22	6	0.4	6	0.1	6.5	98	98	NDMA

Notes:
(1) Single pore flush time is based on particle tracking simulations conducted using the groundwater flow models developed for each Zone (Appendix H).
(2) Ci is the initial estimated chemical concentration from iso-concentration contour maps (Appendices A through D).
(3) NPV is the number of pore volumes based on the equation NPV = -Rln(Cwt/Ci) where R is the chemical-specific retardation factor and Cwt is the chemical-specific ARAR or or risk-based criteria. Retardation factors of 2.1, 1.0, and 1.6 were applied for TCE, perchlorate, and NDMA, respectively.
(4) Time Until RAOs are Achieved [years] = single pore flush time x NPV

Table 6-1: Components of Each Alternative

Alternative	Description	Estimated Number of Wells			Estimated Flowrate (gpm)	Estimated Length of New Piping (ft)
		Existing Extraction Wells	New Extraction Wells	Mass Removal Wells		
Z1-1	No Action with Groundwater Monitoring	0	0	0	0	0
Z1-2	Contain and Remediate Zone 1 Groundwater	9	6	0	3,560	8,100
Z1-3	Contain, Remediate, and Remove Additional Mass from Zone 1 Groundwater	11	6	2	3,900	8,100
Z2-1	No Action with Groundwater Monitoring	0	0	0	0	0
Z2-2	Contain and Remediate Zone 2 Groundwater	0	3	0	1,400	9,100
Z2-3	Contain, Remediate, and Remove Additional Mass from Zone 2 Groundwater	1	3	1	1,550	13,700
Z3-1	No Action with Groundwater Monitoring	0	0	0	0	0
Z3-2	Contain and Remediate Zone 3 Groundwater	6	12	0	1,900	9,200
Z3-3	Contain, Remediate, and Remove Additional Mass from Zone 3 Groundwater	12	12	6	2,560	9,200
Z4-1	No Action with Groundwater Monitoring	0	0	0	0	0
Z4-2	Contain and Remediate Zone 4 Groundwater	7	7	0	640	11,600
Z4-3	Contain, Remediate, and Remove Additional Mass from Zone 4 Groundwater	10	7	3	670	11,600

Table 6-2: Summary of Estimated Costs

Alternative	Description	Estimated Capital Costs ($M)	Estimated Annual Monitoring Costs ($/year)	Estimated Annual O&M Costs ($/year)	Estimated 30-year Present Worth Costs ($M)
Z1-1	No Action with Groundwater Monitoring	0	147,000	0	1.9
Z1-2	Contain and Remediate Zone 1 Groundwater	2.2	180,000	720,000	13.4
Z1-3	Contain, Remediate, and Remove Additional Mass from Zone 1 Groundwater	2.2	200,000	870,000	15.5
Z2-1	No Action with Groundwater Monitoring	0	36,000	0	0.5
Z2-2	Contain and Remediate Zone 2 Groundwater	4.6	40,000	490,000	11.2
Z2-3	Contain, Remediate, and Remove Additional Mass from Zone 2 Groundwater	5.3	44,000	560,000	12.8
Z3-1	No Action with Groundwater Monitoring	0	157,000	0	2.0
Z3-2	Contain and Remediate Zone 3 Groundwater	3.9	170,000	990,000	18.3
Z3-3	Contain, Remediate, and Remove Additional Mass from Zone 3 Groundwater	4.9	170,000	1,370,000	24.0
Z4-1	No Action with Groundwater Monitoring	0	51,000	0	0.7
Z4-2	Contain and Remediate Zone 4 Groundwater	2.8	60,000	320,000	7.5
Z4-3	Contain, Remediate, and Remove Additional Mass from Zone 4 Groundwater	2.9	60,000	330,000	7.8

Table 6-3: Comparison of Alternatives (Costs, Time Until RAOs Achieved, and Mass Removed)

