

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV R3

El Paso Asarco Smelter

Sample ID	Date	Wf	DO	pH	Lab	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		ft	mg/l			unitham	mg/l	mg/l	KIU	of	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l
EM-1	8/12/97	77.85	4.05	7.52	7.8	5200	3948	38		71.2	184	100	508	32	221	1	1849	687	0.81	0.21
EM-1	11/17/97	77.95	4.96	7.2	8	4020	2899	6.6		66.2	171	95	857	30	181	1	1206	584	0.72	0.07
EM-1	2/15/98	74.76	1.64	7.39	7.5	5480	4192	50		75.7	209	122	1075	28	227	1	1695	720	0.71	0.05
EM-1	5/18/98	71.98	3.15	7.43	7.5	5550	3901	122		78.4	206	115	1808	28	227	1	1690	713	0.81	0.05
EM-1	8/20/98	70.09	1.57	7.38	7.8	5560	4323	67		69.3	201	113	954	31	227	1	1808	779	0.78	0.05
EM-1	11/18/98	67.32	2.2	7.06	7.6	5580	4258	59		74.5	220	121	853	30	234	1	1348	757	0.77	0.05
EM-1	2/24/99	65.42	2.2	7.46	7.6	5600	4338	63		75.2	213	115	859	30	226	1	1442	714	0.82	0.05
EM-1	5/12/99	65.64	2.3	6.94	7.9	5670	4175	6.9		78.1	226	158	950	40	222	1	1101	358	0.82	0.1
EM-1	8/11/99	65.19	1.5	7.38	7.8	5610	5000	7.6		70.2	231	127	839	28	220	1	1858	759	0.86	0.05
EM-1	10/30/99	66.76		7.16	7.8	5600	4061	12		70.9	210	122	801	27	216	1	1554	797	0.81	0.17
EM-1	1/21/00	67.34	1.02	7.26	7.8	5580	4038	14		76.3	223	126	946	29	270	1	1819	762	0.77	0.17
EM-1	5/4/00	65.78	1.3	7.9	8	5540	4122	26		78.3	213	123	791	29	230	1	1928	714	0.82	0.12
EM-1	8/16/00	65.78	1.3	7.49	7.5	5560	3999	7.3		68.2	221	99	777	21	220	1	1410	1631	0.82	0.09
EM-1	11/14/00	64.81	3.6	7.65	7.9	5600	4153	6.8		74.1	180	104	814	23	236	1	1791	856	0.8	0.11
EM-1	2/22/01	64.25	3.8	7.72	7.8	5590	4028	2.4		73.8	169	96	730	21	237	1	1918	656	0.81	0.1
EM-1	5/22/01		3.6	7.68	7.9	5560	4095	9.9		73.0	183	105	752	21	232	1	1749	567	0.78	0.13
EM-1	9/16/01	65.41	2	7.62	7.8	5580	4161	11		79.9	215	122	930	32	214	1	1856	380	0.82	0.14
EM-1	7/31/01	64.83	2.7	7.25	7.8	5600	4151	15		75.2	208	121	914	29	221	1	2041	781	0.8	0.27
EM-1	1/17/01		1.9	7.26	7.8	5620	4188	17		70.7	212	123	902	30	214	1	2027	729	0.82	0.31
EM-1	11/19/01	63.85	3.4	7.33	8.3	5640	4091	12		80.7	231	131	975	29	329	1	1882	854	0.8	0.1
EM-1	1/11/01		3.3	7.34	8.1	5660	4179	11		20.8	234	131	919	27	348	1	1891	506	0.81	0.2
EM-1	2/20/02	63.88	1.8	7.62	8.2	5630	4248	3.6		71.6	214	124	932	32	342	1	1612	596	0.85	0.1
EM-1	5/10/02	64.72	1.5	7.44	7.9	5590	4079	3.4		77.18	218	131	875	31	231	1	1615	684	0.81	0.05
EM-1	8/21/02	62.4	1.6	7.77	7.9	5590	4088	3.6		77.18	212	126	892	29	211	1	1842	814	0.8	0.05
EM-1	1/14/02	63.25																		
EM-2	8/1/97	63.8	6.28	7.08						80.1										
EM-2	8/26/97	62.51		7.4	7.9	4330	3589	68		72.9	204	24	811	16	342	1	1448	497	1.4	28
EM-2	11/17/97	65.88	1.41	7	7.7	3960	2952	7.5		74.1	175	65	704	11	305	1	1185	436	1.3	17
EM-2	2/17/98	65.72	1.28	6.9	7.7	4150	3159	20		78.1	179	72	791	13	322	1	1247	436	1.4	20
EM-2	5/18/98	63.77	4.29	7.14	7.5	4190	2917	9.2		76.8	173	68	785	17	321	1	1197	428	1.5	19
EM-2	8/13/98	62.74	1.06	7.02	7.8	4210	3115	15		72.1	187	71	896	16	344	1	1375	400	1.4	14
EM-2	11/1/98	63.92	3.5	7.23	7.5	4260	3150	7.6		74.3	185	71	773	15	332	1	1375	437	1.4	19
EM-2	2/22/99	65.37	2.4	7.12	7.6	4510	3338	16		77.7	196	77	835	23	336	1	929	442	1.4	14
EM-2	5/10/99	64.09	1.3	6.71	7.4	6050	4816	19		76.1	362	146	971	26	342	1	2124	405	1.3	99
EM-2	8/6/99	61.79	1.6	6.81	7.5	5740	4753	76		77.9	382	123	919	20	290	1	2107	366	1.5	102
EM-2	10/29/99	64.83	1.1	6.6	7.7	6940	4494	11		72.9	351	126	788	18	348	1	2154	554	1.3	72
EM-2	1/25/00	64.66	3.3	7.05	7.7	5330	4038	64		76.1	236	86	817	16	364	1	1931	491	1.3	42
EM-2	4/26/00	64.39	1.4	7.08	7.7	5070	3856	8.8		79.9	216	89	705	14	346	1	1918	544	1.3	100
EM-2	8/30/00	62.87	1.4	6.96	7.9	4130	4560	3.1		73.2	183	67	687	14	335	1	1548	436	1.3	20
EM-2	11/10/00	63.14	1.4	6.98	7.6	3980	2014	21		70.2	173	63	632	14	326	1	1144	347	1.3	24
EM-2	2/29/01	64.87	2.3	7.1	8	4150	3002	18		75.2	177	70	676	12	312	1	1353	412	1.2	28
EM-2	5/20/01	62.64	2.7	6.77	7.7	4760	3608	4.9		75.4	221	81	807	17	345	1	1602	501	1.5	31
EM-2	5/8/01		2.3	6.98	7.6	4840	3070	3.1		77.5	230	87	868	18	362	1	1862	461	1.5	35
EM-2	7/18/01	61.35	2.4	6.93	7.7	4400	3061	3.6		76.8	171	55	615	11	273	1	1581	389	1.5	29

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT g	DO mg/l	PH	SC		TDS mg/l	TSS mg/l	Turb. NTU	Temp °F	DISSOLVED								Cl mg/l	F mg/l	N mg/l
					Lab	Field					Ca mg/l	Mg mg/l	Na mg/l	K mg/l	HCO ₃ mg/l	CO ₃ mg/l	SO ₄ mg/l				
EM-2	10/31/01	63.47	0.7	7.07	8	4420	3305	7.3	1.81	74.2	30	726	10	283	1	1536	510	1.4	23		
EM-2	27/02	64.11	1.3	7.32	8.3	4320	3386	2.9	14.406	71.96	77	866	18	371	1	1338	451	1.5	18		
EM-2	5/1/02	62.53	0.7	7.06	7.6	4240	3061	5.5	1.437	77	188	715	15	354	1	1053	386	1.4	15		
EM-2	8/7/02	61.71	1.1	7.13	7.9	4300	3261	4.9	2.86	77	193	805	14	376	1	1529	476	1.7	17		
EM-2	11/5/02	63.71	3.2	6.97	7.7	4620	3352	1.7	5.53	74.48	78	789	16	404	1	1544	510	1.7	18		
EM-2	11/5/02		2.2	6.98	7.7	4640	3315	2.4		74.48	191	792	16	399	1	1419	522	1.7	18		
EM-4	8/11/97	61.38	2.72	7.28		10570				82.2											
EM-4	8/26/97	80.38		7.5	7.9	10410	7094	15		72.0	441	198	1684	38	155	1	450	3507	1.3	0.3	
EM-4	11/17/97	63.25	2.57	7.1	7.7	11006	7198	7.7		72.5	469	211	1959	42	154	1	547	3423	1.3	0.19	
EM-4	2/11/98	63.51	1.14	6.97	7.4	11150	7157	1		74.7	451	220	1910	40	156	1	503	3338	1.3	0.23	
EM-4	5/18/98	61.8	1.49	7.23	7.7	9420	5744	1		76.8	383	168	1618	37	142	1	376	2768	1.3	0.23	
EM-4	8/13/98	61.57	1.06	7.02	7.8	9560	6339	5.6		70.0	417	183	1610	32	156	1	466	3862	1.2	0.24	
EM-4	11/11/98	62	1.9	6.95	7.4	10460	6721	1	0.004	72.5	440	196	1551	34	148	1	500	3268	1.3	0.15	
EM-4	2/22/99	60.8	8.3	7.27	7.5	9940	5990	3.2		73.8	391	175	1572	45	146	1	1618	3269	1.3	0.15	
EM-4	5/10/99	59.45	0.9	7.01	7.6	10270	6081	3.6		73.9	435	198	1487	40	143	1	411	3348	1.3	0.43	
EM-4	5/10/99		1	7.01	7.7	10770	6091	3		72.5	425	199	1526	40	154	1	446	3029	1.3	0.35	
EM-4	8/6/99	58.27	0.8	7.21	7.9	10440	6683	3	0.5	74.5	403	181	1440	35	151	1	463	3029	1.3	0.16	
EM-4	10/20/99	60.98	2.1	6.96	7.8	9400	6290	1	0.004	72.1	357	197	1183	27	146	1	386	2341	1.2	0.23	0.01
EM-4	12/5/00	62.7	1.5	7.28	7.8	9240	5473	6	0.7	73.4	209	141	1387	26	156	1	413	3020	1.2	0.2	0.01
EM-4	4/26/00	61.72	0.5	7.32	7	8600	3159	1	0.92	71.4	369	137	1088	22	143	1	510	2483	1.2	0.29	0.01
EM-4	8/2/00	60.98	3	7.26	8	9640	6014	1	0.93	73.6	314	138	1215	26	144	1	430	2997	1.3	0.2	
EM-4	11/11/00	61.73	0.7	7.24	7.7	11220	6920	1	0.24	70.5	399	174	1378	28	163	1	531	3521	1.3	0.18	0.01
EM-4	2/8/01	63.21	2.6	7.23	7.7	10210	6362	2.6	2.7	73.2	364	168	1440	35	151	1	510	3521	1.3	0.32	
EM-4	5/7/01	61.1	3.3	7.26	8	9930	6269	1	2.66	75.0	410	183	1408	35	146	1	419	3896	1.2	0.66	
EM-4	7/18/01	61	2.8	7.23	7.5	9210	5925	1.7	0.07	76.6	357	162	1356	28	132	1	400	3162	1.1	0.55	
EM-4	10/31/01	61.44	2.3	7.26	7.8	8780	5480	3.8	1.9	73.3	402	179	1314	32	131	1	385	3147	1.1	0.98	
EM-4	2/1/02	62.64	7.6	7.42	8.1	10980	7080	1	1.11	72.88	469	214	1590	39	193	1	801	3581	1.3	0.35	
EM-4	5/1/02	61.08	2.2	7.18	7.6	10310	6469	2.6	1.4	75.02	421	195	1441	29	156	1	350	2802	1.3	0.61	
EM-4	8/7/02	60.32	1.6	7.35	7.7	9710	5808	1.3	2.8	76.38	405	181	1524	29	159	1	430	3187	1.3	0.66	
EM-4	8/7/02	61.63	1.6	7.25	7.7	9780	6053	1		76.28	392	174	1500	27	163	1	449	3294	1.3	0.71	
EM-5	8/11/97	14.48	0.96	7.63		5970				78.4											
EM-5	8/26/97	14.49		7.64	8	6160	1187	36		77.0	197	46	1238	79	198	1	1943	742	6.1	0.15	
EM-5	11/17/97	14.62	0.79	7.3	7.7	6706	8790	7.4		75.9	249	60	1445	83	212	1	2224	806	6.4	0.05	0
EM-5	2/1/98	14.45	1.84	7.17	7.7	6890	9110	8.6		73.8	377	68	1528	87	195	1	2477	794	8	0.38	
EM-5	5/18/98	14.36	1.21	7.39	7.9	4920	4432	3.4		74.3	142	33	1084	54	156	1	1590	485	9.5	0.16	
EM-5	8/1/98	14.45	0.18	7.5	7.8	4970	3913	3.7		74.7	159	34	1071	60	188	1	1787	516	9	0.19	
EM-5	11/11/98	14.54	3.5	7.43	7.6	5090	3771	4.7		75.0	191	43	1036	55	203	1	1718	586	7.1	0.1	0.01
EM-5	2/11/99	14.41	0.9	7.47	7.8	4740	3460	5		75.2	173	39	770	50	194	1	1472	563	7.1	0.05	0
EM-5	5/10/99	14.43	0.7	7.48	7.8	4770	3471	5.1		74.1	171	38	780	55	194	1	1472	563	7.1	0.05	0
EM-5	8/6/99	14.35	0.7	7.25	7.7	3700	2354	5		74.5	111	27	692	31	337	1	1111	410	5.8	0.1	0.01
EM-5	11/2/99	14.34	4.1	7.45	7.8	2640	1786	1.4	0.73	73.0	78	16	479	27	159	1	715	296	4.8	0.36	
EM-5	11/2/99			7.38	7.9	3010	1980	1.5	1.46	72.9	79	18	495	29	199	1	827	146	6.4	0.17	

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	Lab	SC	TDS	TSS	Turb.	Temp	Cu	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		g	mg/l			mg/l	mg/l	mg/l	mg/l	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EM-5	11/2/99		4	7.39	8	3020	1976	1.1	1.34	74.3	75	17	482	28	198	1	835	369	6.5	0.11
EM-5	1/25/00	14.34	0.3	7.51	8	2100	1320	1	0.31	75.9	51	12	351	31	172	1	503	224	5.3	0.11
EM-5	4/26/00	15.14	0.5	7.59	8.1	2130	1367	1	0.31	83.6	11	9.7	341	19	171	1	597	271	6.1	0.18
EM-5	8/4/00	16.1	1.4	7.47	8.1	2010	1894	2.4	2.25	76.1	61	14	500	23	171	1	736	343	6.3	0.1
EM-5	11/3/00	16.52	0.7	7.56	8	4030	1998	3	3.4	69.6	75	18	550	34	171	1	839	353	4.7	0.07
EM-5	2/14/01	16.86	5.7	7.59	7.8	3100	2169	6.8	3.5	76.3	100	24	508	34	162	1	1088	307	4.5	0.1
EM-5	5/30/01	17.22	0.5	7.53	7.9	2900	2071	5.1	3.2	78.3	106	29	469	38	138	1	1341	315	3.9	0.06
EM-5	7/19/01	17.39	2.5	7.44	7.9	3200	2250	4.4	3.3	78.4	123	30	539	35	143	1	1335	353	4.1	0.24
EM-5	11/1/01	17.74	0.9	7.54	8	3240	2323	4.7	3.7	75.5	143	36	536	42	168	1	1071	346	4	0.08
EM-5	2/8/02	17.73	1.4	7.87	8.5	3560	2494	3.8	2.13	74.56	146	37	536	35	140	17	1387	309	4.3	0.2
EM-5	5/20/02	17.91	1.7	7.54	7.5	3540	2495	6.7	4.42	79.88	138	36	582	36	161	1	1314	343	4.5	0.05
EM-5	8/4/02	17.45	0.7	7.57	7.8	3670	2611	5.3	5.21	80.6	155	42	603	34	157	1	1354	374	3.2	0.16
EM-5	11/6/02	17.74	4.3	7.54	7.6	3700	2640	4.6	2.95	70.88	162	42	629	42	163	1	1420	421	4.1	0.1
EM-5	11/6/02		3.8	7.52	7.7	3700	2635	4.8		71.78	160	41	623	42	162	1	1384	410	4.1	0.1
EM-6	8/1/97	35.55	4.48	7.25	7.9	4530	3400	3.1		72.0	127	80	897	14	393	1	1707	422	2.2	10
EM-6	8/1/97				7.8	4500	3498	3.4		74.7	135	83	879	15	401	1	1653	442	2.2	8.2
EM-6	11/17/97	34.9	0.98	7.15	7.6	4500	3372	2.2		74.8	124	78	902	14	388	1	1470	451	2	6.9
EM-6	2/17/98	34.78	0.91	7.04	7.8	4330	3160	1		80.6	130	77	877	14	372	1	1280	419	1.9	9
EM-6	5/18/98	35.28	1.37	7.21	7.5	4090	2874	1		77.4	117	71	865	11	355	1	1223	390	2	5.6
EM-6	8/18/98				7.5	4120	2846	1		77.4	116	71	861	12	360	1	1245	420	1.9	9.9
EM-6	8/17/98	36.6	0.32	7.17	7.6	4600	3124	2.5		74.5	124	77	912	22	415	1	1539	454	2.1	7.5
EM-6	11/1/98	36.71	1.4	7.45	7.8	3550	2462	2.3		71.5	108	60	688	13	317	1	1167	345	1.7	5.9
EM-6	2/11/99	36.98	3.6	7.3	7.8	4300	3129	1.7		76.1	124	75	710	15	387	1	903	414	2.1	6.2
EM-6	5/10/99	37.72	0.6	7.06	7.7	3810	2682	2.5		76.6	112	70	716	16	351	1	989	418	1.8	5.3
EM-6	8/6/99	36.92	0.5	7.3	8	3640	2567	2.4	1.6	76.6	102	60	697	12	311	1	121	321	1.8	4.7
EM-6	8/6/99		0.4	7.3	8	3640	2608	2.6		71.2	100	60	575	12	310	1	1221	322	1.8	5.7
EM-6	11/2/99	37.5	2.2	7.3	8	3300	2281	4.1	1.37	72.0	91	51	539	9.6	304	1	1058	342	1.7	4.7
EM-6	1/23/00	36.01	1.2	7.06	8	4330	3042	1	1.41	77.5	109	67	738	13	383	1	1310	438	2	7.2
EM-6	4/26/00	37.46	0.7	7.25	8	4060	2877	1	0.95	77.9	102	61	637	9.6	376	1	1460	412	1.8	10.8
EM-6	8/4/00	37.25	2.1	7.16	8	4350	3086	2.6	2.65	75.2	105	61	750	9.7	398	1	1511	386	2	7.5
EM-6	11/3/00	37.98	0.6	7.23	7.8	4280	2937	1.6	1.4	72.7	106	52	731	16	401	1	1198	443	3	6.5
EM-6	2/14/01	38.2	0.6	7.28	7.9	4130	2896	1	0.22	72.5	92	57	630	0.1	390	1	1360	405	1.9	0.1
EM-6	2/14/01		0.6	7.27	7.7	4110	2911	1		75.2	96	59	638	4.3	407	1	1274	412	1.8	6.1
EM-6	5/9/01	38.7	0.7	7.26	8.1	4130	2958	1	1.44	76.8	89	57	712	11	381	1	1572	408	1.8	6
EM-6	7/19/01	39.15	3	7.17	8.2	4200	2943	1	1.4	74.2	109	67	757	12	390	1	1538	474	1.9	7.5
EM-6	11/1/01	38.92	0.4	7.25	8.1	4180	3015	1	1.67	74.3	122	77	785	14	398	1	1145	462	2	7.3
EM-6	2/8/02	38.83	0.5	7.42	8.6	4200	2943	1	1.06	73.94	110	71	671	9.3	333	29	1450	401	2.1	6.2
EM-6	5/2/02	39.02	0.5	7.26	7.8	4010	2814	1	1.28	75.2	115	71	760	18	390	1	1236	435	1.9	0.4
EM-6	8/6/02	38.75	0.4	7.38	8.1	3890	2883	1	1.2	76.28	101	61	760	11	386	1	1128	390	1.9	5.5
EM-6	11/4/02	38.76																		
EM-7	11/17/97	8.56	1.78	7.56	8.4	5700	4264	5.4		64.6	215	42	1216	31	442	1	1864	714	4.9	1.3
EM-7	2/19/98	8.63	2.31	7.77	7.8	6020	4388	9.2		73.4	234	48	1319	30	305	1	2064	679	6.1	0.32
EM-7	5/7/98	8.5	1.3	7.24	7.8	5560	4029	3.7		84.2	216	43	1199	48	271	1	1755	614	6.7	10.4
EM-7	8/20/98	8.47	1.95	7.38	7.7	5200	3667	3.6		77.9	174	33	1037	44	295	1	1667	570	7.1	10.18

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry) Phase IV R1 El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	Lab	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
EM-7	11/11/98	8.42	2.3	7.54	7.6	5310	3952	284	14	74.5	198	36	1130	43	348	1	1731	546	0.6	0.1
EM-7	2/24/99	8.53	2	7.69	7.8	5110	3816	125	41	75.4	195	36	95	41	342	1	1111	530	0.5	0.54
EM-7	5/12/99	9.07	3.6	7.66	7.4	4540	3113	347	34	80.2	147	34	850	46	246	1	1419	241	0.8	0.1
EM-7	8/6/99	8.38	2.9	7.54	7.7	4410	3121	19	200	73.0	142	27	814	37	287	1	1419	116	0.7	0.23
EM-7	10/30/99	9.59	3.9	7.41	7.8	2320	1565	97	14	67.8	61	11	370	20	275	1	486	322	0.5	0.16
EM-7	1/10/00	9.11	1.2	7.59	7.8	2260	1440	506	200	32.0	77	14	362	18	262	1	272	230	2.2	0.37
EM-7	2/14/01	0								76.8										
EM-7	5/6/01	0																		
EP-100	10/20/99	39.36	3.7	6.63	8	8830	6855	162		76.1	548	286	1116	42	144	1	2388	1601	1.3	112
EP-100	1/26/00	40.36	1	6.75	7.5	9870	7185	204	155	81.0	658	317	1314	41	340	1	2545	1246	1.3	256
EP-100	4/28/00	41.08	1	6.88	7.3	10340	8255	87	45	79.0	590	317	1345	33	344	1	3084	1742	1.1	247
EP-100	8/7/00	41.8	0.5	6.69	7.4	10160	7987	76	50	75.0	576	293	1200	24	316	1	2879	1499	1.3	241
EP-100	11/7/00	41.64	0.6	6.77	7.4	10660	8118	34	27.1	76.3	654	338	1445	36	342	1	2747	1546	1	0.64
EP-100	2/20/01	41.85	0.5	6.69	7.7	10660	8331	76	16	81.5	605	320	1311	37	335	1	2885	1707	0.9	272
EP-100	5/9/01	42.19	1.5	6.72	7.4	10160	8145	76	16	78.8	664	330	1349	15	334	1	2879	1569	1	228
EP-100	7/20/01	42.77	0	6.7	7.6	10810	875	25	38	73.9	677	364	1379	36	322	1	2916	1750	0.96	205
EP-100	11/5/01	43.25	0.4	6.8	7.6	10770	8537	60	24.2	25.4	721	381	1365	33	346	1	2903	1759	1	281
EP-100	2/12/02	43.05	2.8	6.84	7.5	10290	8606	95	26.1	73.1	662	342	1419	33	336	1	1013	1376	0.88	231
EP-100	5/9/02	43.32	5.5	7.05	7.9	10720	8653	65	25	83.48	747	376	1406	35	353	1	1010	1814	1	196
EP-100	8/12/02	44	1.8	7.1	8	9610	1661	34	25	84.2	596	314	1379	30	333	1	2666	1505	1	162
EP-100	11/11/02	44.08																		
EP-101	10/21/99	63.81	2.7	6.99	7.7	7220	5314	4245		72.1	132	40	1187	46	183	1	2856	670	1.8	84
EP-101	1/25/00	65.27	2.1	7.26	7.8	8680	6462	21	65.7	79.2	162	34	1893	49	311	1	3062	1461	1.5	79
EP-101	4/26/00	64.8	5.1	7.14	7.7	8770	6354	14	16.3	84.0	186	61	1802	55	317	1	3088	837	1.5	101
EP-101	8/4/00	64.71	1.6	6.94	7.3	9460	6915	55	24	74.7	185	56	1800	61	219	1	3352	832	1.9	102
EP-101	11/26/00	63.35	2.9	7.05	7.6	9470	7070	63	11	66.7	178	56	2052	59	289	1	3262	898	1.5	100
EP-101	2/9/01	65.64	6.3	7.06	7.6	7420	5405	6.7	9.47	78.3	149	51	1377	52	261	1	2476	764	1.3	82
EP-101	5/8/01	65.21	7.1	7	6.8	6340	4815	14	7.5	86.7	131	47	1044	49	117	1	2140	650	1.3	81
EP-101	7/18/01	65.09	1	6.85	6.9	6540	4805	76	11.4	70.0	164	56	1248	51	115	1	2033	703	1.3	72
EP-101	10/21/01	65.94	1.1	6.99	7.8	6360	4666	73	4.75	26.7	177	62	1231	57	183	1	2311	370	1.3	70
EP-101	3/7/02	66.37	2.6	7.21	8.1	5660	4177	103	3.85	71.78	160	61	1037	54	240	1	1865	345	1.2	54
EP-101	5/7/02	65.08	2.3	6.92	7.7	5490	3926	33	6.65	26.64	150	56	949	41	272	1	1954	623	1.3	59
EP-101	8/7/02	65.33	3.5	7.04	7.6	5620	3974	25	8.51	85.1	149	52	1016	42	224	1	1753	643	1.4	70
EP-101	11/5/02	66.05	4.2	7	7.7	5450	3848	33	9.8	78.26	149	55	989	50	196	1	1737	642	1.4	55
EP-101	10/21/99	56.11	3.2	7.05	7.8	2760	1936	21		74.8	128	28	360	107	366	1	949	197	1.6	10
EP-102	12/4/00	57.19	0.6	7.24	7.9	2870	1954	24	6.4	79.3	125	22	359	130	337	1	988	216	1.9	16
EP-102	4/26/00	57.16	2.2	7.2	7.7	2790	1879	6.1	2.44	81.7	116	25	343	130	332	1	925	213	1.3	14
EP-102	8/4/00	56.99	0.5	7.02	7.2	2330	1738	11	4	77.5	89	16	280	103	238	1	642	271	1.5	9
EP-102	11/7/00	57.48	1	7.14	7.7	2170	1556	14	4.66	73.8	91	17	306	127	317	1	597	1.1	2.2	5.2
EP-102	2/9/01	58.08	1.4	7.24	7.7	2100	1459	14	2.5	79.7	99	17	277	108	203	1	551	151	1.3	8.0
EP-102	5/8/01	57.65	1.7	7.17	7.3	2480	1726	14	4.02	81.3	96	20	328	108	231	1	812	207	1.4	9.4
EP-102	7/18/01	57.71	4	7.07	7.2	2030	1666	26	2.8	74.5	110	24	350	112	238	1	811	210	1.3	10
EP-102	10/31/01	58.34	0.9	7.1	7.8	2820	1958	21	5.2	26.1	138	32	386	135	262	1	800	242	1.2	13
EP-102	2/7/02	59.09	1	7.12	8.3	3100	2269	41	11.09	75.2	145	35	425	115	334	1	896	248	1.07	21

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT	DO	PH	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		lb	mg/l		u/s/cm	mg/l	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-102	5/2/02	57.97	1.4	7.4	2410	1677	14	1.6	75.98	124	22	226	40	217	11	182	216	0.79	25
EP-102	8/7/02	58.05	1.1	7.13	3170	2276	15	4.1	82.04	169	39	417	98	251	1	961	229	0.95	29
EP-102	11/11/02	57.77																	
EP-103	10/21/99	60.43	4.6	7.21	1590	1057	46		73.0	81	24	211	82	223	1	397	151	0.6	1.4
EP-103	12/4/00	61.1	3.9	7.34	1498	928	7	4.36	81.1	36	17	213	5	183	1	312	154	0.63	1.1
EP-103	4/26/00	60.98	3.8	7.31	1540	980	20	9.7	80.7	62	20	198	56	189	1	411	180	0.61	2.1
EP-103	8/4/00	60.77	3.2	7.09	1552	964	4.2	8.1	70.5	59	18	200	4	165	1	412	169	0.63	2.5
EP-103	11/2/00	61.06	5.6	7.3	1584	1016	6.2	7.8	72.1	62	20	218	3.4	162	1	338	156	0.64	3.4
EP-103	2/12/01	61.58	3.6	7.34	1518	965	1.2	1.25	81.0	61	22	206	3.9	140	1	371	171	0.51	4.7
EP-103	5/6/01	61.19	5.2	7.31	1510	1007	1	0.37	79.7	65	23	219	5.7	132	1	356	185	0.53	3.7
EP-103	7/19/01	61.39	6.6	7.49	1688	1054	3	0.44	71.1	72	21	221	4.8	139	1	442	216	0.52	5.6
EP-103	11/11/01	61.82	3	7.34	1694	1099	4.8	3.81	23.8	92	30	228	6.8	151	1	394	271	0.51	5.8
EP-103	2/4/02	62.29	3.4	7.56	2250	1315	3.9	2.17	70.34	147	45	230	6	149	1	606	260	0.44	8.4
EP-103	5/1/02	61.3	3.2	7.21	2090	1426	3.4	2.05	79.34	129	41	241	6.8	154	1	405	241	0.46	3.7
EP-103	8/7/02	61.4	3.3	7.37	2100	1414	1.2	5.4	83.66	127	40	271	7.4	167	1	487	261	0.54	13
EP-103	11/11/02	61.86																	
EP-104	10/21/99	66.48	2.1	7.11	4600	2449	154		76.1	139	76	782	28	407	1	1671	503	2.1	10
EP-104	12/4/00	66.59	1.5	7.28	4640	3303	20	1.5	79.0	124	72	768	21	408	1	1463	498	2.1	10
EP-104	4/26/00	66.4	2.2	7.21	4620	3303	78	16.3	78.4	146	79	744	19	403	1	1615	468	2	13
EP-104	8/3/00	65.14	1.2	7.14	4410	3038	27	16.3	75.0	111	65	788	20	395	1	1386	468	2.2	11
EP-104	11/1/00	66.92	1.4	7.22	4440	3155	61	28	74.8	114	53	695	22	403	1	1310	451	2.2	7.7
EP-104	2/12/01	66.83	1.8	7.25	4570	3195	11	9.72	75.0	122	76	798	19	400	1	1488	496	2.1	11
EP-104	2/12/01		1.9	7.25	4560	3131	5.9		77.2	115	72	772	19	407	1	1419	492	2.1	11
EP-104	5/8/01	65.37	2.2	7.26	4560	3266	24	9.8	77.7	138	77	822	31	410	1	1712	557	2.1	11
EP-104	7/18/01	64.7	2.3	7.18	4530	3258	8.1	22.6	79.5	123	75	826	20	393	1	1645	534	2.1	11
EP-104	10/11/01	65.97	1.6	7.37	4410	3155	5.9	6.75	24.8	133	84	831	24	417	1	1728	540	2.1	8.7
EP-104	2/8/02	66.44	2	7.3	4440	3092	233	16.1	75.56	120	76	761	19	448	1	1439	448	2.3	9.1
EP-104	5/11/02	65.25	1.7	7.34	4430	3159	13	7.6	76.28	121	77	772	13	414	1	1433	492	2.2	8.6
EP-104	8/8/02	64.75	1.3	7.31	4350	3135	3.8	4.7	76.28	119	74	907	19	421	1	1365	503	2.3	7.8
EP-104	8/8/02		1.4	7.3	4480	3118	5		76.28	118	73	822	20	425	1	1160	495	2.3	8.5
EP-104	11/5/02	66.14	1.9	7.4	4420	3060	8.7	1.5	75.74	115	73	799	25	420	1	1415	524	2.2	8.8
EP-105	10/21/99	65.61	4	7.15	4460	3412	216		71.1	196	80	682	28	436	1	1896	479	2.2	4.3
EP-105	1/25/00	65.36	3.1	7.43	3780	2704	246	12	83.8	147	53	510	18	368	1	1793	398	1.1	2.7
EP-105	4/26/00	65.21	2.1	8.12	3410	2361	10	9.1	89.8	123	43	588	17	104	1	1230	468	5.2	10.7
EP-105	4/26/00		5	7.72	3730	2641	5.6	8.8	71.4	156	57	503	15	232	1	1382	393	3	4
EP-105	11/1/00	65.37	2.2	7.64	3410	2455	3.6	9.8	71.6	127	46	472	16	134	1	1075	340	1.4	4.7
EP-105	2/14/01	65.47	3.6	7.31	3940	2842	5.6	5.5	72.9	130	60	548	16	312	1	1441	373	2.7	5.3
EP-105	5/9/01	64.84	4.1	6.85	3750	2706	225	4	78.8	190	72	566	19	227	1	1115	458	2.7	1.4
EP-105	7/19/01	64.61	4.5	7.23	4080	2982	3.9	4.571	79.5	165	74	636	18	317	1	1390	488	2.5	8.5
EP-105	11/1/01	65.05	1.6	7.39	4040	2975	797	62.3	22.3	149	86	702	20	459	1	1423	411	2	3.2
EP-105	2/11/02	65.23	2.5	7.36	4020	2888	96	65	70.34	170	74	556	15	199	1	1429	332	3.2	1.1
EP-105	5/2/02	64.9	2.2	7.73	4000	2901	49		70.88	133	77	617	16	214	1	1499	427	3.1	1.2
EP-105	8/8/02	64.73	1.7	7.66	4000	2893	43	4.2	74.66	171	72	675	15	198	1	1427	444	3	0.63
EP-105	11/25/02	65.15	2.5	7.96	4060	2974	299		70.15	178	76	872	25	272	1	1393	1068	3	6.9

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT fl	DO mg/l	pH	SC		TDS mg/l	TSS mg/l	Turb. NTU	Temp °F	DISSOLVED						ICOD mg/l	CO3 mg/l	NO3 mg/l	Cl mg/l	F mg/l	N mg/l
					unbalanced	Lab					Ca	Mg	Na	K								
EP-106	10/21/99	61.15	5.6	7.14	7.7	4.80	4300	3128		76.8	232	60	595	19			309	1	1893	155	1.2	0.6
EP-106	1/25/00	60.38	1.4	7.08	7.7	4950	4860	3817	17	80.5	234	109	777	14			708	0	1460	433	0.88	9.2
EP-106	4/26/00	60.36	1.6	7.04	7.8	4960	4960	3951	18	82.5	252	115	681	13			307	1	2301	474	0.89	9.2
EP-106	8/2/00	60.1	2.2	7.04	8.1	4700	4670	3647	6.8	76.3	210	96	680	14			293	1	1780	355	0.85	10
EP-106	1/2/00	60.73	2.3	7	7.6	4710	5420	3643	24	75.6	219	96	653	17			298	1	1871	114	0.89	12
EP-106	2/12/01	60.77	3.4	7.07	7.6	4910	4690	3900	26	78.6	230	108	700	12			309	1	2071	417	0.79	9
EP-106	5/9/01	59.98	2.3	7.05	7.7	4900	4810	3801	17	81.7	263	119	708	17			293	1	2153	455	0.88	9.9
EP-106	7/18/01	63.07	3.5	7.08	7.8	6070	5730	4825	1	81.7	263	119	708	17			181	1	1983	931	1.1	0.8
EP-106	10/1/01	60.09	2	7.09	8.3	4590	4830	3625	8	76.9	273	135	736	16			305	1	1794	388	0.53	9.5
EP-106	2/8/02	60.37	1.9	7.25	8.5	4640	4930	3339	1.8	77.72	249	113	638	13			171	62	2076	427	0.55	9.1
EP-106	5/1/02	60.27	2.2	7.16	7.7	4550	5120	3533	11	80.06	234	112	684	13			288	1	1860	352	0.5	9.5
EP-106	8/8/02	60.5	2.4	7.17	8	4650	4370	3610	14	79.34	245	108	762	13			307	1	1818	407	0.84	8.4
EP-106	11/7/02	62.5	0.3	7.24	7.4	5430	6170	4047	6.6	76.82	242	71	911	79			357	1	2073	554	3	0.1
EP-106	11/11/02	60.65																				
EP-107	10/21/99	63.68	5.2	6.99	7.8	6450	6500	4821	22	78.3	436	211	733	26			195	1	1912	1085	0.89	90
EP-107	1/24/00	63.66	2.1	7.17	7.7	6450	5270	4749	2.4	80.2	335	169	757	16			183	1	1925	1040	0.92	38
EP-107	4/25/00	63.66	2.1	7.2	7.6	5770	5590	4482	3.4	81.3	345	162	673	16			193	1	2041	695	1.11	131
EP-107	8/7/00	63.39	3.2	7	7.9	6190	6190	4730	1	78.1	364	171	784	18			209	1	1752	898	1	86
EP-107	11/2/00	63.71	3.4	7.02	7.8	6440	7220	4874	1	76.3	340	156	855	23			189	1	1870	919	0.92	66
EP-107	2/12/01	64.02	3.2	7.1	7.7	5980	5710	4607	1	79.5	332	164	689	17			177	1	1970	905	0.92	84
EP-107	5/8/01	63.04	3.5	7.11	7.7	5840	5710	4513	1	82.5	332	164	689	17			177	1	1970	905	0.92	84
EP-107	7/1/01	60.01	1.9	7.02	7.8	4610	4550	3648	9.5	79.7	248	117	715	16			284	1	1802	480	0.76	11
EP-107	10/21/01	63.19	3.8	7.14	8.1	6030	5830	4698	1.7	75.9	430	196	767	20			195	1	1782	892	1.1	60
EP-107	2/20/02	63.57	3.5	7.01	7.7	6010	7080	4583	1	79.4	353	186	780	20			183	1	1688	627	0.96	60
EP-107	5/1/02	63.36	3.7	7.08	7.6	5580	5820	4352	5.8	78.8	373	169	659	15			184	1	1362	749	1	69
EP-107	8/20/02	63.44	3.5	7.04	7.7	6110	5810	4697	1	80.06	378	177	691	15			204	1	1840	916	0.92	72
EP-107	8/20/02		3.3	7.01	7.9	6090	5800	4642	1	79.7	385	180	717	15			210	1	1775	919	0.92	78
EP-107	11/11/02	61.69																				
EP-108	10/26/99	20.82		6.64	8.3	2810	2850	1835	29	74.8	59	40	507	15			359	1	1019	214	2.5	4.2
EP-108	1/28/00	22.13	1.5	7.52	8.2	3500	3160	2109	7.7	77.7	51	50	719	15			411	1	1022	361	2.5	6.3
EP-108	5/2/00	32.27	2.7	7.5	7.9	3500	3100	1950	8.7	77.7	44	43	595	18			425	1	999	345	2.4	6.8
EP-108	8/9/00	20.29	2.7	7.51	8.3	2520	3450	1657	1.3	75.0	35	38	326	18			307	1	803	318	2.4	5.1
EP-108	11/9/00	20.64	2.2	7.54	8.1	3350	4330	2331	1.4	74.3	44	42	610	10			411	1	913	263	2.5	5.6
EP-108	2/15/01	21.75	2.6	7.45	7.9	3370	3330	2257	22	75.9	43	41	564	5.3			418	1	1041	288	2.4	7.1
EP-108	5/14/01	23.07	3.8	7.56	8.5	3460	3350	2412	16	78.1	52	49	526	5.5			384	12	957	381	2.3	7
EP-108	7/25/01	22.87	6.4	7.56	8	3410	3360	2353	12	77.5	50	49	657	6.7			459	1	1043	323	2.4	8
EP-108	11/12/01	22.97	2.7	7.32	8	3420	1890	2353	13	74.1	50	50	645	9.3			414	1	874	379	3.5	7.1
EP-108	2/19/02	22.88	2	7.49	8.4	3380	4210	2371	2.2	75.38	50	48	606	6.6			410	4.8	886	263	2.4	7.2
EP-108	5/7/02	23.64	2.6	7.4	8.2	3360	3840	2261	15	77.54	46	45	571	8.9			437	1	957	376	2.4	5.1
EP-108	8/20/02	19.65	1.7	7.75	7.9	1803	1750	1211	11	78.62	43	26	262	4.1			250	1	552	115	2.4	2.2
EP-108	11/13/02	21.31	2.2	7.52	7.9	2360	3060	1528	5.5	75.02	34	38	417	19			325	1	713	215	2.3	2.6
EP-108	1/13/02		2.2	7.53	8	2270	2840	1478	4.7	75.02	53	36	387	22			317	1	653	183	2.3	1.7
EP-109	10/28/99	19.85		6.55	8.3	3470	3330	2269	64	72.3	115	68	503	32			301	1	1006	377	2.3	5.2
EP-109	1/29/00	19.32	3.1	7.4	7.9	4000	3850	2714	30	76.8	101	74	726	15			387	1	1797	432	2.3	5.8

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	Lab	SC	TDS	TSS	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		ft	mg/l			unhardness	mg/l	mg/l	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg	mg/l
EP-109	5/20/00	21.07	3.5	7.38	7.7	3930	2782	32	77.7	95	67	624	15	384	1	1219	135	2.4	6.5
EP-109	8/9/00	19.29	4	7.29	8.1	3920	2726	59	74.8	84	61	387	20	383	1	1108	169	2.4	8.9
EP-109	11/9/00	18.89	3	7.31	7.8	4000	3322	9.4	73.6	83	65	653	15	364	1	1246	336	2.4	7.5
EP-109	2/15/01	19.17	3.2	7.31	7.7	3840	2716	26	71.8	96	65	629	15	400	1	1213	169	2.4	8.9
EP-109	5/14/01	21.02	4.1	7.49	8.1	3900	2756	8.2	77.2	96	75	549	17	390	1	1337	426	2.4	9
EP-109	7/25/01	21.73	6.9	7.37	7.8	3890	2732	14	69.3	88	69	708	18	387	1	1316	366	2.4	8.8
EP-109	1/12/01	20.5	3.6	7.15	8	3860	2695	1.3	73.9	88	69	684	22	387	1	1104	454	2.4	8.2
EP-109	2/15/02	19.9	3.6	7.35	8.3	3810	2718	1	75.02	87	67	679	17	383	1	1756	14	2.4	8.1
EP-109	5/7/02	21.3	3.2	7.25	8	3900	2714	21	75.64	84	65	640	33	403	1	1343	418	2.4	7.1
EP-109	8/14/02	17.75	3.4	7.44	8	3810	2666	10	77.72	86	55	651	16	401	1	1322	375	2.4	7.1
EP-109	1/11/02	19.68																	
EP-110	10/29/99	7.96	4	6.99	8.4	2780	1790	119	72.5	158	55	334	19	28	1	805	337	0.74	7.1
EP-110	1/24/00	6.48	3.4	7.23	7.8	2750	1921	18	75.7	137	58	400	18	268	1	782	286	0.76	8.8
EP-110	4/24/00	8.6	3.2	7.29	7.7	2780	1957	17	76.3	134	58	331	7	271	1	877	291	0.76	8.9
EP-110	8/2/00	8.25	2.4	7.19	8.1	2900	1945	1.4	77.0	135	57	350	19	288	1	805	354	0.78	7.7
EP-110	10/31/00	9.15	3	7.11	8.1	2920	2003	5.2	72.5	147	61	414	18	276	1	860	331	0.77	7.9
EP-110	2/8/01	9.08	5.4	7.09	7.9	2860	1973	7.2	75.4	145	62	377	17	278	1	871	336	0.72	7.9
EP-110	5/7/01	8.89	4.9	7.23	8.2	2850	1993	3.1	78.5	157	65	385	21	273	1	839	330	0.8	7.7
EP-110	7/17/01	8.64	2.6	7.16	8	2900	2071	2.3	75.2	158	66	377	21	276	1	876	377	0.77	8.7
EP-110	10/30/01	9.82	3	7.33	8.4	2860	2083	2.9	75.6	165	70	402	24	235	1	884	391	0.83	8.7
EP-110	2/7/02	10.06	4.5	7.28	8.3	2900	2094	15	71.06	165	69	394	22	299	1	784	332	0.71	8.3
EP-110	2/7/02		4.8	7.28	8.2	2900	2095	14	71.34	166	70	412	22	285	1	795	330	0.75	8
EP-110	4/30/02	8.27	3.4	6.95	8	2910	2052	1.9	75.92	160	67	387	22	278	1	791	385	0.72	7.8
EP-110	8/6/02	8.16	3.6	7.25	7.7	2990	2140	8.4	79.34	167	68	430	20	289	1	813	335	0.79	0.8
EP-110	1/11/02	9.72																	
EP-111	10/28/99	8.04	3.5	7.11	7.7	3450	3463	303	71.4	285	76	836	66	436	1	1800	362	2.4	0.2
EP-111	1/29/00	5.99	0.1	7.21	7.8	3590	3820	29	72.3	237	69	904	62	373	1	1912	309	2.4	0.2
EP-111	5/20/00	5.33	0.2	7.25	7.6	5100	3767	5.4	77.0	197	51	749	51	361	1	1749	343	2.9	0.07
EP-111	8/14/00	4.82	0.2	7.1	7.8	5160	3814	13	75.6	221	64	813	59	354	1	2041	491	2.6	0.07
EP-111	11/10/00	6.19	0.2	7.06	7.5	5190	3839	8.9	75.6	212	62	898	62	364	1	1518	571	2.6	0.11
EP-111	1/11/00		0.2	7.06	7.5	5190	3939	7.8	72.3	187	54	771	53	360	1	1699	412	2.9	0.21
EP-111	2/7/01	5.9	0.2	7.17	7.5	5630	4239	7.4	72.5	205	61	772	55	423	1	2304	645	2.6	0.1
EP-111	5/15/01	5.25	0.4	7.36	7.5	5400	3997	3.5	76.3	228	71	915	76	293	1	2395	643	2.8	0.16
EP-111	7/6/01	7.99	0.1	7.1	7.7	5120	3766	5.2	73.2	220	68	897	71	373	1	1832	343	3.9	0.17
EP-111	11/13/01	5.96	0.1	7.03	8.2	5420	3867	7	72.3	231	72	894	97	378	1	1798	646	3	0.18
EP-111	2/7/02	6.11	0.1	7.2	8.6	5670	4216	4.2	72.32	239	81	1117	94	378	1	194	558	3	0.1
EP-111	5/11/02	4.72	2.9	7.22	7.3	5420	4004	5.5	72.86	247	79	953	82	342	1	1736	534	3	0.05
EP-111	8/16/02	5.47	0.1	7.25	7.9	5460	3903	4.3	75.74	238	74	942	70	338	1	1900	625	3	0.05
EP-111	10/28/99	7.88	0.1	7.24	8.1	5450	3914	4.3	75.56	236	73	926	70	338	1	1860	576	3	0.06
EP-112	1/29/00	7.4	0.1	7.32	7.8	5250	3709	266	68.5	137	71	832	69	515	1	1570	562	1.5	0.1
EP-112	5/20/00	6.79	0.5	7.02	7.5	7280	4043	1.1	74.3	253	41	948	97	693	1	2846	551	1.4	0.27
EP-112	8/14/00	6.3	0.2	6.97	7.6	7290	4311	5.7	74.5	237	119	998	88	695	1	2890	543	1.7	0.1
EP-112	8/14/00		0.2	6.97	7.9	7260	4366	5.1	72.3	240	121	998	88	695	1	2900	567	1.7	0.11

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV R1
El Paso Asarco Smelter

Sample ID	Date	WT lb	DO mg/l	pH		SC		TDS mg/l	TSS mg/l	Turb. NTU	Temp oF	DISSOLVED									
				Sed	Lab	unadjusted	Lab					Ca mg/l	Mg mg/l	Na mg/l	K mg/l	HCO3 mg/l	CO3 mg/l	SO4 mg/l	Cl mg/l	F mg/l	N mg/l
EP-112	11/10/00	7.51	0.1	7	7.8	7280	8220	5169	2.4	1.89	68.7	193	91	722	1	U	2495	662	2	0.21	H
EP-112	2/21/01	7.35	0.3	7.11	7.7	7300	7030	5102	2.8	3.1	70.2	226	116	710	1	U	2761	615	1.7	0.1	H
EP-112	5/15/01	6.64	3.2	7.17	7.5	7200	6490	5158	1	U	73.6	237	122	595	1	U	2300	506	1.8	0.19	H
EP-112	7/31/01	6.09	0.3	6.93	7.4	6900	7380	4878	1	U	73.3	337	122	644	1	U	2717	932	1.9	0.21	H
EP-112	11/13/01	7.28	0.1	6.91	8	6680	6630	4700	1.6	2.87	73.1	321	118	671	1	U	2401	564	2	0.15	H
EP-112	2/20/02	7.37	0.2	7.07	7.9	6880	7520	4871	1	U	69.26	345	123	664	H	U	2402	564	2	0.1	U
EP-112	5/11/02	6.02	0.4	7.14	7.7	6870	6990	4797	1	4.08	70.34	247	121	561	1	U	2282	651	2.3	0.19	H
EP-112	8/16/02	6.78	0.2	7.08	7.9	6710	6016	4617	1.6	2.48	72.86	226	109	545	1	U	2748	647	2.3	0.07	H
EP-112	11/10/02	7.49	0.3	7.17	7.6	6860	7410	4730	1	U	73.22	239	113	521	1	U	2532	634	2.4	2.2	H
EP-113	10/28/99	7.22	7.5	7.41	8	4060	4080	2624	203		70.9	138	69	411	1	U	1353	468	2.8	0.22	H
EP-113	1/29/00	7.23	0.1	7.3	7.6	4180	4050	2930	21	8.3	71.6	151	65	375	1	U	1399	364	2.4	0.28	H
EP-113	5/2/00	6.59	0.2	7.33	7.7	3890	3900	2680	6.4	3.71	74.5	121	56	405	1	U	1371	372	3	0.16	H
EP-113	8/14/00	6.01	0.1	7.3	7.8	3560	3650	2494	1.7	3.25	73.5	106	47	393	1	U	1221	246	1.1	0.09	H
EP-113	11/10/00	7.28	0.2	7.22	7.7	3620	4510	2601	4.1	2.65	70.9	109	50	391	1	U	1648	265	3	0.14	H
EP-113	2/21/01	7	0.2	7.35	7.9	3480	3410	2391	2.7	4.15	71.6	93	40	420	1	U	1229	318	3.1	0.1	H
EP-113	5/15/01	6.33	1.9	7.31	7.7	3420	3150	2371	1	U	72.6	107	50	325	1	U	1290	369	3	0.16	H
EP-113	7/31/01	6.78	0.1	7.24	7.6	3580	3870	2464	1	U	1.37	119	55	380	1	U	1179	342	3	0.15	H
EP-113	11/13/01	6.7	0.1	7.13	7.8	3800	3770	2680	2.3	2.95	74	123	59	395	1	U	1169	409	3.1	0.16	H
EP-113	2/20/02	6.67	0.1	7.32	7.9	3850	4500	2578	2.2	2.72	70.34	132	62	425	H	U	1304	322	3.1	0.1	U
EP-113	5/11/02	5.65	6.4	7.31	7.3	3760	3900	2660	3.2	3.26	71.6	137	62	354	1	U	538	335	3.3	0.05	U
EP-113	5/11/02		6.3	7.37	7.37	3760	3900	2636	2.8		71.6	126	62	353	1	U	967	281	3.3	0.05	U
EP-113	8/16/02	6.35	0.3	7.4	7.8	3840	4050	2666	2.1	2.53	74.12	124	57	355	1	U	1333	329	3.5	0.05	U
EP-113	11/10/02	6.92	0.5	7.43	7.7	3890	4350	2717	2.5	5.02	75.02	134	61	356	1	U	1247	422	3.2	0.1	U
EP-114	1/18/99	13.9	4.4	6.19	6.7	9800	10820	8176	710		68.4	547	343	969	1	U	4272	917	13	0.19	H
EP-114	1/31/00	13.97	0.3	6.35	6.6	8480	9070	7317	8392	200	73.4	990	355	1244	1	U	2420	930	12	18	H
EP-114	5/4/00	13.55	0.9	6.3	6.6	8000	7260	7066	764	200	79.3	845	372	951	1	U	4487	1830	11	0.08	H
EP-114	8/14/00	13.1	0.5	6.5	6.6	7730	6480	6743	3972	200	71.4	732	283	944	1	U	3840	620	10	0.08	H
EP-114	11/10/00	13.71	0.7	6.37	6.7	7100	6842	6842	9284	200	72.1	706	352	876	1	U	3270	705	9.2	0.16	H
EP-114	5/4/01	13.56	1.8	6.78	6.5	7690	8810	6746	13382	200	81.7	1280	414	1133	1	U	3190	821	8.5	0.21	H
EP-114	7/16/01	13.32	0.3	6.6	6.6	7660	6510	6831	12441	200	73.1	515	340	1691	1	U	2591	705	8.5	0.03	H
EP-114	10/30/01	14.15	1.7	6.53	7	7190	7200	6919	9594	200	74	544	245	990	1	U	3066	1609	9.2	0.15	H
EP-114	2/29/02	14.34	1.9	6.95	7.5	7780	7600	6855	13452	200	69.8	566	256	1030	1	U	4218	982	8.9	0.1	U
EP-114	4/29/02	13.39	0.2	6.74	7	7700	7550	6710	14761	200	77.36	550	230	2294	1	U	3405	913	8.3	0.12	H
EP-114	8/30/02	13.15	1.6	6.79	7.3	7980	7770	6908	3093	200	74.66	545	228	875	1	U	3582	883	9	1.1	H
EP-114	11/4/02	14	2	6.67	6.9	8040	7280	7007	3016	200	73.4	557	246	980	1	U	3125	893	9	0.05	U
EP-115	1/22/99	13.58	3.3	7.08	7.7	17800	1832	13965	8.2		64.0	711	449	601	1	U	4440	3690	4.6	60	U
EP-115	1/11/00	12.26	1.8	6.81	7.7	11400	10470	9072	100	H	75.2	560	276	763	1	U	4112	1502	3.3	15	H
EP-115	5/4/00	13.21	1.9	6.84	8.1	9850	9490	8166	44	H	83.1	559	270	793	1	U	4146	1455	3.2	0.22	H
EP-115	8/14/00	13.31	1.5	6.84	7.6	9410	8160	7220	8.3	5.03	72.9	489	212	822	1	U	4350	763	3.1	52	H
EP-115	11/10/00	10.82	2.2	6.79	7.7	7520	9330	6445	42	19.5	32.6	366	77	490	1	U	3191	338	4.8	92	H
EP-115	2/23/01	14.2																			
EP-115	5/4/01	14.24																			
EP-115	7/16/01	13.95	2.8	6.9	7.9	7660	6992	6395	33		81.1	530	189	829	1	U	3762	503	3.2	20	H
EP-115	10/30/01	14.05																			

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT ft	DO mg/l	pH	PIL	SC		TDS mg/l	TSS mg/l	Turb NTU	Temp °F	Ca mg/l	DISSOLVED				K mg/l	HCO ₃ mg/l	CO ₃ mg/l	SO ₄ mg/l	Cl mg/l	F mg/l	N mg/l
						unadsorb	adsorb						Mg	Na									
EP-115	2/20/02	14.63	2.4	6.56	7.3	6280	6460	4652	1379	200	75.0	420	92	800	55	100	314	2115	1	2115	314	3.4	9.6
EP-115	4/29/02	14.44	2.1	6.92	7.6	6480	6020	4700	1593	200	82.4	531	118	1052	30	1000	489	2202	1	2202	489	3.6	8.9
EP-115	8/1/02	13.91	1.5	7.11	7.4	6400	6180	4550	1440	200	82.2	412	90	580	40	797	261	2350	1	2350	261	3.8	11
EP-115	11/4/02	13.98	2	7.08	7.7	6180	5510	4396	412	200	76.8	257	73	849	49	558	181	2158	1	2158	181	3.9	11
EP-116	8/1/00	11.44	2	6.74	7.6	5400	6770	4104	423	200	75.7	309	64	705	40	451	371	1818	1	1818	371	3.2	12
EP-116	11/10/00	12.5	1.5	6.96	7.3	6230	6030	4155	423	200	78.3	408	106	941	67	1049	470	2114	1	2114	470	3.5	17
EP-116	2/22/01	12.6	3	7.28	7.7	6210	6130	4304	2100	200	81.9	451	116	1052	75	1049	219	1710	1	1710	219	3.2	10
EP-116	7/16/01	11.42	2.6	7.01	7.5	5940	5410	4296	6661	200	74.3	354	76	970	49	1879	517	1958	1	1958	517	4.5	16
EP-116	10/30/01	12.58	1.9	6.98	8.3	5960	6280	4254	4478	200	26.5	218	77	923	49	760	544	2104	1	2104	544	4.5	16
EP-116	10/30/01		1.8	6.99	8.2	6030	6100	4290	3423	200	25.3	255	80	971	54	874	501	2269	1	2269	501	4.5	18
EP-116	2/20/02	12.89	2.5	7.15	8	5150	7370	4223	2194	200	74.84	233	75	1001	59	978	391	2139	1	2139	391	4.4	12
EP-116	4/29/02	11.4	2.8	7.28	7.6	5620	5760	3969	9078	200	77.51	214	75	876	52	1362	512	2114	1	2114	512	3.9	8.7
EP-116	8/5/02	11.27	2.3	6.45	7.2	4370	4450	3581	1423	200	78.98	423	47	599	23	599	373	2034	1	2034	373	4	10
EP-116	11/4/02	12.87	2.1	7.14	7.6	5500	6040	3778	929	200	74.84	236	77	896	46	662	468	2000	1	2000	468	4.8	10
EP-117	11/18/99	15.44	1.4	7.23	7.8	2380	2819	1916	236	200	70.9	165	28	400	60	259	187	930	1	930	187	6	7.8
EP-117	1/31/00	14.82	1.3	7.35	7.5	3690	3392	1914	1156	200	88.5	780	132	371	120	1903	245	843	1	843	245	6	6
EP-117	5/4/00	14.24	1.3	6.67	7.7	3170	3118	2256	4608	200	78.3	405	68	351	92	860	359	1037	1	1037	359	4.8	12
EP-117	8/14/00	13.9	3.1	7.52	7.9	3720	3380	2832	5468	200	72.5	330	51	375	83	599	331	1150	1	1150	331	4.5	11
EP-117	11/10/00	15.12	1.3	7.25	7.9	3690	4420	2861	4134	200	65.3	362	57	458	83	598	334	1260	1	1260	334	4.1	12
EP-117	2/22/01	15	1.5	7.31	7.8	3920	3870	2971	5918	200	74.8	476	71	447	100	1065	379	1431	1	1431	379	3.7	11
EP-117	5/4/01	14.15	3.9	7.56	7.7	3740	3690	2872	7858	200	81.3	674	104	540	145	1391	329	1317	1	1317	329	3.5	14
EP-117	7/16/01	13.84	2	7.37	7.3	3950	3710	2972	2440	200	79.7	276	39	557	99	1270	414	1360	1	1360	414	3.5	13
EP-117	10/20/01	15.02	3.5	7.46	7.9	4140	4240	3081	5227	200	71.78	276	41	562	101	1830	435	1545	1	1545	435	3.4	13
EP-117	2/5/02	15.21	4	7.6	8.1	4180	4190	3186	7525	200	71.78	276	41	562	101	1830	465	1197	1	1197	465	3.6	13
EP-117	4/29/02	13.81	2.3	7.58	7.4	4210	4170	3206	3500	200	73.58	278	41	564	113	756	477	1446	1	1446	477	3.4	13
EP-117	8/5/02	13.7	1.8	7.62	7.7	4280	4310	3143	697	200	75.92	275	40	644	94	370	405	1396	1	1396	405	3.2	11
EP-117	11/4/02	15.26	2.2	7.41	7.6	4280	4660	3163	318	200	73.86	231	40	621	100	342	469	1369	1	1369	469	3.4	12
EP-118	11/18/99	11.64	3.0	7.46	8	3480	3740	2405	5852	200	73.2	179	31	400	40	58	231	1080	1	1080	231	1.6	13
EP-118	1/31/00	11.42	1.6	7.74	8	3080	2950	2146	1481	200	76.8	556	325	659	122	1703	376	859	1	859	376	1.9	13
EP-118	5/4/00	11.26	1.6	7.79	8.1	3200	3120	2166	6477	200	79.3	175	101	503	59	598	244	891	1	891	244	1.5	13
EP-118	8/14/00	10.89	2.1	7.95	8.3	3180	2910	2243	1119	200	72.9	95	49	480	16	265	231	1060	1	1060	231	1.5	15
EP-118	11/10/00	11.31	3.5	7.58	8.2	2180	3400	2179	2344	200	71.1	64	71	435	35	377	129	997	1	997	129	2.3	19
EP-118	2/22/01	12	7.4	7.74	8	3380	3260	2413	33309	200	74.7	586	301	515	123	2086	370	1112	1	1112	370	1.6	17
EP-118	5/4/01	11.57	3.9	7.84	8.7	3320	3510	2446	4441	200	77.2	243	141	675	60	527	396	1334	1	1334	396	1.5	17
EP-118	7/17/01	11.57	2	7.52	8.1	3670	3670	2631	10133	200	71.9	111	32	644	14	1058	473	1299	1	1299	473	1.5	19
EP-118	10/25/01	12.38	3.2	7.74	8	3880	3870	2778	4526	200	75	126	61	679	19	427	431	1248	1	1248	431	1.3	18
EP-118	2/5/02	12.7	5.2	7.74	8.3	3800	3800	2741	16283	200	70.34	124	62	707	16	1415	403	1149	1	1149	403	1.3	14
EP-118	4/29/02	11.42	3.5	7.79	7.8	2900	2900	2140	9775	200	73.22	176	41	426	35	839	226	1676	1	1676	226	2.2	14
EP-118	8/6/02	11.3	3.3	7.84	7.9	3190	3370	2375	2852	200	78.26	182	46	478	30	427	318	1703	1	1703	318	1.6	15
EP-118	11/4/02	12.45	4.1	7.61	7.8	2900	3120	2005	2580	200	74.84	139	49	454	18	418	399	990	1	990	399	1.7	8.6

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	Lab	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		ft	mg/l			unithat	mg/l	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-119	5/15/01	12.48	0.4	7.39	7.7	3560	2576	17	7.8	73.9	128	51	603	61	388	1	11	1225	303	5.3
EP-119	7/27/01	12.07	0.2	7.12	7.7	3510	2520	1.7	2.16	73.9	129	52	596	57	390	1	11	1160	296	5.2
EP-119	7/27/01		0.2	7.12	7.8	3520	2489		1	75.6	125	51	596	57	398	1	11	1223	314	5.2
EP-119	11/14/01	13	0.2	7.09	7.9	3540	2357	66	14.3	73.6	126	50	586	54	403	1	11	1034	340	5.8
EP-119	2/13/02	13.28	0.3	7.22	8.2	3630	2624	94	17.4	73.04	131	53	718	62	405	1	11	1373	260	5.2
EP-119	5/9/02	12.02	0.5	7.17	7.6	3700	2649	4.2	3.57	73.04	143	58	606	59	415	1	11	910	1346	3.5
EP-119	8/13/02	12.02	0.2	7.43	8	3670	2556	3.8	3.27	75.92	138	57	656	55	423	1	11	1189	312	3.4
EP-119	11/2/02	13.12	5.7	7.36	7.7	3690	2581	16	3.44	74.3	135	55	552	55	421	1	11	1248	372	3.7
EP-119	11/2/02		6	7.37	7.9	3680	2576	16		71.3	137	56	565	55	425	1	11	1119	360	3.7
EP-12	11/19/97	62.41	1.44	6.8	7.3	3840	4846	7.9		70.2	171	121	905	17	761	1	11	1425	549	21
EP-12	2/19/98	63.07	1.55	6.76	7.4	6580	5491	8.3		71.8	437	148	1093	21	612	1	11	2603	600	0.92
EP-12	5/20/98	62	2.38	7.05	7.6	5280	3938	8.8		76.8	321	113	939	27	866	1	11	1568	524	1
EP-12	8/27/98	60.88	1.12	6.79	7.3	6360	5362	174		71.1	428	147	1172	12	727	1	11	2329	507	1
EP-12	11/16/98	61.3	1.7	6.88	7.5	5580	4167	229		65.7	311	115	1024	18	883	1	11	1721	247	1
EP-12	2/25/99	60.35	2.6	7.08	7.4	4890	3851	16		79.3	288	85	775	15	775	1	11	1412	323	1
EP-12	5/14/99	59.39	1.3	6.86	7.7	6020	4936	41		76.6	240	134	1096	27	2013	1	11	2121	372	0.8
EP-12	8/1/99		2.1	7	7.7	5900	4840	66		74.3	324	144	1063	26	1037	1	11	2093	376	0.76
EP-12	8/1/99	58.12	0.1	7.31	7.6	6110	4756	36		71.1	360	126	945	13	1147	1	11	960	425	0.78
EP-12	10/29/99	61.12	2.5	8	8.3	4400	1881	47		32.0	138	68	309	10	1557	1	11	740	375	0.5
EP-12	2/8/00	62.37	7.5		7.5	3520	3880	46		32.0	221	94	924	11	1214	1	11	1433	439	4.9
EP-12	2/8/00				7.6	5420	3928	68		74.3	191	86	898	9.8	1263	1	11	1350	417	0.47
EP-12	5/9/00	61.24	0.3	6.98	7.5	5620	4147	51		77.9	277	112	1158	15	1159	1	11	1611	498	0.87
EP-12	8/16/00	60.35	0.6	7.11	7.5	5040	1780	506		66.6	178	92	853	10	1427	1	11	1156	357	0.77
EP-12	11/14/00	62	2	7.12	7.8	5760	4446	302		72.2	241	96	875	12	1074	1	11	1786	563	0.99
EP-12	2/26/01	61.56	1.6	7.19	7.8	5180	4054	55		78.8	261	111	925	16	695	1	11	1574	552	1.038
EP-12	5/17/01	60.82	0.2	7.12	8	5960	4791	55		75.6	310	115	989	16	793	1	11	2393	633	1.1
EP-12	7/10/01	60.4	0.9	6.9	7.6	5810	4480	154		75.6	310	115	989	16	793	1	11	2083	562	1.2
EP-12	11/19/01	61.92	0.2	6.89	8	5220	3757	143		17.9	241	122	971	14	931	1	11	1479	591	1
EP-12	2/11/02	62.43	2.1	7.3	7.8	5630	4359	324		68.54	273	100	914	16	886	1	11	1894	582	1.3
EP-12	5/14/02	60.5	0.1	7.08	7.9	5330	3863	289		74.3	247	104	914	16	1074	1	11	1471	570	0.97
EP-12	8/21/02	60.48	0.7	7.4	8	4250	2949	31		82.04	104	59	777	7.5	1775	1	11	376	404	0.91
EP-12	11/25/02	61.87	0.7	7	7.3	5200	3781	38		68.36	215	84	818	20	1041	1	11	1269	620	1.3
EP-120	5/7/01	14.14		8.1	8	3720	2570	5.2		76.6	115	81	642	29	390	1	11	1330	404	2.3
EP-120	8/1/01	21.4	4.5	7.45	8	3420	2460	38		77.2	89	62	599	27	470	1	11	1043	252	3.3
EP-120	8/1/01		4.5		7.9	3430	2457	37		75.4	89	63	661	29	372	1	11	1141	256	3.5
EP-120	11/12/01	22.16	0.7	7.32	8.2	2770	1923	160		25.3	56	40	484	23	453	1	11	707	218	3
EP-120	2/19/02	21.34	2.1	7.26	8.5	3410	2604	15		74.12	108	62	540	31	240	1	11	902	247	0.3
EP-120	5/7/02	22.31	2.7	7.29	8.1	2980	2051	32		81.32	95	54	440	27	208	1	11	960	248	2.3
EP-120	8/20/02	20.01	4.8	7.34	8	3370	2456	12		41.5	152	77	470	38	417	1	11	1253	211	2.3
EP-126	11/13/02	20.55																		
EP-121	5/7/01	21.37		8.13	8.1	3620	2359	35		80.6	89	78	656	7.9	410	1	11	1229	380	1.8
EP-121	8/1/01	13.91	5	7.38	7.7	3300	2258	60		75.9	81	64	562	11	403	1	11	1149	354	1.7
EP-121	11/19/01	15.03	3.6	7.26	8.3	3360	2310	46		22.7	82	67	583	42	415	1	11	967	407	1.5
EP-121	2/20/02	13.86	3	7.36	8.2	3250	2267	202		75.2	81	67	573	6.7	442	1	11	873	319	1.9

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		g	mg/L		unach/ach	mg/L	mg/L	NTU	°F	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EP-121	5/14/02	14.81	2.8	7.75	3100	2243	51	2.53	75.2	85	66	620	72	428	1	U	34	1.9	0.4
EP-121	8/20/02	13.18	3.1	7.58	81	1989	31	22	79.15	81	62	307	9	338	1	U	318	2.1	5.1
EP-121	11/13/02	13.42	3.2	7.28	3100	2147	36	24.5	73.2	81	65	537	33	406	1	U	369	1.9	6.7
EP-121	5/14/01	13.03	4	7.45	8	2294	25	15.4	76.8	109	40	470	41	378	1	U	377	1.5	0.7
EP-122	1/27/01	12.58	6.4	7.14	3410	2421	26	4.73	70.0	124	57	568	47	330	1	U	377	1.5	0.7
EP-122	11/30/01	13.33	0.2	7.06	83	2536	11	8.77	23.6	139	64	374	59	397	1	U	377	1.5	0.7
EP-122	5/11/02	13.56	0.2	7.32	8.6	2284	2.8	3	73.22	111	51	524	41	346	1	U	377	1.5	0.7
EP-122	8/15/02	11.75	0.3	7.34	7.9	2339	5.3	2.78	78.8	124	57	552	12	427	1	U	377	1.5	0.7
EP-122	11/7/02	13.37	0.4	7.49	8	2186	2	3.8	78.08	106	47	535	42	375	1	U	377	1.5	0.7
EP-123	5/6/01	41.35	0.4	7.64	8.2	2260	120	10	81.3	72	31	597	19	427	1	U	377	1.5	0.7
EP-123	7/25/01	40.83	0.5	7.36	8.2	2211	37	84.7	74.8	50	37	615	15	338	1	U	377	1.5	0.7
EP-123	11/22/01	41.7	0.5	7.52	8.5	2466	5.8	5.71	78.8	62	34	644	15	376	1	U	377	1.5	0.7
EP-123	2/15/02	42.01	0.6	7.46	7.8	2338	14	4.33	80.6	59	33	628	21	421	1	U	377	1.5	0.7
EP-123	5/7/02	37.9	0.6	7.78	8	2261	5.2	7.4	80.96	44	28	631	10	415	1	U	377	1.5	0.7
EP-123	8/14/02	39.56	0.4	7.72	8.1	1971	5.9	6.61	79.16	54	31	535	27	337	1	U	377	1.5	0.7
EP-123	11/13/02	34.51	2.7	7.78	7.9	2718	8.31	77.7	77.7	342	132	757	39	533	1	U	377	1.5	0.7
EP-124	5/16/01	35.12	2.5	7.25	8	2817	277	0	79.5	70	32	821	31	416	1	U	377	1.5	0.7
EP-124	7/27/01	0																	
EP-124	11/19/01	34.88	3.2	7.01	8	2245	130	6	66.56	86	38	875	33	426	1	U	377	1.5	0.7
EP-124	2/21/02	35.39	2.1	7.4	7.6	3073	422	8	74.65	103	42	807	32	429	1	U	377	1.5	0.7
EP-124	5/11/02	34.35	2.5	7.52	7.8	3181	1021	5.7	78.04	103	37	863	26	500	1	U	377	1.5	0.7
EP-124	8/22/02	35.01	2.7	7.46	7.2	3389	164		65.12	91	39	842	36	390	1	U	377	1.5	0.7
EP-124	11/25/02	37.32		6.97	7.5	9112	317	10	71.9	436	297	1980	67	891	1	U	377	1.5	0.7
EP-125	5/7/01	38.01	1	6.83	7.7	9168	5458	200	64.9	420	261	1976	60	2830	1	U	377	1.5	0.7
EP-125	7/19/01	37.75	0.8	6.82	7.8	8703	2204	200	24.1	465	283	1949	60	2155	1	U	377	1.5	0.7
EP-125	11/7/01	37.08	1.1	6.75	7.8	8593	8703	200	72.5	407	263	1831	45	1562	1	U	377	1.5	0.7
EP-125	2/11/02	38.02	2.7	6.54	7.8	8769	1361	200	76.1	402	251	1759	58	1488	1	U	377	1.5	0.7
EP-125	5/7/02	39.14	1.1	6.64	7.9	9748	207	200	78.08	412	269	2291	40	1351	1	U	377	1.5	0.7
EP-125	8/9/02	37.99																	
EP-125	11/14/02	31.65		7.15	7.8	5331	33	10	84.4	372	160	648	39	293	1	U	377	1.5	0.7
EP-126	5/8/01	33.03	3	7.18	7.6	5850	5223	31	60.4	419	204	822	39	514	1	U	377	1.5	0.7
EP-126	7/19/01	32.07	3.4	7.18	8	5455	9.8	5.08	28	434	211	938	43	271	1	U	377	1.5	0.7
EP-126	11/1/01	31.53	8.1	7.27	7.9	5009	8.3	5.21	71.42	388	176	930	38	256	1	U	377	1.5	0.7
EP-126	2/22/02	32.55	5.1	6.97	7.8	5015	3.9	2.95	76.28	362	174	777	41	266	1	U	377	1.5	0.7
EP-126	5/7/02	30.93	1.5	7.18	7.9	4031	3.3	2.46	84.55	291	139	824	28	276	1	U	377	1.5	0.7
EP-126	8/9/02	31.58																	
EP-126	11/14/02	7.11		7.05	7.7	5710													
EP-127	5/8/01	6.58	0.8	6.85	7.5	4563	13	10	75.5	292	75	859	69	460	1	U	377	1.5	0.7
EP-127	7/1/01	7.94	0.1	6.76	7.5	4702	6.4	4	71.3	392	77	1032	79	315	1	U	377	1.5	0.7
EP-127	11/13/01	7.95	0.2	6.96	8.6	6250	3.2	2.5	24.7	107	83	1056	103	349	1	U	377	1.5	0.7
EP-127	2/20/02	6.54	0.3	6.66	7.6	5918	5.5	5.65	69.44	131	85	1052	78	324	1	U	377	1.5	0.7
EP-127	5/11/02	7.3	0.1	6.57	8	4991	6	3.2	71.42	374	95	1172	91	437	1	U	377	1.5	0.7
EP-127	8/16/02					4863			74.2	124	87	1172	78	362	1	U	377	1.5	0.7

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT ft	DO mg/l	PH		SC		TDS mg/l	Turb. ntu	Temp °F	DISSOLVED						K mg/l	HCO ₃ mg/l	CO ₃ mg/l	SO ₄ mg/l	Cl mg/l	F mg/l	N mg/l
				Field	Lab	unbalanced	Field				Ca mg/l	Mg mg/l	Na mg/l										
EP-127	11/7/02	8.09	0.3	7.01	7.5	6160	6930	4552	5.5	72	75.38	271	76	963	89	473	1	U	2527	643	5.2	0.1	
EP-128	5/8/01	5.8		7.09	7.4	5480	5070	3180	11	10	75.0	115	40	760	42	371	1	U	1803	657	1.8	0.41	
EP-128	7/1/01	5.27	8.7	7.61	7.5	5700	6080	3556	4.3	6.15	71.4	21	44	929	42	340	1	U	1862	649	1.9	0.76	
EP-128	11/13/01	6.56	0.1	7.47	8.1	6140	6060	3864	20	6.55	71.4	134	59	979	50	387	1	U	1722	745	1.8	0.15	
EP-128	2/20/02	6.68	0.2	7.67	8.2	6180	6960	3931	3	4.9	67.38	141	52	977	47	386	1	U	1799	634	1.7	0.1	
EP-128	2/20/02		0.2	7.68	8.4	6160	6940	3949	2.7		67.38	140	50	1012	45	381	1	U	1775	654	1.7	0.1	
EP-128	5/1/02	5.3	0.2	7.71	7.4	6270	6330	3889	7.8	5.18	69.98	151	52	1050	46	309	1	U	1704	701	1.7	0.11	
EP-128	8/16/02	6.01	0.2	7.73	7.8	6890	5420	4109	3.7	3.6	75.02	163	57	1150	46	388	1	U	2034	775	1.6	0.08	
EP-128	11/7/02	6.76	0.3	7.67	7.5	6800	7480	4222	4.2	8.03	75.02	157	51	1078	48	354	1	U	2222	446	1.6	0.25	
EP-128	11/7/02		0.2	7.66	7.6	6790	7480	4304	4.2		74.84	155	55	1040	46	360	1	U	2346	583	1.6	0.23	
EP-129	5/1/01	19.41	1.3	7.09	7.9	3820	3100	2857	334	200	72.5	205	109	491	15	464	1	U	1359	521	0.66	1.3	
EP-129	7/24/01	19.23	1.3	7.09	7.9	3800	3670	2802	81	217	84.4	182	108	522	11	412	1	U	1358	362	1.4	0.66	
EP-129	11/2/01	19.08	1.4	7.16	8	3800	3590	2832	42	200	72.2	190	114	515	10	390	1	U	1087	461	0.68	1.1	
EP-129	2/14/02	18.98	1.7	6.99	8.4	3740	3680	2798	18	15.8	68.56	181	110	629	11	346	2.4	U	1095	346	0.96	1.1	
EP-129	5/8/02	19.48	2	7.05	7.8	3720	4070	2698	83	163	71.96	178	107	521	10	413	1	U	1315	484	0.57	1.0	
EP-128	8/19/02	19.17	1.3	7.09	8.2	3710	4230	2700	83	87	70.52	176	105	510	8	415	1	U	1065	300	0.98	1.1	
EP-129	11/11/02	19.12																					
EP-13	8/7/97	59.64	5.56	7.35	7.7	12500	12410	11241	52		81.9	414	73	3087	110	429	1	U	5745	671	1.5	1.04	
EP-13	11/6/97	60.08	4.01	7.11	7.8	12210	14320	10653	14		72.3	371	70	3642	91	422	1	U	5541	724	1.4	1.05	
EP-13	2/17/98	60.03	0.18	6.95	7.7	11910	14100	10540	23		79.2	348	59	2692	103	417	1	U	5164	614	1.4	1.03	
EP-13	5/7/98	59.25	2.79	6.86	7.7	11440	10900	9354	3.1		84.2	363	70	2776	97	390	1	U	5368	750	1.5	0.2	
EP-13	8/5/98	59.45	2.1	6.98	7.1	11220	11320	9839	7.3		77.2	359	70	3468	83	415	1	U	5122	814	1.4	0.1	
EP-13	11/4/98	60.46	7.2	7.12	7.4	11420	12670	9602	147		79.7	359	65	2684	85	428	1	U	4881	512	1.4	0.1	
EP-13	2/8/99	60.15	5.6	7.16	7.6	11200	11070	9447	12		78.3	351	65	2640	80	454	1	U	4865	980	1.6	0.2	
EP-13	5/6/99	60.37	5.9	7.08	7.7	10640	11480	8889	6.8		78.1	309	61	2555	76	411	1	U	4552	844	1.5	1.19	
EP-13	8/3/99	59.88	2.6	7.19	7.5	11200	11300	9509	4.3		72.0	351	62	2040	77	407	1	U	4734	773	1.5	0.96	
EP-13	10/26/99	60.84	3.7	7.03	8	8960	8160	6935	3.9	4.02	72.1	265	42	1787	63	327	1	U	4100	4104	1.4	0.1	
EP-13	1/25/00	61.29	4.7	7.27	7.8	10170	9840	8099	12	8.3	79.5	256	47	1986	67	372	1	U	3407	760	1.5	0.6	
EP-13	4/26/00	60.96	3.1	7.23	7.8	9150	8430	7336	6.1	5.77	83.1	294	54	2108	64	290	1	U	4291	650	1.3	1.08	
EP-13	8/4/00	60.84	0.3	7.06	7.5	7580	8210	5755	8.3	5.45	75.4	193	36	1360	39	388	1	U	2878	617	1.3	0.1	
EP-13	11/2/00	61.43	1.8	7.1	7.7	9700	9980	7754	5.4	7	74.3	241	47	2292	61	367	1	U	4013	610	1.5	0.1	
EP-13	2/9/01	61.84	6.3	7.09	7.6	7390	6820	5303	11	9.47	80.5	363	93	744	49	246	1	U	2739	821	1	0.78	
EP-13	5/8/01	61.35	2.8	7.17	7.5	9520	5090	7638	3.2	6.02	87.6	255	67	1937	76	306	1	U	4122	856	1.3	1.02	
EP-13	7/18/01	61.27	2.8	7.05	7.7	10000	9760	8082	4.4	4.49	80.4	323	66	2093	70	323	1	U	4051	730	1.3	1.22	
EP-13	10/31/01	62.1	1.2	7.2	7.9	10420	10540	8654	8	4.35	76.8	379	67	2226	99	351	1	U	3849	600	1.5	1.17	
EP-13	2/7/02	62.61	1.9	7.42	8	8920	9820	7360	7.2	3.21	71.81	102	60	1813	75	310	1	U	2994	713	1.3	0.94	
EP-13	5/2/02	61.32	2.6	7.11	7.7	8800	8150	6978	4.8	5.5	79.2	316	70	1672	53	295	1	U	3156	717	1.2	1.02	
EP-13	8/7/02	61.54	1.3	7.23	7.9	10000	8620	8070	4	4.12	86.9	116	67	1890	62	370	1	U	4202	675	1.5	1.29	
EP-13	11/5/02	62.28	8.3	7.19	7.6	9460	9930	7324	1.1	6.47	81.32	294	63	1731	60	326	1	U	3750	828	1.4	1.18	
EP-130	6/8/01	67.21	1.6	6.48	7.3	11080	11980	9332	60	30.1	82.0	321	135	279	37	382	1	U	3203	1857	0.82	2.99	
EP-130	7/26/01	66.32	4.1	6.26	7.4	10110	10250	9072	213	491	82.0	754	343	1465	36	763	1	U	3980	1220	0.64	2.70	
EP-130	7/26/01		3.7	6.26	7	10450	10680	9086	175		77.2	751	226	1459	37	749	1	U	3142	1360	0.62	2.35	
EP-130	11/12/01	67.52	0.9	6.27	7.1	10690	11110	8549	156	66.8	76.7	701	315	1397	38	486	1	U	2690	1507	0.63	2.63	
EP-130	2/11/02	67.64	0.7	6.47	8.2	10800	10830	8645	40	20.8	78.8	745	377	1412	34	737	1	U	3162	1419	0.71	2.93	