Alternative	Description	Estimated 30-year Present Worth Costs ($M)	Estimated Time Until RAOs Achieved (years)	Estimated Non-discounted Constant Dollar Costs ($M)	Mass Removal: Estimated Mass Removed (lbs/day)			Mass Removal: Increase Relative to Previous Alternative (%)		
					TCE	Perchlorate	NDMA	TCE	Perchlorate	NDMA
Z1-2	Contain and Remediate Zone 1 Groundwater	$13.4	151	$147	3.6	2.8	0	-	-	-
Z1-3	Contain, Remediate, and Remove Additional Mass from Zone 1 Groundwater	$15.5	124	$142	3.8	4.9	0	4	72	NA
Z2-2	Contain and Remediate Zone 2 Groundwater	$11.2	232	$167	1.0	1.9	0	-	-	-
Z2-3	Contain, Remediate, and Remove Additional Mass from Zone 2 Groundwater	$12.8	131	$105	1.5	3.7	0	54	96	NA
Z3-2	Contain and Remediate Zone 3 Groundwater	$18.3	327	$430	0.8	0.8	0.2	-	-	-
Z3-3	Contain, Remediate, and Remove Additional Mass from Zone 3 Groundwater	$24.0	263	$459	1.4	1.0	0.5	99	23	102
Z4-2	Contain and Remediate Zone 4 Groundwater	$7.5	347	$163	0.1	0.07	0.018	-	-	-
Z4-3	Contain, Remediate, and Remove Additional Mass from Zone 4 Groundwater	$7.8	208	$102	0.23	0.09	0.02	127	23	11

Table 7-1: Alternative Z1-2 (TCE 0.8) Extraction Well Design and Chemistry Data

Well ID	Layer	Depth (ft, bgs)	Screened Interval (ft, bgs)	Modeled Flow (gpm)	Chemistry[1] (µg/l)			Mass (lbs/day)		
					TCE	ClO_4	NDMA	TCE	ClO_4	NDMA
Through 10" secondary containment pipeline										
4035	C	140	50-123	200	49	210	0	1.2E-01	5.0E-01	0.00E+00
4325	C	108	72-88	187	91	0	0	2.0E-01	0.0E+00	0.00E+00
4330	C/D	154.5	101-137	290	280	28	0	9.8E-01	9.8E-02	0.00E+00
4335	D/E	204	169-184	90	680	22	0	7.4E-01	2.4E-02	0.00E+00
5020	C	132	82-122	200	100	40	0	2.4E-01	9.6E-02	0.00E+00
5105	C/D	148	76-136	150	200	1,000	0	3.6E-01	1.8E+00	0.00E+00
		Flow Subtotal:		**1,117**		**Mass Subtotal:**		**2.6E+00**	**2.5E+00**	**0.00E+00**
		Flow Weighted Average:			**196**	**188**	**0.00**			
Through 20" pipeline										
Z1-C1	C	TBD[2]	TBD[2]	300	25	0	0	9.0E-02	0.0E+00	0.00E+00
4302	D	201	166-186	23	34	0	0	9.4E-03	0.0E+00	0.00E+00
4375	C/D	168	108-148	200	2.7	0	0	6.5E-03	0.0E+00	0.00E+00
4380	D	228	200-218	40	42	0	0	2.0E-02	0.0E+00	0.00E+00
4580	D/E	255	196-241	200	110	0	0	2.6E-01	0.0E+00	0.00E+00
4585	E	341	245-315	297	81	0	0	2.9E-01	0.0E+00	0.00E+00
4620	E	317	263-303	280	19	0	0	6.4E-02	0.0E+00	0.00E+00
Z1-C2	C	TBD[2]	TBD[2]	500	25	0	0	1.5E-01	0.0E+00	0.00E+00
Z1-C3	C	TBD[2]	TBD[2]	250	5	50	0	1.5E-02	1.5E-01	0.00E+00
Z1-D1	D	TBD[2]	TBD[2]	200	25	0	0	6.0E-02	0.0E+00	0.00E+00
Z1-D2	D	TBD[2]	TBD[2]	306	25	0	0	9.2E-02	0.0E+00	0.00E+00
Z1-D3	D	TBD[2]	TBD[2]	250	5	50	0	1.5E-02	1.5E-01	0.00E+00
Z1-E1	E	TBD[2]	TBD[2]	300	5	0	0	1.8E-02	0.0E+00	0.00E+00
Z1-E2	E	TBD[2]	TBD[2]	350	5	0	0	2.1E-02	0.0E+00	0.00E+00
		Flow Subtotal:		**3,496**		**Mass Subtotal:**		**1**	**0**	**0**
		Flow Weighted Average:			**27**	**7**	**0**			

Table 7-1: Alternative Z1-2 (TCE 0.8) Extraction Well Design and Chemistry Data

Existing and Proposed Extraction Wells:

Total Flow:	**4,613**	**Total Mass:**	**3.8E+00**	**2.8E+00**	**0.00E+00**

Total Flow Weighted Avg:	**68**	**51**	**0.00**

Notes:

1. Chemical concentrations for proposed wells are estimated concentrations.
2. Total depths and screened intervals for proposed extraction wells will be determined during well construction.
3. Actual flow data for proposed wells may be adjusted based on aquifer test data. For purposes of estimating average influent concentrations and sizing piping and treatment facilities, the modeled flow rates were used.