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT ft	DO mg/l	pH	SC		TDS mg/l	TSS mg/l	Turb. NTU	Temp oF	DISSOLVED										F mg/l	N mg/l
					Lab	analyzer					Ca mg/l	Mg mg/l	Na mg/l	K mg/l	HCO ₃ mg/l	CO ₃ mg/l	SO ₄ mg/l	Cl mg/l				
EP-130	2/11/02		0.6	6.46	8.1	10990	8992	45		73.98	717	355	1446	32	732	1	U	1179	1402	0.7	300	
EP-130	5/2/02	66.26	0.5	6.41	7.4	10830	9014	57	13	81.65	789	364	1424	34	747	1	U	2005	1556	0.72	30	
EP-130	8/8/02	66.41	0.6	6.49	7.8	10566	8608	135	62	81.32	712	330	1342	31	749	1	U	2838	1171	0.72	320	
EP-130	11/11/02	67.79																				
EP-131	6/8/01	57.55	4.7	7.32	7.8	4750	3590	26	8.88	78.1	180	66	605	20	301	1	U	1888	612	2.3	9.7	
EP-131	7/6/01	56.11	3.1	7.02	7.8	4820	3348	132	110	77.9	165	54	790	23	410	1	U	1518	437	2.4	5.8	
EP-131	11/12/01	57.01	0.6	7.01	7.9	4540	3333	438	200	24.4	176	57	835	28	442	1	U	1341	329	2.5	9.4	
EP-131	11/12/01		0.6	7	7.6	4530	3155	559		24.4	171	56	819	35	444	1	U	1481	452	2.5	5.3	
EP-131	2/11/02	57.08	0.5	7.2	8.3	4550	3278	103	200	74.65	176	59	742	20	390	1	U	1361	465	2.5	21	
EP-131	5/2/02	56.07	0.3	7.14	7.9	4560	3359	35	10.5	77.35	181	59	795	22	308	1	U	1581	460	2.5	5.4	
EP-131	8/8/02	56.13	0.2	7.27	8	4620	3322	26	10.9	76.82	174	58	912	21	369	1	U	1174	472	2.4	6.9	
EP-131	11/11/02	57.2																				
EP-132	6/8/01	14.15	3.5	7.55	7.8	4160	3146	28	9.94	77.5	217	48	542	40	322	1	U	1488	449	3.4	9	
EP-132	6/8/01		2.9	7.45	7.8	4190	3146	35		80.8	221	51	547	42	318	1	U	1475	529	3.3	9.2	
EP-132	7/27/01	12.03	5.4	7.06	7.9	4000	2937	59	124	77.7	217	48	630	47	283	1	U	1469	398	4.1	13	
EP-132	11/13/01	13.26	1.3	7.03	8.2	4000	2901	135	179	26.4	224	48	612	55	339	1	U	1126	399	4.1	8.2	
EP-132	2/19/02	13.47	2.2	7.22	8.3	4060	3087	36	8.18	76.82	224	47	621	47	356	1	U	1141	381	3.3	12	
EP-132	5/9/02	12.01	5.1	7.3	7.9	4050	2982	31	7.19	77.72	224	52	638	47	369	1	U	924	262	4.8	12	
EP-132	8/13/02	12.34	2.1	7.32	7.9	4030	2901	27	9.52	84.02	217	47	672	45	325	1	U	1345	378	4.5	13	
EP-132	11/12/02	13.48	7.4	7.24	7.7	4010	2974	17	20.71	77.9	238	47	633	53	351	1	U	1407	362	4.5	13	
EP-133	12/18/02	8.83	1	7.03	7.7	4820	3360	25	56	21.5	311	60	875	52	467	2	U	1883	557	5.9	0.22	
EP-134	12/18/02	9.32	1.1	6.49	7.6	5100	3748	142	136	20.3	240	76	865	54	162	2	U	1913	369	5.9	0.1	
EP-135	12/17/02	12.15	3.4	6.5	7.5	8750	7212	142	95	27	637	70	1383	18	326	2	U	3646	1467	2.1	72	
EP-136	12/18/02	7.74	2.6	6.98	7.6	5560	1804	22	40	18.3	323	46	1057	99	616	2	U	2126	684	5.5	0.1	
EP-137	12/18/02	8.15	2.2	6.91	7.6	4560	3370	124	100	18.7	364	77	431	28	290	2	U	1406	377	1.7	11	
EP-14	11/5/97	55.8	0.4	6.91	7.5	4430	3686	3.6		76.8	364	92	623	51	332	1	U	1876	347	1.5	19	
EP-14	2/1/98	60.03	0.35	6.76	7.5	4520	3832	2.6		76.3	383	97	671	31	323	1	U	1707	356	1.5	17	
EP-14	5/7/98	58.58	1.6	6.86	7.4	4660	3784	11		80.2	388	97	730	03	425	1	U	1989	344	1.6	13	
EP-14	8/6/98	59.15	0.5	6.9	7.7	3590	2867	3.9		77.4	211	34	645	35	467	1	U	1326	222	2	4.1	
EP-14	11/4/98	59.81	1	6.92	7.2	4230	3253	32		79.3	248	62	640	46	432	1	U	1542	294	2	10	
EP-14	2/8/99	59.23	0.7	6.95	7.6	5070	4178	6.8	14	76.2	383	98	670	60	381	1	U	1537	307	2	18	
EP-14	5/6/99	58.79	6	6.85	7.4	4900	3919	5.6		78.1	319	51	710	35	443	1	U	1486	295	1.9	20	
EP-14	8/3/99	58.43	0.4	7.11	7.5	4300	3349	16	14	76.3	244	67	530	44	621	1	U	1229	358	1.7	21	
EP-14	10/28/99	59.61	0.2	6.87	8.1	4750	3667	4.2	3.08	77.2	315	86	688	55	394	1	U	1818	465	1.7	32	
EP-14	1/25/00	60.4	0.1	6.92	7.5	5130	4011	5.9	0.71	78.1	303	78	721	50	321	1	U	2150	338	1.6	23	
EP-14	4/26/00	59.9	0.4	6.9	7.6	5080	4008	1	0	78.4	349	91	704	49	276	1	U	2223	509	1.6	11	
EP-14	8/4/00	59.69	0.3	6.75	7.8	5030	3791	1.7	7.8	78.3	314	78	665	44	368	1	U	1767	457	1.5	16	
EP-14	8/4/00		0.3	6.76	7.6	5040	3915	2.2		77.9	309	75	614	42	370	1	U	2061	425	1.6	14	
EP-14	11/2/00	60.05	0.5	6.93	7.5	5040	3979	4	6.7	75.9	300	76	644	43	390	1	U	1800	413	1.6	16	
EP-14	2/9/01	60.66	0.2	6.94	7.8	5620	4537	1.8	2.65	77.5	224	50	1502	36	378	1	U	2680	475	1.5	25	
EP-14	5/8/01	59.99	0.7	6.91	7.6	5720	4666	2.6	5.22	77.9	387	99	797	57	377	1	U	2723	496	1.5	25	
EP-14	7/18/01	59.95	0.1	6.87	7.8	5510	4470	1.4	2.7	85.5	395	101	832	57	377	1	U	2680	486	1.5	26	
EP-14	10/31/01	60.55	0.1	6.91	8.3	5410	4334	2.5	5.65	25.6	421	107	805	64	405	1	U	2166	522	1.5	23	
EP-14	2/7/02	61.24	0.3	7.13	7.9	5150	4199	2.8	14.237	77	351	90	822	61	390	1	U	1960	365	1.5	21	
EP-14	5/2/02	59.77	0.2	6.88	7.6	5080	3884	3.7	2.18	77.36	333	86	771	47	433	1	U	2092	489	1.3	23	

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT lb	DO mg/l	PH		SC		TDS mg/l	TSS mg/l	Turb NTU	Temp oF	DISSOLVED					CO3 mg/l	SO4 mg/l	Cl mg/l	F mg/l	N mg/l
				test	lab	unithem	lab					C4 mg/l	NH mg/l	Na mg/l	K mg/l	HCO3 mg/l					
EP-14	5/2/02		0.2	6.89	7.8	5100	3450	3948	3		77.36	340	91	744	46	1798	521	1.6	24		
EP-14	8/7/02	59.97	0.1	7.07	7.9	4990	4780	3767	3.4	6.5	78.44	314	82	762	46	1798	521	1.6	24		
EP-14	11/2/02	60.56	0.5	6.96	7.5	4950	5390	3718	1.3	1.96	77.36	304	80	720	55	1757	511	1.6	21		
EP-15	8/7/01	58.64	2.84	7.2	7.8	3150	2310	2253	220		75.7	135	44	595	3	889	115	0.91	21		
EP-15	11/6/07	58.55	2.37	7.3	7.9	3060	3180	2189	165		73.6	122	42	526	10	974	131	0.84	12		
EP-15	2/17/08	58.61	2.45	7.12	7.7	3100	3960	2299	85		72.1	122	43	551	11	885	120	0.84	17		
EP-15	5/7/08	58.22	2.47	7.35	7.8	2960	3120	2018	124		76.3	110	39	518	17	875	111	0.91	18		
EP-15	8/10/08	58.56	1.77	7.34	7.9	2810	2750	1987	282		72.0	99	34	535	84	713	373	0.94	13		
EP-15	11/5/08	59.2	1.5	7.21	7.6	3090	3040	2150	110		74.5	121	41	510	11	869	308	0.93	18		
EP-15	2/8/09	59.04	2.5	7.27	7.8	3620	3560	2579	94	14	74.5	166	59	520	13	958	367	0.68	18		
EP-15	2/8/09	59.66	2.3	7.27	8	3600	3560	2593	117	14	78.3	161	58	520	13	967	372	0.85	17		
EP-15	5/5/09	58.42	7.3	7.12	7.7	4170	8580	3083	75		75.7	197	77	710	11	1212	31	0.8	21		
EP-15	8/3/09	58.24	2	7.19	7.5	4660	4500	3400	83	14	75.7	217	76	600	12	1233	451	0.73	22		
EP-15	8/3/09		2	7.19	7.6	4660	4520	3418	49	14	75.2	220	78	600	12	1161	312	0.74	30		
EP-15	10/28/09	59.33	1.3	6.85	8.1	4600	3960	3250	60	14	73.9	230	81	671	13	1506	509	0.71	20		
EP-15	11/24/00	56.74	1.6	7.14	7.8	4560	4470	2916	176	111	76.8	223	76	766	13	1509	387	0.71	26		
EP-15	4/26/00	59.66	2.1	7.08	7.7	4560	4540	3142	135	17	77.4	209	73	671	11	1763	514	0.75	21		
EP-15	8/2/00	59.25	1.2	7.01	8	4890	4670	3177	110	18	71.6	190	65	735	11	1546	479	0.81	27		
EP-15	11/22/00	59.63	1.1	7.11	7.7	4460	4950	3151	61	58	73.4	195	68	762	92	1323	373	0.87	38		
EP-15	11/22/00		1.1	7.1	7.6	4460	4940	3142	59		74.8	182	66	680	88	1354	377	0.85	41		
EP-15	2/12/01	59.98	1.3	7.15	8	4520	4320	3184	91	20	76.6	184	67	712	10	1373	424	0.87	31		
EP-15	5/6/01	59.74	2.2	7.13	7.8	4500	4480	3161	106	45	75.2	206	72	819	13	1583	407	0.96	26		
EP-15	7/19/01	59.84	2.6	7.07	7.8	4320	4380	3184	65	28	73.0	190	69	791	12	1376	418	0.94	38		
EP-15	11/1/01	60.1	2.6	7.2	8.1	4450	4690	3274	206	14	73.8	202	76	765	14	1376	418	0.94	38		
EP-15	11/1/01		2.4	7.19	7.9	4430	4610	3297	84	34	73.8	204	77	794	14	1206	512	1	19		
EP-15	2/8/02	60.36	1.5	7.31	8.1	4350	4610	3191	296	17	71.4	195	67	702	12	1551	411	1.1	22		
EP-15	5/1/02	59.55	1.5	7.15	8.1	4320	4560	3199	263	29	75.74	180	68	753	12	1506	444	1.1	23		
EP-15	8/7/02	59.78	1.2	7.32	8.2	4220	4090	3042	47	25	76.64	165	63	783	11	1401	353	1.2	14		
EP-15	11/11/02	60.12																			
EP-20	8/7/07	13.61	1.98	6.72	7.4	11160	11270	10541	161		74.3	584	323	2070	71	4582	317	2.1	235		
EP-20	11/7/07	17.06	2.56	7.05	7.3	10760	12760	10175	78		71.1	530	310	2253	86	4608	780	2.4	107		
EP-20	2/8/08	16.98	3.36	7.06	7.4	10800	13110	9914	74		73.0	530	320	1919	63	5063	890	1.9	201		
EP-20	5/6/08	14.35	3.49	7.22	7.5	10510	16580	9230	50		71.4	530	315	2289	63	4635	730	2	183		
EP-20	8/5/08	13.22	2.39	6.88	7.6	10210	10440	9359	129		71.4	520	295	1664	57	4783	765	2	163		
EP-20	11/4/08	14.34	1.6	6.92	7.1	10370	10110	8932	90		76.2	493	374	1816	57	4176	719	2.3	148		
EP-20	2/4/09	13.25	2.1	6.96	7.4	9910	10010	8707	45	14	68.8	447	360	159	76	3750	921	2.1	167		
EP-20	5/4/09	14.01	2.3	6.95	7.4	10320	10220	9135	53	14	71.8	474	362	3014	56	4861	773	2.1	172		
EP-20	8/2/09	13.01	1.6	6.89	7.2	9910	10290	8709	35	22	72.3	504	387	1600	53	4635	754	2.1	143		
EP-20	10/26/09	14.86	2.2	6.73	7.2	9800	9770	8197	106	14	68.2	483	266	1596	48	4216	686	2.2	143		
EP-20	1/31/00	13.16	2.1	6.86	7.3	9310	9120	8062	104	14	69.8	456	355	1717	48	4260	900	1.9	84		
EP-20	1/31/00		1.1	6.8	7.3	9300	9050	7844	50	14	71.4	481	368	1769	48	4288	689	1.8	84		
EP-20	5/4/00	14.54	2.5	6.99	7.8	9260	9170	7998	17	14	71.6	457	362	1351	44	4516	526	1.8	82		
EP-20	5/4/00		2.3	6.99	7.9	9260	9130	8012	32	14	73.0	454	354	1352	46	4405	583	2	91		
EP-20	8/2/00	13.9	2.1	6.95	7.7	9570	9540	8056	42	14	74.8	421	323	1490	40	4600	715	2.0	16		

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT	DO	PH	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HC(O)	CO3	SO4	Cl	F	N
		lb	mg/L	Field	unith/cm	mg/L	mg/L	NTU	°F	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EP-20	10/10/00	14.94	1.9	6.91	7.7	9260	8870	19.51	71.8	443	238	1454	46	349	1	3870	471	19	100
EP-20	2/22/01	15	3.7	7.02	7.5	8370	8250	130	67.6	403	199	1188	43	318	1	3910	524	18	27
EP-20	5/16/01	14	3.7	6.99	7.3	8920	7890	52.5	67.5	401	233	1457	54	311	1	4517	612	21	118
EP-20	5/16/01		3.7	6.98	7.4	8870	7760		72.7	479	244	1543	59	379	1	4454	705	19	150
EP-20	7/17/01	13.31	2.6	7.09	7.2	9190	8800	151	72.0	462	210	1606	51	268	1	4218	675	26	118
EP-20	7/17/01		2.9	7.12	7.3	9160	8810		72.0	455	235	1646	54	318	1	3994	656	33	122
EP-20	10/29/01	14.7	2.8	7.02	7.6	8400	8150	92	72	481	231	1426	50	315	1	3688	639	21	124
EP-20	2/5/02	15.74	2.9	6.83	7.7	7940	7600	72	71.78	463	199	1279	55	343	1	3355	523	2	83
EP-20	2/5/02		2.2	6.87	8.1	7980	7590		70.16	460	209	1288	56	329	1	3330	595	19	86
EP-20	4/29/02	13.73	1.5	6.78	7.5	7990	7470	65	71.42	438	189	1177	57	322	1	3381	515	232	75
EP-20	4/29/02		1.7	6.89	7.8	7730	7270		73.4	442	195	1212	60	330	1	383	545	233	50
EP-20	8/5/02	12.64	1.6	7.36	7.5	8540	8670	55	75.02	437	200	1476	46	310	1	3528	569	23	73
EP-20	11/4/02	14.93	3.6	7.23	7.5	7680	8200	67.4	71.56	459	191	1195	52	321	1	3159	507.4	21	71
EP-20	11/4/02		3.6	7.22	7.6	7640	8210		70.88	455	186	1185	53	321	1	3682	494	21	72
EP-21	11/18/97	28.35		7.8	8	6260	3282		71.2	85	101	1052	450	1510	1	1258	825	34	0.05
EP-21	2/18/98	26.3	0.65	7.3	8	5940	8090		77.7	65	51	1108	460	1915	1	511	697	48	0.05
EP-21	5/21/98	27.8	0.41	7.26	7.8	5740	1096		82.8	56	44	959	416	2001	1	372	695	57	0.1
EP-21	8/24/98	29.65	0.31	7.41	8	5680	5670		77.0	52	46	1033	46	2004	1	321	653	23	0.05
EP-21	1/16/98	30.42	0.2	7.57	8	5690	5610		72.7	60	46	1372	450	2084	1	404	673	53	0.05
EP-21	2/24/99	28.68	0.4	7.56	8.1	5670	5710		80.2	44	40	919	347	2112	1	405	670	6	0.37
EP-21	8/10/99	27.67	0.8	7.66	8	5140	5160		75.0	32	39	805	282	2111	1	88	606	63	0.35
EP-21	1/16/99	25.11	1.3	7.28	7.9	5240	5760		77.0	35	10	768	294	1940	1	114	589	68	0.13
EP-21	2/10/00	25.28	0.7	7.34	8.1	4880	1101		83.2	25	36	714	322	2135	1	104	618	11	0.6
EP-21	5/8/00	25.95	0.2	7.18	8.1	4960	4890		76.8	27	34	942	301	1915	1	191	663	72	0.36
EP-21	8/16/00	23.87	1.4	7.4	8	4920	4860		77.0	22	26	684	245	1826	1	1020	114	628	0.9
EP-21	8/16/00		0.1	7.15	8	4910	4880		68.2	28	30	696	238	1871	1	1095	114	624	7
EP-21	11/14/00	26.62	4	7.22	7.8	5200	5160		68.0	36	31	714	195	1696	1	180	727	55	0.3
EP-21	11/14/00		3.8	7.23	7.8	5200	5170		65.7	40	32	711	183	1745	1	198	745	55	0.17
EP-21	2/26/01	28.9	3	7.39	7.7	5080	4950		65.5	34	32	719	248	1818	1	231	665	51	0.39
EP-21	2/26/01		2.9	7.4	7.7	5020	4950		80.1	33	32	756	248	1823	1	269	759	51	0.5
EP-21	5/16/01	31.02	0.7	7.42	7.8	4740	4610		77.7	19	27	711	285	2040	1	138	782	7	0.3
EP-21	7/23/01	32.69	1.8	7.06	8	4860	4520		80.2	58	42	848	185	1866	1	111	999	51	0.15
EP-21	11/15/01	34.65	0.1	7.11	7.9	4890	0		22.3	35	31	771	266	1854	1	67	740	6	0.27
EP-21	2/21/02	36.77	0.3	7.28	7.9	5450	5180		74.12	45	38	830	257	1980	1	260	734	11	0.2
EP-21	5/14/02	35.28	0.7	7.64	8.1	5200	5560		78.36	36	36	811	290	1952	1	159	785	48	0.53
EP-21	8/21/02	36.29	0.8	7.48	7.4	5010	4910		81.86	36	34	744	220	1830	1	77	677	56	0.05
EP-21	11/25/02	38.41	2	7.24	7.6	5290	4690		63.72	61	45	842	189	2390	1	179	823	45	0.1
EP-22	8/15/97	37.35	2.92	7.46	7.9	8340	8310		73.8	106	91	1108	183	1115	1	1866	711	51	100
EP-22	11/18/97	35.8	1.01	7.16	7.4	9980	12900		64.9	330	164	1942	116	399	1	1341	1188	42	0.58
EP-22	2/18/98	35.1	3.75	7.49	7.6	9900	6217		74.5	233	155	1604	281	885	1	226	901	45	294
EP-22	6/10/98	36.04	2.26	7.63	7.7	9520	5560		83.8	289	148	1477	245	2681	1	234	971	52	210
EP-22	8/24/98	38.77	0.17	7.36	7.8	6840	6850		74.7	101	81	1226	104	1161	1	1271	691	39	29
EP-22	11/16/98	38.92	0.9	7.51	8	7480	7480		74.1	54	78	1292	126	1742	1	1407	777	52	13
EP-22	1/26/00	52.65	2.8	7.10	7.9	7500	6920		77.0	48	161	1252	113	476	1	3040	499	22	11

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT	DO	PH	SC	TDS	TSS	Turb.	Temp of	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		ft	mg/L	pH	unfiltered Lab	unfiltered Field	mg/L	NTU		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EP-22	4/28/00	53.15	0.8	7.1	8	7660	7001	15.91	84.0	161	157	1398	95	557	1	0	3799	0.49	2.4
EP-22	8/7/00	53.37	0.9	7.12	8.2	8940	7188	25.5	77.9	377	167	1400	88	569	1	0	3741	0.60	2.0
EP-22	11/2/00	53.04	2.1	7.12	7.7	10830	7223	3.9	75.2	441	198	1612	106	609	1	0	4130	5.14	2.5
EP-22	2/14/01	53.31	2.4	7.07	7.7	9670	8216	4.3	79.5	112	201	1594	107	547	1	0	4082	5.14	2.4
EP-22	5/6/01	53.85	0.8	7.07	7.6	10370	9125	4	82.3	488	250	1843	147	586	1	0	5250	0.10	2.3
EP-22	7/19/01	54.43	2	6.94	7.5	11050	9683	41	79.2	504	262	1981	143	911	1	0	5315	990	2.5
EP-22	11/2/01	54.97	1.7	6.95	7.8	11240	9959	31.6	73.8	364	295	2117	161	700	1	0	4759	641	2.4
EP-22	2/12/02	55.11	1.5	6.93	7.8	10640	9706	15.4	80.42	480	358	2014	151	605	1	0	5620	501	2.4
EP-22	5/7/02	55.27	2.7	6.83	7.8	10480	9388	12.6	80.42	472	241	1869	182	620	1	0	5487	311	2.4
EP-22	8/6/02	55.6	3	7.01	8.2	10590	9376	18.3	82.94	460	229	1906	148	665	1	0	5204	430	2.5
EP-22	11/6/02	55.15	1.9	7.01	7.7	10460	9093	17.6	73.64	473	231	1924	166	634	1	0	4949	589	2.5
EP-23	8/11/97	29.67	1.17	7.16	7.5	6700	5038	124	75.5	215	115	900	80	359	1	0	2219	444	3.1
EP-23	11/4/97	25.1	0.73	7.51	7.7	6130	4039	61	73.4	181	96	876	76	322	1	0	2236	541	3.2
EP-23	2/4/98	23.73	1.45	7.42	7.7	6190	4183	45	76.1	195	90	854	76	307	1	0	2354	473	3.2
EP-23	5/11/98	24.37	0.88	7.13	7.6	5900	3492	99	75.7	121	71	821	70	401	1	0	1962	420	3.3
EP-23	8/12/98	27.38	0.95	7.47	7.7	5620	3433	204	72.7	106	89	874	62	436	1	0	1799	429	3.2
EP-23	11/5/98	26.4	0.5	7.5	7.5	5790	3517	176	73.4	115	64	859	52	414	1	0	1925	484	2.9
EP-23	2/11/99	25.6	0.5	7.8	7.8	5470	3346	150	73.4	152	80	610	65	443	1	0	1144	462	3.2
EP-23	5/7/99	23.42	0.9	7.41	7.8	4310	2374	87	78.3	74	44	580	57	676	1	0	801	310	3.5
EP-23	5/14/99	23.82	1.9	7.29	7.8	4190	2388	47	76.3	69	49	599	97	717	1	0	1403	340	3
EP-23	8/4/99	22.12	0.7	7.49	7.8	3750	2130	23	71.8	49	31	618	37	766	1	0	838	357	4.3
EP-23	10/6/99	20.61	0.7	7.35	7.9	3340	1706	18	66.0	37	23	491	32	938	1	0	540	267	4.6
EP-23	2/1/00	21.68	1	7.49	7.8	4770	2695	20	75.6	106	56	654	52	499	1	0	1286	383	4.9
EP-23	5/10/00	21.26	1.1	7.51	7.6	5210	3198	24	72.2	117	63	580	50	477	1	0	1629	488	4.9
EP-23	8/15/00	22.59	2.9	7.61	7.9	4870	2867	34	72.5	94	52	627	45	549	1	0	1423	485	5.1
EP-23	11/13/00	23.39	1.8	7.61	7.9	5200	2740	14	76.5	84	49	617	45	622	1	0	1286	398	3
EP-23	2/1/01	26.15	2	7.78	8	5020	2964	55	74.7	68	41	649	39	909	1	0	2788	481	3
EP-23	5/10/01	28.55	3.8	7.5	7.9	5320	3238	280	74.8	114	69	661	51	537	1	0	1706	385	3.8
EP-23	7/20/01	30.37	0	7.18	7.9	5580	3411	58	78.8	132	77	709	59	411	1	0	2149	552	2.6
EP-23	11/14/01	31.55	1.5	7.27	7.9	5440	3333	49	73.1	115	75	730	55	418	1	0	1465	488	4.9
EP-23	2/21/02	33.06	1.3	7.44	7.9	5300	3214	47	71.24	107	69	706	36	498	1	0	1626	468	2.9
EP-23	5/10/02	33.52	2.3	7.15	7.8	4850	2839	26	71.65	103	67	623	54	525	1	0	1233	471	2.7
EP-23	8/14/02	34.49	0.8	7.23	7.7	4760	2773	44	84.2	94	62	570	44	542	1	0	1561	472	2.6
EP-23	11/12/02	34.56	1.9	7.18	7.7	4890	2841	24	66.74	92	65	523	47	476	1	0	1605	487	2.8
EP-24	8/15/97	32.55	1.13	6.7	8	5150	3451	17	33.0	174	55	910	35	976	1	0	765	311	1.9
EP-24	11/18/97	26.64	0.8	7.7	8.0	4660	3451	8	71.6	70	56	1036	35	1037	1	0	1338	1003	2.1
EP-24	2/18/98	21.7	1.26	6.74	8.1	5110	3259	16	79.0	213	47	1033	39	1200	1	0	303	1027	2.6
EP-24	5/21/98	34.56	0.8	6.95	7.5	5380	3208	43	81.7	106	59	900	31	1115	1	0	477	1023	2.5
EP-24	8/24/98	35.73	0.5	6.79	7.3	5200	3172	17	74.5	180	55	1064	28	1288	1	0	251	970	2.5
EP-24	11/16/98	36.3	0.6	6.93	7.8	5300	3328	12	32.0	179	53	1011	29	1305	1	0	208	1003	2.4
EP-24	2/11/99	34.09	0.5	7.7	7.8	5890	3336	70	32.0	206	80	920	35	1576	1	0	206	1021	2.5
EP-24	5/14/99	34.04	0.5	7.4	8.1	6410	337	31	81.3	213	92	1000	30	1042	1	0	112	1195	2.2
EP-24	8/10/99	32.92	0.6	7.05	7.8	5680	3338	23	74.5	213	55	804	30	1376	1	0	273	1044	2.4
EP-24	11/3/99	32.01	1	6.96	7.7	5200	3092	34	70.7	174	42	853	28	1425	1	0	285	1066	2.5

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT ft	DO mg/l	pH	SC		TDS mg/l	TSS mg/l	Turb. NTU	Temp °F	DISSOLVED					HCO ₃ mg/l	CO ₃ mg/l	SO ₄ mg/l	Cl mg/l	F mg/l	N mg/l	
					Lab	Field					Ca mg/l	Mg mg/l	Na mg/l	K mg/l								
EP-24	2/10/00	31.76	0.3	6.93	7.5	5120	2742	26	14.2	77.9	155	40	940	29	1361	1	111	1773	21	2.6	0.16	0.11
EP-24	5/8/00	35.09	0.9	7.06	7.6	5040	4990	3025	13	76.1	150	45	1062	27	1161	1	160	1186	24	1.0	0.11	
EP-24	8/16/00	34.86	1	7	7.9	5860	3502	15	8.46	71.8	144	74	978	23	1118	1	1100	1328	21	3	0.11	
EP-24	11/14/00	33.95	1.6	7.05	7.7	5300	3412	14	6.8	73.5	138	44	843	20	1122	1	536	1038	23	2.3	0.1	
EP-24	2/26/01	36.25	8	7.04	7.9	4100	2740	42	12	83.7	100	29	756	21	1440	1	268	906	21	2.9	0.26	
EP-24	5/16/01	37.01	0.6	7.16	7.5	4300	2760	23	12.1	79.1	101	30	776	25	1386	1	204	1003	26	3.59	0.32	
EP-24	7/20/01	37.24	1.6	6.87	7.6	4420	2699	13	9	77.4	112	24	807	26	1666	1	239	998	28	2.5	0.21	
EP-24	11/15/01	37.57	-1.1	6.97	8.3	4220	2592	24	6.3	21.8	163	32	830	29	1320	1	115	877	29	2.9	0.48	
EP-24	2/21/02	38.35	1.4	7.26	7.8	3650	2427	88	34	70.52	81	26	763	22	1446	1	106	991	21	3.1	0.11	
EP-24	5/10/02	39.35	4.6	7.06	7.8	3100	1950	37	23.61	75.3	75	24	653	21	1235	1	14	493	31	1.11	0.11	
EP-24	8/14/02	39.48	0.7	7.13	7.7	3280	2002	7.6	20.2	84.64	67	22	541	16	1169	1	85	537	31	3.1	0.09	
EP-24	11/12/02	39.31	5.3	7.13	7.7	3120	2109	1837	20	87.64	63	19	480	15	1138	1	87	475	31	0.1	0.1	
EP-25	4/15/97	47.16	1.32	7.13	7.4	5800	3095	84	200	32.0	111	40	1010	72	1208	1	692	1123	19	3.84		
EP-25	11/19/97	46.19			7.8	5470	3213	43		32.0	74	33	1136	59	1556	1	364	963	17	9.05	0.1	
EP-25	2/18/98	46.51			7.6	5420	3218	500	200	32.0	78	39	1242	51	1588	1	147	937	16	6.03	0.1	
EP-25	5/21/98	47.88			7.5	5760	3194			32.0	135	24	1098	166	1281	1	572	971	9	9.1	0.1	
EP-25	8/24/98				7.2	5420	3562	3199		32.0	114	48	1084	76	1354	1	512	853	14	6.05	0.1	
EP-25	11/16/98	48.88			7.5	5470	3422	166		32.0	111	35	1134	120	1440	1	515	852	19	9.06		
EP-25	5/14/99	46.79					6245	12081	200	32.0	675	50	700	738	771	1	2036	865	3	6.67		
EP-25	8/11/99	48.45			7.1	7210	3465	378		72.3	584	68	706	755	677	1	1860	955	10	1.9	0.1	
EP-25	11/7/99	47.48	3.3	6.87	7.3	6580	4373	46	200	73.0	202	32	757	290	1080	1	1507	893	14	1.9	0.12	
EP-25	2/8/00	48.11	2.3	6.82	7.5	5540	3270	126	200	73.0	198	31	757	282	1599	1	154	883	11	2.1	0.12	
EP-25	5/8/00	49.06	0.3	7.03	7.6	6060	3706	855	200	79.5	137	30	1079	214	1586	1	198	775	22	3.11	0.17	
EP-25	8/16/00	49.42	0.1	7.02	7.7	5840	3490	3441	200	69.6	104	26	855	191	1818	1	350	969	22	1.11	0.17	
EP-25	11/14/00	49.3	1.2	7.04	7.5	6020	3456	146	200	71.4	96	25	899	172	1743	1	221	1100	18	1.5	0.21	
EP-25	2/26/01	50.2	2.3	7.3	7.7	5680	3395	727	200	80.2	80	32	895	154	1793	1	144	961	19	1.9	0.13	
EP-25	5/16/01	50.9	2.5	7.11	7.6	5620	3315	164	200	80.4	81	23	919	168	1852	1	182	102	19	0.53		
EP-25	7/30/01	51.82	1	6.84	7.7	5590	3243	170	86.4	73.9	88	26	1015	170	1818	1	135	741	15	0.23		
EP-25	11/15/01	52.78	0	0	7.8	5580	3322	242	0	0	86	27	1042	147	1928	1	38	911	2	0.23		
EP-25	2/21/02	54.13			7.7	5540	3382	789	0		74	25	976	163	1976	1	54	929	19	0.1		
EP-25	5/14/02	54.75			8	5490	3186	896			83	27	1003	147	1864	1	32	947	21	1.5		
EP-25	8/7/02	53.6			7.4	5320	3045	557			78	27	883	111	1769	1	51	909	19	0.05	0.1	
EP-25	11/25/02	57.3			7.2	5390	3021	1868			116	41	928	120	1662	1	238	986	17	6.1		
EP-26	8/1/97	48.8	5.26	7.69	7.2	541	395	163		77.9	21	17	88	69	45	1	157	43	0.86	2.3		
EP-26	11/4/97	56.7	5.05	7.15	7.3	1700	1191	99		71.2	62	13	244	20	44	1	301	103	14	3.9		
EP-26	2/4/98	50.44	5.14	7.38	7.4	202	145	100		73.9	91	2	26	13	26	1	46	12	0.78	1.4		
EP-26	5/7/98	48.86	6.3	7.64	7	141	102	70		72.9	9.9	1.5	14	15	21	1	26	53	0.58	1.8		
EP-26	8/1/98	49.5	5.99	7.21	7.4	181	100	85		71.8	11	21	18	5	44	1	35	10	0.56	1.4		
EP-26	11/4/98	48.05	5.7	7.99	6.4	412	282	146		73.4	21	31	44	7.3	24	1	104	19	0.77	3.8		
EP-26	2/4/99	48.13	5.9	7.26	7.4	133	76	51	200	82.2	8.1	11	11	5	20	1	29	75	0.56	1.4		
EP-26	5/5/99	57.15	2.1	7.02	7.3	362	244	244		73.9	20	41	25	5	41	1	89	18	0.5	3		
EP-26	8/4/99	56.5	1.4	7.07	7.4	2000	1466	28	9.7	76.5	176	24	204	21	56	1	718	147	0.86	1.4		
EP-26	1/26/00	60.86	0.5	7.16	7.5	4440	3169	450	200	76.5	231	71	753	42	322	1	1537	451	1.9	1.9		

Appendix C
Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HC03	CO3	SO4	Cl	F	N
		g	mg/l		unbalanced	mg/l	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-26	4/28/00	60.12	0.3	7.04	4540	3393	44	31.4	79.0	170	54	740	50	327	1	1638	436	2	20
EP-26	8/7/00	60.1	0.6	7.07	4500	3348	28	16	74.8	175	51	700	54	305	1	1517	437	3	38
EP-26	11/7/00	61.09	0.4	7.03	4540	3341	40	16	72.0	196	58	703	53	320	1	1466	410	1.9	13
EP-26	2/2/01	61.2	0.4	7.07	4740	3520	18	15	75.8	200	63	755	43	295	1	1913	497	1.8	16
EP-26	5/10/01	60.51	0.5	7.03	4900	3712	23	15.5	76.8	229	74	732	63	298	1	1834	531	1.8	28
EP-26	5/10/01		0.5	7.03	4880	3754	21	15.4	77.5	225	73	734	58	300	1	1782	555	1.8	30
EP-26	7/26/01	60.28	1.4	6.91	5090	3760	51	18.4	73.8	218	71	894	72	299	1	1740	568	1.8	35
EP-26	11/12/01	61.4	0.2	6.84	4860	3667	27	17.4	74.3	224	71	836	57	270	1	1741	599	1.9	38
EP-26	2/13/02	61.51	0.4	7.06	4860	3663	9.6	4.55	74.3	216	70	841	51	305	1	1636	504	1.7	17
EP-26	2/13/02		0.4	7.05	4850	3669	9.2		74.66	218	69	924	52	360	1	1671	447	1.9	18
EP-26	5/9/02	60.18	0.4	7.14	4800	3653	23	7.36	77.72	220	71	817	63	315	1	1699	522	1.9	33
EP-26	8/12/02	50.42	0.6	7.07	5060	3762	4.2	4.3	78.08	209	66	818	59	314	1	1981	557	1.8	33
EP-26	11/6/02	61.57	0.3	7.21	4900	3637	16	17.2	76.82	215	67	781	57	301	1	1802	509	1.9	21
EP-29	8/7/97	13.35	2.77	7.41	81090	2083	1.1		76.3	76	27	567	24	381	1	742	289	3	76
EP-29	11/5/97	16.92	0.52	7.09	2860	2098	56		73.4	50	18	576	24	385	1	706	305	3	63
EP-29	2/2/98	16.95	0.68	7.47	3100	2073	13		72.0	52	20	677	27	285	1	973	317	2.1	81
EP-29	5/6/98	13.8	4.14	7.59	3180	2159	23		71.4	69	28	654	21	417	1	793	315	2.6	75
EP-29	8/6/98	13.35	5.07	8.68	3070	2129	23		70.3	39	31	681	16	177	0	939	329	2.9	14
EP-29	11/4/98	15.21	5.2	8.42	3350	2183	39		70.9	40	23	546	22	217	10	981	372	2.8	9.9
EP-29	2/2/99	13.7	4.1	8.06	3110	2121	211		72.0	49	23	663	23	337	1	743	307	2.9	8.7
EP-29	5/4/99	13.74	2.3	7.68	3160	2079	170		72.0	49	23	732	16	317	1	1049	326	3	14.4
EP-29	5/6/99		2.3	7.69	3140	1771	280		73.6	49	23	714	15	294	1	812	311	2.8	4.5
EP-29	8/2/99	13.19	3.5	7.39	3180	2143	1160	200	76.1	57	23	503	18	464	1	741	302	3.1	1.1
EP-29	10/26/99	14.64	2.4	7.42	3160	2052	572		70.2	76	33	597	23	364	114	829	311	3.1	3.8
EP-29	1/31/00	14.95	1.6	7.62	3190	2053	542	200	72.5	66	21	686	18	292	1	897	344	3	4.3
EP-29	5/4/00	14.14	2.7	7.71	3150	2095	5093	200	75.2	159	33	550	10	1186	1	876	292	3.9	10.7
EP-29	8/20/00	13.7	2.7	7.64	3180	2115	905	200	76.3	65	19	600	19	445	1	893	310	3.1	3.9
EP-29	10/20/00	15.04	4.1	7.58	3250	2190	754	200	73.2	51	18	566	16	343	1	912	303	3.2	5.6
EP-29	2/27/01	14.65	3.3	7.84	3250	2211	2144	200	73.0	87	26	615	24	598	1	956	306	2.8	7.2
EP-29	5/16/01	13.55	4.9	7.85	3160	2223	188	200	75.0	49	20	618	20	293	1	1044	301	2.9	8.2
EP-29	7/17/01	13.69	1.7	7.77	3170	2185	1144	0	68.7	47	30	680	16	439	1	960	304	2.5	7
EP-29	10/23/01	15.27	2.3	7.73	3110	2266	520	86	74.8	55	21	667	21	338	1	971	313	3	8.1
EP-29	2/5/02	15.99	2.7	7.88	3480	2359	2217	200	71.96	57	25	722	19	498	1	899	403	2.9	7.8
EP-29	4/29/02	13.72	3	7.77	3470	2290	2848	200	72.32	57	23	653	19	781	1	993	354	2.9	6.1
EP-29	8/5/02	13.45	1.6	8.22	3560	2376	664	200	76.46	57	23	722	15	345	1	1015	311	3	6.1
EP-29	11/4/02	13.45	2.9	7.92	3540	2143	806	200	73.94	61	21	600	19	447	1	1002	344	3	2.7
EP-35	8/7/97	13.43	5.98	7.55	6530	5678	4.8		72.5	195	176	1134	26	239	1	2558	575	0.93	0.7
EP-35	11/3/97	17.28	1.73	6.92	7530	5731	73		70.0	408	165	1116	14	491	1	2558	575	0.93	0.7
EP-35	2/1/98	17.48	2.11	6.99	6760	5859	14		72.0	440	170	1108	14	490	1	2684	545	0.98	0.8
EP-35	5/6/98	14.48	2.47	7.15	6510	5225	928		71.8	146	152	1102	22	600	1	2387	532	1.1	0.7
EP-35	8/6/98	17.48	1.89	6.91	6300	5359	212		74.3	163	154	1154	29	483	1	2426	553	1.1	0.7
EP-35	11/4/98	15.35	1.9	7.11	6220	5032	307		68.5	374	125	986	21	498	1	2357	539	1	38
EP-35	2/4/99	13.9	3.8	7.03	6410	5282	53		71.4	402	145	1039	22	539	1	2158	455	1	66
EP-35	5/4/99	13.9	1.9	6.98	6810	5702	266		74.1	426	160	1119	18	567	1	2822	561	1.1	82

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT ft	DO mg/l	pH		SC		TDS mg/l	TSS mg/l	Turb NTU	Temp °F	DISSOLVED					HCO3 mg/l	CO3 mg/l	NO3 mg/l	Cl mg/l	F mg/l	N mg/l	
				Field	Lab	analogous	unobscured					Ca mg/l	Mg mg/l	Na mg/l	K mg/l								
EP-35	8/2/99	12.9	2.9	6.92	7.1	6920	7000	6040	398	14	76.3	476	160	900	10	610	1	2520	1080	1			88
EP-35	10/26/99	15	1.7	6.71	7.8	6770	6740	5791	454	14	66.2	441	148	1018	18	610	1	3187	175	1		67	
EP-35	1/21/00	15.39	1.7	6.91	7.7	6660	6350	5452	322	200	69.6	502	160	1071	20	609	1	2414	460	1		39	
EP-35	5/4/00	14.66	2.2	7.01	7.4	6710	6680	5606	75	14	74.8	473	158	910	17	594	1	2715	551	0.99		59	
EP-35	8/2/00	14.91	2	6.98	7.8	6540	6490	5323	136	15.8	75.9	379	120	900	17	601	1	2796	497	0.98		59	
EP-35	10/10/00	15.19	3.0	6.99	7.8	6320	6140	5176	57	24.2	70.7	361	123	862	14	617	1	2525	440	1.1		45	
EP-35	2/22/01	15.3	4	7.07	7.4	6480	6170	5283	97	130	69.4	354	122	843	16	736	1	2565	523	1		43	
EP-35	5/16/01	14.35	5.6	7.14	7.5	6460	5830	5135	96	5.2	73.6	414	138	1033	19	606	1	2893	524	1		21	
EP-35	7/17/01	13.84	2	7.01	7.9	6330	6110	5219	191	66	84.2	394	136	1064	17	905	1	2642	465	0.98		36	
EP-35	10/29/01	15.58	2.3	7.1	7.8	6180	6460	5195	236	66	34.2	400	136	1041	20	527	1	2771	617	1.1		51	
EP-35	2/5/02	16.38	3.6	7.12	8.3	6400	6320	5143	750	200	70.88	381	147	981	10	500	1	2171	689	1.1		44	
EP-35	4/29/02	14.22	5	6.99	7.6	6460	6020	5192	187	83	69.92	397	137	1024	19	924	1	2865	455	1		28	
EP-35	8/5/02	13.29	2.4	7.55	7.7	6370	6320	5088	31	12.6	76.82	382	135	1017	15	589	1	2408	359	1.1		32	
EP-35	11/6/02	15.66	2.8	7.19	7.6	6170	5890	4614	109	59.7	72.4	403	140	1090	19	639	1	2940	331	1.2		31	
EP-4	8/6/97	5.28	1.51	7.06	7.7	2350	2210	1557	14		68.4	115	36	356	17	388	1	454	350	1.2		0.05	
EP-4	11/6/97	6.32	1	7.16	7.8	1656	1906	1102	22		58.8	56	15	251	12	446	1	287	196	1.4		0.05	
EP-4	2/4/98	5	1.91	7.58	8	1585	1076	1076	54		32.0	74	30	257	20	300	1	346	140	1.1		0.05	
EP-4	5/9/98	5.75	3.2	7.95	7.9	1811	1670	1211	58		76.9	99	37	290	21	326	1	277	215	0.97		0.05	
EP-4	8/5/98	5.21	1.34	7.36	7.8	1970	2190	1315	29		63.7	105	37	303	13	331	1	437	242	1		0.05	
EP-4	2/7/99	6.24	1.2	8.08	8.1	1965	1620	1295	3444		65.3	101	37	321	13	371	1	364	223	0.9		0.21	
EP-4	5/5/99	10.48	2.1	7.6	7.9	2170	2050	1413	666		78.4	113	31	382	14	438	1	418	260	0.88		0.1	
EP-4	8/2/99	6.99	1.3	7.61	7.8	2440	2460	1650	358		71.3	117	30	350	16	401	1	401	273	1.1		0.08	
EP-4	10/25/99	8.23		7.28	8.3	2660	2650	1767	257		59.7	179	36	390	20	338	1	402	272	1.1		0.11	
EP-4	1/29/00	8.27	1	7.64	8	2310	2290	1470	448		68.5	127	37	332	15	338	1	531	306	0.98		0.18	
EP-4	4/24/00	7.18	2.1	7.53	8	2200	2250	1531	290		79.3	107	30	307	14	592	1	615	258	0.98		0.11	
EP-4	8/1/00	7.18	1	7.24	8.2	2220	2220	1422	71		74.1	104	29	337	15	310	1	457	255	0.94		0.1	
EP-4	10/10/00	8.26	1.6	7.7	8.3	1552	1451	953	96		74.1	53	14	205	9.9	417	1	232	128	1.1		0.09	
EP-4	10/30/00		1.6	7.7	8.3	1949	1451	941	85		62.2	56	15	269	14	409	1	243	145	1.1		0.09	
EP-4	2/5/01	8.03	2.7	7.72	8	1597	1547	1018	94		63.3	92	35	215	10	287	1	347	151	0.72		0.1	
EP-4	5/4/01	7.57	3.6	7.48	8.6	1720	1944	1131	761		74.1	123	34	255	18	352	1	301	201	0.76		0.1	
EP-4	7/16/01	7.12	2.2	7.45	7.9	1868	1819	1245	294		73.8	116	31	243	14	305	1	377	248	0.68		0.05	
EP-4	10/29/01	8.15	1.8	7.77	8.2	2140	2190	1418	105		24.9	141	39	277	18	306	1	314	202	0.77		0.05	
EP-4	2/6/02	8.07	4.9	7.82	8.1	1610	1365	1062	302		59.9	86	24	233	13	354	1	312	186	0.72		0.1	
EP-4	4/29/02	7.05	2.1	7.79	8.2	1738	1510	1091	336		64.58	95	26	234	12	350	1	287	159	0.7		0.15	
EP-4	8/5/02	6.87	1.7	7.63	7.9	1957	1911	1266	50		75.46	105	28	301	13	390	1	434	309	0.83		0.05	
EP-4	11/4/02	8.27																					
EP-43	11/10/97	59.63	0.51	7.31	7.6	4950	5830	3361	14		72.7	118	55	574	60	636	1	987	306	2.6		0.05	
EP-43	2/2/98	60.84	0.03	7.09	7.5	9590	11980	6014	35		81.7	261	143	1697	58	720	1	1425	2405	2.1		0.05	
EP-43	5/26/98	60.75	1.5	7.07	7.5	4920	4480	3151	14		80.2	188	66	922	44	614	1	1073	755	2.4		8	
EP-43	8/2/98	57.66	1.01	6.94	7.3	4720	4780	3357	40		32.6	213	69	892	32	611	1	1242	615	2		13	
EP-43	11/16/98	59.17			7.2	5650		3105	753		32.0	218	71	1118	36	848	1	897	1024	2.1		0.14	
EP-43	2/25/99	57.85			7.8	7140		4905	190		32.0	248	108	1187	37	683	1	1156	1269	2.2		3.0	
EP-43	2/25/99				7.7	7090		4876	242		32.0	252	108	1220	36	670	1	1066	1302	2.2		3.6	
EP-43	5/14/99	56.31			7.4	8000		6257	52		78.4	385	133	1374	77	854	1	1484	1515	2		2.9	

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV R1

El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	Lab	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	NO ₃	Cl	F	N
		ft	mg/l	Field		unfiltered	mg/l	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-43	8/1/99	56.54	3	7.57	7.5	8070	5598	15		78	354	125	126	47	803		1750		23	0.2
EP-43	8/1/99		1.3	7.61	7.5	8060	5560	14		73.6	371	129	126	47	800		1774		23	0.9
EP-43	10/29/99	58.67	7.7	7.72	7.3	8110	7120	30	11	32.0	204	123	120	36	1054		1181		19	0.18
EP-43	2/8/00	59.67			7.3	3900	4552	230		82.0	144	46	712	33	1094		449		25	0.01
EP-43	8/16/00	58.12	0.1	7.04	7.4	3790	2448	244		69.1	119	28	571	30	1171		466		26	0.11
EP-43	11/14/00	59.12	0.7	7.02	7.5	3600	2325	51	13.8	76.9	107	27	612	31	1118		407		24	0.51
EP-43	2/26/01	58.96	0.8	7.05	7.5	3780	5115	31	16	79.9	224	94	1108	34	726		1265		21	0.13
EP-43	5/17/01	58.38	7.9	7.14	7.8	3660	2424	36	14	78.3	130	37	683	36	871		557		26	1.2
EP-43	7/20/01	58.24	0.7	6.97	7.4	8110	5944	88	100	77.9	244	116	1326	40	733		1509		22	0.15
EP-43	11/19/01	59.7	2.5	6.83	8.3	11280	4160	7589	20	100	278	134	1468	32	476		1894		16	0.31
EP-43	2/21/02	60.24	3.5	7.17	7.6	6780	4811	47	100	72.86	174	61	945	43	831		2177		22	0.14
EP-43	5/14/02	58.11	0.1	6.97	8	8120	5513	56	700	80.24	232	151	1342	37	741		1314		21	1.2
EP-43	8/21/02	58.43	0.1	7.12	7.5	3610	2287	39	110	82.4	110	28	856	24	1171		233		3	0.13
EP-44	10/26/99	72.81	1.4	7.02	8	5740	4586	848	11	32.0	413	165	735	65	406		2466		3	0.13
EP-45	11/19/97	64.02			3.5	11740	17185	465		32.0	493	303	369	182	1		9515		33	0.2
EP-45	2/19/98	65.35			4	11440	17442	430		32.0	466	305	614	307	1		7869		35	0.05
EP-45	5/21/98	63.33			3.6	10920	14614	315		32.0	468	291	930	209	1		5599		30	0.1
EP-49	8/21/98	66.63			3.8	11000	16111	354		32.0	515	270	1045	205	1		8448		27	0.25
EP-49	11/16/98	67.25			3.7	10800	15347	515		32.0	470	258	1549	240	1		8076		27	0.05
EP-49	2/25/99	66.37			4.5	13320	13184	515	11	32.0	472	237	704	240	1		6007		24	0.11
EP-49	5/14/99	66.69			4.2	10570	14083	804		32.0	493	284	819	343	1		7140		23	0.72
EP-49	11/2/99	67.81			5.4	10440	10031	320		79.0	462	231	1070	263	1		4441		15	0.81
EP-49	1/29/00	69.33	0.1	6.62	7.4	9960	9530	7543	13	81.5	481	134	1782	267	927		4339		6	0.1
EP-49	4/28/00	68.91	0.6	6.72	7.2	9860	9400	189	39	81.7	485	128	1467	226	978		3921		68	7.3
EP-49	8/7/00	68.95	0.2	6.81	7.3	9830	9720	7534	17.6	77.9	485	131	1409	231	956		4137		73	11
EP-49	11/7/00	68.98	0.2	6.76	7.3	9800	7400	114	16.5	80.4	398	116	1525	244	860		3961		67	2.2
EP-49	2/20/01	69.3	0.3	6.83	7.7	9900	9430	7694	43	86.2	484	135	1313	217	717		4451		67	22
EP-49	5/10/01	67.81	0.5	6.85	7.6	9880	7746	7746	17	79.9	439	127	1332	217	717		4451		67	22
EP-49	7/16/01	0	2.5	6.59	7.1	10180	9980	8050	8.3	81.6	505	143	1394	269	766		3984		815	5.6
EP-49	11/15/01	0	3.1	6.81	7.6	9830	7920	7920	3.9	23	500	143	1022	266	993		4110		817	2.2
EP-49	11/15/01		2.8	6.82	7.5	9850	7846	6.9		23.1	485	138	1506	251	731		4108		938	5.9
EP-49	2/20/02	67.85	3.73	7.03	7.9	9910	8038	1	1.16	70.34	512	146	1572	273	737		4305		460	5.5
EP-49	8/13/02		0.4	6.94	7.9	9630	7050	15	9.28	80.42	480	130	1548	224	509		4088		581	6.4
EP-49	8/13/02		0.3	6.63	8	9610	6983	17		80.34	484	132	1554	235	830		4317		371	6.3
EP-49	11/25/02	59.61	1.3	6.91	7.4	6080	5140	3815	19	68.72	258	113	1419	47	943		808		1299	2.4
EP-5	8/6/97	57.8	1.29	7.47	7.7	3350	2347	190		71.1	96	39	650	16	935		544		424	2.8
EP-5	11/4/97	5.82	2.52	7.58	8	3100	2141	186		58.3	80	35	633	11	910		434		347	2.8
EP-5	2/4/98	5.51	0.68	7.55	8.1	3070	2106	30		32.0	78	33	671	10	805		410		361	2.7
EP-5	5/5/98	6.31	5.22	7.81	8	2980	2115	169		77.5	85	34	629	18	786		410		116	2.6
EP-5	8/9/98	5.78	1.14	7.36	7.8	2900	1991	12		84.3	76	30	594	9.2	843		386		153	2.0
EP-5	11/2/98	5.6	1	7.04	7.6	3010	1959	13	71	67.8	77	30	577	11	912		331		338	2.7
EP-5	2/2/99	5.1	1.7	7.87	8	2820	1818	16		84.6	77	30	570	5.8	860		318		302	2.7
EP-5	5/9/99	6.28	2.2	7.52	8.1	2780	1804	14		82.4	71	30	555	7.5	805		444		365	2.6

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	Lab	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		lb	mg/l	Field		unob/ob	mg/l	mg/l	NTU	oF	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-5	8/2/99	5.72	1.3	7.14	7.9	3300	2288	149	14	77.4	87	36	550	11	743	1	577	532	2.9	0.95
EP-5	10/25/99	7.02		7.18	8.1	8230	5867	39		73.5	323	324	1497	25	512	1	3066	1337	3.3	0.36
EP-5	4/24/00	6.08	1.8	7.32	7.9	5250	3559	13	10.2	82.5	167	54	856	12	733	1	1288	729	2.3	0.18
EP-5	8/1/00	6.36	1.4	7.2	8	4690	3171	9	6.42	70.5	114	37	800	12	914	1	973	551	2.4	0.16
EP-5	10/31/00	7.12	2.6	7.49	8.2	4410	2833	95	6.69	65.1	106	42	881	12	1010	1	720	592	2.7	0.35
EP-5	2/5/01	6.95	3.2	8.04	8	4830	3119	18	8.3	68.2	108	45	748	9	849	1	933	681	3.2	0.19
EP-5	9/4/01	6.47	3.1	7.55	8.5	5240	3566	121	45.7	92.2	113	59	1106	15	1039	12	1177	1013	2.7	0.1
EP-5	7/16/01	6.02	2.5	7.34	7.9	4300	2924	60	18.6	79.5	100	36	903	13	834	1	808	575	3.6	0.65
EP-5	10/28/01	7	2.2	7.54	8.3	3930	2652	80	14	76.9	99	41	789	11	915	1	698	542	2.8	0.15
EP-5	2/6/02	6.98	3.6	7.74	8.2	3650	2479	45	14	60.52	103	31	712	13	773	1	610	483	2.4	0.13
EP-5	4/29/02	5.9	2.1	7.67	8.1	3710	2413	25	8	71.42	85	39	721	12	822	1	572	531	2.6	0.19
EP-5	8/5/02	5.57	1.7	7.55	8	4660	3148	14	5.74	81.4	96	51	973	13	931	1	901	594	2.9	0.31
EP-5	11/4/02	7.41	3.3	7.88	7.8	4070	2675	37		67.1	104	46	828	12	947	1	647	541	2.6	0.11
EP-51	8/11/07	48.82	0.7	6.71		10400				77.2										
EP-51	8/26/97	49.12	9.4	7.25	7.3	11800	9539	35	14	77.5	655	478	1416	34	261	1	2135	2649	6.78	1.13
EP-51	11/6/97	48.8	2.35	6.58	7.3	11670	9116	41		32.0	658	469	1437	37	268	1	2401	2669	1.5	1.38
EP-51	11/6/97				7.2	11440	8894	45		76.3	645	461	1499	46	270	1	2412	2745	1.6	1.32
EP-51	2/12/98	48.56	0.03	5.85	6.9	11070	13050	36	11	73.4	690	412	1375	51	256	1	2540	2369	7.3	1.33
EP-51	5/11/98	48.73	1.42	6.29	8.2	11800	8933	31		81.1	633	477	1501	63	307	1	2455	2627	2.1	1.46
EP-51	8/12/98	49.1	3.59	6.71	7.2	10080	8072	12		75.6	638	413	1304	42	250	1	2160	1981	1.4	1.46
EP-51	11/5/98	49.05	1	6.67	6.8	9940	7364	22		32.0	535	355	1133	43	242	1	1855	1956	1.2	1.36
EP-51	11/5/98				6.9	9820	7079	21		79.3	543	354	1115	42	249	1	1960	1951	1.2	1.34
EP-51	2/9/99	48.9	2.1	6.86	7.4	9060	6783	24		79.1	584	366	810	45	211	1	1848	1671	1.4	1.44
EP-51	2/9/99		2.1	6.87	7.4	9140	7050	22		75.7	561	363	870	45	224	1	1740	1641	1.3	1.11
EP-51	5/5/99	48.86	1.2	6.63	7.3	9870	7314	27		78.6	547	409	1158	41	244	1	1940	2024	1.2	1.58
EP-51	8/4/99	48.15		6.87	7.2	11940	8170	32		78.6	590	460	1028	39	238	1	2458	2357	1.8	1.92
EP-51	8/4/99			6.88	7.2	11020	8498	25		74.3	600	400	1068	40	218	1	2398	2327	1.8	2.27
EP-51	11/2/99	43.43	1.6	6.71	7.3	9920	6873	31	25.1	75.9	582	378	958	34	231	1	2133	1759	1.6	2.02
EP-51	11/2/99	48.56	6.86	6.86	7.5	9820	6849	38	58.6	77.7	588	378	1028	39	236	1	2147	2154	1.2	1.69
EP-51	4/28/00	49.03	1.9	6.84	7.6	9640	7121	26	20	77.0	483	321	1106	37	238	1	2356	1820	0.97	1.30
EP-51	8/1/00	50.64	0.6	6.75	7.4	10620	7689	48	52	77.0	551	337	1100	34	223	1	2295	2235	0.89	1.91
EP-51	8/1/00		0.6	6.76	7.4	10710	7775	49		75.4	525	343	1100	34	223	1	2440	228	0.95	2.07
EP-51	11/7/00	51.56	0.8	6.71	7.4	12030	8473	39	35	75.0	639	424	1266	41	222	1	2130	2879	0.92	1.73
EP-51	11/7/00		0.7	6.73	7.3	12390	8687	36		73.9	530	400	1271	40	231	1	2454	3031	0.91	1.72
EP-51	2/16/01	51.51	1.2	6.73	7.5	11900	8413	38	18.3	77.5	655	470	1263	43	220	1	2108	2973	0.8	1.67
EP-51	5/1/001	51.91	1.1	6.74	7.3	12220	9783	28	14.6	78.3	721	336	1309	30	215	1	2118	2759	0.8	1.76
EP-51	7/2/001	52.82	0	6.69	7.6	13980	10032	24	21.2	78.8	796	387	1309	30	171	1	2244	3832	0.84	1.63
EP-51	11/8/01	53.5	0.3	6.73	7.1	15180	10472	40	21.6	75.5	800	690	1300	35	233	1	2446	4743	0.94	1.46
EP-51	2/12/02	53.28	0.4	6.75	7.5	15380	11228	35	12.6	76.28	854	760	1559	45	245	1	2380	4186	0.9	1.30
EP-51	5/9/02	53.51	0.6	6.76	7.6	15440	10980	117	13.6	77.13	875	702	1363	31	249	1	1401	4166	0.9	1.45
EP-51	8/12/02	53.88	0.5	6.79	7.9	16430	11375	15	16.3	80.24	869	723	1765	35	260	1	2344	4701	0.9	92
EP-51	11/6/02	54.48	0.4	6.84	7.3	16800	11357	30	51.2	76.28	1011	405	1646	36	262	1	2119	5305	0.9	1.78
EP-52	11/6/97	45.92	6.54	6.1	7.1	9750	8243	57		74.7	537	311	1843	21	571	1	2053	1236	6.3	1.57
EP-52	2/12/98	45.88	2	6.03	6.9	10870	9266	86	19	82.9	381	225	2276	22	642	1	3518	1468	6.3	1.36

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	Lab	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		ft	mg/l			unbalance	mg/l	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-52	8/12/98	51.15	2.33	6.17	7	10380	9183	14		12.0	387	238	1916	31	703	1	3566	12.7	0.4	111
EP-52	8/12/98				7.1	10360	9096	12		74.3	392	266	2059	35	698	1	3540	12.8	4.3	116
EP-52	11/6/98	52.04	2.3	6.28	6.6	11100	9241	51		77.4	563	253	1911	26	728	1	3593	13.08	0.4	99
EP-52	2/9/99	49.52	4.9	6.35	7.1	11150	9556	31		76.8	352	273	1730	26	706	1	3685	11.42	0.9	111
EP-52	5/6/99	50.24	1.7	6.2	7.3	11250	9489	30		81.3	532	276	2170	25	716	1	4454	11	0.6	111
EP-52	8/5/99	51.25	0.7	6.2	7.2	11190	9017	19	21	78.3	513	261	1433	21	683	1	4080	12.69	0.3	100
EP-52	10/29/99	51.73	1.5	6.07	7	11250	8597	12	14	77.5	434	243	1709	19	736	1	3893	13.08	0.4	103
EP-52	12/6/00	52.13	0.4	6.35	8.6	11940	9531	12	14.3	78.6	516	282	2209	21	622	1	3410	14.29	0.9	114
EP-52	4/28/00	52.89	0.9	6.35	7.8	11860	10146	23	16.4	79.0	485	282	2166	19	817	1	4351	12.25	0.3	101
EP-52	8/7/00	53.57	0.5	6.34	7.5	11640	9619	26	36	72	400	239	1800	15	754	1	4650	12.54	0.1	106
EP-52	11/7/00	53.31	1	6.38	7	11640	9888	29	72.9	72.5	433	244	2126	35	732	1	4254	10.18	0.6	85
EP-52	2/20/01	53.75	1	6.61	7.6	12090	10271	37	14	79.9	429	251	1943	15	686	1	4301	10.80	0.8	109
EP-52	5/10/01	54.28	1.6	6.26	7.3	11720	10251	28	32.2	8.3	502	311	2097	20	719	1	4315	15.58	0.1	83
EP-52	7/20/01	54.91	0	6.28	7.4	11920	10493	13	55	88.0	177	202	2207	21	744	1	4620	11.93	0.5	121
EP-52	11/5/01	56.37	0.5	6.4	7.7	12480	10835	25	22	74.3	340	333	2413	20	720	1	4914	14.21	0.3	113
EP-52	2/12/02	56.37	1.1	6.37	7.4	12120	9624	11	72.1	73.6	489	333	2444	20	720	1	4344	13.76	0.3	112
EP-52	5/9/02	56.89	4.7	6.37	7.5	11910	10258	19	9.7	80.42	515	315	2317	20	756	1	4529	11.9	0.2	90
EP-52	8/12/02	57.35	2.2	6.3	7.8	11990	10276	12	19	85.63	451	284	2342	18	748	1	5155	11.13	0.4	12
EP-53	8/11/97	67.6	7.74	6.43	7	7590	6775	237	356	78.3	527	107	1264	121	356	1	3206	315	0.9	97
EP-53	2/6/98	66.14	1.43	6.43	7	7590	6775	275	75.7	75.7	474	82	1365	118	298	1	3825	120	0.1	125
EP-53	6/10/98	67.15	2.17	6.68	6.9	7470	6569	644	77.5	77.5	409	86	1320	121	356	1	3753	461	0.9	156
EP-53	8/12/98	67.7	0.99	6.66	7.2	7550	6181	177	77.4	80.1	509	31	1343	122	342	1	3665	424	0.2	93
EP-53	11/5/98	67.1	1.1	7.08	6.8	7980	6819	177	80.1	83.1	443	86	1245	92	311	1	3160	421	0.2	112
EP-53	2/4/99	67.1	1.8	6.44	7.1	7040	6021	238	83.1	79.2	370	96	997	76	315	1	3665	117	0.6	31
EP-53	8/4/99	67.74	1.6	6.63	7.3	7120	5154	428	163	79.2	370	96	1093	92	315	1	3160	472	0.3	144
EP-53	10/26/99	67.46	1	6.38	6.3	7180	6050	440	14	67.1	574	95	1093	92	315	1	3160	472	0.3	144
EP-53	2/1/00	67.83	2	6.75	7.6	7570	6570	818	79.5	79.5	473	101	1337	80	354	1	3786	463	0.1	115
EP-53	5/2/00	68.28	1.4	7.06	7.4	7530	5537	649	200	80.4	278	98	1116	61	498	1	2972	483	0.1	115
EP-53	8/1/00	67.81	1.7	6.76	6.8	8020	6717	510	157	76.3	402	81	1004	62	321	1	3173	501	0.9	110
EP-53	11/13/00	67.57	2	5.83	7.2	7610	5538	471	162	75.9	412	89	1170	71	329	1	2872	441	0.2	82
EP-53	2/21/01	67.9	2.4	6.99	7.6	7430	5938	298	176	78.3	330	80	1017	64	403	1	3093	518	0.9	58
EP-53	5/10/01	68.41	3.9	7.1	7.3	7090	5280	1432	200	78.3	336	104	1108	67	549	1	2778	581	0.5	14
EP-53	7/10/01	68.87	4.2	7.03	7.7	6950	4942	768	200	84.2	321	65	1205	62	575	1	3135	451	0.6	71
EP-53	11/15/01	68.57	1.3	6.51	8.3	6540	4573	142	200	25.2	171	63	1081	50	411	1	2321	473	0.5	16
EP-53	2/13/02	68.55	7	7.34	8.1	6310	4412	136	200	60.8	151	38	1110	53	422	1	2198	447	0.2	10
EP-53	5/10/02	68.78	3.9	7.06	7.9	6280	4377	49	42	75.56	167	64	1084	59	415	1	2101	469	0.6	10
EP-53	8/14/02	67.55	5.1	5.61	7.3	7660	5533	7	13.4	72.86	368	78	1042	61	273	1	1266	42	0.5	12
EP-53	11/6/02	68.1	6.1	7.21	7.4	6090	4206	19	81.5	77.9	168	44	967	59	375	1	2323	1002	0.6	12
EP-54	8/11/97	68.58	1.04	6.06		13470				82.0										
EP-54	8/26/97	68.59		6.6	6.9	11340	10210	386		62.1	432	276	1842	345	419	1	5249	891	1.6	0.24
EP-54	11/6/97	69.05	2.51	6.14	6.8	10790	9568	223		78.4	455	207	1984	375	477	1	5255	901	1.1	0.3
EP-54	2/12/98	69.9	1.94	5.98	7.4	10100	8348	43	13	79.2	414	235	1788	342	366	1	4900	790	0.7	3.1
EP-54	5/11/98	69.23	1.91	6.2	7.1	9780	8370	31		83.2	469	286	1576	378	543	1	4548	791	1.2	2.8

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	LA	un/dissolved	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		lb	mg/l			un/dissolved	un/dissolved	mg/l	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-54	8/12/98	69.82	3.35	6.31	7.2	10200	11220	8455	25		71.1	515	370	1881	320	776	1	4762	708	12	1.5
EP-54	11/15/98	70.18	5.8	6.48	6.7	10880	9280	8912	127		77.9	418	272	1811	306	842		3912	751	11	2.1
EP-54	2/26/99	70.4	5.7	6.6	7.4	10500	10150	8843	63		77.9	455	284	1410	320	904	1	3504	756	11	7.6
EP-54	5/6/99	70.89	5.9	6.35	7.1	9540	11400	7066	57		72.3	432	280	1484	297	908	1	4250	704	9.1	5.6
EP-54	5/7/99	72.03	2.6	6.43	7.7	8940	9100	7103	53		84.2	395	226	1411	291	847	1	4217	648	9.2	3.6
EP-54	8/14/99	70.24		6.37	7	11000	11760	5098	17	88	80.6	401	235	1882	310	906	1	3971	727	1	2.9
EP-54	10/26/99	71.02	7.4	6.57	7.4	10500	8290	7671	60	4	77.8	430	210	1441	258	1110	1	3713	769	12	5.3
EP-54	1/26/00	71.65	7.9	6.51	7	7040	9910	5711	31	200	83.1	488	219	1265	290	871	1	3228	625	7.7	10
EP-54	4/28/00	71.18	2	6.49	7.4	10100	9940	7084	61	69	84.7	404	213	1769	249	986	1	4045	721	5.6	11
EP-54	8/7/00	70.89	2.1	6.55	7.7	10350	9930	8003	78	70	86.6	398	186	1400	254	1183	1	4153	711	9.9	14
EP-54	11/7/00	71.13	2.8	6.58	7.3	10110	11040	7939	60	33	78.8	418	198	1652	269	1188	1	3915	700	8.8	10
EP-54	2/20/01	71.6	2.1	6.5	7.4	10000	9850	7735	16	425	80.1	395	141	1316	222	1110	1	4108	723	9.1	10
EP-54	5/10/01	71.37	1.9	6.52	7.3	8620	8750	4878	26	21	95.0	401	191	1250	262	932	1	4700	970	8.3	16
EP-54	7/26/01	71.38	1.4	6.47	7.3	9110	9260	7115	34	131	78.8	417	209	1135	278	1137	1	375	729	9.4	22
EP-54	11/5/01	72.25	1.1	6.57	7.6	8300	9040	6377	25	52	24.6	478	213	1432	255	1152	1	2891	824	9.2	13
EP-54	2/13/02	72.49	1.5	6.55	7.5	8120	8560	6334	26	175	64.3	441	172	1375	252	1208	1	2600	810	9.2	1
EP-54	3/10/02	71.52	2.3	6.67	7.5	8670	10550	6620	25	87	76.1	475	192	1400	290	1183	1	2709	721	10	16
EP-54	8/13/02	70.95	4.7	6.77	7.9	9170	8140	7415	30	30	84.2	441	198	1458	232	1177	1	4659	745	10	20
EP-54	11/6/02	71.97	1.8	6.65	7.6	8270	10470	6183	61	200	75.38	484	208	1433	312	1089	1	3285	767	9	13
EP-55	8/15/97	54.35	1.85	6.17	7	10550	10700	9746	947		70.2	589	173	1602	327	561	1	4747	945	7	0.05
EP-55	11/19/97	54.19	2.12	6.25	6.9	10480	12860	7450	516		79.0	521	334	1830	211	1058	1	5186	908	7.4	0.06
EP-55	2/19/98	53.96	1.21	5.95	6.9	10510	14230	2383	2141	41	80.8	573	324	1794	324	378	1	4865	925	22	0.05
EP-55	5/20/98	54.35	1.93	6.08	6.7	10280	10320	8056	466		78.4	501	305	1819	317	671	1	4672	813	21	0.1
EP-55	8/21/98	55.5	0.94	6.15	6.4	9980	10020	4648	413		75.9	523	316	1100	192	732	1	4465	755	20	0.05
EP-55	11/16/98	56.2	1.7	6.24	6.5	9940	5850	8458	1820		71.4	523	314	1359	201	854	1	4588	842	20	0.05
EP-55	2/11/99	55	0.5	6.31	6.7	10340	10350	8827	303		72.9	527	305	1350	179	723	1	3441	519	19	0.04
EP-55	5/14/99	55.51	1	6.25	7.1	10310	10850	8951	447		82.2	541	374	1654	192	854	1	3651	909	14	0.13
EP-55	8/10/99	56.02	0.3	6.33	6.9	10470	10530	8651	362		75.2	502	311	1441	119	892	1	4066	931	16	0.04
EP-55	10/26/99	56.19	1.6	6.2	8.1	10240	10290	7164	567	4	67.3	493	315	1347	115	903	1	4550	890	15	0.21
EP-55	2/7/00	56.87	1.3	6.38	6.9	10000	9420	8315	234	200	72.7	494	306	1342	117	805	1	4791	780	15	1.3
EP-55	5/4/00	57.32	0.9	6.36	6.5	9600	9100	7937	5379	200	83.1	573	324	1185	106	1403	1	4301	831	14	0.05
EP-55	8/10/00	57.85	1	6.44	7.1	9100	8550	7357	701	200	69.3	487	260	1162	122	908	1	4000	942	14	0.13
EP-55	11/14/00	57.65	1.9	6.53	6.8	8900	8700	7258	638	200	71.9	457	232	989	111	903	1	3402	753	14	0.21
EP-55	2/22/01	58	1	6.6	6.9	9110	8780	7272	2125	200	75.9	507	218	954	132	112	1	3638	602	14	0.12
EP-55	5/11/01	58.58	1.6	6.69	7.3	9320	8820	7695	178	200	82.9	652	280	1266	184	1065	1	3543	1085	13	0.37
EP-55	7/26/01	59.27	0.4	6.41	7	9350	9240	7422	8010	1000	74.1	557	230	1390	162	2501	1	4186	973	13	0.31
EP-55	11/14/01	60.35																			
EP-55	5/10/02	60.39																			
EP-56	8/11/97	49.23	2.51	7.34		5470					77.2										
EP-56	8/26/97	48.7		7.25	7.6	5600	1633	4474	243		75.0	355	63	1026	27	320	1	1864	660	2.1	0.77
EP-56	11/4/97	48.51	0.71	7.12	7.6	5520	5930	4376	565		73.0	355	65	1080	20	354	1	1863	640	2.4	2
EP-56	2/4/98	49.06	1.81	7.14	7.8	5520	6620	4260	448		78.3	356	63	1043	29	344	1	2125	681	2.1	2.5
EP-56	5/7/98	48.92	1.08	7.07	7.6	5500	7170	1950	338		77.0	355	64	1091	14	303	1	1793	616	1.9	3.2
EP-56	8/12/98	49.38	0.98	7.15	7.6	5520	5600	3870	4150		74.3	269	68	1125	26	732	1	1801	618	2	1.5

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT ft	PH	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HC03	CO3	SO4	Cl	F	N
			PH	Lab	umho/cm	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-56	11/4/98	49.99	7.3	6600	7230	4055		76.8	246	63	980	28	781	1	1762	624	2	10.42
EP-56	2/4/99	50.13	7.2	76	6600	4291		71.0	254	67	1073	31	793	1	1731	597	1.9	10.38
EP-56	2/4/99	50.56	7.24	8.2	6640	4173		75.6	265	67	1073	35	898	1	1751	717	2	10.19
EP-56	5/4/99	50.56	7.13	7.6	5880	3850		75.4	241	68	1051	23	861	1	2085	565	2	10.1
EP-56	8/4/99	49.83	7.17	7.5	5390	3978		77.0	237	55	928	28	289	1	2310	546	2.5	9.91
EP-56	10/26/99	50.47	7.04	8.1	5790	3862		77.0	259	61	927	25	535	1	1100	592	2.3	10.63
EP-56	10/26/99	49.68	7.03	8.2	5300	3835		76.9	201	69	952	28	427	1	1104	582	2.2	10.62
EP-56	2/1/00	50.53	7.1	7.8	5080	3421		76.1	292	54	941	26	354	1	1779	455	2.4	10.45
EP-56	5/2/00	50.53	7.35	8	4800	3613		75.7	266	60	855	37	466	1	1639	506	2.5	11.15
EP-56	8/16/00	50.68	7.22	8	4510	3262		73.2	361	61	801	33	817	1	1104	477	2.6	10.71
EP-56	11/13/00	50.95	7.4	7.9	4140	2937		74.1	182	39	707	22	551	1	1250	404	2.8	10.79
EP-56	2/23/01	51.35	7.52	7.8	3890	2735		75.7	239	50	636	31	1110	1	1206	138	2.9	10.62
EP-56	5/10/01	51.23	7.42	7.8	3790	2669		77.0	272	107	647	35	2140	1	1091	477	3.1	1
EP-56	7/26/01	51.3	7.24	7.8	3750	2584		74.8	114	31	732	19	1847.7	1	1229	417	3.3	1
EP-56	11/14/01	51.67	7.13	8.1	3320	2352		73.1	91	34	570	4	386	1	833	424	11	2.9
EP-56	2/13/02	51.84	7.26	8	3470	2444		75.4	95	28	613	17	683	1	952	385	2.9	1
EP-56	5/9/02	51.41	7.35	7.5	3620	2474		78.26	116	39	651	19	400	1	16.4	491	3.1	30
EP-56	8/12/02	51.59	7.46	7.8	3703	2508		78.8	117	38	658	17	318	1	1131	361	3.2	0.38
EP-57	8/16/97	8.53	7.3	7.9	3330	2510		74.1	120	37	587	23	1236	1	1231	462	3.3	0.7
EP-57	11/14/97	9.04	7.01	7.4	3070	2159		71.4	104	79	535	25	1143	1	406	254	3.4	1.5
EP-57	2/18/98	9.85	7.01	7.5	2900	1978		79.3	86	76	500	18	1176	1	208	201	3.94	0.2
EP-57	5/18/98	9.17	7.18	7.5	2610	1475		80.6	71	64	455	13	1344	1	172	235	3.95	0.16
EP-57	8/24/98	8.97	7.01	7.7	3250	2176		78.4	157	95	614	13	1291	1	545	269	4.98	1.3
EP-57	11/16/98	8.72	7.07	7.6	2070	1323		79.0	41	53	345	20	1049	1	64	74	4.98	0.8
EP-57	2/24/99	9.12	7.15	7.7	3020	2078		78.4	101	71	476	17	1217	1	239	335	5.1	0.8
EP-57	5/13/99	8.76	7.11	7.8	2340	1459		78.8	62	63	335	17	1282	1	35	142	4.94	0.45
EP-57	8/10/99	8.06	7.07	7.6	2670	1745		73.6	35	79	391	20	1293	1	168	206	4.92	0.11
EP-57	11/7/99	9.41	6.87	7.5	3230	2124		75.6	116	94	413	21	1714	1	426	241	5.1	0.1
EP-57	2/7/00	10.02	7.01	7.7	3080	2074		78.3	84	100	385	19	1469	1	354	215	4.89	1.2
EP-57	5/8/00	9.88	7.07	7.6	3000	1977		80.2	108	99	518	19	1501	1	228	198	4.84	1.1
EP-57	8/15/00	9.19	6.95	7.6	4180	2482		75.9	162	108	570	17	1720	1	697	269	4.94	0.17
EP-57	11/12/00	10.05	7.22	7.5	4820	3507		74.1	213	130	757	18	1391	1	855	379	5.1	0.13
EP-57	2/23/01	10.08	7.15	7.8	4160	3503		81	185	137	705	17	1854	1	965	401	4.87	0.14
EP-57	5/16/01	9.75	7.16	7.5	5160	5180		86.9	209	141	782	29	1781	1	1348	600	4.99	1.6
EP-57	7/10/01	9.15	6.89	7.7	5090	3715		79.5	203	152	858	21	1852	1	935	495	5.1	0.19
EP-57	11/13/01	9.97	6.93	7.9	4110	2806		75.3	123	115	650	17	1096	1	486	419	4.95	0.38
EP-57	2/21/02	10.29	7.19	8	5400	4112		73.94	183	138	836	21	1693	1	1258	441	5.1	0.38
EP-57	5/14/02	9.19	7.21	7.9	5750	6300		74.84	266	183	1066	24	1581	1	1587	539	5.1	0.76
EP-57	8/21/02	9.08	7.25	7.9	5880	4376		80.42	237	160	952	30	1354	1	1602	559	4.95	0.25
EP-57	11/23/02	10.14																
EP-58	8/16/97	12.9	6.54	6.9	11320	9151		74.3	403	101	2298	220	2118	1	1555	989	4.9	3.05
EP-58	11/14/97	15.1	6.54	6.9	11480	9286		64.8	487	76	2396	280	1274	1	4659	910	4.7	0.05