Abbreviations:

bgs = below ground surface
ClO_4 = Perchlorate
gpm = gallons per minute
lbs = pounds
NDMA = N-nitrosodimethylamine

Table 7-2: Alternative Z1-3 (TCE 0.8) Extraction Well Design and Chemistry Data

Well ID	Layer	Depth (ft, bgs)	Screened Interval (ft, bgs)	Modeled Flow (gpm)	Chemistry[1] (µg/l)			Mass (lbs/day)		
					TCE	ClO_4	NDMA	TCE	ClO_4	NDMA
Through 10" secondary containment pipeline										
4035	C	140	50-123	200	49	210	0	1.2E-01	5.0E-01	0.00E+00
4220	D	207	125-195	192	20	710	0	4.6E-02	1.6E+00	0.00E+00
4320	D	270	162-228	150	48	220	0	8.7E-02	4.0E-01	0.00E+00
4325	C	108	72-88	187	91	0	0	2.0E-01	0.0E+00	0.00E+00
4330	C/D	154.5	101-137	290	280	28	0	9.8E-01	9.8E-02	0.00E+00
4335	D/E	204	169-184	90	680	22	0	7.4E-01	2.4E-02	0.00E+00
5020	C	132	82-122	200	100	40	0	2.4E-01	9.6E-02	0.00E+00
5105	C/D	148	76-136	150	200	1,000	0	3.6E-01	1.8E+00	0.00E+00
		Flow Subtotal:		**1,459**		**Mass Subtotal:**		**2.8E+00**	**4.6E+00**	**0.00E+00**
		Flow Weighted Average:			**158**	**260**	**0.00**			
Through 20" pipeline										
Z1-C1	C	TBD[2]	TBD[2]	300	25	0	0	9.0E-02	0.0E+00	0.00E+00
4302	D	201	166-186	23	34	0	0	9.4E-03	0.0E+00	0.00E+00
4375	C/D	168	108-148	200	2.7	0	0	6.5E-03	0.0E+00	0.00E+00
4380	D	228	200-218	40	42	0	0	2.0E-02	0.0E+00	0.00E+00
4580	D/E	255	196-241	200	110	0	0	2.6E-01	0.0E+00	0.00E+00
4585	E	341	245-315	297	81	0	0	2.9E-01	0.0E+00	0.00E+00
4620	E	317	263-303	280	19	0	0	6.4E-02	0.0E+00	0.00E+00
Z1-C2	C	TBD[2]	TBD[2]	500	25	0	0	1.5E-01	0.0E+00	0.00E+00
Z1-C3	C	TBD[2]	TBD[2]	250	5	50	0	1.5E-02	1.5E-01	0.00E+00
Z1-D1	D	TBD[2]	TBD[2]	200	25	0	0	6.0E-02	0.0E+00	0.00E+00
Z1-D2	D	TBD[2]	TBD[2]	306	25	0	0	9.2E-02	0.0E+00	0.00E+00
Z1-D3	D	TBD[2]	TBD[2]	250	5	50	0	1.5E-02	1.5E-01	0.00E+00
Z1-E1	E	TBD[2]	TBD[2]	300	5	0	0	1.8E-02	0.0E+00	0.00E+00
Z1-E2	E	TBD[2]	TBD[2]	350	5	0	0	2.1E-02	0.0E+00	0.00E+00
		Flow Subtotal:		**3,496**		**Mass Subtotal:**		**1**	**0**	**0**
		Flow Weighted Average:			**27**	**7**	**0**			

Table 7-2: Alternative Z1-3 (TCE 0.8) Extraction Well Design and Chemistry Data

Existing and Proposed Extraction Wells:

Total Flow:	**4,955**	**Total Mass:**	**3.9E+00**	**4.9E+00**	**0.00E+00**

Total Flow Weighted Avg:	**65**	**82**	**0.00**

Notes:

1. Chemical concentrations for proposed wells are estimated concentrations.
2. Total depths and screened intervals for proposed extraction wells will be determined during well construction.
3. Actual flow data for proposed wells may be adjusted based on aquifer test data. For purposes of estimating average influent concentrations and sizing piping and treatment facilities, the modeled flow rates were used.