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Alarco Smelter

Sample ID	Date	WT	DO	pH	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		ft	mg/l	Field	Lab	unfiltered	filtered	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-58	2/18/98	15.76	0.79	6.38	6.8	11510	13740		81.1	497	108	2510	263	1288	1	4800	851	4.7	1605
EP-58	5/18/98	13.98	0.63	6.25	6.8	11500	11900		78.8	489	107	2500	252	1282	1	4372	857	3	1605
EP-58	8/24/98	13.42	0.8	6.4	7	11600	11840		77.6	486	191	1700	217	1348	1	4867	922	3	1605
EP-58	11/16/98	12.38	1.3	6.39	7.2	11500	12900		71.6	520	210	2083	289	1376	1	4912	932	5	1605
EP-58	2/24/99	14.25	1	6.53	7.8	11510	13500		80.6	510	203	1913	234	1356	1	4500	870	5.2	1606
EP-58	5/13/99	12.41	0.9	6.38	7.2	11660	10900		76.5	499	244	2100	250	1320	1	3385	769	4.8	1611
EP-58	8/10/99	11.44	0.5	6.49	8	11590	11610		76.1	531	226	1812	201	1313	1	4916	963	3.7	1606
EP-58	11/5/99	12.77	1.1	6.36	7	11310	12590		75.7	518	215	1678	192	13054	1	4916	963	3.7	1606
EP-58	2/7/00	13.15	0.04	6.42	7.2	11700	10800		80.1	502	228	1801	196	1313	1	3590	864	5.1	1611
EP-58	5/6/00	12.51	0.4	6.46	7	11460	11180		80.1	517	230	1800	217	1333	1	4587	953	3.6	1607
EP-58	5/2/00		0.4	6.45	7	11420	11160		81.3	531	236	1800	222	1305	1	4678	803	5.3	1612
EP-58	8/15/00	12.02	0.5	6.4	7.3	11390	11230		81.5	436	197	1600	188	1342	1	4978	875	5.3	1612
EP-58	8/15/00		0.4	6.4	7.4	11410	11230		75.0	436	199	1541	183	1296	1	5107	883	5.3	1612
EP-58	11/13/00	12.89	1	6.54	7.2	11380	10380		73.2	451	208	1771	209	1363	1	11641	2569	4.5	1614
EP-58	2/23/01	12.9	1.6	6.53	7.7	11300	12200		72.8	433	208	1493	101	1274	1	5434	852	5.3	1611
EP-58	2/23/01		1.4	6.54	8	11330	13150		81.3	450	305	1550	197	1260	1	4834	875	5	1611
EP-58	5/16/01	12.4	2.6	6.58	7.2	11080	11260		81.3	477	315	1645	244	1244	1	5439	1020	4.9	1628
EP-58	7/30/01	12.01	1.3	6.43	7.3	11080	10220		80.2	492	229	1764	244	1221	1	4275	974	5	1611
EP-58	1/15/01	13.09	0.4	6.3	8.2	11060	10430		71	494	211	1829	210	1086	1	4768	942	5.7	1637
EP-58	2/7/02	13.66	0.5	6.61	8.1	10970	13300		74.66	508	239	1744	258	1183	1	4930	952	4.5	1611
EP-58	2/21/02		0.5	6.6	8.2	10970	13270		74.66	507	236	1668	276	1186	1	4930	869	5.3	1611
EP-58	5/14/02	12.34	2.5	6.62	7.3	10970	12070		75.74	536	236	1688	238	1208	1	5181	817	5.8	1631
EP-58	8/21/02	12.03	1.2	6.64	7.7	11010	10840		78.26	490	221	1712	210	1209	1	4599	927	3.6	1608
EP-58	8/21/02		1.1	6.66	8	11010	10840		78.26	492	226	1740	213	1192	1	4504	966	3.6	1607
EP-58	11/23/02	13.25	2.5	6.33	7.2	10980	10320		73.94	501	218	1669	227	1186	1	4566	1034	7	1611
EP-58	11/23/02		2.4	6.32	7.2	10980	10510		45.14	511	224	1661	225	1171	1	4083	962	5.5	1611
EP-59	8/9/97	12.9	2.08	6.58	7.7	4760	4750		78.4	91	91	876	105	327	1	1032	419	2.9	77
EP-59	11/2/97	13.2	0.2	7.23	7.6	4660	5340		73.6	199	84	818	95	512	1	1555	221	4.8	88
EP-59	2/5/98	13.66	1.06	7.09	7.3	4650	5010		74.3	168	83	307	95	403	1	1551	150	4.8	10
EP-59	5/8/98	13.2	1.33	7.13	7.7	4800	5600		79.2	141	90	868	100	444	1	1586	360	4.8	11
EP-59	8/1/98	13.02	1.75	7.09	7.4	4850	4750		72.0	191	97	920	107	487	1	1063	416	4.0	12
EP-59	8/10/98				7.4	4850			77.9	187	91	859	134	428	1	1560	427	4.6	13
EP-59	11/9/98	12.8	2.7	7.04	7.4	4880	4860		73.2	189	91	914	51	418	1	1762	441	3.7	12
EP-59	2/10/99	13.12	0.7	7.13	7.6	5260	5320		73.0	203	104	720	186	406	1	1503	446	3	15
EP-59	2/10/99		0.7	7.14	8.3	5270	5230		76.1	214	105	700	200	407	1	1725	451	5.1	15
EP-59	5/6/99	13.26	0.4	7.01	7.4	5060	5400		78.1	192	103	825	14	434	1	1724	515	5.6	11
EP-59	8/1/99	12.72	0.4	7.18	7.4	4920	4950		78.8	189	96	800	95	368	1	1871	422	5.2	12
EP-59	10/27/99	13.78	3.9	6.99	8.1	4740	4780		76.3	182	91	779	93	360	1	1400	438	3	11
EP-59	1/28/00	14.27	0.6	7.12	7.5	5160	4800		72.6	204	101	840	95	427	1	1874	522	4.8	8.9
EP-59	5/1/00	13.72	0.6	7.16	7.5	5050	5060		78.1	178	89	733	71	408	1	1742	402	4.8	8.9
EP-59	8/10/00	13.09	0.2	7.08	7.7	4960	4920		78.1	164	81	708	86	422	1	1665	459	5.1	11
EP-59	8/10/00		0.2	7.08	7.8	4980	4930		75.1	165	80	715	83	427	1	1796	401	5.1	11
EP-59	10/1/00	13.84	0.2	7	8	5520	5060		74.5	180	77	768	39	485	1	1768	443	4.5	10
EP-59	2/21/01	14.1	1	7.13	7.5	5660	5450		74.7	194	101	900	94	537	1	2060	671	4.8	5.1

El Paso Asarco Smelter

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Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT	DO	PH	SC	TDS	TSS	Turb	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		lb	mg/l	Field	Lab	unbalanced	Field	NTU	of	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-60	5/2/00	9.74	0.3	7.09	7.5	8440	8220	10.5	79.7	493	214	1175	11	321	1	3085	1127	14	10
EP-60	8/10/00	9.57	0.3	7.03	7.8	8300	8200	16.1	78.1	305	192	1084	14	331	1	3512	911	17	32
EP-60	10/31/00	10.45	1.1	7.07	7.6	8400	7850	44.4	72.0	472	182	1189	11	357	1	3081	931	17	55
EP-60	2/21/01	10.6	0.3	7.13	7.5	8090	7730	28.5	76.3	400	178	1092	12	344	1	2829	1013	15	44
EP-60	5/15/01	9.87	2.8	7.17	7.7	8120	7820	11.5	79.9	518	204	1272	15	317	1	3716	1015	16	38
EP-60	7/27/01	9.56	0.9	6.91	7.6	8170	7720	31.3	80.4	340	206	1275	14	331	1	3287	1006	16	25
EP-60	11/14/01	10.65	0.2	6.99	7.8	7850	7410	22.3	25.4	519	197	1212	12	315	1	3218	887	17	21
EP-60	2/13/02	10.76	0.4	7.16	8.5	7850	7410	17.8	73.32	500	192	1237	16	293	8	2945	702	16	29
EP-60	5/9/02	9.52	0.3	7.13	7.8	7820	8520	28.2	73.1	566	211	1255	14	342	1	3050	513	16	20
EP-60	8/13/02	9.65	0.2	7.22	8	8020	6990	18	80.24	533	197	1394	13	319	1	4472	819	17	55
EP-61	8/16/97	9.58	2.3	7.15	7.9	9090	9210	18	73.9	455	185	1732	22	366	1	3159	851	17	134
EP-61	11/14/97	12.63	1.71	6.93	7.2	9080	11290	11.99	65.3	436	182	1962	28	439	1	3140	941	17	161
EP-61	2/18/98	11.84	1.68	6.85	7.3	9200	10350	104	65.3	477	201	2082	23	388	1	3213	537	15	207
EP-61	2/18/98	11.84	1.68	6.85	7.4	9190	10350	44	79.0	477	210	2118	21	398	1	3175	876	16	210
EP-61	5/18/98	10.73	0.51	6.95	7.3	8660	8710	27	76.5	454	169	1684	24	414	1	3315	836	16	156
EP-61	8/24/98	10.21	0.74	7.03	7.5	8620	8710	99	71.2	463	193	1300	12	417	1	3324	732	16	117
EP-61	11/16/98	10.7	1.1	7.02	7.6	8530	8720	66	70.5	455	192	1406	23	415	1	3177	747	16	111
EP-61	2/24/99	10.75	0.6	7.17	7.6	8320	9720	75	79.2	386	164	1313	23	468	1	2761	688	15	91
EP-61	5/13/99	10.51	0.9	6.78	8	8240	7160	12	75.7	399	197	1600	21	529	1	2824	919	15	169
EP-61	8/10/99	9.27	1.1	7.15	7.7	8070	8600	65	74.7	304	167	1317	17	472	1	2802	780	16	83
EP-61	11/2/99	11.14	1.8	6.90	7.8	8110	8990	1608	72.5	307	176	1367	20	484	1	3023	708	15	101
EP-61	2/7/00	11.26	0.9	7.09	7.7	8360	7780	14	76.3	375	168	1473	16	427	1	3860	623	17	93
EP-61	5/8/00	10.41	1	7.06	7.4	8710	8810	104	78.8	455	184	1403	20	511	1	3090	811	15	129
EP-61	8/15/00	9.79	0.5	7.04	7.8	8890	8860	39	73.4	339	149	1186	15	854	1	3101	762	15	127
EP-61	11/13/00	10.92	1.1	7.15	7.8	8660	10460	29	73.4	369	161	1461	17	422	1	3608	807	17	108
EP-61	11/13/00	10.71	0.9	7.15	7.7	8580	10420	27	71.4	342	159	1385	15	403	1	3747	714	17	113
EP-61	2/23/01	10.71	1.7	7.22	7.7	8150	8640	59	79.0	319	139	1182	14	467	1	3831	727	16	120
EP-61	5/16/01	10.04	4.3	7.29	7.5	8000	7730	3	82.6	341	149	1364	18	530	1	7281	977	16	113
EP-61	7/30/01	9.62	2.8	6.81	7.5	7790	7200	7.21	77.2	337	154	1390	18	555	1	2974	745	17	67
EP-61	11/15/01	10.69	2.2	6.97	7.8	7850	0	9.2	23.8	341	151	1425	16	432	1	2753	813	17	36
EP-61	2/21/02	10.97	0.5	7.14	7.9	7790	8370	4.3	70.52	321	142	1275	18	488	1	2212	623	18	70
EP-61	5/14/02	9.51	1.9	7.1	7.7	7140	7540	16	72.68	326	146	1303	15	578	1	3555	579	13	52
EP-61	5/14/02	9.51	0.7	7.13	7.8	7110	7460	17	71.42	339	147	1311	17	361	1	6239	600	13	49
EP-61	8/21/02	9.94	1.03	7.19	8	6870	6750	9.68	76.28	277	123	1197	14	495	1	2762	536	18	55
EP-62	8/9/97	7.32	1.45	7.1	7.7	5050	5070	3.4	75.6	228	97	904	72	400	1	1760	434	3	9.8
EP-62	2/5/98	9.64	3.07	7.16	7.4	5460	3997	8.2	67.6	216	96	906	64	400	1	1519	497	25	73
EP-62	5/15/97	9.55	1.16	7.09	7.7	5080	5580	20	59.1	253	114	238	69	293	1	2183	473	27	17
EP-62	5/15/98	7.62	3.87	7.01	7.7	4820	5480	5.1	80.4	198	85	882	63	303	1	1785	405	3	11
EP-62	8/10/98	7.31	4.33	7.16	7.7	4840	4770	1	72.7	204	84	881	66	418	1	1708	405	3	8.6
EP-62	11/2/98	7.71	1.8	7.1	7.5	4680	4710	1.9	63.7	191	79	858	52	411	1	1649	432	28	9.4
EP-62	2/10/99	7.3	4.8	7.41	8.5	4300	4600	17	72.9	197	80	660	55	351	19	1074	396	29	4.8
EP-62	5/6/99	7.45	3.8	7.1	7.6	4120	4620	6.3	84.2	169	32	776	48	439	1	1338	411	31	5.8
EP-62	8/3/99	7.04	2.1	7.29	7.4	4410	4470	2.2	76.5	101	80	690	54	361	1	1519	382	32	5.5
EP-62	10/27/99	8.52	4.3	7.04	8.2	4000	3810	6.2	66.9	116	64	599	38	319	1	1010	319	39	17

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT lb	DO mg/l	pH	Lab	SC unlabeled	TDS mg/l	TSS mg/l	Turb. NTU	Temp °F	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	HCO ₃ mg/l	CO ₃ mg/l	SO ₄ mg/l	Cl mg/l	F mg/l	N mg/l
EP-62	1/28/00	8.57	6.2	7.3	7.1	4460	3169	5.6	3.6	73.6	192	81	782	45	483	1	1510	450	2.9	1.8
EP-62	5/10/00	7.99	6.1	7.22	7.6	4100	3201	2.2	5.1	84.0	177	66	64	34	438	1	1407	408	2.5	1.1
EP-62	8/10/00	7.54	4	7.15	7.8	4170	3025	1.7	3.7	70.9	149	57	558	41	405	1	1371	357	3.4	2.6
EP-62	10/1/00	8.62	3.3	7.24	7.9	4260	3050	3	4.85	63.9	155	62	763	42	393	1	1334	315	2.1	3.7
EP-62	2/21/01	8.5	4.1	7.31	7.7	4080	2970	6	5.77	77.7	147	59	598	30	390	1	1337	306	2.7	5.1
EP-62	5/10/01	7.85	5.6	7.41	7.6	4400	3271	3.1	6.9	92.8	178	72	771	50	384	1	1605	502	3.1	5.3
EP-62	7/27/01	7.44	5	7.1	7.9	4220	3043	3.1	3.09	71.9	166	68	716	56	429	1	1482	429	3	3.2
EP-62	11/14/01	8.4	1.6	7.05	7.8	3660	2820	3.9	4.23	71.3	159	63	625	51	364	1	1212	412	3.1	2
EP-62	2/13/02	8.61	4.2	7.34	7.9	4190	3110	2.2	2.72	66.92	159	67	834	60	415	1	1176	374	3.2	5.1
EP-63	5/9/02	7.3	5.1	7.3	7.7	4090	2985	4.8	5.31	76.25	148	64	880	54	393	1	1499	357	2.2	3
EP-62	8/13/02	7.55	1.6	7.36	7.8	4130	2954	2.5	4.6	89.42	164	68	753	34	398	1	1683	387	3.3	3.1
EP-62	11/12/02	8.55	5.1	7.42	7.5	4080	2878	2.3	3.23	69.08	154	61	617	54	395	1	1398	404	1.1	3
EP-63	11/5/02	9.3	0.35	7.16	7.8	3260	6181	32	4.2	71.1	260	152	1247	35	479	1	2779	1013	2.3	2.1
EP-63	2/15/03	9.42	2.23	7.08	7.4	8210	9590	102	7.07	70.7	266	157	1579	39	532	1	2893	1667	3.1	18
EP-63	5/2/03	6.95	1.58	7.15	7.6	3390	632	18	8.10	81.0	272	166	164	43	501	1	2941	973	2.2	14
EP-63	8/10/03	6.67	1.86	7.16	7.7	8470	6464	61	7.36	73.6	231	151	1740	39	551	1	2789	928	2.2	13
EP-63	11/29/03	7.1	1.4	7.26	7.6	8400	6424	4.6	7.00	70.0	237	140	1695	15	593	1	2941	1078	2.2	6.4
EP-63	2/10/04	6.58	1.3	7.27	7.8	8410	5515	20	72.9	23.1	161	161	1480	15	331	1	2829	1029	2.2	7.3
EP-63	5/10/04	6.83	1	7.04	7.6	8300	6277	7	71.9	23.1	176	176	1572	17	331	1	2829	1029	2.2	7.3
EP-63	8/19/04	6.4	0.9	7.04	7.7	8210	6255	16	76.6	24.1	150	150	1519	16	628	1	2927	1078	2.2	7.3
EP-63	10/27/04	7.87	1.2	7.18	7.1	8140	5687	8.3	77.5	77.5	201	201	1520	15	331	1	2829	1029	2.2	7.3
EP-63	1/28/05	7.87	0.3	6.95	7.7	7680	5687	11	14	72.0	244	150	1265	32	420	1	2488	870	2	4.3
EP-63	5/10/05	7.24	2.6	7.23	7.5	7310	3508	7.6	7.55	71.2	220	140	1258	37	590	1	2428	736	2	4.3
EP-63	8/10/05	6.89	0.3	7.15	7.8	7600	5714	17	17	76.3	224	137	1082	31	627	1	2827	860	2	4.3
EP-63	10/1/05	7.94	1.2	7.18	7.8	7490	5442	23	16.4	76.3	224	137	1082	31	627	1	2827	860	2	4.3
EP-63	2/21/01	7.85	0.2	7.22	7.5	7140	5319	50	44.5	73.0	186	111	1041	26	658	1	2922	815	2	0.36
EP-63	5/15/01	7.15	3.2	7.27	7.5	7110	5420	49	51.3	73.0	146	146	1322	36	658	1	2789	820	2	0.36
EP-63	8/10/01	6.78	4.2	7.27	7.4	7110	5477	53	75.7	75.7	341	149	1302	37	605	1	2856	951	1.9	0.31
EP-63	11/14/01	6.78	5	6.95	7.7	7110	5328	18	6.3	82.2	243	134	1313	34	639	1	2611	897	1.8	0.07
EP-63	2/11/02	7.98	0.3	7.13	7.9	6700	5166	8.7	8.22	71.6	227	143	1254	29	639	1	2246	890	2.1	0.40
EP-63	5/9/02	6.71	0.4	7.13	7.9	6640	4901	13	12.2	71.78	224	132	1170	26	666	1	2020	755	2.1	0.27
EP-63	8/11/02	7	3.6	7.2	8.1	6750	4928	4.2	7.23	78.08	216	123	1171	29	680	1	2160	762	2	0.27
EP-64	11/15/02	10.18	3.96	7.39	7.8	8590	7433	84	78.6	78.6	360	115	1713	25	325	1	3159	744	1.9	7.7
EP-64	2/5/03	12.05	0.19	7.25	7.8	11000	9781	65	65	65	153	153	2601	21	389	1	4179	910	2	1.14
EP-64	5/2/03	12.27	3.76	7.98	7.9	10420	10890	9250	72.3	69	141	141	2300	36	236	1	4564	807	1.9	1.16
EP-64	8/10/03	10.15	2.9	6.82	8	10800	10940	63	109.40	81.9	278	131	2153	34	261	1	4082	735	1.9	1.20
EP-64	11/29/03	10.2	3	7.4	7.4	9540	8077	6.7	74.3	74.3	183	124	2135	25	332	1	3826	987	1.8	7.1
EP-64	2/10/04	10.66	4	7.55	7.7	9490	7865	4.2	68.5	68.5	276	115	2055	21	252	1	3066	733	1.6	6.6
EP-64	5/10/04	10.34	2.9	7.39	8.3	9220	7962	29	76.5	76.5	190	130	180	30	326	1	2783	684	1.9	8.6
EP-64	8/10/04	10.15	2.3	7.57	7.9	9280	7607	22	81.5	81.5	160	121	1932	21	324	1	2718	830	1.9	7.3

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	Lab	SC	TDS	TSS	Turb.	Temp	Cd	Mg	NH ₄	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		ft	mg/l			unlabeled	mg/l	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-64	8/2/99	9.89	5	7.48	7.8	8380	6922	11	5.8	77.9	332	113	1578	18	306	1	4129	594	19	77
EP-64	10/27/99	11.26	4.3	7.35	8.4	9080	7540	14	8.51	72.9	300	125	1550	21	203	1	3550	203	13	70
EP-64	1/28/00	11.48	4.6	7.84	8.3	9410	7541	15	8.01	78.6	300	125	2085	19	237	1	4261	740	18	46
EP-64	5/10/00	10.83	6.1	8.01	8.2	9120	7740	2.8	2.75	85.3	329	116	1035	16	195	1	3787	717	14	104
EP-64	8/10/00	10.39	4.3	7.56	8.2	9200	7559	4.1	3.16	72.5	344	104	1416	19	268	1	4164	616	19	80
EP-64	10/31/00	11.38	2.7	7.63	8.1	9200	8880	3.6	3.01	61.9	355	107	1968	17	344	1	3385	634	19	79
EP-64	2/21/01	11.3	4.6	8.02	8.1	8610	7016	35	29	78.8	287	95	1300	15	194	1	4720	707	16	85
EP-64	5/15/01	10.71	5.3	8.24	8.1	9220	7773	8	4.4	85.5	371	126	1937	21	203	1	4790	616	17	93
EP-64	7/27/01	10.34	5.6	7.47	8	9010	7352	2.2	1.96	80.1	382	129	1859	21	261	1	3600	722	13	67
EP-64	1/14/01	11.31	3.6	7.47	7.9	8540	7045	3.2	1.42	26.3	355	109	1600	17	259	1	3368	1014	15	70
EP-64	2/13/02	11.53	6.4	7.81	8.3	9010	8663	17	8.14	71.6	363	126	1931	23	207	1	3370	622	18	73
EP-64	5/9/02	10.22	4.6	7.92	7.9	8400	6773	7.6	2.97	73.58	331	117	1602	16	179	1	6389	176	17	67
EP-64	8/13/02	10.21	4.2	7.66	8.1	8860	7291	4.3	3	92.48	368	117	1766	18	270	1	3066	643	13	59
EP-64	1/12/02	11.36	5.6	7.68	7.9	9200	7409	2.9	2.61	68.2	311	128	1648	23	301	1	2180	592	2	64
EP-65	8/16/97	8.25	0.35	7.15	7.7	7420	6449	21	74.7	74.7	392	144	1310	24	498	1	2651	943	21	30
EP-65	1/11/97	10.94	1.4	7.02	7.6	7330	6233	25	25	68.7	371	142	1400	30	555	1	2680	676	19	66
EP-65	2/18/98	10.73	0.84	7.07	7.5	7500	6196	6.83	8.4	79.3	409	165	1661	24	321	1	2718	630	2	58
EP-65	5/18/98	8.52	0.36	7.1	7.3	7440	5726	132	7.10	79.9	328	139	1349	28	315	1	2892	639	21	35
EP-65	8/24/98	8.32	0.27	7.02	7.5	7330	5862	15	7.39	73.9	383	152	1000	22	610	1	2837	631	19	33
EP-65	1/16/99	8.59	0.6	7.08	7.6	7200	5004	13	72.0	72.0	330	130	1270	25	639	1	2718	640	19	31
EP-65	2/24/99	8.57	0.4	7.16	7.7	6980	5630	9.8	71.8	71.8	310	136	1264	24	728	1	2615	643	2	27
EP-65	2/24/99		0.4	7.16	7.7	7010	5700	7.5	72.4	82.4	313	138	1251	24	761	1	2592	632	2	21
EP-65	5/15/99	8.54	1	6.98	7.7	6740	5324	10	77.9	297	349	149	1250	20	716	1	2280	511	19	24
EP-65	8/10/99	7.8	0.3	7.14	7.8	6810	5103	29	77.9	307	307	132	1071	20	667	1	2577	576	19	30
EP-65	1/15/99	9.53	2.3	6.91	7.6	6400	5176	19	75.6	364	364	131	1107	21	639	1	2577	651	19	29
EP-65	2/7/00	9.72	0.4	6.99	7.6	6520	5148	64	72	283	283	129	1080	19	544	1	2545	623	21	25
EP-65	2/7/00		0.2	7	7.7	6500	5129	16	62	74.7	284	126	1135	17	703	1	2395	511	19	22
EP-65	5/8/00	8.93	0.4	7.05	7.6	6480	5124	20	62	78.0	283	128	1155	17	722	1	2318	491	19	20
EP-65	8/15/00	8.5	1	7	8	6220	506	16	67	82.0	320	133	1100	21	690	1	2628	471	22	19
EP-65	1/11/00	9.72	1.3	7.14	7.6	6340	5050	5.4	73.2	72.9	354	107	1000	18	605	1	2516	564	17	21
EP-65	2/21/01	9.5	1.1	7.12	7.8	6430	5079	14	7	81.1	356	106	959	17	654	1	2307	501	2	26
EP-65	5/16/01	8.78	2.6	7.2	7.4	6290	5038	6.7	5.82	83.7	287	112	1072	21	617	1	2907	673	15	25
EP-65	7/30/01	8.35	1.1	6.94	7.6	6090	4754	10	30	84.0	255	109	1077	21	489	1	2281	512	22	19
EP-65	7/30/01		3.6	7.01	7.6	6050	5540	12	12	74.3	257	111	1068	22	490	1	2398	492	22	19
EP-65	2/21/02	9.43	2.2	6.97	7.8	6020	4601	5.3	7.3	25.3	260	110	1059	18	588	1	1113	62	22	19
EP-65	5/14/02	8.22	2.4	7.24	7.9	5810	4439	39	4	72.32	329	98	1118	21	598	1	2156	561	22	17
EP-65	8/21/02	8.78	1.2	7.34	8.1	5600	4301	15	3.93	75.56	268	113	1004	21	601	1	2199	490	22	12
EP-65	11/25/02	9.58				5910	4301	7.1	4.52	80.6	226	97	1107	19	580	1	2111	516	24	11
EP-66	8/8/97	10.02	6.7	7.05	7.5	8390	7776	28		80.3	666	161	1505	52	555	1	3474	607	32	40
EP-66	11/5/97	11.85	1.3	6.8	7.5	7920	7183	19		71.2	648	142	1502	48	498	1	3435	609	32	44
EP-66	2/5/98	11.21	1.42	7.09	7.6	7220	6329	5.6		74.5	511	172	1461	45	413	1	3098	625	3	44
EP-66	5/8/98	10.37	2.90	7.30	7.7	7690	6881	10		85.5	554	130	1429	58	478	1	3156	595	23	45

Appendix C
Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	La	SC	TDS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	NO ₃	Cl	F	N
		g	mg/l			unharden	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-66	8/10/98	10.09	6.54	6.55	7.5	8130	7017	1.7	74.3	59	140	1551	58	516	1	1521	1000	3.4	40
EP-66	11/02/98	10.44	5.3	7.09	7.4	7440	6144	4	99.3	508	116	1326	41	170	1	1321	602	2.2	31
EP-66	2/10/99	9.99	5.3	7.17	8	7720	6808	7.9	81.3	585	139	1100	55	497	1	1054	632	1.3	34
EP-66	5/6/99	9.42	5.3	6.98	7.5	7600	6479	7.4	80.1	571	141	1298	41	488	1	1064	637	2.2	33
EP-66	8/4/99	9.96		7	7.8	8000	6552	8.9	65.1	584	142	1236	51	488	1	1044	564	3.7	47
EP-66	10/27/99	11.3	6	6.92	8.3	5910	4908	57	38.1	432	97	879	40	343	1	1404	364	3	30
EP-66	1/23/00	11.34	6.4	7.28	7.8	7860	6445	26	81.3	553	129	1313	42	519	1	1514	633	3	36
EP-66	5/3/00	10.66	4.8	7.15	7.6	7510	6405	7.6	86.5	493	130	1156	38	493	1	1325	593	3	30
EP-66	8/10/00	10.39	3.1	7.09	7.9	7420	6233	2.5	75.0	454	112	1144	49	473	1	1331	543	3.2	34
EP-66	10/31/00	11.41	3.8	7.04	7.8	7120	5852	25	67.1	483	111	1332	44	455	1	1170	415	3.5	38
EP-66	2/21/01	11.45	5.7	7.37	7.7	6650	5559	11	84.5	407	91	881	31	439	1	1128	516	2.6	31
EP-66	5/1/01	10.71	5.4	7.54	7.8	6900	5927	4	88.5	526	122	1369	47	415	1	1599	575	2.9	38
EP-66	7/27/01	10.38	3.4	6.98	7.8	7380	6231	2.2	75.7	489	126	1179	44	479	1	1326	554	3.2	33
EP-66	11/14/01	11.62	3.9	6.98	7.8	6830	5783	6.4	64.1	445	117	1091	33	425	1	1538	460	3	38
EP-66	2/12/02	11.69	8.3	7.98	8.5	7040	6029	4.6	60.08	416	102	1266	40	366	1	1498	454	2.8	31
EP-66	5/9/02	10.34	3.9	7.46	7.8	6320	5351	36	79.88	399	161	772	37	415	1	2271	419	3.7	36
EP-66	8/13/02	10.55	2.1	7.2	7.8	7830	6595	12	91.94	491	126	1286	41	509	1	1417	427	3.9	33
EP-66	11/2/02	11.75	6.9	7.31	7.8	6280	5162	2	76.1	438	101	956	34	409	1	1016	455	3.4	26
EP-67	8/12/97	41.62	1.3	6.74	7.6	4400	4990	4	76.1	560	156	488	19	251	1	1023	415	0.82	18
EP-67	11/7/97	41.20	0.9	6.84	7.4	4460	4038	13	75.4	456	144	472	15	236	1	1328	377	0.79	17
EP-67	2/11/98	43.95	1.71	6.66	7.3	4470	4077	2.9	75.4	477	144	511	15	251	1	1899	354	0.72	19
EP-67	8/1/98	43.95	1.71	6.66	7.3	4480	4056	3.2	77.9	477	141	510	17	236	1	1909	355	0.72	19
EP-67	3/12/98	41.72	0.94	6.94	7.2	4440	3665	3.6	77.0	457	114	473	13	243	1	1900	361	0.79	17
EP-67	8/13/98	41.67	1.09	6.79	7.6	4360	3985	1.5	74.5	453	135	557	21	261	1	2017	352	0.71	15
EP-67	11/10/98	40.97	1.6	6.77	7.4	4370	3806	7	76.3	463	140	497	15	255	1	1823	364	0.75	16
EP-67	2/10/99	49.4	1.7	6.91	7.7	4340	3438	13	77.0	491	141	393	15	256	1	1443	349	0.76	14
EP-67	5/7/99	41.74	1.3	6.81	7.3	4440	3837	29	76.3	438	139	483	32	261	1	1955	324	0.8	15
EP-67	8/9/99	41.20	0.86	6.86	7.7	4370	3756	10	76.1	431	132	414	13	239	1	2117	356	0.8	17
EP-67	10/28/99	41.43	2	6.64	7.3	4400	3730	2.2	75.4	425	130	416	12	244	1	1925	400	0.76	13
EP-67	12/1/00	41.85	1.3	6.88	7.5	4300	3619	4.8	76.5	468	112	432	12	243	1	2000	363	0.73	20
EP-67	4/24/00	41.86	0.9	6.9	7.4	4370	3818	7.4	77.9	367	114	377	10	257	1	2003	363	0.75	17
EP-67	8/2/00	41.34	1.1	6.86	7.9	4300	3611	1.6	77.7	371	112	360	12	247	1	2007	366	0.73	16
EP-67	8/2/00		1.1	6.85	7.7	4300	3638	1.3	76.3	363	107	406	11	246	1	1848	352	0.71	16
EP-67	10/31/00	41.42	1.3	6.83	7.7	4300	3614	9.1	74.5	434	121	440	11	251	1	1765	275	0.78	14
EP-67	2/8/01	41.8	1.3	6.91	7.5	4380	3617	3.8	75.9	338	107	393	9.5	254	1	2105	370	0.73	15
EP-67	2/8/01		1.3	6.94	7.5	4370	3551	3.3	76.3	432	126	426	11	236	1	2119	352	0.72	13
EP-67	5/7/01	40.8	1.6	6.84	8.1	4390	3733	4.3	77.3	433	129	452	13	232	1	2049	412	0.7	15
EP-67	7/17/01	40.92	1	6.89	7.6	4280	3668	2.3	75.6	467	131	476	13	245	1	1973	339	0.75	15
EP-67	10/30/01	40.71	1.3	6.99	7.9	4200	3585	1.6	75.1	441	125	431	14	262	1	1926	406	0.75	16
EP-67	2/6/02	41.06	1.7	7.11	7.6	4190	3741	30	75.92	447	127	418	15	249	1	1712	319	0.75	11
EP-67	4/30/02	40.83	1.3	6.79	8.3	4250	3584	17	77.54	438	138	437	11	269	1	1804	407	0.69	9.5
EP-67	8/6/02	41.04	2.1	6.98	7.6	4190	3527	17	77.54	431	120	437	11	269	1	1804	389	0.79	9.7
EP-67	8/6/02		6.98	7.6	7.6	4180	3528	19	77.54	438	119	418	12	250	1	1783	301	0.76	9
EP-67	11/1/02	41.11																	

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV R1

El Paso Asarco Smelter

Sample ID	Date	WT g	DO mg/l	PH		SC		TDS mg/l	Turb. NTU	Temp °C	DISSOLVED										F mg/l	S mg/l
				Field	Lab	Ammonia	Lab				Cu mg/l	Mg mg/l	Na mg/l	K mg/l	HCO ₃ mg/l	ClO ₃ mg/l	SO ₄ mg/l	Cl mg/l				
EP-68	8/14/97	63.1	6.38	7.14	7.7	5410	5290	4246	19	22.0	337	141	784	15	220	1	1740	717	0.77	24		
EP-68	8/14/97				7.7	5310		4220	19	72.9	330	123	774	18	324	1	1683	725	0.78	25		
EP-68	11/1/97	62.85	6.09	7.11	7.3	5440	5590	4350	38	74.7	314	113	841	12	223	1	1725	751	0.7	24		
EP-68	2/1/98	63.2	7.59	6.93	7.7	4980	6080	3957	89	74.7	271	115	765	17	244	1	1610	638	0.68	31		
EP-68	5/1/98	63.1	5.87	7.17	7.4	5690	5220	4125	46	32.0	396	129	815	16	220	1	1845	715	0.76	21		
EP-68	5/1/98				8.1	5740		4166	31	76.3	316	133	840	16	220	1	1878	789	0.76	21		
EP-68	8/1/98	63.27	6.52	7.16	7.8	4260	3990	3252	35	72.9	225	98	672	16	259	1	1312	483	0.64	41		
EP-68	11/9/98	63.19	6.4	7.4	7.9	4480	4130	3129	31	75.4	207	83	630	14	248	1	1454	530	0.71	27		
EP-68	2/18/99	63.26	5.6	7.31	7.5	3840	3680	2926	49	76.3	185	86	386	17	261	1	861	450	0.73	35		
EP-68	5/10/99	63.55	6	7.08	7.6	4010	3990	2840	38	75.6	193	88	380	16	268	1	1054	407	0.71	42		
EP-68	8/5/99	63.42		7.17	7.9	4780	4790	3666	19	74.5	246	108	608	14	240	1	1699	555	0.75	36		
EP-68	10/28/99	63.5	12.1	6.88	7.4	5900	5340	4467	42	72.9	296	125	677	14	224	1	1855	348	0.72	27		
EP-68	12/5/00	63.64	5.4	7.07	7.8	5800	5570	4210	58	75.0	285	121	769	16	234	1	2051	764	0.72	24		
EP-68	12/10/00		5.2	7.09	7.7	5780	5560	4237	52	75.6	314	130	814	17	238	1	2067	781	0.73	30		
EP-68	4/24/00	63.6	6	7.21	7.5	4920	4830	3691	11	75.6	266	119	714	13	251	1	1890	615	0.72	33		
EP-68	4/24/00		5.9	7.21	7.6	4960	4970	3795	12	76.5	270	120	733	14	254	1	1805	386	0.73	35		
EP-68	8/2/00	63.2	6.1	7.18	7.9	4580	4390	3331	18	74.7	212	91	600	13	270	1	1492	549	0.69	39		
EP-68	10/31/00	63.39	6.1	7.19	8	4150	3998	2963	18	71.4	201	86	581	10	271	1	1298	472	0.73	40		
EP-68	2/9/01	64.11	6.2	7.05	7.6	5150	5110	3954	25	75.6	305	131	752	14	245	1	1807	694	0.80	30		
EP-68	5/7/01	63.21	6.3	7.18	8.1	4780	4530	3640	21	75.7	253	105	670	15	251	1	1776	375	0.67	39		
EP-68	7/17/01	63.18	5.6	7.12	7.7	5320	4820	4097	17	82.0	259	128	810	17	239	1	1823	754	0.68	35		
EP-68	10/30/01	63.18	6.2	7.26	8	4710	4320	3492	7	74.3	214	102	606	15	264	1	1411	650	0.72	43		
EP-68	2/6/02	63.54	8.9	7.17	7.7	5260	4900	4137	12	74.6	281	125	711	17	236	1	1891	754	0.74	32		
EP-68	5/1/02	63.45	6	7.01	8.1	4940	4510	3754	15	77.9	254	110	642	13	266	1	1854	611	0.7	32		
EP-68	8/6/02	63.74	8	7.24	7.9	5290	4530	3972	36	75.97	246	106	716	12	268	1	1618	600	0.75	21		
EP-68	11/1/02	63.97																				
EP-7	8/6/97	6.02	1.66	7.17	7.8	2810	2589	1942	12	72.0	103	34	480	12	390	1	672	320	1.7	0.05	0	
EP-7	11/4/97	7.65	1.55	7.36	7.9	2710	2850	1974	15	50.8	26	32	484	5.9	390	1	687	311	1.8	0.05	0	
EP-7	2/4/98	6.62	1.82	7.3	7.9	2810	501	1978	14	32.0	119	38	502	9.6	361	1	814	344	1.3	0.06	0	
EP-7	5/5/98	6.94	3.75	7.67	7.8	2890	2500	1930	15	80.4	127	41	512	14	322	1	687	348	1.5	0.05	0	
EP-7	8/5/98	5.87	0.69	7.28	7.8	2800	670	1938	8.9	75.0	106	34	500	9.5	296	1	767	365	1.7	0.05	0	
EP-7	11/7/98	6	1.2	7.31	7.6	2660	2610	1790	18	65.3	83	27	446	9	289	1	567	322	1.9	0.05	0	
EP-7	2/3/99	5.18	1.9	7.51	7.9	2960	2790	1960	12	65.3	103	34	551	5	362	1	702	329	1.8	0.1	0	
EP-7	2/3/99		2	7.51	7.8	2950	2800	1998	11	65.8	110	36	570	5	360	1	735	322	1.7	0.1	0	
EP-7	3/5/99	8.72	2.5	7.5	7.9	3110	3010	2119	10	76.6	112	39	551	7.4	390	1	820	311	1.7	0.41	0	
EP-7	8/2/99	5.79	1.9	7.31	7.7	3790	3800	2684	15	74.7	146	47	500	11	366	1	907	467	1.7	0.12	0	
EP-7	10/25/99	7.53		6.97	7.8	6700	6910	4506	23	32.0	321	103	1223	16	460	1	1000	1517	1.7	0.11	0	
EP-7	12/9/00							4531	19	62.8	321	98	1168	15	454	1	1000	1503	1.7	0.1	0	
EP-7	12/9/00	7.45	1.7	7.27	7.5	3840	3610	2516	36	63.5	123	40	652	7.2	407	1	924	581	1.9	0.17	0	
EP-7	12/9/00		2.6	7.34	7.8	3820	3560	2446	36	71.6	124	40	669	7.3	378	1	852	469	1.9	0.2	0	
EP-7	4/24/00	6.46	3.3	7.45	7.9	3110	3090	2047	23	80.2	79	28	476	6.1	388	1	898	469	2.1	0.16	0	
EP-7	8/10/00	6.24	1.9	7.47	8	2610	2590	1710	14	77.0	62	20	450	6.3	338	1	633	287	2.3	0.1	0	
EP-7	8/10/00		2.5	7.48	8.1	2600	2380	2437	14	74.8	61	20	450	6.3	337	1	710	280	2.2	0.1	0	
EP-7	10/24/00	7.33	3.3	7.32	8.1	2520	2450	1613	4.9	64.9	60	20	442	6.1	299	1	677	311	2.2	0.1	0	

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT ft	DO mg/l	pH	Lab	SC	TDS mg/l	Turb. NTU	Temp °F	Cu mg/l	Al mg/l	Na mg/l	K mg/l	HCO ₃ mg/l	CO ₃ mg/l	SO ₄ mg/l	Cl mg/l	F mg/l	N mg/l
EP-7	2/5/01	7.4	2.6	7.8	8	2720	1753	9.55	65.3	77	23	400	55	320	1	722	283	13	0.1
EP-7	2/5/01		2.6	7.8	7.9	2770	1746		66.6	75	25	463	53	375	1	746	273	13	0.1
EP-7	3/4/01	6.84	3.1	7.57	8.7	2620	1767	6.45	66.7	90	30	488	77	275	17	710	303	1.6	0.34
EP-7	3/4/01		2.9	7.55	8.3	2640	1825		77.9	88	28	474	81	317	11	788	271	1.6	0.31
EP-7	7/16/01	6.15	1.9	7.38	7.9	2710	1832	8.38	78.1	88	27	478	75	310	1	704	324	1.3	0.05
EP-7	7/16/01		1.8	7.6	8	2710	1835		76.6	88	27	468	77	290	1	785	273	1.3	0.05
EP-7	10/29/01	7.29	2	7.7	8.2	2310	1561	9.8	26.2	70	23	412	93	354	1	645	230	2	0.31
EP-7	10/29/01		1.9	7.68	8.1	2310	1560		26.3	70	23	419	9	356	1	639	246	1.9	0.03
EP-7	2/6/02	7.28	2.8	7.71	8	2310	1565	8.98	65.48	70	23	418	8	337	1	562	252	1.9	0.1
EP-7	2/6/02		2.5	7.7	8.1	2310	1559		64.58	71	23	425	83	339	1	537	251	1.8	0.1
EP-7	4/29/02	6	3	7.63	7.8	2340	1556	9.72	69.26	70	21	410	72	378	1	599	214	1.8	0.21
EP-7	5/10/02	5.42	1.9	7.64	8	2090	1310	4.25	78.08	51	16	388	62	340	1	481	196	2.1	0.05
EP-7	8/5/02		1.8	7.61	7.7	2080	1324		78.08	51	16	382	58	343	1	440	192	2.1	0.09
EP-7	11/4/02	7.17	2.9	7.84	8	2020	1293	9.09	66.74	53	16	371	63	334	1	457	205	2.1	0.09
EP-70	8/12/97	61.65	0.52	6.84		7150	5856		80.8										
EP-70	8/12/97	61.5		7.19	7.9	6970	5831	6.5	32.0	274	140	1238	31	207	1	2496	115	1.3	0.2
EP-70	8/26/97				7.6	6970	5831	9.8	76.1	278	152	1221	24	301	1	2619	626	1.3	0.9
EP-70	11/7/97	62.12	0.75	6.91	7.5	6740	5416	6.4	75.0	298	165	1236	25	300	1	2590	624	1.2	0.2
EP-70	2/11/98	62.3	0.56	6.79	7.4	6800	5373		77.2	304	159	1230	26	290	1	2464	608	1.1	0.78
EP-70	5/12/98	61.95	0.18	7.07	7.4	6900	5072	1	78.1	277	143	1097	20	253	1	2350	595	1.2	0.16
EP-70	8/13/98	61.78	1.39	6.94	7.6	6150	5960		74.7	301	153	1127	20	295	1	2374	516	1.1	0.4
EP-70	11/10/98	61.61	0.8	7.02	7.4	6320	5116	2.1	32.0	314	157	1182	24	285	1	2674	370	1.1	0.52
EP-70	11/10/98				7.3	6310	5108		75.7	310	157	1164	24	292	1	2477	387	1.1	0.35
EP-70	2/10/99	61.5	0.9	7.04	7.7	6080	6080		76.1	409	158	780	30	282	1	1970	518	1.1	0.3
EP-70	5/7/99	62.12	0.7	6.92	7.5	6210	4827		75.6	291	157	1009	30	259	1	2210	546	1.1	0.43
EP-70	8/5/99	61.59	0.2	7.01	7	6020	4798	4.5	75.7	291	151	930	20	220	1	2064	508	1.1	0.51
EP-70	10/28/99	62.15	0.2	6.76	7.2	6220	4909				143	852	17	288	1	2037	514	1.1	0.39
EP-70	12/4/00	62.49	0.2	7.03	7.6	6110	4832	2.8	74.8	260	134	954	18	293	1	2485	561	1.1	0.38
EP-70	12/4/00		0.2	7.03	7.5	6100	4771	2.7	76.6	262	135	927	18	296	1	2483	540	1.1	0.40
EP-70	4/25/00	62.23	0.4	7.1	7.6	6110	4972	7.7	76.5	276	146	974	17	305	1	4038	531	1	0.45
EP-70	8/2/00	61.8	0.3	6.97	7.9	6050	4624	3.6	75.0	345	135	859	17	267	1	2400	376	0.94	0.31
EP-70	11/1/00	62.16	0.4	7	7.5	4980	4611	2.8	71.8	266	131	860	10	303	1	2308	500	1.1	0.41
EP-70	11/1/00		0.3	7	7.6	6010	4628	2.7	73.2	248	123	803	15	295	1	2240	487	1.1	0.38
EP-70	2/9/01	62.65	0.3	7.11	7.8	6010	4824	1.9	76.6	272	141	910	16	311	1	2380	507	1.1	0.40
EP-70	5/7/01	59.81	0.3	7.08	8.2	6160	5071	4.8	76.1	292	152	930	21	232	1	2759	876	1.1	0.3
EP-70	7/18/01	59.87	0.6	6.99	7.4	6480	5316	3.6	76.1	298	151	1119	21	220	1	2912	576	1.1	0.2
EP-70	10/21/01	59.97	0.4	7.07	8.1	6660	5333	2	74.2	312	175	1146	29	290	1	2444	539	1.2	0.7
EP-70	10/21/01		0.3	7.07	7.8	6540	5332	1.2	74.2	324	170	1178	29	243	1	2264	614	1.2	0.2
EP-70	9/7/02	60.47	0.5	7.26	8	6500	5192	1	74.1	287	149	1132	29	300	1	2783	614	1.2	0.36
EP-70	5/1/02	60.05	0.5	7.01	7.8	6500	5027	1	75.92	302	158	1047	24	314	1	2118	493	1.2	0.33
EP-70	8/7/02	60.16	0.3	7.04	7.2	6380	4905	2.5	76.1	274	141	1114	23	339	1	2173	367	1.3	0.48
EP-70	11/11/02	60.41																	
EP-71	8/12/97	49.9	0.43	6.79	7.5	6480	5650	4.9	76.1	388	180	1046	21	303	1	2720	517	0.95	0.9
EP-71	11/7/97	50.38	0.54	6.85	7.5	6470	5547	10	75.6	380	183	1091	18	298	1	2364	373	0.95	0.9

Appendix G.

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT lb	DO mg/l	pH	Lab	SC		TDS mg/l	TSS mg/l	Turb. NTU	Temp. °F	Ca mg/l	DISSOLVED			K mg/l	HCO ₃ mg/l	CO ₃ mg/l	SO ₄ mg/l	Cl mg/l	F mg/l	N mg/l
						Lab	substation						Mg mg/l	Na mg/l	Al mg/l							
EP-71	2/1/98	50.63	0.92	6.7	7.5	6770	6870	4898	1.3	11	77.2	379	180	1188	20	235			2575	521	0.8	11
EP-71	5/12/98	50.22	0.39	6.99	7.3	6440	6400	5059	3.2		77.0	362	159	1058	18	300			2329	476	0.94	46
EP-71	8/1/98	49.95	0.31	6.86	7.3	6290	6260	5578	11		77.5	301	179	1256	22	307			2424	498	0.86	11
EP-71	11/10/98	49.55	1.1	7	7.3	5730	5670	4741	6		75.6	348	159	913	19	285			2366	478	0.85	79
EP-71	2/10/99	49.95	1	7.01	7.7	5940	5970	5083	4.5		75.0	344	172	720	20	287			2443	47	0.84	34
EP-71	8/5/99	49.57		6.92	7.5	5850	6560	4857	4	1.7	73.9	348	164	856	17	281			2129	475	0.92	92
EP-71	10/8/99	50.2	0.2	6.71	7.9	5800	5800	4521	1.4	4.0	74.5	320	180	741	13	294			2117	518	0.80	64
EP-71	1/24/00	50.51	0.9	6.97	7.6	5950	5770	4727	2.2	3.11	76.3	302	145	800	16	284			2438	503	0.80	72
EP-71	4/24/00	50.26	0.3	7.04	7.4	5840	5740	4802	1	0	75.9	316	150	787	13	282			2116	450	0.80	65
EP-71	8/3/00	49.84	0.3	6.85	8	5780	5740	4632	1.2	1.87	75.9	293	137	700	16	285			2152	450	0.84	78
EP-71	8/3/00		0.3	6.85	8	5810	5760	4630	1.6		75.2	281	130	799	19	287			2231	475	0.83	70
EP-71	11/1/00	50.19	0.5	6.93	7.6	5740	5550	4566	1.2	1	73.0	296	138	744	16	276			2260	421	0.9	67
EP-71	2/9/01	50.68	0.5	7.05	7.6	5860	5590	4718	2.1	2.95	72.9	298	139	761	14	280			2429	508	0.8	63
EP-71	2/9/01		0.5	7.65	7.6	5840	5550	4783	2.3		76.5	317	147	801	15	285			2519	510	0.81	78
EP-71	5/7/01	48.6	0.7	7.03	8.2	6280	6170	5122	1.5	4	73.4	362	172	1045	20	298			2806	507	0.82	76
EP-71	7/18/01	48.55	0.7	6.86	8	6400	6260	5150	1.8	1.17	75.4	350	167	1048	17	298			2790	535	0.9	80
EP-71	7/18/01	48.55	0.7	6.86	7.9	6410	6290	5203	1	0	78.3	345	161	1055	18	303			2807	489	0.92	80
EP-71	10/7/01	48.63	0.2	6.96	8.2	6430	6330	5317	1.2	1.75	73.8	384	188	1047	21	178			2429	396	0.92	72
EP-71	2/7/02	49.18	0.5	7.18	8	6310	6810	5226	1.9	1.4	74.3	347	171	1084	21	299			2128	587	0.83	50
EP-71	5/1/02	48.71	0.4	6.95	7.6	6300	6510	4966	5.2	4.6	75.56	352	173	959	17	312			1819	461	0.9	62
EP-71	5/1/02		0.4	6.95	8.1	6310	6560	5090	4.7		75.56	351	169	976	17	312			1927	442	0.89	56
EP-71	8/6/02	48.65	0.4	7.09	7.8	6250	6020	5057	1	2.76	71.26	315	154	975	16	311			2410	516	0.99	50
EP-71	11/1/02	48.95																				
EP-72	8/1/97	61.4	0.17	6.77	7.8	6220	6300	5403	6.4		77.4	366	167	997	35	280			2767	513	1.4	58
EP-72	11/7/97	61.72	0.95	6.86	7.4	6040	6810	5075	11		77.0	347	162	995	22	287			2522	588	1.4	59
EP-72	2/1/98	61.85	0.72	6.72	7.4	6030	7900	4975	16	13	77.7	349	158	1016	23	333			2309	374	1.1	53
EP-72	5/13/98	61.7	0.29	7.02	7.5	6030	5970	4660	2.9		77.5	327	150	985	21	282			2296	509	1.4	48
EP-72	8/1/98	61.56	0.21	7	7.3	6090	6000	5094	4.5		76.1	361	163	1040	29	293			2101	537	1.1	40
EP-72	11/10/98	61.52	1.2	7.11	7.9	5700	5560	4539	9		77.9	365	163	1086	23	287			2309	588	1.4	68
EP-72	1/24/00	62.83	2.7	7.16	7.8	7180	6980	6065	16	3.1	81.1	359	138	900	16	293			2459	504	1.1	34
EP-72	4/25/00	62.68	1.7	7.16	8.1	7180	7430	6094	3.1	2.4	82.6	357	135	977	14	319			2904	554	1.2	34
EP-72	8/1/00	62.55	1.9	7.01	8.1	7540	7430	6094	3.8	3.25	78.2	345	234	1237	36	351			3559	484	1.2	41
EP-72	11/1/00	62.61	1.5	7.11	7.6	6990	6770	5901	4.6	4.8	57.8	244	215	1081	15	342			2957	386	1.2	34
EP-72	2/9/01	63.06	5.5	7.15	7.6	6310	6100	5239	2.5	3.1	82.0	337	178	983	13	331			2966	447	1.1	37
EP-72	5/7/01	61	2.3	7.11	8.6	8320	8400	7886	2.9	4.5	79.3	291	337	1655	20	326			4062	389	1.2	53
EP-72	7/18/01	61.09	2.5	7.00	7.9	11940	11670	1107	1.2	2.5	84.0	357	158	2256	21	303				974	1.3	80
EP-72	10/31/01	61.3	0.9	7.08	8.2	11220	11360	10665	5.2	3.4	24.9	365	367	2059	34	436			5998	588	1.3	54
EP-72	2/7/02	61.69	2.6	7.33	8.3	7900	8880	6876	1.2	1.4	71.2	380	106	1476	19	376			2715	507	1.2	35
EP-72	5/1/02	61.28	1.4	7.03	8	8780	9480	7767	3.7	2.89	78.44	391	347	1531	16	393			4144	547	1.2	35
EP-72	8/7/02	61.45	1.1	7.09	7.9	8360	8290	7361	1.5	4.71	77.9	299	317	1630	16	384			2794	508	1.3	40
EP-72	11/1/02	61.69																				
EP-73	8/12/97	70.75	5.73	6.88	7.9	6760	6760	5703	2		82.2	287	117	1048	348	293			2223	485	2.8	25
EP-73	11/13/97	70.2	1.2	6.91	7.4	6520	8610	5329	12	4	81.0	263	113	1087	382	287			2584	441	2.6	23
EP-73	2/12/98	71.25	0.97	6.84	7.5	6850	9340	5672	8.2	11	83.5	292	125	1183	477	255			2861	466	2.4	24

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT ft	DO mg/l	pH	Lab	SC mg/L	TDS mg/L	Turb. NTU	Temp °F	Ca mg/L	Mg mg/L	Na mg/L	K mg/L	HCO ₃ mg/L	CO ₃ mg/L	SO ₄ mg/L	Cl mg/L	F mg/L	N mg/L
EP-73	5/1/98	71.1	1.43	6.62	7.7	6900	7810		86.4	383	123	1118	187	272	1	1124	422	2.8	22
EP-71	8/1/98	71.32	0.81	6.97	7.5	6700	6610		81.3	386	121	1162	241	285	1	2754	469	2.7	21
EP-73	11/5/98	68.38	6.2	7.13	7.4	6580	5750		81.9	262	112	1126	310	200	1	2776	400	2.6	15
EP-71	2/6/99	71.19	2.7	7.13	7.7	6540	5340		82.6	278	119	810	100	287	1	2185	411	2.6	16
EP-73	5/7/99	71.49	0.8	6.97	7.5	6700	7670		82.8	262	122	977	165	291	1	3110	413	2.7	16
EP-71	8/7/99		0.8	6.96	7.7	6700	7680		83.5	263	121	1020	383	287	1	3079	430	2.7	19
EP-73	8/2/99	10	5.2	7.01	7.5	6550	7280		82.9	262	117	1066	348	268	1	3012	439	2.7	19
EP-73	10/2/99	71.2	1.2	6.8	7.6	6520	5760		81.3	247	111	991	315	296	1	3406	408	2.6	19
EP-73	1/26/00	72.33	0.4	7.07	7.8	6600	6200		84.4	265	116	959	352	300	1	2622	468	2.8	17
EP-71	4/28/00	71.9	0.8	7.08	7.6	6180	6080		84.1	219	111	926	315	1252	1	2735	362	2.6	17
EP-73	8/7/00	70.55	0.3	7.04	8.5	6220	6130		80.2	218	92	500	286	257	24	2330	485	2.7	10
EP-73	1/7/00	71.26	0.4	7.02	7.8	6150	7710		79.5	199	97	941	301	329	1	2325	450	2.7	10
EP-73	2/16/01	71.96	0.5	7.07	7.9	6180	5890		82.8	212	95	863	283	281	1	2905	375	2.6	21
EP-73	5/9/01	71.75	0.6	7.08	7.7	6080	5970		82.9	220	101	861	351	283	1	2918	424	2.7	16
EP-73	7/20/01	71.82	0	7.04	7.8	6100	5910		82.8	218	101	922	312	308	1	2857	428	2.7	14
EP-73	7/20/01		0	7.05	8	6120	5960		77.4	219	99	913	311	296	1	2896	426	2.6	16
EP-73	1/29/01	72.05	0.2	7.11	7.8	6020	5680		77.6	235	106	977	351	345	1	2486	489	2.8	18
EP-73	2/12/02	72.1	0.4	7.13	8.1	5860	5750		78.93	222	103	993	305	317	1	2265	440	2.3	13
EP-73	5/7/02	71.85	0.5	6.99	7.9	5900	7090		81.5	208	95	810	377	316	1	1338	418	2.5	14
EP-73	8/12/02	68.35	0.3	7.13	8	5970	4950		82.4	211	94	919	268	238	1	2491	423	2.3	15
EP-73	8/12/02		0.2	7.14	7.9	5920	4950		82.4	216	95	921	269	319	1	2707	464	2.7	12
EP-73	11/1/02	72.1																	
EP-74	8/13/97	52.33	9.41	7.42	8	2550	2530		76.1	37	36	448	76	293	1	710	251	0.85	5.4
EP-74	8/12/97	57.1	1.54	6.84	7.4	19620	18940		76.3	438	463	4680	586	798	1	13167	322	1.8	191
EP-75	1/13/97	55.38	1.96	6.82	7.2	18340	21300		75.9	406	407	5246	760	742	1	16061	238	1.5	192
EP-75	2/6/98	55.45	1.11	6.86	7.2	19240	23900		85.5	451	476	4055	655	283	1	11495	710	1.5	176
EP-75	5/1/98	56.22	2.4	6.52	7.5	20000	20400		83.3	432	301	4377	702	815	1	12795	377	2.3	148
EP-75	8/1/98	57.38	1.13	6.85	7.4	18700	17890		75.4	421	401	4240	661	758	1	11602	203	1.6	176
EP-75	1/5/98	55.92	5	6.9	7.2	19100	16900		76.8	455	477	4242	590	744	1	12536	302	1.8	111
EP-75	2/20/99	59.24	6.8	6.94	7.3	18720	21000		75.7	342	364	3962	818	654	1	9087	238	1.7	101
EP-75	5/10/99	55.49	0.3	6.87	7.5	19590	20100		79.9	447	472	4325	682	769	1	11278	377	1.8	160
EP-75	8/6/99	70.09	0.4	6.86	7.2	16010	18110		76.5	380	372	3775	672	510	1	4526	192	1.5	124
EP-75	1/26/00	69.4	1.8	7.01	7.7	18110	16220		78.8	391	355	3938	604	641	1	9219	164	1.7	125
EP-75	4/28/00	70.55	1.8	7.03	7.5	19000	16970		81.5	332	377	4204	556	715	1	11531	227	1.6	171
EP-75	8/7/00	69.57	2.8	7.01	7.2	14850	12970		65.3	334	300	3000	504	382	1	9407	230	1.4	182
EP-75	11/7/00	69.39	2.6	6.98	7.5	13680	11910		73.6	309	276	2818	411	354	1	6884	167	1.2	172
EP-75	2/14/01	69.49	1.2	7.04	7.7	19010	17720		82.0	361	344	4119	387	683	1	10385	333	1.8	212
EP-75	5/9/01	70.49	1.5	7.02	7.1	17500	17190		80.1	366	371	3711	417	430	1	11056	327	1.5	215
EP-75	7/20/01	71.63	0	6.96	7.4	19140	18340		73.5	401	389	3849	848	573	1	11157	286	1.8	240
EP-75	11/5/01	71.02	1.1	7.03	7.5	10000	16110		74.6	410	432	3862	734	600	1	10773	249	1.9	190
EP-75	2/12/02	70.45	1.5	7.02	7.7	19680	18810		69.26	410	408	4447	607	630	1	10584	251	1.4	192
EP-75	5/7/02	71.14	2.4	6.93	7.8	17560	18560		69.62	478	431	4331	697	632	1	11831	152	2.2	156
EP-75	8/9/02	70.23	1.9	7.07	8.1	17610	18870		85.1	342	309	3458	852	576	1	11339	294	2.6	134
EP-75												3288	541	610	1	12002	269	2.2	138

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV R1

El Paso Asarco Smelter

Sample ID	Date	WT ft	DO mg/L	PH	SC		TDS mg/L	TSS mg/L	Turb. ntu	Temp °F	DISSOLVED					K mg/L	HCO ₃ mg/L	CO ₃ mg/L	SO ₄ mg/L	Cl mg/L	F mg/L	N mg/L
					La ²	unhard/cm					Ca mg/L	Mg mg/L	Na mg/L									
EP-77	7/19/01	45.8	1.2	7.23	7.9	3820	2627	12	14	76.3												
EP-77	11/1/01	45.85	0.4	7.34	8.3	3940	2728	9.8	14	74.8												
EP-77	2/9/02	45.89	1.3	7.42	8.3	4040	2768	13	11	75.02												
EP-77	5/2/02	45.85	0.9	7.25	7.8	4100	2864	19	9.6	75.38												
EP-77	8/8/02	45.9	0.7	7.44	8.1	4190	2904	13	35	77.72												
EP-77	11/6/02	45.8	0.7	7.18	8	4210	2898	14.5	39.1	72.86												
EP-78	8/11/97	31.26	0.25	7.78	8	2600	1773	9.8	9.8	73.9												
EP-78	11/18/97	31.1	0.74	7.77	7.9	2310	1773	14.7	5.9	73.9												
EP-78	11/18/97				7.9	2320	1884	14.8	5.8	74.8												
EP-78	2/6/98	31.13	0.72	7.69	7.9	2940	2004	12	12	74.8												
EP-78	5/14/98	33.05	0.82	7.7	8	3730	2364	15	15	73.9												
EP-78	8/1/98	33.59	0.24	7.73	8.1	3660	2364	1.8	1.8	73.4												
EP-78	11/1/98	28.09	1	8.05	8.1	2220	2170	46	14	71.4												
EP-78	2/18/99	32.44	0.5	7.74	7.9	3450	2315	22	22	75.4												
EP-78	5/11/99	33.69	2.3	7.62	7.3	3750	2549	14	14	74.4												
EP-78	5/11/99		2.2	7.62	7.5	3740	2558	16	16	74.8												
EP-78	8/9/99	29.24	0.9	7.86	7.8	2520	1664	12	12	72.8												
EP-78	10/1/99	31.55		7.43	8	2820	1804	4.3	4.3	72.3												
EP-78	12/8/00	32.88	0.7	7.62	7.6	3400	2144	20	20	74.8												
EP-78	5/2/00	33.86	0.4	7.55	8	3200	2377	8	8	76.1												
EP-78	8/9/00	30.56	0.7	7.61	7.7	2480	1621	21	21	73.2												
EP-78	11/6/00	29.99	0.4	7.57	7.9	3400	2354	4	4	72.9												
EP-78	2/15/01	32.7	0.4	7.52	7	3340	2196	2.4	2.4	74.8												
EP-78	5/14/01	33.81	2.1	7.75	7.7	3700	2543	19	19	77.2												
EP-78	7/25/01	33.48	0.5	7.66	8.1	3470	2317	19	19	80.8												
EP-78	11/15/01	32.42	0.3	7.38	8.3	3700	2355	8.1	8.1	73.4												
EP-78	2/15/02	33.73	0.4	7.53	8.3	3880	2607	7.2	7.2	74.12												
EP-78	5/7/02	34.35	0.4	7.46	7.8	3750	2486	16	16	76.46												
EP-78	8/14/02	28.61	0.2	7.77	7.4	2520	1696	6.5	6.5	76.28												
EP-78	11/13/02	32.4	5.9	7.65	7.5	2780	1804	5.2	5.2	77.1												
EP-79	8/13/97	46	1.08	7.47	8	4890	3043	20	20	77.2												
EP-79	2/6/98	45.09	0.63	7.43	8.2	4900	3560	8.9	8.9	77.9												
EP-79	5/14/98	47.01	0.43	7.52	7.8	5080	3404	37	37	75.0												
EP-79	8/19/98	47.89	0.15	7.5	8	5330	3404	718	718	79.0												
EP-79	11/1/98	45.74	1.6	7.67	7.8	4710	3021	1	1	77.4												
EP-79	2/18/99	46.5	1	7.61	7.8	4610	3451	12	12	81.0												
EP-79	5/11/99	47.79	6.7	7.41	8.2	4990	3447	80	80	79.9												
EP-79	8/9/99	46.99	0.4	7.53	8	4730	3360	6.3	6.3	77.0												
EP-79	10/1/99	45.81	0.2	7.27	8	4500	2989	1	1	75.9												
EP-79	12/8/00	47.35	0.2	7.48	8	4700	3214	26	26	75.7												
EP-79	5/2/00	48.05	0.1	7.45	7.9	4380	3406	30	30	78.1												
EP-79	8/9/00	45.69	1	7.55	8.3	4150	2946	8.3	8.3	76.3												

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	Lab	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		ft	mg/l	Field		unbalanced	mg/l	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-79	11/9/00	46.16	0.5	7.32	8.5	4120	5600	3034	7.1	76.6	38	45	813	64	420	10	1191	306	48	7.7
EP-79	2/15/01	45.55	0.7	7.53	7.8	4400	4380	3051	4.6	78.4	40	48	790	71	455	1	1412	378	48	11
EP-79	5/14/01	47.58	4.9	7.62	8.1	4780	4870	3209	9.99	79.2	88	71	881	92	458	1	1159	616	46	11
EP-79	7/25/01	47.85	0.6	7.55	8.1	4750	4830	3239	7.7	78.3	48	57	981	92	456	1	1137	547	45	9.7
EP-79	11/11/01	47.45	0.7	7.29	8.3	4580	4520	3210	8.4	74.8	47	56	946	11	464	1	1237	538	45	9.6
EP-79	2/15/02	48.32	1.1	7.49	8.3	4620	4710	3274	4.6	76.45	46	53	915	82	456	1	1224	465	44	9.4
EP-79	5/7/02	48.5	0.9	7.41	8.3	4620	5490	3174	7.1	78.8	46	53	883	15	408	1	1522	480	46	7.7
EP-79	8/14/02	46.98	1.5	7.68	8.1	4190	3180	2866	5.55	79.7	38	44	822	61	473	1	1362	395	56	7.1
EP-79	11/11/02	46.87																		
EP-80	8/13/97	10.68	0.31	7.23	7.7	5040	5040	4026	182	77.9	50	87	911	20	556	1	1859	412	17	14
EP-80	11/17/97	11.83	2.9	7.05	7.9	5100	6840	4029	127	75.0	226	85	1062	18	512	1	2004	350	13	5
EP-80	2/5/98	11.98	0.82	7.14	7.4	5040	6190	4032	67	77.3	202	81	1065	18	520	1	1954	362	13	7.1
EP-80	5/13/98	11.13	0.68	7.26	7.6	4950	5020	3596	6.2	77.2	183	80	1004	15	499	1	1757	360	13	8.2
EP-80	8/19/98	10.78	2.15	7.27	8	5180	5200	3949	61	77.5	163	79	981	20	547	1	1880	415	13	0.8
EP-80	11/11/98	11.44	1.9	7.38	7.5	5110	5640	4016	77	74.7	218	91	1015	18	525	1	2048	371	14	5.1
EP-80	2/18/99	12.1	1.9	7.1	7.5	5200	5210	4048	45	75.0	220	92	1016	23	480	1	1573	375	13	9.8
EP-80	5/11/99	11.22	0.6	7.19	7.9	5170	5340	3976	20	76.8	202	96	902	21	500	1	1666	385	13	11
EP-80	8/9/99	10.37	0.2	7.27	7.8	5240	5250	3531	18	79.3	196	94	961	20	510	1	1842	412	13	0.02
EP-80	10/27/99	11.42	0.6	6.96	8.3	5320	5280	4080	27	74.8	247	95	1006	17	494	1	2117	406	12	7.4
EP-80	1/28/00	11.84	0.8	7.22	8.1	5110	4870	3845	9.8	75.6	218	86	978	15	512	1	1892	372	14	2.4
EP-80	5/2/00	11.43	0.5	7.21	7.8	5150	5120	3920	21	77.5	177	79	821	13	533	1	1794	385	13	10.0
EP-80	8/10/00	10.74	0.3	7.11	7.9	5210	518	3789	6.6	75.2	163	74	766	21	542	1	1872	484	13	0.4
EP-80	11/9/00	11.49	0.5	7.14	7.9	5100	6720	4033	43	72.3	194	77	916	14	547	1	1937	319	14	3.1
EP-80	2/16/01	11.81	0.6	7.21	8.1	5100	5080	3970	15	72.1	184	73	877	15	512	1	2231	351	12	12
EP-80	5/14/01	11.4	6.1	7.35	7.9	5200	4990	3967	40	78.6	166	74	887	18	531	1	1734	310	13	7.4
EP-80	7/25/01	10.77	0.2	7.25	7.8	5040	4880	3556	6.9	72.5	182	85	916	20	514	1	1719	403	12	0.8
EP-80	1/13/01	11.67	0.4	7.02	8.4	5170	5100	3966	21	72.5	182	85	916	20	514	1	1719	403	12	0.8
EP-80	2/19/02	11.11	2.1	7.2	8.2	5190	6460	4371	2.5	75.2	222	95	995	17	532	1	1820	386	14	2.3
EP-80	5/11/02	11.71	7.9	7.12	8	4610	4790	3364	30	73.4	166	74	800	20	540	1	1471	406	13	0.05
EP-80	8/15/02	10.25	0.4	7.17	8	5260	680	3095	47	77.18	144	82	734	16	520	1	1251	407	13	0.05
EP-80	11/7/02	11.6	0.8	7.33	7.9	5200	5660	3905	7.1	76.4	200	88	908	19	500	1	2189	401	15	1.7
EP-81	8/19/97	17.95	2.82	7.01	7.7	2530	2045	2045	233	79.0	176	86	127	18	439	1	981	164	14	6.3
EP-81	11/17/97	18.42	2.88	6.9	7.8	2390	3290	1809	11	73.9	150	79	311	14	534	1	748	92	12	8.2
EP-81	2/5/98	18.81	2.9	7	7.5	2560	2980	1907	76	74.8	152	76	311	17	527	1	923	125	16	9.4
EP-81	5/14/98	18.42	3.44	7.04	7.4	2510	2630	1850	45	76.3	140	75	330	12	537	1	776	160	14	7.9
EP-81	8/19/98	18.19	0.7	7.03	7.6	2610	2770	2019	3.3	77.7	151	84	346	12	477	1	957	142	12	8.9
EP-81	11/11/98	17.79	3.6	7.1	7.3	2430	2370	1862	43	71.6	151	85	294	11	530	1	952	79	12	12
EP-81	2/19/99	18.79	4.7	7.19	7.4	2550	2590	2018	16	75.2	184	84	384	17	501	1	658	141	14	7.7
EP-81	5/11/99	18.53	6.8	7	7.8	2530	2570	1935	14	79.3	159	92	330	15	517	1	1010	823	13	3.5
EP-81	8/9/99	17.26	3.6	7.12	7.7	2130	3110	2169	4	81.9	176	77	309	21	455	1	1011	101	21	9.9
EP-81	10/21/99	18.71	4.9	6.81	8.1	2750	2710	2090	16	71.4	180	93	340	14	438	1	1010	539	115	14
EP-81	1/28/00	19.3	3.5	7.09	7.7	3310	2920	2382	81	66.9	178	82	450	25	397	1	1210	42	27	6.7
EP-81	5/2/00	18.91	5.2	7.05	7.5	3200	3190	2410	79	87.1	170	82	425	25	440	1	1127	204	32	7.8
EP-81	8/9/00	18.07	3.3	7.15	7.8	3260	3220	2244	11	63.5	169	76	411	20	342	1	1185	335	26	6.1

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT	DO	PH	SC	TDS	ISS	Turb	Temp	Ca	Mg	Na	K	HCO3	CO3	SO4	Cl	F	N
		lb	mg/l	Field	Lab	unboiled	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-41	1/19/00	18.76	2.4	7.06	7.5	2800	6.7	4.42	63.3	150	72	331	18	471	0	965	111	2	10
EP-81	2/16/01	19.19	2.6	7.08	8	2780	17	18.4	82.0	147	71	313	16	478	1	1076	107	17	10
EP-41	7/14/01	18.81	3.8	7.09	7.8	2720	17	14.8	81.7	157	82	308	15	476	1	985	135	16	14
EP-81	7/25/01	18.4	3.6	7.06	7.6	2900	1.7	7.5	75.6	165	82	433	24	464	1	1014	145	2	77
EP-41	11/11/01	19.07	1.9	6.97	8.3	2840	3.9	3.4	20.5	152	75	391	26	407	1	104	144	21	25
EP-81	2/19/02	19.35	2.7	7.24	8.1	2670	21	9.83	70.16	142	63	356	22	371	1	999	108	23	73
EP-81	5/10/02	18.6	4.1	7	7.6	3010	35	20.7	77	181	83	418	24	437	1	775	201	24	65
EP-81	8/15/02	17.23	5.1	7.09	7.8	2570	40	27	84.74	193	76	269	20	532	1	906	59	24	93
EP-81	11/13/02	19.12																	
EP-82	8/13/97	17.42	1.31	7.06	7.7	3680	7.3		73.9	151	74	693	21	442	1	1313	122	25	89
EP-82	11/18/97	16.13	2.15	7.03	8	3250	36	24	71.4	91	101	613	101	508	1	865	361	117	101
EP-82	2/11/98	15.5	1.73	6.94	7.6	4320	5.4	15	71.1	167	87	780	24	394	1	1311	500	23	91
EP-82	5/14/98	16.92	0.67	7.12	7.6	4740	47		72.3	170	85	844	20	381	1	1117	510	23	10
EP-82	8/19/98	18.24	0.43	7.16	7.7	4880	12		74.1	158	81	889	27	390	1	1604	567	27	87
EP-82	11/11/98	15.35	1.6	7.31	7.4	4880	14	11	71.1	252	78	987	25	412	1	1629	568	28	95
EP-82	2/18/99	16.21	0.5	7.28	7.6	4720	32		71.8	136	70	930	33	431	1	825	513	3	10
EP-82	5/11/99	17.68	1.5	7.15	7.8	4870	13		73.6	141	86	850	32	398	1	1100	520	3	10
EP-82	8/9/99	15.74	0.4	7.23	7.7	4490	7.2	7.9	74.3	118	69	877	24	476	1	1478	367	32	78
EP-82	10/1/99	17.02		7.01	7.7	3600	380		72.0	72	43	624	19	522	1	872	392	32	6
EP-82	12/7/00	15.99	0.3	7.12	8.1	4340	16	8.2	72.1	130	76	831	24	445	1	1376	440	26	11
EP-42	5/2/00	17.65	0.9	7.11	7.5	4680	7	5.45	74.8	139	83	756	22	410	1	1428	511	27	99
EP-42	8/9/00	16.62	0.6	7.37	8.3	2130	5	3.3	72.7	33	18	359	17	501	1	599	109	38	31
EP-42	11/9/00	15.36	0.9	7.11	7.6	4240	2.5	2.1	69.1	135	79	676	23	422	1	1216	447	24	86
EP-42	2/13/01	16.45	1.1	7.11	7.4	3800	4.7	4.68	70.7	143	82	569	27	410	1	1176	386	23	69
EP-42	5/14/01	17.98	1.6	7.23	8	4510	7.3	6.4	75.2	202	114	700	27	395	1	1563	699	23	98
EP-42	7/25/01	18.89	0.2	7.12	7.6	4760	3	3.7	74.7	169	94	829	26	421	1	1347	592	22	82
EP-42	11/12/01	17.98	0.4	6.92	8.1	4950	24	8.53	22.9	170	90	860	31	399	1	1400	526	27	91
EP-42	2/15/02	17.16	0.7	7.22	8.3	4940	1	2.02	71.42	131	76	920	26	477	1	1374	433	14	93
EP-42	5/7/02	18.36	2.4	7.1	8.2	4750	12	3.12	72.5	123	68	794	31	422	1	1162	593	28	83
EP-42	8/14/02	15.07	0.5	7.29	8.2	4720	2.3	6.02	75.03	111	71	850	21	535	1	1349	442	29	64
EP-42	11/11/02	17.16																	
EP-43	8/13/97	28	5.75	7.47	8	3940	6		72.5	86	71	748	17	376	1	1382	359	29	82
EP-43	11/18/97	27.52	4.42	7.36	8.2	3940	112		71.2	76	101	794	13	415	1	1192	399	28	63
EP-43	2/6/98	27.14	6.33	7.51	7.8	3770	8.1		75.0	73	66	735	12	361	1	1161	304	27	76
EP-43	5/13/98	27.91	4.85	7.51	7.8	3840	4		72.5	71	64	763	5	359	1	1126	350	31	91
EP-43	8/19/98	29.15	3.4	7.53	8	3910	1		71.4	69	63	758	8.6	370	1	1316	391	29	75
EP-43	11/12/98	27.45		7.6	7.7	3680	17	14	72.7	75	63	758	12	356	1	1200	353	27	79
EP-43	2/22/99	27.56	6	7.53	7.8	3880	7		72.9	71	64	740	8.5	351	1	1040	347	3	11
EP-43	2/22/99		5.8	7.57	7.8	3870	5.8		71.4	73	56	747	11	371	1	997	311	31	61
EP-43	5/11/99	28.52	5.6	7.53	8	3710	84		74.5	76	75	550	13	361	1	1159	205	3	82
EP-43	8/9/99	27.07	4.9	7.48	7.9	3870	6.2	6.8	71.8	71	65	717	10	354	1	1266	310	31	8
EP-43	10/30/99	28.64		7.22	7.8	3900	102		72.0	81	62	638	9.5	402	1	1380	443	3	71
EP-43	10/30/99					3920	282		71.8	83	64	621	9.5	370	1	1172	392	3	65
EP-43	1/21/00	27.98	5.1	7.47	8.3	3900	16	7.5	72.0	75	65	759	11	367	1	1284	305	3	10

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RF

El Paso Asarco Smelter

Sample ID	Date	WT ft	DO mg/l	PH	Lab	SC unbalanced Lab	unbalanced Field	TDS mg/l	TSS mg/l	Turb. NTU	Temp °F	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	HCO ₃ mg/l	CO ₃ mg/l	SD ₄ mg/l	Cl mg/l	F mg/l	N ⁻ mg/l
EP-23	1/27/00		5.7	7.46	8.2	3910	3710	2610	18		73.4	75	65	753	9.1	377	1	1715	385	1	9.9
EP-23	5/1/00	28.89	5.5	7.45	7.9	3810	3710	2708	22	9.31	73.2	66	38	779	10	373	1	1132	356	1	11.8
EP-23	8/9/00	28.3	5.4	7.5	8.1	3320	3810	2623	4.3	3	70.9	61	55	600	9.4	375	1	1297	362	1	9.2
EP-23	11/9/00	26.94	4.9	7.52	8	3850	4580	2704	1.4	2.6	72.5	62	56	670	8.1	383	1	1073	369	1	8.7
EP-23	11/9/00		4.9	7.52	8	3840	4570	2699	1.2		71.8	61	58	679	8.4	371	1	1123	366	1	8.5
EP-23	2/14/01	27.73	5.4	7.49	7.8	3800	3720	2564	4.4	4.2	75.7	57	50	592	7.8	384	1	1233	222	1	9.3
EP-23	5/1/01	28.87	5	7.17	8	3700	3700	2556	16	7.43	73.6	70	62	664	8.9	417	1	1145	414	1	9.2
EP-23	7/24/01	29.88	5.2	7.43	8.2	3760	3610	2560	7.2	7.23	76.3	61	58	722	10	365	1	1123	374	1	9.2
EP-23	11/2/01	29.55	5.3	7.44	8.2	3810	3560	2584	32	9.39	72.6	66	61	691	10	387	1	1054	441	1	9.2
EP-23	2/14/02	28.11	5.1	7.48	8.3	3840	3690	2639	7.2	1.85	72.14	61	58	924	11	403	1	1006	386	1	8.3
EP-23	5/8/02	29.34	5.1	7.35	8	3640	4040	2425	32	8.63	73.1	61	56	953	9.1	371	1	1011	417	1	7.9
EP-23	8/19/02	27.62	4.5	7.64	8.1	3820		2631	3.1	9.25	75.2	54	56	697	8	387	1	1144	436	1	8.6
EP-23	11/1/02	28.28																			
EP-23	8/13/97	7.15	3.33	7.39	7.9	1958	1808	1525	18		70.5	148	62	224	8.5	372	1	524	184	1	8.4
EP-23	11/18/97	7.53	1.37	7.16	8.1	2690	3260	1979	31		65.5	201	96	264	101	384	1	826	326	1	7.2
EP-23	2/6/98	7.48	1.35	7.18	7.4	2990	3470	2293	4.4		75.0	219	104	390	11	295	1	942	371	1	11
EP-23	5/1/98	8.38	2.28	7.22	7.5	3040	3050	2087	8.1		75.7	208	99	335	5	298	1	916	346	1	10
EP-23	8/10/98	9.25	1.97	7.25	7.8	2780	2820	2183	1		70.5	195	38	268	7.2	395	1	924	330	1	6.6
EP-23	11/1/98	7.65		7.31	7.6	2980	2790	2204	10		68.9	223	101	329	8.5	306	1	961	346	1	9.7
EP-23	2/22/99	7.52	3.3	7.21	7.5	3070	3370	2276	3.1		73.4	212	102	343	5	301	1	887	326	1	9.3
EP-23	5/1/99	8.8	2.9	7.23	7.9	3030	3080	2174	4.5		83.6	230	117	370	12	303	1	1002	329	1	9.4
EP-23	8/9/99	7.19	2.7	7.44	7.9	1838	1854	1288	4.5	5	71.6	126	56	193	6.2	229	1	506	137	1	6
EP-23	10/30/99	8.19		6.88	7.4	3080	3070	2234	4	6.45	68.5	198	95	292	7.7	318	1	872	392	1	7.1
EP-23	1/27/00	7.62	0.8	7.12	8	3090	2920	2196	62	8.5	69.4	216	101	338	7.6	302	1	1013	367	1	11
EP-23	5/1/00	8.66	1.9	7.05	7.6	3080	3030	2317	3	3.4	74.7	184	91	317	7.2	305	1	970	302	1	8.2
EP-23	8/9/00	9.11	1.1	7.1	7.9	2880	2870	2134	2.2	4	74.8	166	77	245	6.6	303	1	941	283	1	8.3
EP-23	11/6/00		1.8	7.05	8.4	3070	3030	2279	2.2		66.9	176	82	269	6.6	301	1	997	311	1	8.6
EP-23	8/9/00		1.1	7.11	7.9	2860	2810	2116	3.2		67.8	182	37	161	4.3	323	1	971	311	1	8.6
EP-23	11/6/00	6.17	2.4	7.48	7.8	1546	1774	1058	14	9.8	72.1	180	92	318	7	317	1	961	199	1	10
EP-23	2/14/01	7.44	0.9	7.17	7.6	3000	2960	2192	3.8	3.4	72.1	180	92	318	7	317	1	961	199	1	10
EP-23	5/1/01	8.71	1.7	7.14	8.1	3020	2920	2271	1	5.63	72.1	181	93	307	6.6	299	1	967	411	1	12
EP-23	8/1/01		1.7	7.14	7.9	3020	2920	2270	1		77.4	184	94	317	6.8	301	1	973	371	1	11
EP-23	11/1/01	9.23	4.5	7.14	8	2850	2750	2091	1	2.32	75.2	199	92	303	8.6	301	1	962	293	1	8.1
EP-23	2/14/01	8.83	1.2	7.14	7.9	3060	2880	2197	2	3.1	73	212	101	333	9.7	315	1	962	365	1	9.9
EP-23	5/1/01	7.63	1.8	7.35	8.2	2700	2830	2002	1.8	1.96	63.86	181	91	289	6.6	312	1	929	357	1	7.7
EP-23	8/1/01		1.7	7.35	8.2	2690	2550	1977	1.4		62.44	182	92	317	7.1	310	1	984	360	1	7.8
EP-23	11/2/01	8.72	1.6	7.06	7.3	3040	3310	2201	4.1	2.4	73.32	192	94	317	9.3	323	1	984	362	1	7.9
EP-23	2/14/02	8.38	0.8	7.14	8.1	2950	3310	2161	1	6.1	70.46	202	94	314	6.8	317	1	882	411	1	9.2
EP-23	5/1/02		0.7	7.32	8.1	2950	3320	2157	1.2		76.46	201	94	312	6.4	325	1	857	350	1	7.1
EP-23	8/1/02	8.07																			
EP-23	11/1/02																				
EP-23	8/1/97	15.4	0.32	7.33	8	2800	2890	2126	4.4		74.5	196	49	465	33	383	1	1084	193	1	7.3
EP-23	11/7/97	13.6	0.35	7.3	8	2300	2950	1622	1.1		73.0	67	32	401	26	361	1	689	141	1	3.8
EP-23	2/6/98	19.25	0.61	7.34	7.7	2600	3140	1882	7.9		73.8	89	43	431	30	356	1	840	179	1	7.5
EP-23	5/14/98	15.49	0.52	7.39	7.7	2970	3010	2047	7.3		73.4	105	51	496	28	344	1	857	233	1	7.1