Abbreviations:

bgs = below ground surface
ClO_4 = Perchlorate
gpm = gallons per minute
lbs = pounds
NDMA = N-nitrosodimethylamine

Table 7-3: Alternative Z2-2 (TCE 0.8) Extraction Well Design and Chemistry Data

Well ID	Layer	Depth (ft, bgs)	Screened Interval (ft, bgs)	Modeled Flow (gpm)	Chemistry[1] (µg/l)			Mass (lbs/day)		
					TCE	ClO_4	NDMA	TCE	ClO_4	NDMA
Proposed Extraction Wells:										
C1	C	TBD[2]	TBD[2]	500	20	80	0	0.1	0.5	0.00E+00
C2	C	TBD[2]	TBD[2]	500	40	150	0	0.2	0.9	0.00E+00
C3	C	TBD[2]	TBD[2]	500	120	100	0	0.7	0.6	0.00E+00
		Flow Subtotal:		**1,500**			**Mass Subtotal:**	**1.1**	**2.0**	**0.00E+00**
		Flow Weighted Average:			**60**	**110**	**0**			

Notes:
1. Chemical concentrations for proposed wells are estimated concentrations.
2. Total depths and screened intervals for proposed extraction wells will be determined during well construction.
3. Actual flow data for proposed wells may be adjusted based on aquifer test data. For purposes of estimating average influent concentrations and sizing piping and treatment facilities, the modeled flow rates were used.

Abbreviations:
bgs = below ground surface
ClO_4 = Perchlorate
gpm = gallons per minute
lbs = pounds
NDMA = N-nitrosodimethylamine

Table 7-4: Alternative Z2-3 (TCE 0.8) Extraction Well Design and Chemistry Data

Well ID	Layer	Depth (ft, bgs)	Screened Interval (ft, bgs)	Modeled Flow (gpm)	Chemistry[1] (µg/l)			Mass (lbs/day)		
					TCE	ClO_4	NDMA	TCE	ClO_4	NDMA
Existing Extraction Wells:										
4420	C	175	125-160	150	300	1,000	0	0.5	1.8	0.00E+00
		Flow Subtotal:		**150**		**Mass Subtotal:**		**0.5**	**1.8**	**0.00E+00**
		Flow Weighted Average:			**300**	**1,000**	**0**			
Proposed Extraction Wells:										
C1	C	TBD[2]	TBD[2]	500	20	80	0	0.1	0.5	0.00E+00
C2	C	TBD[2]	TBD[2]	500	40	150	0	0.2	0.9	0.00E+00
C3	C	TBD[2]	TBD[2]	500	120	100	0	0.7	0.6	0.00E+00
		Flow Subtotal:		**1,500**		**Mass Subtotal:**		**1.1**	**2.0**	**0.00E+00**
		Flow Weighted Average:			**60**	**110**	**0**			
Existing and Proposed Extraction Wells:										
		Total Flow:		**1,650**		**Total Mass:**		**1.6**	**3.8**	**0.000**
		Total Flow Weighted Avg:			**82**	**191**	**0**			

Notes:

1. Chemical concentrations for proposed wells are estimated concentrations.
2. Total depths and screened intervals for proposed extraction wells will be determined during well construction.
3. Actual flow data for proposed wells may be adjusted based on aquifer test data. For purposes of estimating average influent concentrations and sizing piping and treatment facilities, the modeled flow rates were used.

Table 7-4: Alternative Z2-3 (TCE 0.8) Extraction Well Design and Chemistry Data

Abbreviations:
bgs = below ground surface
ClO_4 = Perchlorate
gpm = gallons per minute
lbs = pounds
NDMA = N-nitrosodimethylamine

Table 7-5: Estimated Time Until RAOs are Achieved Calculations (0.8 ug/L TCE Cleanup Level)