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT ft	DO mg/l	pH	SC		TDS mg/l	TSS mg/l	Turb NTU	Temp °F	DISSOLVED							CO ₃ mg/l	SiO ₄ mg/l	Cl ⁻ mg/l	F ⁻ mg/l	N mg/l
					Lab	Field					Ca mg/l	Mg mg/l	Na mg/l	K mg/l	IC ₀₃ mg/l							
EP-85	8/19/98	16.66	0.14	7.38	7.8	3240	2432	1.8		22.0	112	55	530	29	364	1	1158	268	33		6.8	
EP-85	8/19/98			7.8	7.8	3250	2427	1.8		74.4	133	56	553	28	366	1	1145	264	32		6.7	
EP-85	1/11/98	10.71	1.5	7.51	7.7	2850	2011	13	14	73.9	91	45	502	28	376	1	1021	170	33		7.6	
EP-85	2/18/99	15.21	0.4	7.45	7.6	2770	1998	7.3		73.6	91	42	481	14	366	1	884	191	37		7.2	
EP-85	2/18/99		0.4	7.45	7.7	2770	1724	5.6		73.9	91	44	500	36	371	1	623	209	38		6.6	
EP-85	5/11/99	16.39	0.5	7.32	8	3070	2001	1	1	75.2	107	57	540	34	356	1	1106	220	34		5.8	
EP-85	8/9/99	9.92	0.5	7.38	7.8	3200	2276	2.7	1.1	73.0	105	53	524	29	343	1	1119	224	37		6.7	
EP-85	8/9/99		0.5	7.38	7.8	3190	2282	2.7		75.5	107	54	542	30	317	1	1106	216	37		6.7	
EP-85	10/27/99	14.81	0.5	7.15	8.1	2700	1831	1.2	1.31	76.1	82	39	444	26	364	1	1119	172	37		6.6	
EP-85	10/27/99		0.5	7.15	8.2	2700	1871	1	1	71.3	84	41	458	37	370	1	1103	173	37		5.8	
EP-85	1/28/00	16.6	0.2	7.31	7.9	3000	2870	1.9	1.42	73.9	96	47	530	37	390	1	948	219	33		6.4	
EP-85	5/20/00	17	0.7	7.3	7.2	3220	2276	1	1.79	73.9	91	48	504	25	318	1	953	222	33		6.6	
EP-85	5/20/00		0.6	7.3	7.7	3220	2248	1	1	76.6	96	50	515	25	386	1	984	239	32		6.7	
EP-85	8/9/00	13.66	1	7.35	8.1	2620	1784	15	0.5	73.2	85	31	387	25	403	1	765	164	37		5.4	
EP-85	11/9/00	14.15	0.6	7.33	8	2590	1803	3.1	2.3	73.8	71	35	413	24	366	1	697	148	37		5.4	
EP-85	11/9/00		0.6	7.33	8.4	2580	1805	3.2		72.0	70	34	387	24	355	1	791	157	37		6.7	
EP-85	2/16/01	15.95	0.5	7.37	8	2760	1926	3	4.7	72.1	85	41	411	26	356	1	849	191	33		7.5	
EP-85	2/16/01		0.4	7.37	8.2	2760	1932	4.4		71.7	70	38	380	24	344	1	850	199	24		7.6	
EP-85	5/14/01	16.7	0.9	7.43	7.9	3180	2259	2.8	4.9	74.8	118	58	487	29	366	1	1280	121	3		8.8	
EP-85	7/25/01	17.79	0.1	7.43	7.8	3190	2209	1	0.9	75.6	104	52	545	30	377	1	1061	273	31		5.7	
EP-85	11/13/01	16.27	0.3	7.28	8.4	2190	1440	1	2	23.4	31	25	380	36	403	6	4	4	4		4.2	
EP-85	2/19/02	16.8	0.3	7.32	8.3	3640	2129	1	2.1	74.48	138	54	466	30	371	1	803	21	23		6.6	
EP-85	2/19/02		0.3	7.33	8.3	2960	2094	1	1	74.66	107	53	483	28	344	1	865	266	27		6.7	
EP-85	5/10/02	17.24	0.5	7.32	8	3300	2274	1.7	2.08	74.84	136	58	440	33	395	1	768	294	23		5.2	
EP-85	5/10/02		0.4	7.32	8	3300	2270	1		74.84	124	60	553	33	395	1	728	272	28		5.8	
EP-85	8/15/02	10.94	0.3	7.35	8	3150	2185	1.8	8.88	75.38	97	47	507	25	390	1	947	205	23		5	
EP-85	8/15/02		0.6	7.37	7.9	3150	2218	2		75.56	96	47	510	25	390	1	1038	249	31		10	
EP-85	11/30/02	16.54	1.6	7.45	7.9	2880	1960	2.2	2.2	74.84	94	45	442	24	377	1	877	216	22		7.3	
EP-85	8/13/97	49.3	7.68	7.03	8	2630	1780	78		70.9	46	33	493	11	356	1	658	285	28		6.6	
EP-86	11/18/97	49.27	5.36	7.14	8.3	2690	1758	182		72.1	42	32	516	11	415	1	666	291	27		5.0	
EP-86	2/6/98	48.74	6	7.53	7.8	2640	1812	201		72.0	41	33	497	12	383	1	679	257	23		5.8	
EP-86	5/14/98	48.83	8.01	7.7	7.9	2640	1828	61		72.3	40	30	507	5	346	1	595	244	28		5.6	
EP-86	8/19/98	49.61	7.66	7.67	8.1	2680	1823	4		76.5	40	31	501	7.7	351	1	782	275	27		5.3	
EP-86	11/29/98	49.73		7.45	7.9	2640	1762	183	14	72.0	43	33	522	10	414	1	647	271	27		6.8	
EP-86	11/29/98			7.9	7.9	2640	1751	146	11	71.8	43	32	531	11	366	1	640	271	28		6.6	
EP-86	2/18/99	49.11	6.5	7.74	7.9	2600	1759	42		74.5	40	28	515	12	355	1	390	250	28		6.2	
EP-86	5/11/99	49.24	8.7	7.69	8.2	2570	1689	12		73.2	42	33	520	8.8	351	1	632	231	26		5.5	
EP-86	8/9/99	49.91	6.9	7.66	8.1	2600	1716	15	7.9	71.6	42	32	490	9.2	331	1	632	238	27		5.3	
EP-86	10/21/99	50.06		7.44	7.9	2640	1687	11	5.41	71.6	39	29	453	8.5	368	1	550	351	27		5.7	
EP-86	10/31/99				8	2650	1665	8.8		70.9	39	30	452	8.6	355	1	575	339	27		4.9	
EP-86	12/1/00	49.92		7.58	8.2	2640	1626	28	16.5	71.5	45	32	517	8.4	355	1	600	304	27		4.9	
EP-86	5/20/00	49.7	7.3	7.57	8	2630	1739	10	8.25	74.8	38	28	436	7.6	356	1	625	248	28		6.2	
EP-86	8/9/00	50.05	8.7	7.6	8.6	2600	1652	8.8	4.05	69.6	38	27	425	7.2	301	1	675	271	26		6.3	
EP-86	11/9/00	49.88	7.5	7.58	8.5	2640	1745	8.2	7.6	70.7	35	26	454	7.6	332	17	645	275	27		6.4	

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT lb	DO mg/l	PH	SC		TDS mg/l	TSS mg/l	Turb. NTU	Temp °F	DISSOLVED					K mg/l	HCO ₃ mg/l	Ca mg/l	Mg mg/l	Na mg/l	Cl mg/l	SO ₄ mg/l	Fe mg/l	N mg/l
					unbalanced	Lab					Ca	Mg	Na	K	HCO ₃									
EP-85	2/15/01	49.21	7.6	7.55	7.9	2610	2530	1658	15	6.5	70.7	34	35	108	7.2	340	1	U	603	236	2.0	6.7		
EP-86	2/15/01		7.7	7.55	7.8	2530	2530	1670	20	6.9	72.5	37	38	480	8.9	351	1	U	672	260	2.0	0.8		
EP-86	3/14/01	49.45	10.6	7.77	8.1	2650	2460	1767	20	6.9	71.8	47	34	460	8.9	351	1	U	680	104	2.0	0.7		
EP-86	7/25/01	50.11	7.7	7.7	8.1	2620	2520	1765	7.9	7	71.8	38	39	360	8.9	351	1	U	671	249	2.0	0.7		
EP-86	7/25/01		7.7	7.7	8.1	2630	2520	1695	9.1	7	72.0	37	38	400	8.9	349	1	U	616	297	2.0	0.0		
EP-86	11/13/01	50.33	8.2	7.33	8.1	2680	2660	1782	8.3	4	71.3	39	30	518	1	366	1	U	516	330	2.7	0.0		
EP-86	11/13/01		8	7.33	8.6	2680	2650	1761	7.5	4	70.88	38	30	485	10	333	14	14	587	326	2.7	0		
EP-86	2/15/02	50.18	7.3	7.56	8.4	2690	2400	1800	5.9	4.55	70.88	39	30	495	8.3	334	7	U	625	34	14	3.6	5.7	
EP-86	5/7/02	49.88	6.4	7.5	8.2	2660	2940	1680	13	3.75	71.76	37	28	464	12	365	1	U	614	263	2.8	0		
EP-86	8/14/02	50.46	6.9	7.79	8	2660	2390	1706	3.4	7.8	75.56	38	30	468	7.3	361	1	U	711	290	2.8	5.9		
EP-86	8/14/02		7	7.79	8	2660	2400	1737	3.6		75.38	38	29	472	7.4	350	1	U	708	291	2.8	7.1		
EP-86	11/11/02	50.5																						
EP-87	9/15/97																							
EP-87	11/18/97	11.47	4.7	7.49	8.2	560	685	365	20		68.0	72	17	18	5	283	1	U	41	76	4	0.47	1.3	
EP-87	8/10/99	10.99	3.4	7.34	7.8	665	688	405	498		75.9	66	101	24	16	101	2	U	39	12	100	0.39	0.1	2.3
EP-87	8/12/97	29.52	0.73	7.35	8.4	5150	5370	3679	438		77.2	77	26	23	23	337	1	U	48	15	104	0.04	0.077	14
EP-88	11/11/97	28.12	0.43	7.41	7.9	5240	5940	3730	72		74.3	68	46	1145	8.8	327	6	U	1787	471	2.2	1		
EP-88	2/12/98	27.73	1.53	7.24	7.8	5320	6600	3946	60		76.6	59	38	1311	6.9	335	1	U	1609	448	1.9	0.86		
EP-88	5/1/98	28.53	1.21	7.6	8	5370	5860	4085	205		77.5	54	35	1366	10	500	1	U	1848	425	2.2	0.95		
EP-88	6/1/98	30.25	0.85	7.31	7.7	5400	5460	3832	32		71.4	53	35	1330	15	614	1	U	1711	468	2.2	0.9		
EP-88	11/11/98	28.82	4.9	7.4	7.6	4940	4710	3660	16		72.3	75	45	1181	8.5	501	1	U	1633	416	2.1	2.2		
EP-88	2/1/99	29.2	1.3	7.53	8.2	5350	5160	3832	143		76.1	50	31	1080	9	655	1	U	1723	454	2.4	0.51		
EP-88	5/7/99	30.30	0.9	7.34	7.9	5340	5810	3800	90		76.8	57	39	1130	10	572	1	U	1677	450	2.2	2.3	11	
EP-88	8/5/99	29.43	4.4	7.14	8.1	5070	5930	3742	61	18	75.0	55	37	1031	6.7	560	1	U	1865	407	2.2	1.7		
EP-88	10/7/99	29.98		7.13	7.7	5300	5360	3576	17		73.9	90	38	912	6.7	555	1	U	1736	403	2.2	2.4		
EP-88	12/6/00	20.13	2.3	7.4	8.6	5220	4970	3360	39		73.9	71	49	1016	7.8	522	1	U	1732	403	2.1	3.1	11	
EP-88	2/20/00	30.07	0	7.41	8.2	5220	5180	3462	10		76.1	76	49	1096	8	567	1	U	1604	460	2.1	3	11	
EP-88	8/4/00	29.09	0.6	7.24	8.1	5290	5220	3705	3.1		73.6	34	34	1020	3.9	609	1	U	1633	262	2.1	2.8		
EP-88	11/7/00	30.15	0.3	7.32	8	5240	6010	3643	6.4	5.35	73.2	36	35	1029	8.3	628	1	U	1539	434	2.1	1.1		
EP-88	2/14/01	30.21	1.1	7.41	7.8	4900	4800	3406	31		73.0	37	35	875	6.3	542	1	U	1775	345	2.1	3.4		
EP-88	5/9/01	31.29	0.8	7.42	8.2	5080	4970	3575	3		78.4	59	40	1042	8.6	594	1	U	1619	459	2.1	3.5		
EP-88	7/19/01	32.11	0.3	7.29	8.1	4860	4710	3455	30		78.3	74	53	1000	6.6	495	1	U	1604	460	1.9	5.3	14	
EP-88	11/1/01	31.59	0.4	7.2	7.9	4940	4660	3489	35		74.8	71	47	1130	8.4	561	1	U	1512	487	2.2	3.6		
EP-88	2/11/02	31.32	1.2	7.34	8.3	4800	4880	3316	8.8		74.8	71	50	877	8.4	559	1	U	1445	462	2.1	5.1		
EP-88	5/2/02	31.77	0.7	7.27	7.9	4860	5160	3501	32		78.98	71	48	959	6.8	610	1	U	1677	458	2.3	4.2		
EP-88	8/9/02	31.14	0.2	7.36	7.8	4610	4540	3220	384	32	76.64	69	49	939	6.2	569	1	U	1811	431	1.9	5.3		
EP-88	11/14/02	31.15																						
EP-88	8/12/97	15.1	5.34	7.04	7.9	2780	2100	2085	5.4		74.5	175	68	179	21	273	1	U	850	368	0.77	8.1		
EP-88	11/13/97	15.26	3.86	7.12	7.4	2770	3150	1956	2.9		75.7	137	62	130	20	281	1	U	777	356	0.72	9	14	
EP-88	2/1/98	15.12	4.09	7	7.7	2770	3600	1995	5.8		75.9	163	65	378	20	266	1	U	747	314	0.7	9.8		
EP-88	5/12/98	15.01	4.05	7.29	7.7	2780	2770	1814	2.2		75.7	155	62	360	15	364	1	U	797	336	0.77	7.3		
EP-88	8/13/98	14.93	3.55	7.17	7.9	2840	2810	2144	2		74.8	177	70	433	22	272	1	U	840	318	0.72	14	8.1	
EP-88	11/10/98	15.46	5.3	7.19	7.5	3850	2830	2067	4		76.3	176	67	387	20	272	1	U	860	336	0.76	8.2		

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	SC	TDS	TSS	Turb.	Temp.	Ca	Mg	Na	K	HCOD	CO3	SO4	Cl	F	N
		ft	mg/l	field	unbalanced	mg/l	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
					Lab	Lab				Lab	Lab	Lab	Lab						
					Lab	Lab				Lab	Lab	Lab	Lab						
EP-89	2/10/99	14.2	3.7	7.22	2770	2810	7.5		75.7	167	67	330	19	356	1	986	202	0.75	7.2
EP-89	5/7/99	14.87	4.2	7.17	2750	2990	3		74.8	154	63	178	45	264	1	818	204	0.76	7.1
EP-89	8/5/99	14.4		7.24	2750	3220	2.5	4.5	74.8	169	58	126	19	259	1	763	326	0.77	9.8
EP-89	8/5/99			7.24	2860	3220	8.1		75.6	168	67	308	18	301	1	811	116	0.78	9.3
EP-89	10/28/99	15.33	2.8	6.92	2880	2580	4.1	4.8	75.6	171	66	357	18	244	1	20,000	532	0.82	7.6
EP-89	10/28/99		2.8	6.92	2880	2580	5.2	4.76	74.5	175	70	365	18	277	1	10,000	438	0.71	7.3
EP-89	1/24/00	14.7	3.5	7.14	2810	2750	3.2	2.75	76.3	145	59	365	17	268	1	824	300	0.75	9.2
EP-89	4/23/00	14.94	3.7	7.22	2800	2800	3	2.1	76.5	149	60	330	16	273	1	859	304	0.75	7.8
EP-89	4/23/00		3.7	7.22	2840	2800	2.8		76.6	144	59	319	15	271	1	882	320	0.74	7.9
EP-89	8/2/00	41.34	3.4	7.15	2900	2870	2	2.41	75.6	139	55	350	16	378	1	799	334	0.77	7.9
EP-89	10/31/00	14.57	3.2	7.17	2910	2810	2	2.1	75.6	148	57	414	16	372	1	909	337	0.78	7.8
EP-89	10/31/00		3.1	7.17	2910	2820	2.5	2.1	74.3	167	55	351	17	272	1	851	316	0.75	8.9
EP-89	2/8/01	14.54	4.5	7.14	2770	2800	1.2	3.52	75.4	149	61	304	16	282	1	901	316	0.72	9.2
EP-89	5/7/01	14.7	5.1	7.21	2880	2820	2.6	4	75.6	156	61	339	18	293	1	861	339	0.75	9.1
EP-89	5/7/01		4.3	7.22	2860	2820	1.8		76.5	163	64	366	19	253	1	901	333	0.75	8.2
EP-89	7/17/01	14.94	3.1	7.16	2930	2860	2.3	0.98	77.5	167	67	382	18	268	1	772	381	0.73	9.2
EP-89	10/10/01	14.84	2.8	7.25	2960	2980	5	3.45	74.6	172	70	400	21	288	1	877	367	0.75	11
EP-89	2/7/02	14.64	4.2	7.32	2910	3110	1.6	3.58	74.45	167	65	390	20	251	1	834	376	0.75	9
EP-89	4/7/02	14.52	3.7	7.02	2930	3000	1.8	2.95	75.92	166	65	370	19	281	1	855	377	0.72	8.5
EP-89	4/7/02		3.7	7.02	2920	3034	2.2		75.92	160	66	373	19	273	1	882	381	0.7	8.4
EP-89	8/6/02	14.5	3.9	7.25	3020	2940	8	3.65	76.28	174	68	413	17	278	1	878	349	0.75	7.1
EP-89	11/11/02	14.59																	
EP-90	5/7/98	61.08	1.12	7.1	2620	3220	6.4		71.8	55	21	534	15	218	1	729	265	2.1	12
EP-90	12/12/97	54.64	0	7.41	2620	3100	10.58		75.7	102	49	588	11	308	1	908	28	0.96	10
EP-90	2/17/98	53.9	5.13	7.12	2950	3020	139		77.4	117	58	510	9	294	1	832	316	0.81	14
EP-90	5/13/98	53.59	3.68	7.19	2900	2740	74		79.9	130	55	461	5	280	1	828	314	0.6	12
EP-90	8/17/98	54.4	1.91	7.42	2780	2390	7.8		72.3	75	36	421	8.1	268	1	637	234	0.76	8.3
EP-90	11/5/98	56.55	1.7	7.43	2660	512	38		73.9	88	43	416	7.8	287	1	732	244	0.99	11
EP-90	2/1/99	56.41	1.2	7.41	3340	3320	260		79.5	132	67	500	10	299	1	808	321	0.85	12
EP-90	5/10/99	56.77	4.4	7.01	4090	4360	21		77.7	184	100	695	13	281	1	1202	377	0.58	32
EP-90	8/5/99	56.4	1.1	6.92	4960	4960	185	23.5	76.5	191	130	687	10	331	1	1834	480	0.56	38
EP-90	10/3/99	57.22	0.5	7.19	4680	4680	9.7	7.91	74.8	191	101	680	9.8	311	1	1551	532	0.54	28
EP-90	12/4/00	57.05	0.5	7.17	5340	5010	236	45.2	76.6	204	106	756	11	345	1	2045	484	0.48	33
EP-90	4/26/00	57.05	0.6	7.11	5160	5160	192	17	77.2	216	113	715	10	371	1	2024	559	0.49	34
EP-90	8/4/00	57.38	0.3	6.99	5020	3853	133	61	77.2	219	106	712	8.3	343	1	1953	800	0.5	29
EP-90	11/2/00	57.78	0.4	7.11	5330	5990	39	19.5	77.2	232	113	832	14	338	1	1594	409	0.49	35
EP-90	1/13/00		0.5	7.1	5360	5990	100		75.2	232	113	884	14	336	1	1727	486	0.5	33
EP-90	2/12/01	58.27	0.3	7.11	5660	5280	44	32.7	76.6	256	124	986	16	406	1	2041	538	0.41	40
EP-90	5/8/01	58.1	0.8	7.1	5840	5780	235	36.2	76.1	387	145	986	16	406	1	2041	538	0.41	40
EP-90	7/19/01	58.33	0.9	6.55	5560	5420	103	104	76.1	387	145	986	16	406	1	2041	538	0.41	40
EP-90	7/19/01		0.8	6.96	5580	5400	151		71.1	257	135	975	11	383	1	2419	511	0.51	25
EP-90	11/1/01	58.98	0.7	7.09	5060	5340	171	31	74.3	227	121	885	13	397	1	1819	465	0.54	23
EP-90	2/4/02	59.42	0.7	7.2	4700	5010	167	35.8	73.4	156	92	770	9.6	393	1	1781	475	0.55	13
EP-90	2/4/02		0.6	7.22	4700	5000	139		71.76	177	98	749	9.4	393	1	1767	372	0.51	13

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT	DO	PH	Lab	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	N
		ft	mg/l	Field	Lab	anhydrous	mg/l	mg/l	NTU	°C	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EP-90	5/1/02	58.5	0.4	7.15	7.5	4660	3477	50	27	77.36	175	98	775	9.8	415	1	1360	387	0.6	12
EP-90	8/7/02	58.75	0.3	7.28	7.9	4690	3446	139	51.3	76.82	164	89	844	9.6	407	1	1390	470	0.5	15
EP-90	11/11/02	59.2																		
EP-93	10/13/99	48.35	4.6	7.33	7.7	5100	3728	1251		70.2	143	36	1065	19	942	1	1252	902	1.9	11
EP-93	12/7/00	47.6	3.4	7.31	8.1	5210	1550	1868	230	74.5	478	149	1090	24	1101	1	1435	670	1.7	9.5
EP-93	5/1/00	47.92	3.2	7.16	7.7	3740	2680	367	59.3	78.3	85	58	718	9.2	544	1	936	786	1.4	10.4
EP-93	8/9/00	48.01	2.9	7.19	8.1	4840	3331	337	16.5	69.3	116	73	850	12	756	1	1118	444	1.7	8.2
EP-93	11/8/00	47.93	3.5	7.28	7.7	4900	3449	232	11.2	72.5	91	67	895	8.8	712	1	1225	469	1.8	8.1
EP-93	2/14/01	47.69	3.2	7.21	7.8	4680	3222	216	34.8	82.8	82	61	823	8.7	661	1	1392	457	1.7	7.5
EP-93	5/1/01	47.86	3.2	7.14	7.9	4360	3208	188	108	85.6	93	72	866	9.4	728	1	1227	355	1.7	5.7
EP-93	7/24/01	48	4.1	7.19	8	4610	3196	117	217	75.4	62	38	887	8.8	628	1	1355	517	1.7	5.8
EP-93	11/21/01	48.1	2.8	7.19	8	4440	3018	111	29	25.7	65	62	802	9.4	567	1	1180	408	1.7	3.1
EP-93	2/15/02	47.98	3.2	7.23	8.1	4630	3352	42	16.6	71.78	67	64	808	8.2	634	1	1319	403	1.7	2.9
EP-93	5/8/02	47.9	4.2	7.13	8.2	4800	3260	21	8.5	76.08	66	63	879	8.6	708	1	1125	502	1.5	8.6
EP-93	8/19/02	47.98	3	7.39	8	4630	3222	65	22	81.86	70	63	930	7.8	616	1	1271	511	1.8	6.7
EP-93	11/11/02	47.95																		
EP-94	10/13/99	51.06	5.9	7.18	7.6	5040	3609	94		76.3	134	117	928	21	436	1	1290	635	1.3	14
EP-94	12/7/00	50.39	2	7.31	8	4870	3275	14	77	73.8	123	111	811	14	387	1	1448	608	1.3	7.9
EP-94	5/1/00	51.14	3.4	7.24	7.7	4500	3468	13	8.75	75.0	96	97	819	12	106	1	1386	560	1.3	10.2
EP-94	8/9/00	50.7	4.2	7.25	8	4910	3391	12	3.7	71.4	100	96	725	13	400	1	1411	554	1.3	15
EP-94	11/8/00	49.8	4.1	7.3	7.9	4800	3410	3	2.45	72.1	98	98	799	13	390	1	1354	577	1.3	13
EP-94	2/14/01	49.98	4.6	7.29	7.5	4720	3162	7.1	4.45	75.9	95	98	761	11	369	1	1342	571	1.3	11
EP-94	5/11/01	51	4	7.21	8	4660	3468	8.7	9.32	75.6	103	103	747	12	398	1	1431	552	1.3	13
EP-94	7/24/01	52.12	3.5	7.22	8.1	4820	3431	1	0.881	77.9	102	103	870	16	418	1	1674	547	1.2	13
EP-94	11/21/01	51.81	3.3	7.26	7.9	4740	3420	1.8	2.72	72.9	106	106	813	14	401	1	1157	526	1.4	10
EP-94	2/15/02	50.67	3.6	7.15	8.1	4810	3427	1	U	71.06	106	106	867	14	426	1	1142	544	1.4	11
EP-94	2/15/02		3.6	7.15	8	4840	3490	1	U	71.24	105	104	880	14	416	1	1536	544	1.4	12
EP-94	5/8/02	51.4	4.2	7.1	8	4820	3161	6.1	7.83	72.86	96	96	813	14	435	1	1504	604	1.3	12
EP-94	8/19/02	50.3	3.4	7.39	8.2	4540	3168	1	2.5	76.1	99	96	822	12	427	1	1376	507	1.4	11
EP-94	11/11/02	50.36																		
EP-95	10/26/99	23.5		6.67	8.3	3340	2200	26	14	70.7	48	63	582	4.9	377	1	9100	817	3.4	7.8
EP-95	1/27/00	22.1	6	7.65	8.3	3180	2187	2.7	1.2	70.9	44	65	635	5	367	1	972	132	2.7	9.6
EP-95	5/1/00	22.74	4.1	7.65	8.3	3300	2226	2.5	2.22	71.6	37	60	575	2.8	288	1	806	180	1.3	7.2
EP-95	8/9/00	22.26	5.1	7.67	8.3	3220	2127	2.8	3.7	70.3	35	57	48	2.7	372	1	859	355	3.4	11.9
EP-95	11/8/00	21.43	4.7	7.7	8.1	3240	2192	1	1.6	71.4	34	58	554	2.4	366	1	817	355	3.7	8.9
EP-95	2/14/01	21.72	4.7	7.66	7.4	3120	2065	1.4	2.5	72.1	34	56	529	2	390	1	825	338	3.9	8.2
EP-95	5/11/01	22.58	5.5	7.62	8.3	3140	2109	1.3	1.6	71.1	34	58	531	5	371	1	811	349	3.8	10
EP-95	7/24/01	23.59	6.9	7.53	8.2	3280	2185	1	U	71.1	36	61	610	4.8	354	1	852	395	1.3	8.6
EP-95	7/24/01		6.8	7.53	8.2	3280	2159	1	U	69.4	37	60	615	5.4	350	1	930	361	1.3	8
EP-95	11/21/01	23.52	4.8	7.59	8.1	3180	2219	1	U	71.3	38	64	586	2.5	359	1	845	374	4.1	8.3
EP-95	11/21/01		4.7	7.6	8.3	3170	2238	1	U	71.5	39	63	616	2.6	366	1	842	419	4.1	8
EP-95	2/14/02	22.3	4.9	7.68	8.5	3290	2187	1.9	2	71.08	36	63	728	2.6	349	1	812	382	3.9	7.8
EP-95	5/8/02	23.08	4.3	7.46	8	3180	2210	1.6	2.14	71.34	35	59	544	4	305	1	971	458	4	8.1
EP-95	5/8/02		4.4	7.47	8.1	3170	2210	1.5		71.42	35	60	569	3.2	345	1	910	441	3.1	6.5

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RJ

El Paso Aarco Smelter

Sample ID	Date	WT lb	DO mg/l	pH		SC		TDS mg/l	TSS mg/l	Turb NTU	Temp oF	DISSOLVED									
				Field	Lab	unabactm Lab	unabactm Field					Ca mg/l	Mg mg/l	Na mg/l	K mg/l	HCO ₃ mg/l	CO ₃ mg/l	SO ₄ mg/l	Cl mg/l	F mg/l	N mg/l
EP-95	8/19/02	22.08	4	7.86	8.1	3340	2330	2248	1	U	5.6	37	6.6	594	2	U	356	440	4.1	8.1	
EP-95	11/11/02	22.38																			
EP-96	10/13/99	68.8	6.6	7.27	7.7	4960	5090	3692	349		70.0	237	118	874	24	U	361	471	4.1	15	
EP-96	1/27/00	58.44	3.8	7.21	8	4930	4680	3450	341	200	73.8	232	116	934	10	U	647	407	1	15	
EP-96	5/10/00	59.31	4.2	7.17	7.8	4780	4690	3514	438	190	76.1	162	91	791	13	U	527	467	4.1	15	
EP-96	8/9/00	60.1	6.1	7.19	8	4780	4700	3366	307	69.3	71.3	140	84	681	12	U	500	464	4.1	17	
EP-96	11/6/00	59.19	4.1	7.24	7.8	4780	5750	3436	217	72	74.3	133	86	792	12	U	605	453	4.1	13	
EP-96	2/14/01	58.34	4.3	7.19	7.6	4600	4540	3200	103	17.5	81.9	107	77	694	11	U	498	455	1.1	15	
EP-96	5/11/01	58.64	4.1	7.14	7.9	4680	5010	3437	59	45.3	78.8	121	98	828	13	U	471	543	1.1	16	
EP-96	7/24/01	60.44	7.1	7.15	8.1	4360	4444	3258	231	45.1	83.9	108	84	819	13	U	453	511	1.1	15	
EP-96	11/20/01	59.48	4.2	7.19	7.9	4640	4330	3277	62	15.7	74	116	91	837	13	U	437	528	1.1	13	
EP-96	2/15/02	58.42	3.7	7.21	8.4	4160	6990	3177	24	8.96	70.88	112	86	820	12	U	444	474	1.1	13	
EP-96	5/8/02	58.38	3.5	7.06	7.9	4450	5020	3050	13	9.34	76.1	101	79	777	11	U	434	493	1.1	10	
EP-96	8/19/02	58.46	3.2	7.37	8.2	4000	3450	3263	18	9.98	70.15	110	84	833	11	U	431	522	1.2	13	
EP-97	10/18/99	53.5	6.3	7.16	7.8	4940	5030	3689	42		49.6	198	123	847	15	U	599	443	1.5	16.37	
EP-97	12/7/00	4.83	1	7.36	8.1	5020	4880	3584	169	77	68.5	187	128	851	8.8	U	627	677	1.1	16.46 101.71	
EP-97	5/11/00	6.55	3.1	7.36	7.8	5350	5170	3928	50	31.1	83.5	142	109	941	8.2	U	644	530	1.1	16.43 5.38 101	
EP-97	8/9/00	6.89	4.3	7.01	8	4040	4190	3817	7.5	3.7	57.0	108	72	643	11	U	659	448	1.4	15 10.07 111.11	
EP-97	11/8/00	4.42	1.2	7.55	7.9	4860	3440	2438	208	52	70.5	96	63	548	6.2	U	510	281	1.4	16.05 0	
EP-97	2/14/01	11.7	1.7	7.49	7.8	5260	6160	3786	188	5	58.6	149	104	867	7.1	U	605	511	1.1	16.34	
EP-97	5/14/01	6.77	9.1	7.45	8.1	5140	4590	3771	1029	61	82.2	206	126	860	14	U	756	607	1.5	16.27 11	
EP-97	7/24/01	5.26	6.6	7.09	7.8	5440	5560	4039	15	10	71.1	151	109	973	10	U	500	548	1.1	17	
EP-97	11/2/01	6.55	3.8	7.08	8.1	3720	3510	2561	92	12	34	114	87	626	9.4	U	688	430	1.1	16.21	
EP-97	2/14/02	4.97	1.6	7.56	8.1	3290	3110	2310	26	6.1	52.34	97	70	627	5.3	U	453	365	1.1	16.21	
EP-97	5/8/02	6.58	2.1	7.17	8.2	4880	5380	3545	35	5.18	74.12	153	109	833	10	U	634	602	1.4	16.07	
EP-97	8/19/02	5.78	0.4	7.16	8.4	5070	3500	3717	124	6.12	73.62	143	100	830	11	U	222	491	1.6	16.05 11	
EP-97	11/11/02	5.15																			
EP-98	10/18/99	26.91	4.9	7.66	8.1	6370	6910	4639	235		71.5	162	93	1293	134	U	467	371	2.7	12	
EP-98	12/7/00	11.97	2.6	7.72	8.1	7370	6960	5133	162	150	75.2	112	78	1715	116	U	470	555	3.4	18 16	
EP-98	5/10/00	13.13	3.4	7.55	8	7880	7680	6035	22	20.2	80.1	79	69	1802	148	U	471	540	1.1	16	
EP-98	8/9/00	12.61	2.8	7.44	8.3	6460	7140	4548	14	7.8	72.7	73	67	1008	90	U	432	684	2.5	11 11	
EP-98	11/8/00	10.55	4.5	7.5	8	5880	7120	4212	6.1	5.26	70.5	71	68	1036	87	U	439	530	2.2	12	
EP-98	2/14/01	11.7	1.7	7.49	8	6240	6160	4547	12	5	72.7	72	66	1057	87	U	439	530	2.7	14	
EP-98	5/14/01	13.16	2.7	7.61	8.4	7080	6590	5340	10	9.03	72.5	96	87	1285	149	U	472	712	2.7	14	
EP-98	5/14/01		2.6	7.61	8.3	7080	6700	5351	14		80.4	82	75	1405	153	U	458	604	3.3	18 11	
EP-98	7/24/01	14.11	3.5	7.4	8.1	6210	5940	4539	2	1.84	70.7	81	77	1255	96	U	416	534	2.1	13 11	
EP-98	11/20/01	13.52	3.9	7.4	8.1	5680	5140	4000	9.5	9.81	26.5	80	79	1071	101	U	411	599	2.1	13	
EP-98	5/14/02	12.01	2.9	7.43	8.4	5420	5240	3946	1.1	1.51	71.6	76	77	1387	102	U	288	554	1.9	11	
EP-98	5/8/02	13.37	2.3	7.37	8.2	6000	6760	4283	21	3.05	75.2	77	75	1151	96	U	447	510	2.7	11	
EP-98	8/19/02	11.79	1.8	7.31	8.2	5850	4134	4134	18	8.45	79.88	79	71	1090	92	U	482	538	2.3	10	
EP-98	11/11/02	12.21																			
EP-99	10/18/99	72.5	9.1	7.03	7.6	5600	5660	4758	473		77.9	387	156	713	75	U	451	354	3	16.8	
EP-99	8/9/00	71.55	1.5	7.07	7.6	5840	5840	4783	18	9.8	71.4	323	117	676	91	U	365	358	3.6	11 16	
EP-99	11/8/00	72.37	1.9	7.25	7.7	5460	6300	4341	43	5.96	67.5	392	139	727	87	U	370	304	2.4	15 15	

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT (t)	DO (mg/l)	PH	Lab	SC (unfiltered)	TDS (mg/l)	TSS (mg/l)	Temp (°F)	Ca (mg/l)	Mg (mg/l)	Na (mg/l)	K (mg/l)	HCO ₃ (mg/l)	CO ₃ (mg/l)	SO ₄ (mg/l)	Cl (mg/l)	F (mg/l)	N (mg/l)
SEP-99	2/22/01	73.8	2.8	7.3	7.9	5110	4960	365	32.0	381	106	646	60	476	1	2312	324	1.4	64
SEP-99	5/9/01	74.79							32.0										
SEP-99	7/28/01	75.39																	
SEP-99	11/5/01	74.47																	
SEP-99	2/13/02	74.95																	
SEP-99	5/10/02	72.18																	
SEP-99	8/14/02	71.61																	
SEP-1	8/15/97		6.05	8.38	8.3	910	873	275	66.9	62	15	114	8.4	220	1	156	81	0.63	0.5
SEP-1	11/10/97		12.2	8.04	8	4660	4680	3424	65.5	196	77	793	60	381	1	1616	435	2.3	4.1
SEP-1	2/13/98			7.38	7.9	4530	868	20	79.5	202	76	748	67	388	1	1676	481	2.1	3.8
SEP-1	5/20/98		6.79	8.75	8.2	1093	967	99	85.8	71	47	139	69	218	1	226	107	0.83	0.34
SEP-1	8/11/98		5.9	8.46	8.3	951	938	242	57.6	56	15	113	8.1	237	1	139	82	0.64	0.17
SEP-1	2/19/99		10.9	8.54	8.3	2100	1831	28	77.4	109	26	315	13	275	1	313	248	0.81	2.6
SEP-1	5/12/99		5	7.48	8	1172	73	746	74.1	73	18	140	7.6	160	1	216	92	0.72	0.14
SEP-1	8/20/99		5.1	8.05	8.4	918	913	522	81.2	39	12	163	6.9	242	1	146	76	0.64	0.58
SEP-1	11/1/99		7.2	8.15	8.3	1803	1808	1135	55.0	99	25	215	11	276	1	423	250	0.71	1.3
SEP-1	1/31/00		7.1	8.33	8.3	1402	1350	67	78.3	85	19	191	7.3	244	1	232	167	0.71	1.1
SEP-1	5/9/00		6.3	8.51	8.3	1120	1104	107	83.8	83	18	171	10	224	1	237	102	0.73	0.47
SEP-1	8/14/00		5.6	8.41	8.6	984	878	278	82.6	57	16	103	0.1	772	1	213	89	0.66	0.3
SEP-1	1/10/00		5.7	8.4	8.6	967	880	275	51.4	58	16	99	8.3	224	1	207	73	0.68	0.31
SEP-1	2/23/01		8.4	8.61	8.4	1299	1368	85	71.0	66	13	128	7.2	244	1	310	266	0.68	1.8
SEP-1	5/16/01		9.5	8.6	8.3	946	868	265	88.2	88	16	116	9	207	1	207	90	0.7	0.53
SEP-1	7/31/01		9	8.38	8.2	1046	1085	153	89.7	60	13	125	7.3	206	1	217	105	0.7	0.34
SEP-1	1/1/00		8.9	8.52	8.3	1045	1089	155	83.1	61	16	130	8.3	215	1	210	169	0.71	0.32
SEP-1	1/1/00		7.6	7.94	8.5	1846	1702	20	60.26	104	27	241	11	280	1	411	272	0.72	1.2
SEP-1	2/22/02		8	7.56	8.6	2360	2420	15	74.9	58	15	112	7.2	215	1	510	332	0.8	3.2
SEP-1	5/13/02		7.4	8.48	7.8	966	979	200	70.7	58	15	112	7.2	215	1	183	82	0.8	0.19
SEP-1	5/13/02		7.3	8.47	7.7	962	980	221	70.88	62	16	116	7.6	215	1	181	87	0.78	0.11
SEP-1	8/21/02		5.2	8.68	7.8	1026	1010	202	83.48	60	16	128	6.3	223	1	202	88	0.74	0.39
SEP-1	11/13/02		8.6	6.68	8.1	1962	1610	13	9.86	116	28	247	9.6	306	1	463	315	0.77	1.3
SEP-10	8/15/97		6.22	8.4	8.4	835	818	236	32.0	60	14	100	8.2	203	2	145	99	0.64	0.35
SEP-10	8/15/97				8.3	837		339	60.8	60	14	100	8.1	212	1	131	87	0.64	0.37
SEP-10	11/19/97		7.32	8.38	8.5	1970	2180	16	51.8	103	25	278	13	278	1	436	253	0.82	3
SEP-10	2/13/98			8.29	8.3	1474	210	80	80.1	82	17	228	7.4	329	1	264	175	0.69	3
SEP-10	5/19/98		7.43	8.84	8.3	1066	1072	102	32.0	74	17	130	8	201	1	279	113	0.68	0.21
SEP-10	8/15/98		6.5	8.53	8.7	969	875	105	44.7	72	17	126	5.4	181	7	239	100	0.68	0.21
SEP-10	11/18/98		7.5	8.22	8.4	1854	1882	18	61.2	190	23	226	12	249	1	339	85	0.62	0.17
SEP-10	2/19/99		10.4	8.41	8.2	2060	1675	28	73.4	110	27	307	15	293	1	240	219	0.77	1.7
SEP-10	5/19/99		6	7.14	8.3	1155	1008	62	82.2	77	20	133	8.1	339	1	244	81	0.72	0.32
SEP-10	8/20/99		5.3	8.17	8.2	892	889	592	70.9	62	12	99	7.2	339	1	380	67	0.68	0.52
SEP-10	11/1/99		9.3	8.21	8.3	2120	2080	41	58.3	105	20	281	12	282	1	312	251	0.80	0.75
SEP-10	2/14/00		9.1	8.37	8.5	2210	1458	35	74.7	108	26	294	11	255	1	182	290	0.87	1.6