Flowpath	Layer	Single Pore Flush Time (1) (yrs)	TCE @ Cwt = 0.8 ug/L		Perchlorate @ Cwt = 4 ug/L			NDMA @ Cwt = 0.0017 ug/L			Longest Time Until RAOs Achieved	Chemical Driver
			NPV(3)	Time (yrs)(4)	Ci	NPV	Time (yrs)	Ci	NPV	Time (yrs)		
Alternative Z1-2												
Source Area to Downgradient Wells	Layer C	24	10.1	243	60	2.7	65	-	-	-	243	TCE
	Layer D	24	10.1	243	60	2.7	65	-	-	-	243	TCE
	Layer E	24	10.1	243	60	2.7	65	-	-	-	243	TCE
Alternative Z1-3												
Source to GET D	Layer C	8	13.5	108	600	5.0	40	-	-	-	108	TCE
	Layer D	8	13.5	108	60	2.7	22	-	-	-	108	TCE
	Layer E	8	10.1	81	60	2.7	22	-	-	-	81	TCE
GET D to to Downgradient Wells	Layer C	16	10.1	162	60	2.7	43	-	-	-	162	TCE
	Layer D	16	11.6	186	60	2.7	43	-	-	-	186	TCE
	Layer E	16	10.1	162	60	2.7	43	-	-	-	162	TCE
Alternative Z2-2												
Source Area to Downgradient Wells	Layer B	24	13.5	324	3000	6.6	159	-	-	-	324	TCE
	Layer C	24	13.5	324	3000	6.6	159	-	-	-	324	TCE
Alternative Z2-3												
Source Area to Mass Removal Well	Layer B	6	13.5	81	6000	7.3	44	-	-	-	81	TCE
	Layer C	6	15.0	90	6000	7.3	44	-	-	-	90	TCE
Mass Removal Wells to Downgradient Wells	Layer B	16	12.1	193	600	5.0	80	-	-	-	193	TCE
	Layer C	16	10.1	162	200	3.9	63	-	-	-	162	TCE

Notes:
(1) Single pore flush time is based on particle tracking simulations conducted using the groundwater flow models developed for each Zone (Appendix H).
(2) Ci is the initial estimated chemical concentration from iso-concentration contour maps (Appendices A through D).
(3) NPV is the number of pore volumes based on the equation NPV = -Rln(Cwt/Ci) where R is the chemical-specific retardation factor and Cwt is the chemical-specific ARAR or or risk-based criteria. Retardation factors of 2.1, 1.0, and 1.6 were applied for TCE, perchlorate, and NDMA, respectively.
(4) Time Until RAOs are Achieved [years] = single pore flush time x NPV

Table 7-6: Comparison of Alternatives using MCL versus Alternatives using PHG as TCE Cleanup Level

Alternative	Description	TCE Cleanup Level (ug/L)	Estimated Flowrate: Total Flowrate (gpm)	Estimated Flowrate: Percent Increase if TCE Cleanup Goal is 0.8 ug/L	TCE Mass Removal: Estimated Mass Removed (lbs/day)	TCE Mass Removal: Percent Increase if TCE Cleanup Goal is 0.8 ug/L	Time Until RAOs Achieved: Estimated Time Until RAOs Achieved (yrs)	Time Until RAOs Achieved: Percent Increase if TCE Cleanup Goal is 0.8 ug/L	30-year Present Worth Costs: Estimated 30 yr Present Worth Costs ($M)	30-year Present Worth Costs: Percent Increase if TCE Cleanup Goal is 0.8 ug/L	Non-discounted Constant Dollar Costs: Estimated Costs ($)	Non-discounted Constant Dollar Costs: Percent Increase if TCE Cleanup Goal is 0.8 ug/L
Z1-2	Contain and Remediate Zone 1 Groundwater	5	3,560		3.6		151		$13.4		$147	
Z1-2 (TCE 0.8)		0.8	4,610	29%	3.8	6%	243	61%	$16.5	23%	$273	86%
Z1-3	Contain, Remediate, and Remove Additional Mass from Zone 1 Groundwater	5	3,900		3.8		124		$15.5		$142	
Z1-3 (TCE 0.8)		0.8	4,960	27%	3.9	3%	186	50%	$18.6	20%	$240	69%
Z2-2	Contain Zone 2 Groundwater	5	1,400		1.0		232		$11.2		$167	
Z2-2 (TCE 0.8)		0.8	1,500	7%	1.1	10%	324	40%	$12.2	9%	$250	50%
Z2-3	Contain, Remediate, and Remove Additional Mass from Zone 2 Groundwater	5	1,550		1.5		131		$12.8		$105	
Z2-3 (TCE 0.8)		0.8	1,650	6%	1.6	7%	193	47%	$13.3	4%	$164	56%