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT ft	DO mg/l	pH	SC		TDS mg/l	TSS mg/l	Turb. NTU	Temp °F	DISSOLVED										CO ₃ mg/l	SO ₄ mg/l	Cl mg/l	F mg/l	N mg/l
					Lab	Field					Ca mg/l	Mg mg/l	Na mg/l	K mg/l	HCO ₃ mg/l	CO ₃ mg/l	SO ₄ mg/l	Cl mg/l	F mg/l	N mg/l					
SEP-10	5/10/00		5.9	8.35	8.3	1076	1066	75	21.3	74.8	77	17	115	9.7	220	1	101	215	94	0.72	0.1				
SEP-10	5/10/00		6	8.36	8.5	1072	1067	78	16.5	75.9	78	17	138	9.5	206	7	14	277	134	104	0.75	0.1	5.8	1.2	
SEP-10	8/21/00		5.4	8.2	8.5	927	902	406	16.5	55.9	75	18	94	8.7	226	13	10	172	78	0.66	0.61				
SEP-10	11/15/00		11.5	8.62	8	2000	1958	32	6.1	53.2	61	25	257	11	310	1	U	423	13	1.7	0.80	1.3			
SEP-10	2/28/01		7.4	8.55	8.2	1074	1048	154	8.6	72.9	64	14	107	7.3	233	1	U	201	117	0.71	0.09	1.2			
SEP-10	5/17/01		9.9	8.52	8.4	1094	1012	713	33	82.9	70	17	133	9.1	215	3.6	214	133	133	0.75	0.45				
SEP-10	7/31/01		8.3	8.17	8	1000	1041	657	133	32.0	61	15	119	9.7	209	1	U	193	101	0.7	0.15				
SEP-10	11/16/01		9.2	8.29	8.5	2000	1802	1265	6.67	15.2	111	29	285	12	289	14	14	480	270	0.8	0.96				
SEP-10	2/22/02		9.2	8.39	8.5	2550	2380	1679	6.66	54.14	111	29	386	11	246	17	315	390	0.84	2.4					
SEP-10	5/14/02		8	8.72	7.9	958	968	571	13	72.5	52	15	120	11	210	1	U	187	78	0.79	0.3				
SEP-10	8/22/02		4.9	8.6	8	1052	1052	690	50	80.78	60	16	178	6.9	222	1	U	201	95	0.75	0.45				
SEP-10	12/16/02		10.8	8.42	8.1	814	810	431	247	55.94	119	30	315	15	303	2	U	497	275	0.86	1.3				
SEP-11	8/15/07		6.33	8.42	8.1	814	810	432	247	57.7	60	14	101	8.1	198	1	U	140	73	0.57	0.36				
SEP-11	11/10/07		6.91	8.1	8.3	1013	741	758	33	52.7	61	25	272	7.2	282	1	U	415	246	0.74	2.3				
SEP-11	2/13/08		7.16	8.32	8.4	1447	228	949	91	84.7	85	18	255	8.2	224	7	359	178	0.71	2.3					
SEP-11	5/19/08		7.19	8.79	8.5	1071	1063	660	104	85.5	72	11	126	9.4	175	17	14	229	119	0.66	0.21				
SEP-11	8/18/08		6.43	8.59	8.7	968	869	623	202	69.3	65	15	115	9.7	207	11	205	36	0.6	0.14					
SEP-11	11/18/08		7.8	8.51	8.5	1877	1850	1219	23	32.0	102	34	276	12	201	5	438	249	0.72	2					
SEP-11	11/18/08		10.9	8.47	8.3	2060	1613	1390	31	58.5	102	28	292	15	289	1	U	290	237	0.76	1.9				
SEP-11	2/19/09		5.8	7.06	8.4	1151	1099	755	112	72.7	75	19	140	7.6	219	5	204	98	0.72	0.25	1.4				
SEP-11	5/13/09		5.7	7.07	8.4	1154	1101	727	65	73.4	75	19	140	7.6	227	5	192	103	0.72	0.1	0.15				
SEP-11	8/20/09		5.4	8.18	8.3	895	887	581	500	50.0	63	13	100	7.3	211	5	191	69	0.64	0.51					
SEP-11	11/2/09		7.8	7.63	8.4	1972	2110	1294	37	58.3	106	38	246	11	285	1	U	415	246	0.78	0.6				
SEP-11	2/14/00		6.2	8.52	8.5	2303	2222	1517	17	75.4	112	29	315	14	216	13.8	14	144	110	0.86	1.6				
SEP-11	5/10/00		5.8	8.36	8.3	1083	1067	587	79	82.4	79	18	137	10	218	1	U	217	98	0.72	0.1	0.15			
SEP-11	8/21/00		10.7	8.2	8.3	929	907	583	101	54.9	69	17	89	8.2	250	1	U	186	83	0.65	0.58				
SEP-11	11/15/00		10.9	8.6	8	2060	2010	1359	30	54.9	104	26	267	11	311	1	U	436	251	0.8	1.3				
SEP-11	11/15/00		7.7	8.51	8	2060	2010	1371	32	54.0	105	25	261	11	312	1	U	395	243	0.82	1.6				
SEP-11	2/28/01		7.5	8.51	8.1	1141	1119	739	131	74.9	70	16	129	8.2	235	1	U	230	150	0.72	0.36	1.4			
SEP-11	5/17/01		7.5	8.45	8.4	1083	984	690	107	82.8	72	17	114	9.3	223	3.6	215	126	0.73	0.6					
SEP-11	7/31/01		8	8.17	7.9	1003	1042	654	213	32.0	60	15	119	8.4	195	1	U	221	99	0.68	0.15				
SEP-11	11/16/01		9.5	8.25	8.6	1900	1800	1258	19	15.7	116	30	287	13	376	8	14	469	318	0.77	1.1	0.11			
SEP-11	2/22/02		9.5	8.28	8.5	2570	2400	1594	24	53.78	112	39	374	11	281	10	516	416	0.84	2					
SEP-11	5/14/02		8.2	8.16	7.9	966	964	591	44	72.4	64	16	122	10	207	1	U	187	89	0.75	0.12				
SEP-11	8/22/02		5	8.63	8.1	1061	1057	687	175	80.42	61	16	132	6.5	226	1	U	228	105	0.72	0.8				
SEP-11	12/16/02		10.2	8.47	8.3	2230	2180	1489	14	55.58	120	31	306	13	298	2	U	532	260	0.81	1.2				
SEP-12	8/15/07		6.34	8.47	8.3	850	834	590	224	52.5	51	14	101	8.2	215	1	U	131	68	0.64	0.38				
SEP-12	11/10/07		6.64	8.37	8.3	1970	1648	1323	31	48.9	105	26	272	11	385	1	U	437	354	0.75	2.2				
SEP-12	2/13/08		6.87	8.49	8.4	1432	212	911	97	82.6	85	18	211	7.5	233	10	233	176	0.68	1.3					
SEP-12	5/19/08		5.51	8.82	8.4	1064	1125	646	99	76.6	71	17	127	14	185	10	14	216	105	0.66	0.22				
SEP-12	8/20/08		8	8.6	8.4	952	974	644	204	69.3	69	14	112	8.2	224	2	180	81	0.92	0.22					
SEP-12	11/18/08		8	8.24	8.4	1877	1856	1283	20	57.9	105	25	277	12	266	5	421	212	0.72	1.9					
SEP-12	2/19/09		9.9	8.39	8.3	2070	1573	1100	26	70.3	113	30	301	16	295	1	U	301	238	0.78	1.5				

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT g	DO mg/l	pH		SC		TDS mg/l	TSS mg/l	Turb. NTU	Temp oF	Cu mg/l	DISSOLVED					K mg/l	HCO ₃ mg/l	CO ₃ mg/l	SO ₄ mg/l	Cl mg/l	F mg/l	N mg/l		
				Field	Lab	unbalanced	balanced						Mg	Na												
				Lab	Lab	Lab	Lab						mg/L	mg/L												
SEP-12	5/13/99		5.8	6.94	8.4	1156	1214	735	57		81.0	76	79	148	7.5	239	1	220	97	0.09	0.16	0.4				
SEP-12	8/20/99		5.5	8.15	8.3	902	900	597	476		70.3	62	13	97	7.2	237	1	131	195	69	0.02	0.33				
SEP-12	11/1/99		7.8	8.34	8.5	2060	2070	1316	31	22.1	68.5	100	30	254	12	251	8.4	479	259	0.8	0.8	0.8	0.1	0.1		
SEP-12	11/1/99		9.1	8.36	8.5	2060	2070	1311	30	25.3	53.1	101	29	355	13	253	8.4	459	230	0.78	0.89					
SEP-12	2/14/00		9.6	8.42	8.5	2310	2300	1325	22	16	72.0	111	30	315	13	283	12	588	299	0.9	1.5					
SEP-12	5/10/00		5.7	8.35	8.2	1092	1084	688	64	33.3	80.1	76	17	133	9.3	270	1	223	108	0.71	0.11	0.27	1.4			
SEP-12	8/21/00		5.4	8.25	8.4	930	917	594	418	17	51.6	77	19	95	9.2	266	13	160	85	0.66	0.66					
SEP-12	11/13/00		10.2	8.44	8.3	2060	2040	1367	39	42	53.0	133	35	257	10	314	1	470	243	0.75	1.6					
SEP-12	2/28/01		10.1	8.64	8.1	1180	1152	744	55	57	70.0	67	18	131	8.1	226	1	237	127	0.72	0.52	1.4				
SEP-12	5/17/01		8.7	8.46	8.3	1090	972	697	52	32	78.6	73	18	136	9.8	215	1	308	111	0.75	0.47					
SEP-12	8/1/01		7.4	8.22	8.2	1027	979	601	170	167	32.0	65	16	120	11	205	1	214	100	0.65	0.1	1.4				
SEP-12	11/16/01		10.2	8.26	8.5	1900	1723	1343	15	5.74	17.5	108	28	273	12	278	12	444	249	0.71	0.91					
SEP-12	2/22/02		9.4	8.32	8.3	2600	2350	1708	24	9.9	51.8	113	18	400	11	598	1	521	360	0.84	2					
SEP-12	5/14/02		7.3	6.64	8	971	903	605	175		72.86	61	15	124	9	211	1	188	252	0.72	0.12					
SEP-12	8/22/02		5	8.5	8.2	1064	1065	766	161	53	78.44	61	16	110	6.5	228	1	334	110	0.72	0.43					
SEP-12	12/16/02		7.0		8	2150	2310	1588	31	21.9	54.86	122	32	345	11	307	2	598	366	0.9	1.1					
SEP-13	8/15/97		7	8.47	8.2	854	852	554	305		50.9	61	14	102	8.3	220	1	141	76	0.65	0.38					
SEP-13	11/10/97		6.1	8.42	8.3	1993	1613	1304	38		49.6	107	37	286	9.7	287	1	423	219	0.77	2.1					
SEP-13	2/13/98		8.39	8.4	1394	207	911	911	93		79.0	88	19	299	8	234	7	246	166	0.7	1.5					
SEP-13	5/19/98		7.64	8.68	8.5	1051	1058	621	79		77.0	71	17	129	8.8	198	10	423	166	0.65	0.24					
SEP-13	8/20/98		5.37	8.6	8.4	954	965	671	234		32.0	61	14	111	7.5	223	2	179	80	0.62	0.27					
SEP-13	8/20/98				8.4	954		642	227		68.0	61	14	111	6.9	220	2	177	81	0.62	0.26					
SEP-13	11/18/98		8.8	9.06	8.5	1884	1868	1259	19		57.2	102	24	273	10	366	5	443	238	0.72	1.9					
SEP-13	2/19/99		11.4	7.92	8.3	2090	1581	1169	34		68.7	117	32	340	10	304	1	309	258	0.8	1.4					
SEP-13	5/13/99		5.8	6.89	8.6	1182	1321	735	55		84.0	75	19	140	7.8	249	7	217	99	0.6	0.1	0.1	0.1			
SEP-13	8/20/99		5.5	8.17	8.3	889	880	614	455		70.9	58	12	99	7.1	320	1	182	87	0.66	0.3					
SEP-13	11/1/99		9.7	8.34	8.5	2070	2070	1299	33	22.6	52.7	99	30	263	12	238	10.8	444	240	0.79	0.74	0.1				
SEP-13	2/14/00		8.4	8.42	8.5	2310	2290	1551	17	13.2	52.9	117	31	316	14	277	9.6	41	575	391	0.86	1.5				
SEP-13	2/14/00		8.3	8.42	8.5	2320	2290	1534	17		71.4	113	31	319	14	264	4.4	44	291	0.86	1.5					
SEP-13	5/10/00		5.9	8.38	8.5	1100	1091	684	62	27.1	84.6	78	18	142	9.4	220	3.8	41	311	103	0.71	0.23	1.4			
SEP-13	8/21/00		6	8.16	8.3	931	914	602	427	17.6	79.7	78	18	94	9.2	255	3	172	81	0.63	0.99					
SEP-13	11/1/00		10.5	8.21	8.3	931	916	607	428		51.8	74	18	94	9.3	265	3	178	82	0.65	0.71					
SEP-13	2/28/01		10.4	8.56	8	1201	1177	723	52	38	52.2	106	27	278	10	317	1	434	259	0.82	1.6					
SEP-13	2/28/01		10.6	8.56	8	1201	1176	735	90	51.2	52.2	62	15	129	7.4	207	1	26	140	0.75	0.32	1.4				
SEP-13	5/17/01		8	8.46	8.4	1099	948	704	66	28.3	79.3	70	17	135	9.1	221	1	217	142	0.71	0.69	1.4				
SEP-13	8/1/01		7.4	8.03	8.3	1030	985	687	180	130	33.0	64	16	120	11	217	2.4	244	131	0.71	0.64					
SEP-13	11/16/01		10.4	8.27	8.6	1901	1725	1244	13	5.92	17.4	110	38	273	11	268	19	441	212	0.75	1.1	0.1				
SEP-13	2/22/02		10.5	8.3	8.6	2590	2240	1694	19	7.83	48.55	113	30	398	11	262	12	514	430	0.81	2.4					
SEP-13	5/14/02		7.7	8.59	7.9	976	980	598	120		70.7	63	16	120	8.3	207	1	183	98	0.77	0.32					
SEP-13	8/22/02		5	8.47	8.1	1069	1047	697	139	55	78.05	60	16	138	6.3	220	1	217	272	0.92	1.2					
SEP-13	12/16/02		16		7.8	2400	2400	1608	29	23.3	50.9	125	32	340	15	268	2	541	76	0.92	1.2					
SEP-14	11/12/98			9.33	8.9	272	225	181	50	44	89.5	24	4	22	5	77	10	65	7.6	0.32	0.1	U				
SEP-14	8/1/99		6.4	9.03	7.8	160	165	103	53		87.1	15	27	12	5	51	1	1.1	1.1	0.38	0.09					

Appendix C

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	Lab	SC	TDS	TSS	Turb.	Temp	Ca	Mg	Na	K	LiCO ₃	CO ₂	SO ₄	Cl	F	N
		ft	mg/l			unbar/cm	mg/l	mg/l	NTU	oF	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
SEP-14	8/21/00		5.9	8.33	7.7	182	116	49	5.8	55.8	12	3	16	2.6	54	1	U	33		0.24
SEP-14	11/14/00		10.2	8.43	7.6	152	116	51	6.11	55.8	15	3.9	8.9	3.5	59	1	U	30	3.7	0.16
SEP-14	11/14/00		10.2	8.36	7.8	151	148	43		50.9	14	2.7	8.2	3	93	1	U	20	4.8	0.16
SEP-14	6/27/01		4.6	6.79	6.8	306	300	71	48.2	51.1	23	4.5	26	7.7	51	1	U	75	9.2	0.15
SEP-14	6/27/01		4.7	6.81	6.5	308	3400	75	49.7	32.0	24	4.8	26	7.0	61	1	U	72	9.6	0.15
SEP-2	8/15/97		6.25	8.4	8.3	842	830	180		53.2	61	14	102	8.2	210	1	U	131	75	0.64
SEP-2	11/10/97		6.48	8.39	8.3	1950	1643	25		30.9	104	25	277	7.7	271	1	U	415	248	0.73
SEP-2	2/13/98			8.38	8.4	1440	1618	95		81.0	84	18	217	7.5	231	7	U	235	171	0.69
SEP-2	5/19/98		7.15	8.83	8.5	1068	1071	92		86.0	72	17	128	8.4	192	9	U	233	129	0.66
SEP-2	8/18/98		6.33	8.6	8.7	966	854	202		67.5	65	15	116	9.3	206	11	U	204	84	0.63
SEP-2	11/18/98		8.4	8.46	8.5	1977	1865	20		55.9	102	24	275	12	264	5	U	294	214	0.72
SEP-2	2/19/99		9.4	8.48	8.3	2080	1576	31		54.1	115	33	299	18	295	1	U	294	237	0.79
SEP-2	2/19/99		9.8	8.5	8.3	2070	1571	33		71.4	113	30	330	16	293	1	U	246	247	0.8
SEP-2	5/13/99		6	7.04	8.4	1179	1116	61		75.1	77	19	140	7.7	237	5	U	226	65	0.72
SEP-2	8/20/99		5.9	8.12	8.3	887	887	339		70.5	58	12	97	7	234	1	U	185	77	0.64
SEP-2	11/1/99		10.2	8.32	8.5	2110	2120	36	26.9	55.0	103	30	291	11	219	8.1	U	510	244	0.82
SEP-2	2/14/00		10.2	8.46	8.5	2130	2280	24	11	72.5	119	31	315	13	275	12	U	593	297	0.85
SEP-2	5/1/00		5.2	8.38	8.3	1086	1084	74	24.2	80.2	77	17	111	2.5	220	1	U	211	103	0.72
SEP-2	8/21/00		5.4	8.25	8.3	931	911	426	17.8	52.9	75	19	91	8.4	372	13	U	184	87	0.69
SEP-2	11/15/00		10.4	8.53	7.9	2070	2040	1103	17.5	51.4	103	30	261	11	342	1	U	443	210	0.82
SEP-2	7/28/01		10	8.65	8	1176	1147	116	64	73.0	72	17	1-2	8.5	232	1	U	244	136	0.72
SEP-2	5/17/01		9	8.44	8.3	1090	1090	116	27	72.2	71	17	125	9.9	207	1	U	215	180	0.74
SEP-2	5/17/01		9	8.43	8.4	1090	1012	691	27	80.4	71	17	130	9.1	212	2.4	U	210	116	0.71
SEP-2	7/21/01		7.5	8.14	8.1	948	1030	254	210	72.0	57	15	119	7.9	270	1	U	191	92	0.69
SEP-2	11/1/01		8.9	8.22	8.5	1908	1734	1250	7.69	16.1	111	28	269	12	268	12	U	441	233	0.74
SEP-2	2/22/02		10.4	8.39	8.6	2600	2140	1722	8.81	50	115	30	413	11	261	19	U	533	401	0.86
SEP-2	5/14/02		7.7	8.64	8	966	1006	155		76.32	63	12	123	9.9	309	1	U	174	86	0.77
SEP-2	5/14/02		7.8	8.65	8	970	1006	130		76.28	63	16	123	9.4	313	1	U	188	93	0.77
SEP-2	8/22/02		4.9	8.53	7.9	1064	1059	152	55	82.04	60	16	129	6.5	223	1	U	201	92	0.76
SEP-2	8/22/02		4.7	8.52	8.2	1064	1051	157		81.86	61	16	128	6.4	228	1	U	210	100	0.77
SEP-2	12/16/02		8.7		7.9	2140	2230	1591	20.7	61.7	134	33	317	15	300	2	U	187	328	0.9
SEP-2	12/16/02		8.5		7.9	2130	2230	1558		60.8	132	33	329	13	301	2	U	541	294	0.97
SEP-3	8/18/97		5.33	8.23	8.4	959	946	229		70.3	66	15	124	8.2	205	2	U	182	82	0.36
SEP-3	11/19/97		12.4	7.8	7.6	5250	6200	14		68.9	235	94	943	53	239	1	U	1839	597	2.1
SEP-3	2/13/98			7.84	8.1	5410	1054	21		80.6	216	89	965	54	342	1	U	1832	679	1.8
SEP-3	5/20/98		6.65	8.76	8.2	1092	967	98		82.8	70	17	126	8.1	218	1	U	226	107	0.98
SEP-3	8/11/98		6.44	8.45	8.5	977	986	210		32.0	62	11	112	7.5	217	7	U	300	79	0.84
SEP-3	8/11/98			8.5	8.5	976	654	218		77.9	63	14	113	7	214	5	U	195	84	0.64
SEP-3	5/12/99		5	7.77	9.4	1168	1319	83		77.9	73	18	140	7.5	224	13	U	312	98	0.71
SEP-3	5/12/99		3.6	7.77	9.5	1175	1285	90		77.2	74	19	140	7.6	227	13	U	310	101	0.7
SEP-3	8/20/99		5.6	8.72	8.3	915	52	322		63.8	60	12	103	7.1	251	1	U	197	76	0.64
SEP-3	11/1/99		6.2	8.19	8.4	1826	1889	31	17.2	55.4	104	25	223	11	271	1	U	417	188	0.73
SEP-3	12/1/00		7.2	8.29	8.3	1400	1355	61	14	70.0	91	21	103	8.6	240	1	U	235	100	0.7
SEP-3	5/9/00		6.4	8.5	8.5	1123	1096	103	25	83.7	85	18	108	9.5	226	1	U	235	115	0.73

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT	DO	pH	Lab	SC	TDS	TSS	Turb.	Temp	C ₂	MR	Na	K	CaCO ₃	CO ₃	SO ₄	Cl	F	N
		lb	mg/l			unab./m	mg/l	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
SEP-3	8/1/00		6	8.35	8.6	987	651	240	25	51.5	71	16	102	9.3	221	11	208	76	0.38	11.03
SEP-3	11/10/00		8.1	8.2	8.2	1784	1208	294	28	63.5	113	39	225	11	342	1	335	225	14	0.7
SEP-3	2/23/01		7.3	8.53	8.5	1339	830	96	40	71.4	73	16	156	8.6	224	7	245	103	0.74	1.2
SEP-3	5/16/01		8.6	8.52	8.3	1001	915	238	51	81.3	67	16	124	9.7	311	1	225	106	0.69	0.51
SEP-3	8/1/01		7.9	8.21	8.2	1046	891	144	157	80.6	63	16	124	10	220	1	194	106	0.68	0.36
SEP-3	8/1/01		7.9	8.2	8.2	1045	894	187	152	75.9	64	16	125	11	314	1	212	104	0.7	0.56
SEP-3	11/16/01		8.6	8.03	8.6	1935	1758	1261	6.23	14.7	108	26	273	11	271	17	421	281	0.7	2.4
SEP-3	2/7/02		10.6	8.42	8.6	2160	2430	1523	6.54	61.15	105	26	302	12	268	12	329	490	0.8	1
SEP-3	5/13/02		6.7	8.61	7.8	1004	1032	603	30	72.85	62	16	119	9.2	215	1	197	99	0.78	0.13
SEP-3	8/21/02		4.9	8.6	7.7	1066	1061	175	55	85.45	60	16	131	9.2	226	1	203	103	0.75	0.47
SEP-3	11/13/02		8.1	8.51	7.9	1958	1610	1270	9.3	60.44	113	37	251	9.3	346	1	457	260	0.82	2.2
SEP-4	8/1/02		6.37	8.54	8.4	858	855	321	212	50.0	62	14	141	8.7	212	2	149	74	0.68	0.19
SEP-4	11/10/02		6.75	8.39	7.9	1952	1595	1289	9.3	45.7	107	26	275	8	299	1	424	219	0.77	1.7
SEP-4	2/13/03		7.37	8.41	8.4	1388	1977	100	100	78.3	86	19	303	8	335	7	206	100	0.7	1.3
SEP-4	5/19/03		7.37	8.36	8.4	1054	1060	82	82	78.3	72	17	120	8.7	192	8	217	100	0.68	0.33
SEP-4	8/20/03		5.99	8.58	8.4	954	960	642	98	65.7	60	14	111	7.8	222	2	176	52	0.62	0.27
SEP-4	11/18/03		8	7.71	8.5	1893	1879	1272	25	58.1	105	25	282	12	266	5	418	234	0.72	1.9
SEP-4	2/19/04		10.2	8.28	8.3	2100	1641	1116	24	65.7	115	31	210	16	266	1	288	217	0.72	1.3
SEP-4	5/13/04		5.6	8.34	8.5	1194	1279	776	55	82.6	76	20	140	7.1	270	7	239	97	0.7	0.1
SEP-4	8/20/04		6.1	8.17	8.6	898	896	475	78	88.2	59	12	98	7.1	218	16	143	74	0.62	0.34
SEP-4	11/1/04		10.2	8.37	8.4	2120	2390	33	50.5	50.0	96	29	263	12	246	1	450	217	0.8	0.81
SEP-4	2/14/05		10.9	8.65	8.4	3440	2160	1571	15	57.1	115	22	314	13	270	72	301	115	0.95	1.7
SEP-4	5/10/05		6.4	8.31	8.3	1122	1130	519	38	80.1	78	18	146	0.7	227	1	223	113	0.72	0.24
SEP-4	8/21/05		5.6	7.95	8.3	938	922	617	18	50.4	85	21	101	11	271	13	181	81	0.64	0.6
SEP-4	11/15/05		9.6	8.24	8.2	2160	2130	1448	40	50.5	113	28	387	11	230	1	402	247	0.81	1.3
SEP-4	2/24/06		9.3	8.34	7.9	1226	1210	777	56.8	66.0	63	16	132	7.3	220	1	245	141	0.76	0.67
SEP-4	5/17/06		8	8.31	8.3	1166	913	705	29.3	88.3	71	17	136	9.9	220	1	245	116	0.75	0.54
SEP-4	8/17/06		10.1	8.5	8.1	1047	1102	652	114	33.0	61	16	128	7.5	220	1	217	110	0.72	0.15
SEP-4	11/15/01		11	8.32	8.7	1912	1712	1246	6.58	17	112	38	370	11	354	19	314	243	0.75	1.2
SEP-4	2/22/02		9.8	7.83	8.4	2580	2180	1700	8.8	46.4	112	30	391	11	285	7	321	185	0.84	2.6
SEP-4	2/22/02		10.4	8.21	8.4	2570	2170	1690	11.4	46.4	114	31	384	11	287	4.8	315	116	0.84	2.3
SEP-4	5/14/02		8.4	6.49	8	584	1028	607	138	74.12	62	16	128	9	210	1	190	40	0.8	0.12
SEP-4	8/22/02		5.1	8.18	8	1080	1092	691	144	49.28	125	35	376	16	303	2	341	113	0.77	0.51
SEP-4	12/16/02		1.19		7.8	2300	2540	1684	57	43.7	144	16	124	6.7	213	1	211	113	0.77	0.51
SEP-6	8/18/97		5.33	8.28	8.4	961	949	178	188	75.3	63	15	121	8.3	207	2	76	85	0.66	0.76
SEP-6	8/20/99		5.4	8.24	8.2	915	914	566	521	78.8	59	12	102	7.2	230	1	191	73	0.66	0.57
SEP-6	8/20/99		5.4	8.25	8.6	915	914	594	114	64.6	61	12	102	7.1	214	13	488	70	0.60	0.37
SEP-6	11/1/00		7.2	8.14	8.2	1412	1372	861	16.8	54.7	107	27	215	11	271	1	416	215	0.73	1.1
SEP-6	5/9/00		6.2	8.52	8.3	1122	1104	703	25	79.9	88	21	193	8.4	228	1	242	102	0.71	1.4
SEP-6	8/14/00		6.3	8.51	8.3	1124	1106	700	108	78.3	80	18	146	9.8	236	1	210	98	0.72	0.59
SEP-6	5/9/00		6.3	8.51	8.3	1124	1106	700	108	78.3	80	18	146	9.8	236	1	210	98	0.72	0.59
SEP-6	8/14/00		5.5	8.16	8.6	987	869	630	25	82.2	78	15	101	9.1	223	11	188	71	0.68	0.63
SEP-6	11/10/00		7.9	8.19	8.2	1880	1777	1275	29	60.8	106	27	221	10	314	1	360	204	0.7	2.3
SEP-6	2/21/01		7.6	8.52	8.4	1338	1406	836	40	61.5	72	16	155	8.4	234	4.8	216	158	0.74	1.2

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)

Phase IV RI

El Paso Asarco Smelter

Sample ID	Date	WT ft	DO mg/l	pH		SC		TDS mg/l	TSS mg/l	Turb NTU	Temp °F	DISSOLVED						CO ₃ mg/l	HCO ₃ mg/l	K mg/l	Na mg/l	Mg mg/l	Ca mg/l	Cu mg/l	Cd mg/l	SO ₄ mg/l	Cl mg/l	F mg/l	N mg/l
				Field	Lab	unlab/cu	Lab					Cu	Mg	Na	K														
SEP-6	2/23/01		7.8	8.6	8.4	1333	1400	94			71.8					234		8.4	155	16	71					245	160	0.72	1.2
SEP-6	5/16/01		8.3	8.47	8.2	1000	916	191	56	80.4						207		9.9	135	17	71					218	108	0.97	0.64
SEP-6	8/1/01		7.7	8.16	8.2	1045	991	182	137	77.5						214		9.5	124	16	64					212	105	0.68	0.55
SEP-6	11/16/01		8	8.11	8.6	1933	1763	1266	23	7.1	14.9	110				262		11	275	26	110					438	260	0.71	2.3
SEP-6	2/22/02		10.7	8.51	8.7	2370	2410	1538	20	6.6	60.8	102				232		11	353	27	102					504	388	0.81	1.8
SEP-6	5/13/02		7.2	8.67	7.9	1005	595	604	34	69.08	63					212		9.2	130	16	63					205	97	0.77	0.38
SEP-6	8/21/02		5.2	8.36	8	1063	1071	679	182	53	85.1	60				226		6.4	132	16	60					202	92	0.74	0.64
SEP-6	8/21/02		5.2	8.35	8	1064	1070	678	153		85.28	60				230		6.6	135	16	60					203	102	0.75	0.46
SEP-6	11/13/02		8.5	8.3	8.1	1960	1620	1289	17	9.3	60.62	113				205		9.2	257	27	113					460	255	0.81	2.1
SEP-6	11/13/02		8.4	8.27	7.9	1963	1620	1269	17		60.62	114				296		11	268	27	114					470	265	0.79	3
SEP-7	8/18/97		4.97	8.35	8.4	896	896	494	257		61.3	66				210		8	115	15	66					137	75	0.66	0.37
SEP-7	11/10/97		6.96	8.16	8.3	1924	1796	1290	38		58.6	100				275		12	272	24	100					412	249	0.72	2.7
SEP-7	2/13/98			8.49	8.5	1479	249	559	47		78.8	83				304		7.9	232	18	83					285	178	0.71	3
SEP-7	5/20/98		6.5	8.79	8.2	1083	963	649	102		88.0	76				224		7	124	17	76					224	103	0.66	0.21
SEP-7	8/11/98		6.47	8.45	8.5	976	974	622	209		66.6	65				214		6	117	14	65					195	85	0.64	0.32
SEP-7	11/18/98		8.4	8.25	8.4	1899	1892	1269	12		65.5	106				253		12	262	24	106					441	249	0.74	2.6
SEP-7	2/19/99		16.5	8.41	8.3	2100	1775	1351	17		77.2	132				280		14	315	27	132					325	241	0.83	1.5
SEP-7	5/12/99		5.2	7.54	8.3	1158	1310	698	93		75.9	77				281		10	140	20	77					101	207	0.7	0.13
SEP-7	8/20/99		5.8	8.14	8.4	894	896	603	565		58.5	50				217		7.3	101	12	50					166	64	0.64	0.52
SEP-7	11/1/99		7	8.15	8.3	1800	1836	1133	31		54.5	92				272		9.6	193	23	92					179	224	0.7	0.9
SEP-7	1/31/00		7.7	8.36	8.3	1402	1366	849	67		77.4	88				239		7.6	190	19	88					248	185	0.71	1.3
SEP-7	5/9/00		7.4	7.76	8.4	1108	1093	697	106		83.8	86				215		9.6	162	19	86					326	100	0.71	0.41
SEP-7	8/14/00		5.7	8.41	8.6	956	892	603	286		51.6	72				229		9.1	100	12	72					187	78	0.69	0.53
SEP-7	11/10/00		8.1	7.49	8.2	1771	1612	1202	311		61.7	114				142		12	218	22	114					262	268	0.68	1.7
SEP-7	2/22/01		7.3	8.56	8.4	1338	1386	835	88		70.2	74				237		8.5	161	17	74					225	103	0.72	1.2
SEP-7	5/16/01		8.7	8.53	8.2	996	859	629	214		70.2	69				210		10	126	16	69					231	117	0.71	0.89
SEP-7	5/16/01		8.2	8.52	8.3	1000	898	637	223		51.6	68				203		9.7	123	16	68					235	103	0.69	0.62
SEP-7	7/6/01		9.1	8.38	8.2	1045	1083	860	166		78.8	61				207		7.7	128	16	61					199	103	0.67	0.21
SEP-7	11/16/01		7.7	7.97	8.6	1930	1758	1272	23		14.7	110				256		11	287	27	110					434	263	0.72	2.4
SEP-7	11/16/01		7.8	7.98	8.5	1935	1749	1251	23		14.7	108				254		11	282	26	108					433	264	0.75	2.1
SEP-7	2/22/02		9.1	8.25	8.6	2360	2410	1522	15		60.62	103				246		11	347	27	103					506	123	0.81	1.4
SEP-7	5/13/02		7.6	8.54	7.8	1000	1006	627	161		69.8	61				212		7.9	118	15	61					302	55	0.79	0.18
SEP-7	8/21/02		4.9	8.57	7.7	1063	1061	691	168		84.74	61				207		6.4	133	16	61					226	95	0.78	0.37
SEP-7	11/13/02		8.2	8.22	8	1960	1630	1249	17		61.16	113				307		9.4	232	27	113					270	270	0.82	1.9
SEP-7	8/18/97		5.26	7.49	8.3	958	969	677	11		80.1	65				217		8.2	121	15	65					190	85	0.67	0.62
SEP-9	8/15/97		6.14	8.23	8.3	1133	1108	730	223		60.3	64				212		9.5	155	15	64					203	116	0.68	2.3
SEP-9	11/10/97		5.6	8.14	8.2	1886	1771	1235	16		62.6	99				254		10	385	23	99					401	248	0.72	1.7
SEP-9	2/13/98			8.18	8.2	1550	278	1030	44		81.0	71				200		8.9	272	15	71					286	266	0.7	6.5
SEP-9	5/19/98		7.38	8.49	8.3	1273	1082	797	80		78.8	71				195		8.7	173	16	71					262	150	0.7	2.4
SEP-9	8/18/98		5.61	8.26	8.5	1142	1166	712	169		70.0	67				214		10	154	15	67					236	115	0.68	2.5
SEP-9	11/18/98		7.8	8.35	8.2	1950	1908	1298	15		84.9	83				227		12	310	19	83					312	172	0.77	5.5
SEP-9	2/19/99		10.9	8.31	8.1	2050	1763	1342	14		78.6	86				226		14	323	20	86					311	261	0.8	5
SEP-9	5/12/99		3.7	7.65	8.4	1136	1103	639	70		79.3	74				227		9.6	140	19	74					221	97	0.71	0.1
SEP-9	8/20/99		5.6	7.92	8.3	1303	1201	836	485		55.8	63				216		8.5	176	13	63					268	150	0.74	2.5

Appendix G

Cumulative List of Groundwater and Surface Water Quality Results (General Chemistry)
Phase IV RI
El Paso Asarco Smelter

Sample ID	Date	WT	DO	PH	SC	TDS	TSS	Turb.	Temp	Cu	Al	Na	K	11CO3	CO3	SO4	Cl	F	N
		ft	mg/l	unit	Lab	unbekm	mg/l	NTU	°F	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
SEP-9	11/1/99		7.6	7.8	8.3	1804	1846	12.7	52.3	96	24	204	10	282	1	381	21	0.71	1.4
SEP-9	5/14/00		6.1	8.03	8.1	2120	2050	5	70.9	100	23	58	13	246	1	344	18	0.81	2.7
SEP-9	5/10/00		5.5	7.19	8	1446	1465	19.8	83.1	74	16	224	10	220	1	237	14	0.79	3.5
SEP-9	6/21/00		5.4	7.84	8.2	1264	1242	17	59.5	67	15	155	8.1	227	1	236	145	0.75	1.8
SEP-9	11/15/00		7.2	8.32	7.9	1960	1919	11.8	54.0	87	19	268	9.8	259	1	348	245	0.8	3.4
SEP-9	2/28/01		8.4	7.88	7.9	1375	1346	60.5	77.9	72	16	195	9.4	307	1	276	173	0.75	3.4
SEP-9	5/17/01		8.5	8.15	8.1	1400	1479	28.6	88.7	71	17	203	12	217	1	300	206	0.81	3.2
SEP-9	7/31/01		8.7	8.35	8.2	1143	1176	84.5	32.0	69	17	145	8.6	215	1	245	110	0.72	0.85
SEP-9	11/15/01		7	8.06	8.5	2100	1916	7.2	16.8	103	24	323	12	240	10	461	357	0.77	4.9
SEP-9	2/22/02		8.8	8.26	8.4	2160	2280	6.9	55.94	97	24	343	11	234	4.8	505	372	0.81	4.4
SEP-9	5/14/02		7.2	8.56	7.9	1460	1524	114	75.2	71	18	225	12	315	1	271	169	0.8	1.5
SEP-9	8/22/02		5.1	8.53	8	1315	1306	55	80.96	61	15	170	7.1	220	1	225	141	0.84	2.1
SEP-9	12/16/02		6.7		8	2030	23	9.98	58.82	106	24	291	14	289	2	387	305	0.84	2.8

Notes:

- 1 The associated numerical value is an estimated quantity because quality control criteria were not met
- 2 Calibration range exceeded or significant deviation from known values. Possible bias.
- 3 Holding time not met. Indicates low bias.
- 4 Other QC outside control limits

U Undetected. Below method detection limits.

U3 The material was analyzed for, but was not detected above the associated value.

U31 Blank contamination. Indicates possible high bias and/or false positive.

U32 Calibration range exceeded or significant deviation from known value.

U33 Holding times not met. Indicates low bias.

U34 Other QC outside control limits.

R Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis is necessary for verification.

A Anomalous data. No apparent explanation for discrepancy in data. (Not an EPA code)

Dis Dissolved Metals

T Total Metals

WT Water Table Depth

APPENDIX G

APPENDIX H

APPENDIX H

CUMULATIVE LIST OF SURFACE WATER AND GROUNDWATER QUALITY RESULTS (METALS CHEMISTRY)

Appendix II

Cumulative List of Groundwater and Surface Water Quality Results

Phase IV RI

El Paso Asarco Smelter

Sample ID	Sample Date	As Dis mg/l	At T mg/l	Cd Dis mg/l	Cd T mg/l	Cu Dis mg/l	Cu T mg/l	Pb Dis mg/l	Pb T mg/l	Se Dis mg/l	Se T mg/l	Zn Dis mg/l	Zn T mg/l
EM-1	8/13/97	0.011											
EM-1	11/17/97	0.007											
EM-1	2/19/98	0.056											
EM-1	5/12/98	0.005											
EM-1	8/20/98	0.001											
EM-1	11/18/98	0.007											
EM-1	2/24/99	0.005											
EM-1	5/12/99	0.005											
EM-1	8/1/99	0.005											
EM-1	10/30/99												
EM-1	1/31/00												
EM-1	5/4/00												
EM-1	8/16/00												
EM-1	11/14/00												
EM-1	2/22/01												
EM-1	2/22/01												
EM-1	5/16/01												
EM-1	7/1/01	0.005											
EM-1	7/1/01	0.005											
EM-1	11/19/01	0.005											
EM-1	11/19/01	0.007											
EM-1	2/27/02	0.005											
EM-1	5/10/02	0.005											
EM-1	8/21/02	0.006											
EM-1	11/14/02												
EM-2	8/11/97												
EM-2	8/26/97	0.84											
EM-2	11/17/97	0.57											
EM-2	2/17/98	0.55											
EM-2	5/18/98	0.58											
EM-2	8/13/98	0.68											
EM-2	11/11/98	0.54											
EM-2	2/22/99	0.45											
EM-2	5/10/99	0.85											
EM-2	8/6/99	2.1											
EM-2	10/29/99												
EM-2	1/25/00												
EM-2	4/26/00												
EM-2	8/3/00	0.68											
EM-2	11/1/00	0.56											
EM-2	2/9/01	0.57											
EM-2	5/8/01	0.83											
EM-2	5/8/01	0.88											
EM-2	7/18/01	0.99											
EM-2	10/31/01	0.39											
EM-2	2/7/02	0.52											
EM-2	5/1/02	0.45											
EM-2	8/7/02	0.68											
EM-2	11/5/02	0.17											
EM-2	11/5/02	0.47											